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August 29, 2002

Mr. Gilbert R. Ward, C.P.G.  
Texas Water Development Board  
170 North Congress Avenue  
Austin, Texas 78711-3231

RE: Final Brazoria County Master Drainage Plan Report  
Contract No. 99-483-318  
Klotz Associates Project No. 25903

Dear Mr. Ward:

Klotz Associates and Baker & Lawson would like to submit the attached Final Brazoria County Master Drainage Plan Report. Copies of this report have also been submitted to Mr. Gerald Roberts at Brazoria County.

This report represents the culmination of efforts by Brazoria County, the Texas Water Development Board, the seven drainage districts, from several cities and from the public who submitted thoughts and comments throughout the development of the report. The report contains the text, tables and exhibits to the report. The Technical Appendix (Volume 2) that contains the Hec-1 and Hec-2 models.

Brazoria County is a developing county which is situated along the Texas coast, experiences heavy rainfall from tropical storms and hurricanes, is generally flat in topography and is influenced by tides and hurricane surge. The plan has brought together the efforts of the County and Drainage Districts to identify problem areas and provide solutions to some of the challenges associated with drainage that could be constructed or sponsored within the financial basis of each.

There were few available computer models available for use on the watersheds in Brazoria county prior to this study. This report provides computer hydrologic and hydraulic for much of the watersheds in Brazoria County and those models are included in the attached CD in the report. We identified the location of bridge or structures crossing some channels that were not reflected in the previous modeling. Most of the computer models indicate a need for a complete remapping of the Brazoria County flood plain maps by FEMA. A needed survey bench mark loop was also prepared to be utilized in future survey in the County. The items mentioned in this paragraph are significant in nature and will provide the basis for the County, Drainage District, City or others to evaluate more effectively the possible effects to improvements, changes in the watershed, development or many other items.


We appreciate the opportunity to be of assistance to Brazoria County and to the Texas Water Development Board on this important project. If you have any questions please call me at (281) 589-7257.

KLOTZ  
ASSOCIATES,  
INC.  
CONSULTING  
ENGINEERS

Mr. Gilbert Ward, P.E.  
August 29, 2002

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Sincerely,



Gary L. Struzick, P.E.  
Vice President – Chief Engineer



**FINAL**  
**BRAZORIA COUNTY**  
**MASTER DRAINAGE PLAN**

**Klotz Associates Project No. 25903**  
**Baker & Lawson, Inc. Project No. 6720**

Prepared by

**Klotz Associates, Inc.**  
**Consulting Engineers**

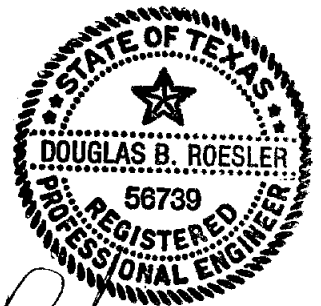
and

**Baker & Lawson, Inc.**

August 2002



*Gary Lee Struzick*  
8-29-02



*DR*  
8-29-02

## BRAZORIA COUNTY MASTER DRAINAGE PLAN

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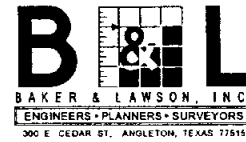
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- Appendix F Hydrologic and Hydraulic Models
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KLOTZ  
ASSOCIATES,  
INC.

CONSULTING  
ENGINEERS



## CONTENT OF CD

TEXT

TABLES

EXHIBITS

HEC-1 & HEC-2 MODELS

SELECTED FIELD PHOTOS

## EXECUTIVE SUMMARY

Klotz Associates, Inc. and Baker & Lawson, Inc. were authorized to prepare a Master Drainage Plan for Brazoria County. The scope of this plan was to gather previous information regarding the study, analysis, development, and operation of drainage systems within Brazoria County, review and evaluate the data and reports, and develop a Master Drainage Plan and the applicable cost estimates for the proposed improvements. The Master Drainage Plan is presented in five sections: Introduction, Background Consideration, Master Drainage Plan, Coordination Between Drainage Districts, and Summary and Recommendations. The plan focuses on each of the eighteen watersheds in the County. However, the operation and coordination by each of the Drainage Districts within the County was also considered.

This Master Drainage Plan was made possible through funds provided from Brazoria County Commissioners Court and through a grant from the Texas Water Development Board. This Master Drainage Plan was developed to provide the County and the seven Drainage Districts with a plan that was watershed based and was affordable by the applicable Drainage District.

Representatives of Brazoria County, the Texas Water Development Board, Brazoria County Commissioners and the seven Drainage Districts all worked together to provide input into this Master Drainage Plan. This Master Drainage Plan does not propose improvements that would completely eliminate flooding during the 100 year rainfall event. Such improvements would greatly exceed the funding capacity of the Drainage Districts and the County. This report and the accompanying hydrologic and hydraulic models are tools which the County and Drainage Districts can use to determine the effects of proposed developments or drainage improvements with the watersheds. Recommendations of improvements that helped the watershed while within the agreed upon budget for each Drainage District are provided.

Brazoria County is located in southeastern Texas. The county contains approximately 1597 square miles with a population of 227,523 people. The County is bounded on the west by Wharton County and Matagorda County, north by Fort Bend County and Harris County, east by Galveston County, and southeast by the Gulf of Mexico. In order to estimate the local inflow and drainage area, the borders of some watersheds are slightly over the County lines such as those of the Mustang Bayou, Chocolate Bayou, Halls Bayou and Oyster Bayou, etc. The Brazos River and the San Bernard River both extend a considerable distance and area outside the county. The County has seen considerable residential, retail and light industrial development. During this time, a wide variety of entities have been involved in the regulation, study, and development of drainage controls. As a result, a wide variety of drainage issues have been encountered. Some of the previous identified drainage problems have been resolved and some of these problems, although studied and presented, still remain to be resolved.

The county is experiencing an increase in development and in population. The population increased approximately 19 percent between 1990 and 1998. Additional developments and population increases have been experienced since 1998. The northern areas of Brazoria County near the 288 parkway and the Sam Houston Tollway have experienced significant growth in recent years. The development and population increases are anticipated to increase in the next few years and possibly beyond. The relative location to Houston plus economical land prices combined with relatively good roadway access and proximity to the Gulf of Mexico all indicate that population increases should continue to occur in Brazoria County.

Drainage controls in and around Brazoria County include most every type of drainage structure currently used in the practice of storm water management. The variety of storm water controls is partially the result of the pattern of development. Decisions made by the entities controlling each area of development have also influenced the complexity of the overall drainage system. Both the pattern of development and decisions on types of controls installed have been primarily influenced by topography and economics. Given these factors, aside from their fundamental difference in geographic location, each watershed in Brazoria County has a unique set of challenges. This report addresses the individual watersheds with summaries provided when necessary to describe the study area as a whole.

Eighteen (18) different watersheds were identified within the limits of Brazoria County. The watersheds within the limits of Brazoria County include: Austin Bayou, Bastrop Bayou, Big Slough, Brazos River, Cedar Lake Creek, Chocolate Bayou, Clear Creek, Coastal, Dickinson Bayou, Flores Bayou, Halls Bayou, Linville Bayou, Mustang Bayou, New Bayou, Oyster Bayou, Salt Bayou, San Bernard River, and Wharton Bayou.

In this report, many of the watersheds were studied based on detailed hydrologic and hydraulic analysis using HEC-1 and HEC-2 models, respectively. The models were obtained from either FEMA, Brazoria County files or previous study reports. Drainage area maps were prepared for the watersheds. The hydrology was updated for many of the watersheds since updated drainage areas were determined and because the HEC-1 program was utilized to produce updated hydrologic analysis. The updated hydrology included: updated development conditions, constructed changes to the watersheds and other physical elements. This updated hydrologic analysis generally produced higher flows for most of the watersheds when compared to the FEMA reports. Some areas did experience reduced flows. Listed below is a very general summary of the changes determined from these updated hydrologic analyses by watershed. See the specifics for each watershed and associated tables:

<u>Name of Watershed</u>	<u>Change in Drainage area</u>	<u>Approx. 100 yr. Change in flows</u>	<u>Approx. 100yr. Elev. change</u>
Austin Bayou	+4 square miles	+ 4400 cfs	+1 to 4'
Bastrop Bayou	+23 square miles	+17000cfs	+3 to -2'
Big Slough	No changes	No changes	No changes
Brazos River	No changes	No changes	+2 to -0.4'**
Cedar Lake Creek	No changes	No changes	No changes
Chocolate Bayou	-3.5 square miles	+2000 cfs	+1.5 to -0.6'
Clear Creek	No changes	No changes	See report
Coastal	Not available	Not available	No changes
Dickinson Bayou	No changes	No changes	See report
Flores Bayou	+5.5 square miles	+1000 cfs	+2.1 to -2.7'
Halls Bayou	+2.5 square miles	+4000 cfs	+4 to -0.4'
Linville Bayou	No changes	No changes	No changes
Mustang Bayou	-0.5 square miles	+600 cfs	+2.5 to -0.5'
New Bayou	-1.5 square miles	+400 cfs	+3' to -4'
Oyster Creek *	Previous Drainage Area not available	Increases & decreases	See tables +3 to -5'
Salt Bayou	No changes	No changes	No changes
San Bernard River	No Changes	No changes	-0.1'**
Wharton Bayou	No changes	No changes	No changes

\*Note for Oyster Creek -- This creek has experienced major drainage area changes when comparing the previous FEMA flows from the FEMA report to the new flows. A complete Oyster Creek diversion has been constructed in Fort Bend County and directs the Oyster Creek flows to the Brazos River.

\*\* Note these changes are due to using an updated version of the HEC-2 program.

Updated hydraulic models were prepared for most of the watersheds. After revising the models using new survey sections provided by Baker & Lawson, Inc., and the BRINSAP data obtained from TXDOT, plus updated flows the models were used to perform analysis for the existing condition. Available digital aerials (DOQQ's) were utilized to review the watershed, and location of existing bridge structures crossing the bayous were determined. Most of these structures were surveyed when access to the structures could be obtained. The updated hydraulic models were prepared using the HEC-2 program. The updated hydraulic models generally produced slightly higher water surface elevations. Some models produced lower water surface elevations. Proposed drainage alternatives based on updated hydrologic and hydraulic models and the estimated costs are also given for such watersheds. For those watersheds without sufficient information, the current and potential drainage problems are mentioned and the conceptual recommendations are given.

Section 1, Introduction, discusses more general countywide issues and the source of the data. Section 2, Background Considerations, reviews the development of the base map, land use, hydrologic parameters, and drainage areas. The Master Drainage Plan in Section 3 discusses the hydrologic and hydraulic methodologies used for analysis and specifics of the existing drainage systems by watershed and the needed drainage improvements. In Section 4, the operation and coordination of the Drainage Districts is briefly discussed and the suggestions to each District are addressed. Section 5 summarizes the drainage problems and recommendations, and provides further considerations.

This Master Drainage Plan identified areas where improvements are needed to allow for protection of the public and to plan for future development in the watersheds without increasing the flooding potential. If each of the entities listed above could share in some or much of the drainage improvements to these watersheds, and the County and Drainage Districts could evaluate their current improvement program and develop specific plans, with the applicable entities, then a long term plan and schedule can be created. This would provide for future development without increasing flooding.

This report development included gathering available data, reviewing drainage areas, obtaining GIS data from the County, reviewing digital and regular aerial photographs, determining areas to survey, review of the assembled data by the seven Drainage Districts and by the County, conducting the identified surveying, preparing digital hydrologic and hydraulic models from the hard copy versions, updating the models using the survey data, conducting public meetings, meeting with the drainage districts, identifying problem areas within the watersheds, reviewing the available drainage district budgets, developing a plan for the County, obtaining comments from the Drainage Districts and the Texas Water Development Board of the plan, incorporating applicable changes to the plan and producing the final Master Plan Report.



For some portions of Brazoria County updated hydrologic and or hydraulic models had been prepared along with recommended solutions. These watersheds include Clear Creek (plus the Pearland area) plus Dickinson Bayou. For these areas the recent work and reports were referenced. These areas were not reevaluated as preferred by the Drainage Districts. In addition some drainage districts had drainage or improvement analysis or plans for their district. These Districts include the C & R Drainage District #3 and the Velasco Drainage District. For these areas the plans and analysis was reviewed and referenced. Most of the previous plans developed for a specific watershed are still recommended for implementation.

Brazoria County provided a substantial amount of base drawing data from their Geographic Information System (GIS). This information included street or roadway alignments, locations of cities, developments and locations of streams and repetitive loss structures. This base GIS data was utilized in the preparation of this plan. The repetitive loss information was utilized in helping to locate potential drainage problem areas. We then added the boundaries of the seven drainage districts to the base data. We then developed drainage areas and added them to the overall GIS data. Input to this base map data, drainage areas, drainage district boundaries and other information was obtained by meeting on a monthly basis with the drainage districts, with the County and from public meetings. A steering committee was formed with a representative from each Drainage District and from the County. This forum provided for all to have input and share ideas and problem areas as well as watershed wide solutions.

To deal with the drainage problems and flooding issues detected in this study, a number of recommendations have been made for the Brazoria County watersheds.

Prior to development of these digital hydrologic and hydraulic models the local drainage districts, cities or other interested persons could not afford to develop hydrologic or hydraulic models for a watershed. The cost was too high for the local needs. The lack of available models led to many of the future developments or computer evaluation of the systems to be impractical. The hydrologic and hydraulic models will now be included in digital form with this report and available for others to use. These models will also be available should FEMA determine to update the flood plains for Brazoria County.

Through the evaluation of the hydrological systems and the current County criteria, it was determined that the current methodology was not suited for areas of flat overland slopes. Most of Brazoria County has flat overland slopes. This new information led to the use of updated hydrological analyses for the watersheds.

The available digital aerial photos (DOQQ's) were utilized in evaluating the current development of conditions in the watersheds. This tool was not available when most of these watersheds were last updated.

Approximately 500 cross sections were surveyed across the county to provide better and updated hydraulic models for the watersheds. The existing structures that crossed the waterways were located using the DOQQ's and most were surveyed and included in the hydraulic models. The availability of the DOQQ's was important to locate the existence of these bridge structures.

Another side benefit to the development of the report was the creation of a Steering Committee. This steering committee included one representative from each of the seven drainage districts and from the county. This committee met almost monthly for over one and one-half years. Through this process they worked together to identify problems and to help determine watershed wide solutions that would work for all individuals. This process worked well and each drainage district that attended most of the meetings contributed significantly to the overall product in this report.

The County or Drainage Districts can use the base GIS data to evaluate future changes or developments in the watersheds. These tools will assist the county and drainage districts to adequately evaluate drainage conditions in their areas of interest.

The main proposed alternatives and the effects are briefly described as follows:

#### Austin Bayou and Flores Bayou Watersheds

- Austin Bayou watershed has been affected by the flooding problems at the confluence of Flores Bayou and Iowa Colony Ditch (Big Ditch.) A retention/weir facility on Iowa Colony Ditch having 1,900 acre-ft of storage is proposed as alternative. This pond, if constructed, will relieve some of Flores Bayou Watersheds impact on the Austin Bayou Watershed.

The benefits of the side weir detention pond indicate a large reduction in 100 year flows in the upper reach of Flores Bayou a reduction of approximately 1000 cfs at the confluence with Austin Bayou and a smaller reduction of approximately 500 cfs downstream along Austin Bayou. This project is estimated to cost approximately \$35 M. The construction cost can be significantly reduced if the Iowa Colony Drainage District (C & R District #5) constructs the facility with its own forces. These reductions in flows are estimated to reduce the water surface elevations along the lower portion of Flores Bayou approximately 1.5 feet and about 0.5 feet along the upper portion of Austin Bayou. The purchase or lease-purchase of this site is important to the future construction of this detention facility. Phased construction would be helpful and could allow the construction as funds are available.

- There is concern about the impact of the railroad bridge near CR 171, the CR 171 bridge, and the CR 210 bridge on Austin Bayou. Bridge replacements for these bridges are proposed.

The construction cost of the new bridges is estimated at \$206K. If the Drainage District constructs the bridges, or works with Railroad company and or others, there could be a cost savings to all. The replacement of these structures is estimate to reduce the water surface elevation approximately 1 foot in the area and help reduce flooding of adjacent structures and provide for better roadway access during heavy rainfall events. Depending on what structure(s) are replaced will determine any downstream effects. A mitigation analysis will be needed based on the final determination of what structures will be replaced and the size of the new structure(s).

### Bastrop Bayou Watershed

- A system of detention and retention ponds has been recommended for Ditch 7 Watershed, a major tributary of Bastrop Bayou, that would restrict runoff from the fully developed watershed to the capacity of the existing culverts at CR 220 and Ditch 7. We recommend that the Angleton Drainage District continue the development of this program. This program is already underway.
- Due to the restricted capacity of Bastrop Bayou as it currently exists (less than 10 year capacity) and the very low probability that either the Angleton or Velasco Drainage Districts will pursue the Corps 1989 Reconnaissance Report recommendations, we recommend that the two involved Districts re-visit the detention policy for this watershed, pursue a re-mapping of the flood plains by FEMA and close coordination with the County Flood Plain Administrator relating to any new development in the watershed. Current practice requires that developers mitigate the difference between the 100-year undeveloped and 100 year developed condition. This process will not cost the Districts much but much can be gained with this combined District coordination.
- An expansion of the Lake Jackson Pumping Station would add additional pumping capacity along the Clute - Lake Jackson Interceptor Channel to handle increased development in the Northwest Corridor (north of 332 and west of FM 523.) We suggest Velasco Drainage District continue to pursue the goals of the Internal Drainage Plan as revised. This expansion project involves a multi-year plan to fund and construct the improvements over the next six to eight years.

### Brazos River Watershed

- In major flood events, the Brazos River exceeds its banks near Harris Reservoir and causes extensive flooding on Oyster Creek. The overflow also enters Bastrop Bayou south of Angleton and is a significant cause of flooding. The overflow areas should be carefully monitored to ensure that no development or structures are constructed in these areas. The

overflow area upstream of Harris Reservoir could be evaluated to reduce the amount of flow leaving the Brazos River and entering Oyster Creek. This effort will take some effort on Brazoria County's part because this part of the county is not in a defined Drainage District. However the City of Angleton and the Velasco Drainage District both receive some of the overflows from Oyster Creek and therefore have a vested interest in protecting these communities or areas and in evaluating the Brazos River. Brazoria County and Velasco Drainage District and West Brazoria County Drainage District could work with the Corps of Engineers to fund a major re-evaluation of the Brazos River including alternatives, cost estimates and project participants.

- A bridge replacement by TxDOT on SH 35 crossing just east of West Columbia is proposed for the Brazos River. This bridge replacement project is being evaluated by TxDOT. Additional analyses and impact evaluation will be needed from TxDOT.
- Channel cleaning for the Jones Creek between FM 2004 and CR 36 is proposed to relieve local flood problem. This project is estimate to cost approximately \$1.5 M if bid for construction. This project is estimate to reduce the water surface elevation along the creek approximately 1' and more in the upper reaches of the improvements. Access to the creek will be an important element to allow this project to move forward. The West Brazoria County Drainage District would be the District to handle this project. This Drainage District has subdivided the District into specific areas and the limited funding is also divided by the specific area. Funding the project will take many years to accomplish. This channel cleaning will probably send more flow downstream than current conditions flows but should not create significant downstream effects. Recommend a specific mitigation analysis be prepared to assess any change in flows and applicable mitigation if needed.

### Chocolate Bayou Watershed

On Chocolate Bayou, a 90-acre detention pond with storage of 900 acre-ft is under construction near FM 1462. This side-weir pond is estimated to reduce the downstream 100-year peak flows by approximately 2000cfs. This reduction in discharge is estimated to reduce the water surface elevation near FM 1462 1.5 feet. Downstream the reduction in water surface elevation will vary but should produce an average of a 0.5 foot reduction in water surface elevation for approximately two miles. This area of the state is very flat and improvements or reductions in water surface elevations of 0.5 feet are very helpful. The construction cost for this project is estimated at \$16.2M. This project will help the Iowa Colony and the Conservation & Reclamation Drainage District # 3. The purchase or lease-purchase of this site is important to the future construction of this detention facility. Phased construction would be helpful and could allow the construction as funds are available.

- Flooding problems at the confluences between Chocolate Bayou and its tributaries have been reported. For the West Fork Chocolate Bayou, channel cleaning from confluence with Chocolate Bayou upstream to CR 64 is proposed. Structure replacing at CR 48 crossing is proposed as well. The proposed cleaning of the West Fork of Chocolate Bayou is estimate at \$575K. This would help to re-establish the previous capacity of this section of the stream. The reduction in water surface elevations is estimated at 0.5 feet. The replacement of the CR 64 structure is estimated at \$204K. The structure replacement when coupled with the downstream channel cleaning will help reduce the water surface elevations approximately 0.5 feet. The channel cleaning will probably send some additional flows downstream but these flows were what was there before the channel needed cleaning. The replacement of CR 48 structure will require a mitigation analysis to address any significant change in downstream flows.
  
- Cleaning the North Hayes Creek from confluence with Chocolate Bayou upstream to CR 121 is proposed. The construction cost is estimated at approximately \$159K. This project will help to re-establish the previous water surface elevations in the channel prior to the overgrowth. This work is estimated to reduce the water surface elevation approximately 0.3 feet. This channel cleaning will probably send more flow downstream than current conditions flows but should not create significant downstream effects. Recommend a specific mitigation analysis be prepared to assess any change in flows when the final limits and size of cleaning is determined.
  
- To relieve South Hayes Creek, a diversion of the Brunner Ditch is proposed. Brunner Ditch currently diverts flows from North Hayes Creek and South Hayes Creek and cuts all the way through Chocolate Bayou at downstream of SH 35. Under the proposed alternative, Brunner Ditch could cut all the way to Cottonwood Bayou. Cottonwood flows through south of Liverpool and back into Chocolate Bayou below Amsterdam. This enlargement of Brunner Ditch would help Drainage Districts No. 3, 4, 5, and 8. The construction cost for this project is estimated at \$4.8M. This project is estimated to reduce the water surface elevations along the lower portion of Brunner Ditch approximately 1 to 2 feet. Some enlargement of Brunner Ditch could be considered if additional reductions are desired. The project would increase the flows in a short section of Chocolate Bayou approximately +1000cfs near the bay. However this project would reduce the flows and water surface elevations through Liverpool and where C-1 ditch sends flows from New Bayou into Chocolate Bayou. This reduction in water surface elevation is estimated at 1 foot. Acquisition of the right of way will be important to the success of this alternative. The construction of a diversion of Brunner Ditch will require a mitigation analysis to address any significant change in downstream flows.

### Mustang Bayou Watershed

- The Alvin District is planning a diversion for Mustang Bayou to send water from just south of Manvel area around Alvin. The recommended plan is to divert the Mustang Bayou flows into Ditch C-1 near Manvel via Ditch C-1-J, around Alvin and back to Mustang Bayou via Ditch M-1. This plan will include the diversion of M-1 (from Alvin) to C1-B. The designed initial Mustang Bayou diversion flow should be limited to approximately one half of the existing 100-year flow. This project should divert flows from Mustang Bayou around the City of Alvin. This project has been discussed for some time and it is thought efforts are being made to have this project funded from the Corps of Engineers or others. The project benefits are estimated at a decrease of approximately 3000 cfs and a 1 to 2 foot reduction in flows in Mustang Bayou through Alvin. This project is estimated at approximately \$4M. Acquisition of the project then acquisition of the needed right of way will be the important elements to ensure this project is constructed. Care should be taken in sizing the diversion channel and any needed mitigation areas to not send additional impacts downstream to New Bayou.
- Channel cleaning for Mustang Bayou from De Bello Road (CR 90) west to Fort Bend County Line is also proposed. This will reduce the flood levels from the north of Manvel area. The construction is estimated at approximately \$1.4M. The acquisition of the right of way or construction easements will be an important element to this work. The work is estimate to reduce the water surface elevation approximately 0.5 feet. This channel cleaning will probably send more flow downstream than current conditions flows but should not create significant downstream effects. Recommend a specific mitigation analysis be prepared to assess any change in flows when the final limits and size of cleaning is determined.

### New Bayou Watershed

- For New Bayou and C-1 Ditch, bridge enlargement for SH 6 crossing is proposed to reduce the 100-year flood stage. This project is estimated to reduce the water surface elevation approximately 0.5 feet around the bridge area. The construction cost is estimated at \$1.5M. Any proposed improvements to SH6 must be coordinated with TxDOT. TxDOT could be a joint partner and could help cover much of the cost of the bridge. This bridge replacement project will need to be evaluated by TxDOT. Additional analyses and impacts will be needed from TxDOT.

### San Bernard River Watershed

- For the San Bernard River Watershed, channel cleaning for the tributary Mound Creek from Damon to SH 35 is proposed. Mound Creek floods the San Bernard from developed areas in Fort Bend County. The Fort Bend County Drainage District has improved the channel to the

Brazoria County line. The construction of this project will help provide or re-establish capacity of the river in this area. Care should be taken in dealing with any environmental issues associated with this stretch of the river. This project is estimated to reduce the water surface elevation approximately 0.5 feet. The construction cost for this project is estimated at \$3.2 M. This project will require acquisition of construction easements or right of ways. The right of ways will be one of the major elements in constructing this project. This river cleaning will probably send more flow downstream than current conditions flows but should not create significant downstream effects. Recommend a specific mitigation analysis be prepared to assess any change in flows when the final limits and size of cleaning is determined.

The Texas Water Development Board could be considered as a funding alternative. See the Flood Control Loan program is published in Board rules, Texas Administrative Code Title 31, Chapter 363.401-404 (the Texas Water Code site is Chapter 17.771-776). Interest rates for this program are set at the Board's cost of funds plus 0.35%. The TWDB currently meets on the third Wednesday of each month. Currently there is no Intended Use Plan for this program, funding is on a first-come first-served basis.

Brazoria County by virtue of its participation in the National Flood Insurance Program, and in accordance with Section 16.236 (d) (4) of the Texas Water Code, has approval authority for the project. Brazoria County and or the applicable Drainage District along with the Brazoria County Flood Plain Administrator should insure that any of the proposed construction is documented and permitted in accordance with their Flood Hazard Prevention Court Order. This documentation should also be submitted by the County to the Federal Emergency Management Agency to obtain a Letter of Map Revision (LOMR) of Brazoria's Flood Insurance Rate Map.

Additional details of the various elements listed in this executive summary along with the recommendations, comparisons tables, cost estimates, exhibits and text can be found in the following sections of this report.

It is recommended that the seven drainage districts and county continue to meet on a regular basis to exchange information and to coordinate on existing or future drainage solutions.

It is recommended that the County approach FEMA to have all of the flood plain maps updated for Brazoria County. Many of the FEMA maps and analyses are based on old data and previous versions of computer HEC-1 or HEC-2 models. This County in growing and accurate up to date flood plain maps will be important to the appropriate future developments or construction in Brazoria County.

The financial creation of this Master Drainage Plan was provided by jointly by Brazoria County and by the Texas Water Development Board. Brazoria County Commissioners Court secured the overall project funding. The cooperation of the seven Drainage Districts was vital to the completion of this report.



## SECTION 1

### INTRODUCTION

#### 1.1 Purpose and Scope

Klotz Associates, Inc. and Baker & Lawson, Inc. have prepared a Master Drainage Plan for Brazoria County, Texas. The plan addresses the existing conditions and presents recommendations to address the drainage needs within the County.

This Master Drainage Plan was made possible through a combination of half the study funds provided from Brazoria County Commissioners Court and the other half through a grant from the Texas Water Development Board. This Master Drainage Plan was developed to provide the County and the seven Drainage Districts with a plan that was watershed based and was affordable by the applicable Drainage District.

Brazoria County would like to acknowledge the cooperative spirit between the representatives of the Texas Water Development Board, the Brazoria County Commissioners and from the seven Drainage Districts. The Drainage Districts play a vital role in drainage elements in the County and by participating in regular monthly meetings, supplying information and in reviewing the results of this plan.

This Master Drainage Plan does not propose improvements that would completely eliminate flooding during the 100 year rainfall event. Such improvements would greatly exceed the funding capacity of the Drainage Districts and the County. This report and the accompanying hydrologic and hydraulic models are tools which the County and Drainage Districts can use to determine the effects of proposed developments or drainage improvements with the watersheds. Recommendations of improvements that helped the watershed while within the agreed upon budget for each Drainage District are provided. The watersheds were evaluated for the 10, 25 and 100-year event storms.

The Brazoria County Master Drainage Plan was completed with the intent to gather previous information regarding the study, analysis, development, and operation of drainage systems within Brazoria County. Once gathered, this information was reviewed, organized, and summarized for development of the Master Drainage Plan. The Brazoria County Master Drainage Plan therefore provides a review of current drainage conditions within Brazoria County,

constructed improvements in the area and proposed improvements to correct and prepare for flooding within Brazoria County.

The seven Drainage Districts each are charged with drainage maintenance and improvements within their Drainage District boundaries. Over the years each Drainage District has communicated with adjacent Drainage District(s) on maintenance and drainage improvements. The computer models of the streams that were studied and mapped by FEMA were not readily available in digital form to the Drainage Districts. Additionally it had been many years since the FEMA models and associated maps had been updated. One of the basic goals of this plan was to obtain available hard copies of computer models, update them with limited survey data, reevaluate the hydrology and hydraulics and make these models and data available for future use by the Drainage Districts, Brazoria County and others. This was the largest single effort in this plan preparation.

## **1.2 Use of Report**

The Brazoria County Master Drainage Plan is provided for Brazoria County to assist in the understanding of their unique drainage systems and in planning for improvements to these systems for the protection of the residents and businesses located within the County. The report can also be used to plan for drainage needs associated with new developments within the County.

This report is based on the available information at the time it was prepared, at a level of detail appropriate to the scale of the study. More detailed studies may result in somewhat different findings.

## **1.3 Data Sources**

Data was gathered from a variety of sources including earlier studies and reports from Brazoria County and Consultants, hydraulic and hydrologic models from FEMA, maps from the USGS, field reconnaissance, and from discussions and correspondence with citizens, Brazoria County, and the Drainage Districts. A listing of the references is provided at the end of Section 1. A listing of the information utilized in each watershed is included in the detailed watershed description in Section 2 & Section 3.

#### 1.4 Background Information

Over the course of the last twenty years, Brazoria County has seen considerable residential, retail and light industrial development. During this time, a wide variety of entities have been involved in the regulation, study, and development of drainage controls in Brazoria County. As a result, a wide variety of drainage issues have been encountered. Some of the previous identified drainage problems have been resolved and some of these problems, although studied and presented, still remain to be resolved.

Drainage controls in and around Brazoria County include most every type of drainage structure currently used in the practice of storm water management. Included in the overall drainage controls for the County are: large natural drainage channels; multiple small dam structures; levees; culverts of various shapes, sizes, and material; storm sewer systems; detention facilities; recreational facilities used for detention storage; and various diversionary type methods.

The variety of storm water controls is partially the result of the pattern of development. Decisions made by the entities controlling each area of development have also influenced the complexity of the overall drainage system. Both the pattern of development and decisions on types of controls installed have been primarily influenced by topography and economics. Given these factors, aside from their fundamental difference in geographic location, each watershed in Brazoria County has a unique set of challenges. This report addresses the individual watersheds with summaries provided when necessary to describe the study area as a whole.

Eighteen (18) different watersheds were identified within the limits of Brazoria County. The watersheds within the limits of Brazoria County include: Austin Bayou, Bastrop Bayou, Big Slough, Brazos River, Cedar Lake Creek, Chocolate Bayou, Clear Creek, Coastal, Dickinson Bayou, Flores Bayou, Halls Bayou, Linville Bayou, Mustang Bayou, New Bayou, Oyster Bayou, Salt Bayou, San Bernard Bayou, and Wharton Bayou.

A steering committee was organized in mid 1999 and included one representative from each of the seven Drainage Districts, one from Brazoria County, Brazoria County Flood Plain Administrator, County staff, Klotz Associates representatives and Baker & Lawson representatives. This steering committee met approximately once a month. The meetings were held at the various Drainage District facilities. Meeting notes and applicable information

from these steering committee meetings is provided in the appendix. The steering committee met for approximately 18 months. At these meetings the status of the study was discussed along with problems solutions, needs, conflicts and new information was presented.

Initially three public meetings were held in the County. The first public meeting was held on Tuesday September 7, 1999 at a City of Pearland building at 3519 Liberty Drive with approximately 40 people in attendance. A representative from the Texas Water Development Board, Mr. Gilbert Ward, was present at this public meeting. The second public meeting was held in Angleton on Wednesday September 8, 1999 at Brazoria County Commissioners Courtroom with approximately 30 people in attendance. The third initial public meeting was held in Sweeny on Thursday September 9, 1999 with approximately 20 people in attendance. The forum, exhibits and presentation was essentially the same for all three initial public meetings. The large 30" x 42" color exhibits provided cover of all of Brazoria County. The exhibits were presented and the public was provided an opportunity to write comments or observations on these exhibits. This data, along with other data, models, comments and recommendations from others, was later utilized in the development of recommendations for the various watersheds. The initial source data utilized to prepare these exhibits was obtained from the GIS data from Brazoria County. Copies of the public meeting notices and meeting outlines are provide in the appendix.

Coordination with the local communities also occurred through the County, Drainage Districts and through the consultants utilized in the development of this plan.

The goals of the updated Master Drainage Plan include:

- Collect available drainage reports
- Coordinate with adjacent entities
- Develop drainage area map
- Identify specific issues by watershed
- Provide working HEC-1 and HEC-2 models
- Develop Master Plan
- Submit Report to Brazoria County

Each watershed was evaluated individually. Discussions were held with the applicable entities related to the watershed, its current condition, any documented flooding or drainage issues, any plans by the entity to construct improvements and cost information for the proposed improvements, and total

cost information. The watersheds are discussed individually in Section 2 and Section 3 of this report. A significant effort was conducted to obtain available drainage studies, analyses, reports, and limited field reconnaissance visits.

The results of this Master Drainage Study are based on the evaluations and studies conducted for each watershed. These recommendations are based on the available information. The results are conceptual in nature and detail data and analyses should be conducted to develop any final designs. Prior to development of a final design project, specific engineering should be performed including surveying, geotechnical investigation, environmental evaluation, right-of-way investigation, as well as the applicable hydrologic and hydraulic analysis. Coordination with Brazoria County, the applicable Drainage District, the applicable city, the County Flood Plain Administrator, FEMA, the Corps of Engineers, TNRCC, EPA and others as applicable.

## 1.5 Report Arrangement

The primary objective of this report is to present the findings of the plan so as to enable its ready use by laymen, County, City and Drainage District officials, and by design engineers. The principal findings of the plan appear on the color map exhibits and in associated Tables.

Section 2 Background Considerations provides pertinent information on the creation of the area base map and determination of hydrologic parameters and drainage areas for each watershed.

The methodologies used for hydrologic and hydraulic analysis and the Master Drainage Plan development are discussed in Section 3 Master Drainage Plan.

Section 4 of the Plan provides a brief description of the operation and coordination of the Drainage Districts. Suggestions to each District and the region not under any taxing jurisdiction are addressed as well.

Final summary and further considerations are addressed in Section 5. Also included in this section is a brief description of the National Storm Water program Phase II that proposed regulations for municipal storm water management required by EPA.

Tables and exhibits are shown after Section 5. Tables show the estimated hydrologic parameters, results of the hydrologic and hydraulic analysis, and the cost estimates of the proposed alternatives. The exhibits display the drainage

area of each watershed under detail study, the proposed improvements and alternatives, and the plots of the computed water surface profiles. Tables and exhibits are followed by appendices, which include the HEC-1 and HEC-2 model inputs and outputs, the selected field photos, and the pertinent materials for the project.

## 1.6 Acknowledgments

Klotz Associates would like to acknowledge the support and help by the following that provided data or insight into the drainage systems associated with the Brazoria County facilities including Officials of County, Drainage District Nos. 1, 2, 3, 4, 5, 8, 11, Texas Water Development Board, Cities of Angleton, Clute, Alvin, Pearland, Rosharon, Danbury, and City of Brazoria.

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### **Clear Creek Watershed**

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Brazoria County Conservation and Reclamation District No. 3, Drainage Master Plan for Brazoria County Conservation and Reclamation District No. 3, Turner, Collie & Braden, Inc., August, 1974

Brazoria County Conservation & Reclamation District No.3 and The Texas Water Development Board, Master Drainage Plan Report on Mustang Bayou, Chocolate Bayou, Ditch C-1, Ditch M-1, New Bayou, Halls Bayou, Chigger Creek, Ditch D-4 and Dickinson Bayou Watersheds, Snowden Engineering, Inc., November, 1989.

Department of the Army, Galveston District, Corps of Engineers, Fort Bend and Brazoria Counties, Texas, Flood Damage Reduction, Reconnaissance Report, May, 1989

Federal Emergency Management Agency, Flood Insurance Study, Brazoria County, Texas and Incorporated Areas, September 22, 1999.

Harris Soil and Water Conservation District, Special Flood Hazard Information, Clear Creek, Brazoria, Fort bend, Galveston, and Harris County, Texas, U.S. Army Engineer District, Corps of Engineers, Galveston, Texas, June, 1972.

### **Coastal Bayou Watershed**

Brazoria County Conservation & Reclamation District No.3 and The Texas Water Development Board, Master Drainage Plan Report on Mustang Bayou, Chocolate Bayou, Ditch C-1, Ditch M-1, New Bayou, Halls Bayou, Chigger Creek, Ditch D-4 and Dickinson Bayou Watersheds, Snowden Engineering, Inc., November, 1989.

Department of the Army, Galveston District, Corps of Engineers, Fort Bend and Brazoria Counties, Texas, Flood Damage Reduction, Reconnaissance Report, May, 1989

Federal Emergency Management Agency, Flood Insurance Study, Brazoria County, Texas and Incorporated Areas, September 22, 1999.

### **Dickinson Bayou Watershed**

Brazoria County Conservation and Reclamation District No. Three, Flood Plain Information Chocolate Bayou, Brazoria County, Texas, U.S. Army Engineer District, Corps of Engineers, Galveston, Texas, June, 1971.

Brazoria County Conservation and Reclamation District No. 3, Drainage Master Plan for Brazoria County Conservation and Reclamation District No. 3, Turner, Collie & Braden, Inc., August, 1974

Brazoria County Conservation & Reclamation District No.3 and The Texas Water Development Board, Master Drainage Plan Report on Mustang Bayou, Chocolate Bayou, Ditch C-1, Ditch M-1, New Bayou, Halls Bayou, Chigger Creek, Ditch D-4 and Dickinson Bayou Watersheds, Snowden Engineering, Inc., November, 1989.

Department of the Army, Galveston District, Corps of Engineers, Fort Bend and Brazoria Counties, Texas, Flood Damage Reduction, Reconnaissance Report, May, 1989

Federal Emergency Management Agency, Flood Insurance Study, Brazoria County, Texas and Incorporated Areas, September 22, 1999.

### **Flores Bayou Watershed**

Department of the Army, Galveston District, Corps of Engineers, Fort Bend and Brazoria Counties, Texas, Flood Damage Reduction, Reconnaissance Report, May, 1989

Federal Emergency Management Agency, Flood Insurance Study, Brazoria County, Texas and Incorporated Areas, September 22, 1999.

### **Halls Bayou Watershed**

Brazoria County Conservation and Reclamation District No. Three, Flood Plain Information Chocolate Bayou, Brazoria County, Texas, U.S. Army Engineer District, Corps of Engineers, Galveston, Texas, June, 1971.

Brazoria County Conservation and Reclamation District No. 3, Drainage Master Plan for Brazoria County Conservation and Reclamation District No. 3, Turner, Collie & Braden, Inc., August, 1974

Brazoria County Conservation & Reclamation District No.3 and The Texas Water Development Board, Master Drainage Plan Report on Mustang Bayou, Chocolate Bayou, Ditch C-1, Ditch M-1, New Bayou, Halls Bayou, Chigger Creek, Ditch D-4 and Dickinson Bayou Watersheds, Snowden Engineering, Inc., November, 1989.

Department of the Army, Galveston District, Corps of Engineers, Fort Bend and Brazoria Counties, Texas, Flood Damage Reduction, Reconnaissance Report, May, 1989

Federal Emergency Management Agency, Flood Insurance Study, Brazoria County, Texas and Incorporated Areas, September 22, 1999.

#### **Linville Bayou Watershed**

Federal Emergency Management Agency, Flood Insurance Study, Brazoria County, Texas and Incorporated Areas, September 22, 1999.

#### **Mustang Bayou Watershed**

Brazoria County Conservation and Reclamation District No. Three, Flood Plain Information Chocolate Bayou, Brazoria County, Texas, U.S. Army Engineer District, Corps of Engineers, Galveston, Texas, June, 1971.

Brazoria County Conservation and Reclamation District No. 3, Drainage Master Plan for Brazoria County Conservation and Reclamation District No. 3, Turner, Collie & Braden, Inc., August, 1974

Brazoria County Conservation and Reclamation District No. 3, Mustang Bayou Drainage Improvements 1981-1990, Bernard Johnson Incorporated, October, 1980.

Brazoria County Conservation & Reclamation District No.3 and The Texas Water Development Board, Master Drainage Plan Report on Mustang Bayou, Chocolate Bayou, Ditch C-1, Ditch M-1, New Bayou, Halls Bayou, Chigger Creek, Ditch D-4 and Dickinson Bayou Watersheds, Snowden Engineering, Inc., November, 1989.

Department of the Army, Galveston District, Corps of Engineers, Fort Bend and Brazoria Counties, Texas, Flood Damage Reduction, Reconnaissance Report, May, 1989

Federal Emergency Management Agency, Flood Insurance Study, Brazoria County, Texas and Incorporated Areas, September 22, 1999.

### **New Bayou Watershed**

Brazoria County Conservation and Reclamation District No. Three, Flood Plain Information Chocolate Bayou, Brazoria County, Texas, U.S. Army Engineer District, Corps of Engineers, Galveston, Texas, June, 1971.

Brazoria County Conservation and Reclamation District No. 3, Drainage Master Plan for Brazoria County Conservation and Reclamation District No. 3, Turner, Collie & Braden, Inc., August, 1974

Brazoria County Conservation and Reclamation District No. 3, Mustang Bayou Drainage Improvements 1981-1990, Bernard Johnson Incorporated, October, 1980.

Brazoria County Conservation & Reclamation District No.3 and The Texas Water Development Board, Master Drainage Plan Report on Mustang Bayou, Chocolate Bayou, Ditch C-1, Ditch M-1, New Bayou, Halls Bayou, Chigger Creek, Ditch D-4 and Dickinson Bayou Watersheds, Snowden Engineering, Inc., November, 1989.

Department of the Army, Galveston District, Corps of Engineers, Fort Bend and Brazoria Counties, Texas, Flood Damage Reduction, Reconnaissance Report, May, 1989

Federal Emergency Management Agency, Flood Insurance Study, Brazoria County, Texas and Incorporated Areas, September 22, 1999.

### **Oyster Creek Watershed**

City of Lake Jackson, Upper Bastrop Bayou Flood Protection Plan Study, Rust Lichliter/Jameson, December, 1995.

Department of the Army, Galveston District, Corps of Engineers, Fort Bend and Brazoria Counties, Texas, Flood Damage Reduction, Reconnaissance Report, May, 1989

Federal Emergency Management Agency, Flood Insurance Study, Brazoria County, Texas and Incorporated Areas, September 22, 1999.

### **Salt Bayou Watershed**

Department of the Army, Galveston District, Corps of Engineers, Fort Bend and Brazoria Counties, Texas, Flood Damage Reduction, Reconnaissance Report, May, 1989

Federal Emergency Management Agency, Flood Insurance Study, Brazoria County, Texas and Incorporated Areas, September 22, 1999.

### **San Bernard Watershed**

Department of the Army, Galveston District, Corps of Engineers, Fort Bend and Brazoria Counties, Texas, Flood Damage Reduction, Reconnaissance Report, May, 1989

Federal Emergency Management Agency, Flood Insurance Study, Brazoria County, Texas and Incorporated Areas, September 22, 1999.

### **Wharton Bayou Watershed**

Department of the Army, Galveston District, Corps of Engineers, Fort Bend and Brazoria Counties, Texas, Flood Damage Reduction, Reconnaissance Report, May, 1989

Federal Emergency Management Agency, Flood Insurance Study, Brazoria County, Texas and Incorporated Areas, September 22, 1999.

## SECTION 2

### BACKGROUND CONSIDERATION

Eighteen (18) different watersheds were identified within the limits of Brazoria County. The Brazoria County Base Map (Exhibit 1) shows the limits of Brazoria County and overall watershed boundaries. The watersheds within the County limits include: Austin Bayou, Bastrop Bayou, Big Slough, Brazos River, Cedar Lake Creek, Chocolate Bayou, Clear Creek, Coastal, Dickinson Bayou, Flores Bayou, Halls Bayou, Linville Bayou, Mustang Bayou, New Bayou, Oyster Creek, Salt Bayou, San Bernard River, and Wharton Bayou. These watersheds are under the administration of seven (7) Drainage Districts including Angleton Drainage District No.1, Velasco Drainage District No.2, Conservation & Reclamation District No.3, Pearland Drainage District No.4, Iowa Colony Drainage District No.5, Danbury Drainage District No.8, and W. Brazoria County Drainage District No.11. Exhibit 2 shows the areas of each Drainage District. The operation of the Districts and the coordination between them will be described in Section 3 and Section 4.

#### 2.1 Base Map Development

The Brazoria County Base Map (Exhibit 1) was developed to represent known streams, rivers, channels, city limits, watershed boundaries, watershed drainage areas, and in specific cases where HEC-1 models were developed sub-drainage boundaries and sub-drainage areas.

An ArcView file was obtained from Brazoria County Engineering Office containing county boundaries, roads, some streams, FEMA flood planes, and city limits. All subsequent information obtained for the study has been orientated to match the existing Brazoria County ArcView projection. A database containing additional streams was obtained from the Texas Natural Resources Information System (TNRIS) web site. The database was incorporated into the Base Map (in ArcView file) to enhance and extend the existing streams.

Drainage District boundaries (as shown in Exhibit 2) were estimated using an existing hardcopy of a Baker & Lawson Drainage District Map. These boundaries are for graphical purposes only and are not to be used to determine, verify, or establish exact boundaries of the districts.

## **2.2 Hydrologic Parameters Update (Time of Concentration and Constant Values)**

Hydrologic parameters for each watershed were updated based on the information obtained from the base map and the aerial photographs dated January 1995. This information was used to update the hydrologic parameters (TC&R values) for each watershed that are needed in the HEC-1 model to perform hydrologic analysis. The modified Clark Unit Hydrologic Method (TC&R Method) was used to compute the peak flows. The variable TC represents the time of concentration, and the variable R represents the routing storage constant. The estimated hydrologic parameters for the watersheds under detail study including Austin Bayou Watershed, Bastrop Bayou Watershed, Chocolate Bayou Watershed, Flores Bayou Watershed, Halls Bayou Watershed, Mustang Bayou Watershed, New bayou Watershed, and Oyster Creek Watershed are shown in Table 1 through 8, respectively.

## **2.3 Drainage Areas**

Brazoria County's watershed boundaries and Chocolate Bayou, Mustang Bayou, and New Bayou Watershed sub-drainage areas (as shown in Exhibits 5, 14, and 16, respectively) were delineated utilizing the "Master Drainage Plan Report on Mustang Bayou, Chocolate Bayou, Ditch C-1, Ditch M-1, New Bayou, Halls Bayou, Chigger Creek, Ditch D-4 and Dickinson Bayou Watershed" prepared for Brazoria County Conservation & Reclamation District No. 3 and the Texas Water Development Board by Snowden Engineering, Inc. (November, 1989.) The United States Geological Survey topographic map for Brazoria County was also observed when delineating the watershed and drainage area boundaries.

The sub-drainage areas of Austin Bayou, Bastrop Bayou, Flores Bayou, Halls Bayou, and Oyster Creek Watersheds (as shown in Exhibits 3, 4, 11, 13, 18) were delineated based on the United States Geological Survey topographic map and the survey data obtained by Baker & Lawson, Inc.

These boundaries were adjusted to match the known current conditions and were reviewed by the County and Drainage District Officials. The scope of each watershed and the corresponding revisions and changes made for this study are expressed as follows.

### **2.3.1 Austin Bayou Watershed**

The Austin Bayou Watershed is located in north central Brazoria County as shown on Exhibit 1. The watershed is composed of the main stem of Austin

Bayou. Flores Bayou outfalls into Austin Bayou. Exhibit 3 shows the delineated sub-drainage areas of Austin Bayou Watershed.

### **2.3.2 Bastrop Bayou Watershed**

The Bastrop Bayou Watershed is located in central Brazoria County as shown on Exhibit 1. The watershed is composed of the main stem of Bastrop Bayou and nine main tributaries: Bastrop Bayou (West), Bastrop Bayou (East), Little Slough, New Brushy Bayou, Brushy Bayou, Ditches 21, 7, 9, and 10. Bastrop Bayou Watershed has an eastern boundary that borders along Alligator Slough Watershed. The eastern boundary along the City of Angleton was adjusted based on Baker & Lawson's observations. The northern boundary line along Flores Bayou Watershed was also adjusted as per Baker and Lawson's recommendations regarding the areas that they are familiar with and responsible for studying. Exhibit 4 shows the delineated sub-drainage areas of Bastrop Bayou Watershed.

### **2.3.3 Big Slough Watershed**

The Big Slough Watershed is located in mid-eastern Brazoria County as shown on Exhibit 1. The watershed is composed of the main stem of Big Slough which is a diffused outfall used by the Brazoria National Wildlife Refuge. The boundaries of the watershed follow Big Slough closely. Big Slough outfalls into Bastrop Bay.

### **2.3.4 Brazos River**

The Brazos River Watershed is located in western Brazoria County as shown on Exhibit 1. The watershed is composed of the main stem of the Brazos River and four main tributaries: Cow Creek, Dry Bayou, Middle Bayou and Varner Creek. Old Brazos River, which is located in the City of Freeport and outfalls into the Intercoastal Waterway.

### **2.3.5 Cedar Lake Creek Watershed**

The Cedar Lake Creek Watershed is located in southwestern Brazoria County as shown on Exhibit 1. The watershed is composed of the main stem of Cedar Lake Creek and two main tributaries: Cocklebur Slough and Bear Creek.



### **2.3.6 Chocolate Bayou Watershed**

The Chocolate Bayou Watershed is located in eastern Brazoria County as shown on Exhibit 1. The watershed is composed of the main stem of Chocolate Bayou and four main tributaries: West Fork Chocolate Bayou, North Hayes Creek, South Hayes Creek, and Brunner Ditch. A dam has been built at the confluence of New Bayou and Ditch C-1. This structure causes the sub-drainage areas upstream to flow into the New Bayou Watershed. Therefore, Ditch C-1 sub-drainage areas were taken from Chocolate Bayou Watershed and placed into the New Bayou Watershed. Brunner Ditch was extended from South Hayes Creek northward to North Hayes Creek (Unnamed Tributary) as per Iowa Colony Drainage Districts comments on the sub-drainage maps. This change was incorporated into the Brazoria County Base Map (Exhibit 1). Exhibit 5 shows the delineated sub-drainage areas of Chocolate Bayou Watershed.

### **2.3.7 Clear Creek Watershed**

Approximately 70 square miles of Clear Creek Watershed are located in northern Brazoria County as shown on Exhibit 1. The remainder of Clear Creek Watershed is located in Harris County and Galveston County, which is adjacent to Brazoria County. The watershed is composed of the main stem of Clear Creek and four main tributaries: Mary's Creek, Mary's Creek Bypass Channel, Chigger Creek, and Cowart Creek. Harris County Flood Control District (HCFCD) is currently performing extensive studies on the Clear Creek Watershed.

### **2.3.8 Coastal Watershed**

The Coastal Watershed is located along the southeastern coast of Brazoria County as shown on Exhibit 1.

### **2.3.9 Dickinson Bayou Watershed**

Approximately 12 square miles of Dickinson Bayou Watershed is located in eastern Brazoria County as shown on Exhibit 1. The majority of Dickinson Bayou Watershed is located in Galveston County. Dickinson Bayou main stem is approximately 24 miles long, with approximately 2 miles of the bayou running through Brazoria County. Ditch D-4 is a tributary to Dickinson Bayou with a stream length of approximately 7.5 miles in Brazoria County.

### **2.3.10 Flores Bayou Watershed**

The Flores Bayou Watershed is located in central Brazoria County as shown on Exhibit 1. The watershed is composed of the main stem of Flores Bayou which itself is a tributary of Austin Bayou Watershed. Watershed southern boundary that is adjacent to Bastrop Bayou Watershed and Austin Bayou Watershed was adjusted as per Baker & Lawson's recommendations. Exhibit 11 shows the delineated sub-drainage areas of Flores Bayou Watershed.

### **2.3.11 Halls Bayou Watershed**

The Halls Bayou Watershed encompasses a drainage area of approximately 60 square miles and is located in eastern Brazoria County as shown on Exhibit 1. The eastern portion of Halls Bayou Watershed lies within Galveston County. Thus the watershed boundaries along the eastern border of Brazoria County were extended to coincide with watershed region to better represent the drainage areas of the Halls Bayou. The area between Halls Bayou and Mustang Bayou that encompasses Persimmon Bayou was incorporated into the Mustang Bayou Watershed and deleted from the Halls Bayou Watershed. The area to the east of Persimmon Bayou was left connected to Halls Bayou even though the majority of the flows appear to flow directly into West Galveston Bay. No major tributaries of Halls Bayou have been identified. Exhibit 13 shows the delineated sub-drainage areas of Halls Bayou Watershed.

### **2.3.12 Linville Bayou Watershed**

The Linville Bayou Watershed is located in western Brazoria as shown on Exhibit 1. The watershed is composed of the main stem of Linville Bayou and three main tributaries: Little Linville Bayou, Dance Bayou, and Red Bayou.

### **2.3.13 Mustang Bayou Watershed**

The Mustang Bayou Watershed is located in eastern Brazoria County as shown on Exhibit 1. The watershed is composed of the main stem of Mustang Bayou and one tributary, Ditch M-1. Exhibit 14 shows the delineated sub-drainage areas of Mustang Bayou Watershed.

### **2.3.14 New Bayou Watershed**

The New Bayou Watershed is located in eastern Brazoria County as shown on Exhibit 1. The New Bayou is a man made channel which has confluence with the Mustang Bayou in the coastal area. The capacity of New Bayou has recently been increased for the diversion of additional flow from Ditch C-1 to New Bayou. A dam has been built at the confluence of New Bayou and Ditch C-1. This structure causes the sub-drainage areas upstream to flow into the New Bayou Watershed. Therefore, eight sub-drainage areas of Ditch C-1 were taken from Chocolate Bayou Watershed and placed into the New Bayou Watershed. These changes on the watershed boundaries and sub-drainage areas were reviewed by Drainage District No.3. Exhibit 16 shows the updated New Bayou Watershed and the delineated sub-drainage areas.

### **2.3.15 Oyster Creek Watershed**

The Oyster Creek runs from the north central to the southeastern boundaries of Brazoria County as shown on Exhibit 1. The watershed is composed of the main stem of Oyster Creek, Bunk Slough, and East Union Bayou. The sub-drainage areas were delineated using United States Geological Survey (USGS) topographic maps updated in 1972 and the ArcView base map. The Oyster Creek Watershed and sub-drainage area's boundaries were modified after reviewing the notes and comments made to the originals by the Clute Service Center and the Lake Jackson City Engineer's office regarding the Shy Pond Detention Area. The outer boundaries of Low Oyster Creek Watershed were adjusted to agree with the comments. The changes were incorporated into the GIS project. Exhibit 18 shows the Oyster Creek Watershed and the delineated sub-drainage areas.

### **2.3.16 Salt Bayou Watershed**

The Salt Bayou Watershed is located in southeastern Brazoria County as shown on Exhibit 1. The watershed is composed of the main stem of Salt Bayou, Ridge Slough, and Essex Bayou.

### **2.3.17 San Bernard River Watershed**

The San Bernard River is located in western Brazoria County as shown on Exhibit 1. The watershed is composed of the main stem of the San Bernard

River and four main tributaries: Bell Creek, Cedar Creek, Mound Creek, and Redfish Bayou.

### **2.3.18 Wharton Bayou Watershed**

The Wharton Bayou Watershed is located in eastern Brazoria County. The watershed is composed of the main stem of Wharton Bayou.

## SECTION 3

### MASTER DRAINAGE PLAN

This Master Drainage Plan has been developed around the concept of identifying the major hydrologic and hydraulic issues and drainage problems in each watershed and preparing a plan that would allow for improvements of the watershed without significant downstream impacts. This plan addresses the major drainage elements in the watersheds and is discussed by main channel improvements, tributary improvements, diversions from urban or residential areas, regional detention or retention, and structure replacements. Note that, for each watershed, both the current and previous recommendations are addressed, and, except specified, most of the previous recommendations cited from former reports are still not implemented. As long as a previous improvement or recommendation is implemented, it will be specified and considered as an existing condition in analysis. Listed below is a discussion of various planned improvements for each watershed.

#### 3.0 Hydrologic and Hydraulic Methodologies

Most of the stream watersheds in Brazoria County were under detail analysis for this project. The revised HEC-1 and HEC-2 models of these watersheds were used for the corresponding hydrologic and hydraulic analysis. The 10, 25 and 100-year frequency analysis was prepared for the watershed. The HEC-1 models utilized the modified Clark's Method of hydrograph development for the hydrologic analysis. The Clark's method has been utilized and calibrated against numerous gages in the Texas coastal area in and around Houston. In this report, we use the term 'modified Clark's method' to refer to Clark's method with  $T_c$  &  $R$  parameters calculated using the equations in Section 3.0. The modified Clark Method requires three parameters in order to develop a unit hydrograph: the time of concentration for the basin,  $T_c$ , a storage coefficient,  $R$ , and a time-area curve. The HEC-1 users manual states: "A time-area curve defines the cumulative area of the watershed contributing runoff to the sub-basin outlet as a function of time (expressed as a proportion of  $T_c$ ). The program utilizes a dimensionless time area curve. "The ordinates of the time-area curve are converted to volume of runoff. The resulting hydrograph is routed through a linear reservoir to simulate the storage effects of the subbasin". The HEC-1 manual can be referred to for additional information. The following equations were used to calculate the Clark Unit Hydrograph parameters,  $T_c$  &  $R$ , in the hydrologic analysis:

$$TC = D[1 - (0.0062)(0.7DCI + 0.3DLU)] \left( \frac{Lca}{\sqrt{S}} \right)^{1.06}$$

$$TC + R = 7.25 \left( \frac{L}{\sqrt{S}} \right)^{0.706} \quad \text{if } DLU \leq 18\%$$

or

$$TC + R = 4295(DLU)^{-0.678} (DCC)^{-0.967} \left( \frac{L}{\sqrt{S}} \right)^{0.706} \quad \text{if } DLU > 18\%$$

where:

- $TC$  = Time of Concentration (hours)
- $R$  = Watershed Storage
- $L$  = Watershed Length (miles)
- $L_{ca}$  = Length to Centroid (miles)
- $S$  = Channel Slope (feet/mile)
- $DLU$  = Percent Urban Development
- $DCI$  = Percent Channel Improvement
- $DCC$  = Percent Channel Conveyance at 100 yr expected discharge
- $D$  = 2.46 if  $S_0 \leq 20$  feet/mile
- $D$  = 3.79 if  $20 \text{ feet/mile} < S_0 \leq 40 \text{ feet/mile}$
- $D$  = 5.12 if  $S_0 > 40 \text{ feet/mile}$
- $S_0$  = watershed slope (feet/mile)

The Clark's Unit hydrograph parameters for the watersheds in Brazoria County were derived using the base maps, the USGS topographic quadrangles and the drainage area map provided by the County and each Drainage Districts. Subarea development was approximated from the aerial photos. The percent channel improvements and channel conveyance was approximated from field observations and photographs. The percent ponding area listed in Tables 1 through 8 is that portion of a subarea where runoff is retarded from reaching a watercourse due to obstruction or natural storage (rice farming creates ponding effects in many subareas). Ponding is used to increase the Clark's storage coefficient R after its value has been calculated through the unit hydrograph parameter equations. Percent ponding is generally used for areas of ponding greater than 20% of the subarea. See the Brazoria County Criteria Manual for additional information and the procedure for adjusting R for ponding effects.

DCC is taken for some subareas as 100 percent for an undeveloped subarea with an unimproved channel. This method of DCC is consistent with the original development of the modified Clark's methodology utilized in these analyses.

Ponding

10 year	$R_{Modified} = 1.28P^{0.199}$
25 year	$R_{Modified} = 1.25P^{0.171}$
100 year	$R_{Modified} = 1.21P^{0.132}$

Ponding is generally developed on a subarea by subarea basis. Austin, Flores and Halls Bayous have utilized uniform percent ponding within these watersheds because of the large amount of rice farming and uniform topographic features in these areas.

The derived hydrologic parameters for the analyzed watersheds are summarized in Table 1 through 8 as mentioned in Section 2.2. The HEC-1 files created for the analysis is included in Appendix B. Note that the storage-discharge relationships within each HEC-1 model were determined from the corresponding HEC-2 model as described in the following paragraph.

The effective HEC-2 models for the watersheds under study were obtained from Brazoria County and from FEMA, which were revised based on the current channel conditions and the TXDOT BRINSAP data. The surveyed cross-sections provided by Baker & Lawson were inserted into the revised HEC-2 models to update or replace the existing cross-sections within the project reach. For each stream, the revised HEC-2 model was used to develop the storage-discharge relationships for the channel reaches and to compute the water surface levels at each cross-section. The storage-discharge relationships from each HEC-2 model were incorporated into the corresponding HEC-1 model for routings, and the peak flows computed by the HEC-1 model were provided to the HEC-2 model for modification. By this manner, consistent results from the hydrologic and hydraulic analysis can be obtained.

Starting conditions will vary for each hydraulic model. For most of the watersheds that outfall near the bay the higher tailwater elevations of the storm surge were utilized. For tributary analysis normally the tailwater off of the receiving stream was utilized in the starting conditions of the hydraulic model.

### 3.1 Austin Bayou Watershed

The Austin Bayou Watershed encompasses a drainage area of approximately 92 square miles and is located in north central Brazoria County as shown on Exhibit 1. The watershed is composed of the main stem of Austin Bayou which itself outfalls into Bastrop Bayou. Flores Bayou outfalls into Austin Bayou. As

shown in Exhibit 2, the Austin Bayou Watershed encompasses most of Iowa Colony Drainage District No. 5, the west portion of Danbury Drainage District No. 8, and part of east portion of the Angleton Drainage District No. 1. The east part of the City of Danbury is located within the watershed. The Austin Bayou Watershed is bounded on the west by Flores Bayou Watershed, the north and east by the Chocolate Bayou Watershed, and the south by the Bastrop Bayou Watershed.

### 3.1.1 Hydrologic and Hydraulic Issues

The aerial photographs, dated January 1995, were reviewed to determine the extent of development in the Austin Bayou Watersheds. These aerial photographs indicate that the watershed remains approximately 90% in rice fields, row crops or graze land. The only area of substantial development is the eastern portion of the City of Danbury. However, there is no substantial subdivision and/or development that contribute a significant amount of flow to the watershed.

It is anticipated that as development continues south along the SH 288 Freeway Corridor, large lot (2-5 acres) subdivisions with some commercial may occur.

In order to conduct hydrologic routing and hydraulic analysis for the Austin Bayou Watershed under existing condition, a revised HEC-1 model and a revised HEC-2 model were created based on the current effective FEMA models (the models that provide the computed stream flow rates and water surface elevations for the most updated FEMA FIS Reports.) The stream network configuration in the HEC-1 model is designed according to the Austin Bayou Watershed Drainage Area Map (Exhibit 3). The HEC-2 model includes the 2000 Baker & Lawson survey sections and the revised bridge inspection information. The surveyed sections are those at upstream and downstream of the bridges or roadway crossings so that the Special Bridge method can be used in the HEC-2 models. The comparisons between the revised HEC-1 model outputs and the corresponding FEMA values for the 100-year event are shown in Table 9. Note that since the drainage areas have been changed based on existing conditions, and that most of the flows from the FIS are based on results from regional USGS regression equations instead of HEC-1 models, significant percentage changes in flows are found in Table 9. The comparisons between the revised HEC-2 model outputs and the corresponding FEMA values are shown in Table 10, 11, and 12



for the 100-year, 25-year, and 10-year events, respectively, and the flood profiles under the revised existing condition are shown in Exhibit 26. The existing channel capacity of the Austin Bayou is less than 10-year frequency as shown in Table 72.

### **3.1.2 Drainage Problems**

Two minor drainage problems have been identified for the Austin Bayou Watershed. The problems are: (1) blocked intersection/culvert problem on SH 35 north of CR 33, and (2) blocked intersection/culvert problem on SH 35 between CR 33 and CR 46.

### **3.1.3 Previous Improvements and Recommendations**

1. The Iowa Colony Drainage District had cut a channel, called "Big Ditch," which diverted flow from Austin Bayou into Flores Bayou. Though the channel remains, a dam has been constructed just south of Austin Bayou that prevents this diversion from occurring at present. The Iowa Colony Drainage District has recently de-snagged the Bayou from CR 171 toward SH 35.

### **3.1.4 Current Recommendations**

1. Austin Bayou flows at capacity in its current condition. It is recommended that any future development on Austin Bayou be required to mitigate any increased runoff by utilizing a detention or retention system. A proposed retention pond is discussed in the Flores Bayou Watershed section. This pond, if constructed, will relieve some of Flores Bayou Watersheds impact on the Austin Bayou Watershed.
2. The pipelines crossing Austin Bayou in the upstream reaches may be causing a problem. These pipelines should be investigated to specifically determine the local impact and maintenance issues.
3. There is a hydraulic capacity concern about the impact of the railroad bridge near CR 171, the CR 171 bridge, and the CR 210 bridge. Bridge replacements are proposed for these two roadway sites as shown in Exhibit 21. The cost estimates for replacing a bridge are shown in Table 96. The private bridge on Garrett Road (CR 33) is also of concern. Depending on what structure(s) are replaced will

determine any downstream impacts. A mitigation analysis will be needed based on the final determination of what structures will be replaced and the size of the new structure(s). The Iowa Colony District should investigate further.

4. Recommend that the Drainage Districts and the County coordinate with TxDOT on the SH 35 and 288 roadway crossings. Both of these crossings are creating headloss and enlarging these crossings could produce reductions to the upstream floodplain and residents who live in those areas. Care should be taken to not create adverse downstream impacts from these two bridge replacements. Additional analyses and impact evaluation will be needed from TxDOT.

### **3.2 Bastrop Bayou Watershed**

The Bastrop Bayou Watershed encompasses a drainage area of approximately 85 square miles and is located in central Brazoria County as shown on Exhibit 1. The watershed is composed of the main stem of Bastrop Bayou and nine main tributaries: Bastrop Bayou (West), Bastrop Bayou (East), Little Slough, New Brushy Bayou, Brushy Bayou, Ditches 21, 7, 9, and 10. The Bastrop Bayou Watershed encompasses most of Angleton Drainage District No. 1, and part of Velasco Drainage District No. 2 and Danbury Drainage District No. 8. Most of the City of Angleton and part of Richwood and the City of Lake Jackson are located within the watershed. The Bastrop Bayou Watershed is bounded on the west by Oyster Creek, the north by the Flores Bayou Watershed, the east by the Alligator Slough Watershed and Bastrop Bay, and the south by Big Slough watershed.

#### **3.2.1 Hydrologic and Hydraulic Issues**

The Bastrop Bayou is a sluggish, tidally influenced, turbid bayou with good aquatic resources. The bayou has not been dredged or channelized from FM 523 to the Missouri Pacific Railroad at Demi-John Place (reference Exhibit 20) with little freshwater inflow except for agricultural runoff during periods of rice field drainage. The Bayou below FM 2004 flows through an almost treeless coastal prairie that is used mostly as pasture land with scattered rural homes on large lots along the banks. The bayou is about 300-350 feet wide and 6-8 feet deep in this reach. The reach from FM 2004 to HWY 227 (Old HWY 288) is comprised of a combination of open forest, dense woodland, and open pasture land. The

bayou is about 200-250 feet wide. The bayou narrows to less than 50-100 feet wide above HWY 227 and shallows to 3-4 feet.

In major flood event, there is significant overflow out of the Brazos River and Oyster Creek basins into Bastrop Bayou. Flooding in the watershed results from two sources, localized runoff which exceeds the limited channel capacity, and overflow from the Brazos River when the river is flooding. Also, since Austin and Flores Bayous ultimately outfall into Bastrop Bayou, the Bastrop Bayou Watershed was impacted by flooding from them as well.

The aerial photographs, dated January 1995, were reviewed to determine the extent of development in the Bastrop Bayou Watershed. These aerial photographs indicate that the watershed remains approximately 75% in rice fields, row crops or graze land. The only areas of substantial development in the watershed are in the City of Angleton and portions of the Cities of Lake Jackson and Richwood.

There is no current major development within the Bastrop Bayou Watershed. Development within the flood plain of the Bayou is limited because of the flooding effects of the Brazos River riverine floods which overflow into the Bastrop Bayou Watershed.

There is no substantial subdivision and/or development that contribute a significant amount of flow to the watershed. It is the current policy of the Angleton Drainage District and the Velasco Drainage District to require mitigation of any increased runoff by development within the Bastrop Bayou Watershed.

To conduct hydrologic routing and hydraulic analysis for the Bastrop Bayou Watershed under existing condition, a revised HEC-1 model and a revised HEC-2 model were created based on the current effective FEMA models. The stream network configuration in the HEC-1 model is designed according to the Bastrop Bayou Watershed Drainage Area Map (Exhibit 4). The HEC-2 model includes the 2000 Baker & Lawson survey sections and the revised bridge inspection information. The comparisons of the HEC-1 run results between the revised model and the FEMA model for the 100-year event are shown in Table 13. Note that since the drainage areas have been updated for existing conditions, and that the flows from the FIS are obtained from regional USGS regression equations instead of HEC-1 models, Table 13 shows significant

percentage changes in flows. The comparisons of the HEC-2 results between the revised model and the FEMA model are shown in Table 14, 15, and 16 for the 100-year, 25-year, and 10-year events, respectively, and the corresponding flood profiles under the revised existing condition are shown in Exhibit 27. In addition, the HEC-2 result comparisons for the Bastrop Bayou - East Fork are shown in Table 17, 18, and 19 for the 100-year, 25-year, and 10-year events, respectively, and the corresponding flood profiles under the existing condition are shown in Exhibit 28. The existing channel capacity of the Bastrop Bayou is less than 10-year frequency as shown in Table 73.

### **3.2.2 Drainage Problems**

The following flooding problem areas have been identified in the Bastrop Bayou Watershed:

- The Beechwood Subdivision, located north of Angleton adjacent to SH 288B, has a protective levee and floods during heavy rains.
- FM 523 at FM 595: water ponds in this area and does not drain to Bastrop Bayou
- Seventy-four locations within Angleton have filed repetitive flooding damage claims. The entire Bastrop Bayou Watershed has a total of eighty-six locations that have filed more than one claim.
- Brushy Bayou has been rerouted to outfall into Bastrop Bayou rather than Austin Bayou. The new route is now called New Brushy Bayou. The existing FEMA maps and models that generated the existing flood maps do not reflect this change. However this change has been incorporated into the revised models for Bastrop Bayou.
- There is a flooding problem on Bastrop Bayou between SH 288 and 288B, North of CR 2004 (reference Exhibit 19.)

### **3.2.3 Previous Improvements and Recommendations**

1. The Army Corps of Engineers, Galveston District, recommended a channel improvement to the Bastrop Bayou in their 1989 Reconnaissance Report. In view of the relatively large existing capacity of the stream, the least costly alternative of snagging, clearing, and silt removal along a 5.3-mile reach of Bastrop Bayou between the Missouri Pacific Railroad and FM 523 was analyzed. This channel improvement would begin about a mile downstream from the FM 523 bridge. Experience has shown that this type of

project would have the greatest potential for economic justification. This plan was found to reduce 50-year flood elevations to 10-year levels along the target reach.

2. Velasco Drainage District has approved a detention site and has plans to add two more detention sites that may relieve the flooding problem on Bastrop Bayou between SH 288 and 288B, North of CR 2004.
3. In major flood events, the Brazos River exceeds its banks near Harris Reservoir, six miles upstream of SH 35, causing extensive flooding on Oyster Creek. The overflow also enters Bastrop Bayou south of Angleton and is a significant cause of flooding that must be controlled to allow development in that portion of Bastrop Bayou watershed.

### 3.2.4 Current Recommendations

Due to the restricted capacity of Bastrop Bayou as it currently exists (less than 10 year capacity) and the very low probability that either the Angleton or Velasco Drainage Districts will pursue the Corps 1989 Reconnaissance Report recommendations, we recommend that the two involved Districts re-visit the detention policy for this watershed, pursue a re-mapping of the flood plains by FEMA and close coordination with the County Flood Plain Administrator relating to any new development in the watershed. Current practice requires that developers mitigate the difference between the 100-year undeveloped and 100 year developed condition.

The Angleton Drainage District has completed a study of the Ditch 7 Watershed, a major tributary of Bastrop Bayou. Ditch 7 and its tributaries drain the approximate south one-third of the City of Angleton. That study recommended the development of the Peach Street Detention Pond (land acquired by the City of Angleton) and of the Erik West Detention Pond (approximately one – half constructed). Additionally the Report recommended the acquisition of the Phillip Services Sand Pit and integration of the pit into the system as a retention facility (under negotiation between the Angleton Drainage District and Phillip Services). This system of detention and retention ponds would restrict runoff from the fully developed watershed to the capacity of the existing culverts at CR

220 and Ditch 7. We recommend that the Angleton Drainage District continue the development of this program.

1. Additional benefit will accrue from the proposed retention pond as discussed in the Flores Bayou Watershed section. This pond, if constructed, will relieve some of Flores Bayou Watersheds impact on Austin Bayou and on Bastrop Bayou Watershed.
2. An expansion of the Lake Jackson Pumping Station would add additional pumping capacity along the Clute - Lake Jackson Interceptor Channel to handle increased development in the Northwest Corridor (north of 332 and west of FM 523.) We suggest Velasco Drainage District to continue to pursue the goals of the Internal Drainage Plan as revised.

### **3.3 Brazos River Watershed**

The Brazos River Watershed encompasses a drainage area of approximately 206 square miles within Brazoria County and is located in western Brazoria County as shown on Exhibit 1. The watershed is composed of the main stem of the Brazos River and four main tributaries within Brazoria County: Cow Creek, Dry Bayou, Middle Bayou and Varner Creek. Old Brazos River, which is located in the City of Freeport and outfalls into the Intercoastal Waterway. The Brazos River Watershed encompasses part of Velasco Drainage District No. 2 and West Brazoria County Drainage District No. 11. The west side of the Brazos River Watershed encompasses the eastern portion of the West Brazoria County Drainage District and the east side of the Brazos River encompasses a substantial portion of the land not currently located within one of the seven Drainage Districts in Brazoria County. City of Brazoria, City of Freeport, City of Jones Creek, City of West Columbia, and part of the City of Baileys Prairie, City of Clute, and the City of Lake Jackson are located within the watershed. The Brazos River Watershed is bounded on the west by the San Bernard River and Varner Creek and on the east by the Oyster Creek Watershed.

#### **3.3.1 Hydrologic and Hydraulic Issues**

The Brazos River watershed extends in a southeasterly direction from the county border to the Gulf of Mexico at Freeport. Its upstream drainage area below Possum Kingdom Dam, located in Palo Pinto County, Texas, has a significant affect to its downstream flows. Brazos River is also tidally influenced.

During large floods, generally caused by heavy rainfalls in the upstream area of Brazos River watershed, significant interbasin flow exchanges occur between the Brazos River and Oyster Creek in Brazoria County because of the gentle southeastern topographic trend and the perched characteristic of river. The relatively flat topography and generally inadequate tributary streambed slopes and capacities also result in flooding in the area from the intense local rainstorms and tropical storms relatively common to the region.

Rainfall in the Brazos River basin varies widely in both seasonal occurrence and yearly mean depth. The mean annual precipitation is approximately 27.6 inches, varying from approximately 16 inches near the headwaters to 47 inches in the coastal region. Snowfall in the lower reaches of Brazos River is rare and makes no significant contribution to runoff. Thunderstorms are common throughout the spring, summer, and fall. Frequent hurricanes and tropical storms interrupt summer with high winds, heavy rainfall, and high storm surges.

The aerial photographs, dated January 1995, were reviewed to determine the extent of development in the Brazos River Watershed. These aerial photographs indicate that the watershed within Brazoria County remains approximately 80% in row crops, woodlands or graze land. The only areas of substantial development are the Cities of Brazoria, Jones Creek, Freeport and West Columbia. However, there is no substantial subdivision and/or development that contribute a significant amount of flow to the watershed within Brazoria County.

Development within the flood plain of the Bayou is limited because of the Brazos River riverine floods, which spill into the wide flood plains of the River. Continued development in Fort Bend County along the Brazos River just north of Brazoria County continues to be a concern.

The effective FEMA HEC-2 model for Brazos River was coded into the model and the model results are shown in Table 20 and 21 for the 100-year and 10-year events, respectively, and the corresponding flood profiles under the existing condition are shown in Exhibit 29. The channel capacities of the Brazos River are shown in Table 74.

### 3.3.2 Drainage Problems

The following flooding or drainage problem areas have been identified in the Brazos River Watershed:

- CR 25 between CR 27 and CR 23: flow from Brazos River spills through bank, around Mann Lake levee, and into the residential community.
- 14<sup>th</sup> Street and West Columbia to SH 36: ditch is undersized.
- CR 468 and SH 35: West Columbia ditch needs outlet.
- Sugar Mill Subdivision: privately erected dams and ditch is not maintained.
- Small, isolated drainage problems have been identified in the upper reaches of Varner Creek.
- Pecan Bend South Subdivision (FEMA Zone X) repeatedly floods when the Brazos River flows into Cow Creek.
- CR 16 at Damon Creek Bridge has undersized culverts.
- A portion of the Brazos River watershed, between north of FM 2004 and east of Brazos River, is not under any taxing jurisdiction and therefore cannot provide monies for drainage improvements. It has been reported that, within this area, McFadden Slough floods over CR 652 during frequent storms and some runoff backs up Buffalo Camp Bayou along the highway. Private dams have also been reported to block flow from McFadden Slough. Also it has been reported that a major property owner has constructed some improvements (levee) that appear to block and cause flooding of adjacent properties.
- Problem with Jones Creek near Red Fish Bayou (near CR 301 as referred to Exhibit 24.)
- Dry Bayou is silted up.
- CR 301 and CR 304 bottleneck on Jones Creek, there is too much flow with no adequate outfall, water overtops CR 301 and flows to Red Fish Bayou.
- The Brazos River overflows to Jones Creek then to Red Fish Bayou.

### 3.3.3 Previous Improvements and Recommendations

1. There is a planned bridge replacement for the Brazos River on SH 35 just east of West Columbia as shown in Exhibit 23.



2. The Federal Hurricane-Flood Protection System at Freeport also protects against moderate Brazos River flooding. Local flood protection projects in the form of levees, weirs, and impoundment exist along portions of Brazos River flood plain which provide some locals with up to 100-year flood protection. A local protection levee is also located west of Angleton.
3. Several multipurpose reservoirs having significant flood control storage including Whitney, Waco, Belton, Proctor, Stillhouse Hollow, Somerville, Granger, and North Fork in the upper portion of the watershed have effects on river stages in the downstream reaches.
4. In major flood events, the Brazos River exceeds its banks near Harris Reservoir, six miles upstream of SH 35, causing extensive flooding on Oyster Creek. The overflow also enters Bastrop Bayou south of Angleton and is a significant cause of flooding that must be controlled.

#### **3.3.4 Current Recommendations**

1. It is recommended that federal funding be solicited to study the Brazos River Watershed (hydrologically and hydraulically) for at least the section of the Brazos River from Richmond, Texas to its outfall into the Gulf Coast.
2. The county along with other upstream counties has sent a joint request to the Corps of Engineers for a restudy of the lower section of the Brazos River from Waco all the way to the coast. This has had no action in several years. Someone needs to take charge of this and keep it in front of the Senators and Legislators.
3. Channel cleaning for the Jones Creek is proposed (as shown in Exhibit 24) to relieve local flooding problems and to reduce the potential of overflows going to Red Fish Bayou. The cost is estimated at \$1,436,000 for the dredging and is shown in Table 99. This channel cleaning will probably send more flows downstream than current condition flows but should not create significant downstream effects. Recommend a specific mitigation analysis be prepared to assess any change in flows and applicable mitigation if needed.

### **3.4 Cedar Lake Creek Watershed**

The Cedar Lake Creek Watershed encompasses a drainage area of approximately 90 square miles and is located in southwestern Brazoria County (within West Brazoria County Drainage District No.11) as shown on Exhibits 1 and 2. The watershed is composed of the main stem of Cedar Lake Creek and two main tributaries: Cocklebur Slough and Bear Creek. Only a very small part of the City of Sweeny is located within the watershed. The Cedar Lake Creek Watershed is bounded on the west and south by county border, the north by Linville Bayou Watershed, and the east by San Bernard River Watershed.

#### **3.4.1 Hydrologic and Hydraulic Issues**

The Cedar Lake Creek Watershed is essentially undeveloped. The aerial photographs, dated January 1995, shows that the watershed remains approximately 95% in rice fields, row crops, graze land, and woodlands. Cedar Lake drains from west of the City of Sweeny and passes along the southwestern border of Brazoria County then outfalls into Cedar Lakes and the Gulf of Mexico.

#### **3.4.2 Drainage Problems**

The following flooding problem areas have been identified in the Cedar Lake Creek Watershed:

- Bear Creek from C.R. 946 to C.R. 809 before its outfall into Cedar Lake Creek has restricted channel which needs to be widened.
- C.R. 809 and C.R. 521 intersection; old sloughs need to be maintained.

#### **3.4.3 Previous Improvements and Recommendations**

None reported.

#### **3.4.4 Current Recommendations**

Because of the low density of population and associated development there is no current recommendation for Cedar Lake Creek Watershed.

### 3.5 Chocolate Bayou Watershed

The Chocolate Bayou Watershed encompasses a drainage area of approximately 150 square miles and is located in eastern Brazoria County as shown on Exhibit 1. The watershed is composed of the main stem of Chocolate Bayou and four main tributaries: West Fork Chocolate Bayou, North Hayes Creek, South Hayes Creek, and Brunner Ditch. The Chocolate Bayou Watershed encompasses most of Iowa Colony Drainage District No. 5, part of Conservation & Reclamation Drainage District No. 3 and Pearland Drainage District No. 4. City of Iowa Colony, City of Liverpool, and west part of the City of Manvel are located within the watershed. The Chocolate Bayou Watershed is bounded on the west by South Texas Water Company Canal, the north by county border, the east by Ditch C-1 and New Bayou Watershed, and the south by Chocolate Bay.

#### 3.5.1 Hydrologic and Hydraulic Issues

The headwaters of Chocolate Bayou are located north of Texas State Highway 6 (SH 6) approximately 1.4 miles west of the City of Manvel. The headwaters of the West Fork Chocolate bayou begin near Arcola in southeast Fort Bend County and outfall into Chocolate Bayou approximately 2.5 miles south of FM 1128.

Most of the land making up the watershed of Chocolate Bayou is used for agricultural purposes. The aerial photographs, dated January 1995, show that the watershed remains approximately 85% in rice fields, row crops or graze land. However, desired wooded areas along the bayou are already being developed and greater demand for residential, commercial and industrial sites is expected. Portions of the land being developed were inundated by past floods, and substantially larger areas are within reach of greater floods of the future.

The watershed is subject to intense local thundershowers of short duration during the spring and summer months in which the majority of past flooding has occurred. General storms extending over periods of several days are more frequent in the winter season. Tropical disturbances occurring between June and October produce torrential rainfall causing substantial flooding in the watershed.

The tributaries of the Chocolate Bayou including West Fork Chocolate bayou, North Hayes Creek, and South Hayes Creek that drain from City of Iowa Colony, City of Manvel and Fort Bend County contribute a

significant amount of flow to the watershed. The continuous meandering of the channel and the tidal effect in the downstream also cause flooding problems.

In order to conduct hydrologic routing and hydraulic analysis for the Chocolate Bayou Watershed under existing condition, a revised HEC-1 model and a HEC-2 model was completed from using the effective model (by Snowden Engineering, Inc.) and revising the model to current conditions. The stream network configuration in the HEC-1 model is designed based on the Chocolate Bayou Watershed Drainage Area Map (Exhibit 5). The HEC-2 model includes the 2000 Baker & Lawson survey sections and the revised bridge inspection information.

A review was conducted of the USGS gage data for Chocolate Bayou. This gage is located in upper half of Chocolate Bayou near FM 1462. The historical data showed significant increases in stage elevation for similar flows prior to 1988. This data was reviewed by was not utilized due to the significant differences noted above. The gage may have been adjusted or other physical elements constructed. There were other watershed changes including the construction of Brunner Ditch and diversions to it from North and South Hayes Creeks and the diversion of C-1 Ditch which could all effect the results at this gage.

The comparisons between the Snowden HEC-1 model outputs and the corresponding FEMA values for the 100-year event are shown in Table 22, and those comparisons between the Snowden model outputs and the revised HEC-1 model outputs are shown in Table 23. The comparisons for the 25-year event between the revised HEC-1 outputs and the corresponding coded Snowden model outputs are shown in Table 24, and those for the 10-year event between the revised HEC-1 outputs and the corresponding FEMA values are shown in Table 25. Note that because the drainage areas and hydrologic parameters have been modified based on current existing conditions, certain percentage changes in flows are shown in Tables 23, 24, and 25. The comparisons of the HEC-2 model outputs between the revised existing model and the key-in Snowden model are shown in Table 26, 27, and 28 for the 100-year, 25-year, and 10-year events, respectively, and the flood profiles under the revised existing condition are shown in Exhibit 30.

In addition, for the tributary analyses, the Snowden HEC-2 models of the West Fork Chocolate Bayou, North Hayes Creek, and the South Hayes

Creek were also revised for the project based on the existing conditions. A HEC-2 model for Brunner Ditch was also created using 2000 Baker & Lawson survey sections. The outputs and comparisons of these revised HEC-2 models for the tributaries under 100-year, 25-year, and 10-year events are shown in Table 29 through 40, and the corresponding flood profiles are shown in Exhibit 31 through 34.

### 3.5.2 Drainage Problems

The following flooding problem areas have been identified in the Chocolate Bayou Watershed:

- Bull Murphy Road/CR 121 - CR 121 raised 1 to 2 feet in recent years; drainage problem created as it close to the confluence of North Hayes Creek and Chocolate Bayou;
- Iowa Colony - nearly every bridge is a one or two span undersized bridge (Chocolate Bayou);
- Chocolate Bayou and Parker School Road (CR 172)- flooding problems reported as the channel capacity in CR 172 crossing is less than 10-year frequency as shown in Table 75 (Chocolate Bayou);
- Chocolate Bayou in the vicinity of CR 193 and SH 35 – flooding problems reported.
- Ditch C-7 and FM 1462 - flooding problems reported as the channel capacity within this reach is less than 10-year frequency as shown in Table 75 (Chocolate Bayou);
- Ditch C-9 and Chocolate Bayou - flooding problems reported as the channel capacity within this reach is less than 10-year frequency as shown in Table 75 (Chocolate Bayou);
- Ditch C-12 and Chocolate Bayou - flooding problems reported as the channel capacity within this reach (between Cross-sections 7.0 and 7.5 in the HEC-2 model) is less than 10-year frequency as shown in Table 75 (Chocolate Bayou);
- West Fork Chocolate Bayou and Chocolate Bayou - flooding problems reported as the channel capacity of West Chocolate at confluence with Chocolate Bayou is less than 10-year frequency as shown in Table 76 (West Fork Chocolate Bayou);
- North Hayes Creek and Chocolate Bayou - flooding problems reported since the channel capacity of North Hayes Creek at confluence with Chocolate Bayou is less than 10-year frequency as shown in Table 77 (North Hayes Creek);

- Leedy Estates Subdivision (Sandy Lane at Tiffany near Chocolate Bayou) - insufficient culvert capacity; culvert can be replaced as roadway improvements are constructed.
- CR 121 and CR 122 - CR 121 goes under water during routine rainfall events since the channel capacity of South Hayes Creek at confluence with Chocolate Bayou is less than 10-year frequency as shown in Table 78 (South Hayes Creek);
- South Hayes Creek and Chocolate Bayou - flooding problems reported since the channel capacity of South Hayes Creek at confluence with Chocolate Bayou is less than 10-year frequency as shown in Table 78 (South Hayes Creek);
- Brunner Ditch - channel capacity problems since its channel reach capacities at confluence with North Hayes, South Hayes (the reach from FM 1462 to Pasture Road), and Chocolate Bayou (the reach from confluence with Chocolate Bayou to CR 192) are less than 10-year frequency as shown in Table 79 (Brunner Ditch).

### 3.5.3 Previous Improvements and Recommendations

1. Snowden Engineering, Inc. indicated in the 1989 Master Drainage Plan Report that all streams in their study area including Mustang Bayou, Chocolate Bayou, Ditch C-1, Ditch M-1, New Bayou, Halls Bayou, Chigger Creek, Ditch D-4, and Dickinson Bayou have inadequate capacity for a 25-year or 100-year frequency flood. They recommended both regional detention ponds and channel improvements for the Chocolate Bayou Watershed. These regional detention ponds were proposed on West Fork Chocolate Bayou, North Hayes Creek, and South Hayes Creek at the confluence with Chocolate Bayou. The detention areas of the three ponds are 250 acre, 150 acre, and 200 acre, respectively. The channel improvements begin downstream from the Briscoe Canal to Rifle Range Road with a 50-foot bottom width earthen channel, a 100-foot bottom width from Rifle Range Road downstream to Hayes Road and a 200-foot bottom width earthen channel from this point to SH 35 and a 300-foot bottom width earthen channel from SH 35 to FM 2004. This recommended plan will contain a 100-year flood in the bank all along the channel except for tidal flooding which will still extend upstream of SH 35.
2. Drainage District No. 5 had conducted cleaning along Brunner Ditch in 1998. The ditch flows full at times.

### 3.5.4 Current Recommendations

#### Chocolate Bayou –

1. A 90-acre planned detention pond for Chocolate Bayou at FM 1462.

A 90-acre detention pond is under construction for Chocolate Bayou at FM 1462 by Drainage District No. 3 as shown in Exhibit 6 (at Cross-section 14.1 within Drainage Area C-17 of Exhibit 5.) Assume that the 1980' × 1980' (90 acres) detention pond has depth of 11.8 ft with freeboard of 1.0 ft and side slope of 3:1 so that its volume for detention is about 900 acre-ft. The pond will detain flood peaks and discharge later to the downstream. Results from HEC-1 model analysis shows that such a detention pond will reduce the downstream 100-yr peak flows by 200 cfs. The cost estimates for constructing the detention facility is shown in Table 86.

2. Cutting the meanders out of Chocolate Bayou was discussed. The intent was to cut positive overflows across meander and let nature slowly cut the straight-line channel.
3. There is a flooding problem at Oak Manor Subdivision, which is located at Chocolate Bayou and CR 172. It is believed that the flooding is an internal problem in the subdivision and not the bridge structure on the Bayou.

Oak Manor Subdivision is located between CR 172 and SH 35. Under the revised existing condition, the channel reach at CR 172 (Cross-section 17.1 within Drainage Area C-19 in Exhibit 5) has capacity less than 10-year frequency and will have flood stages of 26.55, 27.35, and 28.62 ft under 10-yr, 25-yr, and 100-yr events, respectively, that are all higher than the bridge top (EL. 26.50 ft) as shown in Exhibit 30. The diversion by Brunner Ditch to Cottonwood Bayou (will be proposed in the recommendation for South Hayes Creek) only bring the 25-yr and 100-yr flood levels down to 27.29 ft and 28.56 ft, respectively, as shown in Table 27, 26 and Exhibit 35, which does not help Oak Manor. The proposed 90-acre detention pond may further reduce the flood stages. Down stream of CR 172, the flood plain becomes much wider than the upstream region and the subdivision is located in the flood plain Changing the bridge structure

will reduce the upstream flooding levels. Other alternatives may include levee, detention pond, or other diversion.

4. Other possible retention sites are in old sandpits on Fort Bend County side of Chocolate Bayou along 288.

West Fork Chocolate Bayou –

1. Cleaning West Fork from Chocolate Bayou confluence upstream to CR 64.

As shown in Table 76, the channel capacity of West Fork Chocolate Bayou from confluence with Chocolate Bayou to CR 64 is less than 10-year frequency. Cleaning West Fork from Chocolate Bayou confluence upstream to CR 64 (as shown in Exhibit 9) will reduce flood levels through the whole channel. Table 31, 30, 29 and Exhibit 36 show that, as a result of the channel cleaning, the average reductions of flood levels are estimated as 0.58 ft, 0.51 ft, and 0.36 ft for 10-yr, 25-yr, and 100-yr events, respectively. The cost estimates for the channel cleaning is shown in Table 87. The channel cleaning will probably send some additional flows downstream similar to what existed before.

2. The flooding problems at CR 81.

The channel capacity of West Fork Chocolate at CR 81 is less than 10-year frequency as shown in Table 76. Under the revised existing condition, CR 81 (Cross-section 5.1 within Drainage Area C-06) will have flood stages as 56.39 ft, 56.59 ft, and 56.98 ft for 10-yr, 25-yr, and 100-yr events, respectively, which are higher than the bridge top (EL. 55.79 ft) as shown in Exhibit 31. If the cleaning stated in (1) can be done, the flood stages will be reduced by 0.17 ft, 0.15 ft, and 0.19 ft for 10-yr, 25-yr, and 100-yr events, respectively, as shown in Table 31, 30, 29 and Exhibit 36. Channel cleaning can not bring the flood levels down to below the bridge top. One other alternative might be a diversion from upstream to the nearby Oyster Creek. Any diversions of flows must be carefully considered in the overall timing and peak flow event for both drainage systems being evaluated.



### 3. Replacing structure at CR 48

The bridge top elevation of CR 48 (Cross-section 7.98 within Drainage Area C-08 as shown in Exhibit 8) is 54.50 ft, which should not be submerged by the 100-yr flood (EL. 53.59 ft) under the revised existing condition as shown in Exhibit 31. However, over bank flows will occur in surrounding area for all 10-yr, 25-yr, and 100-yr events. Channel cleaning stated in (1) will reduce the 100-yr flood stages to 53.02 ft as shown in Table 29 and Exhibit 36. Widening the bridge bottom by 10 ft can further reduce the 100-yr flood stage to 52.78 ft. The cost estimates for the bridge replacement is shown in Table 88. The replacement of CR 48 structure will require a mitigation analysis to address any significant change in downstream flows.

#### North Hayes Creek –

1. The Alvin District is cleaning North Hayes from Chocolate Bayou to CR 121. CR 121 floods at a tank car culvert structure that has limited capacity.

The channel capacity of North Hayes Creek from confluence with Chocolate Bayou to the reach close to CR 121 is less than 10-year frequency as shown in Table 77. Cleaning North Hayes Creek from Chocolate Bayou confluence upstream to CR 121 (as shown in Exhibit 9) will reduce the flood levels through the whole channel. CR 121 is close to Cross-section 16.0 (within Drainage Area C-13B.) It can be observed from Table 34, 33, 32 and Exhibit 37 that, as a result of channel cleaning, the flood levels at Cross-section 16.0 can be reduced by 1.67 ft, 1.07 ft, and 0.28 ft for 10-yr, 25-yr, and 100-yr events, respectively. The cost estimates for the channel cleaning is shown in Table 89. Note that this channel cleaning will only help relief the flooding problem around the confluence of North Hayes Creek and Chocolate Bayou and upstream, but the impact on the downstream of Chocolate Bayou will be limited if there is no corresponding cleaning or other improvements for the Chocolate Bayou, since the flow rates from the North Hayes Creek are not changed.

### South Hayes Creek –

1. South Hayes has a heavy growth and needs to be cleaned... A 6' tank car culvert structure at CR 121 is restricting flow. To relieve South Hayes, Brunner Ditch could be cut all the way to Cottonwood Bayou (as shown in Exhibit 10.) Cottonwood flows through south of Liverpool and back into Chocolate Bayou below Amsterdam. This would require a bridge at the railroad and SH 35. This enlargement of Brunner Ditch would help Drainage Districts No. 3, 4, 5, and 8. An outline that was discussed to provide this work indicates that Drainage Districts No.5 would provide engineering and Drainage Districts No.3 and Drainage Districts No.4 would supply equipment. A way to get additional monies to pay for this channel improvement would be to add impact fees to the watershed.

Brunner Ditch currently diverts flows from North Hayes Creek and South Hayes Creek and collects local flows from Drainage Area C-31 (see Exhibit 5) then cuts all the way through Chocolate Bayou at downstream of SH 35. The HEC-1 analysis for the revised existing condition shows that the flows of South Hayes Creek at CR 121 (Cross-section 17.3 within Drainage Area C-16) can be reduced by Brunner Ditch. For the 10-yr, 25-yr, and 100-yr events, the flows will be reduced from 1815, 2086, and 2494 cfs to 1380, 1731, and 2366 cfs, respectively. Under the proposed condition, that is, Brunner Ditch cuts all the way through Cottonwood Bayou then discharges to Chocolate Bayou, the flows in Chocolate Bayou from downstream of SH 35 to the upstream of the confluence of Cottonwood Bayou and Chocolate Bayou can be reduced by 430, 590, and 960 cfs for 10-yr, 25-yr, and 100-yr flood events, respectively. The corresponding changes of South Hayes flood stages can be observed from Table 35, 36, 37, and Exhibit 10. The cost estimates for the diversion is shown in Table 90. The construction of a diversion of Brunner Ditch will require additional surveying and a mitigation analysis to address downstream change in flows.

### **3.6 Clear Creek Watershed**

Approximately 70 square miles of Clear Creek Watershed are located in northern Brazoria County, as shown on Exhibit 1, which encompasses the majority part of Pearland Drainage District No.4 and a small part of

Conservation & Reclamation Drainage District No. 3. The remainder Clear Creek Watershed is located in Harris County and Galveston County, counties adjacent to Brazoria County. The watershed is composed of the main stem of Clear Creek and four main tributaries: Mary's Creek, Mary's Creek Bypass Channel, Chigger Creek, and Cowart Creek. Harris County Flood Control District (HCFCD) is currently performing extensive studies on the Clear Creek Watershed.

### **3.6.1 Hydrologic and Hydraulic Issues**

The Clear Creek Watershed is essentially developed. City of Pearland and Brookside Village are within the limits. The stream, originating in northeast Fort Bend County at an elevation of about 70 feet above mean sea level, flows in a meandering easterly course through wooded and grass covered gently sloping terrain to sea level in Clear Lake and Galveston Bay. The watershed is subject to intense local thunderstorms of short duration, general storms extending over periods of several days, and to torrential rainfalls associated with hurricanes and other tropical disturbances. The comparatively impervious clayey soil in many areas is conducive to rapid runoff causing relatively high flood peaks whenever rainfall occurs.

The National Oceanic and atmospheric Administration (NOAA), National Weather Service Office, Houston, Texas, provides a generalized flash flood warning service for the Houston area which includes the Clear Creek watershed.

### **3.6.2 Drainage Problems**

The following flooding problem areas have been identified for the Clear Creek Watershed

- County Place at McHard - subdivision outfall ditches are dry while storm sewers are half full (Clear Creek);
- CR 175, CR 176, FM 1128 - ditches undersized (Chigger Creek);
- CR 125 to CR 130 on CR 129 - drainage and coordination problems with Galveston County (Cowart Creek).
- CR 125 to CR 127 - drainage problems in ditch (Cowart Creek).
- There are 140 locations that have filed repetitive FEMA claims totaling 497 separate claims. One location has filed 52 separate

claims. Seven locations have claim numbers that are in the two-digit range.

- Mary's Creek has flooding problem reported.
- Corrigan South is a subdivision in south of FM 518 that floods on a regular basis.

### **3.6.3 Previous Improvements and Recommendations**

1. TXDOT is reworking the SH 35 bridges. The Railroad is also working on the railroad crossing on the Clear Creek.
2. Mary's Creek, east of SH 35 is undergoing channel renovation.

### **3.6.4 Current Recommendations**

1. City of Pearland requires detention of new developments and detention on Mary's Creek.
2. Drainage District No. 4's plan includes a number of regional detention basins. This is an important element to this watershed.
3. The City of Pearland in constructing regional detention facilities along with some channel improvements and structure replacements. It is recommended that the City of Pearland and the Pearland Drainage District work together on common projects and reduction of flood plain elevations in the area.

## **3.7 Dickinson Bayou Watershed**

Approximately 12 square miles of Dickinson Bayou Watershed is located in eastern Brazoria County as shown in Exhibit 1. The majority of Dickinson Bayou Watershed is located in Galveston County. Dickinson Bayou main stem is approximately 24 miles long, with approximately 2 miles of the bayou running through Brazoria County. Ditch D-4 is a tributary to Dickinson Bayou with a stream length of approximately 7.5 miles in Brazoria County. The portion of Dickinson Bayou in Brazoria County encompasses northeast part of Conservation & Reclamation Drainage District No. 3. Northeast part of the City of Alvin is located within the watershed. This portion of the Dickinson Bayou Watershed is bounded on the west by CR 145 and the Mustang Bayou Watershed, the north by Clear Creek Watershed, the east by county border, and the south by Halls Bayou Watershed.

### 3.7.1 Hydrologic and Hydraulic Issues

The headwater of Dickinson Bayou is located on SH 35 south of Chigger Creek. The bayou flows in a southeastern direction through the Briscoe Canal and to the Galveston County Line. Dickinson Bayou begins in Brazoria County as an intermittent stream and flows easterly for approximately 24 miles to Dickinson Bay.

The region is subject to intense thunderstorms in the spring and summer months, to hurricanes during late summer and fall, and to extended periods of wet weather during the winter months. Therefore, the potential for floods due to heavy rain or from a combination of rain and tidal surge is always present. Flooding in the Dickinson Bayou watershed was widespread. Because tides in Galveston Bay were only slightly above normal the flooding was caused mainly by the extremely intense rainfall. Many of the channels within the watershed were not sufficiently improved or maintained to contain the runoff generated from heavy rainfall.

The Dickinson Bayou Watershed is essentially developed. Since 1960 the population within this area has increased more than 300 percent. Because of this continuing urban growth, in combination with the overall level terrain of the area, Gulf Coast climate conditions, and impervious soils, flood abatement issues have become a major concern for the safety and general welfare of the populace within the watershed.

### 3.7.2 Drainage Problems

None reported.

### 3.7.3 Previous Improvements and Recommendations

1. Snowden Engineering, Inc. mentioned in their 1989 Master Drainage Plan Report that, since Dickinson Bayou drains into Galveston County at the county line, a detention pond at the county boundary and channel improvements in the upstream were recommended. Approximately a 5-acre detention area will be required to regulate the flow inside the county before it drains downstream. A 10-foot bottom width earthen channel was recommended from the detention pond to SH 35. This recommended plan is also based on the

downstream channel having been improved from the county boundary and the discharge will not be increased more than the existing condition. They noted that, under such condition, the proposed improvement will confine the 100-year flood within the bank.

### **3.7.4 Current Recommendations**

1. The entire Dickinson Bayou Watershed contains portions of four drainage districts, namely Galveston County District No. 1, Galveston County District No. 2, Galveston County District No. 3, and Brazoria County Conservation & Reclamation District No. 3 as shown in Exhibit 2. Although each of the entities having jurisdiction over portions of the watershed has adopted some type of storm water control guidelines, these guidelines vary from comprehensive master plans to the specification of minimum culvert sizes. Furthermore, because the watershed boundaries do not coincide with political boundaries, the guidelines cover only portions of the watershed. Therefore, a regional drainage plan is necessary for effective, long-term flood control planning on a watershed-wide basis. Recommend continuing to use the previous drainage plan for Dickinson Bayou.

## **3.8 Flores Bayou Watershed**

The Flores Bayou Watershed encompasses a drainage area of approximately 40 square miles and is located in central Brazoria County as shown on Exhibit 1. The watershed is composed of the main stem of Flores Bayou which itself is a tributary of Austin Bayou. Flores Bayou is generally located between the Cities of Angleton and Danbury. Flores Bayou encompasses the southwestern portion of Iowa Colony Drainage District No.5, northeastern portion of Angleton Drainage District No.1, and northwestern portion of Danbury Drainage District No.8. The Flores Bayou Watershed is bounded on the west and south by the Bastrop Bayou Watershed and on the north and east by the Austin Bayou Watershed.

### **3.8.1 Hydrologic and Hydraulic Issues**

The aerial photographs, dated January 1995, were reviewed to determine the extent of development in the Flores Bayou Watershed. These aerial photographs indicate that the watershed remains approximately 95% in rice fields, row crops or graze land. The only area of substantial

development is the westerly portion of the City of Danbury. However, there is no substantial subdivision and/or development that contribute a significant amount of flow to the watershed. It is anticipated that as development continues south along the SH 288 Freeway Corridor, large lot (2-5 acres) subdivisions with some commercial may occur.

The hydrology and hydraulics of the Flores Bayou watershed are complicated by the presence of a drainage ditch locally known as the Iowa Colony Ditch (ICD) that intersects Flores Bayou at two locations. ICD intersects Flores Bayou just downstream of where both streams cross under CR 45 and then again where the two streams have their confluence near Bieri Lakes, just downstream of CR 171.

Immediately downstream of CR 45 Flores Bayou and ICD combine and then split again forming an "X". This requires a split flow analysis to be performed in HEC-2 to determine the amount of flow that would be carried downstream in each channel. The normal depth option of the split flow routine in HEC-2 was used in this analysis, whereby the amount of flow diverted to the downstream reach of ICD was based on normal depth calculations on a representative cross-section of ICD. There are a number of important assumptions associated with this type of analysis that are explained in the HEC-2 manual.

The split flow model was run for a range of flows that would allow the development of a rating curve of inflow versus flow diverted to ICD. This rating curve was coded into the HEC-1 models for the Flores Bayou watershed in the form of DI/DQ records that would reflect the diversion to ICD. This allowed for the routing and combining of the diverted flows as they move downstream through the ICD reach below CR 45. Note that the assumption for the HEC-1 models is that there is no inflow from Austin Bayou because of the dam on ICD that currently prevents the diversion from Austin Bayou to Flores Bayou. This analysis resulted in higher flows than were originally estimated for Flores Bayou. Therefore, the original 10-Yr, 25-Yr, and 100-Yr water surface profiles were recomputed with the new flows. In order to check the results of the split flow analysis, it was assumed that the 100-Yr water surface elevation of ICD and Flores Bayou should be nearly the same at their respective CR 45 bridge structures. The model computations show that this difference is less than 0.3 feet.

The revised HEC-1 models and a revised HEC-2 model were created from the effective FEMA models. The stream network configuration in the HEC-1 model is designed based on the Flores Bayou Watershed Drainage Area Map (Exhibit 11). The HEC-2 model includes the 2000 Baker & Lawson survey sections and the revised bridge inspection information. The comparisons of the HEC-1 outputs between the revised model and the FEMA model for the 100-year event are shown in Table 41. Note that, in Table 41, the percentage change in flows at CR 210 is caused by the drainage area change based on the revised existing conditions. The comparisons of the HEC-2 outputs between the revised existing model and the FEMA model are shown in Table 42, 43, and 44 for the 100-year, 25-year, and 10-year events, respectively, and the corresponding flood profiles under the revised existing condition are shown in Exhibit 38. The channel capacities of the Flores Bayou are shown in Table 80.

### **3.8.2 Drainage Problems**

The following flooding problem areas have been identified for the Flores Bayou Watershed:

- SH 35 and CR 46 need to be cleaned out at the Flores Bridge.
- Flooding problems known at the confluence of Flores Bayou and Iowa Colony Ditch (Big Ditch).

### **3.8.3 Previous Improvements and Recommendations**

1. The Iowa Colony Drainage District had cut the Iowa Colony Ditch (ICD), which diverted flow from Austin Bayou into Flores Bayou. Though the channel remains, a dam has been constructed just south of Austin Bayou that prevents this diversion from occurring at present.

### **3.8.4 Current Recommendations**

1. The impact of the construction of a detention pond on Flores Bayou located near the confluence of the Iowa Colony Ditch (ICD) and Flores Bayou has been investigated. Several scenarios were examined in different parts of the Flores Bayou watershed to see whether the 100-Yr water surface elevation could be lowered by the use of storm water detention. This proved infeasible because of a



high tailwater condition that exists in the lower portion of Flores Bayou. This tailwater condition is caused by the floodplain encroachment of the levees associated with Bieri Lakes. In discussions with personnel from the local drainage districts, they indicated that it was their understanding that environmental regulations would hinder any channel improvements to Flores Bayou that would alleviate the high tailwater condition.

In lieu of proposing detention alternatives to alleviate flooding problems at the 100-Yr frequency, a retention alternative was investigated that could alleviate flooding problems at the 25-Yr frequency.

The alternative consists of providing storage on ICD in the area just upstream of CR 45 (as shown in Exhibit 12) by excavating a pond and constructing a weir outlet from the pond with a gated gravity structure that could be opened to drain the pond in the absence of the high tailwater condition. The HEC-1 models of the Flores Bayou watershed were modified to reflect the presence of such a structure. The assumed weir structure coded into these models assumes a weir crest elevation of 25.0 MSL, a weir length of 250 feet, and a weir discharge coefficient of 2.6. The models also assume 1,900 acre-feet of storage being available below elevation 26.3 at the proposed site.

The revised 100-Yr, 25-Yr, and 10-Yr HEC-1 models for the proposed condition were run and the resulting flows were input into the HEC-2 model of Flores Bayou. The model results indicated that, although the water surface elevation was only marginally reduced at CR 207 (less than 0.6 feet), the reduction near CR 45 and CR 46 was significant, for the 10-Yr and 25-Yr storm events. The model results indicated that for the 100-Yr event, the assumed weir structure would most likely be inundated to the point where it would be unable to make a significant impact in the water surface profile. The lack of significant reduction at CR 207 is due to the high tailwater condition.

The corresponding HEC-2 model result comparisons for the proposed condition are shown in Table 42, 43, and 44 for the 100-year, 25-year, and 10-year events, respectively, and the plots of flood profiles are shown in Exhibit 39. Table 91 shows the cost estimate of the proposed retention facility.

2. The proposed retention site may locate at the property owned by the Hammel Estates Foundation upstream of CR 45. Flores Bayou involves the Iowa Colony, Angleton and Danbury Districts. Each should participate in the regional retention facility planning.

### **3.9 Halls Bayou Watershed**

The Halls Bayou Watershed encompasses a drainage area of approximately 60 square miles and is located in eastern Brazoria County as shown on Exhibits 1 and 2, which encompasses southeastern part of Conservation & Reclamation Drainage District No. 3. The eastern portion of Halls Bayou Watershed lies within Galveston County. No major tributaries of Halls Bayou have been identified.

The Halls Bayou Watershed encompasses the eastern portion of the Alvin Drainage District and provides drainage for the western portion of the City of Santa Fe in Galveston County. The Halls Bayou Watershed is bounded on the west by the Mustang Bayou Watershed and Persimmon Bayou, and the east by Galveston Count drainage systems.

#### **3.9.1 Hydrologic and Hydraulic Issues**

There is no major development in the Halls Bayou Watershed within Brazoria County. The aerial photographs, dated January 1995, were reviewed to determine the extent of development in the Halls Bayou Watershed. These aerial photographs indicate that the watershed remains approximately 85% in rice fields, row crops or graze land. The only area of substantial development is the westerly portion of the City of Santa Fe in Galveston County.

Halls Bayou runs southeasterly near the Galveston/Brazoria County line. The headwater is located north of the Missouri Pacific Railroad and southeast of Hillcrest Village. The bayou flows through CR 165, Briscoe Canal, Halls Bayou Road, and FM 2004 to Halls Lake and Chocolate Bay. There are no substantial subdivisions and/or developments that contribute a significant amount of flow to the watershed.

To conduct hydrologic routing and hydraulic analysis for the Halls Bayou Watershed under existing condition, a revised HEC-1 model and a

revised HEC-2 model were created based on the current effective FEMA models. Also included is a HEC-2 model for downstream of the Halls Bayou. The stream network configuration in the HEC-1 model is designed according to the Halls Bayou Watershed Drainage Area Map (Exhibit 13). The HEC-2 model includes the 2000 Baker & Lawson survey sections and the revised bridge inspection information. The comparisons of the HEC-1 outputs between the revised model and the FEMA model for the 100-year event are shown in Table 45. Note that since the drainage areas have been modified based on existing conditions, and that the flows from the FIS are obtained from regional USGS regression equations instead of HEC-1 models, Table 45 shows significant percentage changes in flows. It appears that the some of the difference in flows between this model and FEMA's stems from this study identifying a larger watershed for the Bayou, and some flow change is due to the changed hydrological condition modeling. The comparisons of the Halls Bayou upper reach HEC-2 outputs between the revised model and the FEMA model are shown in Table 46, 47, and 48 for the 100-year, 25-year, and 10-year events, respectively; and those of the downstream models are shown in Table 49, 50, and 51, respectively. The corresponding flood profiles under the revised existing condition are shown in Exhibits 40 and 41 for the upper reach and the downstream reach, respectively. The channel capacities of the Halls Bayou are shown in Table 81.

### 3.9.2 Drainage Problems

The following flooding problem areas have been identified for the Halls Bayou Watershed:

- Drainage problems have been reported upstream of the railroad. The rural section roadways are not able to convey flows quickly enough to Halls Bayou to prevent localized flooding. The roadside ditches are too small to carry water to the bayou.
- Floodwater has been reported in garages along CR 166 and in homes between CR 165 and CR 159. Mention was made that culvert pipes under the canal may be undersized.
- CR 159 from CR 164 - limited maintenance of ditches extending into Galveston County creates flooding problems.

### 3.9.3 Previous Improvements and Recommendations

1. Snowden Engineering, Inc. addressed in their 1989 Master Drainage Plan Report that the recommended plan on Halls Bayou is as follows: A 20-foot bottom width earthen channel from CR 159 to CR 165 and 50-foot bottom width from CR 165 to the pipeline crossings approximately 1 mile upstream from Halls Bayou Road. Downstream from the pipeline crossings, a 100-foot bottom width earthen channel was recommended for approximately 3 miles toward the south with no improvement on channel for approximately 1.5 miles until it hits FM 2004. South of FM 2004, a 200-foot bottom width earthen channel was recommended for a distance of approximately 1 mile. They noted that this recommended plan will confine the 100-year flood in the bank except the area downstream from Halls Bayou Road which is still subject to tidal flooding.

### 3.9.4 Current Recommendations

1. Ditches and drainage channels along CR 166, CR 159 from CR 164, and within the area between CR 165 and CR 159 need maintenance and evaluation.
2. The bayou section from FM 2004 to Brisco Canal needs to be cleaned.

## 3.10 Linville Bayou Watershed

The Linville Bayou Watershed encompasses a drainage area of approximately 46 square miles and is located in western Brazoria County (within West Brazoria County Drainage District No.11) as shown on Exhibits 1 and 2. The watershed is composed of the main stem of Linville Bayou and three main tributaries: Little Linville Bayou, Dance Bayou, and Red Bayou. No city is located within the watershed. The Linville Bayou Watershed is bounded on the west and north by county border, the east by San Bernard River Watershed, and the south by Cedar Lake Creek Watershed.

### 3.10.1 Hydrologic and Hydraulic Issues

The Linville Bayou Watershed is essentially undeveloped. The aerial photographs, dated January 1995, were reviewed to determine the extent of development in the Watershed. These aerial photographs indicate that

the watershed remains approximately 95% in rice fields, row crops, graze land, and woodlands. There is no substantial subdivision and/or development that contribute a significant amount of flow to the watershed.

### **3.10.2 Drainage Problems**

The following flooding problem areas have been identified for the Linville Bayou Watershed:

- A drainage problem along Dance Bayou has been reported because property owners have constructed dams along Dance Bayou;
- Dam at Amoco Plant and other dams at C.R. 743 and C.R. 488 caused 3 to 4-foot flooding for 2-3 days on Dance Bayou, that outfall into Little Linville Bayou.
- A wildlife refuge is located near Danciger on Dance Bayou that would limit any channel from being cleaned or improved.
- Cedar Lake Bayou overflows into Dance Bayou. Dance Bayou gets out of its banks but returns to the channel downstream.
- A private owned company bought property along CR 3 and dug a pond with levees on Dance Bayou. Dance Bayou has to go through a 36-inch culvert to get around the leveed pond. Upstream of the pond are 5-4' x 4' box culverts.

### **3.10.3 Previous Improvements and Recommendations**

None reported.

### **3.10.4 Current Recommendations**

1. The Linville dam has caused several flooding of homes at the City of Sweeney. Floodwaters go around the dam to Van Vleck. The dam creates a flooding problem 7 miles upstream. The velocity of the flow around the dam is not great enough to cut channels. Currently, the dam reportedly causes flooding on Dance Bayou, Little Linville and Linville Bayous. There has been some mention of possible environmental issues associated with this portion of Linville Bayou. It is recommended that West Brazoria County Drainage District Number 11 investigate all of the issues associated with the existing

dam and determine what course of action to take. Inspections to the dam are recommended until the issue is resolved.

### **3.11 Mustang Bayou Watershed**

The Mustang Bayou Watershed encompasses a drainage area of approximately 60 square miles and is located in eastern Brazoria County. The watershed is composed of the main stem of Mustang Bayou and one major tributary, Ditch M-1. As shown in Exhibit 2 that the Mustang Bayou Watershed encompasses part of Pearland Drainage District No. 4 and central portion of Conservation & Reclamation District No. 3. Most part of the City of Alvin and east part of the City of Manvel is located within the watershed. The Mustang Bayou Watershed is bounded on the west and south by New Bayou Watershed, the north by Clear Creek Watershed, and the east by Dickinson Bayou Watershed and Halls Bayou Watershed.

#### **3.11.1 Hydrologic and Hydraulic Issues**

The Mustang Bayou Watershed is essentially developed. Mustang Bayou has its headwaters within the city limits of Missouri City that is located in Fort Bend County. The bayou flows Southeasterly through the City of Manvel, Alvin and Hillcrest Village to its confluence with Persimmon and New Bayou near West Bay.

Ditch M-1 is a man-made tributary of Mustang Bayou, which originates in the western part of Alvin and outfalls in Mustang Bayou approximately six miles southeast of Alvin. Ditch M-1 provides a certain capacity for drainage of the south and west portions of the City of Alvin.

Mustang Bayou can be divided into two segments based on water flow. Above the City of Alvin, it is a small, intermittent stream that dries up in several reaches during the summer dry season. Mustang Bayou below Alvin has a constant, although small flow originating mostly as discharge from several municipal sewage treatment plants. There is a 7,500-foot long local drainage ditch between these bayou segments that cuts across a bend in the bayou just upstream from Alvin near CR 147 at the upper end to Atchison Topeka and Santa Fe Railroad at the lower end. The upper segment flows through several small, rural communities and subdivisions or pastureland, where it is more than a shallow, dry swale.

This reach has been extensively cleared, channelized, and straightened along almost its entire length.

In order to conduct hydrologic routing and hydraulic analysis for the Mustang Bayou Watershed under existing condition, a revised HEC-1 model and a HEC-2 model revised from the existing model (by Snowden Engineering, Inc.) The stream network configuration in the HEC-1 model is designed based on the Mustang Bayou Watershed Drainage Area Map (Exhibit 14). The HEC-2 model includes the Baker & Lawson survey sections obtained in 2000 and the revised bridge inspection information. The comparisons between the revised HEC-1 model outputs and the corresponding Snowden model outputs and those between the Snowden model outputs and the corresponding FEMA values for the 100-year event are shown in Table 52. The comparisons for the 25-year event between the revised HEC-1 outputs and the corresponding coded Snowden model outputs are shown in Table 53, and those for the 10-year event between the revised HEC-1 outputs and the corresponding FEMA values are shown in Table 54. Note that since the drainage areas and hydrologic parameters have been modified based on the existing conditions, certain percentage changes in flows are shown in Tables 52, 53, and 54. The comparisons of the HEC-2 model outputs between the revised existing model and the Snowden model are shown in Tables 55, 56, and 57 for the 100-year, 25-year, and 10-year events, respectively, and the flood profiles under the revised existing condition are shown in Exhibit 42. It can be observed from Tables 55, 56, and 57 that the estimated water surface elevations (WSEL) based on the revised existing condition are higher than those based on the source models for about 0.5 - 2.0 feet. The channel capacities of the Mustang Bayou are shown in Table 82.

In addition, for Ditch M-1, the Snowden HEC-2 model was also revised for the project based on the existing conditions. The outputs and comparisons of these revised HEC-2 models for Ditch M-1 under 100-year, 25-year, and 10-year events are shown in Table 58, 59, and 60, respectively, and the corresponding flood profiles are shown in Exhibit 43. The channel capacities of the Ditch M-1 are shown in Table 83.

### 3.11.2 Drainage Problems

The following flooding problem areas have been identified for the Mustang Bayou Watershed:

- Flooding problems reported at ditches M-22, M-23, M-24, M-25 and Mustang Bayou. The above four ditches are close to FM 1128 crossing (Cross-section 170550 in the Mustang Bayou HEC-2 model) within City of Manvel where the channel capacity of the Mustang Bayou is less than 10-year frequency as shown in Table 82.
- FM 2403 and South Street - flooding problems reported.

Snowden Engineering, Inc. reported in 1989 that all stream in their study area including Mustang Bayou, Chocolate Bayou, Ditch C-1, Ditch M-1, New Bayou, Halls Bayou, Chigger Creek, Ditch D-4, and Dickinson Bayou have inadequate capacity for a 25-year or 100-year frequency flood. The most serious flooding problem in area occurred in the vicinity of the most populated area, the City of Alvin. This is due to the limited right-of-way of Mustang Bayou and the heavy growth of vegetation inside the banks. Inside the Alvin City limits high density residential and commercial buildings may also impact sheet flow paths.

### **3.11.3 Previous Improvements and Recommendations**

1. To relieve the flooding problems of Mustang Bayou Watershed adjacent to the City of Alvin, several plans have been proposed in former reports.

Turner, Collie & Braden, Inc. indicated in their 1974 Drainage Master Plan for Brazoria County Conservation and Reclamation District No.3 that the problem of developing a satisfactory drainage plan at reasonable cost is complicated by 60 bridge structures which cross Mustang Bayou and Ditches C-1 and M-1 in that area. Additionally, in the reach of Mustang Bayou through and adjacent to the City of Alvin, urban development along the banks of the bayou restricts the right-of-way available for channel enlargement. A plan was selected by them for recommendation by considering above restrictions, that is, a diversion of the Mustang Bayou flows into Ditch C-1 near Manvel via Ditch C-1-J, around Alvin and back to Mustang Bayou via Ditch M-1 (reference Exhibit 22) and two new connecting channels. Ditch C-1 would be enlarged to carry the diverted flow. A new channel connection between Ditch C-1 and Ditch M-1, and a new connection between Ditch M-1 and Mustang Bayou need to be constructed under this plan.



In the 1980 Mustang Bayou Drainage Improvements Report, Bernard Johnson, Inc. provided three plans for immediate relief to the Alvin area. The first project is to divert Mustang Bayou to Ditch C-1 just South of Manvel. It was proposed to utilize the capacities of lower Ditch C-1 and New Bayou to carry the diverted flow rather than to complete the bypass loop to Mustang Bayou. Due to the limitations on the carrying capacities of lower Ditch C-1 and New Bayou, it was proposed to limit the initial Mustang Bayou diversion flow to approximately one half of the existing 100-year flow. The second and the third projects are to improve the Mustang Bayou through Alvin to a point south of town near the crossing of the Briscoe Canal, and to improve Ditch M-1 in the South Park area, respectively.

The Army Corps of Engineers, Galveston District pointed out in the 1989 Reconnaissance Report that a short reach of Mustang Bayou located immediately west of Alvin has undergone heavy development in recent years. A man-made cut-off channel has been excavated in this area for flood relief. Two alternative plans for further improvement were considered by the Corps: 1) enlargement of cut-off channel to provide 10-year protection within the developed area, ending just upstream from the SH 6 bridge; and 2) similar channel enlargement but continuous down Mustang Bayou through and beyond the bridge for a total of about 1.5 miles. The bottom width would be 60 feet, with 1 on 3 side slopes and an invert slope of 0.0003. Preliminary hydraulics studies revealed that sufficiently improved flood elevations could be achieved only by continuing the enlargement through the bridge.

In addition, the Corps also considered a diversion from Mustang Bayou to the south. As suggested by Drainage District No.3, the diversion channel begins at a point about 7 miles east from Alvin and outfalls into Halls Bayou. Under this plan, there will be a subtraction of about 85 percent for all frequencies of Mustang Bayou flows at the diversion point mentioned above. Although, as a result of hydraulic analysis, improved water surface were noted in the reach immediately upstream from the diversion point, this reach is relatively undeveloped, change in Alvin attributable to the diversion were insignificant. Flood damage reduction benefits, therefore, would be negligible, and this alternative received no further consideration.

Note that a diversion project for the Mustang Bayou around the City of Alvin similar to that recommended by Turner, Collie & Braden, Inc., 1974 is under planning by Drainage District No. 3.

2. Snowden Engineering, Inc. expressed in their 1989 Master Drainage Plan Report that, for Mustang Bayou, four major factors that contribute to the flooding problem and limit the degree of channel improvements are: a) Upstream contributing area from Fort Bend County; b) Limited right-of-way in the City of Alvin; c) Limited right-of-way at the reservoir; and d) Tidal flooding. Their proposed improvements include channel rectification, concrete lining, structure replacement and a regional detention facility.

The recommended plan on Mustang Bayou is based on the existing condition upstream from the Fort Bend County/Brazoria County Line and the existing top of bank width on Mustang Bayou within the City of Alvin limits. A 40-foot bottom width earthen channel with 3:1 side slopes was recommended from the Fort Bend/Brazoria County Line to an irrigation canal. A 60-foot bottom width earthen channel was recommended from the irrigation canal to a proposed regional detention pond. A proposed 150-acre regional detention site was recommended at this natural bend area. Downstream from the proposed pond, the 60-foot bottom earthen channel will be extended to the city limits of Alvin. From the city limits to CR 160, a concrete lined section with a 20-foot bottom width having 2:1 side slopes was recommended to match the existing top of bank due to the limited expansion on each side of the bank. Downstream from CR 160, a 100-foot bottom width earthen channel was recommended to the southern limit of the Farm of Texas reservoirs. A 200-foot bottom width earthen channel was recommended from this section to the confluence with New Bayou. Downstream from the confluence, a 300-foot bottom width earthen ditch was recommended to just upstream of Persimmon Bayou. This recommended plan will confine the the100-year flood in the bank from the Fort Bend/Brazoria County line to FM 2004 except for tidal flooding which will still extend upstream from the existing reservoir.

In addition, they stated in the report that, for Ditch M-1, the major factors that contribute to the flooding problem and limit the degree of channel improvements are: a) limited right-of-way of the existing 2-foot bottom width ditch inside the City of Alvin; b) Overloaded

storm sewer systems and the 2-foot bottom width concrete lined ditch; and c) limited capacity of the existing 7-72" CMP under the Briscoe Canal crossing.

Thus, for Ditch M-1, channel enlargement for the channel reach from SH 35 to the confluence with Mustang Bayou was recommended. The recommended plan is based on the improved drainage system inside the City of Alvin to limit the drainage area to the capacity of the existing concrete lined channel. By doing this, no improvements will be required upstream from the existing concrete lining ditch. Downstream from this ditch to SH 35, a 20-foot bottom width concrete lined channel with 2:1 side slopes was recommended. Downstream from SH 35 to the confluence with Mustang Bayou, a 60-foot bottom width earthen channel was recommended together with additional 3-72" CMP underneath the Briscoe Canal crossing. This recommended plan will confine the 100-year flood within the banks all along the channel.

Note that these channel improvement plans have not been implemented yet.

#### **3.11.4 Current Recommendations**

1. Channel cleaning for Mustang Bayou from De Bello Road bridge west to Fort Bend County Line. Any significant change or cleaning of Mustang Bayou should be evaluated by the Drainage District Engineer to make sure there are not downstream adverse effects. The channel cleaning will probably send some additional flows downstream. Recommend a mitigation analysis be prepared to evaluate the effects of the channel cleaning on downstream flows and water surface elevations.

Cleaning Mustang Bayou from De Bello Road (CR 90) west to Fort Bend County Line (from Cross-section 187353, within Drainage Area M-02, upstream to 220723, within Drainage Area M-01), as shown in Exhibit 15, was investigated and modeled by HEC-2. The results reflect that the cleaning will reduce the flood levels in north part of Manvel area. As shown in Table 57, 56, 55, and Exhibit 44, the average reductions of flood levels for the cleaned section are estimated as 0.67 ft, 0.65ft, and 0.67ft for 10-yr, 25-yr, and 100-yr events, respectively. The cost estimates for the channel cleaning is

shown in Table 92. The channel cleaning will probably send some additional flows downstream. Recommend a mitigation analysis be prepared to evaluate the effects of the channel cleaning on downstream flows and water surface elevations.

2. At the intersection of CR 48 and CR 174, an elementary school is planned and the drainage area may need to be diverted from the school along CR 48 to Chocolate Bayou. The design of the new school should address any specific issues at this site.

The intersection of CR 48 and CR 174 is located about one mile south of Cross-section 211495 (within Drainage Area M-01 in Exhibit 2) of which the right bank watershed divide elevation is 65.6 ft. Under the revised existing condition, the flood levels of 10-yr, 25-yr, and 100-yr events are 64.72 ft, 65.18 ft, and 65.91 ft, respectively. After the cleaning of the upstream section of Mustang Bayou proposed in (1) has been done, as shown in Table 57, 56, 55, and Exhibit 44, the flood levels can be reduced to 63.90 ft, 64.37 ft, and 65.09 ft for 10-yr, 25-yr, and 100-yr events, respectively, which are all lower than the watershed divide so that the area should not be flooded by Mustang Bayou flows. West Fork Chocolate Bayou is located about 3 miles south of the intersection where the bank elevation is about 58.00 ft. It may be feasible to divert from the school along CR 48 to West Fork Chocolate Bayou and this would further protect the school area from being flooded.

3. The Alvin District is planning a diversion for Mustang Bayou to send water around Alvin. The City of Alvin Engineering has discussed preparing the studies and improvement plans for this diversion. This evaluation will include the diversion of M-1 to C-1-B as shown in Exhibit 22. Table 97 can be referenced for the cost estimates of the diversion.
4. Pearland Drainage District is looking at the purchase of a 90-acre site for a detention facility in the vicinity of CR 564 near the Fort Bend County line.

It is recommended that the Alvin District continue to implement their Master Drainage Plan and previously evaluated. The results from these models could be used to compare to the previously utilized models. Care should be taken in implementing any improvements

without consulting with the County Flood Plain Administrator and others to ensure there are no adverse effects from the construction of future Master Plan elements.

### **3.12 New Bayou Watershed**

The New Bayou Watershed encompasses a drainage area of approximately 40 square miles and is located in eastern Brazoria County as shown on Exhibit 1. The New Bayou is a man made channel which has confluence with the Mustang Bayou in the coastal area. The capacity of New Bayou has recently been increased in anticipation of the diversion of additional flow from Ditch C-1 (now within the New Bayou Watershed) to New Bayou.

The New Bayou Watershed is located within Conservation & Reclamation Drainage District No. 3, which encompasses part of the City of Manvel and the City of Alvin. The New Bayou Watershed is bounded on the west by Ditch C-1 and Chocolate Bayou Watershed, the north and east by Mustang Bayou Watershed, and the south by Chocolate Bay.

#### **3.12.1 Hydrologic and Hydraulic Issues**

The New Bayou Watershed includes the drainage areas of both Ditch C-1 and New Bayou. The Ditch C-1 Watershed involves part of the developed area between City of Manvel and City of Alvin. The ditch drains from this area and conveys the flows to the downstream. The New Bayou is a relief channel to Ditch C-1 which passes through an area approximately 95% covered by rice fields, row crops, and graze land as observed from the 1995 aerial photographs.

Ditch C-1 was originally a man-made tributary of Chocolate Bayou. Currently, it originates at east of the City of Manvel and flows southeasterly along the Brazos River Authority Canal (Briscoe Canal) for about 8.2 miles then turns south to the New Bayou near CR 169. The old down stream channel of the C-1 Ditch diverts about 20% of the flow into the Chocolate Bayou near Liverpool. The New Bayou conveys the flow from Ditch C-1 and outfalls into Chocolate Bay.

In order to conduct hydrologic routing and hydraulic analysis for the New Bayou Watershed under existing condition, a revised HEC-1 model and a

HEC-2 model revised from the existing model (by Snowden Engineering, Inc.) The stream network configuration in the HEC-1 model is designed based on the New Bayou Watershed Drainage Area Map (Exhibit 16). The HEC-2 model includes the 2000 Baker & Lawson survey sections and the revised bridge inspection information. The comparisons between the revised HEC-1 model outputs and the corresponding Snowden model outputs for the 100-year and 25-year events are shown in Table 61 and 62, respectively, and the revised HEC-1 model outputs for the 10-year event are shown in Table 63. Note that, in Tables 61 and 62, the significant percentage changes in flows from downstream of the dirt dam (near CR 169) reflect the combination of Ditch C-1 with the New Bayou. The comparisons of the HEC-2 model outputs between the revised existing model and the coded Snowden model are shown in Table 64 and 65, for the 100-year and 25-year events, respectively, and the revised HEC-2 model outputs for the 10-year event is shown in Table 66. The corresponding flood profiles for the revised existing condition are shown in Exhibit 45. Note that since, by 1/1/2000, the New Bayou doubled in size from 20 feet bottom to 40 feet bottom, and that the revised HEC-2 model is based on the new survey sections, some of the estimated water surface elevations are lower than the source model results in Tables 64 and 65, even though the flows were increased.

### 3.12.2 Drainage Problems

The culverts for Ditch C-1-J at SH 6 may not be large enough, and the channel capacity at this section is less than 10-year frequency as shown in Table 84.

### 3.12.3 Previous Improvements and Recommendations

1. Snowden Engineering, Inc. had channel improvement recommendations for both Ditch C-1 and New Bayou in the 1989 Master Drainage Plan Report. The recommended plan for Ditch C-1 was a 20-foot bottom width earthen channel from Tankersley Road to Old Rifle Road and a 40-foot bottom width earthen channel for Old Rifle Road to the confluence with Chocolate Bayou. The recommended plan for New Bayou was based on zero diversion from either Ditch M-1 or Ditch C-1. The recommended plan calls for a 20-foot bottom width earthen channel from CR 169 to Briscoe Canal crossing, a 60-foot bottom width earthen channel downstream to the

Missouri Pacific Railroad crossing and a 100-foot bottom width earthen channel to the confluence with Mustang Bayou. These recommended plans will confine the 100-year flood in the bank except for the downstream area subjected to tidal flooding as mentioned by Snowden.

Note that the bottom size of the New Bayou has been changed from 20 feet to 40 feet since 1/1/2000.

#### **3.12.4 Current Recommendations**

1. The C-1 Ditch is a part of New Bayou system in this project. Under the revised existing condition, the 100-year flood stage at SH 6 section is 52.24 ft, which is higher than the bridge top (EL. 52.22 ft) since the channel reach at this section has capacity of 25-year frequency as shown in Table 84. It is estimated that if the channel section from upstream to downstream of SH 6 (as shown in Exhibit 17) is enlarged by changing the bottom width to 70 ft, elevation to 44 ft, and side slopes to 2.5:1, then, as shown in Table 64, the 100-year flood stage in SH 6 can be reduced to 52.19 ft, which is below the bridge top. The cost estimates for the works needed to be done to implement the enlargement is shown in Table 93.

#### **3.13 Oyster Creek Watershed**

The Oyster Creek Watershed encompasses a drainage area of approximately 131 square miles and runs from the north central to the southeastern boundaries of Brazoria County as shown in Exhibit 1. The watershed is composed of the main stem of Oyster Creek, Blunk Slough, and East Union Bayou. The southern portion of the Oyster Creek Watershed encompasses the central section of the Velasco Drainage District No. 2. The City of Holiday Lake and part of the City of Angleton, Baileys Prairie, Lake Jackson, Richwood, Clute, and Oyster Creek are located within the watershed. The Oyster Creek Watershed is bounded on the west and south by the Brazos River Watershed, the east by the Austin Bayou, Flores Bayou and Bastrop Bayou Watersheds, and the north by Waller County border.

### 3.13.1 Hydrologic and Hydraulic Issues

The aerial photographs, dated January 1995, were reviewed to determine the extent of development in the Oyster Creek Watershed. These aerial photographs shows that, except for the sections of the channel that flow through developed cities, the watershed within Brazoria County remains approximately 70% in row crops, woodlands or graze land.

The current development in the Oyster Creek Watershed is within the Velasco Drainage District. It is the policy of the Velasco Drainage District to require mitigation of any increased runoff by development within the Oyster Creek Watershed. The only areas of substantial further development are the Cities of Lake Jackson, Richwood, Clute and Oyster Creek.

The relatively narrow Oyster Creek watershed lies east of and generally parallels to the Brazos River. The lower reach of Oyster Creek is tidally influenced.

Oyster Creek has a sustained water flow year-round, mostly attributable to the Brazos River Authority, which pumps water from the Brazos River into Oyster Creek from Harris Reservoir to FM 2004 for irrigation purpose. Unused water, as well as sewage treatment plant discharge, is returned to the Brazos River downstream via Flat Bank Creek, where an earthen diversion dam cuts across Oyster Creek. Intermittent run-off and seepage constitute the only flow in Oyster Creek below the diversion dam and down to its lower end near Freeport.

During large floods, generally caused by heavy rainfalls in the upstream area of Brazos River watershed, significant interbasin flow exchanges occur between the Brazos River and Oyster Creek because of the relative southeastern topographic trend and the perched characteristic of river. The relatively flat topography and generally inadequate tributary streambed slopes and capacities also result in flooding in the area from the intense local rainstorms and tropical storms relatively common to the region. The large floods on Oyster Creek are due to overflow from the Brazos River.

In major flood events, the Brazos River exceeds its banks near Harris Reservoir, six miles upstream of SH 35, causing extensive flooding on



Oyster Creek. The overflow can also enter Bastrop Bayou south of Angleton.

To conduct hydrologic routing and hydraulic analysis for the Oyster Creek Watershed under existing condition, a revised HEC-1 model and a revised HEC-2 model were created based on the current effective FEMA models. The stream network configuration in the HEC-1 model is designed according to the Oyster Creek Watershed Drainage Area Map (Exhibit 18). The HEC-2 model includes the 2000 Baker & Lawson survey sections and the revised bridge inspection information. The comparisons of the HEC-1 outputs between the revised model and the FEMA model for the 100-year event are shown in Table 67. Note that since the drainage areas have been changed based on existing conditions, and that the flows from the Flood Insurance Study are obtained from regional USGS regression equations instead of HEC-1 models, certain percentage changes in flows are found in Table 67. The major difference between this model and FEMA's centers on our model reflecting the diversion of the majority of the Creek's drainage area in Ft. Bend County to the Brazos River. This diversion occurred after the preparation of the FEMA maps. The comparisons of the HEC-2 outputs between the revised model and the FEMA model are shown in Table 68, 69, and 70 for the 100-year, 25-year, and 10-year events, respectively, and the corresponding flood profiles under the revised existing condition are shown in Exhibit 46. The channel capacities of the Oyster Creek are shown in Table 85.

### 3.13.2 Drainage Problems

The following flooding problem areas have been identified for the Oyster Creek Watershed:

- CR 28 west of Angleton: sewer plant capacities problem occur when the Brazos River then Oyster Creek floods.
- CR 727 subdivision and CR 32 subdivision have easements problems with not enough area for adequate drainage.

### 3.13.3 Previous Improvements and Recommendations

1. Local flood protection projects in the form of levees, weirs, and impoundment exist along portions of Oyster Creek flood plain which provide some areas with up to 100-year flood protection.
2. The Army Corps of Engineers, Galveston District, recommended improvements to Oyster Creek Watershed in their 1989 Reconnaissance Report, that include levee construction and a diversion from Oyster Creek to Brazos River in Fort Bend County:

**Levee Construction.** The field surveys and computer models for the economic analyses of reservoir overflows demonstrated that much of the significant development within the Oyster Creek watershed is situated within several levee improvement districts. Such districts are required by the State of Texas to provide protection from at least the 100-year flood. Further, in order to receive consideration by the National Flood Insurance program administered by FEMA, such levees also must provide an additional 3 feet of freeboard above the 100-year flood elevation. In such circumstances, when such a high protection level already exists, construction of additional flood control works is not economically justified. Accordingly, no alternative plans of improvement were considered for the levee improvement districts along Oyster Creek.

**Diversion of Flows from Oyster Creek.** A channel to divert some flows from Oyster Creek to the Brazos River was evaluated. The channel diversion point was located just upstream from FM 1464, west of the State Prison Farm. The alignment followed a plan contained in the Master Drainage Plan developed for Fort Bend County by a consulting engineering firm. The channel was sized to carry approximately 2,500 cubic feet per second during the 100-year event along Oyster Creek. The channel length is about 21,000 feet, with 4 on 1 side slopes, an average depth of about 11 feet, and a 35-foot bottom width.

### 3.13.4 Current Recommendations

Recommend the effort to restudy the Brazos River watershed and associated adjacent watersheds that receive overflows. This could be a very helpful effort by the COE.

Future efforts to protect existing or proposed developments may want to consider some type of levee system for protection.

### **3.14 Salt Bayou Watershed**

The Salt Bayou Watershed encompasses a drainage area of approximately 22 square miles and is located in southeastern Brazoria County as shown on Exhibit 1. The watershed is composed of the main stem of Salt Bayou, Ridge Slough, and Essex Bayou. The Salt Bayou Watershed is located within Velasco Drainage District No. 2. No city is located in the watershed. The Salt Bayou Watershed is bounded on the west and south by Oyster Creek Bayou Watershed, the north by Big Slough Watershed, and the east by Drum Bay.

#### **3.14.1 Hydrologic and Hydraulic Issues**

The Salt Bayou Watershed is essentially an undeveloped coastal prairie with small-scattered woodlands distributed.

#### **3.14.2 Drainage Problems**

None reported.

#### **3.14.3 Previous Improvements and Recommendations**

None reported.

#### **3.14.4 Current Recommendations**

There is no current recommendation for Salt Bayou.

### **3.15 San Bernard River Watershed**

The San Bernard River Watershed encompasses a drainage area of approximately 206 square miles and is located in western Brazoria County as shown on Exhibit 1. The watershed is composed of the main stem of the San Bernard River and four main tributaries within Brazoria County: Bell Creek, Cedar Creek, Mound Creek, and Redfish Bayou. The San Bernard River Watershed encompasses the central portion of the West Brazoria County Drainage District No.11. The City of Sweeny and part of the City of West Columbia and the City of Jones Creek are located within the watershed. The

San Bernard River Watershed is bounded on the west by the Linville Bayou and Cedar Lake Creek Watersheds and the east by the Varner Creek and Brazos River Watersheds.

### 3.15.1 Hydrologic and Hydraulic Issues

The aerial photographs, dated January 1995, in the Year of 1995 were reviewed to determine the extent of development in the San Bernard River Watershed. These aerial photographs indicate that the watershed within Brazoria County remains approximately 90% in row crops, woodlands or graze land.

City of Sweeny is the main developed subdivision in the watershed. Several channels drain from City of Sweeny and vicinity to the San Bernard River that contribute a flow to the watershed. Bell Creek drains from City of West Columbia and outfalls into San Bernard River. Mound Creek is a major tributary that originates from Fort Bend County and combines with San Bernard River near West Columbia. City of Brazoria also drains to the San Bernard River through several ditches. Near the river outlet to the Gulf of Mexico, Red Fish Bayou drains a portion of the City of Jones Creek area and outfalls into San Bernard River.

The effective FEMA HEC-2 model for San Bernard River was coded and the model results are shown in Table 71 for the 100-year event, and the corresponding flood profiles under the existing condition are shown in Exhibit 47.

### 3.15.2 Drainage Problems

The following flooding problem areas have been identified for the San Bernard River Watershed:

- San Bernard River at Bell Creek has flooded 15-25 homes in the past year.
- CR 659 to CR 819 at Churchill, drainage ditch is full of debris at Bernard River Bridge
- Bell Creek floods subdivision at CR 943; several repetitive loss claims have been filed.
- CR 772 and dam on Mound Creek: bridge goes under water 5'; channel maintenance needed.

- Rice Canal near CR 4 and CR 643: ditch needs cleaning.
- Mound Creek channel needs cleaning (Exhibit 25): Mound Creek and Cow Creek flood the San Bernard from upstream areas in Fort Bend County. The Fort Bend County Drainage District improved the channel to the Brazoria County line. Flooding has been seen along the San Bernard River from Damon to SH 35.
- CR 348 has been flooded. The drainage ditches are overgrown with vegetation from San Bernard all through Wild Peach.
- Salt Canal – drains into San Bernard River, was not built for drainage and it is illegal to drain into this canal. However, residents continually cut ditches into the canal that the owner periodically fills in. The canal presently acts like an overflow ditch picking up flows from flooded area but has been sold.

### **3.15.3 Previous Improvements and Recommendations**

1. There are no planned improvements for the San Bernard River except for a bridge replacement on SH 35 just south of West Columbia.

### **3.15.4 Current Recommendations**

1. CR 522 bridge over Mound Creek (at the county line of Fort Bend and Brazoria) has been under water during flood events. It floods from Damon to SH 35. Channel cleaning is proposed for this channel reach as shown in Exhibit 25. The cost estimates for the cleaning are shown in Table 100.
2. TxDOT is relocating SH 35 to incorporate FM 1301 right of way as a part of the SH 35 Bypass around West Columbia. It has been proposed to construct a large box culvert on a tributary of Bell Creek. TxDOT is not enlarging the culverts under the existing FM 1301 route that is located upstream of this new structure. It is believed that the old structure will remain to act as a restrictive opening.

## **3.16 Wharton Bayou Watershed**

The Wharton Bayou Watershed encompasses a drainage area of approximately 19 square miles and is located in eastern Brazoria County as shown on Exhibit 1. The watershed is composed of the main stem of Wharton Bayou. The Wharton Bayou Watershed encompasses the east portion of Danbury Drainage District No. 8. No city is located within the watershed. The Wharton Bayou Watershed

is bounded on the west by Alligator Slough, on the northeastern by Chocolate Bay, and on the east by West Bay.

### **3.16.1 Hydrologic and Hydraulic Issues**

The Wharton Bayou Watershed is essentially undeveloped.

### **3.16.2 Drainage Problems**

None reported.

### **3.16.3 Previous Improvements and Recommendations**

None reported.

### **3.16.4 Current Recommendations**

There is no current recommendation for Wharton Bayou.

## SECTION 4

### COORDINATION BETWEEN DRAINAGE DISTRICTS

There are seven drainage districts within Brazoria County including Angleton Drainage District No. 1, Velasco Drainage District No. 2, Conservation & Reclamation District No. 3, Pearland Drainage District No. 4, Iowa Colony Drainage District No. 5, Danbury Drainage District No. 8, and W. Brazoria County Drainage District No. 11. The area under each District's administration is generally around a major city as shown in Exhibit 2. Each District is in charge of the planning and management of its own drainage system. In some instances, the area of a drainage district may cross several different stream watersheds, in such case, the Districts need to coordinate with each other or even with the nearby county's drainage districts to implement the drainage projects for a certain watershed. The operation and coordination of the drainage districts is briefly described in this section. Suggestions to each District will be addressed as well.

#### 4.1 Angleton Drainage District No. 1

Angleton Drainage District No. 1 covers the majority portion of Bastrop Bayou watershed, southern part of Flores Bayou watershed, southwestern part of Austin Bayou, and a small part of Oyster Creek watershed near Angleton, as shown in Exhibit 2. The office of District No.1 is in the City of Angleton. 53% of the area is for residential use, 19% for agriculture, and about 1% for commercial and industrial use.

To implement the drainage project for Bastrop Bayou watershed, the district needs to coordinate with Velasco Drainage District No.2 and Danbury Drainage District No. 8. For instance, a high priority area in the Bastrop Bayou is in the lower portion of the bayou where silting has resulted in channel depths of approximately 2-feet. Channel clean out was originally proposed for this reach but was removed because of concern of local groups of the potential environmental impacts from the channel improvements. The flooding problem on Bastrop Bayou between SH 288 and 288B, North of CR 2004 also needs the coordination of the above two drainage districts to solve. Channel cleaning was originally proposed for this upper reach of Bastrop Bayou but was removed from this report due to local concerns of groups that channel clean out to this Bayou could have environmental impacts.

For the drainage project of downstream of the Austin Bayou, the coordination between Angleton Drainage District No. 1 and Danbury Drainage District No. 8 is also required, since the downstream of the Austin Bayou is borderline of the two districts.

## 4.2 Velasco Drainage District No. 2

Velasco Drainage District No. 2 covers Salt Water Watershed, southern portions of both Bastrop Bayou Watershed and Oyster Creek Bayou Watershed, and southeastern portion of the Brazos River Watershed. As shown in Exhibit 2, the district is bounded on the north by the Bastrop Bayou, west by the Brazos River, and south and southeast by the Gulf of Mexico. The office of District No. 2 is in the City of Clute. 9% of the area is for residential use, 53% for agriculture, and about 8% for commercial and industrial use.

As stated above, to deal with the drainage problem of the lower portion of Bastrop Bayou, District No. 2 should coordinate with both Angleton Drainage District No. 1 and Danbury Drainage District No. 8. To manage the flooding problem on Bastrop Bayou between SH 288 and 288B, North of CR 2004, the District should work with Angleton Drainage District No. 1. Channel dredging is proposed as shown in Exhibit 20. Table 92 can be referenced for the cost estimates.

As in major flood events, the overflows from the Brazos River and Oyster Creek enter the Bastrop Bayou and cause significant flooding problem in south of Angleton. To set up a plan for the drainage problem in this area, District No. 2 needs to coordinate with both Angleton Drainage District No. 1 and West Brazoria County Drainage District No. 11.

### 4.2.1 Clute Lake Jackson Drainage Channel – Internal Improvements

The Velasco Drainage District operates and maintains the Clute-Lake Jackson drainage channel as a part of the interior drainage facilities within the system of levees that comprise the Freeport and Vicinity Hurricane Protection Project.

#### Hydrologic and Hydraulic Issues

The watershed consists of a portion of the developed areas of Lake Jackson and Clute. Additional areas (the “Northwest Quadrant”) have development occurring along FM 523 and adjacent to existing chemical plants. The 1975 report “*Report on Interior Drainage for Freeport and Vicinity, Texas Hurricane Flood Protection Program*”, Dunbar and Dickson, 1975 envisioned a channel improvement program and increased pumping capacity at the East Levee Pumping Station. Events during T.S. Frances convinced the District to revisit the plan and determine if expansion of this stage still made sense in light of development over the 25 years since the original report.



### Drainage Problems

Most of the developed portions of the Clute Lake Jackson Channel watershed depend on the Lake Jackson Pump Station for outfall drainage. The City of Lake Jackson has a highly developed interior drainage system and can efficiently deliver runoff to the channel and to the pump station. The City of Clute has a less efficient interior drainage system and suffers considerable ponding in high rainfall events. Additionally, S.H. 332 has a relatively inefficient drainage system that might restrict flow to the channel from Clute if they began an interior drainage improvement program.

Because of current grade and width restrictions in the channel between the Lake Jackson Pump Station and the East Levee Pump Station, flow in excess of the capacity of the Lake Jackson Pump Station cannot flow downstream to the East Levee Pump Station. It flows (“short circuits”) into the Northwest Quadrant drainage area. As development progress in the Northwest Quadrant, the storage available to accommodate this runoff will become less available creating problems both upstream and in the channel.

### Previous Improvements and Recommendations

The 1975 Dunbar and Dickson Report has governed the majority of capital improvements on the channel and related pumping stations. The District had intended to review the need for an expanded East Levee Pump Station when the Northwest Quadrant began to develop. However, it appears that widening the channel in the vicinity of SH 332 would create unacceptable risk to these facilities. Also, a portion of the channel downstream of the Lake Jackson Pump Station now drains back to that pump station.

### Current Recommendations

The report *Final Report on Hydrology and Hydraulics of the Clute Lake Jackson Drainage Channel*, Baker & Lawson, Inc. October 2000 considered a set of improvements necessary to provide protection of the watershed in the 100 year event, as it continues to develop. However, the study assumptions provided for certain restrictions that if not true, would substantially revise the conclusions. These assumptions follow.

All drainage from the Lake Bend drainage area does not spill over into Clute.

In all future scenarios analyzed, the study assumes no improvements in the interior drainage systems of Clute or Lake Jackson. Additionally, the study assumed that no improvements of the hydraulic structures in SH 332 would occur.

The study also assumes that no fill will occur in those portions of the Northwest Quadrant less than 5.0 feet in elevation, thus allowing for storage of runoff in excess of the capacity of the channel between the Lake Jackson Pump Station and the East Levee Pump Station.

Given the assumptions, the Study recommended an expansion of the Lake Jackson Pumping Station to add an additional 3- 330,000 gpd pumps if the District wishes to provide protection for Clute Lake Jackson, at an estimated cost of \$20.8 million. If the District wishes to provide protection of the Northwest Quadrant, a new pump station at the Barge Canal (3-500,000 gpd pumps) would meet that goal at a cost of \$38.8 million.

Current discussions with interests considering development in the Northwest Quadrant offer an alternative solution to its overall drainage through a regional detention plan. This plan would not provide the predicted need in Clute – Lake Jackson area, and would still need to expand the Lake Jackson Pump Station. Additional plans for improvements in the interior drainage of Clute and the initial planning for the redevelopment of SH 332 increase the need for additional capacity at the Lake Jackson Pump Station. Since these developments violate the study assumption, the recommended expansion may increase in size and cost.

### **4.3 Conservation and Reclamation Drainage District No. 3**

Conservation and Reclamation Drainage District No. 3 covers Dickinson Bayou Watershed, Halls Bayou Watershed, New Bayou Watershed, the majority portion of Mustang Bayou Watershed, a small portion of south part of Clear Creek Watershed, and east portion (east of Chocolate Bayou) of Chocolate Bayou Watershed, as shown in Exhibit 2. The office of District No.3 is in the City of Alvin. 11% of the area is for residential use, 71% for agriculture, and about 4% for commercial and industrial use.

Since the district is bounded in the east by the Galveston County line, the coordination with the nearby Galveston County drainage districts is necessary to deal with the drainage problems of Dickinson Bayou Watershed and Halls Bayou Watershed. For instance, a detention pond at the county boundary and channel improvements in the upstream of Dickinson Bayou have been recommended; and, for Halls Bayou Watershed, the maintenance of ditches along CR 159 from CR 164 needs to be extended into Galveston County to avoid flooding problems.

District No. 3 is in charge of the drainage system of Mustang Bayou Watershed around Alvin area. To deal with the drainage project regarding the upstream portion of the Mustang Bayou, the district should coordinate with Pearland Drainage District No. 4.

For instance, the proposed cleaning of Mustang Bayou from De Bello Road (CR 90) west to Fort Bend County Line (Exhibit 15) needs coordination between District No.3 and Pearland Drainage District No.4. The cost estimates for this proposed improvement are shown in Table 92. Diversion of Mustang Bayou to send flows from Manvel area around Alvin has been proposed (see Exhibit 22 for reference.) Table 97 can be referenced for the cost estimates.

The district is bounded in the west by the Chocolate Bayou. The West Bank of Chocolate Bayou is administrated by Iowa Colony Drainage District No. 5. Thus, to plan and manage the Chocolate Bayou drainage system, District No. 3 needs to coordinate with District No. 5. For instance, to deal with the flooding problems at the confluences between Chocolate Bayou and its tributaries including West Fork Chocolate Bayou, North Hayes Creek, and South Hayes Creek, the above two Districts need to coordinate with each other (Exhibits 7 through 10). The proposed detention at FM 1462 crossing (Exhibit 6) with Chocolate Bayou also needs their coordination. The cost estimates of the proposed channel cleanings, detention, and other improvements for the Chocolate bayou and its tributaries are shown in Tables 86 through 90.

To manage the outlet of Chocolate Bayou, District No. 3 needs to coordinate with the Danbury Drainage District No. 8, since the west of Chocolate Bayou outlet is administrated by District No. 8

#### **4.4 Pearland Drainage District No. 4**

Pearland Drainage District No. 4 covers the majority portion of Clear Creek Watershed and the northwestern corners of Mustang Bayou Watershed and Chocolate Bayou Watershed as shown in Exhibit 2. District No. 4 is bounded on the west by Fort Bend County Line, north by Harris County Line, and east by Galveston Line. The office of District No. 4 is in the City of Pearland. 22% of the area is for residential use, 41% for agriculture, and about 5% for commercial and industrial use.

The Clear Creek originates in northeast Fort Bend County and flows in a meandering easterly course through Pearland Drainage District No. 4 to Clear Lake and Galveston Bay. The watershed is subject to intense local thunderstorms of short duration, and to torrential rainfalls associated with hurricanes and other tropical disturbances. To deal with the flooding problem of Clear Creek Watershed, District No. 4 should coordinate with the nearby drainage districts of Fort Bend County, Harris County, and Galveston County.

The proposed cleaning of Mustang Bayou from De Bello Road (CR 90) west to Fort Bend County Line (Exhibit 15) needs coordination between District No. 4 and

Conservation and Reclamation Drainage District No. 3. The cost estimates for this cleaning are shown in Table 92. The proposed possible diversion from the school at intersection of CR 48 and CR 174 along CR 48 to West Fork Chocolate Bayou needs coordination between District No. 4 and Iowa Colony Drainage District No. 5.

#### **4.5 Iowa Colony Drainage District No. 5**

Iowa Colony Drainage District No. 5 covers the west portion (east of Chocolate Bayou) of Chocolate Bayou Watershed, north portion of Austin Bayou Watershed, and north portion of Flores Bayou Watershed as shown in Exhibit 2. The District is bounded on the east by Chocolate Bayou, and west by FM 521. The office of District No. 5 is in the City of Rosharon. 5% of the area is for residential use, 86% for agriculture, and about 1% for commercial and industrial use.

District No. 5 is in charge of the drainage systems of the tributaries of the Chocolate Bayou including those the West Fork Chocolate Bayou, North Hayes Creek, South Hayes Creek, and Brunner Ditch. As flooding problems have been reported at confluences between Chocolate Bayou and the tributaries (West Fork Chocolate Bayou, North Hayes Creek, and South Hayes Creek), District No. 5 should coordinate with Conservation and Reclamation Drainage District No. 3 for the channel cleaning and possible detention plans to solve the problems (Exhibits 7 through 10 and Tables 87 through 90.) For instance, District No. 3 is cleaning North Hayes from Chocolate Bayou to CR 121. District No. 5 might need to take turn to clean the upstream portion of the creek. Besides, for the proposed diversion of the Brunner Ditch (cutting all the way through Cottonwood Bayou then discharges to Chocolate Bayou as shown in Exhibit 10), the coordination between District No. 5 and District No. 3 is also needed. The cost estimates for the proposed Brunner Ditch diversion are shown in Table 90. The District should plan for possible improvement for the Brunner Ditch capacity as well.

Since it was reported that nearly every bridge is undersized, the District should plan to deal with this problem. Table 88 and Table 93 are references for the cost estimates of small bridge replacement and highway bridge enlargement, respectively.

For the plans regarding channel cleaning, improvement, or detention to relieve the drainage problems in Austin Bayou and Flores Bayou, such as the proposed retention pond on Flores Bayou located near the confluence of the Iowa Colony Ditch (Big Ditch) and Flores Bayou (as shown in Exhibit 12) which, if constructed, will relieve some of Flores Bayou Watersheds impact on the Austin Bayou Watershed, District No. 5 needs to coordinate with Angleton Drainage District No. 1 and Danbury Drainage District No. 8. The cost estimates for the proposed retention / weir facilities are shown in Table 91.

#### **4.6 Danbury Drainage District No. 8**

Danbury Drainage District No. 8 covers the Wharton Bayou Watershed, southern portion of Austin Bayou Watershed, southeastern portion of Flores Bayou Watershed, southwestern portion of Chocolate Bayou Watershed, and northeastern portion of Bastrop Bayou Watershed as shown in Exhibit 2. The District is bounded on the east by Chocolate Bay, west by Flores Bayou and Austin Bayou, north by CR 171, and south by Bastrop Bayou. The office of District No. 8 is in the City of Danbury. 2% of the area is for residential use, 94% for agriculture, and less than 1% for commercial and industrial use.

The District covers the downstream of the Flores Bayou and Austin Bayou, and the outlets of the Chocolate Bayou and Bastrop Bayou. Thus, District No. 8 should coordinate with Angleton Drainage District No. 1 and Iowa Colony Drainage District No. 5 for drainage problems on downstream of the Flores Bayou and Austin Bayou. Bridge replacements for the railroad bridge near CR 171, the CR 171 bridge, and the CR 210 bridge (shown in Exhibit 21) are proposed. Table 96 can be referenced for the cost estimates. District No. 8 should also coordinate with Velasco Drainage District No. 2 for the problems on downstream portion of the Bastrop Bayou including those on the estuary such as the dredging to the lower portion of the stream and the tidal effect problem. Channel dredging for the lower portion of Bastrop Bayou is proposed as shown in Exhibit 20. Table 92 can be referenced for the cost estimates.

To deal with any estuary tidal flood problem of the Chocolate Bayou, the coordination between District No. 8 and Conservation and Reclamation District No. 3 is necessary.

#### **4.7 West Brazoria County Drainage District No. 11**

West Brazoria County Drainage District No. 11 covers the west portion of Brazoria County including San Bernard River Watershed, Linville Bayou Watershed, Cedar Lake Creek Watershed, and the majority portion of the Brazos River Watershed as shown in Exhibit 2. The District is bounded on the north by the Fort Bend County Line, west by the Wharton County Line and Matagorta County Line, south by Gulf of Mexico, and east by Brazos River. The office of District No. 8 is in the City of Brazoria. 11% of the area is for residential use, 73% for agriculture, and about 1% for commercial and industrial use.

For Linville Bayou Watershed, the District needs to investigate the private built dams or levees that used to cause flooding problems, such as the dam at Dance Bayou built by Amoco and the levees on Dance Bayou built by Crawford Furniture.

For the Cedar Lake Creek Watershed, the District should put an effort on the channel improvements and the old sloughs' maintenance especially for those within private properties.

For the San Bernard Bayou Watershed, the District might need to investigate the influence caused by the private cut channels such as those illegally cut ditches that drains into the Salt Canal. Channel cleaning for the tributary Mound Creek from Damon to SH 35 (as shown in Exhibit 25) is proposed. Table 100 can be referenced for the cost estimates.

District No. 11 includes west of the Brazos River, in major flood events, the Brazos River exceeds its banks near Harris Reservoir and causes extensive flooding on Oyster Creek. The overflow also enters Bastrop Bayou south of Angleton and is a significant cause of flooding that must be controlled to allow development in that portion of Bastrop Bayou watershed. District No. 11 needs to coordinate with Velasco Drainage District No. 2 and the related drainage districts of Fort Bend County to deal with this problem. A bridge replacement on SH 35 crossing just east of West Columbia is proposed as shown in Exhibit 23. Table 98 can be referenced for the cost estimates. Besides, channel dredging for the Jones Creek between FM 2004 and CR 36 (as shown in Exhibit 24) is proposed to relief local flood problems. Table 99 can be referenced for the cost estimates.

#### **4.8 Area Not Under Taxing Jurisdiction**

A region including a portion of the Brazos River watershed, between north of FM 2004 and east of Brazos River, the north portion of the Oyster Creek, and small areas along the west portions of Austin Bayou Watershed, Flores Bayou Watershed, and Bastrop bayou Watershed is not under any taxing jurisdiction ("No Man 's Lands") and therefore cannot provide funding for drainage improvements. This region is shown in Exhibit 2 with white color.

Even though this region is essentially undeveloped, however, during large floods, generally caused by heavy rainfalls in the upstream area of Brazos River watershed, significant interbasin flow exchanges occur between the Brazos River and Oyster Creek. Large floods on Oyster Creek are usually due to overflow from the Brazos River. In major flood events, the Brazos River exceeds its banks near Harris Reservoir and causes extensive flooding on Oyster Creek. The overflow also enters Bastrop Bayou south of Angleton. Therefore, a master plan to deal with such interbasin flooding problem is needed.

In addition, drainage problems caused by private built dams or reservoirs have been reported in this area. For instance, private dams block flow from McFadden Slough that floods over CR 652 during frequent storms and a very small amount of rainfall. The Dow Reservoir appears to not release enough water to maintain a continuous drainage system. Also some features have been constructed that appear to block and cause flooding of adjacent properties.

To deal with the flooding and drainage problems, the following recommendations have been given:

- Create a new drainage district or M.U.D. (Municipal Utility District), L.I.D. (Levee Improvement District), etc. to cover this region.
- Have surrounding drainage districts annex this region.
- The surrounding drainage districts work with the Counties and Cities to solve the drainage and flooding problems for this region.
- Approach FEMA and have these watershed studied and flood plain re-mapped.
- Installation of rain stage gages (at least 2 per each watershed).
- Work with the Army Corps of Engineers on re-study of Brazos River.

## SECTION 5

### SUMMARY AND RECOMMENDATIONS

#### 5.1 Purpose and Use of the Report

The Brazoria County Master Drainage Plan was completed with the intent to gather previous information regarding the study, analysis, development, and operation of drainage systems within Brazoria County. The information were reviewed, organized, and summarized for development of the Master Drainage Plan. The Brazoria County Master Drainage Plan therefore provides a review of current drainage conditions within Brazoria County, constructed improvements in the area, and proposed improvements to correct and prepare for flooding within Brazoria County. Especially, the plan is provided for Brazoria County to assist in the understanding of their unique drainage systems and in planning for improvements to these systems for the protection of the residents and businesses located within the county. The report can also be used to plan for drainage needs associated with new developments within the county. Recommendations have been included in this report to address drainage or flooding problems in the Brazoria County watersheds. Any change to the capacities of a system or proposed improvements should be carefully considered prior to construction to ensure that the planned improvements will not create adverse impacts. If impacts are anticipated or determined then appropriate mitigation measures should be included with the proposed improvements. Changes to any FEMA studied or mapped watershed should also be closely coordinated with the Brazoria County Flood Plain Administrator.

#### 5.2 Summary of Problems

The major drainage and flooding problems detected in this study can be summarized as follows:

##### Austin Bayou and Flores Bayou Watersheds

- Austin Bayou watershed has been affected by the flooding problems at the confluence of Flores Bayou and Iowa Colony Ditch (Big Ditch.) Drainage problems were identified on SH 35 north of CR 33 and between CR 33 and CR 46.



- There is concern about the impact of the railroad bridge near CR 171, the CR 171 bridge, and the CR 210 bridge on Austin Bayou.

#### Bastrop Bayou Watersheds

- In major flood events, the Brazos River exceeds its banks near Harris Reservoir causing extensive flooding on Oyster Creek. The overflow also enters Bastrop Bayou south of Angleton and is a significant cause of flooding that needs to be addressed to allow development in that portion of Bastrop Bayou watershed.
- There is a flooding problem on Bastrop Bayou between SH 288 and 288B, North of CR 2004.

#### Brazos River Watershed

- A portion of the Brazos River watershed, between north of FM 2004 and east of Brazos River, is not under any taxing jurisdiction and therefore cannot provide funding for drainage improvements. Within this area, McFadden Slough floods over CR 652 during frequent storms. Buffalo Camp Bayou and Dow Reservoir do not release enough water to maintain a continuous drainage system. Private dams block flow from McFadden Slough.
- Jones Creek has flooding problem between FM 2004 and CR 36.

#### Chocolate Bayou Watershed

- Flooding problems have been reported at the confluences between Chocolate Bayou and its tributaries including the West Fork Chocolate Bayou, North Hayes Creek, South Hayes Creek, and other drainage ditches.
- Drainage problems reported along FM 1462 and SH 35.
- The Brunner Ditch channel capacities at the confluences with the North Hayes Creek, South Hayes Creek, and Chocolate Bayou are less than 10-year frequency.

#### Clear Creek Watershed

- Mary's Creek, Cowart Creek, and Chigger Creek have limited capacities and close coordination with the City of Pearland, the Drainage Districts, Brazoria

County and with Galveston County is important to solve any flooding problems in these areas.

#### Halls Bayou Watershed

- The problems for Halls Bayou are upstream of the MOPAC Railroad. The rural section roadways are not able to convey flows quickly enough to Halls Bayou to prevent localized flooding. The roadside ditches are too small to carry water to the bayou.

#### Linville Bayou Watershed

- Drainage problem along Dance Bayou has been created because of private constructed dams, ponds, and levees.
- The Linville dam has caused flooding of homes at the City of Sweeney. The dam also causes flooding on Dance Bayou, Little Linville and Linville Bayous. There is reportedly some environmental concerns associated with the dam. dam.

#### Mustang Bayou Watershed

- Flooding problems reported at confluences of M- Ditches and Mustang Bayou closed to SH 1128 within City of Manvel.
- The most serious flooding problem occurred in the vicinity of the City of Alvin due to the limited right-of-way of Mustang Bayou and the heavy growth of vegetation inside the banks. Inside the Alvin City limits high density residential and commercial buildings may also form a blockage of the sheet flow path.

#### New Bayou Watershed

- The culverts for Ditch C-1-J at SH 6 are undersized, and the channel capacity at this section is less than 10-year frequency.

#### Oyster Creek Watershed

- The large floods on Oyster Creek are due to overflow from the Brazos River. In major flood events, the Brazos River exceeds its banks near Harris

Reservoir causing extensive flooding on Oyster Creek. The overflow also enters Bastrop Bayou south of Angleton.

- CR 28 west of Angleton: sewer plant capacity problems are reported when the river floods.

#### San Bernard River Watershed

- The roadway ditches and drainage channels along the San Bernard River need maintenance, which cause local flooding problems.
- Mound Creek and Cow Creek flood the San Bernard from areas in Fort Bend County. The Fort Bend County Drainage District improved the channel to the Brazoria County line. It floods from Damon to SH 35.

### **5.3 Summary of Recommended Improvements**

The summary of the major recommended improvements for each watershed under study are shown as follows:

#### Austin Bayou and Flores Bayou Watersheds

- A retention/weir facility on Iowa Colony Ditch having 1,900 acre-ft of storage is proposed. This pond, if constructed, will relieve some of Flores Bayou Watersheds impact on the Austin Bayou Watershed.
- Bridge replacements for the railroad near CR 171, CR 171, and CR 210 crossings on the Austin Bayou are proposed.

#### Bastrop Bayou Watershed

- Need to obtain concurrence with the various Drainage Districts on the most appropriate mitigation measures required on new developments proposed in the watershed. An expansion of the Lake Jackson Pumping Station would add additional pumping capacity along the Clute - Lake Jackson Interceptor Channel to handle increased development in the Northwest Corridor (north of 332 and west of FM 523.) We concur that Velasco Drainage District continue to pursue the goals of the Internal Drainage Plan as revised.

### Brazos River Watershed

- A bridge replacement on SH 35 crossing just east of West Columbia is proposed for the Brazos River to ease the overflow problem near Harris Reservoir that causes extensive flooding on Oyster Creek and Bastrop Bayou Watersheds.
- Channel cleaning for the Jones Creek between FM 2004 and CR 36 is proposed to help relieve local flood problem.

### Chocolate Bayou Watershed

- On Chocolate Bayou, a 90-acre detention pond with storage of 900 acre-ft is proposed along the right bank of Chocolate Bayou downstream of FM 1462.
- Channel cleaning for the West Fork Chocolate Bayou from Chocolate Bayou confluence upstream to CR 64 is proposed. Structure replacing at CR 48 crossing is also proposed.
- Cleaning the North Hayes Creek from Chocolate Bayou confluence upstream to CR 121 is proposed.
- To relieve South Hayes Creek, a diversion of the Brunner Ditch is proposed. Brunner Ditch currently diverts flows from North Hayes Creek and South Hayes Creek and cuts all the way through Chocolate Bayou downstream of SH 35. Under the proposed alternative, Brunner Ditch could cut all the way to Cottonwood Bayou.

### Clear Creek Watershed

- Detention on new developments, incorporation of regional detention facilities in Pearland and the re-evaluation of a Corps of Engineers project along Clear Creek are all recommended.

### Halls Bayou Watershed

- Ditches and drainage channels along CR 166, CR 159 from CR 164, and within the area between CR 165 and CR 159 need to be maintained.
- The bayou section from FM 2004 to Brisco Canal needs cleaning.

#### Linville Bayou Watershed

- Inspection of the private dams and levees that appear to block flows such as the Linville dam should be evaluated.

#### Mustang Bayou Watershed

- The C & R District # 3 is planning a diversion for Mustang Bayou to send water from just south of the Manvel area around Alvin. The recommended plan is to divert the Mustang Bayou flows into Ditch C-1 near Manvel via Ditch C-1-J, around Alvin and back to Mustang Bayou via Ditch M-1. This plan will include the diversion of M-1 (from Alvin) to C1-B. The designed initial Mustang Bayou diversion flow should be limited to approximately one half of the existing 100-year flow.
- Channel cleaning for Mustang Bayou from De Bello Road (CR 90) west to Fort Bend County Line is proposed to reduce the flood levels from north of Manvel area.

#### New Bayou Watershed

- For New Bayou and C-1 Ditch, bridge enlargement for SH 6 crossing is proposed to reduce the 100-year flood stage.

#### San Bernard River Watershed

Channel cleaning for the Mound Creek from Damon to SH 35 is proposed. Mound Creek floods the San Bernard from areas in Fort Bend County.

### **5.4 Funding Alternatives**

The Drainage Districts within Brazoria County and the U. S. Army Corps of Engineers should be contacted to coordinate future regional detention facilities and channel improvements. The funds available from each District will vary depending on their adopted tax rate and availability of bond monies. It is estimated that many of these District have about \$300,000 for work project and might have a steady increase as much as \$100,000 a year. Brazoria County has various tasks identified for each watershed to be constructed in the coming years. These tasks may change or be rescheduled by the county and or the Drainage Districts. The Drainage Districts should develop close coordination with the county on all of the tasks for these watersheds.

Various funding alternatives may be considered for the proposed improvements, which include Tax revenues, bonds, Impact Fees by watershed, joint participation or Texas Water Development Funds (TWDB). Each funding source has its limitation and restrictions. The Districts could consider the merits of each in order to provide the identified drainage improvements projects in a timely and affordable manner.

The Texas Water Development Board has a loan program for designing and constructing flood control projects. Detailed information is published in the Texas Water Code Section #363. The loan program is established so that TWDB will buy the bonds with a charge of 0.5% higher than the market interest rate. There is no limitation on the loan amount. These are loans and must be repaid. The TWDB meets on the third Thursday each month. There is no deadline set up for the application submittal. It takes as long as seven weeks for the TWDB to review the submittals and prepare recommendation for the board members. The applications shall include financial package, preliminary engineering design or study and environmental investigation. The TWDB is now enforcing the provision of "Intended Use Plan" because of the popularity of this program. The applicant must submit the intent to use TWDB funds one year before execution.

## 5.5 Further Considerations

The Master Drainage Plan prepared for the Brazoria County presents proposed channel improvements, regional detention facilities, structure replacements, cleaning and de-snagging of ditches, and diversion of flows to channels with adequate capacities. This Master Plan should be reviewed with the current development pressures and planned future developments in mind.

It is recommended that the county begin a close coordination with the Brazoria County Drainage Districts, cities within Brazoria County, U.S. Army Corps of Engineers, the Texas Department of Transportation, and with significant developers in the area. It is also recommended that the county work with each of the entities or groups to develop a common set of drainage improvements or goals. This approach could produce the best results for all involved in the common plan. The county could work out Inter-local agreements with these entities in developing cost sharing for the common plan.

The county could initially request that the Drainage Districts establish a common set of goals by watershed. A close coordination with the Drainage Districts as

well as the Texas Department of Transportation could result in regional detention facilities and bridge replacements that would benefit the overall drainage system in the county. Funding could be seen as a joint venture between the county and Drainage Districts or possibly using Texas Water Development Board funds. These funding options should be investigated by Brazoria County to identify drainage improvement projects. The county may want to develop a common list of projects and work with the Drainage Districts on regional common projects in the near future.

It is recommended that the county determine if it is to acquire and participate in regional detention sites as soon as possible. The use of large regional detention sites can be more cost effective than smaller sites. The early identification and acquisition of the larger regional sites can make them much more cost effective and that could encourage future developments to participate in any regional plans. If regional detention sites are not acquired in sufficient size the overall cost of all the drainage facilities could increase due to larger channel costs, larger cost per smaller detention sites and more structural solutions and higher costs for drainage facilities.

The county could approach the United States Geological Survey about installing more rainfall and depth gages throughout the watersheds. For instance, in Velasco Drainage District, the recent county grant is for gages to be at:

1. SH 35 and San Bernard River
2. SH 35 and Brazos River
3. SH 35 and Oyster Creek
4. CR 288 and Bastrop Bayou next to the railroad tracks.

Other gages being proposed by TX DOT and Harris County are:

1. FM 521 and Brazos River
2. SH 36 and Brazos River
3. FM 1462 and Brazos River (currently operated by USGS, the plan is to add a radio transmitter and send data to a regional system.
4. SH 35 and Chocolate Bayou (Drainage District No. 3.)
5. SH 35 and Mustang Bayou
6. SH 59 and Brazos River.

These gages could be very useful for future planning and calibration of models.

The county should consider approaching the Federal Emergency Management Agency (FEMA) to re-evaluate the current existing condition models and associated mapping for the Brazoria County watersheds. This re-analysis could be conducted by FEMA Region VI or an outside consultant(s). The re-evaluation could incorporate changes to culverts, bridges, channel improvements, diversions, control structures, mitigation and subsidence considerations. This study could be partially or wholly funded by FEMA. Some county participation would probably be required. The re-evaluation could provide the county with updated maps and a better tool to plan for future developments.

## 5.6 National Storm Water Program Phase II

The EPA proposed Phase II regulations were issued on January 9, 1998. The final regulations were signed on October 29, 1999 and were published in the Federal Register on December 8, 1999. The Phase II regulations require municipal storm water to include the following: all small municipal separate storm sewer systems (MS4) within urbanized areas, other small municipal separate storm sewer systems meeting EPA or state criteria for designation, any municipal separate storm sewer system contributing substantially to the storm water pollutant loadings of a regulated, physically interconnected municipal separate storm sewer system.

The EPA Phase II implementation schedule is:

- October 2000 EPA issued menu of recommended best management practices (BMPs).
- October 2001 EPA to issue guidance on development of measurable goals.
- December 8, 2002 issue general permits.
- March 10, 2003 operators of regulated small MS4s and small construction activity would be required to obtain permit coverage.
- By the end of their first permit terms (typically 5 years) operators of regulated small MS4s would have to fully implement their storm water management programs.

Additional information on the EPA Phase II of the NPDES Storm Water program can be found by calling EPA's Hotline at (202) 260-5816 or at their web site at:

<http://www.epa.gov/owm/sw/phase2>.



The Brazoria County Cities could consider applying for a general permit or consider participating as a co-permittee with Brazoria County permit.

All regulated small municipal separate storm sewer systems would be required to develop and implement a storm water management program which would include public education and outreach, public involvement, identification and elimination of illicit discharge, construction site runoff control, post-construction storm water management in new developments and in re-developments and pollution prevention and good housekeeping of municipal operations. The Phase II rule will address all construction site activities involving clearing, grading and excavating land equal to or greater than one acre and less than five acres. Measurable goals should be developed and periodically evaluate the effectiveness of the program.

A regulated small MS4 operator's storm water management program would need to be designed in such a way as to:

- Reduce the discharge of pollutants from its MS4 to the "maximum extent practicable" (MEP), and
- Protect water quality

## 5.7 Acknowledgments

Klotz Associates, Inc. and Baker Lawson, Inc. would like to acknowledge the support and help by the following who provided data or insight into the drainage systems associated with Brazoria County including Drainage District staff, Brazoria County staff, staff from local cities and local residents.

TABLE 1  
Austin Bayou Watershed TC&R Parameters

Name	DA (mi <sup>2</sup> )	L (mi)	L <sub>ca</sub> (mi)	S (ft/mi)	S <sub>o</sub> (ft/mi)	DLU (%)	DCI (%)	DCC (%)	%IMP	D	TC+R	TC	%Pond	R		
														(100-yr)	(25-yr)	(10-yr)
AB 01	1.91	2.13	0.98	2.25	1.27	1	0	100	0	2.46	9.29	1.57	50%	15.66	18.85	21.53
AB 02	1.75	1.84	0.33	3.08	1.27	1	0	100	0	2.46	7.49	0.42	50%	14.34	17.26	19.72
AB 03	2.56	2.13	1.64	0.63	1.27	2	0	100	1	2.46	14.57	5.29	50%	18.81	22.64	25.86
AB 04	0.99	1.54	0.66	0.87	1.27	1	0	100	0	2.46	10.34	1.69	50%	17.54	21.10	24.11
AB 05	0.97	3.58	1.64	2.93	1.27	3	0	100	1	2.46	12.20	2.34	50%	19.99	24.06	27.49
AB 06	1.39	3.05	1.31	3.53	2.64	5	0	100	2	2.46	10.21	1.67	50%	17.33	20.85	23.82
AB 07	2.15	2.95	0.98	2.68	2.64	2	0	100	1	2.46	11.00	1.43	50%	19.40	23.34	26.67
AB 08	2.51	2.53	1.64	3.43	1.85	5	0	100	2	2.46	9.03	2.14	50%	13.96	16.80	19.19
AB 09	2.47	3.12	1.64	3.41	4.22	2	0	100	1	2.46	10.49	2.16	50%	16.89	20.33	23.22
AB 10	3.09	2.33	0.66	1.06	4.22	1	0	100	0	2.46	12.90	1.52	50%	23.08	27.77	31.73
AB 12	1.81	2.92	1.31	3.30	3.96	1	0	100	0	2.46	10.14	1.74	50%	17.03	20.49	23.41
AB 13	3.43	2.85	1.64	1.95	2.38	1	0	100	0	2.46	12.01	2.91	50%	18.45	22.20	25.37
AB 14	1.59	3.08	1.64	0.25	3.17	1	0	100	0	2.46	26.19	8.65	50%	35.57	42.81	48.91
AB 15	4.79	3.87	2.30	2.38	2.11	1	0	100	0	2.46	13.88	3.74	50%	20.56	24.74	28.27
AB 16	3.59	2.82	0.98	1.38	1.58	1	0	100	0	2.46	13.46	2.04	50%	23.17	27.88	31.85
AB 17	1.27	2.59	0.66	0.96	1.85	2	0	100	1	2.46	14.41	1.60	50%	25.97	31.25	35.70
AB 18	2.69	3.18	1.64	0.39	2.27	1	0	100	0	2.46	22.89	6.83	50%	32.56	39.18	44.76
AB 19	1.38	1.84	0.66	3.25	1.32	3	0	100	1	2.46	7.35	0.84	50%	13.20	15.89	18.15
AB 20	1.49	2.59	1.64	1.12	2.64	1	0	100	0	2.46	13.65	3.91	50%	19.75	23.76	27.15
AB 21	2.33	2.69	0.66	5.11	2.90	5	0	100	2	2.46	8.20	0.66	50%	15.29	18.40	21.03
AB 22	3.65	4.23	1.64	1.64	1.32	1	0	100	0	2.46	16.86	3.19	50%	27.72	33.35	38.11
AB 23	1.58	1.94	0.98	3.34	1.27	8	0	100	3	2.46	7.55	1.26	50%	12.76	15.36	17.55
AB 24	0.96	1.35	0.66	0.99	2.64	1	0	100	0	2.46	8.97	1.58	50%	14.99	18.04	20.61
AB 25	4.41	3.90	1.31	1.81	1.32	10	0	100	4	2.46	15.38	2.35	50%	26.42	31.80	36.33
AB 26	1.13	0.82	0.98	0.69	3.17	95	0	100	33	2.46	2.26	2.42	50%	-0.33	-0.40	-0.46
AB 27	0.69	1.64	0.66	4.06	3.17	1	0	100	0	2.46	6.27	0.75	50%	11.20	13.48	15.40
AB 28	1.92	2.00	0.66	4.46	2.38	1	0	100	0	2.46	6.98	0.71	50%	12.71	15.30	17.48
AB 29	1.15	4.82	1.97	4.10	1.27	30	0	100	11	2.46	9.20	2.25	50%	14.08	16.94	19.35
AB 30	2.94	2.53	1.31	2.44	1.27	10	0	100	4	2.46	10.18	2.01	50%	16.57	19.94	22.79
AB 31	2.75	1.97	1.31	3.98	1.27	10	0	100	4	2.46	7.18	1.55	50%	11.42	13.75	15.71
AB 32	2.43	2.46	0.98	3.27	1.27	10	0	100	4	2.46	9.01	1.27	50%	15.71	18.90	21.59
AB 33	1.51	2.20	0.66	4.55	1.06	1	0	100	0	2.46	7.41	0.70	50%	13.59	16.35	18.69
AB 34	0.82	1.15	0.33	2.26	1.06	5	0	100	2	2.46	5.99	0.49	50%	11.17	13.44	15.36
AB 35	0.60	1.41	0.66	1.45	0.53	1	0	100	0	2.46	8.11	1.29	50%	13.83	16.64	19.01
AB 36	1.63	2.30	0.98	0.05	0.95	5	0	100	2	2.46	37.54	11.73	50%	52.36	63.00	71.98
AB 37	2.60	2.23	0.98	2.50	0.53	10	0	100	4	2.46	9.25	1.46	50%	15.79	19.00	21.70
AB 38	1.60	2.33	0.98	2.93	1.27	1	0	100	0	2.46	9.01	1.37	50%	15.51	18.66	21.32
AB 39	1.76	3.08	1.64	2.49	0.53	1	0	100	0	2.46	11.64	2.56	50%	18.41	22.15	25.31
AB 40	2.46	4.46	2.30	1.87	0.00	1	0	100	0	2.46	16.71	4.25	50%	25.26	30.39	34.73
AB 41	3.35	3.51	1.97	2.01	0.00	5	0	100	2	2.46	13.75	3.45	50%	20.89	25.14	28.72
AB 42	6.79	5.45	1.97	1.07	0.00	5	0	100	2	2.46	23.42	4.82	50%	37.73	45.40	51.87
AB 43	1.19	2.69	1.64	0.13	0.00	1	0	100	0	2.46	29.96	12.24	50%	35.95	43.26	49.42
Total	92.08															

Parameters Based on USGS Quadrangle Maps and Digital Aerial Photography Dated January 1995

These TC & R parameters and associated Hec-1 and Hec-2 models were created by Baker & Lawson.

- Definition of Parameter**
- DA = Drainage Area
  - %IMP = Percent Impervious Area
  - %Pond = Percent Ponding Area
  - TC = Time of Concentration (hours)
  - R = Watershed Storage
  - L = Watershed Length (miles)
  - L<sub>ca</sub> = Length to Centroid (miles)
  - S = Channel Slope (feet/mile)
  - DLU = Percent Urban Development
  - DCI = Percent Channel Improvement
  - DCC = Percent Channel Conveyance
  - D = 2.46 if S<sub>o</sub> ≤ 20 feet/mile
  - D = 3.79 if S<sub>o</sub> > 20 feet/mile < S<sub>o</sub> 40 feet/mile
  - D = 5.12 if S<sub>o</sub> > 40 feet/mile
  - S<sub>o</sub> = Watershed slope (feet/mile)

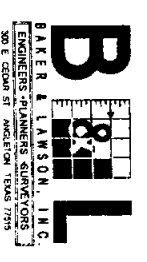


TABLE 2  
Bastrop Bayou Watershed TC&R Parameters

Name	DA (mi <sup>2</sup> )	L (mi)	L <sub>ca</sub> (mi)	S (ft/mi)	S <sub>0</sub> (ft/mi)	DLU (%)	DCT (%)	DCC (%)	%IMP	D	TC+R	TC	%Pond	R (100-yr)	R (25-yr)	R (10-yr)
BB01	1.72	2.38	1.54	1.47	0.69	10	0	100	2.00	2.46	11.67	3.11	20%	15.38	17.86	19.89
BB02	2.83	2.05	0.95	2.35	0.69	1	0	100	2.3	2.46	8.90	1.48	30%	14.07	16.60	18.69
BB03	2.96	1.77	0.99	3.50	0.69	8	0	100	3	2.46	6.97	1.23	40%	11.30	13.48	15.30
BB04	1.38	1.94	1.09	0.66	9.77	28	0	100	3	2.46	9.65	3.18	20%	11.62	13.50	15.03
BB05	2.06	3.2	1.01	0.44	5.02	6	0	100	1	2.46	22.02	3.80	30%	34.54	40.75	45.89
BB06	1.37	1.64	0.6	2.13	2.11	1	0	100	0	2.46	7.87	0.96	50%	14.02	16.87	19.28
BB07	1.26	0.73	0.1	3.87	1.37	1	0	100	0	2.46	3.60	0.10	40%	6.88	8.21	9.32
BB08	0.47	0.73	0.48	1.43	1.37	1	0	100	0	2.46	5.12	0.93	40%	8.24	9.83	11.16
BB09	1.66	1.6	0.49	1.62	2.59	1	0	100	0	2.46	8.52	0.89	40%	15.02	17.92	20.34
BB10	2.81	1.68	0.57	3.31	1.74	28	0	100	8	2.46	4.94	0.68	30%	8.06	9.51	10.72
BB11	0.70	1.55	0.86	2.26	0.69	34	0	100	10	2.46	4.68	1.27	30%	6.45	7.61	8.57
BB12	0.71	1.41	0.85	1.53	0.00	1	0	100	0	2.46	7.95	1.65	40%	12.41	14.80	16.81
BB13	1.78	0.78	0.27	0.73	0.69	4	0	100	2	2.46	6.80	0.72	40%	11.97	14.28	16.21
BB14	1.84	2.08	0.86	2.26	0.69	44	0	100	15	2.46	4.83	1.25	20%	6.44	7.48	8.33
BB15	0.95	1	0.47	2.18	0.69	1	0	100	0	2.46	5.51	0.73	40%	9.41	11.22	12.74
BB16	1.00	1.28	0.81	1.37	0.69	1	0	100	0	2.46	7.72	1.66	40%	11.93	14.24	16.16
BB17	1.41	1.81	1.19	5.28	0.21	8	0	100	2	2.46	6.13	1.21	30%	9.33	11.00	12.39
BB18	3.25	1.96	0.84	1.36	0.69	31	0	100	11	2.46	7.03	1.64	20%	9.69	11.25	12.53
BB19	1.97	1.33	0.57	8.07	0.69	30	0	100	11	2.46	2.92	0.42	20%	4.48	5.20	5.79
BB20	1.08	1.17	0.81	3.05	0.69	1	0	100	0	2.46	5.46	1.09	40%	8.62	10.28	11.67
BB21	1.15	2.61	1.31	5.88	0.74	1	0	100	0	2.46	7.64	1.28	40%	12.52	14.93	16.96
BB22	2.05	3.38	1.69	2.11	0.84	1	0	100	0	2.46	13.16	2.88	40%	20.24	24.14	27.41
BB23	0.81	1.92	0.84	2.06	0.69	1	0	100	0	2.46	8.90	1.39	40%	14.79	17.64	20.03
BB24	1.01	1.5	0.93	1.76	2.64	1	0	100	0	2.46	7.91	1.68	40%	12.25	14.61	16.59
BB25	0.72	1.31	0.59	2.28	0.69	1	0	100	0	2.46	6.56	0.91	40%	11.13	13.27	15.07
BB26	2.50	2.08	0.98	3.62	0.69	1	0	100	0	2.46	7.72	1.22	50%	13.19	15.88	18.14
BB27	0.92	1.25	0.58	0.85	1.58	1	0	100	0	2.46	8.99	1.50	50%	15.18	18.27	20.87
BB28	0.93	1.01	0.51	1.32	1.64	1	0	100	0	2.46	6.62	1.04	50%	11.32	13.62	15.56
BB29	2.00	2.63	1.37	3.79	0.69	37	0	100	13	2.46	5.35	1.58	20%	6.77	7.86	8.75
BB30	1.03	1.24	0.63	3.01	0.69	1	0	100	0	2.46	5.72	0.84	50%	9.90	11.91	13.61
BB31	1.97	2.32	1.14	2.67	0.69	1	0	100	0	2.46	9.29	1.68	50%	15.43	18.57	21.22
BB32	1.36	1.46	0.64	1.57	0.90	1	0	100	0	2.46	8.08	1.20	50%	13.94	16.77	19.16
BB33	2.11	2.62	0.94	0.59	0.79	1	0	100	0	2.46	17.24	3.04	50%	28.79	34.65	39.59
BB37	1.68	1.92	1.37	2.26	0.69	1	0	100	0	2.46	8.62	2.23	80%	13.79	16.90	19.57
BB38	1.48	1.74	0.87	2.38	0.69	1	0	100	0	2.46	7.89	1.34	50%	13.39	16.00	18.28
BB39	1.13	1.3	0.57	0.48	0.11	1	0	100	0	2.46	11.31	2.00	50%	18.88	22.72	25.95
BB40	0.36	0.99	0.38	1.17	0.69	1	0	100	0	2.46	6.81	0.81	50%	12.17	14.64	16.73
BB41	0.86	1.73	0.79	3.39	0.69	1	0	100	0	2.46	6.94	1.00	50%	12.04	14.49	16.55
BB42	0.71	1.75	0.78	0.55	0.26	1	0	100	0	2.46	13.29	2.59	50%	21.70	26.11	29.84
BB43	0.81	1.75	0.84	0.07	0.16	1	0	100	0	2.46	27.52	8.36	50%	38.86	46.76	53.42
BB44	3.08	2.49	1.23	0.04	0.04	1	0	100	0	2.46	43.01	16.84	50%	53.06	63.83	72.95
BB45	1.16	3.13	1.66	0.04	5.02	1	0	100	0	2.46	50.54	23.14	50%	55.57	66.87	76.41
BB46	1.92	3.13	1.22	0.91	0.69	16	0	100	2	2.46	16.77	3.10	30%	25.93	30.58	34.45
BB47	2.00	4.82	2.76	0.89	0.69	1	0	100	0	2.46	22.93	7.66	40%	30.07	35.87	40.73
BB48	1.97	3.36	1.39	4.46	0.69	1	0	100	0	2.46	10.06	1.58	30%	16.09	18.98	21.37
BB49	0.80	1.67	1.02	0.07	0.07	1	0	100	0	2.46	26.62	10.26	50%	33.17	39.92	45.61
BB50	1.54	1.39	0.29	0.22	0.22	1	0	100	0	2.46	15.61	1.47	50%	28.67	34.50	39.41
BB51	6.11	1.53	0.88	1.01	0.69	4	0	100	1	2.46	9.75	2.12	50%	15.48	18.63	21.28
Total	77.35															

Parameters Based on USGS Quadrangle Maps and Digital Aerial Photography Dated January, 1995  
These TC & R parameters and associated Hec-1 and Hec-2 models were created by Baker & Lawson.

- Definition of Parameter**
- DA = Drainage Area
  - %IMP = Percent Impervious Area
  - %Pond = Percent Ponding Area
  - TC = Time of Concentration (hours)
  - R = Watershed Storage
  - L = Watershed Length (miles)
  - L<sub>ca</sub> = Length to Centroid (miles)
  - S = Channel Slope (feet/mile)
  - DLU = Percent Urban Development
  - DCC = Percent Channel Improvement
  - D = 2.46 if S<sub>0</sub> ≤ 20 feet/mile
  - D = 3.79 if S<sub>0</sub> > 20 feet/mile < S<sub>0</sub> 40 feet/mile
  - D = 5.12 if S<sub>0</sub> > 40 feet/mile
  - S<sub>0</sub> = Watershed slope (feet/mile)

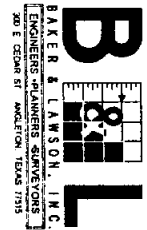


TABLE 3  
Chocolate Bayou Watershed Hydrologic Parameters

Name	DA (mi <sup>2</sup> )	L (mi)	L <sub>ca</sub> (mi)	S (ft/mi)	S <sub>0</sub> (ft/mi)	DLU (%)	DCI (%)	DCC (%)	% IMP	D	TC+R	TC	% Pond	R		
														(100-yr)	(25-yr)	(10-yr)
C-01	4.58	4.26	1.74	2.35	3.52	50	100	30	20	2.46	23.23	1.33	2	21.90	n/a	n/a
C-02	4.16	2.71	1	3.69	4.51	20	100	50	15	2.46	16.35	0.65	10	15.70	n/a	n/a
C-03	5.84	5.78	2.8	2.6	2.34	5	100	50	5	2.46	17.86	2.46	10	15.40	n/a	n/a
C-04	2.02	3.88	1.95	2.58	4.07	10	0	100	10	2.46	13.51	2.97	2	10.55	n/a	n/a
C-05	2.64	2.85	1.5	2.81	3.36	10	100	50	10	2.46	10.55	1.20	2	9.35	n/a	n/a
C-06	4.24	4.57	2.54	1.53	2.82	5	0	30	5	2.46	18.24	5.23	10	13.02	n/a	n/a
C-07	2.65	2.99	1.44	2.01	2.4	0	0	100	0	2.46	12.28	2.50	5	9.78	n/a	n/a
C-08	9.77	4.67	2.53	2.21	3.6	15	0	50	10	2.46	16.27	4.20	10	12.07	n/a	n/a
C-09	3.13	3.19	1.99	1.88	18.87	20	0	60	15	2.46	19.51	3.52	2	16.00	n/a	n/a
C-10	2.44	2.35	1.02	2.55	5.03	30	60	50	15	2.46	12.79	1.05	2	11.75	n/a	n/a
C-11	2.9	2.61	1.75	3.07	5.52	10	0	40	10	2.46	9.61	2.41	20	12.93	15.01	16.72
C-12	4.74	3.12	1.64	3.21	6.86	20	0	40	15	2.46	23.54	2.16	5	21.38	n/a	n/a
C-13A	4.17	3.23	1.89	3.1	3.11	5	30	50	5	2.46	11.13	2.28	10	8.85	n/a	n/a
C-13B	3.62	3.98	2.2	2.51	3.64	5	30	40	5	2.46	13.89	3.00	10	10.89	n/a	n/a
C-14	8.8	4.94	2.24	3.04	3.74	5	0	100	5	2.46	15.12	3.18	10	11.95	n/a	n/a
C-15	4.17	5.51	1.7	2.18	4.29	5	0	30	5	2.46	18.37	2.83	10	15.54	n/a	n/a
C-16	4.8	3.73	1.49	3.75	4.22	5	90	60	5	2.46	11.52	1.12	5	10.40	n/a	n/a
C-17	9.91	6.13	3.41	2.77	6.2	20	0	30	15	2.46	52.75	5.07	5	47.69	n/a	n/a
C-18	4.15	4.33	1.34	2.19	9.64	15	0	100	15	2.46	15.47	2.15	5	13.32	n/a	n/a
C-19	10.62	4.68	1.71	2.78	3.5	25	0	40	20	2.46	28.34	2.41	15	25.93	n/a	n/a
C-20	3.69	6.55	3.33	3.05	4.81	5	90	70	5	2.46	18.44	2.93	3	15.51	n/a	n/a
C-21	4.28	4.36	2	1.15	5.01	10	0	60	10	2.46	19.52	4.67	3	14.84	n/a	n/a
C-22	2.21	2.14	1.38	2.34	3.62	15	100	50	10	2.46	9.19	1.19	5	8.00	n/a	n/a
C-23	4.66	2.43	1.3	3.7	6.3	10	0	100	10	2.46	8.55	1.59	2	6.96	n/a	n/a
C-24	3.03	3.42	1.68	1.46	13.71	35	0	70	20	2.46	13.21	3.26	2	9.95	n/a	n/a
C-25	7.19	7.6	4.89	1.32	4.55	5	0	100	5	2.46	27.52	11.31	10	16.20	n/a	n/a
C-26	3.25	2.93	1.22	1.71	17.64	10	0	80	10	2.46	12.81	2.24	0	10.57	n/a	n/a
C-27	5.85	5.56	3.69	3.6	9.04	0	0	100	0	2.46	15.49	4.98	10	10.51	n/a	n/a
C-28	5.39	3.96	2.73	1.26	5.64	30	0	100	20	2.46	12.13	5.96	20	11.10	12.89	14.35
C-29	3.52	3.17	2.03	3.15	13.81	0	40	50	0	2.46	10.92	2.34	10	8.57	n/a	n/a
C-30	8.15	3.79	1.58	0.99	6.58	25	0	70	15	2.46	20.46	3.83	10	16.64	n/a	n/a
C-31	3.26	3.87	1.91	2.58	1.55	10	100	30	5	2.46	13.49	1.62	10	11.87	n/a	n/a
Total	153.83															

Parameters Based on Modified Land Use Data

**Definition of Parameter**

DA = Drainage Area

% IMP = Percent Impervious Area

% Pond = Percent Pondering Area

TC = Time of Concentration (hours)

R = Watershed Storage

L = Watershed Length (miles)

L<sub>ca</sub> = Length to Centroid (miles)

S = Channel Slope (feet/mile)

DLU = Percent Urban Development

DCI = Percent Channel Improvement

DCC = Percent Channel Conveyance

D = 2.46 if S<sub>0</sub> ≤ 20 feet/mile

D = 3.79 if S<sub>0</sub> > 20 feet/mile < S<sub>0</sub> 40 feet/mile

D = 5.12 if S<sub>0</sub> > 40 feet/mile

S<sub>0</sub> = Watershed slope (feet/mile)

TABLE 4  
Flores Bayou Watershed TC&R Parameters

Name	DA (mi <sup>2</sup> )	L (mi)	L <sub>ca</sub> (mi)	S (ft/mi)	S <sub>o</sub> (ft/mi)	DLU (%)	DCI (%)	DCC (%)	% IMP	D	TC+R	TC	% Pond	R		
														(100-yr)	(25-yr)	(10-yr)
FB 01	1.71	2.62	1.27	3.58	2.64	1	0	100	0	2.46	9.12	1.61	50%	15.24	18.34	20.95
FB 02	2.04	2.31	1.33	4.49	5.65	2	0	100	1	2.46	7.71	1.50	50%	12.59	15.15	17.31
FB 03	1.69	2.02	0.83	3.35	2.64	5	0	100	2	2.46	7.77	1.05	40%	13.23	15.78	17.92
FB 04	1.44	1.69	0.8	0.64	2.64	1	0	100	0	2.46	12.29	2.46	50%	19.95	24.01	27.43
FB 05	1.82	2.55	1.42	2.27	4.28	1	0	100	0	2.46	10.51	2.31	50%	16.64	20.02	22.88
FB 06	1.33	2.84	1.12	3.13	2.32	1	0	100	0	2.46	10.13	1.51	50%	17.47	21.02	24.02
FB 07	0.99	2.78	1.21	3.05	2.32	1	0	100	0	2.46	10.07	1.66	50%	17.04	20.50	23.43
FB 08	2.37	1.55	1.23	3.18	3.64	1	0	100	0	2.46	6.57	1.66	50%	9.96	11.98	13.69
FB 09	1.02	2.12	0.47	3.25	3.64	2	0	100	1	2.46	8.13	0.59	50%	15.29	18.40	21.02
FB 10	1.38	2.53	1.21	2.64	2.32	1	0	100	0	2.46	9.91	1.80	50%	16.46	19.80	22.62
FB 11	0.96	1.61	0.76	2.26	2.32	1	0	100	0	2.46	7.61	1.19	50%	13.02	15.66	17.89
FB 12	1.72	2.25	0.8	3.52	5.12	2	0	100	1	2.46	8.24	0.99	50%	14.70	17.69	20.21
FB 13	3.51	3.92	1.95	2.90	3.64	1	0	100	0	2.46	13.06	2.83	50%	20.74	24.95	28.51
FB 14	1.39	1.31	0.57	5.03	1.53	8	0	100	3	2.46	4.96	0.57	45%	8.78	10.53	11.99
FB 15	0.83	1.86	0.74	4.40	0.74	2	0	100	1	2.46	6.66	0.81	50%	11.86	14.27	16.30
FB 16	2.33	3.53	1.7	2.11	3.01	10	0	100	4	2.46	13.57	2.85	45%	21.44	25.69	29.26
FB 17	0.88	1.63	0.5	0.51	1.21	1	0	100	0	2.46	12.98	1.68	50%	22.92	27.58	31.51
FB 18	0.96	0.64	0.62	6.70	6.28	1	0	100	0	2.46	2.70	0.54	50%	4.39	5.28	6.03
FB 19	1.91	2.65	1.06	4.64	3.64	1	0	100	0	2.46	8.39	1.16	50%	14.67	17.65	20.17
FB 20	1.01	1.14	0.4	5.48	3.64	1	0	100	0	2.46	4.36	0.38	50%	8.08	9.72	11.11
FB 21	1.17	2.46	1.15	5.59	3.64	1	0	100	0	2.46	7.46	1.14	50%	12.80	15.40	17.60
FB 22	1.16	1.52	0.59	1.43	3.64	1	0	100	0	2.46	8.59	1.16	50%	15.06	18.12	20.71
FB 23	2.00	2.18	1.25	4.16	3.38	15	0	100	5	2.46	7.60	1.42	50%	12.52	15.07	17.22
FB 24	2.16	2.44	1.14	4.78	3.38	15	0	100	5	2.46	7.83	1.20	30%	12.58	14.84	16.71
FB 25	1.49	2.71	1.81	0.26	0.69	5	0	100	2	2.46	23.58	9.33	50%	28.89	34.76	39.72
Total	39.27															

Parameters Based on USGS Quadrangle Maps and Digital Aerial Photography Dated January 1995

These TC & R parameters and associated Hec-1 and Hec-2 models were created by Baker & Lawson.

**Definition of Parameter**

- DA = Drainage Area
- % IMP = Percent Impervious Area
- % Pond = Percent Ponding Area
- TC = Time of Concentration (hours)
- R = Watershed Storage
- L = Watershed Length (miles)
- L<sub>ca</sub> = Length to Centroid (miles)
- S = Channel Slope (feet/mile)
- DLU = Percent Urban Development
- DCI = Percent Channel Improvement
- DCC = Percent Channel Conveyance
- D = 2.46 if S<sub>o</sub> ≤ 20 feet/mile
- D = 3.79 if S<sub>o</sub> > 20 feet/mile < S<sub>0</sub> 40 feet/mile
- D = 5.12 if S<sub>o</sub> > 40 feet/mile
- S<sub>o</sub> = Watershed slope (feet/mile)

TABLE 5  
Halls Bayou Watershed TC&R Parameters

Name	DA (mi <sup>2</sup> )	L (mi)	Lca (mi)	S (ft/mi)	S <sub>0</sub> (ft/mi)	DLU (%)	DCI (%)	DCC (%)	%IMP	D	TC+R	TC	%Pond	R		
														(100-yr)	(25-yr)	(10-yr)
HB01	5.67	3.01	1.07	5.14	2.16	10	0	100	1.00	2.46	8.86	1.09	50%	15.75	18.95	21.65
HB02	4.61	3.32	1.84	3.80	4.86	23	0	100	2.3	2.46	8.69	2.21	50%	13.13	15.80	18.05
HB03	7.50	4.6	2.68	1.32	6.07	40	0	100	3.9	2.46	10.92	5.59	50%	10.81	13.00	14.86
HB04	3.19	2.9	1.77	2.40	6.07	1	0	100	0	2.46	11.29	2.83	50%	17.15	20.64	23.58
HB05	4.87	4.45	2.42	2.43	1.06	1	0	100	0	2.46	15.20	3.91	50%	22.90	27.55	31.48
HB06	3.82	4.26	1.94	2.19	1.06	1	0	100	0	2.46	15.29	3.27	50%	24.38	29.34	33.52
HB07	2.61	2.77	1.45	1.72	2.79	68	0	100	6.7	2.46	4.85	2.39	22%	4.48	5.22	5.83
HB08	4.54	3.28	1.59	3.87	1.69	1	0	100	0	2.46	10.40	1.96	50%	17.12	20.60	23.54
HB09	2.86	2.45	1.13	2.77	1.69	1	0	100	0	2.46	9.53	1.63	50%	16.01	19.27	22.02
HB10	2.00	2.45	1.23	4.61	1.90	1	0	100	0	2.46	7.96	1.36	50%	13.38	16.10	18.39
HB11	2.45	2.71	1.35	3.00	1.58	1	0	100	0	2.46	9.94	1.89	50%	16.34	19.67	22.47
HB12	3.07	3.34	1.68	2.52	2.38	31	0	100	3	2.46	8.24	2.46	50%	11.72	14.10	16.11
HB13	2.77	1.24	0.79	0.36	2.38	1	0	100	0	2.46	12.10	3.29	50%	17.88	21.52	24.58
HB14	3.31	3	1.54	3.67	4.22	1	0	100	0	2.46	9.95	1.95	50%	16.23	19.53	22.31
HB15	5.08	2.31	1.71	1.18	1.18	1	0	100	0	2.46	12.35	3.97	50%	16.99	20.44	23.36
HB16	1.94	1.77	1.19	2.07	2.07	1	0	100	0	2.46	8.39	2.01	50%	12.95	15.58	17.80
HB17	3.13	3.02	0.06	0.62	0.62	0	0	100	0	2.46	18.73	0.16	50%	37.65	45.31	51.77
HB18	2.61	1.7	0.06	0.05	0.05	0	0	100	0	2.46	30.36	0.61	50%	60.33	72.60	82.94
Total	60.29															

Parameters Based on USGS Quadrangle Maps and Digital Aerial Photography Dated January 1995

These TC & R parameters and associated Hec-1 and Hec-2 models were created by Baker & Lawson.

- Definition of Parameter**
- DA = Drainage Area
  - %IMP = Percent Impervious Area
  - %Pond = Percent Ponding Area
  - TC = Time of Concentration (hours)
  - R = Watershed Storage
  - L = Watershed Length (miles)
  - L<sub>ca</sub> = Length to Centroid (miles)
  - S = Channel Slope (feet/mile)
  - DLU = Percent Urban Development
  - DCI = Percent Channel Improvement
  - DCC = Percent Channel Conveyance
  - D = 2.46 if S<sub>0</sub> ≤ 20 feet/mile
  - D = 3.79 if S<sub>0</sub> > 20 feet/mile < S<sub>0</sub> 40 feet/mile
  - D = 5.12 if S<sub>0</sub> > 40 feet/mile
  - S<sub>0</sub> = Watershed slope (feet/mile)

TABLE 6  
Mustang Bayou Watershed Hydrologic Parameters

Name	DA (mi <sup>2</sup> )	L (mi)	L <sub>ca</sub> (mi)	S (ft/mi)	S <sub>o</sub> (ft/mi)	DLU (%)	DCI (%)	DCC (%)	% IMP	D	TC+R	TC	% Pond	R		
														(100-yr)	(25-yr)	(10-yr)
M-01	4.44	4.88	2.90	2.05	1.53	5	0	50	2	2.46	17.23	5.15	5	12.08	n/a	n/a
M-02	5.60	5.76	2.82	1.02	1.67	5	0	50	2	2.46	24.78	7.24	5	17.55	n/a	n/a
M-03	6.55	5.11	2.14	1.55	2.58	30	90	50	10	2.46	26.40	2.42	2	23.98	n/a	n/a
M-04	5.54	7.23	4.07	0.69	9.60	30	0	30	10	2.46	73.54	12.52	5	61.02	n/a	n/a
M-05	3.14	3.05	1.33	1.64	5.75	80	0	60	30	2.46	7.75	2.18	3	5.57	n/a	n/a
M-06	0.08	0.38	0.15	2.63	1.82	80	100	100	35	2.46	0.92	0.08	0	0.84	n/a	n/a
M-07	1.07	2.01	1.10	3.07	6.10	70	100	60	30	2.46	5.07	0.65	0	4.41	n/a	n/a
M-08	0.85	1.33	0.85	3.76	6.39	50	100	50	20	2.46	5.28	0.49	0	4.79	n/a	n/a
M-09	2.95	2.47	1.25	2.02	5.94	70	90	60	25	2.46	6.79	1.03	0	5.76	n/a	n/a
M-10	2.58	2.82	1.12	3.19	7.21	30	100	20	10	2.46	32.61	0.77	5	31.85	n/a	n/a
M-11	1.89	1.39	1.04	1.44	4.20	20	100	10	8	2.46	67.44	1.12	3	66.32	n/a	n/a
M-12	2.29	3.85	2.04	2.86	9.68	15	5	40	7	2.46	12.96	2.85	10	10.11	n/a	n/a
M-13	0.78	0.76	0.15	1.32	0.96	0	100	10	5	2.46	5.42	0.16	20	9.44	10.96	12.21
M-14	0.48	0.76	0.28	1.32	2.26	0	100	10	5	2.46	5.42	0.31	40	10.05	11.99	13.61
M-15	1.95	1.89	0.89	1.59	4.37	10	100	10	5	2.46	9.65	0.93	50	17.68	21.27	24.30
M-16	3.96	4.19	2.07	1.43	4.20	0	0	70	2	2.46	17.57	4.40	50	26.71	32.14	36.72
M-17	1.00	2.00	1.62	1.00	1.56	0	100	70	2	2.46	11.83	2.32	50	19.28	23.19	26.50
M-18	0.89	1.33	0.62	1.51	2.40	0	0	50	2	2.46	7.67	1.19	0	6.48	n/a	n/a
M-19	3.49	4.60	1.88	1.96	2.40	0	0	50	2	2.46	16.79	3.36	15	13.43	n/a	n/a
M-20	3.23	2.73	1.17	1.46	1.20	0	60	40	2	2.46	12.89	1.76	15	11.13	n/a	n/a
M-21	1.58	2.50	1.46	1.00	2.40	0	0	30	2	2.46	13.84	3.67	15	10.17	n/a	n/a
M-22	6.12	4.38	2.73	1.60	2.40	0	0	40	2	2.46	17.42	5.56	30	22.49	26.53	29.88
Total	60.46															

**Definition of Parameter**

DA = Drainage Area (square miles)

% IMP = Percent Impervious Area

% Pond = Percent Ponding Area

TC = Time of Concentration (hours)

R = Watershed Storage

L = Watershed Length (miles)

L<sub>ca</sub> = Length to Centroid (miles)

S = Channel Slope (feet/mile)

DLU = Percent Urban Development

DCI = Percent Channel Improvement

DCC = Percent Channel Conveyance

D = 2.46 if S<sub>o</sub> ≤ 20 feet/mile

D = 3.79 if S<sub>o</sub> > 20 feet/mile < 40 feet/mile

D = 5.12 if S<sub>o</sub> > 40 feet/mile

S<sub>o</sub> = Watershed slope (feet/mile)

TABLE 7  
New Bayou Watershed Hydrologic Parameters

Name	DA (mi <sup>2</sup> )	L (mi)	L <sub>ca</sub> (mi)	S (ft/mi)	S <sub>0</sub> (ft/mi)	DLU (%)	DCI (%)	DCC (%)	% IMP	D	TC+R	TC	% Pond	R		
														(100-yr)	(25-yr)	(10-yr)
N-01	0.76	1.61	0.74	1.60	4.80	0	100	100	2	2.46	8.60	0.79	2	7.81	n/a	n/a
N-02	0.74	1.16	0.51	2.23	3.30	5	100	60	2	2.46	6.07	0.44	0	5.63	n/a	n/a
N-03	3.74	4.53	2.59	1.68	6.40	40	100	70	14	2.46	14.00	2.52	10	11.48	n/a	n/a
N-04	3.48	4.77	3.88	1.62	4.50	20	100	80	8	2.46	20.68	4.24	0	16.45	n/a	n/a
N-05	2.60	3.69	2.04	1.76	3.74	50	100	50	15	2.46	14.18	1.84	0	12.35	n/a	n/a
N-06	2.03	2.97	1.72	2.00	6.17	60	100	100	20	2.46	5.26	1.38	10	3.88	n/a	n/a
N-07	0.72	2.03	1.34	1.11	2.10	5	100	80	2	2.46	11.52	1.77	30	18.49	21.81	24.56
N-08	0.50	1.57	0.87	2.00	1.33	0	100	20	2	2.46	7.81	0.83	0	6.97	n/a	n/a
N-09	2.98	3.84	2.10	0.36	1.60	0	100	90	2	2.46	26.88	5.25	10	21.63	n/a	n/a
N-10	0.47	1.65	0.80	2.75	1.76	0	100	20	2	2.46	7.22	0.64	0	6.58	n/a	n/a
N-11	2.20	3.20	1.58	0.71	2.00	0	100	70	2	2.46	18.60	2.71	50	32.22	38.77	44.30
N-12	1.61	2.66	0.89	1.50	2.60	0	100	50	2	2.46	12.54	0.99	40	22.73	27.11	30.78
N-13	1.30	1.65	0.53	0.33	1.51	10	20	20	4	2.46	15.21	2.01	10	13.20	n/a	n/a
N-14	1.60	2.77	1.33	1.58	1.75	10	90	60	4	2.46	12.66	1.54	2	11.12	n/a	n/a
Total	24.73															

**Definition of Parameter**

DA = Drainage Area (square miles)

% IMP = Percent Impervious Area

% Pond = Percent Ponding Area

TC = Time of Concentration (hours)

R = Watershed Storage

L = Watershed Length (miles)

L<sub>ca</sub> = Length to Centroid (miles)

S = Channel Slope (feet/mile)

DLU = Percent Urban Development

DCI = Percent Channel Improvement

DCC = Percent Channel Conveyance

D = 2.46 if S<sub>0</sub> ≤ 20 feet/mile

D = 3.79 if S<sub>0</sub> > 20 feet/mile ≤ 40 feet/mile

D = 5.12 if S<sub>0</sub> > 40 feet/mile

S<sub>0</sub> = Watershed slope (feet/mile)

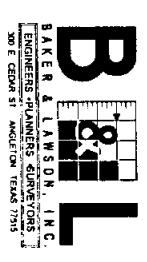


TABLE 8  
Oyster Creek Watershed TC&R Parameters

Name	DA (mi <sup>2</sup> )	L (mi)	Lca (mi)	S (ft/mi)	So (ft/mi)	DLU (%)	DCI (%)	DCC (%)	%IMP	D	TC+R	TC	%Pond	R		
														(100-yr)	(25-yr)	(10-yr)
O-01	7.47	3.91	1.42	0.77	0.69	1	0	100	1.00	2.46	20.82	4.10	30%	31.70	37.39	42.11
O-02	2.85	2.83	1.44	1.73	1.95	1	0	100	0	2.46	12.45	2.70	50%	19.77	23.79	27.18
O-03	4.66	3.20	1.48	3.05	1.06	6	0	100	2	2.46	11.11	2.03	30%	17.20	20.29	22.85
O-04	6.42	4.99	0.70	1.95	2.38	1	0	100	1	2.46	17.81	1.18	30%	31.54	37.21	41.90
O-05	3.44	2.14	1.36	2.26	0.16	1	0	100	0	2.46	9.31	2.21	40%	13.97	16.66	18.92
O-06	2.74	3.11	1.57	3.50	0.16	9	0	100	1	2.46	10.39	2.01	50%	16.99	20.44	23.36
O-07	5.46	2.81	0.45	1.42	0.16	1	0	100	1	2.46	13.29	0.87	40%	24.44	29.16	33.11
O-08	3.05	2.30	0.40	1.91	1.21	1	0	100	1	2.46	10.37	0.66	50%	19.70	23.70	27.08
O-09	3.40	3.24	1.63	2.40	0.16	1	0	100	0	2.46	12.20	2.58	40%	18.93	22.58	25.64
O-10	2.21	1.38	0.75	4.87	0.16	1	0	100	0	2.46	5.21	0.78	50%	8.98	10.81	12.35
O-11	4.74	5.41	2.91	1.22	1.21	3	0	100	1	2.46	22.25	6.84	50%	31.25	37.61	42.97
O-12	4.19	1.97	1.61	0.14	0.16	1	0	100	0	2.46	23.42	11.52	40%	23.44	27.97	31.75
O-13	1.94	3.10	1.68	3.17	0.16	1	0	100	1	2.46	10.71	2.31	40%	16.55	19.74	22.41
O-14	2.83	1.60	0.79	2.42	0.16	1	0	100	0	2.46	7.38	1.20	40%	12.17	14.51	16.48
O-15	2.36	3.57	1.46	0.83	0.83	11	0	100	4	2.46	19.02	3.98	40%	29.61	35.32	40.11
O-16	2.37	1.96	1.73	2.38	2.27	1	0	100	1	2.46	8.57	2.77	40%	11.42	13.63	15.47
O-17	2.94	1.82	1.28	2.20	1.76	1	0	100	2	2.46	8.37	2.10	40%	12.35	14.74	16.73
O-18	3.04	3.17	1.52	0.96	1.53	1	0	100	1	2.46	16.60	3.91	50%	25.74	30.97	35.39
O-19	3.87	2.73	0.85	0.82	0.16	1	0	100	0	2.46	15.82	2.28	40%	26.65	31.79	36.09
O-20	7.61	8.82	3.37	0.77	1.24	12	0	100	4	2.46	36.98	10.01	40%	53.10	63.34	71.92
O-21	7.05	5.06	1.30	0.86	1.21	6	0	100	1	2.46	24.00	3.48	40%	40.42	48.22	54.75
O-22	3.20	2.81	0.46	1.96	1.48	1	0	100	0	2.46	11.84	0.75	40%	21.85	26.07	29.60
O-23	3.21	4.57	3.14	1.85	1.11	1	0	100	0	2.46	17.06	5.97	40%	21.85	26.07	29.60
O-24	5.78	3.31	1.25	1.65	1.48	8	0	100	2	2.46	14.13	2.35	30%	22.32	26.33	29.66
O-25	3.90	3.50	1.98	0.03	1.48	43	0	100	15	2.46	32.60	29.88	20%	4.88	5.66	6.31
O-26	2.41	4.00	1.08	0.29	0.69	1	0	100	0	2.46	29.84	5.14	40%	48.63	58.02	65.87
O-27	4.79	10.32	4.23	1.35	1.06	15	0	100	5	2.46	33.88	9.40	40%	48.22	57.52	65.31
O-28	2.85	4.70	2.12	1.24	1.24	100	0	100	35	2.46	6.09	3.95	10%	3.49	n/a	n/a
O-29	3.31	4.42	1.22	0.66	1.72	63	0	100	22	2.46	9.96	3.34	20%	11.89	13.80	15.37
O-30	8.04	7.30	2.07	2.19	1.48	35	0	100	12	2.46	13.85	3.29	30%	20.02	23.61	26.60
O-31	2.48	3.43	0.67	1.82	1.48	2	0	100	1	2.46	14.02	1.16	40%	25.32	30.20	34.29
O-32	5.29	3.72	1.48	0.03	0.03	17	0	100	5	2.46	63.18	23.14	40%	78.84	94.05	106.79
O-33	1.54	2.39	1.04	2.00	0.74	1	0	100	2	2.46	10.51	1.77	30%	16.58	19.55	22.02
Total	131.403															

Parameters Based on USGS Quadrangle Maps and Digital Aerial Photography Dated January 1995

These TC & R parameters and associated Hec-1 and Hec-2 models were created by Baker & Lawson.



**TABLE 9**  
**Austin Bayou 100-Year Frequency Flow Comparison**  
**Effective FEMA Model vs Revised Base Model**

ROAD LOCATION	HEC-1 Node	Hec-2 Location Station Number	Location	Current FEMA (CFS)	Revised Base (Ab_100.ih1) (CFS)	Revised Base Drainage Area (SQ.MI)	Difference in the Flows (CFS)	Revised CFS/AC	% Change in the Flows
CR 210	AB27	16.22	At CR 210	6338	9967	56.58	3629	0.28	57.3%
CR 171	AB25	18.8	At CR 171	5992	10227	49.39	4235	0.32	70.7%
SH 35	AB20	22.76	At SH 35	5325	9197	41.83	3872	0.34	72.7%
CR 33	AB16	24.83	At CR 33	4522	7992	35	3470	0.36	76.7%
	AB15	27.56	Field Br DS of CR 51	3805	7355	31.41	3550	0.37	93.3%

TABLE 10  
AUSTIN BAYOU

WATER SURFACE ELEVATION COMPARISONS  
100-YEAR FREQUENCY

HEC-2	Computed 100-YEAR WSEL (feet)		IMPACTS (feet)
Station Number	FEMA Data	Revised Base (Ab_bl_r.ih2)	Revised-Base
0		4.84	n.a.
2.84		7.39	n.a.
5.78		8.69	n.a.
5.82		8.51	n.a.
5.83		8.51	n.a.
5.98		9.02	n.a.
10.24		10.80	n.a.
10.33		11.09	n.a.
11.61		12.89	n.a.
12.65		13.45	n.a.
12.67		13.46	n.a.
12.68		13.86	n.a.
12.79		13.89	n.a.
13.76		13.90	n.a.
14.97		18.59	n.a.
18	14.51	18.81	4.30
16.2	16.11	19.03	2.92
16.21	16.13	18.11	1.98
16.22	16.18	18.33	2.15
16.26	16.27	20.51	4.24
16	17.44	20.67	3.23
15	19.33	21.64	2.31
18.78	20.78	22.39	1.61
18.79	20.74	22.40	1.66
18.8	20.74	23.39	2.65
18.82	20.77	23.41	2.64
12	21.12	23.49	2.37
11	21.67	23.57	1.90
20.36	22.00	23.68	1.68
20.37	22.12	24.02	1.90
20.38	22.18	24.20	2.02
20.7	21.98	24.65	2.67
10	22.56	26.02	3.46
22.74	22.91	27.98	5.07
22.75	23.01	27.82	4.81
22.76	24.47	28.14	3.67
22.78	26.24	28.83	2.59
22.9	25.95	28.88	2.93
22.92	26.24	28.89	2.65
22.93	27.11	28.89	1.78

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22.94	27.20	28.90	1.70
8	27.23	29.16	1.93
7	27.23	29.77	2.54
24.81	27.24	30.60	3.36
24.82	27.77	30.61	2.84
24.83	28.73	30.68	1.95
24.86	29.32	30.72	1.40
5	29.33	30.94	1.61
26.21	29.34	31.46	2.12
26.22	29.36	31.50	2.14
26.23	29.59	31.59	2.00
26.24	30.57	31.82	1.25
4	30.69	32.17	1.48
27.54	30.70	33.88	3.18
27.55	30.76	33.89	3.13
27.56	31.06	35.15	4.09
27.57	31.60	35.15	3.55
2	31.69	35.60	3.91
28.9	31.79	36.82	5.03
29.46	31.82	39.52	7.70
29.47	33.20	39.53	6.33
29.48	34.24	39.62	5.38
29.5	34.27	39.64	5.37
32.1	34.34	42.33	7.99
32.11	34.35	44.08	9.73
32.13	34.65	47.34	12.69
32.16		47.35	n.a.

**TABLE 11**  
**AUSTIN BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2	Computed 25-YEAR WSEL (feet)		IMPACTS (feet)
Station Number	FEMA Model	Revised Base (Ab_bl_r.ih2)	Revised-Base
0		4.45	n.a.
2.84		6.94	n.a.
5.78		8.15	n.a.
5.82		8.05	n.a.
5.83		8.05	n.a.
5.98		8.38	n.a.
10.24		10.16	n.a.
10.33		10.44	n.a.
11.61		12.31	n.a.
12.65		12.87	n.a.
12.67		12.88	n.a.
12.68		13.12	n.a.
12.79		13.15	n.a.
13.76		13.28	n.a.
14.97		17.25	n.a.
18	13.13	17.49	4.36
16.2	14.56	17.79	3.23
16.21	14.56	17.35	2.79
16.22	14.77	17.46	2.69
16.26	14.85	18.56	3.71
16	15.69	18.90	3.21
15	17.11	20.35	3.24
18.78	18.96	21.33	2.37
18.79	18.91	21.34	2.43
18.8	19.10	22.25	3.15
18.82	19.11	22.29	3.18
12	19.23	22.41	3.18
11	20.23	22.50	2.27
20.36	20.67	22.57	1.90
20.37	20.82	23.01	2.19
20.38	20.89	23.22	2.33
20.7	20.88	23.81	2.93
10	21.14	25.17	4.03
22.74	21.16	27.06	5.90
22.75	21.27	26.99	5.72
22.76	22.89	27.07	4.18
22.78	24.82	27.43	2.61
22.9	24.76	27.51	2.75
22.92	24.84	27.53	2.69
22.93	25.17	27.53	2.36

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22.94	25.33	27.53	2.20
8	25.38	27.94	2.56
7	25.38	28.83	3.45
24.81	25.40	29.78	4.38
24.82	26.31	29.79	3.48
24.83	27.87	29.82	1.95
24.86	28.45	29.87	1.42
5	28.45	30.12	1.67
26.21	28.46	30.82	2.36
26.22	28.48	30.87	2.39
26.23	28.75	30.91	2.16
26.24	30.01	31.12	1.11
4	30.09	31.51	1.42
27.54	30.09	33.22	3.13
27.55	30.12	33.23	3.11
27.56	30.36	34.14	3.78
27.57	30.89	34.15	3.26
2	31.01	34.71	3.70
28.9	31.20	36.53	5.33
29.46	31.23	39.14	7.91
29.47	32.63	39.15	6.52
29.48	33.71	39.19	5.48
29.5	33.74	39.21	5.47
32.1	33.75	41.26	7.51
32.11	33.76	42.52	8.76
32.13	34.13	46.59	12.46
32.16		46.60	n.a.

**TABLE 12**  
**AUSTIN BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet)		IMPACTS (feet)
	FEMA Data	Revised Base (Fb_bl_r.ih2)	Revised- Base
0		4.20	n.a.
2.84		6.68	n.a.
5.78		7.83	n.a.
5.82		7.76	n.a.
5.83		7.76	n.a.
5.98		8.01	n.a.
10.24		9.75	n.a.
10.33		10.02	n.a.
11.61		11.96	n.a.
12.65		12.52	n.a.
12.67		12.53	n.a.
12.68		12.71	n.a.
12.79		12.75	n.a.
13.76		12.92	n.a.
14.97		16.46	n.a.
18	13.13	16.70	3.57
16.2	14.56	17.06	2.50
16.21	14.56	16.79	2.23
16.22	14.77	16.87	2.10
16.26	14.85	17.58	2.73
16	15.69	18.02	2.33
15	17.11	19.51	2.40
18.78	18.96	20.62	1.66
18.79	18.91	20.65	1.74
18.8	19.10	21.13	2.03
18.82	19.11	21.61	2.50
12	19.23	21.76	2.53
11	20.23	21.86	1.63
20.36	20.67	21.98	1.31
20.37	20.82	22.37	1.55
20.38	20.89	22.66	1.77
20.7	20.88	23.25	2.37
10	21.14	24.62	3.48
22.74	21.16	26.49	5.33
22.75	21.27	26.45	5.18
22.76	22.89	26.46	3.57
22.78	24.82	26.71	1.89
22.9	24.76	26.80	2.04
22.92	24.84	26.82	1.98
22.93	25.17	26.82	1.65

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22.94	25.33	26.83	1.50
8	25.38	27.32	1.94
7	25.38	28.37	2.99
24.81	25.40	29.31	3.91
24.82	26.31	29.32	3.01
24.83	27.87	29.33	1.46
24.86	28.45	29.39	0.94
5	28.45	29.67	1.22
26.21	28.46	30.50	2.04
26.22	28.48	30.56	2.08
26.23	28.75	30.58	1.83
26.24	30.01	30.78	0.77
4	30.09	31.17	1.08
27.54	30.09	32.84	2.75
27.55	30.12	32.85	2.73
27.56	30.36	33.60	3.24
27.57	30.89	33.62	2.73
2	31.01	34.33	3.32
28.9	31.20	36.36	5.16
29.46	31.23	38.90	7.67
29.47	32.63	38.91	6.28
29.48	33.71	38.94	5.23
29.5	33.74	38.95	5.21
32.1	33.75	41.73	7.98
32.11	33.76	42.26	8.50
32.13	34.13	46.35	12.22
32.16		46.37	46.37



**TABLE 13**  
**Bastrop Bayou 100-Year Frequency Flow Comparison**  
LLJ Model vs Revised Base Model

ROAD LOCATION	HEC-1 Node	Hec-2 Location Station Number	Location	LLJ (CFS)	Revised Base (Bb_b100.ih1) (CFS)	Revised Base Drainage Area (SQ.MI)	Difference in the Flows (CFS)	Revised CFS/AC	% Change in the Flows
CR 227	BB50	30.3	At CR 227	7280	28866	212.13	21586	0.21	296.5%
FM 523	BB45	32	US of Confluence w/Austin Bayou	7280	12330	71	5050	0.27	69.4%
HWY 288 B	BB28	17.1	At FM 523	7350	8827	44.51	1477	0.31	20.1%
	BB10	13.1	At HWY 288 B	6220	4707	18.69	-1513	0.39	-24.3%
SH 288	BB05	9	At Confluence w/E Fork Bastrop Bayou	6240	854	11.02	-5386	0.12	-86.3%
	BB04	288.4	At SH 288	6240	2605	7.2	-3635	0.57	-58.3%
	BB02	3.7	At CR 290	7080	929	2.8	-6151	0.52	-86.9%

TABLE 14  
BASTROP BAYOU

WATER SURFACE ELEVATION COMPARISONS  
100-YEAR FREQUENCY



HEC-2 Station Number	Computed 100-YEAR WSEL (feet)		IMPACTS (feet)
	FEMA Data	Revised Base (Bb_bl_r.ih2)	Revised- Base
26	5.46	8.91	3.45
27	5.85	9.06	3.21
28	6.30	9.15	2.85
30.1	6.43	9.07	2.64
30.15	6.42	9.74	3.32
30.2	6.43	9.39	2.96
30.3	6.45	9.40	2.95
30.4	6.59	9.24	2.65
31	6.61	9.73	3.12
32	6.62	9.75	3.13
33	6.65	9.75	3.10
34	6.66	9.76	3.10
35	6.69	9.76	3.07
36	6.68	9.77	3.09
21	7.43	9.77	2.34
20	7.90	9.84	1.94
19	8.30	9.87	1.57
18	8.87	9.91	1.04
17.2	8.87	9.99	1.12
17.1	8.92	9.98	1.06
17	9.78	10.03	0.25
16.2	9.79	10.23	0.44
16.1	9.81	10.20	0.39
16	11.09	10.32	-0.77
15	12.43	11.05	-1.38
14	13.73	12.65	-1.08
13.3	13.71	13.92	0.21
13.2	14.05	13.94	-0.11
13.1	14.16	14.13	-0.03
13	14.56	14.20	-0.36
12	15.80	14.36	-1.44
11.5	15.78	15.11	-0.67
11.4	16.04	15.11	-0.93
11.37	16.20	15.24	-0.96
11.3	16.21	15.34	-0.87
11.2	16.21	15.33	-0.88
11.1	16.38	15.45	-0.93
11	17.81	15.57	-2.24
10	19.07	17.13	-1.94
9	19.72	18.27	-1.45

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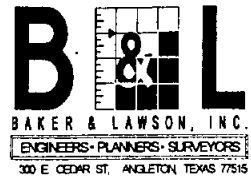
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288.1	19.74	18.82	-0.92
288.2	19.73	18.85	-0.88
288.3	19.88	18.84	-1.04
288.4	19.90	18.89	-1.01
288.5	19.99	18.90	-1.09
288.6	21.28	18.93	-2.35
8	22.55	19.80	-2.75
7.29	23.42	20.97	-2.45
7.19	23.78	22.29	-1.49
7	24.18	22.62	-1.56
6	26.17	22.96	-3.21
5	26.66	24.58	-2.08
4.2	26.64	25.78	-0.86
4	27.16	25.20	-1.96
3.9	27.31	25.25	-2.06
3.8	27.37	25.25	-2.12
3.7	n.a.	25.24	n.a.
9	17.52	18.27	0.75
58	18.56	18.37	-0.19
57.4	19.03	18.59	-0.44
57.3	19.04	18.60	-0.44
57.2	19.06	18.61	-0.45
57	19.30	18.73	-0.57
56	22.08	21.71	-0.37
55.7	23.00	23.29	0.29
55.6	23.03	23.30	0.27
55.5	22.91	23.19	0.28
55.4	22.98	23.26	0.28
55.3	23.31	23.56	0.25
55.2	23.32	23.58	0.26
55	23.58	23.77	0.19
54	23.72	23.91	0.19
53.6	23.81	24.03	0.22
53.5	23.74	23.87	0.13
53.4	23.81	24.07	0.26
53.3	24.05	24.54	0.49
53.2	24.05	24.54	0.49
53.1	24.05	24.54	0.49
53	24.09	24.61	0.52
52	24.38	24.81	0.43

TABLE 15  
BASTROP BAYOU

WATER SURFACE ELEVATION COMPARISONS  
25-YEAR FREQUENCY



HEC-2	Computed 25-YEAR WSEL (feet)
Station	Revised Base
Number	(Bb_bl_r.ih2)
26	7.85
27	8.02
28	8.13
30.1	8.15
30.15	8.21
30.2	8.21
30.3	8.23
30.4	8.22
31	8.61
32	8.63
33	8.63
34	8.65
35	8.65
36	8.65
21	8.64
20	8.79
19	8.85
18	8.92
17.2	9.07
17.1	9.06
17	9.12
16.2	9.49
16.1	9.47
16	9.54
15	10.39
14	11.75
13.3	13.14
13.2	13.18
13.1	13.19
13	13.22
12	13.42
11.5	14.22
11.4	14.24
11.37	14.25
11.3	14.27
11.2	14.28
11.1	14.32
11	14.36
10	16.01
9	17.50

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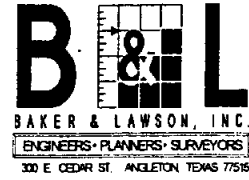
288.1	18.18
288.2	18.21
288.3	18.20
288.4	18.23
288.5	18.24
288.6	18.26
8	18.87
7.29	19.83
7.19	21.34
7	21.71
6	22.12
5	24.81
4.2	25.03
4	25.04
3.9	25.07
3.8	25.07
3.7	25.03
9	17.50
58	17.60
57.4	17.74
57.3	17.75
57.2	17.76
57	17.85
56	20.35
55.7	22.06
55.6	22.09
55.5	22.05
55.4	22.07
55.3	22.20
55.2	22.20
55	22.51
54	23.14
53.6	23.62
53.5	23.55
53.4	23.64
53.3	23.91
53.2	23.91
53.1	23.91
53	23.95
52	24.33

**TABLE 16**  
**BASTROP BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet)		IMPACTS (feet) Revised- Base
	FEMA Data	Revised Base (Bb bl r.ih2)	
26	4.43	7.28	2.85
27	4.78	7.47	2.69
28	5.18	7.60	2.42
30.1	5.39	7.67	2.28
30.15	5.41	7.73	2.32
30.2	5.41	7.69	2.28
30.3	5.39	7.71	2.32
30.4	5.58	7.75	2.17
31	5.64	8.08	2.44
32	5.66	8.09	2.43
33	5.66	8.10	2.44
34	5.66	8.11	2.45
35	5.67	8.11	2.44
36	5.69	8.12	2.43
21	5.89	8.11	2.22
20	6.06	8.31	2.25
19	6.28	8.39	2.11
18	6.48	8.49	2.01
17.2	6.49	8.68	2.19
17.1	6.49	8.68	2.19
17	6.72	8.71	1.99
16.2	6.73	9.16	2.43
16.1	6.73	8.99	2.26
16	7.20	14.93	7.73
15	7.80	15.18	7.38
14	8.56	15.21	6.65
13.3	8.57	15.27	6.70
13.2	8.58	15.27	6.69
13.1	8.59	15.34	6.75
13	8.97	15.35	6.38
12	9.90	15.37	5.47
11.5	9.91	15.49	5.58
11.4	9.92	15.49	5.57
11.37	9.93	15.53	5.60
11.3	9.94	15.55	5.61
11.2	9.94	15.55	5.61
11.1	11.72	15.58	3.86
11	15.52	15.61	0.09
10	17.08	16.17	-0.91
9	17.65	17.21	-0.44
288.1	17.66	17.85	0.19
288.2	17.66	17.87	0.21
288.3	17.67	17.87	0.20
288.4	17.68	17.89	0.21
288.5	17.70	17.90	0.20
288.6	17.94	17.91	-0.03
8	17.97	18.33	0.36
7.29	18.21	19.08	0.87
7.19	18.36	20.73	2.37
7	18.77	21.16	2.39
6	19.27	21.58	2.31
5	17.02	24.61	7.59

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4.2	17.44	24.83	7.39
4	17.45	24.84	7.39
3.9	17.48	24.86	7.38
3.8	17.74	24.86	7.12
3.7	20.68	24.92	4.24
9	15.52	17.21	1.69
58	17.02	17.29	0.27
57.4	17.44	17.39	-0.05
57.3	17.45	17.39	-0.06
57.2	17.48	17.40	-0.08
57	17.74	17.47	-0.27
56	20.68	19.53	-1.15
55.7	21.63	21.18	-0.45
55.6	21.67	21.21	-0.46
55.5	21.62	21.19	-0.43
55.4	21.65	21.21	-0.44
55.3	21.77	21.28	-0.49
55.2	21.77	21.28	-0.49
55	22.14	21.60	-0.54
54	22.74	22.36	-0.38
53.6	23.17	23.12	-0.05
53.5	23.16	23.12	-0.04
53.4	23.20	23.18	-0.02
53.3	23.36	23.40	0.04
53.2	23.37	23.41	0.04
53.1	23.37	23.41	0.04
53	23.38	23.43	0.05
52	23.91	24.06	0.15

**TABLE 17**  
**BASTROP BAYOU-E FORK**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)		IMPACTS (feet)
	FEMA Data	Revised Model	Revised- Base
9	17.52	18.32	0.80
58	18.56	18.47	-0.09
57.4	19.03	18.78	-0.25
57.3	19.04	18.78	-0.26
57.2	19.06	18.8	-0.26
57	19.3	18.96	-0.34
56	22.08	22.34	0.26
55.7	23	23.73	0.73
55.6	23.03	23.77	0.74
55.5	22.91	23.62	0.71
55.4	22.98	23.69	0.71
55.3	23.31	24.05	0.74
55.2	23.32	24.08	0.76
55	23.58	24.22	0.64
54	23.72	24.3	0.58
53.6	23.81	24.37	0.56
53.5	23.74	24.19	0.45
53.4	23.81	24.36	0.55
53.3	24.05	24.82	0.77
53.2	24.05	24.81	0.76
53.1	24.05	24.82	0.77
53	24.09	24.89	0.80
52	24.38	25.02	0.64





**TABLE 19**  
**BASTROP BAYOU-E FORK**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet)		IMPACTS (feet)
	FEMA Data	Revised Model	Revised- Base
9	15.52	17.1	1.58
58	17.02	17.24	0.22
57.4	17.44	17.4	-0.04
57.3	17.45	17.4	-0.05
57.2	17.48	17.41	-0.07
57	17.74	17.52	-0.22
56	20.68	20.25	-0.43
55.7	21.63	21.78	0.15
55.6	21.67	21.81	0.14
55.5	21.62	21.78	0.16
55.4	21.65	21.8	0.15
55.3	21.77	21.88	0.11
55.2	21.77	21.88	0.11
55	22.14	22.15	0.01
54	22.74	22.75	0.01
53.6	23.17	23.32	0.15
53.5	23.16	23.3	0.14
53.4	23.2	23.37	0.17
53.3	23.36	23.59	0.23
53.2	23.37	23.59	0.22
53.1	23.37	23.6	0.23
53	23.38	23.62	0.24
52	23.91	24.13	0.22

**TABLE 20**  
**BRAZOS RIVER**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)		IMPACTS (feet)
	FEMA Data	Revised Model	Revised- Base
3.58	6.29	12	5.71
3.6	6.32	12	5.68
3.62	6.34	12	5.66
3.64	6.36	12	5.64
3.72	6.46	12	5.54
4	6.73	12	5.27
4.8	7.91	12	4.09
5.7	9.19	12	2.81
6.5	10.03	12	1.97
7.47	10.94	12	1.06
8.6	12.31	12.31	0.00
9.45	13.54	13.55	0.01
9.88	14.24	14.24	0.00
10.21	14.38	14.38	0.00
10.75	14.79	14.79	0.00
11.67	15	15	0.00
12.09	15.28	15.28	0.00
12.49	15.79	15.79	0.00
12.79	16.18	16.18	0.00
13.06	16.62	16.62	0.00
13.44	16.98	16.98	0.00
13.8	17.72	17.72	0.00
14.22	18.16	18.16	0.00
14.24	18.09	18.09	0.00
14.25	18.15	18.15	0.00
14.27	18.42	18.42	0.00
14.77	19.04	19.04	0.00
15.23	19.33	19.33	0.00
15.95	19.85	19.85	0.00
16.74	20.14	20.14	0.00

**TABLE 20**  
**BRAZOS RIVER**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)		IMPACTS (feet)
	FEMA Data	Revised Model	Revised- Base
17.4	20.3	20.3	0.00
17.97	20.58	20.58	0.00
18.75	20.85	20.85	0.00
19.32	21.04	21.04	0.00
19.78	21.43	22.02	0.59
20.18	21.64	22.8	1.16
21.36	22.68	23.46	0.78
21.94	23.39	23.95	0.56
22.32	23.65	24.17	0.52
22.77	24.06	24.53	0.47
22.83	24.38	24.79	0.41
22.84	24.41	24.82	0.41
22.88	24.45	24.85	0.40
22.89	24.46	24.86	0.40
22.92	24.51	24.9	0.39
23.79	25.42	25.72	0.30
24.28	25.68	25.95	0.27
25.3	26.25	26.47	0.22
26.58	26.72	26.9	0.18
27.71	27.06	27.22	0.16
28.64	27.21	27.35	0.14
29.31	27.32	27.45	0.13
30.2	27.54	27.66	0.12
30.91	27.8	27.9	0.10
31.97	28.2	28.28	0.08
32.19	28.25	28.33	0.08
32.21	28.41	28.02	-0.39
32.22	28.41	28.06	-0.35
32.25	28.42	29.13	0.71
32.81	28.54	29.2	0.66

**TABLE 20**  
**BRAZOS RIVER**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)		IMPACTS (feet) Revised- Base
	FEMA Data	Revised Model	
33.4	28.87	29.45	0.58
34.02	29.15	29.66	0.51
34.8	29.59	30.02	0.43
35.44	29.99	30.35	0.36
37.15	31.03	31.23	0.20
38.32	32.1	32.22	0.12
39.47	33.4	33.46	0.06
40.31	34.45	34.49	0.04
41.14	35.51	35.54	0.03
42.33	38.53	38.55	0.02
43.25	39.68	39.69	0.01
44.45	40.56	40.56	0.00
45.57	41.52	41.54	0.02
46.21	42.31	42.32	0.01
48.17	43.84	43.85	0.01
50.17	45.56	45.56	0.00
50.61	45.82	45.82	0.00
51.33	46.82	46.83	0.01
52.41	48.17	48.18	0.01
53.21	49.3	49.3	0.00
55.32	50.79	50.83	0.04
56.66	51.31	51.35	0.04
57.28	51.68	51.72	0.04
57.31	51.71	51.75	0.04
57.32	51.75	51.79	0.04
57.33	51.81	51.85	0.04
58.04	52.54	52.58	0.04
59.12	53.07	53.11	0.04
59.64	53.69	53.73	0.04
60.29	54.17	54.2	0.03

**TABLE 20**  
**BRAZOS RIVER**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)		IMPACTS (feet)
	FEMA Data	Revised Model	Revised- Base
61.37	55.58	55.59	0.01
62.44	56.66	56.68	0.02
63.41	57.13	57.12	-0.01
64.19	57.4	57.51	0.11
64.85	58	58.11	0.11
65.78	58.99	59.07	0.08

**TABLE 21**  
**BRAZOS RIVER**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet) Revised Model
3.58	9
3.6	9
3.62	9
3.64	9.25
3.72	9.5
4	10
4.8	10.25
5.7	10.5
6.5	10.75
7.47	10.89
8.6	12.14
9.45	13.35
9.88	14.02
10.21	14.16
10.75	14.55
11.67	14.75
12.09	15.04
12.49	15.45
12.79	15.72
13.06	16.01
13.44	16.21
13.8	16.65
14.22	16.98
14.24	16.94
14.25	16.99
14.27	17.16
14.77	17.73
15.23	18.03
15.95	18.66
16.74	19.05

**TABLE 21**  
**BRAZOS RIVER**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet) Revised Model
17.4	19.25
17.97	19.6
18.75	19.93
19.32	20.16
19.78	20.17
20.18	20.44
21.36	21.64
21.94	22.34
22.32	22.57
22.77	22.92
22.83	23.18
22.84	23.21
22.88	23.25
22.89	23.26
22.92	23.29
23.79	24.08
24.28	24.41
25.3	25.15
26.58	25.8
27.71	26.33
28.64	26.53
29.31	26.68
30.2	26.95
30.91	27.26
31.97	27.7
32.19	27.74
32.21	27.52
32.22	27.55
32.25	28.42
32.81	28.52



**TABLE 21**  
**BRAZOS RIVER**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

<b>HEC-2</b>	<b>Computed 10-YEAR WSEL (feet)</b>
<b>Station Number</b>	<b>Revised Model</b>
33.4	28.78
34.02	29.02
34.8	29.4
35.44	29.75
37.15	30.76
38.32	31.88
39.47	33.24
40.31	34.3
41.14	35.38
42.33	38.35
43.25	39.47
44.45	40.33
45.57	41.28
46.21	42.06
48.17	43.57
50.17	45.27
50.61	45.54
51.33	46.46
52.41	47.73
53.21	48.8
55.32	50.25
56.66	50.73
57.28	51.07
57.31	51.11
57.32	51.14
57.33	51.18
58.04	51.85
59.12	52.33
59.64	52.85
60.29	53.31

**TABLE 21**  
**BRAZOS RIVER**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2	Computed 10-YEAR WSEL (feet)
Station Number	Revised Model
61.37	54.47
62.44	55.14
63.41	55.36
64.19	55.54
64.85	55.8
65.78	56.26

TABLE 22

Chocolate Bayou 100-Year Frequency Flow Comparison  
Effective FEMA Data vs Hec-1 Model

ROAD LOCATION	HEC-1 Node	Hec-2 Location Station Number	Location	Effective FEMA Data (Note 1) (CFS)	FEMA Drainage Area (Note 1) (SQ.MI)	Hec-1 Model CHEX_100.IH1 (CFS) (Note 2)	Hec-1 Drainage Area (Note 2) (SQ.MI)	Difference in Flows (CFS)	Difference in Drainage Area (SQ.MI)	FEMA CFS/AC	Keyed-in CFS/AC	% Change in Flows
SH6	C-04	2.01	confluence with tributary (C.R. 72)	4450	22.59	1878	7.31	-266	-2.82	0.31	0.33	-6.0%
C.R. 67	C-09	5.3	U/S of confluence with tributary	8080	52.31	4184	19.77	35	-4.05	0.24	0.26	4.7%
	C-10	6	confluence with tributary	9130	61.83	8115	48.26	430	-3.43	0.23	0.26	-0.1%
	C-12	8	D/S of confluence with West Fork Chocolate Bayou	11910	83.55	9560	58.4	-17	-9.95	0.22	0.25	
	C-13B	10	U/S of confluence with North Hayes Creek	11430	89.65	11893	73.6	1915	-1.65	0.20	0.24	16.8%
	C-15	11.5	D/S of confluence with South Hayes Creek	13290	116.67	13345	88	1115	-14.47	0.18	0.22	8.4%
	C-18	12	D/S of confluence with tributary	14090	130.83	14405	102.2	1011	-17.13	0.17	0.21	7.2%
F.M. 1462	C-17	15	D/S of confluence with Brunner	13910	137.84	17705	113.7	3795	-0.54	0.16	0.20	27.3%
C.R. 172	C-19	19	D/S of confluence with C-1 Ditch	13750	149.33	17157	145.3	3407	-4.03	0.14	0.18	24.8%
S.H. 35	C-20	22	D/S of confluence with Corner Bayou	14350	156.19	17390	169.9	3040	13.71	0.14	0.16	21.2%
C.R. 171	C-21	23	D/S of confluence with Corner Bayou									
	C-22	26.5	D/S of confluence with Corner Bayou									
	C-23	27	D/S of confluence with Corner Bayou									
	C-24	30	D/S of confluence with Pleasant Bayou									
	C-25	30.5	D/S of confluence with Pleasant Bayou									
	C-26	30.5	D/S of confluence with Pleasant Bayou									
	C-27	35.5	D/S of confluence with Cottonwood Bayou									
	C-29	35.5	D/S of confluence with Cottonwood Bayou									
Outfall	C-30	36	D/S of confluence with Salt Bayou									
			Outfall									

Note 1: From the FEMA 9-22-99 Report for Brazoria County. No model available. Flows and drainage area shown for comparison purposes only.  
Note 2: Model from C & R District #3 November 1989 Master Drainage Plan Report and model re-run on newer version of Hec-1 model.

Chocolate Bayou 100-Year Frequency Flow Comparison  
Hec-1 Model vs Revised Existing Condition Model

ROAD LOCATION	HEC-1 Node	Hec-2 Location Station Number	Location	Hec-1 Model CHEX_100.IH1 (CFS)	Drainage Area CHEX_100.IH1 (SQ.MI)	Revised Exist. Model (CFS)	Drainage Area (SQ.MI)	Difference in Flows (CFS)	Difference in Drainage Area (SQ.MI)	Hec-1 CFS/AC	Revised CFS/AC	% Change in Flows
SH6	C-04	2.01	confluence with tributary (C.R. 72)	1878	7.31	2620	7.86	742	0.55	0.40	0.52	39.5%
C.R. 67	C-09	5.3	U/S of confluence with tributary	4184	19.77	3235	10.99	682	-3.7	0.33	0.46	16.3%
	C-10	6	confluence with tributary	8115	48.26	4866	16.07	3259	0.85	0.26	0.47	40.2%
	C-12	8	D/S of confluence with West Fork Chocolate Bayou	9560	58.4	11374	49.11	2806	-1.5	0.26	0.36	29.4%
	C-13B	10	U/S of confluence with North Hayes Creek	11893	73.6	12366	56.9	3244	1.07	0.25	0.32	27.3%
	C-15	11.5	D/S of confluence with South Hayes Creek	13345	88	15137	74.67	2947	0.73	0.24	0.31	22.1%
	C-18	12	D/S of confluence with tributary	14405	102.2	16292	88.73	2947	0.73	0.24	0.29	22.1%
F.M. 1462	C-17	15	D/S of confluence with Brunner	15101	113.7	16806	99.35	3312	4.1	0.22	0.26	23.0%
C.R. 172	C-19	19	D/S of confluence with C-1 Ditch	17705	145.3	17717	106.3	2865	-0.91	0.21	0.25	19.0%
S.H. 35	C-20	22	D/S of confluence with Corner Bayou	17390	169.9	17966	112.79	1291	-24.22	0.16	0.24	1.8%
C.R. 171	C-21	23	D/S of confluence with Corner Bayou			17996	115.82			0.20	0.23	5.0%
	C-24	26.5	U/S of confluence with Pleasant Bayou			18028	120.48			0.18	0.23	
	C-23	27	D/S of confluence with Pleasant Bayou			18010	123.73				0.22	
	C-26	30	U/S of confluence with Pleasant Bayou			18410	130.92				0.20	
	C-25	30.5	D/S of confluence with Cottonwood Bayou			18651	142.16				0.20	
	C-27	35.5	D/S of confluence with Cottonwood Bayou			18681	145.68				0.20	
	C-29	36	D/S of confluence with Salt Bayou			19027	153.83				0.19	
			Outfall									



**TABLE 24**  
**Chocolate Bayou 25-Year Frequency Flow Comparison**  
**Hec-1 Model vs Revised Existing Condition Hec-1 Model**

ROAD LOCATION	HEC-1 Node	Hec-2 Location Station Number	Location	Hec-1 Model CHEX_25.IH1 (CFS)	Hec-1 Drainage Area (SQ.MI)	Revised Exist. Model (CFS) CHOC25R.IH	Revised Drainage Area (SQ.MI)	Difference in Flows (CFS)	Difference in Drainage Area (SQ.MI)	Hec-1 CFS/AC	Revised CFS/AC	% Change in Flows
SH6	C-04	2.01	confluence with tributary (C.R. 72)	1401	7.31	1985	7.86	584	0.55	0.30	0.39	41.7%
C.R. 67	C-09	5.3	U/S of confluence with tributary	3061	19.77	2425	10.99	577	-3.7	0.24	0.35	18.9%
	C-10	6	confluence with tributary	5937	48.26	3638	16.07	2579	0.85	0.19	0.27	43.4%
	C-12	8	D/S of confluence with West Fork Chocolate Bayou	7027	58.4	8516	49.11	2130	-1.5	0.19	0.25	30.3%
	C-13B	10	U/S of confluence with North Hayes Creek	8767	73.6	9157	56.9	2311	1.07	0.19	0.23	26.4%
	C-15	11.5	D/S of confluence with South Hayes Creek	9659	88	11078	74.67	1884	0.73	0.17	0.23	19.5%
	C-18	12	D/S of confluence with tributary	10283	102.2	11353	78.82	2130	4.1	0.16	0.20	20.7%
	C-17	15	D/S of confluence with Brunner	10660	113.7	11543	88.73	1902	-0.91	0.15	0.19	17.8%
	C-19	19	D/S of confluence with C-1 Ditch	13048	137.3	11924	99.35	-459	-16.82	0.15	0.18	-3.5%
	C-20	22	U/S of confluence with Corner Bayou	13102	145.3	12413	106.3	-516	-21.57	0.14	0.17	-3.9%
	C-21	23	U/S of confluence with Pleasant Bayou	13559	169.9	12562	112.79	-576	-24.22	0.12	0.17	-4.2%
C.R. 171	C-24	26.5	D/S of confluence with Cottonwood Bayou			12583	115.82					
	C-23	27	D/S of confluence with Pleasant Bayou			12589	120.48					
	C-26	30	U/S of confluence with Pleasant Bayou			12586	123.73					
	C-25	30.5	D/S of confluence with Pleasant Bayou			12831	130.92					
	C-27	35.5	D/S of confluence with Cottonwood Bayou			12968	142.16					
	C-29	35.5	D/S of confluence with Salt Bayou			12983	145.68					
Outfall	C-30	36	D/S of confluence with Salt Bayou Outfall			13200	153.83					

**TABLE 25**  
**Chocolate Bayou 10-Year Frequency Flow Comparison**  
**Effective FEMA Data vs Revised Existing Condition Hec-1 Model**

ROAD LOCATION	HEC-1 Node	Hec-2 Location Station Number	Location	Effective FEMA Data (CFS)	FEMA Drainage Area (SQ.MI)	Revised Exist. Hec-1 (CFS) CHOC10R.IH1	Revised Exist. Drainage Area (SQ.MI)	Difference in Flows (CFS)	Difference in Drainage Area (SQ.MI)	FEMA CFS/AC	Revised CFS/AC	% Change in Flows
SH6 C.R. 67	C-04	2.01	confluence with tributary (C.R. 72)			1669	7.86				0.33	
	C-09	5.3	U/S of confluence with tributary	2440	19.77	2022	10.99	595	-3.7	0.19	0.30	24.4%
	C-10	6	confluence with tributary	4260	52.31	3035	16.07	2944	-3.2	0.13	0.23	69.1%
	C-12	8	D/S of confluence with West Fork Chocolate Bayou	4760	61.83	7204	49.11	3041	-4.93	0.12	0.21	63.9%
	C-13B	10	U/S of confluence with North Hayes Creek	6020	83.55	7801	56.9	3221	-8.88	0.11	0.19	53.5%
	C-15	11.5	D/S of confluence with South Hayes Creek			9241	74.67					
	C-18	12	D/S of confluence with tributary			9487	78.82					
	C-17	15				9632	88.73					
	C-19	19				9927	99.35					
	C-20	22				10363	106.3					
F.M. 1462 C.R. 172 S.H. 35	C-21	23	D/S of confluence with tributary	5930	89.65	9927	99.35	3702	-0.92	0.10	0.17	62.4%
	C-24	26.5	D/S of confluence with Corner Bayou	6904	116.67	10363	106.3	3459	-10.37	0.09	0.15	50.1%
	C-23	27	D/S of confluence with C-1 Ditch	7320	130.83	10473	112.79	3153	-18.04	0.09	0.15	43.1%
	C-26	30	U/S of confluence with Corner Bayou	7320	137.84	10477	120.48	3157	-17.36	0.08	0.14	43.1%
C.R. 171	C-25	30.5	U/S of confluence with Pleasant Bayou	7370	149.33	10477	123.73	3107	-25.6	0.08	0.13	42.2%
	C-27	35.5	D/S of confluence with Pleasant Bayou			10671	130.92					
	C-29	35.5	D/S of confluence with Cottonwood Bayou			10775	142.16					
	C-30	36	D/S of confluence with Salt Bayou	7650	169.9	10785	145.68	3135	-24.22	0.07	0.12	41.0%

**TABLE 26**  
**CHOCOLATE BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (CHOCLATR.IH2)	Proposed (CHOCLATY.IH2)	Revised- Base	Proposed- Base
36	3.72	15.00	15.00	11.28	0.00
35	4.24	15.00	15.00	10.76	0.00
34	4.61	15.05	15.05	10.44	0.00
33	5.77	15.09	15.09	9.32	0.00
32	6.36	15.12	15.12	8.76	0.00
31	7.08	15.18	15.18	8.10	0.00
30.5	7.40	15.24	15.24	7.84	0.00
30	8.40	15.35	15.35	6.95	0.00
29.5	9.25	15.46	15.45	6.21	-0.01
29	10.45	15.61	15.60	5.16	-0.01
28	12.50	15.91	15.91	3.41	0.00
27	15.30	16.71	16.70	1.41	-0.01
26	17.77	18.17	18.15	0.40	-0.02
25.3	18.33	18.65	18.63	0.32	-0.02
25.2	18.35	18.66	18.65	0.31	-0.01
25.1	18.35	18.66	18.65	0.31	-0.01
25	18.36	18.67	18.66	0.31	-0.01
24.1	18.73	19.22	19.20	0.49	-0.02
24	18.99	19.25	19.23	0.26	-0.02
23	20.98	22.20	22.18	1.22	-0.02
23.1	20.99	22.21	22.18	1.22	-0.03
23.2	20.99	22.21	22.18	1.22	-0.03
22.3	21.00	22.21	22.19	1.21	-0.02
22.4	21.00	22.21	22.19	1.21	-0.02
22	22.95	23.70	23.67	0.75	-0.03
21	23.99	24.83	24.81	0.84	-0.02
20.3	24.98	25.71	25.69	0.73	-0.02
20.2	24.92	25.63	25.61	0.71	-0.02

**TABLE 26**  
**CHOCOLATE BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (CHOCLATR.IH2)	Proposed (CHOCLATY.IH2)	Revised- Base	Proposed- Base
20.1	24.94	25.86	25.83	0.92	-0.03
20	25.17	26.13	26.10	0.96	-0.03
19	26.15	26.84	26.81	0.69	-0.03
18	27.60	28.30	28.28	0.70	-0.02
17.3	28.26	28.95	28.92	0.69	-0.03
17.2	28.29	28.98	28.95	0.69	-0.03
17.1	28.56	28.81	28.79	0.25	-0.02
17	28.57	28.95	28.94	0.38	-0.01
16	29.16	30.41	30.39	1.25	-0.02
15	30.35	31.30	31.28	0.95	-0.02
14.3	32.99	33.60	33.60	0.61	0.00
14.2	32.52	33.64	33.64	1.12	0.00
14.1	33.58	34.18	34.18	0.60	0.00
14	34.41	34.19	34.19	-0.22	0.00
13	34.88	34.95	34.95	0.07	0.00
12	35.25	35.44	35.44	0.19	0.00
11	35.85	36.19	36.19	0.34	0.00
10	37.19	37.65	37.65	0.46	0.00
9	38.34	38.92	38.92	0.58	0.00
8	40.79	41.71	41.71	0.92	0.00
7.5	41.22	42.30	42.30	1.08	0.00
7	41.47	42.90	42.90	1.43	0.00
6.89	42.39	44.02	44.02	1.63	0.00
6.88	42.48	44.11	44.11	1.63	0.00
6.87	42.48	44.11	44.11	1.63	0.00
6.86	42.52	44.15	44.15	1.63	0.00
6.5	43.08	44.90	44.90	1.82	0.00
6	44.01	45.65	45.65	1.64	0.00

**TABLE 26**  
**CHOCOLATE BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (CHOCLATR.IH2)	Proposed (CHOCLATY.IH2)	Revised- Base	Proposed- Base
5.3	46.92	46.87	46.87	-0.05	0.00
5.2	46.97	46.89	46.89	-0.08	0.00
5.1	47.06	47.18	47.18	0.12	0.00
5	47.14	47.21	47.21	0.07	0.00
4.69	48.19	47.94	47.94	-0.25	0.00
4.68	48.25	47.99	47.99	-0.26	0.00
4.67	48.26	49.50	49.50	1.24	0.00
4.66	48.29	49.50	49.50	1.21	0.00
4	49.02	49.67	49.67	0.65	0.00
3	50.04	50.12	50.12	0.08	0.00
2.03	50.84	50.76	50.76	-0.08	0.00
2.02	50.97	51.05	51.05	0.08	0.00
2.01	50.98	51.06	51.06	0.08	0.00
2	51.05	51.17	51.17	0.12	0.00
1	52.38	53.74	53.74	1.36	0.00
0.8	-----	55.13	55.13	-----	0.00
0.5	-----	55.84	55.84	-----	0.00
0.4	-----	55.85	55.85	-----	0.00
0.3	-----	56.28	56.28	-----	0.00
0.2	-----	56.28	56.28	-----	0.00



**TABLE 27**  
**CHOCOLATE BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2 Station Number	Computed 25-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised (CHOCLATR.IH2)	Proposed (CHOCLATY.IH2)	Revised- Base	Proposed- Base
36	2.67	14.00	14.00	11.33	0.00
35	3.14	14.00	14.00	10.86	0.00
34	3.45	14.03	14.03	10.58	0.00
33	4.51	14.06	14.06	9.55	0.00
32	5.10	14.08	14.08	8.98	0.00
31	5.74	14.12	14.12	8.38	0.00
30.5	6.02	14.16	14.16	8.14	0.00
30	6.86	14.23	14.23	7.37	0.00
29.5	7.63	14.31	14.30	6.68	-0.01
29	8.88	14.43	14.42	5.55	-0.01
28	11.36	14.67	14.66	3.31	-0.01
27	14.32	15.44	15.42	1.12	-0.02
26	16.83	16.97	16.93	0.14	-0.04
25.3	17.36	17.44	17.39	0.08	-0.05
25.2	17.38	17.45	17.41	0.07	-0.04
25.1	17.38	17.45	17.41	0.07	-0.04
25	17.38	17.46	17.41	0.08	-0.05
24.1	17.75	17.92	17.87	0.17	-0.05
24	17.90	17.94	17.89	0.04	-0.05
23	19.83	20.47	20.39	0.64	-0.08
23.1	19.83	20.47	20.40	0.64	-0.07
23.2	19.83	20.47	20.40	0.64	-0.07
22.3	19.84	20.48	20.40	0.64	-0.08
22.4	19.84	20.48	20.40	0.64	-0.08
22	21.71	22.12	22.05	0.41	-0.07
21	22.62	23.22	23.15	0.60	-0.07
20.3	23.47	24.03	23.96	0.56	-0.07
20.2	23.44	24.00	23.92	0.56	-0.08

**TABLE 27**  
**CHOCOLATE BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2 Station Number	Computed 25-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised (CHOCLATR.IH2)	Proposed (CHOCLATY.IH2)	Revised- Base	Proposed- Base
20.1	23.45	24.08	24.01	0.63	-0.07
20	23.59	24.24	24.16	0.65	-0.08
19	24.53	25.00	24.92	0.47	-0.08
18	26.04	26.61	26.53	0.57	-0.08
17.3	26.73	27.31	27.24	0.58	-0.07
17.2	26.76	27.35	27.27	0.59	-0.08
17.1	27.11	27.57	27.50	0.46	-0.07
17	27.12	27.66	27.58	0.54	-0.08
16	27.76	28.92	28.84	1.16	-0.08
15	29.07	29.96	29.91	0.89	-0.05
14.3	32.30	32.84	32.85	0.54	0.01
14.2	32.09	32.88	32.89	0.79	0.01
14.1	32.59	32.91	32.91	0.32	0.00
14	33.09	33.59	33.60	0.50	0.01
13	33.81	34.26	34.26	0.45	0.00
12	34.20	34.66	34.66	0.46	0.00
11	34.85	35.35	35.35	0.50	0.00
10	36.57	37.02	37.02	0.45	0.00
9	37.78	38.35	38.35	0.57	0.00
8	40.28	41.13	41.13	0.85	0.00
7.5	40.70	41.70	41.70	1.00	0.00
7	40.93	42.30	42.30	1.37	0.00
6.89	41.94	43.52	43.52	1.58	0.00
6.88	42.04	43.62	43.62	1.58	0.00
6.87	42.04	43.62	43.62	1.58	0.00
6.86	42.09	43.66	43.66	1.57	0.00
6.5	42.58	44.37	44.37	1.79	0.00
6	43.30	45.08	45.08	1.78	0.00

**TABLE 31**  
**WEST FORK CHOCOLATE BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (WESTFORX.IH2)	Proposed Model	Revised- Base	Proposed- Base
15.3	38.97	36.69	37.81	-2.28	1.12
15.2	38.99	36.81	37.79	-2.18	0.98
15.1	38.99	37.09	37.83	-1.90	0.74
15	39.01	37.32	37.99	-1.69	0.67
14	39.76	40.26	39.28	0.50	-0.98
13.7	41.31	42.67	41.54	1.36	-1.13
13.6	41.43	42.82	42.00	1.39	-0.82
13.5	41.66	42.82	42.00	1.16	-0.82
13.4	41.70	42.82	41.98	1.12	-0.84
13	42.24	43.14	42.40	0.90	-0.74
12.3	44.01	44.89	44.31	0.88	-0.58
12.2	44.04	44.94	44.36	0.90	-0.58
12.1	44.37	44.94	44.37	0.57	-0.57
12	44.38	44.99	44.40	0.61	-0.59
11.3	45.55	47.17	46.69	1.62	-0.48
11.2	45.58	47.29	46.86	1.71	-0.43
11.1	45.71	47.29	46.86	1.58	-0.43
11	45.73	47.30	46.87	1.57	-0.43
10	46.50	47.78	47.26	1.28	-0.52
9	48.47	50.33	49.85	1.86	-0.48
8.5	-----	51.56	51.05	-----	-0.51
8	50.60	52.34	51.38	1.74	-0.96
7.99	50.67	52.49	51.51	1.82	-0.98
7.98	50.69	52.59	51.74	1.90	-0.85
7.97	50.80	52.95	52.11	2.15	-0.84
7.6	51.88	53.89	53.57	2.01	-0.32
7.59	51.90	53.87	53.54	1.97	-0.33
7.58	51.90	53.87	53.54	1.97	-0.33
7.57	51.91	53.99	53.57	2.08	-0.42

**TABLE 28**  
**CHOCOLATE BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet)		IMPACTS (feet)
	Revised Existing (CHOCLATR.IH2)	Proposed (CHOCLATY.IH2)	Proposed- Base
36	13.00	13.00	0.00
35	13.00	13.00	0.00
34	13.03	13.03	0.00
33	13.06	13.06	0.00
32	13.08	13.07	-0.01
31	13.12	13.11	-0.01
30.5	13.15	13.14	-0.01
30	13.22	13.21	-0.01
29.5	13.29	13.28	-0.01
29	13.41	13.39	-0.02
28	13.67	13.64	-0.03
27	14.57	14.51	-0.06
26	16.31	16.22	-0.09
25.3	16.77	16.68	-0.09
25.2	16.79	16.70	-0.09
25.1	16.79	16.70	-0.09
25	16.80	16.70	-0.10
24.1	17.21	17.11	-0.10
24	17.23	17.13	-0.10
23	19.57	19.43	-0.14
23.1	19.57	19.43	-0.14
23.2	19.57	19.44	-0.13
22.3	19.58	19.44	-0.14
22.4	19.58	19.44	-0.14
22	21.30	21.17	-0.13
21	22.37	22.23	-0.14
20.3	23.16	23.02	-0.14
20.2	23.13	22.99	-0.14

**TABLE 28**  
**CHOCOLATE BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet)		IMPACTS (feet)
	Revised Existing (CHOCLATR.IH2)	Proposed (CHOCLATY.IH2)	Proposed- Base
20.1	23.18	23.04	-0.14
20	23.31	23.16	-0.15
19	24.08	23.93	-0.15
18	25.75	25.61	-0.14
17.3	26.48	26.35	-0.13
17.2	26.52	26.38	-0.14
17.1	26.74	26.60	-0.14
17	26.81	26.67	-0.14
16	28.03	27.88	-0.15
15	29.23	29.14	-0.09
14.3	32.51	32.52	0.01
14.2	32.55	32.56	0.01
14.1	32.55	32.57	0.02
14	33.06	33.07	0.01
13	33.79	33.80	0.01
12	34.18	34.19	0.01
11	34.85	34.85	0.00
10	36.69	36.69	0.00
9	38.06	38.06	0.00
8	40.80	40.80	0.00
7.5	41.37	41.37	0.00
7	41.98	41.98	0.00
6.89	43.23	43.23	0.00
6.88	43.33	43.33	0.00
6.87	43.33	43.33	0.00
6.86	43.38	43.38	0.00
6.5	44.07	44.07	0.00
6	44.74	44.74	0.00

**TABLE 28**  
**CHOCOLATE BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet)		IMPACTS (feet) Proposed- Base
	Revised Existing (CHOCLATR.IH2)	Proposed (CHOCLATY.IH2)	
5.3	46.14	46.14	0.00
5.2	46.12	46.12	0.00
5.1	46.36	46.36	0.00
5	46.73	46.73	0.00
4.69	47.31	47.31	0.00
4.68	47.36	47.36	0.00
4.67	48.06	48.06	0.00
4.66	48.07	48.07	0.00
4	48.34	48.34	0.00
3	48.99	48.99	0.00
2.03	49.97	49.97	0.00
2.02	50.20	50.20	0.00
2.01	50.61	50.61	0.00
2	50.68	50.68	0.00
1	53.04	53.04	0.00
0.8	54.54	54.54	0.00
0.5	54.97	54.97	0.00
0.4	54.98	54.98	0.00
0.3	55.41	55.41	0.00
0.2	55.42	55.42	0.00

**TABLE 29**  
**WEST FORK CHOCOLATE BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (WESTFORX.IH2)	Proposed Model	Revised- Base	Proposed- Base
15.3	40.10	37.65	39.48	-2.45	1.83
15.2	40.12	37.84	39.47	-2.28	1.63
15.1	40.12	38.06	39.47	-2.06	1.41
15	40.14	38.46	39.64	-1.68	1.18
14	40.91	41.08	40.83	0.17	-0.25
13.7	42.30	43.05	42.79	0.75	-0.26
13.6	42.40	43.21	43.09	0.81	-0.12
13.5	42.56	43.21	43.09	0.65	-0.12
13.4	42.60	43.22	43.06	0.62	-0.16
13	43.15	43.69	43.43	0.54	-0.26
12.3	44.89	45.69	45.18	0.80	-0.51
12.2	44.93	45.69	45.22	0.76	-0.47
12.1	45.03	45.69	45.22	0.66	-0.47
12	45.05	45.74	45.30	0.69	-0.44
11.3	46.33	47.54	47.34	1.21	-0.20
11.2	46.35	47.64	47.58	1.29	-0.06
11.1	46.36	47.64	47.58	1.28	-0.06
11	46.39	47.65	47.59	1.26	-0.06
10	47.23	48.28	47.72	1.05	-0.56
9	49.33	51.07	50.74	1.74	-0.33
8.5	-----	52.09	51.75	-----	-0.34
8	51.50	53.29	52.10	1.79	-1.19
7.99	51.58	53.50	52.30	1.92	-1.20
7.98	51.59	53.50	53.02	1.91	-0.48
7.97	51.63	54.30	53.90	2.67	-0.40
7.6	53.08	55.16	55.16	2.08	0.00
7.59	53.10	55.10	55.09	2.00	-0.01
7.58	53.15	55.41	55.44	2.26	0.03
7.57	53.18	55.59	55.62	2.41	0.03





**TABLE 30**  
**WEST FORK CHOCOLATE BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2 Station Number	Computed 25-YEAR WSEL (feet)		IMPACTS (feet) Proposed- Base
	Revised Base (WESTFORX.IH2)	Proposed Model	
15.3	37.02	38.56	1.54
15.2	37.16	38.54	1.38
15.1	37.48	38.54	1.06
15	37.76	38.72	0.96
14	40.72	39.97	-0.75
13.7	42.91	42.09	-0.82
13.6	43.03	42.50	-0.53
13.5	43.03	42.50	-0.53
13.4	43.04	42.47	-0.57
13	43.38	42.84	-0.54
12.3	45.16	44.63	-0.53
12.2	45.21	44.68	-0.53
12.1	45.21	44.69	-0.52
12	45.26	44.74	-0.52
11.3	47.34	46.97	-0.37
11.2	47.47	47.16	-0.31
11.1	47.47	47.16	-0.31
11	47.48	47.17	-0.31
10	47.96	47.48	-0.48
9	50.58	50.21	-0.37
8.5	51.76	51.36	-0.40
8	52.68	51.70	-0.98
7.99	52.86	51.85	-1.01
7.98	53.02	52.19	-0.83
7.97	53.51	52.71	-0.80
7.6	54.40	54.09	-0.31
7.59	54.36	54.05	-0.31
7.58	54.37	54.06	-0.31
7.57	54.51	54.17	-0.34



**TABLE 31**  
**WEST FORK CHOCOLATE BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (WESTFORX.IH2)	Proposed Model	Revised- Base	Proposed- Base
15.3	38.97	36.69	37.81	-2.28	1.12
15.2	38.99	36.81	37.79	-2.18	0.98
15.1	38.99	37.09	37.83	-1.90	0.74
15	39.01	37.32	37.99	-1.69	0.67
14	39.76	40.26	39.28	0.50	-0.98
13.7	41.31	42.67	41.54	1.36	-1.13
13.6	41.43	42.82	42.00	1.39	-0.82
13.5	41.66	42.82	42.00	1.16	-0.82
13.4	41.70	42.82	41.98	1.12	-0.84
13	42.24	43.14	42.40	0.90	-0.74
12.3	44.01	44.89	44.31	0.88	-0.58
12.2	44.04	44.94	44.36	0.90	-0.58
12.1	44.37	44.94	44.37	0.57	-0.57
12	44.38	44.99	44.40	0.61	-0.59
11.3	45.55	47.17	46.69	1.62	-0.48
11.2	45.58	47.29	46.86	1.71	-0.43
11.1	45.71	47.29	46.86	1.58	-0.43
11	45.73	47.30	46.87	1.57	-0.43
10	46.50	47.78	47.26	1.28	-0.52
9	48.47	50.33	49.85	1.86	-0.48
8.5	-----	51.56	51.05	-----	-0.51
8	50.60	52.34	51.38	1.74	-0.96
7.99	50.67	52.49	51.51	1.82	-0.98
7.98	50.69	52.59	51.74	1.90	-0.85
7.97	50.80	52.95	52.11	2.15	-0.84
7.6	51.88	53.89	53.57	2.01	-0.32
7.59	51.90	53.87	53.54	1.97	-0.33
7.58	51.90	53.87	53.54	1.97	-0.33
7.57	51.91	53.99	53.57	2.08	-0.42



**TABLE 32**  
**NORTH HAYES CREEK**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (NORHAYEX.IH2)	Proposed Model	Revised- Base	Proposed- Base
17	37.10	36.19	35.40	-0.91	-0.79
16.9	37.18	36.40	35.61	-0.78	-0.79
16.8	37.19	36.40	35.60	-0.79	-0.80
16.7	37.20	36.43	35.64	-0.77	-0.79
16	38.21	37.16	36.57	-1.05	-0.59
15.9	39.48	40.90	40.28	1.42	-0.62
15.8	39.76	40.93	40.35	1.17	-0.58
15.7	39.76	40.93	40.35	1.17	-0.58
15.6	39.81	40.94	40.37	1.13	-0.57
15.4	41.58	41.70	41.53	0.12	-0.17
15.3	41.60	41.70	41.55	0.10	-0.15
15.2	41.60	41.91	41.78	0.31	-0.13
15.1	41.66	41.95	41.81	0.29	-0.14
15	41.98	42.06	41.86	0.08	-0.20
13.9	43.32	43.49	43.22	0.17	-0.27
13.8	43.31	43.29	43.09	-0.02	-0.20
13.7	43.24	43.40	43.15	0.16	-0.25
13.6	43.50	44.06	43.66	0.56	-0.40
13.3	43.85	44.09	43.65	0.24	-0.44
13.2	43.87	44.10	43.70	0.23	-0.40
13.1	43.56	44.10	43.70	0.54	-0.40
13	44.11	43.95	44.36	-0.16	0.41
11.39	44.78	46.21	46.03	1.43	-0.18
11.38	44.81	46.24	46.09	1.43	-0.15
11.37	45.01	46.24	46.09	1.23	-0.15
11.36	45.30	46.19	46.05	0.89	-0.14
11.03	45.53	46.34	46.18	0.81	-0.16
11.02	45.53	46.34	46.18	0.81	-0.16
11.01	45.74	46.34	46.18	0.60	-0.16

**TABLE 32**  
**NORTH HAYES CREEK**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (NORHAYEX.IH2)	Proposed Model	Revised- Base	Proposed- Base
11	46.00	46.34	46.18	0.34	-0.16
9.23	46.17	46.32	46.14	0.15	-0.18
9.22	46.39	46.34	46.14	-0.05	-0.20
9.21	47.35	46.49	46.25	-0.86	-0.24
9.2	47.36	46.57	46.28	-0.79	-0.29
9.14	-----	46.78	46.45	-----	-0.33
9.13	-----	46.78	46.46	-----	-0.32
9.12	-----	46.78	46.46	-----	-0.32
9.11	-----	46.78	46.46	-----	-0.32
9.07	-----	46.75	46.44	-----	-0.31
9.06	-----	46.77	46.45	-----	-0.32
9.03	48.11	48.28	48.00	0.17	-0.28
9.02	48.12	48.30	48.11	0.18	-0.19
9.01	48.12	48.30	48.11	0.18	-0.19
9	48.13	47.67	48.01	-0.46	0.34
8.05	48.73	51.46	50.09	2.73	-1.37
8.04	48.75	51.46	50.13	2.71	-1.33
8.03	48.73	51.46	50.13	2.73	-1.33
8.02	48.79	51.46	50.15	2.67	-1.31
8.01	48.83	51.48	50.16	2.65	-1.32
8	48.87	51.48	50.17	2.61	-1.31
7.49	49.22	51.32	50.06	2.10	-1.26
7.48	49.32	51.76	50.34	2.44	-1.42
7.47	49.32	51.76	50.34	2.44	-1.42
7.46	49.36	51.77	50.34	2.41	-1.43
7	51.07	52.28	51.84	1.21	-0.44
6.9	51.13	52.24	51.84	1.11	-0.40
6.8	51.27	52.40	51.98	1.13	-0.42
6.7	51.48	52.55	52.14	1.07	-0.41

**TABLE 33**  
**NORTH HAYES CREEK**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2 Station Number	Computed 25-YEAR WSEL (feet)		IMPACTS (feet)
	Revised Base (NORHAYEX.IH2)	Proposed Model	Proposed- Base
17	35.35	34.50	-0.85
16.9	35.80	34.70	-1.10
16.8	35.80	34.88	-0.92
16.7	35.85	34.90	-0.95
16	37.56	35.73	-1.83
15.9	40.62	39.62	-1.00
15.8	40.66	39.70	-0.96
15.7	40.66	39.70	-0.96
15.6	40.68	39.74	-0.94
15.4	41.56	41.29	-0.27
15.3	41.57	41.34	-0.23
15.2	41.77	41.55	-0.22
15.1	41.79	41.55	-0.24
15	41.88	41.61	-0.27
13.9	43.19	42.78	-0.41
13.8	43.09	42.74	-0.35
13.7	43.14	42.77	-0.37
13.6	43.56	43.03	-0.53
13.3	43.60	43.17	-0.43
13.2	43.68	43.21	-0.47
13.1	43.68	43.21	-0.47
13	44.31	43.59	-0.72
11.39	46.06	45.17	-0.89
11.38	46.10	45.25	-0.85
11.37	46.10	45.38	-0.72
11.36	46.06	45.43	-0.63
11.03	46.17	45.56	-0.61
11.02	47.17	45.56	-1.61
11.01	46.17	45.56	-0.61

**TABLE 33**  
**NORTH HAYES CREEK**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2	Computed 25-YEAR WSEL (feet)		IMPACTS (feet)
Station Number	Revised Base (NORHAYEX.IH2)	Proposed Model	Proposed-Base
11	46.17	45.56	-0.61
9.23	46.15	45.53	-0.62
9.22	46.19	45.56	-0.63
9.21	46.27	45.56	-0.71
9.2	46.32	45.62	-0.70
9.14	46.46	45.75	-0.71
9.13	46.47	45.76	-0.71
9.12	46.47	45.76	-0.71
9.11	46.47	45.76	-0.71
9.07	46.47	45.84	-0.63
9.06	46.49	45.84	-0.65
9.03	48.12	46.88	-1.24
9.02	48.15	46.92	-1.23
9.01	48.15	47.01	-1.14
9	47.81	47.03	-0.78
8.05	50.81	49.29	-1.52
8.04	50.82	49.34	-1.48
8.03	50.81	49.34	-1.47
8.02	50.85	49.35	-1.50
8.01	50.87	49.37	-1.50
8	50.88	49.38	-1.50
7.49	50.75	49.30	-1.45
7.48	51.18	49.55	-1.63
7.47	51.18	49.74	-1.44
7.46	51.16	49.75	-1.41
7	52.20	51.11	-1.09
6.9	52.19	51.12	-1.07
6.8	52.26	51.12	-1.14
6.7	52.34	51.16	-1.18



**TABLE 34**  
**NORTH HAYES CREEK**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (NORHAYEX.IH2)	Proposed Model	Revised- Base	Proposed- Base
17	36.34	34.85	33.44	-1.49	-1.41
16.9	36.43	35.33	33.64	-1.10	-1.69
16.8	36.44	35.33	33.78	-1.11	-1.55
16.7	36.45	35.38	33.81	-1.07	-1.57
16	37.64	37.25	34.66	-0.39	-2.59
15.9	38.61	40.39	38.82	1.78	-1.57
15.8	38.83	40.43	38.90	1.60	-1.53
15.7	39.02	40.43	39.02	1.41	-1.41
15.6	39.11	40.45	39.06	1.34	-1.39
15.4	41.18	41.44	40.73	0.26	-0.71
15.3	41.22	41.46	40.81	0.24	-0.65
15.2	41.28	41.64	41.03	0.36	-0.61
15.1	41.32	41.65	41.03	0.33	-0.62
15	41.58	41.73	41.14	0.15	-0.59
13.9	43.00	42.93	42.29	-0.07	-0.64
13.8	43.03	42.89	42.30	-0.14	-0.59
13.7	43.19	42.92	42.32	-0.27	-0.60
13.6	43.28	43.20	42.46	-0.08	-0.74
13.3	43.59	43.32	42.68	-0.27	-0.64
13.2	43.62	43.39	42.72	-0.23	-0.67
13.1	43.82	43.39	42.80	-0.43	-0.59
13	44.08	43.84	43.06	-0.24	-0.78
11.39	44.52	45.78	44.39	1.26	-1.39
11.38	44.50	45.85	44.40	1.35	-1.45
11.37	44.58	45.76	44.46	1.18	-1.30
11.36	44.74	45.83	44.50	1.09	-1.33
11.03	45.05	45.93	44.81	0.88	-1.12
11.02	45.11	45.93	44.84	0.82	-1.09
11.01	45.19	45.93	44.84	0.74	-1.09

**TABLE 34**  
**NORTH HAYES CREEK**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (NORHAYEX.IH2)	Proposed Model	Revised- Base	Proposed- Base
11	45.32	45.93	44.85	0.61	-1.08
9.23	45.72	45.90	44.84	0.18	-1.06
9.22	45.85	45.96	44.87	0.11	-1.09
9.21	46.37	46.02	44.87	-0.35	-1.15
9.2	46.52	46.06	44.92	-0.46	-1.14
9.14	-----	46.18	45.00	-----	-1.18
9.13	-----	46.19	45.04	-----	-1.15
9.12	-----	46.19	45.04	-----	-1.15
9.11	-----	46.19	45.05	-----	-1.14
9.07	-----	46.23	45.22	-----	-1.01
9.06	-----	46.24	45.22	-----	-1.02
9.03	47.70	47.89	46.19	0.19	-1.70
9.02	47.72	47.98	46.23	0.26	-1.75
9.01	47.62	47.98	46.28	0.36	-1.70
9	47.78	47.73	46.30	-0.05	-1.43
8.05	48.32	50.43	48.46	2.11	-1.97
8.04	48.34	50.44	48.50	2.10	-1.94
8.03	48.33	50.43	48.50	2.10	-1.93
8.02	48.35	50.48	48.51	2.13	-1.97
8.01	48.37	50.51	48.51	2.14	-2.00
8	48.39	50.52	48.52	2.13	-2.00
7.49	48.60	50.40	48.56	1.80	-1.84
7.48	48.80	50.83	48.84	2.03	-1.99
7.47	49.21	50.83	48.92	1.62	-1.91
7.46	49.24	50.87	48.94	1.63	-1.93
7	50.70	52.08	50.43	1.38	-1.65
6.9	50.80	52.08	50.45	1.28	-1.63
6.8	50.86	52.12	50.45	1.26	-1.67
6.7	50.98	52.17	50.48	1.19	-1.69

**TABLE 35**  
**SOUTH HAYES CREEK**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (SOUHAYEX.IH2)	Proposed Model	Revised- Base	Proposed- Base
18.5	35.50	35.44	34.99	-0.06	-0.45
18.4	35.74	35.30	34.60	-0.44	-0.70
18.3	35.75	38.02	37.15	2.27	-0.87
18.2	35.88	38.02	37.15	2.14	-0.87
18	36.22	38.02	37.16	1.80	-0.86
17.5	-----	38.02	37.16	-----	-0.86
17.4	-----	38.02	37.16	-----	-0.86
17.3	-----	38.02	37.16	-----	-0.86
17.2	-----	38.02	37.16	-----	-0.86
17	37.80	37.34	36.51	-0.46	-0.83
16	38.44	40.58	40.45	2.14	-0.13
14.4	39.56	41.99	42.00	2.43	0.01
14.3	40.20	42.19	42.13	1.99	-0.06
14.2	40.96	43.30	42.13	2.34	-1.17
14.1	41.11	44.12	42.79	3.01	-1.33
14	42.15	44.21	43.39	2.06	-0.82
12	43.30	44.47	43.90	1.17	-0.57
10.3	45.11	45.33	45.46	0.22	0.13
10.2	45.14	45.08	45.24	-0.06	0.16
10.1	45.65	45.80	45.83	0.15	0.03
10	45.65	46.64	46.52	0.99	-0.12
6	46.39	46.79	46.63	0.40	-0.16
5.13	48.08	47.30	46.94	-0.78	-0.36
5.12	48.11	49.22	48.57	1.11	-0.65
5.11	48.14	49.02	48.53	0.88	-0.49
5.1	48.16	49.02	48.53	0.86	-0.49
5.03	48.26	48.67	48.44	0.41	-0.23
5.02	48.36	52.00	50.69	3.64	-1.31



**TABLE 36**  
**SOUTH HAYES CREEK**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2 Station Number	Computed 25-YEAR WSEL (feet)		IMPACTS (feet) Proposed- Base
	Revised Base (SOUHAYEX.IH2)	Proposed Model	
18.5	34.66	34.68	0.02
18.4	34.36	34.52	0.16
18.3	36.95	36.27	-0.68
18.2	36.95	36.27	-0.68
18	36.96	36.28	-0.68
17.5	36.96	36.29	-0.67
17.4	36.96	36.22	-0.74
17.3	36.96	36.15	-0.81
17.2	36.97	36.43	-0.54
17	36.29	36.02	-0.27
16	40.43	40.30	-0.13
14.4	42.00	41.96	-0.04
14.3	42.13	42.07	-0.06
14.2	42.13	42.07	-0.06
14.1	42.74	42.30	-0.44
14	43.35	43.20	-0.15
12	43.85	43.82	-0.03
10.3	45.36	45.14	-0.22
10.2	45.22	45.06	-0.16
10.1	45.61	45.35	-0.26
10	46.13	45.81	-0.32
6	46.41	46.18	-0.23
5.13	47.54	46.93	-0.61
5.12	48.98	48.34	-0.64
5.11	48.87	48.33	-0.54
5.1	48.87	48.33	-0.54
5.03	48.70	48.29	-0.41
5.02	51.51	49.87	-1.64

**TABLE 36**  
**SOUTH HAYES CREEK**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2 Station Number	Computed 25-YEAR WSEL (feet)		IMPACTS (feet)
	Revised Base (SOUHAYEX.IH2)	Proposed Model	Proposed- Base
5.01	51.79	50.16	-1.63
5	51.79	50.16	-1.63
4.4	51.86	50.30	-1.56
4.3	52.72	52.42	-0.30
4.2	52.71	52.43	-0.28
4.1	52.80	52.42	-0.38
3.9	52.87	52.58	-0.29
3.8	52.94	52.66	-0.28
3.7	52.94	52.66	-0.28
3.6	52.95	52.66	-0.29
3.3	53.20	52.90	-0.30
3.2	53.24	52.97	-0.27
3.1	53.24	52.97	-0.27
3	53.24	52.97	-0.27
2	53.22	52.95	-0.27
1.9	53.34	53.09	-0.25
1.8	53.37	53.11	-0.26
1.7	53.48	53.24	-0.24
1	55.69	55.69	0.00

**TABLE 37**  
**SOUTH HAYES CREEK**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (SOUHAYEX.IH2)	Proposed Model	Revised- Base	Proposed- Base
18.5	33.70	34.18	34.48	0.48	0.30
18.4	33.97	34.17	34.41	0.20	0.24
18.3	33.98	36.45	35.66	2.47	-0.79
18.2	34.29	36.46	35.69	2.17	-0.77
18	35.11	36.47	35.53	1.36	-0.94
17.5	-----	36.47	35.83	-----	-0.64
17.4	-----	36.43	35.78	-----	-0.65
17.3	-----	36.24	35.90	-----	-0.34
17.2	-----	36.61	36.09	-----	-0.52
17	37.46	36.05	35.82	-1.41	-0.23
16	38.05	40.37	40.18	2.32	-0.19
14.4	39.22	41.98	41.93	2.76	-0.05
14.3	39.57	42.10	42.02	2.53	-0.08
14.2	40.25	42.10	42.02	1.85	-0.08
14.1	40.65	42.50	42.11	1.85	-0.39
14	41.69	43.20	42.91	1.51	-0.29
12	42.80	43.66	43.47	0.86	-0.19
10.3	44.68	45.20	44.91	0.52	-0.29
10.2	44.65	45.12	44.89	0.47	-0.23
10.1	44.67	45.38	44.92	0.71	-0.46
10	44.92	45.77	45.14	0.85	-0.63
6	45.81	46.25	46.02	0.44	-0.23
5.13	46.99	47.53	46.90	0.54	-0.63
5.12	47.01	48.82	48.21	1.81	-0.61
5.11	47.01	48.75	48.22	1.74	-0.53
5.1	47.03	48.75	48.22	1.72	-0.53
5.03	47.07	48.63	48.19	1.56	-0.44
5.02	47.24	50.95	49.44	3.71	-1.51

**TABLE 37**  
**SOUTH HAYES CREEK**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (SOUHAYEX.IH2)	Proposed Model	Revised- Base	Proposed- Base
5.01	47.26	51.16	49.69	3.90	-1.47
5	47.46	51.16	49.69	3.70	-1.47
4.4	-----	51.26	49.81	-----	-1.45
4.3	-----	52.60	52.29	-----	-0.31
4.2	-----	52.59	52.31	-----	-0.28
4.1	-----	52.66	52.35	-----	-0.31
3.9	51.16	52.74	52.51	1.58	-0.23
3.8	51.22	52.82	52.57	1.60	-0.25
3.7	51.25	52.82	52.57	1.57	-0.25
3.6	51.29	52.82	52.57	1.53	-0.25
3.3	51.81	53.07	52.81	1.26	-0.26
3.2	51.83	53.13	52.88	1.30	-0.25
3.1	51.83	53.13	52.88	1.30	-0.25
3	51.84	53.13	52.88	1.29	-0.25
2	52.76	53.12	52.86	0.36	-0.26
1.9	52.91	53.21	52.97	0.30	-0.24
1.8	53.12	53.22	52.98	0.10	-0.24
1.7	53.30	53.31	53.08	0.01	-0.23
1	54.42	55.65	55.65	1.23	0.00



**TABLE 38**  
**BRUNNER DITCH**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2	Computed 100-YEAR WSEL (feet)
Station Number	Existing Model
5600	27.91
5650	27.92
15650	35.07
28020	38.29
28240	38.29
32430	37.78
32550	40.36
32570	40.29
32650	40.06
39170	45.02
39220	45.04
52915	47.8
52990	47.81
53020	47.82
53080	47.82
57150	47.83
57200	47.83
57220	47.88
57315	47.88
58225	47.88
58275	47.88
58320	47.9
58362	47.9
59590	47.9
59700	47.9
59720	47.91
59805	47.91
60225	47.92
60290	47.92
60320	48.65
60380	48.65
60570	48.65
60705	48.65
60740	48.95
60870	48.95

**TABLE 40**  
**BRUNNER DITCH**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet) Existing Base Model BRUNNERR.IH2
5600	27.5
5650	27.5
15650	33.5
28020	37.03
28240	37.04
32430	36.21
32550	38.34
32570	38.22
32650	38.19
39170	43.8
39220	43.82
52915	47.59
52990	47.61
53020	47.62
53080	47.62
57150	47.63
57200	47.63
57220	47.64
57315	47.64
58225	47.64
58275	47.64
58320	47.65
58362	47.65
59590	47.65
59700	47.65
59720	47.66
59805	47.66
60225	47.66
60290	47.66
60320	48
60380	48
60570	48
60705	48
60740	48.17
60870	48.18

**TABLE 41**  
**Flores Bayou 100-Year Frequency Flow Comparison**  
Effective FEMA Model vs Revised Base Model

ROAD LOCATION	HEC-1 Node	Hec-2 Location Station Number	Location	Current FEMA (CFS)	Revised Base (Fb_b1100.ih1) (CFS)	Revised Base Drainage Area (SQ.MI)	Difference in the Flows (CFS)	Revised CFS/AC	% Change in the Flows
CR 210	FB24	2.06	At CR 210	4338	5765	39.04	1427	0.23	32.9%
CR 171	FB16	5.05	At CR 171	3253	3289	24.28	36	0.21	1.1%
SH 35	FB16	7.38	At SH 35	3112	3256	24.28	144	0.21	4.6%
CR 46	FB14	8.02	DS of CR 46	NA	3217	21.12	NA	NA	NA
NA	DIV1	9.09	Just DS of Confl. w/ ICD	NA	3143	18.47	NA	NA	NA
NA	FB05	9.21	At Confl. w/ ICD	NA	5540	18.47	NA	NA	NA
NA	FB05	9.24	Just US of Confl. w/ ICD	NA	3046	8.7	NA	NA	NA

TABLE 42  
FLORES BAYOU

WATER SURFACE ELEVATION COMPARISONS  
100-YEAR FREQUENCY



HEC-2 Station Number	Computed 100-YEAR WSEL (feet)		IMPACTS (feet) Proposed- Base
	Revised Base (Fb_bl_r.ih2)	Proposed Model (Fb_bl_w.ih2)	
0	11.00	10.80	-0.20
1.03	13.03	13.31	0.28
2.03	13.58	13.84	0.26
2.05	13.58	13.85	0.27
2.06	14.56	14.75	0.19
2.1	14.57	14.95	0.38
12	13.86	14.74	0.88
2.89	17.73	18.03	0.30
11	18.58	18.76	0.18
5.03	19.75	19.96	0.21
5.05	19.64	19.97	0.33
5.06	19.96	20.54	0.58
5.11	20.07	20.69	0.62
5.63	20.05	20.73	0.68
5.64	20.11	20.76	0.65
5.65	20.80	21.66	0.86
5.7	20.93	21.67	0.74
8	22.79	21.79	-1.00
7	24.66	23.62	-1.04
7.34	25.82	24.13	-1.69
7.37	25.74	23.68	-2.06
7.38	25.74	23.68	-2.06
7.46	26.20	24.94	-1.26
8.02	26.22	25.07	-1.15
8.04	26.22	25.07	-1.15
8.05	26.23	25.55	-0.68
8.11	26.23	25.56	-0.67
9.09	n.a.	25.57	n.a.
9.21	n.a.	26.80	n.a.
9.24	n.a.	27.18	n.a.
9.27	25.61	27.58	1.97
9.44	26.36	27.93	1.57
9.45	26.47	27.88	1.41
9.5	27.53	28.54	1.01
2	27.77	28.62	0.85
1	28.60	28.86	0.26
11.9	32.97	33.13	0.16
11.91	32.95	33.11	0.16
11.92	32.96	33.11	0.15
11.96	33.12	33.26	0.14

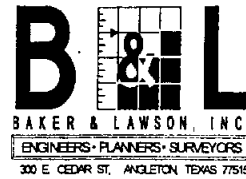
TABLE 43  
FLORES BAYOU

WATER SURFACE ELEVATION COMPARISONS  
25-YEAR FREQUENCY

HEC-2 Station Number	Computed 25-YEAR WSEL (feet)		IMPACTS (feet)
	Revised Base (Fb_bl_r.ih2)	Proposed Model (Fb_bl_w.ih2)	
0	10.50	10.16	-0.34
1.03	12.22	12.21	-0.01
2.03	12.86	12.88	0.02
2.05	12.70	12.71	0.01
2.06	12.94	12.97	0.03
2.1	13.64	13.70	0.06
12	15.75	15.73	-0.02
2.89	17.44	17.48	0.04
11	18.10	18.15	0.05
5.03	19.19	19.24	0.05
5.05	19.10	19.14	0.04
5.06	19.10	19.14	0.04
5.11	19.35	19.41	0.06
5.63	19.49	19.56	0.07
5.64	19.50	19.56	0.06
5.65	20.09	20.23	0.14
5.7	20.38	20.54	0.16
8	21.42	21.42	0.00
7	22.98	23.06	0.08
7.34	23.48	23.56	0.08
7.37	23.27	23.32	0.05
7.38	23.97	23.32	-0.65
7.46	24.13	24.09	-0.04
8.02	23.96	24.26	0.30
8.04	24.20	24.02	-0.18
8.05	24.58	24.39	-0.19
8.11	24.72	24.92	0.20
9.09	n.a.	25.04	n.a.
9.21	n.a.	26.02	n.a.
9.24	n.a.	26.46	n.a.
9.27	26.50	26.81	0.31
9.44	26.62	26.92	0.30
9.45	26.62	26.92	0.30
9.5	27.05	27.37	0.32
2	27.28	27.53	0.25
1	27.77	27.49	-0.28
11.9	32.52	32.50	-0.02
11.91	32.52	32.50	-0.02
11.92	32.52	32.50	-0.02
11.96	32.59	32.60	0.01

TABLE 44  
FLORES BAYOU

WATER SURFACE ELEVATION COMPARISONS  
10-YEAR FREQUENCY



HEC-2 Station Number	Computed 10-YEAR WSEL (feet)		IMPACTS (feet) Proposed- Base
	Revised Base (Fb_bl_r.ih2)	Proposed (Fb_bl_w.ih2)	
0	10.00	9.75	-0.25
1.03	11.73	11.74	0.01
2.03	12.47	12.51	0.04
2.05	12.35	12.37	0.02
2.06	12.49	12.53	0.04
2.1	13.11	13.21	0.10
12	15.99	16.04	0.05
2.89	17.25	17.33	0.08
11	17.85	17.93	0.08
5.03	18.90	18.99	0.09
5.05	18.84	18.92	0.08
5.06	18.84	18.92	0.08
5.11	19.02	19.12	0.10
5.63	19.19	19.28	0.09
5.64	19.21	19.30	0.09
5.65	19.58	19.72	0.14
5.7	19.80	19.97	0.17
8	21.31	21.39	0.08
7	22.65	22.77	0.12
7.34	23.14	23.25	0.11
7.37	23.00	23.09	0.09
7.38	23.00	23.09	0.09
7.46	23.53	23.66	0.13
8.02	23.70	23.86	0.16
8.04	23.58	23.67	0.09
8.05	23.58	23.88	0.30
8.11	23.95	24.34	0.39
9.09	n.a.	24.56	n.a.
9.21	n.a.	25.47	n.a.
9.24	n.a.	25.92	n.a.
9.27	25.91	26.23	0.32
9.44	26.02	26.33	0.31
9.45	26.04	26.33	0.29
9.5	26.35	26.67	0.32
2	26.75	26.94	0.19
1	28.05	27.12	-0.93
11.9	32.09	32.11	0.02
11.91	32.09	32.12	0.03
11.92	32.09	32.12	0.03
11.96	32.14	32.19	0.05

**TABLE 45**  
**Halls Bayou (Upper Reach) 100-Year Frequency Flow Comparison**  
 Effective FIS Model vs Revised Base Model

ROAD LOCATION	HEC-1 Node	hec-2 Location Station Number	Location	Current FEMA (CFS)	Revised Base (Hb_b100.ih1) (CFS)	Revised Base Drainage Area (SQ.MI)	Difference in the Flows (CFS)	Revised CFS/AC	% Change in the Flows
Hall Bayou Rd	HB10	13	Confluence with Oak Ditch	4950	11347	41.67	6397	0.43	129.2%
	HB05	6.07	At Halls Bayou Road	3860	8327	29.66	4467	0.44	115.7%
	HB03	4	Confluence with Unnamed Tributary	2310	6685	20.97	4375	0.50	189.4%
CR 167	HB02	2.27	At CR 167	1540	2912	21.97	1372	0.21	89.1%
Briscoe Canal	HB01	2.03	At Briscoe Canal	1540	1620	5.67	80	0.45	5.2%
CR 165	Interpolated	1.01	At CR 165	880	813		-67		-7.6%

TABLE 46  
HALLS BAYOU

WATER SURFACE ELEVATION COMPARISONS  
100-YEAR FREQUENCY



HEC-2	Computed 100-YEAR WSEL (feet)		IMPACTS (feet)
Station Number	FEMA Data	Revised Base (Hb_us_r.ih2)	Revised-Base
13	8.99	10.55	1.56
12	9.22	10.85	1.63
11.2	9.36	11.12	1.76
11.1	9.36	11.06	1.70
11.11		11.06	n.a.
11	9.38	11.25	1.87
10	9.59	11.53	1.94
9	9.93	12.25	2.32
8	11.40	15.25	3.85
7	12.85	16.93	4.08
6.09	13.60	17.45	3.85
6.08	13.63	17.48	3.85
6.07	13.86	17.44	3.58
6.06	13.92	17.57	3.65
6	14.48	18.14	3.66
5	14.86	18.62	3.76
4	15.86	20.17	4.31
3.5		21.37	n.a.
3	21.72	23.89	2.17
2.29	24.23	24.40	0.17
2.28	24.23	24.51	0.28
2.27	24.76	23.45	-1.31
2.26	24.77	23.80	-0.97
2.05	24.93	25.30	0.37
2.04	24.95	25.32	0.37
2.03	24.23	24.59	0.36
2.02	25.19	25.56	0.37
2.01	27.09	27.47	0.38
2	27.11	27.48	0.37
1.03	27.32	27.71	0.39
1.02	27.32	27.71	0.39
1.01	27.32	27.71	0.39
1	27.32	27.72	0.40



TABLE 47  
HALLS BAYOU



WATER SURFACE ELEVATION COMPARISONS  
25-YEAR FREQUENCY

HEC-2 Station Number	Computed 25-YEAR WSEL (feet) Revised Base (Hb_us_r.ih2)
13	9.95
12	10.22
11.2	10.44
11.1	10.41
11.11	10.41
11	10.51
10	10.77
9	11.40
8	14.05
7	15.70
6.09	16.31
6.08	16.33
6.07	16.27
6.06	16.42
6	16.92
5	17.31
4	18.61
3.5	20.67
3	23.50
2.29	23.99
2.28	24.01
2.27	23.99
2.26	24.11
2.05	24.85
2.04	24.86
2.03	24.52
2.02	24.98
2.01	25.90
2	25.90
1.03	26.23
1.02	26.24
1.01	26.34
1	26.44

TABLE 48  
HALLS BAYOU

WATER SURFACE ELEVATION COMPARISONS  
10-YEAR FREQUENCY

HEC-2	Computed 10-YEAR WSEL (feet)		IMPACTS (feet)
Station Number	FEMA Data	Revised Base (Hb_us_r.ih2)	Revised-Base
13	7.03	9.47	2.44
12	7.23	9.73	2.50
11.2	7.33	9.90	2.57
11.1	7.33	9.89	2.56
11.11		9.89	n.a.
11	7.34	9.94	2.60
10	7.52	10.18	2.66
9	7.77	10.70	2.93
8	8.65	12.81	4.16
7	9.69	14.33	4.64
6.09	10.26	14.91	4.65
6.08	10.29	14.93	4.64
6.07	10.30	14.90	4.60
6.06	10.34	15.03	4.69
6	10.79	15.53	4.74
5	11.12	15.92	4.80
4	12.18	17.11	4.93
3.5		19.72	n.a.
3	19.03	23.20	4.17
2.29	21.38	24.08	2.70
2.28	21.45	24.07	2.62
2.27	21.46	24.42	2.96
2.26	21.49	24.75	3.26
2.05	21.81	24.79	2.98
2.04	21.83	24.80	2.97
2.03	21.63	24.60	2.97
2.02	21.91	24.87	2.96
2.01	22.44	25.39	2.95
2	22.45	25.40	2.95
1.03	22.91	25.65	2.74
1.02	22.93	25.65	2.72
1.01	22.93	25.70	2.77
1	22.95	25.74	2.79

**TABLE 49**  
**HALLS BAYOU (DS)**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2	Computed 100-YEAR WSEL (feet)		IMPACTS (feet)
Station Number	FEMA Data	Revised Base (Hb_ds_r.ih2)	Revised-Base
3.2	4.03	5.58	1.55
3.9	4.53	6.05	1.52
4.6	5.51	7.16	1.65
5.28	6.08	7.81	1.73
5.99	6.51	8.31	1.80
6.64	6.82	8.68	1.86
7.35	6.97	8.83	1.86
8.06	7.08	8.96	1.88
8.65	7.30	9.28	1.98
9.34	7.87	10.03	2.16
9.61	8.10	10.30	2.20
10.13	8.45	10.66	2.21
10.64	8.67	10.94	2.27
10.65	8.67	10.87	2.20
10.66	8.68	11.01	2.33
11.38	9.02	11.37	2.35
12.31	9.80	11.97	2.17

KLOTZ  
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INC.

CONSULTING  
ENGINEERS

TABLE 50  
HALLS BAYOU (DS)

WATER SURFACE ELEVATION COMPARISONS  
25-YEAR FREQUENCY



HEC-2 Station Number	Computed 25-YEAR WSEL (feet) Revised Base (Hb ds r.ih2)
3.2	4.86
3.9	5.38
4.6	6.53
5.28	7.13
5.99	7.59
6.64	7.93
7.35	8.08
8.06	8.20
8.65	8.50
9.34	9.22
9.61	9.48
10.13	9.86
10.64	10.12
10.65	10.09
10.66	10.16
11.38	10.52
12.31	11.08

TABLE 51  
HALLS BAYOU (DS)

WATER SURFACE ELEVATION COMPARISONS  
10-YEAR FREQUENCY

HEC-2	Computed 10-YEAR WSEL (feet)		IMPACTS (feet)
Station Number	FEMA Data	Revised Base (Hb_ds_r.ih2)	Revised-Base
3.2	3.27	4.44	1.17
3.9	3.67	4.97	1.3
4.6	4.26	6.06	1.8
5.28	4.71	6.64	1.93
5.99	5.09	7.08	1.99
6.64	5.4	7.4	2
7.35	5.61	7.54	1.93
8.06	5.75	7.66	1.91
8.65	5.94	7.95	2.01
9.34	6.35	8.64	2.29
9.61	6.5	8.88	2.38
10.13	6.71	9.24	2.53
10.64	6.87	9.47	2.6
10.65	6.87	9.46	2.59
10.66	6.88	9.49	2.61
11.38	7.13	9.83	2.7
12.31	7.59	10.2	2.61

**TABLE 52**  
**Mustang Bayou 100-Year Frequency Flow Comparison**  
 Effective FEMA Data vs Hec-1 Model

HEC-1 Node	Hec-2 Location Station Number	Location	Effective FEMA Data (CFS)	FEMA Drainage Area (SQ.MI)	Hec-1 Model (CFS)	Hec-1 Drainage Area (SQ.MI)	Difference in the Flows (CFS)	Difference in Drainage Area (SQ.MI)	Current CFS/AC	Revised CFS/AC	% Change in the Flows
M-01	199460	HWY 288	1217	11.5	1623	11.05	406	-0.45	0.17	0.23	33.4%
M-02	170550	HWY 1128 Culverts	1480	16.2	2437	16.65	957	0.45	0.14	0.23	64.7%
M-03	155071	3510' U/S CR 95 (Mustang Bayou Road)	2063	20.56	3096	21.91	1033	1.35	0.16	0.22	50.1%
M-04	125177	100' U/S Atcheson Topoka RR (MU 33-1)	2470	25.74	3379	27.66	909	1.92	0.15	0.19	36.8%
M-05	109723	HWY 35 NB Bridge	4720	28.83	3287	30.77	-1433	1.94	0.26	0.17	-30.4%
M-09	96756	CR 160 (Stuart Road)	4919	31.64	3900	33.67	-1019	2.03	0.24	0.18	-20.7%
M-12	77132	1489' D/S MU 54-2	5186	33.46	4191	36.1	-995	2.64	0.24	0.18	-19.2%
M-15	76232	5459' U/S MU 57-1	5850	41.36	5754	43.89	-96	2.53	0.22	0.20	-1.6%
M-16	54397	2351' U/S FM 2917	6113	44.34	6088	47.52	-25	3.18	0.22	0.20	-0.4%
M-17	34700	Confluence with New Bayou	6176	45.77	6300	49.5	124	3.73	0.21	0.20	2.0%

Note 1: From the FEMA 9-22-99 Report for Brazoria County. No model available. Flows and drainage area shown for comparison purposes only.  
 Note 2: Model from C & R District #3 November 1989 Master Drainage Plan Report and model re-run on newer version of Hec-1 model.

**Mustang Bayou 100-Year Frequency Flow Comparison**  
 Hec-1 Model vs Revised Existing Condition Hec-1 Model

HEC-1 Node	Hec-2 Location Station Number	Location	Hec-1 Model (CFS)	Hec-1 Drainage Area (SQ.MI)	Revised Existing Model (CFS)	Revised Drainage Area (SQ.MI)	Difference in the Flows (CFS)	Difference in Drainage Area (SQ.MI)	Current CFS/AC	Revised CFS/AC	% Change in the Flows
M-01	199460	HWY 288	1623	11.05	1583	4.44	-40	-6.61	0.23	0.56	-2.5%
M-02	170550	HWY 1128 Culverts	2437	16.65	2039	10.04	-398	-6.61	0.23	0.32	-16.3%
M-03	155071	3510' U/S CR 95 (Mustang Bayou Road)	3096	21.91	2836	16.59	-260	-5.32	0.22	0.27	-8.4%
M-04	125177	100' U/S Atcheson Topoka RR (MU 33-1)	3379	27.66	3182	22.13	-197	-5.53	0.19	0.22	-5.8%
M-05	109723	HWY 35 NB Bridge	3287	30.77	3158	25.27	-129	-5.5	0.17	0.20	-3.9%
M-09	96756	CR 160 (Stuart Road)	3900	33.67	3916	28.22	16	-5.45	0.18	0.22	0.4%
M-12	77132	1489' D/S MU 54-2	4191	36.1	3930	30.51	-261	-5.59	0.18	0.20	-6.2%
M-15	76232	5459' U/S MU 57-1	5754	43.89	5060	40.19	-694	-3.7	0.20	0.20	-12.1%
M-16	54397	2351' U/S FM 2917	6088	47.52	5619	44.15	-469	-3.37	0.20	0.20	-7.7%
M-17	34700	Confluence with New Bayou	6300	49.5	5663	45.15	-637	-4.35	0.20	0.20	-10.1%
M-18	n.a.	Confluence with Persimmon Bayou	n.a.	n.a.	6039	48.38	n.a.	n.a.	n.a.	0.20	n.a.
M-19	n.a.	Outfall to Bay	n.a.	n.a.	6773	54.34	n.a.	n.a.	n.a.	0.19	n.a.
M-21	n.a.		n.a.	n.a.	6231	60.46	n.a.	n.a.	n.a.	0.16	n.a.

**TABLE 53**  
**Mustang Bayou 25-Year Frequency Flow Comparison**  
**Hec-1 Model vs Revised Existing Condition Hec-1 Model**

HEC-1 Node	Hec-2 Location Station Number	Location	Hec-1 Model (CFS)	Hec-1 Drainage Area (SQ.MI)	Revised Exist. Model (CFS) MUS25R.IH1	Revised Drainage Area (SQ.MI)	Difference in the Flows (CFS)	Difference in Drainage Area (SQ.MI)	Current CFS/AC	Revised CFS/AC	% Change in the Flows
M-01	199460	HWY 288	1203	11.05	1193	4.44	-10	-6.61	0.17	0.42	-0.8%
M-02	170550	HWY 1128 Culverts	1801	16.65	1523	10.04	-278	-6.61	0.17	0.24	-15.4%
M-03	155071	3510' U/S CR 95 (Mustang Bayou Road)	2159	21.91	2143	16.59	-16	-5.32	0.15	0.20	-0.7%
M-04	125177	100' U/S Atcheson Topeka RR (MU 33-1)	2354	27.66	2409	22.13	55	-5.53	0.13	0.17	2.3%
M-05	109723	HWY 35 NB Bridge	2286	30.77	2390	25.27	104	-5.5	0.12	0.15	4.5%
M-09	96756	CR 160 (Stuart Road)	3011	33.67	2768	28.22	-243	-5.45	0.14	0.15	-8.1%
M-12	77132	1489' D/S MU 54-2	3234	36.1	2985	30.51	-249	-5.59	0.14	0.15	-7.7%
M-15	76232	5459' U/S MU 57-1	4558	43.89	4020	40.19	-538	-3.7	0.16	0.16	-11.8%
M-16	54397	2351' U/S FM 2917	4832	47.52	4404	44.15	-428	-3.37	0.16	0.16	-8.9%
M-17	34700	Confluence with New Bayou	4994	49.5	4450	45.15	-544	-4.35	n.a.	0.16	n.a.
M-18	n.a.	Confluence with Persimmon Bayou	n.a.	n.a.	5546	48.38	n.a.	n.a.	n.a.	0.16	n.a.
M-19	n.a.	Outfall to Bay	n.a.	n.a.	5225	54.34	n.a.	n.a.	n.a.	0.14	n.a.
M-21	n.a.		n.a.	n.a.		60.46	n.a.	n.a.	n.a.		n.a.

**TABLE 54**  
**Mustang Bayou 10-Year Frequency Flow Comparison**  
**Hec-1 Model vs Revised Existing Condition Hec-1 Model**

HEC-1 Node	Hec-2 Location Station Number	Location	Hec-1 Model (CFS)	Hec-1 Drainage Area (SQ.MI)	Revised Exist. Model (CFS) MUS10R.IH1	Revised Drainage Area (SQ.MI)	Difference in the Flows (CFS)	Difference in Drainage Area (SQ.MI)	Current CFS/AC	Revised CFS/AC	% Change in the Flows
M-01	199460	HWY 288	814	11.5	995	4.44	181	-7.06	0.11	0.35	22.2%
M-02	170550	HWY 1128 Culverts	989	16.2	1266	10.04	277	-6.16	0.10	0.20	28.0%
M-03	155071	3510' U/S CR 95 (Mustang Bayou Road)	1293	20.56	1815	16.59	522	-3.97	0.10	0.17	40.4%
M-04	125177	100' U/S Archeson Topeka RR (MU 33-1)	1521	25.74	2024	22.13	503	-3.61	0.09	0.14	33.1%
M-05	109723	HWY 35 NB Bridge	2969	28.83	2010	25.27	-959	-3.56	0.16	0.12	-32.3%
M-09	96756	CR 160 (Stuart Road)	3105	31.64	2093	28.22	-1012	-3.42	0.15	0.12	-32.6%
M-12	77132	1489' D/S MU 54-2	3232	33.46	2382	30.51	-850	-2.95	0.15	0.12	-26.3%
M-15	76232	5459' U/S MU 57-1	3574	41.36	3383	40.19	-191	-1.17	0.14	0.13	-5.3%
M-16	54397	2351' U/S FM 2917	3706	44.34	3808	44.15	102	-0.19	0.13	0.13	2.8%
M-17	34700	Confluence with New Bayou	3744	45.77	3829	45.15	85	-0.62	0.13	0.13	2.3%
M-18	n.a.	Confluence with Persimmon Bayou	n.a.	n.a.	4149	48.38	n.a.	n.a.	n.a.	0.13	n.a.
M-19	n.a.		n.a.	n.a.	4787	54.34	n.a.	n.a.	n.a.	0.14	n.a.
M-21	n.a.	Confluence with Persimmon Bayou Outfall to Bay	n.a.	n.a.	4218	60.46	n.a.	n.a.	n.a.	0.11	n.a.



**TABLE 55**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
34700	12.55	15.00	15.00	2.45	0.00
37840	12.98	15.16	15.16	2.18	0.00
37890	12.98	15.16	15.16	2.18	0.00
37908	12.99	15.16	15.16	2.17	0.00
37958	13.00	15.17	15.17	2.17	0.00
41358	13.37	15.25	15.25	1.88	0.00
41433	13.38	15.25	15.25	1.87	0.00
41443	13.34	15.20	15.20	1.86	0.00
41493	13.37	15.24	15.24	1.87	0.00
41503	13.49	15.38	15.38	1.89	0.00
41578	13.50	15.38	15.38	1.88	0.00
41878	13.53	15.39	15.39	1.86	0.00
45058	14.00	15.48	15.48	1.48	0.00
45658	14.12	15.52	15.52	1.40	0.00
45748	14.14	15.54	15.54	1.40	0.00
45767	14.14	15.54	15.54	1.40	0.00
45857	14.17	15.55	15.55	1.38	0.00
46157	14.23	15.57	15.57	1.34	0.00
47157	14.44	15.65	15.65	1.21	0.00
51157	15.07	16.16	16.24	1.09	0.08
51927	15.15	16.58	16.79	1.43	0.21
51978	-----	16.89	17.20	-----	0.31
52027	15.16	16.97	17.29	1.81	0.32
52046	15.16	16.86	17.21	1.70	0.35
52136	15.17	17.01	17.32	1.84	0.31
52186	-----	17.00	17.31	-----	0.31
52436	15.20	17.03	17.34	1.83	0.31
54397	-----	17.30	17.61	-----	0.31
56506	15.97	17.56	17.85	1.59	0.29
58036	17.06	18.22	18.60	1.16	0.38
60176	18.00	18.75	19.06	0.75	0.31
60205	-----	18.95	19.44	-----	0.49

**TABLE 55**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
60276	18.05	19.05	19.46	1.00	0.41
60297	18.16	19.15	19.57	0.99	0.42
60377	18.23	19.17	19.59	0.94	0.42
64767	21.09	20.46	21.12	-0.63	0.66
67937	22.75	22.21	23.05	-0.54	0.84
68037	23.24	22.52	23.45	-0.72	0.93
70697	23.47	23.29	24.11	-0.18	0.82
70706	-----	23.44	24.26	-----	0.82
70757	23.48	23.44	24.26	-0.04	0.82
70773	24.18	23.57	24.40	-0.61	0.83
70823	24.18	23.79	24.67	-0.39	0.88
72483	24.37	23.91	24.64	-0.46	0.73
73563	24.57	24.53	25.31	-0.04	0.78
73863	24.63	24.68	25.48	0.05	0.80
75863	25.11	25.72	26.57	0.61	0.85
76232	-----	25.98	26.80	-----	0.82
77132	-----	26.25	27.12	-----	0.87
77723	26.01	26.44	27.34	0.43	0.90
78523	26.34	26.55	27.43	0.21	0.88
78603	26.38	26.59	27.47	0.21	0.88
78621	27.39	26.82	27.87	-0.57	1.05
78661	27.40	26.84	27.89	-0.56	1.05
79391	27.56	27.18	28.17	-0.38	0.99
79471	27.57	27.19	28.18	-0.38	0.99

**TABLE 55**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
79484	28.06	27.43	28.52	-0.63	1.09
79534	28.08	27.45	28.53	-0.63	1.08
80014	28.19	27.54	28.61	-0.65	1.07
81894	28.60	27.92	28.86	-0.68	0.94
81938	-----	27.92	28.86	-----	0.94
81944	28.62	27.99	28.90	-0.63	0.91
81994	-----	27.99	28.90	-----	0.91
82022	28.62	27.96	28.87	-0.66	0.91
82063	-----	28.00	28.91	-----	0.91
82072	28.64	28.00	28.91	-0.64	0.91
82372	28.71	28.02	28.92	-0.69	0.90
83472	28.96	28.25	29.11	-0.71	0.86
84882	29.19	28.49	29.30	-0.70	0.81
85132	29.21	28.52	29.32	-0.69	0.80
85432	29.53	28.72	29.60	-0.81	0.88
86282	29.79	28.94	29.82	-0.85	0.88
86382	29.80	28.96	29.83	-0.84	0.87
86400	30.04	29.21	30.14	-0.83	0.93
86450	30.05	29.22	30.15	-0.83	0.93
87980	30.18	29.52	30.36	-0.66	0.84
88013	-----	29.53	30.36	-----	0.83
88080	30.19	29.53	30.36	-0.66	0.83
88086	-----	29.48	30.30	-----	0.82
88116	30.53	29.65	30.43	-0.88	0.78
88173	-----	29.66	30.44	-----	0.78
88196	30.53	29.66	30.43	-0.87	0.77
89010	-----	29.72	30.48	-----	0.76
89063	-----	29.75	30.51	-----	0.76
89078	-----	29.75	30.51	-----	0.76
89129	-----	29.71	30.47	-----	0.76
90016	30.69	29.88	30.63	-0.81	0.75
90022	-----	29.87	30.61	-----	0.74

**TABLE 55**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
90116	30.72	29.90	30.71	-0.82	0.81
90138	31.17	29.94	30.79	-1.23	0.85
90188	31.28	29.99	30.87	-1.29	0.88
90638	31.32	30.04	30.92	-1.28	0.88
91093	-----	30.13	31.03	-----	0.90
91226	-----	30.15	31.03	-----	0.88
91251	31.64	30.26	31.05	-1.38	0.79
91311	31.66	30.26	31.02	-1.40	0.76
91317	-----	30.42	31.16	-----	0.74
91611	31.70	30.43	31.17	-1.27	0.74
93921	32.23	30.48	31.11	-1.75	0.63
96621	33.18	31.94	32.65	-1.24	0.71
96674	-----	31.87	32.55	-----	0.68
96721	33.20	32.14	32.89	-1.06	0.75
96726	-----	32.10	32.79	-----	0.69
96756	33.21	32.10	32.96	-1.11	0.86
96807	-----	32.20	33.08	-----	0.88
96811	33.22	32.21	33.09	-1.01	0.88
100161	34.00	33.25	34.12	-0.75	0.87
101351	34.87	33.97	35.08	-0.90	1.11
103211	35.53	34.86	35.81	-0.67	0.95
104791	36.93	36.02	37.52	-0.91	1.50
106621	38.17	37.27	38.87	-0.90	1.60
108291	38.90	38.12	39.46	-0.78	1.34

**TABLE 55**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
108611	-----	38.26	39.57	-----	1.31
108704	-----	38.28	39.58	-----	1.30
108757	-----	38.27	39.53	-----	1.26
108798	-----	38.24	39.52	-----	1.28
108898	-----	38.43	39.76	-----	1.33
108928	-----	38.44	39.76	-----	1.32
108976	-----	38.49	39.87	-----	1.38
108977	-----	38.49	39.89	-----	1.40
109110	-----	38.55	39.93	-----	1.38
109205	-----	38.61	39.99	-----	1.38
109247	-----	38.57	39.93	-----	1.36
109304	-----	38.59	40.00	-----	1.41
109626	39.53	38.73	40.14	-0.80	1.41
109686	39.53	38.82	40.36	-0.71	1.54
109723	39.86	38.83	40.36	-1.03	1.53
109783	40.00	38.93	40.45	-1.07	1.52
109863	40.03	38.96	40.49	-1.07	1.53
109913	40.04	38.98	40.50	-1.06	1.52
109950	40.45	38.98	40.51	-1.47	1.53
110050	40.61	39.02	40.55	-1.59	1.53
110120	40.74	39.13	40.62	-1.61	1.49
110160	40.77	39.21	40.75	-1.56	1.54
110210	40.85	39.20	40.82	-1.65	1.62
112659	-----	39.82	41.12	-----	1.30
112719	-----	39.88	41.15	-----	1.27
112769	-----	39.88	41.18	-----	1.30
112804	-----	39.87	41.16	-----	1.29
112890	41.33	40.74	42.04	-0.59	1.30
113590	41.76	41.09	42.45	-0.67	1.36
113680	41.79	41.12	42.48	-0.67	1.36
113730	42.20	41.36	42.87	-0.84	1.51
113780	42.21	41.39	42.88	-0.82	1.49

**TABLE 55**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
115095	-----	41.73	43.19	-----	1.46
115190	-----	41.75	43.21	-----	1.46
115260	42.54	41.75	43.20	-0.79	1.45
115332	-----	41.78	43.22	-----	1.44
115760	42.57	41.81	43.25	-0.76	1.44
116110	42.60	41.85	43.29	-0.75	1.44
116150	42.81	42.04	43.62	-0.77	1.58
116254	-----	42.13	43.71	-----	1.58
116309	-----	42.17	43.76	-----	1.59
116330	42.89	42.15	43.74	-0.74	1.59
116563	-----	42.17	43.77	-----	1.60
116590	42.90	42.16	43.75	-0.74	1.59
116607	-----	42.19	43.78	-----	1.59
116640	42.93	42.28	43.81	-0.65	1.53
116728	-----	42.29	43.83	-----	1.54
116960	42.98	42.31	43.86	-0.67	1.55
117660	43.19	42.63	44.02	-0.56	1.39
117691	-----	42.63	44.01	-----	1.38
117751	-----	42.67	44.07	-----	1.40
117820	43.41	42.89	44.49	-0.52	1.60
117828	-----	42.91	44.50	-----	1.59
117891	-----	42.92	44.49	-----	1.57
118270	43.53	43.02	44.57	-0.51	1.55
118770	43.70	43.18	44.76	-0.52	1.58

**TABLE 55**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
118870	43.71	43.20	44.75	-0.51	1.55
118890	43.72	43.22	44.77	-0.50	1.55
119040	43.82	43.32	44.89	-0.50	1.57
119890	43.96	43.53	45.00	-0.43	1.47
120250	44.00	43.59	45.02	-0.41	1.43
120460	-----	43.63	45.04	-----	1.41
120600	-----	43.63	45.04	-----	1.41
120604	44.04	43.64	45.04	-0.40	1.40
120642	44.49	43.77	45.06	-0.72	1.29
120724	-----	43.80	45.08	-----	1.28
120842	44.50	43.77	45.07	-0.73	1.30
121322	44.63	43.99	45.18	-0.64	1.19
121401	-----	44.02	45.20	-----	1.18
121422	44.63	44.01	45.19	-0.62	1.18
121432	-----	44.01	45.19	-----	1.18
121462	44.63	44.03	45.20	-0.60	1.17
121525	-----	44.03	45.20	-----	1.17
121592	44.65	44.03	45.20	-0.62	1.17
122902	44.73	44.19	45.29	-0.54	1.10
124522	44.78	44.33	45.37	-0.45	1.04
125102	44.82	44.03	45.43	-0.79	1.40
125177	46.51	46.40	46.91	-0.11	0.51
125277	46.52	46.40	46.91	-0.12	0.51
126010	-----	46.42	46.93	-----	0.51
126047	-----	46.42	46.93	-----	0.51
126155	-----	46.42	46.93	-----	0.51
126260	-----	46.42	46.93	-----	0.51
126702	46.53	46.43	46.95	-0.10	0.52
126802	46.54	46.44	46.96	-0.10	0.52
126887	46.54	46.43	46.94	-0.11	0.51
127207	46.54	46.43	46.96	-0.11	0.53
127998	-----	46.58	47.09	-----	0.51

**TABLE 55**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
128044	-----	46.59	47.09	-----	0.50
128076	-----	46.59	47.09	-----	0.50
128129	-----	46.59	47.10	-----	0.51
128702	46.69	46.59	47.11	-0.10	0.52
128802	46.70	46.61	47.12	-0.09	0.51
128837	46.70	46.61	47.12	-0.09	0.51
128902	46.70	46.61	47.13	-0.09	0.52
130212	46.68	46.48	46.79	-0.20	0.31
130932	46.81	46.79	47.28	-0.02	0.49
130993	-----	47.78	48.68	-----	0.90
131029	-----	47.74	48.56	-----	0.82
131032	46.82	47.74	48.57	0.92	0.83
131055	47.45	47.81	48.57	0.36	0.76
131098	-----	47.79	48.55	-----	0.76
131115	47.56	47.54	48.27	-0.02	0.73
132995	48.30	48.92	49.76	0.62	0.84
133095	48.32	48.95	49.77	0.63	0.82
133119	48.39	48.95	49.77	0.56	0.82
133154	-----	48.95	49.78	-----	0.83
133184	48.40	48.95	49.79	0.55	0.84
134734	48.61	49.24	50.03	0.63	0.79
135429	-----	49.32	50.10	-----	0.78
135559	-----	49.32	50.11	-----	0.79
135552	-----	49.32	50.11	-----	0.79



**TABLE 55**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
135587	-----	49.32	50.11	-----	0.79
135651	-----	49.33	50.11	-----	0.78
135708	-----	49.33	50.11	-----	0.78
135716	-----	49.33	50.11	-----	0.78
135762	-----	49.33	50.12	-----	0.79
135889	48.81	49.24	50.05	0.43	0.81
135989	48.85	49.29	50.09	0.44	0.80
136007	48.85	49.47	50.14	0.62	0.67
136057	48.88	49.51	50.18	0.63	0.67
137017	49.09	49.77	50.41	0.68	0.64
137076	-----	49.76	50.40	-----	0.64
137097	-----	49.76	50.40	-----	0.64
137107	49.07	49.77	50.42	0.70	0.65
137134	49.07	49.78	50.43	0.71	0.65
137202	-----	49.82	50.47	-----	0.65
137209	49.09	49.80	50.45	0.71	0.65
139689	49.35	50.08	50.71	0.73	0.63
140189	49.37	50.11	50.73	0.74	0.62
140254	-----	50.11	50.74	-----	0.63
140289	49.37	50.12	50.74	0.75	0.62
140292	-----	50.11	50.74	-----	0.63
140310	49.37	50.17	50.82	0.80	0.65
140370	49.37	50.18	50.82	0.81	0.64
140396	-----	50.18	50.83	-----	0.65
142150	49.43	50.24	50.88	0.81	0.64
142400	49.43	50.25	50.89	0.82	0.64
142500	49.44	50.25	50.89	0.81	0.64
142530	49.44	50.25	50.89	0.81	0.64
142580	49.44	50.25	50.89	0.81	0.64
145110	49.62	50.47	51.10	0.85	0.63
145590	49.78	50.65	51.28	0.87	0.63
145690	49.81	50.69	51.32	0.88	0.63

**TABLE 55**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
145710	49.81	51.69	52.22	1.88	0.53
145760	49.83	51.74	52.29	1.91	0.55
148335	50.39	52.06	52.62	1.67	0.56
148392	-----	52.07	52.63	-----	0.56
148431	-----	52.07	52.63	-----	0.56
148435	50.40	52.07	52.63	1.67	0.56
148466	50.73	52.08	52.63	1.35	0.55
148499	-----	52.08	52.63	-----	0.55
148536	50.74	52.09	52.64	1.35	0.55
149986	50.84	52.16	52.72	1.32	0.56
151436	50.85	52.22	52.79	1.37	0.57
151536	50.84	52.24	52.80	1.40	0.56
151561	50.96	52.24	52.80	1.28	0.56
151671	50.97	52.25	52.81	1.28	0.56
155071	-----	52.43	52.96	-----	0.53
156221	51.66	52.42	52.93	0.76	0.51
158491	52.29	53.42	53.85	1.13	0.43
160875	-----	53.88	54.24	-----	0.36
160951	52.90	53.86	54.23	0.96	0.37
161051	52.91	53.89	54.25	0.98	0.36
161071	53.00	53.92	54.29	0.92	0.37
161151	53.04	53.95	54.31	0.91	0.36
161267	-----	53.99	54.33	-----	0.34
164431	53.42	54.36	54.68	0.94	0.32

**TABLE 55**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
164474	-----	54.33	54.66	-----	0.33
164530	-----	54.43	54.74	-----	0.31
164581	53.43	54.44	54.75	1.01	0.31
164602	53.43	54.44	54.75	1.01	0.31
164642	-----	54.40	54.71	-----	0.31
164677	53.43	54.51	54.82	1.08	0.31
166187	53.51	54.59	54.90	1.08	0.31
166357	53.52	54.60	54.91	1.08	0.31
166382	53.55	54.61	54.91	1.06	0.30
166492	53.55	54.61	54.91	1.06	0.30
168042	53.65	54.71	55.01	1.06	0.30
170362	54.01	54.69	54.88	0.68	0.19
170512	53.59	54.81	55.29	1.22	0.48
170550	55.31	56.91	56.89	1.60	-0.02
170650	56.33	56.90	56.88	0.57	-0.02
173120	56.64	57.32	57.22	0.68	-0.10
173220	56.65	57.33	57.23	0.68	-0.10
173250	57.03	57.61	57.49	0.58	-0.12
173300	57.04	57.64	57.52	0.60	-0.12
175420	57.14	58.03	57.91	0.89	-0.12
175520	57.28	59.16	58.63	1.88	-0.53
175542	58.16	59.16	58.63	1.00	-0.53
175592	58.79	59.22	58.72	0.43	-0.50
176592	59.05	59.64	59.37	0.59	-0.27
176692	59.06	59.65	59.38	0.59	-0.27
176712	59.06	59.65	59.38	0.59	-0.27
176772	59.07	59.66	59.39	0.59	-0.27
179772	59.50	60.23	59.96	0.73	-0.27
179872	59.51	60.25	59.98	0.74	-0.27
179890	59.51	60.25	59.98	0.74	-0.27
179975	59.54	60.27	60.00	0.73	-0.27
183975	60.25	60.95	60.73	0.70	-0.22

**TABLE 55**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
184075	60.27	60.97	60.75	0.70	-0.22
184101	60.48	61.10	60.90	0.62	-0.20
184161	60.48	61.11	60.91	0.63	-0.20
185811	60.84	61.54	61.34	0.70	-0.20
185871	60.86	61.58	61.37	0.72	-0.21
185893	60.86	61.58	61.37	0.72	-0.21
185953	60.93	61.67	61.46	0.74	-0.21
187353	61.56	62.34	62.08	0.78	-0.26
187483	61.41	62.38	62.11	0.97	-0.27
187510	62.26	62.50	62.35	0.24	-0.15
187590	62.27	62.51	62.36	0.24	-0.15
188949	-----	62.54	62.39	-----	-0.15
190630	62.68	62.45	62.33	-0.23	-0.12
192410	62.90	63.39	63.02	0.49	-0.37
196060	63.26	64.05	63.61	0.79	-0.44
196290	63.29	64.05	63.62	0.76	-0.43
196390	63.31	64.13	63.68	0.82	-0.45
199340	64.10	64.73	63.96	0.63	-0.77
199440	64.13	64.74	63.97	0.61	-0.77
199460	64.43	64.81	64.18	0.38	-0.63
199560	64.44	64.80	64.17	0.36	-0.63
202460	64.60	65.16	64.39	0.56	-0.77
205270	64.70	65.33	64.49	0.63	-0.84
206370	64.75	65.42	64.55	0.67	-0.87
206520	64.71	65.36	64.54	0.65	-0.82
206540	64.47	64.96	64.49	0.49	-0.47
206545	64.58	65.07	64.49	0.49	-0.58
206565	65.38	66.32	64.66	0.94	-1.66
206665	65.53	66.52	64.74	0.99	-1.78
208465	65.58	66.58	64.83	1.00	-1.75
211495	65.87	66.67	65.09	0.80	-1.58
211595	65.87	66.67	65.10	0.80	-1.57

**TABLE 55**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
211615	65.87	66.67	65.10	0.80	-1.57
211715	65.88	66.67	65.10	0.79	-1.57
213175	65.99	66.75	65.21	0.76	-1.54
213229	-----	66.80	65.31	-----	-1.49
213295	65.94	66.78	65.21	0.84	-1.57
213297	-----	66.78	65.21	-----	-1.57
213328	66.47	66.78	65.36	0.31	-1.42
213403	66.48	66.81	65.48	0.33	-1.33
213441	-----	66.47	65.47	-----	-1.00
216713	67.40	68.82	66.10	1.42	-2.72
217513	67.65	69.08	66.23	1.43	-2.85
218723	67.90	69.40	66.44	1.50	-2.96
218823	67.91	69.41	66.46	1.50	-2.95
218848	68.20	69.74	66.75	1.54	-2.99
218898	68.30	69.75	66.76	1.45	-2.99
220723	68.35	69.85	67.13	1.50	-2.72

**TABLE 56**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
34700	11.76	14.00	14.00	2.24	0.00
37840	12.18	14.26	14.26	2.08	0.00
37890	12.18	14.26	14.26	2.08	0.00
37908	12.25	14.26	14.26	2.01	0.00
37958	12.25	14.27	14.27	2.02	0.00
41358	12.59	14.41	14.41	1.82	0.00
41433	12.60	14.41	14.41	1.81	0.00
41443	12.57	14.38	14.38	1.81	0.00
41493	12.59	14.39	14.39	1.80	0.00
41503	12.67	14.48	14.48	1.81	0.00
41578	12.68	14.48	14.48	1.80	0.00
41878	12.71	14.49	14.49	1.78	0.00
45058	13.11	14.61	14.61	1.50	0.00
45658	13.21	14.67	14.67	1.46	0.00
45748	13.22	14.69	14.69	1.47	0.00
45767	13.22	14.69	14.69	1.47	0.00
45857	13.24	14.70	14.70	1.46	0.00
46157	13.30	14.73	14.73	1.43	0.00
47157	13.47	14.85	14.85	1.38	0.00
51157	14.04	15.54	15.71	1.50	0.17
51927	14.11	15.85	16.11	1.74	0.26
51978	-----	16.03	16.36	-----	0.33
52027	14.12	16.13	16.46	2.01	0.33
52046	14.20	16.13	16.50	1.93	0.37
52136	14.21	16.37	16.73	2.16	0.36
52186	-----	16.35	16.71	-----	0.36
52436	14.24	16.39	16.75	2.15	0.36
54397	-----	16.72	17.05	-----	0.33
56506	14.89	17.03	17.34	2.14	0.31
58036	15.51	17.54	17.94	2.03	0.40
60176	16.31	18.17	18.53	1.86	0.36
60205	-----	18.30	18.68	-----	0.38

**TABLE 56**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
60276	16.34	18.38	18.79	2.04	0.41
60297	16.48	18.47	18.88	1.99	0.41
60377	16.52	18.48	18.90	1.96	0.42
64767	18.40	19.45	20.05	1.05	0.60
67937	19.70	20.90	21.68	1.20	0.78
68037	19.90	21.08	21.93	1.18	0.85
70697	20.72	22.00	22.78	1.28	0.78
70706	-----	22.08	22.90	-----	0.82
70757	20.72	22.14	22.93	1.42	0.79
70773	20.74	22.20	23.04	1.46	0.84
70823	20.81	22.29	23.20	1.48	0.91
72483	21.33	22.73	23.47	1.40	0.74
73563	21.74	23.25	24.04	1.51	0.79
73863	21.85	23.38	24.19	1.53	0.81
75863	22.66	24.32	25.19	1.66	0.87
76232	-----	24.53	25.40	-----	0.87
77132	-----	24.83	25.71	-----	0.88
77723	23.45	25.00	25.92	1.55	0.92
78523	23.73	25.15	26.05	1.42	0.90
78603	23.80	25.19	26.10	1.39	0.91
78621	24.07	25.31	26.30	1.24	0.99
78661	24.10	25.33	26.31	1.23	0.98
79391	24.60	25.65	26.68	1.05	1.03
79471	24.61	25.65	26.69	1.04	1.04
79484	24.90	25.82	26.92	0.92	1.10
79534	25.00	25.87	26.96	0.87	1.09
80014	25.18	25.97	27.05	0.79	1.08
81894	26.02	26.55	27.54	0.53	0.99
81938	-----	26.58	27.55	-----	0.97
81944	26.08	26.69	27.63	0.61	0.94
81994	-----	26.70	27.64	-----	0.94
82022	26.08	26.67	27.61	0.59	0.94

**TABLE 56**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
82063	-----	26.68	27.64	-----	0.96
82072	26.11	26.28	27.64	0.17	1.36
82372	26.28	26.72	27.66	0.44	0.94
83472	26.80	27.05	27.93	0.25	0.88
84882	27.43	27.53	28.23	0.10	0.70
85132	27.48	27.57	28.26	0.09	0.69
85432	27.61	27.68	28.44	0.07	0.76
86282	27.85	27.89	28.67	0.04	0.78
86382	27.87	27.91	28.68	0.04	0.77
86400	28.15	28.12	28.93	-0.03	0.81
86450	28.16	28.13	28.94	-0.03	0.81
87980	28.43	28.50	29.27	0.07	0.77
88013	-----	28.54	29.29	-----	0.75
88080	28.42	28.54	29.29	0.12	0.75
88086	-----	28.51	29.24	-----	0.73
88116	28.55	28.58	29.39	0.03	0.81
88173	-----	28.60	29.40	-----	0.80
88196	28.63	28.59	29.40	-0.04	0.81
89010	-----	28.68	29.46	-----	0.78
89063	-----	28.71	29.50	-----	0.79
89078	-----	28.71	29.50	-----	0.79
89129	-----	28.68	29.46	-----	0.78
90016	28.90	28.83	29.63	-0.07	0.80
90022	-----	28.82	29.62	-----	0.80
90116	28.91	28.86	29.65	-0.05	0.79
90138	29.07	28.87	29.68	-0.20	0.81
90188	29.10	28.89	29.72	-0.21	0.83
90638	29.16	28.95	29.78	-0.21	0.83
91093	-----	29.02	29.87	-----	0.85
91226	-----	29.07	29.89	-----	0.82
91251	29.22	29.08	29.95	-0.14	0.87
91311	29.32	29.17	29.96	-0.15	0.79



**TABLE 56**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
91317	-----	29.34	30.13	-----	0.79
91611	29.44	29.35	30.15	-0.09	0.80
93921	30.48	29.56	30.24	-0.92	0.68
96621	31.54	30.97	31.71	-0.57	0.74
96674	-----	30.96	31.66	-----	0.70
96721	31.56	31.07	31.90	-0.49	0.83
96726	-----	31.12	31.85	-----	0.73
96756	31.57	31.12	31.85	-0.45	0.73
96807	-----	31.14	31.95	-----	0.81
96811	31.59	31.14	31.95	-0.45	0.81
100161	32.67	32.23	33.27	-0.44	1.04
101351	33.33	32.76	34.05	-0.57	1.29
103211	34.11	33.66	34.96	-0.45	1.30
104791	34.95	34.49	36.18	-0.46	1.69
106621	36.00	35.55	37.45	-0.45	1.90
108291	36.94	36.51	38.29	-0.43	1.78
108611	-----	36.66	38.42	-----	1.76
108704	-----	36.68	38.44	-----	1.76
108757	-----	36.68	38.43	-----	1.75
108798	-----	36.67	38.40	-----	1.73
108898	-----	36.80	38.59	-----	1.79
108928	-----	36.81	38.60	-----	1.79
108976	-----	36.83	38.66	-----	1.83
108977	-----	36.83	38.67	-----	1.84
109110	-----	36.90	38.72	-----	1.82
109205	-----	36.94	38.78	-----	1.84
109247	-----	36.92	38.74	-----	1.82
109304	-----	36.93	38.76	-----	1.83
109626	37.52	37.04	38.90	-0.48	1.86
109686	37.52	37.08	39.03	-0.44	1.95
109723	37.55	37.09	39.04	-0.46	1.95
109783	37.63	37.19	39.13	-0.44	1.94

**TABLE 56**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
109863	37.66	37.21	39.15	-0.45	1.94
109913	37.68	37.23	39.17	-0.45	1.94
109950	37.70	37.23	39.18	-0.47	1.95
110050	37.75	37.27	39.21	-0.48	1.94
110120	37.90	37.37	39.30	-0.53	1.93
110160	37.90	37.38	39.38	-0.52	2.00
110210	37.87	37.35	39.37	-0.52	2.02
112659	-----	38.03	39.90	-----	1.87
112719	-----	38.08	39.95	-----	1.87
112769	-----	38.08	39.95	-----	1.87
112804	-----	38.08	39.95	-----	1.87
112890	38.96	38.93	40.74	-0.03	1.81
113590	39.27	39.26	41.07	-0.01	1.81
113680	39.30	39.29	41.09	-0.01	1.80
113730	39.31	39.31	41.32	0.00	2.01
113780	39.32	39.32	41.34	0.00	2.02
115095	-----	39.64	41.66	-----	2.02
115190	-----	39.67	41.68	-----	2.01
115260	39.61	39.67	41.68	0.06	2.01
115332	-----	39.70	41.70	-----	2.00
115760	39.65	39.74	41.73	0.09	1.99
116110	39.69	39.80	41.77	0.11	1.97
116150	39.70	39.82	41.95	0.12	2.13
116254	-----	39.90	42.03	-----	2.13
116309	-----	39.94	42.07	-----	2.13
116330	39.76	39.92	42.05	0.16	2.13
116563	-----	39.95	42.07	-----	2.12
116590	39.78	39.94	42.06	0.16	2.12
116607	-----	39.97	42.09	-----	2.12
116640	39.79	39.97	42.18	0.18	2.21
116728	-----	39.99	42.19	-----	2.20
116960	39.80	39.98	42.20	0.18	2.22

**TABLE 56**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
117660	40.34	40.70	42.53	0.36	1.83
117691	-----	40.71	42.53	-----	1.82
117751	-----	40.77	42.57	-----	1.80
117820	40.35	40.78	42.77	0.43	1.99
117828	-----	40.78	42.78	-----	2.00
117891	-----	40.79	42.79	-----	2.00
118270	40.49	40.91	42.89	0.42	1.98
118770	40.64	41.06	43.04	0.42	1.98
118870	40.70	41.13	43.07	0.43	1.94
118890	40.71	41.15	43.08	0.44	1.93
119040	40.80	41.26	43.18	0.46	1.92
119890	41.22	41.72	43.40	0.50	1.68
120250	41.42	41.92	43.46	0.50	1.54
120460	-----	42.04	43.50	-----	1.46
120600	-----	42.01	43.50	-----	1.49
120604	41.61	42.12	43.51	0.51	1.39
120642	42.09	42.17	43.63	0.08	1.46
120724	-----	42.22	43.66	-----	1.44
120842	42.19	42.18	43.63	-0.01	1.45
121322	42.42	42.52	43.86	0.10	1.34
121401	-----	42.60	43.89	-----	1.29
121422	42.44	42.58	43.88	0.14	1.30
121432	-----	42.60	43.88	-----	1.28
121462	42.57	42.81	43.89	0.24	1.08
121525	-----	42.81	43.89	-----	1.08
121592	42.78	42.81	43.90	0.03	1.09
122902	42.98	43.19	44.07	0.21	0.88
124522	43.09	43.36	44.21	0.27	0.85
125102	43.15	43.23	43.94	0.08	0.71
125177	43.15	43.33	45.56	0.18	2.23
125277	43.16	44.22	46.48	1.06	2.26
126010	-----	44.28	46.49	-----	2.21

**TABLE 56**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
126047	-----	44.29	46.49	-----	2.20
126155	-----	44.30	46.49	-----	2.19
126260	-----	44.28	46.49	-----	2.21
126702	43.35	44.34	46.51	0.99	2.17
126802	43.39	44.38	46.52	0.99	2.14
126887	43.56	44.36	46.51	0.80	2.15
127207	43.60	44.37	46.51	0.77	2.14
127998	-----	44.72	46.65	-----	1.93
128044	-----	44.72	46.65	-----	1.93
128076	-----	45.17	46.65	-----	1.48
128129	-----	45.18	46.65	-----	1.47
128702	44.10	45.16	46.66	1.06	1.50
128802	44.13	45.19	46.67	1.06	1.48
128837	44.23	45.20	46.67	0.97	1.47
128902	44.25	45.22	46.67	0.97	1.45
130212	44.52	45.47	46.53	0.95	1.06
130932	44.66	45.75	46.83	1.09	1.08
130993	-----	46.48	47.80	-----	1.32
131029	-----	46.49	47.75	-----	1.26
131032	44.72	46.50	47.76	1.78	1.26
131055	44.77	46.65	47.81	1.88	1.16
131098	-----	46.63	47.80	-----	1.17
131115	44.79	46.42	47.55	1.63	1.13
132995	45.82	47.76	48.91	1.94	1.15
133095	45.81	47.80	48.94	1.99	1.14
133119	45.83	47.81	48.94	1.98	1.13
133154	-----	47.82	48.95	-----	1.13
133184	46.04	47.81	48.95	1.77	1.14
134734	46.51	48.18	49.23	1.67	1.05
135429	-----	48.28	49.31	-----	1.03
135559	-----	48.28	49.31	-----	1.03
135552	-----	48.28	49.31	-----	1.03

**TABLE 56**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
135587	-----	48.28	49.31	-----	1.03
135651	-----	48.29	49.32	-----	1.03
135708	-----	48.29	49.32	-----	1.03
135716	-----	48.29	49.32	-----	1.03
135762	-----	48.29	49.32	-----	1.03
135889	46.91	48.18	49.23	1.27	1.05
135989	46.96	48.24	49.28	1.28	1.04
136007	46.96	48.73	49.46	1.77	0.73
136057	46.99	48.77	49.50	1.78	0.73
137017	47.28	49.03	49.76	1.75	0.73
137076	-----	49.03	49.75	-----	0.72
137097	-----	49.03	49.75	-----	0.72
137107	47.25	49.02	49.76	1.77	0.74
137134	47.37	49.07	49.77	1.70	0.70
137202	-----	49.11	49.81	-----	0.70
137209	47.41	49.08	49.79	1.67	0.71
139689	47.78	49.39	50.07	1.61	0.68
140189	47.80	49.41	50.09	1.61	0.68
140254	-----	49.41	50.09	-----	0.68
140289	47.81	49.42	50.10	1.61	0.68
140292	-----	49.41	50.10	-----	0.69
140310	47.81	49.46	50.16	1.65	0.70
140370	47.82	49.47	50.16	1.65	0.69
140396	-----	50.18	50.17	-----	-0.01
142150	47.90	49.47	50.22	1.57	0.75
142400	47.91	49.53	50.23	1.62	0.70
142500	47.91	49.54	50.24	1.63	0.70
142530	47.95	49.54	50.24	1.59	0.70
142580	47.95	49.54	50.24	1.59	0.70
145110	48.21	49.54	50.45	1.33	0.91
145590	48.44	49.76	50.64	1.32	0.88
145690	48.48	49.99	50.68	1.51	0.69

**TABLE 56**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
145710	48.48	50.48	51.67	2.00	1.19
145760	48.50	50.74	51.73	2.24	0.99
148335	49.19	51.12	52.05	1.93	0.93
148392	-----	51.13	52.05	-----	0.92
148431	-----	51.13	52.06	-----	0.93
148435	49.19	51.13	52.06	1.94	0.93
148466	49.20	51.16	52.06	1.96	0.90
148499	-----	51.16	52.06	-----	0.90
148536	49.29	51.16	52.07	1.87	0.91
149986	49.46	51.26	52.15	1.80	0.89
151436	49.47	51.34	52.21	1.87	0.87
151536	49.37	51.36	52.22	1.99	0.86
151561	49.95	51.36	52.23	1.41	0.87
151671	50.00	51.37	52.23	1.37	0.86
155071	-----	51.60	52.40	-----	0.80
156221	50.65	51.64	52.39	0.99	0.75
158491	51.19	52.63	53.20	1.44	0.57
160875	-----	53.17	53.61	-----	0.44
160951	51.88	53.13	53.59	1.25	0.46
161051	51.89	53.16	53.62	1.27	0.46
161071	52.06	53.22	53.64	1.16	0.42
161151	52.10	53.26	53.67	1.16	0.41
161267	-----	53.35	53.73	-----	0.38
164431	52.56	53.72	54.07	1.16	0.35
164474	-----	53.69	54.04	-----	0.35
164530	-----	53.81	54.14	-----	0.33
164581	52.57	53.81	54.14	1.24	0.33
164602	52.57	53.81	54.14	1.24	0.33
164642	-----	53.79	54.11	-----	0.32
164677	52.58	53.86	54.20	1.28	0.34
166187	52.69	53.96	54.29	1.27	0.33
166357	52.70	53.97	54.30	1.27	0.33

**TABLE 56**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
187483	60.88	61.90	61.63	1.02	-0.27
187510	60.90	62.22	62.07	1.32	-0.15
187590	61.23	62.23	62.08	1.00	-0.15
188949	-----	62.26	62.11	-----	-0.15
190630	61.78	62.21	62.08	0.43	-0.13
192410	62.01	62.89	62.54	0.88	-0.35
196060	62.39	63.51	63.06	1.12	-0.45
196290	62.42	63.52	63.07	1.10	-0.45
196390	62.44	63.58	63.12	1.14	-0.46
199340	63.12	64.06	63.34	0.94	-0.72
199440	63.15	64.07	63.34	0.92	-0.73
199460	63.30	64.26	63.60	0.96	-0.66
199560	63.38	64.24	63.59	0.86	-0.65
202460	63.70	64.59	63.78	0.89	-0.81
205270	63.88	64.76	63.88	0.88	-0.88
206370	63.97	64.86	63.94	0.89	-0.92
206520	63.96	64.82	63.94	0.86	-0.88
206540	63.86	64.61	63.91	0.75	-0.70
206545	63.91	64.67	63.91	0.76	-0.76
206565	64.25	65.35	64.01	1.10	-1.34
206665	64.35	65.50	64.05	1.15	-1.45
208465	64.47	65.61	64.14	1.14	-1.47
211495	64.83	65.88	64.37	1.05	-1.51
211595	64.83	65.88	64.37	1.05	-1.51
211615	64.79	65.88	64.59	1.09	-1.29
211715	64.86	65.89	64.61	1.03	-1.28
213175	65.04	66.00	64.71	0.96	-1.29
213229	-----	66.06	64.78	-----	-1.28
213295	65.06	66.03	64.70	0.97	-1.33
213297	-----	66.03	64.70	-----	-1.33
213328	65.07	66.03	64.89	0.96	-1.14
213403	65.21	66.09	64.99	0.88	-1.10

**TABLE 57**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
60276	16.34	17.87	18.37	1.53	0.50
60297	16.48	17.95	18.45	1.47	0.50
60377	16.52	17.96	18.47	1.44	0.51
64767	18.40	18.80	19.45	0.40	0.65
67937	19.70	20.11	20.91	0.41	0.80
68037	19.90	20.27	21.09	0.37	0.82
70697	20.72	21.14	22.01	0.42	0.87
70706	-----	21.19	22.09	-----	0.90
70757	20.72	21.23	22.16	0.51	0.93
70773	20.74	21.24	22.22	0.50	0.98
70823	20.81	21.27	22.30	0.46	1.03
72483	21.33	21.80	22.74	0.47	0.94
73563	21.74	22.30	23.27	0.56	0.97
73863	21.85	22.43	23.40	0.58	0.97
75863	22.66	23.36	24.35	0.70	0.99
76232	-----	23.58	24.55	-----	0.97
77132	-----	23.85	24.86	-----	1.01
77723	23.45	24.00	25.05	0.55	1.05
78523	23.73	24.14	25.21	0.41	1.07
78603	23.80	24.16	25.25	0.36	1.09
78621	24.07	24.22	25.39	0.15	1.17
78661	24.10	24.23	25.41	0.13	1.18
79391	24.60	24.50	25.75	-0.10	1.25
79471	24.61	24.50	25.76	-0.11	1.26
79484	24.90	24.64	25.95	-0.26	1.31
79534	25.00	24.70	26.00	-0.30	1.30
80014	25.18	24.82	26.10	-0.36	1.28
81894	26.02	25.34	26.71	-0.68	1.37
81938	-----	25.41	26.73	-----	1.32
81944	26.08	25.48	26.85	-0.60	1.37
81994	-----	25.49	26.85	-----	1.36
82022	26.08	25.52	26.82	-0.56	1.30



**TABLE 57**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
82063	-----	25.52	26.84	-----	1.32
82072	26.11	25.52	26.84	-0.59	1.32
82372	26.28	25.60	26.88	-0.68	1.28
83472	26.80	25.99	27.21	-0.81	1.22
84882	27.43	26.51	27.67	-0.92	1.16
85132	27.48	26.56	27.71	-0.92	1.15
85432	27.61	26.63	27.84	-0.98	1.21
86282	27.85	26.81	28.05	-1.04	1.24
86382	27.87	26.84	28.07	-1.03	1.23
86400	28.15	27.04	28.29	-1.11	1.25
86450	28.16	27.05	28.30	-1.11	1.25
87980	28.43	27.46	28.67	-0.97	1.21
88013	-----	27.54	28.70	-----	1.16
88080	28.42	27.54	28.70	-0.88	1.16
88086	-----	27.52	28.66	-----	1.14
88116	28.55	27.52	28.75	-1.03	1.23
88173	-----	27.56	28.77	-----	1.21
88196	28.63	27.55	28.76	-1.08	1.21
89010	-----	27.70	28.85	-----	1.15
89063	-----	27.72	28.88	-----	1.16
89078	-----	27.71	28.88	-----	1.17
89129	-----	27.70	28.85	-----	1.15
90016	28.90	27.83	29.01	-1.07	1.18
90022	-----	27.82	29.00	-----	1.18
90116	28.91	27.86	29.04	-1.05	1.18
90138	29.07	27.87	29.05	-1.20	1.18
90188	29.10	27.88	29.07	-1.22	1.19
90638	29.16	27.94	29.13	-1.22	1.19
91093	-----	28.01	29.21	-----	1.20
91226	-----	28.06	29.25	-----	1.19
91251	29.22	28.06	29.26	-1.16	1.20
91311	29.32	28.17	29.34	-1.15	1.17

**TABLE 57**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
91317	-----	28.28	29.51	-----	1.23
91611	29.44	28.31	29.52	-1.13	1.21
93921	30.48	28.68	29.71	-1.80	1.03
96621	31.54	30.04	31.14	-1.50	1.10
96674		30.07	31.12	30.07	1.05
96721	31.56	30.09	31.26	-1.47	1.17
96726		30.23	31.26	30.23	1.03
96756	31.57	30.23	31.26	-1.34	1.03
96807		30.23	31.30	30.23	1.07
96811	31.59	30.22	31.30	-1.37	1.08
100161	32.67	31.28	32.63	-1.39	1.35
101351	33.33	31.70	33.27	-1.63	1.57
103211	34.11	32.48	34.23	-1.63	1.75
104791	34.95	33.16	35.20	-1.79	2.04
106621	36.00	34.07	36.36	-1.93	2.29
108291	36.94	34.93	37.31	-2.01	2.38
108611	-----	35.07	37.47	-----	2.40
108704	-----	35.08	37.49	-----	2.41
108757	-----	35.09	37.49	-----	2.40
108798	-----	35.08	37.47	-----	2.39
108898	-----	35.19	37.62	-----	2.43
108928	-----	35.20	37.63	-----	2.43
108976	-----	35.22	37.66	-----	2.44
108977	-----	35.22	37.66	-----	2.44
109110	-----	35.28	37.73	-----	2.45
109205	-----	35.32	37.78	-----	2.46
109247	-----	35.30	37.75	-----	2.45
109304	-----	35.30	37.76	-----	2.46
109626	37.52	35.41	37.89	-2.11	2.48
109686	37.52	35.43	37.97	-2.09	2.54
109723	37.55	35.44	37.98	-2.11	2.54
109783	37.63	35.54	38.06	-2.09	2.52

**TABLE 57**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
109863	37.66	35.57	38.09	-2.09	2.52
109913	37.68	35.59	38.10	-2.09	2.51
109950	37.70	35.60	38.11	-2.10	2.51
110050	37.75	35.65	38.14	-2.10	2.49
110120	37.90	35.77	38.23	-2.13	2.46
110160	37.90	35.77	38.27	-2.13	2.50
110210	37.87	35.75	38.25	-2.12	2.50
112659	-----	36.51	38.85	-----	2.34
112719	-----	36.56	38.90	-----	2.34
112769	-----	36.56	38.90	-----	2.34
112804	-----	36.56	38.90	-----	2.34
112890	38.96	37.53	39.66	-1.43	2.13
113590	39.27	37.88	39.96	-1.39	2.08
113680	39.30	37.91	39.99	-1.39	2.08
113730	39.31	37.93	40.11	-1.38	2.18
113780	39.32	37.94	40.12	-1.38	2.18
115095	-----	38.27	40.43	-----	2.16
115190	-----	38.29	40.45	-----	2.16
115260	39.61	38.30	40.45	-1.31	2.15
115332	-----	38.33	40.48	-----	2.15
115760	39.65	38.37	40.51	-1.28	2.14
116110	39.69	38.44	40.56	-1.25	2.12
116150	39.70	38.46	40.66	-1.24	2.20
116254	-----	38.56	40.74	-----	2.18
116309	-----	38.60	40.77	-----	2.17
116330	39.76	38.57	40.75	-1.19	2.18
116563	-----	38.61	40.78	-----	2.17
116590	39.78	38.60	40.77	-1.18	2.17
116607	-----	38.63	40.80	-----	2.17
116640	39.79	38.63	40.85	-1.16	2.22
116728	-----	38.64	40.86	-----	2.22
116960	39.80	38.65	40.84	-1.15	2.19

**TABLE 57**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
117660	40.34	39.48	41.41	-0.86	1.93
117691	-----	39.50	41.42	-----	1.92
117751	-----	39.56	41.47	-----	1.91
117820	40.35	39.57	41.48	-0.78	1.91
117828	-----	39.57	41.48	-----	1.91
117891	-----	39.59	41.49	-----	1.90
118270	40.49	39.70	41.60	-0.79	1.90
118770	40.64	39.86	41.74	-0.78	1.88
118870	40.70	39.93	41.79	-0.77	1.86
118890	40.71	39.96	41.81	-0.75	1.85
119040	40.80	40.07	41.91	-0.73	1.84
119890	41.22	40.63	42.26	-0.59	1.63
120250	41.42	40.93	42.40	-0.49	1.47
120460	-----	41.15	42.49	-----	1.34
120600	-----	41.10	42.47	-----	1.37
120604	41.61	41.27	42.53	-0.34	1.26
120642	42.09	41.27	42.59	-0.82	1.32
120724	-----	41.31	42.65	-----	1.34
120842	42.19	41.26	42.61	-0.93	1.35
121322	42.42	41.67	42.91	-0.75	1.24
121401	-----	41.80	42.97	-----	1.17
121422	42.44	41.77	42.96	-0.67	1.19
121432	-----	41.81	42.96	-----	1.15
121462	42.57	41.95	42.99	-0.62	1.04
121525	-----	41.95	42.99	-----	1.04
121592	42.78	41.94	42.99	-0.84	1.05
122902	42.98	42.47	43.29	-0.51	0.82
124522	43.09	42.80	43.50	-0.29	0.70
125102	43.15	42.75	43.35	-0.40	0.60
125177	43.15	42.82	43.46	-0.33	0.64
125277	43.16	43.52	44.44	0.36	0.92
126010	-----	43.61	44.50	-----	0.89

**TABLE 57**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
126047	-----	43.63	44.52	-----	0.89
126155	-----	43.64	44.52	-----	0.88
126260	-----	43.62	44.51	-----	0.89
126702	43.35	43.69	44.56	0.34	0.87
126802	43.39	43.75	44.60	0.36	0.85
126887	43.56	43.74	44.58	0.18	0.84
127207	43.60	43.76	44.58	0.16	0.82
127998	-----	44.10	44.96	-----	0.86
128044	-----	44.10	44.97	-----	0.87
128076	-----	44.41	44.97	-----	0.56
128129	-----	44.42	44.97	-----	0.55
128702	44.10	44.36	44.94	0.26	0.58
128802	44.13	44.43	45.00	0.30	0.57
128837	44.23	44.43	45.00	0.20	0.57
128902	44.25	44.47	45.04	0.22	0.57
130212	44.52	44.93	45.44	0.41	0.51
130932	44.66	45.19	45.79	0.53	0.60
130993	-----	45.81	46.67	-----	0.86
131029	-----	45.82	46.68	-----	0.86
131032	44.72	45.83	46.69	1.11	0.86
131055	44.77	45.92	46.86	1.15	0.94
131098	-----	45.90	46.84	-----	0.94
131115	44.79	45.71	46.59	0.92	0.88
132995	45.82	47.03	48.05	1.21	1.02
133095	45.81	47.09	48.09	1.28	1.00
133119	45.83	47.12	48.09	1.29	0.97
133154	-----	47.12	48.10	-----	0.98
133184	46.04	47.11	48.10	1.07	0.99
134734	46.51	47.54	48.45	1.03	0.91
135429	-----	47.65	48.55	-----	0.90
135559	-----	47.66	48.56	-----	0.90
135552	-----	47.66	48.56	-----	0.90

**TABLE 57**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
135587	-----	47.66	48.56	-----	0.90
135651	-----	47.66	48.56	-----	0.90
135708	-----	47.67	48.56	-----	0.89
135716	-----	47.67	48.56	-----	0.89
135762	-----	47.67	48.57	-----	0.90
135889	46.91	47.56	48.45	0.65	0.89
135989	46.96	47.63	48.52	0.67	0.89
136007	46.96	48.11	48.95	1.15	0.84
136057	46.99	48.27	48.99	1.28	0.72
137017	47.28	48.53	49.25	1.25	0.72
137076	-----	48.52	49.25	-----	0.73
137097	-----	48.53	49.25	-----	0.72
137107	47.25	48.50	49.24	1.25	0.74
137134	47.37	48.63	49.28	1.26	0.65
137202	-----	48.69	49.32	-----	0.63
137209	47.41	48.65	49.29	1.24	0.64
139689	47.78	48.97	49.60	1.19	0.63
140189	47.80	48.99	49.62	1.19	0.63
140254	-----	48.99	49.62	-----	0.63
140289	47.81	49.00	49.63	1.19	0.63
140292	-----	49.00	49.62	-----	0.62
140310	47.81	49.04	49.68	1.23	0.64
140370	47.82	49.04	49.68	1.22	0.64
140396	-----	49.04	49.69	-----	0.65
142150	47.90	49.10	49.74	1.20	0.64
142400	47.91	49.11	49.75	1.20	0.64
142500	47.91	49.11	49.76	1.20	0.65
142530	47.95	49.11	49.76	1.16	0.65
142580	47.95	49.12	49.76	1.17	0.64
145110	48.21	49.33	49.97	1.12	0.64
145590	48.44	49.53	50.17	1.09	0.64
145690	48.48	49.57	50.21	1.09	0.64

**TABLE 57**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
145710	48.48	49.90	50.82	1.42	0.92
145760	48.50	50.09	51.11	1.59	1.02
148335	49.19	50.54	51.46	1.35	0.92
148392	-----	50.55	51.46	-----	0.91
148431	-----	50.55	51.46	-----	0.91
148435	49.19	50.56	51.47	1.37	0.91
148466	49.20	50.61	51.48	1.41	0.87
148499	-----	50.61	51.48	-----	0.87
148536	49.29	50.61	51.49	1.32	0.88
149986	49.46	50.72	51.57	1.26	0.85
151436	49.47	50.82	51.65	1.35	0.83
151536	49.37	50.84	51.66	1.47	0.82
151561	49.95	50.82	51.67	0.87	0.85
151671	50.00	50.88	51.68	0.88	0.80
155071	-----	51.14	51.86	-----	0.72
156221	50.65	51.19	51.88	0.54	0.69
158491	51.19	52.18	52.70	0.99	0.52
160875	-----	52.74	53.16	-----	0.42
160951	51.88	52.69	53.12	0.81	0.43
161051	51.89	52.73	53.16	0.84	0.43
161071	52.06	52.85	53.21	0.79	0.36
161151	52.10	52.88	53.24	0.78	0.36
161267	-----	52.99	53.32	-----	0.33
164431	52.56	53.36	53.67	0.80	0.31
164474	-----	53.32	53.63	-----	0.31
164530	-----	53.46	53.75	-----	0.29
164581	52.57	53.46	53.75	0.89	0.29
164602	52.57	53.46	53.75	0.89	0.29
164642	-----	53.44	53.73	-----	0.29
164677	52.58	53.30	53.80	0.72	0.50
166187	52.69	53.61	53.89	0.92	0.28
166357	52.70	53.62	53.90	0.92	0.28

**TABLE 57**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
166382	52.73	53.63	53.91	0.90	0.28
166492	52.73	53.63	53.91	0.90	0.28
168042	52.86	53.76	54.03	0.90	0.27
170362	53.42	54.15	54.28	0.73	0.13
170512	53.26	54.26	54.56	1.00	0.30
170550	53.73	55.58	55.58	1.85	0.00
170650	54.62	56.24	56.09	1.62	-0.15
173120	55.48	56.61	56.44	1.13	-0.17
173220	55.48	56.62	56.45	1.14	-0.17
173250	55.66	56.97	56.80	1.31	-0.17
173300	55.81	57.00	56.83	1.19	-0.17
175420	56.61	57.49	57.31	0.88	-0.18
175520	56.71	57.80	57.57	1.09	-0.23
175542	56.75	57.81	57.58	1.06	-0.23
175592	57.01	57.87	57.64	0.86	-0.23
176592	57.58	58.56	58.26	0.98	-0.30
176692	57.60	58.57	58.27	0.97	-0.30
176712	57.67	58.57	58.27	0.90	-0.30
176772	57.68	58.59	58.29	0.91	-0.30
179772	58.39	59.20	58.93	0.81	-0.27
179872	58.42	59.22	58.96	0.80	-0.26
179890	58.42	59.23	58.96	0.81	-0.27
179975	58.48	59.26	59.00	0.78	-0.26
183975	59.62	60.17	59.98	0.55	-0.19
184075	59.64	60.20	60.01	0.56	-0.19
184101	59.93	60.44	60.28	0.51	-0.16
184161	59.93	60.45	60.29	0.52	-0.16
185811	60.27	60.83	60.66	0.56	-0.17
185871	60.28	60.85	60.67	0.57	-0.18
185893	60.28	60.85	60.67	0.57	-0.18
185953	60.34	60.94	60.76	0.60	-0.18
187353	60.93	61.57	61.32	0.64	-0.25



**TABLE 57**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
187483	60.88	61.61	61.27	0.73	-0.34
187510	60.90	62.05	61.95	1.15	-0.10
187590	61.23	62.05	61.96	0.82	-0.09
188949	-----	62.08	61.98	-----	-0.10
190630	61.78	62.05	61.96	0.27	-0.09
192410	62.01	62.60	62.32	0.59	-0.28
196060	62.39	63.17	62.77	0.78	-0.40
196290	62.42	63.20	62.79	0.78	-0.41
196390	62.44	63.24	62.82	0.80	-0.42
199340	63.12	63.66	63.01	0.54	-0.65
199440	63.15	63.67	63.01	0.52	-0.66
199460	63.30	63.92	63.20	0.62	-0.72
199560	63.38	63.91	63.19	0.53	-0.72
202460	63.70	64.24	63.36	0.54	-0.88
205270	63.88	64.41	63.46	0.53	-0.95
206370	63.97	64.50	63.52	0.53	-0.98
206520	63.96	64.48	63.52	0.52	-0.96
206540	63.86	64.34	63.50	0.48	-0.84
206545	63.91	64.38	63.50	0.47	-0.88
206565	64.25	64.85	63.57	0.60	-1.28
206665	64.35	64.97	63.60	0.62	-1.37
208465	64.47	65.09	63.69	0.62	-1.40
211495	64.83	65.40	63.90	0.57	-1.50
211595	64.83	65.41	63.90	0.58	-1.51
211615	64.79	65.41	64.04	0.62	-1.37
211715	64.86	65.42	64.06	0.56	-1.36
213175	65.04	65.55	64.17	0.51	-1.38
213229	-----	65.62	64.23	-----	-1.39
213295	65.06	65.58	64.16	0.52	-1.42
213297	-----	65.58	64.16	-----	-1.42
213328	65.07	65.61	64.27	0.54	-1.34
213403	65.21	65.69	64.36	0.48	-1.33

**TABLE 57**  
**MUSTANG BAYOU**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MUSTANGX.IH2)	Proposed Model	Revised- Base	Proposed- Base
213441	-----	65.52	64.36	-----	-1.16
216713	66.30	67.17	64.79	0.87	-2.38
217513	66.48	67.36	64.88	0.88	-2.48
218723	66.70	67.60	65.04	0.90	-2.56
218823	66.70	67.61	65.05	0.91	-2.56
218848	66.81	67.82	65.06	1.01	-2.76
218898	66.84	67.83	65.07	0.99	-2.76
220723	66.99	68.01	65.39	1.02	-2.62

**TABLE 58**  
**M-1 DITCH**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (M1DITCHX.IH2)	Proposed Model	Revised- Base	Proposed- Base
1	26.90	25.95	26.16	-0.95	0.21
2	26.94	25.99	26.20	-0.95	0.21
3	26.97	26.02	26.22	-0.95	0.20
4	26.97	26.02	26.22	-0.95	0.20
5	26.98	26.02	26.22	-0.96	0.20
6	26.98	26.02	26.22	-0.96	0.20
7	26.99	26.05	26.25	-0.94	0.20
8	27.00	26.07	26.26	-0.93	0.19
8.1	27.01	26.10	26.26	-0.91	0.16
8.9	-----	26.10	26.29	-----	0.19
9	27.03	26.10	26.29	-0.93	0.19
10	27.06	26.03	26.29	-1.03	0.26
11	27.01	26.07	26.19	-0.94	0.12
12	27.15	26.31	26.26	-0.84	-0.05
12.1	-----	26.78	26.57	-----	-0.21
13	27.74	26.84	26.90	-0.90	0.06
14	27.75	26.84	26.93	-0.91	0.09
14.1	27.92	26.71	26.93	-1.21	0.22
15	27.92	27.46	26.74	-0.46	-0.72
15.9	-----	27.42	27.70	-----	0.28
16	27.96	27.42	27.61	-0.54	0.19
17	31.53	27.43	27.63	-4.10	0.20
17.1	-----	27.67	28.06	-----	0.39
18	31.54	28.77	29.13	-2.77	0.36
19	31.54	28.86	29.22	-2.68	0.36
20	31.87	29.01	29.22	-2.86	0.21
21	31.87	29.05	29.28	-2.82	0.23
22	31.91	29.87	30.23	-2.04	0.36
23	31.75	31.62	32.01	-0.13	0.39
24	31.94	31.74	32.19	-0.20	0.45
25	32.12	31.81	32.67	-0.31	0.86
26	33.17	32.32	33.62	-0.85	1.30

**TABLE 58**  
**M-1 DITCH**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (M1DITCHX.IH2)	Proposed Model	Revised- Base	Proposed- Base
27	34.03	34.09	34.68	0.06	0.59
28	34.05	34.12	34.69	0.07	0.57
29	34.27	34.32	34.72	0.05	0.40
30	34.45	34.18	34.46	-0.27	0.28
31	34.59	34.76	35.44	0.17	0.68
32	34.66	34.76	35.44	0.10	0.68
33	34.70	34.90	35.51	0.20	0.61
34	34.94	34.88	35.44	-0.06	0.56
35	35.01	35.05	35.84	0.04	0.79
36	35.30	35.05	35.84	-0.25	0.79
37	35.36	35.74	36.14	0.38	0.40
38	35.60	36.04	36.38	0.44	0.34
39	35.63	36.06	36.40	0.43	0.34
40	35.63	36.06	36.40	0.43	0.34
41	35.75	36.02	36.38	0.27	0.36
42	36.49	37.72	37.95	1.23	0.23
43	37.06	38.13	38.31	1.07	0.18
44	37.32	38.13	38.31	0.81	0.18
45	37.58	38.11	38.18	0.53	0.07
46	38.40	38.63	39.22	0.23	0.59
47	38.46	38.66	39.26	0.20	0.60
48	38.46	38.66	39.26	0.20	0.60
49	38.37	38.63	39.25	0.26	0.62
50	38.37	38.63	39.25	0.26	0.62
51	38.17	38.51	39.02	0.34	0.51
52	38.25	38.53	38.93	0.28	0.40
53	39.11	38.97	39.97	-0.14	1.00
54	39.16	38.97	39.97	-0.19	1.00
55	38.95	38.82	39.91	-0.13	1.09
56	39.12	38.80	40.18	-0.32	1.38
57	39.15	38.82	40.18	-0.33	1.36
58	39.63	39.41	40.18	-0.22	0.77

**TABLE 58**  
**M-1 DITCH**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (MIDITCHX.IH2)	Proposed Model	Revised- Base	Proposed- Base
59	39.72	39.41	40.10	-0.31	0.69
60	40.47	40.08	41.16	-0.39	1.08
61	40.48	40.15	41.16	-0.33	1.01
62	40.50	41.42	41.18	0.92	-0.24
63	40.50	42.07	41.80	1.57	-0.27
64	41.08	42.07	42.55	0.99	0.48
65	41.08	42.07	42.55	0.99	0.48
66	41.09	42.07	42.55	0.98	0.48
67	41.50	41.82	42.35	0.32	0.53
68	42.33	42.31	42.83	-0.02	0.52
69	42.34	42.31	42.84	-0.03	0.53
70	42.33	42.31	42.82	-0.02	0.51
71	42.47	42.35	42.86	-0.12	0.51
72	42.52	42.53	43.06	0.01	0.53
73	42.49	42.37	43.04	-0.12	0.67
74	42.54	42.65	43.11	0.11	0.46
75	42.96	43.91	45.42	0.95	1.51
76	42.83	43.80	45.55	0.97	1.75
77	44.53	43.80	45.55	-0.73	1.75
78	44.77	44.12	45.56	-0.65	1.44
79	44.78	44.21	45.68	-0.57	1.47
80	44.78	44.83	45.68	0.05	0.85
81	45.20	45.53	45.74	0.33	0.21
82	45.20	45.54	45.74	0.34	0.20
83	45.20	45.56	45.76	0.36	0.20
84	45.20	45.57	45.76	0.37	0.19
85	45.20	45.57	45.76	0.37	0.19

**TABLE 59**  
**M-1 DITCH**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2 Station Number	Computed 25-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (M1DITCHX.IH2)	Proposed Model	Revised- Base	Proposed- Base
1	25.80	24.53	25.97	-1.27	1.44
2	25.84	24.58	26.01	-1.26	1.43
3	25.92	24.69	26.04	-1.23	1.35
4	25.93	24.69	26.04	-1.24	1.35
5	25.94	24.69	26.04	-1.25	1.35
6	25.94	24.69	26.04	-1.25	1.35
7	25.98	24.82	26.07	-1.16	1.25
8	26.00	24.89	26.09	-1.11	1.20
8.1	26.01	24.89	26.09	-1.12	1.20
8.9	-----	25.04	26.11	-----	1.07
9	26.09	25.04	26.11	-1.05	1.07
10	26.21	25.32	26.11	-0.89	0.79
11	26.18	25.30	26.04	-0.88	0.74
12	26.21	25.36	26.09	-0.85	0.73
12.1	-----	25.95	26.33	-----	0.38
13	27.28	27.14	26.79	-0.14	-0.35
14	27.29	27.15	26.85	-0.14	-0.30
14.1	27.49	27.15	26.85	-0.34	-0.30
15	27.50	27.03	26.72	-0.47	-0.31
15.9	-----	27.59	27.51	-----	-0.08
16	27.56	27.56	27.45	0.00	-0.11
17	29.72	27.57	27.47	-2.15	-0.10
17.1	-----	27.72	27.81	-----	0.09
18	30.19	28.53	28.99	-1.66	0.46
19	30.19	28.62	29.07	-1.57	0.45
20	30.40	28.71	29.31	-1.69	0.60
21	30.41	28.75	29.35	-1.66	0.60
22	30.58	29.65	30.12	-0.93	0.47
23	31.10	31.47	31.74	0.37	0.27
24	31.30	31.56	31.90	0.26	0.34
25	31.43	31.61	32.02	0.18	0.41
26	32.15	32.00	32.75	-0.15	0.75

**TABLE 59**  
**M-1 DITCH**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2 Station Number	Computed 25-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (M1DITCHX.IH2)	Proposed Model	Revised- Base	Proposed- Base
59	39.52	39.18	39.63	-0.34	0.45
60	40.05	39.49	40.63	-0.56	1.14
61	40.05	39.50	40.63	-0.55	1.13
62	40.09	39.68	40.66	-0.41	0.98
63	40.23	41.15	41.64	0.92	0.49
64	40.89	41.85	42.30	0.96	0.45
65	40.89	41.85	42.30	0.96	0.45
66	40.90	41.85	42.30	0.95	0.45
67	40.05	41.62	42.06	1.57	0.44
68	42.28	41.97	42.59	-0.31	0.62
69	42.28	41.97	42.59	-0.31	0.62
70	42.28	42.00	42.58	-0.28	0.58
71	42.37	42.05	42.62	-0.32	0.57
72	42.40	42.18	42.81	-0.22	0.63
73	42.36	42.27	42.76	-0.09	0.49
74	42.42	42.55	42.86	0.13	0.31
75	42.74	43.52	45.13	0.78	1.61
76	42.66	43.45	45.26	0.79	1.81
77	43.66	43.45	45.26	-0.21	1.81
78	43.85	43.68	45.26	-0.17	1.58
79	43.89	43.81	45.43	-0.08	1.62
80	43.83	43.00	45.43	-0.83	2.43
81	44.72	45.24	45.52	0.52	0.28
82	44.72	45.29	45.53	0.57	0.24
83	44.73	45.32	45.55	0.59	0.23
84	44.73	45.33	45.55	0.60	0.22
85	44.79	45.33	45.55	0.54	0.22

**TABLE 60**  
**M-1 DITCH**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet)		IMPACTS (feet)
	Revised Base ((M1DITCHX.IH2)	Proposed Model	Proposed- Base
1	23.58	25.78	2.20
2	23.63	25.82	2.19
3	23.94	25.85	1.91
4	23.95	25.85	1.90
5	23.95	25.85	1.90
6	23.95	25.85	1.90
7	24.19	25.89	1.70
8	24.29	25.91	1.62
8.1	24.29	25.91	1.62
8.9	24.63	25.94	1.31
9	24.65	25.94	1.29
10	24.81	25.94	1.13
11	24.88	25.88	1.00
12	24.94	25.92	0.98
12.1	25.52	26.23	0.71
13	26.99	26.72	-0.27
14	27.00	26.79	-0.21
14.1	27.00	26.79	-0.21
15	26.89	26.67	-0.22
15.9	27.43	27.44	0.01
16	27.42	27.40	-0.02
17	28.39	27.41	-0.98
17.1	28.49	27.71	-0.78
18	28.68	28.92	0.24
19	28.74	29.00	0.26
20	28.81	29.21	0.40
21	28.84	29.25	0.41
22	29.54	30.03	0.49
23	31.15	31.63	0.48
24	31.24	31.76	0.52
25	31.27	31.86	0.59
26	31.60	32.47	0.87



**TABLE 60**  
**M-1 DITCH**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet)		IMPACTS (feet) Proposed- Base
	Revised Base (M1DITCHX.IH2)	Proposed Model	
27	33.56	34.19	0.63
28	33.62	34.21	0.59
29	33.78	34.38	0.60
30	33.71	34.23	0.52
31	34.13	34.82	0.69
32	34.13	34.82	0.69
33	34.24	34.95	0.71
34	34.52	34.91	0.39
35	34.64	35.08	0.44
36	34.64	35.09	0.45
37	34.98	35.76	0.78
38	35.50	36.06	0.56
39	35.52	36.08	0.56
40	35.52	36.07	0.55
41	35.51	36.04	0.53
42	37.19	37.72	0.53
43	37.52	38.13	0.61
44	37.52	38.13	0.61
45	37.59	38.04	0.45
46	38.04	38.91	0.87
47	38.05	38.95	0.90
48	38.05	38.95	0.90
49	38.01	38.92	0.91
50	38.01	38.92	0.91
51	37.98	38.81	0.83
52	38.00	38.80	0.80
53	38.25	39.27	1.02
54	38.25	39.27	1.02
55	38.05	39.16	1.11
56	38.24	39.21	0.97
57	38.29	39.22	0.93
58	39.03	39.46	0.43

**TABLE 60**  
**M-1 DITCH**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet)		IMPACTS (feet)
	Revised Base (MIDITCHX.IH2)	Proposed Model	Proposed- Base
59	39.06	39.45	0.39
60	39.08	40.26	1.18
61	39.08	40.26	1.18
62	39.51	40.31	0.80
63	39.29	41.47	2.18
64	41.32	42.17	0.85
65	41.32	42.17	0.85
66	41.32	42.17	0.85
67	40.94	41.93	0.99
68	41.59	42.41	0.82
69	41.60	42.41	0.81
70	41.94	42.41	0.47
71	41.98	42.45	0.47
72	42.01	42.64	0.63
73	42.31	42.53	0.22
74	42.47	42.67	0.20
75	43.29	44.92	1.63
76	43.23	45.05	1.82
77	44.14	45.05	0.91
78	44.29	45.05	0.76
79	44.32	45.26	0.94
80	43.89	45.26	1.37
81	45.24	45.42	0.18
82	45.27	45.43	0.16
83	45.29	45.44	0.15
84	45.30	45.45	0.15
85	45.30	45.45	0.15

**TABLE 61**  
**New Bayou 100-Year Frequency Flow Comparison**  
**Effective FEMA Data vs Revised Existing Condition Hec-1 Model**

HEC-1 Node	Hec-2 Location Station Number	Location	Effective FEMA Data (CFS)	FEMA Drainage Area (SQ.MI)	Revised Existing Model (CFS) NEWB100R.IH1	Revised Drainage Area (SQ.MI)	Difference in the Flows (CFS)	Difference in Drainage Area (SQ.MI)	Current CFS/AC	Revised CFS/AC	% Change in the Flows
N-01	172	C-1 Ditch FM 1128	525	1	404	0.76	-121	-0.24	0.82	0.83	-23.0%
N-02	156.9	C-1 Ditch CR 190	708	2.12	766	1.5	58	-0.62	0.52	0.80	8.2%
N-03	151	C-1 Ditch pipeline between CR 138 & CR 941	1993	5.49	1993	5.24	0	-0.25	0.57	0.59	0.0%
N-04	144.9	C-1 Ditch CR 180	2857	9.22	2865	8.72	8	-0.5	0.48	0.51	0.3%
N-05	133	C-1 Ditch FM 1462	3836	11.9	3498	11.32	-432	-0.58	0.50	0.47	-11.3%
N-07	127	1200 ft D/S of CR 172	n.a.	n.a.	3295	12.04	n.a.	n.a.	n.a.	0.45	n.a.
N-06	123	C-1 Ditch SH 35 (confluence with Ditch C-1-B)	3744	12.78	3220	14.07	-449	1.29	0.46	0.37	-12.0%
N-08	115	C-1 Ditch Briscoe Canal Crossing	3551	15.42	2908	14.57	-331	-0.85	0.36	0.35	-9.3%
N-09	43.3	Private Bridge Nr CR 169 (D/S of the Dirt Dam)	1303	17.69	2327	17.55	1605	-0.14	0.12	0.26	123.2%
N-09	n.a.	Diversion to Ditch C-1	n.a.	n.a.	2325	17.55	n.a.	n.a.	n.a.	0.21	n.a.
N-10	39.9	New Bayou CR 169 after C-1 Diversion to Choc.	1537	19.19	2340	18.02	788	-1.17	0.13	0.20	51.3%
N-11	32	New Bayou confluence with tributary	2034	21.59	2430	20.22	306	-1.37	0.15	0.18	15.0%
N-12	22	New Bayou FM 2917	2131	23.18	2427	21.83	299	-1.35	0.14	0.17	14.0%
N-13	9	New Bayou M.P.R.R. Nr Solutia Road	2216	24.79	2488	23.13	211	-1.66	0.14	0.16	9.5%
N-14	1	New Bayou 3000 ft D/S of M.P.R.R. Nr Solutia Road	2363	26.23	2488	24.73	125	-1.5	0.14	0.16	5.3%
Outfall	0	Outfall to Mustang Bayou	n.a.	n.a.	2488	24.73	n.a.	n.a.	n.a.	0.16	n.a.

**TABLE 62**  
**New Bayou 25-Year Frequency Flow Comparison**  
**FEMA Data vs Revised Existing Condition Hec-1 Model**

HEC-1 Node	Hec-2 Location Station Number	Location	FEMA Data (CFS)	FEMA Drainage Area (SQ.MI)	Revised Exist. Model (CFS) NEWB25R.IH1	Revised Drainage Area (SQ.MI)	Difference in the Flows (CFS)	Difference in Drainage Area (SQ.MI)	Current CFS/AC	Revised CFS/AC	% Change in the Flows
N-01	172	C-1 Ditch FM 1128	396	1	308	0.76	-88	-0.24	0.62	0.63	-22.2%
N-02	156.9	C-1 Ditch CR 190	521	2.12	593	1.5	72	-0.62	0.38	0.62	13.8%
N-03	151	C-1 Ditch pipeline between CR 138 & CR 941	1521	5.49	1528	5.24	7	-0.25	0.43	0.46	0.5%
N-04	144.9	C-1 Ditch CR 180	2194	9.22	2147	8.72	-47	-0.5	0.37	0.38	-2.1%
N-05	133	C-1 Ditch FM 1462	2379	11.9	2488	11.32	109	-0.58	0.31	0.34	4.6%
N-07	127	1200 ft D/S of CR 172	n.a.	n.a.	2586	12.04	n.a.	n.a.	n.a.	0.34	n.a.
N-06	123	C-1 Ditch SH 35 (confluence with Ditch C-1-B)	2445	12.78	2341	14.07	-104	1.29	0.30	0.26	-4.3%
N-08	115	C-1 Ditch Briscoe Canal Crossing	2536	15.42	2313	14.57	-223	-0.85	0.26	0.25	-8.8%
N-09	43.3	Private Bridge Nr CR 169 (D/S of the Dirt Dam) Diversion to Ditch C-1	1075	17.69	2189	17.55	1114	-0.14	0.09	0.19	103.6%
N-09			n.a.	n.a.	1751	17.55	n.a.	n.a.	n.a.	0.16	n.a.
N-10	39.9	New Bayou CR 169 after C-1 Diversion to Choc.	1297	19.19	1777	18.02	480	-1.17	0.11	0.15	37.0%
N-11	32	New Bayou confluence with tributary	1632	21.59	1858	20.22	226	-1.37	0.12	0.14	13.8%
N-12	22	New Bayou FM 2917	1676	23.18	1934	21.83	258	-1.35	0.11	0.14	15.4%
N-13	9	New Bayou M.P.R.R. Nr Solutia Road	1743	24.79	1955	23.13	212	-1.66	0.11	0.13	12.2%
N-14	1	New Bayou 3000 ft D/S of M.P.R.R. Nr Solutia Roa Outfall to Mustang Bayou	1841	26.23	1985	24.73	144	-1.5	0.11	0.13	7.8%

**TABLE 63**  
**New Bayou 10-Year Frequency Flow Comparison**  
**Revised Existing Condition Hec-1 Model**

HEC-1 Node	Hec-2 Location Station Number	Location	Revised Existing Model (CFS) NEWB10RR.JH1	Revised Drainage Area (SQ.MI)	Revised CFS/AC
N-01	172	C-1 Ditch FM 1128	260	0.76	0.53
N-02	156.9	C-1 Ditch CR 190	496	1.5	0.52
N-03	151	C-1 Ditch pipeline between CR 138 & CR 941	1311	5.24	0.39
N-04	144.9	C-1 Ditch CR 180	1767	8.72	0.32
N-05	133	C-1 Ditch FM 1462	2086	11.32	0.29
N-07	127	1200 ft D/S of CR 172	2170	12.04	0.28
N-06	123	C-1 Ditch SH 35 (confluence with Ditch C-1-B)	1803	14.07	0.20
N-08	115	C-1 Ditch Briscoe Canal Crossing	1603	14.57	0.17
N-09	43.3	Private Bridge Nr CR 169 (D/S of the Dirt Dam)	1869	17.55	0.17
N-09		Diversion to Ditch C-1	1495	17.55	0.13
N-10	39.9	New Bayou CR 169 after C-1 Diversion to Choc.	1554	18.02	0.13
N-11	32	New Bayou confluence with tributary	1621	20.22	0.13
N-12	22	New Bayou FM 2917	1682	21.83	0.12
N-13	9	New Bayou M.P.R.R. Nr Solutia Road	1684	23.13	0.11
N-14	1	New Bayou 3000 ft D/S of M.P.R.R. Nr Solutia Road Outfall to Mustang Bayou	1722	24.73	0.11

**TABLE 64**  
**NEW BAYOU (INCLUDING DITCH C-1)**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (C1NEWX.IH2)	Proposed Model	Revised- Base	Proposed- Base
1	14.20	15.48	15.48	1.28	0.00
2	14.30	15.50	15.50	1.20	0.00
3	14.22	15.50	15.50	1.28	0.00
4	14.22	15.69	15.69	1.47	0.00
5	14.36	15.69	15.69	1.33	0.00
6	14.47	15.83	15.83	1.36	0.00
8	14.55	15.91	15.91	1.36	0.00
8.02	-----	16.01	16.01	-----	0.00
8.03	-----	16.01	16.01	-----	0.00
8.04	-----	16.01	16.01	-----	0.00
8.05	-----	16.01	16.01	-----	0.00
8.16	-----	16.02	16.02	-----	0.00
8.17	-----	16.02	16.02	-----	0.00
8.18	-----	16.02	16.02	-----	0.00
8.19	-----	16.02	16.02	-----	0.00
9	14.87	16.04	16.04	1.17	0.00
10	14.88	16.00	16.00	1.12	0.00
11	15.10	15.98	15.98	0.88	0.00
12	15.10	16.09	16.09	0.99	0.00
13	15.51	16.09	16.09	0.58	0.00
14	15.51	16.11	16.11	0.60	0.00
15	15.52	16.11	16.11	0.59	0.00
16	15.53	16.12	16.12	0.59	0.00
17	15.53	16.12	16.12	0.59	0.00
18	15.53	16.12	16.12	0.59	0.00
19	15.67	16.17	16.17	0.50	0.00
20	15.53	15.96	15.96	0.43	0.00
20.1	15.57	15.96	15.96	0.39	0.00

**TABLE 64**  
**NEW BAYOU (INCLUDING DITCH C-1)**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (C1NEWX.IH2)	Proposed Model	Revised- Base	Proposed- Base
21	16.06	16.51	16.51	0.45	0.00
22	16.28	16.58	16.58	0.30	0.00
23	16.16	16.54	16.54	0.38	0.00
24	16.42	16.55	16.55	0.13	0.00
24.1	-----	16.66	16.66	-----	0.00
25	16.66	16.58	16.58	-0.08	0.00
26	17.08	17.20	17.16	0.12	-0.04
27	17.26	17.43	17.42	0.17	-0.01
28	17.79	17.47	17.47	-0.32	0.00
29	17.88	17.48	17.48	-0.40	0.00
30	18.39	17.48	17.48	-0.91	0.00
31	18.40	17.50	17.50	-0.90	0.00
32	18.84	17.90	17.97	-0.94	0.07
33	18.89	18.06	18.14	-0.83	0.08
34	19.33	18.23	18.34	-1.10	0.11
34.2	-----	19.05	19.22	-----	0.17
34.9	-----	19.48	19.62	-----	0.14
35	23.65	19.50	19.64	-4.15	0.14
36	23.77	19.52	19.66	-4.25	0.14
36.1	-----	19.68	19.85	-----	0.17
37	24.27	22.50	22.97	-1.77	0.47
38	24.86	25.86	26.32	1.00	0.46
39	25.55	26.44	26.93	0.89	0.49
39.9	-----	26.53	26.97	-----	0.44
40	25.94	26.53	26.98	0.59	0.45
41	26.06	26.53	26.98	0.47	0.45
42	25.85	26.33	26.77	0.48	0.44
43	25.97	26.38	28.82	0.41	2.44

**TABLE 64**  
**NEW BAYOU (INCLUDING DITCH C-1)**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (C1NEWX.IH2)	Proposed Model	Revised- Base	Proposed- Base
43.3	-----	26.91	29.18	-----	2.27
43.4	-----	26.92	29.18	-----	2.26
43.5	-----	26.92	29.18	-----	2.26
43.6	-----	26.92	29.18	-----	2.26
43.7	-----	26.92	29.18	-----	2.26
43.9	-----	27.08	29.20	-----	2.12
115	30.70	27.65	29.14	-3.05	1.49
116	30.60	27.63	29.13	-2.97	1.50
117	30.83	27.76	29.21	-3.07	1.45
118	31.20	28.07	29.43	-3.13	1.36
119	31.62	30.33	30.79	-1.29	0.46
120	31.91	30.35	30.78	-1.56	0.43
121	32.44	30.52	30.99	-1.92	0.47
122	32.28	30.46	30.91	-1.82	0.45
123	34.50	31.96	32.18	-2.54	0.22
124	34.49	31.92	32.13	-2.57	0.21
125	34.59	32.08	32.33	-2.51	0.25
126	34.67	32.25	32.53	-2.42	0.28
127	34.89	31.90	32.13	-2.99	0.23
128	34.89	31.95	32.18	-2.94	0.23
129	35.45	32.00	32.23	-3.45	0.23
130	35.46	32.80	33.02	-2.66	0.22
131	35.99	32.92	33.14	-3.07	0.22
132	35.99	33.87	34.06	-2.12	0.19
133	36.40	37.08	37.15	0.68	0.07
134	37.24	37.03	37.10	-0.21	0.07
135	37.28	37.20	37.28	-0.08	0.08
136	37.64	37.27	37.36	-0.37	0.09



**TABLE 64**  
**NEW BAYOU (INCLUDING DITCH C-1)**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (C1NEWX.IH2)	Proposed Model	Revised- Base	Proposed- Base
137	39.00	38.33	38.41	-0.67	0.08
138	39.00	38.30	38.38	-0.70	0.08
139	39.05	38.29	38.38	-0.76	0.09
140	39.08	38.44	38.51	-0.64	0.07
141	40.76	39.69	39.69	-1.07	0.00
142	40.82	40.43	40.49	-0.39	0.06
143	40.82	40.54	40.57	-0.28	0.03
144	40.89	40.42	40.44	-0.47	0.02
144.9	-----	41.42	41.47	-----	0.05
145	41.15	41.42	41.48	0.27	0.06
146	41.83	41.42	41.48	-0.41	0.06
146.1	-----	41.43	41.48	-----	0.05
148	42.22	41.43	41.48	-0.79	0.05
150	43.33	41.44	41.49	-1.89	0.05
152	45.44	41.88	41.49	-3.56	-0.39
154	49.83	41.97	41.59	-7.86	-0.38
154.9	-----	48.83	49.03	-----	0.20
155	50.22	49.46	48.81	-0.76	-0.65
156	50.22	49.59	49.38	-0.63	-0.21
156.1	-----	49.40	49.54	-----	0.14
156.5	-----	51.26	49.38	-----	-1.88
156.6	-----	51.48	51.23	-----	-0.25
156.7	-----	51.59	51.46	-----	-0.13
156.9	-----	51.59	51.57	-----	-0.02
157	50.66	51.56	51.54	0.90	-0.02
158	50.68	51.47	51.54	0.79	0.07
159	50.83	51.66	51.63	0.83	-0.03
160	50.86	51.67	51.64	0.81	-0.03

**TABLE 64**  
**NEW BAYOU (INCLUDING DITCH C-1)**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (C1NEWX.IH2)	Proposed Model	Revised- Base	Proposed- Base
160.1	-----	51.84	51.79	-----	-0.05
161	52.51	52.05	52.01	-0.46	-0.04
162	52.55	52.07	52.03	-0.48	-0.04
163	52.56	52.07	52.04	-0.49	-0.03
164	52.58	52.10	52.07	-0.48	-0.03
165	52.69	52.17	52.11	-0.52	-0.06
166	52.69	52.21	52.11	-0.48	-0.10
167	53.96	52.28	52.19	-1.68	-0.09
167.1	-----	52.23	52.21	-----	-0.02
168	53.99	53.57	52.95	-0.42	-0.62
169	54.00	53.53	53.16	-0.47	-0.37
170	54.16	53.55	53.18	-0.61	-0.37
171	54.16	53.81	53.48	-0.35	-0.33
171.3	-----	54.21	54.21	-----	0.00
171.4	-----	54.25	54.24	-----	-0.01
171.5	-----	54.24	54.24	-----	0.00
171.6	-----	54.25	54.25	-----	0.00
172	54.24	55.15	55.03	0.91	-0.12
173	54.41	55.21	55.08	0.80	-0.13
174	54.46	55.59	55.43	1.13	-0.16
175	54.81	55.60	55.44	0.79	-0.16
176	55.01	55.61	55.45	0.60	-0.16
177	55.05	55.61	55.45	0.56	-0.16
178	55.98	55.96	55.93	-0.02	-0.03
179	55.98	55.96	55.93	-0.02	-0.03
180	55.99	55.96	55.93	-0.03	-0.03
181	55.99	55.96	55.93	-0.03	-0.03
182	56.02	55.99	55.96	-0.03	-0.03

**TABLE 65**  
**NEW BAYOU (INCLUDING DITCH C-1)**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2 Station Number	Computed 25-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (C1NEWX.IH2)	Proposed Model	Revised- Base	Proposed- Base
1	13.80	14.61	14.61	0.81	0.00
2	13.89	14.65	14.65	0.76	0.00
3	13.84	14.66	14.66	0.82	0.00
4	13.85	14.66	14.66	0.81	0.00
5	13.94	14.66	14.66	0.72	0.00
6	14.00	14.74	14.74	0.74	0.00
8	14.05	14.80	14.80	0.75	0.00
8.02	-----	14.88	14.88	-----	0.00
8.03	-----	14.88	14.88	-----	0.00
8.04	-----	14.88	14.88	-----	0.00
8.05	-----	14.88	14.88	-----	0.00
8.16	-----	14.89	14.89	-----	0.00
8.17	-----	14.92	14.92	-----	0.00
8.18	-----	14.92	14.92	-----	0.00
8.19	-----	14.93	14.93	-----	0.00
9	14.38	14.97	14.97	0.59	0.00
10	14.38	14.93	14.93	0.55	0.00
11	14.73	15.29	15.29	0.56	0.00
12	14.67	15.29	15.29	0.62	0.00
13	14.80	15.36	15.36	0.56	0.00
14	14.96	15.48	15.48	0.52	0.00
15	14.96	15.48	15.48	0.52	0.00
16	14.99	15.49	15.49	0.50	0.00
17	14.99	15.49	15.49	0.50	0.00
18	14.99	15.49	15.49	0.50	0.00
19	15.21	15.57	15.57	0.36	0.00
20	15.15	15.42	15.42	0.27	0.00
20.1	15.17	15.42	15.42	0.25	0.00

**TABLE 65**  
**NEW BAYOU (INCLUDING DITCH C-1)**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2	Computed 25-YEAR WSEL (feet)			IMPACTS (feet)	
Station Number	FEMA Data	Revised Base (C1NEWX.IH2)	Proposed Model	Revised-Base	Proposed-Base
21	15.50	15.83	15.83	0.33	0.00
22	15.81	15.93	15.93	0.12	0.00
23	15.75	15.91	15.91	0.16	0.00
24	15.89	15.95	15.95	0.06	0.00
24.1	-----	16.03	16.03	-----	0.00
25	16.06	15.98	15.98	-0.08	0.00
26	16.35	16.42	16.42	0.07	0.00
27	16.53	16.59	16.59	0.06	0.00
28	17.42	16.66	16.55	-0.76	-0.11
29	17.55	16.66	16.55	-0.89	-0.11
30	17.87	16.66	16.55	-1.21	-0.11
31	17.89	16.71	16.60	-1.18	-0.11
32	18.40	17.39	17.44	-1.01	0.05
33	18.58	17.51	17.56	-1.07	0.05
34	18.90	17.64	17.71	-1.26	0.07
34.2	-----	18.45	18.54	-----	0.09
34.9	-----	19.08	19.15	-----	0.07
35	23.40	19.09	19.16	-4.31	0.07
36	23.53	19.10	19.17	-4.43	0.07
36.1	-----	19.21	19.29	-----	0.08
37	24.03	21.49	21.68	-2.54	0.19
38	24.58	24.67	24.89	0.09	0.22
39	25.05	25.15	25.39	0.10	0.24
39.9	-----	25.41	25.61	-----	0.20
40	25.45	25.40	25.61	-0.05	0.21
41	25.53	25.59	25.55	0.06	-0.04
42	25.35	25.53	25.48	0.18	-0.05
43	25.45	25.55	25.51	0.10	-0.04

**TABLE 65**  
**NEW BAYOU (INCLUDING DITCH C-1)**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2 Station Number	Computed 25-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (C1NEWX.IH2)	Proposed Model	Revised- Base	Proposed- Base
43.3	-----	25.94	25.94	-----	0.00
43.4	-----	25.95	25.95	-----	0.00
43.5	-----	25.95	25.95	-----	0.00
43.6	-----	25.95	25.96	-----	0.01
43.7	-----	25.96	25.96	-----	0.00
43.9	-----	26.19	26.22	-----	0.03
115	30.05	27.04	27.19	-3.01	0.15
116	30.03	27.02	27.17	-3.01	0.15
117	30.12	27.09	27.26	-3.03	0.17
118	30.33	27.29	27.49	-3.04	0.20
119	31.36	29.74	29.99	-1.62	0.25
120	31.52	29.84	30.06	-1.68	0.22
121	31.79	29.93	30.17	-1.86	0.24
122	31.70	29.89	30.12	-1.81	0.23
123	34.16	31.54	31.68	-2.62	0.14
124	34.16	31.54	31.67	-2.62	0.13
125	34.24	31.62	31.77	-2.62	0.15
126	34.31	31.71	31.89	-2.60	0.18
127	34.61	31.61	31.75	-3.00	0.14
128	34.63	31.65	31.79	-2.98	0.14
129	35.07	31.67	31.81	-3.40	0.14
130	35.08	32.11	32.25	-2.97	0.14
131	35.83	32.18	32.32	-3.65	0.14
132	35.83	32.86	32.99	-2.97	0.13
133	36.37	36.55	36.59	0.18	0.04
134	36.67	36.56	36.59	-0.11	0.03
135	36.68	36.57	36.60	-0.11	0.03
136	36.85	36.62	36.65	-0.23	0.03

**TABLE 65**  
**NEW BAYOU (INCLUDING DITCH C-1)**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2	Computed 25-YEAR WSEL (feet)			IMPACTS (feet)	
Station Number	FEMA Data	Revised Base (C1NEWX.IH2)	Proposed Model	Revised-Base	Proposed-Base
137	38.10	37.66	37.69	-0.44	0.03
138	38.07	37.62	37.66	-0.45	0.04
139	38.31	37.61	37.64	-0.70	0.03
140	38.34	37.78	37.82	-0.56	0.04
141	40.43	39.60	39.60	-0.83	0.00
142	40.48	39.96	39.98	-0.52	0.02
143	40.51	40.18	40.20	-0.33	0.02
144	40.55	40.17	40.18	-0.38	0.01
144.9	-----	40.93	40.96	-----	0.03
145	40.80	40.93	40.96	0.13	0.03
146	41.54	40.93	40.96	-0.61	0.03
146.1	-----	40.95	40.97	-----	0.02
148	41.80	40.95	40.97	-0.85	0.02
150	42.94	40.95	40.98	-1.99	0.03
152	45.01	41.13	40.98	-3.88	-0.15
154	49.53	41.19	41.04	-8.34	-0.15
154.9	-----	48.79	48.76	-----	-0.03
155	49.97	48.70	48.68	-1.27	-0.02
156	49.97	48.78	48.75	-1.19	-0.03
156.1	-----	49.30	49.24	-----	-0.06
156.5	-----	49.25	49.24	-----	-0.01
156.6	-----	51.14	51.11	-----	-0.03
156.7	-----	51.39	51.36	-----	-0.03
156.9	-----	51.49	51.46	-----	-0.03
157	50.44	51.48	51.45	1.04	-0.03
158	50.45	51.48	51.45	1.03	-0.03
159	50.54	51.54	51.50	1.00	-0.04
160	50.56	51.54	51.51	0.98	-0.03

**TABLE 65**  
**NEW BAYOU (INCLUDING DITCH C-1)**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2 Station Number	Computed 25-YEAR WSEL (feet)			IMPACTS (feet)	
	FEMA Data	Revised Base (C1NEWX.IH2)	Proposed Model	Revised- Base	Proposed- Base
160.1	-----	51.66	51.60	-----	-0.06
161	52.17	51.90	51.85	-0.27	-0.05
162	52.21	51.93	51.89	-0.28	-0.04
163	52.37	51.94	51.91	-0.43	-0.03
164	52.41	51.97	51.93	-0.44	-0.04
165	52.50	52.04	51.97	-0.46	-0.07
166	52.49	52.09	51.98	-0.40	-0.11
167	53.87	52.14	52.02	-1.73	-0.12
167.1	-----	52.11	52.03	-----	-0.08
168	53.90	53.39	52.51	-0.51	-0.88
169	53.90	53.39	52.70	-0.51	-0.69
170	53.99	53.40	52.72	-0.59	-0.68
171	53.99	53.57	52.93	-0.42	-0.64
171.3	-----	54.09	54.12	-----	0.03
171.4	-----	54.14	54.15	-----	0.01
171.5	-----	54.07	54.09	-----	0.02
171.6	-----	54.18	54.19	-----	0.01
172	54.08	54.95	54.82	0.87	-0.13
173	54.22	55.00	54.86	0.78	-0.14
174	54.25	55.35	55.10	1.10	-0.25
175	54.47	55.36	55.11	0.89	-0.25
176	54.77	55.37	55.12	0.60	-0.25
177	54.83	55.37	55.12	0.54	-0.25
178	55.94	55.92	55.89	-0.02	-0.03
179	55.94	55.92	55.89	-0.02	-0.03
180	55.94	55.92	55.89	-0.02	-0.03
181	55.95	55.92	55.89	-0.03	-0.03
182	55.98	55.96	55.93	-0.02	-0.03

**TABLE 66**  
**NEW BAYOU (INCLUDING DITCH C-1)**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet)		IMPACTS (feet) Proposed- Base
	Revised Base (C1NEWX.IH2)	Proposed Model	
1	13.94	13.94	0.00
2	14.01	14.01	0.00
3	14.01	14.01	0.00
4	14.02	14.02	0.00
5	14.02	14.02	0.00
6	14.02	14.02	0.00
8	14.08	14.08	0.00
8.02	14.16	14.16	0.00
8.03	14.15	14.15	0.00
8.04	14.15	14.15	0.00
8.05	14.17	14.17	0.00
8.16	14.19	14.19	0.00
8.17	14.21	14.21	0.00
8.18	14.21	14.21	0.00
8.19	14.23	14.23	0.00
9	14.32	14.32	0.00
10	14.29	14.29	0.00
11	14.54	14.54	0.00
12	14.54	14.54	0.00
13	14.69	14.69	0.00
14	14.80	14.80	0.00
15	14.79	14.79	0.00
16	14.82	14.82	0.00
17	14.82	14.82	0.00
18	14.81	14.81	0.00
19	15.01	15.01	0.00
20	14.89	14.89	0.00
20.1	14.89	14.89	0.00



**TABLE 66**  
**NEW BAYOU (INCLUDING DITCH C-1)**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet)		IMPACTS (feet) Proposed- Base
	Revised Base (C1NEWX.IH2)	Proposed Model	
21	15.23	15.23	0.00
22	15.40	15.40	0.00
23	15.38	15.38	0.00
24	15.39	15.39	0.00
24.1	15.45	15.45	0.00
25	15.41	15.41	0.00
26	15.73	15.73	0.00
27	15.88	15.88	0.00
28	16.03	16.03	0.00
29	16.03	16.03	0.00
30	16.02	16.02	0.00
31	16.09	16.09	0.00
32	17.10	17.10	0.00
33	17.20	17.20	0.00
34	17.31	17.31	0.00
34.2	18.13	18.13	0.00
34.9	18.84	18.97	0.13
35	18.85	18.98	0.13
36	18.86	18.99	0.13
36.1	18.96	19.09	0.13
37	20.92	21.22	0.30
38	24.01	24.36	0.35
39	24.43	24.80	0.37
39.9	24.78	25.12	0.34
40	24.77	25.11	0.34
41	24.91	25.28	0.37
42	24.85	25.22	0.37
43	24.88	25.25	0.37

**TABLE 66**  
**NEW BAYOU (INCLUDING DITCH C-1)**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet)		IMPACTS (feet)
	Revised Base (C1NEWX.IH2)	Proposed Model	Proposed- Base
43.3	25.23	25.64	0.41
43.4	25.23	25.64	0.41
43.5	25.23	25.64	0.41
43.6	25.26	25.66	0.40
43.7	25.28	25.67	0.39
43.9	25.60	25.95	0.35
115	26.53	26.86	0.33
116	26.52	26.85	0.33
117	26.55	26.89	0.34
118	26.67	27.04	0.37
119	28.43	29.14	0.71
120	28.51	29.24	0.73
121	28.51	29.29	0.78
122	28.48	29.26	0.78
123	30.92	31.26	0.34
124	31.00	31.28	0.28
125	31.04	31.33	0.29
126	31.11	31.40	0.29
127	31.28	31.41	0.13
128	31.31	31.44	0.13
129	31.32	31.46	0.14
130	31.66	31.82	0.16
131	31.71	31.88	0.17
132	32.29	32.49	0.20
133	36.27	36.36	0.09
134	36.31	36.39	0.08
135	36.31	36.40	0.09
136	36.35	36.44	0.09

**TABLE 66**  
**NEW BAYOU (INCLUDING DITCH C-1)**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet)		IMPACTS (feet)
	Revised Base (C1NEWX.IH2)	Proposed Model	Proposed- Base
137	37.35	37.45	0.10
138	37.33	37.42	0.09
139	37.32	37.39	0.07
140	37.46	37.56	0.10
141	39.42	39.49	0.07
142	39.68	39.77	0.09
143	39.82	39.93	0.11
144	39.86	39.97	0.11
144.9	40.61	40.71	0.10
145	40.61	40.71	0.10
146	40.61	40.71	0.10
146.1	40.64	40.74	0.10
148	40.64	40.74	0.10
150	40.65	40.74	0.09
152	40.65	40.74	0.09
154	40.70	40.78	0.08
154.9	48063.00	48.59	-48014.41
155	48.59	48.56	-0.03
156	48.68	48.68	0.00
156.1	48.87	48.84	-0.03
156.5	49.24	49.23	-0.01
156.6	51.07	51.04	-0.03
156.7	51.33	51.30	-0.03
156.9	51.43	51.40	-0.03
157	51.42	51.39	-0.03
158	51.42	51.40	-0.02
159	51.47	51.43	-0.04
160	51.47	51.44	-0.03

**TABLE 66**  
**NEW BAYOU (INCLUDING DITCH C-1)**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet)		IMPACTS (feet)
	Revised Base (C1NEWX.IH2)	Proposed Model	Proposed- Base
160.1	51.55	51.51	-0.04
161	51.79	51.75	-0.04
162	51.85	51.82	-0.03
163	51.87	51.83	-0.04
164	51.89	51.85	-0.04
165	51.97	51.89	-0.08
166	52.02	51.89	-0.13
167	52.05	51.92	-0.13
167.1	52.03	51.93	-0.10
168	53.28	52.29	-0.99
169	53.29	52.46	-0.83
170	53.40	52.47	-0.93
171	53.57	52.64	-0.93
171.3	54.03	53.99	-0.04
171.4	54.08	54.05	-0.03
171.5	54.03	54.00	-0.03
171.6	54.11	54.07	-0.04
172	54.79	54.66	-0.13
173	54.84	54.70	-0.14
174	55.11	54.87	-0.24
175	55.12	54.88	-0.24
176	55.13	54.89	-0.24
177	55.13	54.88	-0.25
178	55.89	55.86	-0.03
179	55.89	55.86	-0.03
180	55.90	55.86	-0.04
181	55.90	55.86	-0.04
182	55.94	55.92	-0.02

**TABLE 67**  
**Oyster Creek 100-Year Frequency Flow Comparison**  
Effective FEMA Model vs Revised Base Model

ROAD LOCATION	HEC-1 Node	Hec-2 Location Station Number	Location	Current FEMA (CFS)	Revised Base (Oc_b100.ih1) (CFS)	Revised Base Drainage Area (SQ.MI)	Difference in the Flows (CFS)	Revised CFS/AC	% Change in the Flows
FM 523	O-31	108.1	FM 523	4400	7317	131.1	2917	0.09	66.3%
HWY 288 B	O-29	94.1	At HWY 288 B	5800	7341	123.33	1541	0.09	26.6%
FM 2004	O-27	79.1	At FM 2004	6800	7341	109.13	541	0.11	8.0%
SH 35	O-23	57.1	At SH 35	18000	7233	92.25	-10767	0.12	-59.8%
CR 30N	O-20	47.1	At CR 30N	16500	6802	71.81	-9698	0.15	-58.8%
Ramsey I	O-18	33.7	At Ramsey I Br	22700	4766	48.47	-17934	0.15	-79.0%
FM 1462	O-11	16.1	At FM 1462	17600	3199	24.39	-14401	0.20	-81.8%
	O-3	12	DS of Darrington Prison Farm	10600	3056	14.92	-7544	0.32	-71.2%
	O-1	4	US of Darrington Prison Farm	1500	1234	7.47	-266	0.26	-17.7%

**TABLE 68**  
**OYSTER CREEK**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)		IMPACTS (feet) Revised- Base
	FEMA Data	Revised Base (Oc_bl_r.ih2)	
112	3.11	4.66	1.55
111	3.65	5.22	1.57
110	4.03	5.70	1.67
109	4.46	6.27	1.81
108.3	4.75	6.68	1.93
108.25		6.62	n.a.
108.2	4.75	6.85	2.10
108.1	4.76	6.87	2.11
108	4.76	6.87	2.11
108.75		6.79	n.a.
107.5		7.89	n.a.
107	5.23	8.09	2.86
106	5.89	8.44	2.55
105	6.56	8.92	2.36
104	7.32	9.30	1.98
103.5		9.99	n.a.
103	8.35	9.93	1.58
102	8.93	10.49	1.56
101	9.52	10.93	1.41
100.7	9.71	11.07	1.36
100.6	9.71	11.07	1.36
100.5	9.84	11.26	1.42
100.3	9.87	11.26	1.39
100.2	9.88	11.27	1.39
100.1	9.89	11.40	1.51
100	9.9	11.39	1.49
99	10.31	11.87	1.56
98	10.83	12.17	1.34
97	11.28	12.45	1.17
96	11.96	13.23	1.27
95.3	12.45	13.74	1.29
95.2	12.45	13.73	1.28
95.1	12.58	14.27	1.69
95	12.62	14.33	1.71
94.3	12.91	14.57	1.66
94.2	12.93	14.58	1.65
94.1	12.93	14.59	1.66
94	12.94	14.60	1.66
93	13.13	14.78	1.65
92	13.42	15.09	1.67

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91.3	13.5	15.18	1.68
91.2	13.52	15.21	1.69
91.1	13.52	15.22	1.70
91	13.53	15.23	1.70
90	13.75	15.47	1.72
89	13.84	15.58	1.74
88	14.37	16.16	1.79
87.3	14.67	16.49	1.82
87.2	14.68	16.50	1.82
87.1	14.69	16.51	1.82
87	14.7	16.52	1.82
86.8	15.14	16.99	1.85
86.7	15.14	17.00	1.86
86.6	15.15	17.01	1.86
86.5	15.16	17.02	1.86
86.2	15.16	17.02	1.86
86.1	15.17	17.03	1.86
86	15.17	17.03	1.86
85.3	15.53	17.41	1.88
85.2	15.54	17.42	1.88
85.1	15.54	17.52	1.98
85	15.54	17.53	1.99
84	15.79	17.79	2.00
83	16.14	18.14	2.00
82.3	16.28	18.21	1.93
82.2	16.29	18.22	1.93
82.1	16.29	18.28	1.99
82	16.29	18.28	1.99
81	16.71	18.67	1.96
80.3	17.06	18.96	1.90
80.2	17.07	18.97	1.90
80.1	17.08	18.97	1.89
80	17.09	18.98	1.89
79.9		19.21	n.a.
79.8		19.18	n.a.
79.7		19.19	n.a.
79.6		19.20	n.a.
79.3	17.52	19.39	1.87
79.2	17.52	19.39	1.87
79.1	17.53	19.39	1.86
79	17.53	19.40	1.87
78	17.89	19.64	1.75
77	18.37	19.95	1.58
76	19.03	20.31	1.28
75	19.58	20.61	1.03
74	20.7	21.26	0.56
73	20.93	21.38	0.45
72.8	21.15	21.49	0.34
72.7	21.11	21.47	0.36

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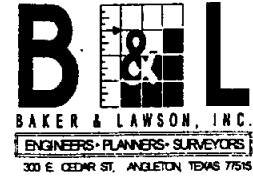


72.6	21.11	21.47	0.36
72.5	21.31	21.57	0.26
72	22.21	22.02	-0.19
71.7		22.00	n.a.
71.6		22.14	n.a.
71.5		22.11	n.a.
71.2		22.16	n.a.
71	22.71	22.42	-0.29
70	23.7	22.98	-0.72
69.3	24.32	23.42	-0.90
69.2	24.31	23.41	-0.90
69.1	24.51	23.41	-1.10
69	24.59	23.46	-1.13
68	24.9	23.71	-1.19
67	25.17	23.94	-1.23
66	25.38	24.14	-1.24
65	25.53	24.30	-1.23
64	25.88	24.52	-1.36
63.8	26.07	24.61	-1.46
63.7	26.05	24.60	-1.45
63.6	26.16	24.64	-1.52
63.3	26.15	24.64	-1.51
63.2	26.18	24.65	-1.53
63.1	26.39	24.66	-1.73
63	26.4	24.67	-1.73
62	27.27	25.06	-2.21
61	27.46	25.24	-2.22
60	27.99	25.68	-2.31
59	28.36	26.08	-2.28
58	28.63	26.43	-2.20
57.3	29.46	27.17	-2.29
57.2	29.29	27.15	-2.14
57.1	29.33	27.16	-2.17
57	29.84	27.23	-2.61
56	30.31	27.57	-2.74
55	30.44	27.69	-2.75
54	30.87	27.96	-2.91
53	31.48	28.13	-3.35
52	31.96	28.32	-3.64
51.3	32.71	28.74	-3.97
51.2	32.73	28.76	-3.97
51.1	32.78	28.77	-4.01
51	32.87	28.78	-4.09
50	33.94	29.81	-4.13
49	34.03	30.05	-3.98
48	34.08	30.13	-3.95
47.3	34.2	30.31	-3.89
47.2	34.21	30.30	-3.91
47.1	34.81	30.34	-4.47



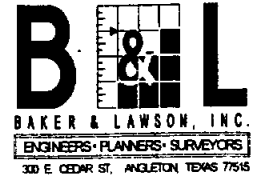
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47	34.81	30.44	-4.37
46	34.83	30.56	-4.27
45	34.87	30.68	-4.19
44	34.99	30.80	-4.19
43	35.21	31.07	-4.14
42	35.72	31.36	-4.36
40	36.08	32.26	-3.82
38	36.71	33.40	-3.31
37.3	36.86	33.69	-3.17
37.2	36.86	33.70	-3.16
37.1	36.87	33.70	-3.17
37	36.87	33.70	-3.17
36	37.2	34.98	-2.22
35	37.36	35.61	-1.75
34.3	37.84	36.22	-1.62
33.9		37.50	n.a.
33.7		38.39	n.a.
33.6		38.41	n.a.
33.5		38.41	n.a.
33.4		38.41	n.a.
33.3	40.03	38.46	-1.57
32	40.54	38.58	-1.96
31	41.35	38.96	-2.39
30.3	41.52	39.03	-2.49
29	42.08	39.30	-2.78
28	42.28	39.52	-2.76
27.5	42.43	39.89	-2.54
26	42.47	40.01	-2.46
25	42.77	40.40	-2.37
24	42.82	40.53	-2.29
23.9		40.54	n.a.
23.8		40.50	n.a.
23.7		40.49	n.a.
23.6		40.68	n.a.
23.1	42.96	40.71	-2.25
21	43.28	40.87	-2.41
20	43.33	40.93	-2.40
19.3	43.73	41.31	-2.42
18	45.35	42.67	-2.68
17	45.62	42.87	-2.75
16.3	46.86	43.42	-3.44
16.2	47.05	43.49	-3.56
16.1	49.81	43.50	-6.31
16	49.81	43.58	-6.23
15	50.03	45.83	-4.20
14.3	50.12	46.34	-3.78
14.2	50.13	46.34	-3.79
14.1	50.13	46.35	-3.78
14	50.14	46.48	-3.66

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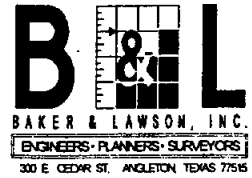
13	51.67	50.38	-1.29
12	52.49	51.41	-1.08
11	53.07	51.70	-1.37
10.3	53.24	51.81	-1.43
9.2	53.46	52.12	-1.34
8	53.5	52.20	-1.30
7	53.5	52.21	-1.29
6	53.49	52.27	-1.22
4	53.85	52.83	-1.02
3	53.87	53.05	-0.82
2.3	53.87	53.27	-0.60
1	53.87	53.36	-0.51

**TABLE 69**  
**OYSTER CREEK**  
**WATER SURFACE ELEVATION COMPARISONS**  
**25-YEAR FREQUENCY**

HEC-2 Station Number	Computed 25-YEAR WSEL (feet) Revised Base (Oc_bl_r.ih2)
112	4.14
111	4.69
110	5.17
109	5.74
108.3	6.10
108.25	6.04
108.2	6.24
108.1	6.25
108	6.25
108.75	6.18
107.5	7.19
107	7.37
106	7.71
105	8.17
104	8.60
103.5	9.20
103	9.14
102	9.70
101	10.28
100.7	10.45
100.6	10.46
100.5	10.61
100.3	10.62
100.2	10.63
100.1	10.65
100	10.63
99	11.09
98	11.47
97	11.81
96	12.51
95.3	12.96
95.2	12.96
95.1	13.34
95	13.39
94.3	13.61
94.2	13.62
94.1	13.63
94	13.63
93	13.79
92	14.08

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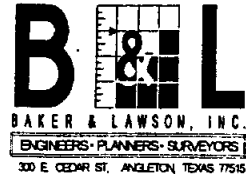
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91.3	14.16
91.2	14.19
91.1	14.20
91	14.20
90	14.43
89	14.52
88	15.06
87.3	15.37
87.2	15.38
87.1	15.39
87	15.40
86.8	15.85
86.7	15.85
86.6	15.86
86.5	15.87
86.2	15.87
86.1	15.88
86	15.88
85.3	16.24
85.2	16.25
85.1	16.26
85	16.26
84	16.51
83	16.84
82.3	16.91
82.2	16.92
82.1	16.92
82	16.93
81	17.30
80.3	17.59
80.2	17.60
80.1	17.61
80	17.61
79.9	17.84
79.8	17.81
79.7	17.83
79.6	17.83
79.3	18.02
79.2	18.02
79.1	18.03
79	18.03
78	18.28
77	18.58
76	18.98
75	19.31
74	19.96
73	20.08
72.8	20.19
72.7	20.18

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72.6	20.13
72.5	20.28
72	20.74
71.7	20.73
71.6	20.85
71.5	20.82
71.2	20.87
71	21.16
70	21.72
69.3	22.17
69.2	22.15
69.1	22.16
69	22.20
68	22.45
67	22.67
66	22.87
65	23.02
64	23.22
63.8	23.31
63.7	23.32
63.6	23.34
63.3	23.35
63.2	23.36
63.1	23.36
63	23.37
62	13.75
61	23.98
60	24.54
59	25.09
58	25.60
57.3	26.54
57.2	26.53
57.1	26.54
57	26.58
56	26.86
55	26.96
54	27.18
53	27.30
52	27.42
51.3	27.71
51.2	27.73
51.1	27.74
51	27.74
50	28.55
49	28.79
48	28.85
47.3	28.98
47.2	28.98
47.1	29.01

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47	29.06
46	29.19
45	29.34
44	29.41
43	29.73
42	29.97
40	30.90
38	32.15
37.3	32.52
37.2	32.53
37.1	32.53
37	32.53
36	34.50
35	35.08
34.3	35.75
33.9	36.96
33.7	37.76
33.6	37.78
33.5	37.78
33.4	37.77
33.3	37.82
32	37.91
31	38.20
30.3	38.24
29	38.43
28	38.60
27.5	39.06
26	39.20
25	39.73
24	40.01
23.9	40.06
23.8	40.03
23.7	40.03
23.6	40.14
23.1	40.16
21	40.25
20	40.48
19.3	40.96
18	42.05
17	42.23
16.3	42.67
16.2	42.72
16.1	42.72
16	42.77
15	45.12
14.3	45.69
14.2	45.72
14.1	45.72
14	45.76

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13	49.39
12	50.61
11	50.95
10.3	51.07
9.2	51.46
8	51.54
7	51.55
6	51.59
4	51.98
3	52.26
2.3	52.59
1	52.70

**TABLE 70**  
**OYSTER CREEK**  
**WATER SURFACE ELEVATION COMPARISONS**  
**10-YEAR FREQUENCY**

HEC-2 Station Number	Computed 10-YEAR WSEL (feet)		IMPACTS (feet)
	FEMA Data	Revised Base (Oc_b_l_r.ih2)	
112	0.49	3.56	3.07
111	1.18	4.12	2.94
110	1.82	4.60	2.78
109	2.47	5.15	2.68
108.3	2.97	5.48	2.51
108.25		5.43	n.a.
108.2	2.97	5.60	2.63
108.1	2.98	5.61	2.63
108	2.99	5.61	2.62
108.75		5.55	n.a.
107.5		6.52	n.a.
107	3.84	6.68	2.84
106	4.89	7.04	2.15
105	5.78	7.47	1.69
104	6.8	7.95	1.15
103.5		8.49	n.a.
103	7.95	8.43	0.48
102	8.57	8.97	0.40
101	9.19	9.53	0.34
100.7	9.38	9.71	0.33
100.6	9.39	9.71	0.32
100.5	9.51	9.84	0.33
100.3	9.55	9.87	0.32
100.2	9.56	9.87	0.31
100.1	9.58	9.89	0.31
100	9.58	9.88	0.30
99	10.01	10.33	0.32
98	10.59	10.81	0.22
97	11.09	11.23	0.14
96	11.76	11.86	0.10
95.3	12.23	12.27	0.04
95.2	12.23	12.26	0.03
95.1	12.37	12.54	0.17
95	12.41	12.59	0.18
94.3	12.7	12.80	0.10
94.2	12.71	12.80	0.09
94.1	12.72	12.81	0.09
94	12.72	12.81	0.09
93	12.91	12.95	0.04
92	13.2	13.22	0.02



91.3	13.28	13.30	0.02
91.2	13.29	13.33	0.04
91.1	13.29	13.33	0.04
91	13.3	13.34	0.04
90	13.52	13.55	0.03
89	13.61	13.63	0.02
88	14.12	14.13	0.01
87.3	14.42	14.43	0.01
87.2	14.43	14.43	0.00
87.1	14.44	14.44	0.00
87	14.44	14.45	0.01
86.8	14.88	14.87	-0.01
86.7	14.89	14.88	-0.01
86.6	14.9	14.89	-0.01
86.5	14.9	14.89	-0.01
86.2	14.9	14.90	0.00
86.1	14.91	14.90	-0.01
86	14.91	14.90	-0.01
85.3	15.27	15.25	-0.02
85.2	15.27	15.26	-0.01
85.1	15.28	15.26	-0.02
85	15.28	15.27	-0.01
84	15.52	15.50	-0.02
83	15.88	15.83	-0.05
82.3	16.02	15.90	-0.12
82.2	16.03	15.90	-0.13
82.1	16.03	15.90	-0.13
82	16.03	15.91	-0.12
81	16.46	16.27	-0.19
80.3	16.82	16.55	-0.27
80.2	16.83	16.56	-0.27
80.1	16.84	16.57	-0.27
80	16.85	16.57	-0.28
79.9		16.79	n.a.
79.8		16.76	n.a.
79.7		16.78	n.a.
79.6		16.78	n.a.
79.3	17.3	16.97	-0.33
79.2	17.3	16.97	-0.33
79.1	17.3	16.97	-0.33
79	17.31	16.97	-0.34
78	17.68	17.23	-0.45
77	18.16	17.54	-0.62
76	18.82	17.96	-0.86
75	19.36	18.31	-1.05
74	20.38	18.96	-1.42
73	20.56	19.08	-1.48
72.8	20.72	19.20	-1.52
72.7	20.7	19.18	-1.52

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72.6	20.7	19.10	-1.60
72.5	20.84	19.29	-1.55
72	21.48	19.76	-1.72
71.7		19.76	n.a.
71.6		19.87	n.a.
71.5		19.82	n.a.
71.2		19.89	n.a.
71	21.83	20.20	-1.63
70	22.47	20.76	-1.71
69.3	22.89	21.21	-1.68
69.2	22.8	21.20	-1.60
69.1	23.06	21.20	-1.86
69	23.1	21.24	-1.86
68	23.3	21.49	-1.81
67	23.47	21.70	-1.77
66	23.6	21.90	-1.70
65	23.69	22.04	-1.65
64	23.77	22.23	-1.54
63.8	23.8	22.33	-1.47
63.7	23.8	22.33	-1.47
63.6	23.8	22.35	-1.45
63.3	23.8	22.36	-1.44
63.2	23.81	22.37	-1.44
63.1	23.81	22.38	-1.43
63	23.81	22.38	-1.43
62	23.88	22.74	-1.14
61	23.9	22.97	-0.93
60	23.94	22.53	-1.41
59	24.01	24.08	0.07
58	24.11	24.60	0.49
57.3	24.41	25.66	1.25
57.2	24.41	25.67	1.26
57.1	24.41	25.67	1.26
57	24.41	25.69	1.28
56	24.58	25.99	1.41
55	24.67	26.09	1.42
54	24.86	26.30	1.44
53	24.96	26.40	1.44
52	25.08	26.50	1.42
51.3	25.34	26.76	1.42
51.2	25.36	26.77	1.41
51.1	25.37	26.78	1.41
51	25.37	26.79	1.42
50	26.43	27.57	1.14
49	26.88	27.82	0.94
48	26.98	27.88	0.90
47.3	27.15	28.00	0.85
47.2	27.16	28.01	0.85
47.1	27.17	28.03	0.86

47	27.19	28.06	0.87
46	27.41	28.40	0.99
45	27.74	28.60	0.86
44	28.04	28.78	0.74
43	28.25	28.79	0.54
42	28.5	29.01	0.51
40	29.61	29.97	0.36
38	31.05	31.33	0.28
37.3	31.53	31.79	0.26
37.2	31.54	31.80	0.26
37.1	31.54	31.80	0.26
37	31.56	31.81	0.25
36	34.32	34.43	0.11
35	34.71	34.86	0.15
34.3	35.34	35.46	0.12
33.9		36.65	n.a.
33.7		37.36	n.a.
33.6		37.38	n.a.
33.5		37.38	n.a.
33.4		37.38	n.a.
33.3	37.27	37.41	0.14
32	37.7	37.48	-0.22
31	38.36	37.72	-0.64
30.3	38.43	37.75	-0.68
29	38.74	37.93	-0.81
28	38.98	38.13	-0.85
27.5	39.45	38.73	-0.72
26	39.59	38.90	-0.69
25	40.09	39.50	-0.59
24	40.31	39.79	-0.52
23.9		39.83	n.a.
23.8		39.81	n.a.
23.7		39.81	n.a.
23.6		39.91	n.a.
23.1	40.41	39.94	-0.47
21	40.56	40.15	-0.41
20	40.65	40.33	-0.32
19.3	41.01	40.89	-0.12
18	41.88	41.76	-0.12
17	41.99	41.88	-0.11
16.3	42.24	42.20	-0.04
16.2	42.26	42.23	-0.03
16.1	42.27	42.24	-0.03
16	42.29	42.27	-0.02
15	43.9	44.32	0.42
14.3	44.29	44.86	0.57
14.2	44.31	44.89	0.58
14.1	44.31	44.89	0.58
14	44.32	44.91	0.59

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13	46.64	78.20	31.56
12	47.79	49.49	1.70
11	48.94	50.10	1.16
10.3	49.27	50.31	1.04
9.2	49.86	50.95	1.09
8	49.89	51.04	1.15
7	49.9	51.06	1.16
6	49.9	51.09	1.19
4	49.99	51.41	1.42
3	50	51.68	1.68
2.3	50	52.08	2.08
1	50	52.22	2.22

**TABLE 71**  
**SAN BERNARD RIVER**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)		IMPACTS (feet)
	FEMA Data	Revised Model	Revised- Base
25	10.31	10.31	0.00
2261	10.64	10.64	0.00
2260	11.39	11.39	0.00
2260.1	11.42	11.42	0.00
60.2	11.75	11.75	0.00
60.3	11.78	11.89	0.11
2259	12.95	13.03	0.08
2257	13.6	13.67	0.07
2255	14.83	14.87	0.04
2254	15.96	15.98	0.02
2253	16.69	16.71	0.02
2251	17.35	17.36	0.01
51.1	17.42	17.44	0.02
51.2	17.42	17.11	-0.31
51.3	17.5	17.65	0.15
2250	18.03	18.15	0.12
2249	18.2	18.31	0.11
2248	18.74	18.83	0.09
2247	19.07	19.15	0.08
2247	19.07	19.15	0.08
47.2	19.08	19.16	0.08
2247	19.12	19.2	0.08
2246	19.42	19.49	0.07
2244	20.59	20.63	0.04
2242.1	21.89	21.92	0.03
2242	22.32	22.34	0.02
2241	23.21	23.22	0.01
2239	23.99	24	0.01
39.1	24	24.01	0.01
39.2	24.14	24.11	-0.03
39.3	24.15	24.12	-0.03
2238	24.8	24.77	-0.03
2236	25.51	25.49	-0.02
2234	26.27	26.25	-0.02

**TABLE 71**  
**SAN BERNARD RIVER**  
**WATER SURFACE ELEVATION COMPARISONS**  
**100-YEAR FREQUENCY**

HEC-2 Station Number	Computed 100-YEAR WSEL (feet)		IMPACTS (feet)
	FEMA Data	Revised Model	Revised- Base
2233	26.33	26.31	-0.02
33.1	26.34	26.32	-0.02
33.2	26.34	26.32	-0.02
33.3	26.34	26.33	-0.01
2231	26.6	26.58	-0.02
2229	27.18	27.16	-0.02
2229.1	27.32	27.3	-0.02
2228	28.6	28.59	-0.01
2226	29.69	29.68	-0.01
2224	31.2	31.19	-0.01
2223	34.68	34.68	0.00
2221	36.75	36.75	0.00
2220	37.93	37.93	0.00
2219	39.12	39.12	0.00
2218	42.78	42.8	0.02
2218.1	42.88	42.91	0.03
2218.2	42.95	42.98	0.03
2218	43.05	43.08	0.03
2217	44.68	44.68	0.00
2216	47.02	46.48	-0.54
2215	47.74	47.29	-0.45
2214	49.94	49.69	-0.25
2213	51.67	51.51	-0.16
2211	53.24	53.17	-0.07
2209	54.93	54.89	-0.04
2208	55.63	55.6	-0.03
2206	57.48	57.47	-0.01
2205	58.14	58.13	-0.01

**TABLE 72**  
**Austin Bayou Channel Reach Capacities**

From Cross-section	Hec-2 Station Number	To Cross-section	Hec-2 Station Number	Capacity Frequency	Critical Elevation (ft)
Confluence with Bastrop Bayou	0	CR 51	32.16	Less than 10-year	47.35

**TABLE 73**  
**Bastrop Bayou Channel Reach Capacities**

From Cross-section	Hec-2 Station Number	To Cross-section	Hec-2 Station Number	Capacity Frquency	Critical Elevation (ft)
Downstream of CR 227	26	Upstream of CR 290	52	Less than 10-year	25.2



**TABLE 74**  
Brazos River Channel Reach Capacities

From Cross-section	Hec-2 Station Number	To Cross-section	Hec-2 Station Number	Capacity Frequency	Critical Elevation (ft)
About 4.5 miles above confluence w/Intracoastal Waterway About 6200 feet upstream of SH 36 Near CR 336	3.58	About 2000 feet upstream of SH 36 Just upstream of Freeport Corporate Limits Brazoria County line	4	Less than 10-year 500-year Less than 10-year	6.73 10.94 59.07
	4.8		7.47		
	8.6		65.78		

**TABLE 75**  
**Chocolate Bayou Channel Reach Capacities**  
**EXISTING**

From Cross-section	Hec-2 Station Number	To Cross-section	Hec-2 Station Number	Capacity Frequency	Critical Elevation (ft)
Confluence with Salt Bayou	36	Confluence with Pleasant Bayou	30.5	100-year	8.05
Confluence with Pleasant Bayou	30.5	Confluence with Corner Bayou	27	25-year	15.3
Confluence with Corner Bayou	27	C.R. 171	25	10-year	18.29
C.R. 171	25	S.H. 35	20.1	25-year	25.55
S.H. 35	20.1	Downstream of C.R. 172	17.3	25-year	28.62
Downstream of C.R. 172	17.3	C.R. 172	17.1	Less than 10-year	28.64
C.R. 172	17.1	F.M. 1462	14.1	25-year	33.48
F.M. 1462	14.1	Confluence with West Fork Chocolate Bayou	8	Less than 10-year	41.54
Confluence with West Fork Chocolate Bayou	8	C.R. 72	2.01	Less than 10-year	50.74
C.R. 72	2.01	Rail Road Near S.H. 6	0.8	100-year	54.68
Rail Road Near S.H. 6	0.8	S.H. 6	0.3	Less than 10-year	55.61

**TABLE 76**  
West Fork Chocolate Bayou Channel Reach Capacities  
EXISTING

From Cross-section	Hec-2 Station Number	To Cross-section	Hec-2 Station Number	Capacity Frquency	Critical Elevation (ft)
Private Road C.R. 64 S.H. 288 C.R. 81	15.1	C.R. 64	11.1	Less than 10-year	47.59
	11.1	S.H. 288	7.58	100-year	55.85
	7.58	C.R. 81	5.1	Less than 10-year	56.98
	5.1	C.R. 956	1.5	25-year	59.93

**TABLE 77**  
**North Hayes Creek Channel Reach Capacities**  
**EXISTING**

From Cross-section	Hec-2 Station Number	To Cross-section	Hec-2 Station Number	Capacity Frequency	Critical Elevation (ft)
C.R. 308	17	Private Bridge Nr. C.R. 67	15.1	Less than 10-year	41.84
Private Bridge Nr. C.R. 67	15.1	Private Road	13.1	100-year	43.81
Private Road	13.1	Private Bridge DS of C.R. 65	11.02	25-year	46.19
Private Bridge DS of C.R. 65	11.02	C.R. 65	9.21	100-year	46.32
C.R. 65	9.21	C.R. 63	9.01	25-year	48.21
C.R. 63	9.01	S.H. 288	8.02	Less than 10-year	50.25
S.H. 288	8.02	C.R. 64	6.8	100-year	52.22

**TABLE 78**  
South Hayes Creek Channel Reach Capacities  
EXISTING

From Cross-section	Hec-2 Station Number	To Cross-section	Hec-2 Station Number	Capacity Frequency	Critical Elevation (ft)
C.R. 221	18.3	C.R. 65	10.1	Less than 10-year	45.83
C.R. 65	10.1	Woodfin Bridge	4.1	100-year	52.69
Woodfin Bridge	4.1	C.R. 48	3.1	Less than 10-year	53.11
C.R. 48	3.1	C.R. 382	1.8	100-year	53.33

**TABLE 79**  
Brunner Ditch Channel Reach Capacities  
EXISTING

From Cross-section	Hec-2 Station Number	To Cross-section	Hec-2 Station Number	Capacity Frequency	Critical Elevation (ft)
Confluence with Chocolate Bayou C.R. 192 F.M. 1462	5600 39170	C.R. 192 F.M. 1462 Pasture Road	5600 39170 60740	Less than 10-year 10-year Less than 10-year	27.56 44.14 48.95

**TABLE 80**  
Flores Bayou Channel Reach Capacities

From Cross-section	Hec-2 Station Number	To Cross-section	Hec-2 Station Number	Capacity Frequency	Critical Elevation (ft)
Confluence with Austin Bayou	0	CR 210	1.03	25-year	13.21
Upstream of CR 210	2.1	Downstream of CR 171	5.11	Less than 10-year	20.42
Upstream of CR 171	5.63	Downstream of CR 207	5.64	25-year	20.5
Upstream of CR 207	5.7	2/3 Distance Between CR 207 & SH 35	6.23	10-year	21.7
DS of SH 35	6.77	CR 46	8.11	Less than 10-year	25.5
Upstream of CR 46	9.09	Downstream of CR 45	9.27	25-year	27.45
2/3 Distance Between CR 45 & CR 49	10.9	Downstream of CR 49	11.9	10-year	33

**TABLE 81**  
Halls Bayou Channel Reach Capacities

From Cross-section	Hec-2 Station Number	To Cross-section	Hec-2 Station Number	Capacity Frequency	Critical Elevation (ft)
Confluence with Oak Ditch About half-way between FM 2004 & Halls Bayou Rd Confluence with Unnamed Tributary Briscoe Canal Crossing	13	At Pump Station Halls Bayou Road CR 167 Upstream of CR 165	10	Less than 10-year	11.48
	9		6.09	10-year	17.4
	5		3.5	25-year	21.4
	2.05		1	25-year	26.94



**TABLE 82**  
**Mustang Bayou Channel Reach Capacities**  
**EXISTING**

From Cross-section	Hec-2 Station Number	To Cross-section	Hec-2 Station Number	Capacity Frequency	Critical Elevation (ft)
Confluence with New Bayou	34700	MU 65-1 Bridge	37908	10-year	13.86
MU 65-1 Bridge	37908	F.M. 2917	52046	10-year	15.95
F.M. 2917	52046	Reservoir Bridge MU 60-1	60297	10-year	19.57
Reservoir Bridge MU 60-1	60297	MU 57-1 Bridge	70773	10-year	24.4
MU 57-1 Bridge	70773	MU 54-2 Bridge	78621	25-year	27.87
MU 54-2 Bridge	78621	Shell Road Bridge MU 53-1	82022	25-year	28.9
Shell Road Bridge MU 53-1	82022	New Road Bridge MU 51-2	86400	25-year	30.14
New Road Bridge MU 51-2	86400	MOPAC Bridge MU 50-2	90138	25-year	30.79
MOPAC Bridge MU 50-2	90138	C.R. 163	91251	25-year	31.05
C.R. 163	91251	C.R. 160	96756	25-year	31.3
C.R. 160	96756	C.R. 422	110160	25-year	40.75
C.R. 422	110160	C.R. 719	113730	25-year	42.87
C.R. 719	113730	Atchison Topeka RR Bridge	116150	10-year	43.62
Atchison Topeka RR Bridge	116150	S.H. 6	126887	10-year	46.94
S.H. 6	126887	C.R. 668	131055	10-year	48.68
C.R. 668	131055	C.R. 417	166382	10-year	54.91
C.R. 417	166382	S.H. 1128	170550	10-year	56.89
S.H. 1128	170550	C.R. 876	173250	10-year	57.49
C.R. 876	173250	C.R. 88	175542	10-year	58.63
C.R. 88	175542	C.R. 90	187510	10-year	62.17
C.R. 90	187510	C.R. 84	199460	10-year	64.38
C.R. 84	199460	C.R. 48	213328	10-year	66.08
C.R. 48	213328	C.R. 564	218898	100-year	68.54

**TABLE 83**  
**M-1 Ditch Channel Reach Capacities**  
**EXISTING**

From Cross-section	Hec-2 Station Number	To Cross-section	Hec-2 Station Number	Capacity Frequency	Critical Elevation (ft)
Confluence with Mustang Bayou C.R. 169	1	C.R. 169	10	Less than 10-year	26.29
Rail Road Nr. C.R. 169	10	Rail Road Nr. C.R. 169	12	100-year	27.15
C.R. 424	12	C.R. 424	25	10-year	32.54
	25	within Alvin	85	Less than 10-year	45.76

**TABLE 84**  
New Bayou Channel Reach Capacities  
EXISTING

From Cross-section	Hec-2 Station Number	To Cross-section	Hec-2 Station Number	Capacity Frequency	Critical Elevation (ft)
Confluence with Mustang bayou	1	Amoco Road	4	10-year	14.34
Amoco Road	4	Dirt Road	8.04	100-year	14.64
Dirt Road	8.04	Waste Road	8.18	10-year	14.75
Waste Road	8.18	Rail Road Nr. Solutia Road	11	100-year	15.42
Rail Road Nr. Solutia Road	11	Solutia Road	13	25-year	15.47
Solutia Road	13	Equistar Road	20.1	10-year	15.78
Equistar Road	20.1	Rail Road Nr. F.M. 2917	26	100-year	17.16
Rail Road Nr. F.M. 2917	26	Private Road Nr. Monsanto Canal	30	Less than 10-year	17.48
Private Road Nr. Monsanto Canal	30	Private Road Nr. CBWC Canal	36	100-year	19.66
Private Road Nr. CBWC Canal	36	C.R. 169	41	25-year	26.98
C.R. 169	41	Rail Road Nr. C.R. 169	43	100-year	28.82
Rail Road Nr. C.R. 169	43	Private Bridge Nr. C.R. 169	43.5	Less than 10-year	29.18
Private Bridge Nr. C.R. 169	43.5	F.M. 1462	135	100-year	37.28
Private Bridge Nr. C.R. 169	43.5	C.R. 180	146	10-year	41.48
F.M. 1462	135	Jordan Road	156	100-year	49.38
C.R. 180	146	C.R. 190	158	10-year	51.57
Jordan Road	156	Rail Road Nr. C.R. 190	160	100-year	51.64
C.R. 190	158	S.H. 6	167	Less than 10-year	52.24
Rail Road Nr. C.R. 190	160	F.M. 1128	174	25-year	55.45
S.H. 6	167	Private Road Nr. Tankersley Road	182	Less than 10-year	55.96
F.M. 1128	174				

**TABLE 85**  
Oyster Creek Channel Reach Capacities

From Cross-section	Hec-2 Station Number	To Cross-section	Hec-2 Station Number	Capacity Frequency	Critical Elevation (ft)
1.2 miles above confluence w/Intracoastal Waterway	112	Just downstream Village of Oyster Creek	110	25-year	4.49
Downstream of FM 523	109	Upstream of Village of Oyster Creek	107.5	100-year	6.38
About 5000 feet upstream of FM 523	107	About 7000 feet downstream of Ditch 13 PS	105	Less than 10-year	7.35
About 400 feet downstream of Ditch 13 PS	104	Downstream of CR 226	100.5	25-year	9.68
CR 226	100	About 9000 feet upstream of CR 226	97	Less than 10-year	11.10
Downstream of CR 228	96	SH 288 B	94	100-year	12.51
Upstream of SH 288 B	93	Downstream of That Way	81	25-year	15.98
That Way	80.3	Downstream of Retrieve Prison Farm	71.7	100-year	19.51
Retrieve Prison Farm	71.6	Retrieve Prison Farm	71.2	Less than 10-year	19.62
Retrieve Prison Farm	70	CR 290	63	100-year	22.14
About 3000 feet upstream of CR 290	62	About 6000 feet downstream of SH 35	58	10-year	24.36
SH 35	57.3	About 2000 feet upstream of SH 35	55	Less than 10-year	25.88
About 8000 feet upstream of SH 35	54	FM 521	51	100-year	26.67
About 5000 feet upstream of FM 521	50	About 4500 feet upstream of CR 30N	45	Less than 10-year	28.43
Just upstream of Holiday Lakes	44	About 4800 feet upstream of Harris Reservoir Canal	40	10-year	30.10
Downstream of CR 34	38	Ramsey Prison Farm	32	Less than 10-year	37.83
Ramsey Prison Farm	31	Ramsey Prison Farm	29	25-year	38.60
Ramsey Prison Farm	28	Near Dos Lagos	17	Less than 10-year	42.15
Downstream of 1462	16.3	Upstream of 1462	16	100-year	42.67
Downstream of CR 42	15	Brazoria County Limits	1	Less than 10-year	52.61

**Table 86**  
**Brazoria County Master Drainage Plan**  
**Chocolate Bayou Watershed**  
**Detention Facility Cost Estimates**  
**Klotz Associates Project No. 25903**

Description	Quantity	Unit	Unit Cost	Cost
<b>Basin # 1</b>				
Land Acquisition (ROW)	90.0	AC	\$10,000	\$900,000
Pond Excavation (includes hauling/disposal)	1,509,402	CY	\$5	\$7,547,010
Backslope Interceptor Structure	8	EA	\$3,000	\$24,000
Side-Weir Concrete Control Structure	1	EA	\$350,000	\$350,000
Outflow Pipes with flap gate and wing wall	4	EA	\$5,000	\$20,000
Riprap, 18"	5,000	SY	\$35	\$175,000
Site Preparation and restoration	1	LS	\$30,000	\$30,000
Clearing and Grubbing	90.0	AC	\$1,500	\$135,000
Turf Establishment/Seeding	90.0	AC	\$1,500	\$135,000
Hydromulch	90.0	AC	\$2,500	\$225,000
			Subtotal	\$9,541,010
* See Notes.			Mobilization (5%)	\$477,051
			Utility Adjustments (25%)	\$2,385,253
			Construction Contingencies (20%)	\$1,908,202
			Survey, Geotechnical, Engineering, Permitting (20%)	\$1,908,202
			<b>Total for Basin #1</b>	<b>\$16,220,000</b>

Notes:

1. This cost estimate provided for estimating and comparative purposes only.
2. Utility adjustments are estimated as a percentage of construction cost at this time.
3. Much of these costs can be reduced if these improvements are constructed by District Staff.

**Table 87**  
**Brazoria County Master Drainage Plan**  
**West Fork Chocolate Bayou Watershed**  
**Channel Cleaning Cost Estimates**  
**Klotz Associates Project No. 25903**

<b>Description</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
Channel Excavation & Disposal	19,000.0	CY	\$6	\$114,000
Clearing and Grubbing	62.4	AC	\$1,500	\$93,600
Backslope Interceptor Structure	34.0	EA	\$2,000	\$68,000
Turf Establishment/Seeding	62.4	AC	\$1,000	\$62,400
			Subtotal	\$338,000
* See Notes.			Mobilization (5%)	\$16,900
			Utility Adjustments (25%)	\$84,500
			Construction Contingencies (20%)	\$67,600
			Survey, Geotechnical, Engineering, Permitting (20%)	\$67,600
			<b>Total</b>	<b>\$575,000</b>

Notes:

1. This cost estimate provided for estimating and comparative purposes only.
2. Utility adjustments are estimated as a percentage of construction cost at this time.
3. Much of these costs can be reduced if these improvements are constructed by District Staff.

**Table 88**  
**Brazoria County Master Drainage Plan**  
**West Fork Chocolate Bayou Watershed**  
**Channel Cleaning and CR48 Bridge Replacement Cost Estimates**  
**Klotz Associates Project No. 25903**

Description	Quantity	Unit	Unit Cost	Cost
Channel Excavation & Disposal	19,000.0	CY	\$6	\$114,000
Clearing and Grubbing	62.4	AC	\$1,500	\$93,600
Backslope Interceptor Structure	34.0	EA	\$2,000	\$68,000
Turf Establishment/Seeding	62.4	AC	\$1,000	\$62,400
Bridge Replacement	2,400.0	SF	\$50	\$120,000
			Subtotal	\$458,000
* See Notes.			Mobilization (5%)	\$22,900
			Utility Adjustments (25%)	\$114,500
			Construction Contingencies (20%)	\$91,600
			Survey, Geotechnical, Engineering, Permitting (20%)	\$91,600
			<b>Total</b>	<b>\$779,000</b>

Notes:

1. This cost estimate provided for estimating and comparative purposes only.
2. Utility adjustments are estimated as a percentage of construction cost at this time.
3. Much of these costs can be reduced if these improvements are constructed by District Staff.

**Table 89**  
**Brazoria County Master Drainage Plan**  
**North Hayes Creek Watershed**  
**Channel Cleaning Cost Estimates**  
**Klotz Associates Project No. 25903**

Description	Quantity	Unit	Unit Cost	Cost
Channel Excavation & Disposal	5,500.0	CY	\$6	\$33,000
Clearing and Grubbing	14.5	AC	\$1,500	\$21,750
Backslope Interceptor Structure	12.0	EA	\$2,000	\$24,000
Turf Establishment/Seeding	14.5	AC	\$1,000	\$14,500
			Subtotal	\$93,250
* See Notes.			Mobilization (5%)	\$4,663
			Utility Adjustments (25%)	\$23,313
			Construction Contingencies (20%)	\$18,650
			Survey, Geotechnical, Engineering, Permitting (20%)	\$18,650
			<b>Total</b>	<b>\$159,000</b>

Notes:

1. This cost estimate provided for estimating and comparative purposes only.
2. Utility adjustments are estimated as a percentage of construction cost at this time.
3. Much of these costs can be reduced if these improvements are constructed by District Staff.



**Table 90**  
**Brazoria County Master Drainage Plan**  
**South Hayes Creek Watershed**  
**Brunner Ditch Diversion Cost Estimates**  
**Klotz Associates Project No. 25903**

Description	Quantity	Unit	Unit Cost	Cost
Land Acquisition (ROW)	65.7	AC	\$10,000	\$657,000
Channel Excavation & Disposal	277,000.0	CY	\$6	\$1,523,500
Backslope Interceptor Structure	44.0	EA	\$2,000	\$88,000
Turf Establishment/Seeding	65.7	AC	\$1,000	\$65,700
Bridge Construction	5,040.0	SF	\$100	\$504,000
			Subtotal	\$2,838,200
* See Notes.			Mobilization (5%)	\$141,910
			Utility Adjustments (25%)	\$709,550
			Construction Contingencies (20%)	\$567,640
			Survey, Geotechnical, Engineering, Permitting (20%)	\$567,640
			<b>Total for O202-00-00</b>	<b>\$4,825,000</b>

Notes:

1. This cost estimate provided for estimating and comparative purposes only.
2. Utility adjustments are estimated as a percentage of construction cost at this time.
3. Much of these costs can be reduced if these improvements are constructed by District Staff.

**Table 91**  
**Brazoria County Master Drainage Plan**  
**Flores Bayou Watershed**  
**Retention/Weir Facility Cost Estimates**

Description	Quantity	Unit	Unit Cost	Cost
<b>Basin # 1</b>				
Land Acquisition (ROW)	300.0	AC	\$3,000	\$900,000
Pond Excavation (includes hauling/disposal)	3,065,333	CY	\$7	\$21,457,331
Backslope Interceptor Structure	12	EA	\$3,000	\$36,000
Side-Weir Concrete Control Structure	1	EA	\$350,000	\$350,000
Outflow Pipes with flap gate and wing wall	4	EA	\$5,000	\$20,000
Riprap, 18"	5,000	SY	\$35	\$175,000
Site Preparation and restoration	1	LS	\$30,000	\$30,000
Clearing and Grubbing	300.0	AC	\$1,500	\$450,000
Turf Establishment/Seeding	300.0	AC	\$1,500	\$450,000
Hydromulch	300.0	AC	\$2,500	\$750,000
			Subtotal	\$24,618,331
See Notes.			Mobilization (5%)	\$1,230,917
			Utility Adjustments (1%)	\$246,183.31
			Construction Contingencies (20%)	\$4,923,666
			Survey, Geotechnical, Engineering, Permitting (20%)	\$4,923,666
			<b>Total for Basin #1</b>	<b>\$35,943,000</b>

Notes:

1. This cost estimate provided for estimating and comparative purposes only.
2. Utility adjustments are estimated as a percentage of construction cost at this time.
3. Much of these costs can be reduced if these improvements are constructed by District Staff.

**Table 92**  
**Brazoria County Master Drainage Plan**  
**Mustang Bayou Watershed**  
**Channel Cleaning Cost Estimates**  
**Klotz Associates Project No. 25903**

Description	Quantity	Unit	Unit Cost	Cost
Channel Excavation & Disposal	73,333.0	CY	\$6	\$439,998
Clearing and Grubbing	98.5	AC	\$1,500	\$147,750
Backslope Interceptor Structure	66.0	EA	\$2,000	\$132,000
Turf Establishment/Seeding	98.5	AC	\$1,000	\$98,500
			Subtotal	\$818,248
* See Notes.			Mobilization (5%)	\$40,912
			Utility Adjustments (25%)	\$204,562
			Construction Contingencies (20%)	\$163,650
			Survey, Geotechnical, Engineering, Permitting (20%)	\$163,650
			<b>Total</b>	<b>\$1,391,000</b>

Notes:

1. This cost estimate provided for estimating and comparative purposes only.
2. Utility adjustments are estimated as a percentage of construction cost at this time.
3. Much of these costs can be reduced if these improvements are constructed by District Staff.

**Table 93**  
**Brazoria County Master Drainage Plan**  
**New Bayou Watershed**  
**S.H. 6 Bridge Enlargement Cost Estimates**  
**Klotz Associates Project No. 25903**

Description	Quantity	Unit	Unit Cost	Cost
Land Acquisition (ROW)	0.2	AC	\$10,000	\$2,400
Channel Excavation & Disposal	10,889.0	CY	\$6	\$59,890
Backslope Interceptor Structure	2.0	EA	\$2,000	\$4,000
Turf Establishment/Seeding	2.0	AC	\$1,000	\$2,000
Bridge Construction	8,400.0	SF	\$100	\$840,000
			Subtotal	\$908,290
* See Notes.			Mobilization (5%)	\$45,414
			Utility Adjustments (25%)	\$227,072
			Construction Contingencies (20%)	\$181,658
			Survey, Geotechnical, Engineering, Permitting (20%)	\$181,658
			<b>Total for O202-00-00</b>	<b>\$1,544,000</b>

Notes:

1. This cost estimate provided for estimating and comparative purposes only.
2. Utility adjustments are estimated as a percentage of construction cost at this time.
3. Much of these costs can be reduced if these improvements are constructed by District Staff.

**Table 96**  
**Brazoria County Master Drainage Plan**  
**Austin Bayou Watershed**  
**Bridge Replacement Cost Estimates**  
**Klotz Associates Project No. 25903**

Description	Quantity	Unit	Unit Cost	Cost
Channel Excavation & Disposal	526.0	CY	\$6	\$3,156
Clearing and Grubbing	2.0	AC	\$1,500	\$3,000
Backslope Interceptor Structure	2.0	EA	\$2,000	\$4,000
Turf Establishment/Seeding	2.0	AC	\$1,000	\$2,000
Bridge Replacement	2,184.0	SF	\$50	\$109,200
			Subtotal	\$121,356
* See Notes.			Mobilization (5%)	\$6,068
			Utility Adjustments (25%)	\$30,339
			Construction Contingencies (20%)	\$24,271
			Survey, Geotechnical, Engineering, Permitting (20%)	\$24,271
			<b>Total</b>	<b>\$206,000</b>

Notes:

1. This cost estimate provided for estimating and comparative purposes only.
2. Utility adjustments are estimated as a percentage of construction cost at this time.
3. Much of these costs can be reduced if these improvements are constructed by District Staff.

**Table 97**  
**Brazoria County Master Drainage Plan**  
**Mustang Bayou Watershed**  
**Channel Diversion Cost Estimates**  
**Klotz Associates Project No. 25903**

Description	Quantity	Unit	Unit Cost	Cost
Land Acquisition (ROW)	50.5	AC	\$10,000	\$505,000
Channel Excavation & Disposal	192,593.0	CY	\$6	\$1,059,262
Backslope Interceptor Structure	40.0	EA	\$2,000	\$80,000
Turf Establishment/Seeding	50.5	AC	\$1,000	\$50,500
Bridge Construction	3,600.0	SF	\$100	\$360,000
			Subtotal	\$2,054,762
* See Notes.			Mobilization (5%)	\$102,738
			Utility Adjustments (25%)	\$513,690
			Construction Contingencies (20%)	\$410,952
			Survey, Geotechnical, Engineering, Permitting (20%)	\$410,952
			<b>Total for O202-00-00</b>	<b>\$3,493,000</b>

Notes:

1. This cost estimate provided for estimating and comparative purposes only.
2. Utility adjustments are estimated as a percentage of construction cost at this time.
3. Much of these costs can be reduced if these improvements are constructed by District Staff.

**Table 98**  
**Brazoria County Master Drainage Plan**  
**Brazos River Watershed**  
**S.H. 35 Bridge Replacement Cost Estimates**  
**Klotz Associates Project No. 25903**

Description	Quantity	Unit	Unit Cost	Cost
Land Acquisition (ROW)	0.2	AC	\$10,000	\$2,400
Channel Excavation & Disposal	6,886.0	CY	\$6	\$37,873
Backslope Interceptor Structure	2.0	EA	\$2,000	\$4,000
Turf Establishment/Seeding	4.3	AC	\$1,000	\$4,300
Bridge Construction	42,000.0	SF	\$100	\$4,200,000
			Subtotal	\$4,248,573
			Mobilization (5%)	\$212,429
			Utility Adjustments (25%)	\$1,062,143
			Construction Contingencies (20%)	\$849,715
			Survey, Geotechnical, Engineering, Permitting (20%)	\$849,715
			<b>Total for O202-00-00</b>	<b>\$7,223,000</b>

\* See Notes.

Notes:

1. This cost estimate provided for estimating and comparative purposes only.
2. Utility adjustments are estimated as a percentage of construction cost at this time.
3. Much of these costs can be reduced if these improvements are constructed by District Staff.

**Table 99**  
**Brazoria County Master Drainage Plan**  
**Brazos River Watershed**  
**Jones Creek Channel Dredging Cost Estimates**  
**Klotz Associates Project No. 25903**

<b>Description</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
Channel Excavation & Disposal	36,667.0	CY	\$6	\$220,002
Clearing and Grubbing	197.0	AC	\$1,500	\$295,500
Backslope Interceptor Structure	66.0	EA	\$2,000	\$132,000
Turf Establishment/Seeding	197.0	AC	\$1,000	\$197,000
			Subtotal	\$844,502
* See Notes.			Mobilization (5%)	\$42,225
			Utility Adjustments (25%)	\$211,126
			Construction Contingencies (20%)	\$168,900
			Survey, Geotechnical, Engineering, Permitting (20%)	\$168,900
			<b>Total</b>	<b>\$1,436,000</b>

Notes:

1. This cost estimate provided for estimating and comparative purposes only.
2. Utility adjustments are estimated as a percentage of construction cost at this time.
3. Much of these costs can be reduced if these improvements are constructed by District Staff.

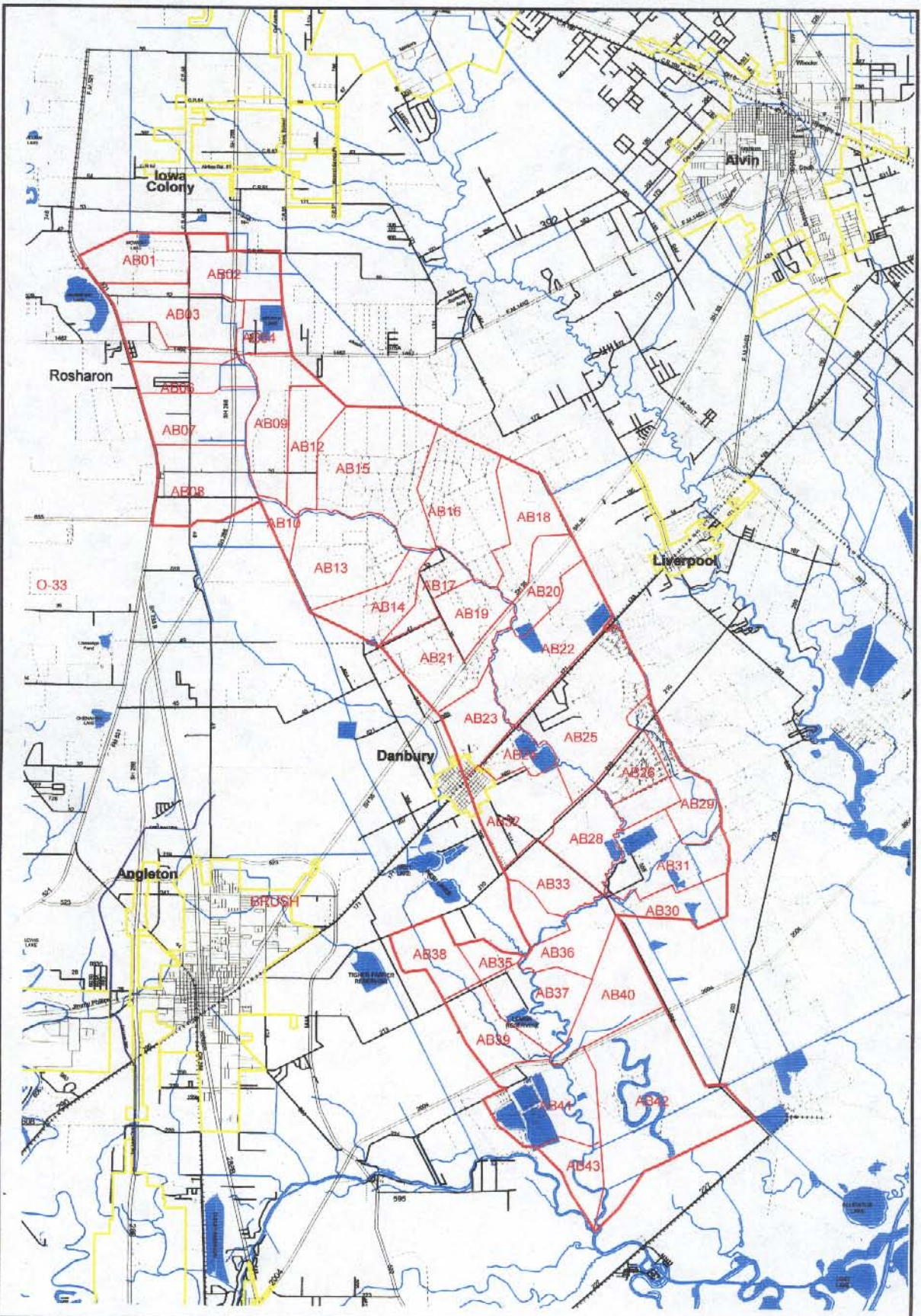


**Table 100**  
**Brazoria County Master Drainage Plan**  
**San Bernard River Watershed**  
**Mound Creek Channel Cleaning Cost Estimates**  
**Klotz Associates Project No. 25903**

Description	Quantity	Unit	Unit Cost	Cost
Channel Excavation & Disposal	105,556.0	CY	\$6	\$633,336
Clearing and Grubbing	349.0	AC	\$1,500	\$523,500
Backslope Interceptor Structure	190.0	EA	\$2,000	\$380,000
Turf Establishment/Seeding	349.0	AC	\$1,000	\$349,000
			Subtotal	\$1,885,836
* See Notes.			Mobilization (5%)	\$94,292
			Utility Adjustments (25%)	\$471,459
			Construction Contingencies (20%)	\$377,167
			Survey, Geotechnical, Engineering, Permitting (20%)	\$377,167
			<b>Total</b>	<b>\$3,206,000</b>

Notes:

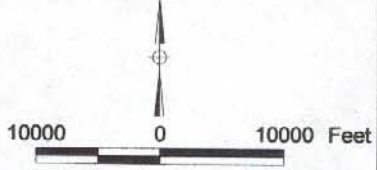
1. This cost estimate provided for estimating and comparative purposes only.
2. Utility adjustments are estimated as a percentage of construction cost at this time.
3. Much of these costs can be reduced if these improvements are constructed by District Staff.



K:\01\exhibit 3-Austin Bayou-Layout\1\0

- LEGEND**
- Watershed Boundry
  - Levee.shp
  - Bodies of Water
  - Streams
  - City Limits

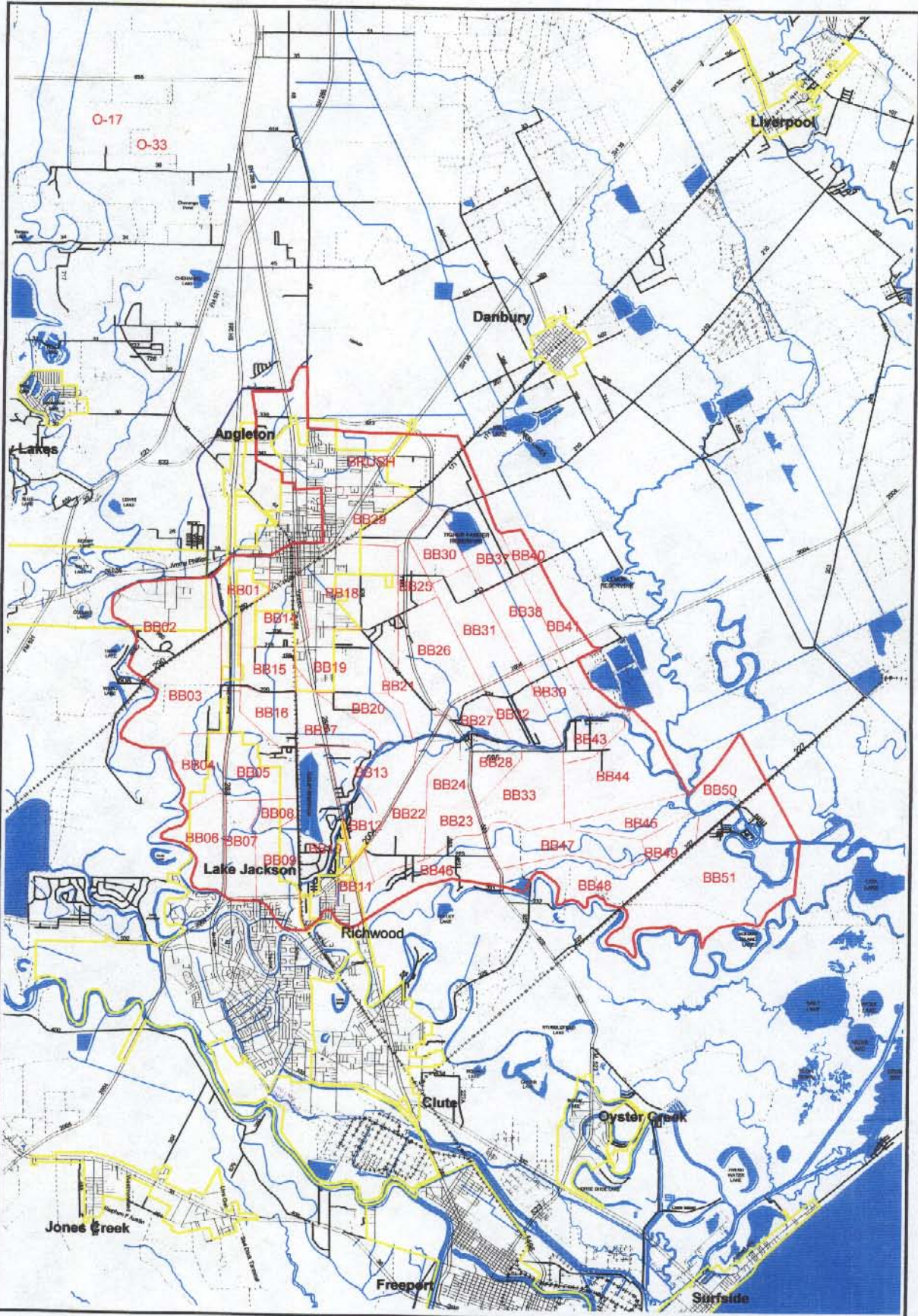
- Roads**
- State Hwy
  - State FM
  - State Spur
  - County Road
  - City Neighborhood
  - City Collector
  - Private Road
  - Privately Maintained
  - Railroads



**KLOTZ ASSOCIATES, INC.**  
CONSULTING ENGINEERS

**BRAZORIA COUNTY MASTER DRAINAGE PLAN**  
AUSTIN BAYOU DRAINAGE AREA  
PROJECT NO. 25903  
DRAWN: CAP SCALE: 1" = 1000'  
EXHIBIT 3 DATE: August, 2002





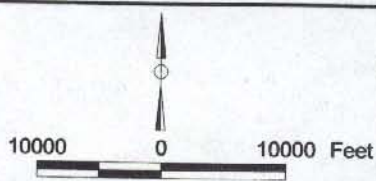
K:\proj\exhibit 4-Bastrop Bayou\layout18.mxd

**LEGEND**

<span style="border: 1px solid red; display: inline-block; width: 20px; height: 10px;"></span>	Watershed Boundry
<span style="border: 1px solid blue; display: inline-block; width: 20px; height: 10px;"></span>	Levee.shp
<span style="fill: blue; display: inline-block; width: 20px; height: 10px;"></span>	Bodies of Water
<span style="border-bottom: 1px solid blue; display: inline-block; width: 20px;"></span>	Streams
<span style="border: 2px solid yellow; display: inline-block; width: 20px; height: 10px;"></span>	City Limits

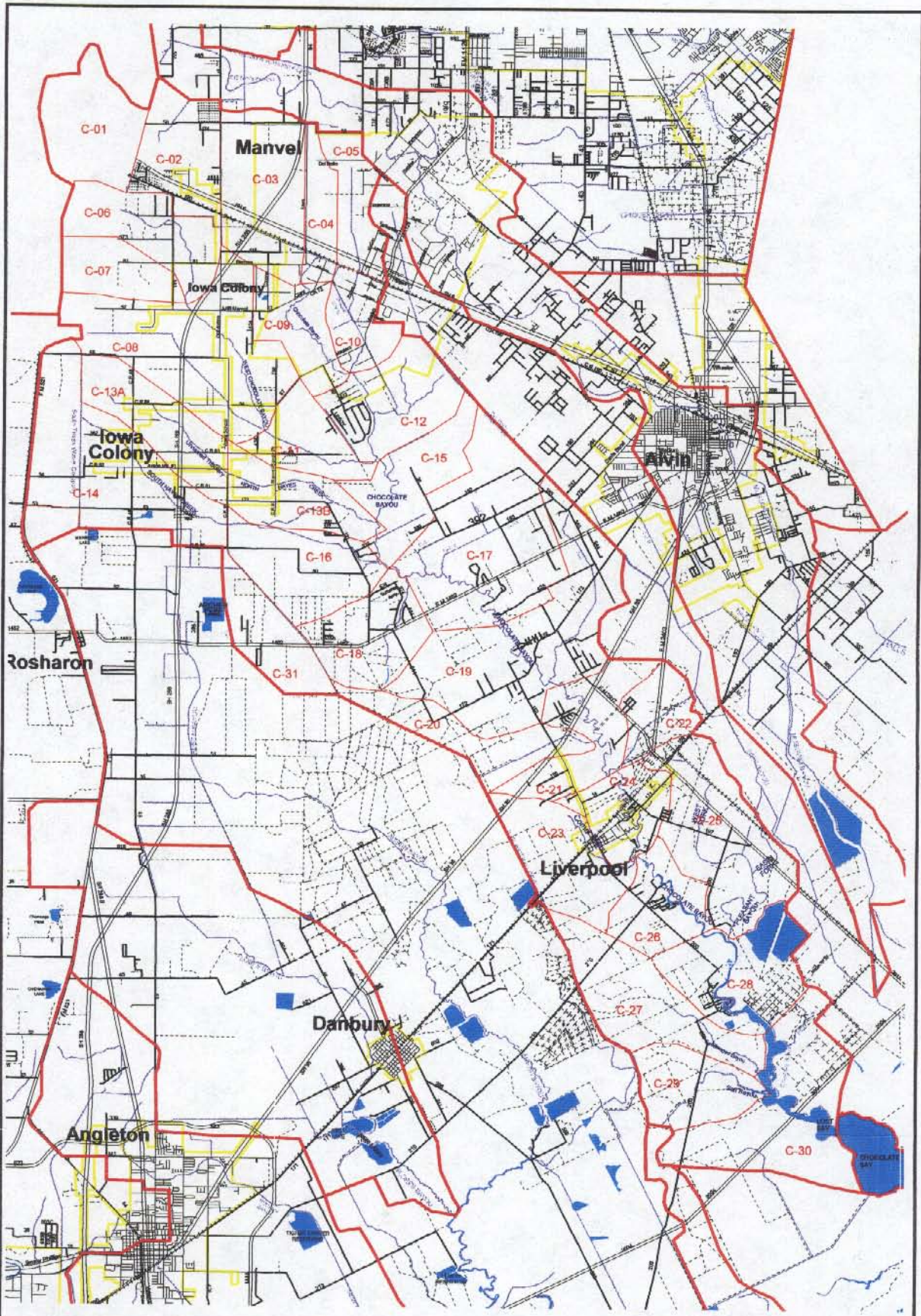
**Roads**

<span style="border-bottom: 1px dashed black; display: inline-block; width: 20px;"></span>	State Hwy
<span style="border-bottom: 1px solid black; display: inline-block; width: 20px;"></span>	State FM
<span style="border-bottom: 1px solid black; display: inline-block; width: 20px;"></span>	State Spur
<span style="border-bottom: 1px solid black; display: inline-block; width: 20px;"></span>	County Road
<span style="border-bottom: 1px solid black; display: inline-block; width: 20px;"></span>	City Neighborhood
<span style="border-bottom: 1px solid black; display: inline-block; width: 20px;"></span>	City Collector
<span style="border-bottom: 1px solid black; display: inline-block; width: 20px;"></span>	Private Road
<span style="border-bottom: 1px solid black; display: inline-block; width: 20px;"></span>	Privately Maintained
<span style="border-bottom: 1px solid black; display: inline-block; width: 20px;"></span>	Railroads



<b>KLOTZ ASSOCIATES, INC.</b>  CONSULTING ENGINEERS	<b>BRAZORIA COUNTY MASTER DRAINAGE PLAN</b>
	<b>BASTROP BAYOU DRAINAGE AREA</b>
	<b>PROJECT NO. 25903</b>
	DRAWN: CAP    SCALE: 1" = 1000' EXHIBIT 4    DATE: August, 2002

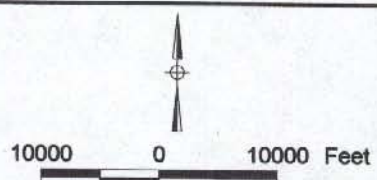




Brazoria\_drainage.apr (exhibit 5 - Chocolate Bayou Drainage) (r)

- LEGEND**
- Watershed Boundry
  - Levee
  - Bodies of Water
  - Streams
  - City Limits

- Roads**
- State Hwy
  - State FM
  - State Spur
  - County Road
  - City Neighborhood
  - City Collector
  - Private Road
  - Privately Maintained
  - Railroads



**KLOTZ ASSOCIATES, INC.**  
CONSULTING ENGINEERS

**BRAZORIA COUNTY MASTER DRAINAGE PLAN**  
CHOCOLATE BAYOU DRAINAGE AREA  
PROJECT NO. 25903  
DRAWN: CHC SCALE: 1" = 1000'  
EXHIBIT 5 DATE: August, 2002





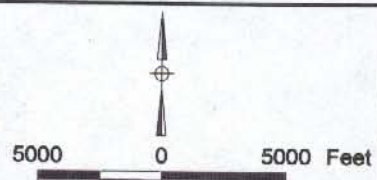
brazoria\_drainage.apr (exhibit 6 - Choc Bayou Detention)

**LEGEND**

- Watershed Boundry
- Levee.shp
- Bodies of Water
- Streams
- City Limits

**Roads**

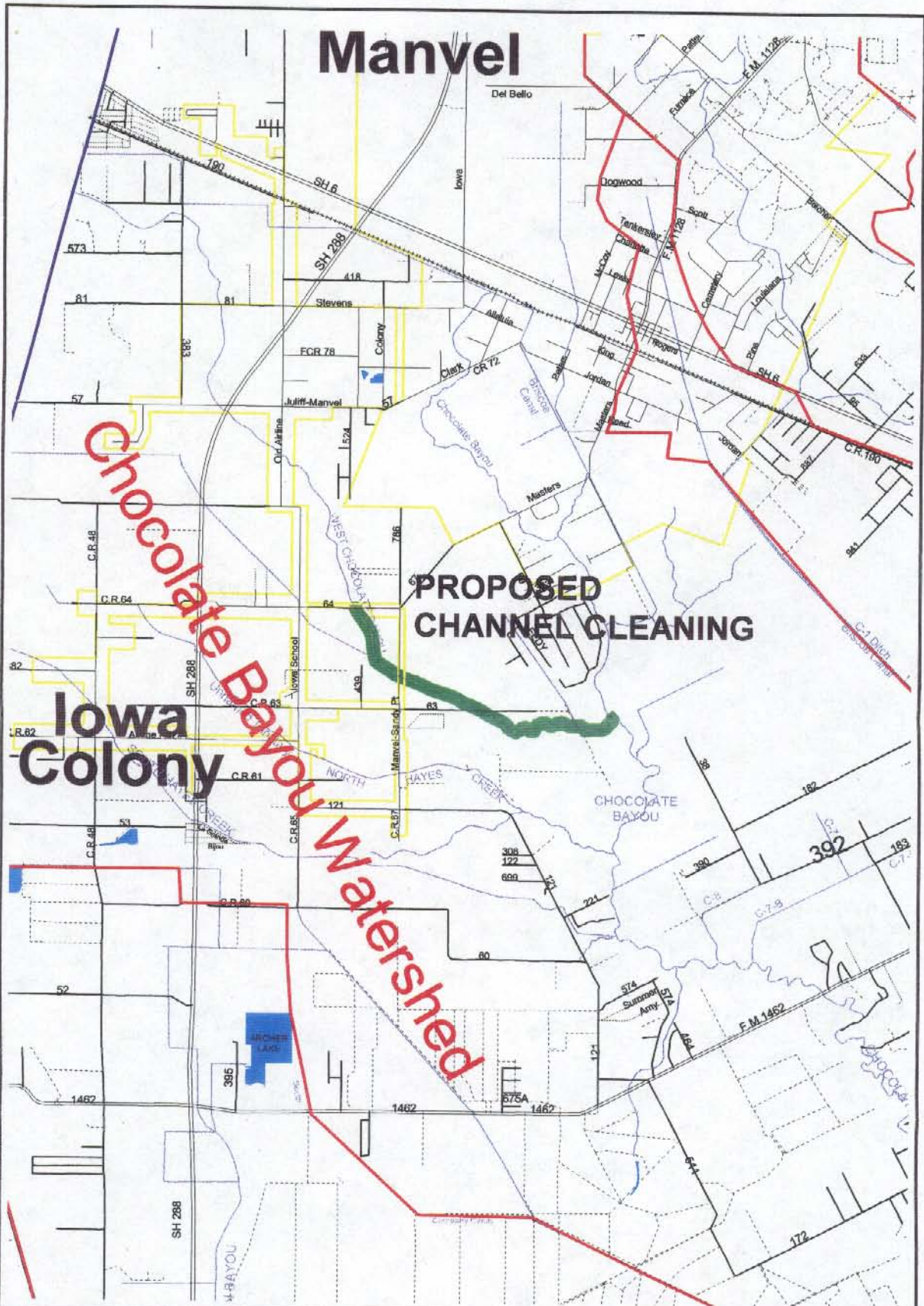
- State Hwy
- State FM
- State Spur
- County Road
- City Neighborhood
- City Collector
- Private Road
- Privately Maintained
- Railroads



**KLOTZ ASSOCIATES, INC.**  
 CONSULTING ENGINEERS  
**BAKER & LAWSON, INC.**  
 ENGINEERS PLANNERS SURVEYORS

**BRAZORIA COUNTY MASTER DRAINAGE PLAN**  
 CHOCOLATE BAYOU PROPOSED DETENTION SITE  
 PROJECT NO. 25903  
 DRAWN: CHC SCALE: 1" = 4000'  
 EXHIBIT 6 DATE: August 2002



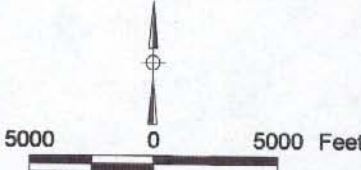


**LEGEND**

- Watershed Boundry
- Levee.shp
- Bodies of Water
- Streams
- City Limits

**Roads**

- State Hwy
- State FM
- State Spur
- County Road
- City Neighborhood
- City Collector
- Private Road
- Privately Maintained
- Railroads

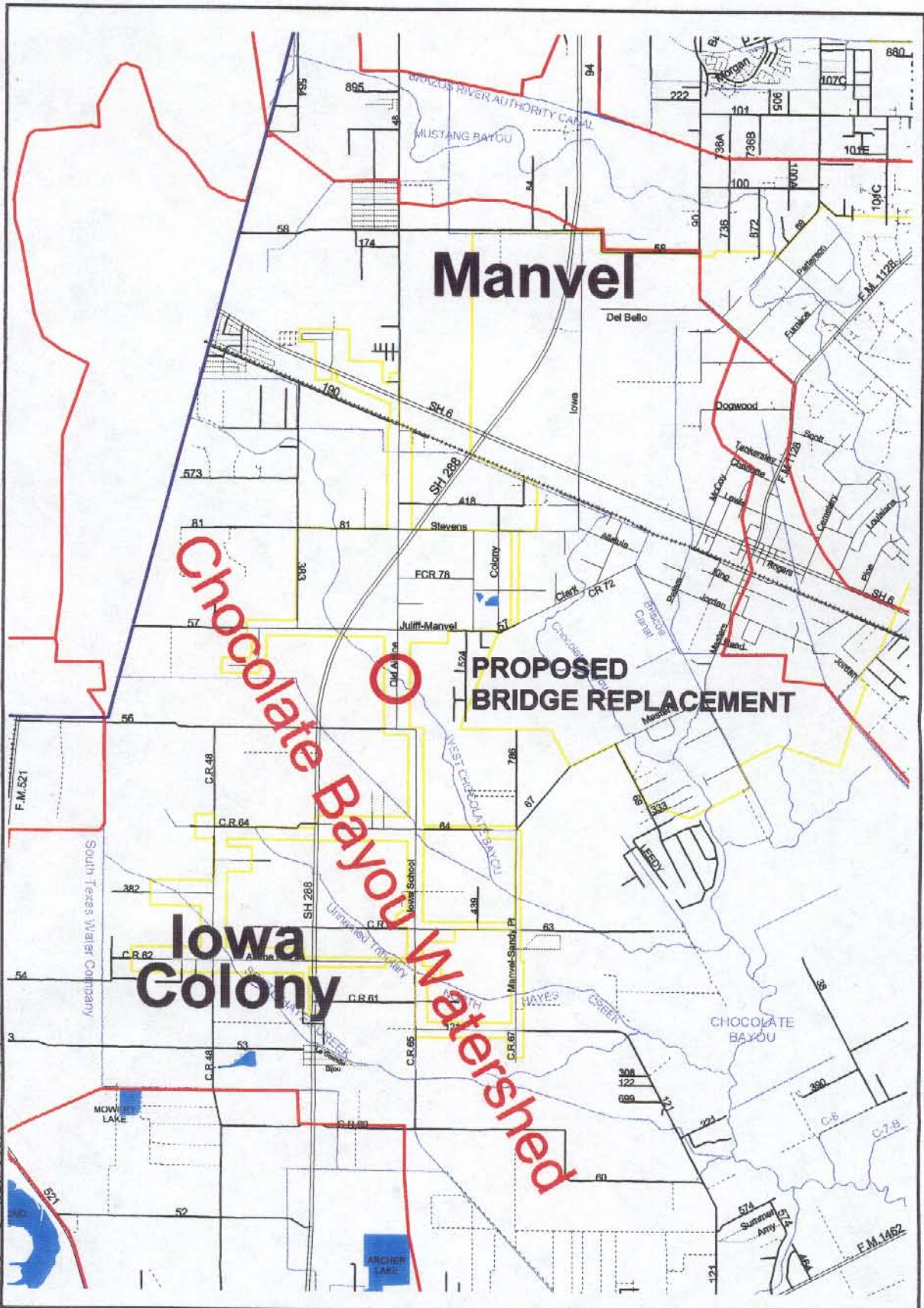


**KLOTZ ASSOCIATES, INC.**  
 CONSULTING ENGINEERS  
**BAKER & LAWSON, INC.**  
 ENGINEERS, PLANNERS, SURVEYORS

**BRAZORIA COUNTY MASTER DRAINAGE PLAN**  
 WEST FORK CHOCOLATE BAYOU PROPOSED CHANNEL CLEANING  
 PROJECT NO. 25903  
 DRAWN: CHC SCALE: 1" = 500'  
 DATE: August, 2002  
 EXHIBIT 7

Brazoria drainage.spr Exhibit 7 - West Chocolate Bayou cleaning.jpg





Chocolate Bayou Watershed

**Manvel**

**Iowa Colony**

**PROPOSED BRIDGE REPLACEMENT**

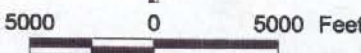
brazoria\_drainage.apr (exhibit 8 - WF-Choc Bayou Bridge.rvt)

**LEGEND**

- Watershed Boundary
- Levee.shp
- Bodies of Water
- Streams
- City Limits

**Roads**

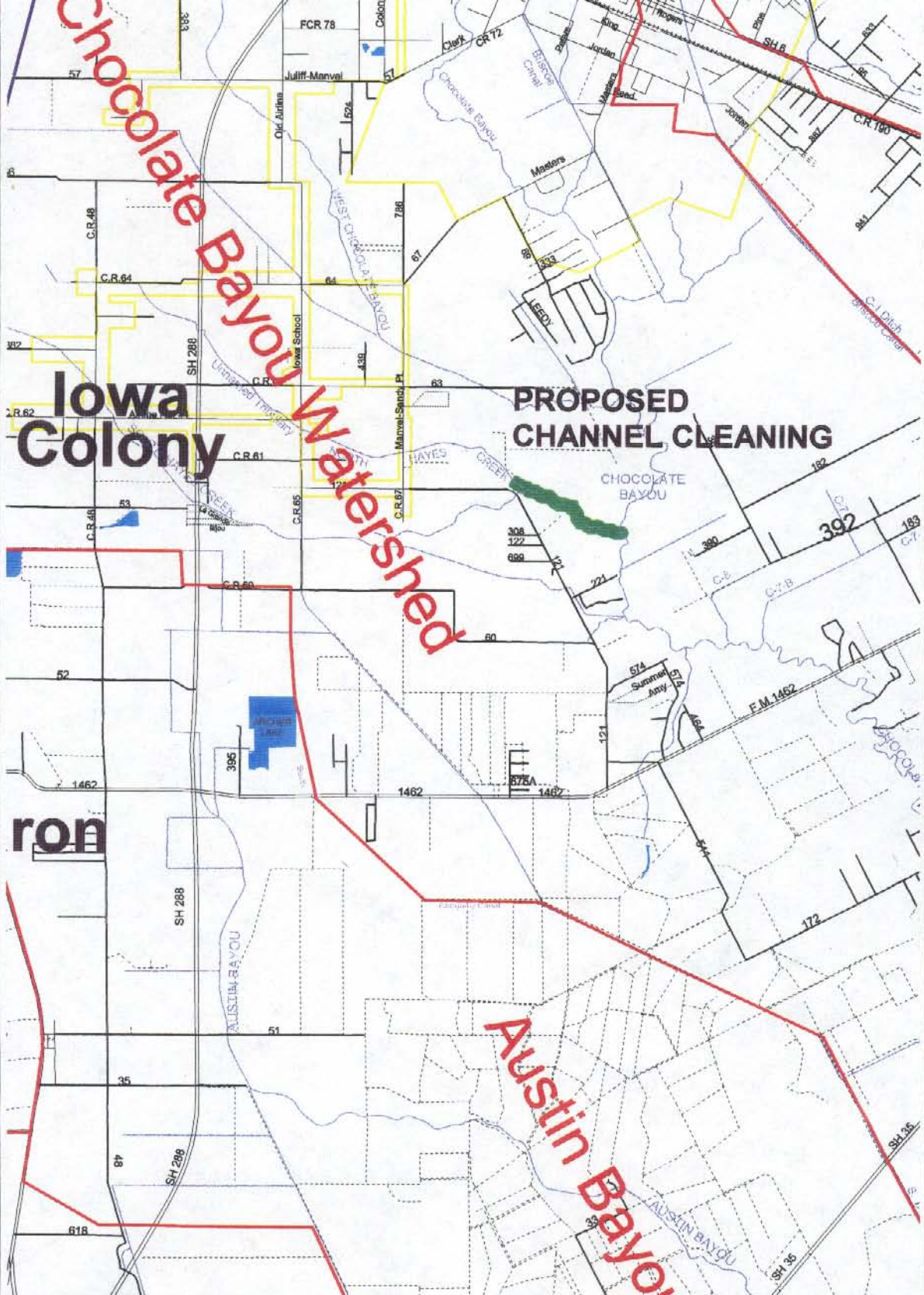
- State Hwy
- State FM
- State Spur
- County Road
- City Neighborhood
- City Collector
- Private Road
- Privately Maintained
- Railroads



**KLOTZ ASSOCIATES, INC.**  
CONSULTING ENGINEERS  
**BAKER & LAWSON, INC.**  
ENGINEERS PLANNERS SURVEYORS

**BRAZORIA COUNTY MASTER DRAINAGE PLAN**  
WEST FORK CHOCOLATE BAYOU  
PROPOSED CRAS BRIDGE REPLACEMENT  
PROJECT NO. 25903  
DRAWN: CHC SCALE: 1" = 5000'  
DATE: August, 2002  
EXHIBIT 8





**Iowa Colony**

**PROPOSED CHANNEL CLEANING**

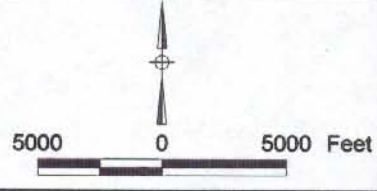
**ron**

**Austin Bayou**

Brazoria, drainage apr (exhibit 9 - North Hayes Creek Cleaning (v))

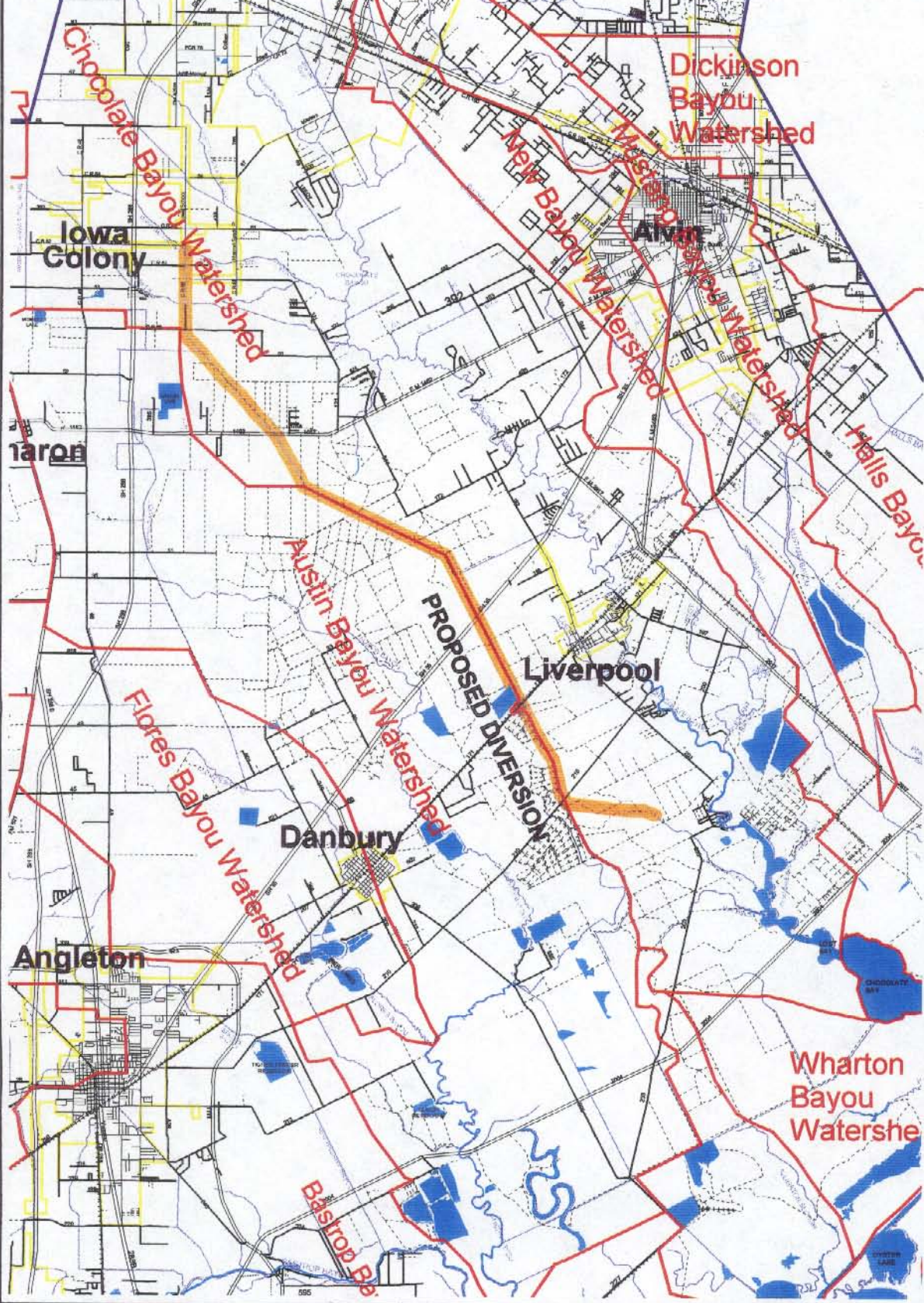
**LEGEND**

- Watershed Boundary
  - Levee.shp
  - Bodies of Water
  - Streams
  - City Limits
- Roads**
- State Hwy
  - State FM
  - State Spur
  - County Road
  - City Neighborhood
  - City Collector
  - Private Road
  - Privately Maintained
  - Railroads



<b>KLOTZ ASSOCIATES, INC.</b> CONSULTING ENGINEERS	<b>BRAZORIA COUNTY MASTER DRAINAGE PLAN</b>
	NORTH HAYES CREEK PROPOSED CHANNEL CLEANING
<b>BAKER &amp; LAWSON, INC.</b> ENGINEERS - PLANNERS SURVEYORS	PROJECT NO. 25903
DRAWN: CHC	SCALE: 1" = 5000'
EXHIBIT 9	DATE: August, 2002





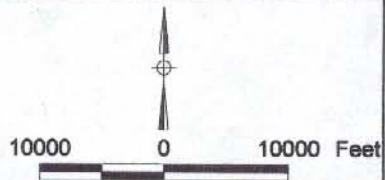
Brazoria\_drainage\_spr (exhibit 10 - Shaves Creek Diversion).jy

**LEGEND**

- Watershed Boundry
- Levee.shp
- Bodies of Water
- Streams
- City Limits

**Roads**

- State Hwy
- State FM
- State Spur
- County Road
- City Neighborhood
- City Collector
- Private Road
- Privately Maintained
- Railroads



**KLOTZ ASSOCIATES, INC.**  
CONSULTING ENGINEERS

**BAKER & LAWSON, INC.**  
ENGINEERS - PLANNERS SURVEYORS

**BRAZORIA COUNTY MASTER DRAINAGE PLAN**

SOUTH HAVES CREEK PROPOSED BRUNNER DITCH DIVERSION

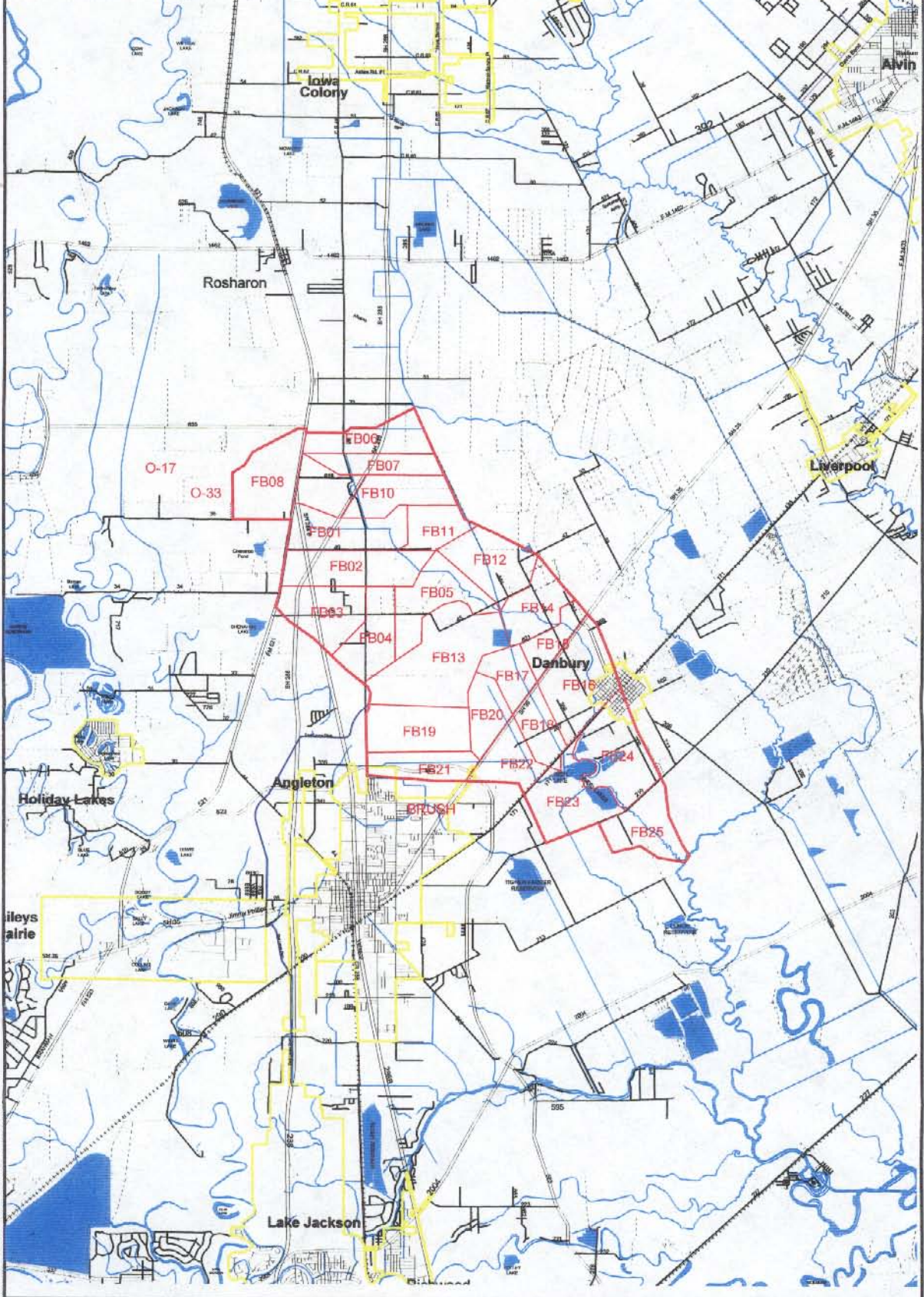
PROJECT NO. 25903

DRAWN: CHC DATE: August, 2002

SCALE: 1" = 1000'

EXHIBIT 10

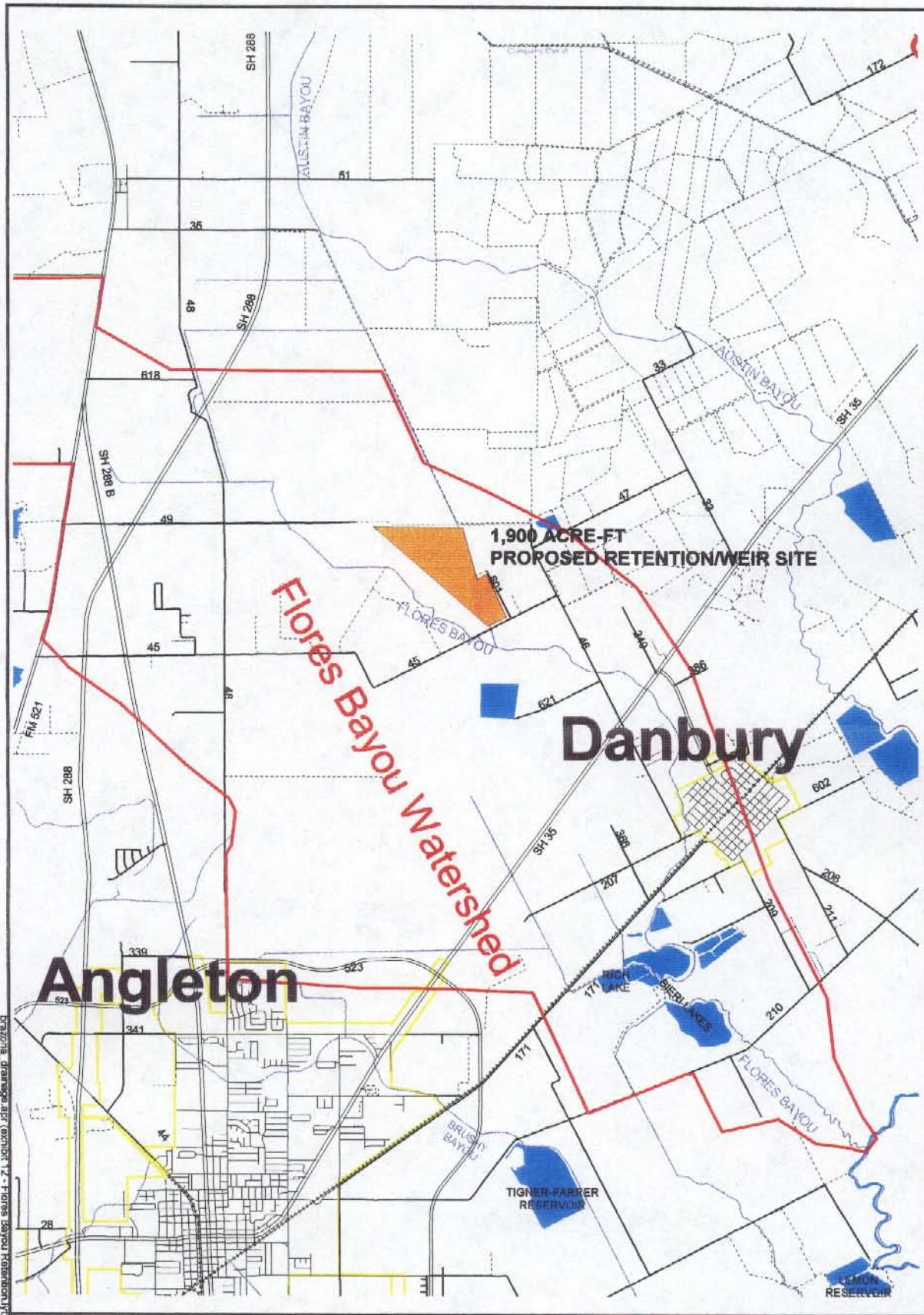




K:\o\_spr\exhibit 11-Flores Bayou-Layout (v)

<p><b>LEGEND</b></p> <ul style="list-style-type: none"> <li><span style="border: 1px solid red; display: inline-block; width: 20px; height: 10px; margin-right: 5px;"></span> Watershed Boundary</li> <li><span style="border-bottom: 1px solid black; width: 20px; margin-right: 5px;"></span> Levee.shp</li> <li><span style="background-color: blue; width: 20px; height: 10px; margin-right: 5px; display: inline-block;"></span> Bodies of Water</li> <li><span style="border-bottom: 1px dashed blue; width: 20px; margin-right: 5px;"></span> Streams</li> <li><span style="border: 2px solid yellow; width: 20px; height: 10px; margin-right: 5px; display: inline-block;"></span> City Limits</li> </ul>	<p><b>Roads</b></p> <ul style="list-style-type: none"> <li><span style="border-bottom: 1px solid black; width: 20px; margin-right: 5px;"></span> State Hwy</li> <li><span style="border-bottom: 1px dashed black; width: 20px; margin-right: 5px;"></span> State FM</li> <li><span style="border-bottom: 1px dotted black; width: 20px; margin-right: 5px;"></span> State Spur</li> <li><span style="border-bottom: 1px solid black; width: 20px; margin-right: 5px;"></span> County Road</li> <li><span style="border-bottom: 1px solid black; width: 20px; margin-right: 5px;"></span> City Neighborhood</li> <li><span style="border-bottom: 1px solid black; width: 20px; margin-right: 5px;"></span> City Collector</li> <li><span style="border-bottom: 1px solid black; width: 20px; margin-right: 5px;"></span> Private Road</li> <li><span style="border-bottom: 1px solid black; width: 20px; margin-right: 5px;"></span> Privately Maintained</li> <li><span style="border-bottom: 1px solid black; width: 20px; margin-right: 5px;"></span> Railroads</li> </ul>		<p><b>KLOTZ ASSOCIATES, INC.</b> CONSULTING ENGINEERS</p> <p><b>BRAZORIA COUNTY MASTER DRAINAGE PLAN</b></p> <p><b>FLORES BAYOU DRAINAGE AREA</b></p> <p>PROJECT NO. 25903</p> <p>DRAWN: CAP SCALE: 1" = 1000'</p> <p>EXHIBIT 11 DATE: August, 2002</p>
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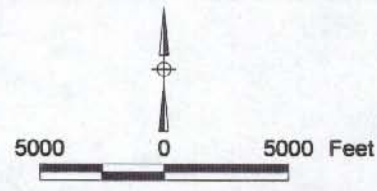
Brazoria drainage.dwg (import) 12 - Flores Bayou Retention Weir

**LEGEND**

- Watershed Boundary
- Levee.shp
- Bodies of Water
- Streams
- City Limits

**Roads**

- State Hwy
- State FM
- State Spur
- County Road
- City Neighborhood
- City Collector
- Private Road
- Privately Maintained
- Railroads

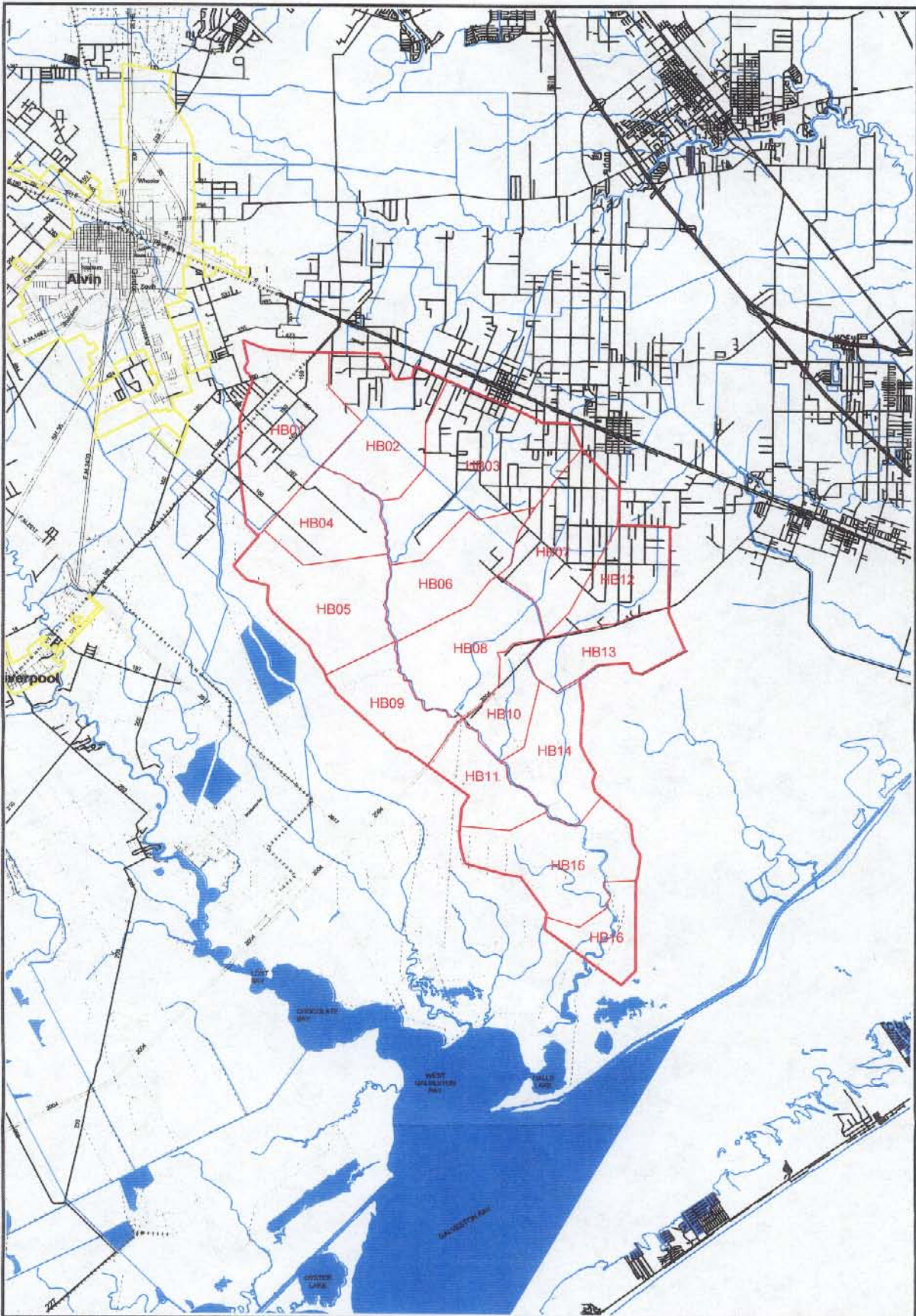


**KLOTZ ASSOCIATES, INC.**  
 CONSULTING ENGINEERS  
**BAKER & LAWSON, INC.**  
 ENGINEERS - PLANNERS - SURVEYORS

**BRAZORIA COUNTY MASTER DRAINAGE PLAN**

FLORES BAYOU PROPOSED RETENTION/WEIR SITE	
PROJECT NO. 25903	
DRAWN: CHC	SCALE: 1" = 500'
EXHIBIT 12	DATE: August, 2002

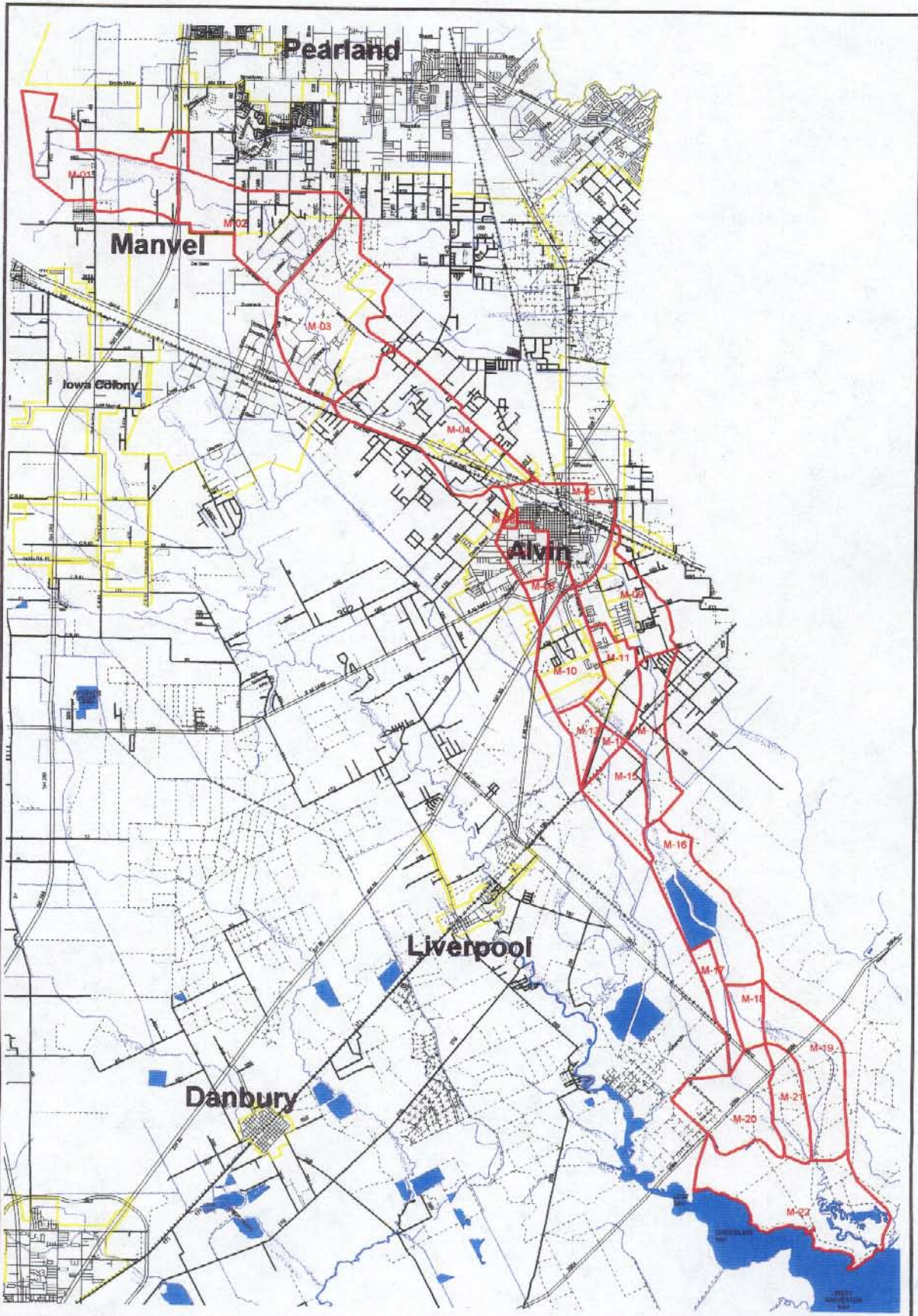




kco apr\exhibit 13-Halls Bayou-Layou13.mxd

<b>LEGEND</b> Watershed Boundary Levee.shp Bodies of Water Streams City Limits		<b>Roads</b> State Hwy State FM State Spur County Road City Neighborhood City Collector Private Road Privately Maintained Railroads	 	<b>KLOTZ ASSOCIATES, INC.</b> CONSULTING ENGINEERS	<b>BRAZORIA COUNTY MASTER DRAINAGE PLAN</b> HALLS BAYOU DRAINAGE AREA PROJECT NO. 25903 DRAWN: CAP SCALE: 1" = 1000' DATE: August, 2002 EXHIBIT 13
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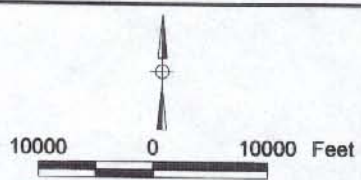




Brazoria\_drainage.apr (exhibit 14 - Mustang Bayou Drainage) (v)

- LEGEND**
- Watershed Boundry
  - Levee
  - Bodies of Water
  - Streams
  - City Limits

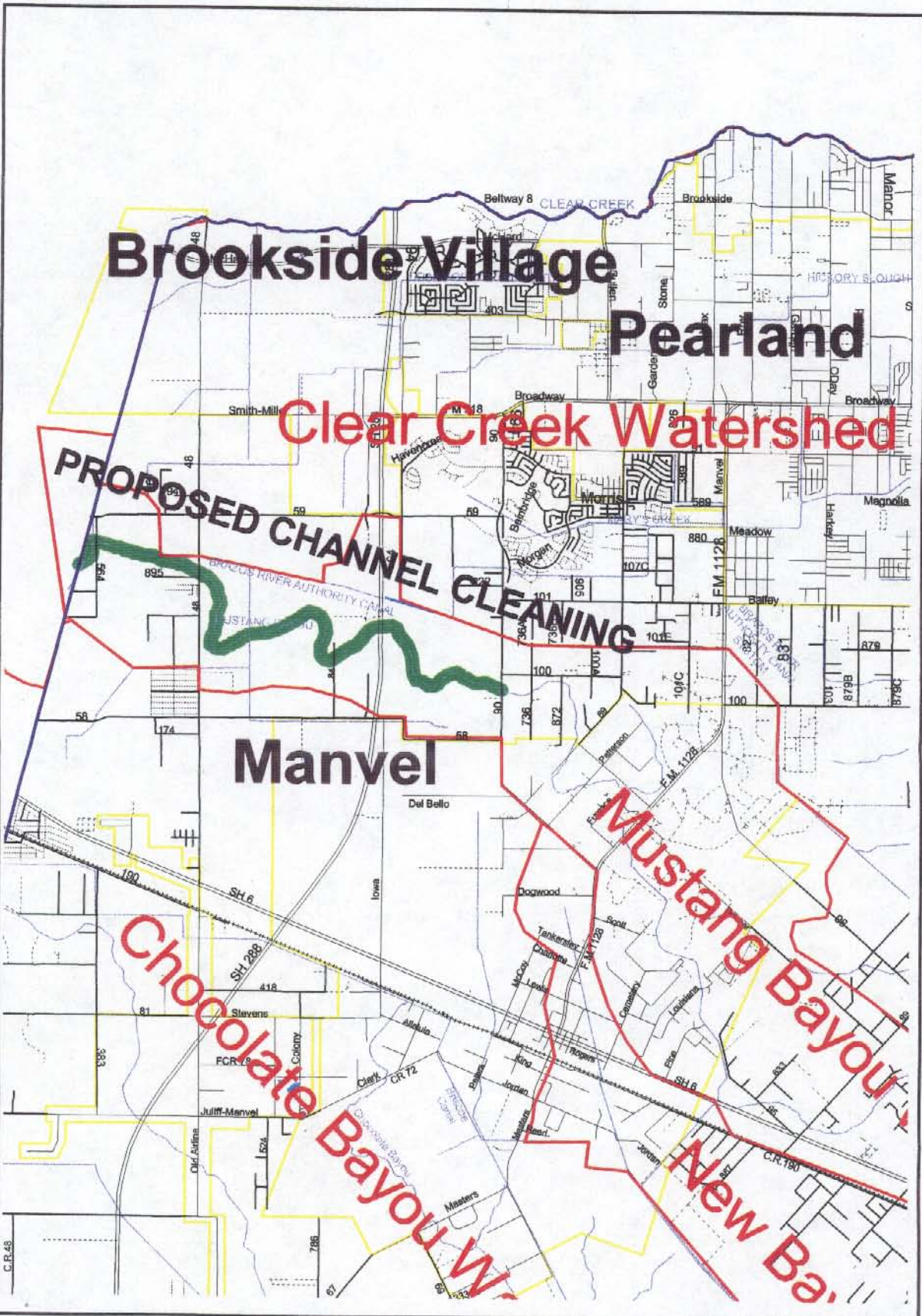
- Roads**
- State Hwy
  - State FM
  - State Spur
  - County Road
  - City Neighborhood
  - City Collector
  - Private Road
  - Privately Maintained
  - Railroads



**KLOTZ ASSOCIATES, INC.**  
CONSULTING ENGINEERS  
**BAKER & LAWSON, INC.**  
ENGINEERS - PLANNERS SURVEYORS

**BRAZORIA COUNTY MASTER DRAINAGE PLAN**  
**MUSTANG BAYOU DRAINAGE AREA**  
PROJECT NO. 25903  
DRAWN: CHC DATE: August, 2002  
SCALE: 1" = 10000'

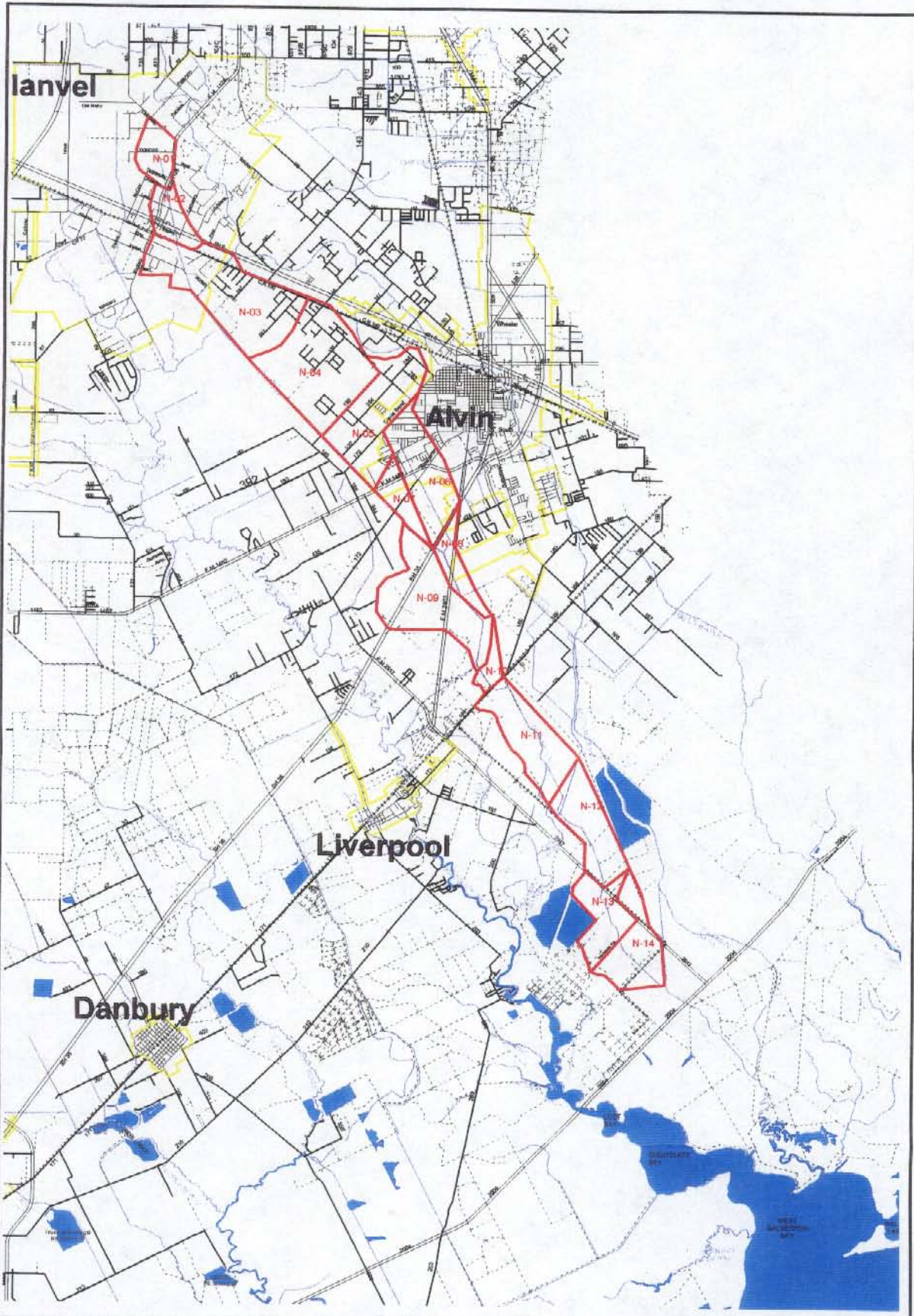




Brazoria\_drainage.apr (exhibit 15 - Mustang Bayou Cleaning) (1)

<b>LEGEND</b> 			<b>KLOTZ ASSOCIATES, INC.</b> CONSULTING ENGINEERS <b>BAKER &amp; LAWSON, INC.</b> ENGINEERS PLANNERS SURVEYORS	<b>BRAZORIA COUNTY MASTER DRAINAGE PLAN</b>
				MUSTANG BAYOU PROPOSED CHANNEL CLEANING PROJECT NO. 25903 DRAWN: CHC SCALE 1"=5000 DATE: August 2002

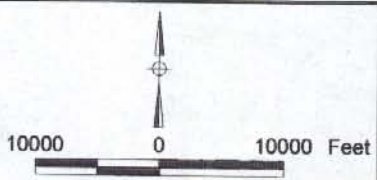




Brazoria\_drainage.apr (Exhibit 16 - New Bayou Drainage) (M)

- LEGEND**
- Watershed Boundry
  - Levee
  - Bodies of Water
  - Streams
  - City Limits

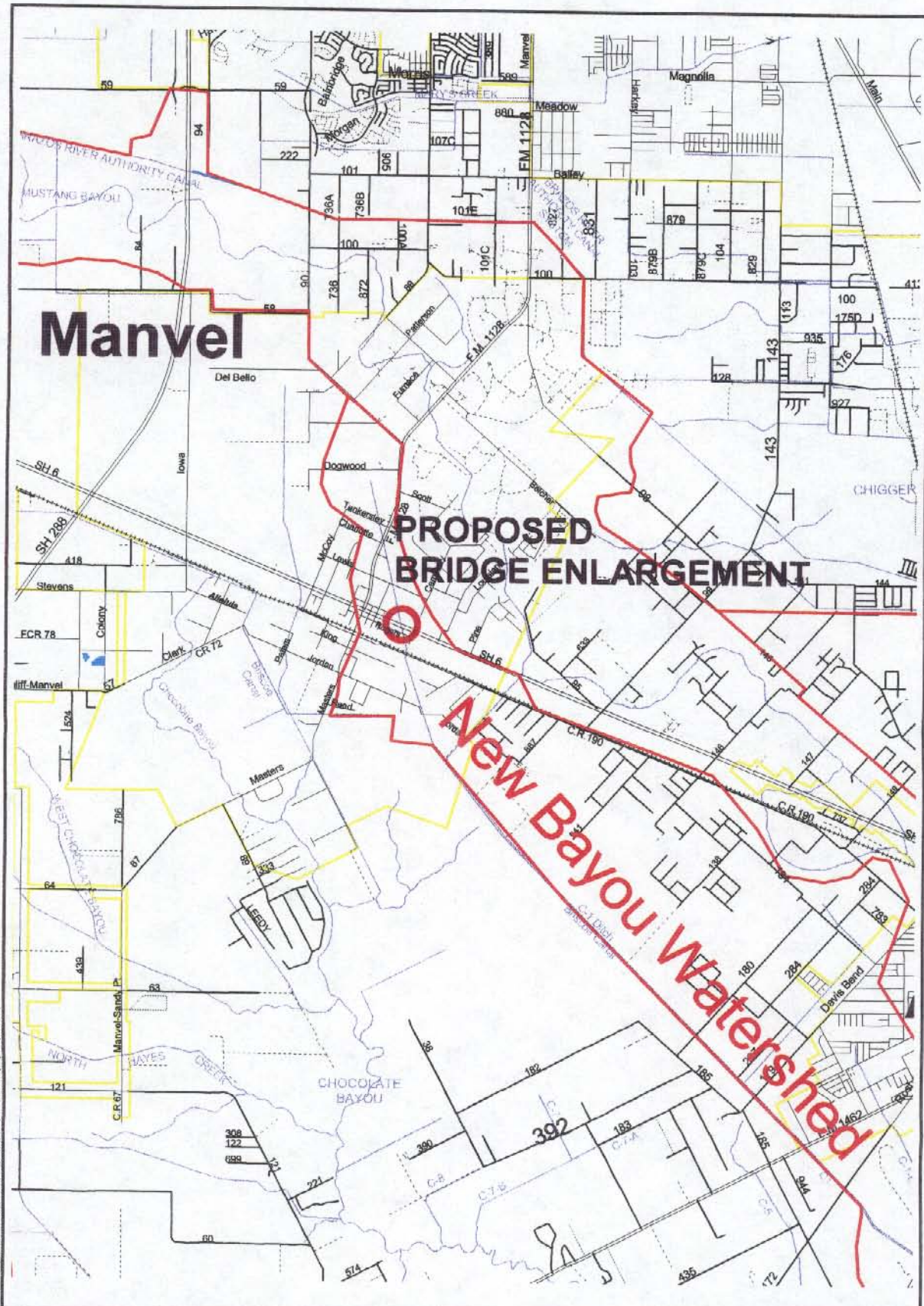
- Roads**
- State Hwy
  - State FM
  - State Spur
  - County Road
  - City Neighborhood
  - City Collector
  - Private Road
  - Privately Maintained
  - Railroads



**KLOTZ ASSOCIATES, INC.**  
 CONSULTING ENGINEERS  
**BAKER & LAWSON, INC.**  
 ENGINEERS, PLANNERS, SURVEYORS

BRAZORIA COUNTY MASTER DRAINAGE PLAN	
NEW BAYOU DRAINAGE AREA	
PROJECT NO. 25903	
DRAWN: CHC	SCALE: 1" = 10000'
EXHIBIT 16	DATE: August, 2002

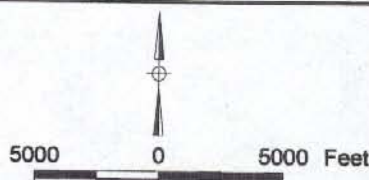




Brazoria drainage.spr (exhibit 17 - New Bayou SH6 Bridge JN)

- LEGEND**
- Watershed Boundry
  - Levee.shp
  - Bodies of Water
  - Streams
  - City Limits

- Roads**
- State Hwy
  - State FM
  - State Spur
  - County Road
  - City Neighborhood
  - City Collector
  - Private Road
  - Privately Maintained
  - Railroads



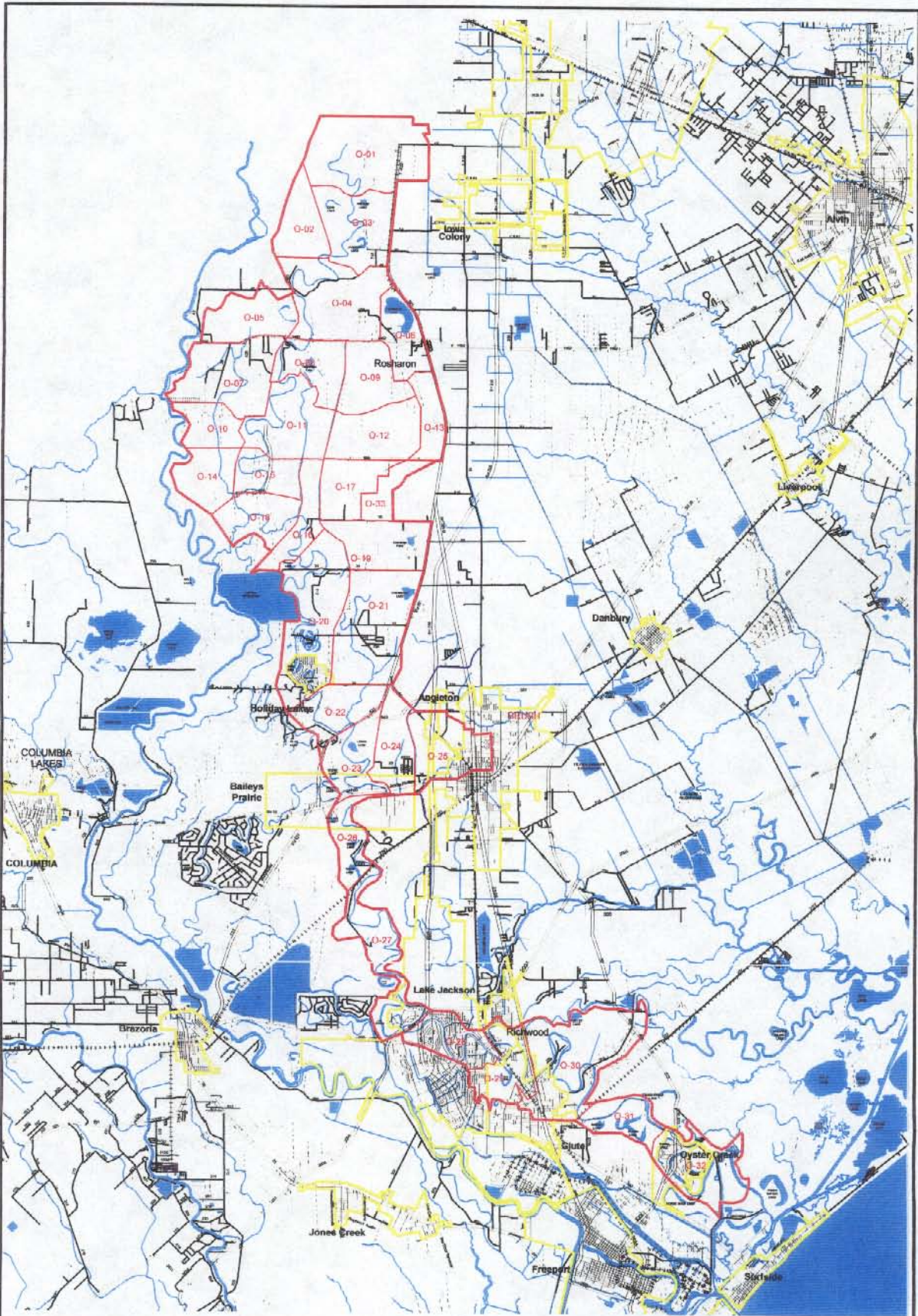
**KLOTZ ASSOCIATES, INC.**  
 CONSULTING ENGINEERS  
**BAKER & LAWSON, INC.**  
 ENGINEERS PLANNERS SURVEYORS

**BRAZORIA COUNTY MASTER DRAINAGE PLAN**

NEW BAYOU PROPOSED SH 6 BRIDGE ENLARGEMENT  
 PROJECT NO. 25903

DRAWN: CHC SCALE 1" = 5000'  
 DATE: August 2002  
 EXHIBIT 17

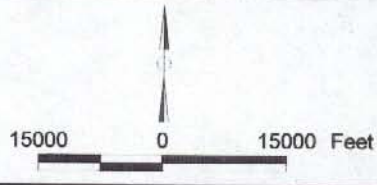




KLOTZ ASSOCIATES, INC.

**LEGEND**

- Watershed Boundry
  - Flood Protection Levee
  - Bodies of Water
  - Streams
  - City Limits
- Roads**
- State Hwy
  - State FM
  - State Spur
  - County Road
  - City Neighborhood
  - City Collector
  - Private Road
  - Privately Maintained
  - Railroads



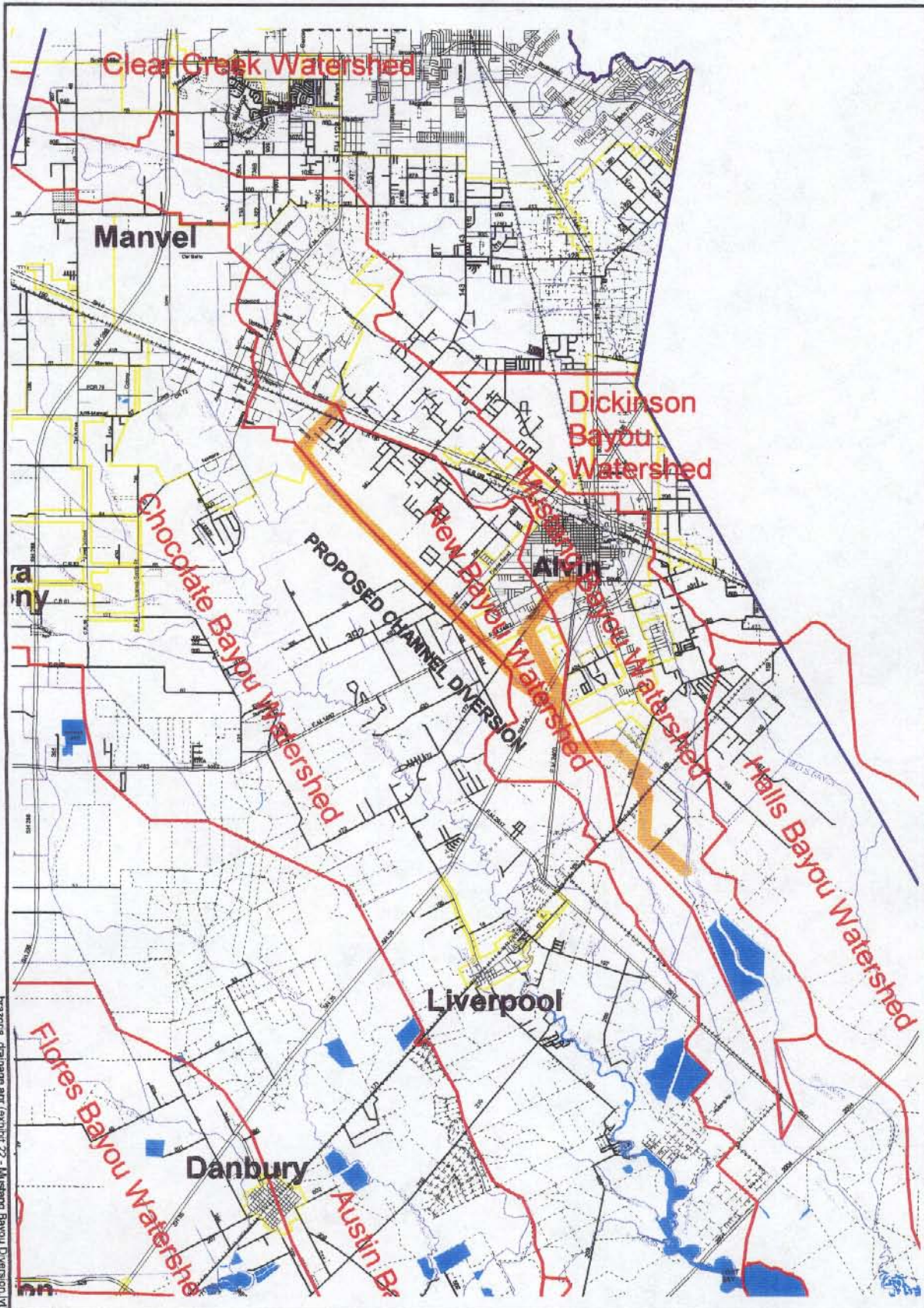
**KLOTZ ASSOCIATES, INC.**  
 CONSULTING ENGINEERS  
**BAKER & LAWSON, INC.**  
 ENGINEERS, PLANNERS, SURVEYORS

**BRAZORIA COUNTY MASTER DRAINAGE PLAN**  
**OYSTER CREEK DRAINAGE AREA**  
 PROJECT NO. 25903  
 DRAWN: MCG    SCALE: 1" = 1000'  
 EXHIBIT 18    DATE: August, 2002









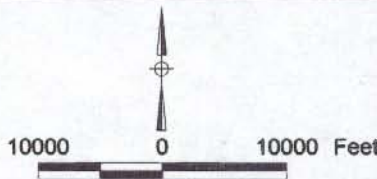
brazoria\_drainage.aprx (exhibit 22 - Mustang Bayou Diversion) [M]

**LEGEND**

- Watershed Boundry
- Levee.shp
- Bodies of Water
- Streams
- City Limits

**Roads**

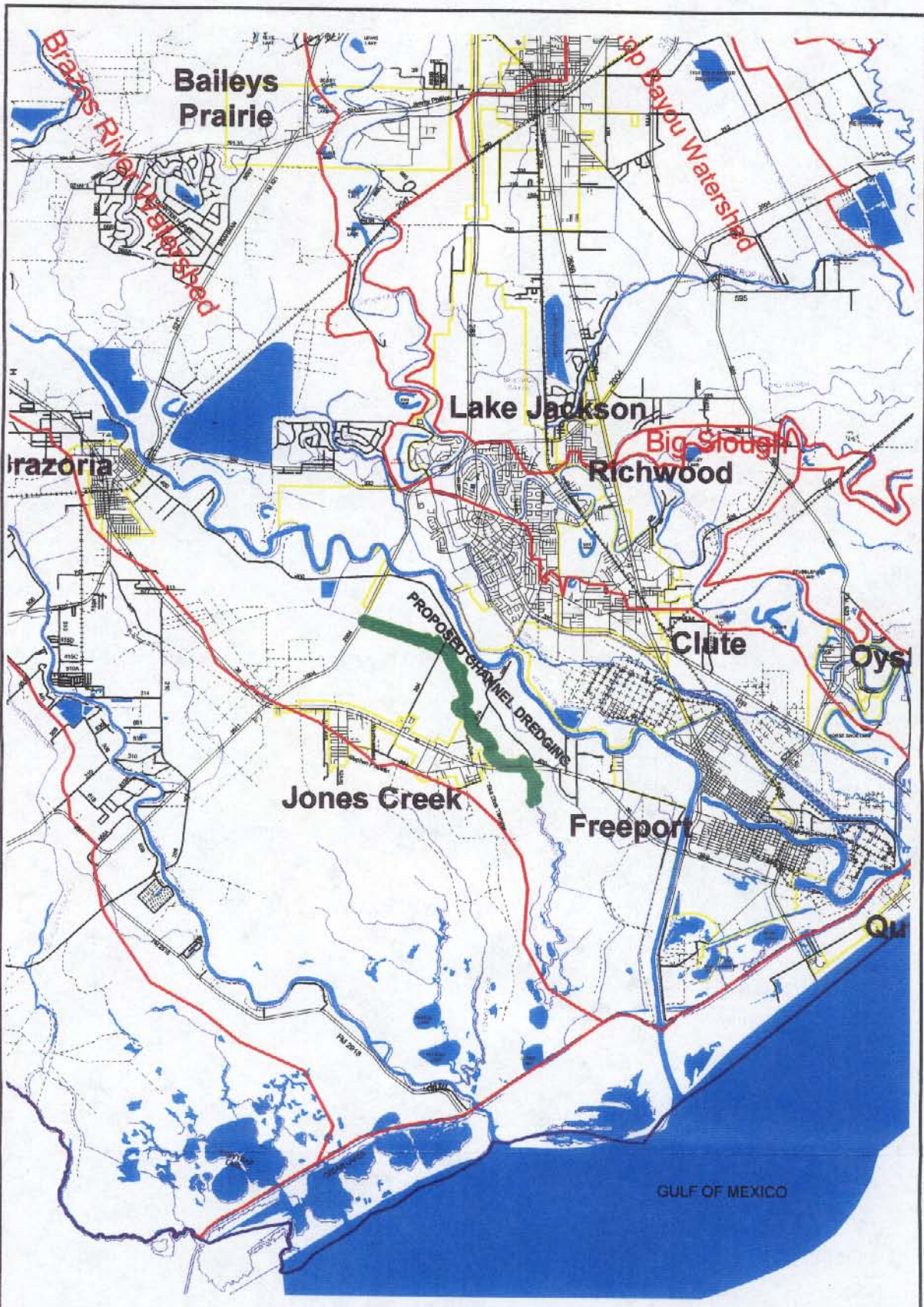
- State Hwy
- State FM
- State Spur
- County Road
- City Neighborhood
- City Collector
- Private Road
- Privately Maintained
- Railroads



**KLOTZ ASSOCIATES, INC.**  
CONSULTING ENGINEERS  
**BAKER & LAWSON, INC.**  
ENGINEERS - PLANNERS SURVEYORS

**BRAZORIA COUNTY MASTER DRAINAGE PLAN**  
MUSTANG BAYOU PROPOSED CHANNEL DIVERSION  
PROJECT NO. 25903  
DRAWN: CHC SCALE: 1" = 10000'  
DATE: August, 2002  
EXHIBIT 22

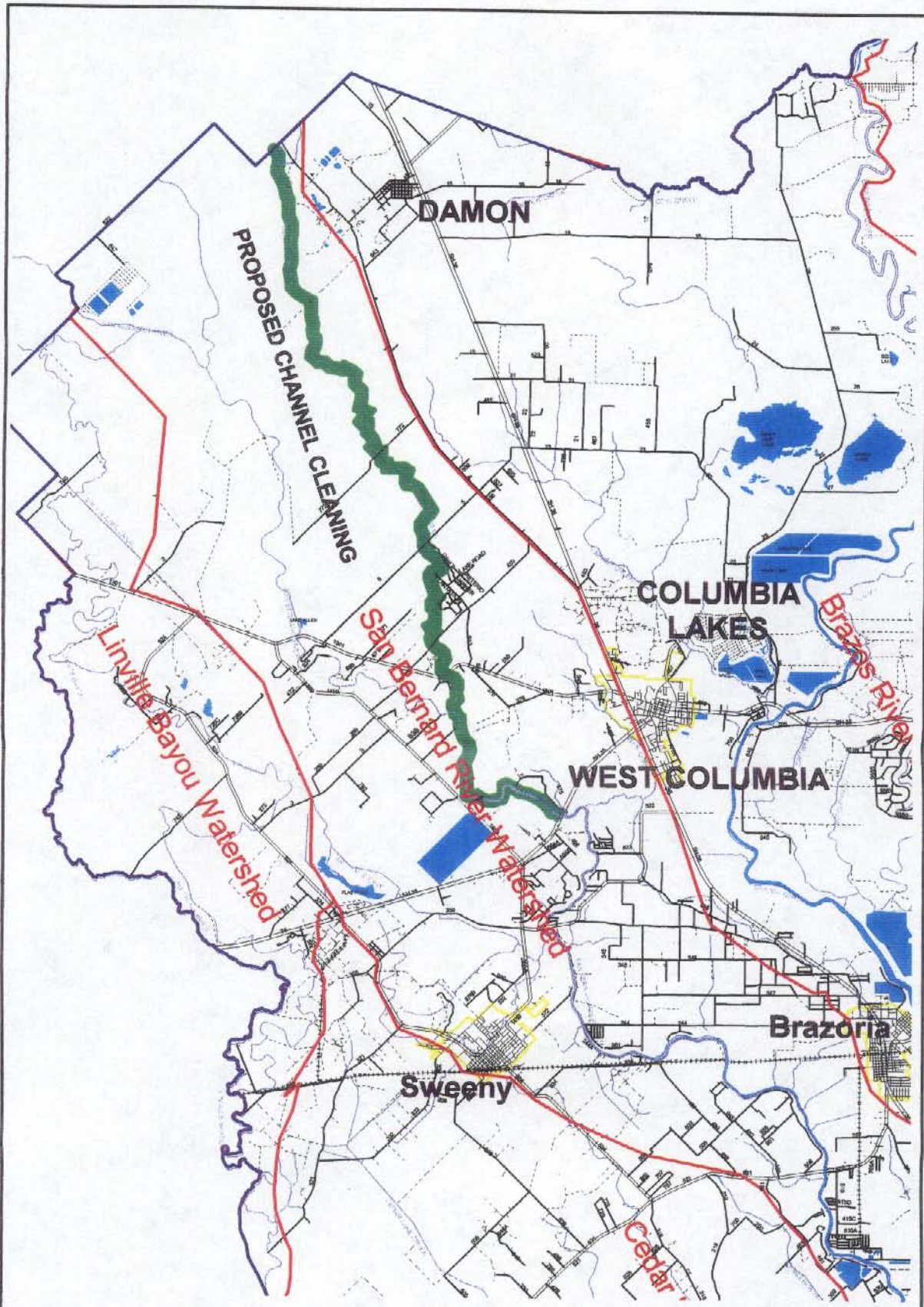




brazoria\_drainage.apr (exhibit 24 - Jones Creek Dredging) (1)

<b>LEGEND</b> 			<b>KLOTZ ASSOCIATES, INC.</b> CONSULTING ENGINEERS <b>BAKER &amp; LAWSON, INC.</b> ENGINEERS PLANNERS SURVEYORS	<b>BRAZORIA COUNTY MASTER DRAINAGE PLAN</b>
				JONES CREEK PROPOSED CHANNEL DREDGING PROJECT NO. 25903 DRAWN: CHC SCALE: 1" = 1000' EXHIBIT 24 DATE: August, 2002

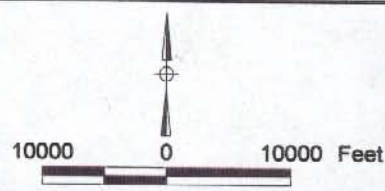




brazoria\_drainage.aprx (exhibit 25 - Mound Creek Cleaning.lyr)

**LEGEND**

- Watershed Boundary
  - Levee.shp
  - Bodies of Water
  - Streams
  - City Limits
- Roads**
- State Hwy
  - State FM
  - State Spur
  - County Road
  - City Neighborhood
  - City Collector
  - Private Road
  - Privately Maintained
  - Railroads



<p><b>KLOTZ ASSOCIATES, INC.</b> CONSULTING ENGINEERS</p> <p><b>BAKER &amp; LAWSON, INC.</b> ENGINEERS PLANNERS SURVEYORS</p>	<p><b>BRAZORIA COUNTY MASTER DRAINAGE PLAN</b></p> <p>MOUND CREEK PROPOSED CHANNEL CLEANING</p> <p>PROJECT NO. 25903</p> <p>DRAWN: CHC SCALE: 1" = 1000'</p> <p>DATE: August, 2002</p>
---	--

KLOTZ  
ASSOCIATES,  
INC.

CONSULTING  
ENGINEERS



## Appendix A

### Selected Field Photographs

**Brazoria County Master Drainage Plan**  
**North East**



Photograph No. 11140

1. Downstream side of bridge located on FM 2004 over Austin Bayou Southeast of Danbury, Texas.



Photograph No. 11142

2. Downstream side of bridge located on CR 51 over Austin Bayou Southeast of Rockport, Texas.



**Brazoria County Master Drainage Plan**  
**Austin Bayou**

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Photograph (date) 6/27/00

3. Downstream side of bridge located on FM 1462 over Austin Bayou east of Rosharon, Texas.
- 



Photograph (date) 6/27/00

4. Downstream side of bridge located on CR 51 over Austin Bayou near Rosharon.





Photograph (file 60400)

5. Downstream side of bridge located on CR 210 over Austin Bayou east of Danbury, Texas.
- 



Photograph (file 60400)

6. Downstream side of bridge located on CR 171 over Austin Bayou north of Danbury, Texas.

**Brazoria County Master Drainage Plan**  
**North Side**



Photograph 006 01/14/10

**7. Downstream side of bridge located on CR 171 over Austin Bayou north of Danbury, Texas.**



Photograph 006 01/14/10

**8. Downstream side of bridge located on Highway 20 over Austin Bayou north of Danbury, Texas.**



Photograph No. 0990

9. Downstream side of bridge located on CR 33 over Austin Bayou on the water side of Gagnett Farms.



Photograph No. 0992

10. Downstream side of bridge located on CR 200 over Austin Bayou south of of Danby, Texas.

**Brazoria County Master Drainage Plan  
Bathing Bayou**



August 14, 2012

1. Downstream side of bridge located on FM 523 over Bathing Bayou.



August 14, 2012

2. Downstream side of bridge located on CR 227 over Bathing Bayou near Devi John Island.



**Acquired 04/1992**

**3. Downstream side of bridge located on Highway 200 B over Barlog Bayou.**



**Acquired 04/2002**

**4. Downstream side of bridge located next to CR 200 over Barlog Bayou southeast of Angleton, Texas.**

**Blount County Master Drainage Plan  
Barlow Basin**



Photograph taken 10/2012

5. Downstream side of bridge located on Hwy 200 over the north branch of Barlow Basin.



Photograph taken 10/2012

5. Creeper over Barlow Basin near CR 220.



Blount Co. 4/28/17

1. Downstream side of the bridge on FM 1128 over Ditch C-1.



Blount Co. 4/28/17

2. Downstream side of the bridge at the end of Cedar St. over Ditch C-1.



**Photograph 106-2028**

**3. Downstream side of bridge on FM 2403 over Ditch C-1.**

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**Photograph 106-2029**

**4. Downstream side of bridge on SH 6 over Ditch C-1.**





Photograph taken 6/20/20

8. Downstream side of bridge on Rogers Road over Ditch C-1.



Photograph taken 6/20/20

9. Downstream side of the RR bridge on CR 190 over Ditch C-1.



Photograph taken 6/18/21

F. Downstream side of bridge on CR 900 over Ditch C-1.



Photograph taken 6/18/21

G. Downstream side of bridge on CR 579 over Ditch C-1.



Photograph taken 4/18/12

9. Downstream side of bridge on FM 1462 over Ditch C-1 near Abbe.



Photograph taken 4/18/12

10. Downstream side of bridge on CR 172 over Ditch C-1.



Photograph taken 4/2012

11. Downstream side of bridge on SH 26 over Ditch C-1 south of Abilene.

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Photograph taken 4/2012

12. Downstream view of bridge on Lewis St. over Ditch C-1 in Marvell, Texas.



Photograph taken 6/20/10

13. Upstream side of the Crossover on FM 2403 over DRA C-1.



Photograph taken 6/20/10

14. Upstream side of the dam in DRA C-1 at New Bayou.



Photograph taken 2/2012

15. 34" emp canal over Ditch C-1 between Alvin and Marvel



Photograph taken 2/2012

16. 12" HDPE pipeline going over Ditch C-1 between Alvin and Marvel

**Blount County Master Drainage Plan  
Chocolate Bayou**

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**August 16, 2011**

**1. Upstream side of the bridge on SH 8 over Chocolate Bayou.**

---



**August 16, 2011**

**2. Downstream side of the RR bridge south of SH 8 over Chocolate Bayou.**

**Blount County Master Stream Plan  
Chocolate Bayou**



Photograph taken 1/19/02

3. Downstream side of the gravel road bridge between the railroad and water canal.



Photograph taken 1/19/02

4. Upstream side of the bridge on Alliecia Trail over Chocolate Bayou.



**Blount County Master Drainage Plan  
Chocolate Bayou**



**Photograph 104 (1/18)**

**5. Downstream side of the bridge on CR 72 over Chocolate Bayou.**



**Photograph 105 (1/18)**

**6. Downstream side of the bridge on CR 67 over Chocolate Bayou.**



*Photograph by KTRB*

**1. Downstream side of the bridge on CR 171 over Flow Bay in Dandridge, Texas.**

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*Photograph by KTRB*

**2. Downstream side of the bridge on CR 257 over Flow Bay in Dandridge, Texas.**

**Brazoria County Master Drainage Plan  
Flora Bayou**



Photograph by 2010

**3. Downstream side of the bridge on CR 210 over Flora Bayou southeast of Danbury, Texas.**



Photograph by 2010

**4. Downstream side of the bridge on Highway 25 over Flora Bayou northwest of Danbury, Texas.**

**Blount County Master Drainage Plan**  
**Flood Study**



*Acquired via Google*

**B. Downstream side of the bridge on CR 40 over Floss Bayou west of Danbury, Texas.**



*Acquired via Google*

**B. Downstream side of the bridge on CR 40 over Floss Bayou west of Danbury, Texas.**

**Brazoria County Master Drainage Plan**

Flores Bayou



Photograph (date) 6/26/00

7. Downstream side of the bridge on CR49 over Flores Bayou south of Rosharon, Texas.



Photograph 006 071001

1. Downstream side of bridge on CR100 over Ditch M-1 south of Alden, Texas.



Photograph 006 071001

2. Downstream side of bridge on the Herring's property over Ditch M-1.



Photograph 004 01002

3. Downstream side of bridge on CR 150 over Ditch M-1 southeast of Acker, Texas.



Photograph 004 01003

4. Upstream side of bridge on CR 150 over Ditch M-1.



Revised 04/2024

5. Downstream side of RR bridge on CR 459 over Ditch M-1.



Revised 04/2024

6. Downstream side of bridge on CR 424 over Ditch M-1 in Abil, Texas.





Photograph 004 01002

1. Downstream side of bridge on FM 1123 over Marling Bayou



Photograph 004 01003

2. Downstream side of bridge on Louisiana St. over Marling Bayou.



Photograph taken 6/18/12

3. Downstream side of bridge on a private road in the Phillipsville area southeast of Marysville.



Photograph taken 6/18/12

4. Upstream view of a pipeline from the bridge.

**Blount County Master Strategic Plan**  
**Marketing Goals**



**Photograph taken 4/20/21**

**5. Downhill view of a pipeline from the bridge.**



**Photograph taken 4/20/21**

**6. Upstream side of a bridge located in the Rice-Tee field over Marling Bayou.**



August 16, 2011

7. Upstream side of a pipeline from the bridge to Rice Ten.



August 16, 2011

8. Upstream side of bridge on Hwy 25 Bypass (northbound) over Marling Bayou.



Photograph taken 4/2018

9. Downstream side of a pipeline from the Hwy 28 Bypass (northbound) bridge.



Photograph taken 4/2018

10. Downstream side of bridge on Hwy 28 Bypass (northbound) over Marling Run.

**Blount County Master Drainage Plan**  
**Marling Drain**



Photograph taken 2018

11. Downstream side of a bridge on a private road controlled by Phillips Petroleum just off CR 100.



Photograph taken 2018

12. Downstream side of bridge on Mangum's property off CR 100 over Marling Drain.

**Brazoria County Master Drainage Plan  
Murlang Bayou**



*Photograph taken 4/18/13*

13. Downstream side of a bridge on the MoP as tracks over Murlang Bayou just north of CR 150.



*Photograph taken 4/18/13*

14. Downstream side of bridge on CR 150 over Murlang Bayou near Abil, Texas.



Photograph 108 2/10/03

108. Downstream side of a bridge on CR 103 over Marling Bayou.



Photograph 109 2/10/03

109. Upstream side of bridge on CR 103 over Marling Bayou.



**Greenville County Master Drainage Plan  
Marling Bayou**



**Photograph 046 7/2002**

**17. Downstream side of a bridge on South 58, over Marling Bayou.**



**Photograph 046 2/2002**

**18. Downstream side of bridge on Route 58, over Marling Bayou.**



Photograph by 2008

19. Upstream side of a pipeline next to House St. bridge over Martins Bayou.



Photograph by 2008

20. Upstream side of bridge on the railroad tracks over Martins Bayou just east of Hwy 261 Business.



**Photograph taken 2/2002**

**21. Downstream side of a bridge on Old Galveston Road over Morking Bayou.**



**Photograph taken 2/2002**

**22. Downstream side of a bridge on Highway 26 Business over Morking Bayou.**



Photograph 23 (2008)

23. Downstream side of a bridge on RR 5400 over Marling Bayou just east of Second St.

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Photograph 24 (2008)

24. Downstream side of a bridge on Second St. over Marling Bayou.



Photograph taken 2/2012

25. Downstream side of a bridge located at the Alvin Golf Course walk path over Marling Bayou.



Photograph taken 2/2012

26. Bridge located at the Alvin Golf Course (South looking north) over Marling Bayou.



August 14, 2018

27. Downstream side of a bridge on CR 684C over Marling Dams.



August 14, 2018

28. Downstream side of a bridge located on CR 140 over Marling Dams.



Photograph taken 2/20/21

29. Downstream side of a bridge on CR 658 over Mudlog Run.



Photograph taken 2/20/21

30. Downstream side of a bridge located on CR 147 over Mudlog Run.



Project No. 1048

21. Downstream side of a bridge on CR 148 (Shesober Lane) over Marling Bayou.



Project No. 1048

22. Downstream side of a bridge located in a field south of CR 148 over Marling Bayou.



**Greene County Master Drainage Plan  
North Hays Creek**



Photograph taken 7/1/02

**1. Downstream side of bridge on CR 121 on Windmill Ranch near North Hays Creek.**



Photograph taken 7/1/02

**2. Upstream side of bridge on Greene County Road 65 near N Hays Creek.**

**Shenandoah County Master Drainage Plan  
North Hager Creek**



Photograph taken 2/10/18

**3. Downstream side of first bridge on CR 66 over North Hager Creek.**



Photograph taken 2/10/18

**4. Downstream side of second bridge on CR 66 over North Hager Creek.**

**Shasta County Master Drainage Plan  
North Haysi Creek**

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Photograph 008 (1/10)

**8. Upstream side of bridge on CR 62 over North Haysi Creek.**

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Photograph 009 (1/10)

**9. Downstream side of bridge on Hwy 209 over North Haysi Creek.**

**Shenandoah County Master Drainage Plan  
North Hays Creek**



**Photograph 104 (1/10)**

**7. Downstream side of bridge on CR 64 over North Hays Creek.**



**Photograph 105 (1/10)**

**8. Downstream side of bridge on CR 63 over North Hays Creek.**

**Shreveport County Master Drainage Plan  
North Hayes Creek**



Revised 04/2009

**18. Upstream side of bridge on CR 67 over North Hayes Creek.**

**Blount County Master Drainage Plan  
New Bayou**



**Program No. 21001**

1. Downstream side of bridge located on CR 100 over New Bayou



**Program No. 21001**

2. Downstream side of the RR bridge located on CR 100 over New Bayou

**Brazoria County Master Drainage Plan  
New Bayou**



*Photograph taken 2/2012*

3. Downstream side of bridge on a private road over New Bayou in the Phillips of fields.



*Photograph taken 2/2012*

4. Downstream side of bridge located on FM 2917 over New Bayou SE of Abin.



Accepted 10/11/10

5. Downstream side of bridge on the plant entrance road of Equifair over New Bayou.



Accepted 10/11/10

6. Downstream side of bridge located on the entrance road of Salsilla over New Bayou.





Photograph taken 6/18/12

F. Downstream side of private bridge over New Bayou just upstream of RR bridge.



Photograph taken 6/18/12

G. Downstream side of the RR bridge over New Bayou just downstream of private bridge.



**Photograph by 10/26**

**1. Downstream side of bridge located on FM 523 over Oyster Creek.**



**Photograph by 10/26**

**2. Downstream side of Pipeline Crossing located upstream of FM523 over Oyster Creek in Chis, Texas.**



August 14, 2008

3. Downstream side of bridge located on CR 229 off Kyle Rd. over Oyster Creek in Clark, Texas.

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August 14, 2008

4. Downstream side of bridge located on Highway 200 B over Oyster Creek in Richwood, Texas.



Photograph by 10/2017

5. Downstream side of bridge located on College Drive over Oyster Creek in Richwood, Texas.

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Photograph by 10/2017

6. View of bridge standing south looking north on CR 289 over Oyster Creek in Lake Jackson, Texas.



August 16, 2010

F. Downstream side of bridge on Willow Drive over Oyster Creek in Lake Jackson, Texas.



August 16, 2010

G. Downstream side of bridge on Yauger Drive over Oyster Creek in Lake Jackson, Texas.



**Photograph 100-10090**

**9. Downstream side of bridge on That Way over Oyster Creek in Lake Jackson, Texas.**



**Photograph 100-10091**

**10. Downstream side of bridge on Highway 200 Freeway over Oyster Creek near Lake Jackson.**



**Photograph by TDRB**

**11. Upstream side of bridge on FM 2004 over Opter Creek near Lake Jackson, Texas.**



**Photograph by TDRB**

**12. Downstream side of bridge on Hwy 281 over Opter Creek east of Angleton, Texas.**



**Photograph 13a (08/08)**

**13. Downstream side of bridge on FM 521 over Dyker Creek west of Angleton, Texas.**

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**Photograph 14a (08/08)**

**14. Downstream side of bridge on CR 30 over Dyker Creek near Holiday Lake, Texas.**





Photograph taken 2018

15. Downstream side of bridge on CR 250 over Dyer's Creek southwest of Angleton, Tenn.



Photograph taken 2018

15. Downstream side of bridge on CR 24 over Dyer's Creek north of Holiday Lakes.



Photograph by SHRP

17. Downstream side of bridge on FM 1402 over Dyer Creek west of Richland, Texas.



Photograph by SHRP

18. Downstream side of bridge on CR 500 over Dyer Creek west of Richland, Texas.



Photograph 068 2/082

1. Downstream side of bridge on CR 221 over South Hayes Creek.



Photograph 068 2/082

2. Upstream side of bridge on CR 121 over South Hayes Creek.



Figure 14-10

3. Private driveway called Woodin south of CR 62 over South Hayes Creek.

## Appendix B

# Brazoria County Drainage Districts Annual Budget Estimates

ELS | GAS  
P. | 2.0

25903

5 YEAR PLAN FOR C & R DISTRICT 3

- 1) Clean Mustang Bayou from FM 2917 to the City of Alvin, removing lower shelf and laying down the banks to a one-to-four-slope. \$ 200,000.00
- 2) Clean and dig out the lower shelf of Persimmon Bayou laying back banks to a one-to-four slope from FM 2004 to the intersection of Mustang Bayou. \$ 75,000.00
- 3) Continue work on Detention Pond at FM 1462 and Chocolate Bayou. Regional detention will begin to take effect after five years of construction. \$ 350,000.00
- 4) Purchase other properties on Mustang, Chocolate, and Dickinson Bayou that are key areas for detention. \$ 200,000.00
- 5) Lower banks of severe turn on Chocolate Bayou from the Salt Water Barrier to FM 1462. This will allow the bayou to straighten out when it is in flood stage. \$ 100,000.00

TOTAL COST \$ 925,000.00

March 16, 2000

**Report on Anticipated Velasco Drainage District Capital Improvement Budget for the next 10 years, (2000-2010)**

Description	Total Cost	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
1. East Levee Phase II Administration	75,000		75,000									
East Levee Phase II Engineering	370,000	123,333	123,333	123,333								
East Levee Phase II Equipment	7,500,000				2,500,000	2,500,000	2,500,000					
East Levee Phase II Construction	10,500,000							3,500,000	3,500,000	3,500,000		
East Levee Phase II Eng./Inspection	1,250,000					250,000	250,000	250,000	250,000	250,000		
<b>Total</b>	<b>19,695,000</b>											
2. Pine Street Pump Station Rehabilitation												
Discharge Pipe and Screens												
Pump #2 Rehabilitation	50,000		50,000									
<b>Total</b>	<b>50,000</b>		50,000									
3. Velasco Pump Station Discharge Pipe		250,000										
<b>Total</b>	<b>250,000</b>	250,000										
4. Lake Bend Drainage Area Improvements		60,000										
Channel easements study	60,000	60,000										
Channel Improvements	75,000		75,000									
<b>Total</b>	<b>135,000</b>	60,000	75,000									
5. Clute-Lake Jackson Channel Improvements		450,000										
Phase II	450,000	450,000										
Phase III	500,000		500,000									
Phase IV (N.W.Q.)	500,000					500,000						
Pipeline Relocations	1,200,000			1,200,000								
<b>Total</b>	<b>2,650,000</b>	450,000	500,000	1,200,000		500,000						
6. Landfill Area/Big-Little Slough Drainage												
Improvements												
Easement	50,000		50,000									
Construction	250,000			250,000								
<b>Total</b>	<b>300,000</b>		50,000	250,000								
<b>Sub-Totals</b>	<b>23,080,000</b>	883,333	873,333	1,323,333	2,750,000	3,250,000	2,750,000	3,750,000	3,750,000	3,750,000	-	-

Description	Totals	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
7. East Freeport Drainage Improvements (East under Navigation Blvd. Ditch)												
Boxes Improvements	200,000	200,000										
<b>Total</b>	<b>450,000</b>			250,000								
8. Flaglake Drive Improvements												
Administration Engineering	100,000				100,000							
Materials and Construction	1,000,000					1,000,000						
<b>Total</b>	<b>1,100,000</b>											
9. College Drive Outfall Structure		60,000										
<b>Total</b>	<b>60,000</b>											
10. Oak Forest Section 1 Outfall Structure							200,000					
<b>Total</b>	<b>200,000</b>											
11. Bastrop Bayou Clean-out												
Administration - Engineering - Survey	150,000					150,000						
Construction / Design	300,000						300,000					
<b>Total</b>	<b>450,000</b>											
12. Oyster Creek Clean-Out												
Administration - Engineering - Survey	150,000						150,000					
Construction / Design	500,000							250,000	250,000			
<b>Total</b>	<b>650,000</b>											
13. Rehabilitation of Retriever Prison Outfall into Oyster Creek		80,000										
<b>Total</b>	<b>80,000</b>							80,000				
14. Rehabilitation of North Barge Canal Levee 523 to East					50,000							
<b>Total</b>	<b>50,000</b>											
15. Bastrop Development (Regional Detention)												
<b>Total</b>	<b>3,000,000</b>							1,000,000	1,000,000	1,000,000		
16. Vermor Sand Pit Detention											500,000	
<b>Total</b>	<b>1,000,000</b>								500,000			
<b>Totals</b>	<b>30,120,000</b>	<b>1,143,333</b>	<b>873,333</b>	<b>1,573,333</b>	<b>2,900,000</b>	<b>4,400,000</b>	<b>3,480,000</b>	<b>5,000,000</b>	<b>5,500,000</b>	<b>4,750,000</b>	<b>500,000</b>	<b>-</b>



August 23, 2000

Gary L. Struzick, P.E.  
Klotz Associates, Inc.  
1160 Dairy Ashford  
Suite 500  
Houston, Texas 77079

SEARCHED	INDEXED
SERIALIZED	FILED
AUG 23 2000	
FBI - HOUSTON	

Dear Mr. Struzick:

In reference to projecting a budget or funds available for projects to address future work projects. Presently our district is in the middle of changing from an agriculture community to a residential community growing at a very fast pace. I personally talked to several developers planning very large developments. If the economy stays on its present course our revenue will increase. I project it will double within a 5-year span.

In next years budget we have allocated over \$300,000.00 for work projects. I look for a steady increase during my tenure as a commissioner and as much as \$100,000.00 a year increase in revenue is very possible.

Since the onset of the Master Drainage Plan I figured that our district would either borrow funds or apply for grants to deal with the problem areas facing us. To do this I know our district has to have two major things: A good drainage plan and a good business track record addressing drainage matters, and complying with all applicable laws. We have hired personnel, come into compliance with the Water Codes and other laws, and are operating as efficient as possible, cutting waste, and stretching the dollar as far as possible. I personally feel the foundation is in place for either a loan or grant so our district can address the immediate problems facing Brazoria County.

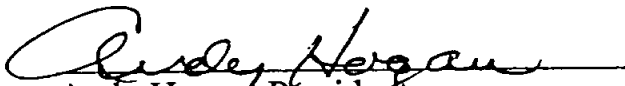
Gary, as you very well know, we are in a political environment and all things are subject to change. I can assure you as long as I am a commissioner I will work as hard as possible to keep our district on the path it is currently on, and our primary funds will be used to address drainage matters.

Instead of putting a project together to fit a certain dollar amount, I would like to take the most urgent problem and obtain the dollar amount to address it. Currently our district is cleaning, de-snagging, and grubbing all possible channels to return back to our original drainage status. We are addressing areas neglected over forty years, and are maintaining many channels.

Page II

In closing I would like to commend you and all of the people involved in the Master Drainage Plan for the hard work and technical information made available to us. I know more information is forthcoming, which will be an invaluable asset, so we can properly address all drainage issues facing us. Working together I am sure we can make Brazoria County a much better place to live in.

Sincerely,



Andy Hogan, President  
Board of Directors  
Brazoria County Drainage District #5

cc: BCDD#5 Board  
Floyd H. Christian, Jr.  
Kelly R. Kaluza, P.E.  
File

James N. Clem  
CERTIFIED PUBLIC ACCOUNTANT

P.O. Box 1206  
ANGLETON, TEXAS 77515

TELEPHONE (409)849-8297  
TELEFAX (409)849-0847

October 9, 2000

West Brazoria County Drainage District  
P.O. Box 368  
Brazoria, TX 77422

RE: 2000-2001 Budget

Cash as of 9/30/00	\$458,823
Next Year's Tax Revenue (P&I)	<u>320,000</u>
Total Available for FYE 9/30/2001	778,823
Recommended Reserve	<u>100,000</u>
Available for 10/1/2000-9/30/2001	<u>\$678,823</u>

James N. Clem  
CERTIFIED PUBLIC ACCOUNTANT

Box 1206  
ANGLETON, TEXAS 77515

TELEPHONE (409)849-8297  
TELEFAX (409)849-0847

October 9, 2000

West Brazoria County Drainage District  
P.O. Box 368  
Brazoria, TX 77422

RE: 2000-2001 Budget

Proposed Budget:

Tax Revenue		\$ 320,000
Appraisal District	\$ 2,700	
Brazoria County Tax Collector	2,000	
License & Dues	500	
Engineering	30,000	
Insurance	1,800	
Accounting	3,500	
Legal	12,000	
Advertising	1,200	
Miscellaneous	1,500	
Office Expense & Postage	500	
Travel	1,200	
Director/Investment Officer Training	1,000	
Auditor	2,000	
Contingency	50,000	
Directors Expenses	9,000	
Bonds	300	
Ditch Renovation	<u>560,800</u>	
Total Budgeted Expenditures		<u>680,000</u>
Budgeted Fund Balance Reduction		<u>\$(360,000)</u>

West Brazoria County Drainage District #11  
2000-01 Budget Allocation

	Pct.1 Henderson	Pct.2 Leshar	Pct.3 Bowling	Pct.4 Phillips	Pct.5 Hinckle	Pct.6 Admin.
Actual Expenses:						
9/30/95	\$ 7,636	\$ 19,089	\$ 150	\$ -	\$ -	
9/30/96	32,235	61,405	104,510	50,755	4,797	
9/30/97	-	155	2,045	1,450	2,404	
9/30/98	29,656	58,343	24,328	25,553	5,805	
9/30/99	81,564	35,377	55,534	42,310	21,244	
9/30/00	34,923	74,900	29,336	142,172	4,617	
Total Expenses	186,014	249,269	215,903	262,240	38,867	952,293
Average Actual Expenses:	190,459	190,459	190,459	190,458	190,458	952,293
2000-01 Budget:	114,020	114,020	114,020	114,020	114,020	680,000
2000-01 Budget Allocation:	\$ 118,465	\$ 55,210	\$ 88,576	\$ 42,238	\$ 265,611	\$ 109,900
2000-2001 Revenues	320,000					
Administrative	109,900					
Available for Precincts	210,100					
	5					
	\$42,020					

## Appendix C

# Brazoria County Benchmarks at Roadway Bridges

# **Brazoria County Master Drainage Study Benchmarks at Roadway Bridges Brazoria County, Texas**

## **Index**

### **Surveyor's Certification**

<b><u>Tab Number</u></b>	<b><u>Stream Name</u></b>
<b>1</b>	<b>Austin Bayou</b>
<b>2</b>	<b>Bastrop Bayou</b>
<b>3</b>	<b>Brunner Ditch</b>
<b>4</b>	<b>Brushy Bayou</b>
<b>5</b>	<b>Chocolate Bayou</b>
<b>6</b>	<b>Ditch C-1</b>
<b>7</b>	<b>Flores Bayou</b>
<b>8</b>	<b>Iowa Colony Ditch</b>
<b>9</b>	<b>Ditch M-1</b>
<b>10</b>	<b>Mustang Bayou</b>

- 11                    **New Bayou**
- 12                    **North Hayes Creek**
- 13                    **Oyster Creek**
- 14                    **South Hayes Creek**
- 15                    **West Fork Chocolate Bayou**



I, Cecil J. Booth, Registered Professional Land Surveyor of the State of Texas, do hereby certify that the elevations of the benchmarks set at the roadway bridges over the various streams as defined above are accurate to within 0.10 feet. All elevations are referenced to the National Geodetic Vertical Datum of 1929, Adjustment of 1979. All elevations shown are referenced to the following benchmarks.

BENCHMARK NAME	PUBLISHED NGS ELEVATION
ANGLETON	25.81
A 803	45.70
C 692	63.93
DANBURY	22.15
D 761	35.71
D 1209	26.93
D 1210	11.61
F 457	40.15
F 691	30.00
F 1509	32.94
HGCSD 56	34.80
HGCSD 74	56.40
HGCSD 75	48.70
JONES	7.20
J 1208	39.82
J 1274	13.06
K 692	52.25
K 1143	14.42
K 1277	40.13
LIVERPOOL	18.21


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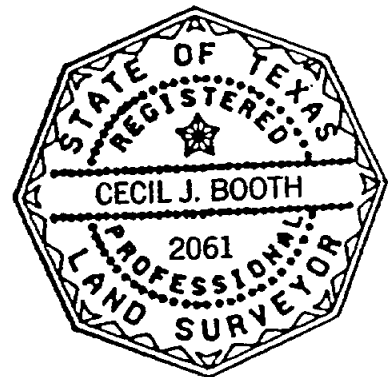
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LJN A	23.20
L 1274	15.68
M 1240	14.27
M 1274	13.81
PHARR 2	6.08
P 1512	53.56
Q 1512	56.12
WELL RESET	5.70
W 1209	16.03

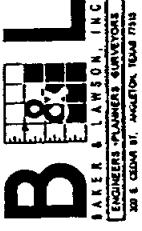
Certified Correct:

 1-19-01  
Cecil J. Booth  
Registered Professional Land Surveyor  
Registration No. 2061



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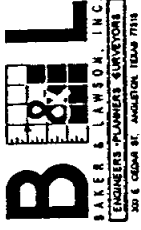


Austin Bayou

BM	Road Number	BM Description	Coord. Pt. #	Elevation	Location
1	CR 383	1/2" Iron Rod	19	57.2	Off SE corner of bridge
2	CR 81	3/8" Spike	4837	55.5	Off NE corner of bridge
3	CR 48	3/8" Spike	4803	55.4	Off SW corner of bridge
4	CR 64	3/8" Spike	4805	45.0	Off SE corner of bridge
5	CR 67	3/8" Spike	4816	42.2	Off SE corner of bridge

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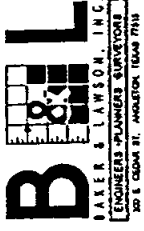


**Bastrop Bayou**

BM	Road Number	BM Description	Coord. Pt. #	Elevation	Location
1	FM 1462	3/8" Spike	6934	45.4	SE of edge of concrete
2	FM 1462	Chiselled "X"	6944	45.7	On SE corner of concrete
3	CR 51	3/8" Spike	6934	36.7	Off SE corner of bridge
4	Hwy 35	3/8" Spike	5902	29.8	Off NE corner of bridge
5	Hwy 35	Nail w/ disc	5903	30.9	Middle - East side of bridge
6	CR 171	3/8" Spike	6003	21.5	Off SW corner of bridge
7	CR 171	3/8" Spike	6004	21.6	Off NW corner of bridge
8	CR 210	3/8" Spike	6102	14.4	Off NW corner of bridge
9	CR 210	3/8" Spike	6103	14.2	Off SE corner of bridge
10	CR 208	D1210-BM Disc	5801	11.6	On SE curb of bridge
11	CR 208	3/8" Spike	5802	10.2	Off SE corner of bridge
12	CR 208	3/8" Spike	5803	10.0	Off SW corner of bridge
13	FM 2004	3/8" Spike	7528	17.4	Off NW corner of bridge
14	FM 2004	3/8" Spike	7530	17.9	Off NE corner of bridge

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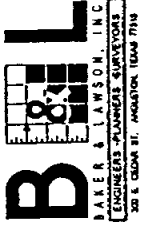


Brunner Ditch

BM	Road Number	BM Description	Coord. Pt. #	Elevation	Location
1	CR 220	3/8" Spike	6257	21.6	Off NW side of curve
2	CR 288	3/8" Spike	6502	15.9	Off SW corner of bridge
3	CR 288	K1143 BM Disc		14.4	Off NW corner of bridge
4	H 288B	3/8" Spike	6607	17.0	Off NW corner of bridge
5	CR 605	3/8" Spike	6629	10.3	Center of circle in road
6	FM 2004	3/8" Spike	7501	15.6	Off NW corner of bridge
7	FM 2004	3/8" Spike	7502	10.2	300' of the NW corner of bridge
8	FM 523	3/8" Spike	7519	12.6	Off SW corner of bridge
9	FM 523	3/8" Spike	7520	12.9	Off NE corner of bridge
10	FM 523	Chiselled "X"	7521	14.1	On NW corner of bridge
11	CR 504	3/8" Spike	7615	3.9	275' west of boat ramp
12	CR 504	3/8" Spike	7616	5.4	33.2' west of boat ramp
13	CR 807	3/8" Spike	7602	5.2	NW cnr of boat ramp intsecton
14	CR 227	Alum. Cap GPS-19		8.1	Off SE corner of bridge
15	CR 227	W1209 BM Disc		16.0	On SW corner of bridge
16	CR 227	3/8" Spike	7703	4.5	Off SE corner of boat ramp

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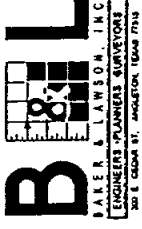
**Brushy Bayou**

BM	Road Number	BM Description	Coord. Pt. #	Elevation	Location
1	FM 1462	3/8" Spike	5402	43.7	Off NW corner of bridge
2	CR 192	3/8" Spike	5218	26.5	Off SW corner of bridge
3	CR 192	3/8" Spike	5219	26.1	Off NW corner of bridge
4	Hwy 35	3/8" Spike	5203	26.0	Off NE corner of bridge
5	Hwy 35	3/8" Spike	5205	23.4	Off SE corner of bridge

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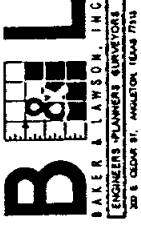
Chocolate Bayou

BM	Road Number	BM Description	Coord. Pt. #	Elevation	Location
1	CR 213	3/8" Spike	7307	10.9	Off SW corner of bridge
2	CR 213	3/8" Spike	7308	11.2	Off SE corner of bridge
3	CR 213	3/8" Spike	7302	13.8	Off SW corner of bridge
4	CR 213	3/8" Spike	7303	14.0	Off SE corner of bridge
5	FM 2004	3/8" Spike	7623	9.9	Off SW corner of bridge
6	FM 2004	Chiselled "X"	7636	11.8	On SW corner of Concrete

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Ditch C - 1

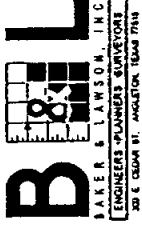
BM	Road Number	BM Description	Coord. Pt. #	Elevation	Location
1	Hwy 6	1/2" Iron Rod	2236	52.3	Off SW corner of bridge
2	Alleuia St.	1/2" Iron Rod	2320	51.7	Off NW corner of bridge
3	Alleuia St.	1/2" Iron Rod	2321	50.8	Off SE corner of bridge
4	CR 72	1/2" Iron Rod	2323	48.3	Off SE corner of bridge
5	CR 72	1/2" Iron Rod	2324	47.7	Off SW corner of bridge
6	CR 67	1/2" Iron Rod	2311	45.8	Off NE corner of bridge
7	CR 172	1/2" Iron Rod	2403	26.0	Off NW corner of bridge
8	Hwy 35	1/2" Iron Rod	2421	27.0	Off SW corner of bridge

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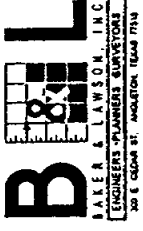


Flores Bayou

BM	Road Number	BM Description	Coord. Pt. #	Elevation	Location
1	FM 1128	3/8" Spike	4083	53.5	Off SE corner of bridge
2	FM 1128	3/8" Spike	4084	54.5	Off SW corner of bridge
3	FM 1128	3/8" Spike	4085	54.6	Off NE corner of bridge
4	Hwy 6	3/8" Spike	4002	52.3	Off NW corner of bridge
5	Rogers St.	3/8" Spike	3942	51.2	Off SE corner of bridge
6	CR190	3/8" Spike	3917	51.8	Off NE corner of bridge
7	CR 190	3/8" Spike	3916	51.8	Off NW corner of bridge
8	Jordon St.	3/8" Spike	3903	48.4	Off NW corner of bridge
9	CR 180	3/8" Spike	3749	40.6	Off SW corner of bridge
10	CR 180	3/8" Spike	3750	39.8	Off SE corner of bridge
11	CR 179	Nail w/ disk	3733	37.1	Off SE corner of bridge
12	CR 179	Nail w/ disk	3734	37.2	Off SW corner of bridge
13	FM 1462	3/8" Spike	3717	36.9	Off NW corner of bridge
14	FM 1462	3/8" Spike	3718	37.9	Off SW corner of bridge
15	CR 172	3/8" Spike	3702	33.1	Off SW corner of bridge
16	CR 172	3/8" Spike	3703	34.3	Off SE corner of bridge
17	Hwy 35	3/8" Spike	3618	32.1	Off SW corner of bridge
18	FM 2403 north	3/8" Spike	3603	30.2	Off SE corner of bridge
19	FM 2403 south	3/8" Spike	4605	24.8	Off SW corner of bridge
20	FM 2403 south	Chiselled "X"	4606	26.2	SW corner bridge curb

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Iowa Colony Ditch

BM	Road Number	BM Description	Coord. Pt. #	Elevation	Location
1	CR 49	3/8" Spike	6913	34.7	Off SE corner of bridge
2	CR 49	3/8" Spike	6912	34.5	Off SW corner of bridge
3	CR 45	Chiselled "X"	6911	28.4	On NW curb of bridge
4	CR 46	3/8" Spike	6027	23.5	Off SW corner of bridge
5	Hwy 35	3/8" Spike	5830	28.0	Off SE corner of bridge
6	CR 207	3/8" Spike	5828	19.7	Off NW corner of bridge
7	CR 207	3/8" Spike	5829	19.7	Off SW corner of bridge
8	CR 171	L1182-BM Disc	5915	20.9	On SW Curb of bridge
9	CR 171	3/8" Spike	5932	19.6	Off NW corner of bridge
10	CR 171	3/8" Spike	5933	18.9	Off SW corner of bridge
11	CR 210	3/8" Spike	5943	13.8	Off NW corner of bridge
*12	CR 210	3/8" Spike	5944	13.8	Off SE corner of bridge

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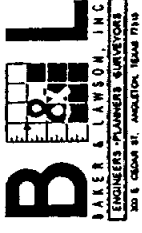


Ditch M - 1

BM	Road Number	BM Description	Coord. Pt. #	Elevation	Location
1	CR 45	3/8" Spike	7801	27.8	Off NE corner of bridge
2	CR 45	3/8" Spike	7802	28.1	Off NW corner of bridge
3	CR 621	3/8" Spike	7842	26.1	Off SE corner of bridge
4	Hwy 35	3/8" Spike	7901	24.4	Off SE corner of bridge
5	CR 207	3/8" Spike	7915	21.6	Off SE corner of bridge
6	CR 207	3/8" Spike	7916	21.8	Off NW corner of bridge
7	CR 171	3/8" Spike	7927	19.9	Off SW corner of bridge
8	CR 171	3/8" Spike	7928	19.5	Off NE corner of bridge
9	CR 171	Chiselled "X"	7929	20.8	On SW curb of bridge

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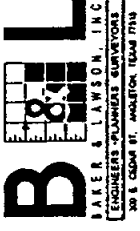
Mustang Bayou

BM	Road Number	BM Description	Coord. Pt. #	Elevation	Location
1	CR 424	3/8" Spike	4402	33.1	Off NW corner of bridge
2	CR 160	3/8" Spike	5032	27.5	Off NW corner of bridge
3	CR 169	3/8" Spike	4429	24.6	Off NW corner of bridge
4	CR 169	3/8" Spike	4430	25.2	Off SW corner of bridge
5	CR 170	3/8" Spike	4633	23.2	Off SW corner of bridge
6	CR 170	3/8" Spike	4634	22.6	Off NE corner of bridge

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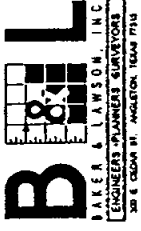


New Bayou

BM	Road Number	BM Description	Coord. Pt. #	Elevation	Location
1	CR 48	1/2" Iron Rod	2117	64.9	Off NW corner of bridge
2	CR 88	Bolt Head	1955	58.9	Middle bridge rail bolt
3	FM 1128	TX DOT Disc	1937	58.3	SE end of bridge rail
4	CR 99	3/8" Spike	2604	50.2	Off SE corner of bridge
5	CR 949K	3/8" Spike	2616	47.6	Off SW corner of bridge
6	CR 146	3/8" Spike	2525	44.3	Off SE corner of bridge
7	CR 147	3/8" Spike	2536	45.6	Off SW corner of bridge
8	CR 668	3/8" Spike	2549	45.9	Off SE corner of bridge
9	CR 149	3/8" Spike	2565	41.7	Off SW corner of bridge
10	Hwy 6	3/8" Spike	2629	40.8	Off NE side of bridge
11	Second St.	3/8" Spike	2702	41.3	Off NW corner of bridge
12	Hwy 35 Bus.	Chiselled "X"	2738	46.2	Off NE corner of bridge
13	Old Galveston Rd	3/8" Spike	2740	41.2	Off SE corner of bridge
14	Adoue St.	3/8" Spike	2802	38.7	Off SW corner of bridge
15	House St.	Chiselled "X"	2827	43.7	SW corner bridge rail
16	CR 160	3/8" Spike	2902	30.8	Off NE corner of bridge
17	CR 163	3/8" Spike	2911	30.1	Off NW corner of bridge
18	CR 168	3/8" Spike	2922	28.9	Off NW corner of bridge
19	FM2917	Nail w/ disk	3103	16.2	Off SE corner of bridge
20	FM 2917	Nail w/ disk	3104	15.9	Off NW corner of bridge

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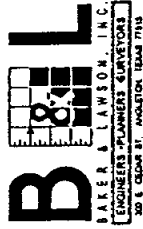


North Hayes Creek

BM	Road Number	BM Description	Coord. Pt. #	Elevation	Location
1	CR 169	3/8" Spike	3502	25.2	Off SW corner of bridge
2	CR 169	3/8" Spike	3503	25.1	Off NE corner of bridge
3	FM 2917	3/8" Spike	3326	16.0	Off SE corner of bridge
4	FM 2917	3/8" Spike	3327	16.0	Off NE corner of bridge

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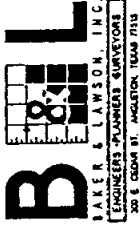


Oyster Creek

BM	Road Number	BM Description	Coord. Pt. #	Elevation	Location
1	CR 64	1/2" Iron Rod	353	52.5	Off NW corner of bridge
2	CR 62	1/2" Iron Rod	742	47.2	Off NE corner of bridge
3	CR 65	1/2" Iron Rod	743	46.4	Off SW corner of bridge
4	CR 67	1/2" Iron Rod	1087	43.3	Off SE corner of bridge

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**Oyster Creek (cont.)**

BM	Road Number	BM Description	Coord. Pt. #	Elevation	Location
1	CR 42	3/8" Spike	7201	55.6	Off SW corner of bridge
2	CR 569	3/8" Spike	7001	46.5	Off SE corner of bridge
3	CR 569	3/8" Spike	7002	48.4	Off NE corner of bridge
4	FM 1462	3/8" Spike	7012	52.7	Off SW corner of bridge
5	FM 1462	PK Nail	7013	54.0	On No. side middle of bridge
6	CR 34	3/8" Spike	6354	37.4	Off NE corner of bridge
7	CR 34	3/8" Spike	6353	38.2	Off SW corner of bridge
8	CR 30	3/8" Spike	6302	36.6	Off SW corner of bridge
9	CR 30	3/8" Spike	6303	36.3	Off NW corner of bridge
10	FM 521	3/8" Spike	6204	36.2	Off SW corner of bridge
11	FM 521	3/8" Spike	6205	35.4	Off NW corner of bridge
12	Hwy 35	3/8" Spike	6217	30.7	Off NW corner of bridge
13	CR 290	3/8" Spike	6402	26.2	Off NW corner of bridge
14	CR 290	3/8" Spike	6403	26.4	Off NE corner of bridge
15	CR 290	3/8" Spike	6404	25.0	Off SE corner of bridge
16	FM 2004	3/8" Spike	6526	23.9	Off NE corner of bridge
17	FM 2004	3/8" Spike	6527	23.0	Off SE corner of bridge
18	FM 2004	3/8" Spike	6528	24.8	Off SW corner of bridge
19	FM 2004	3/8" Spike	6529	22.9	Off NW corner of bridge
20	Hwy 288 Fwy	3/8" Spike	6541	30.5	Off SE corner of bridge
21	Hwy 288 Fwy	3/8" Spike	6542	32.9	Off SW corner of bridge
22	That Way	3/8" Spike	6514	20.3	Off NW corner of bridge
23	That Way	3/8" Spike	6515	19.6	Off SW corner of bridge
24	Yaupon	3/8" Spike	6524	19.4	133' north NE corner of bridge
25	Yaupon	Chiselled "X"	6525	19.1	266' north NE corner of bridge
26	Willow Dr.	3/8" Spike	6802	19.4	Off SW corner of bridge
27	Willow Dr.	3/8" Spike	6803	19.3	Off NW corner of bridge



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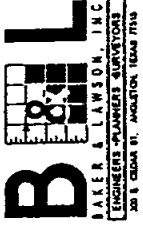


South Hayes Creek

BM	Road Number	BM Description	Coord. Pt. #	Elevation	Location
28	CR 288	3/8" Spike	6804	18.4	Off SE corner of bridge
29	CR 288	3/8" Spike	6805	17.2	Off NE corner of bridge
30	College Dr.	3/8" Spike	6813	15.5	Off SE corner of bridge
31	College Dr.	3/8" Spike	6814	15.6	Off SW corner of bridge
32	College Dr.	Chiselled "X"	6822	17.5	On NE corner of bridge
33	H288B	3/8" Spike	6825	17.7	Off NW corner of bridge
34	H288B	Chiselled "X"	6826	18.9	On NE corner of bridge
35	CR 228	Chiselled "X"	6725	17.3	On SW corner of bridge
36	CR 228	3/8" Spike	6727	16.2	Off NE corner of bridge
37	Stratton Ridge Rd.	3/8" Spike	6713	12.4	Off NW corner of bridge
38	Stratton Ridge Rd.	3/8" Spike	6714	11.5	Off NE corner of bridge
*39	Stratton Ridge Rd.	Chiselled "X"	6724	13.1	On NW curb of bridge
40	VDD Pump 13	3/8" Spike	6704	16.2	East of Levee Valve
41	VDD Pump 13	3/8" Spike	6705	12.8	SE of RR bridge
42	VDD Levee Pipe Crossing	3/8" Spike	6702	18.1	SE of Pipeline bridge
43	FM 523	3/8" Spike	6707	10.8	Off NW corner of bridge

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West Fork Chocolate Bayou

BM	Road Number	BM Description	Coord. Pt. #	Elevation	Location
1	CR 382	1/2" Iron Rod	1819	53.4	Off SW corner of bridge
2	CR 48	1/2" Iron Rod	1658	51.4	Off SE corner of bridge
3	CR 62	1/2" Iron Rod	1507	51.3	Off NW corner of bridge
4	CR 65	Rail Bolt	1254	48.1	On west bridge rail
5	CR 121	1/2" Iron Rod	2004	35.6	Off NW corner of bridge
6	CR 221	1/2" Iron Rod	2002	34.5	Off SW corner of bridge

## Appendix D

# Responses to Texas Water Development Board Comments

**ATTACHMENT 1**  
**TEXAS WATER DEVELOPMENT BOARD**  
**Review of the Draft Final Report: Contract No. 99-483-318**  
**"Master Drainage Plan Report, Brazoria County"**

1. Several activities identified in the scope of work were not reported or were not performed and must be submitted in draft form prior to delivery of the Final Report. Those items were:
  - a) future land use and development will be predicted and incorporated into the hydrologic and hydraulic model to develop future flood flows and water surface elevations, and needed infrastructure to handle the flows. There is no mention in the report that future conditions were modeled or that flood control alternatives were determined for anything other than existing conditions.

**RESPONSE:**

**The issue of future development:**

**Brazoria County has vigorously enforced its policy that post development peak flow rates cannot exceed pre development rates. This policy stems from the unique manner under which development is regulated in Brazoria County.**

**The individual drainage districts do not have the budgets (with the exception of the Velasco Drainage District) to implement substantive capital improvements programs to improve drainage outfalls in their districts. Each district views itself as primarily as providing maintenance and, in some cases, limited outfall improvements.**

**T.S. Claudette (1979) created a consensus among all jurisdictions that development must bear the burden of the cost of mitigating the effects of development on drainage as no jurisdiction had either the budget or political will to provide drainage improvements for the purposes of future development.**

**The South Freeway Corridor Association, an association of developer and engineering interests who wished to encourage development in the SH 288 Freeway area took on the responsibility of developing the current Brazoria County Drainage Manual. This Manual requires that development not increase the peak runoff rate when compared to the pre development condition. Developed in the early 1980s, it also provided for standardized approaches and has been adopted by the County and the individual districts.**

**The requirements of the Manual are enforced through a dual review process. Both the County Engineer's office and the individual districts**

**require the use of detention or other methods to mitigate the effects of development and the County provides extensive review of the models and methods used to compute the size and predict the effect of the detention proposed.**

**Brazoria County Commissioners' Court has strongly indicated that it believes that the plat approval process is their only opportunity to assure themselves that development in the County does not worsen drainage conditions. The County has developed a reputation as a "difficult" place for development due to the rigor of this review.**

**Each District will individually review the same plat with the same goal in mind. This dual review of the same plat is perhaps the most unique part of development in the County.**

**Recent Baker & Lawson Inc. (BLI) experience with this process has included the Schlumberger Rosharon Campus Expansion (Detention reviewed by Drainage District 5), Suncreek S/D (Brazoria County Engineers' Office) Anchor Rose S/D (District 1, City of Angleton, Brazoria County Engineers Office) Bayou Oaks Development (Brazoria County Engineers Office, District 7). In each case we were required to document totally and in depth our drainage impact calculations.**

**We do not believe that the County, nor any individual district, intends to enter into a drainage capital improvement program which would provide for future development. The strategy of the County and other concerned jurisdictions remains focused on requiring new development to mitigate the impacts of their development to assure that they do not "increase flooding" as they say in the vernacular.**

**Any capital improvements performed by the districts will remain focused on alleviating existing conditions only.**

**It is generally perceived that the new Criteria Manual updates the computational procedures and maintains the requirement that development mitigate drainage impacts. If the TWDB views the Manual as a separate stand alone document from the Master Plan, then the Master Plan should have clear language requiring that development mitigate all impacts of their development to the pre development condition (and in Brazoria County this means for the 1% recurrence interval rainfall event) using the standardized criteria as shown in the Manual.**

**Again, just for emphasis, there is no constituency here willing to champion a capital improvement program which will "benefit" private development. The County and Districts are fully committed to the regulatory approach to**

mitigate development. This restriction has reached the point that the County has earned a reputation as unfriendly to development.

#### **The issue of Project Recommendations with Cost Estimates**

Throughout the development of the Master Plan we have emphasized the need to make feasible and fundable project recommendations. The Districts communicated to us that they did not want to receive a "Pearland Study" by which they meant that a Study whose recommendations exceeded the funding capability of the Districts.

We agree that the Plan must contain these recommendations given these 2 constraints, that the Districts do not feel they have citizen support for providing for future development and that the recommendations must be reasonable in relationship to their funding capability. To that end we have established the capital budget capabilities of each District and this provides the starting point for this section.

**Pearland District** Has a plan in place and expressed no desire for a new set of priorities.

**Alvin District** Klotz should review each structure in the Chocolate Bayou and Mustang Bayou Models and select any cost effective structural replacement that would reduce the hydraulic gradient in these streams.

**Manvel and Danbury** Very limited budgets and almost no capacity for capital improvements. BLI should price their recommendation for a regional detention pond at the confluence of Flores and Austin Bayous. These Districts (along with Angleton) may wish to consider a bond issue in the future. This improvement along with regulatory control of future development in these watersheds would reduce the probability of flooding in these watersheds.

**Angleton and Velasco Districts.** BLI has previously recommended that Bastrop Bayou should be dredged to its section of 1979. BLI should price this option and re-run the model to show the impact of this maintenance project on the hydraulic gradient of the Bayou. You should know that this recommendation was removed due to environmentalist pressure that the County not go on record of advocating a dredge project. However, this option most definitely needs pricing and its benefits predicted prior to a decision to perform or not perform this project.

**Velasco** has its own extensive capital improvements program centered on pumping of the interior of their storm protection levee system.

**Oyster creek Watershed** The majority of this watershed is not in a drainage district. only the most southern portion resides in the Velasco District. The District has no plans for structural improvements on this Bayou and the model did not indicate that any structural impediments exist within the District.

**West of the Brazos District** Does not fund capital projects and further operates in a "precinct" mode where their limited funding must be split among the geographic precincts. It is difficult to see how any capital program could be funded under their current system.

### **In Summary**

**Our goal is also to make sure the study accomplishes what was set out in the original application. We look forward to your response and to delivering the report to you and to Brazoria County.**

- b) cost/benefit analyses will be performed of flood control alternatives

### **RESPONSE:**

**A cost analysis has been prepared for each of the alternatives considered. Additionally each alternative has been evaluated on the basis of the improvements produced from each. The cost and benefits were evaluated for each and compared to the available funding for the district and the improvements produced.**

- c) proposed projects should be prioritized and tentative schedule developed to implement work

### **RESPONSE:**

**Each Project evaluated has been prioritized with the applicable drainage district. The prioritization is based on the funding availability from each district. The prioritization is included in the report.**

2. The report only provided hydrological and hydraulic analyses for 14 of 18 basins. Explain why no hydrologic or hydraulic analyses for the rest of 4 basins.

### **RESPONSE:**

**There are Hec-1 hydrological and/ or Hec-2 hydraulic models for most of the watersheds. For those areas not covered with a digital computer model there are provisions to evaluate those watersheds with either TxDOT regional**

**regression equations or with rational equations for flows and normal depths for elevations. This process provides for coverage for all of the watersheds.**

3. The study reported using HEC-1's modified Clark unit hydrograph option. However, I cannot re-produce the unit hydrograph parameters (TC&R) by the equations in page 3-1. Explain how the parameters in tables 1 – 8 are calculated. In addition, the two equations are said for the same condition (both used when  $DLU \leq 18\%$ ). This needs to be corrected.

**RESPONSE:**

**The Tc & R equations have been checked and changes have been made to the report and to many of the Tc & R tables of supporting data and Tc & R calculations. Any problems between the calculations and the printed text has been corrected.**

4. The revised HEC-1 models have generated significantly different flows comparing to FEMA and "keyed-in" models in several basins (e.g., Austin Bayou and Mustang Bayou). However, the Plan did not provide sufficient (numerical) explanations of why the differences were so significant and what were the major contributing factors causing such differences.

**RESPONSE:**

**The flows have changed on many of the watershed. However the flow comparison tables still show watersheds with significantly different flows. Some of these watersheds have experienced development or watershed improvements that may not have been reflected in the previous models. The previous methodology utilized in Brazoria County did not always produce reasonable results. We have changed the local methodology to utilize the modified Clarks methodology. This change in the methodology produced some of the changes in the resultant flows. Additionally routing data and reaches were added to the models which also will effect the resultant flows.**

5. The report said that in Halls and Oyster basins the flows from revised model were higher than from FEMA because "... the flows from FIS are obtained from regional USGS regression equations instead of from HEC-1 model." (page 3-13, first paragraph on left; page 3-18, third paragraph on right). I do not understand it. It is not clear which are the regressional results in the correspondent tables. Also explain why using regression equation instead of HEC-1 model in these basins.



**RESPONSE:**

**The statement in the report was a comparison of the new flows generated for those two watersheds utilizing the Hec-1 program. The Hec-1 models for these watersheds also included routing reaches for the watershed plus any developments and watershed improvements. A comparison was made to the previous FEMA report which utilized the regression equations for these two watershed. The comparison was made to show only the change in resultant flows from the older FEMA report to the Hec-1 models.**

6. There are general recommendations. However, no numerical analyses to explain or support these recommended measures.

**RESPONSE:**

**Additional recommendations and analyses have been prepared and have been included in the report in the applicable sections. Additional data to support the analyses and recommendations have been provided.**

7. Executive Summary does not include the summary for hydrology and hydraulic analysis, for example, the drainage area and the 100-Year peak flow for each watershed and figures or exhibits associated

**RESPONSE:**

**The executive summary has been modified to add more of the details. The executive summary is much more comprehensive and contains a significant re-writing of the section.**

8. Chapter 1 does not indicate what kind flood frequencies would be used to conduct the hydrology and hydraulic analysis. For example, 100 year, 50 year, 25 year, 10 year, 5 year or 2 year.

**RESPONSE:**

**Chapter 1 of the report was revised to clarify that the 10, 25 and 100 year frequency events were evaluated for the watersheds. This information was also added to Chapter 3 of the report.**

9. The report does not include all the frequency flow comparisons for some watershed, for example, only 100-year result for Austin Bayou is found.

**RESPONSE:**

**The other models for Austin Bayou have been printed and will be included in the report.**

10. The report does not include the comparison of hydrologic and hydraulic results to available historic flows. Was model calibration performed?

**RESPONSE:**

**There is limited data available in most Brazoria County for calibration. However there is calibration data available for Clear Creek and some for Chocolate Bayou. With the change in the methodology to the modified Clarks method have are now utilizing the same methodology as that utilized in the Clear Creek watershed. We have added a comparison to the Chocolate Bayou results to the report.**

**There are USGS gages on the Brazos River and on the San Bernard River. We did not change the hydrology on those two watersheds and therefore did not change the previous hydrologic model.**

11. It appears that current, acceptable methodologies were employed in the accumulation and presentation of data in this report. Recommended capital construction expenses for retention and detention structures, and modification of bridges for flood control purposes are eligible for Board financing. Other recommendations involving maintenance activities in ditches and creek beds appear not to be eligible for TWDB financing. The report is appropriate for use in support of an application to the Board for financing the proposed eligible improvements; however estimations of project costs should be refined to include bond issuance, engineering and other eligible non-construction expenses before application submittal. All additional information required by Board rules, 31 TAC 363.401-404, and required to make legal findings required by Texas Water Code Chapter 17.771-776 would be required at the time of application. Flood control work is not eligible for the Board's pre-design funding option.

**RESPONSE:**

**Project cost estimations have been revised to incorporate bond issuance, engineering and other non-constructions expenses.**

12. The discussion concerning the TWDB as a funding alternative (section 5.4, page 5-3) could be improved with 4 modifications. 1) Information on the Flood Control Loan program is published in Board rules, Texas Administrative Code Title 31, Chapter 363.401-404 (the Texas Water Code site is Chapter 17.771-776); 2) in general, interest rates for this program are set at the Board's cost of funds plus 0.35%; 3) the TWDB currently meets on the third Wednesday of each month; and 4) there is currently no Intended Use Plan for this program, funding is on a first-come first-served basis.

**RESPONSE:**

**The suggested improvements listed above have been added to Section 5 of the report.**

13. An Application for Approval of Reclamation Project need not be filed with the Texas Natural Resource Conservation Commission for the referenced proposal. It was determined from our review that the proposed project, since it is in Brazoria County, needs to be permitted by the County. Brazoria County by virtue of its participation in the National Flood Insurance Program, and in accordance with Section 16.236 (d) (4) of the Texas Water Code, has approval authority for the project. If the County has not already done so, they should insure that the proposed construction is documented and permitted in accordance with their Flood Hazard Prevention Court Order. This documentation should also be submitted by the County to the Federal Emergency Management Agency to obtain a Letter of Map Revision (LOMR) of Brazoria's Flood Insurance Rate Map.

**RESPONSE:**

**We will provide recommendation to Brazoria County to insure that the proposed construction be documented and permitted in accordance with their Flood Hazard Prevention Court Order.**

## Appendix E

# Response to Brazoria County Comments

Fri 3/22/02 6:26 PM  
Brian Courts [brianc@brazoria-county.com]  
Struzick, Gary  
Master Drainage Plan

We discussed several issues regarding the calculation of TC & R parameters for Clark's method, including some confusion over the definition of DCC. I suggest that the definition shown in the Plan should be

DCC = Percent Channel Conveyance (at peak 100-year flow) [if that is correct].

The text in the Drainage Criteria Manual (Sec. 2.2.3.1) indicates that the R-value is to be adjusted based on the percent ponding only when % Ponding > 20. I raised that issue relative to the adjustments shown in the watershed tables. I don't find the 20% cutoff specified in our earlier manual or Montgomery County's manual. Where does that come from?

IN THE DRAINAGE CRITERIA MANUAL:

I suggest that the discussion of the TC & R formulas further clarify (?) the issue by stating that an iterative process may be required to calculate DCC, since DCC is based on flow, which depends on TC & R, which are affected by flow (or clearer words to that effect). Also, DCC should be defined as the percent of 100-year peak discharge that is carried between the banks of the channel (if I understood you correctly). As I noted in my earlier comments, an example should be provided which clearly demonstrates how DCC is calculated, including the iteration requirement.

**RESPONSE:**

**We will address the drainage criteria manual changes after the Master Drainage Plan report is complete.**

Brian Courts, PE  
Assistant County Engineer  
Brazoria County  
200 E. Locust, Rm. 10  
Angleton, TX 77515  
Ph. 979/864-1265

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Mon 12/10/01 5:45 PM  
Brian Courts [brianc@brazoria-county.com]  
Struzick, Gary  
Master Drainage Plan - more on TC & R calculations

Gary -

Sorry I'm getting comments to you so late in the process, but I had not been assigned the task of reviewing the Drainage Plan until Beverly left. I've got a lot of catching up to do.

I'm also sorry to be getting them to you piecemeal, but there are some major items you may need significant time to address. I'll get comments on typographic errors and such to you later.

In the following, please understand that when I say "your" table, "your" calculations, I am using the royal "you", referring to whoever developed the various items, and not you personally.

As Mr. Knowles (TWDB) mentioned in his comments, the equations provided for TC & (TC + R) do not give the results shown in tables 1 - 8. I only spot-checked Table 6. Among the apparent problems I note are:

- \* TC equation presented in Plan Sec. 3.0 uses L. Equation in Drainage Criteria Manual uses Lca. Lca appears to have been used in the tables.

- \* In first TC + R equation, DCM equation uses 7.25 (not 7.5) as coefficient. Table 6 appears to use 7.25.

- \* There is no discussion of the procedure to adjust R for ponding for the various return periods. The DCM provides a procedure using equations in that document's Fig. 2-2. If those equations are valid for adjustments to R for Brazoria County, they should be included in the Master Drainage Plan. The background on those equations should be included in an appendix to reassure readers of the Plan that they are relevant here. (as should be done for the TC & R equations). The proposed DCM specifies that R is to be adjusted for ponding only when "ponded areas cover at least 20% of the watershed". Is that the proper procedure? Your tables show adjusted R values when ponding is < 20%.

- \* Several lines show "n/a" for R. Does that mean there is no R for those subwatersheds? Should you not show the same R for all return periods, if that is what you intend?

Even given the above corrections, I do not calculate the values shown in the tables. For example, in Table 6, for M-01 I get 4.94 vs. your 5.15. For M-03, I get 2.34 vs. your 2.42. Not major differences, but if we use the same equations, we should get the same results.

#### **RESPONSE:**

**As discussed in the responses to the TWDB comments and in response to some previous emails the Tc & R parameter along with the calculations have been reviewed and revised as needed.**

I am surprised that every subwatershed of Austin Bayou (Table 1) has 50% ponding. How was the Percent Ponding value determined for each of the watersheds?

#### **RESPONSE:**

**Additional text has been added to the report to document the approach on the Tc & R parameters including percent ponding.**

Section 3.0 of the Plan states that "modified Clark's method..." In what sense is this a "modified" Clark method? Is it the standard Clark method with the TC & R parameters from the Harris County manual (instead of from the Ft. Bend Manual?) If that is the case, that should be made clear. I am not aware that HEC-1 has a "modified Clark method" option.

**RESPONSE:**

**Additional text has been added to explain the modified Clarks calculations and a brief description of the modifications. Most of the Clarks descriptions will best be served to be included in the Criteria Manual.**

Of the three parameters required to develop a unit hydrograph, Sec. 3.0 explains how TC and R are calculated. (If R is to be adjusted for ponding, that process should be explained in Sec.3.0.) The third parameter (Time-Area curve) is only mentioned in passing. It would be helpful to include text like, "The default time-area curve was used in each of the sub-watersheds studied because ..." OR "The time-area curve for each sub-watershed was determined based on ..."

DCC (percent channel conveyance) is one of the parameters used to calculate TC + R when  $DLU > 18\%$  (per DCM). DCM states DCC is "the ratio of discharge carried between the channel banks to the total expected discharge". The DCM does not make clear which discharge this is: 100-year? 10-year? peak? 24-hour average? If we take that to be the peak 100-year discharge, I find that DCC is often less than the values shown in your tables. For example, on Mustang Bayou, Table 6 shows DCC to be 100 for all subwatersheds except M-17. The HEC-2 printout for Mustang Bayou shows TOPWID of Mustang Bayou at 100-year (even 10-year) discharge to be 2000 feet or more for various reaches. Doesn't that indicate that there is flow out of the banks, so Percent Channel Conveyance cannot be 100%?

Since the formula for  $DLU > 18\%$  includes the DCC term, this really makes for a complicated formula, if I interpret it correctly. Runoff depends on R which depends on DCC which depends on runoff. It seems a "precise" calculation will require an iterative solution. Am I misinterpreting something?

Please send a copy of the pages of the source document including the TC & R formulas presented (a Harris County Manual?). If that source document contains an example calculation, that should be provided as well. Is Harris County still using these TC & R formulas?

**RESPONSE:**

**The criteria manual will be revised to include additional descriptions and supporting documentation.**

In the Water Surface Elevation comparison tables, please specify significance of "----".

**RESPONSE:**

**The tables have been revised. The "----" in the tables indicates that a comparison was not available at that location.**

Please explain how HEC-2 starting conditions were selected for each of the channels. It seems odd that Austin Bayou's 100-year starting WSEL is 4.87, when even the 10-year WSEL in Bastrop Bayou at Sec. 31 (approx. confluence with Austin Bayou) is 8.00.

**RESPONSE:**

**Additional descriptions of the starting conditions of the models have been provided in the text.**

I strongly recommend that a header and/or footer be provided on each page of the HEC input and output files when they are printed for the final report to facilitate their use. Something simple like "Austin Bayou HEC-1 Output | 100-year Existing Conditions | Dec. 1, 2001 | Page x of y" would really help, and is easy to do with any word processing program.

**RESPONSE:**

**A header of footer is being evaluated for printing on the final printed models in the appendix.**

I recommend that the locations of the sections be shown on the final maps and/or on the GIS maps to be provided on CD-ROM with the final report. If not, additional comments should be provided in some of the input files. For instance, in the Bastrop Bayou HEC-2 input, I could not determine where Austin Bayou joins Bastrop. Surely that is noteworthy.

**RESPONSE:**

**The locations of the surveyed sections are included in the GIS data.**

Brian Courts

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Fri 12/7/01 5:36 PM  
Brian Courts [brianc@brazoria-county.com]  
Struzick, Gary  
Master Drainage Plan

I just sent you comments from Tommy Knowles to Texas Water Development Board. I'm sorry you didn't get them earlier, but we just received them today from the Judge's office.

As I noted in my transmittal of their comments, I've been trying to find time to review the latest draft. Now that Beverly's gone, I'm really struggling to keep up with urgent tasks. Beverly asked me to check that earlier comments had been incorporated into the current draft, or responded to in some way. I'm still going through that.

One item raised by Mr. Knowles is the calculation of TC&R parameters. The Drainage Criteria Manual says second equation to be used when watershed > 18% developed. Is that correct?

The text should explain the source of the TC&R equations, and how you determined that they are valid for this area. The DCM states the equations are "seen in the Harris County Hydrology Manual dated March 1988". As I understand it, equations of this type are generally developed based on comparison of actual and calculated flows for watersheds where the parameters have been measured, with some kind of regression analysis performed



to determine the form of the equation. Is that how the equations were derived for the Harris County Manual? Were the watersheds used in that analysis similar to the watersheds in Brazoria County? Some discussion on the range of validity of the equations is important, since all those HEC-1 calculations are based on these equations.

**RESPONSE:**

**See the Tc & R responses above. The final criteria manual will include some additional descriptions about the adopted applicability of the Modified Clarks methodology.**

I'm not saying all the details need to be presented in the Master Drainage Plan, and certainly not in the text of the Drainage Criteria Manual. It would be useful to have that information in an appendix, probably.

Brian Courts

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Mon 11/12/01 7:16 AM  
Ramsey, Tom  
Struzick, Gary; Hopfe, Stanley; Gonzales, Steven  
Lake Jackson Comments

As Gary S. and I discussed a few days ago, the City of Lake Jackson (TSR met with the City Manager, Mayor, and City Engineer) would like to be briefed on the final recommendations our report makes relative to the Lake Jackson area. Since they have completed a couple of drainage studies which they recently provided copies, there is an interest in how these studies relate to our final plan and recommendations. Specific issues mentioned include:

- \* Did our report take into account river flooding? They consider this key to defining the watershed flooding problems located between Lake Jackson and Angleton.

- \* Their report targets a new channel between 288 and 227.

- \* Dredging of bayou (south of Angleton) would greatly help the flooding in the area.

- \* Recommendations on monitoring the River seemed generic. Lake Jackson currently does monitor closely the River.

**RESPONSE:**

**Need to respond to these issues.**

Please discuss how the Lake Jackson reports (LJA provided) relate to our report. We will need to follow back up with Lake Jackson to maintain a dialog and be sure our report is accurate.

---

Mon 10/29/01 11:49 AM  
Brian Courts [brianc@brazoria-county.com]  
Struzick, Gary; 'Doug Roesler'  
Equations for rainfall intensity

The question came up at the meeting on the Drainage Criteria Manual regarding appropriate values to use for rainfall intensity, and whether TxDOT's equations should be used.

Here is an Excel workbook in which I have compared various parameters for calculating rainfall intensity at a given rainfall duration, for various return periods.

I derived equations to calculate rainfall intensity for various durations and return periods. If you feel it is appropriate, the equations might be included in the Drainage Criteria Manual. I welcome any comments on the equations, and any checking you care to make on the input data.

**RESPONSE:**

**Need to consider any comments to this and any applicability to the overall report.**

The equation used is equivalent to TxDOT's

$$I = b * ((t + d)^e),$$

where

I = rainfall intensity (inches per hour)

t = duration of rainfall (minutes)

b, d, & e = parameters used to fit the curve to the data.

The equation used is shown as

$$I = a * ((t + b)^c),$$

because that is the form of the equation used in a program I found on the Internet (IDF.EXE) that determines the values of a, b & c to fit a curve to input data. The parameters from the two equations have the following relation:

$$\text{TxDOT } b = \text{IDF } a$$

$$\text{TxDOT } d = \text{IDF } b$$

$$\text{TxDOT } e = \text{IDF } c$$

Each worksheet (2-Yr to 100-Yr) in the workbook has rainfall depths for various durations taken from Table 2-1 of the Brazoria Drainage Criteria Manual. The values in Table 2-1 seem to be accurately taken from TP-40 and Hydro-35.

I have shown 3 sets of parameters for 2-year to 100-year return periods.

\* For/From Trendline - 'b' & 'c' are from the curve Excel fit to the data, after I input a value for 'a'. I adjusted 'a' by trial and error until I got an acceptable fit. These are the values I used in my Summary and All Curves displays.

\* From IDF.EXE - 'a', 'b' & 'c' from the IDF.EXE program, into which I input the rainfall durations and depths.

\* TxDOT - 'b', 'd' & 'e' values for Brazoria County from Table 6, pg. 2-16 of the State Dept. of Highways and Public Transportation Bridge Division Hydraulic Manual (Third Edition, December 1985)

TxDOT's parameters don't fit well for rainfall periods of 60 minutes or less, probably because TxDOT didn't fit to the same data I'm using. Table 6 in the TxDOT Hydraulic Manual states "Based on Weather Bureau (NWS) Technical Paper 40". Our Table 2-1 uses

Hydro-35 rainfall depths for durations of 60 minutes or less, which are supposedly more accurate.

The "goodness of fit" measures I used are (a) the sums of squares of the actual difference and the (b) the sum of the squares of the % difference between calculated and input values. % difference is not commonly used as a measure of "goodness of fit", but it seems appropriate here since a 0.1" difference (for example) will have a much larger relative impact on a 24-hour intensity of 0.4 inches per hour vs. a 5-minute intensity of 8.3 inches per hour.

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-----Original Message-----

From: Penny Goode [mailto:[pennyg@brazoria-county.com](mailto:pennyg@brazoria-county.com)]

Sent: Friday, September 21, 2001 9:01 AM

To: Struzick, Gary

Subject: RE: BRAZORIA COUNTY NEWS

Good Morning;

SB936 gives county's the right to place a fine on people who do not respect the floodplain regulations and can be charges with a Class C misdemeanor. I will fax you a copy of it.

Penny

**RESPONSE:**

**Consider putting this information in the report.**

---

KLOTZ  
ASSOCIATES,  
INC.  
CONSULTING  
ENGINEERS



## Appendix F

# Hydrologic and Hydraulic Models

RECEIVED  
JUN 3 1992  
WDB R&PF  
GRANTS MANAGEMENT

## Appendix D

### HYDROLOGIC AND HYDRAULIC MODELS

```

*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JUN 1998
*   VERSION 4.1
*
* RUN DATE 23AUG02 TIME 12:55:38
*
*****

```

```

*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****

```

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X   X  XXXXXXX  XXXXX      X
X   X  X        X   X      XX
X   X  X        X          X
XXXXXXX XXXX   X          XXXXX X
X   X  X        X          X
X   X  X        X   X      X
X   X  XXXXXXX  XXXXX      XXX

```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.  
 THE DEFINITION OF -AMSCK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM







LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

```

70      KK      AB07
71      KM      COMBINE 2 HYDROGRAPHS
          *
72      HC      2
          21

73      KK      AB08
74      KM      AB01-07 RTE TO AB08
75      RM      1.4      .24      .1

76      KK      AB08
77      KM      PERCENT PONDED AREA = 50%
78      BA      2.51
79      LU      0.75      0.1      5
80      UC      2.14      19.19

81      KK      AB08
82      KM      COMBINE 2 HYDROGRAPHS
          *
83      HC      2
          21

84      KK      AB09
85      KM      AB01-08 RTE TO AB09
86      RM      .72      .12      .1

87      KK      AB09
88      KM      PERCENT PONDED AREA = 50%
89      BA      2.47
90      LU      0.75      0.1      2
91      UC      2.16      23.22

92      KK      AB09
93      KM      COMBINE 2 HYDROGRAPHS
          *
94      HC      2
          21

95      KK      AB10
96      KM      AB01-09 RTE TO AB10
97      RM      .42      .07      .1

98      KK      AB10
99      KM      PERCENT PONDED AREA = 50%
100     BA      3.09
101     LU      0.75      0.1      1
102     UC      1.52      31.73

103     KK      AB10
104     KM      COMBINE 2 HYDROGRAPHS
          *
105     HC      2
          21
    
```

\* SUBBASIN AB11 IS NOT USED IN THIS HEC-1 MODEL  
\*

LINE	ID	1	2	3	4	5	6	7	8	9	10
106	KK	AB12									
107	KM	AB01-10 RTE TO AB12									
108	RM	.34	.06	.1							
109	KK	AB12									
110	KM	PERCENT PONDED AREA = 50%									
111	BA	1.81									
112	LU	0.75	0.1	1							
113	UC	1.74	23.41								
114	KK	AB12									
115	KM	COMBINE 2 HYDROGRAPHS									
	*							21			
116	HC	2									
	*	SUBBASIN AB11 IS NOT USED IN THIS HEC-1 MODEL									
117	KK	AB12									
118	KM	REACH EXTENDS FROM X-SECT.				24.860	TO X-SECT.		27.540		
119	RS	13	STOR	0							
120	SV	0	421	963	3667	4617	5685				
121	SQ	0	832	1664	6654	8318	9982				
122	KK	AB13									
123	KM	PERCENT PONDED AREA = 50%									
124	BA	3.43									
125	LU	0.75	0.1	1							
126	UC	2.91	25.37								
127	KK	AB13									
128	KM	COMBINE 2 HYDROGRAPHS									
	*							21			
129	HC	2									
130	KK	AB14									
131	KM	AB01-13 RTE TO AB14									
132	RM	.11	.02	.1							
133	KK	AB14									
134	KM	PERCENT PONDED AREA = 50%									
135	BA	1.59									
136	LU	0.75	0.1	1							
137	UC	8.65	48.91								
138	KK	AB14									
139	KM	COMBINE 2 HYDROGRAPHS									
	*							21			
140	HC	2									
141	KK	AB15									
142	KM	AB01-14 RTE TO AB15									
143	RM	.45	.07	.1							



LINE	ID	1	2	3	4	5	6	7	8	9	10
182	KK	AB19									
183	KM	PERCENT PONDED AREA = 50%									
184	BA	1.38									
185	LU	0.75	0.1	3							
186	UC	0.84	18.15								
187	KK	AB19									
188	KM	COMBINE 3 HYDROGRAPHS									
	*							21			
189	HC	3									
190	KK	AB20									
191	KM	AB01-19 RTE TO AB20									
192	RM	1.11	.19	.1							
193	KK	AB20									
194	KM	PERCENT PONDED AREA = 50%									
195	BA	1.49									
196	LU	0.75	0.1	1							
197	UC	3.91	27.15								
198	KK	AB20									
199	KM	COMBINE 2 HYDROGRAPHS									
	*							21			
200	HC	2									
201	KK	AB22									
202	KM	AB01-20 RTE TO AB22									
203	RM	9.87	1.65	.1							
204	KK	AB21									
205	KM	PERCENT PONDED AREA = 50%									
206	BA	2.33									
207	LU	0.75	0.1	5							
208	UC	0.66	21.03								
209	KK	AB22									
210	KM	PERCENT PONDED AREA = 50%									
211	BA	3.65									
212	LU	1	.5	1							
213	UC	3.19	38.11								
214	KK	AB22									
215	KM	COMBINE 3 HYDROGRAPHS									
	*							21			
216	HC	3									
217	KK	AB23									
218	KM	REACH EXTENDS FROM X-SECT.				18.790	TO X-SECT.		20.360		
219	RS	7	STOR	0							
220	SV	0	117	355	3171	4061	5090				
221	SQ	0	1062	2124	8494	10618	12742				



LINE	ID	1	2	3	4	5	6	7	8	9	10
261	KK	AB27									
262	KM	REACH EXTENDS FROM X-SECT.			15.310	TO X-SECT.			16.200		
263	RS	5	STOR	0							
264	SV	0	160	371	2035	2727	3416				
265	SQ	0	1149	2297	9190	11487	13784				
266	KK	AB27									
267	KM	PERCENT PONDED AREA = 50%									
268	BA	0.69									
269	LU	0.75	0.1	1							
270	UC	0.75	15.40								
271	KK	AB27									
272	KM	COMBINE 2 HYDROGRAPHS									
	*					21					
273	HC	2									
274	KK	AB28									
275	KM	AB01-27 RTE TO AB28									
276	RM	1.79	.3	.1							
277	KK	AB28									
278	KM	PERCENT PONDED AREA = 50%									
279	BA	1.92									
280	LU	0.75	0.1	1							
281	UC	0.71	17.48								
282	KK	AB28									
283	KM	COMBINE 2 HYDROGRAPHS									
	*					21					
284	HC	2									
285	KK	AB31									
286	KM	REACH EXTENDS FROM X-SECT.			12.670	TO X-SECT.			13.760		
287	RS	5	STOR	0							
288	SV	0	219	361	1318	1601	1887				
289	SQ	0	1174	2347	9390	11737	14084				
	*										
	*	BEGIN TRIBUTARY AB29 AND AB30									
	*										
290	KK	AB29									
291	KM	PERCENT PONDED AREA = 50%									
292	BA	1.15									
293	LU	0.75	0.1	30							
294	UC	2.25	19.35								
295	KK	AB29									
296	KM	AB29 RTE TO AB30									
297	RM	2.94	.49	.1							

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

298	KK	AB30								
299	KM	PERCENT PONDED AREA = 50%								
300	BA	2.94								
301	LU	0.75	0.1	10						
302	UC	2.01	22.79							
303	KK	AB30								
304	KM	COMBINE 2 HYDROGRAPHS								
	*							21		
305	HC	2								
306	KK	AB31								
307	KM	AB29-30 RTE TO AB31								
308	RM	.46	.08	.1						
309	KK	AB31								
310	KM	PERCENT PONDED AREA = 50%								
311	BA	2.75								
312	LU	0.75	0.1	10						
313	UC	1.55	15.71							
314	KK	AB31								
315	KM	COMBINE 3 HYDROGRAPHS								
	*							21		
316	HC	3								
317	KK	AB33								
318	KM	REACH EXTENDS FROM X-SECT.			11.610	TO X-SECT.		12.650		
319	RS	5	STOR	0						
320	SV	0	309	581	2242	2697	3121			
321	SQ	0	1571	3143	12571	15714	18857			
	*									
	*	BEGIN TRIBUTARY AB32 AND AB33								
	*									
322	KK	AB32								
323	KM	PERCENT PONDED AREA = 50%								
324	BA	2.43								
325	LU	0.75	0.1	10						
326	UC	1.27	21.59							
327	KK	AB33								
328	KM	AB32 RTE TO AB33								
329	RM	2.31	.39	.1						
330	KK	AB33								
331	KM	PERCENT PONDED AREA = 50%								
332	BA	1.51								
333	LU	0.75	0.1	1						
334	UC	0.70	18.69							

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

```

335 KK AB33
336 KM COMBINE 3 HYDROGRAPHS
* 21
337 HC 3

338 KK AB34
339 KM REACH EXTENDS FROM X-SECT. 10.330 TO X-SECT. 11.610
340 RS 6 STOR 0
341 SV 0 237 428 1722 2155 2576
342 SQ 0 1571 3143 12571 15714 18857

343 KK AB34
344 KM PERCENT PONDED AREA = 50%
345 BA 0.82
346 LU 0.75 0.1 5
347 UC 0.49 15.36

348 KK AB34
349 KM COMBINE 2 HYDROGRAPHS
* 21
350 HC 2

351 KK AB35
352 KM AB01-34 RTE TO AB35
353 RM 1.05 .18 .1

354 KK AB35
355 KM PERCENT PONDED AREA = 50%
356 BA .6
357 LU 0.75 0.1 1
358 UC 1.29 19.01
*
* ADD FLORES BAYOU HYDROGRAPH HERE

359 KK FB25
* 21
360 BA 40.53
361 IN 60 20JUN02 1200
362 QI 0 0 0 0 0 0 1 1 1 2
363 QI 5 15 38 77 144 304 938 1213 1560 1921
364 QI 2254 2573 2867 3098 3267 3368 3413 3412 3387 3359
365 QI 3341 3338 3348 3366 3386 3401 3409 3408 3399 3386
366 QI 3369 3345 3316 3283 3250 3221 3197 3178 3160 3139

367 KK AB35
368 KM COMBINE 3 HYDROGRAPHS (INCLUDES FLORES BAYOU HYDROGRAPH)
* 21
369 HC 3
    
```



LINE	ID	1	2	3	4	5	6	7	8	9	10
370	KK	AB36									
371	KM	AB01-35 RTE TO AB36									
372	RM	.92	.15	.1							
373	KK	AB36									
374	KM	PERCENT PONDED AREA = 50%									
375	BA	1.63									
376	LU	0.75	0.1	5							
377	UC	11.73	71.98								
378	KK	AB36									
379	KM	COMBINE 2 HYDROGRAPHS									
	*							21			
380	HC	2									
381	KK	AB37									
382	KM	REACH EXTENDS FROM X-SECT.			5.820	TO X-SECT.		10.240			
383	RS	20	STOR	0							
384	SV	0	932	2244	6473	7866	9341				
385	SQ	0	1567	3134	12534	15668	18802				
386	KK	AB37									
387	KM	PERCENT PONDED AREA = 50%									
388	BA	2.6									
389	LU	0.75	0.1	10							
390	UC	1.46	21.70								
391	KK	AB37									
392	KM	COMBINE 2 HYDROGRAPHS									
	*							21			
393	HC	2									
394	KK	AB39									
395	KM	AB01-37 RTE TO AB39									
396	RM	.72	.17	.1							
	*										
	*	BEGIN TRIBUTARY AB38-AB39									
	*										
397	KK	AB38									
398	KM	PERCENT PONDED AREA = 50%									
399	BA	1.6									
400	LU	0.75	0.1	1							
401	UC	1.37	21.32								
402	KK	AB39									
403	KM	AB38 RTE TO AB39									
404	RM	2.75	.46	.1							

LINE	ID	1	2	3	4	5	6	7	8	9	10
405	KK	AB39									
406	KM	PERCENT PONDED AREA = 50%									
407	BA	1.76									
408	LU	0.75	0.1	1							
409	UC	2.56	25.31								
410	KK	AB39									
411	KM	COMBINE 3 HYDROGRAPHS									
	*					21					
412	HC	3									
413	KK	AB40									
414	KM	AB01-39 RTE TO AB40									
415	RM	.45	.08	.1							
416	KK	AB40									
417	KM	PERCENT PONDED AREA = 50%									
418	BA	2.46									
419	LU	0.75	0.1	1							
420	UC	4.25	34.73								
421	KK	AB40									
422	KM	COMBINE 2 HYDROGRAPHS									
	*					21					
423	HC	2									
424	KK	AB41									
425	KM	REACH EXTENDS FROM X-SECT.				2.840	TO X-SECT.		5.780		
426	RS	13	STOR	0							
427	SV	0	527	1697	5091	5963	6762				
428	SQ	0	1536	3071	12248	15355	18426				
429	KK	AB41									
430	KM	PERCENT PONDED AREA = 50%									
431	BA	3.35									
432	LU	0.75	0.1	5							
433	UC	3.45	28.72								
434	KK	AB41									
435	KM	COMBINE 2 HYDROGRAPHS									
	*					21					
436	HC	2									
437	KK	AB43									
438	KM	REACH EXTENDS FROM X-SECT.				.000	TO X-SECT.		2.840		
439	RS	13	STOR	0							
440	SV	0	362	859	4077	4918	5700				
441	SQ	0	1536	3071	12248	15355	18426				



```
*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*       JUN 1998                *
*       VERSION 4.1              *
*
* RUN DATE 23AUG02 TIME 12:55:38 *
*
*****
```

```
*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENT
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****
```

```
FILE: AB_10.IH1
BRAZORIA COUNTY MASTER DRAINAGE STUDY
10 YEAR FLOW RUNS
BAKER & LAWSON, DBR
```

```
6 IO      OUTPUT CONTROL VARIABLES
          IPRNT      5  PRINT CONTROL
          IPLOT      0  PLOT CONTROL
          QSCAL      0.  HYDROGRAPH PLOT SCALE
```

```
IT        HYDROGRAPH TIME DATA
          NMIN      10  MINUTES IN COMPUTATION INTERVAL
          IDATE     20JUN 2  STARTING DATE
          ITIME     1200  STARTING TIME
          NQ        1000  NUMBER OF HYDROGRAPH ORDINATES
          NDDATE    27JUN 2  ENDING DATE
          NDTIME    1030  ENDING TIME
          ICENT     19  CENTURY MARK

          COMPUTATION INTERVAL .17 HOURS
          TOTAL TIME BASE 166.50 HOURS
```

```
ENGLISH UNITS
DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH  INCHES
LENGTH, ELEVATION  FEET
FLOW               CUBIC FEET PER SECOND
STORAGE VOLUME     ACRE-FEET
SURFACE AREA       ACRES
TEMPERATURE        DEGREES FAHRENHEIT
```

HYDROGRAPH MULTIPLIED BY 1.00

```
***** WARNING ***** POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH AB10.
ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING ***** POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH AB12.
ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING ***** POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH AB14.
ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING ***** POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH AB15.
ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING ***** POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH AB31.
ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING ***** POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH AB40.
ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
```

## Austin Bayou 10 year AB\_10.IH1

RUNOFF SUMMARY  
 FLOW IN CUBIC FEET PER SECOND  
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	AB01	278.	15.17	271.	203.	94.	1.91		
ROUTED TO	AB02	277.	15.50	271.	203.	94.	1.91		
HYDROGRAPH AT	AB02	275.	14.33	268.	195.	89.	1.75		
2 COMBINED AT	AB02	551.	15.00	536.	397.	183.	3.66		
ROUTED TO	AB03	550.	15.50	535.	397.	183.	3.66		
HYDROGRAPH AT	AB03	315.	18.17	307.	242.	119.	2.56		
2 COMBINED AT	AB03	852.	17.50	823.	634.	302.	6.22		
ROUTED TO	AB05	852.	17.67	823.	634.	302.	6.22		
HYDROGRAPH AT	AB04	130.	15.50	128.	99.	47.	.99		
HYDROGRAPH AT	AB05	115.	16.67	113.	90.	45.	.97		
3 COMBINED AT	AB05	1095.	17.67	1060.	823.	394.	8.18		
ROUTED TO	AB06	1094.	18.00	1059.	822.	394.	8.18		
HYDROGRAPH AT	AB06	187.	15.50	184.	142.	68.	1.39		
2 COMBINED AT	AB06	1277.	18.00	1238.	963.	462.	9.57		
ROUTED TO	AB07	1276.	18.17	1238.	962.	462.	9.57		
HYDROGRAPH AT	AB07	260.	16.33	256.	203.	100.	2.15		
2 COMBINED AT	AB07	1532.	18.17	1488.	1163.	562.	11.72		
ROUTED TO	AB08	1531.	18.33	1487.	1163.	562.	11.72		
HYDROGRAPH AT	AB08	406.	15.33	393.	286.	129.	2.51		
2 COMBINED AT	AB08	1921.	18.17	1868.	1446.	691.	14.23		
ROUTED TO	AB09	1921.	18.17	1867.	1446.	691.	14.23		
HYDROGRAPH AT	AB09	336.	15.83	329.	252.	120.	2.47		
2 COMBINED AT	AB09	2250.	18.17	2191.	1697.	810.	16.70		
ROUTED TO	AB10	2250.	18.17	2191.	1697.	810.	16.70		
HYDROGRAPH AT	AB10	320.	16.83	316.	259.	134.	3.09		
2 COMBINED AT	AB10	2568.	18.17	2503.	1955.	944.	19.79		
ROUTED TO	AB12	2568.	18.17	2503.	1955.	944.	19.79		
HYDROGRAPH AT	AB12	244.	15.50	240.	184.	87.	1.81		
2 COMBINED AT	AB12	2807.	18.00	2738.	2137.	1031.	21.60		
ROUTED TO	AB12	2707.	25.33	2632.	2080.	1031.	21.60		
HYDROGRAPH AT	AB13	430.	16.67	422.	330.	160.	3.43		
2 COMBINED AT	AB13	3046.	25.00	2964.	2348.	1192.	25.03		
ROUTED TO	AB14	3046.	25.17	2964.	2347.	1192.	25.03		
HYDROGRAPH AT	AB14	111.	21.83	109.	96.	53.	1.59		
2 COMBINED AT	AB14	3154.	25.00	3070.	2442.	1245.	26.62		

## Austin Bayou 10 year AB\_10.IH1

ROUTED TO	AB15	3154.	25.17	3070.	2442.	1245.	26.62
HYDROGRAPH AT	AB15	544.	17.50	534.	428.	214.	4.79
2 COMBINED AT	AB15	3608.	24.83	3514.	2812.	1459.	31.41
ROUTED TO	AB15	3608.	25.00	3514.	2812.	1459.	31.41
HYDROGRAPH AT	AB16	369.	17.17	365.	300.	155.	3.59
2 COMBINED AT	AB16	3916.	24.83	3817.	3074.	1614.	35.00
ROUTED TO	AB17	3916.	25.00	3816.	3073.	1614.	35.00
HYDROGRAPH AT	AB17	119.	17.33	118.	99.	53.	1.27
2 COMBINED AT	AB17	4017.	25.00	3915.	3161.	1666.	36.27
ROUTED TO	AB19	4016.	25.17	3915.	3161.	1666.	36.27
HYDROGRAPH AT	AB18	204.	20.50	201.	174.	96.	2.69
HYDROGRAPH AT	AB19	235.	14.33	227.	161.	72.	1.38
3 COMBINED AT	AB19	4362.	25.00	4253.	3455.	1833.	40.34
ROUTED TO	AB20	4361.	25.17	4252.	3454.	1833.	40.34
HYDROGRAPH AT	AB20	177.	17.50	173.	137.	68.	1.49
2 COMBINED AT	AB20	4506.	25.17	4395.	3578.	1901.	41.83
ROUTED TO	AB22	4497.	26.83	4385.	3576.	1901.	41.83
HYDROGRAPH AT	AB21	349.	14.67	341.	254.	118.	2.33
HYDROGRAPH AT	AB22	195.	15.67	185.	151.	79.	3.65
3 COMBINED AT	AB22	4872.	26.67	4752.	3903.	2098.	47.81
ROUTED TO	AB23	4702.	32.50	4613.	3875.	2098.	47.81
HYDROGRAPH AT	AB23	279.	14.67	269.	191.	84.	1.58
2 COMBINED AT	AB23	4822.	32.50	4732.	3982.	2182.	49.39
ROUTED TO	AB25	4799.	34.83	4713.	3978.	2182.	49.39
HYDROGRAPH AT	AB24	145.	15.00	142.	105.	48.	.96
HYDROGRAPH AT	AB25	414.	18.00	409.	347.	185.	4.41
3 COMBINED AT	AB25	5139.	34.67	5050.	4296.	2415.	54.76
ROUTED TO	AB26	5113.	36.50	5028.	4291.	2415.	54.76
HYDROGRAPH AT	AB26	1587.	13.33	670.	246.	82.	1.13
2 COMBINED AT	AB26	5113.	36.50	5028.	4291.	2490.	55.89
ROUTED TO	AB27	5062.	39.67	4984.	4282.	2490.	55.89
HYDROGRAPH AT	AB27	135.	14.17	129.	86.	37.	.69
2 COMBINED AT	AB27	5093.	39.50	5015.	4311.	2526.	56.58
ROUTED TO	AB28	5091.	39.83	5013.	4311.	2526.	56.58
HYDROGRAPH AT	AB28	336.	14.33	323.	227.	99.	1.92
2 COMBINED AT	AB28	5183.	39.83	5104.	4400.	2625.	58.50
ROUTED TO	AB31	5168.	41.50	5091.	4397.	2625.	58.50
HYDROGRAPH AT	AB29	196.	15.50	190.	142.	65.	1.15

## Austin Bayou 10 year AB\_10.IH1

ROUTED TO	AB29	195.	16.17	190.	142.	65.	1.15
HYDROGRAPH AT	AB30	414.	15.67	406.	311.	148.	2.94
2 COMBINED AT	AB30	609.	16.00	595.	452.	213.	4.09
ROUTED TO	AB31	609.	16.00	595.	452.	213.	4.09
HYDROGRAPH AT	AB31	535.	14.67	511.	349.	150.	2.75
3 COMBINED AT	AB31	5506.	41.17	5428.	4742.	2985.	65.34
ROUTED TO	AB33	5482.	43.33	5407.	4737.	2984.	65.34
HYDROGRAPH AT	AB32	359.	15.00	352.	266.	124.	2.43
ROUTED TO	AB33	359.	15.50	351.	265.	124.	2.43
HYDROGRAPH AT	AB33	249.	14.33	241.	173.	77.	1.51
3 COMBINED AT	AB33	5660.	43.17	5584.	4929.	3182.	69.28
ROUTED TO	AB34	5648.	44.83	5574.	4927.	3182.	69.28
HYDROGRAPH AT	AB34	162.	14.00	155.	104.	44.	.82
2 COMBINED AT	AB34	5674.	44.83	5600.	4957.	3224.	70.10
ROUTED TO	AB35	5673.	45.00	5600.	4957.	3224.	70.10
HYDROGRAPH AT	AB35	98.	14.67	95.	68.	31.	.60
HYDROGRAPH AT	FB25	3413.	26.00	3397.	3338.	3206.	40.53
3 COMBINED AT	AB35	8928.	44.33	8858.	8251.	6334.	111.23
ROUTED TO	AB36	8927.	44.50	8858.	8251.	6334.	111.23
HYDROGRAPH AT	AB36	81.	24.83	80.	73.	42.	1.63
2 COMBINED AT	AB36	8991.	44.50	8921.	8316.	6375.	112.86
ROUTED TO	AB37	8956.	50.00	8890.	8309.	6324.	112.86
HYDROGRAPH AT	AB37	383.	15.17	375.	283.	133.	2.60
2 COMBINED AT	AB37	9046.	49.83	8980.	8410.	6394.	115.46
ROUTED TO	AB39	9045.	50.00	8980.	8410.	6394.	115.46
HYDROGRAPH AT	AB38	235.	15.00	229.	171.	79.	1.60
ROUTED TO	AB39	235.	15.50	229.	171.	79.	1.60
HYDROGRAPH AT	AB39	222.	16.33	218.	170.	83.	1.76
3 COMBINED AT	AB39	9164.	49.83	9099.	8547.	6484.	118.82
ROUTED TO	AB40	9164.	50.00	9099.	8547.	6484.	118.82
HYDROGRAPH AT	AB40	235.	18.50	231.	193.	101.	2.46
2 COMBINED AT	AB40	9264.	50.00	9199.	8657.	6550.	121.28
ROUTED TO	AB41	9231.	54.33	9170.	8650.	6498.	121.28
HYDROGRAPH AT	AB41	381.	17.50	374.	302.	152.	3.35
2 COMBINED AT	AB41	9346.	54.33	9285.	8777.	6570.	124.63
ROUTED TO	AB43	9318.	58.50	9260.	8770.	6558.	124.63
HYDROGRAPH AT	AB42	455.	20.00	450.	399.	226.	6.79
HYDROGRAPH AT	AB43	81.	24.50	80.	70.	39.	1.19
3 COMBINED AT	AB43	9573.	58.17	9514.	9018.	6690.	132.61

Austin Bayou 10 year AB\_10.IH1

ROUTED TO	BASTRO	9572.	58.50	9513.	9018.	6690.	132.61
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\*\*\* NORMAL END OF HEC-1 \*\*\*



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*****  
*  
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *  
* JUN 1998 *  
* VERSION 4.1 *  
*  
* RUN DATE 23AUG02 TIME 13:19:59 *  
*  
*****
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*****  
*  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET *  
* DAVIS, CALIFORNIA 95616 *  
* (916) 756-1104 *  
*  
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X X XXXXXXX XXXXX X  
X X X X X XX  
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XXXXXXX XXXX X XXXXX X  
X X X X X  
X X X X X  
X X XXXXXXX XXXXX XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.  
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

LINE	ID	1	2	3	4	5	6	7	8	9	10
1	ID	FILE: AB_25.IH1									
2	ID	BRAZORIA COUNTY MASTER DRAINAGE STUDY									
3	ID	25 YEAR FLOW RUNS									
4	ID	BAKER & LAWSON, DBR									
5	IT	10	20JUN02	1200	1000						
6	IO	5									
7	KK	AB01									
8	KM	PERCENT PONDED AREA = 50%									
	*										21
9	BA	1.91									
	* 2 YEAR STORM	5 MIN	15 MIN	60 MIN	2 HR	3 HR	6 HR	12 HR	24 HR		
	*	50	0	0.56	1.22	2.38	2.90	3.20	3.70	4.50	5.10
	* 5 YEAR STORM										
	*	20	0	0.63	1.38	2.82	3.70	4.10	5.00	6.00	7.00
	* 10 YEAR STORM										
	*	10	0	0.70	1.54	3.27	4.40	4.90	5.90	7.40	8.70
	* 25 YEAR STORM										
10	PH	4	0	0.77	1.71	3.71	5.00	5.60	7.00	8.20	10.00
	* 50 YEAR STORM										
	*	2	0	0.84	1.87	4.16	5.60	6.40	7.90	9.90	11.70
	* 100 YEAR STORM										
	*	1	0	0.91	2.02	4.62	6.20	7.15	8.75	10.75	13.00
11	LU	.75	0.1	1							
	*										
12	UC	1.57	18.85								
13	KK	AB02									
14	KM	AB01 RTE TO AB02									
	*	0									
15	RM	1.4	.24	.1							
16	KK	AB02									
17	KM	PERCENT PONDED AREA = 50%									
	*	0									
18	BA	1.75									
19	LU	0.75	0.1	1							
20	UC	0.42	17.26								
21	KK	AB02									
22	KM	COMBINE 2 HYDROGRAPHS									
	*										21
23	HC	2									
24	KK	AB03									
25	KM	AB01-02 RTE TO AB03									
	*	0									
26	RM	1.7	.29	.1							
27	KK	AB03									
28	KM	PERCENT PONDED AREA = 40%									
	*										21
29	BA	2.56									
30	LU	0.75	0.1	2							
31	UC	5.29	22.64								



LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

```

70      KK      AB07
71      KM      COMBINE 2 HYDROGRAPHS
      *
72      HC      2
      *
73      KK      AB08
74      KM      AB01-07 RTE TO AB08
75      RM      1.4      .24      .1
      *
76      KK      AB08
77      KM      PERCENT PONDED AREA = 50%
78      BA      2.51
79      LU      0.75      0.1      5
80      UC      2.14      16.80
      *
81      KK      AB08
82      KM      COMBINE 2 HYDROGRAPHS
      *
83      HC      2
      *
84      KK      AB09
85      KM      AB01-08 RTE TO AB09
86      RM      .72      .12      .1
      *
87      KK      AB09
88      KM      PERCENT PONDED AREA = 50%
89      BA      2.47
90      LU      0.75      0.1      2
91      UC      2.16      20.33
      *
92      KK      AB09
93      KM      COMBINE 2 HYDROGRAPHS
      *
94      HC      2
      *
95      KK      AB10
96      KM      AB01-09 RTE TO AB10
97      RM      .42      .07      .1
      *
98      KK      AB10
99      KM      PERCENT PONDED AREA = 50%
100     BA      3.09
101     LU      0.75      0.1      1
102     UC      1.52      27.77
      *
103     KK      AB10
104     KM      COMBINE 2 HYDROGRAPHS
      *
105     HC      2
      *

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\* SUBBASIN AB11 IS NOT USED IN THIS HEC-1 MODEL

\*

LINE	ID	1	2	3	4	5	6	7	8	9	10
106	KK	AB12									
107	KM	AB01-10 RTE TO AB12									
108	RM	.34	.06	.1							
109	KK	AB12									
110	KM	PERCENT PONDED AREA = 50%									
111	BA	1.81									
112	LU	0.75	0.1	1							
113	UC	1.74	20.49								
114	KK	AB12									
115	KM	COMBINE 2 HYDROGRAPHS									
	*							21			
116	HC	2									
	*	SUBBASIN AB11 IS NOT USED IN THIS HEC-1 MODEL									
117	KK	AB12									
118	KM	REACH EXTENDS FROM X-SECT.				24.860	TO X-SECT.		27.540		
119	RS	13	STOR	0							
120	SV	0	421	963	3667	4617	5685				
121	SQ	0	832	1664	6654	8318	9982				
122	KK	AB13									
123	KM	PERCENT PONDED AREA = 50%									
124	BA	3.43									
125	LU	0.75	0.1	1							
126	UC	2.91	22.20								
127	KK	AB13									
128	KM	COMBINE 2 HYDROGRAPHS									
	*							21			
129	HC	2									
130	KK	AB14									
131	KM	AB01-13 RTE TO AB14									
132	RM	.11	.02	.1							
133	KK	AB14									
134	KM	PERCENT PONDED AREA = 50%									
135	BA	1.59									
136	LU	0.75	0.1	1							
137	UC	8.65	42.81								
138	KK	AB14									
139	KM	COMBINE 2 HYDROGRAPHS									
	*							21			
140	HC	2									
141	KK	AB15									
142	KM	AB01-14 RTE TO AB15									
143	RM	.45	.07	.1							

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
144	KK AB15
145	KM PERCENT PONDED AREA = 50%
146	BA 4.79
147	LU 0.75 0.1 1
148	UC 3.74 24.74
149	KK AB15
150	KM COMBINE 2 HYDROGRAPHS
	* 21
151	HC 2
152	KK AB15
153	KM AB01-15 RTE TO AB16
154	RM .61 .10 .1
155	KK AB16
156	KM PERCENT PONDED AREA = 50%
157	BA 3.59
158	LU 0.75 0.1 1
159	UC 2.04 27.88
160	KK AB16
161	KM COMBINE 2 HYDROGRAPHS
	* 21
162	HC 2
163	KK AB17
164	KM AB01-16 RTE TO AB17
165	RM .87 .14 .1
166	KK AB17
167	KM PERCENT PONDED AREA = 50%
168	BA 1.27
169	LU 0.75 0.1 2
170	UC 1.60 31.25
171	KK AB17
172	KM COMBINE 2 HYDROGRAPHS
	* 21
173	HC 2
174	KK AB19
175	KM AB01-17 RTE TO AB19
176	RM 1.04 .17 .1
177	KK AB18
178	KM PERCENT PONDED AREA = 50%
179	BA 2.69
180	LU 0.75 0.1 1
181	UC 6.83 39.18

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
182	KK	AB19									
183	KM	PERCENT PONDED AREA = 50%									
184	BA	1.38									
185	LU	0.75	0.1	3							
186	UC	0.84	15.89								
187	KK	AB19									
188	KM	COMBINE 3 HYDROGRAPHS									
	*									21	
189	HC	3									
190	KK	AB20									
191	KM	AB01-19 RTE TO AB20									
192	RM	1.11	.19	.1							
193	KK	AB20									
194	KM	PERCENT PONDED AREA = 50%									
195	BA	1.49									
196	LU	0.75	0.1	1							
197	UC	3.91	23.76								
198	KK	AB20									
199	KM	COMBINE 2 HYDROGRAPHS									
	*									21	
200	HC	2									
201	KK	AB22									
202	KM	AB01-20 RTE TO AB22									
203	RM	9.87	1.65	.1							
204	KK	AB21									
205	KM	PERCENT PONDED AREA = 50%									
206	BA	2.33									
207	LU	0.75	0.1	5							
208	UC	0.66	18.40								
209	KK	AB22									
210	KM	PERCENT PONDED AREA = 50%									
211	BA	3.65									
212	LU	1	.5	1							
213	UC	3.19	33.35								
214	KK	AB22									
215	KM	COMBINE 3 HYDROGRAPHS									
	*									21	
216	HC	3									
217	KK	AB23									
218	KM	REACH EXTENDS FROM X-SECT.				18.790	TO X-SECT.		20.360		
219	RS	7	STOR	0							
220	SV	0	117	355	3171	4061	5090				
221	SQ	0	1062	2124	8494	10618	12742				





LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

261 KK AB27  
 262 KM REACH EXTENDS FROM X-SECT. 15.310 TO X-SECT. 16.200  
 263 RS 5 STOR 0  
 264 SV 0 160 371 2035 2727 3416  
 265 SQ 0 1149 2297 9190 11487 13784

266 KK AB27  
 267 KM PERCENT PONDED AREA = 50%  
 268 BA 0.69  
 269 LU 0.75 0.1 1  
 270 UC 0.75 13.48

271 KK AB27  
 272 KM COMBINE 2 HYDROGRAPHS  
 \* 21  
 273 HC 2

274 KK AB28  
 275 KM AB01-27 RTE TO AB28  
 276 RM 1.79 .3 .1

277 KK AB28  
 278 KM PERCENT PONDED AREA = 50%  
 279 BA 1.92  
 280 LU 0.75 0.1 1  
 281 UC 0.71 15.30

282 KK AB28  
 283 KM COMBINE 2 HYDROGRAPHS  
 \* 21  
 284 HC 2

285 KK AB31  
 286 KM REACH EXTENDS FROM X-SECT. 12.670 TO X-SECT. 13.760  
 287 RS 5 STOR 0  
 288 SV 0 219 361 1318 1601 1887  
 289 SQ 0 1174 2347 9390 11737 14084

\* BEGIN TRIBUTARY AB29 AND AB30  
 \*

290 KK AB29  
 291 KM PERCENT PONDED AREA = 50%  
 292 BA 1.15  
 293 LU 0.75 0.1 30  
 294 UC 2.25 16.94

295 KK AB29  
 296 KM AB29 RTE TO AB30  
 297 RM 2.94 .49 .1



23AUG02 09:58:09

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## SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	2.840	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	2.840	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	2.840	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.820	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.820	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.820	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.830	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.830	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.830	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	10.240	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	10.240	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	10.240	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	12.680	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	12.680	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	12.790	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	12.790	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.760	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.760	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.760	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	14.970	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	14.970	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	14.970	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	15.310	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	15.310	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	15.310	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	16.200	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	16.200	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	16.200	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	16.210	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	16.210	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	16.210	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	16.260	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	16.260	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	16.260	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	16.990	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	16.990	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	16.990	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	17.930	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
370	KK AB36
371	KM AB01-35 RTE TO AB36
372	RM .92 .15 .1
373	KK AB36
374	KM PERCENT PONDED AREA = 50%
375	BA 1.63
376	LU 0.75 0.1 5
377	UC 11.73 63.0
378	KK AB36
379	KM COMBINE 2 HYDROGRAPHS
	* 21
380	HC 2
381	KK AB37
382	KM REACH EXTENDS FROM X-SECT. 5.820 TO X-SECT. 10.240
383	RS 20 STOR 0
384	SV 0 932 2244 6473 7866 9341
385	SQ 0 1567 3134 12534 15668 18802
386	KK AB37
387	KM PERCENT PONDED AREA = 50%
388	BA 2.6
389	LU 0.75 0.1 10
390	UC 1.46 19.00
391	KK AB37
392	KM COMBINE 2 HYDROGRAPHS
	* 21
393	HC 2
394	KK AB39
395	KM AB01-37 RTE TO AB39
396	RM .72 .17 .1
	* * BEGIN TRIBUTARY AB38-AB39 *
397	KK AB38
398	KM PERCENT PONDED AREA = 50%
399	BA 1.6
400	LU 0.75 0.1 1
401	UC 1.37 18.66
402	KK AB39
403	KM AB38 RTE TO AB39
404	RM 2.75 .46 .1

LINE	ID	1	2	3	4	5	6	7	8	9	10
405	KK	AB39									
406	KM	PERCENT PONDED AREA = 50%									
407	BA	1.76									
408	LU	0.75	0.1	1							
409	UC	2.56	22.15								
410	KK	AB39									
411	KM	COMBINE 3 HYDROGRAPHS									
	*					21					
412	HC	3									
413	KK	AB40									
414	KM	AB01-39 RTE TO AB40									
415	RM	.45	.08	.1							
416	KK	AB40									
417	KM	PERCENT PONDED AREA = 50%									
418	BA	2.46									
419	LU	0.75	0.1	1							
420	UC	4.25	30.39								
421	KK	AB40									
422	KM	COMBINE 2 HYDROGRAPHS									
	*					21					
423	HC	2									
424	KK	AB41									
425	KM	REACH EXTENDS FROM X-SECT.				2.840	TO X-SECT.		5.780		
426	RS	13	STOR	0							
427	SV	0	527	1697	5091	5963	6762				
428	SQ	0	1536	3071	12248	15355	18426				
429	KK	AB41									
430	KM	PERCENT PONDED AREA = 50%									
431	BA	3.35									
432	LU	0.75	0.1	5							
433	UC	3.45	25.14								
434	KK	AB41									
435	KM	COMBINE 2 HYDROGRAPHS									
	*					21					
436	HC	2									
437	KK	AB43									
438	KM	REACH EXTENDS FROM X-SECT.				.000	TO X-SECT.		2.840		
439	RS	13	STOR	0							
440	SV	0	362	859	4077	4918	5700				
441	SQ	0	1536	3071	12248	15355	18426				



```
*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   JUN 1998 *
*   VERSION 4.1 *
*
* RUN DATE 23AUG02 TIME 13:19:59 *
*
*****
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*****
*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CEN *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 756-1104 *
*****
```

FILE: AB\_25.IH1  
 BRAZORIA COUNTY MASTER DRAINAGE STUDY  
 25 YEAR FLOW RUNS  
 BAKER & LAWSON, DBR

```
6 IO      OUTPUT CONTROL VARIABLES
          IPRNT      5  PRINT CONTROL
          IPLOT      0  PLOT CONTROL
          QSCAL      0.  HYDROGRAPH PLOT SCALE
```

```
IT      HYDROGRAPH TIME DATA
        NMIN      10  MINUTES IN COMPUTATION INTERVAL
        IDATE     20JUN 2  STARTING DATE
        ITIME     1200  STARTING TIME
        NQ       1000  NUMBER OF HYDROGRAPH ORDINATES
        NDDATE    27JUN 2  ENDING DATE
        NDTIME    1030  ENDING TIME
        ICENT     19  CENTURY MARK
```

COMPUTATION INTERVAL .17 HOURS  
 TOTAL TIME BASE 166.50 HOURS

ENGLISH UNITS  
 DRAINAGE AREA SQUARE MILES  
 PRECIPITATION DEPTH INCHES  
 LENGTH, ELEVATION FEET  
 FLOW CUBIC FEET PER SECOND  
 STORAGE VOLUME ACRE-FEET  
 SURFACE AREA ACRES  
 TEMPERATURE DEGREES FAHRENHEIT

HYDROGRAPH MULTIPLIED BY 1.00

```
***** WARNING ***** POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH AB10.
ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING ***** POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH AB12.
ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING ***** POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH AB14.
ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING ***** POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH AB15.
ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING ***** POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH AB31.
ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING ***** POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH AB40.
ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
```

Austin Bayou 25 year flows AB\_25.IH1

RUNOFF SUMMARY  
 FLOW IN CUBIC FEET PER SECOND  
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	AB01	372.	15.33	356.	260.	117.	1.91		
ROUTED TO	AB02	372.	15.67	356.	259.	117.	1.91		
HYDROGRAPH AT	AB02	368.	14.83	352.	248.	109.	1.75		
2 COMBINED AT	AB02	738.	15.17	702.	507.	226.	3.66		
ROUTED TO	AB03	737.	15.50	701.	507.	226.	3.66		
HYDROGRAPH AT	AB03	419.	18.00	403.	312.	149.	2.56		
2 COMBINED AT	AB03	1123.	17.17	1075.	813.	375.	6.22		
ROUTED TO	AB05	1122.	17.33	1075.	813.	375.	6.22		
HYDROGRAPH AT	AB04	175.	15.67	168.	127.	59.	.99		
HYDROGRAPH AT	AB05	153.	16.67	148.	116.	56.	.97		
3 COMBINED AT	AB05	1444.	17.17	1388.	1055.	490.	8.18		
ROUTED TO	AB06	1443.	17.67	1387.	1055.	490.	8.18		
HYDROGRAPH AT	AB06	251.	15.67	241.	182.	84.	1.39		
2 COMBINED AT	AB06	1684.	17.50	1621.	1235.	574.	9.57		
ROUTED TO	AB07	1682.	17.83	1620.	1234.	574.	9.57		
HYDROGRAPH AT	AB07	349.	15.67	338.	262.	125.	2.15		
2 COMBINED AT	AB07	2018.	17.67	1948.	1494.	699.	11.72		
ROUTED TO	AB08	2016.	17.83	1946.	1493.	699.	11.72		
HYDROGRAPH AT	AB08	542.	15.50	515.	363.	159.	2.51		
2 COMBINED AT	AB08	2529.	17.50	2441.	1853.	858.	14.23		
ROUTED TO	AB09	2528.	17.67	2441.	1853.	858.	14.23		
HYDROGRAPH AT	AB09	451.	15.83	433.	323.	149.	2.47		
2 COMBINED AT	AB09	2964.	17.33	2865.	2174.	1007.	16.70		
ROUTED TO	AB10	2964.	17.50	2864.	2174.	1007.	16.70		
HYDROGRAPH AT	AB10	429.	15.83	417.	337.	169.	3.09		
2 COMBINED AT	AB10	3385.	17.33	3276.	2511.	1176.	19.79		
ROUTED TO	AB12	3385.	17.50	3276.	2510.	1176.	19.79		
HYDROGRAPH AT	AB12	328.	15.67	315.	236.	109.	1.81		
2 COMBINED AT	AB12	3702.	17.33	3583.	2745.	1285.	21.60		
ROUTED TO	AB12	3534.	25.00	3433.	2665.	1285.	21.60		
HYDROGRAPH AT	AB13	576.	16.33	555.	425.	201.	3.43		
2 COMBINED AT	AB13	3981.	24.67	3866.	3007.	1485.	25.03		
ROUTED TO	AB14	3981.	24.67	3866.	3007.	1485.	25.03		
HYDROGRAPH AT	AB14	147.	21.50	145.	126.	69.	1.59		
2 COMBINED AT	AB14	4124.	24.67	4007.	3131.	1554.	26.62		



## Austin Bayou 25 year flows AB\_25.IH1

ROUTED TO	AB15	4123.	24.83	4007.	3131.	1554.	26.62
HYDROGRAPH AT	AB15	727.	17.00	704.	555.	270.	4.79
2 COMBINED AT	AB15	4722.	24.50	4591.	3609.	1824.	31.41
ROUTED TO	AB15	4722.	24.67	4591.	3609.	1824.	31.41
HYDROGRAPH AT	AB16	496.	16.17	482.	390.	196.	3.59
2 COMBINED AT	AB16	5130.	24.50	4990.	3948.	2020.	35.00
ROUTED TO	AB17	5129.	24.67	4989.	3948.	2019.	35.00
HYDROGRAPH AT	AB17	160.	16.00	156.	129.	67.	1.27
2 COMBINED AT	AB17	5264.	24.67	5121.	4063.	2086.	36.27
ROUTED TO	AB19	5263.	24.83	5120.	4062.	2086.	36.27
HYDROGRAPH AT	AB18	270.	20.00	266.	229.	123.	2.69
HYDROGRAPH AT	AB19	313.	14.83	297.	204.	88.	1.38
3 COMBINED AT	AB19	5716.	24.67	5562.	4444.	2297.	40.34
ROUTED TO	AB20	5714.	24.83	5561.	4443.	2297.	40.34
HYDROGRAPH AT	AB20	236.	17.00	228.	178.	85.	1.49
2 COMBINED AT	AB20	5905.	24.83	5747.	4605.	2383.	41.83
ROUTED TO	AB22	5891.	26.50	5735.	4603.	2383.	41.83
HYDROGRAPH AT	AB21	468.	15.00	448.	324.	146.	2.33
HYDROGRAPH AT	AB22	271.	15.67	256.	204.	104.	3.65
3 COMBINED AT	AB22	6382.	26.33	6215.	5032.	2632.	47.81
ROUTED TO	AB23	6144.	32.17	6022.	4990.	2632.	47.81
HYDROGRAPH AT	AB23	371.	15.00	352.	241.	103.	1.58
2 COMBINED AT	AB23	6290.	32.17	6165.	5120.	2734.	49.39
ROUTED TO	AB25	6259.	34.50	6139.	5114.	2734.	49.39
HYDROGRAPH AT	AB24	195.	15.33	186.	134.	59.	.96
HYDROGRAPH AT	AB25	551.	16.50	539.	451.	235.	4.41
3 COMBINED AT	AB25	6689.	34.33	6565.	5517.	3027.	54.76
ROUTED TO	AB26	6653.	36.17	6535.	5509.	3027.	54.76
HYDROGRAPH AT	AB26	1821.	13.33	793.	286.	96.	1.13
2 COMBINED AT	AB26	6653.	36.17	6535.	5509.	3114.	55.89
ROUTED TO	AB27	6582.	39.33	6474.	5493.	3114.	55.89
HYDROGRAPH AT	AB27	179.	14.33	168.	109.	45.	.69
2 COMBINED AT	AB27	6616.	39.17	6508.	5527.	3158.	56.58
ROUTED TO	AB28	6614.	39.50	6506.	5526.	3158.	56.58
HYDROGRAPH AT	AB28	447.	14.67	423.	287.	122.	1.92
2 COMBINED AT	AB28	6719.	39.50	6610.	5628.	3280.	58.50
ROUTED TO	AB31	6698.	41.17	6592.	5624.	3279.	58.50
HYDROGRAPH AT	AB29	259.	15.67	247.	178.	79.	1.15

## Austin Bayou 25 year flows AB\_25.IH1

ROUTED TO	AB29	259.	16.17	247.	178.	79.	1.15
HYDROGRAPH AT	AB30	554.	15.67	532.	397.	183.	2.94
2 COMBINED AT	AB30	812.	15.83	777.	575.	262.	4.09
ROUTED TO	AB31	812.	16.00	777.	575.	262.	4.09
HYDROGRAPH AT	AB31	709.	14.83	665.	439.	182.	2.75
3 COMBINED AT	AB31	7086.	40.83	6978.	6017.	3719.	65.34
ROUTED TO	AB33	7052.	43.00	6949.	6010.	3718.	65.34
HYDROGRAPH AT	AB32	481.	15.33	461.	338.	153.	2.43
ROUTED TO	AB33	480.	15.67	460.	338.	153.	2.43
HYDROGRAPH AT	AB33	333.	14.83	317.	220.	95.	1.51
3 COMBINED AT	AB33	7255.	42.83	7151.	6226.	3963.	69.28
ROUTED TO	AB34	7238.	44.50	7137.	6223.	3962.	69.28
HYDROGRAPH AT	AB34	215.	14.33	202.	131.	54.	.82
2 COMBINED AT	AB34	7266.	44.50	7165.	6255.	4014.	70.10
ROUTED TO	AB35	7265.	44.67	7164.	6255.	4014.	70.10
HYDROGRAPH AT	AB35	130.	15.17	124.	87.	38.	.60
HYDROGRAPH AT	FB25	4003.	35.00	3988.	3904.	3773.	40.53
3 COMBINED AT	AB35	11009.	44.33	10920.	10094.	7700.	111.23
ROUTED TO	AB36	11009.	44.50	10919.	10094.	7700.	111.23
HYDROGRAPH AT	AB36	107.	24.83	106.	97.	55.	1.63
2 COMBINED AT	AB36	11091.	44.50	11002.	10178.	7753.	112.86
ROUTED TO	AB37	11047.	50.00	10963.	10168.	7712.	112.86
HYDROGRAPH AT	AB37	512.	15.33	491.	361.	164.	2.60
2 COMBINED AT	AB37	11144.	49.83	11060.	10278.	7802.	115.46
ROUTED TO	AB39	11143.	50.00	11060.	10278.	7801.	115.46
HYDROGRAPH AT	AB38	315.	15.33	301.	219.	98.	1.60
ROUTED TO	AB39	315.	15.83	301.	219.	98.	1.60
HYDROGRAPH AT	AB39	298.	16.17	287.	219.	103.	1.76
3 COMBINED AT	AB39	11275.	50.00	11192.	10428.	7917.	118.82
ROUTED TO	AB40	11275.	50.00	11192.	10428.	7917.	118.82
HYDROGRAPH AT	AB40	313.	17.67	305.	252.	129.	2.46
2 COMBINED AT	AB40	11395.	50.00	11312.	10559.	8005.	121.28
ROUTED TO	AB41	11352.	54.33	11274.	10550.	7962.	121.28
HYDROGRAPH AT	AB41	508.	16.83	493.	390.	191.	3.35
2 COMBINED AT	AB41	11481.	54.33	11404.	10691.	8056.	124.63
ROUTED TO	AB43	11446.	58.50	11372.	10682.	8040.	124.63
HYDROGRAPH AT	AB42	603.	18.83	596.	527.	293.	6.79
HYDROGRAPH AT	AB43	107.	24.50	105.	92.	50.	1.19
3 COMBINED AT	AB43	11759.	58.33	11682.	10981.	8220.	132.61

Austin Bayou 25 year flows AB\_25.IH1

ROUTED TO	BASTRO	11757.	58.50	11680.	10981.	8220.	132.61
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\*\*\* NORMAL END OF HEC-1 \*\*\*

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FLOOD HYDROGRAPH PACKAGE (HEC-1) *
      JUN 1998 *
      VERSION 4.1 *
*
* RUN DATE 23AUG02 TIME 13:13:23 *
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*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 756-1104 *
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.  
 THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

Austin Bayou 100 year AB\_100.IH1

HEC-1 INPUT

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
1	ID FILE: AB_100.IH1
2	ID BRAZORIA COUNTY MASTER DRAINAGE STUDY
3	ID 100 YEAR FLOW RUNS
4	ID BAKER & LAWSON, DBR
5	IT 10 20JUN02 1200 1000
6	IO 5
7	KK AB01
8	KM PERCENT PONDED AREA = 50%
	* 21
9	BA 1.91
	* 2 YEAR STORM 5 MIN 15 MIN 60 MIN 2 HR 3 HR 6 HR 12 HR 24 HR
	* 50 0 0.56 1.22 2.38 2.90 3.20 3.70 4.50 5.10
	* 5 YEAR STORM
	* 20 0 0.63 1.38 2.82 3.70 4.10 5.00 6.00 7.00
	* 10 YEAR STORM
	* 10 0 0.70 1.54 3.27 4.40 4.90 5.90 7.40 8.70
	* 25 YEAR STORM
	* 4 0 0.77 1.71 3.71 5.00 5.60 7.00 8.20 10.00
	* 50 YEAR STORM
	* 2 0 0.84 1.87 4.16 5.60 6.40 7.90 9.90 11.70
	* 100 YEAR STORM
10	PH 1 0 0.91 2.02 4.62 6.20 7.15 8.75 10.75 13.00
11	LU .75 0.1 1
	* 100 YEAR TC & R
	*
12	UC 1.57 15.66
13	KK AB02
14	KM AB01 RTE TO AB02
	* 0
15	RM 1.4 .24 .1
16	KK AB02
17	KM PERCENT PONDED AREA = 50%
	* 0
18	BA 1.75
19	LU 0.75 0.1 1
	* 100 YEAR TC & R
20	UC 0.42 14.34
21	KK AB02
22	KM COMBINE 2 HYDROGRAPHS
	* 0 21
23	HC 2
24	KK AB03
25	KM AB01-02 RTE TO AB03
	* 0 21
26	RM 1.7 .29 .1



LINE	ID	1	2	3	4	5	6	7	8	9	10
62	KK	AB07									
63	KM	AB01-06 RTE TO AB07									
64	RM	1.6	.27	.1							
65	KK	AB07									
66	KM	PERCENT PONDED AREA = 50%									
67	BA	2.15									
68	LU	0.75	0.1	2							
		* 100 YEAR TC & R									
69	UC	1.43	19.40								
70	KK	AB07									
71	KM	COMBINE 2 HYDROGRAPHS									
	*									21	
72	HC	2									
73	KK	AB08									
74	KM	AB01-07 RTE TO AB08									
75	RM	1.4	.24	.1							
76	KK	AB08									
77	KM	PERCENT PONDED AREA = 50%									
78	BA	2.51									
79	LU	0.75	0.1	5							
		* 100 YEAR TC & R									
80	UC	2.14	13.96								
81	KK	AB08									
82	KM	COMBINE 2 HYDROGRAPHS									
	*									21	
83	HC	2									
84	KK	AB09									
85	KM	AB01-08 RTE TO AB09									
86	RM	.72	.12	.1							
87	KK	AB09									
88	KM	PERCENT PONDED AREA = 50%									
89	BA	2.47									
90	LU	0.75	0.1	2							
		* 100 YEAR TC & R									
91	UC	2.16	16.89								
92	KK	AB09									
93	KM	COMBINE 2 HYDROGRAPHS									
	*									21	
94	HC	2									
95	KK	AB10									
96	KM	AB01-09 RTE TO AB10									
97	RM	.42	.07	.1							





LINE	ID	1	2	3	4	5	6	7	8	9	10
130	KK	AB14									
131	KM	AB01-13 RTE TO AB14									
132	RM	.11	.02	.1							
133	KK	AB14									
134	KM	PERCENT PONDED AREA = 50%									
135	BA	1.59									
136	LU	0.75	0.1	1							
		* 100 YEAR TC & R									
137	UC	8.65	35.57								
138	KK	AB14									
139	KM	COMBINE 2 HYDROGRAPHS									
	*										21
140	HC	2									
141	KK	AB15									
142	KM	AB01-14 RTE TO AB15									
143	RM	.45	.07	.1							
144	KK	AB15									
145	KM	PERCENT PONDED AREA = 50%									
146	BA	4.79									
147	LU	0.75	0.1	1							
		* 100 YEAR TC & R									
148	UC	3.74	20.56								
149	KK	AB15									
150	KM	COMBINE 2 HYDROGRAPHS									
	*										21
151	HC	2									
152	KK	AB15									
153	KM	AB01-15 RTE TO AB16									
154	RM	.61	.10	.1							
155	KK	AB16									
156	KM	PERCENT PONDED AREA = 50%									
157	BA	3.59									
158	LU	0.75	0.1	1							
		* 100 YEAR TC & R									
159	UC	2.04	23.17								
160	KK	AB16									
161	KM	COMBINE 2 HYDROGRAPHS									
	*										21
162	HC	2									
163	KK	AB17									
164	KM	AB01-16 RTE TO AB17									
165	RM	.87	.14	.1							







LINE	ID	1	2	3	4	5	6	7	8	9	10
274	KK	AB28									
275	KM	AB01-27 RTE TO AB28									
276	RM	1.79	.3	.1							
277	KK	AB28									
278	KM	PERCENT PONDED AREA = 50%									
279	BA	1.92									
280	LU	0.75	0.1	1							
		* 100 YEAR TC & R									
281	UC	0.71	12.71								
282	KK	AB28									
283	KM	COMBINE 2 HYDROGRAPHS									
		*									
284	HC	2								21	
285	KK	AB31									
286	KM	REACH EXTENDS FROM X-SECT.				12.670	TO X-SECT.			13.760	
287	RS	5	STOR	0							
288	SV	0	219	361	1318	1601	1887				
289	SQ	0	1174	2347	9390	11737	14084				
		*									
		* BEGIN TRIBUTARY AB29 AND AB30									
		*									
290	KK	AB29									
291	KM	PERCENT PONDED AREA = 50%									
292	BA	1.15									
293	LU	0.75	0.1	30							
		* 100 YEAR TC & R									
294	UC	2.25	14.08								
295	KK	AB29									
296	KM	AB29 RTE TO AB30									
297	RM	2.94	.49	.1							
298	KK	AB30									
299	KM	PERCENT PONDED AREA = 50%									
300	BA	2.94									
301	LU	0.75	0.1	10							
		* 100 YEAR TC & R									
302	UC	2.01	16.57								
303	KK	AB30									
304	KM	COMBINE 2 HYDROGRAPHS									
		*									
305	HC	2								21	
306	KK	AB31									
307	KM	AB29-30 RTE TO AB31									
308	RM	.46	.08	.1							

LINE	ID	1	2	3	4	5	6	7	8	9	10
309	KK	AB31									
310	KM	PERCENT PONDED AREA = 50%									
311	BA	2.75									
312	LU	0.75	0.1	10							
		* 100 YEAR TC & R									
313	UC	1.55	11.42								
314	KK	AB31									
315	KM	COMBINE 3 HYDROGRAPHS									
		*									
						21					
316	HC	3									
317	KK	AB33									
318	KM	REACH EXTENDS FROM X-SECT.			11.610	TO X-SECT.			12.650		
319	RS	5	STOR	0							
320	SV	0	309	581	2242	2697	3121				
321	SQ	0	1571	3143	12571	15714	18857				
		*									
		* BEGIN TRIBUTARY AB32 AND AB33									
		*									
322	KK	AB32									
323	KM	PERCENT PONDED AREA = 50%									
324	BA	2.43									
325	LU	0.75	0.1	10							
		* 100 YEAR TC & R									
326	UC	1.27	15.71								
327	KK	AB33									
328	KM	AB32 RTE TO AB33									
329	RM	2.31	.39	.1							
330	KK	AB33									
331	KM	PERCENT PONDED AREA = 50%									
332	BA	1.51									
333	LU	0.75	0.1	1							
		* 100 YEAR TC & R									
334	UC	0.70	13.59								
335	KK	AB33									
336	KM	COMBINE 3 HYDROGRAPHS									
		*									
						21					
337	HC	3									
338	KK	AB34									
339	KM	REACH EXTENDS FROM X-SECT.			10.330	TO X-SECT.			11.610		
340	RS	6	STOR	0							
341	SV	0	237	428	1722	2155	2576				
342	SQ	0	1571	3143	12571	15714	18857				



LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
381	KK AB36
382	KM COMBINE 2 HYDROGRAPHS
	* 21
383	HC 2
384	KK AB37
385	KM REACH EXTENDS FROM X-SECT. 5.820 TO X-SECT. 10.240
386	RS 20 STOR 0
387	SV 0 932 2244 6473 7866 9341
388	SQ 0 1567 3134 12534 15668 18802
389	KK AB37
390	KM PERCENT PONDED AREA = 50%
391	BA 2.6
392	LU 0.75 0.1 10
	* 100 YEAR TC & R
393	UC 1.46 15.79
394	KK AB37
395	KM COMBINE 2 HYDROGRAPHS
	* 21
396	HC 2
397	KK AB39
398	KM AB01-37 RTE TO AB39
399	RM .72 .17 .1
	* BEGIN TRIBUTARY AB38-AB39
	*
400	KK AB38
401	KM PERCENT PONDED AREA = 50%
402	BA 1.6
403	LU 0.75 0.1 1
	* 100 YEAR TC & R
404	UC 1.37 15.51
405	KK AB39
406	KM AB38 RTE TO AB39
407	RM 2.75 .46 .1
408	KK AB39
409	KM PERCENT PONDED AREA = 50%
410	BA 1.76
411	LU 0.75 0.1 1
	* 100 YEAR TC & R
412	UC 2.56 18.41
413	KK AB39
414	KM COMBINE 3 HYDROGRAPHS
	* 21
415	HC 3



LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

416	KK	AB40								
417	KM	AB01-39 RTE TO AB40								
418	RM	.45	.08	.1						
419	KK	AB40								
420	KM	PERCENT PONDED AREA = 50%								
421	BA	2.46								
422	LU	0.75	0.1	1						
		* 100 YEAR TC & R								
423	UC	4.25	25.26							
424	KK	AB40								
425	KM	COMBINE 2 HYDROGRAPHS								
	*						21			
426	HC	2								
427	KK	AB41								
428	KM	REACH EXTENDS FROM X-SECT.			2.840	TO X-SECT.		5.780		
429	RS	13	STOR	0						
430	SV	0	527	1697	5091	5963	6762			
431	SQ	0	1536	3071	12248	15355	18426			
432	KK	AB41								
433	KM	PERCENT PONDED AREA = 50%								
434	BA	3.35								
435	LU	0.75	0.1	5						
		* 100 YEAR TC & R								
436	UC	3.45	20.89							
437	KK	AB41								
438	KM	COMBINE 2 HYDROGRAPHS								
	*						21			
439	HC	2								
440	KK	AB43								
441	KM	REACH EXTENDS FROM X-SECT.			.000	TO X-SECT.		2.840		
442	RS	13	STOR	0						
443	SV	0	362	859	4077	4918	5700			
444	SQ	0	1536	3071	12248	15355	18426			
445	KK	AB42								
446	KM	PERCENT PONDED AREA = 50%								
447	BA	6.79								
448	LU	0.75	0.1	5						
		* 100 YEAR TC & R								
449	UC	4.82	37.73							
450	KK	AB43								
451	KM	PERCENT PONDED AREA = 50%								
452	BA	1.19								
453	LU	0.75	0.1	1						
		* 100 YEAR TC & R								
454	UC	12.24	35.95							



```
*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* JUN 1998 *
* VERSION 4.1 *
*
* RUN DATE 23AUG02 TIME 13:13:23 *
*
*****
```

```
*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****
```

FILE: AB\_100.IH1  
 BRAZORIA COUNTY MASTER DRAINAGE STUDY  
 100 YEAR FLOW RUNS  
 BAKER & LAWSON, DBR

```
6 IO OUTPUT CONTROL VARIABLES
      IPRNT      5 PRINT CONTROL
      IPLOT      0 PLOT CONTROL
      QSCAL      0. HYDROGRAPH PLOT SCALE
```

```
IT HYDROGRAPH TIME DATA
      NMIN      10 MINUTES IN COMPUTATION INTERVAL
      IDATE     20JUN 2 STARTING DATE
      ITIME     1200 STARTING TIME
      NQ        1000 NUMBER OF HYDROGRAPH ORDINATES
      NDDATE    27JUN 2 ENDING DATE
      NDTIME    1030 ENDING TIME
      ICENT     19 CENTURY MARK
```

COMPUTATION INTERVAL .17 HOURS  
 TOTAL TIME BASE 166.50 HOURS

ENGLISH UNITS

```
DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION  FEET
FLOW                CUBIC FEET PER SECOND
STORAGE VOLUME     ACRE-FEET
SURFACE AREA        ACRES
TEMPERATURE         DEGREES FAHRENHEIT
```

HYDROGRAPH MULTIPLIED BY 1.00

```
***** WARNING ***** POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH AB10.
ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING ***** POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH AB12.
ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING ***** POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH AB14.
ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING ***** POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH AB15.
ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING ***** POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH AB31.
ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING ***** POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH AB40.
ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
```

## Austin Bayou 100 year AB\_100.IH1

RUNOFF SUMMARY  
FLOW IN CUBIC FEET PER SECOND  
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	AB01	577.	15.00	553.	389.	168.	1.91		
ROUTED TO	AB02	577.	15.17	552.	388.	168.	1.91		
HYDROGRAPH AT	AB02	571.	14.17	544.	369.	156.	1.75		
2 COMBINED AT	AB02	1142.	14.83	1088.	757.	325.	3.66		
ROUTED TO	AB03	1140.	15.17	1086.	756.	325.	3.66		
HYDROGRAPH AT	AB03	653.	17.83	629.	474.	217.	2.56		
2 COMBINED AT	AB03	1741.	17.17	1669.	1224.	542.	6.22		
ROUTED TO	AB05	1739.	17.33	1668.	1224.	542.	6.22		
HYDROGRAPH AT	AB04	272.	15.17	263.	191.	86.	.99		
HYDROGRAPH AT	AB05	240.	15.83	233.	177.	82.	.97		
3 COMBINED AT	AB05	2240.	17.17	2156.	1592.	709.	8.18		
ROUTED TO	AB06	2237.	17.67	2155.	1591.	709.	8.18		
HYDROGRAPH AT	AB06	389.	15.17	375.	273.	122.	1.39		
2 COMBINED AT	AB06	2611.	17.50	2520.	1863.	831.	9.57		
ROUTED TO	AB07	2609.	17.83	2518.	1862.	831.	9.57		
HYDROGRAPH AT	AB07	543.	15.33	528.	397.	183.	2.15		
2 COMBINED AT	AB07	3134.	17.67	3032.	2256.	1014.	11.72		
ROUTED TO	AB08	3133.	17.83	3030.	2256.	1014.	11.72		
HYDROGRAPH AT	AB08	837.	15.17	793.	538.	226.	2.51		
2 COMBINED AT	AB08	3919.	17.50	3794.	2789.	1240.	14.23		
ROUTED TO	AB09	3918.	17.67	3794.	2789.	1240.	14.23		
HYDROGRAPH AT	AB09	700.	15.50	673.	486.	215.	2.47		
2 COMBINED AT	AB09	4595.	17.33	4454.	3274.	1456.	16.70		
ROUTED TO	AB10	4595.	17.50	4453.	3274.	1456.	16.70		
HYDROGRAPH AT	AB10	671.	15.83	657.	519.	250.	3.09		
2 COMBINED AT	AB10	5257.	17.33	5103.	3791.	1706.	19.79		
ROUTED TO	AB12	5257.	17.50	5103.	3791.	1706.	19.79		
HYDROGRAPH AT	AB12	510.	15.17	491.	355.	157.	1.81		
2 COMBINED AT	AB12	5750.	17.33	5582.	4144.	1864.	21.60		
ROUTED TO	AB12	5509.	24.83	5346.	4046.	1864.	21.60		
HYDROGRAPH AT	AB13	897.	16.17	867.	644.	292.	3.43		
2 COMBINED AT	AB13	6195.	24.50	6011.	4563.	2156.	25.03		
ROUTED TO	AB14	6195.	24.50	6011.	4563.	2156.	25.03		
HYDROGRAPH AT	AB14	235.	21.67	231.	199.	106.	1.59		
2 COMBINED AT	AB14	6425.	24.50	6237.	4759.	2262.	26.62		

## Austin Bayou 100 year AB\_100.IH1

ROUTED TO	AB15	6424.	24.67	6237.	4759.	2262.	26.62
HYDROGRAPH AT	AB15	1137.	16.83	1104.	847.	397.	4.79
2 COMBINED AT	AB15	7355.	24.33	7144.	5490.	2658.	31.41
ROUTED TO	AB15	7354.	24.50	7144.	5490.	2658.	31.41
HYDROGRAPH AT	AB16	775.	16.17	760.	600.	290.	3.59
2 COMBINED AT	AB16	7992.	24.33	7767.	6015.	2948.	35.00
ROUTED TO	AB17	7991.	24.50	7766.	6015.	2948.	35.00
HYDROGRAPH AT	AB17	251.	16.17	247.	200.	100.	1.27
2 COMBINED AT	AB17	8202.	24.33	7973.	6194.	3048.	36.27
ROUTED TO	AB19	8200.	24.50	7971.	6194.	3048.	36.27
HYDROGRAPH AT	AB18	431.	20.17	424.	359.	188.	2.69
HYDROGRAPH AT	AB19	484.	14.17	457.	302.	125.	1.38
3 COMBINED AT	AB19	8902.	24.33	8657.	6786.	3361.	40.34
ROUTED TO	AB20	8900.	24.67	8655.	6786.	3361.	40.34
HYDROGRAPH AT	AB20	368.	16.83	356.	271.	125.	1.49
2 COMBINED AT	AB20	9197.	24.50	8945.	7039.	3486.	41.83
ROUTED TO	AB22	9174.	26.17	8926.	7035.	3486.	41.83
HYDROGRAPH AT	AB21	724.	14.33	693.	483.	208.	2.33
HYDROGRAPH AT	AB22	447.	15.67	419.	321.	156.	3.65
3 COMBINED AT	AB22	9920.	26.00	9656.	7699.	3850.	47.81
ROUTED TO	AB23	9576.	31.50	9364.	7616.	3850.	47.81
HYDROGRAPH AT	AB23	573.	14.50	539.	353.	145.	1.58
2 COMBINED AT	AB23	9778.	31.50	9562.	7799.	3995.	49.39
ROUTED TO	AB25	9634.	35.50	9457.	7786.	3995.	49.39
HYDROGRAPH AT	AB24	302.	14.83	288.	199.	85.	.96
HYDROGRAPH AT	AB25	863.	16.67	849.	695.	349.	4.41
3 COMBINED AT	AB25	10227.	35.33	10049.	8383.	4427.	54.76
ROUTED TO	AB26	10050.	38.83	9908.	8367.	4427.	54.76
HYDROGRAPH AT	AB26	2276.	13.33	1009.	375.	126.	1.13
2 COMBINED AT	AB26	10050.	38.83	9908.	8368.	4542.	55.89
ROUTED TO	AB27	9937.	42.33	9804.	8338.	4542.	55.89
HYDROGRAPH AT	AB27	277.	14.00	257.	159.	63.	.69
2 COMBINED AT	AB27	9967.	42.33	9836.	8380.	4604.	56.58
ROUTED TO	AB28	9964.	42.67	9833.	8379.	4604.	56.58
HYDROGRAPH AT	AB28	692.	14.17	651.	423.	173.	1.92
2 COMBINED AT	AB28	10062.	42.50	9935.	8510.	4777.	58.50
ROUTED TO	AB31	10044.	44.00	9918.	8500.	4776.	58.50
HYDROGRAPH AT	AB29	395.	15.17	376.	259.	111.	1.15

## Austin Bayou 100 year AB\_100.IH1

ROUTED TO	AB29	394.	15.83	375.	259.	111.	1.15
HYDROGRAPH AT	AB30	856.	15.33	824.	594.	262.	2.94
2 COMBINED AT	AB30	1249.	15.67	1196.	852.	373.	4.09
ROUTED TO	AB31	1249.	15.67	1196.	852.	373.	4.09
HYDROGRAPH AT	AB31	1090.	14.50	1013.	638.	255.	2.75
3 COMBINED AT	AB31	10428.	43.67	10317.	9001.	5398.	65.34
ROUTED TO	AB33	10396.	45.67	10287.	8988.	5396.	65.34
HYDROGRAPH AT	AB32	742.	14.83	712.	503.	219.	2.43
ROUTED TO	AB33	741.	15.17	711.	503.	219.	2.43
HYDROGRAPH AT	AB33	516.	14.17	488.	325.	136.	1.51
3 COMBINED AT	AB33	10601.	45.50	10501.	9259.	5745.	69.28
ROUTED TO	AB34	10586.	47.00	10487.	9252.	5744.	69.28
HYDROGRAPH AT	AB34	332.	13.83	308.	190.	76.	.82
2 COMBINED AT	AB34	10609.	47.00	10512.	9288.	5817.	70.10
ROUTED TO	AB35	10609.	47.17	10511.	9288.	5817.	70.10
HYDROGRAPH AT	AB35	202.	14.50	191.	129.	54.	.60
2 COMBINED AT	AB35	10633.	47.17	10537.	9323.	5869.	70.70
HYDROGRAPH AT	FB25	5942.	31.00	5871.	5317.	4853.	40.53
2 COMBINED AT	AB35	15253.	47.17	15161.	14297.	10567.	111.23
ROUTED TO	AB36	15252.	47.33	15160.	14297.	10567.	111.23
HYDROGRAPH AT	AB36	173.	25.00	171.	154.	86.	1.63
2 COMBINED AT	AB36	15372.	47.33	15282.	14430.	10652.	112.86
ROUTED TO	AB37	15329.	52.33	15246.	14409.	10618.	112.86
HYDROGRAPH AT	AB37	790.	14.83	758.	537.	234.	2.60
2 COMBINED AT	AB37	15423.	52.17	15346.	14548.	10748.	115.46
ROUTED TO	AB39	15423.	52.33	15345.	14548.	10748.	115.46
HYDROGRAPH AT	AB38	488.	14.83	467.	327.	141.	1.60
ROUTED TO	AB39	487.	15.33	466.	327.	141.	1.60
HYDROGRAPH AT	AB39	463.	15.83	448.	332.	151.	1.76
3 COMBINED AT	AB39	15558.	52.33	15487.	14744.	10920.	118.82
ROUTED TO	AB40	15558.	52.33	15487.	14743.	10920.	118.82
HYDROGRAPH AT	AB40	493.	17.67	482.	389.	192.	2.46
2 COMBINED AT	AB40	15703.	52.17	15637.	14928.	11055.	121.28
ROUTED TO	AB41	15686.	55.17	15623.	14916.	11032.	121.28
HYDROGRAPH AT	AB41	793.	16.67	771.	595.	280.	3.35
2 COMBINED AT	AB41	15836.	55.00	15779.	15115.	11179.	124.63
ROUTED TO	AB43	15821.	58.00	15767.	15104.	11161.	124.63
HYDROGRAPH AT	AB42	962.	19.33	952.	829.	449.	6.79
HYDROGRAPH AT	AB43	172.	24.50	168.	145.	77.	1.19

Austin Bayou 100 year AB\_100.IH1

3 COMBINED AT	AB43	16259.	57.33	16218.	15594.	11457.	132.61
ROUTED TO	BASTRO	16258.	57.67	16218.	15593.	11456.	132.61

\*\*\* NORMAL END OF HEC-1 \*\*\*

```
*****  
* HEC-2 WATER SURFACE PROFILES *  
* *  
* Version 4.6.2; May 1991 *  
* *  
* RUN DATE 23AUG02 TIME 09:58:09 *  
*****
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*****  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET, SUITE D *  
* DAVIS, CALIFORNIA 95616-4687 *  
* (916) 756-1104 *  
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23AUG02 09:58:09

THIS RUN EXECUTED 23AUG02 09:58:09

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

T1AUSTIN BAYOU.....2000 BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 T2REVISED EXISTING CONDITION MODEL..... 1973 DATUM ADJUSTMENT  
 T3FILE: AB\_BL\_R.IH2..... 10,25, AND 100-YR RUNS  
 T3MODEL DRAUSTIN - REVISED BY BL, INC.

NOTES\*\*\*\*\*  
 REVISED MODEL INCLUDES 2000 BAKER & LAWSON SURVEY SECTIONS AND REVISED  
 BRIDGE SECTIONS  
 MODEL KEYED IN FROM DAY MONTH YEAR RUN DATE FEMA MODEL  
 ORIGINAL INPUT DATA PROVIDED BY BRAZORIA COUNTY FLOOD PLAIN ADMINISTRATOR  
 MODIFIED XSECTIONS 5.83, 12.68, 16.22  
 18.8, 22.76, 24.83, 27.56, AND 32.13  
 AND ADDED INTERPOLATED XSECTION, 5/4/01 MGG

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2							13.07	
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1							
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38	43	1	26	42	23	24	63	14	60
	39	4								

J5 LPRNT NUMSEC \*\*\*\*\*REQUESTED SECTION NUMBERS\*\*\*\*\*  
 -10 -10

NC 0.05 0.05 0.05 .1 .3  
 QT 3 9572 11757 16258

SURVEYED CROSS-SECTION JUST UPSTREAM OF CONFLUENCE WITH BASTROP BAYOU  
 SURVEYED CROSS-SECTION JUST UPSTREAM OF CONFLUENCE WITH BASTRO BAYOU

X1	0.00	10	10000	10207						
GR	5	0	2.76	10000	3.05	10014	0.7	10017	-8.7	10065
GR	-8.74	10120	-8.6	10180	1.04	10200	1.86	10207	5	20000

BRIDGE DATA INPUT FOR FM 2004 BRIDGE  
 SURVEYED SECTION AT 108 FEET UPSTREAM OF FM 2004 IS FOR THE 4 SB SECTIONS.  
 SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1997  
 SPECIAL BRIDGE SECTION 1



23AUG02 09:58:09

QT	3	9085	11239	15772						
SURVEYED CROSS-SECTION ABOVE THE CONFLUENCE W/ FLORES BAYOU										
SURVEYED CROSS-SECTION ABOVE THE CONFLUENCE W/ FLORES BAYOU										
X1	10.33	11	10000	10259	465	465				
GR	12.5	1000	10	8800	6.77	10000	6.38	10165	1.59	10168
GR	-4.70	10195	1.22	10217	3.91	10219	4.40	10259	10	10859
GR	12.5	12000								

NC	0.045	0.045	0.065							
X1	11.61	11	10000	10294	6088	5812	6788			
GR	14.5	1000	10	9000	7.59	10000	5.80	10060	2.03	10099
GR	-4.33	10150	3.61	10203	6.75	10249	7.78	10294	10	10594
GR	15	17000								

BRIDGE DATA INPUT FOR CR 208 BRIDGE

SURVEYED SECTION AT 41 FEET DOWNSTREAM OF CR 208 IS FOR 1ST & 2ND SB SECT.  
 SURVEYED SECTION AT 253 FEET UPSTREAM OF CR 208 IS FOR 3RD & 4TH SB SECTION.  
 SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1994

SPECIAL BRIDGE SECTION 1

X1	12.65	11	10000	10294	4912	4688	5476			
GR	14.5	1000	10	9000	7.59	10000	5.80	10060	2.03	10099
GR	-4.03	10150	3.61	10203	6.75	10249	7.78	10294	10	10594
GR	15	17000								

NC				0.3	0.5					
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SPECIAL BRIDGE SECTION 2

QT	3	5674	7266	10609						
X1	12.67				137	137	137		0.1	
X3	10							10.3	10.3	

SB	1.05	1.6	2.6	0	40	5.3	1054	3	-4.03	-4.57
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SPECIAL BRIDGE SECTION 3

CR 208 BRIDGE

X1	12.68	11	9987	10124	28	28	28			
X2			1	9.8	11.1					
X3	10							11.1	11.1	
BT	-7	9804	11.17		9910	11.23		10000	11.04	
BT		10073	11.08		10135	11.05		10244	11.08	
BT		10352	11.13							
GR	14.5	1000	11.17	9804	11.04	9987	-4.03	10042	-4.03	10082
GR	11.05	10124	11.05	10203	11.08	10244	11.13	10352	10	10594
GR	15	17000								

SPECIAL BRIDGE SECTION 4

X1	12.79	11	10000	10294	548	548	548		0.1	
GR	14.5	1000	10	9000	7.59	10000	5.80	10060	2.03	10099
GR	-4.03	10150	3.61	10203	6.75	10249	7.78	10294	10	10594
GR	15	17000								

NC			0.1		0.5					
SURVEYED CROSS-SECTION AT PELTIER LAKES										
X1	13.76	11	10000	10058	3104	3104	5096			
GR	20	9550	15	9750	8.03	10000	7.15	10013	2.04	10025
GR	-4.14	10039	2.44	10058	11.32	10087	12.41	10159	15	10359
GR	20	10559								

SURVEYED CROSS-SECTION AT PELTIER LAKE S										
X1	14.97	11	10000	10058	3896	3896	6396			
GR	20	9550	15	9750	8.03	10000	7.15	10013	2.04	10025
GR	-3.62	10039	2.44	10058	11.32	10087	12.41	10159	15	10359
GR	20	10559								

NC	0.075	0.060	0.050							
QT	3	5506	7086	10428						

X-SECTION A-18 FROM FEMA, JUST UPSTREAM OF PUMPING STATION AT PELTIER LAKE

FEMA X-SECTION A-18, UPSTREAM OF PUMPING STATION AT PELTIER LAKE

X1	15.31	40	10000	10092	1800	1800	1800			
GR	21.	4280	20.8	4726	19.	5253	18.	5644	16.	5777
GR	17.9	5951	17.3	6553	16.1	7384	16.7	8141	13.9	8701
GR	12.2	9219	8.6	9482	11.6	9646	11.6	9850	11.8	9928
GR	9.4	10000	3.	10011	-1.5	10022	-2.5	10032	-1.5	10037
GR	3.	10047	11.8	10092	11.2	10218	15.4	10615	15.8	11091
GR	16.	11683	16.2	11880	17.	12667	16.6	13279	16.	13284
GR	16.3	13288	11.7	13310	16.9	13335	17.3	13465	18.1	13879
GR	18.9	14563	18.3	14885	18.1	15656	19.7	16383	21.3	16779

NC	0.045	0.045	0.045							
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BRIDGE DATA INPUT FOR CR 210 BRIDGE

SURVEYED SECTION AT 91 FEET DOWNSTREAM OF CR 210 IS FOR 1ST SB SECTION.

SURVEYED SECTION AT 13 FEET DOWNSTREAM OF CR 210 IS FOR 2ND SB SECTION.

SURVEYED SECTION AT 12 FEET UPSTREAM OF CR 210 IS FOR 3RD SB SECTION.

SURVEYED SECTION AT 92 FEET UPSTREAM OF CR 210 IS FOR 4TH SB SECTION.

SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1994

SPECIAL BRIDGE SECTION 1

X1	16.20	11	10000	10160	4500	5000	5322			
GR	25	0	15	9400	12.41	10000	1.67	10047	-0.23	10067
GR	3.14	10073	8.25	10095	12.27	10160	15	10360	20	11060
GR	20.1	18000								

NC			0.3		0.5					
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SPECIAL BRIDGE SECTION 2

QT	3	5093	6616	9967						
X1	16.21	11	10000	10067	60	60	60			
X3	10							21.0	21.0	
GR	20	0	15	9400	14.53	10000	8.09	10002	2.06	10023
GR	0.64	10040	1.97	10052	11.19	10060	14.10	10067	20	10967
GR	20.1	18000								

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SB 1.05 1.6 2.6 0 30 0.1 472 3 .53 .53

SPECIAL BRIDGE SECTION 3  
CR 210 BRIDGE

X1	16.22	12	10000	10060	25	25	25			
X2			1	10.8	15					
X3	10							22	22	
BT	-9	9730	14.59		9819	14.75		9909	14.70	
BT		10000	14.71		10031	14.99		10062	15.17	
BT		10153	15.66		10248	16.30		10337	16.93	
GR	20	0	15	9700	14.47	10000	5.32	10001	0.55	10020
GR	0.41	10033	1.71	10053	11.19	10060	15.17	10062	16.3	10248
GR	16.93	10337	20	18000						

SPECIAL BRIDGE SECTION 4

X1	16.26	14	10000	10148	240	240	240			
GR	23.5	0	20	9000	15	9800	10.63	10000	6.20	10048
GR	1.45	10050	1.70	10055	2.30	10078	4.80	10085	8.90	10120
GR	10.60	10148	15	10348	20	15348	23.5	20000		

NC 0.050 0.060 0.065 0.1 0.3

X-SECTION A-16 FROM FEMA, DOWNSTREAM OF PUMPING STATION AT MCCULLOUGH LAKE

FEMA X-SECTION A-16, DOWNSTREAM OF PUMPING STATION AT MCCULLOUGH LAKE

X1	16.99	35	10000	10231	3350.	3500.	3840.			
GR	25	0	20.8	7641	20.2	7805	19.6	8336	19.2	9013
GR	17.8	9323	16.	9455	15.4	9650	15.2	9777	16.8	10000
GR	13.6	10052	10.4	10084	5.8	10108	1.	10118	-0.8	10144
GR	1.	10151	5.8	10161	9.6	10179	18.6	10231	18.6	10295
GR	6.4	10355	14.6	10450	21.8	10545	21.4	10893	18.8	11513
GR	19.2	11723	21.8	11754	17.6	11782	19.2	11841	19.2	12054
GR	21.8	12106	19.6	12340	19.	12715	19.	13536	24	13600

X-SECTION A-15 FROM FEMA, AT MCCULLOUGH LAKE W/ LEVEE ON RIGHT BANK

FEMA X-SECTION A-15, AT MCCULLOUGH LAKE W/ LEVEE ON RIGHT

X1	17.93	20	10000	10166	4000.	4420.	4970.			
GR	25	0	22.	7965	22.2	8149	21.4	8213	21.	8539
GR	21.4	8611	21.2	8886	20.	9289	18.	9642	16.4	9920
GR	15.4	10000	6.4	10031	4.	10040	1.5	10060	1.5	10062
GR	4.	10082	6.4	10091	15.8	10122	24.4	10166	24.4	10198

NC .05 .06 .051

BRIDGE DATA INPUT FOR CR 171 BRIDGE

SURVEYED SECTION AT 107 FEET DOWNSTREAM OF CR 210 IS FOR 1ST SB SECTION.

SURVEYED SECTION AT 12 FEET DOWNSTREAM OF CR 210 IS FOR 2ND SB SECTION.

SURVEYED SECTION AT 7 FEET UPSTREAM OF CR 210 IS FOR 3RD SB SECTION.

SURVEYED SECTION AT 20 FEET UPSTREAM OF CR 210 IS FOR 4TH SB SECTION.

SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1994

SPECIAL BRIDGE SECTION 1

X1	18.78	14	10000	10113	3500	4000	4504			
GR	25	0	20	9300	19.71	9965	17.17	10000	7.21	10026
GR	3.92	10040	7.35	10060	9.83	10087	11.39	10096	13.83	10113
GR	15	10163	20	11263	23	17263	25	20000		

NC				0.3		0.5					
SPECIAL BRIDGE SECTION 2											
QT	3	4799	6259	9634							
X1	18.79	13	10000	10089	90	90	90				
X3	10										
GR	25	0	20	9300	15	9900	11.21	10000	7.64	10018	
GR	4.16	10040	7.90	10071	13.57	10089	14.92	10122	15	10172	
GR	20	11272	23	17272	25	20000					
SB	1.05	1.6	2.6	0	35	5	807	3	3.92	3.87	
SPECIAL BRIDGE SECTION 3											
CR 171 BRIDGE											
X1	18.80	11	10005	10096	23	23	23				
X2			1	19.6	21.4						
X3	10										
X4	5	20.77	9632	20.94	9726	21.24	9817	21.34	10177	21.12	
X4	10263										
BT	-9	9632	20.77		9726	20.94		9817	21.24		
BT		9908	21.42		10005	22.2		10088	22.2		
BT		10096	22.1		10177	21.34		10263	21.12		
GR	25	0	20	9300	21.42	9908	22.2	10005	7.64	10018	
GR	4.16	10040	7.90	10071	22.1	10096	20	11272	23	17272	
GR	25	20000									
SPECIAL BRIDGE SECTION 4											
X1	18.82	14	10000	10113	360	360	360		0.1		
GR	25	0	20	9300	19.71	9965	17.17	10000	7.21	10026	
GR	3.92	10040	7.35	10060	9.83	10087	11.39	10096	13.83	10113	
GR	15	10163	20	11263	23	17263	25	20000			
NC				0.1		0.5					
RAILROAD BRIDGE NOT MODELLED - NO IMPACT ON WSEL											
X-SECTION A-12 FROM FEMA, 1/3 DIST. BETWEEN SH 35 AND CR 171											
FEMA X-SECTION A-12, HALF WAY BETWEEN SH35 AND CR 171											
X1	19.52	23	10000	10131	2500	3000	3645				
GR	25	0	22.1	4155	21.9	5532	21.1	6747	19.7	7650	
GR	19.7	8470	18.9	9341	18.3	9635	18.3	9848	18.9	9956	
GR	26.9	9973	18.9	9990	18.5	10000	15.9	10026	9.1	10047	
GR	5.4	10068	9.1	10090	18.3	10131	18.1	10351	18.9	10637	
GR	19.3	10895	22.2	10912	25	15000					
X-SECTION A-11 FROM FEMA, 2/3 DIST. BETWEEN SH 35 AND CR 171											
FEMA X-SECTION A-11, 2/3DIST. BETWEEN SH 35 AND CR 171											
X1	19.92	36	10000	10095	2050.	2050	2140				
GR	25	0	22.3	7662	21.3	7707	22.1	7752	20.9	8484	
GR	19.5	9201	18.9	9594	18.1	9809	19.1	9939	25.9	9958	
GR	19.5	9977	19.5	10000	9.5	10040	7.	10046	6.5	10056	
GR	7.	10066	9.5	10071	18.1	10095	18.1	10247	18.3	10489	
GR	17.5	10846	18.5	11086	19.1	11172	19.1	11372	19.7	11627	
GR	19.7	11628	20.1	11716	20.1	11910	16.5	11955	20.1	11997	

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GR	20.1	12138	21.7	12735	19.1	12762	19.1	12805	24.9	12860
GR	25	14500								

NC 0.080 0.080 0.060

FEMA - BRIDGE DATA INPUT FOR FIELD BRIDGE TO GARRETT LAKES

NO FIELD DATA AVAILABLE - INPUT IS FROM FEMA X-SECT 10.4, 10.3, 10.2 & 10.1

SPECIAL BRIDGE SECTION 1

X1	20.36	19	10000	10060	2000	2340	2340			
GR	25	6000	22.9	9487	22.3	9910	22.3	9960	23.7	9996
GR	22.	10000	19.7	10003	9.7	10025	6.2	10039	9.7	10050
GR	22.	10060	23.7	10063	23.5	10094	22.3	10160	19.7	10422
GR	19.7	10487	24.	11086	24.5	11736	26.4	11836		

NC .3 .5

SPECIAL BRIDGE SECTION 2

X1	20.37				60	60	60			
X3	10							19.7	19.7	

SB	1.05	1.56	2.6		20.4	2.	540.	1.	6.2	6.2
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SPECIAL BRIDGE SECTION 3

FIELD BRIDGE

X1	20.38				14	14	14			
X2			1	22.	23.7					
X3	10							19.7	19.7	
BT	-8	9487	22.9		9910	22.3		9960	22.03	
BT		10000	23.7		10060	23.7		10094	23.5	
BT		10160	22.3		10422	19.7				

SPECIAL BRIDGE SECTION 4

X1	20.70	20	10000	10060	240	240	240			
GR	27	2000	25	6000	22.9	9487	22.3	9910	22.3	9960
GR	23.7	9996	22.	10000	19.7	10003	9.7	10025	6.4	10039
GR	9.7	10050	22.	10060	23.7	10063	23.5	10094	22.3	10160
GR	19.7	10422	19.7	10487	24.	11086	24.5	11736	26.4	11836

NC .1 .3

QT 3 4506 5905 9197

X-SECTION A-10 FROM FEMA, BETWEEN GARRETT FIELD BRIDGE AND SH 35

FEMA X-SECTION A-10, BETWEEN GARRETT FIELD BRIDGE AND SH 35

X1	21.03	24	10000	10133	1350.	1400.	1764			
GR	27	2000	26.3	9071	26.3	9072	24.9	9558	22.1	9783
GR	22.1	9953	21.5	9981	21.1	10000	19.7	10025	11.5	10047
GR	9.	10053	8.	10058	7.	10063	8.	10068	9.	10073
GR	11.5	10078	18.1	10103	22.3	10133	20.7	10218	21.5	10388
GR	24.1	10707	23.9	10928	26.9	10990	27	15000		

NC	.05	.05	.06	0.1	0.3					
BRIDGE DATA INPUT FOR SH 35 BRIDGE										
SURVEYED SECTION AT 80 FEET DOWNSTREAM OF SH 35 IS FOR 1ST & 2ND SB SECTIONS										
SURVEYED SECTION AT 85 FEET UPSTREAM OF SH 35 IS FOR 3RD & 4TH SB SECTIONS										
SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1997????										
SPECIAL BRIDGE SECTION 1										
X1	22.74	13	10000	10218	7500	6500	9004			
GR	30	2000	25	9500	20.55	10000	20.36	10022	18.97	10071
GR	11.24	10088	9.6	10100	11.81	10112	15.45	10118	17.23	10168
GR	21.73	10218	25	10243	30	12543				
NC										
SPECIAL BRIDGE SECTION 2										
X1	22.75				42	42	42			0.1
X3	10							30.2		30.2
SB										
	1.05	1.6	2.6	0	30	4.5	1504	3	8.3	8.3
SPECIAL BRIDGE SECTION 3										
SH 35 BRIDGE										
X1	22.76	13	10000	10136	13	13	13			
X2			1	27.1	31.2					
X3	10							31.2		31.3
X4	3	30.36	9710	30.52	9806	30.81	9902			
BT	-8	9710	30.36		9806	30.52		9902		30.81
BT		10000	31.18		10136	31.29		10230		31.43
BT		10329	31.53		10450	31.07				
GR	30	2000	25	9500	31.18	10000	20.06	10016	13.09	10045
GR	13.09	10061	8.3	10077	11.6	10091	31.29	10136	31.43	10230
GR	31.53	10329	31.53	10516	30	12816				
SPECIAL BRIDGE SECTION 4										
X1	22.78	13	10000	10195	168	168	168			0.1
GR	30	2000	25	9500	21.13	10000	20.83	10050	20.06	10118
GR	13.09	10151	8.3	10164	11.57	10178	14.94	10179	21.25	10195
GR	22.58	10216	25	10516	30	12816				
NC										
QT	0.055	0.055	0.045	0.1	0.3					
QT	3	4362	5716	8902						
BRIDGE DATA INPUT FOR FIELD BRIDGE BETWEEN CR 33 AND SH 35										
NO FIELD DATA AVAILABLE - INPUT IS FROM FEMA X-SECT 8.4, 8.3, 8.2 & 8.1										
SPECIAL BRIDGE SECTION 1										
X1	22.90	15	10000	10038	750.	600.	650.			
GR	30	4000	25.2	9320	24.2	9588	22.8	9857	22.	9994
GR	19.1	10000	13.	10012	10.	10018	13.	10030	19.	10038
GR	22.2	10042	24.2	10248	27.6	10494	29.	10837	30	11500





NC				0.3		0.5				
SPECIAL BRIDGE SECTION 2										
X1	24.82					48	48	48		0.1
X3	10								25.6	25.6
SB	1.05	1.56	2.9			5.5	2	270	2.5	14.75 14.75

SPECIAL BRIDGE SECTION 3										
CR 33 BRIDGE										
X1	24.83	11	10000	10049		12	12	12		
X2			1	25		26.1				
X3	10								26.3	26.3
X4	6	26.69	9700	26.31	9794	25.81	9899	26.51	10105	26.29
X4	10209	26.68	10310							
BT	-7	9700	26.69		9794	26.31		9899	25.81	
BT		9997	28.41		10105	26.51		10209	26.29	
BT		10310	26.68							
GR	32.5	0	30	7700	28.41	9997	23.64	10000	19.51	10012
GR	14.95	10026	20.30	10040	24.04	10049	25	10073	30	11373
GR	31.5	14000								

SPECIAL BRIDGE SECTION 4										
QT	3	3608	4722	7355						
X1	24.86	11	10000	10049	180	180	180		0.1	
GR	32.5	0	30	7700	25	9950	23.64	10000	19.51	10012
GR	14.95	10026	20.30	10040	24.04	10049	25	10073	30	11373
GR	31	14000								

NC				0.3		0.5				
X-SECTION A-5 FROM FEMA, UPSTREAM OF FIELD BRIDGE										
FEMA X-SECTION A-5, UPSTREAM OF FIELD BRIDGE										
X1	25.40	32	10000	10109	2700.	2800.	2840.			
GR	32.5	0	29.4	6101	29.4	6102	28.6	7005	28.6	7842
GR	27.4	8086	28.	8117	28.	8156	28.	8210	29.	8913
GR	29.	9508	27.4	9795	28.2	9834	27.2	9856	26.8	10000
GR	18.8	10020	18.	10023	17.	10026	16.9	10030	17.	10034
GR	17.9	10037	18.8	10040	28.8	10109	27.2	10145	26.8	10293
GR	28.4	10400	28.	10784	25.8	10886	28.	10998	29.2	11307
GR	29.8	11786	31.5	14000						

BRIDGE DATA INPUT FOR FIELD BRIDGE - 1/3 DIST BETWEEN CR 33 AND CR 51  
 NO FIELD DATA AVAILABLE - INPUT IS FROM FEMA X-SECT 4.4, 4.3, 4.2 & 4.1  
 SPECIAL BRIDGE SECTION 1

X1	26.21	15	10000	10044	4100	3500	4288			
GR	35	2000	29.6	9505	29.	9733	28.	9937	28.4	9999
GR	28.8	10000	19.4	10014	18.	10022	19.4	10030	28.1	10044
GR	28.4	10045	28.8	10111	28.6	10198	28.6	10505	32.5	14000

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NC 0.075 0.075 0.055 .3 .5

SPECIAL BRIDGE SECTION 2

X1 26.22 100. 100. 100.  
 X3 10 27.8 27.8

SB 1.05 1.56 2.9 11.9 3.3 210. 1.5 18. 18.

SPECIAL BRIDGE SECTION 3  
 FIELD BRIDGE

X1 26.23 12. 12. 12.  
 X2 1 27.3 28.4  
 X3 10 28.4 28.4  
 BT -7 9505 29.6 9733 29. 9937 28.  
 BT 10000 28.4 10044 28.4 10111 28.8  
 BT 10198 28.6

SPECIAL BRIDGE SECTION 4

X1 26.24 50. 50. 50.

NC .1 .3

X-SECTION A-4 FROM FEMA, UPSTREAM OF FIELD BRIDGE

FEMA X-SECTION A-4, UPSTREAM OF FIELD BRIDGE

X1 26.40 18 10000 10084 1060. 850. 850  
 GR 32.5 2000 31. 8059 31. 8060 8061 31. 8062  
 GR 29.2 8117 29. 9104 28.6 9813 28. 10000 22.4 10056  
 GR 18.8 10060 22.4 10063 27.8 10084 28.6 10182 29.8 10823  
 GR 31. 11754 31.6 11876 32.5 14000

ADDED INTERPOLATED XSECTIONS

X1 26.63 19 10000 10076 1100 1300 1374  
 GR 32.8 3200 31 8350 31 8353 29.6 8399 29.3 9238  
 GR 28.9 9841 28.4 10000 25.9 10024 24.8 10030 24.3 10035  
 GR 22.5 10051 19.6 10055 22.6 10058 28.1 10076 28.7 10176  
 GR 29.9 10828 31.1 11775 31.6 11899 32.8 14060

X1 26.86 18 10000 10068 1100 1300 1374  
 GR 33.1 4400 31.1 8641 31.1 8643 30 9373 29.3 9869  
 GR 28.9 10000 26.3 10021 24.9 10027 24.3 10031 22.6 10047  
 GR 20.3 10050 22.8 10052 28.4 10068 28.9 10169 29.9 10832  
 GR 31.1 11796 31.5 11922 33.1 14120

X1 27.08 19 10000 10059 1100 1300 1374  
 GR 33.4 5600 31.1 8932 31.1 8934 30.3 8964 30 9507  
 GR 29.6 9897 29.3 10000 26.8 10019 25 10024 24.3 10028  
 GR 22.7 10042 21.1 10045 23 10047 28.6 10059 29 10163  
 GR 30 10837 31.1 11817 31.5 11945 33.4 14180

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X1	27.31	18	10000	10051	1100	1300	1374			
GR	33.7	6800	31.1	9224	31.1	9225	30.7	9247	30.3	9642
GR	30	9925	29.8	10000	27.3	10017	25.1	10022	24.3	10025
GR	22.8	10037	21.8	10040	28.9	10051	29.2	10156	30	10841
GR	31.2	11838	31.4	11968	33.7	14420				

END INTERPOLATED XSECTIONS

BRIDGE DATA INPUT FOR FIELD BRIDGE - 2/3 DIST BETWEEN CR 33 AND CR 51  
 SURVEYED SECTION AT 40 FEET DOWNSTREAM OF BRIDGE IS FOR 1ST & 2ND SB SECTIONS  
 SURVEYED SECTION AT 54 FEET UPSTREAM OF BRIDGE IS FOR 3RD & 4TH SB SECTIONS  
 SPECIAL BRIDGE SECTION 1

X1	27.54	8	10000	10043	1100	1300	1374			
GR	34	8000	30.20	10000	27.7	10015	25.21	10019	24.32	10022
GR	23.1	10035	29.17	10043	34	14300				

NC 0.3 0.5

SPECIAL BRIDGE SECTION 2

X1	27.55				40	40	40			
X3	10									

SB	1.05	1.23	2.0	0	15.1	2.	125	2.1	23.1	23.1
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SPECIAL BRIDGE SECTION 3

FIELD BRIDGE

X1	27.56	10	8984	9032	14	14	14			
X2			1	28.7	29.8					
X3	10									
X4	6	34.3	8794	33.77	8841	32.54	8888	31.47	8935	32.61
X4	9111	33.75	9201							
BT	-9	8794	34.30		8841	33.77		8888	32.54	
BT		8935	31.47		8984	29.91		9000	29.80	
BT		9018	29.78		9111	32.61		9201	33.75	
GR	37	0	34	6984	29.91	8984	26.45	8997	23.1	9000
GR	23.1	9015	26.08	9019	30.2	9032	34	13032	37	18894

SPECIAL BRIDGE SECTION 4

X1	27.57	9	10000	10048	52	52	52		0.1	
GR	37	0	34	8000	31.21	10000	26.45	10013	22.56	10016
GR	26.08	10035	30.44	10048	34	14048	37	20000		

NC 0.1 0.3

QT 3 2807 3702 5750

X-SECTION A-2 FROM FEMA, UPSTREAM OF FIELD BRIDGE

FEMA X-SECTION A-2, UPSTREAM OF FIELD BRIDGE

X1	28.29	25	10000	10073	3650	3750	3805			
GR	40	1000	34.6	9182	32.	9279	31.8	9752	30.8	9946
GR	31.4	10000	23.8	10037	22.	10042	21.7	10043	22.	10044
GR	22.7	10047	23.8	10049	31.2	10073	32.	10112	31.6	10227
GR	31.8	10390	32.2	10720	33.	10772	31.2	10847	32.6	11519
GR	32.8	12368	33.	13010	32.4	13314	33.	13366	36.2	13388

X-SECTION NEAR THE IOWA COLONY DITCH - AUSTIN IS DAMMED OFF FROM I.O.C.D.

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X1	28.90	12	10000	10040	3100	3100	3200			
GR	40	0	37	7000	35.66	9983	33.99	10000	28.48	10011
GR	28.14	10023	29.73	10033	33.38	10040	35.17	10058	34.95	10067
GR	36	10867	40	11717						

QT 3 1532 2018 3134

BRIDGE DATA INPUT FOR CR 51 BRIDGE

SURVEYED SECTION AT 63 FEET DOWNSTREAM OF CR 51 IS FOR 1ST & 2ND SB SECTIONS

SURVEYED SECTION AT 50 FEET UPSTREAM OF CR 51 IS FOR 3RD & 4TH SB SECTIONS

SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1994

SPECIAL BRIDGE SECTION 1

X1	29.46	8	10000	10029	2900	2900	2979			
GR	40	0	38	8000	36.93	10000	29.86	10008	28.39	10019
GR	28.69	10027	36.99	10029	40	12729				

NC 0.3 0.5

SPECIAL BRIDGE SECTION 2

X1	29.47				36	36	36			0.1
X3	10							36.0		36.5

SB	1.05	1.6	2.6	0	7	1	136	2	28.4	28.2
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SPECIAL BRIDGE SECTION 3

CR 51 BRIDGE

X1	29.48	8	10000	10027	20	20	20			
X2			1	36.2	37.4					
X3	10							37.4		37.4
BT	-6	9800	37.23		9900	37.09		10000		37.46
BT		10014	37.41		10027	37.35		10237		36.35
GR	40	0	38	8000	36.93	10000	29.86	10008	28.49	10019
GR	28.69	10027	36.99	10029	40	12729				

SPECIAL BRIDGE SECTION 4

X1	29.50				117	117	117			0.1
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NC 0.045 0.045 0.045 0.1 0.3

QT 3 852 1123 1741

BRIDGE DATA INPUT FOR FM 1462 BRIDGE

SURVEYED SECTION AT 145 FEET DOWNSTREAM OF FM 1462 IS FOR 1ST & 2ND SB SECTION

SURVEYED SECTION AT 152 FEET UPSTREAM OF FM 1462 IS FOR 3RD & 4TH SB SECTIONS

SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1997

SPECIAL BRIDGE SECTION 1

X1	32.10	11	10000	10087	1300	1300	13727			
GR	50	8880	46	8900	45	9700	44.75	9950	44.25	10000
GR	37.98	10035	35.84	10040	38.18	10060	42.58	10087	48.27	10107
GR	50	14607								

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NC				0.3		0.5					
SPECIAL BRIDGE SECTION 2											
X1	32.11					50	50	50			0.1
X3	10								43		43
SC	3.015	0.5	2.9	0	6	10	100	11.3	40.1		40
SPECIAL BRIDGE SECTION 3											
FM 1462 CULVERT											
X1	32.13	12	10000	10078	100	100	100				
X2			2	40	46.3						
X3	10							46.3			46.3
BT	-5	9814	48.01		9908	46.55		10000			46.24
BT		10100	46.28		10196	46.25					
GR	50	8880	46	8900	45	9700	44.75	9950	44.25		10000
GR	37.98	10027	35.84	10032	38.18	10050	42.58	10078	48.27		10100
GR	45	10400	50	14900							
SPECIAL BRIDGE SECTION 4											
X1	32.16				186	186	186				0.1

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T1AUSTIN BAYOU..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 T2REVISED EXISTING CONDITION MODEL..... 1973 DATUM ADJUSTMENT  
 T3FILE: AB\_BL.IH2..... 10,25, AND 100-YR RUNS

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3							14.08	
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							

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T1AUSTIN BAYOU..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 T2REVISED EXISTING CONDITION MODEL..... 1973 DATUM ADJUSTMENT  
 T3FILE: AB\_BL.IH2..... 10,25, AND 100-YR RUNS

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		4							15.12	
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1							



THIS RUN EXECUTED 23AUG02 09:58:12

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

DRAUSTIN - REVISED BY BL

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
.000	9572.00	13.07	.08	-8.74	2.76	1.86	5.00	306.40	3.20	.00	20000.00	
.000	11757.00	14.08	.08	-8.74	2.76	1.86	5.00	347.22	2.95	.00	20000.00	
.000	16258.00	15.12	.10	-8.74	2.76	1.86	5.00	447.00	2.75	.00	20000.00	
*	2.840	9572.00	13.07	.15	-9.11	3.91	4.77	10.50	659.22	6.89	14994.00	18000.00
*	2.840	11757.00	14.08	.15	-9.11	3.91	4.77	10.50	708.65	6.03	14994.00	18000.00
*	2.840	16258.00	15.12	.17	-9.11	3.91	4.77	10.50	876.42	5.39	14994.00	18000.00
	5.780	9572.00	13.08	.15	-9.50	3.91	4.77	10.50	665.78	6.96	15528.00	18000.00
	5.780	11757.00	14.09	.15	-9.50	3.91	4.77	10.50	715.40	6.08	15528.00	18000.00
	5.780	16258.00	15.13	.17	-9.50	3.91	4.77	10.50	884.20	5.44	15528.00	18000.00
*	5.820	9264.00	13.05	2.11	-9.40	4.01	4.87	10.60	9264.00	100.00	200.00	327.00
*	5.820	11395.00	14.05	2.41	-9.40	4.01	4.87	10.60	11395.00	100.00	200.00	327.00
*	5.820	15703.00	15.06	3.11	-9.40	4.01	4.87	10.60	15703.00	100.00	200.00	327.00
*	5.830	9264.00	13.05	.18	-9.50	3.91	4.77	10.50	777.22	8.39	28.00	17471.35
*	5.830	11395.00	14.14	.17	-9.50	3.91	4.77	10.50	807.71	7.09	28.00	17594.76
*	5.830	15703.00	15.23	.19	-9.50	3.91	4.77	10.50	972.47	6.19	28.00	17714.05
	5.980	9264.00	13.12	.15	-9.40	4.01	4.87	10.60	650.79	7.02	800.00	18000.00
	5.980	11395.00	14.14	.15	-9.40	4.01	4.87	10.60	697.45	6.12	800.00	18000.00
	5.980	15703.00	15.24	.17	-9.40	4.01	4.87	10.60	853.60	5.44	800.00	18000.00
*	10.240	9264.00	13.15	.71	-7.24	4.12	5.50	12.50	1258.89	13.59	22519.00	11000.00
*	10.240	11395.00	14.16	.58	-7.24	4.12	5.50	12.50	1105.37	9.70	22519.00	11000.00
*	10.240	15703.00	15.26	.56	-7.24	4.12	5.50	12.50	1154.29	7.35	22519.00	11000.00
	10.330	9085.00	13.16	.54	-4.70	6.77	4.40	12.50	1202.51	13.24	465.00	11000.00
	10.330	11239.00	14.17	.45	-4.70	6.77	4.40	12.50	1107.92	9.86	465.00	11000.00
	10.330	15772.00	15.27	.45	-4.70	6.77	4.40	12.50	1235.96	7.84	465.00	11000.00

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
11.610	9085.00	13.31	.59	-4.33	7.59	7.78	14.50	1701.07	18.72	6788.00	11712.04	
11.610	11239.00	14.26	.48	-4.33	7.59	7.78	14.50	1516.18	13.49	6788.00	14618.21	
11.610	15772.00	15.34	.43	-4.33	7.59	7.78	14.50	1498.08	9.50	6788.00	16000.00	
12.650	9085.00	13.46	.55	-4.03	7.59	7.78	14.50	1603.69	17.65	5476.00	12140.71	
12.650	11239.00	14.35	.46	-4.03	7.59	7.78	14.50	1466.74	13.05	5476.00	14871.83	
12.650	15772.00	15.40	.42	-4.03	7.59	7.78	14.50	1459.26	9.25	5476.00	16000.00	
12.670	5674.00	13.46	.36	-3.93	7.69	7.88	14.60	1034.08	18.22	137.00	11874.79	
12.670	7266.00	14.35	.31	-3.93	7.69	7.88	14.60	975.86	13.43	137.00	14593.56	
12.670	10609.00	15.40	.29	-3.93	7.69	7.88	14.60	1010.08	9.52	137.00	16000.00	
*	12.680	5674.00	13.54	.69	-4.03	11.04	11.05	14.50	1157.92	20.41	28.00	11618.60
*	12.680	7266.00	14.43	.52	-4.03	11.04	11.05	14.50	927.05	12.76	28.00	15103.60
*	12.680	10609.00	15.52	.41	-4.03	11.04	11.05	14.50	801.80	7.56	28.00	16000.00
*	12.790	5674.00	13.56	.34	-3.93	7.69	7.88	14.60	998.19	17.59	548.00	12169.11
*	12.790	7266.00	14.44	.30	-3.93	7.69	7.88	14.60	948.27	13.05	548.00	14871.54
*	12.790	10609.00	15.53	.28	-3.93	7.69	7.88	14.60	972.35	9.17	548.00	16000.00
*	13.760	5674.00	13.58	4.54	-4.14	8.03	2.44	20.00	3021.23	53.25	5096.00	448.56
*	13.760	7266.00	14.42	4.75	-4.14	8.03	2.44	20.00	3385.69	46.60	5096.00	543.00
*	13.760	10609.00	15.46	5.31	-4.14	8.03	2.44	20.00	4106.55	38.71	5096.00	645.46
*	14.970	5674.00	16.55	2.16	-3.62	8.03	2.44	20.00	1789.04	31.53	6396.00	732.07
*	14.970	7266.00	17.37	2.29	-3.62	8.03	2.44	20.00	2002.67	27.56	6396.00	798.82
*	14.970	10609.00	18.67	2.55	-3.62	8.03	2.44	20.00	2429.10	22.90	6396.00	902.97
*	15.310	5506.00	16.78	1.11	-2.50	9.40	11.80	21.00	1285.86	23.35	1800.00	5977.59
*	15.310	7086.00	17.59	1.06	-2.50	9.40	11.80	21.00	1305.81	18.43	1800.00	7603.87
*	15.310	10428.00	18.88	.98	-2.50	9.40	11.80	21.00	1321.08	12.67	1800.00	10688.52
*	16.200	5506.00	17.12	1.57	-.23	12.41	12.27	20.10	2500.40	45.41	5322.00	3246.30
*	16.200	7086.00	17.87	1.51	-.23	12.41	12.27	20.10	2580.31	36.41	5322.00	4061.84
*	16.200	10428.00	19.10	1.42	-.23	12.41	12.27	20.10	2718.80	26.07	5322.00	5382.67
*	16.210	5093.00	16.84	6.21	.64	14.53	14.10	20.00	5093.00	100.00	60.00	67.00
*	16.210	6616.00	17.44	7.70	.64	14.53	14.10	20.00	6616.00	100.00	60.00	67.00
*	16.210	9967.00	18.18	10.96	.64	14.53	14.10	20.00	9967.00	100.00	60.00	67.00
16.220	5093.00	16.92	5.81	.41	14.47	11.19	20.00	5093.00	100.00	25.00	60.00	
16.220	6616.00	17.54	7.24	.41	14.47	11.19	20.00	6616.00	100.00	25.00	60.00	
16.220	9967.00	18.39	10.33	.41	14.47	11.19	20.00	9967.00	100.00	25.00	60.00	
*	16.260	5093.00	17.63	1.36	1.45	10.63	10.60	23.50	2183.76	42.88	240.00	3594.27
*	16.260	6616.00	18.62	1.22	1.45	10.63	10.60	23.50	2130.75	32.21	240.00	4750.28
*	16.260	9967.00	20.56	.92	1.45	10.63	10.60	23.50	1874.20	18.80	240.00	8512.48
*	16.990	5093.00	18.05	1.37	-.80	16.80	18.60	24.00	2555.36	50.17	3840.00	1178.04
*	16.990	6616.00	18.95	1.43	-.80	16.80	18.60	24.00	2941.42	44.46	3840.00	1604.36
*	16.990	9967.00	20.72	1.20	-.80	16.80	18.60	24.00	2964.27	29.74	3840.00	5211.67

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	17.930	5093.00	19.52	2.46	1.50	15.40	24.40	24.40	3767.09	73.97	4970.00	768.28
*	17.930	6616.00	20.37	2.58	1.50	15.40	24.40	24.40	4258.74	64.37	4970.00	982.14
*	17.930	9967.00	21.65	2.73	1.50	15.40	24.40	24.40	5020.50	50.37	4970.00	1959.42
*	18.780	5093.00	20.63	1.76	3.92	17.17	13.83	25.00	2250.22	44.18	4504.00	4376.45
*	18.780	6616.00	21.34	1.65	3.92	17.17	13.83	25.00	2239.88	33.86	4504.00	7084.40
*	18.780	9967.00	22.40	1.44	3.92	17.17	13.83	25.00	2132.19	21.39	4504.00	11209.32
*	18.790	4799.00	20.65	1.22	4.16	11.21	13.57	25.00	1409.31	29.37	90.00	4505.33
*	18.790	6259.00	21.36	1.21	4.16	11.21	13.57	25.00	1474.70	23.56	90.00	7240.52
	18.790	9634.00	22.41	1.19	4.16	11.21	13.57	25.00	1569.21	16.29	90.00	11290.02
*	18.800	4799.00	21.14	4.62	4.16	22.20	22.10	25.00	4799.00	100.00	23.00	88.35
*	18.800	6259.00	22.26	1.63	4.16	22.20	22.10	25.00	1853.93	29.62	23.00	10710.66
	18.800	9634.00	23.40	1.11	4.16	22.20	22.10	25.00	1383.29	14.36	23.00	14846.93
*	18.820	4799.00	21.61	1.09	4.02	17.27	13.93	25.10	1506.63	31.39	360.00	7778.79
*	18.820	6259.00	22.29	1.00	4.02	17.27	13.93	25.10	1463.38	23.38	360.00	10412.71
	18.820	9634.00	23.41	.88	4.02	17.27	13.93	25.10	1396.37	14.49	360.00	14561.64
	19.520	4799.00	21.76	.93	5.40	18.50	18.30	25.00	1173.72	24.46	3645.00	5146.65
	19.520	6259.00	22.41	.88	5.40	18.50	18.30	25.00	1188.65	18.99	3645.00	7496.95
	19.520	9634.00	23.50	.83	5.40	18.50	18.30	25.00	1237.16	12.84	3645.00	10639.01
	19.920	4799.00	21.87	.91	6.50	19.50	18.10	25.00	859.54	17.91	2140.00	4972.15
	19.920	6259.00	22.50	.90	6.50	19.50	18.10	25.00	899.70	14.37	2140.00	5718.59
	19.920	9634.00	23.57	.91	6.50	19.50	18.10	25.00	997.72	10.36	2140.00	8762.02
*	20.360	4799.00	21.98	6.43	6.20	22.00	22.00	25.00	3697.20	77.04	2340.00	671.38
*	20.360	6259.00	22.58	6.86	6.20	22.00	22.00	25.00	4197.85	67.07	2340.00	1067.91
*	20.360	9634.00	23.68	6.66	6.20	22.00	22.00	25.00	4512.58	46.84	2340.00	2853.56
	20.370	4799.00	22.37	5.66	6.20	22.00	22.00	25.00	3394.69	70.74	60.00	870.08
	20.370	6259.00	23.01	5.84	6.20	22.00	22.00	25.00	3723.98	59.50	60.00	1572.24
	20.370	9634.00	24.02	5.61	6.20	22.00	22.00	25.00	3915.57	40.64	60.00	3491.75
	20.380	4799.00	22.66	5.11	6.20	22.00	22.00	25.00	3151.59	65.67	14.00	1142.37
	20.380	6259.00	23.22	5.34	6.20	22.00	22.00	25.00	3472.89	55.49	14.00	1976.69
	20.380	9634.00	24.20	5.09	6.20	22.00	22.00	25.00	3605.00	37.42	14.00	4019.27
	20.700	4799.00	23.25	4.06	6.40	22.00	22.00	26.40	2637.16	54.95	240.00	2016.63
	20.700	6259.00	23.81	4.07	6.40	22.00	22.00	26.40	2778.67	44.39	240.00	3080.48
	20.700	9634.00	24.65	3.95	6.40	22.00	22.00	26.40	2900.01	30.10	240.00	5161.74
*	21.030	4506.00	24.62	2.31	7.00	21.10	22.30	27.00	2714.42	60.24	1764.00	1362.69
*	21.030	5905.00	25.17	2.55	7.00	21.10	22.30	27.00	3181.26	53.87	1764.00	1491.80
	21.030	9197.00	26.02	3.10	7.00	21.10	22.30	27.00	4208.82	45.76	1764.00	1804.52
*	22.740	4506.00	26.49	1.20	9.60	20.55	21.73	30.00	2367.51	52.54	9004.00	3665.72
*	22.740	5905.00	27.06	1.23	9.60	20.55	21.73	30.00	2586.13	43.80	9004.00	4772.22
*	22.740	9197.00	27.98	1.28	9.60	20.55	21.73	30.00	2943.39	32.00	9004.00	6574.00

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	22.750	4506.00	26.45	2.31	9.70	20.65	21.83	30.10	4506.00	100.00	42.00	218.00
*	22.750	5905.00	26.99	2.86	9.70	20.65	21.83	30.10	5905.00	100.00	42.00	218.00
*	22.750	9197.00	27.82	4.10	9.70	20.65	21.83	30.10	9197.00	100.00	42.00	218.00
	22.760	4506.00	26.46	3.56	8.30	31.18	31.29	30.00	4506.00	100.00	13.00	118.16
	22.760	5905.00	27.07	4.41	8.30	31.18	31.29	30.00	5905.00	100.00	13.00	120.44
*	22.760	9197.00	28.14	6.26	8.30	31.18	31.29	30.00	9197.00	100.00	13.00	124.43
*	22.780	4506.00	26.71	1.10	8.40	21.23	21.35	30.10	1788.58	39.69	168.00	4166.05
*	22.780	5905.00	27.43	1.02	8.40	21.23	21.35	30.10	1792.94	30.36	168.00	5588.07
*	22.780	9197.00	28.83	.85	8.40	21.23	21.35	30.10	1723.28	18.74	168.00	8325.70
	22.900	4362.00	26.80	2.47	10.00	19.10	19.00	30.00	1212.15	27.79	650.00	2890.77
	22.900	5716.00	27.51	2.31	10.00	19.10	19.00	30.00	1194.42	20.90	650.00	3725.85
*	22.900	8902.00	28.88	1.96	10.00	19.10	19.00	30.00	1117.48	12.55	650.00	5561.73
	22.920	4362.00	26.82	2.45	10.00	19.10	19.00	30.00	1204.02	27.60	100.00	2910.21
	22.920	5716.00	27.53	2.29	10.00	19.10	19.00	30.00	1188.38	20.79	100.00	3741.06
	22.920	8902.00	28.89	1.96	10.00	19.10	19.00	30.00	1114.45	12.52	100.00	5572.42
	22.930	4362.00	26.82	2.44	10.00	19.10	19.00	30.00	1198.33	27.47	16.00	2923.87
	22.930	5716.00	27.53	2.28	10.00	19.10	19.00	30.00	1183.01	20.70	16.00	3754.67
*	22.930	8902.00	28.89	1.94	10.00	19.10	19.00	30.00	1109.11	12.46	16.00	5591.36
	22.940	4362.00	26.83	2.43	10.00	19.10	19.00	30.00	1196.07	27.42	50.00	2929.33
	22.940	5716.00	27.53	2.28	10.00	19.10	19.00	30.00	1182.20	20.68	50.00	3756.71
	22.940	8902.00	28.90	1.94	10.00	19.10	19.00	30.00	1109.36	12.46	50.00	5590.48
	23.410	4362.00	27.32	1.85	11.40	27.70	24.90	31.00	2065.51	47.35	2500.00	3323.74
	23.410	5716.00	27.94	1.74	11.40	27.70	24.90	31.00	2092.26	36.60	2500.00	3696.94
	23.410	8902.00	29.16	1.57	11.40	27.70	24.90	31.00	2151.42	24.17	2500.00	5377.69
*	24.060	4017.00	28.37	3.01	13.20	27.30	27.70	31.00	1219.45	30.36	3420.00	2017.16
*	24.060	5264.00	28.83	2.97	13.20	27.30	27.70	31.00	1273.77	24.20	3420.00	2313.43
*	24.060	8202.00	29.77	2.64	13.20	27.30	27.70	31.00	1256.52	15.32	3420.00	5847.87
*	24.810	4470.00	29.31	1.65	14.75	23.64	24.04	32.00	813.51	18.20	3978.00	3185.11
*	24.810	5848.00	29.78	1.77	14.75	23.64	24.04	32.00	910.83	15.58	3978.00	3514.76
*	24.810	9044.00	30.60	1.87	14.75	23.64	24.04	32.00	1037.46	11.47	3978.00	6325.75
	24.820	4470.00	29.32	1.72	14.85	23.74	24.14	32.10	839.38	18.78	48.00	3122.16
	24.820	5848.00	29.79	1.83	14.85	23.74	24.14	32.10	936.67	16.02	48.00	3453.39
	24.820	9044.00	30.61	1.94	14.85	23.74	24.14	32.10	1072.22	11.86	48.00	5944.94
	24.830	4470.00	29.33	2.42	14.95	23.64	24.04	31.50	1190.30	26.63	12.00	3055.12
	24.830	5848.00	29.82	2.45	14.95	23.64	24.04	31.50	1258.70	21.52	12.00	3502.50
*	24.830	9044.00	30.68	2.33	14.95	23.64	24.04	31.50	1296.67	14.34	12.00	7021.32
*	24.860	3608.00	29.39	1.35	15.05	23.74	24.14	31.10	660.58	18.31	180.00	3160.14
	24.860	4722.00	29.87	1.44	15.05	23.74	24.14	31.10	735.10	15.57	180.00	3502.12
	24.860	7355.00	30.72	1.50	15.05	23.74	24.14	31.10	831.62	11.31	180.00	7187.71

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
	25.400	3608.00	29.67	1.35	16.90	26.80	28.80	31.50	1061.58	29.42	2840.00	6101.96
	25.400	4722.00	30.12	1.24	16.90	26.80	28.80	31.50	1036.19	21.94	2840.00	7530.91
	25.400	7355.00	30.94	1.12	16.90	26.80	28.80	31.50	1036.21	14.09	2840.00	10200.71
*	26.210	3608.00	30.50	2.73	18.00	28.80	28.10	32.50	1017.73	28.21	4288.00	3967.53
*	26.210	4722.00	30.82	2.74	18.00	28.80	28.10	32.50	1061.42	22.48	4288.00	4680.51
*	26.210	7355.00	31.46	2.62	18.00	28.80	28.10	32.50	1087.68	14.79	4288.00	6138.94
	26.220	3608.00	30.56	2.82	18.00	28.80	28.10	32.50	1058.18	29.33	100.00	4089.06
	26.220	4722.00	30.87	2.86	18.00	28.80	28.10	32.50	1113.07	23.57	100.00	4801.75
	26.220	7355.00	31.50	2.78	18.00	28.80	28.10	32.50	1161.17	15.79	100.00	6243.54
	26.230	3608.00	30.58	2.78	18.00	28.80	28.10	32.50	1046.01	28.99	12.00	4125.88
*	26.230	4722.00	30.91	2.77	18.00	28.80	28.10	32.50	1084.13	22.96	12.00	4890.59
*	26.230	7355.00	31.59	2.62	18.00	28.80	28.10	32.50	1100.95	14.97	12.00	6452.21
	26.240	3608.00	30.61	2.70	18.00	28.80	28.10	32.50	1019.43	28.25	50.00	4208.07
	26.240	4722.00	30.95	2.70	18.00	28.80	28.10	32.50	1059.11	22.43	50.00	4969.89
	26.240	7355.00	31.62	2.56	18.00	28.80	28.10	32.50	1082.73	14.72	50.00	6518.59
*	26.400	3608.00	31.00	1.40	18.80	28.00	27.80	32.50	729.30	20.21	850.00	3695.24
*	26.400	4722.00	31.33	1.48	18.80	28.00	27.80	32.50	814.76	17.25	850.00	5101.01
*	26.400	7355.00	31.97	1.57	18.80	28.00	27.80	32.50	948.39	12.89	850.00	8615.77
	26.630	3608.00	31.32	1.47	19.60	28.40	28.10	32.80	698.03	19.35	1374.00	4380.48
	26.630	4722.00	31.66	1.53	19.60	28.40	28.10	32.80	767.26	16.25	1374.00	5523.20
	26.630	7355.00	32.29	1.60	19.60	28.40	28.10	32.80	879.52	11.96	1374.00	8466.30
	26.860	3608.00	31.69	1.65	20.30	28.90	28.40	33.10	711.82	19.73	1374.00	4786.88
	26.860	4722.00	32.02	1.69	20.30	28.90	28.40	33.10	764.92	16.20	1374.00	5958.82
	26.860	7355.00	32.64	1.74	20.30	28.90	28.40	33.10	859.06	11.68	1374.00	8071.93
	27.080	3608.00	32.05	1.40	21.10	29.30	28.60	33.40	534.40	14.81	1374.00	5023.76
	27.080	4722.00	32.38	1.46	21.10	29.30	28.60	33.40	585.78	12.41	1374.00	5893.13
	27.080	7355.00	32.98	1.56	21.10	29.30	28.60	33.40	680.35	9.25	1374.00	7496.62
	27.310	3608.00	32.34	1.38	21.80	29.80	28.90	33.70	456.05	12.64	1374.00	4904.69
	27.310	4722.00	32.68	1.44	21.80	29.80	28.90	33.70	500.66	10.60	1374.00	5574.33
	27.310	7355.00	33.28	1.56	21.80	29.80	28.90	33.70	589.81	8.02	1374.00	6787.78
	27.540	3608.00	32.66	1.48	23.10	30.20	29.17	34.00	404.23	11.20	1374.00	4420.50
	27.540	4722.00	33.01	1.56	23.10	30.20	29.17	34.00	449.72	9.52	1374.00	4902.92
	27.540	7355.00	33.63	1.72	23.10	30.20	29.17	34.00	540.90	7.35	1374.00	5781.67
	27.550	3608.00	32.68	1.47	23.10	30.20	29.17	34.00	402.16	11.15	40.00	4434.99
	27.550	4722.00	33.02	1.55	23.10	30.20	29.17	34.00	447.57	9.48	40.00	4917.86
	27.550	7355.00	33.64	1.71	23.10	30.20	29.17	34.00	538.59	7.32	40.00	5797.51
*	27.560	3608.00	33.29	7.84	23.10	29.91	30.20	37.00	2716.92	75.30	14.00	304.77
*	27.560	4722.00	34.54	4.10	23.10	29.91	30.20	37.00	1665.23	35.27	14.00	8355.78
	27.560	7355.00	35.79	1.58	23.10	29.91	30.20	37.00	736.07	10.01	14.00	13739.16

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	27.570	3608.00	34.26	1.00	22.66	31.31	30.54	37.10	360.48	9.99	52.00	6790.35
*	27.570	4722.00	34.67	.97	22.66	31.31	30.54	37.10	371.15	7.86	52.00	8695.58
*	27.570	7355.00	35.80	.77	22.66	31.31	30.54	37.10	336.95	4.58	52.00	13969.09
	28.290	2807.00	34.54	.76	21.70	31.40	31.20	36.20	431.23	15.36	3805.00	4192.57
	28.290	3702.00	34.94	.81	21.70	31.40	31.20	36.20	486.38	13.14	3805.00	4720.57
	28.290	5750.00	35.98	.81	21.70	31.40	31.20	36.20	544.23	9.46	3805.00	6293.23
*	28.900	2807.00	36.25	6.50	28.14	33.99	33.38	40.00	1667.64	59.41	3200.00	2249.61
*	28.900	3702.00	36.40	7.25	28.14	33.99	33.38	40.00	1903.78	51.43	3200.00	2621.50
*	28.900	5750.00	36.70	8.05	28.14	33.99	33.38	40.00	2211.23	38.46	3200.00	3354.82
*	29.460	1532.00	38.77	1.15	28.39	36.93	36.99	40.00	278.54	18.18	2979.00	6735.16
*	29.460	2018.00	39.00	1.15	28.39	36.93	36.99	40.00	286.39	14.19	2979.00	7836.88
*	29.460	3134.00	39.37	1.19	28.39	36.93	36.99	40.00	309.24	9.87	2979.00	9643.02
	29.470	1532.00	38.78	1.30	28.49	37.03	37.09	40.10	311.97	20.36	36.00	6259.27
	29.470	2018.00	39.01	1.28	28.49	37.03	37.09	40.10	316.99	15.71	36.00	7374.28
	29.470	3134.00	39.37	1.31	28.49	37.03	37.09	40.10	338.26	10.79	36.00	9173.11
	29.480	1532.00	38.80	1.24	28.49	36.93	28.69	40.00	285.94	18.66	20.00	6886.86
	29.480	2018.00	39.04	1.22	28.49	36.93	28.69	40.00	290.73	14.41	20.00	8068.71
	29.480	3134.00	39.45	1.23	28.49	36.93	28.69	40.00	305.72	9.75	20.00	10071.33
	29.500	1532.00	38.82	1.38	28.59	37.03	28.79	40.10	315.04	20.56	117.00	6468.64
	29.500	2018.00	39.06	1.35	28.59	37.03	28.79	40.10	317.87	15.75	117.00	7649.85
	29.500	3134.00	39.47	1.34	28.59	37.03	28.79	40.10	329.99	10.53	117.00	9654.34
*	32.100	852.00	41.59	4.57	35.84	44.25	42.58	50.00	852.00	100.00	13727.00	65.99
*	32.100	1123.00	41.48	6.24	35.84	44.25	42.58	50.00	1123.00	100.00	13727.00	64.83
*	32.100	1741.00	41.50	9.62	35.84	44.25	42.58	50.00	1741.00	100.00	13727.00	65.00
	32.110	852.00	41.87	4.28	35.94	44.35	42.68	50.10	852.00	100.00	50.00	68.17
	32.110	1123.00	42.08	5.26	35.94	44.35	42.68	50.10	1123.00	100.00	50.00	70.63
*	32.110	1741.00	43.17	5.86	35.94	44.35	42.68	50.10	1740.60	99.98	50.00	82.13
*	32.130	852.00	45.09	2.00	35.84	44.25	42.58	50.00	852.00	100.00	100.00	78.00
*	32.130	1123.00	46.09	2.23	35.84	44.25	42.58	50.00	1123.00	100.00	100.00	78.00
*	32.130	1741.00	46.84	1.07	35.84	44.25	42.58	50.00	598.95	34.40	100.00	3027.91
	32.160	852.00	45.17	1.94	35.94	44.35	42.68	50.10	820.55	96.31	186.00	508.90
*	32.160	1123.00	46.21	1.29	35.94	44.35	42.68	50.10	650.03	57.88	186.00	2290.90
	32.160	1741.00	46.85	1.15	35.94	44.35	42.68	50.10	636.07	36.53	186.00	2935.51

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## SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	2.840	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	2.840	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	2.840	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.820	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.820	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.820	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.830	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.830	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.830	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	10.240	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	10.240	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	10.240	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	12.680	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	12.680	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	12.790	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	12.790	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=	13.760	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.760	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	14.970	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=	15.310	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=	16.210	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	16.210	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	16.210	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=	16.260	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	16.260	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=	16.990	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	17.930	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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WARNING SECNO=	17.930	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	18.800	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	22.900	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
CAUTION SECNO=	22.930	PROFILE=	3	HYDRAULIC	JUMP	D.S.		
WARNING SECNO=	24.060	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	24.060	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	24.810	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
CAUTION SECNO=	24.830	PROFILE=	3	HYDRAULIC	JUMP	D.S.		
WARNING SECNO=	24.860	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	26.210	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

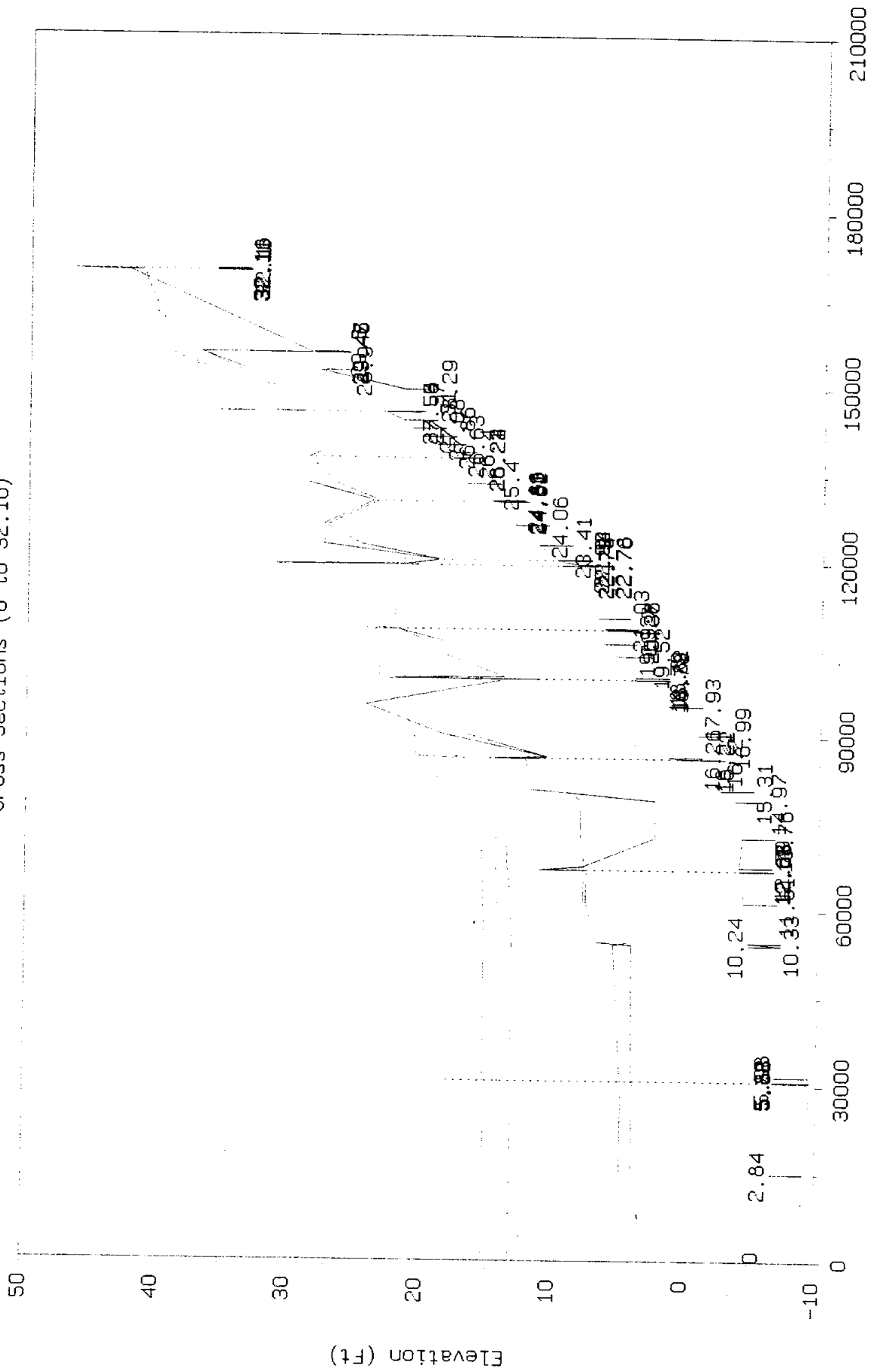


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WARNING SECNO=	26.210	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	26.210	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	26.230	PROFILE=	2	HYDRAULIC JUMP D.S.
CAUTION SECNO=	26.230	PROFILE=	3	HYDRAULIC JUMP D.S.
WARNING SECNO=	26.400	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	26.400	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	26.400	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	27.560	PROFILE=	1	HYDRAULIC JUMP D.S.
WARNING SECNO=	27.560	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	27.560	PROFILE=	2	HYDRAULIC JUMP D.S.
WARNING SECNO=	27.560	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=	27.570	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	27.570	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	28.900	PROFILE=	1	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	28.900	PROFILE=	1	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	28.900	PROFILE=	1	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=	28.900	PROFILE=	2	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	28.900	PROFILE=	2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	28.900	PROFILE=	2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=	28.900	PROFILE=	3	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	28.900	PROFILE=	3	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	28.900	PROFILE=	3	20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=	29.460	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	29.460	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	29.460	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=	32.100	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	32.100	PROFILE=	3	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	32.100	PROFILE=	3	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	32.100	PROFILE=	3	20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=	32.110	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	32.130	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	32.130	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	32.130	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	32.160	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

DRAUSTIN - REVISED BY BL  
 Cross-Sections (0 to 32.16)



Bridge	CWSEL 1	CWSEL 2	CWSEL 3	Invert
Left Overbank	Right Overbank			

Bastrop Bayou 10 Year flows BB\_BL10.IH1

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*****  
*  
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *  
*   JUN 1998 *  
*   VERSION 4.1 *  
*  
* RUN DATE 23AUG02 TIME 13:21:46 *  
*  
*****
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*****  
*  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET *  
* DAVIS, CALIFORNIA 95616 *  
* (916) 756-1104 *  
*  
*****
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  X   X  XXXXXXXX  XXXXX      X  
  X   X  X      X   X      XX  
  X   X  X      X           X  
  XXXXXXXX  XXXX   X      XXXXX  X  
  X   X  X      X           X  
  X   X  X      X   X      X  
  X   X  XXXXXXXX  XXXXX      XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.  
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM















Bastrop Bayou 10 Year flows BB\_B110.IH1

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
226	KK	N29N30									
227	RM	5	.9	.25							
228	KK	BB30									
229	BA	1									
230	LU	.75	.1	0							
231	UC	0.84	13.61								
232	KK	C21									
233	HC	2									
234	KK	N30N31									
235	RM	10	1.7	.25							
236	KK	BB31									
237	BA	2									
238	LU	.75	.1	0							
239	UC	1.68	21.22								
240	KK	C22									
241	HC	2									
242	KK	N31N32									
243	RM	7	1.1	0							
244	KK	BB32									
245	BA	1.4									
246	LU	.75	.1	0							
247	UC	1.20	19.16								
248	KK	C23									
249	HC	3									
250	KK	BB33									
251	BA	2.1									
252	LU	.75	.1	0							
253	UC	3.04	39.59								
254	KK	C24									
255	HC	2									
256	KK	N33N39									
257	RM	4	.6	.25							
		* OUTPUT FROM BRUHSY MODEL IS FROM									
		* CITY OF ANGLETON LOMR									
258	KK	BRUSH									
259	KM	OUTPUT FROM BRUSHY MODEL									
260	BA	6.91									
261	IN	60	20JUN02	1200							
262	QI	0	0	0	2	5	7	10	13	22	52
263	QI	103	168	258	535	1164	1669	1832	1788	1677	1558
264	QI	1435	1308	1185	1069	964	870	786	710	642	582
265	QI	528	481	438	400	366	336	309	286	264	245

Bastrop Bayou 10 Year flows BB\_BL10.IH1

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
266	QI	228	212	198	186	174	164	154	146	139	132
267	QI	124	118	111	102	94	87	79	71	65	58
268	QI	52	46	37	26	23	20	17	15	14	13
269	QI	11	10	10	9	8	7	7	6	6	5
270	QI	5	4	4	4	3	3	3	3	2	2
271	QI	2	2	2	1	1	1	1	1	1	1
272	QI	1	0	0	0	0	0	0	0	0	0
273	QI	0	0	0	0	0	0	0	0	0	0
274	QI	0	0	0	0	0	0	0	0	0	0
275	QI	0	0	0	0	0	0	0	0	0	0
276	QI	0	0	0	0	0	0	0	0	0	0
277	QI	0	0	0	0	0	0	0	0	0	0
278	QI	0	0	0	0	0	0	0	0	0	0
279	IN	10	20JUN02	1200							
280	KK	BRN37									
281	RM	8	1.4	.25							
282	KK	BB37									
283	BA	1.7									
284	LU	.75	.1	0							
285	UC	2.23	19.57								
286	KK	C99									
287	HC	2									
288	KK	N37N38									
289	RM	8	1.3	.25							
290	KK	BB38									
291	BA	1.5									
292	LU	.75	.1	0							
293	UC	1.34	18.28								
294	KK	C25									
295	HC	2									
296	KK	N38N39									
297	RM	6	.95	.25							
298	KK	BB39									
299	BA	1.1									
300	LU	.75	.1	0							
301	UC	2.00	25.95								
302	KK	C26									
303	HC	3									
304	KK	RCH 4									
305	KM	REACH EXTENDS FROM X-SECT.				36.000	TO X-SECT.		20.000		
306	RS	6	STOR	0							
307	SV	0	385	934	2727	5106	8225	11134	13717		
308	SQ	0	1285	2570	5141	7711	10282	12852	15422		







Bastrop Bayou 10 Year flows BB\_BL10.IH1

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*****  
*  
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *  
* JUN 1998 *  
* VERSION 4.1 *  
*  
* RUN DATE 23AUG02 TIME 13:21:46 *  
*  
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*****  
*  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CEN *  
* 609 SECOND STREET *  
* DAVIS, CALIFORNIA 95616 *  
* (916) 756-1104 *  
*  
*****
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FILE: BB\_BL10.IH1  
BASTROP BAYOU, 10-YR  
BRAZORIA CO DRAINAGE MASTER PLAN  
BAKER & LAWSON, MGG

6 IO OUTPUT CONTROL VARIABLES  
IPRNT 5 PRINT CONTROL  
IPLOT 0 PLOT CONTROL  
QSCAL 0. HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA  
NMIN 10 MINUTES IN COMPUTATION INTERVAL  
IDATE 20JUN 2 STARTING DATE  
ITIME 1200 STARTING TIME  
NQ 1000 NUMBER OF HYDROGRAPH ORDINATES  
NDDATE 27JUN 2 ENDING DATE  
NDTIME 1030 ENDING TIME  
ICENT 19 CENTURY MARK

COMPUTATION INTERVAL .17 HOURS  
TOTAL TIME BASE 166.50 HOURS

ENGLISH UNITS  
DRAINAGE AREA SQUARE MILES  
PRECIPITATION DEPTH INCHES  
LENGTH, ELEVATION FEET  
FLOW CUBIC FEET PER SECOND  
STORAGE VOLUME ACRE-FEET  
SURFACE AREA ACRES  
TEMPERATURE DEGREES FAHRENHEIT

Bastrop Bayou 10 Year flows BB\_BL10.IH1

RUNOFF SUMMARY  
 FLOW IN CUBIC FEET PER SECOND  
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	BB01	268.	16.00	259.	190.	87.	1.72		
ROUTED TO	N1N5	267.	18.67	258.	190.	87.	1.72		
HYDROGRAPH AT	BB05	157.	19.00	155.	135.	75.	2.10		
2 COMBINED AT	C1	424.	18.67	413.	325.	162.	3.82		
HYDROGRAPH AT	BB02	461.	14.83	446.	320.	143.	2.80		
ROUTED TO	N2N3	460.	16.17	445.	320.	143.	2.80		
HYDROGRAPH AT	BB03	589.	14.33	561.	377.	159.	3.00		
2 COMBINED AT	C2	1034.	15.67	987.	692.	303.	5.80		
ROUTED TO	N3N4	1031.	17.17	985.	692.	303.	5.80		
HYDROGRAPH AT	BB04	277.	15.83	262.	177.	75.	1.40		
2 COMBINED AT	C3	1302.	17.17	1241.	867.	377.	7.20		
2 COMBINED AT	C4	1712.	17.67	1642.	1188.	539.	11.02		
ROUTED TO	N5N7	1711.	18.17	1640.	1187.	539.	11.02		
HYDROGRAPH AT	BB06	224.	14.50	218.	157.	71.	1.40		
ROUTED TO	N6N7	224.	15.17	217.	157.	71.	1.40		
HYDROGRAPH AT	BB07	391.	13.17	349.	190.	71.	1.30		
3 COMBINED AT	C5	2223.	17.83	2113.	1506.	681.	13.72		
ROUTED TO	N7N8	2221.	18.17	2112.	1505.	681.	13.72		
HYDROGRAPH AT	BB08	121.	13.83	111.	66.	26.	.47		
2 COMBINED AT	C6	2321.	18.17	2204.	1567.	706.	14.19		
ROUTED TO	N8N9	2315.	19.50	2200.	1566.	706.	14.19		
HYDROGRAPH AT	BB09	260.	14.67	253.	186.	85.	1.70		
2 COMBINED AT	C7	2551.	19.33	2425.	1741.	792.	15.89		
ROUTED TO	RCH 7	2346.	26.17	2295.	1734.	792.	15.89		
HYDROGRAPH AT	BB10	754.	13.67	690.	404.	157.	2.80		
2 COMBINED AT	C8	2662.	25.33	2616.	2044.	948.	18.69		
ROUTED TO	RCH 6	2656.	26.50	2612.	2035.	948.	18.69		
HYDROGRAPH AT	BB11	228.	14.00	201.	108.	40.	.70		
ROUTED TO	N11N1	226.	15.00	200.	108.	40.	.70		
HYDROGRAPH AT	BB12	126.	14.67	121.	84.	36.	.70		
2 COMBINED AT	C9	353.	15.00	321.	191.	76.	1.40		
HYDROGRAPH AT	BB13	337.	14.17	323.	221.	95.	1.80		
2 COMBINED AT	C10	687.	14.83	640.	412.	171.	3.20		
HYDROGRAPH AT	BB14	603.	13.83	530.	282.	104.	1.80		
ROUTED TO	N14N1	599.	14.67	528.	282.	104.	1.80		



## Bastrop Bayou 10 Year flows BB\_BL10.IH1

HYDROGRAPH AT	BB15	219.	13.83	204.	127.	51.	.95
2 COMBINED AT	C11	815.	14.67	728.	409.	155.	2.75
ROUTED TO	N15N1	810.	15.67	726.	409.	155.	2.75
HYDROGRAPH AT	BB16	187.	14.67	178.	122.	52.	1.00
2 COMBINED AT	C12	995.	15.67	901.	531.	207.	3.75
ROUTED TO	N16N1	988.	17.00	898.	531.	207.	3.75
HYDROGRAPH AT	BB17	330.	14.17	307.	190.	76.	1.40
4 COMBINED AT	C13	4109.	19.83	3956.	3057.	1402.	27.04
ROUTED TO	N17N2	4106.	20.33	3955.	3056.	1402.	27.04
HYDROGRAPH AT	BB18	779.	14.50	726.	458.	185.	3.30
ROUTED TO	N18N1	776.	15.50	724.	457.	185.	3.30
HYDROGRAPH AT	BB19	896.	13.17	726.	328.	114.	2.00
2 COMBINED AT	C14	1524.	15.00	1357.	772.	299.	5.30
ROUTED TO	N19N2	1514.	15.83	1354.	772.	299.	5.30
HYDROGRAPH AT	BB20	272.	14.00	251.	151.	59.	1.10
3 COMBINED AT	C15	5454.	19.67	5200.	3937.	1760.	33.44
HYDROGRAPH AT	BB21	215.	14.50	206.	143.	62.	1.20
HYDROGRAPH AT	BB22	351.	17.00	345.	274.	136.	3.00
3 COMBINED AT	C16	5981.	19.67	5711.	4351.	1958.	37.64
ROUTED TO	RCH 5	4960.	30.00	4918.	4270.	1957.	37.64
HYDROGRAPH AT	BB23	124.	14.83	121.	88.	40.	.80
ROUTED TO	N23N2	124.	16.00	120.	88.	40.	.80
HYDROGRAPH AT	BB24	183.	14.67	175.	121.	52.	1.00
2 COMBINED AT	C17	305.	15.50	293.	208.	92.	1.80
HYDROGRAPH AT	BB25	143.	14.17	136.	91.	38.	.72
ROUTED TO	N25N2	143.	15.83	136.	90.	38.	.72
HYDROGRAPH AT	BB26	421.	14.67	407.	289.	128.	2.50
2 COMBINED AT	C18	560.	15.33	537.	378.	166.	3.22
ROUTED TO	N26N2	559.	16.50	536.	378.	166.	3.22
HYDROGRAPH AT	BB27	138.	15.00	134.	99.	46.	.92
2 COMBINED AT	C19	696.	16.33	667.	477.	212.	4.14
HYDROGRAPH AT	BB28	180.	14.33	172.	115.	49.	.93
4 COMBINED AT	C20	5586.	28.83	5545.	4986.	2310.	44.51
HYDROGRAPH AT	BB29	639.	14.17	567.	308.	115.	2.00
ROUTED TO	N29N3	635.	15.17	564.	308.	115.	2.00
HYDROGRAPH AT	BB30	217.	14.00	204.	131.	53.	1.00
2 COMBINED AT	C21	847.	15.17	763.	439.	168.	3.00
ROUTED TO	N30N3	839.	17.00	759.	439.	168.	3.00

## Bastrop Bayou 10 Year flows BB\_BL10.IH1

HYDROGRAPH AT	BB31	294.	15.17	286.	213.	99.	2.00
2 COMBINED AT	C22	1129.	17.00	1036.	651.	267.	5.00
ROUTED TO	N31N3	1119.	18.17	1031.	651.	267.	5.00
HYDROGRAPH AT	BB32	225.	14.67	219.	158.	71.	1.40
3 COMBINED AT	C23	6311.	26.67	6277.	5762.	2647.	50.91
HYDROGRAPH AT	BB33	179.	18.33	176.	151.	81.	2.10
2 COMBINED AT	C24	6462.	26.50	6429.	5909.	2728.	53.01
ROUTED TO	N33N3	6461.	27.00	6428.	5908.	2728.	53.01
HYDROGRAPH AT	BRUSH	1832.	16.00	1647.	942.	375.	6.91
ROUTED TO	BRN37	1810.	17.67	1640.	941.	375.	6.91
HYDROGRAPH AT	BB37	268.	15.33	260.	189.	86.	1.70
2 COMBINED AT	C99	2071.	17.67	1891.	1129.	461.	8.61
ROUTED TO	N37N3	2062.	19.00	1885.	1129.	461.	8.61
HYDROGRAPH AT	BB38	252.	14.67	243.	173.	77.	1.50
2 COMBINED AT	C25	2291.	19.00	2103.	1293.	538.	10.11
ROUTED TO	N38N3	2284.	20.00	2098.	1292.	538.	10.11
HYDROGRAPH AT	BB39	136.	16.17	133.	105.	51.	1.10
3 COMBINED AT	C26	8593.	20.00	8441.	7290.	3317.	64.22
ROUTED TO	RCH 4	7772.	36.67	7726.	6902.	3316.	64.22
HYDROGRAPH AT	BB40	73.	14.17	70.	48.	21.	.40
ROUTED TO	N40N4	73.	15.67	70.	48.	21.	.40
HYDROGRAPH AT	BB41	165.	14.33	158.	109.	47.	.90
2 COMBINED AT	C27	236.	15.17	225.	156.	68.	1.30
ROUTED TO	N41N4	235.	16.50	225.	156.	68.	1.30
HYDROGRAPH AT	BB42	76.	17.17	75.	61.	31.	.70
3 COMBINED AT	C28	7896.	36.50	7852.	7035.	3414.	66.22
HYDROGRAPH AT	BB43	52.	21.83	51.	45.	25.	.80
2 COMBINED AT	C29	7937.	36.50	7893.	7075.	3440.	67.02
ROUTED TO	RCH 3	7665.	48.17	7599.	6475.	3414.	67.02
HYDROGRAPH AT	BB44	145.	29.00	144.	132.	73.	3.10
HYDROGRAPH AT	BB45	53.	35.00	52.	48.	26.	1.20
3 COMBINED AT	C30	7825.	48.17	7759.	6619.	3496.	71.32
HYDROGRAPH AT	AB	9567.	58.00	9510.	9017.	6825.	92.00
2 COMBINED AT	C98	16584.	50.17	16547.	15605.	10256.	163.32
HYDROGRAPH AT	BB46	184.	18.00	181.	151.	79.	1.90
ROUTED TO	N46N4	183.	21.50	181.	151.	79.	1.90
HYDROGRAPH AT	BB47	164.	20.83	161.	138.	74.	2.00
2 COMBINED AT	C31	347.	21.17	342.	288.	153.	3.90
HYDROGRAPH AT	BB48	292.	15.17	285.	213.	99.	2.00

Bastrop Bayou 10 Year flows BB\_BL10.IH1

2 COMBINED AT	C32	611.	19.67	592.	482.	252.	5.90
ROUTED TO	N48N4	610.	20.83	592.	482.	252.	5.90
HYDROGRAPH AT	BB49	59.	22.83	58.	50.	27.	.80
3 COMBINED AT	C33	16865.	49.67	16826.	15867.	10386.	170.02
ROUTED TO	RCH 2	16862.	50.17	16824.	15859.	10383.	170.02
HYDROGRAPH AT	BB50	128.	17.50	127.	109.	59.	1.50
2 COMBINED AT	C34	16921.	50.17	16882.	15911.	10408.	171.52
ROUTED TO	RCH 1	16901.	53.17	16860.	15829.	10403.	171.52
HYDROGRAPH AT	BB51	886.	15.50	864.	645.	300.	6.10
2 COMBINED AT	C35	17075.	53.00	17033.	15967.	10484.	177.62

\*\*\* NORMAL END OF HEC-1 \*\*\*

23AUG02 08:47:43

PAGE 29

WARNING SECNO=	7.290	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	7.290	PROFILE=	3	WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=	7.290	PROFILE=	3	20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=	7.190	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.190	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	4.200	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	4.200	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	4.200	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	4.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	4.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	4.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.900	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.900	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.900	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.800	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.800	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.800	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	3.700	PROFILE=	1	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	3.700	PROFILE=	1	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	3.700	PROFILE=	1	20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=	3.700	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.700	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	58.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	58.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	58.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	57.400	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	57.300	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	57.300	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	57.200	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	57.200	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	57.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	57.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

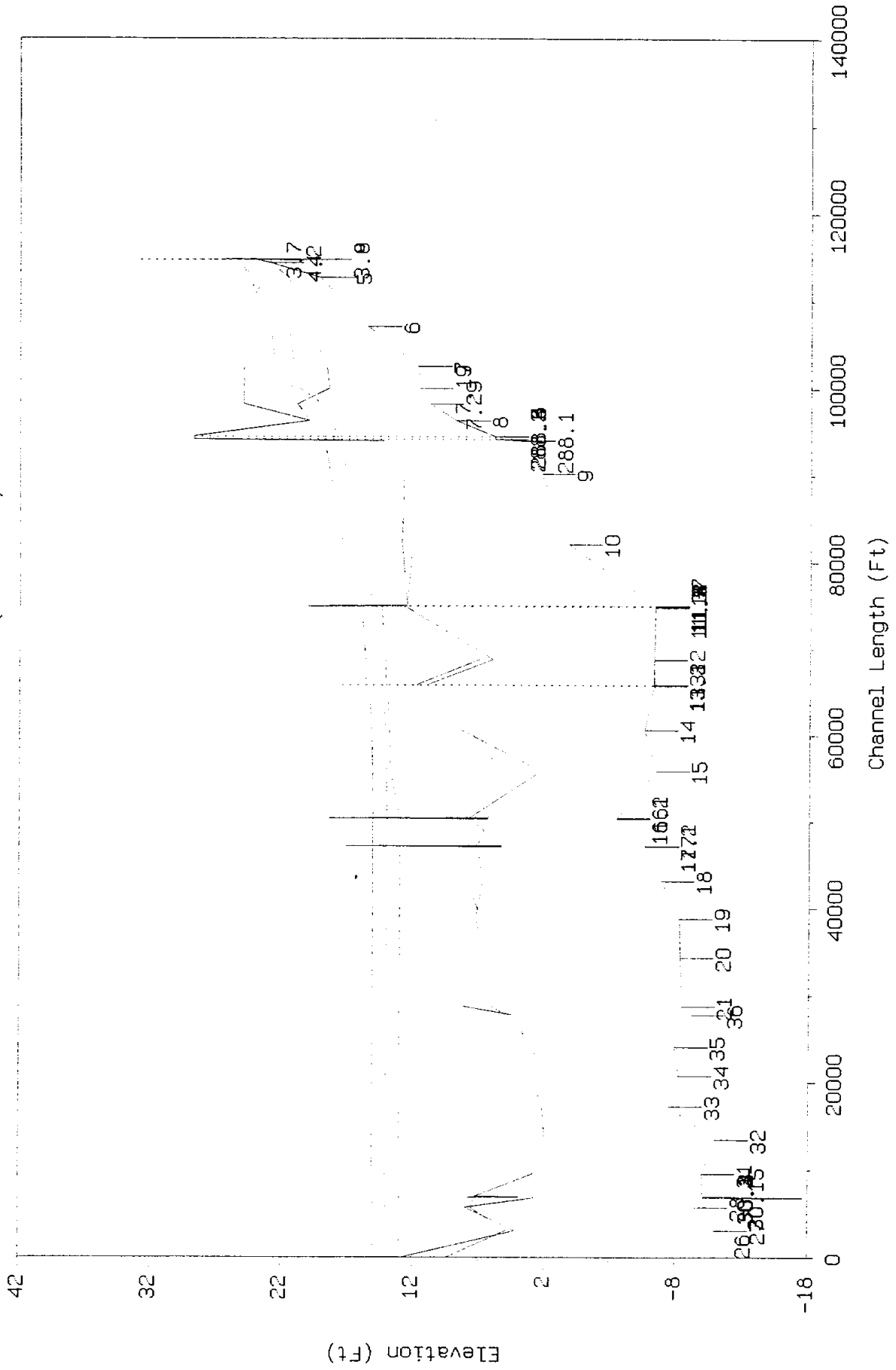
23AUG02 08:47:43

PAGE 30

WARNING SECNO=	57.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	56.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	56.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	56.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	55.700	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	55.700	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	55.700	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	55.600	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	55.600	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	55.500	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	55.500	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	55.300	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	55.300	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	55.200	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	54.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	53.600	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	53.500	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	53.500	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	53.500	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	53.300	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	53.300	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	53.300	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	53.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	53.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	52.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	52.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

FILE: BB\_BL\_R.IH2

Cross-Sections (26 to 3.7)



Bridge  
 Left Overbank  
 Right Overbank  
 CWSEL 1  
 CWSEL 2  
 CWSEL 3  
 Invert

```
*****  
* HEC-2 WATER SURFACE PROFILES *  
* *  
* Version 4.6.2; May 1991 *  
* *  
* RUN DATE 23AUG02 TIME 09:08:13 *  
*****
```

```
*****  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET, SUITE D *  
* DAVIS, CALIFORNIA 95616-4687 *  
* (916) 756-1104 *  
*****
```

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X X XXXXXXX XXXX XXXX  
X X X X X X  
X X X X X X  
XXXXXXXX XXXX X XXXXX XXXXX  
X X X X X X  
X X X X X X  
X X XXXXXXX XXXX XXXXXXX
```

THIS RUN EXECUTED 23AUG02 09:08:13

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

T1 BRAZORIA COUNTY DRAINAGE MASTER PLAN  
 T2 BASTROP BAYOU AND WEST FORK TO CR290, 10-YR  
 T3 HEC-2 FILE FROM LAKE JACKSON CLOMR WITH REVISED FLOWS  
 T3 FILE: BB\_CI.IH2  
 T4 BAKER & LAWSON, MGG

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	2	0	0		0	0		13	0
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1							

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

38	43	1	26	42	23	24	63	14	60
39	4								

J5 LPRNT NUMSEC \*\*\*\*\*REQUESTED SECTION NUMBERS\*\*\*\*\*

-10 -10  
 10-YR 25-YR 100-YR

QT	3	17075	20826	29006
				10.4

NC .04 .04 .035 0.1 0.3

EXTENDED ALL CROSS-SECTIONS BASED ON USGS TOPO  
 BAKER & LAWSON, MGG  
 VERTICAL WALL IS DRAINAGE DIVIDE  
 PROPOSED CHANNEL IMPROVEMENTS: BEGIN AT SEC. 26.00 AT ELEV. -16.5  
 CONTINUE U.S. AT 0.015% W/ 3:1 S.S.  
 LIMIT IMPROVEMENTS TO INSIDE EXIST. BANKS

\*\*\*\*\*THIS IS FEMA X-SEC A\*\*\*\*\*

FEMA SECTION A

X1	26	37	20085	20382						
CI	20234	-16.5		3	3	150				
GR	15	17948	5.1	17948	5.1	20000.	5.4	20050.	6.	20066.
GR	9.4	20085.	9.	20100.	3.8	20116.	2.2	20138.	.3	20154.
GR	-.7	20164.	-1.8	20174.	-4.	20184.	-6.6	20194.	-7.8	20204.
GR	-9.1	20214.	-9.6	20224.	-9.9	20234.	-9.4	20244.	-9.5	20254.
GR	-9.3	20264.	-8.1	20274.	-5.9	20284.	-3.1	20294.	-1.3	20304.
GR	-.3	20314.	.3	20322.	0.7	20327.	2.9	20328.	3.6	20340.
GR	12.8	20382.	12.7	20386.	9.2	20393.	3.6	20443.	2.7	20493.



GR 2.7 22111 15 22111  
 \*\*\*\*\*THIS IS FEMA X-SEC B\*\*\*\*\*

FEMA SECTION B

X1	27	34	20100	20301	2750	3000	3050			
CI	20214	.00015		3	3					
GR	15	16189	6	16489	6.	18800.	5.	19000.	5.	20000.
GR	5.	20050.	4.9	20100.	1.8	20103.	0.2	20124.	-.6	20134.
GR	-1.6	20144.	-2.5	20154.	-4.8	20164.	-7.	20174.	-8.9	20184.
GR	-9.8	20194.	-10.4	20204.	-11.	20214.	-10.7	20224.	-9.8	20234.
GR	-8.8	20244.	-6.7	20254.	-3.8	20264.	-1.9	20274.	-.7	20284.
GR	.2	20294.	1.1	20300.	4.2	20301.	4.0	20351.	4.	20401.
GR	4.	21200.	5.	21400.	5	32366	15	32366		

\*\*\*\*\*THIS IS FEMA X-SEC C\*\*\*\*\*

FEMA SECTION C

X1	28	30	20100	20279	2500	2800	2650			
CI	20192			3	3					
GR	15	16082	5	16082	5.	16350.	7.4	20000.	7.6	20050.
GR	7.6	20100.	1.9	20106.	.2	20122.	0.7	20132.	-3.6	20142.
GR	-6.4	20152.	-8.2	20162.	-9.1	20172.	-9.4	20182.	-9.5	20192.
GR	-9.3	20202.	-8.9	20212.	-8.7	20222.	-7.7	20232.	-4.7	20242.
GR	-.7	20252.	.2	20262.	1.8	20275.	8.	20279.	8.	20339.
GR	7.7	20379.	5.	21800.	5	24400	5	25860	15	25860

X1 30.1 49. 20533. 20811. 1100 1100 1100

CI	20670			3	3					
GR	15.4	20000.	17.8	20050.	7.6	20180.	7.4	20240.	8.	20300.
GR	8.1	20360.	8.	20420.	8.2	20480.	7.3	20533.	1.8	20541.
GR	.4	20560.	-1.8	20570.	-4.1	20580.	-5.4	20590.	-5.8	20600.
GR	-8.8	20610.	-8.9	20620.	-9.	20630.	-9.3	20640.	-10.1	20650.
GR	-9.7	20660.	-10.	20670.	-10.1	20680.	-10.	20690.	-10	20700.
GR	-9.7	20710.	-9.1	20720.	-8.3	20730.	-7.3	20740.	-6.5	20750.
GR	-4.9	20760.	-4.	20770.	-2.3	20780.	-.4	20790.	.3	20796.
GR	1.1	20804.	2.8	20811.	3.3	20840.	3.9	20900.	4.3	20960.
GR	4.8	21020.	3.2	21080.	5.0	21140.	4.8	21200.	5.	21260.
GR	4.3	21320.	4.3	21380.	4.8	21422.	13.9	21461.		

QT 3 16921 20713 28866  
 CROSS-SECTION INSERTED TO REFLECT ENCROACHMENT  
 OF ABANDONED RAILWAY DS OF CR227  
 BASED ON FIELD SURVEY  
 BAKER & LAWSON, MGG  
 BRAZORIA CO DRAINAGE MASTER PLAN

X1	30.15	13	20538	20840	50	50	50			
CI	20690			3	3					
GR	16.5	20482	9	20508	7.8	20538	1.1	20571	-7	20610
GR	-17.66	20690	-8.5	20763	-2.4	20805	1	20833	2.9	20840
GR	5.2	21146	5.2	21422	13.9	21461				

\*\*\*\*\* COUNTY ROAD 227 \*\*\*\*\*

38.4

X1	30.2	100	20540	20811	25	25	25			
CI	20690			3	3	0.01				
GR	15	16082	7.4	16082	7.4	18849.	8.8	19049.	7.5	19449.
GR	9.1	19649.	15.4	20000.	17.8	20050.	7.6	20180.	25.9	20181.
GR	25.9	20183.	7.6	20184.	7.4	20240.	29.56	20241.	29.56	20243.5
GR	7.4	20244.	8.	20300.	33.16	20301.	33.16	20303.5	8.	20304.
GR	8.1	20360.	36.77	20361.	36.77	20363.5	8.1	20364.	8.	20420.
GR	40.35	20421.	40.35	20423.5	8.	20424.	8.2	20480.	44.	20481.
GR	44.	20483.5	8.2	20484.	3.9	20540.	47.5	20541.	47.5	20543.5
GR	3.9	20544.	-5.8	20600.	50.19	20601.	50.19	20603.5	-5.8	20604.
	-8.9	20620.	-9.	20630.	-9.3	20640.	-10.1	20650.	-9.7	20660.
	51.84	20661.	51.84	20663.5	-10.	20670.	-10.1	20680.	-10.	20690.
	-10.	20700.	-4.9	20760.	-4.	20770.	-2.3	20780.	51.9	20781.

CHANGED BOTTOM CHANNEL TO -15.47 FOR CHANNEL IMPROVEMENT

GR	-15.47	20620.	-15.47	20630.	-15.47	20640.	-15.47	20650.	-15.47	20660.
GR	51.84	20661.	51.84	20663.5	-15.47	20670.	-10.1	20680.	-10.	20690.
GR	-10.	20700.	-4.9	20760.	-4.	20770.	-2.3	20780.	51.9	20781.
GR	51.9	20783.5	-2.3	20784.	-4	20790.	.3	20796.	1.1	20804.
GR	2.8	20811.	3.33	20840.	50.2	20841.	50.2	20843.	3.33	20844.
GR	3.86	20900.	47.6	20901.	47.6	20903.5	3.86	20904.	4.3	20960.
GR	44.	20961.	44.	20963.5	4.3	20964.	4.8	21020.	40.4	21021.
GR	40.4	21023.5	4.8	21024.	5.2	21080.	36.8	21081.	36.8	21083.5
GR	5.2	21084.	5.0	21140.	33.2	21141.	33.2	21143.5	5.	21144.
GR	4.8	21200.	29.6	21201.	29.6	21203.5	4.8	21204.	5.	21260.
GR	26.	21261.	26.	21263.	5.	21264.	4.3	21320.	8.4	21520.
GR	7.1	21620.	7.0	21820.	8.4	22220.	8	25860	15	25860

38.4

X1	30.3				35.	35.	35.			
				2.4						

X1	30.4	49.	20533.	20811.	25.	25.	25.			
CI	20670	-15.46		3	3	150				
GR	15.4	20000.	17.8	20050.	7.6	20180.	7.4	20240.	8.	20300.
GR	8.1	20360.	8.	20420.	8.2	20480.	7.3	20533.	1.8	20541.
GR	.4	20560.	-1.8	20570.	-4.1	20580.	-5.4	20590.	-5.8	20600.
GR	-8.8	20610.	-8.9	20620.	-9.	20630.	-9.3	20640.	-10.1	20650.
GR	-9.7	20660.	-10.	20670.	-10.1	20680.	-10.	20690.	-10	20700.
GR	-9.7	20710.	-9.1	20720.	-8.3	20730.	-7.3	20740.	-6.5	20750.
GR	-4.9	20760.	-4.	20770.	-2.3	20780.	-4	20790.	.3	20796.
GR	1.1	20804.	2.8	20811.	3.3	20840.	3.9	20900.	4.3	20960.
GR	4.8	21020.	3.2	21080.	5.0	21140.	4.8	21200.	5.	21260.
GR	4.3	21320.	4.3	21380.	4.8	21422.	13.9	21461.		

\*\*\*\*\*THIS IS FEMA X-SEC D\*\*\*\*\*

16.4

FEMA SECTION D

X1	31	43	20000	20523	2600	1700	2600			
CI	20419	0.00015		3	3					
GR	15	13990	5	13990	5.	14950.	5.	19250.	2.9	20000.
GR	2.2	20010.	1.8	20114.	.3	20164.	.8	20214.	1.2	20268.
GR	1.2	20269.	0	20279.	-.5	20289.	-1.4	20299.	-3.3	20309.
GR	-4.6	20319.	-5.7	20329.	-6.5	20339.	-7.2	20349.	-8.	20359.

GR	-8.2	20369.	-9.2	20379.	-9.2	20389.	-9.7	20399.	-9.8	20409.
GR	-10.	20419.	-9.8	20429.	-9.4	20439.	-9.	20449.	-8.8	20459.
GR	-7.9	20469.	-7.1	20479.	-5.9	20489.	-4.2	20499.	-1.3	20509.
GR	0	20519.	1.2	20523.	2.8	20524.	5.1	20574.	5.2	20624.
GR	5.	24250.	6.	24260	15	24260				

QT 3 7825 9198 12330  
 \*\*\*\*\*THIS IS FEMA X-SEC E\*\*\*\*\*

FEMA SECTION E DOWNSTREAM OF AUSTIN CONFLUENCE

X1	32	41	20100	20332	1900	2100	3900			
CI	20191			3	3					
GR	15	11158	5	11158	5.	13600.	5.	15700.	1.4	20000.
GR	.9	20050.	2.	20100.	1.2	20101.	-1.1	20111.	-3.5	20121.
GR	-5.7	20131.	-7.2	20141.	-8.	20151.	-8.6	20161.	-9.6	20171.
GR	-10.	20181.	-11.	20191.	-10.8	20201.	-10.7	20211.	-10.3	20221.
GR	-10.	20231.	-9.4	20241.	-8.8	20251.	-8.4	20261.	-7.1	20271.
GR	-6.2	20281.	-5.1	20291.	-3.8	20301.	-1.9	20311.	-.8	20321.
GR	1.2	20331.	1.6	20332.	.8	20362.	-.2	20382.	.2	20418.
GR	1.2	20438.	2.4	20488.	5.	29800.	9.	29820.	9	32455
GR	15	32455								

\*\*\*\*\*THIS IS FEMA X-SEC F\*\*\*\*\*

FEMA SECTION F UPSTREAM OF AUSTIN CONFLUENCE

X1	33	36	20100	20320	3600	2500	3800			
CI	20201			3	3					
GR	15	19550	2.	19550.	1.8	20000.	2.6	20030.	2.2	20100.
GR	1.2	20101.	-.5	20111.	-1.7	20121.	-3.6	20131.	-4.2	20141.
GR	-4.6	20151.	-5.6	20161.	-6.1	20171.	-6.4	20181.	-6.7	20191.
GR	-7.4	20201.	-7.3	20211.	-7.5	20221.	-7.4	20231.	-6.8	20241.
GR	-5.9	20251.	-5.3	20261.	-4.2	20271.	-3.9	20281.	-3.4	20291.
GR	-1.9	20301.	-.6	20311.	1.2	20319.	.1	20319.	2.9	20320.
GR	1.9	20370.	2.2	20420.	5.	24500.	9.	24550.	9	35548
GR	15	35548								

\*\*\*\*\*THIS IS FEMA X-SEC G\*\*\*\*\*

FEMA SECTION G

X1	34	39	20000	20433	2200	2800	3500			
CI	20317			3	3					
GR	15	18700	3.	18700.	3.1	20000.	3.1	20001.	1.8	20027.
GR	.7	20030.	1.3	20100.	1.3	20150.	1.8	20200.	3.1	20225.
GR	1.1	20227.	.2	20227.1	-.6	20237.	-1.4	20247.	-3.8	20257.
GR	-4.6	20267.	-5.	20277.	-6.1	20287.	-6.4	20297.	-8.2	20307.
GR	-8.2	20317.	-7.8	20327.	-7.3	20337.	-6.8	20347.	-6.3	20357.
GR	-5.5	20367.	-5.7	20377.	-4.5	20387.	-4.2	20397.	-2.4	20407.
GR	-1.1	20417.	.2	20427.	1.1	20432.	1.8	20433.	3.2	20483.
GR	2.9	20533.	5.	30900.	9.	35700.	15	35700		

\*\*\*\*\*THIS IS FEMA X-SEC H\*\*\*\*\*

FEMA SECTION H

X1	35	36	20100	20308	3500	2000	3300			
CI	20211			3	3					
GR	15	18800	4.	18800.	3.2	20000.	3.	20009.	2.3	20019.
GR	2.1	20050.	2.7	20100.	1.0	20101.	.2	20111.	-1.2	20121.
GR	-2.7	20131.	-4.1	20141.	-4.9	20151.	-5.6	20161.	-6.5	20171.

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GR	-7.1	20181.	-7.6	20191.	-7.8	20201.	-7.9	20211.	-7.5	20221.
GR	-6.8	20231.	-6.2	20241.	-5.7	20251.	-5.3	20261.	-5.2	20271.
GR	-3.9	20281.	-1.8	20291.	-.5	20301.	1.	20307.	3.1	20308.
GR	4.1	20358.	3.5	20408.	5.	31900.	5.	37100.	9.	39000.
GR	15	39000								

\*\*\*\*\* SECTION NOT ON MAP \*\*\*\*\*

QT	3	7936	9244	12479						
X1	36	45	20040	20366	3100	2800	3700			
CI	20231			3	3					
GR	15	18880	9.	18880.	4.	18900.	4.1	20000.	4.4	20010.
GR	1.1	20011.	5.	20040.	4.3	20050.	4.3	20082.	2.8	20100.
GR	1.1	20101.	.5	20102.	-.3	20111.	-1.	20121.	-2.8	20131.
GR	-3.5	20141.	-4.2	20151.	-5.	20161.	-5.6	20171.	-5.7	20181.
GR	-6.4	20191.	-6.9	20201.	-7.4	20211.	-7.9	20221.	-9.2	20231.
GR	-8.3	20241.	-6.5	20251.	-6.7	20261.	-6.3	20271.	-6.	20281.
GR	-5.5	20291.	-4.5	20301.	-1.9	20311.	-.7	20321.	4.9	20331.
GR	1.1	20334.	3.8	20335.	3.6	20352.	4.5	20366.	4.9	20385.
GR	4.4	20435.	5.	23900.	5.	37500.	9.	40200.	15	40200

NC	.06	.06	.04	.1	.3					
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10.4

\*\*\*\*\*THIS IS FEMA X-SEC I\*\*\*\*\*

X-SECTION BA-21, MCCORMICK RESERVIOR ON LEFT OVER BANK

THIS IS FEMA X-SEC I

X1	21	29	10041	10386	1100	1000	1000			
CI	10225			3	3					
GR	15	7648	7.1	7648	7.1	7649	7.1	7650	7.1	7651
GR	5.7	7708	5.5	8063	5.3	8330	5.3	8874	4.7	9387
GR	7.9	9458	7.1	9623	5.3	9804	6.3	9911	1.5	9945
GR	1.5	9960	4.1	10021	6.1	10041	1.1	10090	-.4	10117
GR	-5.4	10171	-8.4	10225	-5.4	10279	-.4	10333	1.1	10361
GR	8.3	10386	8.3	10386	8.3	28888	15	28888		

\*\*\*\*\*THIS IS FEMA X-SEC J\*\*\*\*\*

X-SECTION BA-20

THIS IS FEMA X-SEC J

X1	20	22	14586	14891	5850	5150	5600			
CI	14734			3	3					
GR	15	7197	7.3	7197	7.3	12566	7.3	12567	7.3	12568
GR	7.3	12569	6.5	13236	5.3	13726	6.1	14120	5.9	14523
GR	4.1	14586	.3	14606	-2	14630	-5.5	14680	-8.3	14734
GR	-5.5	14790	-2	14840	.3	14861	6.7	14891	6.9	15335
GR	6.9	34836	15	34836						

QT	3	6462	7672	10365						
NC	.06	.06	.045							

16.4

\*\*\*\*\*THIS IS FEMA X-SEC K\*\*\*\*\*

X-SECTION BA-19

THIS IS FEMA X-SEC K

X1	19	27	10193	10655	3950	4700	4440			
CI	10468			3	3					
GR	15	1903	6.3	1903	6.3	6217	6.3	6218	6.3	6219
GR	6.3	6796	3.9	7624	4.60	7839.50	5.3	8055	5.1	8466

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GR	4.9	8883	5.7	9295	6.5	9372	6.9	9787	6.9	10193
GR	6.3	10346	.5	10364	-.2	10370	-3.2	10410	-8.2	10468
GR	-3.2	10526	-.2	10580	.5	10588	7.3	10655	7.9	10683
GR	7.9	26071	15	26071						

18.4

QT	3	5586	6594	8827						
*****THIS IS FEMA X-SEC L*****										
X-SECTION BA-18 THIS IS FEMA X-SEC L										
X1	18	25	7519	7817	4330	4330	4330			
CI	7660			3	3					
	10									
GR	15	1495	7.2	1495	7.2	5532	6.6	5888	6.4	6258
GR	6.6	6851	6	7273	6	7332	8	7519	.6	7559
GR	-6.8	7660	-6.8	7690	.6	7787	6.8	7817	6.8	8068
GR	7	8466	5	8707	1	8774	1	8800	7	8880
GR	7.4	9024	7.4	9053	7.8	9859	7.8	17564	15	17564

X1	17.2	22	3827	4096	4100	3650	3970			
CI	3938			3	3					
GR	15	737	10.4	737	10.4	1480	10.4	1481	10.4	1482
GR	10.2	1587	8	1732	7.6	2027	8	2432	8.4	2820
GR	8.4	3433	7.6	3651	5.4	3827	.6	3849	.4	3862
GR	-5.6	3938	.4	4050	.6	4065	7.2	4096	8.4	4206
GR	8.4	12381	15	12381						

NC			.3	.5						
*****F.M. 523 BRIDGE*****										
X-SECTION BA-17-1, HIGHWAY 523 BRIDGE, TOR MODELED										
X1	17.1	21	3820	4100	50	50	50			
CI	3938			3	3					
GR	15	924	8.2	924	8.2	2976	8.2	3211	9.2	3473
GR	12.4	3627	17	3820	5.4	3827	.6	3849	.4	3862
GR	-5.6	3938	.4	4050	.6	4065	17.2	4100	15	4226
GR	11	4406	9.8	4561	9.6	4800	9.4	4976	9.4	11758
GR	15	11758								

\*\*\*\*\*THIS IS FEMA X-SEC M\*\*\*\*\*

THIS IS FEMA X-SEC M										
X1	17	17	3827	4096	50	50	50			
CI	3938			3	3					
GR	15	924	8.4	924	8.4	2818	8.4	2819	8.4	2820
GR	8.4	3433	7.6	3651	5.4	3827	.6	3849	.4	3862
GR	-5.6	3938	.4	4050	.6	4065	7.2	4096	8.4	4206
GR	8.4	11758	15	11758						

NC	.10	.10	.055	.1	.3					
20.4										
X1	16.2	18	5413	5808	2710	3430	3100			
CI	5648			3	3					
GR	15	2227	8	2227	8	5087	8	5088	8	5089
GR	8	5090	7.8	5305	7.8	5413	3.2	5477	2.4	5511
GR	.6	5519	-3.4	5648	.6	5777	1.8	5792	6.4	5808
GR	8.8	5895	8.8	22891	15	22891				



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QT 3 2662 3283 4707  
 NC .3 .5  
 22.41

\*\*\*\*\* OLD S.H. 288 BRIDGE\*\*\*\*\*

X-SECTION BA-13-1 AND 1-A, STATE HIGHWAY 288 DUAL BRIDGES

X1	13.2				100	100	100			
X3	10							15.5	15.5	
SB	1.25	1.56	2.6		22.5	16.5	1463	3.5	-6.2	-6.2
X1	13.1				42	42	42			
X2			1	13.4	17.5					
X3	10							17.5	17.5	
BT	7	16701	15.5		16892	16.9		17035	17.5	
BT	17243	17.5		17450	17.1		17648	16.3		17701
BT	16.1									

22.4

\*\*\*\*\*THIS IS FEMA X-SEC Q\*\*\*\*\*

NC					.1	.3				
					THIS IS FEMA X-SEC Q					
X1	13	30	13138	13394	50	50	50			
					*****THIS IS FEMA X-SEC R*****					
GR	14.5	9249	12.7	9249	12.7	11535	12.7	11536	12.7	12015
GR	12.9	12288	12.7	12628	14.1	12791	12.1	12827	13.5	12857
GR	11.3	12987	12.5	13041	12.3	13138	8.9	13161	7.1	13169
GR	1.7	13179	-6.2	13218	1.7	13257	6.1	13272	11.7	13304
GR	12.9	13394	12.1	13481	14.1	13501	12.1	13527	12.5	13677
GR	11.1	13719	12.1	13733	12.2	13800	11.6	15136	15	15136

END CROSS-SECTION EXTENSIONS BY B & L

X1	11.5	32	6305	6445	5850	6100	5970			
GR	15.2	3457	15	3865	14.2	4001	14.8	4101	14.2	4376
GR	14.6	4651	14.4	4874	15	5002	14.8	5120	12.2	5200
GR	13.6	5300	14	5554	13.8	5702	12	5719	13.8	5730
GR	12.8	5874	13.6	5926	13.8	6092	12.6	6305	3.7	6325
GR	.7	6330	-3.3	6345	-6.3	6365	-2.3	6385	.7	6395
GR	3.7	6405	12.6	6445	13.2	6450	15	6498	16.2	6729
GR	15.8	6900	14.6	7084						

QT 3 2551 3295 5029  
 NC .3 .5  
 \*\*\*\*\*MISSOURI-PACIFIC R.R. BRIDGE\*\*\*\*\*  
 22.41

X1	11.4				100	100	100			
X3	10							19	19	

SB	1.25	1.56	2.6	400	25.0	12	1490	3	-6.3	-6.3
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22.41

Bastrop Bayou Prop. Channel Impvts. Bastrop Copy Bb\_ci.ih2

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X1	11.37	32	6305	6445	15	15	15			
X2			1.	15.	20.1					
X3	10							16.7	16.7	
BT	5	6092	19.8		6305	20.1		6445	20.1	
BT	6450	20.1		6498	19.8					
GR	15.2	3457	15	3865	14.2	4001	14.8	4101	14.2	4376
GR	14.6	4651	14.4	4874	15	5002	14.8	5120	12.2	5200
GR	13.6	5300	14	5554	13.8	5702	12	5719	13.8	5730
GR	12.8	5874	13.6	5926	19.8	6092	20.1	6305	3.7	6325
GR	.7	6330	-3.3	6345	-6.3	6365	-2.3	6385	.7	6395
GR	3.7	6405	20.1	6445	20.1	6450	19.8	6498	16.2	6729
GR	15.8	6900	14.6	7084						

\*\*\*\*\*THIS IS FEMA X-SEC S\*\*\*\*\*

X1	11.3				35	35	35			
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22.41

\*\*\*\*\*COUNTY ROAD 288 BRIDGE\*\*\*\*\*

X1	11.2				50	50	50			
X3	10							15.7	15.7	

SB	1.25	1.56	2.6		25.0	6	1550	3	-6.3	-6.3
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X1	11.1	32	6305	6445	30	30	30			
X2			1	14.3	17.7					
X3	10							16.7	16.7	
BT	7	5961	14.7		6116	15.5		6305	16.5	
BT	6445	16.9		6739	16.1		6875	15.5		6961
BT	15.3									
GR	15.2	3457	15	3865	14.2	4001	14.8	4101	14.2	4376
GR	14.6	4651	14.4	4874	15	5002	14.8	5120	12.2	5200
GR	13.6	5300	14	5554	13.8	5702	12	5719	13.8	5730
GR	12.8	5874	13.6	5926	14.7	5961	15.5	6116	16.5	6305
GR	3.7	6325	.7	6330	-3.3	6345	-6.3	6365	-2.3	6385
GR	.7	6395	3.7	6405	16.9	6445	16.1	6739	15.5	6875
GR	15.3	6961	14.6	7084						

10.4

X1	11	32	6305	6445	50	50	50			
GR	15.2	3457	15	3865	14.2	4001	14.8	4101	14.2	4376
GR	14.6	4651	14.4	4874	15	5002	14.8	5120	12.2	5200
GR	13.6	5300	14	5554	13.8	5702	12	5719	13.8	5730
GR	12.8	5874	13.6	5926	13.8	6092	12.6	6305	3.7	6325
GR	.7	6330	-3.3	6345	-6.3	6365	-2.3	6385	.7	6395
GR	3.7	6405	12.6	6445	13.2	6450	15	6498	16.2	6729
GR	15.8	6900	14.6	7084						

NC	.125	.125	.085	.1	.3					
QT	3	2321	3003	4575						

THIS IS FEMA SECTION "T" WITH END STA & ELEV ADJUSTED FOR M.P. RR EMBANKMENT



X1	10	32	2230	2358	6500	7200	7030			
GR	17.0	1790	15.4	1799	15.4	1800	15.4	1801	15.2	2034
GR	15.4	2152	14.4	2222	13	2230	1.3	2265	.3	2280
GR	1.3	2295	12.2	2358	13.4	2428	14.2	2577	14.8	2928
GR	14.2	3178	15.8	4932	16	4975	16	5055	16.2	5100
GR	15.8	5192	16.6	5917	17.4	6083	17.4	6475	18	7139
GR	18	7473	18.2	7922	18.2	8706	18.2	9260	18.8	9778
GR	19.8	10200	20.5	12000						

QT 3 1712 2240 3421

THIS IS FEMA SECTION "U" ADJUSTED FOR NEW HWY 288

X1	9	15	5118	5195	7600	8100	8130			
GR	18.0	1088.0	14.0	1100.0	16.6	4132.0	16.1	4248.0	16.3	5067.0
GR	12.9	5118.0	4.1	5146.0	2.4	5151.0	4.1	5157.0	14.7	5195.0
GR	17.5	5344.0	17.7	5871.0	17.0	6306.0	17.0	8500.0	25.0	8530.0

NEW SECTION 160 FT DOWNSTREAM (4:1) OF BRIDGES AT NEW SH288

NC			.3	.5						
X1	288.1	0	0	0	3867	3867	3805		1.5	
QT	3	1302	1709	2605						
NH	7	.125	1719.5	.035	2211.8	.125	6383.5	.045	6544.8	.125
NH	7974.5	.033	8643.5	.125	9643.5					

NEW SECTION 5 FEET DOWNSTREAM OF BRIDGES AT SH288

X1	288.2	85	7974.5	8643.5	163	159	160			
GR	31.6	719.5	31.1	1719.5	28.2	1736.0	10.2	1777.1	10.2	1777.2
GR	10.2	1778.4	10.2	1778.5	8.2	1807.8	18.2	1818.8	18.2	1818.9
GR	18.2	1820.2	18.2	1820.3	18.2	1859.9	18.2	1860.0	18.2	1862.6
GR	18.2	1862.7	19.2	1984.5	19.2	1984.6	19.2	1988.5	19.2	1988.6
GR	22.2	2109.8	22.2	2109.9	22.2	2113.7	22.2	2113.8	23.2	2178.5
GR	28.2	2195.3	31.1	2211.8	29.8	4297.6	28.5	6383.5	25.8	6400.0
GR	17.0	6464.0	17.0	6464.1	17.0	6466.6	17.0	6466.7	25.8	6528.3
GR	28.5	6544.8	28.7	7259.6	28.8	7974.5	26.0	7989.0	18.4	8014.0
GR	18.0	8107.0	18.0	8107.1	18.0	8111.0	18.0	8111.1	16.0	8148.3
GR	16.0	8148.4	16.0	8149.7	16.0	8149.8	14.0	8188.3	14.0	8188.4
GR	14.0	8189.7	14.0	8189.8	10.0	8228.3	10.0	8228.4	10.0	8229.7
GR	10.0	8229.8	6.0	8249.0	10.0	8268.3	10.0	8268.4	10.0	8269.7
GR	10.0	8269.8	14.0	8308.3	14.0	8308.4	14.0	8309.7	14.0	8309.8
GR	16.0	8348.3	16.0	8348.4	16.0	8349.7	16.0	8349.8	16.0	8388.3
GR	16.0	8388.4	16.0	8389.7	16.0	8389.8	18.0	8467.0	18.0	8467.1
GR	18.0	8471.0	18.0	8471.1	20.0	8547.7	20.0	8547.8	20.0	8550.3
GR	20.0	8550.4	20.0	8594.0	26.0	8629.0	28.8	8643.5	29.3	9643.5

DOWNSTREAM FACE OF TWIN BRIDGES AT NEW SH288; LUMP BOTH BRIDGES TOGETHER

X1	288.3				5	5	5			
BT	-85	719.5	31.6	31.6	1719.5	31.1	31.1	1736.0	31.1	28.2
BT		1777.1	31.1	28.2	1777.2	31.1	10.2	1778.4	31.1	10.2
BT		1778.5	31.1	28.2	1807.8	31.1	28.2	1818.8	31.1	28.2
BT		1818.9	31.1	18.2	1820.2	31.1	18.2	1820.3	31.1	28.2
BT		1859.9	31.1	28.2	1860.0	31.1	18.2	1862.6	31.1	18.2
BT		1862.7	31.1	28.2	1984.5	31.1	28.2	1984.6	31.1	19.2
BT		1988.5	31.1	19.2	1988.6	31.1	28.2	2109.8	31.1	28.2
BT		2109.9	31.1	22.2	2113.7	31.1	22.2	2113.8	31.1	28.2
BT		2178.5	31.1	28.2	2195.3	31.1	28.2	2211.8	31.1	31.1

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BT	4297.6	29.8	29.8	6383.5	28.5	28.5	6400.0	28.5	25.8
BT	6464.0	28.5	25.8	6464.1	28.5	17.0	6466.6	28.5	17.0
BT	6466.7	28.5	25.8	6528.3	28.5	25.8	6544.8	28.5	28.5
BT	7259.6	28.7	28.7	7974.5	28.8	28.8	7989.0	28.8	26.0
BT	8014.0	28.8	26.0	8107.0	28.8	26.0	8107.1	28.8	18.0
BT	8111.0	28.8	18.0	8111.1	28.8	26.0	8148.3	28.8	26.0
BT	8148.4	28.8	16.0	8149.7	28.8	16.0	8149.8	28.8	26.0
BT	8188.3	28.8	26.0	8188.4	28.8	14.0	8189.7	28.8	14.0
BT	8189.8	28.8	26.0	8228.3	28.8	26.0	8228.4	28.8	10.0
BT	8229.7	28.8	10.0	8229.8	28.8	26.0	8249.0	28.8	26.0
BT	8268.3	28.8	26.0	8268.4	28.8	26.0	8269.7	28.8	10.0
BT	8269.8	28.8	10.0	8308.3	28.8	26.0	8308.4	28.8	14.0
BT	8309.7	28.8	14.0	8309.8	28.8	26.0	8348.3	28.8	26.0
BT	8348.4	28.8	16.0	8349.7	28.8	16.0	8349.8	28.8	26.0
BT	8388.3	28.8	26.0	8388.4	28.8	16.0	8389.7	28.8	16.0
BT	8389.8	28.8	26.0	8467.0	28.8	26.0	8467.1	28.8	18.0
BT	8471.0	28.8	18.0	8471.1	28.8	26.0	8547.7	28.8	26.0
BT	8547.8	28.8	20.0	8550.3	28.8	20.0	8550.4	28.8	26.0
BT	8594.0	28.8	26.0	8629.0	28.8	26.0	8643.5	28.8	28.8
BT	9643.5	29.3	29.3						

UPSTREAM FACE OF TWIN BRIDGES OVER NEW SH 288

X1	288.4			300	300	300			
X2									1

SECTION 5 FEET UPSTREAM OF BRIDGES AT NEW SH288

NC			.1	.3					
X1	288.5	85	7974.5	8643.5	5	5			
GR	31.6	719.5	31.1	1719.5	28.2	1736.0	10.2	1777.1	10.2
GR	10.2	1778.4	10.2	1778.5	8.2	1807.8	18.2	1818.8	18.2
GR	18.2	1820.2	18.2	1820.3	18.2	1859.9	18.2	1860.0	18.2
GR	18.2	1862.7	19.2	1984.5	19.2	1984.6	19.2	1988.5	19.2
GR	22.2	2109.8	22.2	2109.9	22.2	2113.7	22.2	2113.8	23.2
GR	28.2	2195.3	31.1	2211.8	29.8	4297.6	28.5	6383.5	25.8
GR	17.0	6464.0	17.0	6464.1	17.0	6466.6	17.0	6466.7	25.8
GR	28.5	6544.8	28.7	7259.6	28.8	7974.5	26.0	7989.0	18.4
GR	18.0	8107.0	18.0	8107.1	18.0	8111.0	18.0	8111.1	16.0
GR	16.0	8148.4	16.0	8149.7	16.0	8149.8	14.0	8188.3	14.0
GR	14.0	8189.7	14.0	8189.8	10.0	8228.3	10.0	8228.4	10.0
GR	10.0	8229.8	6.0	8249.0	10.0	8268.3	10.0	8268.4	10.0
GR	10.0	8269.8	14.0	8308.3	14.0	8308.4	14.0	8309.7	14.0
GR	16.0	8348.3	16.0	8348.4	16.0	8349.7	16.0	8349.8	16.0
GR	16.0	8388.4	16.0	8389.7	16.0	8389.8	18.0	8467.0	18.0
GR	18.0	8471.0	18.0	8471.1	20.0	8547.7	20.0	8547.8	20.0
GR	20.0	8550.4	20.0	8594.0	26.0	8629.0	28.8	8643.5	29.3

SECTION FORTY FEET UPSTREAM OF BRIDGE (40-FOOT OPENING AVG @ 1:1)

X1	288.6			46	39	40			
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ADJUSTMENT FEMA MODEL THROUGH BRAZORIA CO AIRPORT AREA

ET 12.4

FEMA SECT "V" W/ CHANNELIZED WEST TRIB & NEW SH288

NH	7	.125	4400	.035	4600	.125	6900	.045	7100	.125
NH	10500	.025	10586	.060	14500					
X1	8	14	10500	10586	1835	1799	1805			
GR	25.0	3000.0	21.0	4400.0	18.0	4500.0	21.0	4600.0	20.0	6900.0
GR	18.0	7000.0	20.0	7100.0	20.2	10288.0	20.0	10500.0	8.9	10533.0
GR	8.9	10553.0	20.0	10586.0	20.1	11420.0	25.0	14500.0		

FEMA SECTION "W" INCLUDING CHANNELIZED W. TRIB & AIRPORT IMPROVEMENTS

NH	9	.500	2771	.500	3971	.500	5071	.500	5471	.125
NH	6275	.250	7325	.060	8389	.025	8439	.060	9825	
X1	7.29	18	7300	8439	1900	1900	1900			
GR	25.0	1471.0	20.0	2771.0	18.1	3371.0	20.0	3971.0	20.5	4421.0
GR	20.0	5071.0	18.1	5271.0	20.0	5471.0	20.0	6275.0	25.0	6300.0
GR	25.0	7300.0	21.0	7325.0	21.0	7359.0	20.9	8359.0	10.9	8389.0
GR	10.9	8409.0	20.9	8439.0	25.0	9825.0				

FEMA SECT. X ADJUSTED FOR AIRPORT IMPROVEMENTS & SH 288

NH	7	.150	2101	.150	3101	.150	3501	.150	4801	.060
NH	6445	.045	6657	.060	8657					
X1	7.19	25	5726	6598	1800	1800	1800			
GR	25.0	601.0	21.9	626.0	21.9	2101.0	20.0	2601.0	21.9	3101.0
GR	22.0	3501.0	21.9	3901.0	20.0	4351.0	21.9	4801.0	21.9	5101.0
GR	25.0	5126.0	25.0	5726.0	21.9	5751.0	20.5	6126.0	20.3	6445.0
GR	16.4	6522.0	15.6	6542.0	12.0	6556.0	11.7	6560.0	12.1	6564.0
GR	18.4	6578.0	18.5	6598.0	19.0	6607.0	21.9	6657.0	25.0	8657.0

FEMA SECT. "Y" WITH AIRPORT IMPROVEMENTS & NEW SH 288

QT	3	1034	1364	2086						
NC	.085	.085	.055							
X1	7	25	13451	14267	2514	2514	2514			
GR	25.0	800.0	22.5	826.0	22.5	4876.0	22.7	8901.0	22.5	11426.0
GR	22.5	12426.0	25.0	12451.0	25.0	13451.0	22.7	13476.0	22.7	13477.0
GR	22.1	13595.0	18.3	13763.0	17.3	13907.0	17.2	14062.0	16.6	14178.0
GR	16.8	14209.0	17.4	14221.0	12.8	14234.0	11.8	14238.0	12.9	14241.0
GR	18.7	14267.0	21.1	14343.0	20.9	14908.0	22.9	14945.0	25.0	16945.0

FEMA SECTION "Z" ADJUSTED FOR NEW SH 288 EMBANKMENT

NC	.05	.095	.055							
X1	6	26	11812	12421	4200	4200	4540			
GR	25.0	9190.0	22.2	9215.0	22.2	10115.0	22.2	10116.0	21.4	10824.0
GR	22.6	10862.0	21.6	11193.0	25.6	11334.0	25.6	11812.0	17.8	12032.0
GR	19.8	12056.0	15.6	12108.0	18.0	12131.0	20.0	12421.0	20.8	12516.0
GR	22.0	12551.0	22.4	12981.0	22.0	13000.0	22.4	13255.0	22.2	13843.0
GR	22.0	14498.0	22.8	14927.0	22.8	15526.0	23.4	16080.0	24.4	16500.0
GR	25.0	16510.0								

END ADJUSTMENTS TO MODEL FOR NEW SH 288 AND AIRPORT IMPROVEMENTS

8.4 9.1 0 6000

NC .050 .050 .050 .3 .5

SECTION "Z1"

Bastrop Bayou Prop. Channel Impvts. Bastrop Copy Bb\_ci.ih2

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NC	.125	.125	.085							
X1	5	9	900	950	7000	4000	5600		3.6	
GR	30.0	0	21.0	50	20.0	800	19.8	900	15.6	920
GR	18	950	20	960	22.0	3000	25	9500.		

X1	4.2	5	50	2600	1700	1700	1700			
GR	30.	10.	23.	50.	23.	2600.	24.	6500	25.	8000.

DOWNSTREAM OPENING OF 4 RAILROAD BRIDGES

QT	3	461	608	931						
X1	4	4	50	500	300	300	300			
GR	30.	10.	23.	50.	24.	500.	25.	1000.		

MISSOURI PACIFIC 4 OVERFLOW BRIDGES

NC	.050	.050	.050	.3	.5					
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NC	.125	.125	.095							
X1	3.9	100	157	241	50	50	50			
BT	-100	100	32.9	28	101.8	32.9	27.3	101.8	32.9	25.60
BT		239.2	32.9	20.6	239.2	32.9	27.3	265.9	32.9	27.0
BT		268.2	32.9	28	268.2	32.9	28	2102	32.1	28
BT		2102	32.1	27.6	2109	32.1	27.6	2219	32.1	24.4
BT		2219	32.1	22.5	2227	32.1	22.5	2227	32.1	24.4
BT		2236	32.1	24.4	2236	32.1	23.5	2246	32.1	23.5
BT		2246	32.1	24.4	2261	32.1	28	4102	32.7	28
BT		4102	32.7	28	4118	32.7	27.8	4118	32.7	22.4
BT		4120	32.7	22.4	4120	32.7	27.8	4134	32.7	27.8
BT		4134	32.7	22.4	4136	32.7	22.4	4136	32.7	27.8
BT		4153	32.7	27.8	4153	32.7	22.4	4155	32.7	22.4
BT		4155	32.7	27.8	4169	32.7	27.8	4169	32.7	27.8
BT		4169	32.7	22.4	4171	32.7	22.4	4171	32.7	27.8
BT		4185	32.7	27.8	4185	32.7	22.4	4187	32.7	22.4
BT		4187	32.7	27.8	4202	32.7	27.8	4202	32.7	21.6
BT		4204	32.7	21.6	4204	32.7	27.8	4221	32.7	27.8
BT		4221	32.7	21	4223	32.7	21	4223	32.7	27.8
BT		4239	32.7	27.8	4239	32.7	20.2	4241	32.7	20.2
BT		4241	32.7	27.8	4257	32.7	27.8	4257	32.7	21
BT		4259	32.7	21	4259	32.7	27.8	4276	32.7	27.8
BT		4276	32.7	19.8	4278	32.7	19.8	4278	32.7	27.8
BT		4292	32.7	27.8	4292	32.7	19.8	4294	32.7	19.8
BT		4294	32.7	27.8	4308	32.7	27.8	4308	32.7	20.6
BT		4310	32.7	20.6	4310	32.7	27.8	4326	32.7	27.8
BT		4326	32.7	20.4	4328	32.7	20.4	4328	32.7	27.8
BT		4345	32.7	27.8	4345	32.7	22	4347	32.7	22
BT		4347	32.7	27.8	4411	32.7	27.8	4411	32.7	22.4
BT		4419	32.7	22.4	4419	32.7	27.8	4431	32.7	28
BT		4431	32.7	28	7102	30.1	28	7102	30.1	27.1
BT		7127	30.1	27.1	7127	30.1	21.1	7129	30.1	21.1
BT		7129	30.1	27.1	7231	30.1	27.1	7231	30.1	21.6
BT		7239	30.1	21.6	7239	30.1	27.1	7265	30.1	27.1
BT		7265	30.1	23.6	7267	30.1	23.6	7267	30.1	27.1
BT		7292	30.1	27.1						
GR	28	100	27.35	101.8	22.4	114.4	22.2	127.2	22.2	129

GR	22.6	155.2	22.6	157	22.2	168.6	20.6	183.2	20.6	185
GR	19.6	211.2	19.6	213	19.4	218.6	20.6	239.2	20.6	241
GR	23	254.6	27	265.9	28	268.2	28	2100	28	2102
GR	27.9	2109	25.1	2115	23.1	2117	22.5	2119	22.1	2126
GR	22.1	2134	22.1	2136	22.7	2152	22.7	2154	21.1	2170
GR	21.1	2172	20.5	2180	20.9	2189	20.9	2191	22.3	2207
GR	22.3	2209	22.5	2219	22.5	2227	23.5	2236	23.5	2246
GR	24.5	2255	27.9	2259	28	2261	28	4102	22.4	4111
GR	22.4	4118	22.4	4120	22.4	4134	22.4	4136	22.4	4153
GR	22.4	4155	22.4	4169	22.4	4171	22.4	4185	22.4	4187
GR	21.6	4202	21.6	4204	21	4221	21	4223	20.2	4239
GR	20.2	4241	21	4257	21	4259	19.8	4276	19.8	4278
GR	19.8	4292	19.8	4294	20.6	4308	20.6	4310	20.4	4326
GR	20.4	4328	22	4345	22	4347	22.4	4363	22.4	4365
GR	22.4	4380	22.4	4382	22.4	4400	22.4	4402	22.4	4411
GR	22.4	4419	22.4	4424	28	4431	28	7102	21.6	7112
GR	21.1	7127	21.1	7129	22	7155	22	7157	22.1	7181
GR	22.1	7183	21.1	7209	21.1	7211	21.6	7231	21.6	7239
GR	22.1	7255	23.6	7265	23.6	7267	24.6	7292	28	7294

X1	3.8				18	18	18			
X2				27.1	30.1					

SECTION DOWN CROWN OF COUNTY ROAD 290

NC	.05	.05	.04							
X1	3.7	6	100	6900	50	50	50			
GR	30.	10.	24.5	100.	25.8	2600.	26.0	4300.	26.4	6900.
GR	27.0	8400.								

QT	3	424	554	854						
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\*\*\*\*\*EAST TRIBUTARY\*\*\*\*\*

\*\*\*\*\*THIS IS FEMA X-SEC U\*\*\*\*\*

X1	-9	11	5118	5195						
GR	16.6	4132	16.1	4248	16.3	5067	12.9	5118	4.1	5146
GR	2.4	5151	4.1	5157	14.7	5195	17.5	5344	17.7	5871
GR	19.3	6306								

\*\*\*\*\*THIS IS FEMA X-SEC A\*\*\*\*\*

X1	58	20	6098	6175	3900	4600	4850			
X3	10									
GR	19.4	3480	19.4	3481	19.4	4828	19.8	5294	19.6	5659
GR	19.8	5795	20.4	5950	18.8	6098	10.6	6131	6	6146
GR	10.6	6162	18.8	6175	18.6	6283	19.4	6461	17.8	6653
GR	18.9	7289	18.3	7905	18.7	8588	18.9	8930	20.3	9149

\*\*\*\*\*THIS IS FEMA X-SEC B\*\*\*\*\*

X1	57.4	12	1453	1573	1500	1500	1500			
GR	21.6	0	19.8	438	19	1000	18.6	1354	16	1453
GR	10.2	1503	7.3	1513	10.2	1523	16.9	1573	18.4	1604
GR	22.6	1822	22.8	2000						

NC			.3	.5						
*****LOW WATER CROSSING*****										
X1	57.3	12	1453	1573	70	70	70			
GR	21.6	0	19.8	438	19	1000	18.6	1354	16	1453
GR	12.8	1483	12.8	1513	12.8	1543	16.9	1573	18.4	1604
GR	22.6	1822	22.8	2000						
X1	57.2	12	1453	1573	50	50	50			
GR	21.6	0	19.8	438	19	1000	18.6	1354	16	1453
GR	10.2	1503	7.3	1513	10.2	1523	16.9	1573	18.4	1604
GR	22.6	1822	22.8	2000						
NC			.1	.3						
*****THIS IS FEMA X-SEC C*****										
X1	57.0	19	5815	5967	980	980	980			
GR	21.6	4236	21.6	4237	21.6	4238	19.8	4676	20.2	4912
GR	20.6	5154	19.2	5815	12.2	5922	8	5929	8	5935
GR	12.2	5942	19.2	5967	19.4	6057	19.2	6106	19.6	6121
GR	19.5	6145	21.9	6955	21.7	7510	22.7	8180		
NC	0.075	0.095	0.07							
*****THIS IS FEMA X-SEC D*****										
X1	56	8	8290	8368	6630	6630	6630			
GR	20.9	8089	21.5	8290	13.5	8310	13.5	8330	28	8368
GR	26.6	8379	17.4	8416	24.8	8467				
NC	0.07	0.085	0.04							
QT	3	268	350	530						
*****THIS IS FEMA X-SEC E*****										
X1	55.7	9	8196	8275	3050	3050	3050			
GR	22.4	8075	22	8196	21.8	8200	15.3	8215	14.1	8224
GR	15.3	8233	19.6	8242	27.2	8271	28	8275		
NC			.3	.5						
X1	55.6	36	8194	8233	100	100	100			
X3	10							23.5	23.5	
GR	24.8	6900	24.8	6901	24.8	6902	24	7398	22.4	7758
GR	22.4	8075	21.8	8175	14.1	8190	16	8194	14.1	8195
GR	13	8197	14.1	8199	16	8200	16	8202	14.1	8203
GR	13	8205	14.1	8207	16	8208	16.5	8211	14.1	8212
GR	13.5	8214	14.1	8216	16.5	8217	16	8219	14.1	8220
GR	12.5	8222	14.1	8224	16	8225	16.5	8227	14.1	8228
GR	13.5	8230	14.1	8232	16.5	8233	19.6	8242	27.2	8271
GR	28	8275								
NC			0.012							
*****NEW AIRPORT ACCESS BRIDGE*****										
X1	55.5				10	10	10			
X3	10							23.5	23.5	
BT	33	7398	24	24	7758	24.6	22.4	8075	25.7	22.4
BT	8175	27	21.8	8190	27.1	14.1	8194	27.1	16	8195
BT	27.1	18.5	8197	27.1	19	8199	27.1	18.5	8200	27.1
BT	16	8202	27.2	16	8203	27.2	18.5	8205	27.2	19

BT	8207	27.2	18.5	8208	27.2	16	8211	27.3	16.5	8212		
BT	27.3	19	8214	27.3	19.5	8216	27.3	19	8217	27.3		
BT	16.5	8219	27.3	16	8220	27.3	18	8222	27.4	18.5		
BT	8224	27.4	18	8225	27.4	16	8227	27.4	16.5	8228		
BT	27.4	19	8230	27.4	19.5	8232	27.5	19	8233	27.5		
BT	16.5	8242	27.6	19.6	8271	28.2	27.2	8275	28	28		
X1	55.4				90	90	90					
X2							1					
X3	10							27.2	27.6			
NC			0.04									
X1	55.3				10	10	10					
X3	10							27.2	27.6			
X1	55.2	9	8196	8275	50	50	50					
GR	22.4	8075	22	8196	21.8	8200	15.3	8215	14.1	8224		
GR	15.3	8233	19.6	8242	27.2	8271	28	8275				
NC				.1	.3							
				*****THIS IS FEMA X-SEC F*****								
X1	55.0	23	8196	8268	1330	1330	1330					
X3	10											
GR	24.8	6900	24.8	6901	24.8	6902	24	7398	22.4	7758		
GR	22.4	8075	22	8196	16	8223	14.5	8228	14.5	8230		
GR	16	8235	27.2	8257	.28	8268	27.4	8277	18.8	8300		
GR	17.8	8311	18.6	8319	21	8330	21.8	8827	22	9183		
GR	22.3	9300	22.3	9723	22.5	10396						
NC	0.035	0.035	0.04									
				*****THIS IS FEMA X-SEC G*****								
X1	54.0	11	8078	8210	2900	2900	2900					
X3	10											
GR	23.3	6938	22.3	7781	21.9	7987	23.3	8078	18.1	8097		
GR	15.5	8115	29.3	8148	27.9	8156	19.5	8183	21.9	8210		
GR	28	8240										
X1	53.6	10	6480	6583	2660	2660	2660					
GR	25.3	3728	25.1	4198	24.9	4599	24.1	5445	22.7	6383		
GR	22.2	6480	19.2	6510	17.6	6514	19.2	6518	30.3	6583		
NC				.3	.5							
				*****MISSOURI-PACIFIC R.R. BRIDGE*****								
X1	53.5	7	6480	6548	100	100	100					
X3	10							28.8	28.8			
GR	30.9	6470	30.4	6480	19.2	6510	17.6	6514	19.2	6518		
GR	30.4	6548	30.9	6583								
SB	1.05	1.56	2.6		8.8	4	320	2	17.6	17.6		
X1	53.4				16	16	16					
X2			1	26.7	30.9							
X3	10							30.9	30.9			
BT	2	6470	30.9	6583	30.9							
				*****THIS IS FEMA X-SEC H*****								

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X1	53.3	9	1475	1550	50	50	50			
GR	24.3	1000	24.1	1294	23.1	1475	21.7	1481	18	1499
GR	17	1511	18	1523	22	1535	27.2	1550		
*****WALKER STREET BRIDGE*****										
X1	53.2	10	1481	1535	70	70	70			
X3	10							24.3	24.5	
GR	27.2	1479	27.2	1480	27.2	1481	20.5	1487	18	1499
GR	17	1511	18	1523	20	1530	27.2	1535	27.2	1550
SB	1.25	1.56	2.6		31.2	1	338	1	17	17
X1	53.1				28	28	28			
X2			1	25.7	27.2					
X3	10									
BT	4	1000	24.3		1294	24.1		24.3	24.5	
BT	1535	27.2						1481	27.2	
X1	53.0	10	6480	6583	50	50	50			
GR	25.3	3728	25.1	4198	24.9	4599	24.1	5445	22.7	6383
GR	22.2	6480	19.2	6510	17.6	6514	19.2	6518	30.3	6583
NC				.1	.3					
*****THIS IS FEMA X-SEC I*****										
X1	52.0	12	6880	6943	2900	3100	3000			
GR	26.5	3773	26.3	4243	26.3	5284	25.9	5574	25.5	5764
GR	25.1	6077	24.5	6739	23.1	6880	18.9	6890	18	6899
GR	18.9	6908	33.1	6943						



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T1 BRAZORIA COUNTY DRAINAGE MASTER PLAN  
T2 BASTROP BAYOU AND WEST FORK TO CR290, 50-YR  
T3 HEC-2 FILE FROM LAKE JACKSON CLOMR WITH REVISED FLOWS  
T4 BAKER & LAWSON, MGG

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	PQ
	-10	3	0	0		0	0		14	0
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							

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T1 BRAZORIA COUNTY DRAINAGE MASTER PLAN  
 T2 BASTROP BAYOU AND WEST FORK TO CR290, 100-YR  
 T3 HEC-2 FILE FROM LAKE JACKSON CLOMR WITH REVISED FLOWS  
 T4 BAKER & LAWSON, MGG

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10	4	0	0		0	0		15	0
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1							

THIS RUN EXECUTED 23AUG02 09:08:15

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FILE: BB\_CI.IH2

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
26.000	17075.00	13.00	.73	-16.50	8.97	10.58	15.00	5095.92	29.84	.00	4163.00	
26.000	20826.00	14.00	.79	-16.50	8.97	10.58	15.00	5773.81	27.72	.00	4163.00	
26.000	29006.00	15.00	.99	-16.50	8.97	10.58	15.00	7529.95	25.96	.00	4163.00	
*	27.000	17075.00	13.01	.29	-16.04	4.95	4.01	15.00	1937.26	11.35	3050.00	16110.79
*	27.000	20826.00	14.01	.30	-16.04	4.95	4.01	15.00	2100.63	10.09	3050.00	16144.18
*	27.000	29006.00	15.01	.37	-16.04	4.95	4.01	15.00	2639.36	9.10	3050.00	16177.00
*	28.000	17075.00	13.01	.48	-15.64	7.59	8.00	15.00	3201.10	18.75	2650.00	9778.00
*	28.000	20826.00	14.01	.50	-15.64	7.59	8.00	15.00	3475.49	16.69	2650.00	9778.00
*	28.000	29006.00	15.02	.60	-15.64	7.59	8.00	15.00	4371.99	15.07	2650.00	9778.00
*	30.100	17075.00	12.99	1.75	-15.48	7.41	2.80	13.90	11632.70	68.13	1100.00	1346.00
*	30.100	20826.00	13.99	1.96	-15.48	7.41	2.80	13.90	13553.06	65.08	1100.00	1362.41
*	30.100	29006.00	14.98	2.51	-15.48	7.41	2.80	13.90	18073.10	62.31	1100.00	1375.03
	30.150	16921.00	12.99	1.84	-17.66	7.80	2.90	13.90	12644.83	74.73	50.00	962.78
	30.150	20713.00	13.98	2.09	-17.66	7.80	2.90	13.90	14991.51	72.38	50.00	970.29
	30.150	28866.00	14.97	2.72	-17.66	7.80	2.90	13.90	20276.65	70.24	50.00	973.71
*	30.200	16921.00	13.03	.58	-15.47	3.90	2.80	15.00	2905.04	17.17	25.00	9467.22
*	30.200	20713.00	14.04	.57	-15.47	3.90	2.80	15.00	2973.20	14.35	25.00	9537.10
*	30.200	28866.00	15.06	.65	-15.47	3.90	2.80	15.00	3549.66	12.30	25.00	9608.11
	30.300	16921.00	13.03	.58	-15.47	3.90	2.80	15.00	2904.68	17.17	35.00	9467.27
	30.300	20713.00	14.04	.57	-15.47	3.90	2.80	15.00	2972.84	14.35	35.00	9537.15
	30.300	28866.00	15.06	.65	-15.47	3.90	2.80	15.00	3549.09	12.30	35.00	9608.19
*	30.400	16921.00	13.01	1.73	-15.46	7.41	2.80	13.90	11518.24	68.07	25.00	1346.15
*	30.400	20713.00	14.01	1.94	-15.46	7.41	2.80	13.90	13459.32	64.98	25.00	1362.71
*	30.400	28866.00	15.02	2.49	-15.46	7.41	2.80	13.90	17947.99	62.18	25.00	1375.53

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	31.000	16921.00	13.06	.33	-15.07	2.90	4.06	15.00	3245.50	19.18	2600.00	10270.00
*	31.000	20713.00	14.07	.35	-15.07	2.90	4.06	15.00	3651.23	17.63	2600.00	10270.00
*	31.000	28866.00	15.10	.43	-15.07	2.90	4.06	15.00	4721.58	16.36	2600.00	10270.00
*	32.000	7825.00	13.06	.09	-14.48	1.31	1.60	15.00	552.69	7.06	3900.00	21297.00
*	32.000	9198.00	14.07	.09	-14.48	1.31	1.60	15.00	585.47	6.37	3900.00	21297.00
*	32.000	12330.00	15.10	.11	-14.48	1.31	1.60	15.00	714.78	5.80	3900.00	21297.00
*	33.000	7825.00	13.06	.19	-13.91	2.33	2.78	15.00	1140.36	14.57	3800.00	15998.00
*	33.000	9198.00	14.07	.19	-13.91	2.33	2.78	15.00	1153.88	12.54	3800.00	15998.00
*	33.000	12330.00	15.11	.21	-13.91	2.33	2.78	15.00	1352.98	10.97	3800.00	15998.00
*	34.000	7825.00	13.06	.10	-13.39	3.10	1.94	15.00	770.87	9.85	3500.00	17000.00
*	34.000	9198.00	14.07	.10	-13.39	3.10	1.94	15.00	829.31	9.02	3500.00	17000.00
*	34.000	12330.00	15.11	.12	-13.39	3.10	1.94	15.00	1027.89	8.34	3500.00	17000.00
	35.000	7825.00	13.06	.09	-12.90	2.58	3.65	15.00	533.17	6.81	3300.00	20200.00
	35.000	9198.00	14.07	.10	-12.90	2.58	3.65	15.00	562.40	6.11	3300.00	20200.00
	35.000	12330.00	15.11	.11	-12.90	2.58	3.65	15.00	684.62	5.55	3300.00	20200.00
	36.000	7936.00	13.06	.09	-12.34	5.00	4.50	15.00	563.54	7.10	3700.00	21320.00
	36.000	9244.00	14.07	.09	-12.34	5.00	4.50	15.00	590.37	6.39	3700.00	21320.00
	36.000	12479.00	15.11	.10	-12.34	5.00	4.50	15.00	726.12	5.82	3700.00	21320.00
*	21.000	7936.00	13.06	.21	-12.19	6.10	8.30	15.00	1388.01	17.49	1000.00	21240.00
*	21.000	9244.00	14.07	.20	-12.19	6.10	8.30	15.00	1356.40	14.67	1000.00	21240.00
*	21.000	12479.00	15.11	.22	-12.19	6.10	8.30	15.00	1576.37	12.63	1000.00	21240.00
*	20.000	7936.00	13.06	.14	-11.35	4.10	6.70	15.00	812.68	10.24	5600.00	27639.00
*	20.000	9244.00	14.07	.13	-11.35	4.10	6.70	15.00	812.06	8.78	5600.00	27639.00
*	20.000	12479.00	15.11	.15	-11.35	4.10	6.70	15.00	960.88	7.70	5600.00	27639.00
	19.000	6462.00	13.06	.10	-10.68	6.90	7.30	15.00	666.80	10.32	4440.00	24168.00
	19.000	7672.00	14.07	.10	-10.68	6.90	7.30	15.00	692.05	9.02	4440.00	24168.00
	19.000	10365.00	15.11	.11	-10.68	6.90	7.30	15.00	834.65	8.05	4440.00	24168.00
*	18.000	5586.00	13.06	.15	-10.03	8.00	6.80	15.00	818.71	14.66	4330.00	16069.00
*	18.000	6594.00	14.07	.14	-10.03	8.00	6.80	15.00	827.55	12.55	4330.00	16069.00
*	18.000	8827.00	15.11	.16	-10.03	8.00	6.80	15.00	969.87	10.99	4330.00	16069.00
*	17.200	5586.00	13.07	.27	-9.44	5.51	7.20	15.00	1371.21	24.55	3970.00	11644.00
*	17.200	6594.00	14.08	.25	-9.44	5.51	7.20	15.00	1344.77	20.39	3970.00	11644.00
*	17.200	8827.00	15.11	.27	-9.44	5.51	7.20	15.00	1536.85	17.41	3970.00	11644.00
	17.100	5586.00	13.07	.34	-9.43	16.19	17.20	15.00	1737.02	31.10	50.00	10471.75
	17.100	6594.00	14.08	.31	-9.43	16.19	17.20	15.00	1657.57	25.14	50.00	10564.60
	17.100	8827.00	15.11	.32	-9.43	16.19	17.20	15.00	1850.00	20.96	50.00	10661.61
	17.000	5586.00	13.07	.28	-9.42	5.51	7.20	15.00	1412.61	25.29	50.00	10834.00
	17.000	6594.00	14.08	.26	-9.42	5.51	7.20	15.00	1392.88	21.12	50.00	10834.00
	17.000	8827.00	15.11	.28	-9.42	5.51	7.20	15.00	1598.82	18.11	50.00	10834.00

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
16.200	5586.00	13.07	.20	-8.96	7.80	6.40	15.00	1260.92	22.57	3100.00	20664.00	
16.200	6594.00	14.08	.19	-8.96	7.80	6.40	15.00	1231.68	18.68	3100.00	20664.00	
16.200	8827.00	15.12	.20	-8.96	7.80	6.40	15.00	1407.33	15.94	3100.00	20664.00	
*	16.100	59841.00	13.05	3.28	-8.95	17.30	18.50	15.00	20890.87	34.91	60.00	20048.99
*	16.100	7389.00	14.08	.29	-8.95	17.30	18.50	15.00	1990.54	26.94	60.00	20168.32
	16.100	10902.00	15.12	.33	-8.95	17.30	18.50	15.00	2383.71	21.86	60.00	20287.15
*	16.000	59841.00	13.11	2.16	-8.94	7.80	6.40	15.00	13385.26	22.37	50.00	20664.00
*	16.000	7389.00	14.08	.21	-8.94	7.80	6.40	15.00	1379.42	18.67	50.00	20664.00
	16.000	10902.00	15.12	.25	-8.94	7.80	6.40	15.00	1737.18	15.93	50.00	20664.00
*	15.000	5454.00	13.71	.65	-8.13	2.40	9.89	15.00	2961.19	54.29	5440.00	10243.60
*	15.000	6686.00	14.09	.72	-8.13	2.40	9.89	15.00	3331.72	49.83	5440.00	10682.36
*	15.000	9764.00	15.14	.80	-8.13	2.40	9.89	15.00	3900.31	39.95	5440.00	11716.00
	14.000	5454.00	13.76	.63	-7.41	10.31	10.79	15.00	2848.85	52.23	4750.00	11477.27
	14.000	6686.00	14.16	.69	-7.41	10.31	10.79	15.00	3168.25	47.39	4750.00	11990.90
	14.000	9764.00	15.21	.75	-7.41	10.31	10.79	15.00	3626.99	37.15	4750.00	13074.00
*	13.300	5454.00	13.89	1.20	-6.20	11.80	11.00	15.00	2911.72	53.39	5100.00	9430.01
*	13.300	6686.00	14.30	1.22	-6.20	11.80	11.00	15.00	3078.00	46.04	5100.00	10192.41
*	13.300	9764.00	15.35	1.15	-6.20	11.80	11.00	15.00	3154.57	32.31	5100.00	11479.00
*	13.200	2662.00	13.89	1.09	-6.20	11.80	11.00	15.00	2662.00	100.00	100.00	208.00
*	13.200	3283.00	14.30	1.30	-6.20	11.80	11.00	15.00	3283.00	100.00	100.00	208.00
*	13.200	4707.00	15.34	1.72	-6.20	11.80	11.00	15.00	4707.00	100.00	100.00	208.00
	13.100	2662.00	13.95	1.09	-6.20	11.80	11.00	15.00	2662.00	100.00	42.00	208.00
	13.100	3283.00	14.40	1.29	-6.20	11.80	11.00	15.00	3283.00	100.00	42.00	208.00
	13.100	4707.00	15.54	1.69	-6.20	11.80	11.00	15.00	4707.00	100.00	42.00	208.00
	13.000	2662.00	13.97	.75	-6.20	12.30	12.90	14.50	1464.17	55.00	50.00	5865.61
	13.000	3283.00	14.42	.74	-6.20	12.30	12.90	14.50	1528.57	46.56	50.00	5887.00
*	13.000	4707.00	15.59	.66	-6.20	12.30	12.90	14.50	1572.29	33.40	50.00	5887.00
*	11.500	2662.00	14.39	1.46	-6.30	12.60	12.60	14.60	2486.81	93.42	5970.00	1636.67
*	11.500	3283.00	14.84	1.64	-6.30	12.60	12.60	14.60	2894.23	88.16	5970.00	2512.13
*	11.500	4707.00	15.91	1.74	-6.30	12.60	12.60	14.60	3335.04	70.85	5970.00	3449.91
	11.400	2551.00	14.40	1.50	-6.30	12.60	12.60	14.60	2551.00	100.00	100.00	140.00
	11.400	3295.00	14.85	1.87	-6.30	12.60	12.60	14.60	3295.00	100.00	100.00	140.00
	11.400	5029.00	15.90	2.63	-6.30	12.60	12.60	14.60	5029.00	100.00	100.00	140.00
	11.370	2551.00	14.41	1.66	-6.30	20.10	20.10	14.60	2551.00	100.00	15.00	119.19
	11.370	3295.00	14.86	2.07	-6.30	20.10	20.10	14.60	3295.00	100.00	15.00	120.83
	11.370	5029.00	16.04	2.89	-6.30	20.10	20.10	14.60	5029.00	100.00	15.00	125.16
	11.300	2551.00	14.42	1.58	-6.30	20.10	20.10	14.60	2426.14	95.11	35.00	1276.33
	11.300	3295.00	14.89	1.86	-6.30	20.10	20.10	14.60	2972.77	90.22	35.00	2154.92
*	11.300	5029.00	16.16	2.00	-6.30	20.10	20.10	14.60	3502.43	69.64	35.00	3003.00

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
11.200	2551.00	14.43	1.65	-6.30	20.10	20.10	14.60	2551.00	100.00	50.00	119.26
11.200	3295.00	14.89	2.06	-6.30	20.10	20.10	14.60	3295.00	100.00	50.00	120.98
11.200	5029.00	16.17	1.99	-6.30	20.10	20.10	14.60	3491.18	69.42	50.00	3009.34
11.100	2551.00	14.45	1.60	-6.30	16.50	16.90	14.60	2551.00	100.00	30.00	129.39
11.100	3295.00	14.94	1.98	-6.30	16.50	16.90	14.60	3295.00	100.00	30.00	131.62
11.100	5029.00	16.31	2.72	-6.30	16.50	16.90	14.60	5029.00	100.00	30.00	137.93
11.000	2551.00	14.47	1.38	-6.30	12.60	12.60	14.60	2364.48	92.69	50.00	1839.34
11.000	3295.00	14.98	1.59	-6.30	12.60	12.60	14.60	2837.98	86.13	50.00	2674.57
*	11.000	5029.00	16.44	1.59	-6.30	12.60	14.60	3154.06	62.72	50.00	3527.00
*	10.000	2321.00	15.57	1.41	.30	13.00	12.20	1829.92	78.84	7030.00	2886.02
*	10.000	3003.00	16.21	1.39	.30	13.00	12.20	1908.32	63.55	7030.00	3769.93
*	10.000	4575.00	17.41	1.24	.30	13.00	12.20	1893.94	41.40	7030.00	4688.54
9.000	1712.00	17.10	.78	2.40	12.90	14.70	18.00	533.00	31.13	8130.00	6489.38
9.000	2240.00	17.54	.75	2.40	12.90	14.70	18.00	536.14	23.93	8130.00	6880.32
9.000	3421.00	18.36	.68	2.40	12.90	14.70	18.00	533.77	15.60	8130.00	7417.10
*	288.100	1712.00	17.83	1.35	3.90	14.40	16.20	844.88	49.35	3805.00	3806.72
*	288.100	2240.00	18.19	1.37	3.90	14.40	16.20	897.72	40.08	3805.00	4209.09
*	288.100	3421.00	18.86	1.28	3.90	14.40	16.20	904.74	26.45	3805.00	6670.70
*	288.200	1302.00	17.85	.72	6.00	28.80	28.80	904.89	69.50	160.00	421.59
*	288.200	1709.00	18.22	.84	6.00	28.80	28.80	1172.65	68.62	160.00	551.29
	288.200	2605.00	18.88	1.06	6.00	28.80	28.80	1826.56	70.12	160.00	712.14
288.300	1302.00	17.85	.73	6.00	28.80	28.80	29.30	840.14	64.53	5.00	421.07
288.300	1709.00	18.21	.85	6.00	28.80	28.80	29.30	1095.14	64.08	5.00	548.71
288.300	2605.00	18.88	1.09	6.00	28.80	28.80	29.30	1709.96	65.64	5.00	710.87
288.400	1302.00	17.87	.72	6.00	28.80	28.80	29.30	840.66	64.57	300.00	422.14
288.400	1709.00	18.24	.85	6.00	28.80	28.80	29.30	1094.09	64.02	300.00	557.85
288.400	2605.00	18.93	1.08	6.00	28.80	28.80	29.30	1712.73	65.75	300.00	717.16
*	288.500	1302.00	17.87	.78	6.00	28.80	28.80	989.11	75.97	5.00	422.39
*	288.500	1709.00	18.25	.91	6.00	28.80	28.80	1283.56	75.11	5.00	559.86
*	288.500	2605.00	18.94	1.15	6.00	28.80	28.80	1993.02	76.51	5.00	718.58
288.600	1302.00	17.89	.78	6.00	28.80	28.80	29.30	989.49	76.00	40.00	423.39
288.600	1709.00	18.27	.90	6.00	28.80	28.80	29.30	1282.61	75.05	40.00	568.46
288.600	2605.00	18.97	1.14	6.00	28.80	28.80	29.30	1995.24	76.59	40.00	724.92
8.000	1302.00	18.32	2.88	8.90	20.00	20.00	25.00	1300.66	99.90	1805.00	128.49
8.000	1709.00	18.88	3.40	8.90	20.00	20.00	25.00	1685.19	98.61	1805.00	226.08
8.000	2605.00	19.82	4.21	8.90	20.00	20.00	25.00	2411.77	92.58	1805.00	387.42
*	7.290	1302.00	19.07	3.52	10.90	25.00	20.90	1279.01	98.23	1900.00	886.27
*	7.290	1709.00	19.83	3.82	10.90	25.00	20.90	1596.29	93.40	1900.00	1534.77
*	7.290	2605.00	20.96	1.55	10.90	25.00	20.90	808.56	31.04	1900.00	4459.10

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
	7.190	1302.00	20.73	1.79	11.70	25.00	18.50	25.00	1220.79	93.76	1800.00	1302.69
*	7.190	1709.00	21.34	1.41	11.70	25.00	18.50	25.00	1482.88	86.77	1800.00	2083.45
*	7.190	2605.00	22.28	1.03	11.70	25.00	18.50	25.00	1871.33	71.84	1800.00	5642.14
*	7.000	1034.00	21.15	.46	11.80	25.00	18.70	25.00	1016.54	98.31	2514.00	1276.06
*	7.000	1364.00	21.71	.50	11.80	25.00	18.70	25.00	1294.23	94.88	2514.00	1311.60
*	7.000	2086.00	22.61	.57	11.80	25.00	18.70	25.00	1823.68	87.42	2514.00	10218.72
*	6.000	1034.00	21.58	.76	15.60	25.60	20.00	25.00	1003.40	97.04	4540.00	774.91
*	6.000	1364.00	22.12	.78	15.60	25.60	20.00	25.00	1250.65	91.69	4540.00	2206.16
	6.000	2086.00	22.96	.63	15.60	25.60	20.00	25.00	1286.91	61.69	4540.00	5813.71
*	5.000	1034.00	24.61	2.62	19.20	23.40	21.60	28.60	503.98	48.74	5600.00	1941.27
*	5.000	1364.00	24.81	2.67	19.20	23.40	21.60	28.60	540.91	39.66	5600.00	2140.85
*	5.000	2086.00	24.59	5.42	19.20	23.40	21.60	28.60	1038.50	49.78	5600.00	1913.88
*	4.200	1034.00	24.83	.14	23.00	23.00	23.00	25.00	630.83	61.01	1700.00	7701.38
*	4.200	1364.00	25.03	.16	23.00	23.00	23.00	25.00	805.24	59.04	1700.00	7961.62
*	4.200	2086.00	25.18	.22	23.00	23.00	23.00	25.00	1203.27	57.68	1700.00	7962.49
*	4.000	461.00	24.84	.70	23.00	23.00	24.00	25.00	419.24	90.94	300.00	878.91
*	4.000	608.00	25.04	.77	23.00	23.00	24.00	25.00	532.48	87.58	300.00	961.69
*	4.000	931.00	25.20	1.03	23.00	23.00	24.00	25.00	787.49	84.59	300.00	962.59
*	3.900	461.00	24.86	.14	19.40	22.60	20.60	28.00	18.61	4.04	50.00	797.22
*	3.900	608.00	25.07	.17	19.40	22.60	20.60	28.00	22.65	3.72	50.00	799.83
*	3.900	931.00	25.24	.25	19.40	22.60	20.60	28.00	32.56	3.50	50.00	802.13
*	3.800	461.00	24.86	.28	19.40	22.60	20.60	28.00	99.18	21.51	18.00	797.26
*	3.800	608.00	25.07	.34	19.40	22.60	20.60	28.00	127.99	21.05	18.00	799.94
*	3.800	931.00	25.25	.49	19.40	22.60	20.60	28.00	192.76	20.70	18.00	802.32
*	3.700	461.00	24.92	2.65	24.50	24.50	26.40	27.00	457.88	99.32	50.00	821.71
*	3.700	608.00	25.03	2.22	24.50	24.50	26.40	27.00	603.89	99.32	50.00	1030.63
*	3.700	931.00	25.24	1.78	24.50	24.50	26.40	27.00	924.71	99.32	50.00	1427.40
	-9.000	424.00	17.10	.47	2.40	12.90	14.70	16.60	319.74	75.41	.00	1190.76
	-9.000	554.00	17.54	.50	2.40	12.90	14.70	16.60	361.61	65.27	.00	1311.61
	-9.000	854.00	18.36	.53	2.40	12.90	14.70	16.60	414.47	48.53	.00	1918.95
*	58.000	424.00	17.19	1.07	6.00	18.80	18.80	19.40	424.00	100.00	4850.00	67.96
*	58.000	554.00	17.63	1.29	6.00	18.80	18.80	19.40	554.00	100.00	4850.00	70.45
*	58.000	854.00	18.45	1.75	6.00	18.80	18.80	19.40	854.00	100.00	4850.00	75.04
	57.400	424.00	17.29	.74	7.30	16.00	16.90	21.60	418.85	98.78	1500.00	177.44
	57.400	554.00	17.77	.86	7.30	16.00	16.90	21.60	540.14	97.50	1500.00	205.55
*	57.400	854.00	18.66	1.09	7.30	16.00	16.90	21.60	801.55	93.86	1500.00	319.49
*	57.300	424.00	17.30	.97	12.80	16.00	16.90	21.60	415.85	98.08	70.00	177.72
*	57.300	554.00	17.78	1.09	12.80	16.00	16.90	21.60	533.24	96.25	70.00	205.92
	57.300	854.00	18.67	1.31	12.80	16.00	16.90	21.60	781.34	91.49	70.00	328.60

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	57.200	424.00	17.31	.74	7.30	16.00	16.90	21.60	418.78	98.77	50.00	177.83
*	57.200	554.00	17.79	.86	7.30	16.00	16.90	21.60	540.01	97.47	50.00	206.00
	57.200	854.00	18.68	1.09	7.30	16.00	16.90	21.60	801.05	93.80	50.00	328.42
*	57.000	424.00	17.38	1.03	8.00	19.20	19.20	21.60	424.00	100.00	980.00	117.82
*	57.000	554.00	17.88	1.17	8.00	19.20	19.20	21.60	554.00	100.00	980.00	127.18
*	57.000	854.00	18.79	1.43	8.00	19.20	19.20	21.60	854.00	100.00	980.00	144.32
*	56.000	424.00	19.55	1.91	13.50	21.50	28.00	20.90	409.49	96.58	6630.00	74.44
*	56.000	554.00	20.34	2.03	13.50	21.50	28.00	20.90	520.69	93.99	6630.00	87.13
*	56.000	854.00	21.70	2.16	13.50	21.50	28.00	20.90	725.19	84.92	6630.00	309.30
*	55.700	268.00	21.19	1.37	14.10	22.00	28.00	22.40	268.00	100.00	3050.00	46.62
*	55.700	350.00	22.06	1.47	14.10	22.00	28.00	22.40	349.98	100.00	3050.00	73.03
*	55.700	530.00	23.28	1.58	14.10	22.00	28.00	22.40	487.43	91.97	3050.00	181.03
*	55.600	268.00	21.22	1.04	12.50	16.00	16.50	24.80	268.00	100.00	100.00	39.00
*	55.600	350.00	22.09	1.20	12.50	16.00	16.50	24.80	350.00	100.00	100.00	39.00
	55.600	530.00	23.30	1.56	12.50	16.00	16.50	24.80	530.00	100.00	100.00	39.00
*	55.500	268.00	21.20	2.10	12.50	16.00	16.50	24.80	268.00	100.00	10.00	39.00
*	55.500	350.00	22.04	2.75	12.50	16.00	16.50	24.80	350.00	100.00	10.00	39.00
*	55.500	530.00	23.19	4.16	12.50	16.00	16.50	24.80	530.00	100.00	10.00	39.00
	55.400	268.00	21.21	2.10	12.50	16.00	16.50	24.80	268.00	100.00	90.00	39.00
	55.400	350.00	22.07	2.75	12.50	16.00	16.50	24.80	350.00	100.00	90.00	39.00
	55.400	530.00	23.26	4.16	12.50	16.00	16.50	24.80	530.00	100.00	90.00	39.00
*	55.300	268.00	21.28	1.03	12.50	16.00	16.50	24.80	268.00	100.00	10.00	39.00
*	55.300	350.00	22.20	1.18	12.50	16.00	16.50	24.80	350.00	100.00	10.00	39.00
	55.300	530.00	23.56	1.52	12.50	16.00	16.50	24.80	530.00	100.00	10.00	39.00
*	55.200	268.00	21.28	1.34	14.10	22.00	28.00	22.40	268.00	100.00	50.00	47.26
	55.200	350.00	22.20	1.41	14.10	22.00	28.00	22.40	349.55	99.87	50.00	119.17
	55.200	530.00	23.58	1.44	14.10	22.00	28.00	22.40	472.61	89.17	50.00	182.20
	55.000	268.00	21.60	1.50	14.50	22.00	28.00	22.50	268.00	100.00	1330.00	48.22
	55.000	350.00	22.51	1.52	14.50	22.00	28.00	22.50	341.67	97.62	1330.00	513.83
	55.000	530.00	23.77	1.11	14.50	22.00	28.00	22.50	323.91	61.12	1330.00	801.98
	54.000	268.00	22.36	1.09	15.50	23.30	21.90	23.30	267.89	99.96	2900.00	88.29
	54.000	350.00	23.14	1.10	15.50	23.30	21.90	23.30	348.47	99.56	2900.00	99.43
*	54.000	530.00	23.91	.45	15.50	23.30	21.90	23.30	175.58	33.13	2900.00	1248.10
	53.600	268.00	23.12	1.35	17.60	22.20	30.30	25.30	209.50	78.17	2660.00	437.29
	53.600	350.00	23.62	.99	17.60	22.20	30.30	25.30	185.14	52.90	2660.00	775.37
*	53.600	530.00	24.03	.94	17.60	22.20	30.30	25.30	200.56	37.84	2660.00	1055.06
*	53.500	268.00	23.12	3.40	17.60	30.40	30.40	30.90	268.00	100.00	100.00	28.99
*	53.500	350.00	23.55	3.80	17.60	30.40	30.40	30.90	350.00	100.00	100.00	31.33
*	53.500	530.00	23.87	5.19	17.60	30.40	30.40	30.90	530.00	100.00	100.00	33.00



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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
53.400	268.00	23.18	3.32	17.60	30.40	30.40	30.90	268.00	100.00	16.00	29.34
53.400	350.00	23.64	3.70	17.60	30.40	30.40	30.90	350.00	100.00	16.00	31.78
53.400	530.00	24.07	4.87	17.60	30.40	30.40	30.90	530.00	100.00	16.00	34.08
* 53.300	268.00	23.40	1.05	17.00	23.10	27.20	24.30	266.88	99.58	50.00	118.52
* 53.300	350.00	23.91	1.16	17.00	23.10	27.20	24.30	333.88	95.39	50.00	211.46
* 53.300	530.00	24.54	1.27	17.00	23.10	27.20	24.30	420.84	79.40	50.00	542.33
53.200	268.00	23.41	1.16	17.00	27.20	27.20	27.20	268.00	100.00	70.00	47.97
53.200	350.00	23.91	1.37	17.00	27.20	27.20	27.20	350.00	100.00	70.00	48.77
53.200	530.00	24.54	1.86	17.00	27.20	27.20	27.20	530.00	100.00	70.00	49.77
53.100	268.00	23.41	1.16	17.00	27.20	27.20	27.20	268.00	100.00	28.00	47.97
53.100	350.00	23.91	1.37	17.00	27.20	27.20	27.20	350.00	100.00	28.00	48.78
53.100	530.00	24.54	1.86	17.00	27.20	27.20	27.20	530.00	100.00	28.00	49.77
53.000	268.00	23.43	.96	17.60	22.20	30.30	25.30	166.33	62.06	50.00	644.49
* 53.000	350.00	23.95	.68	17.60	22.20	30.30	25.30	140.85	40.24	50.00	1001.87
* 53.000	530.00	24.61	.49	17.60	22.20	30.30	25.30	123.59	23.32	50.00	1645.32
52.000	268.00	24.06	1.51	18.00	23.10	33.10	26.50	248.21	92.62	3000.00	137.01
* 52.000	350.00	24.33	1.75	18.00	23.10	33.10	26.50	307.07	87.74	3000.00	164.64
* 52.000	530.00	24.81	2.01	18.00	23.10	33.10	26.50	393.60	74.26	3000.00	526.21

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## SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=	7.290	PROFILE=	3	20	TRIALS	ATTEMPTED	TO	BALANCE	WSEL
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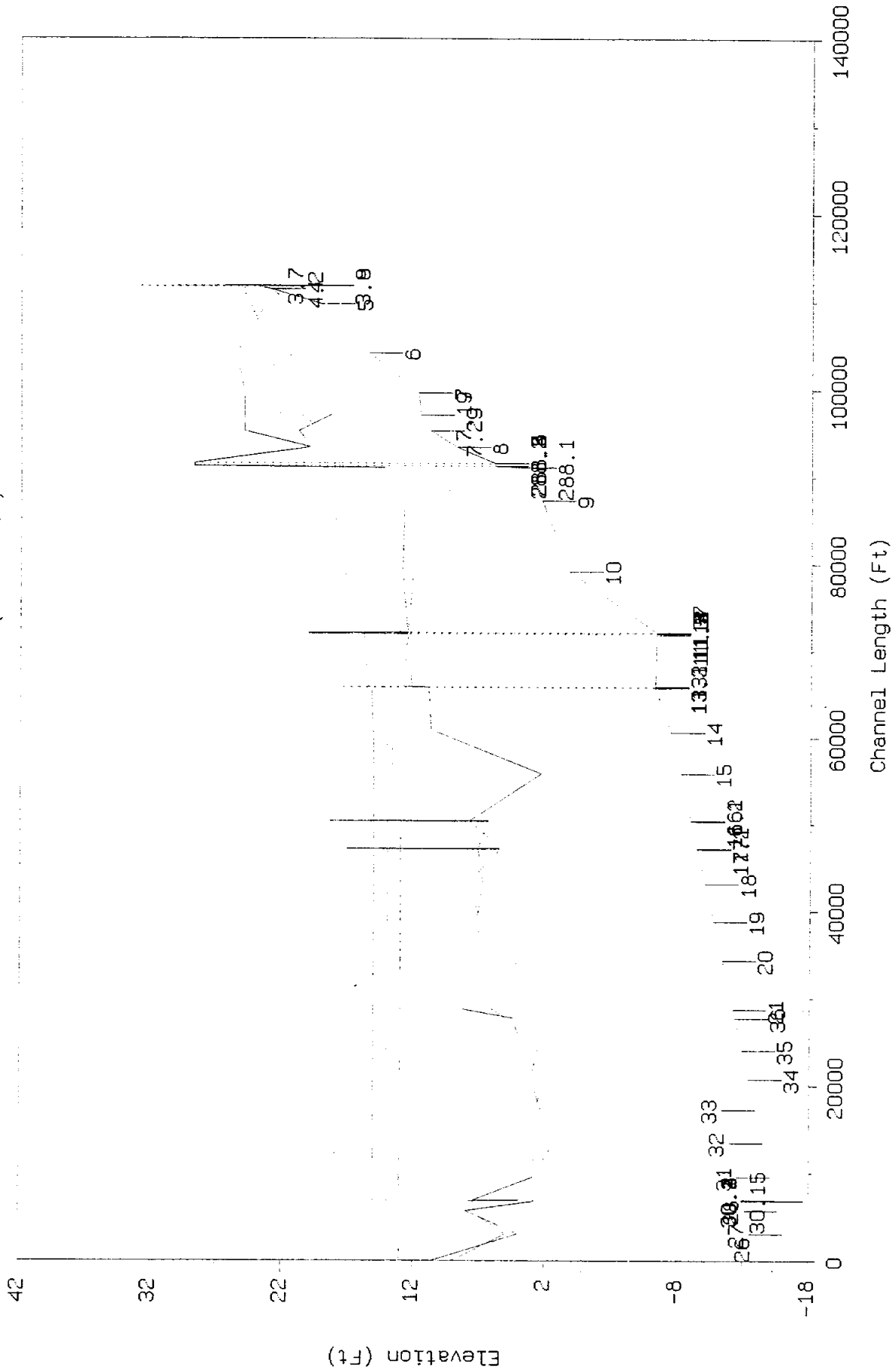
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CAUTION SECNO=	3.700	PROFILE=	1	PROBABLE MINIMUM SPECIFIC ENERGY
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WARNING SECNO=	55.600	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=	55.300	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	55.300	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	55.200	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	54.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	53.600	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	53.500	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	53.500	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	53.500	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	53.300	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	53.300	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	53.300	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	53.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	53.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	52.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	52.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

FILE: BB\_CI.IH2  
 Cross-Sections (26 to 3.7)



Bridge  
 Left Overbank  
 Right Overbank  
 CWSEL 1  
 CWSEL 2  
 CWSEL 3  
 Invert

Brazos River Multi. Freq. BRAZRIV2.IH2

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*****  
* HEC-2 WATER SURFACE PROFILES *  
* *  
* Version 4.6.2; May 1991 *  
* *  
* RUN DATE 27AUG02 TIME 22:50:15 *  
*****
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*****  
* U.S. ARMY CORPS OF ENGINEERS  
* HYDROLOGIC ENGINEERING CENTER  
* 609 SECOND STREET, SUITE D  
* DAVIS, CALIFORNIA 95616-4687  
* (916) 756-1104  
*****
```

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X X XXXXXXX XXXXX XXXXX  
X X X X X X X X  
X X X X X X X  
XXXXXXXX XXXX X XXXXX XXXXX  
X X X X X X X  
X X X X X X X  
X X XXXXXXX XXXXX XXXXXXX
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Brazos River Multi. Freq. BRAZRIV2.IH2

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PAGE 3

QT	5	59805	60100	60242	60900	60242	0	0	0	0
ET	0	0	0	0	0	7.1	20182	20797	0	0
X1	5.7	29	20182	20797	4752	4752	4752	0	0	0
GR	16.9	20000	16.7	20012	13.1	20039	9.4	20058	9.2	20123
GR	6.8	20137	6.1	20182	4.4	20191	2.5	20221	1.1	20242
GR	.5	20252	0	20262	-4.9	20302	-9.2	20352	-11.9	20402
GR	-12.4	20452	-13.5	20502	-16.3	20552	-16.9	20602	-17.2	20652
GR	-15.8	20702	-9.1	20752	1.2	20772	1.2	20782	8.1	20784
GR	6.8	20797	9.1	20810	9.2	20823	11.8	20835	0	0

QT	5	59721	60100	60368	60900	60368	0	0	0	0
ET	0	0	0	0	0	7.1	20124	20690	0	0
X1	6.5	25	20124	20690	4224	4224	4224	0	0	0
GR	16	19980	13.3	20000	12.3	20050	12.4	20100	8.4	20114
GR	7	20124	-4	20136	-1	20142	-3.7	20152	-10	20192
GR	-11.6	20252	-12.9	20302	-14.4	20352	-16.9	20402	-20.2	20452
GR	-18.9	20502	-17.5	20552	-12.3	20602	-5.4	20652	-3.5	20662
GR	-.9	20670	1.4	20686	4	20690	5.4	20695	9.2	20696

NC	0	0	.035	0	0	0	0	0	0	0
COMMENTED OUT QT RECORD HERE										
ET	5	59619	60100	60522	60900	60522	0	0	0	0
QT	0	0	0	0	0	7.1	20140	20712	0	0
X1	7.47	28	20140	20712	5122	5122	5122	0	0	0
GR	10.1	20000	9.9	20025	9.6	20050	8.5	20126	5.7	20133
GR	4.9	20140	3.1	20145	-4	20185	-2.7	20235	-4.9	20255
GR	-6.3	20305	-8.6	20355	-11.4	20405	-13.9	20455	-16.8	20505
GR	-19.4	20555	-21.6	20605	-22.7	20625	-17.9	20655	-11.4	20675
GR	-6.3	20685	-1.4	20695	.2	20700	.9	20709	2.8	20712
GR	3.9	20724	10	20739	10.6	20782	0	0	0	0

QT	5	59500	60100	60700	60900	60700	0	0	0	0
ET	0	0	0	0	0	7.1	20100	20517	0	0
X1	8.6	28	20100	20517	5966	5966	5966	0	0	0
GR	13	19600	10.5	19650	10.7	20000	9.1	20050	7.4	20100
GR	2.8	20111	2.4	20117	.7	20127	-1.3	20137	-2.1	20147
GR	-5.2	20157	-10.2	20207	-14.9	20257	-19.2	20307	-25.8	20357
GR	-25.7	20367	-23.7	20377	-21.6	20387	-21.2	20407	-22	20437
GR	-19.9	20447	-10.4	20457	-6.8	20467	-4.1	20477	-1	20487
GR	2.4	20497	4.2	20503	12	20517	0	0	0	0

QT	5	62800	63800	64900	64900	64900	0	0	0	0
ET	0	0	0	0	0	7.1	20100	20512	0	0
X1	9.45	27	20100	20512	4488	4488	4488	0	0	0
GR	17	19500	12.5	19520	12.3	20000	11.1	20050	11.1	20100
GR	5.2	20103	2.5	20108	.2	20118	-6.5	20128	-11.4	20138
GR	-17	20158	-21	20188	-19.6	20208	-16.1	20258	-14.9	20308
GR	-13	20358	-11.3	20408	-8	20458	0	20488	1.3	20498

Brazos River Multi. Freq. BRAZRIV2.IH2

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GR	2.4	20503	3.3	20504	5.3	20509	8.3	20512	8.7	20519
GR	11.4	20521	12.5	21400	0	0	0	0	0	0
NH	3	.06	4305	.035	4784	.1	5350	0	0	0
QT	5	62800	63723	64919	94919	64919	0	0	0	0
ET	0	0	0	0	0	7.1	4305	4784	0	0
X1	9.88	19	4305	4784	2270	2270	2270	0	0	0
GR	18.7	3603	18.7	3604	18.7	3605	18.7	3606	18.5	3621
GR	11.2	3700	6.6	3738	6.6	3792	12.2	3824	11.4	3987
GR	12.8	4101	12.6	4305	0	4337	-26	4403	-26	4684
GR	0	4750	12.6	4784	10.8	5131	10.6	5350	0	0
NH	3	.06	3903	.035	4355	.1	5250	0	0	0
QT	5	62800	63663	64934	64934	64934	0	0	0	0
ET	0	0	0	0	0	7.1	3903	4355	0	0
X1	10.21	20	3903	4355	1650	2030	1742	0	0	0
GR	17.5	3452	17.5	3453	17.5	3454	17.5	3455	17.5	3456
GR	7.5	3527	7.5	3581	11.5	3605	12.3	3777	13.7	3903
GR	7.5	3929	7.9	3959	0	3988	-30.4	4096	-30.4	4262
GR	0	4330	11.2	4355	12	4557	11.2	5072	11.5	5250
NH	3	.06	1410	.035	1905	.1	5330	0	0	0
QT	5	62800	63566	64959	64959	64959	0	0	0	0
ET	0	0	0	0	0	7.1	1410	1905	0	0
X1	10.75	24	1410	1905	4000	200	2851	0	0	0
GR	18.4	1343	18.4	1344	18.4	1345	11.6	1381	10.6	1410
GR	.2	1429	-15	1456	-29.5	1483	-29.5	1838	-15	1863
GR	.2	1891	8	1905	10.8	2187	9.6	2284	11.6	2385
GR	12.4	2680	10.6	3099	9.2	3241	9.8	3347	9.4	3440
GR	10.5	4021	10.3	4668	10.3	5250	11.2	5330	0	0
NC	0	.07	0	0	0	0	0	0	0	0
NH	2	.06	5548	.035	5958	0	0	0	0	0
QT	5	62800	63400	65000	65000	65000	0	0	0	0
ET	0	0	0	0	0	7.1	5548	5958	0	0
X1	11.67	12	5548	5958	3800	5400	4857	0	0	0
GR	18.2	4818	8	4931	8	5022	12.6	5057	13	5216
GR	13.4	5475	14.4	5548	.2	5580	-28.4	5644	-28.4	5891
GR	.2	5937	13.2	5958	0	0	0	0	0	0
NH	3	.06	4830	.035	5525	.1	5600	0	0	0
QT	5	64643	70952	73912	75905	73912	0	0	0	0
ET	0	0	0	0	0	7.1	4830	5525	0	0
X1	12.09	23	4830	5525	2217	3200	2217	0	0	0
GR	21.4	4390	21.4	4391	12.2	4438	8.6	4470	8.6	4506
GR	11.2	4537	16	4597	13.4	4696	14.2	4733	13.8	4779
GR	21.4	4830	7.4	4910	13.4	4946	13.8	5055	10.6	5133
GR	.2	5148	-12	5158	-23.7	5167	-23.7	5497	-12	5505
GR	.2	5515	13.8	5525	13.9	5600	0	0	0	0

Brazos River Multi. Freq. BRAZRIV2.IH2

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NH	3	.06	4690	.035	5438	.1	5500	0	0	0
QT	5	66398	78147	82401	86294	82401	0	0	0	0
ET	0	0	0	0	0	7.1	4690	5438	0	0
X1	12.49	15	4690	5438	2112	2250	2112	0	0	0
GR	19.3	4231	8.7	4294	8.7	4346	12.5	4366	12.9	4450
GR	13.9	4690	.2	4724	-19	4774	-20	4928	-19	5080
GR	.2	5131	11.2	5159	13.8	5286	15	5438	14.8	5500
NH	3	.06	4803	.035	5314	.1	5624	0	0	0
QT	5	67715	83542	88768	94086	88768	0	0	0	0
ET	0	0	0	0	0	7.1	4803	5314	0	0
X1	12.79	14	4803	5314	1940	1600	1584	0	0	0
GR	20.4	4070	12.4	4078	8	4107	8	4159	13.8	4195
GR	15	4480	15	4803	.2	4844	-20.5	4901	-20.5	5222
GR	13	5277	14	5314	13.8	5495	13.4	5624	0	0
NH	3	.06	4891	.035	5616	.1	5770	0	0	0
QT	5	68900	88400	94500	101100	94500	0	0	0	0
ET	0	0	0	0	0	7.1	4891	5616	0	0
X1	13.06	30	4891	5616	1426	1850	1426	0	0	0
GR	19.1	4500	14.3	4714	10.7	4747	7.3	4756	7.3	4819
GR	10.5	4831	10.7	4850	11.7	4866	14.9	4879	14.9	4891
GR	11.7	4906	11.7	4960	12.3	4982	.3	4992	-6	4997
GR	-12	5002	-20.9	5010	-20.9	5357	-12	5400	-6	5440
GR	.3	5470	3.5	5487	9.3	5504	9.5	5542	10.9	5565
GR	13.5	5592	15.1	5616	14.7	5649	14.7	5710	14.8	5770
NH	3	.06	4434	.04	4878	.1	5500	0	0	0
QT	5	69782	86847	92197	98179	92197	0	0	0	0
ET	0	0	0	0	0	7.1	4434	4878	0	0
X1	13.44	19	4434	4878	2170	1700	2006	0	0	0
GR	18.6	3758	18.6	3759	18.6	3760	8.6	3824	8.6	3871
GR	13	3892	18	3943	14.4	3968	14.2	4131	15.6	4288
GR	17.6	4434	.4	4473	-20	4519	-21.3	4676	-20	4834
GR	.4	4858	17.2	4878	11.6	5361	15.6	5500	0	0
NH	3	.06	5465	.04	5978	.1	6100	0	0	0
QT	5	70617	85376	90015	95411	90015	0	0	0	0
ET	0	0	0	0	0	7.1	5465	5978	0	0
X1	13.8	24	5465	5978	2300	1400	1901	0	0	0
GR	21.8	3170	14.2	3202	12.8	3234	9.6	3256	9.6	3338
GR	13.2	3378	17.4	3413	13.8	3447	13.8	3681	14	4053
GR	14.5	4342	10.1	4874	12.1	5050	9.9	5465	.5	5479
GR	-10	5494	-20	5510	-22.3	5673	-20	5836	-10	5872
GR	.5	5910	6.9	5933	15.1	5978	14.7	6100	0	0

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QT	5	71592	83659	87469	92181	87469	0	0	0	0
NH	3	.06	7218	.04	7830	.1	7881	0	0	0
ET	0	0	0	0	0	7.1	7218	7830	0	0
X1	14.22	23	7218	7830	1420	2600	2218	0	0	0
GR	21.8	3673	12.6	3724	9.8	3751	9.8	3835	13	3879
GR	15.4	3917	15.2	3938	13.6	3974	13.4	4710	13.2	5519
GR	14.7	5800	16.3	6778	16.3	7218	16.1	7282	15.3	7329
GR	9.3	7342	.9	7356	-15	7383	-23.8	7562	-15	7612
GR	.9	7786	16.3	7830	16.3	7881	0	0	0	0

NC 0 0 0 .3 .5 0 0 0 0 0 0

COMMENTED OUT QT RECORD HERE

5	71636	83582	87354	92035	87354	0	0	0	0	0
ET	0	0	0	0	0	7.1	7218	7830	0	0
QT	5	71636	83582	87354	92035	87354				
X1	14.24	18	7218	7830	100	100	100	0	0	0
X3	10									
GR	21.8	3673	19	3724	19	3751	19	3835	19	3879
GR	16.3	5800	16.3	6778	16.3	7218	16.1	7282	15.3	7329
GR	9.3	7342	.9	7356	-15	7383	-23.8	7562	-15	7612
GR	.9	7786	16.3	7830	16.3	7881	0	0	0	0

SB	1.25	1.56	2.8	0	310	30	41600	5	-20	-20
QT	5	71658	83543	87297	91962	872927	0	0	0	0
ET	0	0	0	0	0	7.1	7218	7830	0	0
X1	14.25	0	0	0	50	50	50	0	0	0
X2	0	0	1	40	19	0	0	0	.87	0
X3	10									
BT	13	3700	19	0	6200	19	0	6400	20.7	0
BT	6600	25	0	6900	36.8	0	7000	40	0	7100
BT	42.5	0	7300	46	0	7500	47.5	0	7700	46.5
BT	0	7900	43.2	0	8100	37.7	0	8225	33.1	0

QT	5	71702	83466	87182	91817	87182	0	0	0	0
ET	0	0	0	0	0	7.1	7218	7830	0	0
X1	14.27	23	7218	7830	100	100	100	0	0	0
GR	21.8	3673	12.6	3724	9.8	3751	9.8	3835	13	3879
GR	15.4	3917	15.2	3938	13.6	3974	13.4	4710	13.2	5519
GR	14.7	5800	16.3	6778	16.3	7218	16.1	7282	15.3	7329
GR	9.3	7342	.9	7356	-15	7383	-23.8	7562	-15	7612
GR	.9	7786	16.3	7830	16.3	7881	0	0	0	0

NC	0	0	0	.1	.3	0	0	0	0	0
NH	3	.06	4670	.04	5432	.1	6559	0	0	0
QT	5	72862	81422	84152	87972	84152	0	0	0	0
ET	0	0	0	0	0	7.1	4670	5432	0	0

Brazos River Multi. Freq. BRAZRIV2.IH2

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XI	14.77	49	4670	5432	2900	1700	2640	0	0	0
GR	14.4	1658	14.4	1658	14.4	1658	14.4	1658	14.4	1658
GR	1	1694	.2	1697	.2	1710	.2	1722	.6	1723
GR	1	1724	13	1747	14.8	2220	10.5	3600	15	4590
GR	14.1	4600	14.1	4670	9.1	4706	1.1	4747	-6	4780
GR	-12	4820	-20	4855	-20	5151	-12	5170	-6	5180
GR	1.1	5194	1.7	5204	8.3	5217	9.1	5232	10.5	5252
GR	13.9	5302	11.7	5336	13.5	5367	11.7	5411	14.5	5432
GR	14.7	5509	13.1	5543	11.7	5561	12.7	5621	15.9	5675
GR	14.1	5944	13.3	6075	14.3	6153	15.5	6259	15.1	6394
GR	13.3	6412	14.9	6452	13.3	6510	13.3	6559	0	0
NH	4	.12	9300	.08	12746	.04	13457	.05	13527	0
QT	5	73930	79542	81363	84435	81363	0	0	0	0
ET	0	0	0	0	0	7.1	12746	13457	0	0
XI	15.23	34	12746	13457	2100	1300	2429	0	0	0
GR	18	3700	18	3700	18	3700	18	3700	18	3700
GR	16.5	5945	16.3	6650	15	7500	15	7900	11.5	9280
GR	11.6	9300	16.8	10342	18	11618	17.8	12215	15.8	12312
GR	13.4	12398	12.4	12444	15.2	12506	14.8	12600	15.6	12633
GR	16.2	12688	17.2	12746	15.2	12805	16	12833	13.2	12864
GR	14.4	12891	1.2	12955	-14	13024	-15	13213	-14	13402
GR	1.2	13429	18	13457	17.6	13483	18	13527	0	0
NC	0	0	0	.1	.3	0	0	0	0	0
NH	4	.12	7000	.08	11995	.04	12694	.06	14878	0
QT	5	75600	76600	77000	78900	77000	0	0	0	0
ET	0	0	0	0	0	7.1	9900	12694	0	0
XI	15.95	29	11995	12694	2500	2500	3801	0	0	0
GR	17	2650	20	2900	20	3500	15	7000	15	8500
GR	15.4	10600	16	11189	17.4	11995	1.2	12012	-7	12021
GR	-15	12030	-24.8	12039	-24.8	12341	-15	12373	-7	12405
GR	1.2	12444	4	12459	14.6	12497	15.8	12566	15.8	12694
GR	15.8	12793	19.4	12857	18	12979	20.2	13139	17.2	13489
GR	16.6	14005	14	14199	18.8	14351	18	14878	0	0
NH	3	.12	16918	.08	19941	.04	20663	0	0	0
QT	5	75769	76939	77226	80198	77226	0	0	0	0
ET	0	0	0	0	0	7.1	12941	20663	0	0
XI	16.74	27	19941	20663	1600	2100	4171	0	0	0
GR	18	5350	18	5350	18	5350	18	5350	18	5350
GR	20	5600	20	6250	20	6900	20	7750	15	12450
GR	15	15200	17.4	16918	17	17427	17	18478	17	19157
GR	18.6	19614	15.6	19665	16.2	19785	14.2	19941	13.4	20061
GR	13.6	20132	1.2	20182	-34	20317	-35	20482	-34	20647
GR	1.2	20658	17.4	20663	0	0	0	0	0	0

NH	4	.12	15200	.08	17365	.04	17934	.08	19500	0
QT	5	75311	77221	77414	81282	77414	0	0	0	0
ET	0	0	0	0	0	7.1	11365	17934	0	0
X1	17.4	32	17365	17934	700	2800	3485	0	0	0
GR	17	4050	17	4050	20	4600	20	5600	15	6500
GR	20	7450	15	12070	15	14900	15	15200	16	17080
GR	16.8	17100	17	17365	2.6	17415	1	17437	-10	17470
GR	-22	17520	-35	17567	-35	17670	-22	17700	-10	17740
GR	1	17774	2.8	17796	11.8	17908	16.4	17934	16.2	17962
GR	11.8	18011	12.2	18068	16.6	18088	16.6	18133	19	18168
GR	17.6	18500	17	19500	0	0	0	0	0	0

NH	4	.12	14650	.08	16860	.04	17616	.08	19500	0
QT	5	76033	77466	77577	82219	77577	0	0	0	0
ET	0	0	0	0	0	7.1	10360	17616	0	0
X1	17.97	38	16860	17616	2800	1700	3010	0	0	0
GR	16.5	250	16.5	250	16.5	250	20	1100	20	8700
GR	20.5	9300	20.5	9301	20.5	9302	20.5	9303	19	10000
GR	18	11500	15	13100	13.5	14000	15	14650	20	16650
GR	18.4	16700	18.4	16860	1	16885	-35	16931	-35	17150
GR	1	17257	9.2	17375	9.2	17438	12.6	17505	13.4	17616
GR	10.2	17675	11	17711	9.2	17731	14	17774	13.8	17838
GR	8.6	17864	8.6	17897	15	17912	15.6	17976	14.2	18045
GR	18.2	18112	19.4	18180	17	19500	0	0	0	0

NH	5	.12	14000	.08	21800	.08	23800	.12	31561	.04
NH	32312	0	0	0	0	0	0	0	0	0
QT	5	76200	77800	77800	83500	77800	0	0	0	0
ET	0	0	0	0	0	7.1	21800	32312	0	0
X1	18.75	32	31561	32312	2400	2300	4118	0	0	0
GR	19	9400	20	10300	20	11200	20	14000	20	20504
GR	19	21800	15	23800	13.5	25000	15	26400	20	29980
GR	20	30000	20.2	30313	17.6	30433	20.6	30934	10.2	31009
GR	19.6	31049	12	31120	9.2	31335	10.4	31545	17.6	31561
GR	12.2	31612	12.6	31671	5.2	31735	14	31762	13.8	31796
GR	9.4	31840	8.6	31874	1	31896	-35	32000	-35	32236
GR	1	32287	18.6	32312	0	0	0	0	0	0

NH	4	.12	26400	.08	31073	.04	31650	.08	32150	0
QT	5	76200	80093	81710	87781	81710	0	0	0	0
ET	0	0	0	0	0	7.1	21073	31650	0	0
X1	19.32	28	31073	31650	2000	3950	3010	0	0	0
GR	20	10900	20	11150	20	20502	20	20503	20	20504
GR	19	21800	15	23800	14	25000	15	26400	20	29980
GR	19.2	30000	21	30559	20	31073	1	31096	-9	31106
GR	-19.2	31115	-28	31131	-28	31292	-19	31344	-9	31390
GR	1	31450	4.4	31482	16.6	31535	14.6	31597	17.8	31650
GR	19.4	31864	21	31981	21.5	32150	0	0	0	0

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NH	3	.12	29800	.08	32539	.04	33290	0	0	0
QT	5	76200	81944	84865	91236	84865	0	0	0	0
ET	0	0	0	0	0	7.1	24039	33290	0	0
X1	19.78	27	32539	33290	3550	1800	2429	0	0	0
GR	20	9900	20	10250	15	17000	20	17400	20	21500
GR	21	22200	18	25200	14	27300	16	29800	19	31990
GR	20	32000	20.2	32314	20.6	32539	16	32619	8.2	32651
GR	7.2	32731	9.2	32781	5	32806	8.8	32832	9	32862
GR	1	32893	-11	32940	-22.7	32985	-22.7	33112	-11	33185
GR	1	33255	20.2	33290	0	0	0	0	0	0
NH	4	.12	30000	.08	33843	.04	34437	.06	34600	0
QT	5	76200	83553	87608	94239	87608	0	0	0	0
ET	0	0	0	0	0	7.1	25200	34437	0	0
X1	20.18	23	33843	34437	1500	1900	2112	0	0	0
GR	20	9950	20	10500	20	16700	20	17300	20	21500
GR	21	22200	18	25200	15	27500	16	30000	20	32680
GR	21.9	32700	20.7	33327	18.5	33484	21.9	33649	21.1	33843
GR	18.3	33876	14.9	33972	0	34004	-18.1	34043	-18.1	34301
GR	0	34366	22.7	34437	21	34600	0	0	0	0
NH	4	.12	29100	.06	32523	.04	33011	.06	36868	0
QT	5	76200	88300	95700	103100	95700	0	0	0	0
ET	0	0	0	0	0	7.1	29100	36868	0	0
X1	21.36	36	32523	33011	3300	2800	6230	0	0	0
GR	25	8400	25	8400	25	8500	20	13000	20	15700
GR	20	15700	20	20000	20	22700	20	23370	20	23700
GR	20	25500	37.7	25530	37.7	29100	20	29130	20	31300
GR	15	31330	15	31600	22.4	32523	0	32557	-19.8	32728
GR	0	32899	1.8	32906	14.4	32938	21.6	33011	21.6	33095
GR	22.7	33422	21.3	33871	22.7	34170	17.1	34352	16.9	34488
GR	21.9	34531	20.9	34884	20.9	35246	20.9	35878	20.3	36415
GR	20.3	36868	0	0	0	0	0	0	0	0
NH	4	.08	30800	.06	34583	.04	35083	.06	37350	0
QT	5	76200	88262	96845	105618	96845	0	0	0	0
ET	0	0	0	0	0	7.1	30800	37350	0	0
X1	21.94	33	34583	35083	3500	1000	3062	0	0	0
GR	25	8000	20	11600	20	18900	37.6	18950	37.6	30800
GR	20	30830	20	31700	10	31750	10	31900	20	32800
GR	23	33900	22.6	34000	23.2	34239	23.5	34436	23.2	34583
GR	0	34662	-10	34697	-20.7	34732	-20.7	34954	-10	34977
GR	0	35001	18.2	35042	24.2	35083	24.6	35107	23.8	35325
GR	21.9	35900	21.7	36468	21.5	36934	23.1	36961	23.1	36983
GR	21.5	37005	21.7	37050	21.8	37350	0	0	0	0



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NH	4	.1	9650	.06	25712	.04	26118	.06	28050	0
QT	5	76200	88237	97595	107268	97595	0	0	0	0
ET	0	0	0	0	0	7.1	22200	28050	0	0
X1	22.32	29	25712	26118	1100	2850	2006	0	0	0
GR	25	0	20	4700	20	9600	37.6	9650	37.6	22200
GR	20	22250	20	23500	15	23520	10	23900	15	24400
GR	22.6	25400	22.8	25584	23.4	25712	13.6	25750	0	25774
GR	-10	25792	-20.1	25809	-20.1	25915	-20.1	26042	-10	26044
GR	0	26046	19.4	26089	22	26118	21.6	26232	20.8	26505
GR	20.4	26699	21	26830	22	27400	20.5	28050	0	0
NC	0	0	0	.3	.5	0	0	0	0	0
NH	4	.12	11050	.06	28200	.04	28800	.1	30500	0
QT	5	76200	88207	98483	109222	98483	0	0	0	0
ET	0	0	0	0	0	7.1	25050	28800	0	0
X1	22.77	23	28200	28800	2400	2400	2376	0	0	0
GR	25	1950	20	8700	19	11020	37.6	11050	37.6	25050
GR	23	25070	20	27870	16	27920	20	27980	23.1	28198
GR	23.1	28200	1.9	28255	-6.1	28300	-18.1	28350	-19.1	28400
GR	-16.1	28450	-19.1	28500	-8.1	28550	1.9	28600	24.2	28660
GR	26	28800	25	28900	24.5	30500	0	0	0	0
NC	.05	.06	.035	0	0	0	0	0	0	0
QT	5	76200	88203	98601	109483	98601	0	0	0	0
ET	0	0	0	0	0	7.1	28370	32170	0	0
X1	22.83	50	30650	32170	317	317	317	0	0	0
BT	14	26800	34.5	34.5	28370	34.5	34.5	28400	34.5	30.5
BT	29280	34.8	30.8	29320	34.8	34.8	29850	35.8	35.8	30400
BT	38.4	38.4	30650	38.8	35.2	30680	38.8	35.2	32170	39.2
BT	35.2	32200	39.2	35.2	32600	38	38	33050	37	37
BT	34000	36	36	0	0	0	0	0	0	0
GR	34.5	10000	34.5	10100	20	10130	20	10320	34.5	10350
GR	34.5	14600	18	14650	18	15200	34.5	15250	34.5	19850
GR	22	19880	22	20120	34.5	20150	34.5	22750	23	22780
GR	23	23020	34.5	23050	34.5	25800	25	25830	25	25920
GR	34.5	25950	34.5	26780	34.5	26800	34.5	28370	20	28400
GR	19	28900	20	29280	34.8	29320	35.8	29850	38.4	30400
GR	35.2	30650	21	30680	20	30780	18	30800	20	30820
GR	23.1	31300	1.9	31355	-6.1	31400	-18.1	31450	-19.1	31500
GR	-16.1	31550	-19.1	31600	-8.1	31650	1.9	31700	24.2	31760
GR	20	32170	35.2	32200	38	32600	37	33050	36	34000
QT	5	76200	88203	98621	109526	98621	0	0	0	0
ET	0	0	0	0	0	7.1	28370	32170	0	0
X1	22.84	0	0	0	53	53	53	0	0	0
X2	0	0	0	0	0	0	1	0	0	0

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NC	0	0	0	.1	.3	0	0	0	0	0
QT	5	76200	88200	98700	109700	98700	0	0	0	0
ET	0	0	0	0	0	7.1	25950	32050	0	0
X1	22.88	27	31030	32000	211	211	211	0	0	0
BT	2	31030	35	32	32000	30	27	0	0	0
GR	25	4600	25	6500	20	12500	27	12550	27	25950
GR	25	26000	25	26780	25	26800	25	26850	25	26870
GR	25	28870	35	28900	32	31000	21	31030	1.9	31355
GR	-6.1	31400	-18.1	31450	-19.1	31500	-16.1	31550	-19.1	31600
GR	-8.1	31650	1.9	31700	24.2	31760	20	32000	27	32050
GR	25	32900	25	34200	0	0	0	0	0	0
QT	5	76221	88187	98645	109616	98645	0	0	0	0
ET	0	0	0	0	0	7.1	25950	32050	0	0
X1	22.89	0	0	0	30	30	30	0	0	0
X2	0	0	0	0	0	0	1	0	0	0
QT	5	76327	88124	98368	109194	98368	0	0	0	0
ET	0	0	0	0	0	7.1	12230	32050	0	0
X1	22.92	0	0	0	150	150	150	0	0	0
NH	5	.12	26500	.05	29860	.035	30288	.05	30505	.06
NH	34600	0	0	0	0	0	0	0	0	0
QT	5	79574	86188	89874	96267	89874	0	0	0	0
ET	0	0	0	0	0	7.1	9760	30288	0	0
X1	23.79	55	29860	30288	3750	4450	4602	0	0	0
GR	25	2700	25	2701	25	5100	20	8700	20	16650
GR	25	19499	25	19500	22	20000	25	20800	21	21300
GR	25	21800	27	23000	25	24100	20	24200	18	24250
GR	20	24340	25	24400	26	26300	25	26400	25	26480
GR	23.8	26500	23.2	26685	26.8	26772	26.8	26808	23.2	26872
GR	26.4	26976	23.2	27180	21.6	27560	20	28322	20.2	29394
GR	19.7	29860	17	29878	8.8	29902	2.5	29919	-7.7	29978
GR	-10.5	30028	-12.6	30078	-14.5	30128	-18	30178	-4.4	30228
GR	2.5	30240	25.3	30288	22.7	30505	22.7	30668	26.3	30723
GR	26.3	30742	23.3	30909	30.1	30935	30.1	32645	29.5	32660
GR	22.5	32713	23.1	33067	23.6	33612	25	33700	27.5	34600
NH	4	.1	26000	.1	30879	.035	31412	.08	34925	0
QT	5	81400	85100	85100	89000	85100	0	0	0	0
ET	0	0	0	0	0	7.1	8880	31412	0	0
X1	24.28	59	30879	31412	2400	2600	2587	0	0	0
GR	25	3950	25	5970	20	9800	20	15900	25	19050
GR	26	19999	26	20000	26	20001	25	20500	22	20900
GR	25	21300	25	21700	22	22800	25	23800	27	24200
GR	25	24600	20	25720	18	25780	20	25840	25	25980
GR	25.8	26000	26.2	26106	22.4	26565	21.6	26706	27.6	26746
GR	28.6	29806	21.4	29847	23.4	29876	24.8	30126	21.8	30187
GR	24.6	30249	23.6	30783	26.6	30879	14.2	30904	5.9	30939

GR	2.3	30946	-1.8	30966	-13	31016	-15.5	31066	-16.2	31116
GR	-19.5	31166	-18.5	31216	-2.5	31266	2.5	31286	22.4	31337
GR	27.8	31412	25	31582	23.4	31890	22.6	32110	22.6	32552
GR	32.4	32593	31.2	32959	23.8	32994	24.4	33153	24.6	33393
GR	25.2	33599	25.6	34190	28.8	34702	30.4	34925	0	0
NH	5	.12	28150	.08	30438	.035	31017	.06	31078	.08
NH	36700	0	0	0	0	0	0	0	0	0
QT	5	78600	80900	80900	81000	80900	0	0	0	0
ET	0	0	0	0	0	7.1	9000	31017	0	0
X1	25.3	46	30438	31017	5800	5386	5386	0	0	0
GR	25	1900	25	3820	20	7250	20	13520	25	16230
GR	28	20799	28	20799.8	28	20800	25	22200	18	23600
GR	22	25000	20	25900	20	26100	25	28150	28.5	28200
GR	29.1	29500	21.5	29579	23.7	29862	23.3	30080	23.5	30419
GR	26.2	30438	25.6	30501	24.8	30566	19.2	30607	0	30639
GR	-9.6	30664	-10.4	30714	-12.5	30764	-12.6	30814	-15.5	30864
GR	-16.7	30914	-5.4	30964	2.4	30974	22.2	31017	22.6	31078
GR	22.8	31312	21.2	31997	30.6	32283	21.4	32989	21.6	33538
GR	24	33887	25.4	34149	26.4	34590	28	35122	28.6	35679
GR	27	36700	0	0	0	0	0	0	0	0
NH	4	.1	47204	.08	52500	.035	52902	.08	57860	0
QT	5	77644	78722	78722	78822	78722	0	0	0	0
ET	0	0	0	0	0	7.1	27000	52902	0	0
X1	26.58	30	52500	52902	6000	3200	6758	0	0	0
GR	25	19547	25	19548	25	19549	25.5	19550	25	21450
GR	20	23930	20	28270	25	34950	25	43550	25	47204
GR	25	49300	18	49380	25	49450	27	51500	25	52480
GR	23.4	52500	4.16	52547	1.73	52552	-8.87	52600	-11.3	52650
GR	-12.1	52700	-11.6	52750	-11.3	52800	-9.3	52850	1.7	52860
GR	25.1	52902	25	53900	22	55400	25	56940	29	57860
NH	5	.11	43000	.1	44870	.08	49807	.035	50193	.06
NH	53810	0	0	0	0	0	0	0	0	0
QT	5	76800	76800	76800	76900	76800	0	0	0	0
ET	0	0	0	0	0	7.1	19800	50193	0	0
X1	27.71	28	49807	50193	4500	5200	5966	0	0	0
GR	25	11200	20	14150	20	21350	25	27050	25	33350
GR	25	43000	20	44770	18	44800	20	44870	23	48500
GR	26	49400	23.9	49807	6.5	49864	2.6	49871	-18	49907
GR	-18.7	49957	-10.8	50007	-9.4	50057	-8.6	50107	2.6	50157
GR	25.2	50193	24.1	50243	25	50300	25	50400	20	51270
GR	25	53000	30	53780	31	53810	0	0	0	0

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NH	4	.11	45750	.06	49767	.035	50234	.08	56230	0
QT	5	77500	77500	77500	77600	77500	0	0	0	0
ET	0	0	0	0	0	7.1	20750	50234	0	0
X1	28.64	38	49767	50234	3200	3400	4910	0	0	0
GR	25	11448	25	11449	25	11450	25	13350	20	15800
GR	20	23220	25	26850	25	34350	20	34850	25	35050
GR	25	45750	25	45751	20	45780	15.5	45870	20	45940
GR	23	48500	27	49400	21.7	49767	7.8	49825	1.7	49838
GR	-16.3	49867	-20.9	49917	-19.3	49967	-12.6	50017	-10.7	50067
GR	-7.4	50117	-4.5	50167	1.67	50197	31.6	50234	32.1	50284
GR	25	51280	15	51330	13	51370	15	51400	25	51440
GR	25	52140	24.5	56225	35	56230	0	0	0	0

NH	4	.12	45601	.1	49753	.035	50247	.08	54690	0
QT	5	78969	80740	80941	82208	80941	0	0	0	0
ET	0	0	0	0	0	7.1	18750	50247	0	0
X1	29.31	35	49753	50247	2900	2900	3538	0	0	0
GR	25	8350	25	8700	20	16650	20	16950	25	21808
GR	25	28700	20	29000	25	29500	25	31600	20	39150
GR	25	45200	25	45601	25	45602	25	45603	25	45604
GR	13	45650	25	46900	23	47000	28	49000	21	49753
GR	8.1	49791	2	49805	-.8	49853	-2	49903	-5.1	49953
GR	-6.9	50003	-9.4	50053	-13.4	50103	-14.4	50153	2	50193
GR	19.7	50247	20.8	50297	25	51380	25	54685	34	54690

NH	6	.12	45891	.1	46300	.08	49783	.035	50216	.06
NH	54600	.1	56850	0	0	0	0	0	0	0
QT	5	80920	85042	85511	88328	85511	0	0	0	0
ET	0	0	0	0	0	7.1	21783	50216	0	0
X1	30.2	29	49783	50216	4200	5100	4966	0	0	0
X4	1	25	46300	0	0	0	0	0	0	0
GR	24	9300	25	10450	25	20620	20	24900	20	28300
GR	25	30750	25	45891	25	45892	25	45893	20	46000
GR	27	49733	25.2	49783	5	49818	1.6	49824	-5.4	49883
GR	-12.1	49933	-12.8	49983	-15.3	50033	-14.2	50083	-3.4	50133
GR	1.6	50143	29	50216	28.5	50266	25	50700	25	54600
GR	30	55750	30	56370	35	56510	33	56850	0	0

NH	6	.1	43501	.06	44800	.08	49788	.035	50238	.08
NH	54400	.1	58100	0	0	0	0	0	0	0
QT	5	82476	88475	89157	93210	89157	0	0	0	0
ET	0	0	0	0	0	9.4	0	0	0	0
X1	30.91	36	49788	50238	3400	3400	3749	0	0	0
GR	25	9950	25	28250	25	28400	25	31680	25	31980
GR	25	32250	25	32300	25	36020	25	38240	25	38500
GR	25	38650	25	43501	20	43930	17.5	44000	20	44040
GR	25	44160	25	44800	22	46500	25	48500	30	49700
GR	27	49788	4.9	49833	2.2	49838	-11.8	49888	-15.9	49938
GR	-13.6	49988	-11.5	50038	-11.4	50088	-.7	50138	2.2	50143
GR	26.8	50238	25	51270	24	52870	25	54400	30	56840

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GR	32.5	58100	0	0	0	0	0	0	0	0
NH	4	.1	44800	.08	49792	-.035	50208	.1	62550	0
QT	5	84800	93600	94600	100500	94600	0	0	0	0
ET	0	0	0	0	0	7.1	29669	50208	0	0
X1	31.97	42	49792	50208	5300	5600	5597	0	0	0
GR	29	14449	29	14450	25	18420	25	25550	20	25700
GR	25	25820	25	26650	20	26800	25	26970	25	28670
GR	20	28750	25	28850	25	33850	20	34400	25	34750
GR	25	35700	20	37550	15	37720	20	37830	25	39200
GR	25	44800	25	44801	25	44802	25	44803	20	45000
GR	17.5	45100	20	45300	25	45400	30	49330	30.2	49742
GR	30.1	49792	4.6	49853	.5	49864	-15.6	49892	-25.5	49942
GR	-27.6	49992	-20.7	50042	-10.2	50092	-3.5	50142	.5	50162
GR	32.4	50208	35	62550	0	0	0	0	0	0
NH	5	.1	43164	.08	49478	.035	50057	.08	58240	.1
NH	63450	0	0	0	0	0	0	0	0	0
QT	5	85168	93746	94907	100569	94907	0	0	0	0
ET	0	0	0	0	0	7.1	29478	50057	0	0
X1	32.19	49	49478	50057	50	380	1147	0	0	0
GR	28	19150	25	33150	23	36000	20	37150	25	37400
GR	30	37500	25	37550	25	38900	25	40600	20	40950
GR	25	41200	25	42250	20	42400	25	42450	25	43164
GR	22.5	43300	25	43330	30	46900	30.5	47300	30	47700
GR	28	48100	28.2	48618	29.2	48989	28.4	49059	29.4	49190
GR	30.4	49478	25.4	49538	1.4	49648	-5.6	49688	-10.6	49738
GR	-18.6	49788	-18.6	49838	-3.6	49888	1.4	49898	26.4	49998
GR	29.6	50057	28.8	50448	25	52100	6	52200	25	52270
GR	25.5	52399	28.5	52400	28.5	52430	25.5	52431	25	53150
GR	25	53600	28	58240	30	59740	35	63450	0	0
NC	0	0	0	.3	.5	0	0	0	0	0
QT	5	85217	93765	94947	100578	94947	0	0	0	0
ET	0	0	0	0	0	7.1	29478	50057	0	0
X1	32.21	0	0	0	50	100	150	0	0	0
X3	10									
SB	1.05	1.56	2.8	0	80	10	18330	5	-18.6	-18.6
QT	5	85227	93769	94956	100580	94956	0	0	0	0
ET	0	0	0	0	0	7.1	29478	50057	0	0
X1	32.22	0	0	0	32	32	32	0	0	0
X2	0	0	1	35.4	29.6	0	0	0	0	0
X3	10									
BT	11	49018	36.8	0	49227	40	0	49388	42.8	0
BT	49445	43.4	0	49567	44.6	0	49731	45.4	0	49905
BT	44.2	0	50030	43	0	50173	41	0	50331	37.8
BT	0	50400	36.8	0	0	0	0	0	0	0



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NH	5	.1	46700	.06	48300	.05	49789	.033	50211	.08
NH	65000	0	0	0	0	0	0	0	0	0
QT	5	89600	95500	98600	101400	98600	0	0	0	0
ET	0	0	0	0	0	7.1	37000	50211	0	0
X1	34.8	36	49789	50211	4800	2000	4118	0	0	0
GR	30	18450	30	21000	35	21400	30	21770	28	28160
GR	24	36000	25	41810	25	46700	20	46860	20	46950
GR	25	47060	29	47260	27.5	47750	30	48300	28.9	49739
GR	24.6	49789	4.8	49836	.4	49863	-3.4	49889	-5.2	49939
GR	-8.4	49989	-11.2	50039	-13.2	50089	-5.4	50139	.4	50149
GR	27.8	50211	26.4	50261	30	50680	28	52680	30	55000
GR	30	57700	35	57780	30	57830	30	63450	35	64550
GR	35	65000	0	0	0	0	0	0	0	0

NH	5	.1	46500	.06	49797	.033	50204	.05	56820	.1
NH	61000	0	0	0	0	0	0	0	0	0
QT	5	89764	94827	97400	99782	97400	0	0	0	0
ET	0	0	0	0	0	7.1	35000	50204	0	0
X1	35.44	30	49797	50204	2700	3100	3379	0	0	0
GR	30	15150	30	15151	30	15152	30	15153	30	18500
GR	30	19350	30	19860	28	28100	24	34000	25	40200
GR	25	46160	23	46250	30	46500	30	48920	28.3	49797
GR	7.5	49842	1.3	49879	.1	49897	-3.3	49947	-5.7	49997
GR	-8.6	50047	-8.4	50097	1.3	50137	32	50204	32.2	50254
GR	30	50900	29	53700	30	56820	30.5	57475	34	61000

NH	3	.1	39896	.033	40323	.05	47100	0	0	0
QT	5	90201	93030	94194	95458	94194	0	0	0	0
ET	0	0	0	0	0	7.1	23500	40323	0	0
X1	37.15	38	39896	40323	4700	14600	9029	0	0	0
GR	31	8550	31	8551	31	8552	31	8553	31	8554
GR	30	8670	30	14600	30	14680	30	14700	30	25260
GR	25	26000	27	32000	29.4	35950	29.6	36676	24.6	36748
GR	24.6	36804	29	36838	32.2	37030	32.2	38414	33.2	39206
GR	32.4	39800	30.8	39896	27.8	39930	15.4	39940	-3.2	40050
GR	-13.6	40100	-20.1	40150	-8.1	40200	1.4	40225	15.4	40265
GR	24.4	40291	32.4	40323	32.6	40639	33.8	40687	35.4	40734
GR	40	43889	35	45700	37	47100	0	0	0	0

NH	5	.1	29800	.08	33457	.033	33886	.05	34213	.05
NH	41850	0	0	0	0	0	0	0	0	0
QT	5	90500	91800	92000	92500	92000	0	0	0	0
ET	0	0	0	0	0	7.1	20454	33886	0	0
X1	38.32	36	33457	33886	3500	6000	6178	0	0	0
GR	33	13275	32	13300	30	13400	30	18800	28	25000
GR	30	29800	29.4	32000	20	32100	29.4	32200	30.4	32570
GR	33	32990	35.2	33457	17	33507	-15	33560	-19.7	33585
GR	-19.7	33590	-15	33615	-3	33650	7	33775	11	33800
GR	17	33834	34.6	33886	34.6	34213	34	34843	34	35652
GR	33.2	35967	32.6	36544	32.2	36866	31.6	37430	31.8	37975

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GR	33.2	38259	35.6	39003	37	39674	38.8	40465	40.4	40709
GR	38	41850	0	0	0	0	0	0	0	0
NH	5	.1	12271	.08	16699	.033	17399	.05	17675	.06
NH	23600	0	0	0	0	0	0	0	0	0
QT	5	91446	93005	93205	93705	93205	0	0	0	0
ET	0	0	0	0	0	7.1	6446	17399	0	0
X1	39.47	49	16699	17399	5800	2600	6072	0	0	0
GR	35.5	1680	35	1681	35	1900	30	4360	30	6500
GR	30	7470	28	7550	30	7600	30	8700	28	8800
GR	30	8850	30	9850	28	9900	30	10000	34.2	10666
GR	32.6	11171	32	11946	25	11997	25	12139	31.2	12271
GR	30.8	14085	30.6	15038	30.8	15711	31.6	16193	33.8	16520
GR	35.4	16699	33.6	16927	17	16978	9	17010	2	17060
GR	-8	17100	-12.8	17150	-8	17200	2	17240	9	17300
GR	17	17327	28.8	17358	34.8	17399	34.8	17675	35	17964
GR	34.2	18225	33.8	19477	32.4	20178	34	20768	39.4	21414
GR	30	21620	28	21650	30	21700	40	23600	0	0
NH	4	.06	20486	.033	20980	.05	21483	.08	24120	0
QT	5	92138	93884	94084	94584	94084	0	0	0	0
ET	0	0	0	0	0	7.1	12500	20980	0	0
X1	40.31	46	20486	20980	3500	5200	4435	0	0	0
GR	36	9300	36	9301	35	9500	30	9770	30	12600
GR	35	16200	35	16430	33	16500	35	16600	35.3	16794
GR	32.9	17055	29.1	17664	30.1	17749	29.7	18019	30.1	18154
GR	31.4	18851	31.4	19412	31.6	19675	34.6	19990	36.2	20245
GR	36	20416	36	20486	17	20531	9	20560	2	20585
GR	-7	20630	-9.4	20680	-7	20730	2	20775	7	20810
GR	17	20837	29.2	20893	33.8	20922	29.4	20941	35.8	20980
GR	34.6	21483	33.6	21992	32.6	22487	33	22606	33.8	22829
GR	35.8	23152	39	23394	41	23555	37	23750	40	23900
GR	40	24120	0	0	0	0	0	0	0	0
NH	5	.08	16368	.05	16529	.033	17097	.05	17539	.08
NH	22150	0	0	0	0	0	0	0	0	0
COMMENTED OUT QT RECORD HERE										
ET	5	92821	94754	94954	95454	94954	0	0	0	0
ET	0	0	0	0	0	7.1	16529	17097	0	0
QT	5	92821	94754	94954	95454	94954	0	0	0	0
X1	41.14	27	16529	17097	4000	4800	4382	0	0	0
GR	36.5	8770	36	8930	35	12150	35	14400	32	14600
GR	35	14750	34.5	15088	34.1	15837	36.7	16368	36.9	16529
GR	33.1	16672	17.5	16714	5	16900	-8.9	16940	0	16990
GR	17.5	17052	37.3	17097	32.5	17539	33.7	17941	33.7	18134
GR	34.6	18302	36.2	18645	40.2	19002	41.4	19141	35	20500
GR	40	21820	37	22150	0	0	0	0	0	0



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NH	4	.05	1111	.033	1625	.04	2380	.05	4260	0
QT	5	93800	96000	96200	96700	96200	0	0	0	0
ET	0	0	0	0	0	7.1	1111	1625	0	0
X1	42.33	25	1111	1625	4300	6500	6283	0	0	0
GR	45	900	36.8	1111	18	1130	-5	1165	-14	1185
GR	-18.6	1225	-14	1265	-4	1290	5	1330	11	1400
GR	18	1466	23.8	1477	27.8	1500	32.8	1541	35.8	1579
GR	36.8	1625	35.8	2116	35.6	2380	34.4	2787	35.2	3200
GR	38.6	3686	40.2	3916	37	4000	40	4100	40	4260

NH	4	.05	1315	.033	1997	.06	2523	.05	5000	0
QT	5	94162	96520	96736	97283	96736	0	0	0	0
ET	0	0	0	0	0	7.1	1315	1997	0	0
X1	43.25	20	1315	1997	4630	4100	4857	0	0	0
GR	45	960	35.8	1000	37.4	1315	33.8	1411	18.6	1466
GR	0	1620	-17	1680	-27	1730	-16	1780	-7	1820
GR	18.6	1860	34.5	1926	38.1	1997	38.7	2523	36.7	3000
GR	36.3	3512	39.1	3889	37	4000	40	4520	40	5000

NH	4	.05	1082	.04	1501	.06	2476	.06	6500	0
QT	5	94365	97198	97434	98043	97434	0	0	0	0
ET	0	0	0	0	0	7.1	1082	1501	0	0
X1	44.45	25	1082	1501	4400	7000	6336	0	0	0
GR	45	800	40	830	34.5	1082	19.7	1126	3.6	1140
GR	-10	1200	-24.5	1250	-24.5	1315	-10	1365	3.6	1425
GR	19.7	1439	39.5	1501	39.3	1675	36.1	2476	39.3	2822
GR	37.6	2948	40.8	3511	42.4	3581	37	3700	40	3900
GR	40	4200	37	4700	40	5070	45	5150	47	6500

NH	4	.06	3780	.033	4185	.05	5369	.06	10250	0
QT	5	95076	97831	98086	98753	98086	0	0	0	0
ET	0	0	0	0	0	7.1	1561	6032	0	0
X1	45.57	34	3780	4185	4300	4400	5914	0	0	0
GR	40	750	36.2	1561	37.2	2143	37	2324	30.2	2376
GR	25.6	2397	37.2	2433	36	2746	38.4	2841	38.2	3034
GR	39.1	3271	35.7	3443	32.8	3780	3.3	3970	1.3	3999
GR	-.7	4029	-10.2	4058	-1.7	4087	.3	4115	3.3	4145
GR	38.3	4185	40.3	4307	39.1	4604	39.7	5369	42.3	5818
GR	39.5	5884	35.9	5973	39.5	6034	42.3	6177	45.7	6318
GR	40.8	6785	45.4	7028	49.6	7792	47	10250	0	0

NH	4	.06	5732	.033	6545	.08	11870	.08	16500	0
QT	5	95328	98193	98459	99158	98459	0	0	0	0
ET	0	0	0	0	0	7.1	5732	6546	0	0
X1	46.21	35	5732	6545	4100	1000	3379	0	0	0
GR	41	5350	39.3	5600	40.1	5702	39.5	5732	20.8	5749
GR	0	5820	-9.8	5840	-9.8	5900	0	6000	10	6110
GR	20.8	6228	29	6272	32.6	6371	36.8	6545	36.2	6839
GR	40	7100	43.1	9479	43.1	9480	42.5	9831	42.5	9832

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GR	42.1	10694	41.9	10846	41.5	10987	42.3	11096	41.3	11224
GR	40.8	11870	41	12167	44.8	12195	40.8	12219	41.6	12675
GR	46.2	12860	46.6	13287	46.6	13860	47	14320	48.5	16500
NH	4	.06	6260	.04	6831	0.06	7166	.08	15950	0
QT	5	96100	99300	99600	100400	99600	0	0	0	0
ET	0	0	0	0	0	10.4	0	0	0	0
X1	48.17	31	6260	6831	3000	6000	10348	0	0	0
GR	43	4700	43	4701	40.7	4923	35.5	4987	33.7	5192
GR	39.9	5231	42.9	5451	41.3	5827	43.1	6260	42.7	6285
GR	21.7	6354	0	6400	-8.2	6475	-8.2	6540	0	6600
GR	21.7	6648	26.3	6693	36.9	6831	40.1	7166	39.7	7468
GR	40.8	8180	40	9175	41	10193	39.2	11000	39.8	11288
GR	45.5	11859	46.5	12565	52.1	13203	53.3	13540	55	14700
GR	56	15950	0	0	0	0	0	0	0	0
NH	4	.06	9980	.033	10410	.08	10711	.08	15850	0
QT	5	96100	100500	101300	102400	101300	0	0	0	0
ET	0	0	0	0	0	8.4	0	0	0	0
X1	50.17	38	9980	10410	2600	4100	10560	0	0	0
GR	44	5400	40.7	6052	40.5	6666	40.5	7040	40.9	7516
GR	41.5	8154	34.7	8176	34.7	8190	42.7	8209	42.5	8255
GR	41.1	8314	40.7	8973	41.3	9423	43.1	9514	40.9	9674
GR	41.9	9905	41.8	9980	6.9	10085	4.4	10127	3.9	10169
GR	-6.6	10210	2.9	10252	3.9	10293	6.9	10335	34.1	10365
GR	38	10385	41.9	10410	42.3	10456	45.1	10538	48.7	10636
GR	52	10711	52.4	10915	52.4	11354	52.8	12035	54.8	12367
GR	53.4	12568	53.8	12620	52	15850	0	0	0	0
NH	4	.08	10923	.033	11338	.08	12586	.08	17930	0
QT	5	96100	100659	101503	102834	101503	0	0	0	0
X1	50.61	19	10923	11338	3300	1800	2323	0	0	0
GR	44.5	10819	43.1	10923	22.3	10963	-6.4	11030	-6.4	11100
GR	22.3	11292	43.5	11338	44.7	11466	44.7	11755	45.5	11988
GR	49.2	12241	50.4	12586	52	12887	52.6	13340	52.8	13683
GR	53.6	14014	53.6	14348	53.6	14480	52	17930	0	0
NH	3	.08	11676	.033	12243	.08	12600	0	0	0
QT	5	96100	100920	101834	103545	101834	0	0	0	0
X1	51.33	17	11676	12243	2700	4100	3801	0	0	0
GR	45	11000	44.8	11506	43.4	11676	14.6	11732	5	11800
GR	0	11820	-6	11840	-6	11910	0	11930	5	11950
GR	14.6	12022	28.8	12056	30.6	12099	43.8	12243	44.6	12368
GR	49.8	12453	50	12600	0	0	0	0	0	0

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NH	5	.05	7813	.033	8447	.05	9196	.08	11079	.08
NH	16600	0	0	0	0	0	0	0	0	0
QT	5	96100	101311	102332	104610	102332	0	0	0	0
ET	0	0	0	0	0	7.1	7813	8447	0	0
X1	52.41	25	7813	8447	2800	3200	5702	0	0	0
GR	47	7400	47	7401	47	7402	45.1	7575	46.9	7813
GR	36.7	7838	6.9	7905	4.9	7926	3.9	7948	-5.6	7969
GR	4.4	7991	5.9	8012	6.9	8034	35.5	8275	45.3	8447
GR	46.5	8620	46.5	9196	45.5	9594	45.5	10135	48.1	10263
GR	50.6	10420	50.6	11079	51.5	14500	50	14750	50	16600
NH	4	.05	10170	.033	10725	.05	12874	.06	16060	0
QT	5	96100	101600	102700	105400	102700	0	0	0	0
ET	0	0	0	0	0	7.1	10170	10725	0	0
X1	53.21	29	10170	10725	4200	3000	4224	0	0	0
GR	47.5	8000	45.9	8097	43.9	8394	44.7	9104	48.9	9131
GR	48.9	9147	44.3	9171	46.7	9559	47.1	10005	46.9	10170
GR	37.4	10310	29.2	10350	16	10382	-1.7	10480	-1.7	10550
GR	16	10659	23.4	10696	45.6	10725	45.8	10921	49.4	11040
GR	50.8	11227	50.2	12109	49.6	12874	49.6	13279	49.4	13705
GR	48.9	13943	51.1	15040	51.3	15674	51.7	16060	0	0
NH	3	.05	15420	.033	16290	.05	16410	0	0	0
QT	5	96100	101722	103189	106501	103189	0	0	0	0
ET	0	0	0	0	0	7.1	15420	16290	0	0
X1	55.32	17	15420	16290	7500	80000	11141	0	0	0
X4	2	50	14780	49.2	15000	0	0	0	0	0
GR	51	14550	49.2	15199	52.4	15231	49	15254	49.8	15420
GR	45.9	15480	14.8	15600	11.7	15649	7.6	15747	2.8	15845
GR	4.3	15943	10.1	16041	14.8	16090	44.3	16220	45.5	16250
GR	46.8	16290	47	16410	0	0	0	0	0	0
NH	3	.05	12130	.033	12701	.08	14413	0	0	0
QT	5	96100	101800	103500	107200	103500	0	0	0	0
ET	0	0	0	0	0	7.1	12130	12701	0	0
X1	56.66	23	12130	12701	5300	5200	7075	0	0	0
GR	50	12070	49.2	12130	17.6	12183	0	12340	0	12341
GR	17.6	12588	22.2	12627	40	12680	46	12701	49.6	12837
GR	46	12977	49	13091	46.4	13182	47.2	13228	44.4	13365
GR	46	13488	47.2	13578	42	13678	45	13713	45.2	13958
GR	45	14229	47.2	14298	50.5	14413	0	0	0	0
NH	3	.06	12106	.05	12307	.035	13005	0	0	0
NC	0	0	0	.3	.5	0	0	0	0	0
QT	5	96100	102487	104478	109031	104478	0	0	0	0
ET	0	0	0	0	0	7.1	12307	13005	0	0

Brazos River Multi. Freq. BRAZRIV2.IH2

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PAGE 21

GR	51	10700	51.4	11501	51.4	11557	47	11606	46.6	11690
GR	47.8	11796	50.2	11838	48.6	11890	50.6	11988	48.6	12106
GR	50	12204	58.5	12307	42.8	12392	40.6	12468	9.2	12685
GR	7.9	12719	5.8	12753	3.1	12780	-1.3	12814	2.8	12848
GR	5.7	12865	58.5	13005	0	0	0	0	0	0
QT	5	96100	102520	104525	109120	104525	0	0	0	0
ET	0	0	0	0	0	7.1	12307	13005	0	0
X1	57.31	0	0	0	158	158	158	0	0	0
X3	10	0	0	0	0	0	0	0	0	0
SB	1.05	1.56	2.8	0	106	18	19500	4	-1.3	-1.3
QT	5	96100	102524	104531	109131	104531	0	0	0	0
ET	0	0	0	0	0	7.11	12307	13005	0	0
X1	57.32	0	0	0	20	20	20	0	0	0
X2	0	0	1	63	58.5	0	0	0	0	0
X3	10	0	0	0	0	0	0	0	0	0
BT	29	11501	51.4	51.4	11557	51.4	51.4	11606	47	47
BT	11690	46.6	46.6	11796	47.8	47.8	11838	50.2	50.2	11890
BT	48.6	48.6	11988	50.6	50.6	12106	48.6	48.6	12204	50
BT	50	12307	58.5	0	12392	67.2	0	12468	67.2	0
BT	12685	67.2	0	12719	67.2	0	12753	67.2	0	12780
BT	67.2	0	12814	67.2	0	12848	67.2	0	12865	67.2
BT	0	13005	58.5	0	13091	50	50	13328	47.8	47.8
BT	13430	49.2	49.2	13440	47.4	47.4	13720	47.4	47.4	13754
BT	50.8	50.8	13958	51	51	14260	52	52	0	0
QT	5	96100	102545	104561	109187	104561	0	0	0	0
ET	0	0	0	0	0	7.1	12307	13005	0	0
X1	57.33	0	0	0	100	100	100	0	0	0
NC	0	0	0	.1	.3	0	0	0	0	0
NH	3	.06	11281	.033	12031	.08	14050	0	0	0
QT	5	96100	103328	105676	111275	105676	0	0	0	0
ET	0	0	0	0	0	7.1	11281	12031	0	0
X1	58.04	27	11281	12031	2700	2800	3734	0	0	0
GR	50	11050	51.5	11281	19.3	11321	-.2	11420	-.2	11490
GR	19.3	11683	29.1	11810	32.3	11855	40.5	11899	51.5	12031
GR	48.8	12161	48.4	12416	46.8	12520	48.2	12599	47.8	13000
GR	46.8	13037	50.6	13090	50.8	13165	52.4	13280	50.6	13411
GR	53.2	13554	50.8	13570	53.4	13593	51.6	13614	53.8	13630
GR	54.6	13967	52	14050	0	0	0	0	0	0

NH	3	.06	12069	.033	12527	.08	16650	0	0	0
QT	5	96100	104524	107380	114464	107380	0	0	0	0
ET	0	0	0	0	0	7.1	12069	12527	0	0
X1	59.12	25	12069	12527	4700	4700	5702	0	0	0
GR	52	10800	53.1	11872	53.1	11873	48.5	11928	51.1	11975
GR	48.3	12041	47.9	12069	19.9	12115	.9	12250	.9	12320
GR	19.9	12441	48.9	12527	49.5	12781	51.1	12991	50.7	13075
GR	51.5	13288	53.1	13510	62.7	13669	53.5	13808	48.9	13930
GR	50.7	14070	61.1	14138	62.3	14400	57.3	15610	56	16650
NH	4	.06	13363	.033	13832	.07	15716	.08	18442	0
QT	5	96100	105100	108200	116000	108200	0	0	0	0
ET	0	0	0	0	0	7.1	13363	13832	0	0
X1	59.64	27	13363	13832	3200	2600	2746	0	0	0
GR	53	10600	50.3	11391	51.3	12619	51.9	13158	50.3	13363
GR	43.5	13428	20.7	13477	9.7	13550	1.2	13615	6.6	13700
GR	20.7	13753	50.5	13832	52.3	13893	49.9	14566	51.1	14937
GR	52.3	15716	54.7	16360	52.1	16528	50.9	16939	51.1	17618
GR	55.3	18036	56.7	18080	57.2	18137	32.8	18201	20.2	18280
GR	20.2	18358	61.2	18442	0	0	0	0	0	0
NH	4	.06	14600	.08	17453	.033	17870	.08	18350	0
QT	5	96100	111575	117282	131720	117282	0	0	0	0
ET	0	0	0	0	0	9.4	0	0	0	0
X1	60.29	24	17453	17870	3100	3300	3432	0	0	0
GR	54	11850	50	13400	48.8	14600	50	14900	53	16835
GR	55.6	16849	55.4	16863	51.4	16890	52	17070	55.2	17167
GR	55.4	17241	52.4	17318	51.4	17453	49	17500	22.4	17582
GR	14	17620	7	17665	0	17707	7	17750	14	17795
GR	22.4	17832	52.8	17870	52.6	18032	50	18350	0	0
NH	3	.06	14500	.033	14935	.08	15670	0	0	0
QT	5	96100	122333	132372	157837	132372	0	0	0	0
ET	0	0	0	0	0	9.4	0	0	0	0
X1	61.37	20	14500	14935	3000	4600	5702	0	0	0
GR	53	11800	51	12300	51.2	12650	52.6	13947	54.6	14414
GR	56.4	14500	9.6	14525	4.6	14535	-2	14590	3.6	14652
GR	7.6	14710	8.6	14770	9.6	14780	53.3	14935	51	15009
GR	47.4	15036	54.4	15167	50.8	15489	56.2	15550	56	15670
NH	3	.06	11490	.033	11990	.08	13714	0	0	0
QT	5	96100	132992	147324	183715	147324	0	0	0	0
ET	0	0	0	0	0	9.4	0	0	0	0
X1	62.44	29	11490	11990	6140	3500	5650	0	0	0
GR	53.5	11400	56.1	11490	9.6	11500	3.6	11515	2.8	11612
GR	4.1	11710	5.1	11808	5.1	11905	9.6	11920	42.7	11990
GR	41.6	12001	39.4	12080	41.6	12138	38.6	12173	35.4	12258
GR	35.2	12455	38.4	12613	36	12668	41.8	12900	39.2	13078
GR	39.4	13175	43.6	13263	42.2	13304	47	13376	55.2	13413
GR	55.8	13451	54.4	13492	55.2	13617	53.8	13714	0	0

Brazos River Multi. Freq. BRAZRIV2.IH2

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NH	3	.06	5981	.033	6787	.06	8598	0	0	0
QT	5	96100	142656	160879	207176	160879	0	0	0	0
ET	0	0	0	0	0	9.4	0	0	0	0
X1	63.41	22	5981	6787	4300	3600	5122	0	0	0
X4	2	54.5	5587	55.5	5981	0	0	0	0	0
GR	54	5500	35.3	6072	23.3	6095	-2.8	6160	-2.8	6230
GR	23.3	6553	46.7	6612	49.1	6787	47.9	7006	44.1	7034
GR	48.9	7171	46.7	7391	44.5	7607	44.1	7669	42.8	7718
GR	43.2	7917	42.8	8049	47.2	8124	47.8	8413	45.4	8462
GR	46.6	8538	55.8	8598	0	0	0	0	0	0

NH	3	.06	7631	.033	8348	.06	8700	0	0	0
QT	5	96100	150425	171777	226038	171777	0	0	0	0
X1	64.19	24	7631	8348	900	3700	4118	0	0	0
X4	3	54.5	5200	56	6300	56.4	6887	0	0	0
GR	54	550	53	6967	52	6993	54.4	7039	52.8	7137
GR	52	7289	53	7343	53	7468	52.6	7516	53.2	7606
GR	54.2	7631	9.5	7711	3	7721	1.5	7794	4.5	7866
GR	7.5	7939	8.5	8011	9.5	8021	45.8	8225	50.9	8348
GR	48.1	8388	54.5	8472	57.1	8564	52	8700	0	0

NH	2	.06	9025	.033	9929	0	0	0	0	0
QT	5	96100	157000	181000	242000	181000	0	0	0	0
ET	0	0	0	0	0	10.4	0	0	0	0
X1	64.85	22	9025	9669	1200	2200	3485	0	0	0
X4	10	53.2	5380	53.8	5992	54	6536	54	6960	54
X4	7472	54.4	7627	54.8	7678	54.8	7690	55	7720	56
X4	8151	0	0	0	0	0	0	0	0	0
GR	54	30	58	8487	54.2	8538	55.6	8600	53	8687
GR	56.8	8800	55.8	8917	53.4	9025	48.8	9226	9.5	9256
GR	8	9271	6.5	9324	4.5	9408	-2.5	9476	-5.5	9544
GR	9.5	9559	56.5	9669	44.8	9720	37.8	9748	51.2	9872
GR	52.2	9912	56.8	9929	0	0	0	0	0	0

NH	2	.06	9025	.033	9929	0	0	0	0	0
QT	5	96100	157000	181000	242000	181000	0	0	0	0
ET	0	0	0	0	0	10.4	0	0	0	0
X1	65.78	22	9025	9669	5000	4800	4910	0	0	0
X4	10	53.2	5380	53.8	5992	54	6536	54	6960	54
X4	7472	54.4	7627	54.8	7678	54.8	7690	55	7720	56
X4	8151	0	0	0	0	0	0	0	0	0
GR	54	30	58	8487	54.2	8538	55.6	8600	53	8687
GR	56.8	8800	55.8	8917	53.4	9025	48.8	9226	9.5	9256
GR	8	9271	6.5	9324	4.5	9408	-2.5	9476	-5.5	9544
GR	9.5	9559	56.5	9669	44.8	9720	37.8	9748	51.2	9872
GR	52.2	9912	56.8	9929	0	0	0	0	0	0

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T1 BRAZORIA COUNTY FLOOD INSURANCE STUDY  
 T2 BRAZOS RIVER  
 T3 50 YR

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	3	0	0	.0002	0	0	0	10.48	0
J2	NPROP	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2	0	-1	0	0	0	0	0	0	0

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T1 BRAZORIA COUNTY FLOOD INSURANCE STUDY  
 T2 BRAZOS RIVER  
 T3 100 YR

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	4	0	0	.0002	0	0	0	11.48	0
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15	0	-1	0	0	0	0	0	0	0



THIS RUN EXECUTED 27AUG02 22:50:18

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

10 YR

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
3.580	62900.00	6.23	5.45	-30.60	4.80	4.40	15.00	62435.73	99.26	.00	1804.06
3.580	62900.00	6.25	5.44	-30.60	4.80	4.40	15.00	62417.17	99.23	.00	1806.17
3.580	62900.00	6.29	5.43	-30.60	4.80	4.40	15.00	62387.23	99.18	.00	1809.51
3.600	62853.00	6.25	5.44	-30.60	4.80	4.40	15.00	62375.04	99.24	100.00	1805.66
3.600	62857.00	6.27	5.43	-30.60	4.80	4.40	15.00	62360.34	99.21	100.00	1807.76
3.600	62857.00	6.32	5.42	-30.60	4.80	4.40	15.00	62330.21	99.16	100.00	1811.08
3.620	62814.00	6.27	5.43	-30.60	4.80	4.40	15.00	62317.73	99.21	84.00	1807.75
3.620	62820.00	6.30	5.42	-30.60	4.80	4.40	15.00	62304.88	99.18	84.00	1809.84
3.620	62820.00	6.34	5.41	-30.60	4.80	4.40	15.00	62274.50	99.13	84.00	1813.15
3.640	62768.00	6.29	5.42	-30.60	4.80	4.40	15.00	62257.84	99.19	100.00	1809.34
3.640	62777.00	6.32	5.41	-30.60	4.80	4.40	15.00	62247.86	99.16	100.00	1811.41
3.640	62777.00	6.36	5.40	-30.60	4.80	4.40	15.00	62217.31	99.11	100.00	1814.71
3.720	62535.00	6.39	5.43	-30.60	4.80	4.40	15.00	61945.44	99.06	500.00	1818.26
3.720	62559.00	6.42	5.42	-30.60	4.80	4.40	15.00	61949.58	99.03	500.00	1820.36
3.720	62559.00	6.46	5.41	-30.60	4.80	4.40	15.00	61917.89	98.98	500.00	1823.70
4.000	61867.00	6.67	5.74	-24.60	5.30	5.80	15.00	61404.08	99.25	1434.00	1682.99
4.000	61936.00	6.70	5.74	-24.60	5.30	5.80	15.00	61455.29	99.22	1434.00	1683.10
4.000	61936.00	6.73	5.73	-24.60	5.30	5.80	15.00	61427.41	99.18	1434.00	1683.27
4.800	59900.00	7.86	5.55	-17.00	9.50	5.20	10.00	59629.56	99.55	4224.00	812.86
4.800	60100.00	7.88	5.56	-17.00	9.50	5.20	10.00	59825.16	99.54	4224.00	813.53
4.800	60100.00	7.91	5.55	-17.00	9.50	5.20	10.00	59820.24	99.53	4224.00	814.46
5.700	59805.00	9.14	5.20	-17.20	6.10	6.80	11.80	59704.82	99.83	4752.00	691.86
5.700	60100.00	9.16	5.21	-17.20	6.10	6.80	11.80	59997.23	99.83	4752.00	696.40
5.700	60242.00	9.19	5.22	-17.20	6.10	6.80	11.80	60137.57	99.83	4752.00	699.47

Brazos River Multi. Freq. BRAZRIV2.IH2

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
6.500	59721.00	9.98	4.71	-20.20	7.00	4.00	9.20	59684.47	99.94	4224.00	587.52
6.500	60100.00	10.01	4.73	-20.20	7.00	4.00	9.20	60062.81	99.94	4224.00	587.62
6.500	60368.00	10.03	4.75	-20.20	7.00	4.00	9.20	60330.27	99.94	4224.00	587.71
7.470	56619.00	10.86	4.60	-22.70	4.90	2.80	10.10	56291.82	99.42	5122.00	782.00
7.470	60100.00	10.91	4.87	-22.70	4.90	2.80	10.10	59744.65	99.41	5122.00	782.00
7.470	60522.00	10.94	4.90	-22.70	4.90	2.80	10.10	60159.12	99.40	5122.00	782.00
8.600	59500.00	12.11	5.78	-25.80	7.40	12.00	12.00	58935.20	99.05	5966.00	899.29
8.600	60100.00	12.27	5.80	-25.80	7.40	12.00	12.00	59462.31	98.94	5966.00	902.33
8.600	60700.00	12.31	5.84	-25.80	7.40	12.00	12.00	60035.87	98.91	5966.00	903.21
9.450	62800.00	13.33	5.98	-21.00	11.10	8.30	12.50	61826.93	98.45	4488.00	1883.69
9.450	63800.00	13.48	6.03	-21.00	11.10	8.30	12.50	62634.76	98.17	4488.00	1884.37
9.450	64900.00	13.55	6.11	-21.00	11.10	8.30	12.50	63637.65	98.05	4488.00	1884.65
*	9.880	62800.00	14.00	4.01	-26.00	12.60	10.60	61474.56	97.89	2270.00	1680.31
*	9.880	63723.00	14.16	4.05	-26.00	12.60	10.60	62277.47	97.73	2270.00	1682.02
*	9.880	64919.00	14.24	4.11	-26.00	12.60	10.60	63393.89	97.65	2270.00	1682.88
10.210	62800.00	14.14	4.59	-30.40	13.70	11.20	11.50	61266.87	97.56	1742.00	1770.15
10.210	63663.00	14.30	4.62	-30.40	13.70	11.20	11.50	61987.16	97.37	1742.00	1771.28
10.210	64934.00	14.38	4.69	-30.40	13.70	11.20	11.50	63159.10	97.27	1742.00	1771.87
*	10.750	62800.00	14.53	3.10	-29.50	10.60	8.00	59183.81	94.24	2851.00	3964.52
*	10.750	63566.00	14.69	3.12	-29.50	10.60	8.00	59705.10	93.93	2851.00	3965.38
*	10.750	64959.00	14.79	3.17	-29.50	10.60	8.00	60893.76	93.74	2851.00	3965.88
*	11.670	62800.00	14.73	4.34	-28.40	14.40	13.20	61758.97	98.34	4857.00	1101.60
*	11.670	63400.00	14.90	4.36	-28.40	14.40	13.20	62275.42	98.23	4857.00	1103.40
*	11.670	65000.00	15.00	4.45	-28.40	14.40	13.20	63799.42	98.15	4857.00	1104.51
12.090	64643.00	15.02	4.36	-23.70	21.40	13.80	13.90	63963.53	98.95	2217.00	1047.66
12.090	70952.00	15.17	4.74	-23.70	21.40	13.80	13.90	70161.66	98.89	2217.00	1058.01
12.090	73912.00	15.28	4.92	-23.70	21.40	13.80	13.90	73054.47	98.84	2217.00	1065.39
12.490	66398.00	15.43	4.57	-20.00	13.90	15.00	14.80	65243.19	98.26	2112.00	1246.01
12.490	78147.00	15.65	5.31	-20.00	13.90	15.00	14.80	76669.23	98.11	2112.00	1247.33
12.490	82401.00	15.79	5.55	-20.00	13.90	15.00	14.80	80762.53	98.01	2112.00	1248.16
12.790	67715.00	15.71	4.57	-20.50	15.00	14.00	13.40	66625.27	98.39	1584.00	1549.31
12.790	83542.00	16.01	5.56	-20.50	15.00	14.00	13.40	81981.98	98.13	1584.00	1549.61
12.790	88768.00	16.18	5.87	-20.50	15.00	14.00	13.40	86975.38	97.98	1584.00	1549.78
13.060	68900.00	16.00	3.85	-20.90	14.90	15.10	14.80	67834.59	98.45	1426.00	1131.80
13.060	88400.00	16.41	4.85	-20.90	14.90	15.10	14.80	86896.93	98.30	1426.00	1150.19
13.060	94500.00	16.62	5.13	-20.90	14.90	15.10	14.80	92817.91	98.22	1426.00	1159.29
13.440	69782.00	16.20	4.93	-21.30	17.60	17.20	15.60	68311.41	97.89	2006.00	1500.08
13.440	86847.00	16.73	6.00	-21.30	17.60	17.20	15.60	84538.91	97.34	2006.00	1600.55
13.440	92197.00	16.98	6.30	-21.30	17.60	17.20	15.60	89494.91	97.07	2006.00	1646.22

## Brazos River Multi. Freq. BRAZRIV2.IH2

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
13.800	70617.00	16.64	4.03	-22.30	9.90	15.10	14.70	63707.84	90.22	1901.00	2894.83
13.800	85376.00	17.41	4.64	-22.30	9.90	15.10	14.70	75107.94	87.97	1901.00	2911.50
13.800	90015.00	17.72	4.79	-22.30	9.90	15.10	14.70	78347.88	87.04	1901.00	2912.84
14.220	71592.00	16.96	4.58	-23.80	16.30	16.30	16.30	63540.32	88.75	2218.00	4181.22
14.220	83659.00	17.82	4.94	-23.80	16.30	16.30	16.30	70990.88	84.86	2218.00	4185.93
14.220	87469.00	18.16	5.00	-23.80	16.30	16.30	16.30	72869.23	83.31	2218.00	4187.80
14.240	71636.00	16.93	5.16	-23.80	16.30	16.30	16.30	71354.63	99.61	100.00	2527.86
14.240	83582.00	17.76	5.73	-23.80	16.30	16.30	16.30	82196.69	98.34	100.00	3118.00
14.240	87354.00	18.09	5.86	-23.80	16.30	16.30	16.30	85300.81	97.65	100.00	3352.13
14.250	71658.00	16.98	5.15	-23.80	16.30	16.30	16.30	71339.23	99.56	50.00	2561.77
14.250	83543.00	17.82	5.71	-23.80	16.30	16.30	16.30	82060.34	98.23	50.00	3160.14
14.250	87297.00	18.15	5.84	-23.80	16.30	16.30	16.30	85122.11	97.51	50.00	3396.05
14.270	71702.00	17.15	4.58	-23.80	16.30	16.30	16.30	64016.48	89.28	100.00	4182.22
14.270	83466.00	18.07	4.91	-23.80	16.30	16.30	16.30	71312.94	85.44	100.00	4187.31
14.270	87182.00	18.42	4.96	-23.80	16.30	16.30	16.30	73200.86	83.96	100.00	4189.28
14.770	72862.00	17.72	3.34	-20.00	14.10	14.50	13.30	58599.25	80.42	2640.00	4901.00
14.770	81422.00	18.68	3.41	-20.00	14.10	14.50	13.30	62383.18	76.62	2640.00	4901.00
14.770	84152.00	19.04	3.41	-20.00	14.10	14.50	13.30	63360.27	75.29	2640.00	4901.00
15.230	73930.00	18.02	4.11	-15.00	17.20	18.00	18.00	65463.43	88.55	2429.00	9827.00
15.230	79542.00	18.98	4.00	-15.00	17.20	18.00	18.00	66395.83	83.47	2429.00	9827.00
15.230	81363.00	19.33	3.94	-15.00	17.20	18.00	18.00	66422.39	81.64	2429.00	9827.00
15.950	75600.00	18.65	3.61	-24.80	17.40	15.80	17.00	66022.45	87.33	3801.00	10097.44
15.950	76600.00	19.53	3.33	-24.80	17.40	15.80	17.00	63029.37	82.28	3801.00	11133.79
15.950	77000.00	19.85	3.23	-24.80	17.40	15.80	17.00	61917.78	80.41	3801.00	11445.01
*	16.740	75769.00	19.04	2.84	-35.00	14.20	17.40	69601.46	91.86	4171.00	12140.71
*	16.740	76939.00	19.84	2.72	-35.00	14.20	17.40	68143.91	88.57	4171.00	12996.26
*	16.740	77226.00	20.14	2.66	-35.00	14.20	17.40	67386.02	87.26	4171.00	15313.00
*	17.400	75311.00	19.24	3.77	-35.00	17.00	16.40	63043.02	83.71	3485.00	13340.13
	17.400	77221.00	20.02	3.55	-35.00	17.00	16.40	61044.11	79.05	3485.00	15450.00
	17.400	77414.00	20.30	3.45	-35.00	17.00	16.40	59758.03	77.19	3485.00	15450.00
17.970	76033.00	19.59	3.15	-35.00	18.40	13.40	16.50	67764.87	89.13	3010.00	10348.11
17.970	77466.00	20.31	3.02	-35.00	18.40	13.40	16.50	66589.78	85.96	3010.00	18936.32
17.970	77577.00	20.58	2.95	-35.00	18.40	13.40	16.50	65592.78	84.55	3010.00	19250.00
18.750	76200.00	19.93	2.97	-35.00	17.60	18.60	18.60	65100.01	85.43	4118.00	12031.13
18.750	77800.00	20.61	2.84	-35.00	17.60	18.60	18.60	63599.78	81.75	4118.00	22912.00
18.750	77800.00	20.85	2.76	-35.00	17.60	18.60	18.60	62388.20	80.19	4118.00	22912.00
19.320	76200.00	20.15	3.92	-28.00	20.00	17.80	20.00	63104.92	82.81	3010.00	20327.68
19.320	80093.00	20.81	3.81	-28.00	20.00	17.80	20.00	62641.54	78.21	3010.00	20915.79
19.320	81710.00	21.04	3.77	-28.00	20.00	17.80	20.00	62490.11	76.48	3010.00	21096.87

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	19.780	76200.00	20.16	3.53	-22.70	20.60	20.20	20.00	58563.70	76.86	2429.00	21678.09
*	19.780	81944.00	21.98	5.10	-22.70	20.60	20.20	20.00	91479.78	111.64	2429.00	23390.00
*	19.780	84865.00	22.02	5.26	-22.70	20.60	20.20	20.00	94424.95	111.26	2429.00	23390.00
	20.180	76200.00	20.43	4.29	-18.10	21.10	22.70	20.00	62154.82	81.57	2112.00	22583.94
*	20.180	83553.00	22.72	3.26	-18.10	21.10	22.70	20.00	51511.61	61.65	2112.00	24650.00
*	20.180	87608.00	22.80	3.37	-18.10	21.10	22.70	20.00	53453.77	61.01	2112.00	24650.00
	21.360	76200.00	21.64	5.09	-19.80	22.40	21.60	20.30	61073.32	80.15	6230.00	20623.15
	21.360	88300.00	23.33	4.22	-19.80	22.40	21.60	20.30	54116.79	61.29	6230.00	23246.07
	21.360	95700.00	23.46	4.46	-19.80	22.40	21.60	20.30	57419.17	60.00	6230.00	23362.84
*	21.940	76200.00	22.34	3.93	-20.70	23.20	24.20	21.80	58211.36	76.39	3062.00	13844.38
	21.940	88262.00	23.78	3.70	-20.70	23.20	24.20	21.80	57448.68	65.09	3062.00	16303.78
	21.940	96845.00	23.95	3.96	-20.70	23.20	24.20	21.80	61703.80	63.71	3062.00	16483.74
	22.320	76200.00	22.57	4.28	-20.10	23.40	22.00	20.50	52843.97	69.35	2006.00	12811.02
	22.320	88237.00	23.97	4.06	-20.10	23.40	22.00	20.50	52424.72	59.41	2006.00	14450.00
	22.320	97595.00	24.17	4.36	-20.10	23.40	22.00	20.50	56679.40	58.08	2006.00	14641.92
	22.770	76200.00	22.92	5.18	-19.10	23.10	26.00	24.50	68914.33	90.44	2376.00	9735.79
	22.770	88207.00	24.27	5.18	-19.10	23.10	26.00	24.50	72034.43	81.67	2376.00	11671.33
	22.770	98483.00	24.53	5.57	-19.10	23.10	26.00	24.50	78190.17	79.39	2376.00	12144.30
	22.830	76200.00	23.18	4.30	-19.10	35.20	20.00	34.50	65032.82	85.34	317.00	3564.96
	22.830	88203.00	24.51	4.16	-19.10	35.20	20.00	34.50	70995.42	80.49	317.00	3705.76
	22.830	98601.00	24.79	4.49	-19.10	35.20	20.00	34.50	78558.13	79.67	317.00	3714.06
	22.840	76200.00	23.20	4.29	-19.10	35.20	20.00	34.50	64984.89	85.28	53.00	3567.01
	22.840	88203.00	24.53	4.15	-19.10	35.20	20.00	34.50	70955.50	80.45	53.00	3706.21
	22.840	98621.00	24.82	4.48	-19.10	35.20	20.00	34.50	78524.42	79.62	53.00	3714.58
*	22.880	76200.00	23.25	4.26	-19.10	21.00	20.00	25.00	72410.57	95.03	211.00	4866.63
	22.880	88200.00	24.56	4.32	-19.10	21.00	20.00	25.00	78788.73	89.33	211.00	6517.10
	22.880	98700.00	24.85	4.68	-19.10	21.00	20.00	25.00	86777.59	87.92	211.00	6872.61
	22.890	76221.00	23.26	4.26	-19.10	21.00	20.00	25.00	72403.90	94.99	30.00	4878.80
	22.890	88187.00	24.57	4.31	-19.10	21.00	20.00	25.00	78740.45	89.29	30.00	6527.79
	22.890	98645.00	24.86	4.68	-19.10	21.00	20.00	25.00	86680.83	87.87	30.00	6884.77
	22.920	76327.00	23.29	4.25	-19.10	21.00	20.00	25.00	72425.34	94.89	150.00	4914.71
	22.920	88124.00	24.60	4.30	-19.10	21.00	20.00	25.00	78560.31	89.15	150.00	6563.84
	22.920	98368.00	24.90	4.65	-19.10	21.00	20.00	25.00	86269.53	87.70	150.00	6926.93
	23.790	79574.00	24.07	4.61	-18.00	19.70	25.30	25.00	56029.28	70.41	4602.00	19844.03
	23.790	86188.00	25.34	4.04	-18.00	19.70	25.30	25.00	51307.15	59.53	4602.00	25828.97
*	23.790	89874.00	25.72	3.95	-18.00	19.70	25.30	25.00	50730.21	56.45	4602.00	27232.53
	24.280	81400.00	24.41	4.52	-19.50	26.60	27.80	25.00	62922.26	77.30	2587.00	18465.55
	24.280	85100.00	25.59	3.96	-19.50	26.60	27.80	25.00	57366.26	67.41	2587.00	25159.83
	24.280	85100.00	25.95	3.72	-19.50	26.60	27.80	25.00	54662.75	64.23	2587.00	26035.03

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
25.300	78600.00	25.15	3.88	-16.70	26.20	22.20	25.00	52426.01	66.70	5386.00	24462.60
25.300	80900.00	26.18	3.22	-16.70	26.20	22.20	25.00	45198.52	55.87	5386.00	27128.95
25.300	80900.00	26.47	3.06	-16.70	26.20	22.20	25.00	43546.11	53.83	5386.00	27845.13
26.580	77644.00	25.80	4.14	-12.10	23.40	25.10	25.00	50260.29	64.73	6758.00	35764.45
26.580	78722.00	26.66	3.50	-12.10	23.40	25.10	25.00	43700.14	55.51	6758.00	37280.44
26.580	78722.00	26.90	3.33	-12.10	23.40	25.10	25.00	41878.69	53.20	6758.00	37692.65
27.710	76800.00	26.33	3.04	-18.70	23.90	25.20	25.00	35840.43	46.67	5966.00	42006.99
27.710	76800.00	27.01	2.61	-18.70	23.90	25.20	25.00	31521.03	41.04	5966.00	42114.27
27.710	76800.00	27.22	2.50	-18.70	23.90	25.20	25.00	30399.03	39.58	5966.00	42145.57
28.640	77500.00	26.53	2.80	-20.90	21.70	31.60	25.00	42572.09	54.93	4910.00	43801.38
28.640	77500.00	27.16	2.48	-20.90	21.70	31.60	25.00	38342.74	49.47	4910.00	44029.54
28.640	77500.00	27.35	2.39	-20.90	21.70	31.60	25.00	37172.93	47.97	4910.00	44056.16
29.310	78969.00	26.68	2.90	-14.40	21.00	19.70	25.00	41815.78	52.95	3538.00	45668.15
29.310	80740.00	27.28	2.63	-14.40	21.00	19.70	25.00	38613.21	47.82	3538.00	45967.41
29.310	80941.00	27.45	2.54	-14.40	21.00	19.70	25.00	37568.98	46.42	3538.00	46057.77
30.200	80920.00	26.95	3.72	-15.30	25.20	29.00	24.00	48630.94	60.10	4966.00	45413.25
30.200	85042.00	27.49	3.46	-15.30	25.20	29.00	24.00	45999.04	54.09	4966.00	45694.73
30.200	85511.00	27.66	3.35	-15.30	25.20	29.00	24.00	44821.25	52.42	4966.00	45753.00
30.910	82476.00	27.26	3.82	-15.90	27.00	26.80	25.00	50955.88	61.78	3749.00	44814.45
30.910	88475.00	27.76	3.62	-15.90	27.00	26.80	25.00	48978.38	55.36	3749.00	45191.17
30.910	89157.00	27.90	3.51	-15.90	27.00	26.80	25.00	47821.11	53.64	3749.00	45301.76
31.970	84800.00	27.70	3.82	-27.60	30.10	32.40	29.00	55791.52	65.79	5597.00	32183.77
31.970	93600.00	28.16	3.88	-27.60	30.10	32.40	29.00	57456.34	61.38	5597.00	33014.03
31.970	94600.00	28.28	3.84	-27.60	30.10	32.40	29.00	57018.98	60.27	5597.00	33232.05
*	32.190	85168.00	27.74	4.46	-18.60	30.40	29.60	56504.15	66.34	1147.00	32282.97
*	32.190	93746.00	28.20	4.43	-18.60	30.40	29.60	57156.41	60.97	1147.00	35133.48
*	32.190	94907.00	28.33	4.35	-18.60	30.40	29.60	56451.43	59.48	1147.00	35451.54
*	32.210	85217.00	27.52	6.79	-18.60	30.40	29.60	85217.01	100.00	150.00	505.97
*	32.210	93765.00	27.91	7.36	-18.60	30.40	29.60	93765.00	100.00	150.00	517.93
*	32.210	94947.00	28.02	7.41	-18.60	30.40	29.60	94947.00	100.00	150.00	521.36
32.220	85227.00	27.55	6.78	-18.60	30.40	29.60	28.00	85227.00	100.00	32.00	506.86
32.220	93769.00	27.94	7.34	-18.60	30.40	29.60	28.00	93769.00	100.00	32.00	519.02
32.220	94956.00	28.06	7.40	-18.60	30.40	29.60	28.00	94956.00	100.00	32.00	522.46
*	32.250	85275.00	28.42	2.83	-18.60	30.40	29.60	36861.71	43.23	150.00	35709.09
*	32.250	93788.00	29.00	2.61	-18.60	30.40	29.60	34729.96	37.03	150.00	37334.90
*	32.250	94996.00	29.13	2.53	-18.60	30.40	29.60	33958.17	35.75	150.00	37711.73
32.810	86225.00	28.52	4.09	-16.70	22.10	32.70	28.00	52032.05	60.34	2957.00	34171.66
32.810	94164.00	29.07	4.01	-16.70	22.10	32.70	28.00	51794.69	55.00	2957.00	36565.72
32.810	95787.00	29.20	3.98	-16.70	22.10	32.70	28.00	51565.41	53.83	2957.00	37120.00

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
33.400	87226.00	28.78	3.90	-18.20	22.80	26.90	28.00	48970.27	56.14	3115.00	36176.41
33.400	94560.00	29.32	3.74	-18.20	22.80	26.90	28.00	47780.17	50.53	3115.00	40385.57
33.400	96621.00	29.45	3.72	-18.20	22.80	26.90	28.00	47656.74	49.32	3115.00	41346.69
34.020	88277.00	29.02	4.06	-32.80	26.50	24.50	25.00	55767.04	63.17	3274.00	32555.43
34.020	94976.00	29.54	3.97	-32.80	26.50	24.50	25.00	55382.27	58.31	3274.00	35170.91
34.020	97498.00	29.66	3.98	-32.80	26.50	24.50	25.00	55805.39	57.24	3274.00	35773.53
34.800	89600.00	29.40	4.31	-13.20	24.60	27.80	30.00	55902.00	62.39	4118.00	29059.02
34.800	95500.00	29.90	4.22	-13.20	24.60	27.80	30.00	55531.76	58.15	4118.00	32500.54
34.800	98600.00	30.02	4.26	-13.20	24.60	27.80	30.00	56309.53	57.11	4118.00	44107.15
35.440	89764.00	29.75	4.45	-8.60	28.30	32.00	30.00	50097.50	55.81	3379.00	31203.25
35.440	94827.00	30.22	4.27	-8.60	28.30	32.00	30.00	48871.73	51.54	3379.00	41322.73
35.440	97400.00	30.35	4.27	-8.60	28.30	32.00	30.00	49018.92	50.33	3379.00	41526.91
37.150	90201.00	30.76	5.65	-20.10	30.80	32.40	31.00	65198.83	72.28	9029.00	28782.35
37.150	93030.00	31.12	5.45	-20.10	30.80	32.40	31.00	63737.50	68.51	9029.00	28856.25
37.150	94194.00	31.23	5.40	-20.10	30.80	32.40	31.00	63436.17	67.35	9029.00	28870.05
38.320	90500.00	31.88	6.03	-19.70	35.20	34.60	33.00	68372.62	75.55	6178.00	20746.95
38.320	91800.00	32.14	5.85	-19.70	35.20	34.60	33.00	66878.38	72.85	6178.00	21085.36
38.320	92000.00	32.22	5.77	-19.70	35.20	34.60	33.00	66220.71	71.98	6178.00	21192.53
39.470	91446.00	33.24	5.98	-12.80	35.40	34.80	35.50	73614.52	80.50	6072.00	15172.50
39.470	93005.00	33.41	5.94	-12.80	35.40	34.80	35.50	73518.40	79.05	6072.00	15552.78
39.470	93205.00	33.46	5.91	-12.80	35.40	34.80	35.50	73277.07	78.62	6072.00	15664.55
40.310	92138.00	34.30	5.70	-9.40	36.00	35.80	36.00	66913.02	72.62	4435.00	11083.63
40.310	93884.00	34.45	5.68	-9.40	36.00	35.80	36.00	67015.48	71.38	4435.00	11343.04
40.310	94084.00	34.49	5.66	-9.40	36.00	35.80	36.00	66863.01	71.07	4435.00	11408.94
*	41.140	92821.00	35.38	8.57	-8.90	36.90	37.30	90075.98	97.04	4382.00	7054.51
*	41.140	94754.00	35.51	8.64	-8.90	36.90	37.30	91414.63	96.48	4382.00	7616.25
*	41.140	94954.00	35.54	8.64	-8.90	36.90	37.30	91487.27	96.35	4382.00	7732.98
*	42.330	93800.00	38.35	6.28	-18.60	36.80	36.80	88556.15	94.41	6283.00	2659.23
*	42.330	96000.00	38.52	6.35	-18.60	36.80	36.80	90150.28	93.91	6283.00	2698.78
*	42.330	96200.00	38.55	6.35	-18.60	36.80	36.80	90270.79	93.84	6283.00	2704.20
43.250	94162.00	39.47	4.75	-27.00	37.40	38.10	40.00	91220.33	96.88	4857.00	3444.62
43.250	96520.00	39.66	4.81	-27.00	37.40	38.10	40.00	93099.96	96.46	4857.00	3478.37
43.250	96736.00	39.69	4.82	-27.00	37.40	38.10	40.00	93256.70	96.40	4857.00	3482.56
44.450	94365.00	40.33	5.25	-24.50	34.50	39.50	45.00	90627.45	96.04	6336.00	4049.08
44.450	97198.00	40.54	5.35	-24.50	34.50	39.50	45.00	92785.92	95.46	6336.00	4095.04
44.450	97434.00	40.56	5.36	-24.50	34.50	39.50	45.00	92943.48	95.39	6336.00	4100.41
45.570	95076.00	41.28	6.29	-10.20	32.80	38.30	40.00	79713.24	83.84	5914.00	5246.84
45.570	97831.00	41.52	6.33	-10.20	32.80	38.30	40.00	80891.68	82.69	5914.00	5339.37
45.570	98086.00	41.54	6.33	-10.20	32.80	38.30	40.00	80978.60	82.56	5914.00	5349.44

## Brazos River Multi. Freq. BRAZRIV2.IH2

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
46.210	95328.00	42.06	4.30	-9.80	39.50	36.80	41.00	92787.83	97.34	3379.00	5208.55
46.210	98193.00	42.30	4.37	-9.80	39.50	36.80	41.00	95179.56	96.93	3379.00	5911.42
46.210	98459.00	42.32	4.38	-9.80	39.50	36.80	41.00	95392.59	96.89	3379.00	5985.04
48.170	96100.00	43.57	4.99	-8.20	43.10	36.90	43.00	80944.35	84.23	10348.00	6966.03
48.170	99300.00	43.83	5.03	-8.20	43.10	36.90	43.00	82340.64	82.92	10348.00	6991.47
48.170	99600.00	43.85	5.04	-8.20	43.10	36.90	43.00	82458.31	82.79	10348.00	6994.03
50.170	96100.00	45.27	5.76	-6.60	41.80	41.90	44.00	80173.70	83.43	10560.00	5142.68
50.170	100500.00	45.53	5.88	-6.60	41.80	41.90	44.00	82593.17	82.18	10560.00	5149.78
50.170	101300.00	45.56	5.91	-6.60	41.80	41.90	44.00	83110.42	82.04	10560.00	5150.58
50.610	96100.00	45.54	6.63	-6.40	43.10	43.50	44.50	95897.58	99.79	2323.00	1171.60
50.610	100659.00	45.79	6.89	-6.40	43.10	43.50	44.50	100360.20	99.70	2323.00	1189.08
50.610	101503.00	45.82	6.94	-6.40	43.10	43.50	44.50	101190.70	99.69	2323.00	1191.12
51.330	96100.00	46.46	5.82	-6.00	43.40	43.80	45.00	95506.84	99.38	3801.00	1398.46
51.330	100920.00	46.78	6.03	-6.00	43.40	43.80	45.00	100125.80	99.21	3801.00	1403.69
51.330	101834.00	46.83	6.08	-6.00	43.40	43.80	45.00	101008.10	99.19	3801.00	1404.40
52.410	96100.00	47.73	6.16	-5.60	46.90	45.30	47.00	93978.88	97.79	5702.00	2844.82
52.410	101311.00	48.12	6.34	-5.60	46.90	45.30	47.00	98270.80	97.00	5702.00	2864.17
52.410	102332.00	48.18	6.38	-5.60	46.90	45.30	47.00	99130.58	96.87	5702.00	2867.88
53.210	96100.00	48.80	5.55	-1.70	46.90	45.60	47.50	88923.63	92.53	4224.00	3002.95
53.210	101600.00	49.23	5.70	-1.70	46.90	45.60	47.50	92716.02	91.26	4224.00	3355.99
53.210	102700.00	49.30	5.73	-1.70	46.90	45.60	47.50	93501.20	91.04	4224.00	3426.70
*	55.320	96100.00	50.25	3.63	2.80	49.80	47.00	95767.80	99.65	11141.00	1651.20
*	55.320	101722.00	50.74	3.77	2.80	49.80	47.00	101182.20	99.47	11141.00	1773.56
*	55.320	103189.00	50.83	3.81	2.80	49.80	47.00	102602.20	99.43	11141.00	1795.35
56.660	96100.00	50.73	4.54	.00	49.20	46.00	50.00	92220.46	95.96	7075.00	2343.00
56.660	101800.00	51.25	4.71	.00	49.20	46.00	50.00	97044.66	95.33	7075.00	2343.00
56.660	103500.00	51.35	4.77	.00	49.20	46.00	50.00	98540.56	95.21	7075.00	2343.00
*	57.280	96100.00	51.07	5.42	-1.30	58.50	58.50	96100.00	100.00	3274.00	638.10
*	57.280	102487.00	51.61	5.67	-1.30	58.50	58.50	102487.00	100.00	3274.00	642.45
*	57.280	104478.00	51.72	5.76	-1.30	58.50	58.50	104478.00	100.00	3274.00	643.30
57.310	96100.00	51.11	5.42	-1.30	58.50	58.50	51.00	96100.00	100.00	158.00	638.29
57.310	102520.00	51.65	5.67	-1.30	58.50	58.50	51.00	102520.00	100.00	158.00	642.69
57.310	104525.00	51.75	5.76	-1.30	58.50	58.50	51.00	104525.00	100.00	158.00	643.54
57.320	96100.00	51.14	5.41	-1.30	58.50	58.50	51.00	96100.00	100.00	20.00	638.60
57.320	102524.00	51.68	5.66	-1.30	58.50	58.50	51.00	102524.00	100.00	20.00	642.99
57.320	104531.00	51.79	5.75	-1.30	58.50	58.50	51.00	104531.00	100.00	20.00	643.85
57.330	96100.00	51.18	5.32	-1.30	58.50	58.50	51.00	94764.49	98.61	100.00	1660.25
57.330	102545.00	51.74	5.54	-1.30	58.50	58.50	51.00	100551.10	98.06	100.00	2168.55
57.330	104561.00	51.85	5.62	-1.30	58.50	58.50	51.00	102385.60	97.92	100.00	2170.80

Brazos River Multi. Freq. BRAZRIV2.IH2

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	58.040	96100.00	51.85	4.18	-.20	51.50	51.50	50.00	94403.27	98.23	3734.00	2371.33
*	58.040	103328.00	52.45	4.39	-.20	51.50	51.50	50.00	100962.80	97.71	3734.00	2518.74
*	58.040	105676.00	52.58	4.46	-.20	51.50	51.50	50.00	103128.80	97.59	3734.00	2534.32
	59.120	96100.00	52.33	5.68	.90	47.90	48.90	52.00	94986.96	98.84	5702.00	2088.61
	59.120	104524.00	52.96	6.04	.90	47.90	48.90	52.00	102710.60	98.27	5702.00	2817.28
	59.120	107380.00	53.11	6.17	.90	47.90	48.90	52.00	105346.80	98.11	5702.00	2977.34
	59.640	96100.00	52.85	5.41	1.20	50.30	50.50	53.00	80269.43	83.53	2746.00	6808.74
	59.640	105100.00	53.56	5.62	1.20	50.30	50.50	53.00	85277.20	81.14	2746.00	7161.54
	59.640	108200.00	53.73	5.71	1.20	50.30	50.50	53.00	87116.74	80.51	2746.00	7236.24
	60.290	96100.00	53.31	6.78	.00	51.40	52.80	50.00	87498.04	91.05	3432.00	6009.58
	60.290	111575.00	54.02	7.41	.00	51.40	52.80	50.00	97909.81	87.75	3432.00	6323.32
	60.290	117282.00	54.20	7.67	.00	51.40	52.80	50.00	101859.30	86.85	3432.00	6335.45
*	61.370	96100.00	54.47	5.46	-2.00	56.40	53.30	53.00	92324.51	96.07	5702.00	3613.95
	61.370	122333.00	55.35	6.65	-2.00	56.40	53.30	53.00	114909.80	93.93	5702.00	3689.46
	61.370	132372.00	55.59	7.10	-2.00	56.40	53.30	53.00	123482.50	93.28	5702.00	3704.20
*	62.440	96100.00	55.14	3.38	2.80	56.10	42.70	53.50	79685.90	82.92	5650.00	2208.96
*	62.440	132992.00	56.30	4.49	2.80	56.10	42.70	53.50	108727.30	81.75	5650.00	2314.00
*	62.440	147324.00	56.68	4.92	2.80	56.10	42.70	53.50	119904.10	81.39	5650.00	2314.00
	63.410	96100.00	55.36	3.23	-2.80	55.50	49.10	54.00	82702.89	86.06	5122.00	3039.33
	63.410	142656.00	56.68	4.50	-2.80	55.50	49.10	54.00	119836.80	84.00	5122.00	3098.00
	63.410	160879.00	57.12	4.96	-2.80	55.50	49.10	54.00	134056.60	83.33	5122.00	3098.00
	64.190	96100.00	55.54	3.87	1.50	54.20	50.90	52.00	93428.35	97.22	4118.00	7112.60
	64.190	150425.00	57.01	5.52	1.50	54.20	50.90	52.00	139139.30	92.50	4118.00	8144.41
	64.190	171777.00	57.51	6.09	1.50	54.20	50.90	52.00	155556.10	90.56	4118.00	8150.00
	64.850	96100.00	55.80	4.17	-5.50	53.40	56.50	54.00	84958.78	88.41	3485.00	9292.77
	64.850	157000.00	57.50	5.82	-5.50	53.40	56.50	54.00	124776.00	79.48	3485.00	9807.95
	64.850	181000.00	58.11	6.32	-5.50	53.40	56.50	54.00	138033.80	76.26	3485.00	9899.00
	65.780	96100.00	56.26	4.01	-5.50	53.40	56.50	54.00	82716.19	86.07	4910.00	9499.85
	65.780	157000.00	58.34	5.36	-5.50	53.40	56.50	54.00	117865.50	75.07	4910.00	9899.00
	65.780	181000.00	59.07	5.75	-5.50	53.40	56.50	54.00	129255.80	71.41	4910.00	9899.00



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## SUMMARY OF ERRORS AND SPECIAL NOTES

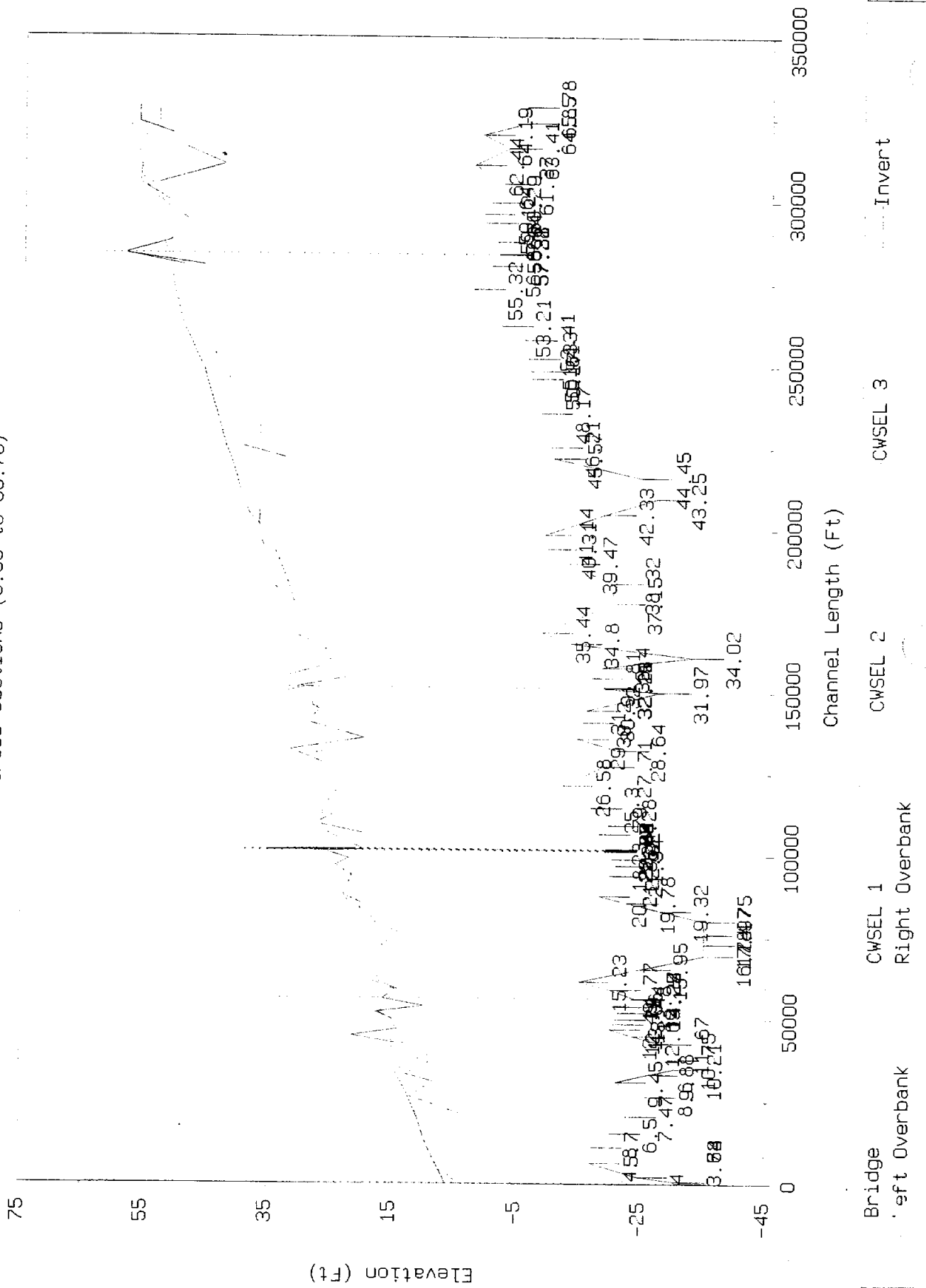
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WARNING SECNO=	9.880	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=	10.750	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	10.750	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	11.670	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	11.670	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	11.670	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	16.740	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	16.740	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	16.740	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	17.400	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	19.780	PROFILE=	1	WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=	19.780	PROFILE=	1	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=	19.780	PROFILE=	2	WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=	19.780	PROFILE=	2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=	19.780	PROFILE=	3	WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=	19.780	PROFILE=	3	20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=	20.180	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=	22.880	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	23.790	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	32.190	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	32.190	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=	42.330	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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10 YR  
 Cross-Sections (3.58 to 65.78)



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*****  
*  
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *  
*   JUN 1998 *  
*   VERSION 4.1 *  
*  
* RUN DATE 23AUG02 TIME 13:24:30 *  
*  
*****
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*****  
*  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET *  
* DAVIS, CALIFORNIA 95616 *  
* (916) 756-1104 *  
*  
*****
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  X   X  XXXXXXX  XXXXX      X  
  X   X X      X   X      XX  
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  XXXXXXX  XXXX  X           XXXXX  X  
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  X   X X      X   X      X  
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.  
THE DEFINITION OF -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM















Bastrop Bayou 25 year flows BB\_BL25.IH1

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
226	KK N29N30										
227	RM	5	.9	.25							
228	KK BB30										
229	BA	1									
230	LU	.75	.1	0							
231	UC	0.84	11.91								
232	KK C21										
233	HC	2									
234	KK N30N31										
235	RM	10	1.7	.25							
236	KK BB31										
237	BA	2									
238	LU	.75	.1	0							
239	UC	1.68	18.57								
240	KK C22										
241	HC	2									
242	KK N31N32										
243	RM	7	1.1	0							
244	KK BB32										
245	BA	1.4									
246	LU	.75	.1	0							
247	UC	1.20	16.77								
248	KK C23										
249	HC	3									
250	KK BB33										
251	BA	2.1									
252	LU	.75	.1	0							
253	UC	3.04	34.65								
254	KK C24										
255	HC	2									
256	KK N33N39										
257	RM	4	.6	.25							
		* OUTPUT FROM BRUHSY MODEL IS FROM									
		* CITY OF ANGLETON LOMR									
258	KK BRUSH										
259	KM OUTPUT FROM BRUSHY MODEL										
260	BA	6.91									
261	IN	60	20JUN02	1200							
262	QI	0	0	1	3	7	10	14	25	47	75
263	QI	114	181	303	642	1373	1966	2171	2120	1973	1809
264	QI	1652	1511	1384	1266	1157	1057	961	871	787	712
265	QI	646	587	535	488	446	409	376	346	319	295

Bastrop Bayou 25 year flows BB\_BL25.IH1

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
266	QI	273	254	236	220	206	193	182	171	161	152
267	QI	143	135	128	122	116	111	105	100	93	86
268	QI	79	73	61	48	42	35	30	26	23	20
269	QI	18	17	15	14	13	12	11	10	9	8
270	QI	8	7	6	6	5	5	5	4	4	3
271	QI	3	3	3	2	2	2	2	2	1	1
272	QI	1	1	1	1	1	1	1	0	0	0
273	QI	0	0	0	0	0	0	0	0	0	0
274	QI	0	0	0	0	0	0	0	0	0	0
275	QI	0	0	0	0	0	0	0	0	0	0
276	QI	0	0	0	0	0	0	0	0	0	0
277	QI	0	0	0	0	0	0	0	0	0	0
278	QI	0	0	0	0	0	0	0	0	0	0
279	IN	10	20JUN02	1200							
280	KK	BRN37									
281	RM	8	1.4	.25							
282	KK	BB37									
283	BA	1.7									
284	LU	.75	.1	0							
285	UC	2.23	16.90								
286	KK	C99									
287	HC	2									
288	KK	N37N38									
289	RM	8	1.3	.25							
290	KK	BB38									
291	BA	1.5									
292	LU	.75	.1	0							
293	UC	1.34	16.00								
294	KK	C25									
295	HC	2									
296	KK	N38N39									
297	RM	6	.95	.25							
298	KK	BB39									
299	BA	1.1									
300	LU	.75	.1	0							
301	UC	2.00	22.72								
302	KK	C26									
303	HC	3									
304	KK	RCH 4									
305	KM	REACH EXTENDS FROM X-SECT.				36.000	TO X-SECT.		20.000		
306	RS	6	STOR	0							
307	SV	0	385	934	2727	5106	8225	11134	13717		
308	SQ	0	1285	2570	5141	7711	10282	12852	15422		







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*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JUN 1998
*   VERSION 4.1
*
* RUN DATE 23AUG02 TIME 13:24:30
*
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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
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FILE: BB_BL25.IH1
BASTROP BAYOU, 25-YR
BRAZORIA CO DRAINAGE MASTER PLAN
BAKER & LAWSON, MGG

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6 IO      OUTPUT CONTROL VARIABLES
          IPRNT      5  PRINT CONTROL
          IPLOT      0  PLOT CONTROL
          QSCAL      0. HYDROGRAPH PLOT SCALE

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IT        HYDROGRAPH TIME DATA
          NMIN      10  MINUTES IN COMPUTATION INTERVAL
          IDATE     20JUN 2  STARTING DATE
          ITIME     1200  STARTING TIME
          NQ        1000  NUMBER OF HYDROGRAPH ORDINATES
          NDDATE    27JUN 2  ENDING DATE
          NDTIME    1030  ENDING TIME
          ICENT     19  CENTURY MARK

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COMPUTATION INTERVAL .17 HOURS
TOTAL TIME BASE 166.50 HOURS

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ENGLISH UNITS
DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW               CUBIC FEET PER SECOND
STORAGE VOLUME    ACRE-FEET
SURFACE AREA      ACRES
TEMPERATURE        DEGREES FAHRENHEIT

```



Bastrop Bayou 25 year flows BB\_BL25.IH1

RUNOFF SUMMARY  
 FLOW IN CUBIC FEET PER SECOND  
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	BB01	350.	16.17	332.	240.	107.	1.72		
ROUTED TO	N1N5	348.	18.50	331.	239.	107.	1.72		
HYDROGRAPH AT	BB05	206.	17.83	203.	176.	96.	2.10		
2 COMBINED AT	C1	554.	18.50	533.	415.	203.	3.82		
HYDROGRAPH AT	BB02	608.	15.17	578.	404.	176.	2.80		
ROUTED TO	N2N3	607.	16.50	576.	404.	176.	2.80		
HYDROGRAPH AT	BB03	776.	14.67	728.	473.	194.	3.00		
2 COMBINED AT	C2	1364.	15.67	1275.	872.	370.	5.80		
ROUTED TO	N3N4	1359.	17.17	1272.	871.	370.	5.80		
HYDROGRAPH AT	BB04	360.	15.83	335.	220.	91.	1.40		
2 COMBINED AT	C3	1709.	17.00	1598.	1088.	461.	7.20		
2 COMBINED AT	C4	2240.	17.50	2114.	1499.	663.	11.02		
ROUTED TO	N5N7	2237.	18.00	2112.	1498.	663.	11.02		
HYDROGRAPH AT	BB06	300.	15.00	286.	200.	87.	1.40		
ROUTED TO	N6N7	300.	15.50	285.	200.	87.	1.40		
HYDROGRAPH AT	BB07	509.	13.17	447.	234.	85.	1.30		
3 COMBINED AT	C5	2881.	17.67	2709.	1896.	836.	13.72		
ROUTED TO	N7N8	2878.	18.00	2708.	1896.	836.	13.72		
HYDROGRAPH AT	BB08	158.	13.83	143.	81.	31.	.47		
2 COMBINED AT	C6	3003.	18.00	2823.	1973.	867.	14.19		
ROUTED TO	N8N9	2994.	19.17	2818.	1971.	867.	14.19		
HYDROGRAPH AT	BB09	346.	15.00	330.	236.	105.	1.70		
2 COMBINED AT	C7	3295.	19.17	3107.	2194.	971.	15.89		
ROUTED TO	RCH 7	2937.	27.17	2874.	2186.	971.	15.89		
HYDROGRAPH AT	BB10	977.	13.67	881.	497.	188.	2.80		
2 COMBINED AT	C8	3283.	25.83	3228.	2569.	1159.	18.69		
ROUTED TO	RCH 6	3277.	27.17	3220.	2564.	1159.	18.69		
HYDROGRAPH AT	BB11	294.	13.83	255.	131.	48.	.70		
ROUTED TO	N11N1	292.	15.00	253.	131.	48.	.70		
HYDROGRAPH AT	BB12	167.	15.00	158.	106.	45.	.70		
2 COMBINED AT	C9	459.	15.00	411.	237.	92.	1.40		
HYDROGRAPH AT	BB13	445.	14.50	419.	277.	116.	1.80		
2 COMBINED AT	C10	903.	15.00	824.	514.	208.	3.20		
HYDROGRAPH AT	BB14	769.	13.83	665.	342.	124.	1.80		
ROUTED TO	N14N1	764.	14.67	662.	342.	124.	1.80		

Bastrop Bayou 25 year flows BB\_BL25.IH1

HYDROGRAPH AT	BB15	287.	14.00	264.	158.	62.	.95
2 COMBINED AT	C11	1049.	14.67	921.	501.	186.	2.75
ROUTED TO	N15N1	1043.	15.67	917.	500.	186.	2.75
HYDROGRAPH AT	BB16	247.	15.00	232.	154.	64.	1.00
2 COMBINED AT	C12	1288.	15.67	1145.	654.	250.	3.75
ROUTED TO	N16N1	1280.	17.00	1141.	654.	250.	3.75
HYDROGRAPH AT	BB17	430.	14.17	394.	236.	92.	1.40
4 COMBINED AT	C13	4865.	18.67	4676.	3848.	1708.	27.04
ROUTED TO	N17N2	4861.	19.00	4675.	3848.	1708.	27.04
HYDROGRAPH AT	BB18	1003.	14.50	923.	564.	222.	3.30
ROUTED TO	N18N1	1000.	15.67	919.	563.	222.	3.30
HYDROGRAPH AT	BB19	1136.	13.17	901.	394.	136.	2.00
2 COMBINED AT	C14	1948.	15.00	1700.	943.	359.	5.30
ROUTED TO	N19N2	1935.	15.83	1696.	943.	359.	5.30
HYDROGRAPH AT	BB20	356.	14.00	324.	188.	72.	1.10
3 COMBINED AT	C15	6686.	18.50	6326.	4930.	2138.	33.44
HYDROGRAPH AT	BB21	285.	14.83	269.	181.	76.	1.20
HYDROGRAPH AT	BB22	468.	16.50	453.	354.	171.	3.00
3 COMBINED AT	C16	7389.	18.33	7006.	5461.	2385.	37.64
ROUTED TO	RCH 5	5884.	31.67	5845.	5193.	2384.	37.64
HYDROGRAPH AT	BB23	165.	15.17	158.	112.	50.	.80
ROUTED TO	N23N2	165.	16.17	157.	112.	50.	.80
HYDROGRAPH AT	BB24	242.	15.00	227.	152.	64.	1.00
2 COMBINED AT	C17	404.	15.50	381.	263.	113.	1.80
HYDROGRAPH AT	BB25	189.	14.50	177.	114.	46.	.72
ROUTED TO	N25N2	189.	16.00	176.	114.	46.	.72
HYDROGRAPH AT	BB26	562.	15.00	533.	366.	157.	2.50
2 COMBINED AT	C18	747.	15.33	700.	479.	203.	3.22
ROUTED TO	N26N2	745.	16.33	699.	479.	203.	3.22
HYDROGRAPH AT	BB27	184.	15.33	176.	127.	57.	.92
2 COMBINED AT	C19	927.	16.33	871.	605.	260.	4.14
HYDROGRAPH AT	BB28	239.	14.50	224.	145.	60.	.93
4 COMBINED AT	C20	6594.	29.67	6560.	6005.	2817.	44.51
HYDROGRAPH AT	BB29	816.	14.17	712.	375.	137.	2.00
ROUTED TO	N29N3	811.	15.17	709.	375.	137.	2.00
HYDROGRAPH AT	BB30	287.	14.17	266.	164.	65.	1.00
2 COMBINED AT	C21	1094.	15.17	966.	538.	202.	3.00
ROUTED TO	N30N3	1083.	17.00	961.	538.	202.	3.00

Bastrop Bayou 25 year flows BB\_BL25.IH1

HYDROGRAPH AT	BB31	394.	15.50	376.	273.	122.	2.00
2 COMBINED AT	C22	1466.	16.83	1323.	811.	324.	5.00
ROUTED TO	N31N3	1452.	18.17	1316.	810.	324.	5.00
HYDROGRAPH AT	BB32	301.	15.00	287.	201.	87.	1.40
3 COMBINED AT	C23	7468.	26.00	7435.	6938.	3228.	50.91
HYDROGRAPH AT	BB33	239.	17.00	234.	197.	104.	2.10
2 COMBINED AT	C24	7672.	25.67	7635.	7129.	3332.	53.01
ROUTED TO	N33N3	7672.	26.17	7634.	7128.	3332.	53.01
HYDROGRAPH AT	BRUSH	2171.	16.00	1934.	1120.	449.	6.91
ROUTED TO	ERN37	2145.	17.67	1926.	1119.	449.	6.91
HYDROGRAPH AT	BB37	362.	15.50	344.	242.	106.	1.70
2 COMBINED AT	C99	2488.	17.67	2254.	1359.	555.	8.61
ROUTED TO	N37N3	2476.	19.00	2247.	1358.	555.	8.61
HYDROGRAPH AT	BB38	336.	15.00	318.	219.	94.	1.50
2 COMBINED AT	C25	2766.	19.00	2525.	1565.	649.	10.11
ROUTED TO	N38N3	2758.	19.83	2520.	1565.	649.	10.11
HYDROGRAPH AT	BB39	182.	15.83	176.	135.	64.	1.10
3 COMBINED AT	C26	10100.	20.33	9974.	8798.	4045.	64.22
ROUTED TO	RCH 4	9063.	38.83	9017.	8284.	4044.	64.22
HYDROGRAPH AT	BB40	97.	14.67	91.	61.	26.	.40
ROUTED TO	N40N4	97.	15.83	91.	61.	26.	.40
HYDROGRAPH AT	BB41	219.	14.67	207.	137.	57.	.90
2 COMBINED AT	C27	314.	15.17	294.	198.	83.	1.30
ROUTED TO	N41N4	313.	16.50	293.	198.	83.	1.30
HYDROGRAPH AT	BB42	103.	16.33	100.	79.	39.	.70
3 COMBINED AT	C28	9193.	38.67	9147.	8428.	4165.	66.22
HYDROGRAPH AT	BB43	68.	21.33	68.	60.	33.	.80
2 COMBINED AT	C29	9244.	38.67	9198.	8480.	4198.	67.02
ROUTED TO	RCH 3	8997.	50.83	8950.	8021.	4168.	67.02
HYDROGRAPH AT	BB44	194.	29.00	192.	175.	97.	3.10
HYDROGRAPH AT	BB45	70.	35.00	69.	64.	34.	1.20
3 COMBINED AT	C30	9198.	50.83	9150.	8212.	4277.	71.32
HYDROGRAPH AT	AB	11752.	59.00	11676.	10980.	8238.	92.00
2 COMBINED AT	C98	20375.	55.00	20280.	19138.	12469.	163.32
HYDROGRAPH AT	BB46	242.	17.00	237.	195.	100.	1.90
ROUTED TO	N46N4	242.	20.50	236.	195.	100.	1.90
HYDROGRAPH AT	BB47	216.	20.33	212.	180.	95.	2.00
2 COMBINED AT	C31	458.	20.50	447.	374.	195.	3.90
HYDROGRAPH AT	BB48	387.	15.50	370.	270.	122.	2.00

Bastrop Bayou 25 year flows BB\_BL25.IH1

2 COMBINED AT	C32	793.	19.67	767.	620.	317.	5.90
ROUTED TO	N48N4	791.	20.83	766.	620.	317.	5.90
HYDROGRAPH AT	BB49	78.	22.67	77.	66.	36.	.80
3 COMBINED AT	C33	20656.	54.83	20566.	19455.	12643.	170.02
ROUTED TO	RCH 2	20652.	55.17	20562.	19449.	12639.	170.02
HYDROGRAPH AT	BB50	172.	16.00	168.	142.	75.	1.50
2 COMBINED AT	C34	20713.	55.17	20624.	19512.	12673.	171.52
ROUTED TO	RCH 1	20682.	57.50	20595.	19453.	12668.	171.52
HYDROGRAPH AT	BB51	1187.	15.67	1134.	826.	371.	6.10
2 COMBINED AT	C35	20826.	57.33	20743.	19610.	12772.	177.62

\*\*\* NORMAL END OF HEC-1 \*\*\*

Bastrop Bayou 100 year flows BB\_BL100.IH1

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*  
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *  
* JUN 1998 *  
* VERSION 4.1 *  
*  
* RUN DATE 23AUG02 TIME 13:23:11 *  
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*  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET *  
* DAVIS, CALIFORNIA 95616 *  
* (916) 756-1104 *  
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.  
THE DEFINITION OF -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION. DSS:WRITE STAGE FREQUENCY,  
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM















Bastrop Bayou 100 year flows BB\_BL100.IH1

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
226	KK	N29N30									
227	RM	5	.9	.25							
228	KK	BB30									
229	BA	1									
230	LU	.75	.1	0							
231	UC	0.84	9.90								
232	KK	C21									
233	HC	2									
234	KK	N30N31									
235	RM	10	1.7	.25							
236	KK	BB31									
237	BA	2									
238	LU	.75	.1	0							
239	UC	1.68	15.43								
240	KK	C22									
241	HC	2									
242	KK	N31N32									
243	RM	7	1.1	0							
244	KK	BB32									
245	BA	1.4									
246	LU	.75	.1	0							
247	UC	1.20	13.94								
248	KK	C23									
249	HC	3									
250	KK	BB33									
251	BA	2.1									
252	LU	.75	.1	0							
253	UC	3.04	28.79								
254	KK	C24									
255	HC	2									
256	KK	N33N39									
257	RM	4	.6	.25							
		* OUTPUT FROM BRUHSY MODEL IS FROM									
		* CITY OF ANGLETON LOMR									
258	KK	BRUSH									
259	KM	OUTPUT FROM BRUSHY MODEL									
260	BA	6.91									
261	IN	60	20JUN02	1200							
262	QI	0	0	1	4	8	12	21	46	92	158
263	QI	240	351	522	958	1871	2615	2865	2807	2645	2463
264	QI	2277	2095	1922	1757	1605	1466	1338	1214	1099	995
265	QI	902	819	745	678	618	565	516	475	439	406

Bastrop Bayou 100 year flows BB\_BL100.IH1

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
266	QI	376	350	326	304	283	264	246	230	216	203
267	QI	189	177	167	158	148	141	132	124	117	112
268	QI	106	101	90	77	73	69	67	65	61	56
269	QI	52	48	43	39	35	31	27	24	21	19
270	QI	17	16	15	13	12	11	10	10	9	8
271	QI	7	7	6	6	5	5	4	4	4	3
272	QI	3	3	3	2	2	2	2	2	1	1
273	QI	1	1	1	1	1	1	0	0	0	0
274	QI	0	0	0	0	0	0	0	0	0	0
275	QI	0	0	0	0	0	0	0	0	0	0
276	QI	0	0	0	0	0	0	0	0	0	0
277	QI	0	0	0	0	0	0	0	0	0	0
278	QI	0	0	0	0	0	0	0	0	0	0
279	IN	10	20JUN02	1200							
280	KK	BRN37									
281	RM	8	1.4	.25							
282	KK	BB37									
283	BA	1.7									
284	LU	.75	.1	0							
285	UC	2.23	13.79								
286	KK	C99									
287	HC	2									
288	KK	N37N38									
289	RM	8	1.3	.25							
290	KK	BB38									
291	BA	1.5									
292	LU	.75	.1	0							
293	UC	1.34	13.29								
294	KK	C25									
295	HC	2									
296	KK	N38N39									
297	RM	6	.95	.25							
298	KK	BB39									
299	BA	1.1									
300	LU	.75	.1	0							
301	UC	2.00	18.88								
302	KK	C26									
303	HC	3									
304	KK	RCH 4									
305	KM	REACH EXTENDS FROM X-SECT.				36.000	TO X-SECT.		20.000		
306	RS	6	STOR	0							
307	SV	0	385	934	2727	5106	8225	11134	13717		
308	SQ	0	1285	2570	5141	7711	10282	12852	15422		









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*****  
*  
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *  
* JUN 1998 *  
* VERSION 4.1 *  
*  
* RUN DATE 23AUG02 TIME 13:23:11 *  
*  
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*****  
*  
* U.S. ARMY CORPS OF ENGINEERS  
* HYDROLOGIC ENGINEERING CENT  
* 609 SECOND STREET  
* DAVIS, CALIFORNIA 95616  
* (916) 756-1104  
*  
*****
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FILE: BB\_BL100.IH1  
BASTROP BAYOU, 100-YR  
BRAZORIA CO DRAINAGE MASTER PLAN  
BAKER & LAWSON, MGG

6 IO OUTPUT CONTROL VARIABLES  
IPRNT 5 PRINT CONTROL  
IPLOT 0 PLOT CONTROL  
QSCAL 0. HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA  
NMIN 10 MINUTES IN COMPUTATION INTERVAL  
IDATE 20JUN 2 STARTING DATE  
ITIME 1200 STARTING TIME  
NQ 1000 NUMBER OF HYDROGRAPH ORDINATES  
NDDATE 27JUN 2 ENDING DATE  
NDTIME 1030 ENDING TIME  
ICENT 19 CENTURY MARK

COMPUTATION INTERVAL .17 HOURS  
TOTAL TIME BASE 166.50 HOURS

ENGLISH UNITS  
DRAINAGE AREA SQUARE MILES  
PRECIPITATION DEPTH INCHES  
LENGTH, ELEVATION FEET  
FLOW CUBIC FEET PER SECOND  
STORAGE VOLUME ACRE-FEET  
SURFACE AREA ACRES  
TEMPERATURE DEGREES FAHRENHEIT

Bastrop Bayou 100 year flows BB\_BL100.IH1

RUNOFF SUMMARY  
 FLOW IN CUBIC FEET PER SECOND  
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	BB01	530.	16.00	506.	354.	152.	1.72		
ROUTED TO	N1N5	528.	18.50	504.	353.	152.	1.72		
HYDROGRAPH AT	BB05	326.	18.33	322.	274.	146.	2.10		
2 COMBINED AT	C1	854.	18.50	824.	627.	298.	3.82		
HYDROGRAPH AT	BB02	931.	15.00	887.	598.	251.	2.80		
ROUTED TO	N2N3	929.	16.33	884.	597.	251.	2.80		
HYDROGRAPH AT	BB03	1194.	14.33	1115.	691.	274.	3.00		
2 COMBINED AT	C2	2086.	15.67	1953.	1283.	526.	5.80		
ROUTED TO	N3N4	2079.	17.17	1948.	1282.	526.	5.80		
HYDROGRAPH AT	BB04	541.	15.67	503.	320.	128.	1.40		
2 COMBINED AT	C3	2605.	17.00	2439.	1599.	654.	7.20		
2 COMBINED AT	C4	3421.	17.50	3235.	2220.	952.	11.02		
ROUTED TO	N5N7	3417.	18.00	3233.	2219.	952.	11.02		
HYDROGRAPH AT	BB06	468.	14.67	446.	299.	125.	1.40		
ROUTED TO	N6N7	467.	15.17	445.	299.	125.	1.40		
HYDROGRAPH AT	BB07	770.	13.17	666.	334.	119.	1.30		
3 COMBINED AT	C5	4391.	17.67	4128.	2807.	1196.	13.72		
ROUTED TO	N7N8	4388.	18.00	4127.	2806.	1196.	13.72		
HYDROGRAPH AT	BB08	242.	13.83	216.	117.	43.	.47		
2 COMBINED AT	C6	4575.	18.00	4298.	2918.	1239.	14.19		
ROUTED TO	N8N9	4562.	19.17	4290.	2916.	1239.	14.19		
HYDROGRAPH AT	BB09	536.	14.67	514.	353.	151.	1.70		
2 COMBINED AT	C7	5029.	19.17	4737.	3251.	1390.	15.89		
ROUTED TO	RCH 7	4312.	27.83	4199.	3235.	1390.	15.89		
HYDROGRAPH AT	BB10	1470.	13.67	1312.	709.	262.	2.80		
2 COMBINED AT	C8	4707.	27.33	4587.	3769.	1651.	18.69		
ROUTED TO	RCH 6	4451.	33.00	4388.	3761.	1651.	18.69		
HYDROGRAPH AT	BB11	437.	13.83	374.	185.	66.	.70		
ROUTED TO	N11N1	434.	15.00	372.	185.	66.	.70		
HYDROGRAPH AT	BB12	258.	14.83	243.	156.	63.	.70		
2 COMBINED AT	C9	692.	15.00	614.	341.	129.	1.40		
HYDROGRAPH AT	BB13	686.	14.17	645.	408.	164.	1.80		
2 COMBINED AT	C10	1373.	14.83	1250.	748.	293.	3.20		
HYDROGRAPH AT	BB14	1128.	13.83	965.	481.	171.	1.80		
ROUTED TO	N14N1	1121.	14.67	961.	481.	171.	1.80		

Bastrop Bayou 100 year flows BB\_BL100.IH1

HYDROGRAPH AT	BB15	439.	13.83	401.	230.	87.	.95
2 COMBINED AT	C11	1553.	14.67	1353.	710.	259.	2.75
ROUTED TO	N15N1	1544.	15.67	1349.	710.	259.	2.75
HYDROGRAPH AT	BB16	381.	14.67	357.	226.	91.	1.00
2 COMBINED AT	C12	1920.	15.50	1699.	935.	349.	3.75
ROUTED TO	N16N1	1907.	17.00	1693.	935.	349.	3.75
HYDROGRAPH AT	BB17	651.	14.17	593.	340.	129.	1.40
4 COMBINED AT	C13	6786.	17.17	6438.	5582.	2423.	27.04
ROUTED TO	N17N2	6781.	17.67	6436.	5581.	2423.	27.04
HYDROGRAPH AT	BB18	1495.	14.50	1370.	806.	310.	3.30
ROUTED TO	N18N1	1490.	15.50	1364.	805.	310.	3.30
HYDROGRAPH AT	BB19	1641.	13.17	1279.	551.	189.	2.00
2 COMBINED AT	C14	2826.	14.83	2471.	1335.	499.	5.30
ROUTED TO	N19N2	2807.	15.83	2465.	1335.	499.	5.30
HYDROGRAPH AT	BB20	544.	14.00	490.	271.	101.	1.10
3 COMBINED AT	C15	9764.	17.17	9079.	7029.	3021.	33.44
HYDROGRAPH AT	BB21	440.	14.67	415.	267.	109.	1.20
HYDROGRAPH AT	BE22	733.	16.50	712.	540.	251.	3.00
3 COMBINED AT	C16	10902.	17.17	10170.	7820.	3381.	37.64
ROUTED TO	RCH 5	7838.	31.50	7789.	7114.	3379.	37.64
HYDROGRAPH AT	BB23	256.	15.00	245.	167.	71.	.80
ROUTED TO	N23N2	256.	16.00	244.	167.	71.	.80
HYDROGRAPH AT	BB24	373.	14.83	350.	224.	91.	1.00
2 COMBINED AT	C17	624.	15.33	589.	390.	162.	1.80
HYDROGRAPH AT	BB25	291.	14.17	271.	166.	66.	.72
ROUTED TO	N25N2	290.	15.83	270.	166.	66.	.72
HYDROGRAPH AT	BB26	875.	14.67	829.	545.	225.	2.50
2 COMBINED AT	C18	1157.	15.33	1086.	711.	290.	3.22
ROUTED TO	N26N2	1155.	16.33	1084.	710.	290.	3.22
HYDROGRAPH AT	BB27	288.	15.17	276.	191.	82.	.92
2 COMBINED AT	C19	1438.	16.17	1354.	900.	372.	4.14
HYDROGRAPH AT	BB28	370.	14.33	346.	214.	85.	.93
4 COMBINED AT	C20	8827.	29.33	8770.	8079.	3996.	44.51
HYDROGRAPH AT	BB29	1200.	14.17	1037.	528.	190.	2.00
ROUTED TO	N29N3	1191.	15.17	1032.	528.	190.	2.00
HYDROGRAPH AT	BB30	444.	14.00	408.	239.	92.	1.00
2 COMBINED AT	C21	1624.	15.00	1426.	766.	281.	3.00
ROUTED TO	N30N3	1607.	16.83	1418.	766.	281.	3.00

Bastrop Bayou 100 year flows BB\_BL100.IH1

HYDROGRAPH AT	BB31	616.	15.17	590.	410.	177.	2.00
2 COMBINED AT	C22	2206.	16.83	1986.	1176.	458.	5.00
ROUTED TO	N31N3	2184.	18.00	1977.	1175.	458.	5.00
HYDROGRAPH AT	BB32	470.	14.83	447.	300.	125.	1.40
3 COMBINED AT	C23	10049.	26.33	9991.	9319.	4579.	50.91
HYDROGRAPH AT	BB33	381.	17.33	375.	309.	157.	2.10
2 COMBINED AT	C24	10365.	26.17	10306.	9616.	4737.	53.01
ROUTED TO	N33N3	10364.	26.67	10305.	9615.	4737.	53.01
HYDROGRAPH AT	BRUSH	2865.	16.00	2593.	1535.	624.	6.91
ROUTED TO	BRN37	2835.	17.67	2583.	1534.	624.	6.91
HYDROGRAPH AT	BB37	573.	15.33	544.	365.	152.	1.70
2 COMBINED AT	C99	3376.	17.67	3096.	1896.	776.	8.61
ROUTED TO	N37N3	3362.	19.00	3088.	1895.	776.	8.61
HYDROGRAPH AT	BB38	523.	14.67	496.	327.	135.	1.50
2 COMBINED AT	C25	3814.	18.83	3515.	2207.	910.	10.11
ROUTED TO	N38N3	3804.	19.83	3509.	2206.	910.	10.11
HYDROGRAPH AT	BB39	287.	15.83	278.	206.	94.	1.10
3 COMBINED AT	C26	13787.	21.00	13609.	11967.	5741.	64.22
ROUTED TO	RCH 4	12250.	38.67	12170.	11160.	5739.	64.22
HYDROGRAPH AT	BB40	150.	14.33	142.	90.	36.	.40
ROUTED TO	N40N4	150.	15.67	141.	90.	36.	.40
HYDROGRAPH AT	BB41	341.	14.33	320.	203.	82.	.90
2 COMBINED AT	C27	487.	15.00	455.	292.	118.	1.30
ROUTED TO	N41N4	485.	16.50	454.	292.	118.	1.30
HYDROGRAPH AT	BB42	162.	16.50	158.	122.	58.	.70
3 COMBINED AT	C28	12419.	38.33	12338.	11321.	5913.	66.22
HYDROGRAPH AT	BB43	111.	21.67	109.	95.	51.	.80
2 COMBINED AT	C29	12497.	38.33	12416.	11395.	5964.	67.02
ROUTED TO	RCH 3	12026.	51.83	11962.	11075.	5920.	67.02
HYDROGRAPH AT	BB44	316.	29.00	312.	282.	154.	3.10
HYDROGRAPH AT	BB45	114.	34.83	112.	103.	55.	1.20
3 COMBINED AT	C30	12330.	51.67	12265.	11349.	6092.	71.32
HYDROGRAPH AT	AB	16299.	56.00	16227.	15593.	11415.	132.61
2 COMBINED AT	C98	28390.	53.00	28313.	26943.	17480.	203.93
HYDROGRAPH AT	BB46	379.	17.17	371.	300.	149.	1.90
ROUTED TO	N46N4	378.	20.83	370.	299.	149.	1.90
HYDROGRAPH AT	BB47	345.	20.50	338.	281.	144.	2.00
2 COMBINED AT	C31	722.	20.67	707.	579.	293.	3.90
HYDROGRAPH AT	BB48	595.	15.33	572.	403.	176.	2.00

Bastrop Bayou 100 year flows BB\_BL100.IH1

2 COMBINED AT	C32	1239.	19.50	1197.	949.	469.	5.90
ROUTED TO	N48N4	1236.	20.83	1195.	948.	469.	5.90
HYDROGRAPH AT	BB49	126.	22.67	123.	104.	55.	.80
3 COMBINED AT	C33	28786.	53.00	28703.	27356.	17758.	210.63
ROUTED TO	RCH 2	28781.	53.50	28699.	27352.	17755.	210.63
HYDROGRAPH AT	BB50	274.	16.33	270.	223.	113.	1.50
2 COMBINED AT	C34	28866.	53.33	28783.	27435.	17809.	212.13
ROUTED TO	RCH 1	28836.	55.83	28755.	27397.	17804.	212.13
HYDROGRAPH AT	BB51	1855.	15.50	1778.	1242.	536.	6.10
2 COMBINED AT	C35	29006.	55.67	28922.	27577.	17965.	218.23

\*\*\* NORMAL END OF HEC-1 \*\*\*

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*****  
HEC-2 WATER SURFACE PROFILES *  
*  
Version 4.6.2; May 1991 *  
*  
* RUN DATE 23AUG02 TIME 08:47:43 *  
*****
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*****  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET, SUITE D *  
* DAVIS, CALIFORNIA 95616-4687 *  
* (916) 756-1104 *  
*****
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      X  X  XXXXXXXX  XXXXX          XXXXX  
      X  X  X          X      X      X      X  
      X  X  X          X          X          X  
      XXXXXXXX  XXXX  X          XXXXX  XXXXX  
      X  X  X          X          X  
      X  X  X          X      X      X  
      X  X  XXXXXXXX  XXXXX          XXXXXXXX
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THIS RUN EXECUTED 23AUG02 08:47:43

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

T1 BRAZORIA COUNTY DRAINAGE MASTER PLAN  
 T2 BASTROP BAYOU AND WEST FORK TO CR290, 10-YR  
 T3 HEC-2 FILE FROM LAKE JACKSON CLOMR WITH REVISED FLOWS  
 T4 FILE: BB\_BL\_R.IH2  
 T5 BAKER & LAWSON, MGG

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	2	0	0		0	0		13	0
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1							
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38	43	1	26	42	23	24	63	14	60
	39	4								

J5 LPRNT NUMSEC \*\*\*\*\*REQUESTED SECTION NUMBERS\*\*\*\*\*  
 -10 -10  
 10-YR 25-YR 100-YR

QT 3 17075 20826 29006  
 10.4  
 NC .04 .04 .035 0.1 0.3

EXTENDED ALL CROSS-SECTIONS BASED ON USGS TOPO  
 BAKER & LAWSON, MGG  
 VERTICAL WALL IS DRAINAGE DIVIDE

\*\*\*\*\*THIS IS FEMA X-SEC A\*\*\*\*\*

FEMA SECTION A										
X1	26	37	20085	20382						
GR	15	17948	5.1	17948	5.1	20000.	5.4	20050.	6.	20066.
GR	9.4	20085.	9.	20100.	3.8	20116.	2.2	20138.	.3	20154.
GR	-.7	20164.	-1.8	20174.	-4.	20184.	-6.6	20194.	-7.8	20204.
GR	-9.1	20214.	-9.6	20224.	-9.9	20234.	-9.4	20244.	-9.5	20254.
GR	-9.3	20264.	-8.1	20274.	-5.9	20284.	-3.1	20294.	-1.3	20304.
GR	-.3	20314.	.3	20322.	0.7	20327.	2.9	20328.	3.6	20340.
GR	12.8	20382.	12.7	20386.	9.2	20393.	3.6	20443.	2.7	20493.
GR	2.7	22111	15	22111						

\*\*\*\*\*THIS IS FEMA X-SEC B\*\*\*\*\*

FEMA SECTION B										
X1	27	34	20100	20301	2750	3000	3050			
GR	15	16189	6	16489	6.	18800.	5.	19000.	5.	20000.
GR	5.	20050.	4.9	20100.	1.8	20103.	0.2	20124.	- .6	20134.
GR	-1.6	20144.	-2.5	20154.	-4.8	20164.	-7.	20174.	-8.9	20184.
GR	-9.8	20194.	-10.4	20204.	-11.	20214.	-10.7	20224.	-9.8	20234.
GR	-8.8	20244.	-6.7	20254.	-3.8	20264.	-1.9	20274.	-7.	20284.
GR	.2	20294.	1.1	20300.	4.2	20301.	4.0	20351.	4.	20401.
GR	4.	21200.	5.	21400.	5	32366	15	32366		

\*\*\*\*\*THIS IS FEMA X-SEC C\*\*\*\*\*

FEMA SECTION C										
X1	28	30	20100	20279	2500	2800	2650			
GR	15	16082	5	16082	5.	16350.	7.4	20000.	7.6	20050.
GR	7.6	20100.	1.9	20106.	.2	20122.	0.7	20132.	-3.6	20142.
GR	-6.4	20152.	-8.2	20162.	-9.1	20172.	-9.4	20182.	-9.5	20192.
GR	-9.3	20202.	-8.9	20212.	-8.7	20222.	-7.7	20232.	-4.7	20242.
GR	-.7	20252.	.2	20262.	1.8	20275.	8.	20279.	8.	20339.
GR	7.7	20379.	5.	21800.	5	24400	5	25860	15	25860

X1	30.1	49.	20533.	20811.	1100	1100	1100			
GR	15.4	20000.	17.8	20050.	7.6	20180.	7.4	20240.	8.	20300.
GR	8.1	20360.	8.	20420.	8.2	20480.	7.3	20533.	1.8	20541.
GR	.4	20560.	-1.8	20570.	-4.1	20580.	-5.4	20590.	-5.8	20600.
GR	-8.8	20610.	-8.9	20620.	-9.	20630.	-9.3	20640.	-10.1	20650.
GR	-9.7	20660.	-10.	20670.	-10.1	20680.	-10.	20690.	-10	20700.
GR	-9.7	20710.	-9.1	20720.	-8.3	20730.	-7.3	20740.	-6.5	20750.
GR	-4.9	20760.	-4.	20770.	-2.3	20780.	-.4	20790.	.3	20796.
GR	1.1	20804.	2.8	20811.	3.3	20840.	3.9	20900.	4.3	20960.
GR	4.8	21020.	3.2	21080.	5.0	21140.	4.8	21200.	5.	21260.
GR	4.3	21320.	4.3	21380.	4.8	21422.	13.9	21461.		

QT 3 16921 20713 28866  
 CROSS-SECTION INSERTED TO REFLECT ENCROACHMENT  
 OF ABANDONED RAILWAY DS OF CR227  
 BASED ON FIELD SURVEY  
 BAKER & LAWSON, MGG  
 BRAZORIA CO DRAINAGE MASTER PLAN

X1	30.15	13	20538	20840	50	50	50			
GR	16.5	20482	9	20508	7.8	20538	1.1	20571	-7	20610
GR	-17.66	20690	-8.5	20763	-2.4	20805	1	20833	2.9	20840
GR	5.2	21146	5.2	21422	13.9	21461				

\*\*\*\*\* COUNTY ROAD 227 \*\*\*\*\*  
 38.4

X1	30.2	100	20540	20811	25	25	25			
GR	15	16082	7.4	16082	7.4	18849.	8.8	19049.	7.5	19449.
GR	9.1	19649.	15.4	20000.	17.8	20050.	7.6	20180.	25.9	20181.
GR	25.9	20183.	7.6	20184.	7.4	20240.	29.56	20241.	29.56	20243.5
GR	7.4	20244.	8.	20300.	33.16	20301.	33.16	20303.5	8.	20304.
GR	8.1	20360.	36.77	20361.	36.77	20363.5	8.1	20364.	8.	20420.
GR	40.35	20421.	40.35	20423.5	8.	20424.	8.2	20480.	44.	20481.
GR	44.	20483.5	8.2	20484.	3.9	20540.	47.5	20541.	47.5	20543.5



GR	3.9	20544.	-5.8	20600.	50.19	20601.	50.19	20603.5	-5.8	20604.
GR	-8.9	20620.	-9.	20630.	-9.3	20640.	-10.1	20650.	-9.7	20660.
GR	51.84	20661.	51.84	20663.5	-10.	20670.	-10.1	20680.	-10.	20690.
GR	-10.	20700.	-4.9	20760.	-4.	20770.	-2.3	20780.	51.9	20781.
GR	51.9	20783.5	-2.3	20784.	-4	20790.	.3	20796.	1.1	20804.
GR	2.8	20811.	3.33	20840.	50.2	20841.	50.2	20843.	3.33	20844.
GR	3.86	20900.	47.6	20901.	47.6	20903.5	3.86	20904.	4.3	20960.
GR	44.	20961.	44.	20963.5	4.3	20964.	4.8	21020.	40.4	21021.
GR	40.4	21023.5	4.8	21024.	5.2	21080.	36.8	21081.	36.8	21083.5
GR	5.2	21084.	5.0	21140.	33.2	21141.	33.2	21143.5	5.	21144.
GR	4.8	21200.	29.6	21201.	29.6	21203.5	4.8	21204.	5.	21260.
GR	26.	21261.	26.	21263.	5.	21264.	4.3	21320.	8.4	21520.
GR	7.1	21620.	7.0	21820.	8.4	22220.	8	25860	15	25860
				38.4						

X1 30.3 35. 35. 35.  
2.4

X1	30.4	49.	20533.	20811.	25.	25.	25.			
GR	15.4	20000.	17.8	20050.	7.6	20180.	7.4	20240.	8.	20300.
GR	8.1	20360.	8.	20420.	8.2	20480.	7.3	20533.	1.8	20541.
GR	.4	20560.	-1.8	20570.	-4.1	20580.	-5.4	20590.	-5.8	20600.
GR	-8.8	20610.	-8.9	20620.	-9.	20630.	-9.3	20640.	-10.1	20650.
GR	-9.7	20660.	-10.	20670.	-10.1	20680.	-10.	20690.	-10	20700.
GR	-9.7	20710.	-9.1	20720.	-8.3	20730.	-7.3	20740.	-6.5	20750.
GR	-4.9	20760.	-4.	20770.	-2.3	20780.	-4	20790.	.3	20796.
GR	1.1	20804.	2.8	20811.	3.3	20840.	3.9	20900.	4.3	20960.
GR	4.8	21020.	3.2	21080.	5.0	21140.	4.8	21200.	5.	21260.
GR	4.3	21320.	4.3	21380.	4.8	21422.	13.9	21461.		

\*\*\*\*\*THIS IS FEMA X-SEC D\*\*\*\*\*  
16.4

FEMA SECTION D

X1	31	43	20000	20523	2600	1700	2600			
GR	15	13990	5	13990	5.	14950.	5.	19250.	2.9	20000.
GR	2.2	20010.	1.8	20114.	.3	20164.	.8	20214.	1.2	20268.
GR	1.2	20269.	0	20279.	-.5	20289.	-1.4	20299.	-3.3	20309.
GR	-4.6	20319.	-5.7	20329.	-6.5	20339.	-7.2	20349.	-8.	20359.
GR	-8.2	20369.	-9.2	20379.	-9.2	20389.	-9.7	20399.	-9.8	20409.
GR	-10.	20419.	-9.8	20429.	-9.4	20439.	-9.	20449.	-8.8	20459.
GR	-7.9	20469.	-7.1	20479.	-5.9	20489.	-4.2	20499.	-1.3	20509.
GR	0	20519.	1.2	20523.	2.8	20524.	5.1	20574.	5.2	20624.
GR	5.	24250.	6.	24260	15	24260				

QT 3 7825 9198 12330

\*\*\*\*\*THIS IS FEMA X-SEC E\*\*\*\*\*

FEMA SECTION E DOWNSTREAM OF AUSTIN CONFLUENCE

X1	32	41	20100	20332	1900	2100	3900			
GR	15	11158	5	11158	5.	13600.	5.	15700.	1.4	20000.
GR	.9	20050.	2.	20100.	1.2	20101.	-1.1	20111.	-3.5	20121.
GR	-5.7	20131.	-7.2	20141.	-8.	20151.	-8.6	20161.	-9.6	20171.
GR	-10.	20181.	-11.	20191.	-10.8	20201.	-10.7	20211.	-10.3	20221.
GR	-10.	20231.	-9.4	20241.	-8.8	20251.	-8.4	20261.	-7.1	20271.
GR	-6.2	20281.	-5.1	20291.	-3.8	20301.	-1.9	20311.	-8	20321.

23AUG02 08:47:43

GR	1.2	20331.	1.6	20332.	.8	20362.	-.2	20382.	.2	20418.
GR	1.2	20438.	2.4	20488.	5.	29800.	9.	29820.	9	32455
GR	15	32455								

\*\*\*\*\*THIS IS FEMA X-SEC F\*\*\*\*\*

FEMA SECTION F UPSTREAM OF AUSTIN CONFLUENCE

X1	33	36	20100	20320	3600	2500	3800			
GR	15	19550	2.	19550.	1.8	20000.	2.6	20030.	2.2	20100.
GR	1.2	20101.	-.5	20111.	-1.7	20121.	-3.6	20131.	-4.2	20141.
GR	-4.6	20151.	-5.6	20161.	-6.1	20171.	-6.4	20181.	-6.7	20191.
GR	-7.4	20201.	-7.3	20211.	-7.5	20221.	-7.4	20231.	-6.8	20241.
GR	-5.9	20251.	-5.3	20261.	-4.2	20271.	-3.9	20281.	-3.4	20291.
GR	-1.9	20301.	-.6	20311.	1.2	20319.	.1	20319.	2.9	20320.
GR	1.9	20370.	2.2	20420.	5.	24500.	9.	24550.	9	35548
GR	15	35548								

\*\*\*\*\*THIS IS FEMA X-SEC G\*\*\*\*\*

FEMA SECTION G

X1	34	39	20000	20433	2200	2800	3500			
GR	15	18700	3.	18700.	3.1	20000.	3.1	20001.	1.8	20027.
GR	.7	20030.	1.3	20100.	1.3	20150.	1.8	20200.	3.1	20225.
GR	1.1	20227.	.2	20227.1	-.6	20237.	-1.4	20247.	-3.8	20257.
GR	-4.6	20267.	-5.	20277.	-6.1	20287.	-6.4	20297.	-8.2	20307.
GR	-8.2	20317.	-7.8	20327.	-7.3	20337.	-6.8	20347.	-6.3	20357.
GR	-5.5	20367.	-5.7	20377.	-4.5	20387.	-4.2	20397.	-2.4	20407.
GR	-1.1	20417.	.2	20427.	1.1	20432.	1.8	20433.	3.2	20483.
GR	2.9	20533.	5.	30900.	9.	35700.	15	35700		

\*\*\*\*\*THIS IS FEMA X-SEC H\*\*\*\*\*

FEMA SECTION H

X1	35	36	20100	20308	3500	2000	3300			
GR	15	18800	4.	18800.	3.2	20000.	3.	20009.	2.3	20019.
GR	2.1	20050.	2.7	20100.	1.0	20101.	.2	20111.	-1.2	20121.
GR	-2.7	20131.	-4.1	20141.	-4.9	20151.	-5.6	20161.	-6.5	20171.
GR	-7.1	20181.	-7.6	20191.	-7.8	20201.	-7.9	20211.	-7.5	20221.
GR	-6.8	20231.	-6.2	20241.	-5.7	20251.	-5.3	20261.	-5.2	20271.
GR	-3.9	20281.	-1.8	20291.	-.5	20301.	1.	20307.	3.1	20308.
GR	4.1	20358.	3.5	20408.	5.	31900.	5.	37100.	9.	39000.
GR	15	39000								

\*\*\*\*\* SECTION NOT ON MAP \*\*\*\*\*

QT	3	7936	9244	12479						
X1	36	45	20040	20366	3100	2800	3700			
GR	15	18880	9.	18880.	4.	18900.	4.1	20000.	4.4	20010.
GR	1.1	20011.	5.	20040.	4.3	20050.	4.3	20082.	2.8	20100.
GR	1.1	20101.	.5	20102.	-.3	20111.	-1.	20121.	-2.8	20131.
GR	-3.5	20141.	-4.2	20151.	-5.	20161.	-5.6	20171.	-5.7	20181.
GR	-6.4	20191.	-6.9	20201.	-7.4	20211.	-7.9	20221.	-9.2	20231.
GR	-8.3	20241.	-6.5	20251.	-6.7	20261.	-6.3	20271.	-6.	20281.
GR	-5.5	20291.	-4.5	20301.	-1.9	20311.	-.7	20321.	.4	20331.
GR	1.1	20334.	3.8	20335.	3.6	20352.	4.5	20366.	4.9	20385.
GR	4.4	20435.	5.	23900.	5.	37500.	9.	40200.	15	40200

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NC .06 .06 .04 .1 .3

10.4

\*\*\*\*\*THIS IS FEMA X-SEC I\*\*\*\*\*

X-SECTION BA-21, MCCORMICK RESERVIOR ON LEFT OVER BANK

THIS IS FEMA X-SEC I

X1	21	29	10041	10386	1100	1000	1000			
GR	15	7648	7.1	7648	7.1	7649	7.1	7650	7.1	7651
GR	5.7	7708	5.5	8063	5.3	8330	5.3	8874	4.7	9387
GR	7.9	9458	7.1	9623	5.3	9804	6.3	9911	1.5	9945
GR	1.5	9960	4.1	10021	6.1	10041	1.1	10090	-4	10117
GR	-5.4	10171	-8.4	10225	-5.4	10279	-4	10333	1.1	10361
GR	8.3	10386	8.3	10386	8.3	28888	15	28888		

\*\*\*\*\*THIS IS FEMA X-SEC J\*\*\*\*\*

X-SECTION BA-20

THIS IS FEMA X-SEC J

X1	20	22	14586	14891	5850	5150	5600			
GR	15	7197	7.3	7197	7.3	12566	7.3	12567	7.3	12568
GR	7.3	12569	6.5	13236	5.3	13726	6.1	14120	5.9	14523
GR	4.1	14586	.3	14606	-2	14630	-5.5	14680	-8.3	14734
GR	-5.5	14790	-2	14840	.3	14861	6.7	14891	6.9	15335
GR	6.9	34836	15	34836						
QT	3	6462	7672	10365						
NC	.06	.06	.045							

16.4

\*\*\*\*\*THIS IS FEMA X-SEC K\*\*\*\*\*

X-SECTION BA-19

THIS IS FEMA X-SEC K

X1	19	27	10193	10655	3950	4700	4440			
GR	15	1903	6.3	1903	6.3	6217	6.3	6218	6.3	6219
GR	6.3	6796	3.9	7624	4.60	7839.50	5.3	8055	5.1	8466
GR	4.9	8883	5.7	9295	6.5	9372	6.9	9787	6.9	10193
GR	6.3	10346	.5	10364	-2	10370	-3.2	10410	-8.2	10468
GR	-3.2	10526	-2	10580	.5	10588	7.3	10655	7.9	10683
GR	7.9	26071	15	26071						

18.4

QT 3 5586 6594 8827  
\*\*\*\*\*THIS IS FEMA X-SEC L\*\*\*\*\*

X-SECTION BA-18

THIS IS FEMA X-SEC L

X1	18	25	7519	7817	4330	4330	4330			
GR	15	1495	7.2	1495	7.2	5532	6.6	5888	6.4	6258
GR	6.6	6851	6	7273	6	7332	8	7519	.6	7559
GR	-6.8	7660	-6.8	7690	.6	7787	6.8	7817	6.8	8068
GR	7	8466	5	8707	1	8774	1	8800	7	8880
GR	7.4	9024	7.4	9053	7.8	9859	7.8	17564	15	17564

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X1	17.2	22	3827	4096	4100	3650	3970			
GR	15	737	10.4	737	10.4	1480	10.4	1481	10.4	1482
GR	10.2	1587	8	1732	7.6	2027	8	2432	8.4	2820
GR	8.4	3433	7.6	3651	5.4	3827	.6	3849	.4	3862
GR	-5.6	3938	.4	4050	.6	4065	7.2	4096	8.4	4206
GR	8.4	12381	15	12381						

NC .3 .5

\*\*\*\*\*F.M. 523 BRIDGE\*\*\*\*\*

X-SECTION BA-17-1, HIGHWAY 523 BRIDGE, TOR MODELED

X1	17.1	21	3820	4100	50	50	50			
GR	15	924	8.2	924	8.2	2976	8.2	3211	9.2	3473
GR	12.4	3627	17	3820	5.4	3827	.6	3849	.4	3862
GR	-5.6	3938	.4	4050	.6	4065	17.2	4100	15	4226
GR	11	4406	9.8	4561	9.6	4800	9.4	4976	9.4	11758
GR	15	11758								

\*\*\*\*\*THIS IS FEMA X-SEC M\*\*\*\*\*

THIS IS FEMA X-SEC M

X1	17	17	3827	4096	50	50	50			
GR	15	924	8.4	924	8.4	2818	8.4	2819	8.4	2820
GR	8.4	3433	7.6	3651	5.4	3827	.6	3849	.4	3862
GR	-5.6	3938	.4	4050	.6	4065	7.2	4096	8.4	4206
GR	8.4	11758	15	11758						

NC .10 .10 .055 .1 .3

20.4

X1	16.2	18	5413	5808	2710	3430	3100			
GR	15	2227	8	2227	8	5087	8	5088	8	5089
GR	8	5090	7.8	5305	7.8	5413	3.2	5477	2.4	5511
GR	.6	5519	-3.4	5648	.6	5777	1.8	5792	6.4	5808
GR	8.8	5895	8.8	22891	15	22891				

QT 3 59841 7389 10902  
NC .3 .5

\*\*\*\*\*F.M. 2004 BRIDGE\*\*\*\*\*

X-SECTION BA-16-1, FM 2004 BRIDGE, TOR MODELED

X1	16.1	23	5393	5843	60	60	60			
GR	15	2227	9.9	2227	9.9	4774	10.3	4969	11.9	5107
GR	13.7	5221	15.3	5305	17.3	5393	3.2	5430	2.4	5511
GR	.6	5519	-3.4	5648	.6	5777	1.8	5792	6.4	5808
GR	18.5	5843	18.1	5913	14.7	6134	10.9	6326	10.1	6476
GR	9.9	6623	9.9	22891	15	22891				

\*\*\*\*\*THIS IS FEMA X-SEC N\*\*\*\*\*

THIS IS FEMA X-SEC N

X1	16	18	5413	5808	50	50	50			
GR	15	2227	8	2227	8	5087	8	5088	8	5089
GR	8	5090	7.8	5305	7.8	5413	3.2	5477	2.4	5511
GR	.6	5519	-3.4	5648	.6	5777	1.8	5792	6.4	5808
GR	8.8	5895	8.8	22891	15	22891				

NC			.1		.3					
			22.4							
			*****THIS IS FEMA X-SEC O*****							
QT	3	5454	6686	9764						
	X-SECTION BA-15		THIS IS FEMA X-SEC O							
X1	15	25	7590	7788	5700	4900	5440			
GR	15	578	11	5129	11	5130	11	5131	10.6	5511
GR	10.4	5750	9	6257	8.8	6908	10.4	7540	7.3	7550
GR	2.4	7590	0.3	7593	0	7607	-6.4	7699	0	7774
GR	1.4	7784	5.4	7788	8.4	7804	11.8	7859	11.8	8055
GR	11.8	8341	11.4	8579	11.4	8930	11.4	12294	15	12294

			*****THIS IS FEMA X-SEC P*****							
	X-SECTION BA-14		THIS IS FEMA X-SEC P							
X1	14	19	14442	14609	4800	4850	4750			
GR	15	6185	12.3	9675	12.3	14117	12.3	14118	12.3	14119
GR	10.9	14152	10.3	14419	8.5	14442	1.1	14492	-2	14530
GR	-5.5	14542	-2	14555	1.1	14591	2.9	14600	7.9	14609
GR	11.5	14687	10.1	15404	10.1	19259	15	19259		
X1	13.3	31	17035	17243	4750	5300	5100			
GR	15	10000	12	15463	12	15464	11.4	15650	11.8	15768
GR	11.8	15899	12	16076	12	16077	12	16078	11.2	16316
GR	11.2	16317	11.6	16539	11.4	16693	14.6	16741	11.4	16802
GR	12.2	16987	11.8	17035	.8	17081	-6.2	17104	.8	17173
GR	11	17243	10.8	17359	13.6	17504	11.4	17679	11.4	17937
GR	10.8	18079	11	18681	11.4	18824	12.8	18851	12.8	21479
GR	15	21479								

QT	3	2662	3283	4707						
NC				.3		.5				
			22.41							

	***** OLD S.H. 288 BRIDGE*****									
	X-SECTION BA-13-1 AND 1-A, STATE HIGHWAY 288 DUAL BRIDGES									
X1	13.2				100	100	100			
X3	10							15.5	15.5	
SB	1.25	1.56	2.6		22.5	16.5	1463	3.5	-6.2	-6.2
X1	13.1				42	42	42			
X2			1	13.4	17.5					
X3	10							17.5	17.5	
BT	7	16701	15.5		16892	16.9	17035	17.5		
BT	17243	17.5		17450	17.1		17648	16.3		17701
BT	16.1									

			22.4							
			*****THIS IS FEMA X-SEC Q*****							
			THIS IS FEMA X-SEC Q							
X1	13				50	50	50			

NC .1 .3  
 \*\*\*\*\*THIS IS FEMA X-SEC R\*\*\*\*\*  
 X-SECTION BA-12 THIS IS FEMA X-SEC R

X1	12	30	13169	13272	3100	2900	2900			
GR	14.5	9249	12.7	9249	12.7	11535	12.7	11536	12.7	12015
GR	12.9	12288	12.7	12628	14.1	12791	12.1	12827	13.5	12857
GR	11.3	12987	12.5	13041	12.3	13138	8.9	13161	7.1	13169
GR	1.7	13179	-6.2	13218	1.7	13257	6.1	13272	11.7	13304
GR	12.9	13394	12.1	13481	14.1	13501	12.1	13527	12.5	13677
GR	11.1	13719	12.1	13733	12.2	13800	11.6	15136	15	15136

END CROSS-SECTION EXTENSIONS BY B & L

X1	11.5	32	6305	6445	5850	6100	5970			
GR	15.2	3457	15	3865	14.2	4001	14.8	4101	14.2	4376
GR	14.6	4651	14.4	4874	15	5002	14.8	5120	12.2	5200
GR	13.6	5300	14	5554	13.8	5702	12	5719	13.8	5730
GR	12.8	5874	13.6	5926	13.8	6092	12.6	6305	3.7	6325
GR	.7	6330	-3.3	6345	-6.3	6365	-2.3	6385	.7	6395
GR	3.7	6405	12.6	6445	13.2	6450	15	6498	16.2	6729
GR	15.8	6900	14.6	7084						

QT 3 2551 3295 5029  
 NC .3 .5  
 \*\*\*\*\*MISSOURI-PACIFIC R.R. BRIDGE\*\*\*\*\*

22.41  
 X-SECTION BA-11-1, MISSOURI-PACIFIC RR BRIDGE, TOR MODELED

X1	11.4				100	100	100			
X3	10							19	19	

SB	1.25	1.56	2.6	400	25.0	12	1490	3	-6.3	-6.3
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22.41

X1	11.37	32	6305	6445	15	15	15			
X2			1.	15.	20.1					
X3	10							16.7	16.7	
BT	5	6092	19.8		6305	20.1		6445	20.1	
BT	6450	20.1		6498	19.8					
GR	15.2	3457	15	3865	14.2	4001	14.8	4101	14.2	4376
GR	14.6	4651	14.4	4874	15	5002	14.8	5120	12.2	5200
GR	13.6	5300	14	5554	13.8	5702	12	5719	13.8	5730
GR	12.8	5874	13.6	5926	19.8	6092	20.1	6305	3.7	6325
GR	.7	6330	-3.3	6345	-6.3	6365	-2.3	6385	.7	6395
GR	3.7	6405	20.1	6445	20.1	6450	19.8	6498	16.2	6729
GR	15.8	6900	14.6	7084						

\*\*\*\*\*THIS IS FEMA X-SEC S\*\*\*\*\*

THIS IS FEMA X-SEC S

X1	11.3				35	35	35			
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22.41

\*\*\*\*\*COUNTY ROAD 288 BRIDGE\*\*\*\*\*

X-SECTION BA-11-2, COUNTY ROAD 288 NORTH OF LAKE JACKSON

X1	11.2			50	50	50				
X3	10						15.7	15.7		
SB	1.25	1.56	2.6	25.0	6	1550	3	-6.3	-6.3	
X1	11.1	32	6305	6445	30	30	30			
X2			1	14.3	17.7					
X3	10						16.7	16.7		
BT	7	5961	14.7		6116	15.5		6305	16.5	
BT	6445	16.9		6739	16.1		6875	15.5		6961
BT	15.3									
GR	15.2	3457	15	3865	14.2	4001	14.8	4101	14.2	4376
GR	14.6	4651	14.4	4874	15	5002	14.8	5120	12.2	5200
GR	13.6	5300	14	5554	13.8	5702	12	5719	13.8	5730
GR	12.8	5874	13.6	5926	14.7	5961	15.5	6116	16.5	6305
GR	3.7	6325	.7	6330	-3.3	6345	-6.3	6365	-2.3	6385
GR	.7	6395	3.7	6405	16.9	6445	16.1	6739	15.5	6875
GR	15.3	6961	14.6	7084						

10.4

X1	11	32	6305	6445	50	50	50			
GR	15.2	3457	15	3865	14.2	4001	14.8	4101	14.2	4376
GR	14.6	4651	14.4	4874	15	5002	14.8	5120	12.2	5200
GR	13.6	5300	14	5554	13.8	5702	12	5719	13.8	5730
GR	12.8	5874	13.6	5926	13.8	6092	12.6	6305	3.7	6325
GR	.7	6330	-3.3	6345	-6.3	6365	-2.3	6385	.7	6395
GR	3.7	6405	12.6	6445	13.2	6450	15	6498	16.2	6729
GR	15.8	6900	14.6	7084						

NC	.125	.125	.085	.1	.3					
QT	3	2321	3003	4575						

THIS IS FEMA SECTION "T" WITH END STA & ELEV ADJUSTED FOR M.P. RR EMBANKMENT

X-SECTION BA-10 ADJUSTED FEMA X-SEC "T"

X1	10	32	2230	2358	6500	7200	7030			
GR	17.0	1790	15.4	1799	15.4	1800	15.4	1801	15.2	2034
GR	15.4	2152	14.4	2222	13	2230	1.3	2265	.3	2280
GR	1.3	2295	12.2	2358	13.4	2428	14.2	2577	14.8	2928
GR	14.2	3178	15.8	4932	16	4975	16	5055	16.2	5100
GR	15.8	5192	16.6	5917	17.4	6083	17.4	6475	18	7139
GR	18	7473	18.2	7922	18.2	8706	18.2	9260	18.8	9778
GR	19.8	10200	20.5	12000						

QT	3	1712	2240	3421						
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THIS IS FEMA SECTION "U" ADJUSTED FOR NEW HWY 288

X-SECTION BA-9,BELOW CONFLUENCE OF EAST AND WEST BRANCHES  
ADJUSTED FEMA X-SECT "U"

X1	9	15	5118	5195	7600	8100	8130			
GR	18.0	1088.0	14.0	1100.0	16.6	4132.0	16.1	4248.0	16.3	5067.0
GR	12.9	5118.0	4.1	5146.0	2.4	5151.0	4.1	5157.0	14.7	5195.0
GR	17.5	5344.0	17.7	5871.0	17.0	6306.0	17.0	8500.0	25.0	8530.0

NEW SECTION 160 FT DOWNSTREAM (4:1) OF BRIDGES AT NEW SH288

NC				.3	.5					
X1	288.1	0	0	0	3867	3867	3805		1.5	
QT	3	1302	1709	2605						
NH	7	.125	1719.5	.035	2211.8	.125	6383.5	.045	6544.8	.125
NH	7974.5	.033	8643.5	.125	9643.5					
NEW SECTION 5 FEET DOWNSTREAM OF BRIDGES AT SH288										
X1	288.2	85	7974.5	8643.5	163	159	160			
GR	31.6	719.5	31.1	1719.5	28.2	1736.0	10.2	1777.1	10.2	1777.2
GR	10.2	1778.4	10.2	1778.5	8.2	1807.8	18.2	1818.8	18.2	1818.9
GR	18.2	1820.2	18.2	1820.3	18.2	1859.9	18.2	1860.0	18.2	1862.6
GR	18.2	1862.7	19.2	1984.5	19.2	1984.6	19.2	1988.5	19.2	1988.6
GR	22.2	2109.8	22.2	2109.9	22.2	2113.7	22.2	2113.8	23.2	2178.5
GR	28.2	2195.3	31.1	2211.8	29.8	4297.6	28.5	6383.5	25.8	6400.0
GR	17.0	6464.0	17.0	6464.1	17.0	6466.6	17.0	6466.7	25.8	6528.3
GR	28.5	6544.8	28.7	7259.6	28.8	7974.5	26.0	7989.0	18.4	8014.0
GR	18.0	8107.0	18.0	8107.1	18.0	8111.0	18.0	8111.1	16.0	8148.3
GR	16.0	8148.4	16.0	8149.7	16.0	8149.8	14.0	8188.3	14.0	8188.4
GR	14.0	8189.7	14.0	8189.8	10.0	8228.3	10.0	8228.4	10.0	8229.7
GR	10.0	8229.8	6.0	8249.0	10.0	8268.3	10.0	8268.4	10.0	8269.7
GR	10.0	8269.8	14.0	8308.3	14.0	8308.4	14.0	8309.7	14.0	8309.8
GR	16.0	8348.3	16.0	8348.4	16.0	8349.7	16.0	8349.8	16.0	8388.3
GR	16.0	8388.4	16.0	8389.7	16.0	8389.8	18.0	8467.0	18.0	8467.1
GR	18.0	8471.0	18.0	8471.1	20.0	8547.7	20.0	8547.8	20.0	8550.3
GR	20.0	8550.4	20.0	8594.0	26.0	8629.0	28.8	8643.5	29.3	9643.5
DOWNSTREAM FACE OF TWIN BRIDGES AT NEW SH288; LUMP BOTH BRIDGES TOGETHER										

DOWNSTREAM FACE OF BRIDGES AT NEW SH288										
X1	288.3				5	5	5			
BT	-85	719.5	31.6	31.6	1719.5	31.1	31.1	1736.0	31.1	28.2
BT		1777.1	31.1	28.2	1777.2	31.1	10.2	1778.4	31.1	10.2
BT		1778.5	31.1	28.2	1807.8	31.1	28.2	1818.8	31.1	28.2
BT		1818.9	31.1	18.2	1820.2	31.1	18.2	1820.3	31.1	28.2
BT		1859.9	31.1	28.2	1860.0	31.1	18.2	1862.6	31.1	18.2
BT		1862.7	31.1	28.2	1984.5	31.1	28.2	1984.6	31.1	19.2
BT		1988.5	31.1	19.2	1988.6	31.1	28.2	2109.8	31.1	28.2
BT		2109.9	31.1	22.2	2113.7	31.1	22.2	2113.8	31.1	28.2
BT		2178.5	31.1	28.2	2195.3	31.1	28.2	2211.8	31.1	31.1
BT		4297.6	29.8	29.8	6383.5	28.5	28.5	6400.0	28.5	25.8
BT		6464.0	28.5	25.8	6464.1	28.5	17.0	6466.6	28.5	17.0
BT		6466.7	28.5	25.8	6528.3	28.5	25.8	6544.8	28.5	28.5
BT		7259.6	28.7	28.7	7974.5	28.8	28.8	7989.0	28.8	26.0
BT		8014.0	28.8	26.0	8107.0	28.8	26.0	8107.1	28.8	18.0
BT		8111.0	28.8	18.0	8111.1	28.8	26.0	8148.3	28.8	26.0
BT		8148.4	28.8	16.0	8149.7	28.8	16.0	8149.8	28.8	26.0
BT		8188.3	28.8	26.0	8188.4	28.8	14.0	8189.7	28.8	14.0
BT		8189.8	28.8	26.0	8228.3	28.8	26.0	8228.4	28.8	10.0
BT		8229.7	28.8	10.0	8229.8	28.8	26.0	8249.0	28.8	26.0
BT		8268.3	28.8	26.0	8268.4	28.8	26.0	8269.7	28.8	10.0
BT		8269.8	28.8	10.0	8308.3	28.8	26.0	8308.4	28.8	14.0
BT		8309.7	28.8	14.0	8309.8	28.8	26.0	8348.3	28.8	26.0
BT		8348.4	28.8	16.0	8349.7	28.8	16.0	8349.8	28.8	26.0
BT		8388.3	28.8	26.0	8388.4	28.8	16.0	8389.7	28.8	16.0



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BT	8389.8	28.8	26.0	8467.0	28.8	26.0	8467.1	28.8	18.0
BT	8471.0	28.8	18.0	8471.1	28.8	26.0	8547.7	28.8	26.0
BT	8547.8	28.8	20.0	8550.3	28.8	20.0	8550.4	28.8	26.0
BT	8594.0	28.8	26.0	8629.0	28.8	26.0	8643.5	28.8	28.8
BT	9643.5	29.3	29.3						

UPSTREAM FACE OF TWIN BRIDGES OVER NEW SH 288

X1	288.4			300	300	300			
X2									1

SECTION 5 FEET UPSTREAM OF BRIDGES AT NEW SH288

NC			.1	.3					
X1	288.5	85	7974.5	8643.5	5	5	5		
GR	31.6	719.5	31.1	1719.5	28.2	1736.0	10.2	1777.1	1777.2
GR	10.2	1778.4	10.2	1778.5	8.2	1807.8	18.2	1818.8	1818.9
GR	18.2	1820.2	18.2	1820.3	18.2	1859.9	18.2	1860.0	1862.6
GR	18.2	1862.7	19.2	1984.5	19.2	1984.6	19.2	1988.5	1988.6
GR	22.2	2109.8	22.2	2109.9	22.2	2113.7	22.2	2113.8	2178.5
GR	28.2	2195.3	31.1	2211.8	29.8	4297.6	28.5	6383.5	6400.0
GR	17.0	6464.0	17.0	6464.1	17.0	6466.6	17.0	6466.7	6528.3
GR	28.5	6544.8	28.7	7259.6	28.8	7974.5	26.0	7989.0	8014.0
GR	18.0	8107.0	18.0	8107.1	18.0	8111.0	18.0	8111.1	8148.3
GR	16.0	8148.4	16.0	8149.7	16.0	8149.8	14.0	8188.3	8188.4
GR	14.0	8189.7	14.0	8189.8	10.0	8228.3	10.0	8228.4	8229.7
GR	10.0	8229.8	6.0	8249.0	10.0	8268.3	10.0	8268.4	8269.7
GR	10.0	8269.8	14.0	8308.3	14.0	8308.4	14.0	8309.7	8309.8
GR	16.0	8348.3	16.0	8348.4	16.0	8349.7	16.0	8349.8	8388.3
GR	16.0	8388.4	16.0	8389.7	16.0	8389.8	18.0	8467.0	8467.1
GR	18.0	8471.0	18.0	8471.1	20.0	8547.7	20.0	8547.8	8550.3
GR	20.0	8550.4	20.0	8594.0	26.0	8629.0	28.8	8643.5	9643.5

SECTION FORTY FEET UPSTREAM OF BRIDGE (40-FOOT OPENING AVG @ 1:1)

X1	288.6			46	39	40			
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ADJUSTMENT FEMA MODEL THROUGH BRAZORIA CO AIRPORT AREA

ET 12.4

FEMA SECT "V" W/ CHANNELIZED WEST TRIB & NEW SH288

NH	7	.125	4400	.035	4600	.125	6900	.045	7100	.125
NH	10500	.025	10586	.060	14500					

X-SECTION BA-8, DATA COVER ONLY FOR WEST BASTROP TRIBUTARY

ADJUSTED FEMA X-SECT "V"

X1	8	14	10500	10586	1835	1799	1805		
GR	25.0	3000.0	21.0	4400.0	18.0	4500.0	21.0	4600.0	6900.0
GR	18.0	7000.0	20.0	7100.0	20.2	10288.0	20.0	10500.0	10533.0
GR	8.9	10553.0	20.0	10586.0	20.1	11420.0	25.0	14500.0	

FEMA SECTION "W" INCLUDING CHANNELIZED W. TRIB & AIRPORT IMPROVEMENTS

NH	9	.500	2771	.500	3971	.500	5071	.500	5471	.125
NH	6275	.250	7325	.060	8389	.025	8439	.060	9825	

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ADJUSTED FEMA X-SECT "W"										
X1	7.29	18	7300	8439	1900	1900	1900			
GR	25.0	1471.0	20.0	2771.0	18.1	3371.0	20.0	3971.0	20.5	4421.0
GR	20.0	5071.0	18.1	5271.0	20.0	5471.0	20.0	6275.0	25.0	6300.0
GR	25.0	7300.0	21.0	7325.0	21.0	7359.0	20.9	8359.0	10.9	8389.0
GR	10.9	8409.0	20.9	8439.0	25.0	9825.0				

FEMA SECT. X ADJUSTED FOR AIRPORT IMPROVEMENTS & SH 288

NH	7	.150	2101	.150	3101	.150	3501	.150	4801	.060
NH	6445	.045	6657	.060	8657					

ADJUSTED FEMA X-SECT "X"										
X1	7.19	25	5726	6598	1800	1800	1800			
GR	25.0	601.0	21.9	626.0	21.9	2101.0	20.0	2601.0	21.9	3101.0
GR	22.0	3501.0	21.9	3901.0	20.0	4351.0	21.9	4801.0	21.9	5101.0
GR	25.0	5126.0	25.0	5726.0	21.9	5751.0	20.5	6126.0	20.3	6445.0
GR	16.4	6522.0	15.6	6542.0	12.0	6556.0	11.7	6560.0	12.1	6564.0
GR	18.4	6578.0	18.5	6598.0	19.0	6607.0	21.9	6657.0	25.0	8657.0

FEMA SECT. "Y" WITH AIRPORT IMPROVEMENTS & NEW SH 288

QT	3	1034	1364	2086						
NC	.085	.085	.055							

ADJUSTED FEMA X-SECT "Y"										
X1	7	25	13451	14267	2514	2514	2514			
GR	25.0	800.0	22.5	826.0	22.5	4876.0	22.7	8901.0	22.5	11426.0
GR	22.5	12426.0	25.0	12451.0	25.0	13451.0	22.7	13475.0	22.7	13477.0
GR	22.1	13595.0	18.3	13763.0	17.3	13907.0	17.2	14062.0	16.6	14178.0
GR	16.8	14209.0	17.4	14221.0	12.8	14234.0	11.8	14238.0	12.9	14241.0
GR	18.7	14267.0	21.1	14343.0	20.9	14908.0	22.9	14945.0	25.0	16945.0

FEMA SECTION "Z" ADJUSTED FOR NEW SH 288 EMBANKMENT

NC	.05	.095	.055							
ADJUSTED FEMA X-SECT "Z"										
X1	6	26	11812	12421	4200	4200	4540			
GR	25.0	9190.0	22.2	9215.0	22.2	10115.0	22.2	10116.0	21.4	10824.0
GR	22.6	10862.0	21.6	11193.0	25.6	11334.0	25.6	11812.0	17.8	12032.0
GR	19.8	12056.0	15.6	12108.0	18.0	12131.0	20.0	12421.0	20.8	12516.0
GR	22.0	12551.0	22.4	12981.0	22.0	13000.0	22.4	13255.0	22.2	13843.0
GR	22.0	14498.0	22.8	14927.0	22.8	15526.0	23.4	16080.0	24.4	16500.0
GR	25.0	16510.0								

END ADJUSTMENTS TO MODEL FOR NEW SH 288 AND AIRPORT IMPROVEMENTS

			8.4	9.1	0	6000				
NC	.050	.050	.050	.3	.5					

SECTION "Z1"

NC	.125	.125	.085							
X1	5	9	900	950	7000	4000	5600		3.6	
GR	30.0	0	21.0	50	20.0	800	19.8	900	15.6	920
GR	18	950	20	960	22.0	3000	25	9500.		

X1	4.2	5	50	2600	1700	1700	1700				
GR	30.	10.	23.	50.	23.	2600.	24.	6500	25.	8000.	
DOWNSTREAM OPENING OF 4 RAILROAD BRIDGES											
QT	3	461	608	931							
X1	4	4	50	500	300	300	300				
GR	30.	10.	23.	50.	24.	500.	25.	1000.			
MISSOURI PACIFIC 4 OVERFLOW BRIDGES											
NC	.050	.050	.050	.3	.5						
NC	.125	.125	.095								
X1	3.9	100	157	241	50	50	50				
BT	-100	100	32.9	28	101.8	32.9	27.3	101.8	32.9	25.60	
BT		239.2	32.9	20.6	239.2	32.9	27.3	265.9	32.9	27.0	
BT		268.2	32.9	28	268.2	32.9	28	2102	32.1	28	
BT		2102	32.1	27.6	2109	32.1	27.6	2219	32.1	24.4	
BT		2219	32.1	22.5	2227	32.1	22.5	2227	32.1	24.4	
BT		2236	32.1	24.4	2236	32.1	23.5	2246	32.1	23.5	
BT		2246	32.1	24.4	2261	32.1	28	4102	32.7	28	
BT		4102	32.7	28	4118	32.7	27.8	4118	32.7	22.4	
BT		4120	32.7	22.4	4120	32.7	27.8	4134	32.7	27.8	
BT		4134	32.7	22.4	4136	32.7	22.4	4136	32.7	27.8	
BT		4153	32.7	27.8	4153	32.7	22.4	4155	32.7	22.4	
BT		4155	32.7	27.8	4169	32.7	27.8	4169	32.7	27.8	
BT		4169	32.7	22.4	4171	32.7	22.4	4171	32.7	27.8	
BT		4185	32.7	27.8	4185	32.7	22.4	4187	32.7	22.4	
BT		4187	32.7	27.8	4202	32.7	27.8	4202	32.7	21.6	
BT		4204	32.7	21.6	4204	32.7	27.8	4221	32.7	27.8	
BT		4221	32.7	21	4223	32.7	21	4223	32.7	27.8	
BT		4239	32.7	27.8	4239	32.7	20.2	4241	32.7	20.2	
BT		4241	32.7	27.8	4257	32.7	27.8	4257	32.7	21	
BT		4259	32.7	21	4259	32.7	27.8	4276	32.7	27.8	
BT		4276	32.7	19.8	4278	32.7	19.8	4278	32.7	27.8	
BT		4292	32.7	27.8	4292	32.7	19.8	4294	32.7	19.8	
BT		4294	32.7	27.8	4308	32.7	27.8	4308	32.7	20.6	
BT		4310	32.7	20.6	4310	32.7	27.8	4326	32.7	27.8	
BT		4326	32.7	20.4	4328	32.7	20.4	4328	32.7	27.8	
BT		4345	32.7	27.8	4345	32.7	22	4347	32.7	22	
BT		4347	32.7	27.8	4411	32.7	27.8	4411	32.7	22.4	
BT		4419	32.7	22.4	4419	32.7	27.8	4431	32.7	28	
BT		4431	32.7	28	7102	30.1	28	7102	30.1	27.1	
BT		7127	30.1	27.1	7127	30.1	21.1	7129	30.1	21.1	
BT		7129	30.1	27.1	7231	30.1	27.1	7231	30.1	21.6	
BT		7239	30.1	21.6	7239	30.1	27.1	7265	30.1	27.1	
BT		7265	30.1	23.6	7267	30.1	23.6	7267	30.1	27.1	
BT		7292	30.1	27.1							
GR	28	100	27.35	101.8	22.4	114.4	22.2	127.2	22.2	129	
GR	22.6	155.2	22.6	157	22.2	168.6	20.6	183.2	20.6	185	
GR	19.6	211.2	19.6	213	19.4	218.6	20.6	239.2	20.6	241	
GR	23	254.6	27	265.9	28	268.2	28	2100	28	2102	
GR	27.9	2109	25.1	2115	23.1	2117	22.5	2119	22.1	2126	
GR	22.1	2134	22.1	2136	22.7	2152	22.7	2154	21.1	2170	
GR	21.1	2172	20.5	2180	20.9	2189	20.9	2191	22.3	2207	

GR	22.3	2209	22.5	2219	22.5	2227	23.5	2236	23.5	2246
GR	24.5	2255	27.9	2259	28	2261	28	4102	22.4	4111
GR	22.4	4118	22.4	4120	22.4	4134	22.4	4136	22.4	4153
GR	22.4	4155	22.4	4169	22.4	4171	22.4	4185	22.4	4187
GR	21.6	4202	21.6	4204	21	4221	21	4223	20.2	4239
GR	20.2	4241	21	4257	21	4259	19.8	4276	19.8	4278
GR	19.8	4292	19.8	4294	20.6	4308	20.6	4310	20.4	4326
GR	20.4	4328	22	4345	22	4347	22.4	4363	22.4	4365
GR	22.4	4380	22.4	4382	22.4	4400	22.4	4402	22.4	4411
GR	22.4	4419	22.4	4424	28	4431	28	7102	21.6	7112
GR	21.1	7127	21.1	7129	22	7155	22	7157	22.1	7181
GR	22.1	7183	21.1	7209	21.1	7211	21.6	7231	21.6	7239
GR	22.1	7255	23.6	7265	23.6	7267	24.6	7292	28	7294

X1	3.8				18	18	18			
X2				27.1	30.1					

SECTION DOWN CROWN OF COUNTY ROAD 290

NC	.05	.05	.04							
X1	3.7	6	100	6900	50	50	50			
GR	30.	10.	24.5	100.	25.8	2600.	26.0	4300.	26.4	6900.
GR	27.0	8400.								

QT	3	424	554	854						
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\*\*\*\*\*EAST TRIBUTARY\*\*\*\*\*

\*\*\*\*\*THIS IS FEMA X-SEC U\*\*\*\*\*

X1	-9	11	5118	5195						
GR	16.6	4132	16.1	4248	16.3	5067	12.9	5118	4.1	5146
GR	2.4	5151	4.1	5157	14.7	5195	17.5	5344	17.7	5871
GR	19.3	6306								

\*\*\*\*\*THIS IS FEMA X-SEC A\*\*\*\*\*

X1	58	20	6098	6175	3900	4600	4850			
X3	10									
GR	19.4	3480	19.4	3481	19.4	4828	19.8	5294	19.6	5659
GR	19.8	5795	20.4	5950	18.8	6098	10.6	6131	6	6146
GR	10.6	6162	18.8	6175	18.6	6283	19.4	6461	17.8	6653
GR	18.9	7289	18.3	7905	18.7	8588	18.9	8930	20.3	9149

\*\*\*\*\*THIS IS FEMA X-SEC B\*\*\*\*\*

X1	57.4	12	1453	1573	1500	1500	1500			
GR	21.6	0	19.8	438	19	1000	18.6	1354	16	1453
GR	10.2	1503	7.3	1513	10.2	1523	16.9	1573	18.4	1604
GR	22.6	1822	22.8	2000						

NC			.3	.5						
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\*\*\*\*\*LOW WATER CROSSING\*\*\*\*\*

X1	57.3	12	1453	1573	70	70	70			
GR	21.6	0	19.8	438	19	1000	18.6	1354	16	1453
GR	12.8	1483	12.8	1513	12.8	1543	16.9	1573	18.4	1604
GR	22.6	1822	22.8	2000						

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X1	57.2	12	1453	1573	50	50	50			
GR	21.6	0	19.8	438	19	1000	18.6	1354	16	1453
GR	10.2	1503	7.3	1513	10.2	1523	16.9	1573	18.4	1604
GR	22.6	1822	22.8	2000						

NC .1 .3

\*\*\*\*\*THIS IS FEMA X-SEC C\*\*\*\*\*

X1	57.0	19	5815	5967	980	980	980			
GR	21.6	4236	21.6	4237	21.6	4238	19.8	4676	20.2	4912
GR	20.6	5154	19.2	5815	12.2	5922	8	5929	8	5935
GR	12.2	5942	19.2	5967	19.4	6057	19.2	6106	19.6	6121
GR	19.5	6145	21.9	6955	21.7	7510	22.7	8180		

NC 0.075 0.095 0.07

\*\*\*\*\*THIS IS FEMA X-SEC D\*\*\*\*\*

X1	56	8	8290	8368	6630	6630	6630			
GR	20.9	8089	21.5	8290	13.5	8310	13.5	8330	28	8368
GR	26.6	8379	17.4	8416	24.8	8467				

NC 0.07 0.085 0.04

QT 3 268 350 530

\*\*\*\*\*THIS IS FEMA X-SEC E\*\*\*\*\*

X1	55.7	9	8196	8275	3050	3050	3050			
GR	22.4	8075	22	8196	21.8	8200	15.3	8215	14.1	8224
GR	15.3	8233	19.6	8242	27.2	8271	28	8275		

NC .3 .5

X1	55.6	36	8194	8233	100	100	100			
X3	10							23.5	23.5	
GR	24.8	6900	24.8	6901	24.8	6902	24	7398	22.4	7758
GR	22.4	8075	21.8	8175	14.1	8190	16	8194	14.1	8195
GR	13	8197	14.1	8199	16	8200	16	8202	14.1	8203
GR	13	8205	14.1	8207	16	8208	16.5	8211	14.1	8212
GR	13.5	8214	14.1	8216	16.5	8217	16	8219	14.1	8220
GR	12.5	8222	14.1	8224	16	8225	16.5	8227	14.1	8228
GR	13.5	8230	14.1	8232	16.5	8233	19.6	8242	27.2	8271
GR	28	8275								

NC 0.012

\*\*\*\*\*NEW AIRPORT ACCESS BRIDGE\*\*\*\*\*

X1	55.5				10	10	10			
X3	10							23.5	23.5	
BT	33	7398	24	24	7758	24.6	22.4	8075	25.7	22.4
BT	8175	27	21.8	8190	27.1	14.1	8194	27.1	16	8195
BT	27.1	18.5	8197	27.1	19	8199	27.1	18.5	8200	27.1
BT	16	8202	27.2	16	8203	27.2	18.5	8205	27.2	19
BT	8207	27.2	18.5	8208	27.2	16	8211	27.3	16.5	8212
BT	27.3	19	8214	27.3	19.5	8216	27.3	19	8217	27.3
BT	16.5	8219	27.3	16	8220	27.3	18	8222	27.4	18.5
BT	8224	27.4	18	8225	27.4	16	8227	27.4	16.5	8228
BT	27.4	19	8230	27.4	19.5	8232	27.5	19	8233	27.5
BT	16.5	8242	27.6	19.6	8271	28.2	27.2	8275	28	28

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X1	55.4				90	90	90			
X2							1			
X3	10							27.2	27.6	
NC		0.04								
X1	55.3				10	10	10			
X3	10							27.2	27.6	
X1	55.2	9	8196	8275	50	50	50			
GR	22.4	8075	22	8196	21.8	8200	15.3	8215	14.1	8224
GR	15.3	8233	19.6	8242	27.2	8271	28	8275		
NC					.1	.3				
		*****THIS IS FEMA X-SEC F*****								
X1	55.0	23	8196	8268	1330	1330	1330			
X3	10									
GR	24.8	6900	24.8	6901	24.8	6902	24	7398	22.4	7758
GR	22.4	8075	22	8196	16	8223	14.5	8228	14.5	8230
GR	16	8235	27.2	8257	28	8268	27.4	8277	18.8	8300
GR	17.8	8311	18.6	8319	21	8330	21.8	8827	22	9183
GR	22.3	9300	22.3	9723	22.5	10396				
NC	0.035	0.035	0.04							
		*****THIS IS FEMA X-SEC G*****								
X1	54.0	11	8078	8210	2900	2900	2900			
X3	10									
GR	23.3	6938	22.3	7781	21.9	7987	23.3	8078	18.1	8097
GR	15.5	8115	29.3	8148	27.9	8156	19.5	8183	21.9	8210
GR	28	8240								
X1	53.6	10	6480	6583	2660	2660	2660			
GR	25.3	3728	25.1	4198	24.9	4599	24.1	5445	22.7	6383
GR	22.2	6480	19.2	6510	17.6	6514	19.2	6518	30.3	6583
NC					.3	.5				
		*****MISSOURI-PACIFIC R.R. BRIDGE*****								
X1	53.5	7	6480	6548	100	100	100			
X3	10							28.8	28.8	
GR	30.9	6470	30.4	6480	19.2	6510	17.6	6514	19.2	6518
GR	30.4	6548	30.9	6583						
SB	1.05	1.56	2.6		8.8	4	320	2	17.6	17.6
X1	53.4				16	16	16			
X2			1	26.7	30.9					
X3	10							30.9	30.9	
BT	2	6470	30.9		6583	30.9				
		*****THIS IS FEMA X-SEC H*****								

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X1	53.3	9	1475	1550	50	50	50			
GR	24.3	1000	24.1	1294	23.1	1475	21.7	1481	18	1499
GR	17	1511	18	1523	22	1535	27.2	1550		

\*\*\*\*\*WALKER STREET BRIDGE\*\*\*\*\*

X1	53.2	10	1481	1535	70	70	70			
X3	10							24.3	24.5	
GR	27.2	1479	27.2	1480	27.2	1481	20.5	1487	18	1499
GR	17	1511	18	1523	20	1530	27.2	1535	27.2	1550

SB	1.25	1.56	2.6		31.2	1	338	1	17	17
X1	53.1				28	28				
X2			1	25.7	27.2					
X3	10							24.3	24.5	
BT	4	1000	24.3		1294	24.1		1481	27.2	
BT	1535	27.2								

X1	53.0	10	6480	6583	50	50	50			
GR	25.3	3728	25.1	4198	24.9	4599	24.1	5445	22.7	6383
GR	22.2	6480	19.2	6510	17.6	6514	19.2	6518	30.3	6583

NC .1 .3

\*\*\*\*\*THIS IS FEMA X-SEC I\*\*\*\*\*

X1	52.0	12	6880	6943	2900	3100	3000			
GR	26.5	3773	26.3	4243	26.3	5284	25.9	5574	25.5	5764
GR	25.1	6077	24.5	6739	23.1	6880	18.9	6890	18	6899
GR	18.9	6908	33.1	6943						

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T1 BRAZORIA COUNTY DRAINAGE MASTER PLAN  
T2 BASTROP BAYOU AND WEST FORK TO CR290, 50-YR  
T3 HEC-2 FILE FROM LAKE JACKSON CLOMR WITH REVISED FLOWS  
T4 BAKER & LAWSON, MGG

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10	3	0	0		0	0		14	0
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							



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T1 BRAZORIA COUNTY DRAINAGE MASTER PLAN  
 T2 BASTROP BAYOU AND WEST FORK TO CR290, 100-YR  
 T3 HEC-2 FILE FROM LAKE JACKSON CLOMR WITH REVISED FLOWS  
 T4 BAKER & LAWSON, MGG

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10	4	0	0		0	0		15	0
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1							

THIS RUN EXECUTED 23AUG02 08:47:46

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FILE: BB\_BL\_R.IH2

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
26.000	17075.00	13.00	.63	-9.90	9.40	12.80	15.00	2606.81	15.27	.00	4163.00
26.000	20826.00	14.00	.69	-9.90	9.40	12.80	15.00	3023.99	14.52	.00	4163.00
26.000	29006.00	15.00	.86	-9.90	9.40	12.80	15.00	4035.12	13.91	.00	4163.00
* 27.000	17075.00	13.01	.25	-11.00	4.90	4.20	15.00	887.87	5.20	3050.00	16110.81
* 27.000	20826.00	14.01	.26	-11.00	4.90	4.20	15.00	978.16	4.70	3050.00	16144.18
* 27.000	29006.00	15.01	.31	-11.00	4.90	4.20	15.00	1248.61	4.30	3050.00	16177.00
* 28.000	17075.00	13.01	.44	-9.50	7.60	8.00	15.00	1366.50	8.00	2650.00	9778.00
* 28.000	20826.00	14.01	.45	-9.50	7.60	8.00	15.00	1492.63	7.17	2650.00	9778.00
* 28.000	29006.00	15.02	.55	-9.50	7.60	8.00	15.00	1893.23	6.53	2650.00	9778.00
* 30.100	17075.00	12.99	1.95	-10.10	7.30	2.80	13.90	10089.72	59.09	1100.00	1345.81
* 30.100	20826.00	13.99	2.14	-10.10	7.30	2.80	13.90	11686.16	56.11	1100.00	1362.40
* 30.100	29006.00	14.98	2.71	-10.10	7.30	2.80	13.90	15525.21	53.52	1100.00	1375.01
30.150	16921.00	12.99	1.97	-17.66	7.80	2.90	13.90	11975.60	70.77	50.00	962.77
30.150	20713.00	13.98	2.22	-17.66	7.80	2.90	13.90	14169.65	68.41	50.00	970.29
30.150	28866.00	14.96	2.87	-17.66	7.80	2.90	13.90	19138.11	66.30	50.00	973.70
* 30.200	16921.00	13.04	.58	-10.10	3.90	2.80	15.00	2690.93	15.90	25.00	9467.21
* 30.200	20713.00	14.04	.56	-10.10	3.90	2.80	15.00	2760.19	13.33	25.00	9537.10
* 30.200	28866.00	15.07	.64	-10.10	3.90	2.80	15.00	3303.17	11.44	25.00	9608.23
30.300	16921.00	13.04	.58	-10.10	3.90	2.80	15.00	2690.50	15.90	35.00	9467.27
30.300	20713.00	14.04	.56	-10.10	3.90	2.80	15.00	2759.77	13.32	35.00	9537.16
30.300	28866.00	15.07	.64	-10.10	3.90	2.80	15.00	3302.51	11.44	35.00	9608.34
* 30.400	16921.00	13.01	1.92	-10.10	7.30	2.80	13.90	9986.99	59.02	25.00	1346.18
* 30.400	20713.00	14.01	2.12	-10.10	7.30	2.80	13.90	11607.34	56.04	25.00	1362.74
* 30.400	28866.00	15.02	2.68	-10.10	7.30	2.80	13.90	15419.76	53.42	25.00	1375.56

Bastrop Bayou Rev.Exist. Multi.Freq. Copy of BB\_BL\_R.IH2

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
*	31.000	16921.00	13.07	.32	-10.00	2.90	1.20	15.00	2543.24	15.03	2600.00	10270.00
*	31.000	20713.00	14.07	.34	-10.00	2.90	1.20	15.00	2885.80	13.93	2600.00	10270.00
*	31.000	28866.00	15.11	.41	-10.00	2.90	1.20	15.00	3763.83	13.04	2600.00	10270.00
*	32.000	7825.00	13.07	.08	-11.00	2.00	1.60	15.00	368.40	4.71	3900.00	21297.00
*	32.000	9198.00	14.08	.08	-11.00	2.00	1.60	15.00	394.47	4.29	3900.00	21297.00
*	32.000	12330.00	15.12	.10	-11.00	2.00	1.60	15.00	486.57	3.95	3900.00	21297.00
*	33.000	7825.00	13.07	.17	-7.50	2.20	2.90	15.00	654.80	8.37	3800.00	15998.00
*	33.000	9198.00	14.08	.16	-7.50	2.20	2.90	15.00	670.82	7.29	3800.00	15998.00
*	33.000	12330.00	15.12	.18	-7.50	2.20	2.90	15.00	797.05	6.46	3800.00	15998.00
*	34.000	7825.00	13.07	.09	-8.20	3.10	1.80	15.00	536.25	6.85	3500.00	17000.00
*	34.000	9198.00	14.08	.09	-8.20	3.10	1.80	15.00	587.70	6.39	3500.00	17000.00
*	34.000	12330.00	15.12	.10	-8.20	3.10	1.80	15.00	741.05	6.01	3500.00	17000.00
	35.000	7825.00	13.07	.08	-7.90	2.70	3.10	15.00	304.54	3.89	3300.00	20200.00
	35.000	9198.00	14.08	.08	-7.90	2.70	3.10	15.00	326.59	3.55	3300.00	20200.00
	35.000	12330.00	15.12	.10	-7.90	2.70	3.10	15.00	403.86	3.28	3300.00	20200.00
	36.000	7936.00	13.07	.08	-9.20	5.00	4.50	15.00	398.02	5.02	3700.00	21320.00
	36.000	9244.00	14.08	.08	-9.20	5.00	4.50	15.00	424.40	4.59	3700.00	21320.00
	36.000	12479.00	15.12	.09	-9.20	5.00	4.50	15.00	530.62	4.25	3700.00	21320.00
*	21.000	7936.00	13.07	.20	-8.40	6.10	8.30	15.00	1038.31	13.08	1000.00	21240.00
*	21.000	9244.00	14.08	.18	-8.40	6.10	8.30	15.00	1024.10	11.08	1000.00	21240.00
*	21.000	12479.00	15.12	.20	-8.40	6.10	8.30	15.00	1202.50	9.64	1000.00	21240.00
*	20.000	7936.00	13.07	.13	-8.30	4.10	6.70	15.00	626.62	7.90	5600.00	27639.00
*	20.000	9244.00	14.08	.12	-8.30	4.10	6.70	15.00	633.08	6.85	5600.00	27639.00
*	20.000	12479.00	15.12	.13	-8.30	4.10	6.70	15.00	757.17	6.07	5600.00	27639.00
	19.000	6462.00	13.07	.09	-8.20	6.90	7.30	15.00	501.31	7.76	4440.00	24168.00
	19.000	7672.00	14.08	.09	-8.20	6.90	7.30	15.00	529.59	6.90	4440.00	24168.00
	19.000	10365.00	15.12	.10	-8.20	6.90	7.30	15.00	649.21	6.26	4440.00	24168.00
*	18.000	5586.00	13.07	.14	-6.80	8.00	6.80	15.00	610.11	10.92	4330.00	16069.00
*	18.000	6594.00	14.08	.13	-6.80	8.00	6.80	15.00	624.12	9.46	4330.00	16069.00
*	18.000	8827.00	15.12	.15	-6.80	8.00	6.80	15.00	740.36	8.39	4330.00	16069.00
*	17.200	5586.00	13.08	.25	-5.60	5.40	7.20	15.00	938.43	16.80	3970.00	11644.00
*	17.200	6594.00	14.08	.23	-5.60	5.40	7.20	15.00	926.01	14.04	3970.00	11644.00
*	17.200	8827.00	15.13	.25	-5.60	5.40	7.20	15.00	1068.54	12.11	3970.00	11644.00
	17.100	5586.00	13.08	.33	-5.60	17.00	17.20	15.00	1222.57	21.89	50.00	10445.74
	17.100	6594.00	14.08	.29	-5.60	17.00	17.20	15.00	1163.54	17.65	50.00	10536.12
	17.100	8827.00	15.13	.31	-5.60	17.00	17.20	15.00	1303.76	14.77	50.00	10631.04
	17.000	5586.00	13.08	.26	-5.60	5.40	7.20	15.00	970.59	17.38	50.00	10834.00
	17.000	6594.00	14.08	.24	-5.60	5.40	7.20	15.00	962.69	14.60	50.00	10834.00
	17.000	8827.00	15.13	.26	-5.60	5.40	7.20	15.00	1115.44	12.64	50.00	10834.00

CONF  
with  
AUST

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
16.200	5586.00	13.08	.19	-3.40	7.80	6.40	15.00	942.93	16.88	3100.00	20664.00	
16.200	6594.00	14.09	.17	-3.40	7.80	6.40	15.00	929.46	14.10	3100.00	20664.00	
16.200	8827.00	15.13	.19	-3.40	7.80	6.40	15.00	1073.82	12.17	3100.00	20664.00	
*	16.100	59841.00	13.06	3.15	-3.40	17.30	18.50	15.00	16311.82	27.26	60.00	20052.31
*	16.100	7389.00	14.09	.28	-3.40	17.30	18.50	15.00	1554.41	21.04	60.00	20169.36
*	16.100	10902.00	15.13	.31	-3.40	17.30	18.50	15.00	1867.63	17.13	60.00	20288.65
*	16.000	59841.00	13.12	2.00	-3.40	7.80	6.40	15.00	10025.80	16.75	50.00	20664.00
*	16.000	7389.00	14.09	.19	-3.40	7.80	6.40	15.00	1041.70	14.10	50.00	20664.00
*	16.000	10902.00	15.13	.23	-3.40	7.80	6.40	15.00	1326.41	12.17	50.00	20664.00
*	15.000	5454.00	13.82	.70	-6.40	2.40	5.40	15.00	2274.24	41.70	5440.00	10373.46
*	15.000	6686.00	14.11	.78	-6.40	2.40	5.40	15.00	2589.20	38.73	5440.00	10695.10
*	15.000	9764.00	15.15	.84	-6.40	2.40	5.40	15.00	2937.10	30.08	5440.00	11716.00
14.000	5454.00	13.92	.70	-5.50	8.50	7.90	15.00	1507.96	27.65	4750.00	11671.57	
14.000	6686.00	14.22	.76	-5.50	8.50	7.90	15.00	1677.81	25.09	4750.00	12062.85	
14.000	9764.00	15.26	.77	-5.50	8.50	7.90	15.00	1823.88	18.68	4750.00	13074.00	
*	13.300	5454.00	14.09	1.09	-6.20	11.80	11.00	15.00	2703.59	49.57	5100.00	9808.09
*	13.300	6686.00	14.42	1.16	-6.20	11.80	11.00	15.00	2953.92	44.18	5100.00	10410.28
*	13.300	9764.00	15.44	1.11	-6.20	11.80	11.00	15.00	3067.46	31.42	5100.00	11479.00
*	13.200	2662.00	14.09	1.07	-6.20	11.80	11.00	15.00	2662.00	100.00	100.00	208.00
*	13.200	3283.00	14.42	1.29	-6.20	11.80	11.00	15.00	3283.00	100.00	100.00	208.00
*	13.200	4707.00	15.42	1.71	-6.20	11.80	11.00	15.00	4707.00	100.00	100.00	208.00
13.100	2662.00	14.16	1.07	-6.20	11.80	11.00	15.00	2662.00	100.00	42.00	208.00	
13.100	3283.00	14.51	1.28	-6.20	11.80	11.00	15.00	3283.00	100.00	42.00	208.00	
13.100	4707.00	15.63	1.68	-6.20	11.80	11.00	15.00	4707.00	100.00	42.00	208.00	
*	13.000	2662.00	14.18	.52	-6.20	11.80	11.00	15.00	1283.75	48.22	50.00	9950.12
*	13.000	3283.00	14.54	.54	-6.20	11.80	11.00	15.00	1388.09	42.28	50.00	10646.77
*	13.000	4707.00	15.69	.49	-6.20	11.80	11.00	15.00	1369.08	29.09	50.00	11479.00
*	12.000	2662.00	14.23	.89	-6.20	7.10	6.10	14.50	1370.37	51.48	2900.00	5887.00
*	12.000	3283.00	14.60	.94	-6.20	7.10	6.10	14.50	1475.46	44.94	2900.00	5887.00
*	12.000	4707.00	15.73	.88	-6.20	7.10	6.10	14.50	1485.39	31.56	2900.00	5887.00
*	11.500	2662.00	14.52	1.42	-6.30	12.60	12.60	14.60	2451.29	92.08	5970.00	2004.47
*	11.500	3283.00	14.93	1.61	-6.30	12.60	12.60	14.60	2854.56	86.95	5970.00	2609.95
*	11.500	4707.00	16.01	1.69	-6.30	12.60	12.60	14.60	3263.20	69.33	5970.00	3508.59
11.400	2551.00	14.53	1.48	-6.30	12.60	12.60	14.60	2551.00	100.00	100.00	140.00	
11.400	3295.00	14.93	1.85	-6.30	12.60	12.60	14.60	3295.00	100.00	100.00	140.00	
*	11.400	5029.00	15.99	2.61	-6.30	12.60	12.60	14.60	5029.00	100.00	100.00	140.00
11.370	2551.00	14.54	1.64	-6.30	20.10	20.10	14.60	2551.00	100.00	15.00	119.66	
11.370	3295.00	14.99	2.05	-6.30	20.10	20.10	14.60	3295.00	100.00	15.00	121.29	
11.370	5029.00	16.14	2.87	-6.30	20.10	20.10	14.60	5029.00	100.00	15.00	125.51	

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
11.300	2551.00	14.55	1.54	-6.30	20.10	20.10	14.60	2399.03	94.04	35.00	1648.29
11.300	3295.00	15.02	1.81	-6.30	20.10	20.10	14.60	2916.05	88.50	35.00	2320.13
*	11.300	5029.00	16.26	1.94	-6.30	20.10	20.10	3424.42	68.09	35.00	3025.10
11.200	2551.00	14.56	1.64	-6.30	20.10	20.10	14.60	2551.00	100.00	50.00	119.73
11.200	3295.00	15.02	2.04	-6.30	20.10	20.10	14.60	3295.00	100.00	50.00	121.42
11.200	5029.00	16.27	1.93	-6.30	20.10	20.10	14.60	3413.70	67.88	50.00	3026.37
11.100	2551.00	14.58	1.58	-6.30	16.50	16.90	14.60	2551.00	100.00	30.00	129.99
11.100	3295.00	15.07	1.96	-6.30	16.50	16.90	14.60	3295.00	100.00	30.00	132.20
11.100	5029.00	16.41	2.70	-6.30	16.50	16.90	14.60	5029.00	100.00	30.00	138.38
11.000	2551.00	14.61	1.34	-6.30	12.60	12.60	14.60	2328.21	91.27	50.00	2215.94
11.000	3295.00	15.11	1.54	-6.30	12.60	12.60	14.60	2773.30	84.17	50.00	2958.76
*	11.000	5029.00	16.54	1.54	-6.30	12.60	14.60	3083.56	61.32	50.00	3627.00
*	10.000	2321.00	15.64	1.38	.30	13.00	12.20	1796.70	77.41	7030.00	2955.66
*	10.000	3003.00	16.26	1.36	.30	13.00	12.20	1876.13	62.48	7030.00	3811.84
*	10.000	4575.00	17.45	1.22	.30	13.00	12.20	1867.23	40.81	7030.00	4736.24
9.000	1712.00	17.11	.77	2.40	12.90	14.70	18.00	529.68	30.94	8130.00	6496.28
9.000	2240.00	17.54	.74	2.40	12.90	14.70	18.00	533.00	23.79	8130.00	6913.43
9.000	3421.00	18.38	.68	2.40	12.90	14.70	18.00	529.96	15.49	8130.00	7417.16
*	288.100	1712.00	17.83	1.35	3.90	14.40	16.20	844.01	49.30	3805.00	3809.58
*	288.100	2240.00	18.19	1.37	3.90	14.40	16.20	898.02	40.09	3805.00	4209.06
*	288.100	3421.00	18.87	1.28	3.90	14.40	16.20	905.72	26.48	3805.00	6669.47
*	288.200	1302.00	17.85	.72	6.00	28.80	28.80	904.95	69.50	160.00	421.73
*	288.200	1709.00	18.21	.84	6.00	28.80	28.80	1172.68	68.62	160.00	551.05
288.200	2605.00	18.89	1.06	6.00	28.80	28.80	29.30	1827.29	70.15	160.00	713.80
288.300	1302.00	17.85	.73	6.00	28.80	28.80	29.30	840.21	64.53	5.00	421.21
288.300	1709.00	18.21	.85	6.00	28.80	28.80	29.30	1095.17	64.08	5.00	548.49
288.300	2605.00	18.89	1.08	6.00	28.80	28.80	29.30	1710.70	65.67	5.00	712.54
288.400	1302.00	17.87	.72	6.00	28.80	28.80	29.30	840.72	64.57	300.00	422.28
288.400	1709.00	18.24	.85	6.00	28.80	28.80	29.30	1094.11	64.02	300.00	557.64
288.400	2605.00	18.94	1.08	6.00	28.80	28.80	29.30	1713.43	65.77	300.00	718.79
*	288.500	1302.00	17.88	.78	6.00	28.80	28.80	989.16	75.97	5.00	422.53
*	288.500	1709.00	18.25	.91	6.00	28.80	28.80	1283.58	75.11	5.00	559.65
*	288.500	2605.00	18.94	1.15	6.00	28.80	28.80	1993.60	76.53	5.00	720.19
288.600	1302.00	17.89	.78	6.00	28.80	28.80	29.30	989.55	76.00	40.00	423.53
288.600	1709.00	18.27	.90	6.00	28.80	28.80	29.30	1282.63	75.05	40.00	568.25
288.600	2605.00	18.98	1.14	6.00	28.80	28.80	29.30	1995.77	76.61	40.00	726.49
8.000	1302.00	18.32	2.88	8.90	20.00	20.00	25.00	1300.64	99.90	1805.00	128.74
8.000	1709.00	18.88	3.40	8.90	20.00	20.00	25.00	1685.21	98.61	1805.00	226.01
8.000	2605.00	19.82	4.21	8.90	20.00	20.00	25.00	2410.71	92.54	1805.00	388.23

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	7.290	1302.00	19.07	3.52	10.90	25.00	20.90	25.00	1278.96	98.23	1900.00	887.07
*	7.290	1709.00	19.83	3.82	10.90	25.00	20.90	25.00	1596.32	93.41	1900.00	1534.61
*	7.290	2605.00	20.96	1.56	10.90	25.00	20.90	25.00	816.33	31.34	1900.00	4443.75
	7.190	1302.00	20.73	1.79	11.70	25.00	18.50	25.00	1220.76	93.76	1800.00	1302.99
*	7.190	1709.00	21.34	1.41	11.70	25.00	18.50	25.00	1482.89	86.77	1800.00	2083.39
*	7.190	2605.00	22.28	1.03	11.70	25.00	18.50	25.00	1871.88	71.86	1800.00	5641.51
*	7.000	1034.00	21.15	.46	11.80	25.00	18.70	25.00	1016.54	98.31	2514.00	1276.07
*	7.000	1364.00	21.71	.50	11.80	25.00	18.70	25.00	1294.23	94.88	2514.00	1311.60
*	7.000	2086.00	22.61	.57	11.80	25.00	18.70	25.00	1823.80	87.43	2514.00	10210.29
*	6.000	1034.00	21.58	.76	15.60	25.60	20.00	25.00	1003.40	97.04	4540.00	775.00
*	6.000	1364.00	22.12	.78	15.60	25.60	20.00	25.00	1250.65	91.69	4540.00	2206.07
	6.000	2086.00	22.96	.63	15.60	25.60	20.00	25.00	1287.04	61.70	4540.00	5813.53
*	5.000	1034.00	24.61	2.62	19.20	23.40	21.60	28.60	504.02	48.74	5600.00	1941.20
*	5.000	1364.00	24.81	2.67	19.20	23.40	21.60	28.60	540.90	39.66	5600.00	2140.86
*	5.000	2086.00	24.59	5.42	19.20	23.40	21.60	28.60	1037.94	49.76	5600.00	1914.83
*	4.200	1034.00	24.83	.14	23.00	23.00	23.00	25.00	630.83	61.01	1700.00	7701.33
*	4.200	1364.00	25.03	.16	23.00	23.00	23.00	25.00	805.24	59.03	1700.00	7961.62
*	4.200	2086.00	25.18	.22	23.00	23.00	23.00	25.00	1203.10	57.67	1700.00	7962.50
*	4.000	461.00	24.84	.70	23.00	23.00	24.00	25.00	419.24	90.94	300.00	878.89
*	4.000	608.00	25.04	.77	23.00	23.00	24.00	25.00	532.48	87.58	300.00	961.69
*	4.000	931.00	25.20	1.03	23.00	23.00	24.00	25.00	787.59	84.60	300.00	962.59
*	3.900	461.00	24.86	.14	19.40	22.60	20.60	28.00	18.61	4.04	50.00	797.22
*	3.900	608.00	25.07	.17	19.40	22.60	20.60	28.00	22.65	3.72	50.00	799.83
*	3.900	931.00	25.24	.25	19.40	22.60	20.60	28.00	32.57	3.50	50.00	802.13
*	3.800	461.00	24.86	.28	19.40	22.60	20.60	28.00	99.18	21.51	18.00	797.25
*	3.800	608.00	25.07	.34	19.40	22.60	20.60	28.00	127.99	21.05	18.00	799.94
*	3.800	931.00	25.25	.49	19.40	22.60	20.60	28.00	192.77	20.71	18.00	802.31
*	3.700	461.00	24.92	2.65	24.50	24.50	26.40	27.00	457.88	99.32	50.00	821.69
*	3.700	608.00	25.03	2.22	24.50	24.50	26.40	27.00	603.89	99.32	50.00	1030.65
*	3.700	931.00	25.24	1.78	24.50	24.50	26.40	27.00	924.71	99.32	50.00	1426.14
	-9.000	424.00	17.11	.46	2.40	12.90	14.70	16.60	318.65	75.15	.00	1191.32
	-9.000	554.00	17.54	.50	2.40	12.90	14.70	16.60	360.88	65.14	.00	1327.38
	-9.000	854.00	18.38	.53	2.40	12.90	14.70	16.60	412.20	48.27	.00	1923.13
*	58.000	424.00	17.20	1.07	6.00	18.80	18.80	19.40	424.00	100.00	4850.00	68.01
*	58.000	554.00	17.64	1.29	6.00	18.80	18.80	19.40	554.00	100.00	4850.00	70.48
*	58.000	854.00	18.47	1.75	6.00	18.80	18.80	19.40	854.00	100.00	4850.00	75.12
	57.400	424.00	17.30	.74	7.30	16.00	16.90	21.60	418.76	98.76	1500.00	177.96
	57.400	554.00	17.78	.86	7.30	16.00	16.90	21.60	540.05	97.48	1500.00	205.84
*	57.400	854.00	18.68	1.09	7.30	16.00	16.90	21.60	800.89	93.78	1500.00	331.07

	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	57.300	424.00	17.31	.96	12.80	16.00	16.90	21.60	415.72	98.05	70.00	178.24
*	57.300	554.00	17.78	1.09	12.80	16.00	16.90	21.60	533.12	96.23	70.00	206.21
	57.300	854.00	18.68	1.31	12.80	16.00	16.90	21.60	780.50	91.39	70.00	340.12
*	57.200	424.00	17.32	.73	7.30	16.00	16.90	21.60	418.70	98.75	50.00	178.35
*	57.200	554.00	17.79	.86	7.30	16.00	16.90	21.60	539.92	97.46	50.00	206.29
	57.200	854.00	18.69	1.09	7.30	16.00	16.90	21.60	800.39	93.72	50.00	339.92
*	57.000	424.00	17.39	1.03	8.00	19.20	19.20	21.60	424.00	100.00	980.00	117.98
*	57.000	554.00	17.88	1.17	8.00	19.20	19.20	21.60	554.00	100.00	980.00	127.27
*	57.000	854.00	18.81	1.43	8.00	19.20	19.20	21.60	854.00	100.00	980.00	144.53
*	56.000	424.00	19.55	1.91	13.50	21.50	28.00	20.90	409.50	96.58	6630.00	74.42
*	56.000	554.00	20.34	2.03	13.50	21.50	28.00	20.90	520.71	93.99	6630.00	87.12
*	56.000	854.00	21.70	2.16	13.50	21.50	28.00	20.90	725.42	84.94	6630.00	309.28
*	55.700	268.00	21.19	1.37	14.10	22.00	28.00	22.40	268.00	100.00	3050.00	46.61
*	55.700	350.00	22.06	1.47	14.10	22.00	28.00	22.40	349.98	100.00	3050.00	72.95
*	55.700	530.00	23.28	1.58	14.10	22.00	28.00	22.40	487.44	91.97	3050.00	181.03
*	55.600	268.00	21.22	1.04	12.50	16.00	16.50	24.80	268.00	100.00	100.00	39.00
*	55.600	350.00	22.09	1.20	12.50	16.00	16.50	24.80	350.00	100.00	100.00	39.00
	55.600	530.00	23.30	1.56	12.50	16.00	16.50	24.80	530.00	100.00	100.00	39.00
	55.500	268.00	21.19	2.10	12.50	16.00	16.50	24.80	268.00	100.00	10.00	39.00
*	55.500	350.00	22.04	2.75	12.50	16.00	16.50	24.80	350.00	100.00	10.00	39.00
*	55.500	530.00	23.19	4.16	12.50	16.00	16.50	24.80	530.00	100.00	10.00	39.00
	55.400	268.00	21.21	2.10	12.50	16.00	16.50	24.80	268.00	100.00	90.00	39.00
	55.400	350.00	22.07	2.75	12.50	16.00	16.50	24.80	350.00	100.00	90.00	39.00
	55.400	530.00	23.26	4.16	12.50	16.00	16.50	24.80	530.00	100.00	90.00	39.00
	55.300	268.00	21.28	1.03	12.50	16.00	16.50	24.80	268.00	100.00	10.00	39.00
*	55.300	350.00	22.20	1.18	12.50	16.00	16.50	24.80	350.00	100.00	10.00	39.00
*	55.300	530.00	23.56	1.52	12.50	16.00	16.50	24.80	530.00	100.00	10.00	39.00
*	55.200	268.00	21.28	1.34	14.10	22.00	28.00	22.40	268.00	100.00	50.00	47.26
	55.200	350.00	22.20	1.41	14.10	22.00	28.00	22.40	349.55	99.87	50.00	119.10
	55.200	530.00	23.58	1.44	14.10	22.00	28.00	22.40	472.63	89.17	50.00	182.20
	55.000	268.00	21.60	1.50	14.50	22.00	28.00	22.50	268.00	100.00	1330.00	48.22
	55.000	350.00	22.51	1.52	14.50	22.00	28.00	22.50	341.68	97.62	1330.00	513.79
	55.000	530.00	23.77	1.11	14.50	22.00	28.00	22.50	323.95	61.12	1330.00	801.91
	54.000	268.00	22.36	1.09	15.50	23.30	21.90	23.30	267.89	99.96	2900.00	88.29
	54.000	350.00	23.14	1.10	15.50	23.30	21.90	23.30	348.47	99.56	2900.00	99.43
*	54.000	530.00	23.91	.45	15.50	23.30	21.90	23.30	175.61	33.13	2900.00	1248.10
	53.600	268.00	23.12	1.35	17.60	22.20	30.30	25.30	209.51	78.17	2660.00	437.25
	53.600	350.00	23.62	.99	17.60	22.20	30.30	25.30	185.15	52.90	2660.00	775.34
*	53.600	530.00	24.03	.94	17.60	22.20	30.30	25.30	200.58	37.85	2660.00	1054.95

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	53.500	268.00	23.12	3.40	17.60	30.40	30.40	30.90	268.00	100.00	100.00	28.99
*	53.500	350.00	23.55	3.80	17.60	30.40	30.40	30.90	350.00	100.00	100.00	31.33
*	53.500	530.00	23.87	5.19	17.60	30.40	30.40	30.90	530.00	100.00	100.00	33.00
	53.400	268.00	23.18	3.32	17.60	30.40	30.40	30.90	268.00	100.00	16.00	29.34
	53.400	350.00	23.64	3.70	17.60	30.40	30.40	30.90	350.00	100.00	16.00	31.78
	53.400	530.00	24.07	4.87	17.60	30.40	30.40	30.90	530.00	100.00	16.00	34.08
*	53.300	268.00	23.40	1.05	17.00	23.10	27.20	24.30	266.88	99.58	50.00	118.51
*	53.300	350.00	23.91	1.16	17.00	23.10	27.20	24.30	333.88	95.40	50.00	211.45
*	53.300	530.00	24.54	1.27	17.00	23.10	27.20	24.30	420.86	79.41	50.00	542.33
	53.200	268.00	23.41	1.16	17.00	27.20	27.20	27.20	268.00	100.00	70.00	47.97
	53.200	350.00	23.91	1.37	17.00	27.20	27.20	27.20	350.00	100.00	70.00	48.77
	53.200	530.00	24.54	1.86	17.00	27.20	27.20	27.20	530.00	100.00	70.00	49.77
	53.100	268.00	23.41	1.16	17.00	27.20	27.20	27.20	268.00	100.00	28.00	47.97
	53.100	350.00	23.91	1.37	17.00	27.20	27.20	27.20	350.00	100.00	28.00	48.78
	53.100	530.00	24.54	1.86	17.00	27.20	27.20	27.20	530.00	100.00	28.00	49.77
	53.000	268.00	23.43	.96	17.60	22.20	30.30	25.30	166.33	62.06	50.00	644.46
*	53.000	350.00	23.95	.68	17.60	22.20	30.30	25.30	140.86	40.25	50.00	1001.85
*	53.000	530.00	24.61	.49	17.60	22.20	30.30	25.30	123.60	23.32	50.00	1645.23
	52.000	268.00	24.06	1.51	18.00	23.10	33.10	26.50	248.21	92.62	3000.00	137.01
*	52.000	350.00	24.33	1.75	18.00	23.10	33.10	26.50	307.08	87.74	3000.00	164.64
*	52.000	530.00	24.81	2.01	18.00	23.10	33.10	26.50	393.61	74.27	3000.00	526.16



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## SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	27.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	27.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	27.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	28.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	28.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	28.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	30.100	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	30.100	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	30.100	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	30.200	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	30.200	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	30.200	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	30.400	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	30.400	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	30.400	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	31.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	31.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	31.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	32.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	32.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	32.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	33.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	33.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	33.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	34.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	34.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	34.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	21.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	21.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	21.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	20.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	20.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	20.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	18.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	18.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	18.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	17.200	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	17.200	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	17.200	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

```

*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* JUN 1998
* VERSION 4.1
*
* RUN DATE 17AUG02 TIME 11:00:00
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
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X X XXXXXXX XXXXX X
X X X X X XX
X X X X X
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X X X X X
X X X X X
X X XXXXXXX XXXXX XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM



LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
39	KK 5T010
40	KM ROUTE FLOWS FROM SUBAREA 5 TO SUBAREA 10
41	RS 2 FLOW -1
42	SV 0 115 247 370 471 582 694
43	SQ 0 1000 2000 3000 4000 5000 6000
	*
44	KK C-10
45	KM RUNOFF FROM SUBAREA C-10
46	BA 2.44
47	LU 0.75 0.1 15
48	UC 1.05 11.75
	*
49	KK SUB10
50	KM COMBINE HYDROS AT 10
51	HC 2
	*
52	KK SUB10
53	KM COMBINE HYDROS AT 10
54	HC 2
	*
55	KK 10T012
56	KM ROUTE FLOWS FROM 10 TO 12
57	RS 6 FLOW -1
58	SV 0 892 1687 2384 3012 3579 4091
59	SQ 0 2300 4600 6900 9200 11500 13800
	*
60	KK C-12
61	KM RUNOFF FROM SUBAREA C-12
62	BA 4.74
63	LU 0.75 0.1 15
64	UC 2.16 21.38
	*
65	KK SUB12
66	KM COMBINE HYDROS AT 12
67	HC 2
	*
68	KK C-01
69	KM RUNOFF FROM SUBAREA C-01
70	BA 4.58
71	LU 0.75 0.1 20
72	UC 1.33 21.90
	*

## HEC-1 INPUT

PAGE 3

LINE	ID	1	2	3	4	5	6	7	8	9	10
73	KK	1TO6									
74	KM	ROUTE FLOW FROM 1 TO 6									
75	RS	9	FLOW	-1							
76	SV	0	78	368	670	989	1438	1862			
77	SQ	0	380	760	1140	1520	1900	2280			
	*										
78	KK	C-06									
79	KM	RUNOFF FROM SUBAREA C-06									
80	BA	4.24									
81	LU	0.75	0.1	5							
82	UC	5.23	13.02								
	*										
83	KK	SUB6									
84	KM	COMBIN HYDROS AT 6									
85	HC	2									
	*										
86	KK	C-02									
87	KM	RUNOFF FROM SUBAREA C-02									
88	BA	4.16									
89	LU	0.75	0.1	15							
90	UC	0.65	15.70								
	*										
91	KK	2TO6									
92	KM	ROUTE FLOW FROM 2 TO 6									
93	RS	4	FLOW	-1							
94	SV	0	31	147	268	396	575	745			
95	SQ	0	380	760	1140	1520	1900	2280			
	*										
96	KK	SUB6									
97	KM	COMBIN HYDROS AT 6									
98	HC	2									
	*										
99	KK	C-07									
100	KM	RUNOFF FROM SUBAREA C-07									
101	BA	2.65									
102	LU	0.75	0.1	0							
103	UC	2.50	9.78								
	*										
104	KK	SUB7									
105	KM	COMBINE HYDROS AT 7									
106	HC	2									
	*										



LINE	ID	1	2	3	4	5	6	7	8	9	10
141	KK	C-13A									
142	KM	RUNOFF FROM SUBAREA C-13A									
143	BA	4.17									
144	LU	0.75	0.1	5							
145	UC	2.28	8.85								
	*										
146	KK	SUB13A									
147	KM	DIVERT FLOWS FROM NORTH HAYES CREEK TO BRUNNER DITCH									
148	DT	DV13A									
149	DI	0	1000	2000	3000	4000					
150	DQ	0	500	1000	1500	2000					
	*										
151	KK	13ATOB									
152	KM	ROUTE FLOWS FROM 13A TO 13B									
153	RS	7	FLOW	-1							
154	SV	0	298	454	654	860	1053	1242			
155	SQ	0	320	639	959	1278	1598	1918			
	*										
156	KK	C-13B									
157	KM	RUNOFF FROM SUBAREA C-13B									
158	BA	3.62									
159	LU	0.75	0.1	5							
160	UC	3.00	10.89								
	*										
161	KK	SUB13B									
162	KM	COMBINE HYDROS AT 13B									
163	HC	2									
	*										
164	KK	SUB13B									
165	KM	COMBINE HYDROS AT 13B									
166	HC	2									
	*										
167	KK	13TO15									
168	KM	ROUTE FLOWS FROM 13B TO 15									
169	RS	3	FLOW	-1							
170	SV	0	276	726	1095	1459	1843	2168			
171	SQ	0	3000	6000	9000	12000	15000	18000			
	*										
172	KK	C-15									
173	KM	RUNOFF FROM SUBAREA C-15									
174	BA	4.17									
175	LU	0.75	0.1	5							
176	UC	2.83	15.54								
	*										

LINE	ID	1	2	3	4	5	6	7	8	9	10
177	KK	SUB15									
178	KM	COMBINE HYDROS AT 15									
179	HC	2									
	*										
180	KK	C-14									
181	KM	RUNOFF FROM SUBAREA C-14									
182	BA	8.80									
183	LU	0.75	0.1	5							
184	UC	3.18	11.95								
	*										
185	KK	RECALL C-13A DIVERSION									
186	KM	RETRIEVE HYDROGRAPH									
187	DR	DV13A									
	*										
188	KK	SUB14									
189	KM	COMBINE HYDROS AT 14									
190	HC	2									
	*										
191	KK	SUB14									
192	KM	DIVERT FLOWS FROM SOUTH HAYES CREEK TO BRUNNER DITCH									
193	DT	DIV14									
194	DI	0	1000	2000	3000	4000					
195	DQ	0	500	1000	1500	2000					
	*										
196	KK	14TO15									
197	KM	ROUTE FLOW FROM 14 TO 15									
198	RS	4	FLOW	-1							
199	SV	0	338	520	1172	1451	1986	1986			
200	SQ	0	605	1210	1815	2420	3025	3781			
	*										
201	KK	C-16									
202	KM	RUNOFF FROM SUBAREA C-16									
203	BA	4.8									
204	LU	0.75	0.1	5							
205	UC	1.12	10.4								
	*										
206	KK	SUB15									
207	KM	COMBINE HYDROS AT 15									
208	HC	2									
	*										
209	KK	SUB15									
210	KM	COMBINE HYDROS AT 15									
211	HC	2									
	*										



## HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
212	KK	15TO18									
213	KM	ROUTE FLOWS FROM 15 TO 18									
214	RS	4	FLOW	-1							
215	SV	0	945	1740	2524	3108	3763	4280			
216	SQ	0	3800	7600	11400	15200	19000	22800			
	*										
217	KK	C-18									
218	KM	RUNOFF FROM SUBAREA C-18									
219	BA	4.15									
220	LU	0.75	0.1	15							
221	UC	2.15	13.32								
	*										
222	KK	SUB18									
223	KM	COMBINE HYDROS AT 18									
224	HC	2									
	*										
225	KK	18TO17									
226	KM	ROUTE FLOWS FROM 18 TO 17									
227	RS	7	FLOW	-1							
228	SV	0	1837	3987	6131	7309	8868	10187			
229	SQ	0	3700	7400	11100	14800	18500	22200			
	*										
230	KK	C-17									
231	KM	RUNOFF FROM SUBAREA C-17									
232	BA	9.91									
233	LU	0.75	0.1	15							
234	UC	5.07	47.69								
	*										
235	KK	SUB17									
236	KM	COMBINE HYDROS AT 17									
237	HC	2									
	*										
238	KK	17TO19									
239	KM	ROUTE FLOWS FROM 17 TO 19									
240	RS	7	FLOW	-1							
241	SV	0	1178	2959	4852	6732	8680	10508			
242	SQ	0	3800	7600	11400	15200	19000	22800			
	*										
243	KK	C-19									
244	KM	RUNOFF FROM SUBAREA C-19									
245	BA	10.62									
246	LU	0.75	0.1	20							
247	UC	2.41	25.93								
	*										

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
248	KK SUB19
249	KM COMBINE HYDROS AT 19
250	HC 2
	*
251	KK 19TO20
252	KM ROUTE FLOWS FROM 19 TO 20
253	RS 8 FLOW -1
254	SV 0 1399 2776 3938 5084 6243 7422
255	SQ 0 3800 7600 11400 15200 19000 22800
	*
256	KK RECALL C-14 DIVERSION
257	KM RETRIEVE HYDROGRAPH
258	DR DIV14
	*
259	KK 14TO31
260	KM ROUTE FLOW FROM 14 TO 31
261	RS 7 FLOW -1
262	SV 0 99 350 588 825 1064 1314
263	SQ 0 379 758 1136 1515 1894 2273
	*
264	KK C-31
265	KM RUNOFF FROM SUBAREA C-31
266	BA 3.26
267	LU 0.75 0.1 5
268	UC 1.62 11.87
	*
269	KK SUB31
270	KM COMBINE HYDROS AT 21
271	HC 2
	*
272	KK 31TO20
273	KM ROUTE FLOW FROM 31 TO 20
274	RS 8 FLOW -1
275	SV 0 400 577 735 984 1236 1463
276	SQ 0 410 820 1230 1640 2050 2460
	*
277	KK C-20
278	KM RUNOFF FROM SUBAREA C-20
279	BA 3.69
280	LU 0.75 0.1 5
281	UC 2.93 15.51
	*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

282	KK	SUB20							
283	KM	COMBINE HYDROS AT 21							
284	HC	2							
	*								
285	KK	SUB20							
286	KM	COMBINE HYDROS AT 21							
287	HC	2							
	*								
288	KK	20TO21							
289	KM	ROUTE FLOWS FROM 20 TO 21							
290	RS	4	FLOW	-1					
291	SV	0	295	577	970	1331	1693	2062	
292	SQ	0	3900	7800	11700	15600	19500	23400	
	*								
293	KK	C-21							
294	KM	RUNOFF FROM SUBAREA C-21							
295	BA	4.28							
296	LU	0.75	0.1	10					
297	UC	4.67	14.84						
	*								
298	KK	C-22							
299	KM	RUNOFF FROM SUBAREA C-22							
300	BA	2.21							
301	LU	0.75	0.1	10					
302	UC	1.19	8.00						
	*								
303	KK	SUB21							
304	KM	COMBINE HYDROS AT 21							
305	HC	3							
	*								
306	KK	21TO24							
307	KM	ROUTE FLOWS FROM 21 TO 24							
308	RS	5	FLOW	-1					
309	SV	0	691	1347	2015	2586	3170	3753	
310	SQ	0	4000	8000	12000	16000	20000	24000	
	*								
311	KK	C-24							
312	KM	RUNOFF FROM SUBAREA C-24							
313	BA	3.03							
314	LU	0.75	0.1	20					
315	UC	3.26	9.95						
	*								

LINE	ID	1	2	3	4	5	6	7	8	9	10
316	KK	SUB24									
317	KM	COMBINE HYDROS AT 24									
318	HC	2									
	*										
319	KK	C-23									
320	KM	RUNOFF FROM SUBAREA C-23									
321	BA	4.66									
322	LU	0.75	0.1	10							
323	UC	1.59	6.96								
	*										
324	KK	SUB23									
325	KM	COMBINE HYDROS AT 23									
326	HC	2									
	*										
327	KK	23TO26									
328	KM	ROUTE FLOWS FROM 23 TO 26									
329	RS	6	FLOW	-1							
330	SV	0	585	1101	1853	2727	3600	4433			
331	SQ	0	4000	8000	12000	16000	20000	24000			
	*										
332	KK	C-26									
333	KM	RUNOFF FROM SUBAREA C-26									
334	BA	3.25									
335	LU	0.75	0.1	10							
336	UC	2.24	10.57								
	*										
337	KK	SUB26									
338	KM	COMBINE HYDROS AT 26									
339	HC	2									
	*										
340	KK	26TO25									
341	KM	ROUTE HYDROS FROM 26 TO 25									
342	RS	2	FLOW	-1							
343	SV	0	243	344	424	532	678	845			
344	SQ	0	4000	8000	12000	16000	20000	24000			
	*										
345	KK	C-25									
346	KM	RUNOFF FROM SUBAREA C-25									
347	BA	7.19									
348	LU	0.75	0.1	5							
349	UC	11.31	16.20								
	*										

## HEC-1 INPUT

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

350	KK	SUB25							
351	KM	COMBINE HYDROS AT 28							
352	HC	2							
	*								
353	KK	25TO28							
354	KM	ROUTE HYDROS FROM 25 TO 28							
355	RS	5	FLOW	-1					
356	SV	0	687	1088	1401	1705	2012	2415	
357	SQ	0	4100	8200	12300	16400	20500	24600	
	*								
358	KK	C-28							
359	KM	RUNOFF FROM SUBAREA C-28							
360	BA	5.39							
361	LU	0.75	0.1	20					
362	UC	5.96	11.10						
	*								
363	KK	SUB28							
364	KM	COMBINE HYDROS AT 28							
365	HC	2							
	*								
366	KK	28TO27							
367	KM	ROUTE HYDROS FROM 28 TO 27							
368	RS	2	FLOW	-1					
369	SV	0	246	374	440	494	539	603	
370	SQ	0	4100	8200	12300	16400	20500	24600	
	*								
371	KK	C-27							
372	KM	RUNOFF FROM SUBAREA C-27							
373	BA	5.85							
374	LU	0.75	0.1	0					
375	UC	4.98	10.51						
	*								
376	KK	SUB27							
377	KM	COMBINE HYDROS AT 30							
378	HC	2							
	*								
379	KK	27TO29							
380	KM	ROUTE HYDROS FROM 27 TO 29							
381	RS	3	FLOW	-1					
382	SV	0	328	537	691	820	957	1090	
383	SQ	0	4200	8400	12600	16800	21000	25200	
	*								

LINE	ID	1	2	3	4	5	6	7	8	9	10
384	KK	C-29									
385	KM	RUNOFF FROM SUBAREA C-29									
386	BA	3.52									
387	LU	0.75	0.1	0							
388	UC	2.34	8.57								
	*										
389	KK	SUB29									
390	KM	COMBINE HYDROS AT 30									
391	HC	2									
	*										
392	KK	29TO30									
393	KM	ROUTE HYDROS FROM 29 TO 30									
394	RS	1	FLOW	-1							
395	SV	0	105	201	294	371	459	549			
396	SQ	0	4100	8200	12300	16400	20500	24600			
	*										
397	KK	C-30									
398	KM	RUNOFF FROM SUBAREA C-30									
399	BA	8.15									
400	LU	0.75	0.1	15							
401	UC	3.83	16.64								
	*										
402	KK	SUB30									
403	KM	COMBINE HYDROS AT 30									
404	HC	2									
	*										
405	ZZ										

```
*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*       JUN 1998
*       VERSION 4.1
*
* RUN DATE 17AUG02 TIME 11:00:00
*
*****
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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****
```

KLOTZ ASSOCIATES, INC.  
 CHOCOLATE BAYOU WATERSHED, 100-YR. HYDROGRAPH FOR EXISTING CONDITION  
 BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 FILENAME: CHOC10R.IH1...Revised to reflect changes to Tc & R

```
6 IO      OUTPUT CONTROL VARIABLES
          IPRNT      5 PRINT CONTROL
          IPLOT      0 PLOT CONTROL
          QSCAL      0. HYDROGRAPH PLOT SCALE
```

```
IT        HYDROGRAPH TIME DATA
          NMIN      15 MINUTES IN COMPUTATION INTERVAL
          IDATE     1JAN92 STARTING DATE
          ITIME     0000 STARTING TIME
          NQ        300 NUMBER OF HYDROGRAPH ORDINATES
          NDDATE    4JAN92 ENDING DATE
          NDTIME    0245 ENDING TIME
          ICENT     19 CENTURY MARK

          COMPUTATION INTERVAL .25 HOURS
          TOTAL TIME BASE 74.75 HOURS
```

```
ENGLISH UNITS
DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW               CUBIC FEET PER SECOND
STORAGE VOLUME    ACRE-FEET
SURFACE AREA      ACRES
TEMPERATURE        DEGREES FAHRENHEIT
```

RUNOFF SUMMARY  
 FLOW IN CUBIC FEET PER SECOND  
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	C-03	1128.	15.25	1068.	724.	315.	5.84		
HYDROGRAPH AT	C-04	541.	15.25	492.	292.	113.	2.02		
2 COMBINED AT	SUB4	1669.	15.25	1560.	1015.	428.	7.86		
ROUTED TO	4T09	1521.	21.75	1456.	1000.	426.	7.86		
HYDROGRAPH AT	C-09	598.	16.25	568.	395.	176.	3.13		
2 COMBINED AT	SUB9	2022.	21.25	1942.	1374.	602.	10.99		
HYDROGRAPH AT	C-05	796.	14.00	709.	393.	148.	2.64		
ROUTED TO	5T010	738.	16.25	680.	392.	148.	2.64		
HYDROGRAPH AT	C-10	615.	14.00	567.	348.	139.	2.44		
2 COMBINED AT	SUB10	1317.	15.75	1227.	739.	288.	5.08		
2 COMBINED AT	SUB10	3035.	20.00	2925.	2086.	889.	16.07		
ROUTED TO	10T012	2922.	24.50	2827.	2047.	884.	16.07		
HYDROGRAPH AT	C-12	708.	15.50	690.	521.	256.	4.74		
2 COMBINED AT	SUB12	3471.	24.00	3367.	2508.	1140.	20.81		
HYDROGRAPH AT	C-01	679.	15.00	664.	506.	251.	4.58		
ROUTED TO	1T06	620.	26.75	609.	503.	250.	4.58		
HYDROGRAPH AT	C-06	917.	17.50	852.	557.	231.	4.24		
2 COMBINED AT	SUB6	1303.	17.50	1280.	1053.	481.	8.82		
HYDROGRAPH AT	C-02	816.	14.00	778.	532.	234.	4.16		
ROUTED TO	2T06	755.	19.75	731.	531.	234.	4.16		
2 COMBINED AT	SUB6	2038.	19.00	2009.	1579.	714.	12.98		
HYDROGRAPH AT	C-07	745.	15.00	667.	378.	143.	2.65		
2 COMBINED AT	SUB7	2664.	17.75	2583.	1947.	857.	15.63		
ROUTED TO	7T08	2359.	28.75	2323.	1894.	852.	15.63		
HYDROGRAPH AT	C-08	2268.	16.50	2097.	1331.	540.	9.77		
2 COMBINED AT	SUB8	3519.	25.00	3493.	3076.	1392.	25.40		
ROUTED TO	8T011	3491.	28.75	3463.	3041.	1377.	25.40		
HYDROGRAPH AT	C-11	661.	15.00	615.	393.	162.	2.90		
2 COMBINED AT	SUB11	3789.	27.25	3768.	3342.	1539.	28.30		
2 COMBINED AT	SUB12	7204.	24.50	7101.	5841.	2679.	49.11		
ROUTED TO	12T013	7108.	29.00	7004.	5748.	2649.	49.11		
HYDROGRAPH AT	C-13A	1280.	14.75	1131.	617.	229.	4.17		
DIVERSION TO	DV13A	640.	14.75	566.	308.	114.	4.17		
HYDROGRAPH AT	SUB13A	640.	14.75	566.	308.	114.	4.17		
ROUTED TO	13AT0B	463.	24.00	424.	289.	114.	4.17		

W. FORK

N. HAYES



Chocolate Bayou Rev Ext. 10 Yr CHOC10R.IH1

HYDROGRAPH AT	C-13B	932.	15.50	850.	508.	199.	3.62
2 COMBINED AT	SUB13B	1008.	23.00	948.	754.	313.	7.79
2 COMBINED AT	SUB13B	7801.	28.25	7692.	6299.	2961.	56.90
ROUTED TO	13TO15	7771.	29.75	7660.	6274.	2953.	56.90
HYDROGRAPH AT	C-15	801.	15.50	758.	516.	225.	4.17
2 COMBINED AT	SUB15	8153.	29.50	8034.	6581.	3179.	61.07
HYDROGRAPH AT	C-14	2068.	15.50	1909.	1188.	478.	8.80
HYDROGRAPH AT	RECALL	640.	14.75	566.	308.	114.	.00
2 COMBINED AT	SUB14	2691.	15.50	2464.	1495.	592.	8.80
DIVERSION TO	DIV14	1345.	15.50	1232.	748.	296.	8.80
HYDROGRAPH AT	SUB14	1345.	15.50	1232.	748.	296.	8.80
ROUTED TO	14TO15	1160.	21.25	1086.	713.	295.	8.80
HYDROGRAPH AT	C-16	1306.	14.00	1182.	683.	263.	4.80
2 COMBINED AT	SUB15	2015.	20.25	1894.	1336.	557.	13.60
2 COMBINED AT	SUB15	9241.	28.50	9096.	7503.	3736.	74.67
ROUTED TO	15TO18	9147.	31.25	9005.	7476.	3709.	74.67
HYDROGRAPH AT	C-18	930.	15.00	871.	564.	235.	4.15
2 COMBINED AT	SUB18	9487.	31.00	9335.	7779.	3944.	78.82
ROUTED TO	18TO17	9119.	39.00	8999.	7665.	3867.	78.82
HYDROGRAPH AT	C-17	725.	20.00	717.	633.	402.	9.91
2 COMBINED AT	SUB17	9632.	38.75	9510.	8160.	4269.	88.73
ROUTED TO	17TO19	9420.	45.00	9313.	8087.	4189.	88.73
HYDROGRAPH AT	C-19	1340.	16.50	1319.	1051.	556.	10.62
2 COMBINED AT	SUB19	9927.	44.75	9818.	8590.	4745.	99.35
ROUTED TO	19TO20	9864.	48.50	9760.	8553.	4610.	99.35
HYDROGRAPH AT	RECALL	1345.	15.50	1232.	748.	296.	.00
ROUTED TO	14TO31	1095.	25.00	1055.	742.	296.	.00
HYDROGRAPH AT	C-31	795.	14.50	732.	447.	179.	3.26
2 COMBINED AT	SUB31	1519.	23.75	1473.	1158.	474.	3.26
ROUTED TO	31TO20	1438.	31.00	1410.	1095.	469.	3.26
HYDROGRAPH AT	C-20	710.	15.75	672.	457.	199.	3.69
2 COMBINED AT	SUB20	1762.	29.75	1743.	1428.	668.	6.95
2 COMBINED AT	SUB20	10363.	48.25	10255.	9092.	5279.	106.30
ROUTED TO	20TO21	10349.	49.50	10243.	9090.	5245.	106.30
HYDROGRAPH AT	C-21	849.	17.00	799.	545.	236.	4.28
HYDROGRAPH AT	C-22	756.	14.00	657.	340.	124.	2.21
3 COMBINED AT	SUB21	10473.	49.50	10368.	9233.	5606.	112.79
ROUTED TO	21TO24	10444.	51.50	10343.	9224.	5520.	112.79

N.  
HAYES

S.  
HAYES

BRUNNER

## Chocolate Bayou Rev Ext. 10 Yr CHOC10R.IH1

HYDROGRAPH AT	C-24	860.	15.50	778.	458.	176.	3.03
2 COMBINED AT	SUB24	10474.	51.50	10374.	9265.	5697.	115.82
HYDROGRAPH AT	C-23	1759.	14.00	1489.	731.	260.	4.66
2 COMBINED AT	SUB23	10477.	51.50	10379.	9281.	5957.	120.48
ROUTED TO	23TO26	10448.	53.75	10353.	9277.	5872.	120.48
HYDROGRAPH AT	C-26	875.	14.75	795.	469.	182.	3.25
2 COMBINED AT	SUB26	10477.	53.50	10382.	9316.	6054.	123.73
ROUTED TO	26TO25	10476.	53.75	10381.	9315.	6015.	123.73
HYDROGRAPH AT	C-25	1186.	22.75	1132.	832.	382.	7.19
2 COMBINED AT	SUB25	10671.	53.75	10577.	9551.	6397.	130.92
ROUTED TO	25TO28	10665.	54.50	10573.	9548.	6282.	130.92
HYDROGRAPH AT	C-28	1335.	18.00	1232.	781.	313.	5.39
2 COMBINED AT	SUB28	10726.	54.50	10634.	9634.	6595.	136.31
ROUTED TO	28TO27	10726.	54.75	10633.	9634.	6552.	136.31
HYDROGRAPH AT	C-27	1475.	17.00	1343.	809.	313.	5.85
2 COMBINED AT	SUB27	10775.	54.50	10684.	9708.	6865.	142.16
ROUTED TO	27TO29	10773.	55.00	10682.	9707.	6807.	142.16
HYDROGRAPH AT	C-29	1100.	14.75	966.	516.	189.	3.52
2 COMBINED AT	SUB29	10785.	55.00	10695.	9728.	6997.	145.68
ROUTED TO	29TO30	10783.	55.25	10693.	9728.	6977.	145.68
HYDROGRAPH AT	C-30	1485.	16.50	1416.	1000.	452.	8.15
2 COMBINED AT	SUB30	10954.	55.00	10866.	9947.	7428.	153.83

\*\*\* NORMAL END OF HEC-1 \*\*\*

25 YEAR

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*****
*
*   MOD HYDROGRAPH PACKAGE (HEC-1) *
*   JUN 1998 *
*   VERSION 4.1 *
*
*   RUN DATE 17AUG02 TIME 10:57:05 *
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*
*   U.S. ARMY CORPS OF ENGINEERS *
*   HYDROLOGIC ENGINEERING CENTER *
*   609 SECOND STREET *
*   DAVIS, CALIFORNIA 95616 *
*   (916) 756-1104 *
*
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X   X   XXXXXXX   XXXXX   X
X   X   X       X     X   XX
X   X   X       X     X   X
XXXXXXX XXXX   X       XXXXX X
X   X   X       X     X   X
X   X   X       X     X   X
X   X   XXXXXXX   XXXXX   XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.  
 THE DEFINITION OF -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM



LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

39 KK 5TO10  
 40 KM ROUTE FLOWS FROM SUBAREA 5 TO SUBAREA 10  
 41 RS 2 FLOW -1  
 42 SV 0 115 247 370 471 582 694  
 43 SQ 0 1000 2000 3000 4000 5000 6000  
 \*

44 KK C-10  
 45 KM RUNOFF FROM SUBAREA C-10  
 46 BA 2.44  
 47 LU 0.75 0.1 15  
 48 UC 1.05 11.75  
 \*

49 KK SUB10  
 50 KM COMBINE HYDROS AT 10  
 51 HC 2  
 \*

52 KK SUB10  
 53 KM COMBINE HYDROS AT 10  
 54 HC 2  
 \*

55 KK 10TO12  
 56 KM ROUTE FLOWS FROM 10 TO 12  
 57 RS 6 FLOW -1  
 58 SV 0 892 1687 2384 3012 3579 4091  
 59 SQ 0 2300 4600 6900 9200 11500 13800  
 \*

60 KK C-12  
 61 KM RUNOFF FROM SUBAREA C-12  
 62 BA 4.74  
 63 LU 0.75 0.1 15  
 64 UC 2.16 21.38  
 \*

65 KK SUB12  
 66 KM COMBINE HYDROS AT 12  
 67 HC 2  
 \*

68 KK C-01  
 69 KM RUNOFF FROM SUBAREA C-01  
 70 BA 4.58  
 71 LU 0.75 0.1 20  
 72 UC 1.33 21.90  
 \*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

73	KK	1TO6							
74	KM	ROUTE FLOW FROM 1 TO 6							
75	RS	9	FLOW	-1					
76	SV	0	78	368	670	989	1438	1862	
77	SQ	0	380	760	1140	1520	1900	2280	
	*								
78	KK	C-06							
79	KM	RUNOFF FROM SUBAREA C-06							
80	BA	4.24							
81	LU	0.75	0.1	5					
82	UC	5.23	13.02						
	*								
83	KK	SUB6							
84	KM	COMBIN HYDROS AT 6							
85	HC	2							
	*								
86	KK	C-02							
87	KM	RUNOFF FROM SUBAREA C-02							
88	BA	4.16							
89	LU	0.75	0.1	15					
90	UC	0.65	15.70						
	*								
91	KK	2TO6							
92	KM	ROUTE FLOW FROM 2 TO 6							
93	RS	4	FLOW	-1					
94	SV	0	31	147	268	396	575	745	
95	SQ	0	380	760	1140	1520	1900	2280	
	*								
96	KK	SUB6							
97	KM	COMBIN HYDROS AT 6							
98	HC	2							
	*								
99	KK	C-07							
100	KM	RUNOFF FROM SUBAREA C-07							
101	BA	2.65							
102	LU	0.75	0.1	0					
103	UC	2.50	9.78						
	*								
104	KK	SUB7							
105	KM	COMBINE HYDROS AT 7							
106	HC	2							
	*								

## HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
107	KK	7TO8									
108	KM	ROUTE FLOW FROM 7 TO 8									
109	RS	6	FLOW	-1							
110	SV	0	263	829	1507	2191	2873	3569			
111	SQ	0	900	1800	2700	3600	4500	5400			
	*										
112	KK	C-08									
113	KM	RUNOFF FROM SUBAREA C-08									
114	BA	9.77									
115	LU	0.75	0.1	10							
116	UC	4.20	12.07								
	*										
117	KK	SUB8									
118	KM	COMBINE HYDROS AT 8									
119	HC	2									
	*										
120	KK	8TO11									
121	KM	ROUTE FLOW FROM 8 TO 11									
122	RS	5	FLOW	-1							
123	SV	0	530	716	983	1334	1536	1842			
124	SQ	0	1060	2120	3180	4240	5300	6360			
	*										
125	KK	C-11									
126	KM	RUNOFF FROM SUBAREA C-11									
127	BA	2.9									
128	LU	0.75	0.1	10							
129	UC	2.41	12.93								
	*										
130	KK	SUB11									
131	KM	COMBINE HYDROS AT 11									
132	HC	2									
	*										
133	KK	SUB12									
134	KM	COMBINE HYDROS AT 12									
135	HC	2									
	*										
136	KK	12TO13B									
137	KM	ROUTE FLOWS FROM 12 TO 13B									
138	RS	7	FLOW	-1							
139	SV	0	1041	1995	2846	3815	4719	5570			
140	SQ	0	2440	4880	7320	9760	12200	14640			
	*										

LINE	ID	1	2	3	4	5	6	7	8	9	10
141	KK	C-13A									
142	KM	RUNOFF FROM SUBAREA C-13A									
143	BA	4.17									
144	LU	0.75	0.1	5							
145	UC	2.28	8.85								
	*										
146	KK	SUB13A									
147	KM	DIVERT FLOWS FROM NORTH HAYES CREEK TO BRUNNER DITCH									
148	DT	DV13A									
149	DI	0	1000	2000	3000	4000					
150	DQ	0	500	1000	1500	2000					
	*										
151	KK	13ATOB									
152	KM	ROUTE FLOWS FROM 13A TO 13B									
153	RS	7	FLOW	-1							
154	SV	0	298	454	654	860	1053	1242			
155	SQ	0	320	639	959	1278	1598	1918			
	*										
156	KK	C-13B									
157	KM	RUNOFF FROM SUBAREA C-13B									
158	BA	3.62									
159	LU	0.75	0.1	5							
160	UC	3.00	10.89								
	*										
161	KK	SUB13B									
162	KM	COMBINE HYDROS AT 13B									
163	HC	2									
	*										
164	KK	SUB13B									
165	KM	COMBINE HYDROS AT 13B									
166	HC	2									
	*										
167	KK	13TO15									
168	KM	ROUTE FLOWS FROM 13B TO 15									
169	RS	3	FLOW	-1							
170	SV	0	276	726	1095	1459	1843	2168			
171	SQ	0	3000	6000	9000	12000	15000	18000			
	*										
172	KK	C-15									
173	KM	RUNOFF FROM SUBAREA C-15									
174	BA	4.17									
175	LU	0.75	0.1	5							
176	UC	2.83	15.54								
	*										



LINE	ID	1	2	3	4	5	6	7	8	9	10
177	KK	SUB15									
178	KM	COMBINE HYDROS AT 15									
179	HC	2									
	*										
180	KK	C-14									
181	KM	RUNOFF FROM SUBAREA C-14									
182	BA	8.80									
183	LU	0.75	0.1	5							
184	UC	3.18	11.95								
	*										
185	KK	RECALL C-13A DIVERSION									
186	KM	RETRIEVE HYDROGRAPH									
187	DR	DV13A									
	*										
188	KK	SUB14									
189	KM	COMBINE HYDROS AT 14									
190	HC	2									
	*										
191	KK	SUB14									
192	KM	DIVERT FLOWS FROM SOUTH HAYES CREEK TO BRUNNER DITCH									
193	DT	DIV14									
194	DI	0	1000	2000	3000	4000					
195	DQ	0	500	1000	1500	2000					
	*										
196	KK	14TO15									
197	KM	ROUTE FLOW FROM 14 TO 15									
198	RS	4	FLOW	-1							
199	SV	0	338	520	1172	1451	1986	1986			
200	SQ	0	605	1210	1815	2420	3025	3781			
	*										
201	KK	C-16									
202	KM	RUNOFF FROM SUBAREA C-16									
203	BA	4.8									
204	LU	0.75	0.1	5							
205	UC	1.12	10.4								
	*										
206	KK	SUB15									
207	KM	COMBINE HYDROS AT 15									
208	HC	2									
	*										
209	KK	SUB15									
210	KM	COMBINE HYDROS AT 15									
211	HC	2									
	*										

LINE	ID	1	2	3	4	5	6	7	8	9	10
212	KK	15TO18									
213	KM	ROUTE FLOWS FROM 15 TO 18									
214	RS	4	FLOW	-1							
215	SV	0	945	1740	2524	3108	3763	4280			
216	SQ	0	3800	7600	11400	15200	19000	22800			
	*										
217	KK	C-18									
218	KM	RUNOFF FROM SUBAREA C-18									
219	BA	4.15									
220	LU	0.75	0.1	15							
221	UC	2.15	13.32								
	*										
222	KK	SUB18									
223	KM	COMBINE HYDROS AT 18									
224	HC	2									
	*										
225	KK	18TO17									
226	KM	ROUTE FLOWS FROM 18 TO 17									
227	RS	7	FLOW	-1							
228	SV	0	1837	3987	6131	7309	8868	10187			
229	SQ	0	3700	7400	11100	14800	18500	22200			
	*										
230	KK	C-17									
231	KM	RUNOFF FROM SUBAREA C-17									
232	BA	9.91									
233	LU	0.75	0.1	15							
234	UC	5.07	47.69								
	*										
235	KK	SUB17									
236	KM	COMBINE HYDROS AT 17									
237	HC	2									
	*										
238	KK	17TO19									
239	KM	ROUTE FLOWS FROM 17 TO 19									
240	RS	7	FLOW	-1							
241	SV	0	1178	2959	4852	6732	8680	10508			
242	SQ	0	3800	7600	11400	15200	19000	22800			
	*										
243	KK	C-19									
244	KM	RUNOFF FROM SUBAREA C-19									
245	BA	10.62									
246	LU	0.75	0.1	20							
247	UC	2.41	25.93								
	*										

LINE	ID	1	2	3	4	5	6	7	8	9	10
248	KK	SUB19									
249	KM	COMBINE HYDROS AT 19									
250	HC	2									
	*										
251	KK	19TO20									
252	KM	ROUTE FLOWS FROM 19 TO 20									
253	RS	8	FLOW	-1							
254	SV	0	1399	2776	3938	5084	6243	7422			
255	SQ	0	3800	7600	11400	15200	19000	22800			
	*										
256	KK	RECALL C-14 DIVERSION									
257	KM	RETRIEVE HYDROGRAPH									
258	DR	DIV14									
	*										
259	KK	14TO31									
260	KM	ROUTE FLOW FROM 14 TO 31									
261	RS	7	FLOW	-1							
262	SV	0	99	350	588	825	1064	1314			
263	SQ	0	379	758	1136	1515	1894	2273			
	*										
264	KK	C-31									
265	KM	RUNOFF FROM SUBAREA C-31									
266	BA	3.26									
267	LU	0.75	0.1	5							
268	UC	1.62	11.87								
	*										
269	KK	SUB31									
270	KM	COMBINE HYDROS AT 21									
271	HC	2									
	*										
272	KK	31TO20									
273	KM	ROUTE FLOW FROM 31 TO 20									
274	RS	8	FLOW	-1							
275	SV	0	400	577	735	984	1236	1463			
276	SQ	0	410	820	1230	1640	2050	2460			
	*										
277	KK	C-20									
278	KM	RUNOFF FROM SUBAREA C-20									
279	BA	3.69									
280	LU	0.75	0.1	5							
281	UC	2.93	15.51								
	*										

LINE	ID	1	2	3	4	5	6	7	8	9	10
282	KK	SUB20									
283	KM	COMBINE HYDROS AT 21									
284	HC	2									
	*										
285	KK	SUB20									
286	KM	COMBINE HYDROS AT 21									
287	HC	2									
	*										
288	KK	20TO21									
289	KM	ROUTE FLOWS FROM 20 TO 21									
290	RS	4	FLOW	-1							
291	SV	0	295	577	970	1331	1693	2062			
292	SQ	0	3900	7800	11700	15600	19500	23400			
	*										
293	KK	C-21									
294	KM	RUNOFF FROM SUBAREA C-21									
295	BA	4.28									
296	LU	0.75	0.1	10							
297	UC	4.67	14.84								
	*										
298	KK	C-22									
299	KM	RUNOFF FROM SUBAREA C-22									
300	BA	2.21									
301	LU	0.75	0.1	10							
302	UC	1.19	8.00								
	*										
303	KK	SUB21									
304	KM	COMBINE HYDROS AT 21									
305	HC	3									
	*										
306	KK	21TO24									
307	KM	ROUTE FLOWS FROM 21 TO 24									
308	RS	5	FLOW	-1							
309	SV	0	691	1347	2015	2586	3170	3753			
310	SQ	0	4000	8000	12000	16000	20000	24000			
	*										
311	KK	C-24									
312	KM	RUNOFF FROM SUBAREA C-24									
313	BA	3.03									
314	LU	0.75	0.1	20							
315	UC	3.26	9.95								
	*										

LINE	ID	1	2	3	4	5	6	7	8	9	10
316	KK	SUB24									
317	KM	COMBINE HYDROS AT 24									
318	HC	2									
	*										
319	KK	C-23									
320	KM	RUNOFF FROM SUBAREA C-23									
321	BA	4.66									
322	LU	0.75	0.1	10							
323	UC	1.59	6.96								
	*										
324	KK	SUB23									
325	KM	COMBINE HYDROS AT 23									
326	HC	2									
	*										
327	KK	23TO26									
328	KM	ROUTE FLOWS FROM 23 TO 26									
329	RS	6	FLOW	-1							
330	SV	0	585	1101	1853	2727	3600	4433			
331	SQ	0	4000	8000	12000	16000	20000	24000			
	*										
332	KK	C-26									
333	KM	RUNOFF FROM SUBAREA C-26									
334	BA	3.25									
335	LU	0.75	0.1	10							
336	UC	2.24	10.57								
	*										
337	KK	SUB26									
338	KM	COMBINE HYDROS AT 26									
339	HC	2									
	*										
340	KK	26TO25									
341	KM	ROUTE HYDROS FROM 26 TO 25									
342	RS	2	FLOW	-1							
343	SV	0	243	344	424	532	678	845			
344	SQ	0	4000	8000	12000	16000	20000	24000			
	*										
345	KK	C-25									
346	KM	RUNOFF FROM SUBAREA C-25									
347	BA	7.19									
348	LU	0.75	0.1	5							
349	UC	11.31	16.20								
	*										

LINE	ID	1	2	3	4	5	6	7	8	9	10
350	KK	SUB25									
351	KM	COMBINE HYDROS AT 28									
352	HC	2									
	*										
353	KK	25TO28									
354	KM	ROUTE HYDROS FROM 25 TO 28									
355	RS	5	FLOW	-1							
356	SV	0	687	1088	1401	1705	2012	2415			
357	SQ	0	4100	8200	12300	16400	20500	24600			
	*										
358	KK	C-28									
359	KM	RUNOFF FROM SUBAREA C-28									
360	BA	5.39									
361	LU	0.75	0.1	20							
362	UC	5.96	11.10								
	*										
363	KK	SUB28									
364	KM	COMBINE HYDROS AT 28									
365	HC	2									
	*										
366	KK	28TO27									
367	KM	ROUTE HYDROS FROM 28 TO 27									
368	RS	2	FLOW	-1							
369	SV	0	246	374	440	494	539	603			
370	SQ	0	4100	8200	12300	16400	20500	24600			
	*										
371	KK	C-27									
372	KM	RUNOFF FROM SUBAREA C-27									
373	BA	5.85									
374	LU	0.75	0.1	0							
375	UC	4.98	10.51								
	*										
376	KK	SUB27									
377	KM	COMBINE HYDROS AT 30									
378	HC	2									
	*										
379	KK	27TO29									
380	KM	ROUTE HYDROS FROM 27 TO 29									
381	RS	3	FLOW	-1							
382	SV	0	328	537	691	820	957	1090			
383	SQ	0	4200	8400	12600	16800	21000	25200			
	*										

LINE	ID	1	2	3	4	5	6	7	8	9	10
384	KK	C-29									
385	KM	RUNOFF FROM SUBAREA C-29									
386	BA	3.52									
387	LU	0.75	0.1	0							
388	UC	2.34	8.57								
	*										
389	KK	SUB29									
390	KM	COMBINE HYDROS AT 30									
391	HC	2									
	*										
392	KK	29TO30									
393	KM	ROUTE HYDROS FROM 29 TO 30									
394	RS	1	FLOW	-1							
395	SV	0	105	201	294	371	459	549			
396	SQ	0	4100	8200	12300	16400	20500	24600			
	*										
397	KK	C-30									
398	KM	RUNOFF FROM SUBAREA C-30									
399	BA	8.15									
400	LU	0.75	0.1	15							
401	UC	3.83	16.64								
	*										
402	KK	SUB30									
403	KM	COMBINE HYDROS AT 30									
404	HC	2									
	*										
405	ZZ										

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*****  
*  
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *  
* JUN 1998 *  
* VERSION 4.1 *  
*  
* RUN DATE 17AUG02 TIME 10:57:05 *  
*  
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*  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET *  
* DAVIS, CALIFORNIA 95616 *  
* (916) 756-1104 *  
*  
*****
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KLOTZ ASSOCIATES, INC.  
CHOCOLATE BAYOU WATERSHED, 100-YR. HYDROGRAPH FOR EXISTING CONDITION  
BRAZORIA COUNTY MASTER DRAINAGE PLAN  
FILENAME: CHOC25R.IH1...Revised to reflect changes to Tc & R

6 IO OUTPUT CONTROL VARIABLES  
IPRNT 5 PRINT CONTROL  
IPLOT 0 PLOT CONTROL  
QSCAL 0. HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA  
NMIN 15 MINUTES IN COMPUTATION INTERVAL  
IDATE 1JAN92 STARTING DATE  
ITIME 0000 STARTING TIME  
NQ 300 NUMBER OF HYDROGRAPH ORDINATES  
NDDATE 4JAN92 ENDING DATE  
NDTIME 0245 ENDING TIME  
ICENT 19 CENTURY MARK  
  
COMPUTATION INTERVAL .25 HOURS  
TOTAL TIME BASE 74.75 HOURS

ENGLISH UNITS  
DRAINAGE AREA SQUARE MILES  
PRECIPITATION DEPTH INCHES  
LENGTH, ELEVATION FEET  
FLOW CUBIC FEET PER SECOND  
STORAGE VOLUME ACRE-FEET  
SURFACE AREA ACRES  
TEMPERATURE DEGREES FAHRENHEIT



Chocolate Bayou Rev. Exist. CHOC25R.IH1

RUNOFF SUMMARY  
 FLOW IN CUBIC FEET PER SECOND  
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	C-03	1343.	15.50	1282.	877.	383.	5.84		
HYDROGRAPH AT	C-04	642.	15.50	588.	353.	138.	2.02		
2 COMBINED AT	SUB4	1985.	15.50	1871.	1229.	521.	7.86		
ROUTED TO	4TO9	1824.	21.75	1748.	1212.	519.	7.86		
HYDROGRAPH AT	C-09	711.	16.25	680.	476.	213.	3.13		
2 COMBINED AT	SUB9	2425.	21.25	2331.	1664.	731.	10.99		
HYDROGRAPH AT	C-05	939.	14.00	847.	476.	180.	2.64		
ROUTED TO	5TO10	879.	16.25	814.	474.	180.	2.64		
HYDROGRAPH AT	C-10	725.	14.00	677.	419.	169.	2.44		
2 COMBINED AT	SUB10	1569.	15.75	1467.	893.	348.	5.08		
2 COMBINED AT	SUB10	3638.	20.00	3505.	2524.	1080.	16.07		
ROUTED TO	10TO12	3508.	24.50	3400.	2477.	1074.	16.07		
HYDROGRAPH AT	C-12	845.	16.00	826.	628.	310.	4.74		
2 COMBINED AT	SUB12	4171.	24.00	4055.	3035.	1383.	20.81		
HYDROGRAPH AT	C-01	809.	15.75	793.	609.	303.	4.58		
ROUTED TO	1TO6	739.	27.25	726.	600.	301.	4.58		
HYDROGRAPH AT	C-06	1096.	17.50	1025.	676.	282.	4.24		
2 COMBINED AT	SUB6	1489.	21.75	1486.	1251.	583.	8.82		
HYDROGRAPH AT	C-02	967.	14.50	930.	641.	283.	4.16		
ROUTED TO	2TO6	900.	20.00	871.	640.	283.	4.16		
2 COMBINED AT	SUB6	2385.	20.00	2358.	1887.	865.	12.98		
HYDROGRAPH AT	C-07	884.	15.00	800.	459.	174.	2.65		
2 COMBINED AT	SUB7	3107.	18.00	3033.	2332.	1040.	15.63		
ROUTED TO	7TO8	2780.	29.25	2738.	2256.	1033.	15.63		
HYDROGRAPH AT	C-08	2702.	16.50	2514.	1610.	656.	9.77		
2 COMBINED AT	SUB8	4132.	25.50	4093.	3644.	1689.	25.40		
ROUTED TO	8TO11	4095.	29.25	4061.	3608.	1671.	25.40		
HYDROGRAPH AT	C-11	784.	15.25	736.	475.	197.	2.90		
2 COMBINED AT	SUB11	4437.	28.00	4412.	3974.	1868.	28.30		
2 COMBINED AT	SUB12	8516.	24.75	8394.	7002.	3251.	49.11		
ROUTED TO	12TO13	8375.	29.75	8265.	6897.	3214.	49.11		
HYDROGRAPH AT	C-13A	1515.	14.75	1354.	748.	278.	4.17		
DIVERSION TO	DV13A	758.	14.75	677.	374.	139.	4.17		
HYDROGRAPH AT	SUB13A	758.	14.75	677.	374.	139.	4.17		
ROUTED TO	13ATOB	584.	23.50	540.	350.	139.	4.17		

W. FORK

N. HAYES

Chocolate Bayou Rev. Exist. CHOC25R.IH1

HYDROGRAPH AT	C-13B	1108.	15.50	1018.	616.	242.	3.62
2 COMBINED AT	SUB13B	1285.	22.25	1205.	917.	381.	7.79
2 COMBINED AT	SUB13B	9157.	28.75	9045.	7567.	3595.	56.90
ROUTED TO	13TO15	9128.	30.25	9018.	7535.	3585.	56.90
HYDROGRAPH AT	C-15	954.	15.75	910.	625.	274.	4.17
2 COMBINED AT	SUB15	9580.	30.00	9466.	7912.	3860.	61.07
HYDROGRAPH AT	C-14	2463.	15.75	2291.	1441.	582.	8.80
HYDROGRAPH AT	RECALL	758.	14.75	677.	374.	139.	.00
2 COMBINED AT	SUB14	3201.	15.50	2954.	1813.	721.	8.80
DIVERSION TO	DIV14	1601.	15.50	1477.	907.	361.	8.80
HYDROGRAPH AT	SUB14	1601.	15.50	1477.	907.	361.	8.80
ROUTED TO	14TO15	1274.	25.25	1256.	866.	359.	8.80
HYDROGRAPH AT	C-16	1544.	14.00	1415.	827.	320.	4.80
2 COMBINED AT	SUB15	2300.	19.50	2202.	1625.	679.	13.60
2 COMBINED AT	SUB15	11078.	27.50	10867.	9035.	4539.	74.67
ROUTED TO	15TO18	10920.	30.75	10764.	9008.	4505.	74.67
HYDROGRAPH AT	C-18	1102.	15.00	1041.	680.	285.	4.15
2 COMBINED AT	SUB18	11353.	30.50	11179.	9372.	4790.	78.82
ROUTED TO	18TO17	10915.	38.50	10787.	9241.	4696.	78.82
HYDROGRAPH AT	C-17	873.	20.00	864.	765.	487.	9.91
2 COMBINED AT	SUB17	11543.	38.25	11411.	9842.	5183.	88.73
ROUTED TO	17TO19	11303.	44.75	11183.	9750.	5086.	88.73
HYDROGRAPH AT	C-19	1604.	17.00	1578.	1266.	671.	10.62
2 COMBINED AT	SUB19	11924.	44.50	11800.	10355.	5757.	99.35
ROUTED TO	19TO20	11853.	48.25	11733.	10318.	5592.	99.35
HYDROGRAPH AT	RECALL	1601.	15.50	1477.	907.	361.	.00
ROUTED TO	14TO31	1317.	25.00	1269.	894.	360.	.00
HYDROGRAPH AT	C-31	942.	14.50	877.	542.	218.	3.26
2 COMBINED AT	SUB31	1832.	24.00	1776.	1389.	578.	3.26
ROUTED TO	31TO20	1726.	31.25	1691.	1333.	571.	3.26
HYDROGRAPH AT	C-20	846.	15.75	807.	554.	243.	3.69
2 COMBINED AT	SUB20	2112.	30.25	2081.	1746.	814.	6.95
2 COMBINED AT	SUB20	12413.	47.75	12313.	10995.	6406.	106.30
ROUTED TO	20TO21	12403.	48.75	12301.	10989.	6364.	106.30
HYDROGRAPH AT	C-21	1014.	17.00	959.	659.	287.	4.28
HYDROGRAPH AT	C-22	891.	13.75	784.	412.	151.	2.21
3 COMBINED AT	SUB21	12562.	48.75	12461.	11164.	6801.	112.79
ROUTED TO	21TO24	12542.	50.50	12438.	11151.	6689.	112.79

N. HAYES

S. HAYES

BRUNNER

## Chocolate Bayou Rev. Exist. CHOC25R.IH1

HYDROGRAPH AT	C-24	1018.	15.50	927.	551.	213.	3.03
2 COMBINED AT	SUB24	12583.	50.25	12479.	11200.	6902.	115.82
HYDROGRAPH AT	C-23	2072.	14.00	1776.	886.	316.	4.66
2 COMBINED AT	SUB23	12589.	50.25	12488.	11220.	7218.	120.48
ROUTED TO	23TO26	12550.	53.00	12446.	11208.	7107.	120.48
HYDROGRAPH AT	C-26	1036.	14.75	950.	566.	221.	3.25
2 COMBINED AT	SUB26	12586.	53.00	12483.	11253.	7328.	123.73
ROUTED TO	26TO25	12585.	53.25	12481.	11252.	7284.	123.73
HYDROGRAPH AT	C-25	1430.	23.00	1368.	1010.	465.	7.19
2 COMBINED AT	SUB25	12831.	53.00	12728.	11529.	7749.	130.92
ROUTED TO	25TO28	12826.	54.00	12723.	11527.	7613.	130.92
HYDROGRAPH AT	C-28	1590.	18.00	1472.	940.	377.	5.39
2 COMBINED AT	SUB28	12903.	53.75	12801.	11627.	7990.	136.31
ROUTED TO	28TO27	12903.	54.00	12800.	11627.	7941.	136.31
HYDROGRAPH AT	C-27	1763.	17.00	1615.	984.	383.	5.85
2 COMBINED AT	SUB27	12968.	54.00	12865.	11714.	8323.	142.16
ROUTED TO	27TO29	12966.	54.25	12863.	11713.	8254.	142.16
HYDROGRAPH AT	C-29	1303.	14.75	1157.	628.	231.	3.52
2 COMBINED AT	SUB29	12983.	54.25	12880.	11738.	8486.	145.68
ROUTED TO	29TO30	12981.	54.50	12879.	11737.	8460.	145.68
HYDROGRAPH AT	C-30	1770.	16.50	1696.	1207.	547.	8.15
2 COMBINED AT	SUB30	13200.	54.25	13097.	11995.	9007.	153.83

\*\*\* NORMAL END OF HEC-1 \*\*\*

100 YR.

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*****
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   JUN 1998                     *
*   VERSION 4.1                   *
* RUN DATE 17AUG02 TIME 10:21:14 *
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* U.S. ARMY CORPS OF ENGINEERS   *
* HYDROLOGIC ENGINEERING CENTER  *
* 609 SECOND STREET              *
* DAVIS, CALIFORNIA 95616        *
* (916) 756-1104                 *
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X   X XXXXXXXX XXXXX           X
X   X X         X   X         XX
X   X X         X             X
XXXXXXXX XXXX   X             XXXXX X
X   X X         X             X
X   X X         X   X         X
X   X XXXXXXXX XXXXX           XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.  
 THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM





## HEC-1 INPUT

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

73 KK 1T06  
 74 KM ROUTE FLOW FROM 1 TO 6  
 75 RS 9 FLOW -1  
 76 SV 0 78 368 670 989 1438 1862  
 77 SQ 0 380 760 1140 1520 1900 2280  
 \*

78 KK C-06  
 79 KM RUNOFF FROM SUBAREA C-06  
 80 BA 4.24  
 81 LU 0.75 0.1 5  
 82 UC 5.23 13.02  
 \*

83 KK SUB6  
 84 KM COMBIN HYDROS AT 6  
 85 HC 2  
 \*

86 KK C-02  
 87 KM RUNOFF FROM SUBAREA C-02  
 88 BA 4.16  
 89 LU 0.75 0.1 15  
 90 UC 0.65 15.70  
 \*

91 KK 2T06  
 92 KM ROUTE FLOW FROM 2 TO 6  
 93 RS 4 FLOW -1  
 94 SV 0 31 147 268 396 575 745  
 95 SQ 0 380 760 1140 1520 1900 2280  
 \*

96 KK SUB6  
 97 KM COMBIN HYDROS AT 6  
 98 HC 2  
 \*

99 KK C-07  
 100 KM RUNOFF FROM SUBAREA C-07  
 101 BA 2.65  
 102 LU 0.75 0.1 0  
 103 UC 2.50 9.78  
 \*

104 KK SUB7  
 105 KM COMBINE HYDROS AT 7  
 106 HC 2  
 \*

LINE	ID	1	2	3	4	5	6	7	8	9	10
107	KK	7TO8									
108	KM	ROUTE FLOW FROM 7 TO 8									
109	RS	6	FLOW	-1							
110	SV	0	263	829	1507	2191	2873	3569			
111	SQ	0	900	1800	2700	3600	4500	5400			
	*										
112	KK	C-08									
113	KM	RUNOFF FROM SUBAREA C-08									
114	BA	9.77									
115	LU	0.75	0.1	10							
116	UC	4.20	12.07								
	*										
117	KK	SUB8									
118	KM	COMBINE HYDROS AT 8									
119	HC	2									
	*										
120	KK	8TO11									
121	KM	ROUTE FLOW FROM 8 TO 11									
122	RS	5	FLOW	-1							
123	SV	0	530	716	983	1334	1536	1842			
124	SQ	0	1060	2120	3180	4240	5300	6360			
	*										
125	KK	C-11									
126	KM	RUNOFF FROM SUBAREA C-11									
127	BA	2.9									
128	LU	0.75	0.1	10							
129	UC	2.41	12.93								
	*										
130	KK	SUB11									
131	KM	COMBINE HYDROS AT 11									
132	HC	2									
	*										
133	KK	SUB12									
134	KM	COMBINE HYDROS AT 12									
135	HC	2									
	*										
136	KK	12TO13B									
137	KM	ROUTE FLOWS FROM 12 TO 13B									
138	RS	7	FLOW	-1							
139	SV	0	1041	1995	2846	3815	4719	5570			
140	SQ	0	2440	4880	7320	9760	12200	14640			
	*										



LINE	ID	1	2	3	4	5	6	7	8	9	10
141	KK	C-13A									
142	KM	RUNOFF FROM SUBAREA C-13A									
143	BA	4.17									
144	LU	0.75	0.1	5							
145	UC	2.28	8.85								
	*										
146	KK	SUB13A									
147	KM	DIVERT FLOWS FROM NORTH HAYES CREEK TO BRUNNER DITCH									
148	DT	DV13A									
149	DI	0	1000	2000	3000	4000					
150	DQ	0	500	1000	1500	2000					
	*										
151	KK	13ATOB									
152	KM	ROUTE FLOWS FROM 13A TO 13B									
153	RS	7	FLOW	-1							
154	SV	0	298	454	654	860	1053	1242			
155	SQ	0	320	639	959	1278	1598	1918			
	*										
156	KK	C-13B									
157	KM	RUNOFF FROM SUBAREA C-13B									
158	BA	3.62									
159	LU	0.75	0.1	5							
160	UC	3.00	10.89								
	*										
161	KK	SUB13B									
162	KM	COMBINE HYDROS AT 13B									
163	HC	2									
	*										
164	KK	SUB13B									
165	KM	COMBINE HYDROS AT 13B									
166	HC	2									
	*										
167	KK	13TO15									
168	KM	ROUTE FLOWS FROM 13B TO 15									
169	RS	3	FLOW	-1							
170	SV	0	276	726	1095	1459	1843	2168			
171	SQ	0	3000	6000	9000	12000	15000	18000			
	*										
172	KK	C-15									
173	KM	RUNOFF FROM SUBAREA C-15									
174	BA	4.17									
175	LU	0.75	0.1	5							
176	UC	2.83	15.54								
	*										

LINE	ID	1	2	3	4	5	6	7	8	9	10
177	KK	SUB15									
178	KM	COMBINE HYDROS AT 15									
179	HC	2									
	*										
180	KK	C-14									
181	KM	RUNOFF FROM SUBAREA C-14									
182	BA	8.80									
183	LU	0.75	0.1	5							
184	UC	3.18	11.95								
	*										
185	KK	RECALL C-13A DIVERSION									
186	KM	RETRIEVE HYDROGRAPH									
187	DR	DV13A									
	*										
188	KK	SUB14									
189	KM	COMBINE HYDROS AT 14									
190	HC	2									
	*										
191	KK	SUB14									
192	KM	DIVERT FLOWS FROM SOUTH HAYES CREEK TO BRUNNER DITCH									
193	DT	DIV14									
194	DI	0	1000	2000	3000	4000					
195	DQ	0	500	1000	1500	2000					
	*										
196	KK	14TO15									
197	KM	ROUTE FLOW FROM 14 TO 15									
198	RS	4	FLOW	-1							
199	SV	0	338	520	1172	1451	1986	1986			
200	SQ	0	605	1210	1815	2420	3025	3781			
	*										
201	KK	C-16									
202	KM	RUNOFF FROM SUBAREA C-16									
203	BA	4.8									
204	LU	0.75	0.1	5							
205	UC	1.12	10.4								
	*										
206	KK	SUB15									
207	KM	COMBINE HYDROS AT 15									
208	HC	2									
	*										
209	KK	SUB15									
210	KM	COMBINE HYDROS AT 15									
211	HC	2									
	*										

## HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
212	KK	15TO18									
213	KM	ROUTE FLOWS FROM 15 TO 18									
214	RS	4	FLOW	-1							
215	SV	0	945	1740	2524	3108	3763	4280			
216	SQ	0	3800	7600	11400	15200	19000	22800			
	*										
217	KK	C-18									
218	KM	RUNOFF FROM SUBAREA C-18									
219	BA	4.15									
220	LU	0.75	0.1	15							
221	UC	2.15	13.32								
	*										
222	KK	SUB18									
223	KM	COMBINE HYDROS AT 18									
224	HC	2									
	*										
225	KK	18TO17									
226	KM	ROUTE FLOWS FROM 18 TO 17									
227	RS	7	FLOW	-1							
228	SV	0	1837	3987	6131	7309	8868	10187			
229	SQ	0	3700	7400	11100	14800	18500	22200			
	*										
230	KK	C-17									
231	KM	RUNOFF FROM SUBAREA C-17									
232	BA	9.91									
233	LU	0.75	0.1	15							
234	UC	5.07	47.69								
	*										
235	KK	SUB17									
236	KM	COMBINE HYDROS AT 17									
237	HC	2									
	*										
238	KK	17TO19									
239	KM	ROUTE FLOWS FROM 17 TO 19									
240	RS	7	FLOW	-1							
241	SV	0	1178	2959	4852	6732	8680	10508			
242	SQ	0	3800	7600	11400	15200	19000	22800			
	*										
243	KK	C-19									
244	KM	RUNOFF FROM SUBAREA C-19									
245	BA	10.62									
246	LU	0.75	0.1	20							
247	UC	2.41	25.93								
	*										

LINE	ID	1	2	3	4	5	6	7	8	9	10
248	KK	SUB19									
249	KM	COMBINE HYDROS AT 19									
250	HC	2									
	*										
251	KK	19TO20									
252	KM	ROUTE FLOWS FROM 19 TO 20									
253	RS	8	FLOW	-1							
254	SV	0	1399	2776	3938	5084	6243	7422			
255	SQ	0	3800	7600	11400	15200	19000	22800			
	*										
256	KK	RECALL C-14 DIVERSION									
257	KM	RETRIEVE HYDROGRAPH									
258	DR	DIV14									
	*										
259	KK	14TO31									
260	KM	ROUTE FLOW FROM 14 TO 31									
261	RS	7	FLOW	-1							
262	SV	0	99	350	588	825	1064	1314			
263	SQ	0	379	758	1136	1515	1894	2273			
	*										
264	KK	C-31									
265	KM	RUNOFF FROM SUBAREA C-31									
266	BA	3.26									
267	LU	0.75	0.1	5							
268	UC	1.62	11.87								
	*										
269	KK	SUB31									
270	KM	COMBINE HYDROS AT 21									
271	HC	2									
	*										
272	KK	31TO20									
273	KM	ROUTE FLOW FROM 31 TO 20									
274	RS	8	FLOW	-1							
275	SV	0	400	577	735	984	1236	1463			
276	SQ	0	410	820	1230	1640	2050	2460			
	*										
277	KK	C-20									
278	KM	RUNOFF FROM SUBAREA C-20									
279	BA	3.69									
280	LU	0.75	0.1	5							
281	UC	2.93	15.51								
	*										

LINE	ID	1	2	3	4	5	6	7	8	9	10
282	KK	SUB20									
283	KM	COMBINE HYDROS AT 21									
284	HC	2									
	*										
285	KK	SUB20									
286	KM	COMBINE HYDROS AT 21									
287	HC	2									
	*										
288	KK	20TO21									
289	KM	ROUTE FLOWS FROM 20 TO 21									
290	RS	4	FLOW	-1							
291	SV	0	295	577	970	1331	1693	2062			
292	SQ	0	3900	7800	11700	15600	19500	23400			
	*										
293	KK	C-21									
294	KM	RUNOFF FROM SUBAREA C-21									
295	BA	4.28									
296	LU	0.75	0.1	10							
297	UC	4.67	14.84								
	*										
298	KK	C-22									
299	KM	RUNOFF FROM SUBAREA C-22									
300	BA	2.21									
301	LU	0.75	0.1	10							
302	UC	1.19	8.00								
	*										
303	KK	SUB21									
304	KM	COMBINE HYDROS AT 21									
305	HC	3									
	*										
306	KK	21TO24									
307	KM	ROUTE FLOWS FROM 21 TO 24									
308	RS	5	FLOW	-1							
309	SV	0	691	1347	2015	2586	3170	3753			
310	SQ	0	4000	8000	12000	16000	20000	24000			
	*										
311	KK	C-24									
312	KM	RUNOFF FROM SUBAREA C-24									
313	BA	3.03									
314	LU	0.75	0.1	20							
315	UC	3.26	9.95								
	*										

LINE	ID	1	2	3	4	5	6	7	8	9	10
316	KK	SUB24									
317	KM	COMBINE HYDROS AT 24									
318	HC	2									
	*										
319	KK	C-23									
320	KM	RUNOFF FROM SUBAREA C-23									
321	BA	4.66									
322	LU	0.75	0.1	10							
323	UC	1.59	6.96								
	*										
324	KK	SUB23									
325	KM	COMBINE HYDROS AT 23									
326	HC	2									
	*										
327	KK	23TO26									
328	KM	ROUTE FLOWS FROM 23 TO 26									
329	RS	6	FLOW	-1							
330	SV	0	585	1101	1853	2727	3600	4433			
331	SQ	0	4000	8000	12000	16000	20000	24000			
	*										
332	KK	C-26									
333	KM	RUNOFF FROM SUBAREA C-26									
334	BA	3.25									
335	LU	0.75	0.1	10							
336	UC	2.24	10.57								
	*										
337	KK	SUB26									
338	KM	COMBINE HYDROS AT 26									
339	HC	2									
	*										
340	KK	26TO25									
341	KM	ROUTE HYDROS FROM 26 TO 25									
342	RS	2	FLOW	-1							
343	SV	0	243	344	424	532	678	845			
344	SQ	0	4000	8000	12000	16000	20000	24000			
	*										
345	KK	C-25									
346	KM	RUNOFF FROM SUBAREA C-25									
347	BA	7.19									
348	LU	0.75	0.1	5							
349	UC	11.31	16.20								
	*										

LINE	ID	1	2	3	4	5	6	7	8	9	10
350	KK	SUB25									
351	KM	COMBINE HYDROS AT 28									
352	HC	2									
	*										
353	KK	25TO28									
354	KM	ROUTE HYDROS FROM 25 TO 28									
355	RS	5	FLOW	-1							
356	SV	0	687	1088	1401	1705	2012	2415			
357	SQ	0	4100	8200	12300	16400	20500	24600			
	*										
358	KK	C-28									
359	KM	RUNOFF FROM SUBAREA C-28									
360	BA	5.39									
361	LU	0.75	0.1	20							
362	UC	5.96	11.10								
	*										
363	KK	SUB28									
364	KM	COMBINE HYDROS AT 28									
365	HC	2									
	*										
366	KK	28TO27									
367	KM	ROUTE HYDROS FROM 28 TO 27									
368	RS	2	FLOW	-1							
369	SV	0	246	374	440	494	539	603			
370	SQ	0	4100	8200	12300	16400	20500	24600			
	*										
371	KK	C-27									
372	KM	RUNOFF FROM SUBAREA C-27									
373	BA	5.85									
374	LU	0.75	0.1	0							
375	UC	4.98	10.51								
	*										
376	KK	SUB27									
377	KM	COMBINE HYDROS AT 30									
378	HC	2									
	*										
379	KK	27TO29									
380	KM	ROUTE HYDROS FROM 27 TO 29									
381	RS	3	FLOW	-1							
382	SV	0	328	537	691	820	957	1090			
383	SQ	0	4200	8400	12600	16800	21000	25200			
	*										

## HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
384	KK	C-29									
385	KM	RUNOFF FROM SUBAREA C-29									
386	BA	3.52									
387	LU	0.75	0.1	0							
388	UC	2.34	8.57								
	*										
389	KK	SUB29									
390	KM	COMBINE HYDROS AT 30									
391	HC	2									
	*										
392	KK	29TO30									
393	KM	ROUTE HYDROS FROM 29 TO 30									
394	RS	1	FLOW	-1							
395	SV	0	105	201	294	371	459	549			
396	SQ	0	4100	8200	12300	16400	20500	24600			
	*										
397	KK	C-30									
398	KM	RUNOFF FROM SUBAREA C-30									
399	BA	8.15									
400	LU	0.75	0.1	15							
401	UC	3.83	16.64								
	*										
402	KK	SUB30									
403	KM	COMBINE HYDROS AT 30									
404	HC	2									
	*										
405	ZZ										



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*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JUN 1998
*   VERSION 4.1
*
* RUN DATE 17AUG02 TIME 10:21:14
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****

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KLOTZ ASSOCIATES, INC.  
 CHOCOLATE BAYOU WATERSHED, 100-YR. HYDROGRAPH FOR EXISTING CONDITION  
 BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 FILENAME: CHOC100R.IH1..Revised to reflect changes to Tc & R

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6 IO      OUTPUT CONTROL VARIABLES
          IPRNT      5  PRINT CONTROL
          IPLOT      0  PLOT CONTROL
          QSCAL      0.  HYDROGRAPH PLOT SCALE

```

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IT        HYDROGRAPH TIME DATA
          NMIN      15  MINUTES IN COMPUTATION INTERVAL
          IDATE     1JAN92  STARTING DATE
          ITIME     0000  STARTING TIME
          NQ        300  NUMBER OF HYDROGRAPH ORDINATES
          NDDATE    4JAN92  ENDING DATE
          NDTIME    0245  ENDING TIME
          ICENT     19  CENTURY MARK

          COMPUTATION INTERVAL .25 HOURS
          TOTAL TIME BASE     74.75 HOURS

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ENGLISH UNITS
DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH  INCHES
LENGTH, ELEVATION  FEET
FLOW               CUBIC FEET PER SECOND
STORAGE VOLUME     ACRE-FEET
SURFACE AREA       ACRES
TEMPERATURE        DEGREES FAHRENHEIT

```

RUNOFF SUMMARY  
 FLOW IN CUBIC FEET PER SECOND  
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	C-03	1777.	15.50	1698.	1196.	530.	5.84		
HYDROGRAPH AT	C-04	843.	15.50	775.	479.	189.	2.02		
2 COMBINED AT	SUB4	2620.	15.50	2473.	1675.	719.	7.86		
ROUTED TO	4TO9	2423.	21.50	2321.	1652.	716.	7.86		
HYDROGRAPH AT	C-09	938.	16.25	897.	645.	292.	3.13		
2 COMBINED AT	SUB9	3235.	21.00	3106.	2267.	1007.	10.99		
HYDROGRAPH AT	C-05	1228.	14.25	1113.	646.	247.	2.64		
ROUTED TO	5TO10	1148.	16.50	1071.	645.	247.	2.64		
HYDROGRAPH AT	C-10	953.	14.25	890.	567.	231.	2.44		
2 COMBINED AT	SUB10	2052.	16.00	1932.	1212.	479.	5.08		
2 COMBINED AT	SUB10	4866.	20.25	4675.	3432.	1486.	16.07		
ROUTED TO	10TO12	4692.	24.25	4542.	3369.	1478.	16.07		
HYDROGRAPH AT	C-12	1118.	16.00	1093.	851.	425.	4.74		
2 COMBINED AT	SUB12	5609.	24.00	5440.	4130.	1903.	20.81		
HYDROGRAPH AT	C-01	1069.	15.75	1047.	823.	415.	4.58		
ROUTED TO	1TO6	973.	28.00	958.	798.	411.	4.58		
HYDROGRAPH AT	C-06	1447.	17.50	1358.	922.	389.	4.24		
2 COMBINED AT	SUB6	1943.	23.50	1925.	1659.	801.	8.82		
HYDROGRAPH AT	C-02	1275.	14.50	1226.	868.	388.	4.16		
ROUTED TO	2TO6	1182.	20.25	1148.	860.	388.	4.16		
2 COMBINED AT	SUB6	3087.	21.50	3055.	2519.	1188.	12.98		
HYDROGRAPH AT	C-07	1162.	15.00	1057.	628.	242.	2.65		
2 COMBINED AT	SUB7	3983.	18.50	3920.	3119.	1430.	15.63		
ROUTED TO	7TO8	3629.	30.25	3580.	2994.	1421.	15.63		
HYDROGRAPH AT	C-08	3558.	16.50	3322.	2190.	904.	9.77		
2 COMBINED AT	SUB8	5437.	26.25	5373.	4795.	2325.	25.40		
ROUTED TO	8TO11	5394.	29.50	5349.	4744.	2300.	25.40		
HYDROGRAPH AT	C-11	1033.	15.25	971.	645.	271.	2.90		
2 COMBINED AT	SUB11	5873.	26.50	5851.	5228.	2571.	28.30		
2 COMBINED AT	SUB12	11374.	24.75	11210.	9348.	4474.	49.11		
ROUTED TO	12TO13	11202.	29.50	11044.	9250.	4422.	49.11		
HYDROGRAPH AT	C-13A	1985.	14.75	1783.	1020.	385.	4.17		
DIVERSION TO	DV13A	993.	14.75	891.	510.	192.	4.17		
HYDROGRAPH AT	SUB13A	993.	14.75	891.	510.	192.	4.17		
ROUTED TO	13ATOB	782.	24.25	748.	477.	192.	4.17		

W. FORK

N. 46.13

Chocolate Bayou Rev. Exist. CHOC100R.IH1

HYDROGRAPH AT	C-13B	1458.	15.50	1344.	840.	334.	3.62
2 COMBINED AT	SUB13B	1743.	21.75	1681.	1260.	527.	7.79
2 COMBINED AT	SUB13B	12366.	28.50	12172.	10181.	4948.	56.90
ROUTED TO	13TO15	12308.	30.00	12124.	10146.	4935.	56.90
HYDROGRAPH AT	C-15	1262.	15.75	1206.	853.	379.	4.17
2 COMBINED AT	SUB15	12953.	29.75	12756.	10687.	5313.	61.07
HYDROGRAPH AT	C-14	3248.	15.75	3029.	1966.	805.	8.80
HYDROGRAPH AT	RECALL	993.	14.75	891.	510.	192.	.00
2 COMBINED AT	SUB14	4216.	15.50	3903.	2473.	997.	8.80
DIVERSION TO	DIV14	2108.	15.50	1952.	1237.	499.	8.80
HYDROGRAPH AT	SUB14	2108.	15.50	1952.	1237.	499.	8.80
ROUTED TO	14TO15	1542.	28.50	1524.	1185.	497.	8.80
HYDROGRAPH AT	C-16	2029.	14.25	1865.	1128.	442.	4.80
2 COMBINED AT	SUB15	2816.	18.75	2707.	2234.	939.	13.60
2 COMBINED AT	SUB15	15137.	29.25	14902.	12296.	6252.	74.67
ROUTED TO	15TO18	15066.	31.25	14834.	12251.	6206.	74.67
HYDROGRAPH AT	C-18	1450.	15.25	1371.	921.	391.	4.15
2 COMBINED AT	SUB18	15647.	31.00	15410.	12755.	6597.	78.82
ROUTED TO	18TO17	15384.	36.00	15185.	12572.	6463.	78.82
HYDROGRAPH AT	C-17	1161.	20.50	1153.	1039.	668.	9.91
2 COMBINED AT	SUB17	16292.	36.00	16099.	13402.	7131.	88.73
ROUTED TO	17TO19	15858.	42.00	15597.	13248.	6993.	88.73
HYDROGRAPH AT	C-19	2120.	17.00	2088.	1712.	917.	10.62
2 COMBINED AT	SUB19	16806.	41.75	16545.	14092.	7910.	99.35
ROUTED TO	19TO20	16656.	45.50	16400.	14044.	7645.	99.35
HYDROGRAPH AT	RECALL	2108.	15.50	1952.	1237.	499.	.00
ROUTED TO	14TO31	1746.	25.25	1688.	1206.	498.	.00
HYDROGRAPH AT	C-31	1240.	14.75	1157.	739.	301.	3.26
2 COMBINED AT	SUB31	2465.	24.00	2391.	1864.	799.	3.26
ROUTED TO	31TO20	2335.	31.00	2280.	1820.	789.	3.26
HYDROGRAPH AT	C-20	1119.	16.00	1069.	755.	336.	3.69
2 COMBINED AT	SUB20	2886.	30.00	2829.	2406.	1125.	6.95
2 COMBINED AT	SUB20	17717.	45.00	17495.	15078.	8770.	106.30
ROUTED TO	20TO21	17693.	46.25	17470.	15071.	8701.	106.30
HYDROGRAPH AT	C-21	1337.	17.25	1269.	896.	395.	4.28
HYDROGRAPH AT	C-22	1163.	14.00	1028.	560.	207.	2.21
3 COMBINED AT	SUB21	17966.	46.00	17746.	15333.	9303.	112.79
ROUTED TO	21TO24	17921.	47.75	17698.	15319.	9128.	112.79

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H.A.F.S

S.  
H.A.F.S

BORNER

## Chocolate Bayou Rev. Exist. CHOC100R.IH1

HYDROGRAPH AT	C-24	1331.	15.50	1217.	744.	291.	3.03
2 COMBINED AT	SUB24	17996.	47.75	17774.	15395.	9419.	115.82
HYDROGRAPH AT	C-23	2695.	14.25	2327.	1205.	435.	4.66
2 COMBINED AT	SUB23	18028.	47.75	17806.	15431.	9854.	120.48
ROUTED TO	23TO26	17943.	50.25	17718.	15410.	9695.	120.48
HYDROGRAPH AT	C-26	1360.	15.00	1251.	770.	304.	3.25
2 COMBINED AT	SUB26	18010.	50.25	17786.	15480.	9999.	123.73
ROUTED TO	26TO25	18003.	50.75	17778.	15479.	9944.	123.73
HYDROGRAPH AT	C-25	1908.	23.00	1831.	1381.	643.	7.19
2 COMBINED AT	SUB25	18410.	50.50	18186.	15890.	10587.	130.92
ROUTED TO	25TO28	18397.	51.50	18174.	15887.	10413.	130.92
HYDROGRAPH AT	C-28	2085.	18.00	1938.	1270.	516.	5.39
2 COMBINED AT	SUB28	18534.	51.25	18311.	16042.	10929.	136.31
ROUTED TO	28TO27	18534.	51.50	18312.	16041.	10866.	136.31
HYDROGRAPH AT	C-27	2325.	17.00	2140.	1346.	531.	5.85
2 COMBINED AT	SUB27	18651.	51.50	18431.	16181.	11398.	142.16
ROUTED TO	27TO29	18648.	51.75	18426.	16180.	11309.	142.16
HYDROGRAPH AT	C-29	1709.	14.75	1526.	859.	321.	3.52
2 COMBINED AT	SUB29	18681.	51.75	18460.	16223.	11630.	145.68
ROUTED TO	29TO30	18676.	52.00	18455.	16222.	11595.	145.68
HYDROGRAPH AT	C-30	2335.	16.75	2241.	1636.	750.	8.15
2 COMBINED AT	SUB30	19027.	52.00	18809.	16614.	12345.	153.83

\*\*\* NORMAL END OF HEC-1 \*\*\*

```
*****  
* HEC-2 WATER SURFACE PROFILES *  
* *  
* Version 4.6.2; May 1991 *  
* *  
* RUN DATE 25AUG02 TIME 17:21:53 *  
*****
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*****  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET, SUITE D *  
* DAVIS, CALIFORNIA 95616-4687 *  
* (916) 756-1104 *  
*****
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      X   X  XXXXXXXX  XXXXX          XXXXX  
      X   X  X        X   X          X   X  
      X   X  X        X           X  
      XXXXXXXX  XXXX  X           XXXXX  XXXXX  
      X   X  X        X           X  
      X   X  X        X   X          X  
      X   X  XXXXXXXX  XXXXX          XXXXXXXX
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25AUG02 17:21:53

THIS RUN EXECUTED 25AUG02 17:21:53

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

T1 CHOCOLATE BAYOU..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
 T3 FILENAME: CHOCLATY.IH2.....w/ 900 ac-ft det. @ FM1462.....10 YEAR FREQUENCY  
 T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

NOTES\*\*\*\*\*  
 REVISED MODEL INCLUDES 2000 BAKER & LAWSON SURVEY SECTIONS AND REVISED  
 BRIDGE SECTIONS  
 MODEL KEYED IN FROM 27 MAY 88 RUN DATE FEMA MODEL  
 ORIGINAL INPUT DATA PROVIDED BY BRAZORIA COUNTY FLOOD PLAIN ADMINISTRATOR  
 \*\*\*\*\*

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2							13	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1							
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38	43	1	26	42	23	24	63	14	60
	39	4								
J5	LPRNT	NUMSEC	*****REQUESTED SECTION NUMBERS*****							
	-10	-10								

NC	.051	.035	.035	.1	.3					
QT	3	10536	13000	18887						
X1	36	38	12699	13261						
GR	25.4	10292	25.4	10293	10.2	10427	8.2	10524	9.4	11581
GR	12.6	11993	7	12450	7.2	12644	5.4	12699	0	12721
GR	-4	12800	-11	12880	-16.4	12961	-11	13040	-4	13120
GR	0	13202	4.6	13261	5.4	13360	3	13564	0	13605
GR	0	14212	3.4	14221	3.8	14384	4.2	14627	5.2	14913
GR	7.2	15460	7.8	15790	8.2	16128	8	16456	8	16577
GR	8.7	16858	9.3	17506	10.1	18324	11.1	18982	10.7	19574
GR	10.3	19970	11.3	20366	11.4	20556				

## Chocolate Bayou 900 ac-ft det at FM 1462 (CHOCLATY.IH2)

25AUG02 17:21:53

PAGE 2

QT	3	10475	12768	18575						
X1	35	20	9787	10064	3900	4600	4640			
GR	12	9491	12	9492	10.2	9719	7.2	9753	6.8	9787
GR	0	9811	-9	9835	-18	9875	-18	9985	-9	10025
GR	0	10049	6.4	10064	6.4	10255	0	10290	-18	10390
GR	0	10491	6	10508	8	10615	10.4	10685	10.4	10700
X1	34	20	6756	7236	4150	2800	3500			
GR	23	5463	23	5464	21	5470	20.8	6128	13	6161
GR	13	6435	9.8	6491	7.8	6756	.7	6781	-4.8	6889
GR	-19.3	6998	-9.6	7106	.7	7216	5.8	7236	6.6	8416
GR	9.9	8748	10.1	9242	10.1	10245	11.5	10722	11.5	10877
X1	33	23	4785	5156	3800	4300	6100			
X3				4785	13.6	5877	7.4			
GR	16.2	3828	14.6	4406	13.6	4785	0	4884	-18.1	5012
GR	0	5140	7.6	5156	6.4	5334	7	5392	0	5567
GR	0	5641	4.2	5869	7.4	5877	0	5896	5.4	5981
GR	6.2	6273	8	6456	11.8	6834	12.4	7158	12.4	7313
GR	15.8	7655	16	8326	16.4	8875				
X1	32	26	5806	6135	2000	2100	2590			
X3				5806	8.2	6500	6			
GR	16.6	3335	16.6	3336	16.6	3337	16.2	3710	15.6	4010
GR	15.4	4229	9.6	4637	9	5019	7.8	5357	8	5710
GR	8.2	5806	0	5814	-5	5890	-17.7	5967	-5	6045
GR	0	6121	4.6	6135	6	6500	5.4	6554	5.6	6595
GR	8.6	6731	12.4	6973	16	7434	15.4	7835	17.4	8106
GR	17.8	8725								
X1	31	32	3925	4143	2750	3500	3210			
X3				3357	8	4143	8			
GR	17.4	1000	14	2285	14	2566	9.6	2941	8	3357
GR	2.6	3578	4	3673	2.6	3724	4	3880	4.2	3925
GR	0	3933	-5.6	3945	-17.1	3955	-17.1	4100	-10	4106
GR	0	4116	3.2	4136	8	4143	8	4149	5.6	4173
GR	5.6	4200	13.8	4352	15.4	4575	13.2	4831	15.2	5084
GR	16.6	5317	17.4	5576	16.8	6278	17	6874	17.8	7000
GR	17.5	7692	17.9	8020						
QT	3	10371	12631	18300						
X1	30.5	34	5269	5491	2280	2050	2150			
GR	20.4	3466	20.4	3467	19.4	3513	16.6	3543	18.4	3568
GR	16.8	4713	14.2	4921	16.8	5143	12.4	5269	0	5289
GR	-8	5299	-15.6	5309	-15.6	5384	-15.6	5459	-8	5469
GR	0	5479	3.4	5491	4.2	5649	7.4	5715	8.2	5954





Chocolate Bayou 900 ac-ft det at FM 1462 CHOCLATY.IH2)

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PAGE 4

QT	3	10177	12389	17928						
X1	27	43	10118	10279	5150	4940	5020			
X3				8184	17.1	12703	15.4			
GR	26	6311	26	6312	26	6313	23.8	6457	22	6864
GR	21	7123	20	7382	19.6	7624	19	7857	18.6	8105
GR	17.1	8184	16.3	8363	14.9	8660	13.9	9002	13.3	9299
GR	13	9623	12.4	10040	4.6	10118	0	10136	-7.4	10191
GR	0	10246	6.6	10279	10.5	10450	15	12550	15.4	12703
GR	15.2	12724	16.2	13410	16.8	13633	17.2	13654	16.2	13679
GR	17.2	14219	17.6	14528	16.8	15085	20.6	15689	20.4	16037
GR	20.4	16304	21	16533	21	16781	21.4	17027	21.4	17230
GR	20.7	17241	21.5	17699	22.5	18240				
X1	26	33	9866	9986	3800	5850	6090			
GR	24.2	5615	24.2	5616	24.2	5617	23	6264	22	7005
GR	21.6	7478	21.4	7767	21.2	8102	20.4	8454	20	8505
GR	19.7	8588	19.1	9028	16.5	9561	13.7	9735	12.5	9857
GR	8.9	9866	.1	9895	-5.5	9900	-12.7	9914	-12.7	9954
GR	-5.5	9969	.1	9973	8.5	9986	13.3	10189	13.9	10713
GR	14.1	11474	15.5	11828	15.1	12223	15.5	12385	15.5	12676
GR	16	12724	16.8	12998	19	13900				
X1	25.3	34	7860	8048	1600	1750	2300			
GR	21.3	5313	20.7	5699	19.9	5894	19.1	6297	18.1	6471
GR	15.5	6792	14.7	7295	13.1	7559	12.9	7728	11.9	7850
GR	12	7860	11.3	7881	1.7	7926	-14.9	7950	-14.9	8028
GR	1.8	8040	11.1	8048	12.5	8256	13.1	8400	14.1	8613
GR	15.3	8853	15.3	9050	16.1	9198	16.5	9462	16.9	9597
GR	17	9645	17.4	10208	19.2	10595	18.8	11031	19.2	11616
GR	20	11964	19.2	12269	19.2	12462	20.6	12722		
NC				.3	.5					
X1	25.2				100	100	100			
X3	10							11	11	
CR 171										
SB	1.05	1.56	2.8		86	8	2440	1	-14.9	-14.9
STATION - CR 171										
X1	25.1	34	7860	8048	20	20	20			
X2			1	10	12					
X3	10							12	12	
BT	-29	5313	21.3		5699	20.7		5894	19.9	
BT		6297	19.1		6471	18.1		6792	15.5	
BT		7295	14.7		7559	13.1		7728	12.9	
BT		7860	12.3		7881	12.1		8048	12.5	
BT		8256	12.5		8400	13.1		8613	14.1	

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BT		8853	15.3		9050	15.3		9198	16.1	
BT		9462	16.5		9597	16.9		9645	17	
BT		10208	17.4		10595	19.2		11031	18.8	
BT		11616	19.2		11964	20		12269	19.2	
BT		12462	19.2		12722	20.6				
GR	21.3	5313	20.7	5699	19.9	5894	19.1	6297	18.1	6471
GR	15.5	6792	14.7	7295	13.1	7559	12.9	7728	11.9	7850
GR	12	7860	11.3	7881	1.7	7926	-14.9	7950	-14.9	8028
GR	1.8	8040	11.1	8048	12.5	8256	13.1	8400	14.1	8613
GR	15.3	8853	15.3	9050	16.1	9198	16.5	9462	16.9	9597
GR	17	9645	17.4	10208	19.2	10595	18.8	11031	19.2	11616
GR	20	11964	19.2	12269	19.2	12462	20.6	12722		

X1 25 50 50 50

2000 BAKER & LAWSON SURVEY SECTION

X1	24.1	17	10717.8	10851.6	1850	1100	2250			
GR	26.99	10000.0	27.23	10093.8	27.63	10187.8	27.95	10279.0	28.29	10371.1
GR	28.63	10464.8	4.51	10717.8	1.32	10721.4	-20.51	10778.1	0.47	10820.9
GR	10.87	10851.6	28.99	10916.0	28.62	11003.5	28.32	11093.9	28.16	11183.3
GR	27.88	11272.1	27.73	11359.6						

MOPAC R.R. CROSSING AT CHOCOLATE BAYOU  
2000 BAKER & LAWSON SURVEY SECTION

X1	24	17	10719.4	10839.6	50	50	50			
GR	26.99	10000.0	27.23	10093.8	27.63	10187.8	27.95	10279.0	28.29	10371.1
GR	28.63	10464.8	5.61	10719.4	0.39	10725.8	-21.28	10779.6	0.32	10829.1
GR	7.42	10839.6	28.99	10912.7	28.62	11000.1	28.32	11090.6	28.16	11179.9
GR	27.88	11268.8	27.73	11356.3						

NC .1 .1 .08 .1 .3  
QT 3 10173 12362 17866

X1	23	42	4606	4840	6400	5800	7380			
X3				3590	22.4	7632	21.7			
GR	25.2	2504	24.6	2523	23.8	2665	24.8	2671	23.6	2846
GR	23	3181	21.6	3354	22.2	3459	22.2	3533	22.4	3590
GR	22.2	3596	20	4108	13.8	4520	15.6	4606	.4	4640
GR	-6.8	4650	-7.3	4660	-7.3	4670	-7.3	4680	-3.8	4690
GR	.4	4700	6.4	4712	11.4	4840	14.2	4903	16.2	5119
GR	16.8	5326	16.6	5500	16.4	5708	16.6	5825	17.2	6065
GR	17.8	6295	18.2	6450	18.8	6563	19.4	6819	20.2	7109
GR	21.1	7347	21.7	7632	21.7	8096	21.3	8553	21.9	8774
GR	23.1	9264	23.7	9720						

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X1	23.1	36	4606	4840	10	10	10			
X3				3590	22.4	7632	21.7			
GR	25.2	2504	24.6	2523	23.8	2665	24.8	2671	23.6	2846
GR	23	3181	21.6	3354	22.2	3459	22.2	3533	22.4	3590
GR	22.2	3596	20	4108	13.8	4520	15.6	4606	1.1	4662
GR	1.1	4794	11.4	4840	14.2	4903	16.2	5119	16.8	5326
GR	16.6	5500	16.4	5708	16.6	5825	17.2	6065	17.8	6295
GR	18.2	6450	18.8	6563	19.4	6819	20.2	7109	21.1	7347
GR	21.7	7632	21.7	8096	21.3	8553	21.9	8774	23.1	9264
GR	23.7	9720								

X1	23.2	42	4606	4840	10	10	10			
X3				3590	22.4	7632	21.7			
GR	25.2	2504	24.6	2523	23.8	2665	24.8	2671	23.6	2846
GR	23	3181	21.6	3354	22.2	3459	22.2	3533	22.4	3590
GR	22.2	3596	20	4108	13.8	4520	15.6	4606	.4	4640
GR	-6.8	4650	-7.3	4660	-7.3	4670	-7.3	4680	-3.8	4690
GR	.4	4700	6.4	4712	11.4	4840	14.2	4903	16.2	5119
GR	16.8	5326	16.6	5500	16.4	5708	16.6	5825	17.2	6065
GR	17.8	6295	18.2	6450	18.8	6563	19.4	6819	20.2	7109
GR	21.1	7347	21.7	7632	21.7	8096	21.3	8553	21.9	8774
GR	23.1	9264	23.7	9720						

X1	22.3				10	10	10			
X3				3590	22.4	7632	21.7			

X1	22.4				10	10	10			
X3				3590	22.4	7632	21.7			

QT	3	10063	12213	17617						
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X1	22	33	3300	3525	4010	4910	6840			
X3				2534	23.4	4752	21.8			
GR	24.4	1000	24.2	1459	23	2448	23.4	2534	22.4	2618
GR	22.2	2622	19.8	3017	18.8	3147	12.2	3300	10	3312
GR	.4	3360	-3	3369	-6.3	3380	-6.3	3400	-3	3411
GR	.4	3420	14.6	3525	16.6	3587	17.2	3831	16.2	4037
GR	21.2	4432	21.4	4716	21.8	4752	21.4	4805	21.2	4892
GR	20.9	5016	22.1	5256	22.5	5750	23.3	6076	23.7	6573
GR	24.5	7055	24.7	7451	24.9	7943				

X1	21	33	3713	3916	3100	3000	4660			
GR	25.6	1000	25.2	1587	23.2	2239	21.6	2436	16.4	2531
GR	10.8	2556	15.8	2587	22	2628	22.4	2802	20.4	3062
GR	20	3270	22.2	3347	20.6	3425	8.8	3475	19.8	3514
GR	17.2	3592	13.2	3633	10.4	3713	8	3792	1.4	3803
GR	-2.4	3813	-5.6	3818	-5.6	3828	-5.6	3839	-2.4	3844
GR	1.4	3854	6.2	3868	12	3916	17.8	3961	23.2	4300

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GR 24 4471 24 4838 25.5 4840

2000 BAKER & LAWSON SURVEY SECTION

X1	20.3	18	13158.6	13291.1	5250	4250	6570				
GR	26.44	10000.0	27.50	10522.7	25.46	11115.2	25.43	11579.1	21.40	12098.4	
GR	18.10	12567.3	16.41	13118.0	10.20	13158.6	1.74	13179.5	-5.86	13227.6	
GR	4.14	13270.1	14.24	13291.1	8.64	13576.2	21.13	14037.2	22.54	14684.6	
GR	24.24	15097.5	24.60	15626.2	26.00	16127.6					

NC .3 .5

2000 BAKER & LAWSON SURVEY SECTION

X1	20.2	15	10486.1	10735.6	100	100	100				
X3	10							23.7	23.7		
GR	26.92	10000.0	27.30	10093.8	27.67	10188.7	28.12	10284.8	28.31	10384.0	
GR	26.58	10486.1	1.46	10555.4	-4.37	10624.6	1.41	10673.8	23.79	10735.6	
GR	28.04	10841.9	27.72	10936.0	27.43	11030.7	27.19	11126.6	26.78	11226.6	

SH 35

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILE 04/97

SB 1.25 1.56 2.6 49 8 4167 3 -2.90 -4.37

2000 BAKER & LAWSON SURVEY SECTION

STATION - SH 35

X1	20.1	15	10479.6	10726.8	31	31	31				
X2			1	22.2	25.2						
X3	10							25.2	25.2		
BT	-14	10000.0	26.92		10093.8	27.30		10188.7	27.67		
BT		10284.8	28.12		10384.0	28.31		10441.6	28.4		
BT		10560.6	28.6		10600.6	28.5		10668.6	28.2		
BT		10826.9	28.04		10921.0	27.27		11015.7	27.43		
BT		11111.6	27.19		11211.5	26.78					
GR	26.92	10000.0	27.30	10093.8	27.67	10188.7	28.12	10284.8	28.31	10384.0	
GR	26.79	10479.6	1.60	10540.1	-2.90	10600.6	1.74	10665.3	24.97	10726.8	
GR	28.04	10826.9	27.27	10921.0	27.43	11015.7	27.19	11111.6	26.78	11211.5	

2000 BAKER & LAWSON SURVEY SECTION

X1	20	18	13133.8	13269.1	50	50	50				
X3				11588.7	25.02	15130.3	24.20				
GR	26.96	10000.0	27.37	10532.2	24.85	11098.8	25.02	11588.7	19.31	12136.5	
GR	19.37	12644.1	12.37	13133.8	1.63	13165.8	-2.87	13201.0	-0.15	13235.4	
GR	12.08	13269.1	11.43	13303.1	11.76	13695.4	22.19	14212.4	23.66	14755.3	
GR	24.20	15130.3	24.33	15692.6	26.00	16173.1					

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NC				.1	.3						
QT	3	9627	11724	16706							
X1	19	30	5130	5263	3850	4350	6800				
X3				4631	27	6780	26.7				
GR	28.5	2632	27.3	2914	26.5	3305	26.1	3705	25.7	3950	
GR	26	4183	26.6	4410	26.8	4557	27	4631	25.4	4691	
GR	23.3	5051	19.9	5130	3.9	5177	-3.8	5187	-3.8	5197	
GR	3.9	5207	18.1	5263	19.9	5325	20.5	5696	19.1	6197	
GR	26.7	6780	28.5	7301	29.9	7817	29.3	8138	28.5	8360	
GR	28.5	8537	27.9	8651	28.5	8884	28.1	9244	29.1	9338	
X1	18	24	5112	5250	3350	3400	4230				
X3				2700	30	5790	27.6				
GR	30	2700	30	2700	30	2700	30	2700	30	2700	
GR	24.8	4010	23.8	4171	20.4	4780	20.2	4810	19.8	5021	
GR	16.8	5112	3	5137	- .5	5148	-3.3	5163	- .5	5178	
GR	3	5190	20	5250	27	5568	27.6	5790	27	5802	
GR	28	6149	28.4	6700	28.4	7426	29.4	7476			
X1	17.3	31	9985	10135	2200	1800	2300				
X3	10										
GR	29	7893	29	7894	29	8444	29	8757	29	9283	
GR	27.6	9507	25.6	9858	24.6	9909	24.4	9931	24	9945	
GR	26.3	9985	2.2	10033	-5.5	10051	2.2	10082	26.3	10135	
GR	26.3	10136	21	10148	22.4	10278	21.6	10444	22.2	10809	
GR	22.4	11120	23.2	11230	24	11372	24.8	11524	25.2	11672	
GR	25	11831	25.4	12167	27	12726	28.6	13352	29.2	13895	
GR	29.6	14140									
NC				.3	.5						
X1	17.2				100	100	100				
X3	10							25.2	25.2		
CR 172											
SB	1.05	1.56	2.6		9.3	8	2080	2.3	-1.11	-5.5	
2000 BAKER & LAWSON SURVEY SECTION											
STATION - STRUCTURE CH-17-1 (CR 172)											
X1	17.1	16	10414.1	10540.4	24	24	24				
X2			1	23.9	26.5						
X3	10			10394.5	27.17	10639.3	27.48	26.5	26.5		
BT	-14	6477.5	30.00		10000.0	28.78		10076.2	28.54		
BT		10174.9	28.22		10274.4	28.16		10394.5	27.17		
BT		10411.5	26.5		10477.5	26.5		10561.5	26.5		
BT		10639.3	27.48		10738.9	27.16		10847.8	26.48		
BT		10947.9	28.6		13477.5	30.00					
GR	30.00	6477.5	28.78	10000.0	28.54	10076.2	28.22	10174.9	28.16	10274.4	

Chocolate Bayou 900 ac-ft det at FM 1462 CHOCLATY.IH2)

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GR	27.17	10394.5	23.28	10414.1	1.85	10459.8	-1.11	10477.5	1.43	10498.1
GR	23.94	10540.4	27.48	10639.3	27.16	10738.9	26.48	10847.8	28.6	10947.9
GR	30.00	13477.5								

X1	17				50	50	50			
X3				10394.5	27.17	10639.3	27.48			

NC .1 .3

X1	16	30	14918	15028	3350	3300	4290			
GR	30.5	10177	27	13076	26.2	13279	23.6	13409	22.4	13520
GR	22.7	13555	21.9	13832	20.7	14193	21.5	14600	21.3	14819
GR	13.3	14918	3.9	14959	3.7	14970	3.5	14977	3.7	14987
GR	3.9	14996	19.9	15028	23.9	15338	25.3	15616	25.7	16006
GR	26.9	16366	27.3	16585	27.7	16887	28.1	17117	28.3	17390
GR	28.5	17398	29.5	17927	30.1	18393	30.1	19028	30.5	19969

QT 3 9632 11543 16292

X1	15	24	12896	13073	6250	6000	7750			
X3	10			12286	27	15195	31.2			
GR	32	8900	30	9900	30	9900	30	9900	30	9900
GR	28.5	9950	26	12060	15.6	12168	24.8	12211	27	12286
GR	25.6	12491	26.6	12644	24	12896	12.2	12952	7.2	12974
GR	12.2	12996	24.8	13073	26.6	13196	28	13872	30.2	14544
GR	31.2	15195	30.8	15797	31.6	16306	32	16633		

X1	14.3	25	11179	11314	6250	6000	8150			
GR	35	3680	35	3680	35	3680	35	3680	35	3680
GR	32	10032	31.2	10060	30.2	10146	28.2	10680	29.2	11041
GR	29.4	11171	29.4	11179	14.5	11223	11.2	11245	14.5	11266
GR	30.6	11314	30.7	11333	29.8	11466	30.2	11586	30.6	11697
GR	30.1	11899	30.3	12425	30.3	12998	30.7	13560	35	21180

X1	14.2				100	100	100			
X3	10							32.5	32.5	

FM 1462  
SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILE 04/97

SB	1.05	1.56	2.6		30.0	5.3	2257.24	3.0	11.2	11.2
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STATION - STRUCTURE CH-14-1(FM 1462)

X1	14.1	21	11179	11314	32	32	32			
X2			1	31	34					
X3	10							34	34	
BT	-9	10146	30.2		10794	34.2		11090	35.4	
BT		11179	35.3		11314	35.3		11430	35.6	
BT		11608	34.6		11794	34		11899	30.1	

Chocolate Bayou 900 ac-ft det at FM 1462 CHOCLATY.IH2)

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GR	35	3680	32	10032	31.2	10060	30.2	10146	28.2	10680
GR	29.2	11041	29.4	11171	29.4	11179	14.5	11223	11.2	11245
GR	14.5	11266	30.6	11314	30.7	11333	29.8	11466	30.2	11586
GR	30.6	11697	30.1	11899	30.3	12425	30.3	12998	30.7	13560
GR	35	21180								

X1	14				50	50	50			
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NC			.1	.3						
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X1	13	30	7822	7945	3400	3550	4450			
GR	36.8	3908	36.3	3909	36.4	4224	35.4	4869	35.8	5497
GR	35	5578	33.6	5857	30.6	6359	30.6	6530	29.8	7530
GR	30.2	7550	17.8	7809	17.2	7822	10.3	7832	10.3	7841
GR	17.2	7851	23.4	7853	30	7945	30.6	8090	31	8307
GR	30.2	8327	30	8731	30.4	9027	30.8	9343	30	9517
GR	30.6	9570	30.8	10000	32.6	10742	33	11400	36	14000

QT	3	9487	11353	15647						
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X1	12	37	9602	9653	4700	4200	5480			
GR	36	6000	33.3	7250	33.3	7251	33.1	7588	32.1	8000
GR	32.4	8084	31.6	8407	31	8763	31.4	9181	21.2	9602
GR	18.2	9617	13.2	9624	9.2	9629	9.2	9634	13.2	9639
GR	18.2	9646	23.2	9653	24	9776	25	10111	26.2	10523
GR	31	11055	30.8	11532	32.4	11584	30.2	11635	27.6	11681
GR	30.8	11778	31.8	11898	29.2	12201	31.8	12485	31.4	12538
GR	31.5	12546	32.3	13051	33.1	14031	34.3	14522	34.9	14928
GR	35.5	14932	37.3	14943						

QT	3	9241	11078	15137						
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X1	11	23	11475	11592	5200	5200	5990			
GR	37	4000	34.1	8956	33.3	9820	31.3	10716	30.5	11000
GR	32.3	11060	31.5	11314	31.9	11426	29.9	11475	20.1	11517
GR	18.5	11520	16	11527	14	11530	16	11534	18.5	11541
GR	20.1	11544	32.3	11592	31.9	11650	33.9	11960	34.3	12267
GR	33.3	12389	35.1	12838	37	16000				

QT	3	7801	9157	12366						
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X1	10	33	9709	9845	4100	4550	4880			
GR	38	4400	36	4418	36	4419	36	4420	36	4421
GR	35.7	4469	35.1	5064	34.9	5785	34.7	6477	34.1	7188
GR	34.7	7541	33.5	7785	33.5	7959	34.1	8435	32.9	8549
GR	33.7	8573	34.1	8869	34.5	9400	33.3	9591	32.3	9709
GR	24.5	9781	21.1	9784	20	9790	18.1	9796	20	9802
GR	21.1	9809	32.9	9845	33.5	10142	34.7	10549	34.7	10700
GR	34.9	10885	35.9	11133	38	13350				

Chocolate Bayou 900 ac-ft det at FM 1462 CHOCLATY.IH2)

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PAGE 11

X1	9	24	7274	7385	4200	4350	4610			
X3				5619	37.9	7410	35.7			
GR	40	300	37	3300	37.9	5619	34.1	5670	35.3	5946
GR	34.7	6284	35.1	6359	34.9	6498	34.7	6560	34.5	6730
GR	34.5	6849	34.1	7144	33.7	7274	22.7	7303	21.8	7315
GR	22.7	7328	34.1	7385	35.7	7410	33.1	7587	36.9	8119
GR	37.1	8608	36.9	8867	37.5	8997	40	15000		
NC	.08	.08	.06							
QT	3	7204	8516	11374						
X1	8	22	6762	6957	7900	6400	7920			
X3	10									
GR	42	660	39.4	4573	39	5133	37.4	5731	37	6069
GR	37.1	6104	37.5	6288	34.9	6627	35.9	6641	33.9	6762
GR	32	6852	31.2	6884	29	6890	28.2	6894	29	6898
GR	31.2	6905	43.5	6957	42.3	6969	41.7	7145	39.5	7568
GR	41	11894	42	11894						
X1	7.5	35	6353	6462	3800	4100	4210			
X3	10									
GR	42.5	0	41.5	3440	41.4	3441	41.4	3442	40.2	3545
GR	40	3840	39.6	4211	39.4	4628	39	5029	38.8	5287
GR	38.4	5367	37.5	5474	38.1	5891	36.9	6267	39.1	6306
GR	39.5	6328	39.3	6353	29.3	6389	28.6	6392	27.6	6397
GR	28.6	6402	29.3	6405	37.9	6462	36.5	6558	36.1	6688
GR	37.3	6877	37.5	7099	38.5	7736	38.1	8385	38.3	8449
GR	38.3	8547	38.7	9126	40.1	9400	41.5	10400	45	14392
X1	7	32	4967	5327	2670	2670	2750			
X3				2750	44.7	5571	42.6			
GR	48.7	2323	48.7	2324	48.7	2325	47.9	2349	43.9	2373
GR	43.9	2668	46.5	2684	42.9	2692	42.9	2720	44.7	2750
GR	43.4	2827	42.8	3219	42.6	3684	41.8	3981	41.8	4373
GR	39.8	4477	39.4	4967	38.8	5046	27.9	5061	27.2	5067
GR	27.9	5073	34.8	5083	38	5150	41	5327	42.6	5571
GR	41.4	5714	41.6	5887	41.2	6232	42	6507	42.4	7229
GR	42.4	7509	45	11067						
X1	6.890	19	3970	3998	650	750	750			
X3				3943	40.5	3998	39.4			
GR	48.7	1000	43.9	1050	43.9	1295	43.4	1500	41.8	1658
GR	40.3	3500	39.9	3585	39.3	3794	40.3	3908	40.5	3943
GR	39.3	3970	31.8	3983	30.5	3988	31.9	3994	39.4	3998
GR	39	4012	40.6	4174	42.6	4344	45.0	7988		



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NC				.3		.5				
X1	6.88					100	100	100		
X3	10			3943	40.5	3998	39.4	38.2	38.2	
SB	1.05	1.56	2.9		9.4	1	93	.75	30.5	30.5
STATION - STRUCTURE CH-6-1										
X1	6.870	19	3970	3998	16	16	16			
X2			1	37.5	39					
X3	10			3943	40.5	3998	39.4	39	39	
BT	13	1500	43.4		1658	41.8		3500	40.3	
BT	3585	39.9		3794	39.3		3908	40.3		3943
BT	40.5		3970	39.3		3998	39.4		4012	39
BT		4174	40.6		4344	42.6		7988	45.0	
GR	48.7	1000	43.9	1050	43.9	1295	43.4	1500	41.8	1658
GR	40.3	3500	39.9	3585	39.3	3794	40.3	3908	40.5	3943
GR	39.3	3970	31.8	3983	30.5	3988	31.9	3994	39.4	3998
GR	39	4012	40.6	4174	42.6	4344	45.0	7988		
X1	6.86				50	50	50			
X3	10			3943	40.5	3998	39.4	38.2	38.2	
NC				.1		.3				
X1	6.5	28	4508	4675	1450	1230	1600			
X3				2884	43.9	5382	44.1			
GR	46.9	2120	46.9	2121	46.9	2122	44.5	2159	42.5	2204
GR	43.1	2532	43.9	2884	42.9	3181	42.5	3731	40.9	4022
GR	39.3	4345	37.9	4508	32.7	4538	31.4	4543	31.4	4550
GR	32.7	4555	38.3	4675	39.1	4826	40.9	5007	44.1	5382
GR	43.1	5759	43.1	6072	42.5	6127	43.3	6228	43.1	6316
GR	43.3	6428	43.7	6850	45	7287				
QT	3	3035	3638	4866						
X1	6	20	8595	8670	1860	1780	1840			
GR	48.1	5862	46.9	5925	45.9	5945	45.5	6740	44.7	7677
GR	44.5	8241	42.1	8520	40.9	8595	35.3	8623	32.4	8628
GR	35.3	8634	42.3	8670	44.1	8720	43.7	8758	41.5	8790
GR	42.7	9130	43.5	9529	45.3	9740	45.3	9927	46.3	10424
QT	3	2022	2425	3235						

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X1	5.3	16	9745	9852	3150	3050	3300			
X3				8622	46.2	10840	46.6			
GR	48	6750	47.1	6810	47.1	6811	46.6	7347	45.8	8041
GR	46.2	8622	44.6	9420	43.8	9745	35.8	9764	34.2	9776
GR	35.8	9789	44	9852	44.2	10067	45.4	10298	46.6	10840
GR	48	11850								

NC				.3	.5					
X1	5.2	16	9750	9795	100	100	100			
X3	10			8622	46.2	9795	45.5	45.14	45.14	
GR	48	6750	47.1	6810	47.1	6811	46.6	7347	45.8	8041
GR	46.2	8622	45.6	9750	36.5	9751	34.2	9776	36	9794
GR	45.5	9795	44	9852	44.2	10067	45.4	10298	46.6	10840
GR	48	11850								

CR 67

SB	1.05	1.56	2.9		38.4	1	350	.02	34.2	34.2
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2000 BAKER & LAWSON SURVEY SECTION  
STATION - STRUCTURE CH-5-1 (CR 67)

X1	5.1	16	9750	9795	24	24	24			
X2			1	43.5	46.77					
X3	10							46.77	46.77	
BT	-5	8622	46.2		9750	46.98		9776	46.84	
BT		9795	46.77		9852	44				
GR	50.0	6750	47.1	6810	47.1	6811	46.6	7347	45.8	8041
GR	46.2	8622	45.6	9750	36.5	9751	34.2	9776	36	9794
GR	45.5	9795	44	9852	44.2	10067	45.4	10298	46.6	10840
GR	50.0	11850								

X1	5	16	9745	9852	100	100	100			
X3				8622	46.2	9852	44			
GR	50.0	6750	47.1	6810	47.1	6811	46.6	7347	45.8	8041
GR	46.2	8622	44.6	9420	43.8	9745	35.8	9764	34.2	9776
GR	35.8	9789	44	9852	44.2	10067	45.4	10298	46.6	10840
GR	50.0	11850								

NC				.1	.3					
X1	4.69	21	1495	1557	2600	2500	2950			
X3				1480	45.6	1557	44.5			
GR	50	500	50	500	50	500	50	500	50	500
GR	46.2	1000	45.8	1197	43.8	1261	44.8	1352	45.6	1434
GR	45.6	1480	44.8	1495	37.8	1519	36.2	1526	37.8	1535
GR	44.5	1557	44.6	1596	45	1720	45.4	1873	46.2	2000
GR	50	3700								

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NC				.3	.5					
X1	4.68				100	100	100			
X3	10			1480	45.6	1557	44.5	43.7	43.7	
SB	1.05	1.56	2.9		12.2	3	155	2	36.2	36.2
STATION - STRUCTURE CH-4-1										
X1	4.67	17	1495	1557	16	16	16			
X2			1	43	44.5					
X3	10			1480	45.6	1557	44.5	44.5	44.5	
BT	-3	1495	44.8		1497	44.5		1557	44.5	
GR	50	500	46.2	1000	45.8	1197	43.8	1261	44.8	1352
GR	45.6	1434	45.6	1480	44.8	1495	37.8	1519	36.2	1526
GR	37.8	1535	44.5	1557	44.6	1596	45	1720	45.4	1873
GR	46.2	2000	50	3700						
X1	4.66				50	50	50			
X3				1480	45.6	1557	44.5			
NC				.1	.3					
X1	4	18	4299	4456	1400	1200	1500			
GR	51.6	1000	51.6	1931	50.2	2811	50.2	3231	49.6	3971
GR	47.7	4183	46.1	4299	38.3	4378	37	4393	37	4412
GR	38.3	4417	46.3	4456	46.3	4604	47.3	4853	48.7	5417
GR	48.8	5837	50.4	6802	51	7489				
X1	3	17	4047	4138	3480	3600	3800			
X3	10									
GR	52.7	1000	52.1	1422	50.9	2079	49.1	2744	47.3	3580
GR	46.6	3889	46.4	4047	41	4076	38.7	4088	38.7	4098
GR	41	4110	46.8	4138	46.6	4235	46.4	4917	47.2	5067
GR	48	5153	51	7000						
QT	3	1669	1985	2620						
X1	2.03	20	6605	6710	3620	3770	4130			
X3				6517	51.1	7213	51.1			
GR	57.4	3776	52.4	3808	53.2	3918	52.4	4465	52.2	4998
GR	52.1	5050	51.5	5799	51.9	5915	50.1	6414	51.1	6517
GR	49.9	6575	47.9	6605	44	6640	42.1	6656	40.9	6665
GR	43.1	6680	48.1	6710	50.1	6965	51.1	7213	52	11200

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NC			.3		.5					
X1	2.02	20	6605	6710	200	200	200			
X3	10			6517	51.1	7213	51.1	48.80	48.80	
GR	57.4	3776	52.4	3808	53.2	3918	52.4	4465	52.2	4998
GR	52.1	5050	51.5	5799	51.9	5915	50.1	6414	51.1	6517
GR	49.9	6575	47.9	6605	44.0	6640	42.1	6656	40.9	6665
GR	43.1	6680	48.1	6710	50.1	6965	51.1	7213	52.0	11200

CR 72

SB	1.05	1.56	2.8		4.2	1.7	118	1.5	40.9	40.9
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STATION - STRUCTURE CH-2-1 (CR 72)

X1	2.01	20	6605	6710	24	24	24			
X2			1	48.10	49.50					
X3	10			6517	51.1	7213	51.1	49.50	49.50	

2000 BAKER & LAWSON SURVEY SECTION

BT	-15	3776	57.4		3808	52.4		3918	53.2	
BT		4465	52.4		4998	52.2		5050	52.1	
BT		5799	51.5		5915	51.9		6414	50.1	
BT		6517	51.1		6608.8	49.71		6703.1	49.50	
BT		6795.4	49.51		7213	51.1		11200	52	
GR	57.4	3776	52.4	3808	53.2	3918	52.4	4465	52.2	4998
GR	52.1	5050	51.5	5799	51.9	5915	50.1	6414	51.1	6517
GR	49.9	6575	47.9	6605	44	6640	42.1	6656	40.9	6665
GR	43.1	6680	48.1	6710	50.1	6965	51.1	7213	52	11200

X1	2	20	6605	6710	100	100	100			
X3				6517	51.1	7213	51.1			
GR	57.4	3776	52.4	3808	53.2	3918	52.4	4465	52.2	4998
GR	52.1	5050	51.5	5799	51.9	5915	50.1	6414	51.1	6517
GR	49.9	6575	47.9	6605	44	6640	42.1	6656	40.9	6665
GR	43.1	6680	48.1	6710	50.1	6965	51.1	7213	52	11200

NC	.07	.07	.05							
X1	1	19	3766	3820	2900	4400	3870			
X3				3766	50.7	3987	52.3			
GR	53.8	2274	53.1	2520	52.3	3051	52.1	3158	52.1	3433
GR	51.1	3569	49.1	3671	50.7	3735	50.7	3766	45.7	3789
GR	44.6	3792	44.6	3796	45.7	3799	50.5	3820	51.5	3900
GR	52.3	3987	51.7	4093	53.1	4242	53.5	4250		

RAIL ROAD Nr SH 6  
2000 BAKER & LAWSON SURVEY SECTION

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X1	0.8	19	10382.4	10435.2	1700	1700	1700			
GR	59.00	8406.0	57.05	8406.0	57.05	10000.0	57.01	10090.7	56.86	10181.5
GR	56.88	10270.7	52.89	10367.8	50.29	10382.4	46.44	10401.5	44.98	10406.0
GR	46.23	10410.7	49.86	10435.2	54.86	10451.7	56.79	10550.5	56.67	10642.1
GR	56.86	10733.9	56.68	10810.2	56.68	12406.0	59.00	12406.0		

2000 BAKER & LAWSON SURVEY SECTION

X1	0.5	21	10519.6	10556.1	680	680	680			
X3				10358.1	52.73	10638.9	52.82			
GR	59.00	9130.5	54.00	9130.5	54.00	9330.5	52.21	10000.0	51.88	10092.3
GR	51.89	10100.2	52.13	10172.4	52.39	10265.9	52.73	10358.1	50.16	10519.6
GR	47.94	10525.9	47.44	10530.5	48.16	10537.2	49.68	10556.1	52.82	10638.9
GR	52.74	10732.1	52.82	10826.5	52.92	10916.8	54.00	12930.5	56.00	13030.5
GR	59.00	13030.5								

NC .3 .5

2000 BAKER & LAWSON SURVEY SECTION

X1	0.4	22	10464.2	10517.4	200	200	200			
X3	10							54.38	54.38	
GR	59.00	9074.6	54.00	9074.6	54.00	9308.7	52.21	10000.0	51.88	10092.3
GR	51.89	10100.2	52.13	10172.4	52.39	10265.9	52.73	10358.1	52.11	10459.8
GR	50.75	10464.2	46.55	10474.6	47.07	10508.7	50.79	10517.4	52.32	10542.6
GR	52.82	10708.6	52.74	10801.8	52.82	10896.2	52.92	10986.5	54.00	12908.7
GR	56.00	12974.6	59.00	12974.6						

SH 6

SB	1.05	1.56	2.8		25	5.3	227.85	2.0	46.55	46.55
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2000 BAKER & LAWSON SURVEY SECTION

STATION - SH 6										
X1	0.3	23	10456.6	10512.0	120	120	120			
X2			1	53.38	55.38					
X3	10							55	55	
BT	-4	10358.1	52.73		10435.9	55.62		10520.2	55.38	
BT		10612.2	52.82							
GR	59.00	9086.7	54.00	9086.7	54.00	9286.7	52.21	10000.0	51.88	10092.3
GR	51.89	10100.2	52.13	10172.4	52.39	10265.9	52.73	10358.1	52.00	10452.8
GR	51.99	10456.6	46.87	10469.9	46.55	10486.7	47.38	10499.2	51.42	10512.0
GR	52.54	10515.3	52.82	10612.2	52.74	10705.4	52.82	10799.8	52.92	10890.1
GR	54.00	12886.7	56.00	12986.7	59.00	12986.7				

2000 BAKER & LAWSON SURVEY SECTION

X1	0.2	21	10519.6	10556.1	60	60	60			
X3				10358.1	52.73	10638.9	52.82			
GR	59.00	9130.5	54.00	9130.5	54.00	9330.5	52.21	10000.0	51.88	10092.3
GR	51.89	10100.2	52.13	10172.4	52.39	10265.9	52.73	10358.1	50.16	10519.6
GR	47.94	10525.9	47.44	10530.5	48.16	10537.2	49.68	10556.1	52.82	10638.9
GR	52.74	10732.1	52.82	10826.5	52.92	10916.8	54.00	12930.5	56.00	13030.5

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GR 59.00 13030.5

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T1 CHOCOLATE BAYOU..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: CHOCOLAT.IH2.....25 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3							14	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							

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T1 CHOCOLATE BAYOU..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: CHOCOLAT.IH2.....100 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		4							15	
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1							



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THIS RUN EXECUTED 25AUG02 17:21:55

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

L REVISED BY KLOTZ ASSOC

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
36.000	10536.00	13.00	.33	-16.40	5.40	4.60	11.40	3536.63	33.57	.00	10153.68
36.000	13000.00	14.00	.34	-16.40	5.40	4.60	11.40	3884.86	29.88	.00	10162.50
36.000	18887.00	15.00	.43	-16.40	5.40	4.60	11.40	5084.89	26.92	.00	10171.32
*	35.000	10475.00	13.00	.86	-18.00	6.80	6.40	5786.32	55.24	4640.00	1209.00
*	35.000	12768.00	14.00	.98	-18.00	6.80	6.40	6875.89	53.85	4640.00	1209.00
*	35.000	18575.00	15.00	1.34	-18.00	6.80	6.40	9755.74	52.52	4640.00	1209.00
34.000	10475.00	13.03	.65	-19.30	7.80	5.80	11.50	6324.78	60.38	3500.00	4716.07
34.000	12768.00	14.03	.68	-19.30	7.80	5.80	11.50	6945.27	54.40	3500.00	4720.33
34.000	18575.00	15.05	.86	-19.30	7.80	5.80	11.50	9164.19	49.34	3500.00	4724.62
33.000	10475.00	13.06	.81	-18.10	13.60	7.60	16.40	5216.90	49.80	6100.00	2589.43
33.000	12768.00	14.06	.87	-18.10	13.60	7.60	16.40	5896.08	46.18	6100.00	2868.12
33.000	18575.00	15.09	1.11	-18.10	13.60	7.60	16.40	7978.07	42.95	6100.00	3356.70
32.000	10475.00	13.07	1.03	-17.70	8.20	4.60	17.80	6545.89	62.49	2590.00	2665.75
32.000	12768.00	14.08	1.10	-17.70	8.20	4.60	17.80	7349.16	57.56	2590.00	2865.08
32.000	18575.00	15.12	1.40	-17.70	8.20	4.60	17.80	9858.30	53.07	2590.00	3071.37
31.000	10475.00	13.11	1.31	-17.10	4.20	8.00	17.90	7222.58	68.95	3210.00	1691.62
31.000	12768.00	14.12	1.44	-17.10	4.20	8.00	17.90	8303.69	65.04	3210.00	2375.28
31.000	18575.00	15.18	1.88	-17.10	4.20	8.00	17.90	11238.24	60.50	3210.00	3181.41
30.500	10371.00	13.14	1.18	-15.60	12.40	3.40	19.00	6401.15	61.72	2150.00	2123.92
30.500	12631.00	14.16	1.26	-15.60	12.40	3.40	19.00	7108.22	56.28	2150.00	2245.20
30.500	18300.00	15.24	1.58	-15.60	12.40	3.40	19.00	9321.35	50.94	2150.00	3687.55
30.000	10177.00	13.21	1.52	-12.00	5.60	5.20	18.80	7034.02	69.12	5080.00	1923.67
30.000	12486.00	14.23	1.64	-12.00	5.60	5.20	18.80	7953.56	63.70	5080.00	2307.33
30.000	17910.00	15.35	2.03	-12.00	5.60	5.20	18.80	10341.80	57.74	5080.00	2615.14

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
29.500	10177.00	13.28	1.59	-10.10	11.40	8.00	16.60	7270.02	71.44	2800.00	1505.22
29.500	12486.00	14.30	1.70	-10.10	11.40	8.00	16.60	8253.31	66.10	2800.00	2027.62
29.500	17910.00	15.45	2.07	-10.10	11.40	8.00	16.60	10713.31	59.82	2800.00	2918.21
29.000	10177.00	13.39	1.38	-7.70	4.90	3.80	19.90	5839.55	57.38	3450.00	2373.25
29.000	12486.00	14.42	1.44	-7.70	4.90	3.80	19.90	6519.70	52.22	3450.00	2621.33
29.000	17910.00	15.60	1.73	-7.70	4.90	3.80	19.90	8425.50	47.04	3450.00	2996.37
*	28.000	10177.00	13.64	-7.50	4.90	4.40	20.70	5560.67	54.64	5100.00	3259.45
*	28.000	12486.00	14.66	-7.50	4.90	4.40	20.70	5906.80	47.31	5100.00	3953.49
*	28.000	17910.00	15.91	-7.50	4.90	4.40	20.70	7101.92	39.65	5100.00	5396.77
*	27.000	10177.00	14.51	-7.40	4.60	6.60	22.50	6044.94	59.40	5020.00	3527.42
*	27.000	12389.00	15.42	-7.40	4.60	6.60	22.50	6031.80	48.69	5020.00	4188.91
	27.000	17928.00	16.70	-7.40	4.60	6.60	22.50	6528.26	36.41	5020.00	5601.66
26.000	10177.00	16.22	2.59	-12.70	8.90	8.50	19.00	6623.28	65.08	6090.00	3221.17
26.000	12389.00	16.93	2.62	-12.70	8.90	8.50	19.00	6921.37	55.87	6090.00	3579.67
26.000	17928.00	18.15	2.77	-12.70	8.90	8.50	19.00	7718.16	43.05	6090.00	4327.09
25.300	10177.00	16.68	1.85	-14.90	12.00	11.10	20.60	7319.47	71.92	2300.00	2877.25
25.300	12389.00	17.39	1.97	-14.90	12.00	11.10	20.60	8036.90	64.87	2300.00	3635.35
25.300	17928.00	18.63	2.21	-14.90	12.00	11.10	20.60	9539.94	53.21	2300.00	4095.42
25.200	10177.00	16.70	1.85	-14.90	12.00	11.10	20.60	7297.00	71.70	100.00	2887.34
25.200	12389.00	17.41	1.96	-14.90	12.00	11.10	20.60	8009.71	64.65	100.00	3654.72
25.200	17928.00	18.65	2.20	-14.90	12.00	11.10	20.60	9513.29	53.06	100.00	4102.19
25.100	10177.00	16.70	1.85	-14.90	12.00	11.10	20.60	7297.35	71.70	20.00	2887.19
25.100	12389.00	17.41	1.96	-14.90	12.00	11.10	20.60	8009.02	64.65	20.00	3654.91
25.100	17928.00	18.65	2.20	-14.90	12.00	11.10	20.60	9510.66	53.05	20.00	4102.85
25.000	10177.00	16.70	1.85	-14.90	12.00	11.10	20.60	7295.98	71.69	50.00	2887.80
25.000	12389.00	17.41	1.96	-14.90	12.00	11.10	20.60	8006.58	64.63	50.00	3655.58
25.000	17928.00	18.66	2.20	-14.90	12.00	11.10	20.60	9506.13	53.02	50.00	4104.01
*	24.100	10177.00	17.11	-20.51	4.51	10.87	26.99	9162.29	90.03	2250.00	288.20
*	24.100	12389.00	17.87	-20.51	4.51	10.87	26.99	11027.28	89.01	2250.00	298.78
*	24.100	17928.00	19.20	-20.51	4.51	10.87	26.99	15627.97	87.17	2250.00	317.47
24.000	10177.00	17.13	3.01	-21.28	5.61	7.42	26.99	9271.04	91.10	50.00	280.46
24.000	12389.00	17.89	3.52	-21.28	5.61	7.42	26.99	11152.75	90.02	50.00	291.39
24.000	17928.00	19.23	4.74	-21.28	5.61	7.42	26.99	15788.08	88.06	50.00	310.74
23.000	10173.00	19.43	1.93	-7.30	15.60	11.40	23.70	6601.67	64.89	7380.00	2684.38
23.000	12362.00	20.39	1.91	-7.30	15.60	11.40	23.70	6954.79	56.26	7380.00	3143.28
*	23.000	17866.00	22.18	-7.30	15.60	11.40	23.70	7707.28	43.14	7380.00	5286.84
23.100	10173.00	19.43	1.89	1.10	15.60	11.40	23.70	6881.03	67.64	10.00	2685.85
23.100	12362.00	20.40	1.89	1.10	15.60	11.40	23.70	7305.89	59.10	10.00	3145.31
23.100	17866.00	22.18	1.91	1.10	15.60	11.40	23.70	8176.62	45.77	10.00	5289.50

## Chocolate Bayou 900 ac-ft det at FM 1462 CHOCLATY.IH2)

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
23.200	10173.00	19.44	1.93	-7.30	15.60	11.40	23.70	6595.03	64.83	10.00	2687.34	
23.200	12362.00	20.40	1.91	-7.30	15.60	11.40	23.70	6948.73	56.21	10.00	3146.14	
23.200	17866.00	22.18	1.90	-7.30	15.60	11.40	23.70	7703.25	43.12	10.00	5289.01	
22.300	10173.00	19.44	1.93	-7.30	15.60	11.40	23.70	6592.56	64.80	10.00	2688.44	
22.300	12362.00	20.40	1.91	-7.30	15.60	11.40	23.70	6945.45	56.18	10.00	3147.69	
22.300	17866.00	22.19	1.90	-7.30	15.60	11.40	23.70	7698.92	43.09	10.00	5291.33	
22.400	10173.00	19.44	1.93	-7.30	15.60	11.40	23.70	6589.22	64.77	10.00	2689.92	
22.400	12362.00	20.40	1.91	-7.30	15.60	11.40	23.70	6942.20	56.16	10.00	3149.23	
22.400	17866.00	22.19	1.90	-7.30	15.60	11.40	23.70	7695.82	43.08	10.00	5293.00	
22.000	10063.00	21.17	1.92	-6.30	12.20	14.60	24.90	7394.42	73.48	6840.00	1638.14	
22.000	12213.00	22.05	2.05	-6.30	12.20	14.60	24.90	8270.34	67.72	6840.00	2564.78	
22.000	17617.00	23.67	2.23	-6.30	12.20	14.60	24.90	9827.20	55.78	6840.00	4427.22	
21.000	10063.00	22.23	1.92	-5.60	10.40	12.00	25.50	6544.88	65.04	4660.00	1786.00	
21.000	12213.00	23.15	2.04	-5.60	10.40	12.00	25.50	7347.32	60.16	4660.00	2050.80	
21.000	17617.00	24.81	2.28	-5.60	10.40	12.00	25.50	8960.09	50.86	4660.00	3123.64	
*	20.300	10063.00	23.02	1.26	-5.86	10.20	14.24	26.00	3610.26	35.88	6570.00	2908.98
*	20.300	12213.00	23.96	1.32	-5.86	10.20	14.24	26.00	3953.69	32.37	6570.00	3258.93
*	20.300	17617.00	25.69	1.46	-5.86	10.20	14.24	26.00	4712.76	26.75	6570.00	4964.04
*	20.200	10063.00	22.99	2.41	-4.37	26.58	23.79	26.78	10063.00	100.00	100.00	237.39
*	20.200	12213.00	23.92	2.78	-4.37	26.58	23.79	26.78	12212.99	100.00	100.00	245.41
*	20.200	17617.00	25.61	3.66	-4.37	26.58	23.79	26.78	17600.94	99.91	100.00	292.34
20.100	10063.00	23.04	2.45	-2.90	26.79	24.97	26.78	10063.00	100.00	31.00	233.08	
20.100	12213.00	24.01	2.81	-2.90	26.79	24.97	26.78	12213.00	100.00	31.00	237.96	
20.100	17617.00	25.83	3.68	-2.90	26.79	24.97	26.78	17614.12	99.98	31.00	273.02	
*	20.000	10063.00	23.16	1.14	-2.87	12.37	12.08	26.00	3182.61	31.63	50.00	2801.56
*	20.000	12213.00	24.16	1.20	-2.87	12.37	12.08	26.00	3489.22	28.57	50.00	3431.64
*	20.000	17617.00	26.10	1.28	-2.87	12.37	12.08	26.00	4070.11	23.10	50.00	5335.35
*	19.000	9627.00	23.93	2.67	-3.80	19.90	18.10	29.10	5461.87	56.73	6800.00	1625.06
*	19.000	11724.00	24.92	2.66	-3.80	19.90	18.10	29.10	5786.21	49.35	6800.00	1869.84
*	19.000	16706.00	26.81	2.65	-3.80	19.90	18.10	29.10	6441.91	38.56	6800.00	2175.70
18.000	9627.00	25.61	2.30	-3.30	16.80	20.00	29.40	6042.14	62.76	4230.00	1699.62	
18.000	11724.00	26.53	2.41	-3.30	16.80	20.00	29.40	6619.32	56.46	4230.00	1970.83	
18.000	16706.00	28.28	2.55	-3.30	16.80	20.00	29.40	7631.57	45.68	4230.00	3391.99	
17.300	9627.00	26.35	2.16	-5.50	26.30	26.30	29.00	5614.63	58.32	2300.00	2770.38	
17.300	11724.00	27.24	2.15	-5.50	26.30	26.30	29.00	5852.39	49.92	2300.00	3248.16	
17.300	16706.00	28.92	2.09	-5.50	26.30	26.30	29.00	6222.34	37.25	2300.00	4349.14	
17.200	9627.00	26.38	2.15	-5.50	26.30	26.30	29.00	5582.33	57.99	100.00	2787.92	
17.200	11724.00	27.27	2.13	-5.50	26.30	26.30	29.00	5818.86	49.63	100.00	3266.58	
17.200	16706.00	28.95	2.07	-5.50	26.30	26.30	29.00	6190.93	37.06	100.00	4380.93	

Chocolate Bayou 900 ac-ft det at FM 1462 CHOCLATY.IH2)

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	17.100	9627.00	26.60	4.26	-1.11	23.28	23.94	30.00	9543.43	99.13	24.00	217.31
*	17.100	11724.00	27.50	4.90	-1.11	23.28	23.94	30.00	11524.68	98.30	24.00	494.51
*	17.100	16706.00	28.79	6.24	-1.11	23.28	23.94	30.00	15689.47	93.92	24.00	1328.80
	17.000	9627.00	26.67	4.24	-1.11	23.28	23.94	30.00	9538.64	99.08	50.00	219.49
	17.000	11724.00	27.58	4.87	-1.11	23.28	23.94	30.00	11507.89	98.16	50.00	512.39
	17.000	16706.00	28.94	6.13	-1.11	23.28	23.94	30.00	15536.76	93.00	50.00	2008.48
*	16.000	9627.00	27.88	1.29	3.50	13.30	19.90	30.50	2828.80	29.38	4290.00	4636.89
*	16.000	11724.00	28.84	1.26	3.50	13.30	19.90	30.50	2907.29	24.80	4290.00	6032.18
*	16.000	16706.00	30.39	1.27	3.50	13.30	19.90	30.50	3151.00	18.86	4290.00	9446.29
*	15.000	9632.00	29.14	2.38	7.20	24.00	24.80	32.00	5455.17	56.64	7750.00	4291.94
*	15.000	11543.00	29.91	2.16	7.20	24.00	24.80	32.00	5249.03	45.47	7750.00	4552.82
*	15.000	16292.00	31.28	1.97	7.20	24.00	24.80	32.00	5255.66	32.26	7750.00	6644.46
	14.300	9632.00	32.52	2.05	11.20	29.40	30.60	35.00	3668.36	38.09	8150.00	7865.63
	14.300	11543.00	32.85	2.11	11.20	29.40	30.60	35.00	3875.57	33.58	8150.00	9102.09
	14.300	16292.00	33.60	2.10	11.20	29.40	30.60	35.00	4069.19	24.98	8150.00	12055.52
	14.200	9632.00	32.56	2.00	11.20	29.40	30.60	35.00	3599.58	37.37	100.00	8051.18
	14.200	11543.00	32.89	2.07	11.20	29.40	30.60	35.00	3802.13	32.94	100.00	9290.21
	14.200	16292.00	33.64	2.07	11.20	29.40	30.60	35.00	4015.47	24.65	100.00	12191.49
*	14.100	9632.00	32.57	5.36	11.20	29.40	30.60	35.00	9632.00	100.00	32.00	135.00
*	14.100	11543.00	32.91	6.26	11.20	29.40	30.60	35.00	11543.00	100.00	32.00	135.00
	14.100	16292.00	34.18	1.63	11.20	29.40	30.60	35.00	3279.95	20.13	32.00	14315.21
*	14.000	9632.00	33.07	1.58	11.20	29.40	30.60	35.00	2953.63	30.66	50.00	9996.00
*	14.000	11543.00	33.60	1.49	11.20	29.40	30.60	35.00	2884.13	24.99	50.00	12051.71
	14.000	16292.00	34.19	1.62	11.20	29.40	30.60	35.00	3268.66	20.06	50.00	14352.41
	13.000	9632.00	33.80	1.10	10.30	17.20	30.00	36.00	1415.79	14.70	4450.00	6275.43
	13.000	11543.00	34.26	1.13	10.30	17.20	30.00	36.00	1519.62	13.16	4450.00	6768.23
	13.000	16292.00	34.95	1.29	10.30	17.20	30.00	36.00	1845.86	11.33	4450.00	7501.52
*	12.000	9487.00	34.19	.83	9.20	21.20	23.20	36.00	769.93	8.12	5480.00	7633.04
*	12.000	11353.00	34.66	.87	9.20	21.20	23.20	36.00	830.76	7.32	5480.00	8146.76
*	12.000	15647.00	35.44	.99	9.20	21.20	23.20	36.00	978.04	6.25	5480.00	8669.53
*	11.000	9241.00	34.85	2.61	14.00	29.90	32.30	37.00	3416.28	36.97	5990.00	5106.70
*	11.000	11078.00	35.35	2.48	14.00	29.90	32.30	37.00	3391.33	30.61	5990.00	6425.62
*	11.000	15137.00	36.19	2.31	14.00	29.90	32.30	37.00	3380.10	22.33	5990.00	9261.81
*	10.000	7801.00	36.69	1.28	18.10	32.30	32.90	38.00	1809.86	23.20	4880.00	7554.75
*	10.000	9157.00	37.02	1.28	18.10	32.30	32.90	38.00	1862.04	20.33	4880.00	7901.19
	10.000	12366.00	37.65	1.31	18.10	32.30	32.90	38.00	2010.70	16.26	4880.00	8574.37
*	9.000	7801.00	38.06	2.02	21.80	33.70	34.10	40.00	2485.04	31.86	4610.00	7232.28
*	9.000	9157.00	38.35	2.05	21.80	33.70	34.10	40.00	2593.59	28.32	4610.00	8349.09
*	9.000	12366.00	38.92	2.06	21.80	33.70	34.10	40.00	2737.79	22.14	4610.00	10559.85

## Chocolate Bayou 900 ac-ft det at FM 1462 CHOCLATY.IH2)

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
8.000	7204.00	40.80	1.54	28.20	33.90	43.50	42.00	2209.50	30.67	7920.00	4478.51
8.000	8516.00	41.13	1.60	28.20	33.90	43.50	42.00	2394.38	28.12	7920.00	4973.03
8.000	11374.00	41.71	1.72	28.20	33.90	43.50	42.00	2750.46	24.18	7920.00	5854.94
*	7.500	7204.00	41.37	.94	27.60	39.30	37.90	853.84	11.85	4210.00	6862.76
*	7.500	8516.00	41.70	.97	27.60	39.30	37.90	911.98	10.71	4210.00	7889.89
*	7.500	11374.00	42.30	1.02	27.60	39.30	37.90	1027.34	9.03	4210.00	10632.47
*	7.000	7204.00	41.98	3.38	27.20	39.40	41.00	4894.88	67.95	2750.00	1560.79
*	7.000	8516.00	42.30	3.51	27.20	39.40	41.00	5500.08	64.59	2750.00	1731.81
*	7.000	11374.00	42.90	3.63	27.20	39.40	41.00	6465.95	56.85	2750.00	4806.56
*	6.890	7204.00	43.23	3.06	30.50	39.30	39.40	803.95	11.16	750.00	3794.15
*	6.890	8516.00	43.52	3.05	30.50	39.30	39.40	825.53	9.69	750.00	4270.50
*	6.890	11374.00	44.02	3.04	30.50	39.30	39.40	866.86	7.62	750.00	5451.26
6.880	7204.00	43.33	2.88	30.50	39.30	39.40	45.00	765.14	10.62	100.00	3946.21
6.880	8516.00	43.62	2.87	30.50	39.30	39.40	45.00	783.73	9.20	100.00	4474.07
6.880	11374.00	44.11	2.90	30.50	39.30	39.40	45.00	832.34	7.32	100.00	5590.19
6.870	7204.00	43.33	2.87	30.50	39.30	39.40	45.00	762.01	10.58	16.00	3958.95
6.870	8516.00	43.62	2.85	30.50	39.30	39.40	45.00	780.54	9.17	16.00	4490.24
6.870	11374.00	44.11	2.88	30.50	39.30	39.40	45.00	828.92	7.29	16.00	5604.41
6.860	7204.00	43.38	2.80	30.50	39.30	39.40	45.00	747.55	10.38	50.00	4019.06
6.860	8516.00	43.66	2.79	30.50	39.30	39.40	45.00	767.65	9.01	50.00	4556.69
6.860	11374.00	44.15	2.83	30.50	39.30	39.40	45.00	817.40	7.19	50.00	5652.87
*	6.500	7204.00	44.07	1.87	31.40	37.90	38.30	2810.21	39.01	1600.00	3186.32
*	6.500	8516.00	44.37	2.00	31.40	37.90	38.30	3092.25	36.31	1600.00	4809.46
*	6.500	11374.00	44.90	2.19	31.40	37.90	38.30	3591.04	31.57	1600.00	5081.65
*	6.000	3035.00	44.74	2.22	32.40	40.90	42.30	1153.68	38.01	1840.00	2049.27
*	6.000	3638.00	45.08	2.21	32.40	40.90	42.30	1206.52	33.16	1840.00	2486.05
*	6.000	4866.00	45.65	2.17	32.40	40.90	42.30	1274.02	26.18	1840.00	3665.66
5.300	2022.00	46.14	1.53	34.20	43.80	44.00	48.00	1214.35	60.06	3300.00	1982.96
5.300	2425.00	46.43	1.57	34.20	43.80	44.00	48.00	1294.02	53.36	3300.00	3116.33
5.300	3235.00	46.87	1.60	34.20	43.80	44.00	48.00	1395.78	43.15	3300.00	3982.03
*	5.200	2022.00	46.12	3.69	34.20	45.60	45.50	1761.97	87.14	100.00	1819.58
*	5.200	2425.00	46.42	3.57	34.20	45.60	45.50	1756.67	72.44	100.00	3087.86
*	5.200	3235.00	46.89	3.08	34.20	45.60	45.50	1579.76	48.83	100.00	4013.68
5.100	2022.00	46.36	4.13	34.20	45.60	45.50	50.00	2022.00	100.00	24.00	45.00
*	5.100	2425.00	46.87	1.82	34.20	45.60	45.50	933.27	38.49	24.00	3856.99
*	5.100	3235.00	47.18	1.87	34.20	45.60	45.50	985.18	30.45	24.00	4207.42
*	5.000	2022.00	46.73	1.10	34.20	43.80	44.00	936.99	46.34	100.00	3668.18
*	5.000	2425.00	46.90	1.18	34.20	43.80	44.00	1031.99	42.56	100.00	3905.87
*	5.000	3235.00	47.21	1.30	34.20	43.80	44.00	1183.37	36.58	100.00	4214.87

## Chocolate Bayou 900 ac-ft det at FM 1462 CHOCLATY.IH2)

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	4.690	2022.00	47.31	1.95	36.20	44.80	44.50	50.00	868.78	42.97	2950.00	1644.64
*	4.690	2425.00	47.55	2.06	36.20	44.80	44.50	50.00	944.27	38.94	2950.00	1775.09
*	4.690	3235.00	47.94	2.21	36.20	44.80	44.50	50.00	1068.38	33.03	2950.00	2006.23
	4.680	2022.00	47.36	1.91	36.20	44.80	44.50	50.00	854.25	42.25	100.00	1666.64
	4.680	2425.00	47.60	2.00	36.20	44.80	44.50	50.00	924.61	38.13	100.00	1803.66
	4.680	3235.00	47.99	2.16	36.20	44.80	44.50	50.00	1049.57	32.44	100.00	2032.26
*	4.670	2022.00	48.06	1.29	36.20	44.80	44.50	50.00	633.84	31.35	16.00	2083.36
*	4.670	2425.00	48.54	1.22	36.20	44.80	44.50	50.00	637.93	26.31	16.00	2359.00
*	4.670	3235.00	49.50	1.08	36.20	44.80	44.50	50.00	627.24	19.39	16.00	2912.81
	4.660	2022.00	48.07	1.28	36.20	44.80	44.50	50.00	632.40	31.28	50.00	2086.75
	4.660	2425.00	48.55	1.22	36.20	44.80	44.50	50.00	636.24	26.24	50.00	2363.38
	4.660	3235.00	49.50	1.08	36.20	44.80	44.50	50.00	626.35	19.36	50.00	2915.65
	4.000	2022.00	48.34	1.42	37.00	46.10	46.30	51.00	1633.68	80.80	1500.00	1162.24
	4.000	2425.00	48.79	1.47	37.00	46.10	46.30	51.00	1796.60	74.09	1500.00	1727.53
	4.000	3235.00	49.67	1.41	37.00	46.10	46.30	51.00	1911.66	59.09	1500.00	2484.83
	3.000	2022.00	48.99	.99	38.70	46.40	46.80	51.00	613.03	30.32	3800.00	2965.72
*	3.000	2425.00	49.38	.95	38.70	46.40	46.80	51.00	623.98	25.73	3800.00	3360.23
*	3.000	3235.00	50.12	.88	38.70	46.40	46.80	51.00	631.53	19.52	3800.00	4089.83
*	2.030	1669.00	49.97	2.62	40.90	47.90	48.10	52.00	1513.46	90.68	4130.00	376.14
*	2.030	1985.00	50.24	2.86	40.90	47.90	48.10	52.00	1738.18	87.57	4130.00	441.33
*	2.030	2620.00	50.76	3.19	40.90	47.90	48.10	52.00	2113.52	80.67	4130.00	596.39
	2.020	1669.00	50.20	2.44	40.90	47.90	48.10	52.00	1471.12	88.14	200.00	427.95
	2.020	1985.00	50.50	2.64	40.90	47.90	48.10	52.00	1671.39	84.20	200.00	517.99
	2.020	2620.00	51.05	2.91	40.90	47.90	48.10	52.00	2010.66	76.74	200.00	682.19
*	2.010	1669.00	50.61	2.14	40.90	47.90	48.10	52.00	1380.38	82.71	24.00	551.37
*	2.010	1985.00	50.76	2.42	40.90	47.90	48.10	52.00	1601.36	80.67	24.00	596.30
*	2.010	2620.00	51.06	2.90	40.90	47.90	48.10	52.00	2009.99	76.72	24.00	682.75
	2.000	1669.00	50.68	2.09	40.90	47.90	48.10	52.00	1363.54	81.70	100.00	573.73
	2.000	1985.00	50.85	2.35	40.90	47.90	48.10	52.00	1576.23	79.41	100.00	624.06
	2.000	2620.00	51.17	2.79	40.90	47.90	48.10	52.00	1966.77	75.07	100.00	1143.18
	1.000	1669.00	53.04	2.27	44.60	50.70	50.50	53.50	671.50	40.23	3870.00	1668.51
	1.000	1985.00	53.30	2.20	44.60	50.70	50.50	53.50	682.99	34.41	3870.00	1796.98
*	1.000	2620.00	53.74	2.14	44.60	50.70	50.50	53.50	713.83	27.25	3870.00	1953.55
*	.800	1669.00	54.54	4.23	44.98	50.29	49.86	59.00	1516.66	90.87	1700.00	123.00
*	.800	1985.00	54.76	4.82	44.98	50.29	49.86	59.00	1785.33	89.94	1700.00	129.18
*	.800	2620.00	55.13	5.93	44.98	50.29	49.86	59.00	2311.91	88.24	1700.00	152.05
*	.500	1669.00	54.97	.71	47.44	50.16	49.68	59.00	166.49	9.98	680.00	3848.17
*	.500	1985.00	55.28	.69	47.44	50.16	49.68	59.00	168.10	8.47	680.00	3863.68
*	.500	2620.00	55.84	.66	47.44	50.16	49.68	59.00	175.05	6.68	680.00	3891.83

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
.400	1669.00	54.98	.70	46.55	50.75	50.79	59.00	277.47	16.62	200.00	3866.28
.400	1985.00	55.29	.68	46.55	50.75	50.79	59.00	281.71	14.19	200.00	3876.45
.400	2620.00	55.85	.66	46.55	50.75	50.79	59.00	294.16	11.23	200.00	3894.94
.300	1669.00	55.41	.53	46.55	51.99	51.42	59.00	214.49	12.85	120.00	3870.75
.300	1985.00	55.74	.52	46.55	51.99	51.42	59.00	223.03	11.24	120.00	3887.05
.300	2620.00	56.28	.54	46.55	51.99	51.42	59.00	244.85	9.35	120.00	3900.00
.200	1669.00	55.42	.53	47.44	50.16	49.68	59.00	132.26	7.92	60.00	3870.80
.200	1985.00	55.74	.53	47.44	50.16	49.68	59.00	137.41	6.92	60.00	3887.09
.200	2620.00	56.28	.54	47.44	50.16	49.68	59.00	150.94	5.76	60.00	3900.00

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## SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	35.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	35.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	35.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	28.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	28.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	27.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	27.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	24.100	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	24.100	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	23.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	20.300	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	19.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	17.100	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	17.100	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	14.100	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	14.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE



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WARNING SECNO=	12.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	4.690	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	4.690	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	4.670	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	4.670	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	4.670	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

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WARNING SECNO=	3.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	2.030	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.030	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
CAUTION SECNO=	2.010	PROFILE=	1	HYDRAULIC	JUMP	D.S.		
CAUTION SECNO=	2.010	PROFILE=	2	HYDRAULIC	JUMP	D.S.		
CAUTION SECNO=	2.010	PROFILE=	3	HYDRAULIC	JUMP	D.S.		
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WARNING SECNO=	.800	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	.500	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	.500	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

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*****  
* HEC-2 WATER SURFACE PROFILES *  
* *  
* Version 4.6.2; May 1991 *  
* *  
* DATE 25AUG02 TIME 18:59:03 *  
*****
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*****  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET, SUITE D *  
* DAVIS, CALIFORNIA 95616-4687 *  
* (916) 756-1104 *  
*****
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THIS RUN EXECUTED 25AUG02 18:59:03

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

T1 CHOCOLATE BAYOU..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 T2 PROPOSED CONDITION MODEL FOR THE DETENTION.....1973 DATUM  
 T3 FILENAME: CHOCLAD.IH2.....10 YEAR FREQUENCY  
 T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

NOTES\*\*\*\*\*  
 REVISED MODEL INCLUDES 2000 BAKER & LAWSON SURVEY SECTIONS AND REVISED  
 BRIDGE SECTIONS  
 MODEL KEYED IN FROM 27 MAY 88 RUN DATE FEMA MODEL  
 ORIGINAL INPUT DATA PROVIDED BY BRAZORIA COUNTY FLOOD PLAIN ADMINISTRATOR  
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2			.000150					
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1							
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38	43	1	26	42	23	24	63	14	60
	39	4								
J5	LPRNT	NUMSEC	*****REQUESTED SECTION NUMBERS*****							
	-10	-10								

NC	.051	.035	.035	.1	.3					
QT	3	10684	12875	17975						
X1	36	38	12699	13261						
GR	25.4	10292	25.4	10293	10.2	10427	8.2	10524	9.4	11581
GR	12.6	11993	7	12450	7.2	12644	5.4	12699	0	12721
GR	-4	12800	-11	12880	-16.4	12961	-11	13040	-4	13120
GR	0	13202	4.6	13261	5.4	13360	3	13564	0	13605
GR	0	14212	3.4	14221	3.8	14384	4.2	14627	5.2	14913
GR	7.2	15460	7.8	15790	8.2	16128	8	16456	8	16577
GR	8.7	16858	9.3	17506	10.1	18324	11.1	18982	10.7	19574
GR	10.3	19970	11.3	20366	11.4	20556				

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QT	3	10632	12808	17870						
X1	35	20	9787	10064	3900	4600	4640			
GR	12	9491	12	9492	10.2	9719	7.2	9753	6.8	9787
GR	0	9811	-9	9835	-18	9875	-18	9985	-9	10025
GR	0	10049	6.4	10064	6.4	10255	0	10290	-18	10390
GR	0	10491	6	10508	8	10615	10.4	10685	10.4	10700
X1	34	20	6756	7236	4150	2800	3500			
GR	23	5463	23	5464	21	5470	20.8	6128	13	6161
GR	13	6435	9.8	6491	7.8	6756	.7	6781	-4.8	6889
GR	-19.3	6998	-9.6	7106	.7	7216	5.8	7236	6.6	8416
GR	9.9	8748	10.1	9242	10.1	10245	11.5	10722	11.5	10877
X1	33	23	4785	5156	3800	4300	6100			
X3			4785	4785	13.6	5877	7.4			
GR	16.2	3828	14.6	4406	13.6	4785	0	4884	-18.1	5012
GR	0	5140	7.6	5156	6.4	5334	7	5392	0	5567
GR	0	5641	4.2	5869	7.4	5877	0	5896	5.4	5981
GR	6.2	6273	8	6456	11.8	6834	12.4	7158	12.4	7313
GR	15.8	7655	16	8326	16.4	8875				
X1	32	26	5806	6135	2000	2100	2590			
X3			5806	5806	8.2	6500	6			
GR	16.6	3335	16.6	3336	16.6	3337	16.2	3710	15.6	4010
GR	15.4	4229	9.6	4637	9	5019	7.8	5357	8	5710
GR	8.2	5806	0	5814	-5	5890	-17.7	5967	-5	6045
GR	0	6121	4.6	6135	6	6500	5.4	6554	5.6	6595
GR	8.6	6731	12.4	6973	16	7434	15.4	7835	17.4	8106
GR	17.8	8725								
X1	31	32	3925	4143	2750	3500	3210			
X3			3357	3357	8	4143	8			
GR	17.4	1000	14	2285	14	2566	9.6	2941	8	3357
GR	2.6	3578	4	3673	2.6	3724	4	3880	4.2	3925
GR	0	3933	-5.6	3945	-17.1	3955	-17.1	4100	-10	4106
GR	0	4116	3.2	4136	8	4143	8	4149	5.6	4173
GR	5.6	4200	13.8	4352	15.4	4575	13.2	4831	15.2	5084
GR	16.6	5317	17.4	5576	16.8	6278	17	6874	17.8	7000
GR	17.5	7692	17.9	8020						
QT	3	10439	12563	17483						
X1	30.5	34	5269	5491	2280	2050	2150			
GR	20.4	3466	20.4	3467	19.4	3513	16.6	3543	18.4	3568
GR	16.8	4713	14.2	4921	16.8	5143	12.4	5269	0	5289
GR	-8	5299	-15.6	5309	-15.6	5384	-15.6	5459	-8	5469
GR	0	5479	3.4	5491	4.2	5649	7.4	5715	8.2	5954



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QT	3	10150	12223	16970						
X1	27	43	10118	10279	5150	4940	5020			
X3				8184	17.1	12703	15.4			
GR	26	6311	26	6312	26	6313	23.8	6457	22	6864
GR	21	7123	20	7382	19.6	7624	19	7857	18.6	8105
GR	17.1	8184	16.3	8363	14.9	8660	13.9	9002	13.3	9299
GR	13	9623	12.4	10040	4.6	10118	0	10136	-7.4	10191
GR	0	10246	6.6	10279	10.5	10450	15	12550	15.4	12703
GR	15.2	12724	16.2	13410	16.8	13633	17.2	13654	16.2	13679
GR	17.2	14219	17.6	14528	16.8	15085	20.6	15689	20.4	16037
GR	20.4	16304	21	16533	21	16781	21.4	17027	21.4	17230
GR	20.7	17241	21.5	17699	22.5	18240				
X1	26	33	9866	9986	3800	5850	6090			
GR	24.2	5615	24.2	5616	24.2	5617	23	6264	22	7005
GR	21.6	7478	21.4	7767	21.2	8102	20.4	8454	20	8505
GR	19.7	8588	19.1	9028	16.5	9561	13.7	9735	12.5	9857
GR	8.9	9866	.1	9895	-5.5	9900	-12.7	9914	-12.7	9954
GR	-5.5	9969	.1	9973	8.5	9986	13.3	10189	13.9	10713
GR	14.1	11474	15.5	11828	15.1	12223	15.5	12385	15.5	12676
GR	16	12724	16.8	12998	19	13900				
X1	25.3	34	7860	8048	1600	1750	2300			
GR	21.3	5313	20.7	5699	19.9	5894	19.1	6297	18.1	6471
GR	15.5	6792	14.7	7295	13.1	7559	12.9	7728	11.9	7850
GR	12	7860	11.3	7881	1.7	7926	-14.9	7950	-14.9	8028
GR	1.8	8040	11.1	8048	12.5	8256	13.1	8400	14.1	8613
GR	15.3	8853	15.3	9050	16.1	9198	16.5	9462	16.9	9597
GR	17	9645	17.4	10208	19.2	10595	18.8	11031	19.2	11616
GR	20	11964	19.2	12269	19.2	12462	20.6	12722		
NC				.3	.5					
X1	25.2				100	100	100			
X3	10							11	11	
CR 171										
SB	1.05	1.56	2.8		86	8	2440	1	-14.9	-14.9
STATION - CR 171										
X1	25.1	34	7860	8048	20	20	20			
X2			1	10	12					
X3	10							12	12	
BT	-29	5313	21.3		5699	20.7		5894	19.9	
BT		6297	19.1		6471	18.1		6792	15.5	
BT		7295	14.7		7559	13.1		7728	12.9	
BT		7860	12.3		7881	12.1		8048	12.5	
BT		8256	12.5		8400	13.1		8613	14.1	

Chocolate Bayou Prop. with Det. CHOCLAD.IH2

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BT		8853	15.3		9050	15.3		9198	16.1	
BT		9462	16.5		9597	16.9		9645	17	
BT		10208	17.4		10595	19.2		11031	18.8	
BT		11616	19.2		11964	20		12269	19.2	
BT		12462	19.2		12722	20.6				
GR	21.3	5313	20.7	5699	19.9	5894	19.1	6297	18.1	6471
GR	15.5	6792	14.7	7295	13.1	7559	12.9	7728	11.9	7850
GR	12	7860	11.3	7881	1.7	7926	-14.9	7950	-14.9	8028
GR	1.8	8040	11.1	8048	12.5	8256	13.1	8400	14.1	8613
GR	15.3	8853	15.3	9050	16.1	9198	16.5	9462	16.9	9597
GR	17	9645	17.4	10208	19.2	10595	18.8	11031	19.2	11616
GR	20	11964	19.2	12269	19.2	12462	20.6	12722		

X1 25 50 50 50

2000 BAKER & LAWSON SURVEY SECTION

X1	24.1	17	10717.8	10851.6	1850	1100	2250			
GR	26.99	10000.0	27.23	10093.8	27.63	10187.8	27.95	10279.0	28.29	10371.1
GR	28.63	10464.8	4.51	10717.8	1.32	10721.4	-20.51	10778.1	0.47	10820.9
GR	10.87	10851.6	28.99	10916.0	28.62	11003.5	28.32	11093.9	28.16	11183.3
GR	27.88	11272.1	27.73	11359.6						

MOPAC R.R. CROSSING AT CHOCOLATE BAYOU  
2000 BAKER & LAWSON SURVEY SECTION

X1	24	17	10719.4	10839.6	50	50	50			
GR	26.99	10000.0	27.23	10093.8	27.63	10187.8	27.95	10279.0	28.29	10371.1
GR	28.63	10464.8	5.61	10719.4	0.39	10725.8	-21.28	10779.6	0.32	10829.1
GR	7.42	10839.6	28.99	10912.7	28.62	11000.1	28.32	11090.6	28.16	11179.9
GR	27.88	11268.8	27.73	11356.3						

NC .1 .1 .08 .1 .3  
QT 3 10123 12180 16889

X1	23	42	4606	4840	6400	5800	7380			
X3				3590	22.4	7632	21.7			
GR	25.2	2504	24.6	2523	23.8	2665	24.8	2671	23.6	2846
GR	23	3181	21.6	3354	22.2	3459	22.2	3533	22.4	3590
GR	22.2	3596	20	4108	13.8	4520	15.6	4606	.4	4640
GR	-6.8	4650	-7.3	4660	-7.3	4670	-7.3	4680	-3.8	4690
GR	.4	4700	6.4	4712	11.4	4840	14.2	4903	16.2	5119
GR	16.8	5326	16.6	5500	16.4	5708	16.6	5825	17.2	6065
GR	17.8	6295	18.2	6450	18.8	6563	19.4	6819	20.2	7109
GR	21.1	7347	21.7	7632	21.7	8096	21.3	8553	21.9	8774
GR	23.1	9264	23.7	9720						



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X1	23.1	36	4606	4840	10	10	10			
X3				3590	22.4	7632	21.7			
GR	25.2	2504	24.6	2523	23.8	2665	24.8	2671	23.6	2846
GR	23	3181	21.6	3354	22.2	3459	22.2	3533	22.4	3590
GR	22.2	3596	20	4108	13.8	4520	15.6	4606	1.1	4662
GR	1.1	4794	11.4	4840	14.2	4903	16.2	5119	16.8	5326
GR	16.6	5500	16.4	5708	16.6	5825	17.2	6065	17.8	6295
GR	18.2	6450	18.8	6563	19.4	6819	20.2	7109	21.1	7347
GR	21.7	7632	21.7	8096	21.3	8553	21.9	8774	23.1	9264
GR	23.7	9720								

X1	23.2	42	4606	4840	10	10	10			
X3				3590	22.4	7632	21.7			
GR	25.2	2504	24.6	2523	23.8	2665	24.8	2671	23.6	2846
GR	23	3181	21.6	3354	22.2	3459	22.2	3533	22.4	3590
GR	22.2	3596	20	4108	13.8	4520	15.6	4606	.4	4640
GR	-6.8	4650	-7.3	4660	-7.3	4670	-7.3	4680	-3.8	4690
GR	.4	4700	6.4	4712	11.4	4840	14.2	4903	16.2	5119
GR	16.8	5326	16.6	5500	16.4	5708	16.6	5825	17.2	6065
GR	17.8	6295	18.2	6450	18.8	6563	19.4	6819	20.2	7109
GR	21.1	7347	21.7	7632	21.7	8096	21.3	8553	21.9	8774
GR	23.1	9264	23.7	9720						

X1	22.3				10	10	10			
X3				3590	22.4	7632	21.7			

X1	22.4				10	10	10			
X3				3590	22.4	7632	21.7			

QT	3	9942	11947	16529						
X1	22	33	3300	3525	4010	4910	6840			
X3				2534	23.4	4752	21.8			
GR	24.4	1000	24.2	1459	23	2448	23.4	2534	22.4	2618
GR	22.2	2622	19.8	3017	18.8	3147	12.2	3300	10	3312
GR	.4	3360	-3	3369	-6.3	3380	-6.3	3400	-3	3411
GR	.4	3420	14.6	3525	16.6	3587	17.2	3831	16.2	4037
GR	21.2	4432	21.4	4716	21.8	4752	21.4	4805	21.2	4892
GR	20.9	5016	22.1	5256	22.5	5750	23.3	6076	23.7	6573
GR	24.5	7055	24.7	7451	24.9	7943				

X1	21	33	3713	3916	3100	3000	4660			
GR	25.6	1000	25.2	1587	23.2	2239	21.6	2436	16.4	2531
GR	10.8	2556	15.8	2587	22	2628	22.4	2802	20.4	3062
GR	20	3270	22.2	3347	20.6	3425	8.8	3475	19.8	3514
GR	17.2	3592	13.2	3633	10.4	3713	8	3792	1.4	3803
GR	-2.4	3813	-5.6	3818	-5.6	3828	-5.6	3839	-2.4	3844
GR	1.4	3854	6.2	3868	12	3916	17.8	3961	23.2	4300

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GR 24 4471 24 4838 25.5 4840

## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	20.3	18	13158.6	13291.1	5250	4250	6570			
GR	26.44	10000.0	27.50	10522.7	25.46	11115.2	25.43	11579.1	21.40	12098.4
GR	18.10	12567.3	16.41	13118.0	10.20	13158.6	1.74	13179.5	-5.86	13227.6
GR	4.14	13270.1	14.24	13291.1	8.64	13576.2	21.13	14037.2	22.54	14684.6
GR	24.24	15097.5	24.60	15626.2	26.00	16127.6				

NC .3 .5

## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	20.2	15	10486.1	10735.6	100	100	100			
X3	10							23.7	23.7	
GR	26.92	10000.0	27.30	10093.8	27.67	10188.7	28.12	10284.8	28.31	10384.0
GR	26.58	10486.1	1.46	10555.4	-4.37	10624.6	1.41	10673.8	23.79	10735.6
GR	28.04	10841.9	27.72	10936.0	27.43	11030.7	27.19	11126.6	26.78	11226.6

## SH 35

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILE 04/97

SB 1.25 1.56 2.6 49 8 4167 3 -2.90 -4.37

## 2000 BAKER &amp; LAWSON SURVEY SECTION

STATION - SH 35

X1	20.1	15	10479.6	10726.8	31	31	31			
X2			1	22.2	25.2					
X3	10							25.2	25.2	
BT	-14	10000.0	26.92		10093.8	27.30		10188.7	27.67	
BT		10284.8	28.12		10384.0	28.31		10441.6	28.4	
BT		10560.6	28.6		10600.6	28.5		10668.6	28.2	
BT		10826.9	28.04		10921.0	27.27		11015.7	27.43	
BT		11111.6	27.19		11211.5	26.78				
GR	26.92	10000.0	27.30	10093.8	27.67	10188.7	28.12	10284.8	28.31	10384.0
GR	26.79	10479.6	1.60	10540.1	-2.90	10600.6	1.74	10665.3	24.97	10726.8
GR	28.04	10826.9	27.27	10921.0	27.43	11015.7	27.19	11111.6	26.78	11211.5

## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	20	18	13133.8	13269.1	50	50	50			
X3				11588.7	25.02	15130.3	24.20			
GR	26.96	10000.0	27.37	10532.2	24.85	11098.8	25.02	11588.7	19.31	12136.5
GR	19.37	12644.1	12.37	13133.8	1.63	13165.8	-2.87	13201.0	-0.15	13235.4
GR	12.08	13269.1	11.43	13303.1	11.76	13695.4	22.19	14212.4	23.66	14755.3
GR	24.20	15130.3	24.33	15692.6	26.00	16173.1				

Chocolate Bayou Prop. with Det. CHOCLAD.IH2

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NC				.1	.3					
QT	3	9440	11279	15467						
X1	19	30	5130	5263	3850	4350	6800			
X3				4631	27	6780	26.7			
GR	28.5	2632	27.3	2914	26.5	3305	26.1	3705	25.7	3950
GR	26	4183	26.6	4410	26.8	4557	27	4631	25.4	4691
GR	23.3	5051	19.9	5130	3.9	5177	-3.8	5187	-3.8	5197
GR	3.9	5207	18.1	5263	19.9	5325	20.5	5696	19.1	6197
GR	26.7	6780	28.5	7301	29.9	7817	29.3	8138	28.5	8360
GR	28.5	8537	27.9	8651	28.5	8884	28.1	9244	29.1	9338

X1	18	24	5112	5250	3350	3400	4230			
X3				2700	30	5790	27.6			
GR	30	2700	30	2700	30	2700	30	2700	30	2700
GR	24.8	4010	23.8	4171	20.4	4780	20.2	4810	19.8	5021
GR	16.8	5112	3	5137	-5	5148	-3.3	5163	-5	5178
GR	3	5190	20	5250	27	5568	27.6	5790	27	5802
GR	28	6149	28.4	6700	28.4	7426	29.4	7476		

X1	17.3	31	9985	10135	2200	1800	2300			
X3	10									
GR	29	7893	29	7894	29	8444	29	8757	29	9283
GR	27.6	9507	25.6	9858	24.6	9909	24.4	9931	24	9945
GR	26.3	9985	2.2	10033	-5.5	10051	2.2	10082	26.3	10135
GR	26.3	10136	21	10148	22.4	10278	21.6	10444	22.2	10809
GR	22.4	11120	23.2	11230	24	11372	24.8	11524	25.2	11672
GR	25	11831	25.4	12167	27	12726	28.6	13352	29.2	13895
GR	29.6	14140								

NC				.3	.5					
X1	17.2				100	100	100			
X3	10							25.2	25.2	

CR 172

SB	1.05	1.56	2.6		9.3	8	2080	2.3	-1.11	-5.5
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2000 BAKER & LAWSON SURVEY SECTION

STATION - STRUCTURE CH-17-1 (CR 172)

X1	17.1	16	10414.1	10540.4	24	24	24			
X2			1	23.9	26.5					
X3	10			10394.5	27.17	10639.3	27.48	26.5	26.5	
BT	-14	6477.5	30.00		10000.0	28.78		10076.2	28.54	
BT		10174.9	28.22		10274.4	28.16		10394.5	27.17	
BT		10411.5	26.5		10477.5	26.5		10561.5	26.5	
BT		10639.3	27.48		10738.9	27.16		10847.8	26.48	
BT		10947.9	28.6		13477.5	30.00				
GR	30.00	6477.5	28.78	10000.0	28.54	10076.2	28.22	10174.9	28.16	10274.4

Chocolate Bayou Prop. with Det. CHOCLAD.IH2

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GR	27.17	10394.5	23.28	10414.1	1.85	10459.8	-1.11	10477.5	1.43	10498.1
GR	23.94	10540.4	27.48	10639.3	27.16	10738.9	26.48	10847.8	28.6	10947.9
GR	30.00	13477.5								

X1	17				50	50	50			
X3				10394.5	27.17	10639.3	27.48			

NC			.1		.3					
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X1	16	30	14918	15028	3350	3300	4290			
GR	30.5	10177	27	13076	26.2	13279	23.6	13409	22.4	13520
GR	22.7	13555	21.9	13832	20.7	14193	21.5	14600	21.3	14819
GR	13.3	14918	3.9	14959	3.7	14970	3.5	14977	3.7	14987
GR	3.9	14996	19.9	15028	23.9	15338	25.3	15616	25.7	16006
GR	26.9	16366	27.3	16585	27.7	16887	28.1	17117	28.3	17390
GR	28.5	17398	29.5	17927	30.1	18393	30.1	19028	30.5	19969

QT	3	9227	10994	15035						
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X1	15	24	12896	13073	6250	6000	7750			
X3	10			12286	27	15195	31.2			
GR	32	8900	30	9900	30	9900	30	9900	30	9900
GR	28.5	9950	26	12060	15.6	12168	24.8	12211	27	12286
GR	25.6	12491	26.6	12644	24	12896	12.2	12952	7.2	12974
GR	12.2	12996	24.8	13073	26.6	13196	28	13872	30.2	14544
GR	31.2	15195	30.8	15797	31.6	16306	32	16633		

X1	14.3	25	11179	11314	6250	6000	8150			
GR	35	3680	35	3680	35	3680	35	3680	35	3680
GR	32	10032	31.2	10060	30.2	10146	28.2	10680	29.2	11041
GR	29.4	11171	29.4	11179	14.5	11223	11.2	11245	14.5	11266
GR	30.6	11314	30.7	11333	29.8	11466	30.2	11586	30.6	11697
GR	30.1	11899	30.3	12425	30.3	12998	30.7	13560	35	21180

X1	14.2				100	100	100			
X3	10							32.5	32.5	

FM 1462

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILE 04/97

SB	1.05	1.56	2.6		30.0	5.3	2257.24	3.0	11.2	11.2
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STATION - STRUCTURE CH-14-1 (FM 1462)

X1	14.1	21	11179	11314	32	32	32			
X2			1	31	34					
X3	10							34	34	
BT	-9	10146	30.2		10794	34.2		11090	35.4	
BT		11179	35.3		11314	35.3		11430	35.6	
BT		11608	34.6		11794	34		11899	30.1	

Chocolate Bayou Prop. with Det. CHOCLAD.IH2

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GR	35	3680	32	10032	31.2	10060	30.2	10146	28.2	10680
GR	29.2	11041	29.4	11171	29.4	11179	14.5	11223	11.2	11245
GR	14.5	11266	30.6	11314	30.7	11333	29.8	11466	30.2	11586
GR	30.6	11697	30.1	11899	30.3	12425	30.3	12998	30.7	13560
GR	35	21180								
X1	14				50	50	50			
NC			.1	.3						
X1	13	30	7822	7945	3400	3550	4450			
GR	36.8	3908	36.3	3909	36.4	4224	35.4	4869	35.8	5497
GR	35	5578	33.6	5857	30.6	6359	30.6	6530	29.8	7530
GR	30.2	7550	17.8	7809	17.2	7822	10.3	7832	10.3	7841
GR	17.2	7851	23.4	7853	30	7945	30.6	8090	31	8307
GR	30.2	8327	30	8731	30.4	9027	30.8	9343	30	9517
GR	30.6	9570	30.8	10000	32.6	10742	33	11400	36	14000
QT	3	8988	10649	14208						
X1	12	37	9602	9653	4700	4200	5480			
GR	36	6000	33.3	7250	33.3	7251	33.1	7588	32.1	8000
GR	32.4	8084	31.6	8407	31	8763	31.4	9181	21.2	9602
GR	18.2	9617	13.2	9624	9.2	9629	9.2	9634	13.2	9639
GR	18.2	9646	23.2	9653	24	9776	25	10111	26.2	10523
GR	31	11055	30.8	11532	32.4	11584	30.2	11635	27.6	11681
GR	30.8	11778	31.8	11898	29.2	12201	31.8	12485	31.4	12538
GR	31.5	12546	32.3	13051	33.1	14031	34.3	14522	34.9	14928
GR	35.5	14932	37.3	14943						
QT	3	8716	10298	13642						
X1	11	23	11475	11592	5200	5200	5990			
GR	37	4000	34.1	8956	33.3	9820	31.3	10716	30.5	11000
GR	32.3	11060	31.5	11314	31.9	11426	29.9	11475	20.1	11517
GR	18.5	11520	16	11527	14	11530	16	11534	18.5	11541
GR	20.1	11544	32.3	11592	31.9	11650	33.9	11960	34.3	12267
GR	33.3	12389	35.1	12838	37	16000				
QT	3	7358	8640	11428						
X1	10	33	9709	9845	4100	4550	4880			
GR	38	4400	36	4418	36	4419	36	4420	36	4421
GR	35.7	4469	35.1	5064	34.9	5785	34.7	6477	34.1	7188
GR	34.7	7541	33.5	7785	33.5	7959	34.1	8435	32.9	8549
GR	33.7	8573	34.1	8869	34.5	9400	33.3	9591	32.3	9709
GR	24.5	9781	21.1	9784	20	9790	18.1	9796	20	9802
GR	21.1	9809	32.9	9845	33.5	10142	34.7	10549	34.7	10700
GR	34.9	10885	35.9	11133	38	13350				

Chocolate Bayou Prop. with Det. CHOCLAD.IH2

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X1	9	24	7274	7385	4200	4350	4610			
X3				5619	37.9	7410	35.7			
GR	40	300	37	3300	37.9	5619	34.1	5670	35.3	5946
GR	34.7	6284	35.1	6359	34.9	6498	34.7	6560	34.5	6730
GR	34.5	6849	34.1	7144	33.7	7274	22.7	7303	21.8	7315
GR	22.7	7328	34.1	7385	35.7	7410	33.1	7587	36.9	8119
GR	37.1	8608	36.9	8867	37.5	8997	40	15000		
NC	.08	.08	.06							
QT	3	6746	7907	10454						
X1	8	22	6762	6957	7900	6400	7920			
X3	10									
GR	42	660	39.4	4573	39	5133	37.4	5731	37	6069
GR	37.1	6104	37.5	6288	34.9	6627	35.9	6641	33.9	6762
GR	32	6852	31.2	6884	29	6890	28.2	6894	29	6898
GR	31.2	6905	43.5	6957	42.3	6969	41.7	7145	39.5	7568
GR	41	11894	42	11894						
X1	7.5	35	6353	6462	3800	4100	4210			
X3	10									
GR	42.5	0	41.5	3440	41.4	3441	41.4	3442	40.2	3545
GR	40	3840	39.6	4211	39.4	4628	39	5029	38.8	5287
GR	38.4	5367	37.5	5474	38.1	5891	36.9	6267	39.1	6306
GR	39.5	6328	39.3	6353	29.3	6389	28.6	6392	27.6	6397
GR	28.6	6402	29.3	6405	37.9	6462	36.5	6558	36.1	6688
GR	37.3	6877	37.5	7099	38.5	7736	38.1	8385	38.3	8449
GR	38.3	8547	38.7	9126	40.1	9400	41.5	10400	45	14392
X1	7	32	4967	5327	2670	2670	2750			
X3				2750	44.7	5571	42.6			
GR	48.7	2323	48.7	2324	48.7	2325	47.9	2349	43.9	2373
GR	43.9	2668	46.5	2684	42.9	2692	42.9	2720	44.7	2750
GR	43.4	2827	42.8	3219	42.6	3684	41.8	3981	41.8	4373
GR	39.8	4477	39.4	4967	38.8	5046	27.9	5061	27.2	5067
GR	27.9	5073	34.8	5083	38	5150	41	5327	42.6	5571
GR	41.4	5714	41.6	5887	41.2	6232	42	6507	42.4	7229
GR	42.4	7509	45	11067						
X1	6.890	19	3970	3998	650	750	750			
X3				3943	40.5	3998	39.4			
GR	48.7	1000	43.9	1050	43.9	1295	43.4	1500	41.8	1658
GR	40.3	3500	39.9	3585	39.3	3794	40.3	3908	40.5	3943
GR	39.3	3970	31.8	3983	30.5	3988	31.9	3994	39.4	3998
GR	39	4012	40.6	4174	42.6	4344	45.0	7988		

NC				.3		.5				
X1	6.88				100	100	100			
X3	10			3943	40.5	3998	39.4	38.2	38.2	
SB	1.05	1.56	2.9		9.4	1	93	.75	30.5	30.5
STATION - STRUCTURE CH-6-1										
X1	6.870	19	3970	3998	16	16	16			
X2			1	37.5	39					
X3	10			3943	40.5	3998	39.4	39	39	
BT	13	1500	43.4		1658	41.8		3500	40.3	
BT	3585	39.9		3794	39.3		3908	40.3		3943
BT	40.5		3970	39.3		3998	39.4			4012
BT		4174	40.6		4344	42.6		7988	45.0	39
GR	48.7	1000	43.9	1050	43.9	1295	43.4	1500	41.8	1658
GR	40.3	3500	39.9	3585	39.3	3794	40.3	3908	40.5	3943
GR	39.3	3970	31.8	3983	30.5	3988	31.9	3994	39.4	3998
GR	39	4012	40.6	4174	42.6	4344	45.0	7988		
X1	6.86				50	50	50			
X3	10			3943	40.5	3998	39.4	38.2	38.2	
NC				.1		.3				
X1	6.5	28	4508	4675	1450	1230	1600			
X3				2884	43.9	5382	44.1			
GR	46.9	2120	46.9	2121	46.9	2122	44.5	2159	42.5	2204
GR	43.1	2532	43.9	2884	42.9	3181	42.5	3731	40.9	4022
GR	39.3	4345	37.9	4508	32.7	4538	31.4	4543	31.4	4550
GR	32.7	4555	38.3	4675	39.1	4826	40.9	5007	44.1	5382
GR	43.1	5759	43.1	6072	42.5	6127	43.3	6228	43.1	6316
GR	43.3	6428	43.7	6850	45	7287				
QT	3	2794	3318	4345						
X1	6	20	8595	8670	1860	1780	1840			
GR	48.1	5862	46.9	5925	45.9	5945	45.5	6740	44.7	7677
GR	44.5	8241	42.1	8520	40.9	8595	35.3	8623	32.4	8628
GR	35.3	8634	42.3	8670	44.1	8720	43.7	8758	41.5	8790
GR	42.7	9130	43.5	9529	45.3	9740	45.3	9927	46.3	10424
QT	3	1711	2040	2699						

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X1	5.3	16	9745	9852	3150	3050	3300			
X3				8622	46.2	10840	46.6			
GR	48	6750	47.1	6810	47.1	6811	46.6	7347	45.8	8041
GR	46.2	8622	44.6	9420	43.8	9745	35.8	9764	34.2	9776
GR	35.8	9789	44	9852	44.2	10067	45.4	10298	46.6	10840
GR	48	11850								

NC			.3	.5						
X1	5.2	16	9750	9795	100	100	100			
X3	10			8622	46.2	9795	45.5	45.14	45.14	
GR	48	6750	47.1	6810	47.1	6811	46.6	7347	45.8	8041
GR	46.2	8622	45.6	9750	36.5	9751	34.2	9776	36	9794
GR	45.5	9795	44	9852	44.2	10067	45.4	10298	46.6	10840
GR	48	11850								

CR 67

SB	1.05	1.56	2.9		38.4	1	350	.02	34.2	34.2
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2000 BAKER & LAWSON SURVEY SECTION

STATION - STRUCTURE CH-5-1 (CR 67)

X1	5.1	16	9750	9795	24	24	24			
X2			1	43.5	46.77					
X3	10							46.77	46.77	
BT	-5	8622	46.2		9750	46.98		9776	46.84	
BT		9795	46.77		9852	44				
GR	50.0	6750	47.1	6810	47.1	6811	46.6	7347	45.8	8041
GR	46.2	8622	45.6	9750	36.5	9751	34.2	9776	36	9794
GR	45.5	9795	44	9852	44.2	10067	45.4	10298	46.6	10840
GR	50.0	11850								

X1	5	16	9745	9852	100	100	100			
X3				8622	46.2	9852	44			
GR	50.0	6750	47.1	6810	47.1	6811	46.6	7347	45.8	8041
GR	46.2	8622	44.6	9420	43.8	9745	35.8	9764	34.2	9776
GR	35.8	9789	44	9852	44.2	10067	45.4	10298	46.6	10840
GR	50.0	11850								

NC			.1	.3						
X1	4.69	21	1495	1557	2600	2500	2950			
X3				1480	45.6	1557	44.5			
GR	50	500	50	500	50	500	50	500	50	500
GR	46.2	1000	45.8	1197	43.8	1261	44.8	1352	45.6	1434
GR	45.6	1480	44.8	1495	37.8	1519	36.2	1526	37.8	1535
GR	44.5	1557	44.6	1596	45	1720	45.4	1873	46.2	2000
GR	50	3700								



NC				.3	.5					
X1	4.68				100	100	100			
X3	10			1480	45.6	1557	44.5	43.7	43.7	
SB	1.05	1.56	2.9		12.2	3	155	2	36.2	36.2
STATION - STRUCTURE CH-4-1										
X1	4.67	17	1495	1557	16	16	16			
X2			1	43	44.5					
X3	10			1480	45.6	1557	44.5	44.5	44.5	
BT	-3	1495	44.8		1497	44.5		1557	44.5	
GR	50	500	46.2	1000	45.8	1197	43.8	1261	44.8	1352
GR	45.6	1434	45.6	1480	44.8	1495	37.8	1519	36.2	1526
GR	37.8	1535	44.5	1557	44.6	1596	45	1720	45.4	1873
GR	46.2	2000	50	3700						
X1	4.66				50	50	50			
X3				1480	45.6	1557	44.5			
NC				.1	.3					
X1	4	18	4299	4456	1400	1200	1500			
GR	51.6	1000	51.6	1931	50.2	2811	50.2	3231	49.6	3971
GR	47.7	4183	46.1	4299	38.3	4378	37	4393	37	4412
GR	38.3	4417	46.3	4456	46.3	4604	47.3	4853	48.7	5417
GR	48.8	5837	50.4	6802	51	7489				
X1	3	17	4047	4138	3480	3600	3800			
X3	10									
GR	52.7	1000	52.1	1422	50.9	2079	49.1	2744	47.3	3580
GR	46.6	3889	46.4	4047	41	4076	38.7	4088	38.7	4098
GR	41	4110	46.8	4138	46.6	4235	46.4	4917	47.2	5067
GR	48	5153	51	7000						
QT	3	1172	1400	1853						
X1	2.03	20	6605	6710	3620	3770	4130			
X3				6517	51.1	7213	51.1			
GR	57.4	3776	52.4	3808	53.2	3918	52.4	4465	52.2	4998
GR	52.1	5050	51.5	5799	51.9	5915	50.1	6414	51.1	6517
GR	49.9	6575	47.9	6605	44	6640	42.1	6656	40.9	6665
GR	43.1	6680	48.1	6710	50.1	6965	51.1	7213	52	11200

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NC			.3		.5					
X1	2.02	20	6605	6710	200	200	200			
X3	10			6517	51.1	7213	51.1	48.80	48.80	
GR	57.4	3776	52.4	3808	53.2	3918	52.4	4465	52.2	4998
GR	52.1	5050	51.5	5799	51.9	5915	50.1	6414	51.1	6517
GR	49.9	6575	47.9	6605	44.0	6640	42.1	6656	40.9	6665
GR	43.1	6680	48.1	6710	50.1	6965	51.1	7213	52.0	11200
CR 72										
SB	1.05	1.56	2.8		4.2	1.7	118	1.5	40.9	40.9
STATION - STRUCTURE CH-2-1(CR 72)										
X1	2.01	20	6605	6710	24	24	24			
X2			1	48.10	49.50					
X3	10			6517	51.1	7213	51.1	49.50	49.50	
2000 BAKER & LAWSON SURVEY SECTION										
BT	-15	3776	57.4		3808	52.4		3918	53.2	
BT		4465	52.4		4998	52.2		5050	52.1	
BT		5799	51.5		5915	51.9		6414	50.1	
BT		6517	51.1		6608.8	49.71		6703.1	49.50	
BT		6795.4	49.51		7213	51.1		11200	52	
GR	57.4	3776	52.4	3808	53.2	3918	52.4	4465	52.2	4998
GR	52.1	5050	51.5	5799	51.9	5915	50.1	6414	51.1	6517
GR	49.9	6575	47.9	6605	44	6640	42.1	6656	40.9	6665
GR	43.1	6680	48.1	6710	50.1	6965	51.1	7213	52	11200
X1	2	20	6605	6710	100	100	100			
X3				6517	51.1	7213	51.1			
GR	57.4	3776	52.4	3808	53.2	3918	52.4	4465	52.2	4998
GR	52.1	5050	51.5	5799	51.9	5915	50.1	6414	51.1	6517
GR	49.9	6575	47.9	6605	44	6640	42.1	6656	40.9	6665
GR	43.1	6680	48.1	6710	50.1	6965	51.1	7213	52	11200
NC	.07	.07	.05							
X1	1	19	3766	3820	2900	4400	3870			
X3				3766	50.7	3987	52.3			
GR	53.8	2274	53.1	2520	52.3	3051	52.1	3158	52.1	3433
GR	51.1	3569	49.1	3671	50.7	3735	50.7	3766	45.7	3789
GR	44.6	3792	44.6	3796	45.7	3799	50.5	3820	51.5	3900
GR	52.3	3987	51.7	4093	53.1	4242	53.5	4250		

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2000 BAKER & LAWSON SURVEY SECTION

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X1	0.8	19	10382.4	10435.2	1700	1700	1700			
GR	59.00	8406.0	57.05	8406.0	57.05	10000.0	57.01	10090.7	56.86	10181.5
GR	56.88	10270.7	52.89	10367.8	50.29	10382.4	46.44	10401.5	44.98	10406.0
GR	46.23	10410.7	49.86	10435.2	54.86	10451.7	56.79	10550.5	56.67	10642.1
GR	56.86	10733.9	56.68	10810.2	56.68	12406.0	59.00	12406.0		

## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	0.5	21	10519.6	10556.1	680	680	680			
X3				10358.1	52.73	10638.9	52.82			
GR	59.00	9130.5	54.00	9130.5	54.00	9330.5	52.21	10000.0	51.88	10092.3
GR	51.89	10100.2	52.13	10172.4	52.39	10265.9	52.73	10358.1	50.16	10519.6
GR	47.94	10525.9	47.44	10530.5	48.16	10537.2	49.68	10556.1	52.82	10638.9
GR	52.74	10732.1	52.82	10826.5	52.92	10916.8	54.00	12930.5	56.00	13030.5
GR	59.00	13030.5								

NC			.3	.5						
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## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	0.4	22	10464.2	10517.4	200	200	200			
X3	10							54.38	54.38	
GR	59.00	9074.6	54.00	9074.6	54.00	9308.7	52.21	10000.0	51.88	10092.3
GR	51.89	10100.2	52.13	10172.4	52.39	10265.9	52.73	10358.1	52.11	10459.8
GR	50.75	10464.2	46.55	10474.6	47.07	10508.7	50.79	10517.4	52.32	10542.6
GR	52.82	10708.6	52.74	10801.8	52.82	10896.2	52.92	10986.5	54.00	12908.7
GR	56.00	12974.6	59.00	12974.6						

SH 6

SB	1.05	1.56	2.8		25	5.3	227.85	2.0	46.55	46.55
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## 2000 BAKER &amp; LAWSON SURVEY SECTION

STATION - SH 6

X1	0.3	23	10456.6	10512.0	120	120	120			
X2			1	53.38	55.38					
X3	10							55	55	
BT	-4	10358.1	52.73		10435.9	55.62		10520.2	55.38	
BT		10612.2	52.82							
GR	59.00	9086.7	54.00	9086.7	54.00	9286.7	52.21	10000.0	51.88	10092.3
GR	51.89	10100.2	52.13	10172.4	52.39	10265.9	52.73	10358.1	52.00	10452.8
GR	51.99	10456.6	46.87	10469.9	46.55	10486.7	47.38	10499.2	51.42	10512.0
GR	52.54	10515.3	52.82	10612.2	52.74	10705.4	52.82	10799.8	52.92	10890.1
GR	54.00	12886.7	56.00	12986.7	59.00	12986.7				

## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	0.2	21	10519.6	10556.1	60	60	60			
X3				10358.1	52.73	10638.9	52.82			
GR	59.00	9130.5	54.00	9130.5	54.00	9330.5	52.21	10000.0	51.88	10092.3
GR	51.89	10100.2	52.13	10172.4	52.39	10265.9	52.73	10358.1	50.16	10519.6
GR	47.94	10525.9	47.44	10530.5	48.16	10537.2	49.68	10556.1	52.82	10638.9
GR	52.74	10732.1	52.82	10826.5	52.92	10916.8	54.00	12930.5	56.00	13030.5

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GR 59.00 13030.5

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T1 CHOCOLATE BAYOU.....2000 BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: CHOCOLAT.IH2.....25 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....REV 09/00

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3			.000150				2.6	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							

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T1 CHOCOLATE BAYOU.....2000 BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: CHOCOLAT.IH2.....100 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....REV 09/00

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		4			.000150				3.6	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1							

THIS RUN EXECUTED 25AUG02 18:59:06

\*\*\*\*\*  
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

\*\*\*\*\*

NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

L REVISED BY KLOTZ ASSOC

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
36.000	10684.00	1.59	2.22	-16.40	5.40	4.60	11.40	9993.21	93.53	.00	1140.74
36.000	12875.00	2.41	2.33	-16.40	5.40	4.60	11.40	11472.51	89.11	.00	1168.02
36.000	17975.00	4.06	2.51	-16.40	5.40	4.60	11.40	14545.06	80.92	.00	1615.13
*	35.000	10632.00	2.01	1.91	-18.00	6.80	6.40	7185.05	67.58	4640.00	467.51
*	35.000	12808.00	2.87	2.14	-18.00	6.80	6.40	8520.49	66.52	4640.00	479.71
	35.000	17870.00	4.58	2.61	-18.00	6.80	6.40	11562.22	64.70	4640.00	503.98
*	34.000	10632.00	2.27	2.32	-19.30	7.80	5.80	10632.00	100.00	3500.00	446.67
*	34.000	12808.00	3.17	2.57	-19.30	7.80	5.80	12808.00	100.00	3500.00	453.40
	34.000	17870.00	4.97	3.07	-19.30	7.80	5.80	17870.00	100.00	3500.00	466.80
	33.000	10632.00	3.25	3.11	-18.10	13.60	7.60	9938.09	93.47	6100.00	618.22
	33.000	12808.00	4.24	3.30	-18.10	13.60	7.60	11519.40	89.94	6100.00	703.90
	33.000	17870.00	6.19	3.59	-18.10	13.60	7.60	14631.87	81.88	6100.00	775.71
	32.000	10632.00	3.84	3.18	-17.70	8.20	4.60	10632.00	100.00	2590.00	322.44
	32.000	12808.00	4.86	3.48	-17.70	8.20	4.60	12806.49	99.99	2590.00	392.45
	32.000	17870.00	6.81	4.01	-17.70	8.20	4.60	17288.83	96.75	2590.00	829.88
*	31.000	10632.00	4.40	2.89	-17.10	4.20	8.00	10500.22	98.76	3210.00	633.39
*	31.000	12808.00	5.48	3.19	-17.10	4.20	8.00	12341.00	96.35	3210.00	679.18
	31.000	17870.00	7.53	3.75	-17.10	4.20	8.00	16172.91	90.50	3210.00	766.12
	30.500	10439.00	4.64	2.89	-15.60	12.40	3.40	10384.86	99.48	2150.00	376.64
	30.500	12563.00	5.76	3.22	-15.60	12.40	3.40	12317.64	98.05	2150.00	401.41
	30.500	17483.00	7.87	3.85	-15.60	12.40	3.40	16461.52	94.16	2150.00	578.43
	30.000	10154.00	5.36	3.44	-12.00	5.60	5.20	10151.01	99.97	5080.00	276.72
	30.000	12210.00	6.56	3.78	-12.00	5.60	5.20	12134.71	99.38	5080.00	465.58
	30.000	16962.00	8.82	4.25	-12.00	5.60	5.20	15698.01	92.55	5080.00	1152.90

Chocolate Bayou Prop. with Det. CHOCLAD.IH2

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
29.500	10154.00	6.02	3.74	-10.10	11.40	8.00	16.60	10131.48	99.78	2800.00	318.54
29.500	12210.00	7.28	4.00	-10.10	11.40	8.00	16.60	12008.07	98.35	2800.00	452.80
29.500	16962.00	9.57	4.31	-10.10	11.40	8.00	16.60	15382.25	90.69	2800.00	838.14
29.000	10154.00	7.25	3.87	-7.70	4.90	3.80	19.90	9619.36	94.73	3450.00	615.29
29.000	12210.00	8.50	3.84	-7.70	4.90	3.80	19.90	10902.11	89.29	3450.00	1105.47
29.000	16962.00	10.67	3.67	-7.70	4.90	3.80	19.90	12685.33	74.79	3450.00	1760.39
28.000	10154.00	10.20	2.75	-7.50	4.90	4.40	20.70	8609.10	84.79	5100.00	1682.34
28.000	12210.00	11.05	2.79	-7.50	4.90	4.40	20.70	9391.95	76.92	5100.00	1930.87
*	28.000	16962.00	12.58	2.82	-7.50	4.90	20.70	10689.77	63.02	5100.00	2690.91
27.000	10150.00	13.37	3.08	-7.40	4.60	6.60	22.50	7412.22	73.03	5020.00	2523.79
27.000	12223.00	14.07	3.14	-7.40	4.60	6.60	22.50	7907.89	64.70	5020.00	3172.28
27.000	16970.00	15.27	3.15	-7.40	4.60	6.60	22.50	8548.66	50.38	5020.00	4073.28
26.000	10150.00	15.96	2.77	-12.70	8.90	8.50	19.00	6982.88	68.80	6090.00	3124.41
26.000	12223.00	16.60	2.82	-12.70	8.90	8.50	19.00	7338.34	60.04	6090.00	3388.87
26.000	16970.00	17.68	2.95	-12.70	8.90	8.50	19.00	8060.99	47.50	6090.00	4041.00
*	25.300	10150.00	16.48	1.92	-14.90	12.00	11.10	7505.02	73.94	2300.00	2779.12
25.300	12223.00	17.13	2.04	-14.90	12.00	11.10	20.60	8239.79	67.41	2300.00	3241.61
25.300	16970.00	18.23	2.27	-14.90	12.00	11.10	20.60	9635.75	56.78	2300.00	3939.03
25.200	10150.00	16.50	1.91	-14.90	12.00	11.10	20.60	7479.46	73.69	100.00	2796.56
25.200	12223.00	17.15	2.03	-14.90	12.00	11.10	20.60	8208.75	67.16	100.00	3280.87
25.200	16970.00	18.25	2.26	-14.90	12.00	11.10	20.60	9592.88	56.53	100.00	3949.75
25.100	10150.00	16.50	1.91	-14.90	12.00	11.10	20.60	7480.81	73.70	20.00	2795.95
25.100	12223.00	17.15	2.03	-14.90	12.00	11.10	20.60	8209.57	67.16	20.00	3279.82
25.100	16970.00	18.25	2.26	-14.90	12.00	11.10	20.60	9591.78	56.52	20.00	3950.02
25.000	10150.00	16.51	1.91	-14.90	12.00	11.10	20.60	7479.40	73.69	50.00	2796.59
25.000	12223.00	17.16	2.03	-14.90	12.00	11.10	20.60	8206.84	67.14	50.00	3283.28
25.000	16970.00	18.26	2.26	-14.90	12.00	11.10	20.60	9586.57	56.49	50.00	3951.33
*	24.100	10150.00	16.95	3.00	-20.51	4.51	10.87	9160.83	90.25	2250.00	285.84
*	24.100	12223.00	17.65	3.47	-20.51	4.51	10.87	10915.88	89.31	2250.00	295.71
*	24.100	16970.00	18.84	4.49	-20.51	4.51	10.87	14876.35	87.66	2250.00	312.50
24.000	10150.00	16.96	3.03	-21.28	5.61	7.42	26.99	9270.27	91.33	50.00	278.04
24.000	12223.00	17.67	3.51	-21.28	5.61	7.42	26.99	11041.51	90.33	50.00	288.24
24.000	16970.00	18.87	4.57	-21.28	5.61	7.42	26.99	15033.23	88.59	50.00	305.62
23.000	10123.00	19.34	1.96	-7.30	15.60	11.40	23.70	6661.55	65.81	7380.00	2639.00
23.000	12180.00	20.25	1.94	-7.30	15.60	11.40	23.70	7007.30	57.53	7380.00	3070.07
*	23.000	16889.00	21.84	1.93	-7.30	15.60	23.70	7670.19	45.42	7380.00	5031.22
23.100	10123.00	19.34	1.91	1.10	15.60	11.40	23.70	6937.07	68.53	10.00	2640.81
23.100	12180.00	20.25	1.92	1.10	15.60	11.40	23.70	7353.06	60.37	10.00	3072.02
23.100	16889.00	21.84	1.93	1.10	15.60	11.40	23.70	8124.70	48.11	10.00	5037.00



Chocolate Bayou Prop. with Det. CHOCLAD.IH2

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
23.200	10123.00	19.34	1.96	-7.30	15.60	11.40	23.70	6654.39	65.74	10.00	2642.66
23.200	12180.00	20.25	1.94	-7.30	15.60	11.40	23.70	7001.09	57.48	10.00	3072.97
23.200	16889.00	21.85	1.93	-7.30	15.60	11.40	23.70	7665.62	45.39	10.00	5036.54
22.300	10123.00	19.35	1.96	-7.30	15.60	11.40	23.70	6651.90	65.71	10.00	2643.93
22.300	12180.00	20.25	1.94	-7.30	15.60	11.40	23.70	6997.76	57.45	10.00	3074.53
22.300	16889.00	21.85	1.92	-7.30	15.60	11.40	23.70	7661.39	45.36	10.00	5041.46
22.400	10123.00	19.35	1.96	-7.30	15.60	11.40	23.70	6648.41	65.68	10.00	2645.71
22.400	12180.00	20.26	1.94	-7.30	15.60	11.40	23.70	6994.31	57.42	10.00	3076.14
22.400	16889.00	21.85	1.92	-7.30	15.60	11.40	23.70	7658.21	45.34	10.00	5045.16
22.000	9942.00	21.11	1.92	-6.30	12.20	14.60	24.90	7341.48	73.84	6840.00	1623.69
22.000	11947.00	21.94	2.03	-6.30	12.20	14.60	24.90	8174.88	68.43	6840.00	2464.00
22.000	16529.00	23.39	2.20	-6.30	12.20	14.60	24.90	9565.53	57.87	6840.00	3652.27
21.000	9942.00	22.17	1.91	-5.60	10.40	12.00	25.50	6496.65	65.35	4660.00	1737.84
21.000	11947.00	23.04	2.03	-5.60	10.40	12.00	25.50	7255.77	60.73	4660.00	2031.02
21.000	16529.00	24.52	2.24	-5.60	10.40	12.00	25.50	8670.97	52.46	4660.00	3030.13
*	20.300	9942.00	22.95	1.26	-5.86	10.20	14.24	3591.12	36.12	6570.00	2886.05
*	20.300	11947.00	23.85	1.31	-5.86	10.20	14.24	3913.61	32.76	6570.00	3218.32
*	20.300	16529.00	25.39	1.44	-5.86	10.20	14.24	4573.81	27.67	6570.00	4323.10
*	20.200	9942.00	22.93	2.39	-4.37	26.58	23.79	9942.00	100.00	100.00	237.06
*	20.200	11947.00	23.81	2.73	-4.37	26.58	23.79	11947.00	100.00	100.00	242.43
*	20.200	16529.00	25.32	3.48	-4.37	26.58	23.79	16519.28	99.94	100.00	284.32
20.100	9942.00	22.98	2.43	-2.90	26.79	24.97	26.78	9942.00	100.00	31.00	232.77
20.100	11947.00	23.89	2.77	-2.90	26.79	24.97	26.78	11947.00	100.00	31.00	237.39
20.100	16529.00	25.51	3.51	-2.90	26.79	24.97	26.78	16528.20	100.00	31.00	261.75
*	20.000	9942.00	23.09	1.14	-2.87	12.37	12.08	3165.25	31.84	50.00	2771.36
*	20.000	11947.00	24.04	1.19	-2.87	12.37	12.08	3454.07	28.91	50.00	3338.73
*	20.000	16529.00	25.76	1.27	-2.87	12.37	12.08	3972.70	24.03	50.00	5181.67
*	19.000	9440.00	23.86	2.66	-3.80	19.90	18.10	5408.85	57.30	6800.00	1608.33
*	19.000	11279.00	24.79	2.62	-3.80	19.90	18.10	5663.31	50.21	6800.00	1838.71
*	19.000	15467.00	26.47	2.61	-3.80	19.90	18.10	6226.69	40.26	6800.00	2111.52
18.000	9440.00	25.54	2.29	-3.30	16.80	20.00	29.40	5977.27	63.32	4230.00	1676.88
18.000	11279.00	26.38	2.37	-3.30	16.80	20.00	29.40	6479.94	57.45	4230.00	1926.30
18.000	15467.00	27.92	2.51	-3.30	16.80	20.00	29.40	7386.10	47.75	4230.00	2858.82
*	17.300	9440.00	26.30	2.14	-5.50	26.30	26.30	5546.42	58.75	2300.00	2747.88
17.300	11279.00	27.08	2.14	-5.50	26.30	26.30	29.00	5785.96	51.30	2300.00	3160.86
17.300	15467.00	28.58	2.09	-5.50	26.30	26.30	29.00	6111.48	39.51	2300.00	3992.36
17.200	9440.00	26.34	2.13	-5.50	26.30	26.30	29.00	5514.46	58.42	100.00	2765.47
17.200	11279.00	27.12	2.12	-5.50	26.30	26.30	29.00	5752.95	51.01	100.00	3179.15
17.200	15467.00	28.60	2.07	-5.50	26.30	26.30	29.00	6080.22	39.31	100.00	4012.68

Chocolate Bayou Prop. with Det. CHOCLAD.IH2

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	17.100	9440.00	26.55	4.19	-1.11	23.28	23.94	30.00	9361.58	99.17	24.00	215.62
*	17.100	11279.00	27.35	4.76	-1.11	23.28	23.94	30.00	11106.55	98.47	24.00	262.77
*	17.100	15467.00	28.60	5.90	-1.11	23.28	23.94	30.00	14688.65	94.97	24.00	885.83
	17.000	9440.00	26.61	4.18	-1.11	23.28	23.94	30.00	9357.12	99.12	50.00	217.74
	17.000	11279.00	27.43	4.73	-1.11	23.28	23.94	30.00	11096.62	98.38	50.00	274.77
	17.000	15467.00	28.72	5.82	-1.11	23.28	23.94	30.00	14585.58	94.30	50.00	1148.94
*	16.000	9440.00	27.81	1.28	3.50	13.30	19.90	30.50	2807.59	29.74	4290.00	4538.44
*	16.000	11279.00	28.67	1.26	3.50	13.30	19.90	30.50	2883.69	25.57	4290.00	5797.54
*	16.000	15467.00	30.10	1.26	3.50	13.30	19.90	30.50	3069.61	19.85	4290.00	8539.57
*	15.000	9227.00	29.05	2.36	7.20	24.00	24.80	32.00	5364.02	58.13	7750.00	4262.35
*	15.000	10994.00	29.75	2.17	7.20	24.00	24.80	32.00	5218.96	47.47	7750.00	4499.54
*	15.000	15035.00	31.00	1.97	7.20	24.00	24.80	32.00	5171.77	34.40	7750.00	5676.69
	14.300	9227.00	32.44	2.04	11.20	29.40	30.60	35.00	3635.15	39.40	8150.00	7533.52
	14.300	10994.00	32.75	2.11	11.20	29.40	30.60	35.00	3836.83	34.90	8150.00	8722.22
	14.300	15035.00	33.41	2.12	11.20	29.40	30.60	35.00	4044.59	26.90	8150.00	11302.62
*	14.200	9227.00	32.24	5.27	11.20	29.40	30.60	35.00	9227.00	100.00	100.00	135.00
	14.200	10994.00	32.79	2.06	11.20	29.40	30.60	35.00	3760.22	34.20	100.00	8920.20
	14.200	15035.00	33.45	2.08	11.20	29.40	30.60	35.00	3988.53	26.53	100.00	11443.41
	14.100	9227.00	32.27	5.25	11.20	29.40	30.60	35.00	9227.00	100.00	32.00	135.00
*	14.100	10994.00	32.81	6.01	11.20	29.40	30.60	35.00	10994.00	100.00	32.00	135.00
*	14.100	15035.00	32.92	8.15	11.20	29.40	30.60	35.00	15035.00	100.00	32.00	135.00
*	14.000	9227.00	32.76	1.76	11.20	29.40	30.60	35.00	3198.97	34.67	50.00	8787.01
*	14.000	10994.00	33.44	1.53	11.20	29.40	30.60	35.00	2919.70	26.56	50.00	11432.41
*	14.000	15035.00	34.07	1.57	11.20	29.40	30.60	35.00	3148.04	20.94	50.00	13894.43
	13.000	9227.00	33.61	1.12	10.30	17.20	30.00	36.00	1422.16	15.41	4450.00	6073.73
	13.000	10994.00	34.13	1.12	10.30	17.20	30.00	36.00	1493.34	13.58	4450.00	6624.70
	13.000	15035.00	34.80	1.24	10.30	17.20	30.00	36.00	1757.83	11.69	4450.00	7341.50
*	12.000	8988.00	34.01	.83	9.20	21.20	23.20	36.00	759.06	8.45	5480.00	7476.83
*	12.000	10649.00	34.52	.85	9.20	21.20	23.20	36.00	803.28	7.54	5480.00	7984.43
*	12.000	14208.00	35.25	.94	9.20	21.20	23.20	36.00	921.05	6.48	5480.00	8582.88
*	11.000	8716.00	34.68	2.67	14.00	29.90	32.30	37.00	3437.56	39.44	5990.00	4775.94
*	11.000	10298.00	35.18	2.49	14.00	29.90	32.30	37.00	3357.19	32.60	5990.00	5869.34
*	11.000	13642.00	35.96	2.31	14.00	29.90	32.30	37.00	3320.14	24.34	5990.00	8477.91
*	10.000	7358.00	36.58	1.28	18.10	32.30	32.90	38.00	1786.29	24.28	4880.00	7442.99
*	10.000	8640.00	36.89	1.29	18.10	32.30	32.90	38.00	1848.05	21.39	4880.00	7764.32
	10.000	11428.00	37.46	1.31	18.10	32.30	32.90	38.00	1982.83	17.35	4880.00	8366.59
*	9.000	7358.00	37.95	2.00	21.80	33.70	34.10	40.00	2437.24	33.12	4610.00	6831.34
*	9.000	8640.00	38.24	2.04	21.80	33.70	34.10	40.00	2553.15	29.55	4610.00	7955.93
*	9.000	11428.00	38.76	2.07	21.80	33.70	34.10	40.00	2709.19	23.71	4610.00	9949.94

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
8.000	6746.00	40.67	1.52	28.20	33.90	43.50	42.00	2140.28	31.73	7920.00	4287.73
8.000	7907.00	40.99	1.57	28.20	33.90	43.50	42.00	2303.36	29.13	7920.00	4770.51
8.000	10454.00	41.55	1.68	28.20	33.90	43.50	42.00	2635.06	25.21	7920.00	5608.33
*	7.500	6746.00	41.24	.94	27.60	39.30	37.90	833.07	12.35	4210.00	6760.57
*	7.500	7907.00	41.56	.95	27.60	39.30	37.90	883.44	11.17	4210.00	7241.67
*	7.500	10454.00	42.13	1.00	27.60	39.30	37.90	990.33	9.47	4210.00	9847.56
*	7.000	6746.00	41.85	3.32	27.20	39.40	41.00	4665.41	69.16	2750.00	1495.83
*	7.000	7907.00	42.16	3.45	27.20	39.40	41.00	5224.64	66.08	2750.00	1656.55
*	7.000	10454.00	42.73	3.64	27.20	39.40	41.00	6254.11	59.83	2750.00	4305.48
*	6.890	6746.00	43.13	3.07	30.50	39.30	39.40	798.93	11.84	750.00	3616.82
*	6.890	7907.00	43.39	3.05	30.50	39.30	39.40	815.82	10.32	750.00	4037.09
*	6.890	10454.00	43.88	3.03	30.50	39.30	39.40	850.17	8.13	750.00	4979.30
6.880	6746.00	43.23	2.88	30.50	39.30	39.40	45.00	755.50	11.20	100.00	3783.45
6.880	7907.00	43.49	2.87	30.50	39.30	39.40	45.00	774.70	9.80	100.00	4229.47
6.880	10454.00	43.97	2.88	30.50	39.30	39.40	45.00	815.40	7.80	100.00	5373.12
6.870	6746.00	43.23	2.86	30.50	39.30	39.40	45.00	752.42	11.15	16.00	3795.82
6.870	7907.00	43.49	2.86	30.50	39.30	39.40	45.00	771.53	9.76	16.00	4245.23
6.870	10454.00	43.97	2.86	30.50	39.30	39.40	45.00	812.07	7.77	16.00	5386.89
6.860	6746.00	43.28	2.79	30.50	39.30	39.40	45.00	737.46	10.93	50.00	3857.07
6.860	7907.00	43.53	2.79	30.50	39.30	39.40	45.00	757.99	9.59	50.00	4313.78
6.860	10454.00	44.01	2.81	30.50	39.30	39.40	45.00	800.32	7.66	50.00	5436.11
*	6.500	6746.00	43.95	1.82	31.40	37.90	38.30	2693.82	39.93	1600.00	3164.61
*	6.500	7907.00	44.24	1.94	31.40	37.90	38.30	2968.92	37.55	1600.00	4734.80
*	6.500	10454.00	44.74	2.13	31.40	37.90	38.30	3439.20	32.90	1600.00	5004.59
*	6.000	2794.00	44.61	2.20	32.40	40.90	42.30	1120.47	40.10	1840.00	1717.88
*	6.000	3318.00	44.93	2.19	32.40	40.90	42.30	1170.38	35.27	1840.00	2289.54
*	6.000	4345.00	45.48	2.13	32.40	40.90	42.30	1226.20	28.22	1840.00	3249.81
5.300	1711.00	45.96	1.42	34.20	43.80	44.00	48.00	1097.53	64.15	3300.00	1809.14
5.300	2040.00	46.24	1.47	34.20	43.80	44.00	48.00	1179.70	57.83	3300.00	2709.59
5.300	2699.00	46.67	1.52	34.20	43.80	44.00	48.00	1287.01	47.68	3300.00	3617.81
*	5.200	1711.00	45.93	3.40	34.20	45.60	45.50	1596.55	93.31	100.00	1388.76
*	5.200	2040.00	46.22	3.50	34.20	45.60	45.50	1688.34	82.76	100.00	2648.45
*	5.200	2699.00	46.68	3.15	34.20	45.60	45.50	1587.01	58.80	100.00	3630.63
5.100	1711.00	46.32	3.51	34.20	45.60	45.50	50.00	1711.00	100.00	24.00	45.00
5.100	2040.00	46.42	4.15	34.20	45.60	45.50	50.00	2040.00	100.00	24.00	45.00
*	5.100	2699.00	47.02	1.77	34.20	45.60	45.50	921.18	34.13	24.00	4081.95
*	5.000	1711.00	46.59	1.01	34.20	43.80	44.00	849.81	49.67	100.00	3461.17
*	5.000	2040.00	46.79	1.06	34.20	43.80	44.00	916.89	44.95	100.00	3753.35
*	5.000	2699.00	47.05	1.20	34.20	43.80	44.00	1067.46	39.55	100.00	4112.14

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	4.690	1711.00	47.11	1.86	36.20	44.80	44.50	50.00	805.47	47.08	2950.00	1527.62
*	4.690	2040.00	47.34	1.94	36.20	44.80	44.50	50.00	864.86	42.40	2950.00	1662.09
*	4.690	2699.00	47.70	2.09	36.20	44.80	44.50	50.00	982.20	36.39	2950.00	1867.92
	4.680	1711.00	47.16	1.82	36.20	44.80	44.50	50.00	792.17	46.30	100.00	1548.70
	4.680	2040.00	47.39	1.89	36.20	44.80	44.50	50.00	850.80	41.71	100.00	1683.58
	4.680	2699.00	47.75	2.05	36.20	44.80	44.50	50.00	965.33	35.77	100.00	1892.16
*	4.670	1711.00	47.66	1.35	36.20	44.80	44.50	50.00	631.01	36.88	16.00	1849.43
*	4.670	2040.00	48.09	1.28	36.20	44.80	44.50	50.00	631.56	30.96	16.00	2102.09
*	4.670	2699.00	48.88	1.17	36.20	44.80	44.50	50.00	632.71	23.44	16.00	2555.98
	4.660	1711.00	47.67	1.34	36.20	44.80	44.50	50.00	628.43	36.73	50.00	1855.10
	4.660	2040.00	48.10	1.27	36.20	44.80	44.50	50.00	630.17	30.89	50.00	2105.42
	4.660	2699.00	48.89	1.16	36.20	44.80	44.50	50.00	630.97	23.38	50.00	2560.87
	4.000	1711.00	47.97	1.35	37.00	46.10	46.30	51.00	1475.51	86.24	1500.00	967.73
	4.000	2040.00	48.37	1.42	37.00	46.10	46.30	51.00	1639.73	80.38	1500.00	1176.80
	4.000	2699.00	49.10	1.46	37.00	46.10	46.30	51.00	1855.11	68.73	1500.00	1991.62
	3.000	1711.00	48.65	1.02	38.70	46.40	46.80	51.00	600.43	35.09	3800.00	2604.61
	3.000	2040.00	49.01	.99	38.70	46.40	46.80	51.00	612.67	30.03	3800.00	2989.94
*	3.000	2699.00	49.64	.93	38.70	46.40	46.80	51.00	626.90	23.23	3800.00	3615.77
*	2.030	1172.00	49.59	2.04	40.90	47.90	48.10	52.00	1101.38	93.97	4130.00	320.77
*	2.030	1400.00	49.86	2.26	40.90	47.90	48.10	52.00	1283.17	91.65	4130.00	359.19
*	2.030	1853.00	50.33	2.60	40.90	47.90	48.10	52.00	1601.07	86.40	4130.00	468.04
	2.020	1172.00	49.75	1.96	40.90	47.90	48.10	52.00	1086.28	92.69	200.00	342.63
	2.020	1400.00	50.04	2.15	40.90	47.90	48.10	52.00	1259.56	89.97	200.00	388.94
	2.020	1853.00	50.54	2.43	40.90	47.90	48.10	52.00	1550.15	83.66	200.00	530.21
	2.010	1172.00	50.32	1.65	40.90	47.90	48.10	52.00	1014.42	86.55	24.00	464.59
	2.010	1400.00	50.49	1.87	40.90	47.90	48.10	52.00	1181.01	84.36	24.00	514.47
*	2.010	1853.00	50.74	2.28	40.90	47.90	48.10	52.00	1500.83	80.99	24.00	589.23
	2.000	1172.00	50.36	1.62	40.90	47.90	48.10	52.00	1006.89	85.91	100.00	479.28
	2.000	1400.00	50.54	1.83	40.90	47.90	48.10	52.00	1170.02	83.57	100.00	532.07
	2.000	1853.00	50.82	2.22	40.90	47.90	48.10	52.00	1480.62	79.90	100.00	613.17
*	1.000	1172.00	52.48	2.45	44.60	50.70	50.50	53.50	652.18	55.65	3870.00	1196.16
	1.000	1400.00	52.76	2.35	44.60	50.70	50.50	53.50	661.94	47.28	3870.00	1434.32
	1.000	1853.00	53.20	2.23	44.60	50.70	50.50	53.50	678.12	36.60	3870.00	1757.98
	.800	1172.00	54.04	3.27	44.98	50.29	49.86	59.00	1087.92	92.83	1700.00	109.10
	.800	1400.00	54.30	3.72	44.98	50.29	49.86	59.00	1285.77	91.84	1700.00	116.30
*	.800	1853.00	54.68	4.57	44.98	50.29	49.86	59.00	1673.25	90.30	1700.00	126.83
*	.500	1172.00	54.37	.84	47.44	50.16	49.68	59.00	177.19	15.12	680.00	3818.20
*	.500	1400.00	54.67	.76	47.44	50.16	49.68	59.00	168.96	12.07	680.00	3833.05
*	.500	1853.00	55.15	.70	47.44	50.16	49.68	59.00	166.94	9.01	680.00	3857.50

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
.400	1172.00	54.38	.78	46.55	50.75	50.79	59.00	286.60	24.45	200.00	3846.76	
.400	1400.00	54.68	.73	46.55	50.75	50.79	59.00	278.58	19.90	200.00	3856.40	
.400	1853.00	55.16	.69	46.55	50.75	50.79	59.00	279.30	15.07	200.00	3872.39	
*	.300	1172.00	55.02	.47	46.55	51.99	51.42	59.00	182.44	15.57	120.00	3851.26
.300	1400.00	55.07	.55	46.55	51.99	51.42	59.00	213.18	15.23	120.00	3853.31	
.300	1853.00	55.61	.52	46.55	51.99	51.42	59.00	218.69	11.80	120.00	3880.80	
.200	1172.00	55.03	.48	47.44	50.16	49.68	59.00	112.80	9.62	60.00	3851.33	
.200	1400.00	55.07	.56	47.44	50.16	49.68	59.00	131.78	9.41	60.00	3853.36	
.200	1853.00	55.62	.52	47.44	50.16	49.68	59.00	134.76	7.27	60.00	3880.84	

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## SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	35.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	35.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	34.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	34.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	31.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	31.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	28.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	25.300	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	24.100	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	24.100	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	24.100	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	23.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	20.300	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	20.300	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	20.300	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	20.200	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	20.200	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	20.200	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	20.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	20.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	20.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	19.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	19.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	19.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	17.300	PROFILE=	1	WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=	17.300	PROFILE=	1	20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=	17.100	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	17.100	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	17.100	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	16.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	16.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	16.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	15.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	15.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	15.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	14.200	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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WARNING SECNO=	14.100	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	14.100	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	14.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	14.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	14.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	12.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	12.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	12.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	11.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	11.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	11.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	10.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	10.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	9.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	9.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	9.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.500	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.500	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.500	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.890	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.890	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.890	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.500	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.500	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.500	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.200	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.200	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.200	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.100	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	4.690	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

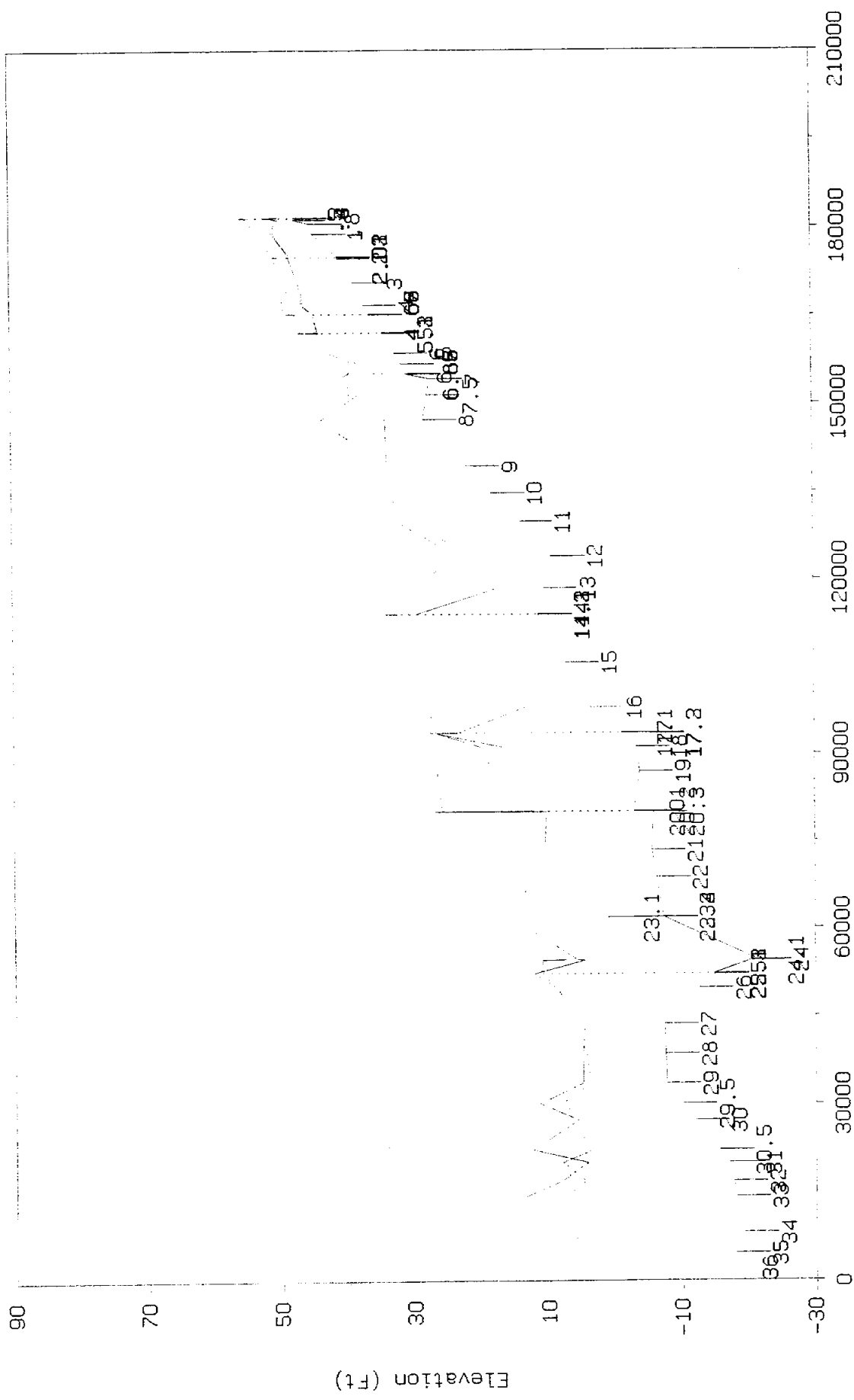
25AUG02 18:59:03

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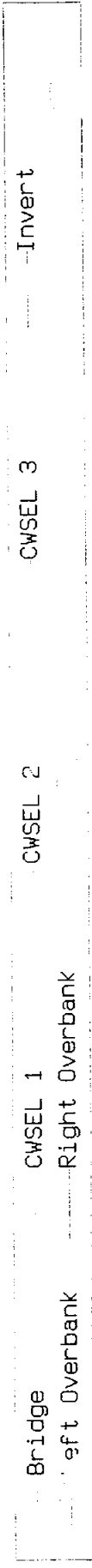
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WARNING SECNO=	4.690	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	4.670	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	4.670	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	4.670	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	3.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.030	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.030	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.030	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
CAUTION SECNO=	2.010	PROFILE=	2	HYDRAULIC	JUMP	D.S.		
CAUTION SECNO=	2.010	PROFILE=	3	HYDRAULIC	JUMP	D.S.		
WARNING SECNO=	1.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	.800	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	.500	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	.500	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	.500	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	.300	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE



L REVISED BY KLOTZ ASSOC  
 Cross-Sections (36 to .2)



Channel Length (Ft)



Brunner Ditch Rev.Existing Multi-Frequency BRUNNERR.IH2

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*****  
HEC-2 WATER SURFACE PROFILES *  
*  
Version 4.6.2; May 1991 *  
*  
* RUN DATE 21AUG02 TIME 09:26:19 *  
*****
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*****  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET, SUITE D *  
* DAVIS, CALIFORNIA 95616-4687 *  
* (916) 756-1104 *  
*****
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X X XXXXXXX XXXXX XXXXX  
X X X X X X X  
X X X X X X  
XXXXXXXX XXXX X XXXXX XXXXX  
X X X X X X  
X X X X X X  
X X XXXXXXX XXXXX XXXXXXX
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21AUG02 09:26:19

THIS RUN EXECUTED 21AUG02 09:26:19

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

T1 BRUNNER DITCH..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 T2 EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
 T3 FILENAME: BRUNNER.IH2.....10, 25, AND 100 YEAR FREQUENCY  
 T3 MODEL CREATED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

NOTES\*\*\*\*\*  
 MODEL CREATED BASED ON 2000 BAKER & LAWSON SURVEY SECTIONS  
 \*\*\*\*\*

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2			0.0001				22.37	
J2	NPROF	IPL0T	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1							

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

38	43	1	26	42	23	24	63	14	60
39	4								

J5 LPRNT NUMSEC \*\*\*\*\*REQUESTED SECTION NUMBERS\*\*\*\*\*  
 -10 -10

NC	.04	.04	.04	.1	.3
QT	3	1762	2112	2886	

CR192

CR 192

X1	5600	8	10000	10125.2	0	0	0		
GR	30.00	2534.5	26.61	10000	24.15	10034.5	25.78	10125.2	25.78 10222.1
GR	26.03	10319.9	26.03	12034.5	30.00	12034.5			

X1	5650				50	50	50		
	-3	0.3	0.4	0.5					

X1	15650	10	10058.9	10127.5	10000	10000	10000			
X3				10047.3	36.36	10127.5	38.41			
GR	40.00	4087.8	35.00	9087.8	33.65	10000	36.36	10047.3	35.67	10058.9
GR	29.03	10081.2	26.82	10087.8	28.49	10097.1	38.41	10127.5	39.47	10138.2

FIELD ROAD

FIELD ROAD										
X1	28020	10	10058.9	10127.5	12370	12370	12370			
GR	40.00	4087.8	35.00	9087.8	33.65	10000	36.36	10047.3	35.67	10058.9
GR	29.03	10081.2	26.82	10087.8	28.49	10097.1	38.41	10127.5	39.47	10138.2

X1	28240	10	10059.0	10131.1	220	220	220			
GR	40.00	4091	35.00	9091	33.55	10000	36.54	10048.6	35.68	10059
GR	29.16	10082.5	27.06	10091	28.41	10099.2	38.71	10131.1	39.09	10140.9

QT	3	1519	1832	2465						
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X1	32430	7	10009.2	10083.7	4190	4190	4190			
GR	44.12	10000	43.55	10009.2	31.06	10045.5	29.67	10052.3	30.80	10057.9
GR	45.43	10083.7	46.53	10099.1						

X1	32550	11	10013.0	10025.0	120	120	120			
X3	10							31.63	31.63	
GR	44.46	9716.9	39.46	9966.9	36.97	9984.8	29.76	10013.0	29.66	10015.9
GR	29.60	10019.0	29.66	10022.0	29.72	10025.0	36.33	10053.8	39.15	10082.1
GR	44.15	10332.1								

LOW WATER CROSSING

SC	5.013	0.4	3.0		2.0		20	2.3		
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LOW WATER CROSSING										
X1	32570	13	10013.0	10024.9	20	20	20			
X2			2		32.13					
X3	10							32.13	32.13	
BT	-9	9716.9	44.46		9966.9	39.46		9984.8	36.97	
BT		10009.1	32.72		10019.2	32.20		10027.9	32.13	
BT		10053.8	36.33		10082.1	39.15		10332.1	44.15	
GR	44.46	9716.9	39.46	9966.9	36.97	9984.8	32.72	10009.1	29.90	10013.0
GR	29.85	10016.0	30.19	10019.2	29.82	10021.9	29.66	10024.9	32.13	10027.9
GR	36.33	10053.8	39.15	10082.1	44.15	10332.1				

X1	32650	8	10009.1	10074.4	80	80	80			
GR	42.85	10000	41.91	10009.1	30.76	10040.4	30.32	10046.3	31.53	10052.3
GR	39.37	10074.4	40.64	10090.5	45.64	10340.5				

FM1462



Brunner Ditch Rev.Existing Multi-Frequency BRUNNERR.IH2

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QT	3	431	511	675						
X1	57150	12	10022.6	10044.6	4070	4070	4070			
GR	50.00	4032.1	47.24	4032.1	47.24	10000	46.73	10011.4	44.43	10022.6
GR	41.62	10027.7	40.71	10032.1	41.05	10036.9	43.65	10044.6	44.45	10068.2
GR	44.57	10135.9	49.00	15032.1						

X1	57200	12	10022.1	10045.6	50	50	50			
X3	10							45.55	45.55	
GR	50.00	4032.6	47.37	4032.6	47.37	10000.0	46.53	10014.9	44.10	10022.1
GR	40.70	10029.5	39.20	10032.6	40.55	10036.5	43.26	10045.6	45.39	10050.9
GR	45.27	10082.2	49.00	15032.6						

HAY MEADOW ROAD

SC	1.013	0.4	3.0		5.67		21.0	2.3		
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HAY MEADOW ROAD

X1	57220	13	10023.7	10042.3	20	20	20			
X2			2.0		46.05					
X3	10							46.05	46.05	
BT	-5	10000.0	47.34		10014.9	46.53		10032.6	46.05	
BT		10050.9	45.39		10082.2	45.27				
GR	50.00	4032.6	47.37	4032.6	47.34	10000.0	46.53	10014.9	44.00	10023.7
GR	40.93	10029.1	39.95	10032.6	40.72	10035.5	43.83	10042.3	45.39	10050.9
GR	45.27	10082.2	49.00	15032.6	50.00	15032.6				

X1	57315	13	10019.6	10045.6	95	95	95			
GR	50.00	4034.2	47.50	4034.2	47.50	10000	47.12	10010.2	44.64	10019.6
GR	41.35	10028.8	40.36	10034.2	40.78	10040.1	43.54	10045.6	45.48	10067.8
GR	44.61	10114.2	49.00	15034.2	50.00	15034.2				

X1	58225	11	10019.1	10045.4	910	910	910			
GR	51.00	4032.0	46.95	4032.0	46.95	10000	46.60	10009.4	44.64	10019.1
GR	41.58	10026.7	40.48	10032.0	41.08	10037.4	44.19	10045.4	49.00	15032.0
GR	51.00	15032.0								

X1	58275	10	10019.2	10047.0	50	50	50			
X3	10							45.58	45.58	
GR	51.00	4031.8	45.93	4031.8	45.93	9902.6	47.04	9996.9	43.96	10019.2
GR	40.83	10031.8	43.47	10047.0	44.38	10105.3	49.00	15031.8	51.00	15031.8

PRIVATE RD. Nr CR65 & CR121

Brunner Ditch Rev.Existing Multi-Frequency BRUNNERR.IH2

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SC	1.013	0.4	3.0		5.0		24.5	2.3		
PRIVATE ROAD NEAR CR65 & CR121										
X1	58320	10	10018.5	10047.0	45	45	45			
X2			2.0		46.08					
X3	10							46.08	46.08	
BT	-6	9996.9	47.04		10000.0	47.07		10017.5	46.48	
BT		10031.8	46.08		10063.4	45.14		10105.3	44.38	
GR	51.00	4031.8	45.93	4031.8	45.93	9902.6	47.04	9996.9	43.83	10018.5
GR	40.70	10031.8	43.77	10047.0	44.38	10105.3	49.00	15031.8	51.00	15031.8
X1	58362	13	10018.8	10043.0	42	42	42			
GR	51.00	4032.2	46.90	4032.2	46.90	10000	46.55	10010.6	44.57	10018.8
GR	41.66	10027.2	40.65	10032.2	41.29	10036.7	43.81	10043.0	45.59	10061.9
GR	44.68	10086.5	49.00	15032.2	51.00	15032.2				
X1	59590	13	9997.5	10016.8	1228	1228	1228			
GR	51.00	8007.0	47.35	8007.0	47.35	9974.8	46.84	9984.2	43.73	9997.5
GR	41.95	10002.7	41.52	10007.0	41.93	10011.5	43.78	10016.8	45.65	10038.4
GR	44.58	10060.4	50.00	16007.0	51.00	16007.0				
X1	59700	9	10001.0	10012.6	110	110	110			
X3	10							45.15	45.15	
GR	51.00	8007.0	44.58	8007.0	44.58	10001.0	43.12	10001.6	42.32	10007.0
GR	42.90	10011.6	44.50	10012.6	50.00	16007.0	51.00	16007.0		
CR61										
SB	1.05	1.5	2.6		10.0	2.0	20.0	0.1		
CR 61										
X1	59720	9	10001.7	10013.6	20	20	20			
X2			1.0	44.52	45.77					
X3	10							45.77	45.77	
BT	-6	9980.4	47.29		10000	45.68		10007	45.77	
BT		10013.8	45.83		10113.6	44.98		10207.2	45.34	
GR	51.00	8007.0	44.57	8007.0	44.57	10001.7	43.30	10002.7	42.23	10007.0
GR	43.55	10012.4	45.03	10013.6	50.00	16007.0	51.00	16007.0		
X1	59805	13	9996.8	10019.3	85	85	85			
GR	51.00	8007.0	47.28	8007.0	47.28	9978.6	46.87	9987.8	45.15	9996.8
GR	43.44	10003.5	42.73	10007.0	43.13	10010.9	44.52	10019.3	45.21	10025.7
GR	44.80	10055.5	50.00	16007.0	51.00	16007.0				

Brunner Ditch Rev.Existing Multi-Frequency BRUNNERR.IH2

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X1	60225	11	9998.5	10022.0	420	420	420			
GR	51.00	9004.8	48.42	9004.8	48.42	9980.9	47.98	9990.3	45.84	9998.5
GR	43.27	10004.8	42.51	10010.2	42.92	10014.3	45.03	10022.0	49.00	15004.8
GR	51.00	15004.8								

X1	60290	12	9998.3	10018.4	65	65	65			
X3	10							46.72	46.72	
GR	51.00	9008.7	48.41	9008.7	48.41	9980.0	47.82	9992.6	44.99	9998.3
GR	42.44	10004.8	42.36	10008.7	44.70	10018.4	46.49	10030.8	46.20	10053.1
GR	49.00	15008.7	51.00	15008.7						

PRIVATE ROAD

SC	2.013	0.4	3.0		4.0		25.0	2.3		
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PRIVATE ROAD

X1	60320	12	9998.3	10019.5	30	30	30			
X2			2.0		47.22					
X3	10							47.22	47.22	
BT	-5	9980.0	48.41		9992.6	47.82		10010.2	47.22	
BT		10030.8	46.49		10053.1	46.20				
GR	51.00	9010.7	48.41	9010.7	48.41	9980.0	47.82	9992.6	46.00	9998.3
GR	42.47	10007.2	42.44	10010.7	44.71	10019.5	46.49	10030.8	46.20	10053.1
GR	49.00	15010.7	51.00	15010.7						

X1	60380	11	9998.3	10021.2	60	60	60			
GR	51.00	9010.2	47.96	9010.2	47.96	9980.7	47.47	9990.3	45.81	9998.3
GR	43.45	10004.8	42.65	10010.2	43.04	10014.8	44.79	10021.2	49.00	15010.2
GR	51.00	15010.2								

X1	60570	11	9999.4	10019.8	190	190	190			
GR	52.00	9009.3	47.84	9009.3	47.84	9981.2	47.35	9992.0	45.19	9999.4
GR	43.30	10005.4	42.77	10009.3	42.84	10013.3	44.17	10019.8	49.00	15009.3
GR	52.00	15009.3								

X1	60705	10	10000.0	10019.9	135	135	135			
X3	10							46.14	46.14	
GR	52.00	9011.5	47.86	9011.5	47.86	9981	45.26	10000	42.41	10006.9
GR	42.23	10011.5	43.94	10019.9	46.40	10030	49.00	15011.5	52.00	15011.5

PASTURE ROAD

SC	2.013	0.4	3.0		4.0		30.0	2.3		
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T1 BRUNNER DITCH..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 T2 EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
 T3 FILENAME: BRUNNERD.IH2.....25 YEAR FREQUENCY  
 T3 MODEL CREATED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3			0.0001				23.22	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							

Brunner Ditch Rev.Existing Multi-Frequency BRUNNERR.IH2

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T1 BRUNNER DITCH..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: BRUNNERD.IH2.....100 YEAR FREQUENCY  
T3 MODEL CREATED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	PQ
		4			0.0001				24.83	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1							

THIS RUN EXECUTED 21AUG02 09:26:20

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

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NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

L CREATED BY KLOTZ ASSOC

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
5600.000	1762.00	27.50	.67	24.15	26.61	25.78	30.00	202.24	11.48	.00	3989.96
5600.000	2112.00	27.65	.69	24.15	26.61	25.78	30.00	222.63	10.54	.00	4325.87
5600.000	2886.00	27.91	.75	24.15	26.61	25.78	30.00	266.26	9.23	.00	4907.86
5650.000	1762.00	27.50	.66	24.15	26.61	25.78	30.00	201.66	11.44	50.00	4000.93
5650.000	2112.00	27.66	.69	24.15	26.61	25.78	30.00	222.04	10.51	50.00	4336.71
5650.000	2886.00	27.92	.75	24.15	26.61	25.78	30.00	265.62	9.20	50.00	4919.05
* 15650.000	1762.00	33.50	10.79	26.82	35.67	38.41	39.47	1762.00	100.00	10000.00	46.29
* 15650.000	2112.00	34.04	11.17	26.82	35.67	38.41	39.47	2112.00	100.00	10000.00	49.73
* 15650.000	2886.00	35.07	11.83	26.82	35.67	38.41	39.47	2886.00	100.00	10000.00	56.37
* 28020.000	1762.00	37.03	.67	26.82	35.67	38.41	189.47	242.24	13.75	12370.00	3062.23
* 28020.000	2112.00	37.43	.62	26.82	35.67	38.41	189.47	241.76	11.45	12370.00	3461.93
* 28020.000	2886.00	38.29	.53	26.82	35.67	38.41	189.47	237.72	8.24	12370.00	4320.03
28240.000	1762.00	37.04	.65	27.06	35.68	38.71	39.09	244.27	13.86	220.00	3069.41
28240.000	2112.00	37.43	.61	27.06	35.68	38.71	39.09	244.95	11.60	220.00	3469.44
28240.000	2886.00	38.29	.52	27.06	35.68	38.71	39.09	242.53	8.40	220.00	4329.08
* 32430.000	1519.00	36.21	11.05	29.67	43.55	45.43	44.12	1519.00	100.00	4190.00	36.90
* 32430.000	1832.00	36.77	11.52	29.67	43.55	45.43	44.12	1832.00	100.00	4190.00	39.54
* 32430.000	2465.00	37.78	12.25	29.67	43.55	45.43	44.12	2465.00	100.00	4190.00	44.24
* 32550.000	1519.00	38.34	4.84	29.60	29.76	29.72	44.15	504.16	33.19	120.00	99.09
* 32550.000	1832.00	39.07	4.99	29.60	29.76	29.72	44.15	563.14	30.74	120.00	111.54
* 32550.000	2465.00	40.36	5.08	29.60	29.76	29.72	44.15	652.23	26.46	120.00	220.38
32570.000	1519.00	38.22	6.08	29.66	29.90	29.66	44.15	601.39	39.59	20.00	97.08
32570.000	1832.00	38.97	6.09	29.66	29.90	29.66	44.15	656.19	35.82	20.00	109.83
32570.000	2465.00	40.29	5.93	29.66	29.90	29.66	44.15	732.82	29.73	20.00	213.65

Brunner Ditch Rev.Existing Multi-Frequency BRUNNERR.IH2

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
* 32650.000	1519.00	38.19	6.64	30.32	41.91	39.37	42.85	1519.00	100.00	80.00	51.53
* 32650.000	1832.00	38.87	6.91	30.32	41.91	39.37	42.85	1832.00	100.00	80.00	55.36
* 32650.000	2465.00	40.06	7.36	30.32	41.91	39.37	42.85	2461.40	99.85	80.00	68.86
* 39170.000	1519.00	43.80	2.05	34.76	41.45	42.98	47.88	808.86	53.25	6520.00	531.83
* 39170.000	1832.00	44.25	2.08	34.76	41.45	42.98	47.88	880.73	48.07	6520.00	621.30
* 39170.000	2465.00	45.02	2.10	34.76	41.45	42.98	47.88	996.35	40.42	6520.00	775.30
39220.000	1519.00	43.82	2.04	34.76	41.45	42.98	47.88	805.67	53.04	50.00	535.29
39220.000	1832.00	44.27	2.07	34.76	41.45	42.98	47.88	877.79	47.91	50.00	624.23
39220.000	2465.00	45.04	2.09	34.76	41.45	42.98	47.88	993.79	40.32	50.00	777.63
* 52915.000	675.00	47.59	1.74	40.68	44.75	45.14	50.00	345.05	51.12	13695.00	7207.18
* 52915.000	800.00	47.66	1.60	40.68	44.75	45.14	50.00	321.12	40.14	13695.00	7472.61
* 52915.000	1054.00	47.80	1.36	40.68	44.75	45.14	50.00	279.66	26.53	13695.00	7986.56
* 52990.000	675.00	47.61	.08	41.97	42.83	42.77	50.00	5.38	.80	75.00	8716.34
* 52990.000	800.00	47.67	.09	41.97	42.83	42.77	50.00	6.17	.77	75.00	8925.53
* 52990.000	1054.00	47.81	.11	41.97	42.83	42.77	50.00	7.62	.72	75.00	9352.61
* 53020.000	675.00	47.62	.08	41.97	42.83	42.77	50.00	5.35	.79	30.00	8752.31
* 53020.000	800.00	47.68	.09	41.97	42.83	42.77	50.00	6.15	.77	30.00	8944.37
* 53020.000	1054.00	47.82	.11	41.97	42.83	42.77	50.00	7.61	.72	30.00	9359.98
* 53080.000	675.00	47.62	.18	41.31	46.40	45.67	50.00	31.83	4.72	60.00	11856.77
* 53080.000	800.00	47.68	.20	41.31	46.40	45.67	50.00	35.35	4.42	60.00	11966.56
* 53080.000	1054.00	47.82	.22	41.31	46.40	45.67	50.00	40.70	3.86	60.00	12204.14
57150.000	431.00	47.63	.14	40.71	44.43	43.65	49.00	18.09	4.20	4070.00	9479.82
57150.000	511.00	47.69	.16	40.71	44.43	43.65	49.00	20.13	3.94	4070.00	9551.26
57150.000	675.00	47.83	.18	40.71	44.43	43.65	49.00	23.31	3.45	4070.00	9704.67
* 57200.000	431.00	47.63	.26	39.20	44.10	43.26	49.00	37.10	8.61	50.00	9177.57
* 57200.000	511.00	47.69	.27	39.20	44.10	43.26	49.00	40.21	7.87	50.00	9263.85
* 57200.000	675.00	47.83	.30	39.20	44.10	43.26	49.00	44.15	6.54	50.00	9448.69
57220.000	431.00	47.64	.25	39.95	44.00	43.83	50.00	27.15	6.30	20.00	9190.07
57220.000	511.00	47.71	.26	39.95	44.00	43.83	50.00	29.18	5.71	20.00	9283.35
57220.000	675.00	47.88	.27	39.95	44.00	43.83	50.00	30.68	4.55	20.00	9513.08
* 57315.000	431.00	47.64	.17	40.36	44.64	43.54	50.00	25.94	6.02	95.00	9471.93
57315.000	511.00	47.71	.19	40.36	44.64	43.54	50.00	28.91	5.66	95.00	9550.74
57315.000	675.00	47.88	.21	40.36	44.64	43.54	50.00	32.61	4.83	95.00	9744.77
* 58225.000	431.00	47.64	.10	40.48	44.64	44.19	51.00	15.29	3.55	910.00	9589.57
* 58225.000	511.00	47.71	.11	40.48	44.64	44.19	51.00	17.05	3.34	910.00	9662.89
* 58225.000	675.00	47.88	.13	40.48	44.64	44.19	51.00	19.59	2.90	910.00	9842.55
* 58275.000	431.00	47.64	.06	40.83	43.96	43.47	51.00	8.36	1.94	50.00	9547.41
* 58275.000	511.00	47.71	.06	40.83	43.96	43.47	51.00	9.51	1.86	50.00	9622.66
* 58275.000	675.00	47.88	.07	40.83	43.96	43.47	51.00	11.45	1.70	50.00	9807.53

Brunner Ditch Rev.Existing Multi-Frequency BRUNNERR.IH2

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
58320.000	431.00	47.65	.06	40.70	43.83	43.77	51.00	8.55	1.98	45.00	9557.15
58320.000	511.00	47.72	.06	40.70	43.83	43.77	51.00	9.72	1.90	45.00	9635.47
58320.000	675.00	47.90	.07	40.70	43.83	43.77	51.00	11.66	1.73	45.00	9828.35
* 58362.000	431.00	47.65	.12	40.65	44.57	43.81	51.00	15.85	3.68	42.00	9450.94
* 58362.000	511.00	47.72	.13	40.65	44.57	43.81	51.00	17.47	3.42	42.00	9535.02
* 58362.000	675.00	47.90	.14	40.65	44.57	43.81	51.00	19.58	2.90	42.00	9742.10
59590.000	431.00	47.65	.17	41.52	43.73	43.78	51.00	17.02	3.95	1228.00	5419.21
* 59590.000	511.00	47.72	.18	41.52	43.73	43.78	51.00	19.20	3.76	1228.00	5499.96
* 59590.000	675.00	47.90	.21	41.52	43.73	43.78	51.00	22.50	3.33	1228.00	5698.58
* 59700.000	431.00	47.65	.05	42.32	44.58	44.50	51.00	3.05	.71	110.00	5437.62
* 59700.000	511.00	47.72	.06	42.32	44.58	44.50	51.00	3.54	.69	110.00	5518.08
* 59700.000	675.00	47.90	.08	42.32	44.58	44.50	51.00	4.44	.66	110.00	5715.66
* 59720.000	431.00	47.66	.06	42.23	44.57	45.03	51.00	3.28	.76	20.00	5173.46
* 59720.000	511.00	47.73	.07	42.23	44.57	45.03	51.00	3.80	.74	20.00	5264.00
* 59720.000	675.00	47.91	.08	42.23	44.57	45.03	51.00	4.76	.71	20.00	5485.51
* 59805.000	431.00	47.66	.16	42.73	45.15	44.52	51.00	14.10	3.27	85.00	5317.37
* 59805.000	511.00	47.73	.17	42.73	45.15	44.52	51.00	15.88	3.11	85.00	5403.29
* 59805.000	675.00	47.91	.20	42.73	45.15	44.52	51.00	18.62	2.76	85.00	5613.52
60225.000	431.00	47.66	.20	42.51	45.84	45.03	51.00	18.32	4.25	420.00	3327.40
60225.000	511.00	47.73	.22	42.51	45.84	45.03	51.00	20.82	4.07	420.00	3422.09
60225.000	675.00	47.92	.25	42.51	45.84	45.03	51.00	24.93	3.69	420.00	3653.57
* 60290.000	431.00	47.66	.61	42.36	44.99	44.70	51.00	52.27	12.13	65.00	2640.32
* 60290.000	511.00	47.73	.65	42.36	44.99	44.70	51.00	56.61	11.08	65.00	2773.96
* 60290.000	675.00	47.92	.67	42.36	44.99	44.70	51.00	60.93	9.03	65.00	3102.06
* 60320.000	431.00	48.00	.37	42.44	46.00	44.71	51.00	33.93	7.87	30.00	3247.64
* 60320.000	511.00	48.23	.33	42.44	46.00	44.71	51.00	32.35	6.33	30.00	3667.95
* 60320.000	675.00	48.65	.29	42.44	46.00	44.71	51.00	30.37	4.50	30.00	5379.32
* 60380.000	431.00	48.00	.13	42.65	45.81	44.79	51.00	12.73	2.95	60.00	4813.94
* 60380.000	511.00	48.23	.13	42.65	45.81	44.79	51.00	13.55	2.65	60.00	5092.03
* 60380.000	675.00	48.65	.13	42.65	45.81	44.79	51.00	14.95	2.21	60.00	5586.13
60570.000	431.00	48.00	.10	42.77	45.19	44.17	52.00	8.87	2.06	190.00	4966.67
60570.000	511.00	48.23	.10	42.77	45.19	44.17	52.00	9.68	1.89	190.00	5208.58
60570.000	675.00	48.65	.11	42.77	45.19	44.17	52.00	11.11	1.65	190.00	5638.87
* 60705.000	431.00	48.00	.48	42.23	45.26	43.94	52.00	46.16	10.71	135.00	4081.30
* 60705.000	511.00	48.23	.41	42.23	45.26	43.94	52.00	40.92	8.01	135.00	4530.61
* 60705.000	675.00	48.65	.32	42.23	45.26	43.94	52.00	35.05	5.19	135.00	5329.37
60740.000	431.00	48.17	.38	42.35	45.31	43.23	52.00	41.81	9.70	35.00	4421.48
60740.000	511.00	48.44	.31	42.35	45.31	43.23	52.00	36.73	7.19	35.00	4935.56
* 60740.000	675.00	48.95	.24	42.35	45.31	43.23	52.00	30.75	4.56	35.00	5907.21

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	60870.000	431.00	48.18	.09	42.15	44.97	44.09	52.00	12.30	2.85	130.00	5165.09
*	60870.000	511.00	48.44	.09	42.15	44.97	44.09	52.00	13.22	2.59	130.00	5436.99
*	60870.000	675.00	48.95	.09	42.15	44.97	44.09	52.00	14.77	2.19	130.00	5951.46

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## SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO=	15650.000	PROFILE=	1	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	15650.000	PROFILE=	1	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	15650.000	PROFILE=	1	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=	15650.000	PROFILE=	2	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	15650.000	PROFILE=	2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	15650.000	PROFILE=	2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=	15650.000	PROFILE=	3	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	15650.000	PROFILE=	3	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	15650.000	PROFILE=	3	20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=	28020.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	28020.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	28020.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	32430.000	PROFILE=	1	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	32430.000	PROFILE=	1	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	32430.000	PROFILE=	2	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	32430.000	PROFILE=	2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	32430.000	PROFILE=	2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=	32430.000	PROFILE=	3	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	32430.000	PROFILE=	3	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	32430.000	PROFILE=	3	20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=	32550.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	32550.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	32550.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	32650.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	32650.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	32650.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	39170.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	39170.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	39170.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	52915.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	52915.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	52915.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	52990.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	52990.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	52990.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	53020.000	PROFILE=	1	HYDRAULIC JUMP D.S.
CAUTION SECNO=	53020.000	PROFILE=	2	HYDRAULIC JUMP D.S.
CAUTION SECNO=	53020.000	PROFILE=	3	HYDRAULIC JUMP D.S.
WARNING SECNO=	53080.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	53080.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	53080.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE



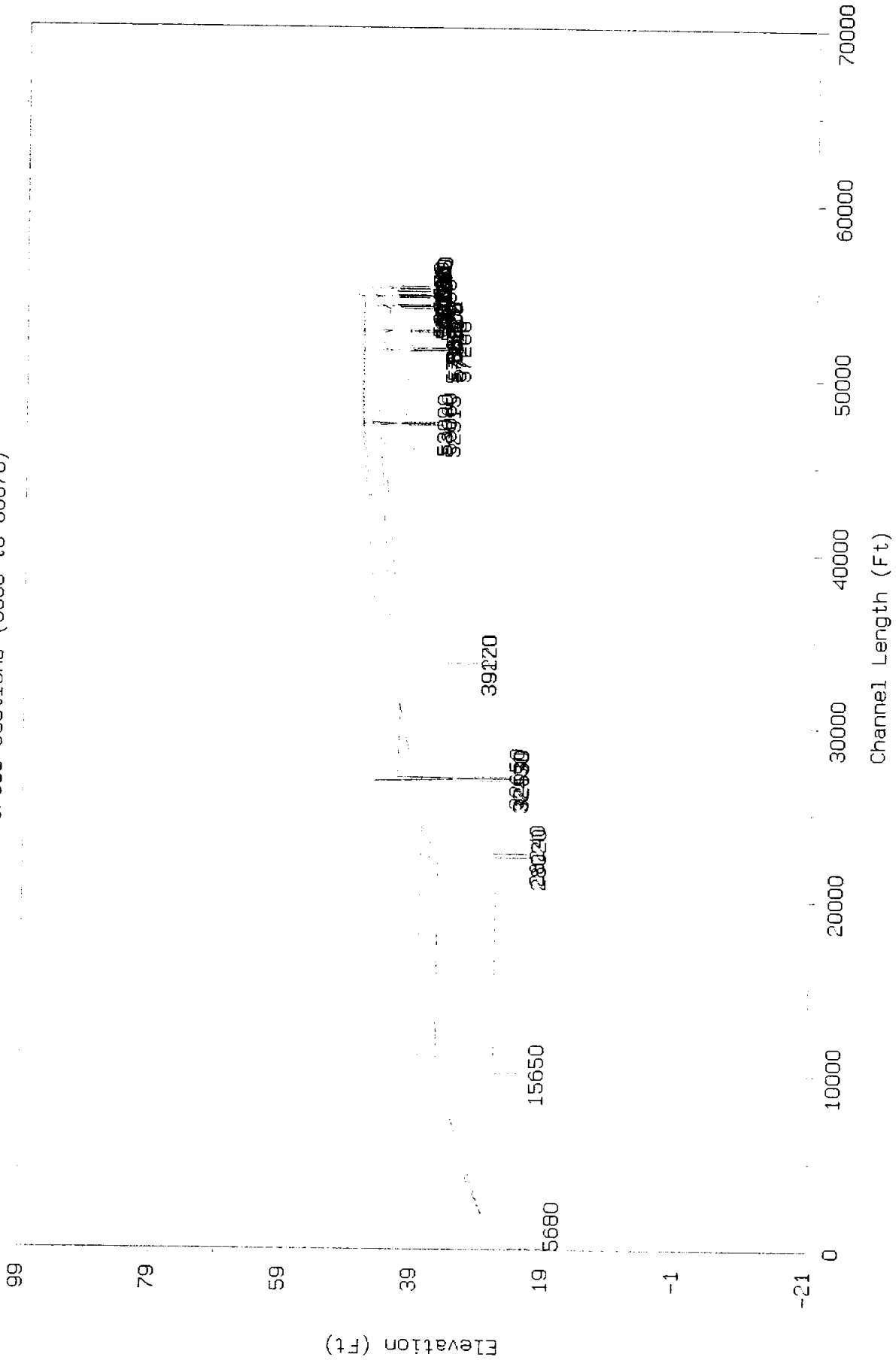
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WARNING	SECNO=	57200.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	57200.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	57200.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	57315.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	58225.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	58225.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	58225.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	58275.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	58275.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	58275.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	58362.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	58362.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	58362.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	59590.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	59590.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	59700.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	59700.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	59700.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
CAUTION	SECNO=	59720.000	PROFILE=	1	HYDRAULIC	JUMP	D.S.		
CAUTION	SECNO=	59720.000	PROFILE=	2	HYDRAULIC	JUMP	D.S.		
CAUTION	SECNO=	59720.000	PROFILE=	3	HYDRAULIC	JUMP	D.S.		
WARNING	SECNO=	59805.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	59805.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	59805.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	60290.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	60290.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	60290.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	60320.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	60320.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	60320.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	60380.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	60380.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	60380.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	60705.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	60705.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	60705.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	60740.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	60870.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	60870.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	60870.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

21AUG02

09:26:19

L CREATED BY KLOTZ ASSOC  
 Cross-Sections (5600 to 60870)



Bridge  
 Left Overbank  
 CWSEL 1  
 Right Overbank

CWSEL 2

CWSEL 3  
 Invert

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*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JUN 1998
*   VERSION 4.1
*
* RUN DATE 19AUG02 TIME 13:56:35
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****

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X   X XXXXXXX XXXXX      X
X   X X      X   X      XX
X   X X      X           X
XXXXXXXX XXXX   X       XXXXX X
X   X X      X           X
X   X X      X   X      X
X   X XXXXXXX XXXXX      XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.  
 THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM





LINE	ID	1	2	3	4	5	6	7	8	9	10
39	KK	3TO4									
40	KM	ROUTE FLOWS FROM SUBAREA 3 TO SUBAREA 4									
41	RS	17	FLOW	-1							
42	SV	0	417	1219	1958	2923	3585	4167			
43	SQ	0	817	1634	2452	3269	4086	4903			
	*										
44	KK	M-04									
45	KM	RUNOFF FROM SUBAREA M-04									
46	BA	5.54									
47	LU	1	0.1	10							
48	UC	12.52	61.02								
	*										
49	KK	SUB4									
50	KM	COMBINE HYDROS AT 4									
51	HC	2									
	*										
52	KK	4TO5									
53	KM	ROUTE FLOWS FROM SUBAREA 4 TO SUBAREA 5									
54	RS	7	FLOW	-1							
55	SV	0	228	369	703	1174	1855	2461			
56	SQ	0	788	1576	2363	3151	3939	4727			
	*										
57	KK	M-05									
58	KM	RUNOFF FROM SUBAREA M-05									
59	BA	3.14									
60	LU	1	0.1	30							
61	UC	2.18	5.57								
	*										
62	KK	SUB5									
63	KM	COMBINE HYDROS AT 5									
64	HC	2									
	*										
65	KK	5TO9									
66	KM	ROUTE FLOWS FROM SUBAREA 5 TO SUBAREA 9									
67	RS	4	FLOW	-1							
68	SV	0	354	397	483	609	760	872			
69	SQ	0	1038	2077	3115	4154	5192	6230			
	*										
70	KK	M-09									
71	KM	RUNOFF FROM SUBAREA M-09									
72	BA	2.95									
73	LU	1	0.1	25							
74	UC	1.03	5.76								
	*										

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

75 KK SUB9  
 76 KM COMBINE HYDROS AT 9  
 77 HC 2  
 \*

78 KK 9TO12  
 79 KM ROUTE FLOWS FROM SUBAREA 9 TO SUBAREA 12  
 80 RS 15 FLOW -1  
 81 SV 0 196 328 629 1121 1720 2360  
 82 SQ 0 931 1862 2793 3724 4655 5586  
 \*

83 KK M-12  
 84 KM RUNOFF FROM SUBAREA M-12  
 85 BA 2.29  
 86 LU 1 0.1 7  
 87 UC 2.85 10.11  
 \*

88 KK SUB12  
 89 KM COMBINE HYDROS AT 12  
 90 HC 2  
 \*

91 KK 12TO15  
 92 KM ROUTE FLOWS FROM SUBAREA 12 TO SUBAREA 15  
 93 RS 1 FLOW -1  
 94 SV 0 8 14 19 24 29 33  
 95 SQ 0 1158 2317 3475 4634 5792 6950  
 \*  
 \* KK SUB15  
 \* KMDUMMY HYDROGRAPH AT 15  
 \* HC 1  
 \*

96 KK M-06  
 97 KM RUNOFF FROM SUBAREA M-06  
 98 BA 0.08  
 99 LU 1 0.1 35  
 100 UC .08 .84  
 \*

101 KK 6TO7  
 102 KM ROUTE FLOWS FROM SUBAREA 6 TO SUBAREA 7  
 103 RS 4 FLOW -1  
 104 SV 0 5 10 19 25 36 46  
 105 SQ 0 38 76 114 152 190 228  
 \*





LINE	ID	1	2	3	4	5	6	7	8	9	10
140	KK	10TO11									
141	KM	ROUTE FLOWS FROM SUBAREA 10 TO SUBAREA 11									
142	RS	5	FLOW	-1							
143	SV	0	46	98	198	481	1000	1659			
144	SQ	0	507	1014	1521	2028	2535	3042			
	*										
145	KK	M-11									
146	KM	RUNOFF FROM SUBAREA M-11									
147	BA	1.89									
148	LU	1	0.1	8							
149	UC	1.12	66.32								
	*										
150	KK	SUB11									
151	KM	COMBINE HYDROS AT 11									
152	HC	2									
	*										
153	KK	11TO13									
154	KM	ROUTE FLOWS FROM SUBAREA 11 TO SUBAREA 13									
155	RS	1	FLOW	-1							
156	SV	0	25	49	135	321	574	853			
157	SQ	0	648	1296	1945	2593	3241	3889			
	*										
158	KK	M-13									
159	KM	RUNOFF FROM SUBAREA M-13									
160	BA	0.78									
161	LU	1	0.1	5							
162	UC	.16	9.44								
	*										
163	KK	SUB13									
164	KM	COMBINE HYDROS AT 13									
165	HC	2									
	*										
166	KK	13TO14									
167	KM	ROUTE FLOWS FROM SUBAREA 13 TO SUBAREA 14									
168	RS	7	FLOW	-1							
169	SV	0	76	214	1992	3286	4716	5998			
170	SQ	0	695	1389	2084	2778	3473	4168			
	*										
171	KK	M-14									
172	KM	RUNOFF FROM SUBAREA M-14									
173	BA	0.48									
174	LU	1	0.1	5							
175	UC	.31	10.05								
	*										

LINE	ID	1	2	3	4	5	6	7	8	9	10
176	KK	SUB14									
177	KM	COMBINE HYDROS AT 14									
178	HC	2									
	*										
179	KK	14TO15									
180	KM	ROUTE FLOWS FROM SUBAREA 14 TO SUBAREA 15									
181	RS	11	FLOW	-1							
182	SV	0	125	1208	3727	6104	8167	9978			
183	SQ	0	700	1400	2100	2800	3500	4200			
	*										
184	KK	M-15									
185	KM	RUNOFF FROM SUBAREA M-15									
186	BA	1.95									
187	LU	1	0.1	5							
188	UC	.93	17.68								
	*										
189	KK	SUB15									
190	KM	COMBINE HYDROS AT 15									
191	HC	2									
	*										
192	KK	SUB15									
193	KM	COMBINE HYDROS AT 15									
194	HC	2									
	*										
195	KK	15TO16									
196	KM	ROUTE FLOWS FROM SUBAREA 15 TO SUBAREA 16									
197	RS	6	FLOW	-1							
198	SV	0	329	499	649	997	1338	1672			
199	SQ	0	1263	2525	3788	5050	6313	7576			
	*										
200	KK	M-16									
201	KM	RUNOFF FROM SUBAREA M-16									
202	BA	3.96									
203	LU	1	0.1	2							
204	UC	4.4	26.71								
	*										
205	KK	SUB16									
206	KM	COMBINE HYDROS AT 16									
207	HC	2									
	*										
208	KK	16TO17									
209	KM	ROUTE FLOWS FROM SUBAREA 16 TO SUBAREA 17									
210	RS	11	FLOW	-1							
211	SV	0	393	855	1314	1844	2409	2997			
212	SQ	0	1262	2524	3786	5048	6310	7572			
	*										



LINE	ID	1	2	3	4	5	6	7	8	9	10
247	KK	M-18									
248	KM	RUNOFF FROM SUBAREA M-18									
249	BA	0.89									
250	LU	1	0.1	2							
251	UC	1.19	6.48								
	*										
252	KK	A to B									
253	KM	ROUTE FLOWS FROM SUBAREA 18 TO SUBAREA 19 (20000 ft)									
254	RS	8	FLOW	-1							
255	SV	0	393	855	1314	1844	2409	2997			
256	SQ	0	1262	2524	3786	5048	6310	7572			
	*										
257	KK	M-19									
258	KM	RUNOFF FROM SUBAREA M- 19									
259	BA	3.49									
260	LU	1	0.1	2							
261	UC	3.36	13.43								
	*										
262	KK	SUB19									
263	KM	COMBINE HYDROSAT 20									
264	HC	2									
	*										
265	KK	SUB18									
266	KM	COMBINE HYDROSAT 20									
267	HC	2									
	*										
268	KK	A to B									
269	KM	ROUTE FLOWS FROM SUBAREA 21 TO SUBAREA 22									
270	RS	12	FLOW	-1							
271	SV	0	1729	3762	5782	7376	10600	13187	15774		
272	SQ	0	1262	2524	3786	5048	6310	7572	8834		
	*										
273	KK	M-22									
274	KM	RUNOFF FROM SUBAREA M-22									
275	BA	6.12									
276	LU	1	0.1	2							
277	UC	5.56	22.49								
	*										
278	KK	SUB21									
279	KM	COMBINE HYDROSAT 22									
280	HC	2									
	*										
281	ZZ										

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*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* JUN 1998
* VERSION 4.1
*
* RUN DATE 19AUG02 TIME 13:56:35
*
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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****

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KLOTZ ASSOCIATES INC.  
MUSTANG BAYOU WATERSHED, 100-YR. HYDROGRAPH FOR EXISTING CONDITION  
BRAZORIA COUNTY MASTER DRAINAGE PLAN  
FILENAME: MUS25R.IH1

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6 IO OUTPUT CONTROL VARIABLES
      IPRNT      5 PRINT CONTROL
      IPLOT      0 PLOT CONTROL
      QSCAL      0. HYDROGRAPH PLOT SCALE

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IT HYDROGRAPH TIME DATA
    NMIN      15 MINUTES IN COMPUTATION INTERVAL
    IDATE     1JAN92 STARTING DATE
    ITIME     0000 STARTING TIME
    NQ        300 NUMBER OF HYDROGRAPH ORDINATES
    NDDATE    4JAN92 ENDING DATE
    NDTIME    0245 ENDING TIME
    ICENT     19 CENTURY MARK

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COMPUTATION INTERVAL .25 HOURS
TOTAL TIME BASE      74.75 HOURS

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ENGLISH UNITS
DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW               CUBIC FEET PER SECOND
STORAGE VOLUME    ACRE-FEET
SURFACE AREA      ACRES
TEMPERATURE        DEGREES FAHRENHEIT

```

RUNOFF SUMMARY  
 FLOW IN CUBIC FEET PER SECOND  
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	M-01	1193.	17.25	1107.	710.	287.	4.44		
ROUTED TO	1TO2	917.	33.25	897.	687.	286.	4.44		
HYDROGRAPH AT	M-02	1094.	19.50	1042.	759.	351.	5.60		
2 COMBINED AT	SUB2	1523.	30.75	1504.	1370.	636.	10.04		
ROUTED TO	2TO3	1502.	35.75	1487.	1351.	633.	10.04		
HYDROGRAPH AT	M-03	1028.	16.50	1009.	788.	403.	6.55		
2 COMBINED AT	SUB3	2143.	25.75	2119.	1971.	1036.	16.59		
ROUTED TO	3TO4	2092.	38.50	2083.	1940.	1017.	16.59		
HYDROGRAPH AT	M-04	376.	25.50	371.	337.	223.	5.54		
2 COMBINED AT	SUB4	2409.	38.00	2397.	2240.	1240.	22.13		
ROUTED TO	4TO5	2386.	45.50	2379.	2226.	1216.	22.13		
HYDROGRAPH AT	M-05	1662.	14.50	1374.	643.	225.	3.14		
2 COMBINED AT	SUB5	2390.	45.25	2385.	2240.	1441.	25.27		
ROUTED TO	5TO9	2389.	46.00	2384.	2240.	1409.	25.27		
HYDROGRAPH AT	M-09	1552.	13.50	1280.	594.	208.	2.95		
2 COMBINED AT	SUB9	2768.	16.25	2389.	2252.	1616.	28.22		
ROUTED TO	9TO12	2441.	20.75	2387.	2249.	1594.	28.22		
HYDROGRAPH AT	M-12	740.	15.25	674.	396.	152.	2.29		
2 COMBINED AT	SUB12	2985.	20.50	2760.	2323.	1745.	30.51		
ROUTED TO	12TO15	2983.	20.50	2760.	2323.	1745.	30.51		
HYDROGRAPH AT	M-06	153.	12.50	55.	18.	6.	.08		
ROUTED TO	6TO7	88.	14.75	54.	18.	6.	.08		
HYDROGRAPH AT	M-07	698.	13.25	534.	224.	77.	1.07		
2 COMBINED AT	SUB7	761.	13.50	588.	241.	83.	1.15		
ROUTED TO	7TO8	682.	16.25	582.	241.	83.	1.15		
HYDROGRAPH AT	M-08	517.	13.25	404.	172.	59.	.85		
2 COMBINED AT	SUB8	1105.	14.00	975.	413.	142.	2.00		
ROUTED TO	8TO10	988.	19.00	900.	413.	142.	2.00		
HYDROGRAPH AT	M-10	321.	16.75	316.	264.	149.	2.58		
2 COMBINED AT	SUB10	1302.	18.75	1213.	672.	291.	4.58		
ROUTED TO	10TO11	1269.	21.25	1189.	671.	290.	4.58		
HYDROGRAPH AT	M-11	122.	18.50	121.	111.	77.	1.89		
2 COMBINED AT	SUB11	1389.	21.00	1309.	782.	366.	6.47		
ROUTED TO	11TO13	1359.	22.00	1301.	781.	366.	6.47		
HYDROGRAPH AT	M-13	272.	13.25	246.	137.	51.	.78		

M-1

Mustang Bayou Rev.Exist. 25 yr. MUS25R.IH1

2 COMBINED AT	SUB13	1506.	21.75	1466.	910.	417.	7.25
ROUTED TO	13TO14	1389.	26.25	1387.	909.	415.	7.25
HYDROGRAPH AT	M-14	159.	13.50	145.	83.	32.	.48
2 COMBINED AT	SUB14	1479.	21.50	1466.	984.	447.	7.73
ROUTED TO	14TO15	1200.	39.75	1171.	916.	443.	7.73
HYDROGRAPH AT	M-15	398.	14.75	385.	274.	125.	1.95
2 COMBINED AT	SUB15	1316.	39.50	1290.	1110.	568.	9.68
2 COMBINED AT	SUB15	4020.	20.50	3804.	3393.	2313.	40.19
ROUTED TO	15TO16	3904.	23.25	3788.	3391.	2273.	40.19
HYDROGRAPH AT	M-16	557.	18.00	546.	435.	231.	3.96
2 COMBINED AT	SUB16	4404.	23.25	4311.	3800.	2504.	44.15
ROUTED TO	16TO17	4328.	27.25	4230.	3779.	2443.	44.15
HYDROGRAPH AT	M-17	188.	15.75	183.	134.	63.	1.00
2 COMBINED AT	SUB17	4450.	27.00	4354.	3868.	2506.	45.15
ROUTED TO	17TO18	4434.	28.25	4339.	3863.	2488.	45.15
HYDROGRAPH AT	M-20	964.	14.50	891.	536.	210.	3.23
2 COMBINED AT	SUB18	4805.	27.50	4722.	4102.	2698.	48.38
ROUTED TO	18TO19	4794.	28.75	4707.	4095.	2676.	48.38
HYDROGRAPH AT	M-21	499.	16.00	455.	269.	103.	1.58
2 COMBINED AT	SUB18	4976.	28.25	4894.	4210.	2779.	49.96
HYDROGRAPH AT	M-18	417.	13.75	350.	166.	58.	.89
ROUTED TO	A to B	360.	18.50	324.	165.	58.	.89
HYDROGRAPH AT	M-19	881.	16.00	828.	541.	225.	3.49
2 COMBINED AT	SUB19	1193.	17.75	1125.	707.	283.	4.38
2 COMBINED AT	SUB18	5546.	27.25	5461.	4582.	3062.	54.34
ROUTED TO	A to B	4889.	45.25	4828.	4347.	2395.	54.34
HYDROGRAPH AT	M-22	988.	18.25	957.	736.	369.	6.12
2 COMBINED AT	SUB21	5225.	45.00	5160.	4619.	2765.	60.46

M-1

\*\*\* NORMAL END OF HEC-1 \*\*\*



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*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   JUN 1998 *
*   VERSION 4.1 *
*
* RUN DATE 16AUG02 TIME 09:12:47 *
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*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 756-1104 *
*
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.  
 THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM



## Mustang Bayou 100 Year MUS100R.IH1

HEC-1 INPUT

PAGE 2

LINE	ID	1	2	3	4	5	6	7	8	9	10
39	KK	3TO4									
40	KM	ROUTE FLOWS FROM SUBAREA 3 TO SUBAREA 4									
41	RS	17	FLOW	-1							
42	SV	0	417	1219	1958	2923	3585	4167			
43	SQ	0	817	1634	2452	3269	4086	4903			
	*										
44	KK	M-04									
45	KM	RUNOFF FROM SUBAREA M-04									
46	BA	5.54									
47	LU	1	0.1	10							
48	UC	12.52	61.02								
	*										
49	KK	SUB4									
50	KM	COMBINE HYDROS AT 4									
51	HC	2									
	*										
52	KK	4TO5									
53	KM	ROUTE FLOWS FROM SUBAREA 4 TO SUBAREA 5									
54	RS	7	FLOW	-1							
55	SV	0	228	369	703	1174	1855	2461			
56	SQ	0	788	1576	2363	3151	3939	4727			
	*										
57	KK	M-05									
58	KM	RUNOFF FROM SUBAREA M-05									
59	BA	3.14									
60	LU	1	0.1	30							
61	UC	2.18	5.57								
	*										
62	KK	SUB5									
63	KM	COMBINE HYDROS AT 5									
64	HC	2									
	*										
65	KK	5TO9									
66	KM	ROUTE FLOWS FROM SUBAREA 5 TO SUBAREA 9									
67	RS	4	FLOW	-1							
68	SV	0	354	397	483	609	760	872			
69	SQ	0	1038	2077	3115	4154	5192	6230			
	*										
70	KK	M-09									
71	KM	RUNOFF FROM SUBAREA M-09									
72	BA	2.95									
73	LU	1	0.1	25							
74	UC	1.03	5.76								
	*										

LINE	ID	1	2	3	4	5	6	7	8	9	10
75	KK	SUB9									
76	KM	COMBINE HYDROS AT 9									
77	HC	2									
	*										
78	KK	9TO12									
79	KM	ROUTE FLOWS FROM SUBAREA 9 TO SUBAREA 12									
80	RS	15	FLOW	-1							
81	SV	0	196	328	629	1121	1720	2360			
82	SQ	0	931	1862	2793	3724	4655	5586			
	*										
83	KK	M-12									
84	KM	RUNOFF FROM SUBAREA M-12									
85	BA	2.29									
86	LU	1	0.1	7							
87	UC	2.85	10.11								
	*										
88	KK	SUB12									
89	KM	COMBINE HYDROS AT 12									
90	HC	2									
	*										
91	KK	12TO15									
92	KM	ROUTE FLOWS FROM SUBAREA 12 TO SUBAREA 15									
93	RS	1	FLOW	-1							
94	SV	0	8	14	19	24	29	33			
95	SQ	0	1158	2317	3475	4634	5792	6950			
	*										
	*	KK SUB15									
	*	KMDUMMY HYDROGRAPH AT 15									
	*	HC 1									
	*										
96	KK	M-06									
97	KM	RUNOFF FROM SUBAREA M-06									
98	BA	0.08									
99	LU	1	0.1	35							
100	UC	.08	.84								
	*										
101	KK	6TO7									
102	KM	ROUTE FLOWS FROM SUBAREA 6 TO SUBAREA 7									
103	RS	4	FLOW	-1							
104	SV	0	5	10	19	25	36	46			
105	SQ	0	38	76	114	152	190	228			
	*										

LINE	ID	1	2	3	4	5	6	7	8	9	10
106	KK	M-07									
107	KM	RUNOFF FROM SUBAREA M-07									
108	BA	1.07									
109	LU	1	0.1	30							
110	UC	0.65	4.41								
	*										
111	KK	SUB7									
112	KM	COMBINE HYDROS AT 7									
113	HC	2									
	*										
114	KK	7TO8									
115	KM	ROUTE FLOWS FROM SUBAREA 7 TO SUBAREA 8									
116	RS	4	FLOW	-1							
117	SV	0	18	31	49	100	184	265			
118	SQ	0	209	417	626	834	1043	1252			
	*										
119	KK	M-08									
120	KM	RUNOFF FROM SUBAREA M-08									
121	BA	0.85									
122	LU	1	0.1	20							
123	UC	.49	4.79								
	*										
124	KK	SUB8									
125	KM	COMBINE HYDROS AT 8									
126	HC	2									
	*										
127	KK	8TO10									
128	KM	ROUTE FLOWS FROM SUBAREA 8 TO SUBAREA 10									
129	RS	5	FLOW	-1							
130	SV	0	64	129	243	511	1071	1911			
131	SQ	0	347	694	1040	1387	1734	2081			
	*										
132	KK	M-10									
133	KM	RUNOFF FROM SUBAREA M-10									
134	BA	2.58									
135	LU	1	0.1	10							
136	UC	.77	31.85								
	*										
137	KK	SUB10									
138	KM	COMBINE HYDROS AT 10									
139	HC	2									
	*										

LINE	ID	1	2	3	4	5	6	7	8	9	10
140	KK	10TO11									
141	KM	ROUTE FLOWS FROM SUBAREA 10 TO SUBAREA 11									
142	RS	5	FLOW	-1							
143	SV	0	46	98	198	481	1000	1659			
144	SQ	0	507	1014	1521	2028	2535	3042			
	*										
145	KK	M-11									
146	KM	RUNOFF FROM SUBAREA M-11									
147	BA	1.89									
148	LU	1	0.1	8							
149	UC	1.12	66.32								
	*										
150	KK	SUB11									
151	KM	COMBINE HYDROS AT 11									
152	HC	2									
	*										
153	KK	11TO13									
154	KM	ROUTE FLOWS FROM SUBAREA 11 TO SUBAREA 13									
155	RS	1	FLOW	-1							
156	SV	0	25	49	135	321	574	853			
157	SQ	0	648	1296	1945	2593	3241	3889			
	*										
158	KK	M-13									
159	KM	RUNOFF FROM SUBAREA M-13									
160	BA	0.78									
161	LU	1	0.1	5							
162	UC	.16	9.44								
	*										
163	KK	SUB13									
164	KM	COMBINE HYDROS AT 13									
165	HC	2									
	*										
166	KK	13TO14									
167	KM	ROUTE FLOWS FROM SUBAREA 13 TO SUBAREA 14									
168	RS	7	FLOW	-1							
169	SV	0	76	214	1992	3286	4716	5998			
170	SQ	0	695	1389	2084	2778	3473	4168			
	*										
171	KK	M-14									
172	KM	RUNOFF FROM SUBAREA M-14									
173	BA	0.48									
174	LU	1	0.1	5							
175	UC	.31	10.05								
	*										

LINE	ID	1	2	3	4	5	6	7	8	9	10
176	KK	SUB14									
177	KM	COMBINE HYDROS AT 14									
178	HC	2									
	*										
179	KK	14TO15									
180	KM	ROUTE FLOWS FROM SUBAREA 14 TO SUBAREA 15									
181	RS	11	FLOW	-1							
182	SV	0	125	1208	3727	6104	8167	9978			
183	SQ	0	700	1400	2100	2800	3500	4200			
	*										
184	KK	M-15									
185	KM	RUNOFF FROM SUBAREA M-15									
186	BA	1.95									
187	LU	1	0.1	5							
188	UC	.93	17.68								
	*										
189	KK	SUB15									
190	KM	COMBINE HYDROS AT 15									
191	HC	2									
	*										
192	KK	SUB15									
193	KM	COMBINE HYDROS AT 15									
194	HC	2									
	*										
195	KK	15TO16									
196	KM	ROUTE FLOWS FROM SUBAREA 15 TO SUBAREA 16									
197	RS	6	FLOW	-1							
198	SV	0	329	499	649	997	1338	1672			
199	SQ	0	1263	2525	3788	5050	6313	7576			
	*										
200	KK	M-16									
201	KM	RUNOFF FROM SUBAREA M-16									
202	BA	3.96									
203	LU	1	0.1	2							
204	UC	4.4	26.71								
	*										
205	KK	SUB16									
206	KM	COMBINE HYDROS AT 16									
207	HC	2									
	*										
208	KK	16TO17									
209	KM	ROUTE FLOWS FROM SUBAREA 16 TO SUBAREA 17									
210	RS	11	FLOW	-1							
211	SV	0	393	855	1314	1844	2409	2997			
212	SQ	0	1262	2524	3786	5048	6310	7572			
	*										





LINE	ID	1	2	3	4	5	6	7	8	9	10
247	KK	M-18									
248	KM	RUNOFF FROM SUBAREA M-18									
249	BA	0.89									
250	LU	1	0.1	2							
251	UC	1.19	6.48								
	*										
252	KK	A to B									
253	KM	ROUTE FLOWS FROM SUBAREA 18 TO SUBAREA 19 (20000 ft)									
254	RS	8	FLOW	-1							
255	SV	0	393	855	1314	1844	2409	2997			
256	SQ	0	1262	2524	3786	5048	6310	7572			
	*										
257	KK	M-19									
258	KM	RUNOFF FROM SUBAREA M- 19									
259	BA	3.49									
260	LU	1	0.1	2							
261	UC	3.36	13.43								
	*										
262	KK	SUB19									
263	KM	COMBINE HYDROSAT 20									
264	HC	2									
	*										
265	KK	SUB18									
266	KM	COMBINE HYDROSAT 20									
267	HC	2									
	*										
268	KK	A to B									
269	KM	ROUTE FLOWS FROM SUBAREA 21 TO SUBAREA 22									
270	RS	12	FLOW	-1							
271	SV	0	1729	3762	5782	7376	10600	13187	15774		
272	SQ	0	1262	2524	3786	5048	6310	7572	8834		
	*										
273	KK	M-22									
274	KM	RUNOFF FROM SUBAREA M-22									
275	BA	6.12									
276	LU	1	0.1	2							
277	UC	5.56	22.49								
	*										
278	KK	SUB21									
279	KM	COMBINE HYDROSAT 22									
280	HC	2									
	*										
281	ZZ										

Mustang Bayou 100 Year MUS100R.IH1

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*****  
*  
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *  
*   JUN 1998 *  
*   VERSION 4.1 *  
*  
* RUN DATE 16AUG02 TIME 09:12:47 *  
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*  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET *  
* DAVIS, CALIFORNIA 95616 *  
* (916) 756-1104 *  
*  
*****
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KLOTZ ASSOCIATES INC.  
MUSTANG BAYOU WATERSHED, 100-YR. HYDROGRAPH FOR EXISTING CONDITION  
BRAZORIA COUNTY MASTER DRAINAGE PLAN  
FILENAME: MUS100R.IH1

6 IO            OUTPUT CONTROL VARIABLES  
                 IPRNT            5    PRINT CONTROL  
                 IPLOT            0    PLOT CONTROL  
                 QSCAL            0.    HYDROGRAPH PLOT SCALE

IT            HYDROGRAPH TIME DATA  
                 NMIN            15    MINUTES IN COMPUTATION INTERVAL  
                 IDATE            1JAN92    STARTING DATE  
                 ITIME            0000    STARTING TIME  
                 NQ                300    NUMBER OF HYDROGRAPH ORDINATES  
                 NDDATE            4JAN92    ENDING DATE  
                 NDTIME            0245    ENDING TIME  
                 ICENT            19    CENTURY MARK

                 COMPUTATION INTERVAL    .25 HOURS  
                 TOTAL TIME BASE        74.75 HOURS

ENGLISH UNITS  
DRAINAGE AREA            SQUARE MILES  
PRECIPITATION DEPTH      INCHES  
LENGTH, ELEVATION        FEET  
FLOW                    CUBIC FEET PER SECOND  
STORAGE VOLUME           ACRE-FEET  
SURFACE AREA            ACRES  
TEMPERATURE             DEGREES FAHRENHEIT

Mustang Bayou 100 Year MUS100R.IH1

RUNOFF SUMMARY  
 FLOW IN CUBIC FEET PER SECOND  
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	M-01	1583.	17.25	1476.	976.	400.	4.44		
ROUTED TO	1TO2	1219.	34.25	1196.	933.	398.	4.44		
HYDROGRAPH AT	M-02	1461.	19.50	1398.	1045.	489.	5.60		
2 COMBINED AT	SUB2	2039.	31.00	2020.	1837.	887.	10.04		
ROUTED TO	2TO3	2018.	35.75	1999.	1811.	883.	10.04		
HYDROGRAPH AT	M-03	1371.	16.50	1346.	1078.	558.	6.55		
2 COMBINED AT	SUB3	2836.	25.75	2809.	2653.	1441.	16.59		
ROUTED TO	3TO4	2777.	44.25	2771.	2615.	1413.	16.59		
HYDROGRAPH AT	M-04	509.	26.25	505.	463.	308.	5.54		
2 COMBINED AT	SUB4	3182.	42.75	3174.	3028.	1721.	22.13		
ROUTED TO	4TO5	3157.	51.50	3151.	2992.	1689.	22.13		
HYDROGRAPH AT	M-05	2154.	14.50	1791.	869.	307.	3.14		
2 COMBINED AT	SUB5	3158.	51.50	3152.	3003.	1995.	25.27		
ROUTED TO	5TO9	3157.	52.75	3151.	3002.	1950.	25.27		
HYDROGRAPH AT	M-09	2006.	13.75	1669.	805.	284.	2.95		
2 COMBINED AT	SUB9	3916.	15.25	3168.	3011.	2234.	28.22		
ROUTED TO	9TO12	3286.	22.50	3144.	3004.	2203.	28.22		
HYDROGRAPH AT	M-12	977.	15.25	893.	542.	211.	2.29		
2 COMBINED AT	SUB12	3930.	22.25	3763.	3042.	2413.	30.51		
ROUTED TO	12TO15	3931.	22.25	3763.	3042.	2412.	30.51		
HYDROGRAPH AT	M-06	189.	12.50	71.	24.	8.	.08		
ROUTED TO	6TO7	106.	15.00	70.	24.	8.	.08		
HYDROGRAPH AT	M-07	894.	13.25	693.	304.	105.	1.07		
2 COMBINED AT	SUB7	969.	13.50	763.	327.	113.	1.15		
ROUTED TO	7TO8	833.	17.00	746.	327.	113.	1.15		
HYDROGRAPH AT	M-08	665.	13.25	526.	235.	81.	.85		
2 COMBINED AT	SUB8	1304.	15.50	1240.	562.	194.	2.00		
ROUTED TO	8TO10	1115.	22.00	1077.	561.	194.	2.00		
HYDROGRAPH AT	M-10	428.	16.50	423.	360.	206.	2.58		
2 COMBINED AT	SUB10	1516.	21.75	1486.	912.	400.	4.58		
ROUTED TO	10TO11	1505.	23.50	1466.	911.	398.	4.58		
HYDROGRAPH AT	M-11	164.	19.25	163.	152.	106.	1.89		
2 COMBINED AT	SUB11	1666.	23.50	1628.	1063.	505.	6.47		
ROUTED TO	11TO13	1642.	24.50	1595.	1062.	504.	6.47		
HYDROGRAPH AT	M-13	359.	13.50	326.	188.	72.	.78		

M-1  
DITCH

Mustang Bayou 100 Year MUS100R.IH1

2 COMBINED AT	SUB13	1809.	24.00	1776.	1240.	575.	7.25
ROUTED TO	13TO14	1420.	34.50	1407.	1238.	572.	7.25
HYDROGRAPH AT	M-14	210.	13.75	192.	114.	44.	.48
2 COMBINED AT	SUB14	1536.	19.50	1518.	1343.	616.	7.73
ROUTED TO	14TO15	1389.	45.50	1377.	1182.	611.	7.73
HYDROGRAPH AT	M-15	530.	14.75	513.	376.	174.	1.95
2 COMBINED AT	SUB15	1510.	44.25	1504.	1361.	785.	9.68
2 COMBINED AT	SUB15	5060.	22.00	4905.	4257.	3197.	40.19
ROUTED TO	15TO16	4965.	25.00	4834.	4252.	3144.	40.19
HYDROGRAPH AT	M-16	746.	18.00	732.	599.	322.	3.96
2 COMBINED AT	SUB16	5619.	25.00	5494.	4806.	3466.	44.15
ROUTED TO	16TO17	5516.	30.00	5415.	4788.	3369.	44.15
HYDROGRAPH AT	M-17	251.	15.75	244.	184.	87.	1.00
2 COMBINED AT	SUB17	5663.	29.75	5565.	4912.	3457.	45.15
ROUTED TO	17TO18	5638.	31.25	5546.	4908.	3413.	45.15
HYDROGRAPH AT	M-20	1277.	14.75	1183.	736.	292.	3.23
2 COMBINED AT	SUB18	6039.	30.75	5961.	5258.	3705.	48.38
ROUTED TO	18TO19	6007.	32.50	5936.	5252.	3655.	48.38
HYDROGRAPH AT	M-21	661.	16.00	604.	369.	143.	1.58
2 COMBINED AT	SUB18	6187.	32.25	6125.	5428.	3798.	49.96
HYDROGRAPH AT	M-18	544.	13.75	461.	229.	81.	.89
ROUTED TO	A to B	476.	18.50	429.	228.	81.	.89
HYDROGRAPH AT	M-19	1171.	16.00	1103.	744.	314.	3.49
2 COMBINED AT	SUB19	1585.	17.75	1500.	972.	395.	4.38
2 COMBINED AT	SUB18	6773.	30.50	6750.	6002.	4193.	54.34
ROUTED TO	A to B	5968.	58.75	5949.	5710.	3206.	54.34
HYDROGRAPH AT	M-22	1321.	18.50	1285.	1013.	514.	6.12
2 COMBINED AT	SUB21	6231.	57.75	6213.	5997.	3721.	60.46

M-1  
DITCH

\*\*\* NORMAL END OF HEC-1 \*\*\*



Mustang Bayou Rev.Exist. Multi-Profile MUSTANGX.IH2

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*****  
* HEC-2 WATER SURFACE PROFILES *  
*                               *  
*   rsion  4.6.2;  May 1991   *  
*                               *  
* RUN DATE  21AUG02  TIME  11:35:04 *  
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*****  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET, SUITE D    *  
* DAVIS, CALIFORNIA 95616-4687 *  
* (916) 756-1104              *  
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 X   X  XXXXXXXX  XXXXX          XXXXX  
X   X X          X   X          X   X  
X   X X          X              X  
XXXXXXXX XXXX   X          XXXXX  XXXXX  
X   X X          X              X  
X   X X          X   X          X  
X   X  XXXXXXXX  XXXXX          XXXXXXXX
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\*\*\*\*\*  
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

\*\*\*\*\*  
T1 MUSTANG BAYOU..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: MUSTANG.IH2.....10 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

NOTES\*\*\*\*\*  
REVISED MODEL INCLUDES 2000 BAKER & LAWSON SURVEY SECTIONS AND REVISED  
BRIDGE SECTIONS  
MODEL KEYED IN FROM 29 APR 88 RUN DATE FEMA MODEL  
ORIGINAL INPUT DATA PROVIDED BY BRAZORIA COUNTY FLOOD PLAIN ADMINISTRATOR  
\*\*\*\*\*

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2							13	
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1							
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38	43	1	26	42	23	24	63	14	60
	39	4								
J5	LPRNT	NUMSEC	*****REQUESTED SECTION NUMBERS*****							
	-10	-10								

NC	0.04	0.04	0.04	0.1	0.3					
QT	3	4218	5225	6231						
X1	34700	30	4346.	4420.						
X3				4306	15.2					
GR	13.4	3060.	13.4	3061.	13.	3062.	9.	3079.	13.6	3103.
GR	10.8	3114.	10.2	3757.	10.2	4233.	10.6	4242.	6.8	4256.
GR	14.8	4283.	14.6	4294.	15.2	4307.	9.6	4325.	9.6	4346.
GR	2.8	4361.	0.7	4371.	-1.4	4381.	-1.4	4390.	0.7	4400.
GR	2.8	4410.	8.6	4420.	8.	4457.	8.6	4536.	10.4	4604.
GR	10.8	5067.	10.2	5440.	10.	5470.	11.4	5477.	13	5480

Mustang Bayou Rev.Exist. Multi-Profile MUSTANGX.IH2

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PAGE 2

NC			0.3	0.5						
QT	3	4149	4805	6039						
X1	37840	27	7192.	7282.	3650.	3000.	3140.			
X3						7355	14.8			
GR	14.	1000.	13.	6230.	12.6	6444.	11.6	6494.	12.	6503.
GR	9.6	7109.	9.4	7160.	8.4	7192.	3.	7197.	-1.1	7235.
GR	3.	7273.	9.8	7282.	10.	7309.	14.8	7355.	11.	7380.
GR	10.2	7418.	11.	8089.	11.	9000.	10.2	9500.	10.2	9612.
GR	11.2	9620.	12.2	9637.	11.	9645.	12.8	9664.	11.	9681.
GR	12.8	9696.	14	9700						

X1	37890	27	7200.	7278.	55.	45.	50.			
X3	10					7355	14.8			
GR	14.	1000.	13.	6230.	12.6	6444.	11.6	6494.	12.	6503.
GR	9.6	7109.	9.4	7160.	8.4	7192.	8.1	7200.	0.8	7216.
GR	-1.1	7242.	0.8	7269.	8.1	7278.	9.4	7290.	14.8	7355.
GR	10.2	7418.	11.	8089.	11.	9000.	10.2	9500.	10.2	9612.
GR	11.2	9620.	12.2	9637.	11.	9645.	12.8	9664.	11.	9681.
GR	12.8	9696.	14	9700						

MU 65-1 BRIDGE

SB	1.	1.56	3.		26.	6.3	435.	3.	-1.1	-1.1
	MU 65-1 BRIDGE									
X1	37908	27	7200	7278	18.	18.	18.			
X2			1	8.1	9.5					
X3	10					7355	14.8	9.45	9.45	
BT	-9	1000	14.	6230	13			6444	12.6	
BT		6494	11.6	6503	12			7109	9.6	
BT		7160	9.4	7290	9.4			7326	13.74	
GR	14.	1000.	13.	6230.	12.6	6444.	11.6	6494.	12.	6503.
GR	9.6	7109.	9.4	7160.	8.4	7192.	8.1	7200.	0.8	7216.
GR	-1.1	7242.	0.8	7269.	8.1	7278.	9.4	7290.	14.8	7355.
GR	10.2	7418.	11.	8089.	11.	9000.	10.2	9500.	10.2	9612.
GR	11.2	9620.	12.2	9637.	11.	9645.	12.8	9664.	11.	9681.
GR	12.8	9696.	14	9700						

NC			0.1	0.3						
X1	37958	27	7192.	7282.	55.	45.	50.			
X3	10					7355	19.8			
GR	14.	1000.	13.	6230.	12.6	6444.	11.6	6494.	12.	6503.
GR	9.6	7109.	9.4	7160.	8.4	7192.	3.	7197.	-1.1	7235.
GR	3.	7273.	9.8	7282.	10.	7309.	14.8	7355.	11.	7380.
GR	10.2	7418.	11.	8089.	11.	9000.	10.2	9500.	10.2	9612.
GR	11.2	9620.	12.2	9637.	11.	9645.	12.8	9664.	11.	9681.
GR	12.8	9696.	14	9700						



NC				0.3	.5					
QT	3	3829	4450	5663						
X1	41358	28	6869.	7169.	3380.	3245.	3400.			
GR	14.4	5327.	14.4	5328.	14.4	5329.	14.4	5330.	14.4	5331.
GR	14.2	6061.	12.6	6275.	11.4	6378.	11.4	6459.	11.3	6570.
GR	11.2	6737.	11.1	6869.	8.9	6949.	2.2	6963.	0.5	6999.
GR	-0.2	7016.	1.	7041.	2.1	7066.	9.9	7089.	10.6	7097.
GR	11.4	7169.	10.3	7400.	9.8	7517.	10.2	7616.	11.8	8082.
GR	13.2	8842.	13.4	9288.	14.4	9602.				

X1	41433				75.	75.	75.			
X3	10							12.7	12.5	

FM 2004 BRIDGE

X1	41443	28	6869.	7169.	10.	10.	10.			
X3				6859	19.3	7178	19.3			
BT	6	6459.	13.3	13.3	6869.	20.3	14.5	6963.	20.5	14.7
BT	7041.	20.7	14.9	7169.	20.1	14.3	7400.	15.1	15.1	
GR	14.4	3481.	13.7	3482.	13.7	3483.	13.7	3484.	13.3	4793.
GR	12.7	6284.	13.3	6459.	14.3	6570.	17.5	6737.	19.3	6859.
GR	14.5	6869.	8.9	6949.	2.2	6963.	0.5	6999.	-0.2	7016.
GR	1.	7041.	2.1	7066.	9.9	7089.	10.6	7097.	14.3	7169.
GR	19.3	7178.	15.1	7400.	12.9	7515.	12.5	7616.	12.5	8575.
GR	13.2	8842.	13.4	9288.	14.4	9602.				

X1	41493				50.	50.	50.			
X2							1			
X3				6859	19.3	7178	19.3			

X1	41503	28	6869.	7169.	10.	10.	10.			
X3	10							12.7	12.5	
GR	14.6	5327.	14.4	5328.	14.4	5329.	14.4	5330.	14.4	5331.
GR	14.2	6061.	12.6	6275.	11.4	6378.	11.4	6459.	11.3	6570.
GR	11.2	6737.	11.1	6869.	8.9	6949.	2.2	6963.	0.5	6999.
GR	-0.2	7016.	1.	7041.	2.1	7066.	9.9	7089.	10.6	7097.
GR	11.4	7169.	10.3	7400.	9.8	7517.	10.2	7616.	11.8	8082.
GR	13.2	8842.	13.4	9288.	41.	9602.				

NC				0.1	0.3					
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X1	41578				75.	75.	75.			
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Mustang Bayou Rev.Exist. Multi-Profile MUSTANGX.IH2

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PAGE 4

X1	41878				300.	300.	300.			0.1	
X1	45058	24	8420.	8541.	3000.	3100.	3180.			-0.2	
X3				6668	14.9	8588	14.1				
GR	14.3	6544.	14.3	6545.	14.3	6546.	14.3	6547.	14.9	6668.	
GR	13.1	7731.	12.5	8021.	12.3	8175.	9.7	8181.	11.5	8188.	
GR	11.5	8420.	1.1	8441.		8455.	-0.6	8463.	1.2	8498.	
GR	6.9	8523.	10.7	8541.	14.1	8588.	13.9	8611.	10.9	8627.	
GR	11.5	9004.	12.3	9012.	9.7	9026.	15.9	9038.			
QT	3	3808	4404	5619							
X1	45658				550.	600.	600.			0.2	
X3				6668	14.9	8588	14.1				
NC				0.3	0.5						
X1	45748	24	8420.	8541	90.	90.	90.				
X3	10					8588	14.1				
GR	15.3	6066.	15.3	6067.	14.1	6075.	14.3	6547.	14.3	6668.	
GR	13.1	7731.	12.5	8021.	12.3	8175.	11.7	8181.	11.5	8188.	
GR	11.5	8420.	0.0	8455.	-0.6	8463.	1.2	8498.	3.	8506.	
GR	6.9	8523.	10.9	8541.	14.1	8588.	13.9	8611.	10.9	8627.	
GR	11.5	9004.	12.3	9012.	13.7	9026.	15.9	9038.			
MU 63-1 BRIDGE											
SB	1.	1.56	2.9		42.	7.4	802	3		-0.6	-0.6
MU 63-1 BRIDGE											
X1	45767	24	8420	8541	19.	19.	19.				
X2			1	11.7	13.						
X3	10					8588	14.1	12.1	11		
BT	-11	6075	14.1		6547	14.3		6668	14.3		
BT		7731	13.1		8021	12.5		8420	13.1		
BT		8541	13.5		8588	14.1		8611	13.9		
BT		8627	10.9		9004	11.5					
GR	15.3	6066.	15.3	6067.	14.1	6075.	14.3	6547.	14.3	6668.	
GR	13.1	7731.	12.5	8021.	12.3	8175.	11.7	8181.	11.5	8188.	
GR	11.5	8420.	0.0	8455.	-0.6	8463.	1.2	8498.	3.	8506.	
GR	6.9	8523.	10.7	8541.	14.1	8588.	13.9	8611.	10.9	8627.	
GR	11.5	9004.	12.3	9012.	13.7	9026.	15.9	9038.			
X1	45857	24	8420.	8541.	90.	90.	90.				
X3						8588	14.1				
GR	15.3	6066.	15.3	6067.	14.1	6075.	14.3	6547.	14.3	6668.	
GR	13.1	7731.	12.5	8021.	12.3	8175.	11.7	8181.	11.5	8188.	
GR	11.5	8420.	1.1	8441.		8455.	-0.6	8463.	1.2	8498.	
GR	6.9	8523.	10.7	8541.	14.1	8588.	13.9	8611.	10.9	8627.	
GR	11.5	9004.	12.3	9012.	13.7	9026.	15.9	9038.			

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NC				0.1	0.3						
X1	46157				300.	300.	300.			0.1	
X3						8588	14.1				
X1	47157				1000.	1000.	1000.			0.2	
X3						8588	14.1				
X1	51157	32	9233	9336.	4000.	4000.	4000.			-0.2	
X3				9180	20.9	9362	17.5				
GR	19.	6104.	15.8	6121.	15.8	7000.	14.2	8060.	12.9	9000.	
GR	13.3	9060.	11.9	9070.	12.3	9090.	10.9	9153.	21.1	9180.	
GR	13.7	9230.	12.05	9233.	1.7	9267.	-1.2	9286.	1.7	9314.	
GR	11.1	9328.	13.5	9333.	13.9	9336.	17.7	9362.	10.7	9402.	
GR	12.9	9577.	13.1	9787.	14.9	9794.	11.5	9802.	11.5	9810.	
GR	15.9	9821.	13.7	9829.	12.5	10136.	17.5	10181.	3.7	10237.	
GR	3.7	10275.	16.9	10319.							
X1	51927				691	748	770			0.2	
X3				9180	20.9	9362	17.5				
NC				0.3	0.5						
2000 BAKER & LAWSON SURVEY SECTION											
X1	51978	9	5000	5181	45	48	51				
GR	17.5	3599	15.5	3600	15.44	5000	5.85	5047	1	5077	
GR	-.35	5095	.56	5116	16.04	5181	17.5	5200			
X1	52027	34	9191	9376	68	73	76				
X3	10			9180	12.1	9362	17.7	12.8	12.8		
GR	19.	6104.	15.8	6121.	15.8	7000.	14.2	8060.	12.9	9000.	
GR	13.3	9060.	11.9	9070.	12.3	9090.	10.9	9153.	12.1	9180.	
GR	16.18	9191	13.7	9230.	12.5	9233.	1.7	9267.	-.29	9286.	
GR	1.7	9314.	11.1	9328.	12.6	9333.	13.9	9336.	17.7	9362.	
GR	16.07	9376	10.7	9402.	12.9	9577.	13.1	9787.	14.9	9794.	
GR	11.5	9802.	11.5	9810.	15.9	9821.	13.7	9829.	12.5	10136.	
GR	17.5	10181.	3.7	10237.	3.7	10275.	16.9	10319.			
FM 2917 BRIDGE MU 61-1											
SPECIAL BRIDGE DATA UPDATED USING BRINSAP FILES 02/97											
SB	1.	1.56	2.9		29.3	6.3	1682	5	-.29	-.29	
2000 BAKER & LAWSON SURVEY SECTION											

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MU 61-1 BRIDGE (F.M. 2917)

X1	52046	34	9191	9376	45	45	45			
X2			1	15.9	17.1					
X3	10			9191	16.18	9362	17.7	12.8	12.8	
BT	13	7000	15.8		8060	14.2		9000	12.9	
BT	9060	13.3		9070	14.3		9090	16.47		9153
BT	16.5		9180	16.9		9191	17.15		9376	17.1
BT		9402	15.63		9577	12.9		9787	13.1	
GR	19.	6104.	15.8	6121.	15.8	7000.	14.2	8060.	12.9	9000.
GR	13.3	9060.	11.9	9070.	12.3	9090.	10.9	9153.	12.1	9180.
GR	16.18	9191	13.7	9230.	12.5	9233.	1.7	9267.	- .29	9286.
GR	1.7	9314.	11.1	9328.	12.6	9333.	13.9	9336.	17.7	9362.
GR	16.07	9376	10.7	9402.	12.9	9577.	13.1	9787.	14.9	9794.
GR	11.5	9802.	11.5	9810.	15.9	9821.	13.7	9829.	12.5	10136.
GR	17.5	10181.	3.7	10237.	3.7	10275.	16.9	10319.		

X1	52136				90.	90.	90.			
X3	10			9180	12.1	9362	17.7	12.8	12.8	
NC				0.1	0.3					

2000 BAKER & LAWSON SURVEY SECTION

X1	52186	14	5022	5104	50	50	50			
GR	18	3999	16	4000	14.27	5000	13.24	5022	2.22	5053
GR	- .81	5075	3.04	5081	10.88	5104	11.76	5127	13	5227
GR	14	5230	16	6230	17	6231	18	6231		

X1	52436				250	250	250		0.1	
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ADDED SECTION FOR STORAGE OUTFLOW MODELING

QT	3	3808	4404	5619						
X1	54397				1961	1961	1961			
X1	56506	13	5893.	6010.	1769	2009	2109			
X3						6060	24.7			
GR	18.7	5846.	18.7	5847.	16.9	5893.	3.9	5918.	1.	5953.
GR	3.9	5987.	17.5	6010.	17.5	6031.	24.7	6060.	14.7	6131.
GR	15.3	6200.	16.1	6842.	18	6854.				
X1	58036	14	5893.	6010.	1500.	1500.	1530.			
X3						6060	24.7			
GR	19.	3230.	17.2	3280.	17.	5893.	4.1	5918.	1.2	5953.
GR	4.1	5987.	17.7	6010.	17.7	6031.	24.9	6060.	14.9	6131.
GR	15.5	6200.	16.3	6842.	17.9	6854.	18.7	6866		

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X1	60176	17	5878.	5975.	2150.	1950.	2140.			
X3				5847	19.4	6060	25.4			
GR	19.4	5463.	9.8	5544.	17.8	5585.	15.2	5800.	19.4	5847.
GR	18.2	5878.	3.6	5900.	1.7	5925.	3.6	5954.	17.6	5975.
GR	17.5	6031.	25.4	6060.	15.2	6131.	16.	6200.	16.8	6842.
GR	18.5	6854.	19	6860						

NC 0.6 0.8

2000 BAKER & LAWSON SURVEY SECTION

X1	60205	12	5021	5145	29	26	29			
GR	19.5	4399	18.72	4400	18.72	5000	18.89	5021	3.22	5053
GR	1.86	5103	3.64	5113	18.10	5145	18.34	5159	18.7	5173
GR	18.7	6600	19.5	6601						

X1	60276	7	5868	5988	71	71	71			
X3	10			5847	19.4	6060	25.4	16.5	16.5	
GR	19.6	5800	15.91	5868	3.6	5890	-1.13	5925.	3.6	5964
GR	16.56	5988	19.6	6020						

RESERVOIR BRIDGE MU 60-1

SB	1.	1.56	2.6		50	7.	1220	2	-1.13	-1.13
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INCORPORATED NEW CHANNEL DATA WITH ORIGINAL OVERBANK DATA.  
MODIFIED BT RECORDS ACCORDING TO SURVEY

RESERVOIR BRIDGE MU 60-1

X1	60297	7	5868	5988	20	20	20			
X2			1	16.	17.5				16.5	16.5
X3	10							5988	16.58	
BT	4	5800	19.7		5868	16.53				
BT	6018	19.39								
GR	19.7	5800	15.91	5868	3.6	5890	-1.13	5925.	3.6	5964
GR	16.56	5988	19.7	6020						

X1	60377				80	80	80			
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NC 0.1 0.3

X1	64767	14	5507.	5541.	3930.	4280.	4390.			
GR	22	5397.	21	5398.	20.3	5399.	20	5415.	19.9	5465
GR	4.3	5507.	3.7	5514.	3.0	5522.	0	5526.	3.7	5534.
GR	4.3	5541.	21.5	5575.	21.7	5597.	22	5626.		

X1	67937	15	4083.	4114.	3300.	3100.	3170.			
X3				4033	24.3	4164	20.3			
GR	23.2	4000.	23	4001.	24.3	4033.	20.1	4060.	4.5	4083.
GR	4.3	4089.	4.	4096.	2	4099.	4.	4102.	4.3	4108.
GR	4.5	4114.	20.3	4164.	19.9	4184.	22	4205.	23.2	4220.

NC			0.6	0.8						
X1	68037	24	3182.	3294.	100.	100.	100.			-0.6
X3				3145	25.1					
GR	24.3	1893.	20.9	1909.	20.7	2324.	21.9	2653.	21.7	2725.
GR	20.1	2737.	20.1	2764.	23.3	2774.	20.5	2832.	24.3	2879.
GR	17.7	2898.	17.7	2905.	23.9	2933.	17.7	3081.	17.7	3127.
GR	25.7	3145.	21.5	3182.	6.4	3218.	1.5	3240.	6.3	3259.
GR	21.5	3294.	21.5	3799.	21.5	3825.	24.3	3856.		

NC			0.1	0.3						
X1	70697				2520.	2770.	2660.			0.6
X3				3145	25.1					
NC			0.3	0.5						

2000 BAKER & LAWSON SURVEY SECTION

X1	70706	14	5021	5140	9	9	9			
GR	25	2490	24	2490	23	2500	21.37	5000	20.35	5021
GR	10.72	5046	6.81	5072	3	5102	7.53	5118	19.19	5140
GR	20.95	5158	23	7500	24	7510	25	7510		

2000 BAKER & LAWSON SURVEY SECTION

X1	70757	9	5000	5112	48	53	51			
X3	10							21.6	21.6	
GR	25	2500	24	2500	20.62	5000	4.67	5024	3.05	5065
GR	3.53	5090	19.95	5112	24	7500	25	7500		

MU 57-1 BRIDGE

INCORPORATED NEW CHANNEL DATA WITH ORIGINAL OVERBANK DATA.

SB	1.05	1.56	2.8		32.8	7	1434	2.5	2.16	2.16
MU 57-1 BRIDGE										
X1	70773	25	3182.	3294.	467	533	16			
X2			1	21.5	21.7					
X3	10			3145	25.7			23	23.4	
BT	5	3163	23.5		3170	22.9		3298	23.3	
BT	3300	24.7		3332	26.3					
GR	24.2	1893.	20.9	1909.	20.7	2324.	21.9	2653.	21.7	2725.
GR	20.1	2737.	20.1	2764.	23.3	2774.	20.5	2832.	24.3	2879.
GR	17.7	2898.	17.7	2905.	23.9	2933.	17.7	3081.	17.7	3127.
GR	25.7	3145.	21.5	3182.	6.4	3218.	4.3	3240.	3.67	3241
GR	2.16	3250	4.84	3259.	21.5	3294.	24.7	3300.	26.3	3332.

NC			0.1	0.3						
X1	70823	14	5024	5141	50	50	50			
GR	25	2699	24.3	2699	23	2700	20.84	5000	21.48	5024
GR	9.4	5052	5.41	5065	3.49	5084	6.07	5108	21.7	5141
GR	22.67	5156	23	6500	24.3	6501	25	6501		

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X1	72483	19	4041.	4167.	1900.	1200.	1660.			-0.2	
X3				3974	35.2						
GR	25.4	2614.	23.2	2713.	23.4	3068.	22.2	3551.	21.8	3806.	
GR	22.8	3894.	31.8	3926.	35.4	3974.	25.2	4006.	25.2	4034.	
GR	24.2	4041.	8.4	4079.	6.4	4087.	4.4	4097.	6.4	4106.	
GR	8.4	4114.	24.2	4167.	24.4	4195.	30.8	4205.			

X1	73563				1050.	1000.	1080.			0.2	
X3				3974	35.2						

X1	73863				300.	300.	300.			0.1	
X3				3974	35.2						

X1	75863	14	3454.	3673.	1750.	2000.	2000.				
GR	27.	3280.	26.	3287.	23.8	3454.	15.8	3480.	16.8	3497.	
GR	10.	3519.	7.	3525.	7.3	3532.	4.3	3536.	7.	3543.	
GR	10.	3549.	28.	3583.	29.4	3649.	30.4	3673.			

SECTION ADDED FOR STORAGE OUTFLOW MODELING

QT	3	3383	4020	5060							
X1	76232				369	369	369				

QT	3	2382	2985	3930							
X1	77132				481	731	731				

X1	77723	19	3454.	3673.	440	990	900				
GR	28.2	2699.	28.2	2700.	27.2	2707.	26.4	2721.	26.4	2839.	
GR	25.1	3091.	24.9	3290.	24.1	3454.	16.1	3480.	17.1	3497.	
GR	10.3	3519.	7.3	3525.	4.2	3532.	4.2	3536.	7.3	3543.	
GR	10.3	3549.	29.1	3583.	30.5	3649.	31.5	3673.			

X1	78523	16	3330.	3401.	725.	760.	800.				
X3				3245	26.8						
GR	28.9	2772.	24.2	2793.	24.4	3169.	26.8	3196.	19.4	3205.	
GR	19.4	3224.	26.8	3245.	23.4	3275.	25.1	3330.	9.5	3356.	
GR	4.3	3370.	9.1	3381.	25.1	3401.	26.	3465.	26.2	3570.	
GR	30.	3590.									

NC				0.3	0.5						
X1	78603				80.	80.	80.				
X3	10			3245	26.8						

MU 54-2 BRIDGE

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SB	1.	1.56	2.6		19.6	5.	817	1.4	4.3	4.3
MU 54-2 BRIDGE										
X1	78621	16	3330	3401	18.	18.	18.			
X2			1	23.8	25.					
X3	10			3245	26.8			25.	25.	
BT	2	3330.	25.1		3401.	25.1				
GR	28.9	2772.	24.2	2793.	24.4	3169.	26.8	3196.	19.4	3205.
GR	19.4	3224.	26.8	3245.	23.4	3275.	25.1	3330.	9.5	3356.
GR	4.3	3370.	9.1	3381.	25.1	3401.	26.	3465.	26.2	3570.
GR	30.	3590.								
X1	78661				40.	40.	40.			
X3	10			3245	26.8					
X1	79391	19	3460.	3537.	730.	730.	730.			
X3	10			2736	27.5					
GR	29.9	2636.	24.3	2649.	24.3	2662.	27.5	2705.	27.5	2736.
GR	25.7	2784.	27.1	3042.	25.5	3159.	24.1	3299.	24.3	3451.
GR	24.	3460.	9.3	3487.	5.6	3507.	9.2	3516.	25.3	3537.
GR	25.1	3548.	25.1	3564.	27.1	3608.	31.7	3626.		
NC				0.3	0.5					
X1	79471	19	3472.	3527.	80.	80.	80.			
X3	10			2736	27.5			22.2	22.2	
GR	29.9	2636.	24.3	2649.	24.3	2662.	27.5	2705.	27.5	2736.
GR	25.7	2784.	27.1	3042.	25.5	3159.	24.1	3299.	24.3	3451.
GR	21.8	3472.	9.3	3487.	5.6	3507.	9.2	3516.	21.8	3527.
GR	25.1	3548.	25.1	3564.	27.1	3608.	31.7	3626.		
MU 54-1 BRIDGE										
SB	1.	1.56	2.7		18.8	4.	531.	1.3	6.5	6.5
MU 54-1 BRIDGE										
X1	79484	19	3472	3527	13.	13.	13.			
X2			1	21.8	22.7					
X3	10			2736	27.5			24.4	22.7	
BT	4	3456.	24.3		3477.	22.7	0	3529.	22.7	
BT	3548.	25.1								
GR	29.9	2636.	24.3	2649.	24.3	2662.	27.5	2705.	27.5	2736.
GR	25.7	2784.	27.1	3042.	25.5	3159.	24.1	3299.	24.3	3451.
GR	21.8	3472.	9.3	3487.	5.6	3507.	9.2	3516.	21.8	3527.
GR	25.1	3548.	25.1	3564.	27.1	3608.	31.7	3626.		



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X1	79534	19	3460.	3537.	50.	50.	50.			
X3				2736	27.5					
GR	29.9	2636.	24.3	2649.	24.3	2662	27.5	2705.	27.5	2736.
GR	25.7	2784.	27.1	3042.	25.5	3159.	24.1	3299.	24.3	3451.
GR	24.	3460.	9.3	3487.	5.6	3507.	9.2	3516.	25.3	3537.
GR	25.1	3548.	25.1	3564.	27.1	3608.	31.7	3626.		

NC 0.1 0.3

X1	80014	27	3460.	3594.	480.	480.	480.			
X3	10			2355	27.6					
GR	28.8	2271.	28.8	2272.	28.8	2273.	27.8	2279.	24.6	2293.
GR	25.	2323.	27.4	2337.	27.6	2355.	25.	2372.	26.4	2378.
GR	26.5	2591.	26.3	2809.	26.5	2986.	25.3	3074.	26.3	3106.
GR	25.7	3135.	25.9	3304.	25.7	3429.	24.	3460.	9.3	3487.
GR	5.6	3507.	9.2	3516.	25.3	3537.	30.7	3594.	25.3	3620.
GR	25.3	3655.	31.7	3680.						

X1	81894	16	4459.	4528.	1880.	1880.	1880.			
GR	29	2075	26.5	4075.	26.5	4076.	25.5	4265.	24.9	4376.
GR	25.9	4455.	23.6	4459.	11.2	4480.	9.2	4495.	10.9	4505.
GR	24.7	4528.	25.5	4531.	25.5	4532.	25.7	4584.	26.	4790.
GR	31.	4798.								

NC 0.3 0.5

2000 BAKER & LAWSON SURVEY SECTION

X1	81938	10	5016	5097	44	44	44			
GR	29.5	2500	25.57	5000	24	5016	9.98	5043	8.16	5050
GR	9.67	5058	14.49	5076	25.57	5097	25.64	5114	29	5200

2000 BAKER & LAWSON SURVEY SECTION

X1	81944	8	5000	5099	6	6	6			
GR	30	2350	24.29	5000	18.25	5025	9.52	5044	8.16	5058
GR	10.26	5071	25.42	5099	29	5200				

X1	81994				50	50	50			
X3	10							24.5	25.3	

SHELL ROAD BRIDGE MU 53-1

SB	1.	1.56	2.9		27.1	4.7	1038	2	6.93	6.93
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USES NEW CHANNEL DATA FROM B&L AND COMBINED WITH ORIGINAL OVERBANKS

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SHELL ROAD BRIDGE MU 53-1

X1	82022	16	4440	4545	28	28	28			
X2			1	24.8	25.9					
X3	10							24.5	25.3	
BT	-9	4076	26.5		4265	25.5		4350	24.9	
BT		4440	25.9		4459	25.6		4531.	25.75	
BT		4532	25.7		4584	25.7		4790	26	
GR	29	4075.	26.5	4076.	25.5	4265.	24.9	4350	25.9	4440
GR	23.6	4449	11.2	4480	9.2	4485	6.93	4500	10.9	4505.
GR	24.7	4543	25.5	4545	25.5	4552	25.7	4584.	26.	4790.
GR	31.	4798.								

2000 BAKER & LAWSON SURVEY SECTION

X1	82063	10	5015	5091	41	41	41			
GR	29.5	2500	24.55	5000	23.65	5015	10.47	5033	6.88	5045
GR	11.87	5052	15.10	5066	24.93	5091	25.99	5105	29.5	5200
X1	82072				9	9	9			
NC			0.1	0.3						
X1	82372	15	4459.	4528.	300.	300.	300.			
GR	29.5	4075.	26.5	4076.	25.5	4265.	24.9	4376.	25.9	4455.
GR	23.6	4459.	11.2	4480.	8.2	4495.	10.9	4505.	24.7	4528.
GR	25.5	4531.	25.5	4532.	25.7	4584.	26.	4790.	31.	4798.
X1	83472	14	4459.	4528.	1100.	1100.	1100.			
GR	32.5	2900.	27.1	2920.	26.9	4076.	26.	4265.	25.4	4376.
GR	26.4	4455.	24.1	4459.	11.7	4480.	9.7	4495.	11.4	4505.
GR	25.2	4528.	26.	4531.	25.7	4584.	31.	4700.		
NC			0.6	0.8						
X1	84882	11	1350.	1440.	1360.	1510.	1410.			
GR	37.	1000.	27.	1030.	24.8	1350.	14.8	1380.	11.5	1390.
GR	10.8	1395.	10.	1400.	11.5	1410.	25.4	1440.	27.	1760.
GR	37.	1800.								
X1	85132	15	3570.	3658.	250.	250.	250.			
GR	37.7	1000.	37.1	3000.	37.1	3500.	30.4	3516.	24.8	3570.
GR	17.3	3583.	13.5	3593.	12.6	3603.	11.7	3606.	11.5	3609.
GR	10.	3619.	11.5	3629.	25.4	3658.	37.1	3730.	37.1	5500.
X1	85432	14	4675.	4763.	350.	350.	300.			
GR	37.	4300.	30.	4340.	27.	4646.	24.8	4675.	17.3	4688.
GR	13.5	4698.	12.6	4708.	11.7	4711.	11.5	4714.	10.	4724.
GR	11.5	4734.	25.4	4763.	26.5	4960.	37.	5000.		

NC				0.1	0.3					
X1	86282	16	4678.	4760.	1050.	1500.	850.			
X3				4533	28.8					
GR	30	1990	28.6	3990.	28.6	3997.	28.4	4165.	26.2	4281.
GR	28.8	4425.	28.8	4533.	28.	4621.	27.2	4646.	26.6	4678.
GR	11.5	4700.	9.6	4713.	11.7	4724.	26.3	4760.	27.	5780.
GR	30	6700								

NC				0.3	0.5					
X1	86382				100.	100.	100.			
X3	10			4533	28.8			26.4	26.4	

NEW ROAD BRIDGE MU 51-2

SB	1.	1.56	2.9		20.8	6.3	653.	2.	11.	11.
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NEW ROAD BRIDGE MU 51-2

X1	86400	14	4678	4760	18.	18.	18.			
X2			1	26.4	27.					
X3	10			4533	28.8			27.	27.	
BT	-3	4646.	27.2		4763.	27.		4797.	26.8	
GR	30.2	3990.	28.6	3997.	28.4	4165.	26.2	4281.	28.8	4425.
GR	28.8	4533.	28.	4621.	27.2	4646.	26.6	4678.	11.5	4700.
GR	9.6	4713.	11.7	4724.	26.3	4760.	30.2	5780.		

X1	86450				50.	50.	50.			0.1
X3				4533	28.8					

NC				0.1	0.3					
X1	87980	21	3345.	3416.	1480.	1530.	1530.			
GR	31	1988	28.6	2988.	25.4	3001.	28.	3012.	26.6	3201.
GR	27.8	3279.	26.1	3345.	12.9	3369.	10.3	3381.	12.9	3397.
GR	25.2	3416.	25.2	3425.	25.4	3429.	26.6	3529.	26.4	3696.
GR	27.4	3981.	28.2	4192.	28.8	4464.	29.8	4726.	28.2	4753.
GR	33.4	4775.								

NC				0.3	0.5					
2000 BAKER & LAWSON SURVEY SECTION										
X1	88013	9	5013	5096	33	33	33			
GR	30.5	4000	24.41	5000	23.96	5013	14.84	5033	10.45	5049
GR	16.01	5082	24.89	5096	25.27	5110	30.5	6100		

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X1	88080	19	3328.	3432.	67	67	67			
X3						4726	29.8			
GR	30.6	2968	28.6	2988.	25.4	3001.	28.	3012.	26.6	3201.
GR	27.8	3279.	26.5	3328.	14.	3358.	10.5	3381.	13.2	3403.
GR	26.3	3432.	26.6	3529.	26.4	3696.	27.4	3981.	28.2	4192.
GR	28.8	4464.	29.8	4726.	28.2	4753.	33.4	4775.		

2000 BAKER & LAWSON SURVEY SECTION

X1	88086	7	5000	5110	6	6	6			
X3	10							26.5	26.3	
GR	31	3500	28.84	5000	14	5034	9.75	5058	14.43	5078
GR	28.55	5110	31	5500						

CR 168 BRIDGE MU 51-1

SB	1.	1.56	2.6		47.7	8.2	1400	1.8	9.26	9.26
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INCORPORATED NEW CHANNEL DATA WITH ORIGINAL OVERBANK DATA.

CR 168 BRIDGE MU 51-1

X1	88116	21	3328	3432	30	30	30			
X2			1	28.3	29.8					
X3	10							26.5	26.3	
BT	9	3012	28		3201	26.6		3237	28.65	
BT	3328	29.55		3378	29.82		3432	29.8		3522
BT	28.68		3696	26.4		3981	27.4			
GR	33	1890	31	1900	28.6	2988.	25.4	3001.	28.	3012.
GR	26.6	3201.	27.8	3279.	26.5	3328.	14.	3358.	11.5	3381.
GR	9.26	3392.	13.2	3403.	26.3	3432.	26.6	3529.	26.4	3696.
GR	27.4	3981.	28.2	4192.	28.8	4464.	29.8	4726.	28.2	4753.
GR	33.4	4775.								

2000 BAKER & LAWSON SURVEY SECTION

X1	88173	9	5018	5094	57	57	57			
GR	31	3500	25.83	5000	24.61	5018	15.85	5035	11.39	5046
GR	15.32	5076	23.94	5094	25.18	5117	31	7000		

X1	88196	20	3345.	3416.	23	23	23			
X3						4726	29.8			
GR	32	2988.	25.4	3001.	28.	3012.	26.6	3201.	27.8	3279.
GR	26.1	3345.	12.9	3369.	11.5	3381.	12.9	3397.	25.2	3416.
GR	25.2	3425.	25.4	3429.	26.6	3529.	26.4	3696.	27.4	3981.
GR	28.2	4192.	28.8	4464.	29.8	4726.	28.2	4753.	33.4	4775.

NC			0.1	0.3						
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2000 BAKER & LAWSON SURVEY SECTION

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X1	89010	11	5027	5160	814	814	814			
GR	31	3500	28.13	5000	25.57	5027	15.64	5055	15.63	5079
GR	11.22	5085	13.88	5127	15.86	5128	26.98	5160	27.96	5180
GR	31	6680								

## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	89063	8	5000	5117	53	53	53			
GR	31	3500	26.29	5000	19.4	5009	14.06	5015	9.63	5068
GR	13.25	5085	26.42	5117	31	6600				

## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	89078	9	5000	5115	15	15	15			
GR	31	3500	26.25	5000	16.28	5024	12.71	5056	9.96	5069
GR	13.02	5081	19.51	5109	26.42	5115	31	6600		

## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	89129	10	5027	5147	51	51	51			
GR	31	3500	28.98	5000	27.60	5027	14.89	5055	14.42	5073
GR	11.09	5098	15.13	5109	27.72	5147	28.59	5174	31	6650

X1	90016	9	2700.	2806.	1170	792	887			
GR	31.5	1500.	30.	2297.	26.8	2700.	14.5	2747.	7.2	2764.
GR	14.2	2787.	26.2	2806.	27.5	2990.	32.3	3020.		

NC				0.3	0.5					
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## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	90022	7	5000	5085	8	5	6			
GR	35	4500	28.56	5000	14.79	5022	6.27	5037	13.07	5050
GR	24.31	5085	35	5600						

## USES NEW CHANNEL DATA FROM B&amp;L AND COMBINED WITH ORIGINAL OVERBANKS

X1	90116	11	2674.	2836.	124	84	94			
X3	10							30.1	30.1	
GR	32	1783.	30.	1933.	27.	2674.	23.	2736.	13.2	2756.
GR	11.4	2764.	8.66	2780	13.	2796.	23.	2815.	27.	2836.
GR	32.3	2850.								

## MOPAC (MISSOURRI PACIFIC RR) BRIDGE MU 50-2

SB	1.15	1.56	2.6		33.5	7.1	1707	3	8.14	8.14
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## INCORPORATED NEW CHANNEL DATA WITH ORIGINAL OVERBANK DATA.

## MOPAC (MISSOURRI PACIFIC RR) BRIDGE MU 50-2

X1	90138	11	2674.	2836.	22	22	22			
X2			1	28.	32.3					
X3	10							32.3	32.3	
BT	6	1783.	32.9		2253.	32.7		2674.	32.3	
BT	2836.	32.3		3981.	32.9		4373.	33.1		

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GR	32.3	2660.	30.	2668.	27.	2674.	23.	2736.	13.2	2756.
GR	11.4	2764.	8.14	2780	13.	2796.	23.	2815.	27.	2836.
GR	32	3850.								

X1	90188				60	50	50			
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NC			0.1	0.3						
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X1	90638	10	2700.	2806.	500	450	450			
GR	32.3	2280.	30.5	2290.	30.	2500.	26.9	2700.	14.6	2747.
GR	11.5	2764.	14.3	2787.	26.3	2806.	30.	3050.	32.3	3400.

2000 BAKER & LAWSON SURVEY SECTION

X1	91093	9	5000	5106	506	455	455			
GR	33	3700	27.24	5000	17.12	5024	15.4	5042	12.21	5051
GR	15.72	5079	27.45	5106	28.35	5124	33	6500		

2000 BAKER & LAWSON SURVEY SECTION

X1	91226	8	4980	5137	133	133	133			
X3	10							30	28.5	
GR	33	3500	30.48	4980	15.53	5032	14.16	5051	11.09	5064
GR	14.96	5078	28.88	5137	33	6760				

CR 163 (FINGER ROAD) BRIDGE MU 50-1

MODIFIED BRIDGE DATA ACCORDING TO SURVEY AND BRINSAP

SB	1.	1.56	3.		30	10	1292	3.5	11.6	11.6
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USES NEW CHANNEL DATA FROM B&L AND COMBINED WITH ORIGINAL OVERBANKS

CR 163 (FINGER ROAD) BRIDGE MU 50-1

X1	91251	24	4760	4929	25	25	25			
X2			1	29.0	30.5					
X3	10			3397	31.4			30	28.5	
BT	-15	3397	31.4		3694	31.0		4045	30.4	
BT		4383	30.4		4627	29.6		4681	30.6	
BT		4728	30.6		4811	30.48		4869	30.40	
BT		4924	30.33		5032	29.95		5206	28.6	
BT		5358	28.8		5574	30.0		6362	32	
GR	34.6	0.0	34.6	2597.	34.	3126.	32.4	3352.	29.8	3370.
GR	31.4	3397.	31.	3694.	30.4	4045.	30.4	4383.	29.6	4627.
GR	30.6	4681.	30.6	4728.	29.2	4760	28.1	4820	15.	4855
GR	13.8	4861.5	11.6	4865	15.2	4878.6	27.8	4890	29.2	4929
GR	28.6	5206.	28.8	5358.	30.	5574.	32	6362.		

X1	91311	23	4806.	4913.3	60.	60.	60.	0.8192		
X3				3873	31.6					
GR	34.6		34.6	2597.	34.	3126.	32.4	3352.	29.8	3370.
GR	31.4	3397.	31.	3694.	30.4	4045.	30.4	4383.	29.6	4627.
GR	30.6	4681.	31.6	4728.	29.2	4804.	28.1	4806.	15.9	4842.6
GR	13.8	4862.1	16.	4887.7	28.8	4913.3	29.2	4915.	28.6	5207.

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GR	28.8	5359.	30.	5575.	33	6363.				
NC				0.1	0.3					
2000 BAKER & LAWSON SURVEY SECTION										
X1	91317	10	5013	5116	6	6	6			
GR	34	400	26.69	5000	25.65	5013	14.91	5035	13.1	5039
GR	14.67	5078	17.2	5097	26.41	5116	26.89	5131	33	7000
X1	91611				294	294	294			0.1
X1	93921	17	3511.	3611.	2150.	2700.	2310.			
X3				3488	32.8	3651	32.2			
GR	34.6	2927.	35.2	3138.	33.6	3292.	31.2	3413.	32.8	3488.
GR	30.2	3511.	18.6	3537.	16.6	3546.	14.7	3555.	16.6	3563.
GR	18.6	3572	30.2	3611	32.2	3651	29.8	3737	31	3848
GR	34.8	4107.	35.2	4880.						
X1	96621	17	3314.	3390.	2600.	2600.	2700.			
GR	34.4	1935.	34.4	1936.	34.4	1937.	30.6	2546.	29.6	2904.
GR	29.8	3057.	31.8	3155.	28.8	3302.	27.9	3314.	20.6	3331.
GR	15.8	3353.	20.8	3378.	30.3	3390.	32.8	3402.	36.4	3465.
GR	36.6	3674.	36.8	3975.						
NC				0.3	0.5					
2000 BAKER & LAWSON SURVEY SECTION										
X1	96674	10	5022	5116	51	51	53			
GR	34.5	4000	32.78	5000	30.16	5022	18.72	5051	15.96	5057
GR	19.42	5078	22.61	5099	30.29	5116	31.2	5131	34.5	6400
X1	96721	17	3310.	3388.	47	47	47			
GR	34.4	1935.	34.4	1936.	34.4	1937.	30.6	2546.	29.6	2904.
GR	29.8	3057.	31.8	3155.	28.8	3302.	29.	3310.	20.6	3331.
GR	15.8	3353.	18.4	3366.	28.9	3388.	32.8	3402.	36.4	3465.
GR	36.6	3674.	36.8	3975.						
2000 BAKER & LAWSON SURVEY SECTION										
QT	3	2093	2768	3916						
X1	96726	7	4980	5105	5	5	5			
X3	10									
GR	33.5	4900	32.82	4980	21.67	5019	18.08	5032	33.2	5055
GR	18.43	5083	33.5	5105						

CR 160 (STUART ROAD) MU 48-1

SB 1.05 1.56 2.8 25.75 6.75 1495 3 14.85 14.85

USES NEW CHANNEL DATA FROM B&L AND COMBINED WITH ORIGINAL OVERBANKS  
CR 160 (STUART ROAD) MU 48-1

X1	96756	17	3315	3443	30	30	30			
X2			1	32.6	33.9					
X3	10							31.9	35.1	
BT	11	1935	34.4		2546	34.1		2904	33.4	
BT	3057	31.9		3155	31.8		3307	33.98		3361
BT	34.14		3413	34.01		3543	35.07		3674	36.6
BT		3975	36.8							
GR	34.4	1935.	34.4	1936.	34.4	1937.	34.1	2546.	33.4	2904.
GR	31.9	3057.	31.8	3155.	30.4	3315	20.6	3331.	19.37	3342
GR	15.8	3353.	14.85	3370	19.14	3403	32.09	3443	32.8	3470
GR	36.6	3674.	36.8	3975.						

2000 BAKER & LAWSON SURVEY SECTION

X1	96807	9	5007	5107	51	51	51			
GR	36	2700	29.22	5000	28.43	5007	19.58	5037	15.88	5065
GR	19.79	5079	30.83	5107	32.58	5131	37	5700		

X1	96811	17	3314.	3390.	4	4	4			
GR	34.4	1935.	34.4	1936.	34.4	1937.	30.6	2546.	29.6	2904.
GR	29.8	3057.	31.8	3155.	28.8	3302.	27.9	3314.	20.6	3331.
GR	15.8	3353.	20.8	3378.	30.3	3390.	32.8	3402.	36.4	3465.
GR	36.6	3674.	36.8	3975.						

NC 0.04 0.04 0.04 0.1 0.3

X1	100161	19	2829.	2925.	3350	3100	3350			
X3				2767	35.2	3002	35.8			
GR	39.2	1658.	39.2	1659.	39.2	1660.	39.2	1661.	38.2	1863.
GR	35.	2103.	34.8	2314.	32.4	2587.	35.2	2767.	32.6	2829.
GR	19.4	2860.	18.1	2867.	16.9	2875.	16.9	2877.	18.1	2885.
GR	19.4	2892.	32.6	2925.	35.8	3002.	36.5	3222.		

X1	101351	18	2028.	2105.	1100.	1350.	1190.			
GR	39.2	1275.	39.2	1276.	37.6	1572.	33.8	1858.	32.	2028.
GR	19.6	2053.	18.4	2060.	17.3	2067.	17.3	2069.	18.4	2076.
GR	19.6	2083.	33.	2105.	31.4	2449.	33.	2506.	34.2	2777.
GR	35.6	3123.	36.6	3529.	37.6	3655.				

X1	103211	8	3640.	3752.	1950.	1900.	1860.			
GR	45.6	3578.	44.4	3617.	41.8	3640.	20.	3685.	18.6	3700.
GR	20.	3715.	44.2	3752.	43.8	3921.				



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X1	104791	22	3269.	3357.	1650.	1600.	1580.			
X3				3139	39.8	3409	39.2			
GR	37.6	2225.	37.2	2374.	36.8	2548.	36.6	2602.	36.6	2831.
GR	37.2	2933.	39.8	3139.	39.	3211.	37.8	3269.	20.	3306.
GR	19.4	3311.	18.9	3317.	18.4	3319.	18.9	3321.	19.4	3326.
GR	20.	3331.	38.6	3357.	39.2	3409.	36.2	3866.	35.8	3921.
GR	35.8	3946.	38.2	4007.						

X1	106621	20	2743.	2818.	1780.	1880.	1830.			
GR	39.6	2145.	39.6	2146.	39.6	2147.	39.6	2148.	37.6	2173.
GR	37.6	2292.	37.	2423.	35.6	2487.	35.6	2631.	35.4	2743.
GR	22.2	2764.	20.6	2769.	19.	2775.	19.	2777.	20.6	2783.
GR	22.2	2788.	35.8	2818.	38.	2866.	37.8	3365.	42.5	3769.

X1	108291	19	1970.	2063.	1900.	1600.	1670.			
X3						2195	40.3			
GR	40.3	1293.	39.5	1524.	37.1	1667.	36.1	1749.	37.9	1854.
GR	37.9	1932.	36.7	1970.	22.9	2014.	19.5	2026.	19.5	2028.
GR	22.9	2040.	37.5	2063.	39.9	2146.	40.3	2195.	38.9	2277.
GR	40.1	2468.	40.9	2737.	40.9	2922.	42.7	2955.		

## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	108611	8	5021	5105	364	307	320			
GR	40	4750	37.10	5000	35.69	5021	19.37	5052	19.45	5066
GR	20.12	5077	36.26	5105	40	5350				

## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	108704	9	5025	5116	106	89	93			
GR	40	4850	37.45	5000	36.75	5025	22.04	5054	19.39	5065
GR	21.13	5080	37.01	5116	37.42	5132	40	5400		

## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	108757	8	5021	5111	60	51	53			
GR	40	4777	39.05	5000	37.16	5021	22.41	5050	22.07	5077
GR	36.97	5111	39.43	5136	40	5277				

## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	108798	9	5017	5091	47	39	41			
GR	40	4850	38.04	5000	34.74	5017	23.20	5038	19.35	5051
GR	22.44	5062	37.71	5091	38.19	5107	40	5400		

## 2000 BAKER &amp; LAWSON SURVEY SECTION

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X1	108898	9	5016	5110	114	96	100				
GR	40	4750	38.23	5000	37.63	5016	21.17	5044	19.15	5055	
GR	21.76	5071	38.08	5110	38.78	5146	40	5450			

2000 BAKER & LAWSON SURVEY SECTION

X1	108928	9	5037	5129	34	29	30				
GR	40	4800	38.85	5000	37.37	5037	21.62	5064	20.20	5075	
GR	22.66	5094	36.45	5129	39.73	5156	40	5300			

2000 BAKER & LAWSON SURVEY SECTION

X1	108976	9	5027	5116	55	46	48				
GR	40.1	4800	38.64	5000	37.04	5027	21.43	5061	19.97	5073	
GR	19.97	5087	36.30	5116	36.17	5147	40.1	5350			

2000 BAKER & LAWSON SURVEY SECTION

X1	108977	8	5000	5094	1	1	1				
GR	40.1	4800	35.5	5000	21.28	5037	19.28	5045	21.45	5059	
GR	37.46	5094	37.71	5125	40.1	5375					

2000 BAKER & LAWSON SURVEY SECTION

X1	109110	10	5014	5118	151	127	133				
GR	40.1	4800	38.25	5000	36.44	5014	28.68	5033	21.36	5048	
GR	19.27	5069	21.6	5076	37.07	5118	38.54	5145	40.1	5350	

2000 BAKER & LAWSON SURVEY SECTION

X1	109205	10	5012	5126	108	91	95				
GR	40.15	4800	38.94	5000	38.3	5012	26.26	5042	21.9	5056	
GR	21.01	5076	21.63	5099	38.64	5126	39.12	5143	40.15	5350	

2000 BAKER & LAWSON SURVEY SECTION

X1	109247	9	5030	5115	48	40	42				
GR	40.15	4800	38.98	5000	35.89	5030	28.6	5049	16.27	5073	
GR	21.43	5091	38.86	5115	39.37	5137	40.15	5350			

2000 BAKER & LAWSON SURVEY SECTION

X1	109304	9	5017	5107	65	55	57				
GR	40.15	4800	38.30	5000	37.02	5017	26.29	5037	22.41	5071	
GR	21.14	5081	37.05	5107	37.75	5127	40.15	5350			

X1	109626	9	1250.	1352.	322	322	322				
GR	41.	1000.	40.	1130.	39.4	1250.	24.7	1288.	20.	1306.	
GR	25.5	1324.	39.4	1352.	40.	1780.	41.	2000.			

NC				0.3		0.5				
QT	3	2010	2390	3158						
X1	109686	12	1260.	1352.	60.	60.	60.			
X3	10							40.5	39.7	
GR	41.	1000.	40.	1130.	38.9	1260.	32.5	1276.	24.7	1288.
GR	20.	1306.	24.7	1321.	32.2	1335.	38.9	1352.	39.5	1467.
GR	39.7	1648.	41.	2000.						

HWY 35 NB BRIDGE MU 41-3

SB	1.25	1.56	2.6		18	1.3	1100	2.0	22.95	22.95
HWY 35 NB BRIDGE MU 41-3										
X1	109723	12	1260	1352	37.	37.	37.			
X2			1	41.71	44.71					
X3	10							40.9	39.8	
BT	-10	435.	41		626.	41.9		932.	41.5	
BT		1000	41		1180.	41.1		1260.	44.31	
BT		1352.	44.71		1467.	40.3		1648.	39.7	
BT		2000	41							
GR	41.	1000.	40.	1130.	38.9	1260.	32.5	1276.	24.7	1288.
GR	22.95	1306.	24.7	1321.	32.2	1335.	38.9	1352.	39.5	1467.
GR	39.7	1648.	41.	2000.						

X1	109783	9	1250.	1352.	60.	60.	60.			
GR	41.	1000.	40.	1130.	39.4	1250.	24.7	1288.	20.	1306.
GR	25.5	1324.	39.4	1352.	40.	1780.	41.	2000.		

X1	109863	9	1140	1248	80.	80.	80.			
GR	41.1	931	38.7	1140	25.7	1177.	25.43	1200.	25.6	1220.
GR	39.2	1248	39.5	1300.	39.8	1750.	41.1	1770.		

X1	109913	9	1140	1248	50.	50.	50.			
X3	10							40.3	39.4	
GR	41.1	931	38.7	1140	25.7	1177.	25.43	1200.	25.6	1220.
GR	39.2	1248	39.5	1300.	39.8	1750.	41.1	1770.		

HWY 35 SB BRIDGE MU 41-2  
MODIFIED BRIDGE ACCORDING TO SURVEY AND BRINSAP

SB	1.25	1.56	2.6		18	1.75	1122	3	25.43	25.43
HWY 35 SB BRIDGE MU 41-2										
X1	109950	9	1140	1248	37.	37.	37.			
X2			1	41.71	44.71					
X3	10							41.1	39.5	
BT	-10	325.	41.3		521.	41.5		715.	41.5	
BT		931.	41.1		1050.	41.1		1140	44.36	

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BT		1238	44.71		1300	39.5		1750	39.8	
BT		1770	41.1							
GR	41.1	931	38.7	1140	25.7	1177.	25.43	1200.	25.6	1220.
GR	39.2	1248	39.5	1300.	39.8	1750.	41.1	1770.		

X1	110050				70.	130.		100.		
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X1	110120	8	1003.	1108.	25.	180.		70.		
X3	10							39.	39.	
GR	41.2	983.	38.7	1003.	25.7	1016.	21.7	1056.	25.5	1094.
GR	39.2	1108.	39.8	1480.	41.2	1500.				

CR 422 BRIDGE MU 41-1

SB	1.	1.56	2.7		56.5	7.5	1240.	2.	22.7	22.7
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CR 422 BRIDGE MU 41-1

X1	110160	8	1003	1108	40.	40.		40.		
X2			1	38.2	39.7					
X3	10							39.9	41.3	
BT	4	983.	41.2		1003	40.3		1480	41.2	
BT	1500	41.2								
GR	41.2	983.	38.7	1003.	25.7	1016.	21.7	1056.	25.5	1094.
GR	39.2	1108.	39.8	1480.	41.2	1500.				

NC	0.06	0.06								
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X1	110210	34	3058.	3146.	50.	50.		50.		
X3				2847	41.9					
GR	42.1	2533.	42.1	2534.	42.1	2535.	42.1	2536.	42.1	2537.
GR	40.9	2592.	39.1	2686.	40.9	2705.	41.9	2847.	40.9	2929.
GR	39.7	2962.	40.5	2998.	39.7	3046.	38.7	3058.	25.7	3085.
GR	21.7	3108.	25.6	3128.	39.2	3146.	39.9	3227.	38.7	3380.
GR	38.5	3449.	38.5	3523.	38.5	3614.	38.5	3701.	38.3	3805.
GR	38.2	3984.	39.	4019.	37.6	4037.	38.4	4186.	39.2	4387.
GR	38.4	4497.	39.8	4585.	40.4	4747.	42	4800		

NC	0.1		0.03	0.1	0.3					
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2000 BAKER & LAWSON SURVEY SECTION

X1	112659	9	5000	5081	2449	2649		2449		
GR	43	4500	39.84	5000	22.88	5032	22.64	5047	26.74	5059
GR	40.74	5081	40.74	5091	41	8000	43	8001		

2000 BAKER & LAWSON SURVEY SECTION

X1	112719	7	5000	5088	60	60		60		
GR	43	4500	41.22	5000	25.54	5025	21.7	5040	25	5060
GR	41.17	5088	42	8000						

2000 BAKER & LAWSON SURVEY SECTION

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X1	112769	7	5000	5087	50	50	50				
GR	45	4600	39.38	5000	24.76	5026	22.81	5044	26.32	5055	
GR	39.52	5087	42	6087							

2000 BAKER & LAWSON SURVEY SECTION

X1	112804	8	5022	5103	35	35	35				
GR	45	4600	40.04	5000	37.73	5022	21.31	5058	26.68	5078	
GR	40.43	5103	41.67	5114	42	6100					

X1	112890	17	3384.	3460.	2720.	2550.	2680.				
X3				3384	43.1	3460	42.7				
GR	45.1	2540.	43.9	2751.	43.7	2935.	42.9	2954.	43.5	3148.	
GR	42.1	3235.	41.5	3260.	43.1	3334.	41.5	3366.	43.1	3384.	
GR	23.9	3418.	23.5	3420.	23.	3423.	23.	3425.	23.5	3428.	
GR	23.9	3430.	42.7	3460.							

X1	113590	13	3525	3592	1050.	700.	700.				
GR	43.5	2660.	43.5	2661.	43.1	2811.	42.1	3074.	40.5	3234.	
GR	40.7	3321.	41.1	3525	26.2	3541.	25.	3564.	26.2	3577.	
GR	41.	3592	41.7	3599.	43.1	3671.					

NC				0.3	0.5						
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X1	113680	13	3525	3592	90.	90.	90.				
X3	10							41.	41.		
GR	43.5	2660.	43.5	2661.	43.1	2811.	42.1	3074.	40.5	3234.	
GR	40.7	3321.	41.1	3525.	26.2	3541.	25.	3564.	26.2	3577.	
GR	41.	3592.	41.7	3599.	43.1	3671.					

CR 719 BRIDGE MU 39-1

SB	1.05	1.56	2.6		34.6	4.7	710.	1.25	25.5	25.5	
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CR 719 BRIDGE MU 39-1

X1	113730	13	3525	3592	50.	50.	50.				
X2			1	40.2	41.8						
X3	10							41.8	41.8		
BT	2	3525	41.8		3592	41.8					
GR	43.5	2660.	43.5	2661.	43.1	2811.	42.1	3074.	40.5	3234.	
GR	40.7	3321.	41.1	3525	26.2	3541.	25.	3564.	26.2	3577.	
GR	41.	3592	41.7	3599.	43.1	3671.					

X1	113780				50.	50.	50.				
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NC			0.1		0.3					
2000 BAKER & LAWSON SURVEY SECTION										
X1	115095	11	5032	5132	1315	1315	1315			
GR	43.35	4200	38.86	5000	37.02	5032	23.56	5077	22.81	5090
GR	23.51	5099	28.7	5105	31.2	5121	37.33	5132	38.49	5161
GR	43.35	5700								

2000 BAKER & LAWSON SURVEY SECTION										
X1	115190	10	5023	5143	95	95	95			
GR	44	4200	38.82	5000	37.75	5023	24.6	5063	23.07	5074
GR	25.31	5094	30.38	5106	32.42	5124	36.96	5143	44	5700

LOCATION OF ADOUE ROAD BRIDGE										
USES NEW CHANNEL DATA FROM B&L AND COMBINED WITH ORIGINAL OVERBANKS										
X1	115260	12	1400.	1515.	70	70	70			
GR	45.6	1000.	42.	1030.	41.	1100.	40.	1370.	36.6	1400.
GR	29.5	1415.	25.5	1455.	21.89	1470	29.3	1486.	39.1	1515.
GR	40.	1570.	44	2300.						
NC	0.06		0.04	0.3	0.5					

2000 BAKER & LAWSON SURVEY SECTION										
X1	115332	10	5027	5159	219	62	72			
GR	45	4200	39.06	5000	37.46	5027	27.97	5064	26.73	5112
GR	23.72	5115	21.88	5123	23.08	5135	38.24	5159	45	5200

X1	115760	8	1400.	1515.	428	428	428			
GR	45.9	1300.	36.6	1400.	29.5	1415.	25.5	1455.	29.3	1486.
GR	39.1	1515.	40.	1570.	43.5	1800.				

X1	116110	11	1392.	1515.	350.	350.	350.			
X3	10							43.	43.	
GR	45.4	1380.	39.	1392.	31.	1434.	26.2	1448.	25.5	1455.
GR	28.6	1480.	36.	1498.	39.1	1515.	40.	1570.	42.	1850.
GR	46	2150								

ATCHISON TOPEKA RR BRIDGE MU 38-1										
SB	1.	1.56	2.6		20	13.	900.	3.33	25.5	25.5

ATCHISON TOPEKA RR BRIDGE MU 38-1										
X1	116150	9	1392.	1515.	40.	40.	40.			
X2			1	40.6	45.4					
X3	10							45.4	45.4	
BT	-8	385.	45		828.	45.17		1187.	45.2	
BT		1369.	45.4		1528.	45.6		1771.	45.53	
BT		2058.	45.67		2405.	46.06				
GR	45.	1000.	39.	1392.	31.	1434.	26.2	1448.	25.5	1455.

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GR	28.6	1480.	36.	1498.	39.1	1515.	45.6	1530.		
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## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	116254	8	5000	5139	104	104	104			
GR	46.5	4800	43.13	5000	26.54	5031	24.17	5061	27.91	5079
GR	29.61	5124	40.39	5139	47	5200				

## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	116309	13	5000	5286	55	55	55			
GR	46	4500	42.85	5000	25.23	5045	25.14	5088	25.15	5101
GR	29.10	5123	41.75	5157	40.59	5179	39.90	5194	28.82	5214
GR	25.01	5220	29.40	5247	46.31	5286				

X1	116330	11	1400.	1515.	29	12	21			
GR	45	1100	42.7	1170.	40.	1380.	36.6	1400.	29.5	1415.
GR	25.5	1455.	29.3	1486.	39.1	1515.	40.	1570.	41.	1600.
GR	45.8	1670.								

## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	116563	9	5024	5112	324	129	233			
GR	45	4500	39.00	5000	37.75	5024	25.64	5033.	23.51	5071
GR	25.30	5085	31.17	5098	39.31	5112	45	5600		

X1	116590	11	1016.	1095.	27	27	27			
GR	45	700	42.5	1000.	35.3	1016.	22.8	1052.	30.	1090.
GR	35.5	1091.	36.	1095.	40.	1115.	41.	1180.	41.5	1250.
GR	45.6	1300.								

## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	116607	7	5000	5110	17	17	17			
X3	10							42.	42.	
GR	45	4700	39.80	5000	26.93	5015	23.88	5046	25.97	5058
GR	40.97	5110	45	5200						

OLD GALVESTON BRIDGE MU 37-2  
 MODIFIED ACCORDING TO SURVEY AND BRINSAP

SB	1.	1.56	2.8		24	9	1198	3	23.28	23.28
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USES NEW CHANNEL DATA FROM B&L AND COMBINED WITH ORIGINAL OVBANKS  
 OLD GALVESTON BRIDGE MU 37-2

X1	116640	12	1000	1115	33	33	33			
X2			1	40.36	42.16					
X3	10							41.9	42.1	
BT	6	500	45		590	42		1000	42.05	
BT	1105	42.16		1200	42.6		1500	45		
GR	45	500	42.	590.	40.	1000.	26.02	1016.	23.28	1052.
GR	28.73	1090.	35.5	1091.	36.	1095.	40.	1115.	41.	1160.

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GR 42.6 1200. 45 1500

NC 0.045 0.06 0.045

2000 BAKER & LAWSON SURVEY SECTION

X1 116728 10 5014 5090 88 88 88  
 GR 45 4500 37.3 5000 36.54 5014 31.66 5026 26.43 5046  
 GR 22.88 5053 26.00 5075 34.40 5090 37.60 5112 45 5200

X1 116960 11 1280. 1338. 290 254 232  
 GR 45 500 42. 1000. 40. 1240. 37.8 1280. 32. 1292.  
 GR 25. 1305. 32.2 1328. 38.2 1338. 40. 1350. 41. 1570.  
 GR 45.5 1590.

X1 117660 9 1200. 1311. 760. 560. 700.  
 GR 45 500 42. 1000. 40. 1190. 39.3 1200. 31. 1228.  
 GR 27.9 1255. 32.1 1283. 41.7 1311. 46. 1350.

2000 BAKER & LAWSON SURVEY SECTION

X1 117691 8 5000 5084 34 25 31  
 GR 45 4800 38.41 5000 26.01 5022 24.87 5036 25.83 5046  
 GR 41.27 5084 41.95 5122 45 5400

2000 BAKER & LAWSON SURVEY SECTION

X1 117751 16 4927 5038 65 48 60  
 X3 10  
 GR 44.5 4228. 43.8 4229. 43.8 4230. 43.8 43.7 43.7  
 GR 42.4 4555. 42.8 4762. 42.6 4889. 39.3 4231. 43.2 4417.  
 GR 25.43 4982. 32.1 5010. 41.7 5038 39.3 4927. 32.3 4942.  
 GR 45.5 5520. 43.2 5229. 44. 5448.

GORDON STREET BRIDGE MU 37-1

SB 1.25 1.56 2.6 23.2 3.5 864. 3. 28.1 28.1

GORDON STREET BRIDGE MU 37-1

X1 117820 16 4927. 5038. 116 52 69  
 X2 1  
 X3 10  
 BT -3 4608 44. 4982 45.2 44 45.6  
 GR 44.7 4228. 43.8 4229. 43.8 4230. 43.8 5101 45.6  
 GR 42.4 4555. 42.8 4762. 42.6 4889. 39.3 4231. 43.2 4417.  
 GR 25.43 4982. 32.1 5010. 41.7 5038 39.3 4927. 32.3 4942.  
 GR 45.5 5520. 43.2 5229. 44. 5448.

2000 BAKER & LAWSON SURVEY SECTION





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X1	120250	13	2400.	2464.	400.	370.	360.			
GR	45.2	1170	44.6	1170.	43.	1500.	41.5	2000.	40.	2340.
GR	37.1	2400.	34.1	2413.	29.6	2430.	34.2	2450.	40.	2464.
GR	40.5	2530.	41.	2580.	46.	2600.				

2000 BAKER & LAWSON SURVEY SECTION

X1	120460	11	5022	5106	233	216	210			
GR	45.3	3700	44.6	3700	39.01	5000	38.94	5022	32.24	5046
GR	27.89	5050	26.73	5059	28.96	5081	38.79	5106	44.6	5300
GR	45.3	5300								

MODIFIED FLOWLINE

X1	120600	13	2400.	2464.	40	32	40			
GR	45.3	1070	44.6	1070.	43.	1100.	42.	1800.	40.	2350.
GR	37.1	2400.	34.1	2413.	26.5	2430.	34.2	2450.	40.0	2464.
GR	42.	2470.	43.6	2480.	45.6	2500.				

NC			0.3	0.5						
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2000 BAKER & LAWSON SURVEY SECTION

X1	120604	11	5045	5195	104	104	104			
X3	10									
GR	45.2	3700	41.91	5000	42.26	5045	32.84	42.1	42.1	
GR	26.26	5108	27.70	5140	34.84	5176	41.89	5060	28.26	5076
GR	45.2	5500						5195	41.12	5265

ATCHISON TOPEKA RR BRIDGE MU 35-2 (NEED TO VARIFY)

SB	1.	1.56	2.6	24.1	5.6	1253	5	28	28
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USES NEW CHANNEL DATA FROM B&L AND COMBINED WITH ORIGINAL OVERBANKS  
ATCHISON TOPEKA RR BRIDGE MU 35-2

X1	120642	20	2385	2550	36	36	36			
X2			1	42.09	44.09					
X3	10									
BT	6	1800	42.5		2160	44.09		42.6	44	
BT	2570	43.98		2800	44.17			2360	44.09	
GR	45.3	1070	44.8	1070.	43.	1100.	2962	45		
GR	41.8	2385	38	2390	37.1	2400.	42.5	1800.	41.9	2350.
GR	28.00	2450	29.46	2474	35.31	2505	34.1	2413.	28.40	2420
GR	43.5	2620.	44.17	2800	45.	2962.	38.51	2545	42.5	2550
							45.	3412.	45.3	3412

2000 BAKER & LAWSON SURVEY SECTION

X1	120724	10	5000	5060	82	82	82			
GR	45.3	3400	44.8	3400	36.65	5000	32.32	5012	28.20	5018
GR	27.40	5031	27.88	5042	38.58	5060	44.8	8000	45.3	8000

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X1	120842	14	2400.	2464.	124	118	118			
GR	46	1289	44	1290	43.8	2290.	41.	2310.	37.1	2400.
GR	34.1	2413.	27.5	2430.	34.2	2450.	40.	2464.	41.5	2690.
GR	42.5	2810.	43.5	2910.	44.5	3130.	46	3131		
X1	121322	12	3650.	3731.	1340	1200.	480.			
GR	45.6	3312.	43.2	3345.	41.6	3650.	35.6	3674.	28.2	3691.
GR	35.1	3722.	39.1	3731.	40.2	3770.	40.5	4040.	41.5	4220.
GR	42.5	4730.	45.4	5500						

2000 BAKER & LAWSON SURVEY SECTION

X1	121401	12	5008	5076	84	198	79			
GR	45.4	4800	45	4800	37.77	5000	37.39	5008	32.44	5030
GR	28.34	5036	26.10	5045	28.43	5060	33.87	5066	37.37	5076
GR	45	7000	45.4	7000						

X1	121422	13	3663.	3729.	21	21	21			
GR	45.6	3320.	43.2	3345.	41.6	3650.	38.2	3663.	35.6	3674.
GR	27.5	3691.	35.1	3722.	38.2	3729.	40.2	3770.	40.5	4040.
GR	41.5	4220.	42.5	4730.	45.3	6000				

2000 BAKER & LAWSON SURVEY SECTION

X1	121432	11	4990	5083	10	10	10			
X3	10							41.5	40.4	
GR	45.4	4800	45	4800	41.45	4990	35.46	5005	28.22	5030
GR	28.27	5041	28.55	5060	33.52	5069	40.29	5083	45	7500
GR	45.4	7500								

2ND STREET BRIDGE MU 35-1

SB	1.	1.56	2.6		24	6	769	4	26.82	26.82
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USES NEW CHANNEL DATA FROM B&L AND COMBINED WITH ORIGINAL OVERBANKS

2ND STREET BRIDGE MU 35-1

X1	121462	15	3578	3716	30	30	30			
X2			1	39.96	43.17					
X3	10									
BT	9	3320	45.6		3345	43.2		41.5	40.4	
BT	3465	42.82		3645	43.17			3450	41.6	
BT	41.33		4040	40.5		4220	41.5	3729	42.98	3904
GR	45.6	3320.	43.2	3345.	41.6	4220	41.5	3450	38.2	3578
GR	28.93	3640	26.7	3645	26.82	3675	35.1	3700	35.6	3600
GR	40.2	3770.	40.5	4040.	41.5	4220.	42.5	4730.	45.3	6730

2000 BAKER & LAWSON SURVEY SECTION



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QT 3 2024 2409 3182

X1 125277 100. 100. 100.

NC 0.04 0.1 0.1 0.3

2000 BAKER & LAWSON SURVEY SECTION

X1	126010	10	5000	5064	733	733	733			
GR	47.2	3885	46	3886	45	3936	40.15	5000	33.3	5018
GR	30.86	5036	33.18	5044	40.94	5064	45	6036	46.9	6060

2000 BAKER & LAWSON SURVEY SECTION

X1	126047	11	5000	5093	37	37	37			
GR	47	2885	46	3886	45	3936	39.62	5000	33.66	5012
GR	33.32	5025	30.8	5041	33.15	5074	39.51	5093	45	6063
GR	47	6093								

2000 BAKER & LAWSON SURVEY SECTION

X1	126155	11	5000	5097	108	108	108			
GR	47	3885	46	3886	45	3936	39.62	5000	33.44	5017
GR	31.69	5043	33.3	5074	35.86	5081	39.02	5097	45	6067
GR	46.9	6097								

2000 BAKER & LAWSON SURVEY SECTION

X1	126260	11	5000	5076	105	105	105			
GR	47	3885	46	3886	41.14	5000	36.31	5013	32.5	5024
GR	31.48	5042	32.23	5054	36.59	5067	41.49	5076	45	6067
GR	47	6097								

X1	126702	16	3050.	3126.	411	433	442			
GR	47	1995	44.8	2727.	43.4	2771.	45.	2800.	45.	2846.
GR	43.4	2860.	43.2	2930.	42.	3000.	41.8	3050.	37.9	3061.
GR	31.5	3095.	41.8	3126.	42.2	3150.	42.2	3700.	45.	4100.
GR	47	6300								

NC 0.3 0.5

X1	126802	17	3050.	3137.	5.	250.	100.			
X3	10							41.9	42.1	
GR	47	1995	44.8	2727.	43.4	2771.	45.	2800.	45.	2846.
GR	43.4	2860.	43.2	2930.	42.	3000.	41.8	3050.	37.9	3061.
GR	31.5	3095.	31.5	3107.	41.8	3137.	42.2	3200.	42.2	3700.
GR	45.	4100.	47	6300						

HWY 6 BRIDGE MU 32-1

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SB	1.25	1.56	2.9		43	3	320		32.1	32.1
HWY 6 BRIDGE MU 32-1										
X1	126887	20	3050.	3137.	85.	85.	85.			
X2			1	40.1	42.1					
X3	10									
BT	6	2860	43.4		2930	43.2		41.9	42.1	
BT	3200	42.2		3900	45.5			3000	42	
GR	47	2385.	43.8	2442.	43.4	2503.	5100	48		
GR	44.8	2727.	43.4	2771.	45.	2800.	45.4	2545.	45.4	2648.
GR	43.2	2930.	42.	3000.	41.8	3050.	32.1	2846.	43.4	2860.
GR	32.1	3105	41.8	3137.	42.2	3200.	45.5	3061.	32.1	3095.
								3900.	48.	5100.
X1	127207	22	2776.	2852.	580.	5.	320.			
X3				2648	45.4					
GR	47	1371	45.6	2371.	45.8	2385.	43.8	2442.	43.4	2503.
GR	45.4	2545.	45.4	2648.	44.8	2727.	43.4	2771.	41.8	2776.
GR	37.9	2787.	35.8	2812.	31.5	2821.	35.8	2830.	37.9	2840.
GR	41.8	2852.	43.	2878.	43.	2879.	43.	3004.	45.	3039.
GR	45.	3085.	48.	4800.						
NC			0.03	0.1	0.3					
2000 BAKER & LAWSON SURVEY SECTION										
X1	127998	9	5000	5076	1434	12	791			
GR	47.1	3500	45	4000	39.90	5000	32.08	5018	31.69	5038
GR	33.21	5045	40.93	5076	45	5676	47.1	5900		
2000 BAKER & LAWSON SURVEY SECTION										
X1	128044				83	1	46			
X3	10							42.4	42.4	
2000 BAKER & LAWSON SURVEY SECTION										
SB	1.5	1.56	2.65		19	4	552	3	31.69	31.69
X1	128076	9	5000	5076	24	24	24			
X2			1	42.38	45.36					
X3	10									
BT	10	3500	47.1		4000	45		43.9	43.3	
BT	4994	43.84		5027	43.79			4904	43.84	
BT	43.25		5246	43.24		5676	5060	43.82		5153
BT						45			5900	47.1
GR	47.1	3500	45	4000	39.90	5000	32.08	5018	31.69	5038
GR	33.21	5045	40.93	5076	45	5676	47.1	5900		
2000 BAKER & LAWSON SURVEY SECTION										

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X1	128129				130	23	61			
X1	128702	15	2147.	2212.	573	573	573			
GR	47.2	681.	44.4	1797.	44.4	1798.	43.5	2147.	38.6	2158.
GR	33.8	2181.	38.6	2202.	43.4	2212.	42.6	2723.	46.6	2999.
GR	47.	3240.	47.4	3276.	47.4	3317.	48.	3447.	48.	5625.

NC 0.3 0.5

X1	128802				100.	100.	100.			
X3	10							43.7	42.5	

CARDINAL DRIVE BRIDGE MU 31-1

SB	1	1.56	2.9		13.	5.	313.	3.	34.	34.
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CARDINAL DRIVE BRIDGE MU 31-1

X1	128837	15	2147	2212	35.	35.	35.			
X2			1	43.	44.4					
X3	10									
BT	9	1797	44.4		1798			44.	42.5	
BT	2212	44.4		2723	42.6	44.4		2147	44.	
BT	47		3276	47.4			2999	46.6		3240
GR	47.2	681.	44.4	1797.	44.4	1798.	43.5	2147.	38.6	2158.
GR	33.8	2181.	38.6	2202.	43.4	2212.	42.6	2723.	46.6	2999.
GR	47.	3240.	47.4	3276.	47.4	3317.	48.	3447.	48.	5625.

X1	128902				65.	65.	65.			
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NC 0.03 0.125 0.018 0.1 0.3

X1	130212	11	2035.	2255.	1310.	3700.	1310.			
GR	47.8	2035.	46.8	2146.	36.4	2173.	35.	2176.	33.8	2180.
GR	33.4	2182.	33.8	2184.	35.	2188.	36.4	2191.	46.8	2216.
GR	48.8	2255.								

NC 0.035 0.085

X1	130932	11	2200.	2258.	720.	7800.	720.			
GR	48.6	2176.	48.	2176.	46.5	2200.	39.1	2213.	33.	2228.
GR	39.1	2237.	46.2	2258.	46.2	2259.	46.2	2260.	46.2	2261.
GR	48.6	2744.								

2000 BAKER & LAWSON SURVEY SECTION

X1	130993	9	5000	5092	562	661	61			
GR	48.7	3800	48	3800	46.12	5000	34.24	5035	32.25	5044
GR	33.51	5060	45.50	5092	48	7092	48.7	7092		

2000 BAKER & LAWSON SURVEY SECTION

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X1	131029	12	2207	2286	236	290	236			
GR	48.6	2176	48.	2176.	46.5	2200.	45.55	2207.	37.26	2217
GR	33.63	2236	32.50	2250	33.67	2257	40.57	2279	45.94	2286
GR	48.6	2744.	48.6	2745.						

NC 0.3 0.5

X1	131032	12	2207	2286	103	103	103			
X3	10							44.1	44.1	
GR	48.6	2176	48.	2176.	46.5	2200.	45.55	2207.	37.26	2217
GR	33.63	2236	32.50	2250	33.67	2257	40.57	2279	45.94	2286
GR	48.6	2744.	48.6	2745.						

CR 668 (DICK DAWSON) BRIDGE MU 29-1

SB	1.	1.56	2.9		21	5	688	3	32.5	32.5
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USES NEW CHANNEL DATA FROM B&L AND COMBINED WITH ORIGINAL OVERBANKS

CR 668 (DICK DAWSON) BRIDGE MU 29-1

X1	131055	12	2207	2286	23	23	23			
X2			1	44	46					
X3	10									
BT	6	2176	48.		2200	46.76		46.8	46.6	
BT	2286	46.56		2744	48.6		2745	2246	46.82	
GR	48.6	2176	48.	2176.	46.5	2200.	45.55	2207.	37.26	2217
GR	33.63	2236	32.50	2250	33.67	2257	40.57	2279	45.94	2286
GR	48.6	2744.	48.6	2745.						

2000 BAKER & LAWSON SURVEY SECTION

X1	131098	8	5000	5075	43	43	43			
GR	48.6	4979	45.46	5000	38.57	5014	33.99	5027	32.08	5036
GR	33.81	5050	45.58	5075	48.6	5587				

X1	131115	11	2200.	2258.	57	57	57			
GR	48.6	2176.	48.	2176.	46.5	2200.	39.1	2213.	33.	2228.
GR	39.1	2237.	46.2	2258.	46.2	2259.	46.2	2260.	46.2	2261.
GR	48.6	2744.								

NC 0.045 0.05 0.045 0.1 0.3

X1	132995	15	2309.	2366.	1940	1990	1920			
GR	51.4	1000.	49.	1633.	48.2	1961.	44.	2238.	42.8	2309.
GR	39.8	2318.	38.5	2323.	33.8	2337.	38.5	2356.	39.9	2359.
GR	42.4	2366.	43.2	2367.	46.8	2500.	51.6	2746.	52.6	2968.

NC 0.3 0.5



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X1	133095	17	2275	2387	100.	100.	100.			
X3	10									
GR	51.4	1000.	50.5	1633.	50	1961.	44.	45.2	45.7	
GR	43.	2275	38.	2300	33.8	2320	32.2	2200	43.5	2210
GR	37.5	2370	43.	2373	43.1	2376	43.2	2334	32.0	2344
GR	51.6	2746.	52.6	2968.				2387	46.8	2550

CR 147 BRIDGE MU 28-1

SB	1.	1.56	3.		25.75	5	733	4	32	32
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USES NEW CHANNEL DATA FROM B&L AND COMBINED WITH ORIGINAL OVERBANKS  
CR 147 BRIDGE MU 28-1

X1	133119	17	2275	2387	24	24				
X2			1	44.5	46.7					
X3	10									
BT	9	1961	50		2210	45.21		45.2	45.7	
BT	2319	46.71		2356	46.28		2476	2275	46.56	
BT	46.8		2746	51.6		2968	52.6	45.8		2550
GR	51.4	1000.	50.5	1633.	50	1961.	44.	2200	43.5	2210
GR	43.	2275	38.	2300	33.8	2320	32.2	2334	32.0	2344
GR	37.5	2370	43.	2373	43.1	2376	43.2	2387	46.8	2550
GR	51.6	2746.	52.6	2968.						

2000 BAKER & LAWSON SURVEY SECTION

X1	133154	10	5000	5065	35	35	35			
GR	51.4	4033	50.5	4633	41.67	5000	36.83	5014	33.51	5023
GR	31.91	5033	32.65	5045	40.92	5065	46.8	5320	51.6	5530

X1	133184	15	2309.	2366.	65.	65.	65.			
GR	51.4	1000.	49.	1633.	48.2	1961.	44.	2238.	42.8	2309.
GR	39.8	2318.	38.5	2323.	32.8	2337.	38.5	2356.	39.9	2359.
GR	42.4	2366.	43.2	2367.	46.8	2500.	51.6	2746.	52.6	2968.

NC				0.1	0.3					
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X1	134734	17	3430.	3489.	1550.	1600.	1550.			
GR	51.5	2668	50.5	3114.	50	3168	44.8	3295.	45.2	3430.
GR	36.4	3457.	35.7	3460.	35.	3465.	33.7	3468.	35.	3471.
GR	35.7	3475.	36.4	3478.	43.6	3489.	48.	3804.	49.4	4127.
GR	50.	4470.	51.6	4525.						

2000 BAKER & LAWSON SURVEY SECTION

X1	135429	7	5000	5080	695	737	695			
GR	51.5	4100	41.97	5000	34.89	5025	33.34	5037	34.78	5050
GR	43.12	5080	51.5	6080						

2000 BAKER & LAWSON SURVEY SECTION



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X1	136057	11	1650.	1713.	50.	50.	50.			
GR	50.1	1000.	49.5	1300.	45.9	1650.	42.9	1656.	36.8	1668.
GR	35.7	1682.	36.4	1697.	43.8	1708.	47.	1713.	49.5	1960.
GR	51.5	2860.								

NC 0.1 0.3

X1	137017	16	2457.	2522.	900.	1050.	960.			
GR	50.8	1255.	51.	1655.	48.8	1906.	46.6	2110.	43.	2457.
GR	36.9	2478.	35.1	2493.	36.4	2499.	36.8	2507.	44.6	2512.
GR	44.8	2522.	45.8	2561.	46.2	2847.	48.8	3033.	49.4	3234.
GR	50.4	3234								

NC 0.3 0.5

2000 BAKER & LAWSON SURVEY SECTION

X1	137076	7	5000	5062	55	65	59			
GR	50.4	4700	42.24	5000	35.69	5018	33.85	5035	34.99	5045
GR	42.40	5062	50.4	5262						

2000 BAKER & LAWSON SURVEY SECTION

X1	137097	7	5000	5062	20	23	21			
GR	51	4700	41.76	5000	35.43	5013	33.48	5031	35.25	5044
GR	42.30	5062	51	5262						

X1	137107	20	2443	2538	10	10	10			
X3	10							47	47	
GR	51.	1653.	51.	1654.	51.	1655.	48.9	1959.	47.9	2189.
GR	48.3	2443	43.	2457.	36.9	2478.	35.1	2493.	36.4	2499.
GR	36.8	2507.	44.6	2512.	44.8	2522.	48.3	2538	47.1	2641.
GR	47.1	2836.	48.7	2959.	48.8	3033.	49.4	3234.	51	3234

CR 146 (SCHROEDER ROAD) BRIDGE MU 26-1

SB	1.	1.56	3.		28	5	552	3.5	34.17	34.17
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USES NEW CHANNEL DATA FROM B&L AND COMBINED WITH ORIGINAL OVERBANKS

CR 146 (SCHROEDER ROAD) BRIDGE MU 26-1

X1	137134	21	2427	2544	27	27	27			
X2			1	45.92	47.92					
X3	10							48.3	48.7	
BT	5	2010	48.67		2172.	47.9		2452.	48.3	
BT	2527.	48.3		2597	48.67					
GR	51.	1653.	51.	1654.	51.	1655.	48.9	1959.	47.9	2189.
GR	48.3	2427	43.	2433	36.9	2468	35.1	2473	34.4	2489
GR	34.17	2503	36.8	2507.	44.6	2532	44.8	2542	48.3	2544.
GR	47.1	2641.	47.1	2836.	48.7	2959.	48.8	3033.	49.4	3234.
GR	51	3234								

2000 BAKER & LAWSON SURVEY SECTION

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X1	137202	8	5000	5064	68	68	68				
GR	51	4000	47	4600	41.61	5000	33.3	5012	32.11	5017	
GR	34.22	5036	44.17	5064	51	5800					
X1	137209	20	2457.	2522.	7	7	7				
X3	10										
GR	51.	1653.	51.	1654.	51.	1655.	48.9	48.3	47.1		
GR	48.3	2457.	43.	2457.	36.9	2478.	32.5	1959.	47.9	2189.	
GR	36.8	2507.	44.6	2512.	44.8	2522.	48.3	2493.	36.4	2499.	
GR	47.1	2836.	48.7	2959.	48.8	3033.	49.4	2524.	47.1	2641.	
NC				0.1	0.3			3234.	51	3234	
X1	139689	17	2754.	2833.	2700	2350	2480.				
GR	51	1645	50.2	1645.	50.2	1648.	49.	1931.	46.4	2174.	
GR	44.8	2679.	44.4	2750.	45.1	2754.	37.4	2774.	35.2	2796.	
GR	37.3	2813.	41.4	2830.	45.1	2833.	45.4	2836.	48.2	2906.	
GR	50.	2977.	51	2977							
X1	140189				400.	450.	500.				
NC				0.3	0.5						
2000 BAKER & LAWSON SURVEY SECTION											
X1	140254	10	5000	5080	52	59	65				
GR	51	4400	50	4400	44.55	5000	38.57	5013	34.84	5034	
GR	33.2	5038	34.62	5052	44.03	5080	50	5580	51	5580	
X1	140289	18	2775.	2827.	53	25	35				
GR	51	1629	49.8	1629.	50.2	1648.	49.	1931.	46.4	2174.	
GR	44.8	2679.	44.4	2750.	45.1	2754.	45.	2760.	39.5	2775.	
GR	37.4	2780.	35.2	2801.	37.3	2819.	40.5	2827.	45.1	2839.	
GR	48.2	2906.	50.	2977.	51	2977					
2000 BAKER & LAWSON SURVEY SECTION											
X1	140292	9	4990	5069	5	2	3				
X3	10										
GR	51	4400	50	4400	44.68	4990	34.66	44.3	45		
GR	35.09	5050	44.35	5069	50	5580	51	5011	33.24	5030	
								5580			
UNKNOWN STRUCTURE BRIDGE MU 24-1											
SB	1.	1.56	3.		34.3	3.	510	2	33.72	33.72	

USES NEW CHANNEL DATA FROM B&L AND COMBINED WITH ORIGINAL OVERBANKS

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UNKNOWN STRUCTURE BRIDGE MU 24-1

X1	140310	19	2760	2834	27	13	18			
X2			1	44.34	46.34					
X3	10							44.3	45	
BT	-9	2750	44.4		2754	45.1		2760	46.06	
BT		2775	44.68		2801	46.34		2827	46.00	
BT		2839	45.1		2906	48.2		2977	50	
GR	51	1629	49.8	1629.	50.2	1648.	49.	1931.	46.4	2174.
GR	44.8	2679.	44.4	2760	45.1	2764	45.	2770	39.5	2777
GR	37.4	2780.	35.13	2793	33.72	2810	35.48	2822	45.6	2834
GR	46.1	2855	48.2	2906.	50.	2977.	51	2977		

X1	140370	17	2754.	2833.	60	60	60			
GR	51	1645	50.2	1645.	50.2	1648.	49.	1931.	46.4	2174.
GR	44.8	2679.	44.4	2750.	45.1	2754.	37.4	2774.	35.2	2796.
GR	37.3	2813.	41.4	2830.	45.1	2833.	45.4	2836.	48.2	2906.
GR	50.	2977.	51	2977						

NC	0.04	0.04	0.052	0.1	0.3					
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2000 BAKER & LAWSON SURVEY SECTION

X1	140396	11	5000	5074	26	26	26			
GR	51	4200	50	4200	44.67	5000	38.00	5014	35.13	5027
GR	34.59	5041	34.94	5053	38.83	5058	44.06	5074	50	5974
GR	51	5974								

X1	142150	25	5002.	5085.	2069	1429	1754			
GR	51	4422	50	4422.	49.2	4423.	49.2	4424.	49.2	4425.
GR	49.2	4426.	47.	4611.	44.4	4828.	45.8	4941.	45.8	5000.
GR	45.7	5002.	38.	5024.	36.6	5042.	38.	5062.	45.4	5085.
GR	45.4	5086.	45.2	5087.	45.2	5088.	46.	5202.	46.	5462.
GR	45.4	5640.	49.4	5834.	50.6	6039.	49.8	6121.	51.6	6157.

X1	142400	15	4995	5088	500.	350.	250.			
GR	51	4500	50.	4500.	49.5	4780.	46.	4950.	45.7	4995
GR	38.	5022.	36.6	5041.	38.	5060.	45.4	5088	46.	5462.
GR	45.4	5640.	49.4	5834.	50.6	6039.	49.8	6121.	51.6	6157.

NC			0.3	0.5						
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X1	142500				192	134	100			
X3	10							46.5	45.3	

CR 949K (BRIDGWOD DRIVE) BRIDGE MU 23

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SB	1.	1.56	2.9		18	5	618	4	36.78	36.78
USES NEW CHANNEL DATA FROM B&L AND COMBINED WITH ORIGINAL OVERBANKS										
CR 949K (BRIDGWOOD DRIVE) BRIDGE MU 23										
X1	142530	15	5000	5093	0	0	0			
X2			1	46.78	48.78					
X3	10									
BT	10	4500	50		4780	49.5		47.1	45.3	
BT	5001	46.97		5041	46.98			4908	46.95	
BT	46.89		5462	46			5640	5083	46.93	5180
BT								45.4		49.4
GR	51	4500	50.	4500.	49.5	4780.	46.	4950.	45.7	5000.
GR	38.	5022.	36.78	5041.	38.	5060.	45.4	5093	46.	5462.
GR	45.4	5640.	49.4	5834.	50.6	6039.	49.8	6121.	51.6	6157.
X1	142580				50	50	50			
NC				0.1	0.3					
X1	145110	18	1898.	1977.	2490.	2500.	2530.			
GR	53.7	1355.	53.7	1356.	53.7	1357.	52.7	1494.	50.7	1631.
GR	48.9	1751.	46.8	1898.	39.2	1919.	37.7	1933.	37.5	1935.
GR	39.	1948.	45.	1968.	47.7	1977.	47.5	2129.	51.1	2235.
GR	51.9	2369.	52.1	2534.	52.1	2756.				
X1	145590				430.	450.	480.			
NC				0.3	0.5					
X1	145690	18	1900.	1965.	90.	110.	100.			
X3	10									
GR	53.7	1355.	53.7	1356.	53.7	1357.	52.7	48.9	48.9	
GR	48.9	1751.	46.	1900.	39.2	1919.	37.7	1494.	50.7	1631.
GR	44.	1965.	45.	1968.	47.7	1977.	47.5	1933.	39.	1948.
GR	51.9	2369.	52.1	2534.	52.1	2756.		2129.	51.1	2235.
UNKNOWN STRUCTURE BRIDGE MU 22-2										
SB	1.	1.56	3.		25	4.7	447	1.8	37.7	37.7
UNKNOWN STRUCTURE BRIDGE MU 22-2										
X1	145710	18	1900	1965	20.	20.	20.			
X2			1	48.8	50.45					
X3	10									
BT	-7	1355	53.7		1356	53.7		52.8	51.2	
BT		2235	51.1		2369	51.9		1494	52.7	
BT		2756	52.3					2534	52.1	
GR	53.7	1355.	53.7	1356.	53.7	1357.	52.7	1494.	50.7	1631.
GR	48.9	1751.	46.	1900.	39.2	1919.	37.7	1933.	39.	1948.
GR	44.	1965.	45.	1968.	47.7	1977.	47.5	2129.	51.1	2235.
GR	51.9	2369.	52.1	2534.	52.3	2756.				

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X1	145760	18	1898.	1977.	50.	50.	50.			
GR	53.7	1355.	53.7	1356.	53.7	1357.	52.7	1494.	50.7	1631.
GR	48.9	1751.	46.8	1898.	39.2	1919.	37.7	1933.	37.5	1935.
GR	39.	1948.	45.	1968.	47.7	1977.	47.5	2129.	51.1	2235.
GR	51.9	2369.	52.1	2534.	52.3	2756.				

NC 0.1 0.3

X1	148335	18	1820.	1880.	2230	3015	2575			
GR	52.8	1353.	52.8	1354.	52.8	1355.	51.8	1528.	49.8	1615.
GR	49.4	1720.	45.9	1820.	39.8	1829.	38.5	1844.	39.6	1863.
GR	45.5	1879.	46.6	1880.	47.4	1976.	47.	2079.	49.4	2244.
GR	51.2	2443.	52.	2520.	52.8	2520				

NC 0.3 0.5

2000 BAKER & LAWSON SURVEY SECTION

X1	148392	11	5000	5070	49	67	57			
GR	52.8	3600	52	3600	50	4800	44.72	5000	37.46	5019
GR	36.54	5029	37.34	5045	44.70	5070	50	5200	52	6200
GR	52.8	6200								

X1 148431 34 46 39

X1	148435	18	1790	1900	4	4	4			
X3	10									
GR	52.8	1353.	52.8	1354.	52.8	1355.	51.8	49.7	49.3	
GR	49.4	1720.	47.2	1790	39.	1837.	36.6	1528.	49.8	1615.
GR	47.	1900	47.1	1902	47.4	1976.	47.	1844.	39.	1854.
GR	51.2	2443.	52.	2520.	52.8	2520		2079.	49.4	2244.

CR 99 (PEARLAND SITES ROAD) BRIDGE MU-22

SB 1. 1.56 2.7 26.7 5 700 4 36.9 36.9

USES NEW CHANNEL DATA FROM B&L AND COMBINED WITH ORIGINAL OVERBANKS

CR 99 (PEARLAND SITES ROAD) BRIDGE MU-22

X1	148466	19	1790	1900	28	34	31			
X2			1	48.45	50.45					
X3	10									
BT	8	1528	51.8		1615	49.8		50.1	49.5	
BT	1804	50.49		1849	50.45			1708	50.28	
BT	49.73		2244	49.4			1890	50.22		1991
GR	52.8	1353.	52.8	1354.	52.8	1355.	51.8	1528.	49.8	1615.
GR	49.4	1720.	47.2	1790	39.	1837.	38.5	1844.	36.92	1849
GR	39.	1854.	47.	1900	47.1	1902	47.4	1976.	47.	2079.
GR	49.4	2244.	51.2	2443.	52.	2520.	52.8	2520		

2000 BAKER & LAWSON SURVEY SECTION

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X1	148499	11	5000	5066	33	33	33				
GR	52.8	4650	52	4650	50	4800	44.66	5000	37.18	5018	
GR	36.66	5030	37.29	5044	44.36	5066	50	5266	52	5530	
GR	52.8	5530									
X1	148536	18	1820.	1880.	37	37	37				
GR	52.8	1353.	52.8	1354.	52.8	1355.	51.8	1528.	49.8	1615.	
GR	49.4	1720.	45.9	1820.	39.8	1829.	38.5	1844.	39.6	1863.	
GR	45.5	1879.	46.6	1880.	47.4	1976.	47.	2079.	49.4	2244.	
GR	51.2	2443.	52.	2520.	52.8	2520					
NC				0.1	0.3						
X1	149986	20	7646.	7715.	1700.	1200.	1450.				
GR	52.8	7139	51	7139.	48.8	7343.	46.6	7508.	48.4	7566.	
GR	46.6	7646.	40.	7666.	39.4	7681.	39.	7684.	38.6	7687.	
GR	39.	7690.	39.4	7692.	42.6	7706.	46.8	7715.	48.	7797.	
GR	47.8	8060.	48.4	8297.	51.	8563.	51.4	8858.	52.8	8858	
X1	151436	20	3600.	3677.	1850.	800.	1450.	0.8192			
GR	52.9	2626.	52.3	2640.	52.1	2662.	52.1	3093.	52.1	3159.	
GR	50.7	3263.	49.1	3359.	47.3	3591.	45.5	3600.	43.5	3610.	
GR	40.8	3623.	38.8	3639.	40.5	3653.	42.4	3660.	47.	3677.	
GR	47.5	3696.	47.5	3696.	48.9	3884.	50.3	4037.	53.1	5659.	
NC				0.3	0.5						
X1	151536	20	3610.	3660.	110.	90.	100.	0.8192			
X3	10							49.6	49.6		
GR	52.9	2626.	52.3	2640.	52.1	2662.	52.1	3093.	52.1	3159.	
GR	50.7	3263.	49.1	3359.	47.3	3591.	45.5	3600.	43.5	3610.	
GR	40.8	3623.	38.8	3639.	40.5	3653.	47.	3660.	47.	3677.	
GR	47.5	3703.	47.5	3704.	48.9	3884.	50.3	4037.	53.	5659.	
CR 96 (MUSTANG BAYOU ROAD) BRIDGE MU 2 (CONFIRM)											
SB	1.	1.56	3.		19.6	2.	254.	1.	39.5	39.5	
CR 96 (MUSTANG BAYOU ROAD) BRIDGE MU 2 (CONFIRM)											
X1	151561	20	3610	3660	25.	25.					
X2			1	48.9	50.4						
X3	10										
BT	-7	3159.	52.1		3263.	50.7		49.5	51.1		
BT		3632.	50.		3884.	48.9		3359.	49.1		
BT		5659.	53.					4037.	50.3		
GR	52.9	2626.	52.3	2640.	52.1	2662.	52.1	3093.	52.1	3159.	
GR	50.7	3263.	49.1	3359.	47.3	3591.	45.5	3600.	43.5	3610.	
GR	40.8	3623.	38.8	3639.	40.5	3653.	47.	3660.	47.	3677.	
GR	47.5	3703.	47.5	3704.	48.9	3884.	50.3	4037.	53.	5659.	



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X1	151671	20	3600.	3677.	120.	100.	110.			
GR	52.9	2626.	52.3	2640.	52.1	2662.	52.1	3093.	52.1	3159.
GR	50.7	3263.	49.1	3359.	47.3	3591.	45.5	3600.	43.5	3610.
GR	40.8	3623.	38.8	3639.	40.5	3653.	42.4	3660.	47.	3677.
GR	47.5	3696.	47.5	3696.	48.9	3884.	50.3	4037.	53.1	5659.

NC			0.035	0.1	0.3					
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ADDED SECTION FOR STORAGE OUTFLOW MODELING

QT	3	1815	2143	2836						
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X1	155071				3400	3400	3400			
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X1	156221	12	4069.	4283.	140	1660	1150			
GR	53.9	4031.	55.1	4043.	55.3	4069.	53.9	4084.	49.5	4180.
GR	41.1	4221.	40.1	4224.	39.5	4228.	39.5	4231.	40.1	4235.
GR	41.1	4238.	53.1	4283.						

X1	158491	24	4482.	4575.	2400.	2300.	2270.			
GR	53.9	4287	53.2	4287.	53.2	4288.	53.2	4289.	53.	4300.
GR	51.2	4318.	51.4	4415.	52.2	4482.	46.4	4492.	46.2	4513.
GR	42.8	4521.	41.	4524.	40.2	4529.	39.9	4531.	40.2	4533.
GR	41.	4538.	42.7	4541.	46.1	4548.	51.3	4575.	51.3	4700.
GR	51.5	5032.	52.9	5047.	52.9	5061.	53.9	5061		

2000 BAKER & LAWSON SURVEY SECTION

X1	160875	8	5000	5161	2541	2631	2384			
GR	55	2600	53.08	5000	51.91	5040	41.94	5086	41.70	5115
GR	49.77	5161	50.35	5176	55	6000				

X1	160951	24	1777	1850.	74	77	76			
X3				1668	52.9					
GR	54.3	1113	53.2	1113.	53.2	1114.	53.2	1115.	53.2	1116.
GR	52.4	1444.	52.3	1535.	52.9	1668.	50.7	1777.	50.4	1794.
GR	45.	1808.	40.2	1823.	43.8	1837.	50.3	1850.	50.3	1852.
GR	50.3	1854.	50.5	1870.	50.5	1871.	52.7	2061.	53.3	2107.
GR	54.9	2134.	54.5	2230.	54.9	2273.	55.3	2278.		

NC				0.3	0.5					
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X1	161051	24	1797	1850	100.	100.	100.			
X3	10			1668	52.9					
GR	54.3	1113	53.2	1113.	53.2	1114.	53.2	1115.	49	49
GR	52.4	1444.	52.3	1535.	52.9	1668.	50.7	1777.	50.4	1797.
GR	45.	1808.	40.2	1823.	43.8	1837.	50.3	1850.	50.3	1852.
GR	50.3	1854.	50.5	1870.	50.5	1871.	52.7	2061.	53.3	2107.
GR	54.9	2134.	54.5	2230.	54.9	2273.	55.3	2278.		

LOUISIANA STREET BRIDGE MU 16-1

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SB	1.	1.56	2.6		24	1.	360	2	40.2	40.2
LOUISIANA STREET BRIDGE MU 16-1										
X1	161071	24	1797	1850	20.	20.	20.			
X2			1	48.94	50.94					
X3	10			1668	52.9					
BT	6	1671.8	52.82		1777	52.64		52.65	51.5	
BT	1838	51.41		1872.	51.7			1808.	51.81	
GR	54.3	1113	53.2	1113.	53.2	1114.	2070.4	52.8		
GR	52.4	1444.	52.3	1535.	52.9	1668.	53.2	1115.	53.2	1116.
GR	45.	1808.	40.2	1823.	43.8	1837.	50.7	1777.	50.4	1797.
GR	50.3	1854.	50.5	1870.	50.5	1871.	50.3	1850.	50.3	1852.
GR	54.9	2134.	54.5	2230.	54.9	2273.	52.7	2061.	53.3	2107.
							55.3	2278.		
X1	161151	24	1797.	1850.	80.	80.	80.			
X3	10			1668	52.9					
GR	54.3	1113	53.2	1113.	53.2	1114.	53.2	1115.	53.2	1116.
GR	52.4	1444.	52.3	1535.	52.9	1668.	50.7	1777.	50.4	1797.
GR	45.	1808.	40.2	1823.	43.8	1837.	50.3	1850.	50.3	1852.
GR	50.3	1854.	50.5	1870.	50.5	1871.	52.7	2061.	53.3	2107.
GR	54.9	2134.	54.5	2230.	54.9	2273.	55.3	2278.		
NC				0.1	0.3					
2000 BAKER & LAWSON SURVEY SECTION										
X1	161267	10	5021	5127	116	116	116			
GR	56	4200	55	4500	51.03	5000	51.06	5021	42.17	5062
GR	41.04	5080	42.62	5096	50.44	5127	50.94	5152	55	5300
X1	164431	29	2975.	3049.	3220	3106	3164			
GR	54.7	2270	53.4	2270.	53.1	2271.	51.7	2318.	51.9	2394.
GR	52.5	2536.	50.9	2649.	52.5	2695.	51.3	2785.	51.7	2872.
GR	53.1	2938.	52.7	2969.	50.4	2975.	45.	2993.	44.5	3008.
GR	44.4	3021.	51.1	3049.	50.7	3121.	51.1	3155.	50.9	3394.
GR	52.1	3502.	53.1	3698.	54.1	4061.	54.9	4256.	56.5	4262.
GR	56.5	4293.	55.8	4300.	57.4	4845.	57.6	5280.		
NC				0.3	0.5					
2000 BAKER & LAWSON SURVEY SECTION										
X1	164474	6	5000	5075	41	42	43			
GR	55	4750	50.81	5000	45.20	5014	46.24	5057	51.80	5075
GR	55	6100								
2000 BAKER & LAWSON SURVEY SECTION										

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X1	164530	7	5000	5065	53	55	56			
GR	55	4300	45.66	5000	44.88	5025	46.02	5045	51.76	5065
GR	53.50	5115	55	5715						

X1	164581	29	2990	3023	51	51	51			
X3	10							50.7	50.7	
GR	54.8	2270	54.1	2270.	53.1	2271.	51.7	2318.	51.9	2394.
GR	52.5	2536.	50.9	2649.	52.5	2695.	51.3	2785.	51.7	2872.
GR	53.1	2938.	52.7	2969.	50.4	2975.	45.	2990	44.4	3008.
GR	44.4	3023	51.1	3049.	50.7	3121.	51.1	3155.	50.9	3394.
GR	52.1	3502.	53.1	3698	54.1	4061.	54.9	4256.	56.5	4262.
GR	56.5	4293.	55.8	4300.	57.4	4845.	57.6	5280.		

SCOTT STREET BRIDGE MU 15A-1

SB	1.	1.56	3.		17.9	1.3	203.	1.	42.	42.
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SCOTT STREET BRIDGE MU 15A-1

X1	164602	29	2990	3023	21.	21.	21.			
X2			1	50.2	51.5					
X3	10							50.8	50.8	
BT	-20	2271.	53.1		2318.	51.7		2394.	51.9	
BT		2536.	52.5		2649.	50.9		2695.	52.5	
BT		2785.	51.3		2872.	51.7		2938.	53.1	
BT		2969.	52.7		2996.	51.5		3028.	51.5	
BT		3049.	51.1		3121.	50.7		3155.	51.1	
BT		3394.	50.9		3502.	52.1		3698.	53.1	
BT		4061.	54.1		4256.	54.9				
GR	54.8	2270	54.1	2270.	53.1	2271.	51.7	2318.	51.9	2394.
GR	52.5	2536.	50.9	2649.	52.5	2695.	51.3	2785.	51.7	2872.
GR	53.1	2938.	52.7	2969.	50.4	2975.	45.	2990	44.4	3008.
GR	44.4	3023	51.1	3049.	50.7	3121.	51.1	3155.	50.9	3394.
GR	52.1	3502.	53.1	3698	54.1	4061.	54.9	4256.	56.5	4262.
GR	56.5	4293.	55.8	4300.	57.4	4845.	57.6	5280.		

2000 BAKER & LAWSON SURVEY SECTION

X1	164642	7	5000	5150	40	40	40			
GR	55	4500	53.83	5000	47.50	5017	45.38	5075	46.27	5131
GR	53.06	5150	55	5800						

X1	164677	29	2975.	3049.	35	35	35			
GR.	57.0	2270	54.1	2270.	53.1	2271.	51.7	2318.	51.9	2394.
GR	52.5	2536.	50.9	2649.	52.5	2695.	51.3	2785.	51.7	2872.
GR	53.1	2938.	52.7	2969.	50.4	2975.	45.	2993.	44.5	3008.
GR	44.4	3021.	51.1	3049.	50.7	3121.	51.1	3155.	50.9	3394.
GR	52.1	3502.	53.1	3698.	54.1	4061.	54.9	4256.	56.5	4262.
GR	56.5	4293.	55.8	4300.	57.4	4845.	57.6	5280.		

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NC										
			0.1		0.3					
X1	166187	25	5624.	5717.	1530.	1420.	1510.	.7071		
GR	56.	3877.	56.	3878.	56.	3879.	56.	3880.	56.	3881.
GR	55.	5100.	52.	5624.	46.	5645.	45.5	5650.	42.9	5666.
GR	44.8	5688.	52.3	5717.	51.4	5890.	50.	5948.	49.8	5966.
GR	49.9	6002.	49.8	6013.	51.	6086.	50.4	6140.	50.8	6193.
GR	50.8	6200.	51.2	6640.	53.8	7089.	55.	7128.	55.8	7360.
NC										
			0.3		0.5					
X1	166357	25	5645.	5688.	170.	170.	170.	.7071		
X3	10							48.7	50.9	
GR	56.0	3877.	56.	3878.	56.	3879.	56.	3880.	56.	3881.
GR	55.	5100.	52.	5624.	46.	5645.	45.5	5650.	42.9	5666.
GR	44.8	5688.	52.3	5717.	51.4	5890.	50.	5948.	49.8	5966.
GR	49.9	6002.	49.8	6013.	51.	6086.	50.4	6140.	50.8	6193.
GR	50.8	6200.	51.2	6640.	53.8	7089.	55.	7128.	55.8	7360.
CR 417 BRIDGE MU 15-1										
SB	1.	1.56	2.6		14.3	1.	170.	1.2	43.5	43.5
CR 417 BRIDGE MU 15-1										
X1	166382	25	5650	5683	25.	25.	25.			
X2			1	51.4	52.8					
X3	10									
BT	-22	3878.	56.		3879.	56.		48.7	50.9	
BT		3881.	56.		5100.	55.0		3880.	56.	
BT		5659.	52.8		5683.	52.8		5624.	52.	
BT		5890.	51.4		5948.	50.		5717.	52.3	
BT		6002.	49.9		6013.	49.8		5966.	49.8	
BT		6140.	50.4		6193.	50.8		6086.	51.	
BT		6640.	51.2		7089.	53.8		6200.	50.8	
BT		7360.	55.8					7128.	55.	
GR	56.0	3877.	56.	3878.	56.	3879.	56.	3880.	56.	3881.
GR	55.	5100.	52.	5624.	46.	5650	45.5	5653	42.9	5666.
GR	44.8	5683	52.3	5717.	51.4	5890.	50.	5948.	49.8	5966.
GR	49.9	6002.	49.8	6013.	51.	6086.	50.4	6140.	50.8	6193.
GR	50.8	6200.	51.2	6640.	53.8	7089.	55.	7128.	55.8	7360.
CR 417 BRIDGE MU 15-1										
X1	166492	25	5624.	5717.	110.	110.	110.	.7071		
GR	56.	3877.	56.	3878.	56.	3879.	56.	3880.	56.	3881.
GR	55.	5100.	52.	5624.	46.	5645.	45.5	5650.	42.9	5666.
GR	44.8	5688.	52.3	5717.	51.4	5890.	50.	5948.	49.8	5966.
GR	49.9	6002.	49.8	6013.	51.	6086.	50.4	6140.	50.8	6193.
GR	50.8	6200.	51.2	6640.	53.8	7089.	55.	7128.	55.8	7360.

NC	0.04	0.04	0.035	0.1	0.3					
X1	168042	26	5529.	5592.	1675.	1365.	1550.			
GR	55.1	4378	54.6	4378.	54.6	4379.	54.6	4380.	54.6	4381.
GR	53.6	4571.	51.4	5226.	52.4	5279.	52.2	5372.	51.	5529.
GR	44.8	5548.	44.5	5551.	44.2	5556.	44.	5559.	44.2	5562.
GR	44.5	5567.	44.8	5570.	51.6	5592.	52.8	5880.	52.8	6050.
GR	53.	6185.	54.8	6204.	55.8	6354.	56.	6466.	57.2	6605.
GR	58.6	6820.								

X1	170362	22	2841.	2898.	2370.	2220.	2320.			
X3						2912	55.2			
GR	56.4	1000.	57.	1383.	58.2	1400.	58.	1412.	57.4	1420.
GR	59	1721.	57.4	2071.	55.8	2177.	54.2	2826.	52.6	2841.
GR	46.4	2857.	45.5	2869.	46.4	2877.	46.6	2884.	47.8	2888.
GR	53.6	2894.	52.1	2898.	55.2	2912.	54.2	3109.	53.2	3351.
GR	53.2	3587.	55.8	3602.						

NC				0.3	0.5					
QT	3	1266	1523	2039						
X1	170512	18	2849.	2889.	150.	150.	150.			
X3	10							55.6	55.6	
GR	59	1721.	57.4	2071.	55.8	2177.	54.2	2826.	52.6	2841.
GR	54.6	2849.	50.5	2849.	50.5	2867.	47.	2867.	47.	2871.
GR	50.5	2871.	50.5	2889.	54.6	2889.	54.2	3109.	53.2	3351.
GR	53.2	3587.	54.8	3602.	55.3	3602				

HWY 1128 CULVERTS MU 13-1

NC			0.015							
SB	1.1	1.8	2.6		30.7	4.	156.	0.2	49.	49.

HWY 1128 CULVERTS MU 13-1

X1	170550	17	2849	2889	38.	38.	38.			
X2			1	54.6	56.7					
X3	10							56.6	56.6	
BT	8	2071	57.4	57.4	2177.	56.5	55.8	2849.	56.7	54.6
BT	2889.	56.7	54.6	3109.	56.7	54.2	3351.	56.5	53.2	3587
BT	56.5	53.2	3602	56.8	56.8					
GR	59	1721.	57.4	2071.	55.8	2177.	54.2	2826.	52.6	2841.
GR	54.6	2849.	50.5	2849.	50.5	2867.	47.	2867.	47.	2871.
GR	50.5	2871.	50.5	2889.	54.6	2889.	54.2	3109.	53.2	3351.
GR	53.2	3587.	57.0	3602.						
NC			0.035							

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X1	170650	14	2841.	2898.	100.	100.	100.			
GR	59	1721.	57.4	2071.	55.8	2177.	54.2	2826.	52.6	2841.
GR	46.4	2857.	45.5	2869.	46.4	2877.	46.6	2884.	47.8	2888.
GR	53.6	2894.	54.1	2898.	55.2	2912.	57	3200.		

NC	0.04	0.04	0.035	0.1	0.3					
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X1	173120	11	1250.	1308.	2240.	2020.	2470.			
GR	60	1000.	53.3	1250.	52.5	1257.	51.7	1264.	50.	1279.
GR	47.1	1288.	48.8	1298.	53.6	1308.	55.	1380.	57	2000.
GR	57.3	2000								

NC			0.3	0.5						
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X1	173220	11	1261	1308	100.	100.	100.			
X3	10							55.9	55.9	
GR	60	1000.	53.3	1250.	52.5	1261	51.7	1265	50.	1279.
GR	47.1	1288.	48.8	1298.	53.6	1306	55.3	1308	57	2000.
GR	57.3	2000								

CR 876 (FURNACE STREET) BRIDGE MU 12-2

SB	1.	1.56	2.7		21.1	3.	239.	2.	48.	48.
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CR 876 (FURNACE STREET) BRIDGE MU 12-2

X1	173250	11	1261	1308	30.	30.	30.			
X2			1	55.3	56.5					
X3	10							56.1	56.5	
BT	5	1179.	56.1		1244.	56.5		1321.	56.5	
BT	1406.	56.7		1580.	56.9					
GR	60	1000.	53.3	1250.	52.5	1261	51.7	1265	50.	1279.
GR	47.1	1288.	48.8	1298.	53.6	1306	55.3	1308	57.1	2000.
GR	57.6	2000								

X1	173300	11	1250.	1308.	50.	50.	50.			
GR	60	1000.	53.3	1250.	52.5	1257.	51.7	1264.	50.	1279.
GR	47.1	1288.	48.8	1298.	53.6	1308.	55.	1380.	57.1	2000.
GR	57.6	2000								

NC			0.1	0.3						
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X1	175420	15	2243.	2294.	1920.	2370.	2120.			
X3						2294	58.1			
GR	62.1	1000.	60.5	1322.	60.9	1553.	58.7	1862.	58.1	2180.
GR	58.1	2243.	51.5	2254.	49.6	2257.	49.8	2270.	54.4	2283.
GR	58.1	2294.	57.5	2483.	60.9	2899.	60.7	3151.	59.7	3692.

NC			0.3	0.5						
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X1	175520	16	2243	2294	100.	100.	100.			
X3	10					2294	58.1	57.8	57.4	
GR	62.1	1000.	60.5	1322.	60.9	1553.	58.7	1862.	58.1	2180.
GR	58.1	2243.	51.5	2254.	46.03	2257.	49.7	2264	49.8	2270.
GR	54.4	2283.	58.1	2294.	57.5	2483.	60.9	2899.	60.7	3151.
GR	59.7	3692.								

CR 88 (PATTERSON ROAD) MU MU 12-1  
 USES NEW CHANNEL DATA FROM B&L AND COMBINED WITH ORIGINAL OVERBANKS

SB	1.	1.56	2.6		16.9	1.	365	1.5	46.03	46.03
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CR 88 (PATTERSON ROAD) MU MU 12-1

X1	175542	16	2243	2294	22	22	22			
X2			1	57.2	58.9					
X3	10					2294	58.1	57.8	57.4	
BT	-8	1862	58.7		2180	58.1		2243	58.1	
BT		2249.	58.1		2294	58.1		2483	57.5	
BT		2899	60.9		3151	60.7				
GR	62.1	1000.	60.5	1322.	60.9	1553.	58.7	1862.	58.1	2180.
GR	58.1	2243.	51.5	2254.	46.03	2257.	49.7	2264	49.8	2270.
GR	54.4	2283.	58.1	2294.	57.5	2483.	60.9	2899.	60.7	3151.
GR	59.7	3692.								

X1	175592	15	2243.	2294.	50	50	50			
X3	10					2294	58.1			
GR	62.1	1000.	60.5	1322.	60.9	1553.	58.7	1862.	58.1	2180.
GR	58.1	2243.	51.5	2254.	49.6	2257.	49.8	2270.	54.4	2283.
GR	58.1	2294.	57.5	2483.	60.9	2899.	60.7	3151.	59.7	3692.

NC				0.1	0.3					
X1	176592	9	1100.	1151.	1450.	10.	1000.			
GR	60.5	1000.	55.3	1100.	51.3	1113.	50.2	1116.	48.3	1127.
GR	49.8	1139.	50.5	1141.	54.6	1151.	60.	1550.		

NC				0.3	0.5					
X1	176692	9	1110	1144	150.	20.	100.			
X3	10							55.8	55.6	
GR	60.5	1000.	55.3	1100.	51.3	1110	50.2	1116	48.3	1127.
GR	49.8	1139.	50.5	1144	54.6	1151.	60.	1550.		

UNKNOWN STRUCTURE BRIDGE MU 11-2

SB	1.	1.56	2.9		12.3	1.	156.	1.5	48.	48.
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UNKNOWN STRUCTURE BRIDGE MU 11-2

X1	176712	9	1110	1144	20.	20.	20.			
X2			1	55.1	56.4					
X3	10							56.4	56.2	
BT	-6	1000.	60.5		1100.	55.3		1121.	56.4	
BT		1155.	56.2		1241.	57.4		1550.	60.0	

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GR	60.5	1000.	55.3	1100.	51.3	1110.	50.2	1116.	48.3	1127.
GR	49.8	1139.	50.5	1144.	54.6	1151.	60.	1550.		

X1	176772	9	1100.	1151.	60.	60.	60.			
GR	60.5	1000.	55.3	1100.	51.3	1113.	50.2	1116.	48.3	1127.
GR	49.8	1139.	50.5	1141.	54.6	1151.	60.	1550.		

NC 0.1 0.3

X1	179772	18	3731.	3784.	1440.	3860.	3000.			
GR	61.1	2761.	60.7	3166.	58.9	3394.	57.7	3680.	57.8	3731.
GR	53.5	3745.	50.5	3753.	49.4	3759.	50.5	3768.	52.7	3773.
GR	57.	3783.	57.3	3784.	57.7	3861.	57.3	3927.	58.7	4020.
GR	59.9	4106.	61.3	4301.	61.5	4443.				

NC 0.3 0.5

X1	179872	18.	3745.	3773.	100.	100.	100.			
X3	10							56.9	57.4	
GR	61.1	2761.	60.7	3166.	58.9	3394.	57.7	3680.	57.8	3731.
GR	53.5	3745.	50.5	3753.	49.4	3759.	50.5	3768.	52.7	3773.
GR	57.	3783.	57.3	3784.	57.7	3861.	57.3	3927.	58.7	4020.
GR	59.9	4106.	61.3	4301.	61.5	4443.				

CR 89 (OLD CHOCOLATE BAYOU ROAD) BRIDGE

SB	1.	1.56	3.		16.8	1.2	152.	1.	50.	50.
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CR 89 (OLD CHOCOLATE BAYOU ROAD) BRIDGE

X1	179890	18	3745	3773	18.	18.	18.			
X2			1	56.8	58.1					
X3	10							56.9	57.7	
BT	-13	3166.	60.7		3394.	58.9		3680.	57.7	
BT		3731.	57.8		3745.	58.1		3777.	58.1	
BT		3784.	57.3		3861.	57.7		3927.	57.3	
BT		4020.	58.7		4106.	59.9		4301.	61.3	
BT		4443.	61.5							
GR	61.1	2761.	60.7	3166.	58.9	3394.	57.7	3680.	57.8	3731.
GR	53.5	3745.	50.5	3753.	49.4	3759.	50.5	3768.	52.7	3773.
GR	57.	3783.	57.3	3784.	57.7	3861.	57.3	3927.	58.7	4020.
GR	59.9	4106.	61.3	4301.	61.5	4443.				

X1	179975	18	3731.	3784.	85.	85.	85.			
GR	61.1	2761.	60.7	3166.	58.9	3394.	57.7	3680.	57.8	3731.
GR	53.5	3745.	50.5	3753.	49.4	3759.	50.5	3768.	52.7	3773.
GR	57.	3783.	57.3	3784.	57.7	3861.	57.3	3927.	58.7	4020.
GR	59.9	4106.	61.3	4301	61.5	4443.				



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NC	0.04	0.04	0.035	0.1	0.3					
X1	183975	17	2786.	2845.	4500.	2780.	4000.			
GR	60.8	2506	60.3	2506.	58.5	2529.	58.5	2726.	57.7	2783.
GR	57.9	2786.	53.8	2797.	52.7	2804.	51.4	2813.	52.9	2821.
GR	53.8	2827.	55.6	2831.	58.1	2845.	59.3	2982.	59.3	3052.
GR	60.3	3555.	60.8	3555						

NC 0.3 0.5

X1	184075			100.	100.	100.				
X3	10							59.1	59.1	

CR 872 (SPEARS ROAD) BRIDGE MU 10-1

SB	1.	1.56	3.		26.6	3.8	220.	1.8	52.	52.
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CR 872 (SPEARS ROAD) BRIDGE MU 10-1

X1	184101	17	2786	2845	26.	26.	26.			
X2			1	58.4	59.9					
X3	10									
BT	6	2676.	59.7		2792.	59.9		2833.	59.9	
BT	2876.	59.7		2912.	59.5		3026.	60.3		
GR	61.0	2506	60.6	2506.	58.5	2529.	58.5	2726.	57.7	2783.
GR	57.9	2786.	53.8	2797.	52.7	2804.	51.4	2813.	52.9	2821.
GR	53.8	2827.	55.6	2831.	58.1	2845.	59.3	2982.	59.3	3052.
GR	60.6	3555.	61.0	3555						

X1	184161				60.	60.	60.			
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NC 0.07 0.07 0.057 0.1 0.3

X1	185811	9	1350.	1409.	1860.	1350.	1650.			
GR	62.9	1000.	61.5	1020.	57.5	1350.	53.4	1351.	51.1	1378.
GR	54.5	1390.	56.5	1409.	60.	1420.	64.	2800.		

NC 0.3 0.5

X1	185871	9	1359	1392	60.	60.	60.			
X3	10									
GR	62.9	1000.	61.5	1020.	58.	1359	53.	1365.	51.1	1378.
GR	54.4	1389.	58.	1392	60.	1420.	64.	2800.		

CR 736 (CURRY STREET) MU 9-2

SB	1.05	1.56	2.8		25	4	531	1	51.	51.
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CR 736 (CURRY STREET) MU 9-2

X1	185893	9	1359	1392	22.	22.	22.			
X2			1	57.7	59.7					
X3	10							59.7	59.7	
BT	6	1000	62.9		1020	61.5		1355.	59.7	
BT	1396.	59.7		1420	60		2800	64		
GR	62.9	1000.	61.5	1020.	58.	1359	53.	1365.	51.1	1378.
GR	54.4	1389.	58.	1392	60.	1420.	64.	2800.		

X1	185953	9	1355	1396	60.	60.	60.			
GR	62.9	1000.	61.5	1020.	58.	1355.	53.	1365.	51.1	1378.
GR	54.4	1389.	58.	1396.	60.	1420.	64.	2800.		

NC				0.1	0.3					
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X1	187353	19	3875.	3926.	860.	1960.	1400.			
X3				3203	62.3	4022	59.3			
GR	62.2	3073	61.9	3073.	61.9	3074.	61.9	3075.	62.3	3203.
GR	61.5	3356.	59.3	3635.	58.9	3875.	54.8	3890.	51.8	3905.
GR	53.8	3914.	55.8	3919.	58.6	3926.	59.3	4022.	58.7	4107.
GR	60.5	4128.	61.1	4211.	61.7	4339.	62.20	4339		

NC				0.3	0.5					
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X1	187483	19	3890.	3919.	130.	130.	130.			
X3	10			3203	62.3	4022	59.3	61.4	61.4	
GR	62.2	3073	61.9	3073.	61.9	3074.	61.9	3075.	62.3	3203.
GR	61.5	3356.	59.3	3635.	58.9	3875.	54.8	3890.	51.8	3905.
GR	53.8	3914.	55.8	3919.	58.6	3926.	59.3	4022.	58.7	4107.
GR	60.5	4128.	61.1	4211.	61.7	4339.	62.2	4339		

CR 90 (DEL BELLO ROAD) BRIDGE MU 9-1

SB	1.	1.56	2.6		13	1	209	3	51.8	51.8
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MODIFIED BT RECORDS ACCORDING TO BRINSAP

CR 90 (DEL BELLO ROAD) BRIDGE MU 9-1

X1	187510	20	3875	3926	27.	27.	27.			
X2			1	60.8	62.0					
X3	10			3203	62.3	4211	61.1	61.6	61.6	
BT	-5	3356	61.5		3891	62.0		3926	62.0	
BT		4022	62.0		4339	61.5				
GR	63	1968	61.9	3073.	61.9	3074.	61.9	3075.	62.3	3203.
GR	61.5	3356.	59.3	3635.	58.9	3875.	54.8	3890.	51.8	3905.
GR	53.8	3914.	55.8	3919.	58.6	3926.	59.3	4022.	58.7	4107.
GR	60.5	4128.	61.1	4211.	61.5	4339.	61.5	6305	64	6315



X1	199340	23	4830	5050	3000.	2900.	2950.			
X3	10			4750	65.9	5381	65.6			
GR	67.5	3017.	65.1	3018.	65.1	3019.	63.7	3565.	63.9	4076.
GR	62.9	4180.	65.3	4242.	62.7	4290.	61.9	4334.	63.1	4491.
GR	63.7	4643.	63.5	4706.	65.9	4750	64.9	4800	62.8	4830
GR	56.8	4923.	55.5	4925.	53.6	4943.	55.6	4961.	56.7	4964.
GR	62.9	5050	65.5	5381	67.5	5382				

NC	0.03	0.035	0.045	0.3	0.5					
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X1	199440	23	4830	5050	100.	100.	100.			
X3	10			4750	65.9	5381	65.6			
GR	67.5	3017.	65.1	3018.	65.1	3019.	63.7	3565.	63.9	4076.
GR	62.9	4180.	65.3	4242.	62.7	4290.	61.9	4334.	63.1	4491.
GR	63.7	4643.	63.5	4706.	65.9	4750	64.9	4800	62.8	4830
GR	56.8	4923.	55.5	4925.	53.6	4943.	55.6	4961.	56.7	4964.
GR	62.9	5050	65.5	5381	67.5	5382				

CR 84 BRIDGE

SB	1.	1.56	2.6		25.6	4.5	264.	10	53.6	53.6
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CR 84 BRIDGE

X1	199460	23	4830	5050	20.	20.	20.			
X2			1	62.4	63.6					
X3	10			4750	65.9			63.7	63.7	
BT	6	4812	64.04		4830	63.6		4830	63.6	
BT	4869.	63.6		5050	63.6		5195.7	64.04		
GR	67.5	3017.	65.1	3018.	65.1	3019.	63.7	3565.	63.9	4076.
GR	62.9	4180.	65.3	4242.	62.7	4290.	61.9	4334.	63.1	4491.
GR	63.7	4643.	63.5	4706.	65.9	4750	64.9	4800	62.8	4830
GR	56.8	4923.	55.5	4925.	53.6	4943.	55.6	4961.	56.7	4964.
GR	62.9	5050	65.5	5381	67.5	5382				

X1	199560	22	4908	4981.	80.	100.	100.			
X3	10			4859	65.9					
GR	67.5	3017.	65.1	3018.	65.1	3019.	63.7	3565.	63.9	4076.
GR	62.9	4180.	65.3	4242.	62.7	4290.	61.9	4334.	63.1	4491.
GR	63.7	4643.	63.5	4706.	65.9	4859.	64.9	4908.	56.8	4923.
GR	55.5	4925.	53.6	4943.	55.6	4961.	56.7	4964.	62.9	4981.
GR	65.5	5381	67.5	5382						

NC				0.1	0.3					
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X1	202460	26	2911.	3045.	2370.	3050.	2900.			
X3	10					3102	67.1			
GR	72	1044	70	1064	67.3	1902.	67.3	1903.	67.3	1904.
GR	67.3	1905.	66.1	1989.	66.5	2013.	64.1	2287.	63.3	2508.
GR	61.9	2828.	63.7	2872.	62.3	2911.	56.1	2929.	55.	2939.
GR	54.2	2954.	55.	2968.	56.1	2978.	63.5	3045.	64.4	3102.
GR	63.5	3129.	63.1	3549.	64.5	4000.	65	4354	65	7354
GR	67.5	7355								

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X1	205270	19	3902.	3988,	3250.	2190.	2810.			
X3				3902	65.2	4803	66.6			
GR	70.8	1000.	65.	1024.	66.8	1913.	65.6	2299.	64.	2668.
GR	62.8	2890.	63.8	3800.	65	3857.	65.2	3902.	57.	3916.
GR	56.	3926.	55.	3936.	54.7	3943.	55.	3950.	56.	3960.
GR	57.	3969.	61.4	3988.	63.6	4266.	66.6	4803.		

X1	206370	16	3446.	3525.	1000.	1200.	1100.			
X3				3446	68.6					
GR	66.4	1445.	66.4	1446.	66.4	1447.	65.6	1495.	64.6	2465.
GR	68.6	3444.	68.6	3445.	68.6	3446.	59.	3469.	53.1	3483.
GR	55.5	3497.	62.8	3525.	60.4	3615.	61.6	3686.	64.8	4002.
GR	66.4	4465.								

NC 0.3 0.5

X1	206520	9	3450.	3520.	150.	150.	150.			
GR	69.8	3450.	65.8	3455.	60.1	3463.	55.8	3469.	53.1	3483.
GR	55.5	3497.	60.1	3504.	65.8	3513.	70.4	3520.		

WATER PIPE MU 5-1

X1	206540	9	3450	3520	20.	20.	20.			
BT	5	3455.	65.8	65.8	3463.	65.8	60.1	3469	65.8	60.1
BT	3504.	65.8	60.1	3513.	65.8	65.8				
GR	69.8	3450.	65.8	3455.	60.1	3463	55.8	3469	53.1	3483.
GR	55.5	3497.	60.1	3504.	65.8	3513.	70.4	3520.		

X1	206545				5.	5.	5.			
X2							1			

X1	206565				20.	20.	20.			
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X1	206665	18	3446.	3525.	100.	100.	100.			
X3				3446	68.6					
GR	67.5	1444	66.4	1445.	66.4	1446.	66.4	1447.	65.6	1495.
GR	64.6	2465.	63.8	3322.	62.2	3358.	68.6	3446.	59.	3469.
GR	53.1	3483.	55.5	3497.	62.8	3525.	60.4	3615.	61.6	3686.
GR	64.8	4002.	66.2	4465.	67.5	4466				

NC 0.1 0.3

X1	208465	13	4161.	4230.	1400.	1970.	1800.			
GR	69	890	67	900	66.	1000.	65.2	4100.	65.	4140.
GR	62.5	4150.	59.1	4161.	56.6	4177.	55.3	4192.	56.7	4211.
GR	58.2	4223.	64.7	4230.	69.	5000.				

X1	211495	19	2989.	3065.	2300.	3220.	3030.			
GR	67.6	2159.	65.8	2567.	63.	2829.	63.	2865.	63.	2869.
GR	63.	2870.	64.6	2964.	64.9	2989.	61.7	2997.	57.8	3008.
GR	55.1	3025.	57.2	3041.	59.5	3054.	61.9	3065.	63.4	3145.
GR	64.6	3300.	65.6	3450.	66.2	3746.	67.	3979.		

NC 0.3 0.5

X1	211595	19	2997.	3054.	100.	100.	100.			
X3	10							62.9	62.8	
GR	67.6	2159.	65.8	2567.	63.	2829.	63.	2865.	63.	2869.
GR	63.	2870.	64.6	2964.	64.9	2989.	61.7	2997.	57.8	3008.
GR	55.1	3025.	57.2	3041.	59.5	3054.	61.9	3065.	63.4	3145.
GR	64.6	3300.	65.6	3450.	66.2	3746.	67	3979.		

UNKNOWN STRUCTURE

SB 1. 1.56 2.8 16 3. 278 2. 55.1 55.1

X1	211615	19	2997	3065	20.	20.	20.			
X2			1	63.6	64.9					
X3	10							63.4	64.6	
BT	10	2567	65.8		2829	63		2865	63	
BT	2870	63		2963.	64.9		3084.	65.1		3117.
BT	64.5		3300	64.6		3450	65.6		3756	66.2
BT										
GR	67.6	2159.	65.8	2567.	63.	2829.	63.	2865.	63.	2869.
GR	63.	2870.	64.6	2964.	64.9	2989.	61.7	2997.	57.8	3008.
GR	55.1	3025.	57.2	3041.	59.5	3054.	61.9	3065.	63.4	3145.
GR	64.6	3300.	65.6	3450.	66.2	3746.	67	3979.		

X1	211715	19	2989.	3065.	100.	100.	100.			
GR	67.6	2159.	65.8	2567.	63.	2829.	63.	2865.	63.	2869.
GR	63.	2870.	64.6	2964.	64.9	2989.	61.7	2997.	57.8	3008.
GR	55.1	3025.	57.2	3041.	59.5	3054.	61.9	3065.	63.4	3145.
GR	64.6	3300.	65.6	3450.	66.2	3746.	67	3979.		

NC 0.1 0.3

X1	213175	26	2208.	2278.	1450	1340	1460.			
X3				2187	66.7					
GR	68.9	1500.	68.9	1501.	68.9	1502.	65.3	1615.	64.3	1686.
GR	64.9	1958.	66.7	2158.	66.7	2187.	65.3	2207.	65.2	2208.
GR	61.1	2220.	57.9	2230.	57.	2236.	53.8	2244.	57.	2253.
GR	57.8	2261.	61.4	2270.	64.8	2278.	64.9	2281.	65.	2284.
GR	65.2	2290.	65.5	2297.	64.9	2398.	64.7	2539.	66.1	2654.
GR	67.9	2749.								







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X1	218898				50.	50.	50.			
X3			4082		69	4272	69.2			
NC			0.1		0.3					
X1	220723	17	5185.	5359.	1600.	1300.	1825.			
X3				5185	69.4	5430	68.			
GR	70	4088.	68.8	4089.	68.6	4255.	68.2	4524.	68.6	4746.
GR	67.4	5066.	69.2	5101.	69.4	5185.	60.6	5300.	58.4	5314.
GR	60.6	5328.	61.8	5353.	67.6	5359.	68.	5430.	67.2	5506.
GR	67.4	6224.	70	6322.						

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T1 MUSTANG BAYOU..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: MUSTANG.IH2.....25 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3							14	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							

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T1 MUSTANG BAYOU..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: MUSTANG.IH2.....100 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		4							15	
J2	NPROF	IPL0T	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1							

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THIS RUN EXECUTED 21AUG02 11:35:16

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

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NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

L REVISED BY KLOTZ ASSOC

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
34700.000	4218.00	13.00	2.00	-1.40	9.60	8.60	13.00	1593.49	37.78	.00	1165.93
34700.000	5225.00	14.00	1.80	-1.40	9.60	8.60	13.00	1567.09	29.99	.00	1169.14
34700.000	6231.00	15.00	1.65	-1.40	9.60	8.60	13.00	1560.39	25.04	.00	1172.36
37840.000	4149.00	13.41	2.11	-1.10	8.40	9.80	14.00	2209.27	53.25	3140.00	3308.14
37840.000	4805.00	14.26	1.53	-1.10	8.40	9.80	14.00	1726.95	35.94	3140.00	6349.84
* 37840.000	6039.00	15.16	1.10	-1.10	8.40	9.80	14.00	1328.60	22.00	3140.00	8700.00
37890.000	4149.00	13.42	2.22	-1.10	8.10	8.10	14.00	2094.02	50.47	50.00	3311.81
37890.000	4805.00	14.26	1.60	-1.10	8.10	8.10	14.00	1613.14	33.57	50.00	6348.57
37890.000	6039.00	15.16	1.14	-1.10	8.10	8.10	14.00	1228.19	20.34	50.00	8700.00
37908.000	4149.00	13.42	2.21	-1.10	8.10	8.10	14.00	2090.49	50.39	18.00	3337.67
37908.000	4805.00	14.26	1.60	-1.10	8.10	8.10	14.00	1610.39	33.51	18.00	6348.60
37908.000	6039.00	15.16	1.14	-1.10	8.10	8.10	14.00	1226.64	20.31	18.00	8700.00
37958.000	4149.00	13.43	2.10	-1.10	8.40	9.80	14.00	2203.68	53.11	50.00	3348.46
37958.000	4805.00	14.27	1.53	-1.10	8.40	9.80	14.00	1720.36	35.80	50.00	6349.90
37958.000	6039.00	15.17	1.12	-1.10	8.40	9.80	14.00	1346.25	22.29	50.00	6355.00
* 41358.000	3829.00	13.69	.83	-.20	11.10	11.40	14.40	1751.69	45.75	3400.00	3250.20
* 41358.000	4450.00	14.41	.72	-.20	11.10	11.40	14.40	1686.56	37.90	3400.00	4275.00
41358.000	5663.00	15.25	.67	-.20	11.10	11.40	14.40	1743.28	30.78	3400.00	4275.00
41433.000	3829.00	13.69	.82	-.20	11.10	11.40	14.40	1748.41	45.66	75.00	3253.25
41433.000	4450.00	14.41	.72	-.20	11.10	11.40	14.40	1685.11	37.87	75.00	4275.00
41433.000	5663.00	15.25	.68	-.20	11.10	11.40	14.40	1746.15	30.83	75.00	4275.00
* 41443.000	3829.00	13.67	2.04	-.20	14.50	14.30	14.40	3829.00	100.00	10.00	275.74
* 41443.000	4450.00	14.38	2.14	-.20	14.50	14.30	14.40	4450.00	100.00	10.00	298.42
* 41443.000	5663.00	15.20	2.61	-.20	14.50	14.30	14.40	5663.00	100.00	10.00	303.08

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
41493.000	3829.00	13.68	2.04	-.20	14.50	14.30	14.40	3829.00	100.00	50.00	275.97
41493.000	4450.00	14.39	2.13	-.20	14.50	14.30	14.40	4450.00	100.00	50.00	298.54
41493.000	5663.00	15.24	2.61	-.20	14.50	14.30	14.40	5663.00	100.00	50.00	303.25
* 41503.000	3829.00	13.75	.81	-.20	11.10	11.40	14.60	1721.88	44.97	10.00	3171.46
* 41503.000	4450.00	14.48	.71	-.20	11.10	11.40	14.60	1664.52	37.40	10.00	3972.69
* 41503.000	5663.00	15.38	.66	-.20	11.10	11.40	14.60	1724.19	30.45	10.00	3983.51
41578.000	3829.00	13.76	.80	-.20	11.10	11.40	14.60	1717.16	44.85	75.00	3172.93
41578.000	4450.00	14.48	.70	-.20	11.10	11.40	14.60	1660.00	37.30	75.00	3972.87
41578.000	5663.00	15.38	.66	-.20	11.10	11.40	14.60	1723.72	30.44	75.00	3983.53
41878.000	3829.00	13.77	.84	-.10	11.20	11.50	14.70	1763.24	46.05	300.00	3158.84
41878.000	4450.00	14.49	.73	-.10	11.20	11.50	14.70	1702.36	38.26	300.00	3928.33
41878.000	5663.00	15.39	.68	-.10	11.20	11.50	14.70	1758.37	31.05	300.00	3982.45
* 45058.000	3829.00	13.94	2.11	-.80	11.30	10.50	15.50	2747.70	71.76	3180.00	1472.38
* 45058.000	4450.00	14.61	1.94	-.80	11.30	10.50	15.50	2679.31	60.21	3180.00	2309.22
* 45058.000	5663.00	15.48	1.75	-.80	11.30	10.50	15.50	2603.58	45.98	3180.00	2492.33
45658.000	3808.00	14.02	2.18	-.60	11.50	10.70	15.70	2806.33	73.70	600.00	1402.00
45658.000	4404.00	14.67	2.00	-.60	11.50	10.70	15.70	2733.99	62.08	600.00	2228.82
45658.000	5619.00	15.52	1.82	-.60	11.50	10.70	15.70	2679.31	47.68	600.00	2491.44
45748.000	3808.00	14.04	2.22	-.60	11.50	10.90	15.90	2727.88	71.64	90.00	1686.83
45748.000	4404.00	14.69	1.93	-.60	11.50	10.90	15.90	2524.08	57.31	90.00	2958.80
45748.000	5619.00	15.54	1.66	-.60	11.50	10.90	15.90	2333.92	41.54	90.00	2969.55
45767.000	3808.00	14.04	2.21	-.60	11.50	10.70	15.90	2721.38	71.46	19.00	1693.11
45767.000	4404.00	14.69	1.92	-.60	11.50	10.70	15.90	2509.75	56.99	19.00	2958.99
45767.000	5619.00	15.54	1.64	-.60	11.50	10.70	15.90	2322.38	41.33	19.00	2969.65
45857.000	3808.00	14.06	2.15	-.60	11.50	10.70	15.90	2773.71	72.84	90.00	1701.70
45857.000	4404.00	14.70	1.88	-.60	11.50	10.70	15.90	2583.08	58.65	90.00	2959.05
45857.000	5619.00	15.55	1.64	-.60	11.50	10.70	15.90	2413.22	42.95	90.00	2969.66
46157.000	3808.00	14.10	2.18	-.50	11.60	10.80	16.00	2808.61	73.76	300.00	2071.86
46157.000	4404.00	14.73	1.94	-.50	11.60	10.80	16.00	2638.13	59.90	300.00	2958.60
46157.000	5619.00	15.57	1.68	-.50	11.60	10.80	16.00	2466.55	43.90	300.00	2969.29
47157.000	3808.00	14.25	2.22	-.30	11.80	11.00	16.30	2838.97	74.55	1000.00	2029.77
47157.000	4404.00	14.85	2.00	-.30	11.80	11.00	16.30	2707.93	61.49	1000.00	2958.19
47157.000	5619.00	15.65	1.76	-.30	11.80	11.00	16.30	2551.43	45.41	1000.00	2968.82
* 51157.000	3808.00	15.09	3.34	-1.40	11.85	13.70	16.50	3791.14	99.56	4000.00	126.19
* 51157.000	4404.00	15.54	3.70	-1.40	11.85	13.70	16.50	4373.30	99.30	4000.00	132.38
* 51157.000	5619.00	16.16	4.45	-1.40	11.85	13.70	16.50	5554.30	98.85	4000.00	140.75
51927.000	3808.00	15.36	3.31	-1.20	12.05	13.90	16.70	3789.83	99.52	770.00	127.14
51927.000	4404.00	15.85	3.66	-1.20	12.05	13.90	16.70	4370.02	99.23	770.00	133.92
51927.000	5619.00	16.58	4.36	-1.20	12.05	13.90	16.70	5543.22	98.65	770.00	143.82

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
51978.000	3808.00	15.48	2.30	-.35	15.44	16.04	17.50	3807.18	99.98	51.00	1154.17
* 51978.000	4404.00	16.03	2.36	-.35	15.44	16.04	17.50	4123.89	93.64	51.00	1581.23
* 51978.000	5619.00	16.89	2.31	-.35	15.44	16.04	17.50	4396.74	78.25	51.00	1592.77
52027.000	3808.00	15.57	1.60	-.29	16.18	17.70	16.90	1890.81	49.65	76.00	2184.48
* 52027.000	4404.00	16.13	1.37	-.29	16.18	17.70	16.90	1743.58	39.59	76.00	3230.97
* 52027.000	5619.00	16.97	1.16	-.29	16.18	17.70	16.90	1633.52	29.07	76.00	3242.22
* 52046.000	3808.00	15.57	3.21	-.29	16.18	17.70	16.90	3808.00	100.00	45.00	146.88
* 52046.000	4404.00	16.13	3.47	-.29	16.18	17.70	16.90	4404.00	100.00	45.00	159.39
* 52046.000	5619.00	16.86	3.14	-.29	16.18	17.70	16.90	4363.98	77.66	45.00	3239.35
* 52136.000	3808.00	15.77	1.44	-.29	16.18	17.70	16.90	1749.90	45.95	90.00	2324.44
* 52136.000	4404.00	16.37	1.21	-.29	16.18	17.70	16.90	1583.90	35.97	90.00	3234.91
* 52136.000	5619.00	17.01	1.14	-.29	16.18	17.70	16.90	1609.93	28.65	90.00	3242.76
* 52186.000	3808.00	15.74	2.79	-.81	13.24	10.88	18.00	2427.02	63.73	50.00	1947.10
* 52186.000	4404.00	16.35	2.39	-.81	13.24	10.88	18.00	2191.02	49.75	50.00	2230.52
* 52186.000	5619.00	17.00	2.21	-.81	13.24	10.88	18.00	2147.76	38.22	50.00	2231.50
52436.000	3808.00	15.80	2.85	-.71	13.34	10.98	18.10	2464.89	64.73	250.00	1897.62
52436.000	4404.00	16.39	2.47	-.71	13.34	10.98	18.10	2252.52	51.15	250.00	2230.43
52436.000	5619.00	17.03	2.29	-.71	13.34	10.98	18.10	2209.41	39.32	250.00	2231.39
54397.000	3808.00	16.25	2.29	-.71	13.34	10.98	18.10	2063.19	54.18	1961.00	2230.23
54397.000	4404.00	16.72	2.08	-.71	13.34	10.98	18.10	1955.70	44.41	1961.00	2230.93
54397.000	5619.00	17.30	2.01	-.71	13.34	10.98	18.10	1990.15	35.42	1961.00	2231.61
56506.000	3808.00	16.63	2.99	1.00	16.90	17.50	18.00	3808.00	100.00	2109.00	115.02
* 56506.000	4404.00	17.03	3.34	1.00	16.90	17.50	18.00	4403.98	100.00	2109.00	119.56
* 56506.000	5619.00	17.56	4.07	1.00	16.90	17.50	18.00	5616.63	99.96	2109.00	155.21
58036.000	3808.00	17.06	2.93	1.20	17.00	17.70	18.70	3806.54	99.96	1530.00	917.03
58036.000	4404.00	17.54	2.96	1.20	17.00	17.70	18.70	4005.01	90.94	1530.00	2739.17
* 58036.000	5619.00	18.22	2.74	1.20	17.00	17.70	18.70	3923.53	69.83	1530.00	2781.40
60176.000	3808.00	17.69	3.43	1.70	18.20	17.60	19.00	3806.45	99.96	2140.00	152.94
60176.000	4404.00	18.17	3.79	1.70	18.20	17.60	19.00	4384.44	99.56	2140.00	155.40
* 60176.000	5619.00	18.75	4.57	1.70	18.20	17.60	19.00	5547.46	98.73	2140.00	171.80
60205.000	3808.00	17.80	2.82	1.86	18.89	18.10	19.50	3808.00	100.00	29.00	121.09
60205.000	4404.00	18.30	3.12	1.86	18.89	18.10	19.50	4403.84	100.00	29.00	134.37
60205.000	5619.00	18.95	3.67	1.86	18.89	18.10	19.50	5473.07	97.40	29.00	2200.60
60276.000	3808.00	17.87	2.37	-1.13	15.91	16.56	19.60	3789.54	99.52	71.00	154.75
60276.000	4404.00	18.38	2.63	-1.13	15.91	16.56	19.60	4368.20	99.19	71.00	160.20
60276.000	5619.00	19.05	3.19	-1.13	15.91	16.56	19.60	5545.01	98.68	71.00	167.18
60297.000	3808.00	17.95	2.36	-1.13	15.91	16.56	19.70	3788.27	99.48	20.00	170.72
60297.000	4404.00	18.47	2.62	-1.13	15.91	16.56	19.70	4363.07	99.07	20.00	185.36
60297.000	5619.00	19.15	3.16	-1.13	15.91	16.56	19.70	5525.33	98.33	20.00	204.57

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMK	QCH	QCHP	XLCH	TOPWID
60377.000	3808.00	17.96	2.36	-1.13	15.91	16.56	19.70	3787.98	99.47	80.00	171.03
60377.000	4404.00	18.48	2.61	-1.13	15.91	16.56	19.70	4362.55	99.06	80.00	185.73
60377.000	5619.00	19.17	3.15	-1.13	15.91	16.56	19.70	5524.09	98.31	80.00	205.07
* 64767.000	3808.00	18.80	4.63	.00	4.30	4.30	22.00	2480.47	65.14	4390.00	101.71
* 64767.000	4404.00	19.45	5.05	.00	4.30	4.30	22.00	2818.77	64.00	4390.00	104.75
* 64767.000	5619.00	20.46	5.87	.00	4.30	4.30	22.00	3474.72	61.84	4390.00	174.17
67937.000	3808.00	20.11	4.56	2.00	4.50	4.50	23.20	2272.09	59.67	3170.00	103.47
67937.000	4404.00	20.90	4.86	2.00	4.50	4.50	23.20	2541.18	57.70	3170.00	136.64
67937.000	5619.00	22.21	5.41	2.00	4.50	4.50	23.20	3049.24	54.27	3170.00	161.20
68037.000	3808.00	20.27	3.20	.90	20.90	20.90	23.10	3808.00	100.00	100.00	109.07
68037.000	4404.00	21.08	3.43	.90	20.90	20.90	23.10	4382.54	99.51	100.00	646.57
68037.000	5619.00	22.52	3.37	.90	20.90	20.90	23.10	4847.39	86.27	100.00	675.14
70697.000	3808.00	21.14	3.12	1.50	21.50	21.50	23.70	3808.00	100.00	2660.00	110.33
70697.000	4404.00	22.00	3.27	1.50	21.50	21.50	23.70	4293.35	97.49	2660.00	652.92
70697.000	5619.00	23.29	3.25	1.50	21.50	21.50	23.70	4742.38	84.40	2660.00	678.59
70706.000	3808.00	21.19	2.75	3.00	20.35	19.19	25.00	3789.26	99.51	9.00	429.59
70706.000	4404.00	22.08	2.69	3.00	20.35	19.19	25.00	4003.68	90.91	9.00	2531.68
* 70706.000	5619.00	23.44	1.79	3.00	20.35	19.19	25.00	2953.63	52.57	9.00	5008.78
70757.000	3808.00	21.23	2.42	3.05	20.62	19.95	25.00	3808.00	100.00	51.00	112.00
70757.000	4404.00	22.14	2.13	3.05	20.62	19.95	25.00	3576.89	81.22	51.00	2531.72
70757.000	5619.00	23.44	1.70	3.05	20.62	19.95	25.00	3103.69	55.24	51.00	4264.91
* 70773.000	3808.00	21.24	3.08	2.16	21.50	21.50	26.30	3808.00	100.00	16.00	110.84
* 70773.000	4404.00	22.20	3.28	2.16	21.50	21.50	26.30	4404.00	100.00	16.00	112.00
* 70773.000	5619.00	23.57	3.74	2.16	21.50	21.50	26.30	5602.99	99.72	16.00	134.14
70823.000	3808.00	21.27	2.90	3.49	21.48	21.70	25.00	3785.46	99.41	50.00	594.47
70823.000	4404.00	22.29	2.75	3.49	21.48	21.70	25.00	3903.32	88.63	50.00	1690.21
* 70823.000	5619.00	23.79	1.85	3.49	21.48	21.70	25.00	2959.15	52.66	50.00	3801.21
72483.000	3808.00	21.80	3.52	4.20	24.00	24.00	30.40	3808.00	100.00	1660.00	113.34
* 72483.000	4404.00	22.73	3.70	4.20	24.00	24.00	30.40	4404.00	100.00	1660.00	118.66
* 72483.000	5619.00	23.91	4.21	4.20	24.00	24.00	30.40	5619.00	100.00	1660.00	125.47
73563.000	3808.00	22.30	3.41	4.40	24.20	24.20	30.60	3808.00	100.00	1080.00	115.08
73563.000	4404.00	23.25	3.59	4.40	24.20	24.20	30.60	4404.00	100.00	1080.00	120.52
73563.000	5619.00	24.53	4.05	4.40	24.20	24.20	30.60	5616.91	99.96	1080.00	156.48
73863.000	3808.00	22.43	3.40	4.50	24.30	24.30	31.10	3808.00	100.00	300.00	115.29
73863.000	4404.00	23.38	3.57	4.50	24.30	24.30	31.10	4404.00	100.00	300.00	120.75
73863.000	5619.00	24.68	4.03	4.50	24.30	24.30	31.10	5615.82	99.94	300.00	157.05
75863.000	3808.00	23.36	3.50	4.30	23.80	30.40	27.00	3808.00	100.00	2000.00	118.81
75863.000	4404.00	24.32	3.66	4.30	23.80	30.40	27.00	4400.45	99.92	2000.00	161.82
75863.000	5619.00	25.72	4.00	4.30	23.80	30.40	27.00	5503.80	97.95	2000.00	270.42

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TBLMX	QCH	QCHP	XLCH	TOPWID
76232.000	3383.00	23.58	3.04	4.30	23.80	30.40	27.00	3383.00	100.00	369.00	119.91
76232.000	4020.00	24.53	3.27	4.30	23.80	30.40	27.00	4012.28	99.81	369.00	178.21
76232.000	5060.00	25.95	3.51	4.30	23.80	30.40	27.00	4925.03	97.33	369.00	288.29
77132.000	2382.00	23.85	2.08	4.30	23.80	30.40	27.00	2381.99	100.00	731.00	125.50
77132.000	2985.00	24.83	2.35	4.30	23.80	30.40	27.00	2971.73	99.56	731.00	200.74
77132.000	3930.00	26.25	2.62	4.30	23.80	30.40	27.00	3782.08	96.24	731.00	294.39
77723.000	2382.00	24.00	2.09	4.20	24.10	31.50	28.20	2382.00	100.00	900.00	119.48
77723.000	2985.00	25.00	2.34	4.20	24.10	31.50	28.20	2957.52	99.08	900.00	389.87
77723.000	3930.00	26.44	2.39	4.20	24.10	31.50	28.20	3439.49	87.52	900.00	857.98
* 78523.000	2382.00	24.14	3.16	4.30	25.10	25.10	30.00	2377.98	99.83	800.00	98.46
* 78523.000	2985.00	25.15	3.57	4.30	25.10	25.10	30.00	2939.64	98.48	800.00	145.24
* 78523.000	3930.00	26.55	3.94	4.30	25.10	25.10	30.00	3636.19	92.52	800.00	324.66
78603.000	2382.00	24.16	3.16	4.30	25.10	25.10	30.00	2382.00	100.00	80.00	68.25
78603.000	2985.00	25.19	3.56	4.30	25.10	25.10	30.00	2937.70	98.42	80.00	147.35
78603.000	3930.00	26.59	3.92	4.30	25.10	25.10	30.00	3627.47	92.30	80.00	325.11
78621.000	2382.00	24.22	3.14	4.30	25.10	25.10	30.00	2382.00	100.00	18.00	68.43
78621.000	2985.00	25.31	3.51	4.30	25.10	25.10	30.00	2927.34	98.07	18.00	157.96
78621.000	3930.00	26.82	3.78	4.30	25.10	25.10	30.00	3560.02	90.59	18.00	780.43
78661.000	2382.00	24.23	3.14	4.30	25.10	25.10	30.00	2382.00	100.00	40.00	68.47
78661.000	2985.00	25.33	3.50	4.30	25.10	25.10	30.00	2925.97	98.02	40.00	159.29
78661.000	3930.00	26.84	3.77	4.30	25.10	25.10	30.00	3553.91	90.43	40.00	780.70
79391.000	2382.00	24.50	2.76	5.60	24.00	25.30	31.70	2368.11	99.42	730.00	275.96
79391.000	2985.00	25.65	2.90	5.60	24.00	25.30	31.70	2743.00	91.89	730.00	426.81
* 79391.000	3930.00	27.18	2.72	5.60	24.00	25.30	31.70	2896.63	73.71	730.00	863.77
79471.000	2382.00	24.50	3.19	5.60	21.80	21.80	31.70	2323.88	97.56	80.00	285.13
79471.000	2985.00	25.65	3.30	5.60	21.80	21.80	31.70	2614.92	87.60	80.00	429.33
79471.000	3930.00	27.19	3.02	5.60	21.80	21.80	31.70	2651.17	67.46	80.00	864.28
79484.000	2382.00	24.64	3.13	5.60	21.80	21.80	31.70	2304.69	96.75	13.00	300.36
79484.000	2985.00	25.82	3.20	5.60	21.80	21.80	31.70	2560.52	85.78	13.00	469.19
79484.000	3930.00	27.43	2.83	5.60	21.80	21.80	31.70	2519.47	64.11	13.00	871.37
79534.000	2382.00	24.70	2.68	5.60	24.00	25.30	31.70	2347.57	98.55	50.00	297.65
79534.000	2985.00	25.87	2.77	5.60	24.00	25.30	31.70	2673.46	89.56	50.00	484.88
79534.000	3930.00	27.45	2.53	5.60	24.00	25.30	31.70	2752.13	70.03	50.00	871.87
80014.000	2382.00	24.82	2.69	5.60	24.00	30.70	31.70	2380.05	99.92	480.00	91.39
80014.000	2985.00	25.97	3.01	5.60	24.00	30.70	31.70	2940.29	98.50	480.00	504.91
80014.000	3930.00	27.54	2.54	5.60	24.00	30.70	31.70	2839.55	72.25	480.00	1205.15
81894.000	2382.00	25.34	3.29	9.20	23.60	24.70	29.00	2373.11	99.63	1880.00	191.40
81894.000	2985.00	26.55	3.26	9.20	23.60	24.70	29.00	2621.92	87.84	1880.00	759.11
81894.000	3930.00	27.92	2.62	9.20	23.60	24.70	29.00	2350.35	59.81	1880.00	1855.70

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CONF



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SBCNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
81938.000	2382.00	25.41	2.88	8.16	24.00	25.57	29.00	2376.84	99.78	44.00	95.06
81938.000	2985.00	26.58	3.06	8.16	24.00	25.57	29.00	2814.26	94.28	44.00	776.08
81938.000	3930.00	27.92	2.68	8.16	24.00	25.57	29.00	2767.44	70.42	44.00	1674.43
81944.000	2382.00	25.48	2.30	8.16	24.29	25.42	29.00	2262.16	94.97	6.00	651.15
* 81944.000	2985.00	26.69	2.10	8.16	24.29	25.42	29.00	2315.72	77.58	6.00	1247.97
* 81944.000	3930.00	27.99	1.80	8.16	24.29	25.42	29.00	2216.99	56.41	6.00	1888.54
81994.000	2382.00	25.49	2.29	8.16	24.29	25.42	29.00	2259.20	94.84	50.00	657.27
81994.000	2985.00	26.70	2.09	8.16	24.29	25.42	29.00	2310.26	77.40	50.00	1253.29
81994.000	3930.00	27.99	1.79	8.16	24.29	25.42	29.00	2212.92	56.31	50.00	1892.03
82022.000	2382.00	25.52	2.43	6.93	25.90	25.50	29.00	2370.06	99.50	28.00	259.59
82022.000	2985.00	26.67	2.44	6.93	25.90	25.50	29.00	2673.79	89.57	28.00	715.13
82022.000	3930.00	27.96	2.30	6.93	25.90	25.50	29.00	2830.51	72.02	28.00	717.73
82063.000	2382.00	25.52	2.93	6.88	23.65	24.93	29.50	2263.92	95.04	41.00	590.93
82063.000	2985.00	26.68	2.63	6.88	23.65	24.93	29.50	2267.55	75.96	41.00	1195.77
82063.000	3930.00	28.00	2.10	6.88	23.65	24.93	29.50	2022.43	51.46	41.00	1901.42
82072.000	2382.00	25.52	2.93	6.88	23.65	24.93	29.50	2265.28	95.10	9.00	588.26
82072.000	2985.00	26.68	2.63	6.88	23.65	24.93	29.50	2265.06	75.88	9.00	1198.02
82072.000	3930.00	28.00	2.10	6.88	23.65	24.93	29.50	2021.64	51.44	9.00	1902.08
82372.000	2382.00	25.60	3.13	8.20	23.60	24.70	29.50	2354.83	98.86	300.00	292.80
82372.000	2985.00	26.72	3.07	8.20	23.60	24.70	29.50	2539.90	85.09	300.00	715.23
82372.000	3930.00	28.02	2.76	8.20	23.60	24.70	29.50	2530.16	64.38	300.00	717.73
83472.000	2382.00	25.99	3.24	9.70	24.10	25.20	31.00	2364.24	99.25	1100.00	283.24
83472.000	2985.00	27.05	3.30	9.70	24.10	25.20	31.00	2656.00	88.98	1100.00	1406.62
83472.000	3930.00	28.25	2.54	9.70	24.10	25.20	31.00	2252.03	57.30	1100.00	1724.03
84882.000	2382.00	26.51	2.50	10.00	24.80	25.40	37.00	2228.55	93.56	1410.00	558.88
84882.000	2985.00	27.53	2.40	10.00	24.80	25.40	37.00	2360.23	79.07	1410.00	733.68
84882.000	3930.00	28.49	2.40	10.00	24.80	25.40	37.00	2567.91	65.34	1410.00	740.43
85132.000	2382.00	26.56	2.48	10.00	24.80	25.40	37.10	2373.24	99.63	250.00	112.16
85132.000	2985.00	27.57	2.82	10.00	24.80	25.40	37.10	2950.53	98.85	250.00	128.03
85132.000	3930.00	28.52	3.39	10.00	24.80	25.40	37.10	3838.49	97.67	250.00	143.19
85432.000	2382.00	26.63	2.40	10.00	24.80	25.40	37.00	2317.85	97.31	300.00	309.70
85432.000	2985.00	27.68	2.55	10.00	24.80	25.40	37.00	2690.06	90.12	300.00	387.84
85432.000	3930.00	28.72	2.79	10.00	24.80	25.40	37.00	3201.80	81.47	300.00	497.42
86282.000	2382.00	26.81	2.78	9.60	26.60	26.30	30.00	2334.12	97.99	850.00	836.92
86282.000	2985.00	27.89	2.37	9.60	26.60	26.30	30.00	2206.77	73.93	850.00	1426.92
86282.000	3930.00	28.94	1.99	9.60	26.60	26.30	30.00	2019.29	51.38	850.00	2627.15
86382.000	2382.00	26.84	2.76	9.60	26.60	26.30	30.00	2328.31	97.75	100.00	872.53
86382.000	2985.00	27.91	2.36	9.60	26.60	26.30	30.00	2193.14	73.47	100.00	1433.14
86382.000	3930.00	28.96	1.97	9.60	26.60	26.30	30.00	2007.77	51.09	100.00	2658.09

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
86400.000	2382.00	27.04	2.74	9.60	26.60	26.30	30.20	2358.23	99.00	18.00	299.66
86400.000	2985.00	28.12	2.86	9.60	26.60	26.30	30.20	2710.92	90.82	18.00	629.12
86400.000	3930.00	29.21	2.83	9.60	26.60	26.30	30.20	2937.52	74.75	18.00	1526.40
86450.000	2382.00	27.05	2.77	9.70	26.70	26.40	30.30	2364.80	99.28	50.00	272.49
86450.000	2985.00	28.13	2.91	9.70	26.70	26.40	30.30	2740.14	91.80	50.00	595.98
86450.000	3930.00	29.22	2.91	9.70	26.70	26.40	30.30	2993.67	76.17	50.00	1502.29
87980.000	2382.00	27.46	2.58	10.30	26.10	25.20	31.00	2053.16	86.19	1530.00	897.16
87980.000	2985.00	28.50	2.21	10.30	26.10	25.20	31.00	1917.11	64.22	1530.00	1346.88
* 87980.000	3930.00	29.52	1.91	10.30	26.10	25.20	31.00	1797.25	45.73	1530.00	2074.07
* 88013.000	2382.00	27.54	1.79	10.45	23.96	24.89	30.50	1740.98	73.09	33.00	1051.97
* 88013.000	2985.00	28.54	1.65	10.45	23.96	24.89	30.50	1741.70	58.35	33.00	1406.10
88013.000	3930.00	29.53	1.60	10.45	23.96	24.89	30.50	1820.43	46.32	33.00	1754.63
88080.000	2382.00	27.54	1.91	10.50	26.50	26.30	33.40	2176.82	91.39	67.00	935.10
88080.000	2985.00	28.54	1.77	10.50	26.50	26.30	33.40	2208.17	73.98	67.00	1359.83
88080.000	3930.00	29.53	1.67	10.50	26.50	26.30	33.40	2250.49	57.26	67.00	1678.28
88086.000	2382.00	27.52	2.19	9.75	28.84	28.55	31.00	2382.00	100.00	6.00	104.69
* 88086.000	2985.00	28.51	2.50	9.75	28.84	28.55	31.00	2985.00	100.00	6.00	109.14
* 88086.000	3930.00	29.48	2.97	9.75	28.84	28.55	31.00	3865.82	98.37	6.00	701.66
88116.000	2382.00	27.52	1.89	9.26	26.50	26.30	33.00	2182.37	91.62	30.00	930.46
* 88116.000	2985.00	28.58	1.74	9.26	26.50	26.30	33.00	2194.05	73.50	30.00	1385.36
* 88116.000	3930.00	29.65	1.58	9.26	26.50	26.30	33.00	2168.44	55.18	30.00	2202.91
88173.000	2382.00	27.56	2.00	11.39	24.61	23.94	31.00	1693.11	71.08	57.00	1390.48
88173.000	2985.00	28.60	1.65	11.39	24.61	23.94	31.00	1531.67	51.31	57.00	2025.05
88173.000	3930.00	29.66	1.43	11.39	24.61	23.94	31.00	1433.83	36.48	57.00	2675.16
88196.000	2382.00	27.55	2.55	11.50	26.10	25.20	33.40	2003.58	84.11	23.00	938.10
88196.000	2985.00	28.59	2.14	11.50	26.10	25.20	33.40	1841.61	61.70	23.00	1378.20
88196.000	3930.00	29.66	1.84	11.50	26.10	25.20	33.40	1716.29	43.67	23.00	1697.73
* 89010.000	2382.00	27.70	1.67	11.22	25.57	26.98	31.00	2372.33	99.59	814.00	169.98
89010.000	2985.00	28.68	1.87	11.22	25.57	26.98	31.00	2910.18	97.49	814.00	823.14
89010.000	3930.00	29.72	1.99	11.22	25.57	26.98	31.00	3368.28	85.71	814.00	1874.16
89063.000	2382.00	27.72	1.52	9.63	26.29	26.42	31.00	2248.55	94.40	53.00	987.20
89063.000	2985.00	28.71	1.52	9.63	26.29	26.42	31.00	2430.11	81.41	53.00	1631.76
* 89063.000	3930.00	29.75	1.49	9.63	26.29	26.42	31.00	2561.09	65.17	53.00	2299.34
89078.000	2382.00	27.71	1.66	9.96	26.25	26.42	31.00	2219.94	93.20	15.00	998.98
89078.000	2985.00	28.71	1.62	9.96	26.25	26.42	31.00	2350.83	78.75	15.00	1637.65
89078.000	3930.00	29.75	1.55	9.96	26.25	26.42	31.00	2425.06	61.71	15.00	2302.86
89129.000	2382.00	27.70	2.00	11.09	27.60	27.72	31.00	2381.99	100.00	51.00	122.12
* 89129.000	2985.00	28.68	2.28	11.09	27.60	27.72	31.00	2976.69	99.72	51.00	226.14
* 89129.000	3930.00	29.71	2.58	11.09	27.60	27.72	31.00	3693.10	93.97	51.00	1397.92

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
90016.000	2382.00	27.83	1.97	7.20	26.80	26.20	31.50	2291.67	96.21	887.00	420.34
90016.000	2985.00	28.83	2.07	7.20	26.80	26.20	31.50	2635.27	88.28	887.00	554.56
90016.000	3930.00	29.88	2.23	7.20	26.80	26.20	31.50	3090.18	78.63	887.00	693.25
90022.000	2382.00	27.82	2.28	6.27	28.56	24.31	35.00	2171.16	91.15	6.00	253.33
90022.000	2985.00	28.82	2.47	6.27	28.56	24.31	35.00	2559.95	85.76	6.00	323.66
90022.000	3930.00	29.87	2.77	6.27	28.56	24.31	35.00	3117.39	79.32	6.00	455.31
90116.000	2382.00	27.86	1.83	8.66	27.00	27.00	32.00	2382.00	100.00	94.00	162.00
90116.000	2985.00	28.86	2.04	8.66	27.00	27.00	32.00	2985.00	100.00	94.00	162.00
90116.000	3930.00	29.90	2.41	8.66	27.00	27.00	32.00	3930.00	100.00	94.00	162.00
90138.000	2382.00	27.87	1.82	8.14	27.00	27.00	32.00	2382.00	100.00	22.00	162.00
90138.000	2985.00	28.87	2.02	8.14	27.00	27.00	32.00	2985.00	100.00	22.00	162.00
90138.000	3930.00	29.94	2.39	8.14	27.00	27.00	32.00	3930.00	100.00	22.00	162.00
90188.000	2382.00	27.88	1.80	8.14	27.00	27.00	32.00	2361.15	99.12	50.00	341.89
90188.000	2985.00	28.89	1.91	8.14	27.00	27.00	32.00	2826.81	94.70	50.00	548.85
90188.000	3930.00	29.99	2.05	8.14	27.00	27.00	32.00	3396.89	86.43	50.00	773.38
90638.000	2382.00	27.94	2.16	11.50	26.90	26.30	32.30	2334.22	97.99	450.00	281.66
90638.000	2985.00	28.95	2.34	11.50	26.90	26.30	32.30	2782.15	93.20	450.00	414.00
90638.000	3930.00	30.04	2.58	11.50	26.90	26.30	32.30	3362.89	85.57	450.00	570.42
91093.000	2382.00	28.01	2.26	12.21	27.24	27.45	33.00	2363.38	99.22	455.00	290.87
91093.000	2985.00	29.02	2.42	12.21	27.24	27.45	33.00	2788.63	93.42	455.00	725.09
91093.000	3930.00	30.13	2.44	12.21	27.24	27.45	33.00	3105.17	79.01	455.00	1304.43
91226.000	2382.00	28.06	1.83	11.09	30.48	28.88	33.00	2382.00	100.00	133.00	145.10
91226.000	2985.00	29.07	2.06	11.09	30.48	28.88	33.00	2984.32	99.98	133.00	226.52
91226.000	3930.00	30.15	2.36	11.09	30.48	28.88	33.00	3809.92	96.94	133.00	658.54
* 91251.000	2382.00	28.06	3.69	11.60	29.20	29.20	32.00	2382.00	100.00	25.00	77.27
* 91251.000	2985.00	29.08	3.81	11.60	29.20	29.20	32.00	2913.47	97.60	25.00	579.77
* 91251.000	3930.00	30.26	3.05	11.60	29.20	29.20	32.00	2940.13	74.81	25.00	1178.49
91311.000	2382.00	28.17	2.99	13.80	28.10	28.80	33.00	2382.00	100.00	60.00	86.98
* 91311.000	2985.00	29.17	3.31	13.80	28.10	28.80	33.00	2934.09	98.29	60.00	499.39
91311.000	3930.00	30.26	3.41	13.80	28.10	28.80	33.00	3346.54	85.15	60.00	715.28
* 91317.000	2382.00	28.28	1.75	13.10	25.65	26.41	33.00	2020.79	84.84	6.00	1558.90
* 91317.000	2985.00	29.34	1.48	13.10	25.65	26.41	33.00	1869.95	62.64	6.00	2543.56
* 91317.000	3930.00	30.42	1.25	13.10	25.65	26.41	33.00	1709.56	43.50	6.00	3557.98
91611.000	2382.00	28.31	1.79	13.20	25.75	26.51	33.10	2054.32	86.24	294.00	1490.52
91611.000	2985.00	29.35	1.53	13.20	25.75	26.51	33.10	1921.26	64.36	294.00	2465.72
91611.000	3930.00	30.43	1.29	13.20	25.75	26.51	33.10	1761.57	44.82	294.00	3474.49
* 93921.000	2382.00	28.68	3.38	14.70	30.20	30.20	35.20	2382.00	100.00	2310.00	91.47
* 93921.000	2985.00	29.56	3.79	14.70	30.20	30.20	35.20	2985.00	100.00	2310.00	96.43
* 93921.000	3930.00	30.48	4.47	14.70	30.20	30.20	35.20	3929.67	99.99	2310.00	108.04

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
96621.000	2382.00	30.04	3.27	15.80	27.90	30.30	34.40	2308.54	96.92	2700.00	471.53
96621.000	2985.00	30.97	3.19	15.80	27.90	30.30	34.40	2474.45	82.90	2700.00	824.71
* 96621.000	3930.00	31.94	2.97	15.80	27.90	30.30	34.40	2529.12	64.35	2700.00	1066.19
96674.000	2382.00	30.07	3.17	15.96	30.16	30.29	34.50	2382.00	100.00	53.00	93.26
96674.000	2985.00	30.96	3.57	15.96	30.16	30.29	34.50	2982.25	99.91	53.00	111.68
* 96674.000	3930.00	31.87	4.20	15.96	30.16	30.29	34.50	3862.46	98.28	53.00	381.66
96721.000	2382.00	30.09	3.37	15.80	29.00	28.90	34.40	2305.59	96.79	47.00	496.67
96721.000	2985.00	31.07	3.16	15.80	29.00	28.90	34.40	2400.44	80.42	47.00	853.84
* 96721.000	3930.00	32.14	2.79	15.80	29.00	28.90	34.40	2351.41	59.83	47.00	1100.54
* 96726.000	2093.00	30.23	2.03	16.09	32.82	33.50	33.50	2093.00	100.00	5.00	111.15
96726.000	2768.00	31.12	2.45	16.09	32.82	33.50	33.50	2768.00	100.00	5.00	115.56
96726.000	3916.00	32.10	3.14	16.09	32.82	33.50	33.50	3916.00	100.00	5.00	120.45
96756.000	2093.00	30.23	1.73	14.85	30.40	32.09	34.40	2093.00	100.00	30.00	121.99
96756.000	2768.00	31.12	2.10	14.85	30.40	32.09	34.40	2768.00	100.00	30.00	125.02
96756.000	3916.00	32.10	2.65	14.85	30.40	32.09	34.40	3820.62	97.56	30.00	408.17
* 96807.000	2093.00	30.23	2.38	15.88	28.43	30.83	36.00	2021.53	96.59	51.00	449.00
96807.000	2768.00	31.14	2.55	15.88	28.43	30.83	36.00	2396.28	86.57	51.00	759.82
96807.000	3916.00	32.20	2.65	15.88	28.43	30.83	36.00	2766.13	70.64	51.00	1135.06
96811.000	2093.00	30.22	2.76	15.80	27.90	30.30	34.40	1989.29	95.05	4.00	555.79
96811.000	2768.00	31.14	2.79	15.80	27.90	30.30	34.40	2200.69	79.50	4.00	870.04
96811.000	3916.00	32.21	2.69	15.80	27.90	30.30	34.40	2342.58	59.82	4.00	1108.90
100161.000	2093.00	31.28	2.73	16.90	32.60	32.60	36.50	2093.00	100.00	3350.00	89.60
100161.000	2768.00	32.23	3.24	16.90	32.60	32.60	36.50	2768.00	100.00	3350.00	94.20
* 100161.000	3916.00	33.25	4.11	16.90	32.60	32.60	36.50	3911.65	99.89	3350.00	126.94
101351.000	2093.00	31.70	3.13	17.30	32.00	33.00	37.60	2090.57	99.88	1190.00	149.34
101351.000	2768.00	32.76	3.49	17.30	32.00	33.00	37.60	2611.37	94.34	1190.00	489.31
101351.000	3916.00	33.97	3.49	17.30	32.00	33.00	37.60	2938.02	75.03	1190.00	881.52
103211.000	2093.00	32.48	3.10	18.60	41.80	44.20	43.80	2093.00	100.00	1860.00	74.85
103211.000	2768.00	33.66	3.61	18.60	41.80	44.20	43.80	2768.00	100.00	1860.00	79.09
103211.000	3916.00	34.86	4.54	18.60	41.80	44.20	43.80	3916.00	100.00	1860.00	83.39
104791.000	2093.00	33.16	3.23	18.40	37.80	38.60	38.20	2093.00	100.00	1580.00	70.75
104791.000	2768.00	34.49	3.72	18.40	37.80	38.60	38.20	2768.00	100.00	1580.00	75.37
104791.000	3916.00	36.02	4.53	18.40	37.80	38.60	38.20	3916.00	100.00	1580.00	80.70
106621.000	2093.00	34.07	3.52	19.00	35.40	35.80	39.60	2093.00	100.00	1830.00	69.05
106621.000	2768.00	35.55	3.94	19.00	35.40	35.80	39.60	2766.97	99.96	1830.00	157.55
106621.000	3916.00	37.27	3.99	19.00	35.40	35.80	39.60	3310.29	84.53	1830.00	485.09
108291.000	2093.00	34.93	2.97	19.50	36.70	37.50	42.70	2093.00	100.00	1670.00	83.31
108291.000	2768.00	36.51	3.28	19.50	36.70	37.50	42.70	2764.75	99.88	1670.00	148.75
108291.000	3916.00	38.12	3.67	19.50	36.70	37.50	42.70	3638.48	92.91	1670.00	478.30

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
108611.000	2093.00	35.07	2.57	19.37	35.69	36.26	40.00	2093.00	100.00	320.00	80.75
108611.000	2768.00	36.66	2.92	19.37	35.69	36.26	40.00	2764.20	99.86	320.00	124.75
108611.000	3916.00	38.26	3.48	19.37	35.69	36.26	40.00	3760.38	96.03	320.00	336.16
108704.000	2093.00	35.08	2.72	19.39	36.75	37.01	40.00	2093.00	100.00	93.00	83.38
108704.000	2768.00	36.68	3.05	19.39	36.75	37.01	40.00	2768.00	100.00	93.00	90.15
108704.000	3916.00	38.28	3.66	19.39	36.75	37.01	40.00	3853.09	98.39	93.00	269.84
108757.000	2093.00	35.09	3.00	22.07	37.16	36.97	40.00	2093.00	100.00	53.00	81.65
108757.000	2768.00	36.68	3.32	22.07	37.16	36.97	40.00	2768.00	100.00	53.00	88.44
108757.000	3916.00	38.27	4.00	22.07	37.16	36.97	40.00	3906.50	99.76	53.00	115.60
108798.000	2093.00	35.08	3.40	19.35	34.74	37.71	40.00	2092.93	100.00	41.00	70.73
108798.000	2768.00	36.67	3.79	19.35	34.74	37.71	40.00	2760.01	99.71	41.00	81.94
108798.000	3916.00	38.24	4.59	19.35	34.74	37.71	40.00	3868.13	98.78	41.00	131.45
108898.000	2093.00	35.19	2.67	19.15	37.63	38.08	40.00	2093.00	100.00	100.00	82.94
108898.000	2768.00	36.80	3.00	19.15	37.63	38.08	40.00	2768.00	100.00	100.00	89.53
108898.000	3916.00	38.43	3.65	19.15	37.63	38.08	40.00	3911.06	99.87	100.00	155.44
108928.000	2093.00	35.20	2.69	20.20	37.37	36.45	40.00	2093.00	100.00	30.00	85.12
108928.000	2768.00	36.81	3.01	20.20	37.37	36.45	40.00	2767.88	100.00	30.00	94.03
108928.000	3916.00	38.44	3.65	20.20	37.37	36.45	40.00	3896.79	99.51	30.00	135.22
108976.000	2093.00	35.22	2.61	19.97	37.04	36.30	40.10	2093.00	100.00	48.00	83.09
108976.000	2768.00	36.83	2.93	19.97	37.04	36.30	40.10	2756.36	99.58	48.00	153.36
108976.000	3916.00	38.49	3.42	19.97	37.04	36.30	40.10	3719.39	94.98	48.00	264.46
108977.000	2093.00	35.22	2.66	19.28	35.50	37.46	40.10	2093.00	100.00	1.00	88.37
108977.000	2768.00	36.83	2.94	19.28	35.50	37.46	40.10	2748.59	99.30	1.00	150.57
108977.000	3916.00	38.49	3.40	19.28	35.50	37.46	40.10	3708.79	94.71	1.00	336.97
109110.000	2093.00	35.28	2.38	19.27	36.44	37.07	40.10	2093.00	100.00	133.00	96.22
109110.000	2768.00	36.90	2.66	19.27	36.44	37.07	40.10	2767.82	99.99	133.00	107.06
109110.000	3916.00	38.55	3.21	19.27	36.44	37.07	40.10	3892.44	99.40	133.00	176.77
109205.000	2093.00	35.32	2.08	21.01	38.30	38.64	40.15	2093.00	100.00	95.00	101.26
109205.000	2768.00	36.94	2.35	21.01	38.30	38.64	40.15	2768.00	100.00	95.00	107.89
109205.000	3916.00	38.61	2.87	21.01	38.30	38.64	40.15	3915.85	100.00	95.00	119.79
109247.000	2093.00	35.30	2.63	16.27	35.89	38.86	40.15	2093.00	100.00	42.00	78.55
109247.000	2768.00	36.92	2.99	16.27	35.89	38.86	40.15	2765.91	99.92	42.00	92.28
109247.000	3916.00	38.57	3.65	16.27	35.89	38.86	40.15	3885.19	99.21	42.00	110.62
109304.000	2093.00	35.30	2.80	21.14	37.02	37.05	40.15	2093.00	100.00	57.00	83.97
109304.000	2768.00	36.93	3.12	21.14	37.02	37.05	40.15	2768.00	100.00	57.00	89.63
109304.000	3916.00	38.59	3.73	21.14	37.02	37.05	40.15	3868.91	98.80	57.00	236.02
109626.000	2093.00	35.41	2.95	20.00	39.40	39.40	41.00	2093.00	100.00	322.00	83.64
109626.000	2768.00	37.04	3.25	20.00	39.40	39.40	41.00	2768.00	100.00	322.00	91.14
109626.000	3916.00	38.73	3.87	20.00	39.40	39.40	41.00	3916.00	100.00	322.00	98.87

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
109686.000	2010.00	35.43	3.16	20.00	38.90	38.90	41.00	2010.00	100.00	60.00	74.55
109686.000	2390.00	37.08	3.13	20.00	38.90	38.90	41.00	2390.00	100.00	60.00	82.81
109686.000	3158.00	38.82	3.44	20.00	38.90	38.90	41.00	3158.00	100.00	60.00	91.60
109723.000	2010.00	35.44	3.42	22.95	38.90	38.90	41.00	2010.00	100.00	37.00	74.56
109723.000	2390.00	37.09	3.33	22.95	38.90	38.90	41.00	2390.00	100.00	37.00	82.89
109723.000	3158.00	38.83	3.63	22.95	38.90	38.90	41.00	3158.00	100.00	37.00	91.64
109783.000	2010.00	35.54	2.79	20.00	39.40	39.40	41.00	2010.00	100.00	60.00	84.27
109783.000	2390.00	37.19	2.76	20.00	39.40	39.40	41.00	2390.00	100.00	60.00	91.81
109783.000	3158.00	38.93	3.06	20.00	39.40	39.40	41.00	3158.00	100.00	60.00	99.85
109863.000	2010.00	35.57	2.99	25.43	38.70	39.20	41.10	2010.00	100.00	80.00	91.64
109863.000	2390.00	37.21	2.88	25.43	38.70	39.20	41.10	2390.00	100.00	80.00	99.67
109863.000	3158.00	38.96	3.12	25.43	38.70	39.20	41.10	3157.42	99.98	80.00	130.70
109913.000	2010.00	35.59	2.98	25.43	38.70	39.20	41.10	2010.00	100.00	50.00	91.71
109913.000	2390.00	37.23	2.88	25.43	38.70	39.20	41.10	2390.00	100.00	50.00	99.73
109913.000	3158.00	38.98	3.12	25.43	38.70	39.20	41.10	3158.00	100.00	50.00	107.54
109950.000	2010.00	35.60	2.98	25.43	38.70	39.20	41.10	2010.00	100.00	37.00	91.78
109950.000	2390.00	37.23	2.87	25.43	38.70	39.20	41.10	2390.00	100.00	37.00	99.78
109950.000	3158.00	38.98	3.12	25.43	38.70	39.20	41.10	3158.00	100.00	37.00	107.56
110050.000	2010.00	35.65	2.96	25.43	38.70	39.20	41.10	2010.00	100.00	100.00	92.01
110050.000	2390.00	37.27	2.86	25.43	38.70	39.20	41.10	2390.00	100.00	100.00	99.97
110050.000	3158.00	39.02	3.10	25.43	38.70	39.20	41.10	3157.04	99.97	100.00	135.73
* 110120.000	2010.00	35.77	1.91	21.70	38.70	39.20	41.20	2010.00	100.00	70.00	98.56
* 110120.000	2390.00	37.37	1.97	21.70	38.70	39.20	41.20	2390.00	100.00	70.00	101.81
* 110120.000	3158.00	39.13	2.27	21.70	38.70	39.20	41.20	3157.89	100.00	70.00	108.36
110160.000	2010.00	35.77	1.91	21.70	38.70	39.20	41.20	2010.00	100.00	40.00	98.57
110160.000	2390.00	37.38	1.97	21.70	38.70	39.20	41.20	2390.00	100.00	40.00	101.82
110160.000	3158.00	39.21	2.25	21.70	38.70	39.20	41.20	3158.00	100.00	40.00	105.00
* 110210.000	2010.00	35.75	2.90	21.70	38.70	39.20	42.00	2010.00	100.00	50.00	77.30
* 110210.000	2390.00	37.35	2.91	21.70	38.70	39.20	42.00	2390.00	100.00	50.00	82.75
* 110210.000	3158.00	39.20	2.92	21.70	38.70	39.20	42.00	2855.68	90.43	50.00	1326.78
112659.000	2010.00	36.51	3.36	22.64	39.84	40.74	43.00	2010.00	100.00	2449.00	68.07
112659.000	2390.00	38.03	3.39	22.64	39.84	40.74	43.00	2390.00	100.00	2449.00	73.32
112659.000	3158.00	39.82	3.75	22.64	39.84	40.74	43.00	3158.00	100.00	2449.00	79.51
112719.000	2010.00	36.56	3.00	21.70	41.22	41.17	42.00	2010.00	100.00	60.00	72.60
112719.000	2390.00	38.08	3.04	21.70	41.22	41.17	42.00	2390.00	100.00	60.00	77.64
112719.000	3158.00	39.88	3.40	21.70	41.22	41.17	42.00	3158.00	100.00	60.00	83.62
112769.000	2010.00	36.56	3.28	22.81	39.38	39.52	42.00	2010.00	100.00	50.00	74.84
112769.000	2390.00	38.08	3.27	22.81	39.38	39.52	42.00	2390.00	100.00	50.00	81.21
112769.000	3158.00	39.88	3.57	22.81	39.38	39.52	42.00	3153.76	99.87	50.00	268.61

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
112804.000	2010.00	36.56	3.38	21.31	37.73	40.43	42.00	2010.00	100.00	35.00	71.42
112804.000	2390.00	38.08	3.37	21.31	37.73	40.43	42.00	2389.95	100.00	35.00	80.10
112804.000	3158.00	39.87	3.71	21.31	37.73	40.43	42.00	3152.37	99.82	35.00	100.46
112890.000	2010.00	37.53	4.16	23.00	43.10	42.70	42.70	2010.00	100.00	2680.00	57.88
112890.000	2390.00	38.93	4.21	23.00	43.10	42.70	42.70	2390.00	100.00	2680.00	62.60
112890.000	3158.00	40.74	4.60	23.00	43.10	42.70	42.70	3158.00	100.00	2680.00	68.69
113590.000	2010.00	37.88	3.44	25.00	41.10	41.00	43.10	2010.00	100.00	700.00	60.38
113590.000	2390.00	39.26	3.57	25.00	41.10	41.00	43.10	2390.00	100.00	700.00	63.26
113590.000	3158.00	41.09	3.99	25.00	41.10	41.00	43.10	3145.66	99.61	700.00	414.59
113680.000	2010.00	37.91	3.43	25.00	41.10	41.00	43.10	2010.00	100.00	90.00	60.45
113680.000	2390.00	39.29	3.56	25.00	41.10	41.00	43.10	2390.00	100.00	90.00	63.33
113680.000	3158.00	41.12	3.97	25.00	41.10	41.00	43.10	3143.53	99.54	90.00	422.07
113730.000	2010.00	37.93	3.42	25.00	41.10	41.00	43.10	2010.00	100.00	50.00	60.48
113730.000	2390.00	39.31	3.55	25.00	41.10	41.00	43.10	2390.00	100.00	50.00	63.36
113730.000	3158.00	41.36	3.91	25.00	41.10	41.00	43.10	3158.00	100.00	50.00	67.00
113780.000	2010.00	37.94	3.42	25.00	41.10	41.00	43.10	2010.00	100.00	50.00	60.51
113780.000	2390.00	39.32	3.55	25.00	41.10	41.00	43.10	2390.00	100.00	50.00	63.39
113780.000	3158.00	41.39	3.86	25.00	41.10	41.00	43.10	3123.16	98.90	50.00	450.19
* 115095.000	2010.00	38.27	2.13	22.81	37.02	37.33	43.35	2006.86	99.84	1315.00	145.25
* 115095.000	2390.00	39.64	2.18	22.81	37.02	37.33	43.35	2346.55	98.18	1315.00	428.66
* 115095.000	3158.00	41.73	2.17	22.81	37.02	37.33	43.35	2787.73	88.28	1315.00	1031.60
115190.000	2010.00	38.29	1.91	23.07	37.75	36.96	44.00	1997.52	99.38	95.00	236.67
115190.000	2390.00	39.67	1.91	23.07	37.75	36.96	44.00	2307.40	96.54	95.00	486.57
115190.000	3158.00	41.75	1.89	23.07	37.75	36.96	44.00	2749.33	87.06	95.00	973.54
115260.000	2010.00	38.30	1.91	21.89	36.60	39.10	44.00	2008.48	99.92	70.00	127.65
115260.000	2390.00	39.67	1.97	21.89	36.60	39.10	44.00	2382.04	99.67	70.00	177.35
115260.000	3158.00	41.75	2.06	21.89	36.60	39.10	44.00	2991.87	94.74	70.00	842.48
115332.000	2010.00	38.33	1.58	21.88	37.46	38.24	45.00	2009.14	99.96	72.00	147.00
115332.000	2390.00	39.70	1.63	21.88	37.46	38.24	45.00	2374.54	99.35	72.00	254.35
115332.000	3158.00	41.78	1.72	21.88	37.46	38.24	45.00	2969.01	94.02	72.00	546.51
115760.000	2010.00	38.37	2.05	25.50	36.60	39.10	43.50	2004.89	99.75	428.00	131.83
115760.000	2390.00	39.74	2.09	25.50	36.60	39.10	43.50	2366.20	99.00	428.00	187.57
115760.000	3158.00	41.81	2.18	25.50	36.60	39.10	43.50	2990.41	94.69	428.00	344.76
* 116110.000	2010.00	38.44	2.57	25.50	39.00	39.10	45.40	2010.00	100.00	350.00	116.46
116110.000	2390.00	39.80	2.52	25.50	39.00	39.10	45.40	2390.00	100.00	350.00	123.00
116110.000	3158.00	41.85	2.63	25.50	39.00	39.10	45.40	3158.00	100.00	350.00	123.00
116150.000	2010.00	38.46	2.56	25.50	39.00	39.10	45.00	2010.00	100.00	40.00	116.70
116150.000	2390.00	39.82	2.52	25.50	39.00	39.10	45.00	2390.00	100.00	40.00	123.00
116150.000	3158.00	42.04	2.58	25.50	39.00	39.10	45.00	3158.00	100.00	40.00	123.00

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
* 116254.000	2010.00	38.56	1.60	24.17	43.13	40.39	46.50	2010.00	100.00	104.00	127.92
* 116254.000	2390.00	39.90	1.67	24.17	43.13	40.39	46.50	2390.00	100.00	104.00	132.29
* 116254.000	3158.00	42.13	1.83	24.17	43.13	40.39	46.50	3155.06	99.91	104.00	153.14
* 116309.000	2010.00	38.60	1.05	25.01	42.85	46.31	46.00	2010.00	100.00	55.00	209.42
* 116309.000	2390.00	39.94	1.08	25.01	42.85	46.31	46.00	2390.00	100.00	55.00	222.87
116309.000	3158.00	42.17	1.14	25.01	42.85	46.31	46.00	3158.00	100.00	55.00	274.71
* 116330.000	2010.00	38.57	2.01	25.50	36.60	39.10	45.00	2006.39	99.82	21.00	125.06
* 116330.000	2390.00	39.92	2.06	25.50	36.60	39.10	45.00	2373.09	99.29	21.00	184.49
* 116330.000	3158.00	42.15	2.10	25.50	36.60	39.10	45.00	2963.89	93.85	21.00	403.91
116563.000	2010.00	38.61	2.06	23.51	37.75	39.31	45.00	2008.86	99.94	233.00	103.07
116563.000	2390.00	39.95	2.16	23.51	37.75	39.31	45.00	2366.74	99.03	233.00	244.28
116563.000	3158.00	42.17	2.20	23.51	37.75	39.31	45.00	2834.35	89.75	233.00	621.08
116590.000	2010.00	38.60	2.42	22.80	35.30	36.00	45.00	1997.11	99.36	27.00	99.38
116590.000	2390.00	39.94	2.53	22.80	35.30	36.00	45.00	2355.44	98.55	27.00	109.05
116590.000	3158.00	42.16	2.69	22.80	35.30	36.00	45.00	2980.89	94.39	27.00	257.41
116607.000	2010.00	38.63	2.16	23.88	39.80	40.97	45.00	2010.00	100.00	17.00	100.51
116607.000	2390.00	39.97	2.23	23.88	39.80	40.97	45.00	2390.00	100.00	17.00	106.53
116607.000	3158.00	42.19	2.36	23.88	39.80	40.97	45.00	3096.01	98.04	17.00	275.14
116640.000	2010.00	38.63	1.81	23.28	40.00	40.00	45.00	2010.00	100.00	33.00	106.62
116640.000	2390.00	39.97	1.90	23.28	40.00	40.00	45.00	2390.00	100.00	33.00	114.86
116640.000	3158.00	42.28	1.95	23.28	40.00	40.00	45.00	2971.52	94.09	33.00	610.37
* 116728.000	2010.00	38.64	2.45	22.88	36.54	34.40	45.00	1920.90	95.57	88.00	211.46
116728.000	2390.00	39.99	2.39	22.88	36.54	34.40	45.00	2114.57	88.48	88.00	314.89
116728.000	3158.00	42.29	2.16	22.88	36.54	34.40	45.00	2288.21	72.46	88.00	491.88
* 116960.000	2010.00	38.65	4.53	25.00	37.80	38.20	45.00	2005.12	99.76	232.00	76.50
* 116960.000	2390.00	39.98	4.49	25.00	37.80	38.20	45.00	2331.43	97.55	232.00	109.44
* 116960.000	3158.00	42.31	3.47	25.00	37.80	38.20	45.00	2275.20	72.05	232.00	628.24
* 117660.000	2010.00	39.48	2.73	27.90	39.30	41.70	45.00	2009.96	100.00	700.00	107.15
* 117660.000	2390.00	40.70	2.74	27.90	39.30	41.70	45.00	2374.59	99.36	700.00	184.09
117660.000	3158.00	42.63	2.64	27.90	39.30	41.70	45.00	2856.14	90.44	700.00	425.25
117691.000	2010.00	39.50	2.75	24.87	38.41	41.27	45.00	2002.01	99.60	31.00	112.84
117691.000	2390.00	40.71	2.82	24.87	38.41	41.27	45.00	2333.68	97.64	31.00	152.49
117691.000	3158.00	42.63	2.90	24.87	38.41	41.27	45.00	2871.94	90.94	31.00	313.33
117751.000	2010.00	39.56	2.32	25.43	39.30	41.70	44.50	2010.00	100.00	60.00	104.76
117751.000	2390.00	40.77	2.40	25.43	39.30	41.70	44.50	2390.00	100.00	60.00	108.28
117751.000	3158.00	42.67	2.62	25.43	39.30	41.70	44.50	3158.00	100.00	60.00	111.00
117820.000	2010.00	39.57	2.31	25.43	39.30	41.70	44.70	2010.00	100.00	69.00	104.79
117820.000	2390.00	40.78	2.40	25.43	39.30	41.70	44.70	2390.00	100.00	69.00	108.30
117820.000	3158.00	42.89	2.57	25.43	39.30	41.70	44.70	3158.00	100.00	69.00	111.00



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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
117828.000	2010.00	39.57	2.31	25.43	39.30	41.70	44.70	2009.93	100.00	8.00	107.93
117828.000	2390.00	40.78	2.39	25.43	39.30	41.70	44.70	2384.27	99.76	8.00	125.33
117828.000	3158.00	42.91	2.48	25.43	39.30	41.70	44.70	3051.01	96.61	8.00	721.98
117891.000	2010.00	39.59	2.36	24.64	41.87	41.22	45.00	2010.00	100.00	63.00	95.91
117891.000	2390.00	40.79	2.46	24.64	41.87	41.22	45.00	2390.00	100.00	63.00	101.99
117891.000	3158.00	42.92	2.62	24.64	41.87	41.22	45.00	3137.04	99.34	63.00	236.68
118270.000	2010.00	39.70	2.33	24.64	41.87	41.22	45.00	2010.00	100.00	379.00	96.51
118270.000	2390.00	40.91	2.43	24.64	41.87	41.22	45.00	2390.00	100.00	379.00	102.56
118270.000	3158.00	43.02	2.62	24.64	41.87	41.22	45.00	3158.00	100.00	379.00	106.00
118770.000	2010.00	39.86	2.89	28.60	38.80	38.00	45.00	1998.77	99.44	500.00	125.92
118770.000	2390.00	41.06	2.86	28.60	38.80	38.00	45.00	2291.74	95.89	500.00	278.20
118770.000	3158.00	43.18	2.52	28.60	38.80	38.00	45.00	2499.92	79.16	500.00	579.59
118870.000	2010.00	39.93	2.80	28.60	40.00	41.50	45.00	2010.00	100.00	100.00	121.41
118870.000	2390.00	41.13	2.69	28.60	40.00	41.50	45.00	2390.00	100.00	100.00	157.40
118870.000	3158.00	43.20	2.57	28.60	40.00	41.50	45.00	3158.00	100.00	100.00	166.00
118890.000	2010.00	39.96	2.78	28.60	40.00	41.50	45.10	2010.00	100.00	20.00	122.04
118890.000	2390.00	41.15	2.68	28.60	40.00	41.50	45.10	2390.00	100.00	20.00	157.92
118890.000	3158.00	43.22	2.56	28.60	40.00	41.50	45.10	3158.00	100.00	20.00	166.00
119040.000	2010.00	40.07	2.74	28.60	40.00	41.50	45.10	2009.98	100.00	150.00	132.18
119040.000	2390.00	41.26	2.58	28.60	40.00	41.50	45.10	2340.20	97.92	150.00	292.76
119040.000	3158.00	43.32	2.14	28.60	40.00	41.50	45.10	2669.86	84.54	150.00	603.63
119890.000	2010.00	40.63	3.31	29.00	40.20	39.60	45.20	1954.05	97.22	850.00	367.90
119890.000	2390.00	41.72	2.94	29.00	40.20	39.60	45.20	1996.15	83.52	850.00	872.23
119890.000	3158.00	43.53	1.84	29.00	40.20	39.60	45.20	1519.99	48.13	850.00	1315.54
120250.000	2010.00	40.93	3.64	29.60	37.10	40.00	45.20	1665.87	82.88	360.00	444.06
120250.000	2390.00	41.92	3.00	29.60	37.10	40.00	45.20	1567.39	65.58	360.00	726.07
120250.000	3158.00	43.59	2.00	29.60	37.10	40.00	45.20	1254.64	39.73	360.00	1212.43
* 120460.000	2010.00	41.15	2.13	26.73	38.94	38.79	45.30	1652.82	82.23	210.00	681.45
* 120460.000	2390.00	42.04	1.94	26.73	38.94	38.79	45.30	1648.63	68.98	210.00	917.99
* 120460.000	3158.00	43.63	1.56	26.73	38.94	38.79	45.30	1539.88	48.76	210.00	1341.58
* 120600.000	2010.00	41.10	3.26	26.50	37.10	40.00	45.30	1715.97	85.37	40.00	420.18
* 120600.000	2390.00	42.01	2.93	26.50	37.10	40.00	45.30	1713.20	71.68	40.00	680.37
120600.000	3158.00	43.63	1.93	26.50	37.10	40.00	45.30	1328.77	42.08	40.00	1392.27
* 120604.000	2010.00	41.27	1.30	26.26	42.26	41.89	45.20	2010.00	100.00	104.00	146.75
* 120604.000	2390.00	42.12	1.42	26.26	42.26	41.89	45.20	2378.56	99.52	104.00	386.70
* 120604.000	3158.00	43.64	1.51	26.26	42.26	41.89	45.20	2879.32	91.18	104.00	1094.76
120642.000	2010.00	41.27	1.50	28.00	41.80	42.50	45.30	2010.00	100.00	36.00	162.76
120642.000	2390.00	42.17	1.61	28.00	41.80	42.50	45.30	2390.00	100.00	36.00	164.58
120642.000	3158.00	43.77	1.46	28.00	41.80	42.50	45.30	2544.21	80.56	36.00	1462.76

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
* 120724.000	2010.00	41.31	1.11	27.40	36.65	38.58	45.30	685.58	34.11	82.00	2267.48
* 120724.000	2390.00	42.22	.89	27.40	36.65	38.58	45.30	602.01	25.19	82.00	2873.17
* 120724.000	3158.00	43.80	.66	27.40	36.65	38.58	45.30	506.73	16.05	82.00	3931.29
* 120842.000	2010.00	41.26	3.23	27.50	37.10	40.00	46.00	1673.08	83.24	118.00	346.26
* 120842.000	2390.00	42.18	3.00	27.50	37.10	40.00	46.00	1727.30	72.27	118.00	469.61
* 120842.000	3158.00	43.77	2.56	27.50	37.10	40.00	46.00	1734.76	54.93	118.00	679.96
121322.000	2010.00	41.67	2.77	28.20	41.60	39.10	45.40	1639.16	81.55	480.00	672.33
121322.000	2390.00	42.52	2.37	28.20	41.60	39.10	45.40	1568.36	65.62	480.00	1262.29
* 121322.000	3158.00	43.99	1.65	28.20	41.60	39.10	45.40	1285.92	40.72	480.00	1792.30
* 121401.000	2010.00	41.80	1.34	26.10	37.39	37.37	45.40	933.09	46.42	79.00	1305.23
* 121401.000	2390.00	42.60	1.23	26.10	37.39	37.37	45.40	924.31	38.67	79.00	1529.25
* 121401.000	3158.00	44.02	1.08	26.10	37.39	37.37	45.40	913.78	28.94	79.00	1925.05
* 121422.000	2010.00	41.77	2.71	27.50	38.20	38.20	45.30	1593.19	79.26	21.00	737.92
* 121422.000	2390.00	42.58	2.39	27.50	38.20	38.20	45.30	1533.31	64.16	21.00	1303.87
* 121422.000	3158.00	44.01	1.69	27.50	38.20	38.20	45.30	1247.56	39.50	21.00	2083.69
121432.000	2010.00	41.81	2.10	28.22	41.45	40.29	45.40	1828.32	90.96	10.00	890.92
121432.000	2390.00	42.60	2.00	28.22	41.45	40.29	45.40	1884.93	78.87	10.00	1333.76
121432.000	3158.00	44.01	1.63	28.22	41.45	40.29	45.40	1752.44	55.49	10.00	2141.98
* 121462.000	2010.00	41.95	1.21	26.70	38.20	38.20	45.30	1682.07	83.69	30.00	1030.21
* 121462.000	2390.00	42.81	1.16	26.70	38.20	38.20	45.30	1742.81	72.92	30.00	1590.02
* 121462.000	3158.00	44.03	1.08	26.70	38.20	38.20	45.30	1800.85	57.03	30.00	2485.33
* 121525.000	2010.00	41.95	2.06	26.24	39.50	38.42	45.40	1443.22	71.80	63.00	1240.29
* 121525.000	2390.00	42.81	1.77	26.24	39.50	38.42	45.40	1338.00	55.98	63.00	1679.94
121525.000	3158.00	44.03	1.48	26.24	39.50	38.42	45.40	1237.68	39.19	63.00	2330.80
* 121592.000	2010.00	41.94	2.58	28.20	41.60	39.10	45.40	1583.79	78.80	67.00	990.89
121592.000	2390.00	42.81	2.09	28.20	41.60	39.10	45.40	1432.08	59.92	67.00	1608.49
121592.000	3158.00	44.03	1.55	28.20	41.60	39.10	45.40	1215.50	38.49	67.00	2136.71
122902.000	2010.00	42.47	2.08	30.50	40.20	40.60	45.50	1315.66	65.46	1310.00	1739.20
122902.000	2390.00	43.13	1.66	30.50	40.20	40.60	45.50	1138.03	47.62	1310.00	1991.92
122902.000	3158.00	44.19	1.27	30.50	40.20	40.60	45.50	984.48	31.17	1310.00	2261.85
124522.000	2010.00	42.80	2.08	30.50	40.00	40.60	46.40	1378.64	68.59	1620.00	864.45
124522.000	2390.00	43.36	2.06	30.50	40.00	40.60	46.40	1461.17	61.14	1620.00	1056.41
124522.000	3158.00	44.33	1.99	30.50	40.00	40.60	46.40	1574.55	49.86	1620.00	1300.48
* 125102.000	2010.00	42.75	5.84	32.10	38.00	35.50	46.40	2010.00	100.00	580.00	41.00
* 125102.000	2390.00	43.23	6.57	32.10	38.00	35.50	46.40	2390.00	100.00	580.00	41.00
* 125102.000	3158.00	44.03	7.96	32.10	38.00	35.50	46.40	3158.00	100.00	580.00	41.00
125177.000	2010.00	42.82	5.92	32.50	38.00	35.50	47.00	2010.00	100.00	75.00	41.00
125177.000	2390.00	43.33	6.64	32.50	38.00	35.50	47.00	2390.00	100.00	75.00	41.00
* 125177.000	3158.00	46.40	.88	32.50	38.00	35.50	47.00	429.92	13.61	75.00	3033.95

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
* 125277.000	2024.00	43.52	2.08	32.50	38.00	35.50	47.00	765.74	37.83	100.00	1450.46
* 125277.000	2409.00	44.22	1.76	32.50	38.00	35.50	47.00	700.32	29.07	100.00	1830.61
125277.000	3182.00	46.40	.89	32.50	38.00	35.50	47.00	433.36	13.62	100.00	3033.70
126010.000	2024.00	43.61	1.93	30.86	40.15	40.94	46.90	1070.81	52.91	733.00	1462.90
126010.000	2409.00	44.28	1.76	30.86	40.15	40.94	46.90	1053.16	43.72	733.00	1768.00
126010.000	3182.00	46.42	1.04	30.86	40.15	40.94	46.90	762.63	23.97	733.00	2168.22
* 126047.000	2024.00	43.63	1.27	30.80	39.62	39.51	47.00	1170.63	57.84	37.00	1612.19
* 126047.000	2409.00	44.29	1.23	30.80	39.62	39.51	47.00	1216.03	50.48	37.00	1859.52
126047.000	3182.00	46.42	.86	30.80	39.62	39.51	47.00	1013.96	31.87	37.00	2614.97
126155.000	2024.00	43.64	1.22	31.69	39.62	39.02	46.90	1116.23	55.15	108.00	1642.44
126155.000	2409.00	44.30	1.19	31.69	39.62	39.02	46.90	1163.26	48.29	108.00	1878.30
126155.000	3182.00	46.42	.83	31.69	39.62	39.02	46.90	984.06	30.93	108.00	2203.84
* 126260.000	2024.00	43.62	2.24	31.48	41.14	41.49	47.00	1517.08	74.95	105.00	1243.71
* 126260.000	2409.00	44.28	2.11	31.48	41.14	41.49	47.00	1533.00	63.64	105.00	1583.11
* 126260.000	3182.00	46.42	1.28	31.48	41.14	41.49	47.00	1139.57	35.81	105.00	2202.74
126702.000	2024.00	43.69	2.74	31.50	41.80	41.80	47.00	1553.27	76.74	442.00	1069.37
126702.000	2409.00	44.34	2.57	31.50	41.80	41.80	47.00	1583.20	65.72	442.00	1199.94
126702.000	3182.00	46.43	1.60	31.50	41.80	41.80	47.00	1238.28	38.92	442.00	3485.59
126802.000	2024.00	43.75	2.29	31.50	41.80	41.80	47.00	1628.54	80.46	100.00	1081.20
126802.000	2409.00	44.38	2.24	31.50	41.80	41.80	47.00	1713.91	71.15	100.00	1206.09
126802.000	3182.00	46.44	1.51	31.50	41.80	41.80	47.00	1425.72	44.81	100.00	3502.39
126887.000	2024.00	43.74	2.29	32.10	41.80	41.80	47.00	1837.88	90.80	85.00	745.05
126887.000	2409.00	44.36	2.34	32.10	41.80	41.80	47.00	2011.48	83.50	85.00	945.80
126887.000	3182.00	46.43	1.71	32.10	41.80	41.80	47.00	1780.12	55.94	85.00	1956.48
* 127207.000	2024.00	43.76	3.83	31.50	41.80	41.80	48.00	1968.94	97.28	320.00	257.51
* 127207.000	2409.00	44.37	4.05	31.50	41.80	41.80	48.00	2270.27	94.24	320.00	287.33
* 127207.000	3182.00	46.43	3.08	31.50	41.80	41.80	48.00	2212.61	69.54	320.00	2137.95
* 127998.000	2024.00	44.10	1.60	31.69	39.90	40.93	47.10	1106.78	54.68	791.00	1366.90
* 127998.000	2409.00	44.72	1.57	31.69	39.90	40.93	47.10	1153.90	47.90	791.00	1580.43
* 127998.000	3182.00	46.58	1.12	31.69	39.90	40.93	47.10	987.50	31.03	791.00	2222.25
128044.000	2024.00	44.10	1.60	31.69	39.90	40.93	47.10	1104.43	54.57	46.00	1370.27
128044.000	2409.00	44.72	1.56	31.69	39.90	40.93	47.10	1151.61	47.80	46.00	1583.70
128044.000	3182.00	46.59	1.12	31.69	39.90	40.93	47.10	986.17	30.99	46.00	2224.50
128076.000	2024.00	44.41	1.45	31.69	39.90	40.93	47.10	1033.20	51.05	24.00	1476.95
128076.000	2409.00	45.17	1.34	31.69	39.90	40.93	47.10	1037.11	43.05	24.00	1737.92
128076.000	3182.00	46.59	1.12	31.69	39.90	40.93	47.10	986.13	30.99	24.00	2224.58
128129.000	2024.00	44.42	1.45	31.69	39.90	40.93	47.10	1034.37	51.11	61.00	1475.13
128129.000	2409.00	45.18	1.35	31.69	39.90	40.93	47.10	1038.14	43.09	61.00	1736.63
128129.000	3182.00	46.59	1.12	31.69	39.90	40.93	47.10	986.93	31.02	61.00	2223.21

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
* 128702.000	2024.00	44.36	3.81	33.80	43.50	43.40	47.20	1635.59	80.81	573.00	1031.63
* 128702.000	2409.00	45.16	3.15	33.80	43.50	43.40	47.20	1517.57	63.00	573.00	1406.04
* 128702.000	3182.00	46.59	2.18	33.80	43.50	43.40	47.20	1253.87	39.41	573.00	2078.63
128802.000	2024.00	44.43	3.71	33.80	43.50	43.40	47.20	1606.82	79.39	100.00	1062.96
128802.000	2409.00	45.19	3.12	33.80	43.50	43.40	47.20	1505.28	62.49	100.00	1417.49
128802.000	3182.00	46.61	2.18	33.80	43.50	43.40	47.20	1253.31	39.39	100.00	2079.81
128837.000	2024.00	44.43	3.71	33.80	43.50	43.40	47.20	1606.63	79.38	35.00	1063.15
128837.000	2409.00	45.20	3.09	33.80	43.50	43.40	47.20	1495.69	62.09	35.00	1426.48
128837.000	3182.00	46.61	2.17	33.80	43.50	43.40	47.20	1248.32	39.23	35.00	2092.51
128902.000	2024.00	44.47	3.66	33.80	43.50	43.40	47.20	1592.33	78.67	65.00	1077.53
128902.000	2409.00	45.22	3.08	33.80	43.50	43.40	47.20	1490.41	61.87	65.00	1431.45
128902.000	3182.00	46.61	2.17	33.80	43.50	43.40	47.20	1248.42	39.23	65.00	2092.23
130212.000	2024.00	44.93	5.51	33.40	47.80	48.80	47.80	2024.00	100.00	1310.00	60.67
130212.000	2409.00	45.47	6.02	33.40	47.80	48.80	47.80	2409.00	100.00	1310.00	63.35
* 130212.000	3182.00	46.48	6.82	33.40	47.80	48.80	47.80	3182.00	100.00	1310.00	68.39
130932.000	2024.00	45.19	6.60	33.00	46.50	46.20	48.60	2024.00	100.00	720.00	52.69
130932.000	2409.00	45.75	7.15	33.00	46.50	46.20	48.60	2409.00	100.00	720.00	55.35
130932.000	3182.00	46.79	8.01	33.00	46.50	46.20	48.60	3173.43	99.73	720.00	183.84
* 130993.000	2024.00	45.81	2.81	32.25	46.12	45.50	48.70	2022.34	99.92	61.00	335.82
* 130993.000	2409.00	46.48	3.03	32.25	46.12	45.50	48.70	2366.03	98.22	61.00	1104.21
* 130993.000	3182.00	47.78	2.89	32.25	46.12	45.50	48.70	2603.18	81.81	61.00	2985.61
131029.000	2024.00	45.82	2.82	32.50	45.55	45.94	48.60	2023.97	100.00	236.00	80.86
131029.000	2409.00	46.49	3.12	32.50	45.55	45.94	48.60	2406.59	99.90	236.00	180.87
131029.000	3182.00	47.74	3.60	32.50	45.55	45.94	48.60	3129.95	98.36	236.00	414.86
131032.000	2024.00	45.83	2.81	32.50	45.55	45.94	48.60	2023.97	100.00	103.00	80.92
131032.000	2409.00	46.50	3.12	32.50	45.55	45.94	48.60	2406.51	99.90	103.00	182.33
131032.000	3182.00	47.74	3.60	32.50	45.55	45.94	48.60	3129.44	98.35	103.00	416.29
131055.000	2024.00	45.92	2.79	32.50	45.55	45.94	48.60	2024.00	100.00	23.00	78.97
131055.000	2409.00	46.65	3.07	32.50	45.55	45.94	48.60	2405.80	99.87	23.00	200.94
131055.000	3182.00	47.81	3.57	32.50	45.55	45.94	48.60	3124.84	98.20	23.00	428.82
131098.000	2024.00	45.90	3.20	32.08	45.46	45.58	48.60	2023.41	99.97	43.00	134.43
131098.000	2409.00	46.63	3.49	32.08	45.46	45.58	48.60	2396.86	99.50	43.00	260.97
131098.000	3182.00	47.79	4.00	32.08	45.46	45.58	48.60	3090.21	97.12	43.00	465.30
* 131115.000	2024.00	45.71	6.04	33.00	46.50	46.20	48.60	2024.00	100.00	57.00	55.16
* 131115.000	2409.00	46.42	6.42	33.00	46.50	46.20	48.60	2408.45	99.98	57.00	104.41
* 131115.000	3182.00	47.54	7.08	33.00	46.50	46.20	48.60	3116.57	97.94	57.00	347.82
132995.000	2024.00	47.03	2.39	33.80	42.80	42.40	51.40	1227.17	60.63	1920.00	473.33
* 132995.000	2409.00	47.76	2.29	33.80	42.80	42.40	51.40	1271.56	52.78	1920.00	558.16
* 132995.000	3182.00	48.92	2.15	33.80	42.80	42.40	51.40	1334.05	41.92	1920.00	938.64

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
* 133095.000	2024.00	47.09	1.40	32.00	43.00	43.20	51.40	1582.63	78.19	100.00	484.16
* 133095.000	2409.00	47.80	1.44	32.00	43.00	43.20	51.40	1747.49	72.54	100.00	542.07
* 133095.000	3182.00	48.95	1.53	32.00	43.00	43.20	51.40	2048.78	64.39	100.00	635.35
133119.000	2024.00	47.12	1.39	32.00	43.00	43.20	51.40	1576.85	77.91	24.00	486.98
133119.000	2409.00	47.81	1.44	32.00	43.00	43.20	51.40	1745.56	72.46	24.00	542.93
133119.000	3182.00	48.95	1.53	32.00	43.00	43.20	51.40	2049.03	64.39	24.00	635.26
133154.000	2024.00	47.12	1.53	31.91	41.67	40.92	51.40	1141.19	56.38	35.00	560.39
133154.000	2409.00	47.82	1.54	31.91	41.67	40.92	51.40	1222.99	50.77	35.00	619.55
133154.000	3182.00	48.95	1.59	31.91	41.67	40.92	51.40	1379.41	43.35	35.00	716.49
* 133184.000	2024.00	47.11	2.29	32.80	42.80	42.40	51.40	1227.22	60.63	65.00	484.17
* 133184.000	2409.00	47.81	2.22	32.80	42.80	42.40	51.40	1280.11	53.14	65.00	566.34
* 133184.000	3182.00	48.95	2.10	32.80	42.80	42.40	51.40	1348.98	42.39	65.00	960.83
134734.000	2024.00	47.54	2.25	33.70	45.20	43.60	51.50	1177.20	58.16	1550.00	542.75
134734.000	2409.00	48.18	2.18	33.70	45.20	43.60	51.50	1223.24	50.78	1550.00	631.78
134734.000	3182.00	49.24	2.06	33.70	45.20	43.60	51.50	1281.53	40.27	1550.00	902.44
* 135429.000	2024.00	47.65	1.07	33.34	41.97	43.12	51.50	888.44	43.90	695.00	1157.30
* 135429.000	2409.00	48.28	1.06	33.34	41.97	43.12	51.50	936.93	38.89	695.00	1290.61
* 135429.000	3182.00	49.32	1.06	33.34	41.97	43.12	51.50	1025.76	32.24	695.00	1513.35
135559.000	2024.00	47.66	1.07	33.34	41.97	43.12	51.50	886.29	43.79	110.00	1159.90
135559.000	2409.00	48.28	1.06	33.34	41.97	43.12	51.50	935.05	38.81	110.00	1292.89
135559.000	3182.00	49.32	1.06	33.34	41.97	43.12	51.50	1023.52	32.17	110.00	1516.09
135552.000	2024.00	47.66	1.07	33.34	41.97	43.12	51.50	887.35	43.84	13.00	1158.61
135552.000	2409.00	48.28	1.06	33.34	41.97	43.12	51.50	935.93	38.85	13.00	1291.81
135552.000	3182.00	49.32	1.06	33.34	41.97	43.12	51.50	1024.89	32.21	13.00	1514.42
135587.000	2024.00	47.66	1.07	33.34	41.97	43.12	51.50	887.06	43.83	35.00	1158.97
135587.000	2409.00	48.28	1.06	33.34	41.97	43.12	51.50	935.67	38.84	35.00	1292.14
135587.000	3182.00	49.32	1.06	33.34	41.97	43.12	51.50	1024.65	32.20	35.00	1514.71
135651.000	2024.00	47.66	1.07	33.34	41.97	43.12	51.50	886.51	43.80	64.00	1159.63
135651.000	2409.00	48.29	1.06	33.34	41.97	43.12	51.50	935.16	38.82	64.00	1292.74
135651.000	3182.00	49.33	1.06	33.34	41.97	43.12	51.50	1024.21	32.19	64.00	1515.25
135708.000	2024.00	47.67	1.07	33.34	41.97	43.12	51.50	886.02	43.78	57.00	1160.23
135708.000	2409.00	48.29	1.06	33.34	41.97	43.12	51.50	934.71	38.80	57.00	1293.30
135708.000	3182.00	49.33	1.06	33.34	41.97	43.12	51.50	1023.81	32.17	57.00	1515.74
135716.000	2024.00	47.67	1.07	33.34	41.97	43.12	51.50	885.95	43.77	8.00	1160.31
135716.000	2409.00	48.29	1.06	33.34	41.97	43.12	51.50	934.65	38.80	8.00	1293.37
135716.000	3182.00	49.33	1.06	33.34	41.97	43.12	51.50	1023.75	32.17	8.00	1515.81
135762.000	2024.00	47.67	1.06	33.34	41.97	43.12	51.50	885.48	43.75	76.00	1160.89
135762.000	2409.00	48.29	1.06	33.34	41.97	43.12	51.50	934.21	38.78	76.00	1293.90
135762.000	3182.00	49.33	1.06	33.34	41.97	43.12	51.50	1023.37	32.16	76.00	1516.27

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
* 135889.000	2024.00	47.56	3.57	35.70	45.90	47.00	50.10	1911.57	94.45	127.00	279.54
* 135889.000	2409.00	48.18	3.70	35.70	45.90	47.00	50.10	2123.58	88.15	127.00	401.03
* 135889.000	3182.00	49.24	3.67	35.70	45.90	47.00	50.10	2354.43	73.99	127.00	608.47
135989.000	2024.00	47.63	3.66	35.70	42.90	43.80	50.10	1861.66	91.98	100.00	292.73
135989.000	2409.00	48.24	3.80	35.70	42.90	43.80	50.10	2055.85	85.34	100.00	413.99
135989.000	3182.00	49.29	3.80	35.70	42.90	43.80	50.10	2264.86	71.18	100.00	619.56
136007.000	2024.00	48.11	3.79	35.70	42.90	43.80	50.10	2024.00	100.00	18.00	52.00
136007.000	2409.00	48.73	3.36	35.70	42.90	43.80	50.10	1902.56	78.98	18.00	509.64
136007.000	3182.00	49.47	3.62	35.70	42.90	43.80	50.10	2187.76	68.75	18.00	653.68
136057.000	2024.00	48.27	3.04	35.70	45.90	47.00	50.10	1762.79	87.09	50.00	418.22
136057.000	2409.00	48.77	3.17	35.70	45.90	47.00	50.10	1940.57	80.56	50.00	516.22
136057.000	3182.00	49.51	3.40	35.70	45.90	47.00	50.10	2236.10	70.27	50.00	662.38
* 137017.000	2024.00	48.53	1.14	35.10	43.00	44.80	50.40	703.96	34.78	960.00	1082.32
* 137017.000	2409.00	49.03	1.14	35.10	43.00	44.80	50.40	739.59	30.70	960.00	1231.00
* 137017.000	3182.00	49.77	1.18	35.10	43.00	44.80	50.40	821.07	25.80	960.00	1438.83
137076.000	2024.00	48.52	1.68	33.85	42.24	42.40	50.40	1196.01	59.09	59.00	446.14
137076.000	2409.00	49.03	1.80	33.85	42.24	42.40	50.40	1343.73	55.78	59.00	477.10
* 137076.000	3182.00	49.76	2.07	33.85	42.24	42.40	50.40	1634.21	51.36	59.00	522.58
137097.000	2024.00	48.53	1.63	33.48	41.76	42.30	51.00	1210.32	59.80	21.00	424.81
137097.000	2409.00	49.03	1.77	33.48	41.76	42.30	51.00	1365.81	56.70	21.00	452.61
137097.000	3182.00	49.76	2.04	33.48	41.76	42.30	51.00	1671.24	52.52	21.00	493.45
* 137107.000	2024.00	48.50	2.44	35.10	48.30	48.30	51.00	1680.21	83.01	10.00	893.96
* 137107.000	2409.00	49.02	2.31	35.10	48.30	48.30	51.00	1704.03	70.74	10.00	1166.53
137107.000	3182.00	49.77	2.14	35.10	48.30	48.30	51.00	1729.48	54.35	10.00	1400.40
* 137134.000	2024.00	48.63	1.79	34.17	48.30	48.30	51.00	1976.56	97.66	27.00	522.68
* 137134.000	2409.00	49.07	1.69	34.17	48.30	48.30	51.00	1953.82	81.10	27.00	1188.18
* 137134.000	3182.00	49.78	1.75	34.17	48.30	48.30	51.00	2167.24	68.11	27.00	1402.95
* 137202.000	2024.00	48.69	.97	32.11	41.61	44.17	51.00	753.45	37.23	68.00	1203.88
* 137202.000	2409.00	49.11	1.02	32.11	41.61	44.17	51.00	822.37	34.14	68.00	1312.83
* 137202.000	3182.00	49.82	1.11	32.11	41.61	44.17	51.00	945.09	29.70	68.00	1496.12
* 137209.000	2024.00	48.65	2.48	32.50	48.30	44.80	51.00	1622.59	80.17	7.00	939.45
* 137209.000	2409.00	49.08	2.46	32.50	48.30	44.80	51.00	1674.33	69.50	7.00	1194.24
* 137209.000	3182.00	49.80	2.31	32.50	48.30	44.80	51.00	1680.96	52.83	7.00	1407.03
* 139689.000	2024.00	48.97	1.02	35.20	45.10	45.10	51.00	850.39	42.02	2480.00	1002.53
* 139689.000	2409.00	49.39	1.07	35.20	45.10	45.10	51.00	924.64	38.38	2480.00	1113.28
* 139689.000	3182.00	50.08	1.16	35.20	45.10	45.10	51.00	1061.28	33.35	2480.00	1301.55
140189.000	2024.00	48.99	1.02	35.20	45.10	45.10	51.00	846.77	41.84	500.00	1005.19
140189.000	2409.00	49.41	1.06	35.20	45.10	45.10	51.00	920.66	38.22	500.00	1118.94
140189.000	3182.00	50.11	1.15	35.20	45.10	45.10	51.00	1056.81	33.21	500.00	1306.66

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
140254.000	2024.00	48.99	1.24	33.20	44.55	44.03	51.00	1115.61	55.12	65.00	984.66
140254.000	2409.00	49.41	1.32	33.20	44.55	44.03	51.00	1227.36	50.95	65.00	1065.81
140254.000	3182.00	50.11	1.44	33.20	44.55	44.03	51.00	1417.50	44.55	65.00	1180.00
140289.000	2024.00	49.00	1.13	35.20	39.50	40.50	51.00	713.52	35.25	35.00	1005.46
140289.000	2409.00	49.42	1.18	35.20	39.50	40.50	51.00	769.61	31.95	35.00	1119.52
140289.000	3182.00	50.12	1.27	35.20	39.50	40.50	51.00	872.65	27.42	35.00	1321.82
140292.000	2024.00	49.00	1.27	33.24	44.68	44.35	51.00	1208.22	59.69	3.00	978.41
140292.000	2409.00	49.41	1.35	33.24	44.68	44.35	51.00	1330.76	55.24	3.00	1062.82
140292.000	3182.00	50.11	1.47	33.24	44.68	44.35	51.00	1536.75	48.29	3.00	1180.00
140310.000	2024.00	49.04	1.00	33.72	44.40	45.60	51.00	813.95	40.21	18.00	1018.76
140310.000	2409.00	49.46	1.05	33.72	44.40	45.60	51.00	881.74	36.60	18.00	1136.54
140310.000	3182.00	50.17	1.13	33.72	44.40	45.60	51.00	1006.67	31.64	18.00	1343.15
140370.000	2024.00	49.04	1.00	35.20	45.10	45.10	51.00	837.60	41.38	60.00	1017.29
140370.000	2409.00	49.47	1.05	35.20	45.10	45.10	51.00	909.50	37.75	60.00	1135.00
140370.000	3182.00	50.18	1.13	35.20	45.10	45.10	51.00	1042.28	32.76	60.00	1323.50
140396.000	2024.00	49.04	.84	34.59	44.67	44.06	51.00	691.10	34.15	26.00	1484.34
140396.000	2409.00	49.47	.86	34.59	44.67	44.06	51.00	733.69	30.46	26.00	1613.28
140396.000	3182.00	50.18	.88	34.59	44.67	44.06	51.00	800.31	25.15	26.00	1774.00
142150.000	2024.00	49.10	.64	36.60	45.70	45.40	51.00	498.02	24.61	1754.00	1385.77
142150.000	2409.00	49.53	.65	36.60	45.70	45.40	51.00	532.21	22.09	1754.00	1434.22
142150.000	3182.00	50.24	.69	36.60	45.70	45.40	51.00	599.48	18.84	1754.00	1610.79
142400.000	2024.00	49.11	.82	36.60	45.70	45.40	51.00	695.11	34.34	250.00	1021.01
142400.000	2409.00	49.54	.84	36.60	45.70	45.40	51.00	751.99	31.22	250.00	1098.20
142400.000	3182.00	50.25	.89	36.60	45.70	45.40	51.00	849.47	26.70	250.00	1533.40
142500.000	2024.00	49.11	.81	36.60	45.70	45.40	51.00	694.61	34.32	100.00	1021.31
142500.000	2409.00	49.54	.84	36.60	45.70	45.40	51.00	751.47	31.19	100.00	1100.46
142500.000	3182.00	50.25	.89	36.60	45.70	45.40	51.00	848.83	26.68	100.00	1534.41
142530.000	2024.00	49.11	.81	36.78	45.70	45.40	51.00	691.25	34.15	.00	1021.92
142530.000	2409.00	49.54	.84	36.78	45.70	45.40	51.00	747.69	31.04	.00	1105.57
142530.000	3182.00	50.25	.88	36.78	45.70	45.40	51.00	844.41	26.54	.00	1536.76
142580.000	2024.00	49.12	.81	36.78	45.70	45.40	51.00	691.81	34.18	50.00	1021.58
142580.000	2409.00	49.54	.84	36.78	45.70	45.40	51.00	748.38	31.07	50.00	1102.59
142580.000	3182.00	50.25	.88	36.78	45.70	45.40	51.00	845.32	26.57	50.00	1535.31
* 145110.000	2024.00	49.33	2.34	37.50	46.80	47.70	52.10	1467.45	72.50	2530.00	460.47
* 145110.000	2409.00	49.76	2.39	37.50	46.80	47.70	52.10	1579.22	65.55	2530.00	501.52
* 145110.000	3182.00	50.47	2.48	37.50	46.80	47.70	52.10	1778.46	55.89	2530.00	569.65
145590.000	2024.00	49.53	2.18	37.50	46.80	47.70	52.10	1398.67	69.10	480.00	479.91
145590.000	2409.00	49.95	2.24	37.50	46.80	47.70	52.10	1509.41	62.66	480.00	520.35
145590.000	3182.00	50.65	2.34	37.50	46.80	47.70	52.10	1708.03	53.68	480.00	587.79

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMK	QCH	QCHP	XLCH	TOPWID
145690.000	2024.00	49.57	2.13	37.70	46.00	44.00	52.10	1266.09	62.55	100.00	483.83
145690.000	2409.00	49.99	2.20	37.70	46.00	44.00	52.10	1364.49	56.64	100.00	524.19
145690.000	3182.00	50.69	2.31	37.70	46.00	44.00	52.10	1541.80	48.45	100.00	591.53
* 145710.000	2024.00	49.90	3.29	37.70	46.00	44.00	52.30	2024.00	100.00	20.00	65.00
* 145710.000	2409.00	50.48	3.69	37.70	46.00	44.00	52.30	2409.00	100.00	20.00	65.00
145710.000	3182.00	51.69	2.39	37.70	46.00	44.00	52.30	1746.93	54.90	20.00	433.33
* 145760.000	2024.00	50.09	1.79	37.50	46.80	47.70	52.30	1228.54	60.70	50.00	533.79
* 145760.000	2409.00	50.74	1.72	37.50	46.80	47.70	52.30	1270.54	52.74	50.00	595.76
145760.000	3182.00	51.74	1.66	37.50	46.80	47.70	52.30	1357.68	42.67	50.00	783.47
148335.000	2024.00	50.54	1.38	38.50	45.90	46.60	52.80	817.34	40.38	2575.00	786.37
148335.000	2409.00	51.12	1.33	38.50	45.90	46.60	52.80	832.27	34.55	2575.00	876.74
148335.000	3182.00	52.06	1.28	38.50	45.90	46.60	52.80	872.99	27.44	2575.00	1037.05
148392.000	2024.00	50.55	1.44	36.54	44.72	44.70	52.80	1110.77	54.88	57.00	1009.41
148392.000	2409.00	51.13	1.40	36.54	44.72	44.70	52.80	1137.24	47.21	57.00	1642.51
148392.000	3182.00	52.07	1.24	36.54	44.72	44.70	52.80	1090.86	34.28	57.00	2600.00
148431.000	2024.00	50.55	1.44	36.54	44.72	44.70	52.80	1110.97	54.89	39.00	1008.55
148431.000	2409.00	51.13	1.40	36.54	44.72	44.70	52.80	1137.17	47.20	39.00	1642.76
148431.000	3182.00	52.07	1.24	36.54	44.72	44.70	52.80	1088.55	34.21	39.00	2600.00
148435.000	2024.00	50.56	1.19	36.60	47.20	47.00	52.80	1089.78	53.84	4.00	789.28
148435.000	2409.00	51.13	1.17	36.60	47.20	47.00	52.80	1145.58	47.55	4.00	878.11
148435.000	3182.00	52.07	1.15	36.60	47.20	47.00	52.80	1247.11	39.19	4.00	1039.23
148466.000	2024.00	50.61	1.17	36.92	47.20	47.00	52.80	1068.96	52.81	31.00	798.57
148466.000	2409.00	51.16	1.16	36.92	47.20	47.00	52.80	1130.71	46.94	31.00	883.12
148466.000	3182.00	52.08	1.15	36.92	47.20	47.00	52.80	1236.16	38.85	31.00	1041.21
148499.000	2024.00	50.61	1.31	36.66	44.66	44.36	52.80	974.58	48.15	33.00	592.19
148499.000	2409.00	51.16	1.34	36.66	44.66	44.36	52.80	1045.15	43.39	33.00	705.78
148499.000	3182.00	52.08	1.38	36.66	44.66	44.36	52.80	1162.89	36.55	33.00	880.00
148536.000	2024.00	50.61	1.34	38.50	45.90	46.60	52.80	800.17	39.53	37.00	798.24
148536.000	2409.00	51.16	1.31	38.50	45.90	46.60	52.80	824.12	34.21	37.00	882.71
148536.000	3182.00	52.09	1.27	38.50	45.90	46.60	52.80	868.82	27.30	37.00	1040.63
* 149986.000	2024.00	50.72	.85	38.60	46.60	46.80	52.80	538.38	26.60	1450.00	1369.85
* 149986.000	2409.00	51.26	.81	38.60	46.60	46.80	52.80	542.19	22.51	1450.00	1614.04
* 149986.000	3182.00	52.16	.76	38.60	46.60	46.80	52.80	555.92	17.47	1450.00	1719.00
* 151436.000	2024.00	50.82	1.63	38.80	45.50	47.00	52.90	905.80	44.75	1450.00	891.55
* 151436.000	2409.00	51.34	1.55	38.80	45.50	47.00	52.90	912.50	37.88	1450.00	1169.88
* 151436.000	3182.00	52.22	1.40	38.80	45.50	47.00	52.90	903.60	28.40	1450.00	2055.77
151536.000	2024.00	50.84	1.74	38.80	43.50	47.00	52.90	705.66	34.86	100.00	904.26
151536.000	2409.00	51.36	1.64	38.80	43.50	47.00	52.90	699.62	29.04	100.00	1189.86
151536.000	3182.00	52.24	1.46	38.80	43.50	47.00	52.90	676.51	21.26	100.00	2088.95



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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
151561.000	2024.00	50.82	2.13	38.80	43.50	47.00	52.90	1052.86	52.02	25.00	405.73
151561.000	2409.00	51.36	1.35	38.80	43.50	47.00	52.90	703.51	29.20	25.00	1462.55
151561.000	3182.00	52.24	1.21	38.80	43.50	47.00	52.90	682.07	21.44	25.00	2557.63
* 151671.000	2024.00	50.88	1.31	38.80	45.50	47.00	52.90	894.08	44.17	110.00	1122.13
151671.000	2409.00	51.37	1.26	38.80	45.50	47.00	52.90	907.02	37.65	110.00	1448.00
151671.000	3182.00	52.25	1.14	38.80	45.50	47.00	52.90	901.90	28.34	110.00	2522.23
155071.000	1815.00	51.14	1.30	38.80	45.50	47.00	52.90	916.26	50.48	3400.00	1290.18
155071.000	2143.00	51.60	1.29	38.80	45.50	47.00	52.90	952.23	44.43	3400.00	1596.17
155071.000	2836.00	52.43	1.24	38.80	45.50	47.00	52.90	994.38	35.06	3400.00	2633.27
* 156221.000	1815.00	51.19	2.78	39.50	55.30	53.10	53.10	1815.00	100.00	1150.00	132.77
* 156221.000	2143.00	51.64	2.99	39.50	55.30	53.10	53.10	2143.00	100.00	1150.00	144.22
* 156221.000	2836.00	52.42	3.39	39.50	55.30	53.10	53.10	2836.00	100.00	1150.00	164.28
158491.000	1815.00	52.18	2.60	39.90	52.20	51.30	53.90	1529.98	84.30	2270.00	729.13
* 158491.000	2143.00	52.63	2.51	39.90	52.20	51.30	53.90	1580.07	73.73	2270.00	740.44
* 158491.000	2836.00	53.42	2.39	39.90	52.20	51.30	53.90	1683.61	59.37	2270.00	774.00
* 160875.000	1815.00	52.74	1.66	41.70	53.08	49.77	55.00	1529.63	84.28	2384.00	589.40
160875.000	2143.00	53.17	1.72	41.70	53.08	49.77	55.00	1696.97	79.19	2384.00	782.20
160875.000	2836.00	53.88	1.80	41.70	53.08	49.77	55.00	1974.17	69.61	2384.00	1793.37
* 160951.000	1815.00	52.69	3.10	40.20	50.70	50.30	55.30	1492.26	82.22	76.00	382.25
* 160951.000	2143.00	53.13	3.12	40.20	50.70	50.30	55.30	1601.63	74.74	76.00	900.77
* 160951.000	2836.00	53.86	2.92	40.20	50.70	50.30	55.30	1654.81	58.35	76.00	1003.46
161051.000	1815.00	52.73	3.34	40.20	50.40	50.30	55.30	1441.05	79.40	100.00	386.10
161051.000	2143.00	53.16	3.37	40.20	50.40	50.30	55.30	1530.09	71.40	100.00	934.65
161051.000	2836.00	53.89	3.17	40.20	50.40	50.30	55.30	1558.93	54.97	100.00	1003.85
161071.000	1815.00	52.85	3.21	40.20	50.40	50.30	55.30	1404.25	77.37	20.00	401.81
161071.000	2143.00	53.22	3.28	40.20	50.40	50.30	55.30	1498.46	69.92	20.00	988.19
161071.000	2836.00	53.92	3.11	40.20	50.40	50.30	55.30	1537.42	54.21	20.00	1004.49
161151.000	1815.00	52.88	3.17	40.20	50.40	50.30	55.30	1394.83	76.85	80.00	405.88
161151.000	2143.00	53.26	3.23	40.20	50.40	50.30	55.30	1483.35	69.22	80.00	990.50
161151.000	2836.00	53.95	3.07	40.20	50.40	50.30	55.30	1523.85	53.73	80.00	1004.90
* 161267.000	1815.00	52.99	1.91	41.04	51.06	50.44	55.00	1612.22	88.83	116.00	473.01
* 161267.000	2143.00	53.35	2.07	41.04	51.06	50.44	55.00	1828.35	85.32	116.00	531.74
161267.000	2836.00	53.99	2.35	41.04	51.06	50.44	55.00	2235.26	78.82	116.00	634.85
164431.000	1815.00	53.36	1.41	44.40	50.40	51.10	54.70	712.71	39.27	3164.00	1521.40
164431.000	2143.00	53.72	1.37	44.40	50.40	51.10	54.70	724.27	33.80	3164.00	1652.36
* 164431.000	2836.00	54.36	1.31	44.40	50.40	51.10	54.70	757.59	26.71	3164.00	1854.68
* 164474.000	1815.00	53.32	2.95	45.20	50.81	51.80	55.00	1411.56	77.77	43.00	712.85
* 164474.000	2143.00	53.69	2.97	45.20	50.81	51.80	55.00	1504.43	70.20	43.00	850.58
* 164474.000	2836.00	54.33	2.94	45.20	50.81	51.80	55.00	1632.41	57.56	43.00	1096.87

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
* 164530.000	1815.00	53.46	1.00	44.88	45.66	51.76	55.00	453.96	25.01	56.00	698.13
* 164530.000	2143.00	53.81	1.09	44.88	45.66	51.76	55.00	519.80	24.26	56.00	849.03
* 164530.000	2836.00	54.43	1.25	44.88	45.66	51.76	55.00	646.88	22.81	56.00	1145.11
164581.000	1815.00	53.46	1.57	44.40	45.00	44.40	54.80	462.49	25.48	51.00	1559.16
164581.000	2143.00	53.81	1.53	44.40	45.00	44.40	54.80	466.04	21.75	51.00	1688.96
164581.000	2836.00	54.44	1.48	44.40	45.00	44.40	54.80	482.04	17.00	51.00	1874.35
164602.000	1815.00	53.46	1.58	44.40	45.00	44.40	54.80	462.75	25.50	21.00	1558.73
164602.000	2143.00	53.81	1.53	44.40	45.00	44.40	54.80	466.97	21.79	21.00	1687.24
164602.000	2836.00	54.44	1.48	44.40	45.00	44.40	54.80	481.96	16.99	21.00	1874.46
* 164642.000	1815.00	53.44	1.90	45.38	53.83	53.06	55.00	1811.09	99.78	40.00	276.30
* 164642.000	2143.00	53.79	2.11	45.38	53.83	53.06	55.00	2119.39	98.90	40.00	393.06
* 164642.000	2836.00	54.40	2.45	45.38	53.83	53.06	55.00	2685.42	94.69	40.00	844.10
* 164677.000	1815.00	53.50	1.30	44.40	50.40	51.10	57.00	670.17	36.92	35.00	1573.02
* 164677.000	2143.00	53.86	1.26	44.40	50.40	51.10	57.00	684.23	31.93	35.00	1705.42
* 164677.000	2836.00	54.51	1.22	44.40	50.40	51.10	57.00	721.45	25.44	35.00	1890.63
166187.000	1815.00	53.61	1.28	42.90	52.00	52.30	55.80	585.45	32.26	1510.00	1211.09
166187.000	2143.00	53.96	1.29	42.90	52.00	52.30	55.80	619.71	28.92	1510.00	1281.85
166187.000	2836.00	54.59	1.32	42.90	52.00	52.30	55.80	687.69	24.25	1510.00	1374.36
166357.000	1815.00	53.62	1.57	42.90	46.00	44.80	55.80	448.46	24.71	170.00	1214.13
166357.000	2143.00	53.97	1.57	42.90	46.00	44.80	55.80	466.55	21.77	170.00	1283.53
166357.000	2836.00	54.60	1.59	42.90	46.00	44.80	55.80	503.14	17.74	170.00	1375.83
166382.000	1815.00	53.63	1.15	42.90	46.00	44.80	55.80	360.05	19.84	25.00	1718.17
166382.000	2143.00	53.98	1.15	42.90	46.00	44.80	55.80	372.31	17.37	25.00	1816.05
166382.000	2836.00	54.61	1.16	42.90	46.00	44.80	55.80	398.37	14.05	25.00	1946.87
166492.000	1815.00	53.63	1.26	42.90	52.00	52.30	55.80	581.06	32.01	110.00	1216.99
166492.000	2143.00	53.98	1.27	42.90	52.00	52.30	55.80	615.36	28.71	110.00	1285.25
166492.000	2836.00	54.61	1.30	42.90	52.00	52.30	55.80	683.84	24.11	110.00	1377.60
168042.000	1815.00	53.76	1.64	44.00	51.00	51.60	55.10	723.44	39.86	1550.00	1651.92
168042.000	2143.00	54.10	1.55	44.00	51.00	51.60	55.10	714.55	33.34	1550.00	1720.30
168042.000	2836.00	54.71	1.44	44.00	51.00	51.60	55.10	723.13	25.50	1550.00	1825.10
* 170362.000	1815.00	54.15	5.18	45.50	52.60	52.10	55.80	1788.14	98.52	2320.00	80.73
* 170362.000	2143.00	54.34	5.90	45.50	52.60	52.10	55.80	2101.70	98.07	2320.00	136.89
* 170362.000	2836.00	54.69	7.24	45.50	52.60	52.10	55.80	2723.88	96.05	2320.00	282.26
* 170512.000	1266.00	54.26	7.69	47.00	54.60	54.60	55.30	1266.00	100.00	150.00	40.00
* 170512.000	1523.00	54.46	8.81	47.00	54.60	54.60	55.30	1523.00	100.00	150.00	40.00
* 170512.000	2039.00	54.81	10.95	47.00	54.60	54.60	55.30	2039.00	100.00	150.00	40.00
* 170550.000	1266.00	55.58	5.82	47.00	54.60	54.60	57.00	1266.00	100.00	38.00	40.00
* 170550.000	1523.00	56.69	1.43	47.00	54.60	54.60	57.00	373.40	24.52	38.00	1483.35
* 170550.000	2039.00	56.91	1.73	47.00	54.60	54.60	57.00	468.14	22.96	38.00	1498.60

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMK	QCH	QCHP	XLCH	TOPWID
* 170650.000	1266.00	56.24	1.78	45.50	52.60	54.10	57.00	819.82	64.76	100.00	931.15
* 170650.000	1523.00	56.69	1.70	45.50	52.60	54.10	57.00	828.09	54.37	100.00	1031.53
* 170650.000	2039.00	56.90	2.05	45.50	52.60	54.10	57.00	1020.40	50.04	100.00	1081.37
173120.000	1266.00	56.61	2.10	47.10	53.30	53.60	57.30	751.05	59.32	2470.00	750.97
173120.000	1523.00	57.00	2.08	47.10	53.30	53.60	57.30	789.73	51.85	2470.00	887.82
173120.000	2039.00	57.32	2.34	47.10	53.30	53.60	57.30	932.26	45.72	2470.00	899.81
173220.000	1266.00	56.62	2.65	47.10	52.50	55.30	57.30	811.05	64.06	100.00	721.37
173220.000	1523.00	57.01	2.59	47.10	52.50	55.30	57.30	841.74	55.27	100.00	888.60
173220.000	2039.00	57.33	2.86	47.10	52.50	55.30	57.30	971.78	47.66	100.00	900.53
173250.000	1266.00	56.97	2.24	47.10	52.50	55.30	57.60	722.17	57.04	30.00	836.24
173250.000	1523.00	57.29	2.25	47.10	52.50	55.30	57.60	758.30	49.79	30.00	898.73
173250.000	2039.00	57.61	2.50	47.10	52.50	55.30	57.60	881.94	43.25	30.00	910.81
173300.000	1266.00	57.00	1.74	47.10	53.30	53.60	57.60	662.12	52.30	50.00	860.06
173300.000	1523.00	57.32	1.79	47.10	53.30	53.60	57.60	710.58	46.66	50.00	899.54
173300.000	2039.00	57.64	2.03	47.10	53.30	53.60	57.60	844.23	41.40	50.00	911.70
* 175420.000	1266.00	57.49	5.36	49.60	58.10	58.10	59.70	1266.00	100.00	2120.00	48.15
* 175420.000	1523.00	57.73	6.14	49.60	58.10	58.10	59.70	1523.00	100.00	2120.00	49.30
* 175420.000	2039.00	58.03	7.75	49.60	58.10	58.10	59.70	2039.00	100.00	2120.00	50.69
175520.000	1266.00	57.80	4.70	46.03	58.10	58.10	59.70	1266.00	100.00	100.00	49.61
175520.000	1523.00	58.15	5.30	46.03	58.10	58.10	59.70	1520.22	99.82	100.00	336.37
* 175520.000	2039.00	59.16	4.23	46.03	58.10	58.10	59.70	1428.64	70.07	100.00	841.26
175542.000	1266.00	57.81	4.69	46.03	58.10	58.10	59.70	1266.00	100.00	22.00	49.67
175542.000	1523.00	58.17	5.27	46.03	58.10	58.10	59.70	1518.17	99.68	22.00	349.24
175542.000	2039.00	59.16	4.20	46.03	58.10	58.10	59.70	1421.26	69.70	22.00	844.19
175592.000	1266.00	57.87	4.96	49.60	58.10	58.10	59.70	1266.00	100.00	50.00	49.99
175592.000	1523.00	58.25	5.47	49.60	58.10	58.10	59.70	1502.17	98.63	50.00	408.09
175592.000	2039.00	59.22	4.23	49.60	58.10	58.10	59.70	1366.33	67.01	50.00	857.76
* 176592.000	1266.00	58.56	2.01	48.30	55.30	54.60	60.00	773.59	61.11	1000.00	405.75
* 176592.000	1523.00	59.02	2.09	48.30	55.30	54.60	60.00	854.34	56.10	1000.00	449.42
* 176592.000	2039.00	59.64	2.33	48.30	55.30	54.60	60.00	1026.09	50.32	1000.00	506.52
176692.000	1266.00	58.57	2.18	48.30	51.30	50.50	60.00	668.07	52.77	100.00	407.48
176692.000	1523.00	59.03	2.28	48.30	51.30	50.50	60.00	733.55	48.16	100.00	450.30
176692.000	2039.00	59.65	2.55	48.30	51.30	50.50	60.00	871.91	42.76	100.00	507.67
176712.000	1266.00	58.57	2.18	48.30	51.30	50.50	60.00	668.02	52.77	20.00	407.52
176712.000	1523.00	59.03	2.28	48.30	51.30	50.50	60.00	733.48	48.16	20.00	450.34
176712.000	2039.00	59.65	2.55	48.30	51.30	50.50	60.00	871.91	42.76	20.00	507.67
176772.000	1266.00	58.59	1.99	48.30	55.30	54.60	60.00	769.67	60.80	60.00	408.32
176772.000	1523.00	59.05	2.08	48.30	55.30	54.60	60.00	851.47	55.91	60.00	451.16
176772.000	2039.00	59.66	2.32	48.30	55.30	54.60	60.00	1022.12	50.13	60.00	508.61

## Mustang Bayou Rev.Exist. Multi-Profile MUSTANGX.IH2

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
179772.000	1266.00	59.20	2.31	49.40	57.80	57.30	61.10	762.14	60.20	3000.00	700.32
179772.000	1523.00	59.62	2.19	49.40	57.80	57.30	61.10	771.22	50.64	3000.00	782.58
179772.000	2039.00	60.23	2.13	49.40	57.80	57.30	61.10	818.40	40.14	3000.00	927.16
179872.000	1266.00	59.22	2.71	49.40	53.50	52.70	61.10	636.86	50.30	100.00	704.65
179872.000	1523.00	59.64	2.58	49.40	53.50	52.70	61.10	635.07	41.70	100.00	786.47
179872.000	2039.00	60.25	2.49	49.40	53.50	52.70	61.10	658.05	32.27	100.00	932.09
179890.000	1266.00	59.23	2.70	49.40	53.50	52.70	61.10	634.92	50.15	18.00	705.94
179890.000	1523.00	59.64	2.56	49.40	53.50	52.70	61.10	632.76	41.55	18.00	788.12
179890.000	2039.00	60.25	2.49	49.40	53.50	52.70	61.10	656.18	32.18	18.00	934.01
179975.000	1266.00	59.26	2.24	49.40	57.80	57.30	61.10	745.31	58.87	85.00	710.61
179975.000	1523.00	59.67	2.14	49.40	57.80	57.30	61.10	758.07	49.77	85.00	791.14
179975.000	2039.00	60.27	2.10	49.40	57.80	57.30	61.10	809.01	39.68	85.00	935.83
183975.000	1266.00	60.17	1.95	51.40	57.90	58.10	60.80	667.49	52.72	4000.00	983.73
183975.000	1523.00	60.46	1.94	51.40	57.90	58.10	60.80	699.79	45.95	4000.00	1049.00
183975.000	2039.00	60.95	1.93	51.40	57.90	58.10	60.80	752.86	36.92	4000.00	1049.00
184075.000	1266.00	60.20	1.92	51.40	57.90	58.10	60.80	660.42	52.17	100.00	995.80
184075.000	1523.00	60.48	1.92	51.40	57.90	58.10	60.80	693.80	45.56	100.00	1049.00
184075.000	2039.00	60.97	1.92	51.40	57.90	58.10	60.80	749.18	36.74	100.00	1049.00
184101.000	1266.00	60.44	1.69	51.40	57.90	58.10	61.00	604.22	47.73	26.00	983.84
184101.000	1523.00	60.67	1.76	51.40	57.90	58.10	61.00	656.83	43.13	26.00	1049.00
184101.000	2039.00	61.10	1.86	51.40	57.90	58.10	61.00	737.86	36.19	26.00	1049.00
184161.000	1266.00	60.45	1.68	51.40	57.90	58.10	61.00	601.57	47.52	60.00	988.02
184161.000	1523.00	60.68	1.75	51.40	57.90	58.10	61.00	653.84	42.93	60.00	1049.00
184161.000	2039.00	61.11	1.85	51.40	57.90	58.10	61.00	735.07	36.05	60.00	1049.00
* 185811.000	1266.00	60.83	2.09	51.10	57.50	56.50	62.90	908.29	71.74	1650.00	632.84
* 185811.000	1523.00	61.10	2.28	51.10	57.50	56.50	62.90	1028.09	67.50	1650.00	745.26
* 185811.000	2039.00	61.54	2.57	51.10	57.50	56.50	62.90	1223.20	59.99	1650.00	932.42
* 185871.000	1266.00	60.85	3.18	51.10	58.00	58.00	62.90	794.33	62.74	60.00	631.57
* 185871.000	1523.00	61.12	3.35	51.10	58.00	58.00	62.90	866.34	56.88	60.00	748.71
185871.000	2039.00	61.58	3.53	51.10	58.00	58.00	62.90	963.84	47.27	60.00	942.89
185893.000	1266.00	60.85	3.19	51.10	58.00	58.00	62.90	794.98	62.79	22.00	630.55
185893.000	1523.00	61.12	3.35	51.10	58.00	58.00	62.90	865.28	56.81	22.00	750.11
185893.000	2039.00	61.58	3.51	51.10	58.00	58.00	62.90	960.62	47.11	22.00	945.46
185953.000	1266.00	60.94	2.81	51.10	58.00	58.00	62.90	821.90	64.92	60.00	666.19
185953.000	1523.00	61.21	2.96	51.10	58.00	58.00	62.90	901.04	59.16	60.00	786.82
185953.000	2039.00	61.67	3.13	51.10	58.00	58.00	62.90	1011.79	49.62	60.00	974.92
* 187353.000	1266.00	61.57	1.40	51.80	58.90	58.60	62.20	475.38	37.55	1400.00	970.96
* 187353.000	1523.00	61.87	1.45	51.80	58.90	58.60	62.20	514.16	33.76	1400.00	1053.35
* 187353.000	2039.00	62.34	1.55	51.80	58.90	58.60	62.20	586.87	28.78	1400.00	1266.00

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
187483.000	1266.00	61.61	1.60	51.80	54.80	55.80	62.20	379.76	30.00	130.00	982.94
187483.000	1523.00	61.90	1.65	51.80	54.80	55.80	62.20	406.18	26.67	130.00	1059.06
187483.000	2039.00	62.38	1.75	51.80	54.80	55.80	62.20	455.58	22.34	130.00	1266.00
* 187510.000	1266.00	62.05	.95	51.80	58.90	58.60	64.00	343.46	27.13	27.00	3056.64
* 187510.000	1523.00	62.22	1.00	51.80	58.90	58.60	64.00	371.03	24.36	27.00	3090.25
* 187510.000	2039.00	62.50	1.09	51.80	58.90	58.60	64.00	420.44	20.62	27.00	3556.90
187590.000	1266.00	62.05	.94	51.80	58.90	58.60	63.00	341.60	26.98	80.00	3058.31
187590.000	1523.00	62.23	.99	51.80	58.90	58.60	63.00	369.02	24.23	80.00	3091.98
187590.000	2039.00	62.51	1.08	51.80	58.90	58.60	63.00	418.55	20.53	80.00	3483.56
* 188949.000	1266.00	62.08	.26	50.95	59.42	59.39	65.00	229.33	18.11	1359.00	4908.32
* 188949.000	1523.00	62.26	.28	50.95	59.42	59.39	65.00	257.17	16.89	1359.00	4909.02
* 188949.000	2039.00	62.54	.33	50.95	59.42	59.39	65.00	310.29	15.22	1359.00	4910.17
* 190630.000	1266.00	62.05	2.40	52.50	58.30	58.00	64.90	1254.48	99.09	1681.00	73.17
* 190630.000	1523.00	62.21	2.84	52.50	58.30	58.00	64.90	1508.10	99.02	1681.00	73.54
* 190630.000	2039.00	62.45	3.67	52.50	58.30	58.00	64.90	2008.69	98.51	1681.00	362.53
* 192410.000	1266.00	62.60	1.20	52.40	59.10	60.30	63.40	869.11	68.65	1780.00	656.73
* 192410.000	1523.00	62.89	1.32	52.40	59.10	60.30	63.40	994.00	65.27	1780.00	696.25
* 192410.000	2039.00	63.39	1.50	52.40	59.10	60.30	63.40	1204.40	59.07	1780.00	909.23
196060.000	1266.00	63.17	1.26	52.80	62.70	60.90	65.00	640.33	50.58	3650.00	1190.91
196060.000	1523.00	63.51	1.30	52.80	62.70	60.90	65.00	688.72	45.22	3650.00	1590.80
196060.000	2039.00	64.05	1.33	52.80	62.70	60.90	65.00	757.66	37.16	3650.00	2236.57
196290.000	1266.00	63.20	1.80	52.90	62.00	60.10	64.00	1254.36	99.08	230.00	107.62
196290.000	1523.00	63.52	2.07	52.90	62.00	60.10	64.00	1505.24	98.83	230.00	110.17
* 196290.000	2039.00	64.05	2.59	52.90	62.00	60.10	64.00	2005.52	98.36	230.00	114.36
196390.000	995.00	63.24	1.39	52.90	62.00	60.10	64.30	975.41	98.03	100.00	124.72
196390.000	1193.00	63.58	1.59	52.90	62.00	60.10	64.30	1162.97	97.48	100.00	130.32
196390.000	1583.00	64.13	1.95	52.90	62.00	60.10	64.30	1526.60	96.44	100.00	139.42
199340.000	995.00	63.66	.94	53.60	62.80	62.90	67.50	986.91	99.19	2950.00	328.62
199340.000	1193.00	64.06	1.02	53.60	62.80	62.90	67.50	1167.27	97.84	2950.00	385.62
199340.000	1583.00	64.73	1.16	53.60	62.80	62.90	67.50	1493.63	94.35	2950.00	479.75
199440.000	995.00	63.67	.93	53.60	62.80	62.90	67.50	985.02	99.00	100.00	330.60
199440.000	1193.00	64.07	1.01	53.60	62.80	62.90	67.50	1161.78	97.38	100.00	387.96
199440.000	1583.00	64.74	1.14	53.60	62.80	62.90	67.50	1476.12	93.25	100.00	482.90
199460.000	995.00	63.92	.88	53.60	62.80	62.90	67.50	975.91	98.08	20.00	366.29
199460.000	1193.00	64.26	.97	53.60	62.80	62.90	67.50	1149.99	96.39	20.00	414.41
199460.000	1583.00	64.81	1.12	53.60	62.80	62.90	67.50	1467.26	92.69	20.00	493.69
* 199560.000	995.00	63.91	1.95	53.60	64.90	62.90	67.50	958.80	96.36	100.00	227.66
* 199560.000	1193.00	64.24	2.15	53.60	64.90	62.90	67.50	1110.77	93.11	100.00	278.68
* 199560.000	1583.00	64.80	2.44	53.60	64.90	62.90	67.50	1357.59	85.76	100.00	365.23

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
* 202460.000	995.00	64.24	.79	54.20	62.30	63.50	67.50	661.95	66.53	2900.00	
* 202460.000	1193.00	64.59	.80	54.20	62.30	63.50	67.50	708.71	59.41	2900.00	820.84
* 202460.000	1583.00	65.16	.82	54.20	62.30	63.50	67.50	791.67	50.01	2900.00	870.81
											935.77
205270.000	995.00	64.41	1.10	54.70	65.20	61.40	66.60	666.35	66.97	2810.00	507.93
205270.000	1193.00	64.76	1.15	54.70	65.20	61.40	66.60	733.07	61.45	2810.00	570.81
205270.000	1583.00	65.33	1.22	54.70	65.20	61.40	66.60	835.93	52.81	2810.00	2097.66
206370.000	995.00	64.50	.93	53.10	68.60	62.80	66.40	415.18	41.73	1100.00	516.02
206370.000	1193.00	64.86	.97	53.10	68.60	62.80	66.40	455.97	38.22	1100.00	563.12
206370.000	1583.00	65.42	1.02	53.10	68.60	62.80	66.40	522.16	32.99	1100.00	729.22
* 206520.000	995.00	64.48	2.50	53.10	69.80	70.40	69.80	995.00	100.00	150.00	54.07
* 206520.000	1193.00	64.82	2.87	53.10	69.80	70.40	69.80	1193.00	100.00	150.00	55.08
* 206520.000	1583.00	65.36	3.55	53.10	69.80	70.40	69.80	1583.00	100.00	150.00	56.69
* 206540.000	995.00	64.34	5.26	53.10	69.80	70.40	69.80	995.00	100.00	20.00	53.65
* 206540.000	1193.00	64.61	6.30	53.10	69.80	70.40	69.80	1193.00	100.00	20.00	54.44
* 206540.000	1583.00	64.96	8.36	53.10	69.80	70.40	69.80	1583.00	100.00	20.00	55.50
206545.000	995.00	64.38	5.26	53.10	69.80	70.40	69.80	995.00	100.00	5.00	53.78
206545.000	1193.00	64.67	6.30	53.10	69.80	70.40	69.80	1193.00	100.00	5.00	54.63
206545.000	1583.00	65.07	8.36	53.10	69.80	70.40	69.80	1583.00	100.00	5.00	55.83
* 206565.000	995.00	64.85	2.38	53.10	69.80	70.40	69.80	995.00	100.00	20.00	55.17
* 206565.000	1193.00	65.35	2.68	53.10	69.80	70.40	69.80	1193.00	100.00	20.00	56.67
* 206565.000	1583.00	66.32	3.15	53.10	69.80	70.40	69.80	1583.00	100.00	20.00	59.45
* 206665.000	995.00	64.97	.77	53.10	68.60	62.80	67.50	369.21	37.11	100.00	602.11
* 206665.000	1193.00	65.50	.75	53.10	68.60	62.80	67.50	385.71	32.33	100.00	780.37
* 206665.000	1583.00	66.52	.67	53.10	68.60	62.80	67.50	396.75	25.06	100.00	1014.27
* 208465.000	995.00	65.09	1.67	55.30	59.10	64.70	69.00	903.79	90.83	1800.00	175.76
* 208465.000	1193.00	65.61	1.69	55.30	59.10	64.70	69.00	979.14	82.07	1800.00	1884.50
208465.000	1583.00	66.58	.84	55.30	59.10	64.70	69.00	542.74	34.29	1800.00	3622.80
* 211495.000	995.00	65.40	.92	55.10	64.90	61.90	67.00	480.63	48.30	3030.00	815.48
* 211495.000	1193.00	65.88	.86	55.10	64.90	61.90	67.00	480.50	40.28	3030.00	1042.62
211495.000	1583.00	66.67	.76	55.10	64.90	61.90	67.00	471.41	29.78	3030.00	1510.04
211595.000	995.00	65.41	.97	55.10	61.70	59.50	67.00	442.04	44.43	100.00	819.36
211595.000	1193.00	65.88	.92	55.10	61.70	59.50	67.00	441.06	36.97	100.00	1044.23
211595.000	1583.00	66.67	.81	55.10	61.70	59.50	67.00	426.99	26.97	100.00	1513.67
211615.000	995.00	65.41	.94	55.10	61.70	61.90	67.00	478.50	48.09	20.00	819.59
211615.000	1193.00	65.88	.89	55.10	61.70	61.90	67.00	479.35	40.18	20.00	1043.99
211615.000	1583.00	66.67	.79	55.10	61.70	61.90	67.00	465.66	29.42	20.00	1516.19
211715.000	995.00	65.42	.91	55.10	64.90	61.90	67.00	477.81	48.02	100.00	819.31
211715.000	1193.00	65.89	.86	55.10	64.90	61.90	67.00	480.33	40.26	100.00	1043.30
211715.000	1583.00	66.67	.76	55.10	64.90	61.90	67.00	469.63	29.67	100.00	1515.25

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
* 213175.000	995.00	65.55	2.00	53.80	65.20	64.80	67.90	896.46	90.10	1460.00	405.66
* 213175.000	1193.00	66.00	1.98	53.80	65.20	64.80	67.90	951.86	79.79	1460.00	448.54
* 213175.000	1583.00	66.75	1.88	53.80	65.20	64.80	67.90	1001.83	63.29	1460.00	1075.86
* 213229.000	995.00	65.62	.45	53.51	64.36	61.52	67.90	325.91	32.76	54.00	1260.92
* 213229.000	1193.00	66.06	.45	53.51	64.36	61.52	67.90	342.73	28.73	54.00	1263.45
* 213229.000	1583.00	66.80	.45	53.51	64.36	61.52	67.90	372.43	23.53	54.00	1612.04
* 213295.000	995.00	65.58	2.71	56.10	65.20	64.80	67.90	836.88	84.11	66.00	408.26
* 213295.000	1193.00	66.03	2.52	56.10	65.20	64.80	67.90	836.97	70.16	66.00	451.50
* 213295.000	1583.00	66.78	2.20	56.10	65.20	64.80	67.90	811.14	51.24	66.00	1078.90
213297.000	995.00	65.58	2.70	56.10	65.20	64.80	67.90	836.69	84.09	2.00	408.31
213297.000	1193.00	66.03	2.52	56.10	65.20	64.80	67.90	836.80	70.14	2.00	451.54
213297.000	1583.00	66.78	2.20	56.10	65.20	64.80	67.90	811.00	51.23	2.00	1078.94
213328.000	995.00	65.61	2.56	54.69	65.20	64.80	67.90	834.42	83.86	31.00	426.93
213328.000	1193.00	66.03	2.44	54.69	65.20	64.80	67.90	844.92	70.82	31.00	461.56
213328.000	1583.00	66.78	2.14	54.69	65.20	64.80	67.90	822.72	51.97	31.00	1079.20
213403.000	995.00	65.69	1.96	56.10	65.20	64.80	67.90	858.53	86.28	75.00	418.74
213403.000	1193.00	66.09	1.97	56.10	65.20	64.80	67.90	917.13	76.88	75.00	456.42
213403.000	1583.00	66.81	1.86	56.10	65.20	64.80	67.90	961.12	60.71	75.00	1081.75
* 213441.000	995.00	65.52	4.56	56.50	71.10	71.50	71.50	995.00	100.00	38.00	46.80
* 213441.000	1193.00	65.86	5.09	56.50	71.10	71.50	71.50	1193.00	100.00	38.00	48.50
* 213441.000	1583.00	66.47	5.98	56.50	71.10	71.50	71.50	1583.00	100.00	38.00	51.52
* 216713.000	995.00	67.17	2.79	56.60	71.60	71.00	71.00	995.00	100.00	3272.00	56.71
* 216713.000	1193.00	67.77	3.05	56.60	71.60	71.00	71.00	1193.00	100.00	3272.00	59.21
* 216713.000	1583.00	68.82	3.47	56.60	71.60	71.00	71.00	1583.00	100.00	3272.00	63.58
217513.000	995.00	67.36	2.78	56.90	70.60	70.00	70.00	995.00	100.00	800.00	55.16
217513.000	1193.00	67.98	3.04	56.90	70.60	70.00	70.00	1193.00	100.00	800.00	56.87
217513.000	1583.00	69.08	3.45	56.90	70.60	70.00	70.00	1582.81	99.99	800.00	114.60
* 218723.000	995.00	67.60	2.07	55.80	66.80	66.60	70.50	994.76	99.98	1210.00	67.26
* 218723.000	1193.00	68.25	2.28	55.80	66.80	66.60	70.50	1191.92	99.91	1210.00	72.40
* 218723.000	1583.00	69.40	2.44	55.80	66.80	66.60	70.50	1457.77	92.09	1210.00	2116.83
218823.000	995.00	67.61	2.07	55.80	66.80	66.60	70.50	994.75	99.97	100.00	67.30
218823.000	1193.00	68.27	2.27	55.80	66.80	66.60	70.50	1191.88	99.91	100.00	73.69
218823.000	1583.00	69.41	2.41	55.80	66.80	66.60	70.50	1445.44	91.31	100.00	2125.05
218848.000	995.00	67.82	2.01	55.80	66.80	66.60	70.50	995.00	100.00	25.00	65.00
218848.000	1193.00	68.57	2.20	55.80	66.80	66.60	70.50	1193.00	100.00	25.00	65.00
218848.000	1583.00	69.74	1.99	55.80	66.80	66.60	70.50	1233.61	77.93	25.00	2250.43
218898.000	995.00	67.83	2.01	55.80	66.80	66.60	70.50	994.59	99.96	50.00	67.82
218898.000	1193.00	68.57	2.19	55.80	66.80	66.60	70.50	1190.47	99.79	50.00	109.53
218898.000	1583.00	69.75	1.99	55.80	66.80	66.60	70.50	1230.67	77.74	50.00	2252.12

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
220723.000	995.00	68.01	1.26	58.40	69.40	67.60	70.00	993.18	99.82	1825.00	1021.19
* 220723.000	1193.00	68.75	1.14	58.40	69.40	67.60	70.00	1033.44	86.63	1825.00	1066.83
* 220723.000	1583.00	69.85	.90	58.40	69.40	67.60	70.00	987.29	62.37	1825.00	2226.73



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## SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	37840.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	41358.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	41358.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	41443.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	41443.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	41443.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	41503.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING	SECNO= 187510.000	PROFILE= 3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 188949.000	PROFILE= 1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 188949.000	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 188949.000	PROFILE= 3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 190630.000	PROFILE= 1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 190630.000	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 190630.000	PROFILE= 3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 192410.000	PROFILE= 1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 192410.000	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 192410.000	PROFILE= 3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 196290.000	PROFILE= 3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 199560.000	PROFILE= 1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 199560.000	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 199560.000	PROFILE= 3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 202460.000	PROFILE= 1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 202460.000	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 202460.000	PROFILE= 3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 206520.000	PROFILE= 1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 206520.000	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 206520.000	PROFILE= 3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 206540.000	PROFILE= 1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 206540.000	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 206540.000	PROFILE= 3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 206565.000	PROFILE= 1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 206565.000	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 206565.000	PROFILE= 3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 206665.000	PROFILE= 1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 206665.000	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 206665.000	PROFILE= 3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 208465.000	PROFILE= 1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 208465.000	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO= 211495.000	PROFILE= 1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

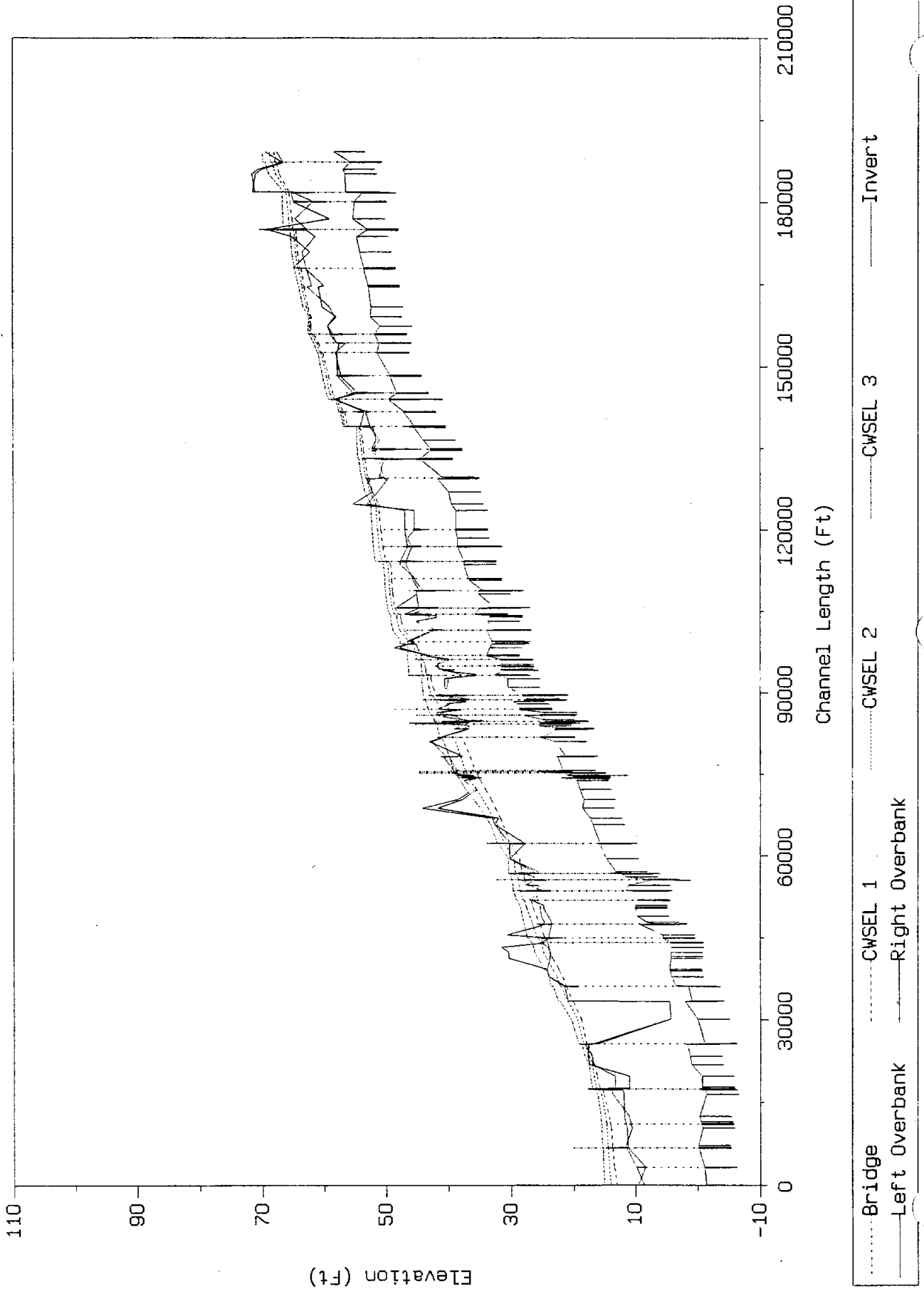


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WARNING SECNO= 211495.000	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 213175.000	PROFILE= 1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 213175.000	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 213175.000	PROFILE= 3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 213229.000	PROFILE= 1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 213229.000	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 213229.000	PROFILE= 3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 213295.000	PROFILE= 1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 213295.000	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 213295.000	PROFILE= 3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 213441.000	PROFILE= 1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 213441.000	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 213441.000	PROFILE= 3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 216713.000	PROFILE= 1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 216713.000	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO= 218723.000	PROFILE= 1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 218723.000	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 218723.000	PROFILE= 3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 220723.000	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 220723.000	PROFILE= 3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

L REVISED BY KLOTZ ASSOC  
Cross-Sections (34700 to 220723)



```
*****  
* HEC-2 WATER SURFACE PROFILES *  
* *  
* version 4.6.2; May 1991 *  
* *  
* RUN DATE 21AUG02 TIME 13:03:03 *  
*****
```

```
*****  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET, SUITE D *  
* DAVIS, CALIFORNIA 95616-4687 *  
* (916) 756-1104 *  
*****
```

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X X XXXXXXX XXXXX XXXXX  
X X X X X X X  
X X X X X X  
XXXXXXXX XXXX X XXXXX XXXXX  
X X X X X X  
X X X X X X  
X X XXXXXXX XXXXX XXXXXXX
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THIS RUN EXECUTED 21AUG02 13:03:03

\*\*\*\*\*  
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

\*\*\*\*\*

T1 DITCH M-1..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: MIDITCH.IH2.....10 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

NOTES\*\*\*\*\*  
REVISED MODEL INCLUDES 2000 BAKER & LAWSON SURVEY SECTIONS AND REVISED  
BRIDGE SECTIONS  
MODEL KEYED IN FROM 05 FEB 88 RUN DATE FEMA MODEL  
ORIGINAL INPUT DATA PROVIDED BY BRAZORIA COUNTY FLOOD PLAIN ADMINISTRATOR  
\*\*\*\*\*

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2							23.58	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1							
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38	43	1	26	42	23	24	63	14	60
	39	4								

J5	LPRNT	NUMSEC	*****REQUESTED SECTION NUMBERS*****							
	-10	-10								

NC	0.04	.04	.08	.1	.3					
QT	3	1126	1316	1510						
X1	1	8	0	140	0	0	0			
GR	29.9	0	22.6	23	21.8	51	6.5	75	6.1	83
GR	6.6	90	23.3	115	30	140				
X1	2	9	400	465	100	100	100			
GR	29	0.0	23	25	22	400	6.6	425	6.2	433
GR	6.7	440	23.5	465	24	1700	29	1710		

2000 BAKER & LAWSON SURVEY SECTION

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PAGE 2

X1	3	16	10414	10496	3600	3600	3600			
GR	28.00	6451	22.66	10000	22.41	10093	21.98	10187	22.19	10281
GR	21.34	10414	14.23	10429	12.44	10443	9.98	10451	11.84	10456
GR	17.83	10478	22.62	10496	23.13	10609	22.10	10664	24.00	12451
GR	28.00	12451								

NC .3 .5

## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	4	14	10374	10442	100	100	100			
X3	10									
GR	28.00	6409	22.66	10000	22.41	10093	21.98	10187	22.19	10281
GR	22.44	10374	11.32	10394	9.84	10409	11.29	10417	22.54	10442
GR	23.13	10488	22.10	10542	24.00	12409	28.00	12409		

CR 170

SB	1.05	1.5	2.6		23	3	450		1.9	
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## 2000 BAKER &amp; LAWSON SURVEY SECTION

CR 170

X1	5	14	10374	10443	24	24	24			
X2			1	21.79	22.79					
X3	10									
BT	-11	6407	28.00		10000	22.66		10093	22.41	
BT		10187	21.98		10281	22.19		10374	23.02	
BT		10409	22.79		10440	22.82		10486	23.13	
BT		10540	22.10		12407	24.00				
GR	28.00	6407	22.66	10000	22.41	10093	21.98	10187	22.19	10281
GR	22.30	10374	10.86	10390	9.48	10407	11.8	10415	22.34	10443
GR	23.13	10486	22.10	10540	24.00	12407	28.00	12407		

## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	6	16	10399	10468	100	100	100			
X3				10281	22.19	10468	25.75			
GR	28.00	6426	22.66	10000	22.41	10093	21.98	10187	22.19	10281
GR	20.97	10399	15.80	10408	13.20	10416	10.03	10426	13.83	10435
GR	21.61	10454	25.75	10468	23.13	10547	22.10	10602	24.00	12426
GR	28.00	12426								

NC .10 .30

X1	7	21	4463	4528	2500	3700	3600			
GR	30	0	29	1100	24.5	3900	24.5	4200	19.2	4300
GR	18.7	4350	18.3	4400	22.6	4432	22	4450	22.5	4463
GR	12.5	4492	11.9	4500	12.6	4508	22.2	4528	24.1	4550
GR	23.1	4600	22	4650	22.3	4700	24.5	5300	26	6900
GR	30	6910								

NC			.3	.5						
X1	8	21	4280	4320	900	900	900			
X3	10									
GR	30	0	29	600	24.5	3800	24.5	4000	22.4	4100
GR	23	4150	23.8	4200	23.9	4250	23.6	4275	23.8	4280
GR	12.7	4293	11.8	4300	12.8	4308	23.8	4320	24.4	4325
GR	24.1	4350	22.7	4400	22.7	4450	22.5	4500	27	5300
GR	30	5310								

SB	1.05	1.5	2.6		12	2	266	1.3		
X1	8.1	21	4280	4320	20	20	20	0	0	0
X2			1	22.8	23.8					
X3	10							0	0	
BT	-16	0	30.0		600	29.0		3800	24.5	
BT		4000	24.5		4100	22.4		4150	23.0	
BT		4200	23.8		4250	23.9		4280	23.8	
BT		4320	23.8		4325	24.4		4350	24.1	
BT		4400	22.7		4450	22.7		4500	22.5	
BT		5300	27.0							
GR	30	0	29	600	24.5	3800	24.5	4000	22.4	4100
GR	23	4150	23.8	4200	23.9	4250	23.6	4275	23.8	4280
GR	12.7	4293	11.8	4300	12.8	4308	23.8	4320	24.4	4325
GR	24.1	4350	22.7	4400	22.7	4450	22.5	4500	27	5300
GR	30	5310								

QT	3	1382	1479	1536						
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2000 BAKER & LAWSON SURVEY SECTION

X1	8.9	10	10019	10072	1870	370	1170			
GR	29.00	6039	23.69	10000	22.95	10019	15.38	10032	13.80	10039
GR	16.04	10057	22.01	10072	23.01	10097	27.00	14039	29.00	14039

2000 BAKER & LAWSON SURVEY SECTION

X1	9	15	10368	10436	130	130	130			
X3	10	0	0	0	0	0	0			
GR	29.00	6408	24.68	10000	24.72	10091	24.66	10182	24.90	10275
GR	24.69	10368	13.95	10399	12.38	10408	13.61	10417	24.62	10436
GR	25.30	10526	24.86	10616	24.56	10708	27.00	14408	29.00	14408

CR 169

SB	1.05	1.5	2.6	0	12	4	400	2.3		
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2000 BAKER & LAWSON SURVEY SECTION

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CR 169										
X1	10	15	10368	10435	26	26	26			
X2			1	24.66	25.66					
X3	10									
BT	-12	6400	29.00		10000	24.68		10091	24.72	
BT		10182	24.66		10275	24.90		10367	25.61	
BT		10400	25.66		10433	25.72		10523	25.30	
BT		10614	24.86		10706	24.56		14400	27.00	
GR	29.00	6400	24.68	10000	24.72	10091	24.66	10182	24.90	10275
GR	24.59	10368	15.77	10387	13.33	10400	15.43	10417	24.80	10435
GR	25.30	10523	24.86	10614	24.56	10706	27.00	14400	29.00	14400

2000 BAKER & LAWSON SURVEY SECTION

X1	11	10	10198	10255	50	50	50			
X3	10							27.75	27.75	
GR	28.73	10000	28.74	10094	24.41	10198	15.20	10220	13.64	10227
GR	14.91	10234	21.55	10255	28.96	10357	28.94	10452	28.94	10549

RR Nr CR 169

SB	1.05	1.5	2.6		10	8	436	2.4		
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2000 BAKER & LAWSON SURVEY SECTION

RR Nr CR 169

X1	12	11	10189	10249	50	50	50			
X2			1	26.55	28.95					
X3	10							28.95	28.95	
BT	-8	10000	28.73		10094	28.74		10188	28.95	
BT		10223	29.19		10258	28.99		10353	28.96	
BT		10448	28.94		10545	28.94				
GR	28.73	10000	28.74	10094	25.38	10189	17.56	10207	14.55	10217
GR	13.65	10225	15.19	10232	23.17	10249	28.96	10353	28.94	10448
GR	28.94	10545								

X1	12.1	12	10037	10143	200	200	200			
X3	10									
GR	29.00	6088	23.15	10000	26.23	10037	25.39	10057	13.93	10079
GR	13.74	10088	14.23	10095	21.49	10110	26.71	10143	22.92	10191
GR	27.00	14088	29.00	14088						

NC										
			.1	.30						
X1	13	14	1627	1671	2400	4800	3400			
X3	10									
GR	30	0	27	100	25.3	1500	25.8	1550	26.3	1600
GR	26.8	1627	15.4	1640	14.3	1650	15.3	1656	26	1671
GR	25.6	1700	25.5	1750	25.6	1800	30	7400		

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NC				.3		.5					
X1	14	15	1640	1661	85	85	85				
X3	10										
GR	30		27	100	25.3	1500	24.9	1550	25.8	1600	
GR	25.3	1640	16.3	1640	13.8	1651	17.8	1661	25.3	1661	
GR	26.1	1700	26.6	1750	25.4	1800	25	1850	30	7400	
SB	1.05	1.5	2.6		18	1	187	0			
X1	14.1	15	1640	1661	30	30	30				
X2			1.0	24.8	25.3						
X3	10										
BT	-12	0	30.0		100	27.0		1500	25.3		
BT		1550	24.9		1600	25.8		1640	25.3		
BT		1661	25.3		1700	26.1		1750	26.6		
BT		1800	25.4		1850	25.0		7400	30.0		
GR	30		27	100	25.3	1500	24.9	1550	25.8	1600	
GR	25.3	1640	16.3	1640	13.8	1651	17.8	1661	25.3	1661	
GR	26.1	1700	26.6	1750	25.4	1800	25	1850	30	7400	
X1	15	14	1627	1672	85	85	85				
X3				1600	27.5	1700	28.1				
GR	30	0	27	100	25.4	1500	25.8	1550	27.5	1600	
GR	25.8	1627	16.4	1644	15.2	1650	16.5	1656	25.1	1672	
GR	28.1	1700	25.8	1750	25.4	1800	30	7400			
QT	3	1326	1506	1809							
2000 BAKER & LAWSON SURVEY SECTION											
X1	15.9	7	10012	10087	440	440	440				
GR	30.00	6031	25.46	10000	24.03	10012	18.80	10024	16.05	10031	
GR	16.39	10047	31.81	10087							
2000 BAKER & LAWSON SURVEY SECTION											
X1	16	14	10372	10441	60	60	60				
X3	10			10372	27.92	10616	33.71	27.03	27.03		
GR	30.00	6422	25.93	10000	25.93	10094	26.05	10186	26.55	10282	
GR	27.92	10372	17.63	10399	15.37	10422	17.11	10435	28.93	10441	
GR	33.71	10616	26.31	10744	26.26	10841	26.15	10934			
CR 160											
SB	1.25	1.5	2.6		40	6	198				
2000 BAKER & LAWSON SURVEY SECTION											



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X1	17	13	10372	10450	50	50	50			
X2			1	25.53	28.53					
X3	10									
BT	-10	10000	25.93		10094	25.93		28.53	28.53	
BT		10282	26.55		10411	29.28		10186	26.05	
BT		10616	33.71		10744	26.31		10450	30.16	
BT		10934	26.15					10841	26.26	
GR	25.93	10000	25.93	10094	26.05	10186	26.55	10282	27.92	10372
GR	17.59	10391	15.57	10407	17.94	10428	30.16	10450	33.71	10616
GR	26.31	10744	26.26	10841	26.15	10934				

2000 BAKER & LAWSON SURVEY SECTION

X1	17.1	7	10009	10083	60	60	60			
GR	30.00	6032	26.09	10000	24.89	10009	18.34	10024	15.65	10032
GR	19.96	10054	32.04	10083						

NC	.05	.05	.08	.1	.3					
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X1	18	11	6922	6980	1440	1440	1440			
GR	35	0	32	3300	29.5	4600	27.8	6800	27	6850
GR	26.8	6900	26	6922	16.4	6940	15.2	6950	16.5	6960
GR	34	6980								

NC			.3	.5						
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X1	19	16	6920	6980	88	88	88			
X3	10									
GR	35	0	32	3300	29.5	4600	27.8	6800	27	6850
GR	26.8	6900	28.4	6920	19.4	6920	15.4	6931	15.6	6943
GR	16.6	6955	15.6	6968	20.4	6980	28.4	6980	30.6	7010
GR	34	7035								

SB	1.05	1.5	2.6		50	5	650	.4		
X1	20	16	6920	6980	24	24	24			
X2			1	28.4	29.4					
X3	10									
BT	-4	6800	27.8		6920	29.4		6980	29.4	
BT		7010	30.6							
GR	35	0	32	3300	29.5	4600	27.8	6800	27	6850
GR	26.8	6900	28.4	6920	19.4	6920	15.4	6931	15.6	6943
GR	16.6	6955	15.6	6968	20.4	6980	28.4	6980	30.6	7010
GR	34	7035								

QT	3	1194	1389	1666						
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X1	21	13	6964	7035	88	88	88				
GR	35	0	32	3300	29.5	4600	27.9	6800	27.8	6850	
GR	27.5	6900	26.5	6950	26.2	6964	16.9	6989	16.3	7000	
GR	16.7	7011	31	7035	34	7050					

QT	3	1122	1302	1516							
NC	.045	.045	.045	.1	.3						

X1	22	16	7764	7836	3300	4500	3900				
GR	35		34	2200	33	4300	30	5600	28.9	7600	
GR	28.8	7650	28.5	7700	27.5	7750	27.2	7764	18.9	7789	
GR	18.3	7800	18.7	7811	27.5	7836	29.5	8500	32	9100	
GR	35	9110									

X1	23	17	4225	4288	6500	6600	6800				
X3				4200	33.2	4300	34.5				
GR	39		38	100	34.5	1500	31.8	4100	32.8	4150	
GR	33.2	4200	32.4	4225	22.3	4239	21.8	4246	22.4	4255	
GR	33.9	4288	34.5	4300	32.3	4350	33.3	4400	33.5	4450	
GR	33.5	4700	38	4710							

NC				.3	.5						
X1	24	20	4237	4275	88	88	88				
X3	10							33	33		
GR	39	0	38	100	34.5	1500	31.8	4100	32.8	4150	
GR	33.2	4200	32.4	4225	32	4237	28.2	4237	23	4249	
GR	23	4262	28.2	4275	32	4275	33.9	4288	34.5	4300	
GR	32.3	4350	33.3	4400	33.5	4450	33.5	4700	38	4710	

CR 424

SB	1.05	1.5	2.6		24	2	290	.6			
X1	25	20	4237	4275	24	24	24				
X2			1	33	34						
X3	10			4200	33.2	4300	34.5	33	33		
BT	-11	100	38		1500	34.5		4100	31.8		
BT		4150	32.8		4256	34		4288	33.9		
BT		4300	34.5		4350	32.3		4400	33.3		
BT		4450	33.5		4700	33.5					
GR	39	0	38	100	34.5	1500	31.8	4100	32.8	4150	
GR	33.2	4200	32.4	4225	32	4237	28.2	4237	23	4249	
GR	23	4262	28.2	4275	32	4275	33.9	4288	34.5	4300	
GR	32.3	4350	33.3	4400	33.5	4450	33.5	4700	38	4710	

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X1	26	18	4267	4326	88	88	88				
X3				4150	33.2	4400	32.3				
GR	39		38	100	34.5	1500	31.9	4100	33.2	4150	
GR	32.4	4200	32.3	4250	31	4267	22.7	4284	22.2	4295	
GR	22.7	4305	32	4326	31.6	4350	32.3	4400	31.9	4450	
GR	32.2	4500	33	4700	38	4710					
NC				.1	.3						
QT	3	1005	1105	1304							
X1	27	15	5625	5665	3300	2100	2300				
X3				4600	34.5	5750	33.4				
GR	40		34.5	4600	32.6	5400	32.5	5500	32.2	5550	
GR	31.5	5625	25.5	5649	23.4	5653	25.6	5657	33	5665	
GR	33.1	5700	33.4	5750	32.4	5800	33	6000	39	6010	
NC				.3	.5						
X1	28	14	5625	5665	62	62	62				
X3	10										
GR	39	0	34.5	4600	32.6	5400	32.5	5500	32.2	5550	
GR	32.1	5625	22.1	5625	22.1	5665	32.1	5665	33.1	5700	
GR	33.4	5750	32.4	5800	33	6000	39	6010			
SB	1.25	1.5	2.6		40	4	360				
X1	29	14	5625	5665	76	76	76				
X2			1	32.1	34.1						
X3	10										
BT	9	4600	34.5		5495	34.1		5545	34.1		
BT	5595	34.2		5645	34.1		5695	34.2		5745	
BT	34.1		5795	34.1		6000	34				
GR	39	0	34.5	4600	32.6	5400	32.5	5500	32.2	5550	
GR	32.1	5625	22.1	5625	22.1	5665	32.1	5665	33.1	5700	
GR	33.4	5750	32.4	5800	33	6000	39	6010			
NC	.08	.06	.04								
X1	30	19	6447	6496	800	150	250				
X3				6447	34.5	6540	35.4				
GR	40	0	36	3500	34	4500	33.9	6300	33.7	6350	
GR	34.2	6400	34.5	6447	25.8	6475	25.6	6479	25.7	6482	
GR	34.2	6496	35.4	6540	33.9	6550	33.8	6560	32.5	6600	
GR	32.9	6650	33.4	6700	34	7200	40	7210			
X1	31	22	6447	6495	100	100	100				
X3	10			6447	34.5	6540	35.4				
GR	40	0	36	3500	34	4500	33.9	6300	33.7	6350	
GR	34.2	6400	34.5	6447	27	6447	24.7	6459	24.7	6471	
GR	24.7	6483	24.3	6489	27	6495	34.5	6495	35.4	6540	
GR	33.9	6550	33.8	6560	32.5	6600	32.9	6650	33.4	6700	

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GR	34	7200	40	7210						
SB	1.05	1.5	2.5		26	3	235	.33		
X1	32	22	6447	6495	30	30	30			
X2			1	33.5	34.5					
X3	10			6447	34.5	6540	35.4			
BT	-14	3500	36		4500	34		6300	33.9	
BT		6350	33.7		6400	34.2		6447	34.5	
BT		6495	34.5		6540	35.4		6550	33.9	
BT		6560	33.8		6600	32.5		6650	32.9	
BT		6700	33.4		7200	34.0				
GR	40	0	36	3500	34	4500	33.9	6300	33.7	6350
GR	34.2	6400	34.5	6447	27	6447	24.7	6459	24.7	6471
GR	24.7	6483	24.3	6489	27	6495	34.5	6495	35.4	6540
GR	33.9	6550	33.8	6560	32.5	6600	32.9	6650	33.4	6700
GR	34	7200	40	7210						
X1	33	20	6440	6499	100	100	100			
GR	40	0	36	3500	34	4500	31.9	6228	32.4	6278
GR	32.5	6328	33	6378	34	6418	34.1	6428	33.7	6438
GR	33.6	6440	24.7	6468	24.4	6472	24.5	6475	33.3	6499
GR	34.1	6528	34.2	6628	33.4	6700	34	7200	40	7210
NC				.1	.3					
X1	34	16	1363	1403	1900	2400	1900			
X3				1350	35	1450	35.9			
GR	37.5	0	34	400	34	1200	33.3	1300	34.7	1340
GR	35	1350	34.7	1360	34.4	1363	25.7	1380	25.5	1386
GR	25.7	1391	34.7	1403	35.9	1450	35.7	1500	36	2600
GR	39	2610								
NC				.3	.5					
X1	35	18	1369	1397	90	90	90			
X3	10			1350	35	1450	35.9			
GR	37.5	0	34	400	34	1200	33.3	1300	34.7	1340
GR	35	1350	34.7	1360	34.2	1369	31.2	1369	25.3	1377
GR	25.3	1385	31.2	1397	34.2	1397	34.7	1403	35.9	1450
GR	35.7	1500	36	2600	39	2610				
SB	1.05	1.5	2.6		14	1	180	.780		
X1	36	18	1369	1397	20	20	20			
X2			1	34.2	35.2					
X3	10			1350	35	1450	35.9			
BT	-12	400	34		1200	34		1300	33.3	
BT		1340	34.7		1350	35		1360	34.7	
BT		1369	35		1397	35		1403	34.7	
BT		1450	35.9		1500	35.7		2600	36	
GR	37.5	0	34	400	34	1200	33.3	1300	34.7	1340
GR	35	1350	34.7	1360	34.2	1369	31.2	1369	25.3	1377

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GR	25.3	1385	31.2	1397	34.2	1397	34.7	1403	35.9	1450
GR	35.7	1500	36	2600	39	2610				
X1	37	19	1463	1504	90	90	90			
X3				1450	35.3	1550	34.6			
GR	37.5	0	34	400	34	1200	34.6	1300	34.6	1350
GR	33.9	1400	34.9	1440	35.3	1450	35	1460	34.8	1463
GR	25.5	1479	25.3	1484	25.5	1490	33.9	1504	34.6	1550
GR	34.6	1600	34.7	1650	36	2600	39	2610		
NC				.1	.3					
X1	38	15	2415	2473	1000	400	700			
GR	39	0	38	700	36.4	2300	35	2346	35.2	2363
GR	34.6	2379	32.6	2415	26.5	2442	26.1	2450	26.5	2453
GR	34.6	2473	33.6	2475	34.4	2500	36	3900	39	3910
NC				.3	.5					
X1	39	16	2431	2457	65	65	65			
X3	10									
GR	39	0	38	700	36.4	2300	35	2346	35.2	2363
GR	34.6	2379	32.6	2415	33.4	2431	27.4	2431	27.4	2457
GR	33.4	2457	34.6	2473	33.6	2475	34.4	2500	36	3900
GR	39	3910								
SB	1.25	1.5	2.6		26	2	144			
X1	40	16	2431	2457	70	70	70			
X2			1	33.4	35.4					
X3	10									
BT	-11	0	39		700	38		2300	36.4	
BT		2346	35		2363	35.2		2394	35.3	
BT		2431	35.4		2457	35.4		2500	34.4	
BT		3900	36		3910	39				
GR	39	0	38	700	36.4	2300	35	2346	35.2	2363
GR	34.6	2379	32.6	2415	33.4	2431	27.4	2431	27.4	2457
GR	33.4	2457	34.6	2473	33.6	2475	34.4	2500	36	3900
GR	39	3910								
X1	41	18	2514	2567	65	65	65			
X3				2500	35.4	2567	35.8			
GR	39	0	38	700	33.7	2300	33.6	2350	34.7	2400
GR	34.7	2450	35	2490	35.4	2500	35.2	2510	34.7	2514
GR	27.1	2536	26.7	2543	27	2547	35.8	2567	35.2	2600
GR	34.8	2700	36	3900	39	3910				

NC				.1	.3						
X1	42	19	2212	2250	1000	1600	1300				
X3				2200	37.4	2250	37.1				
GR	41		39	500	36.6	2000	36	2050	37.2	2100	
GR	36.8	2150	37	2190	37.4	2200	36.9	2210	36.9	2212	
GR	27.2	2229	26.6	2232	27.3	2234	37.1	2250	37.2	2300	
GR	37.3	2350	37.4	2400	38	5100	41	5110			
NC				.3	.5						
X1	43	21	2216	2246	82	82	82				
X3	10										
GR	41	0	39	500	36.6	2000	36	2050	37.2	2100	
GR	36.8	2150	37	2190	37.4	2200	36.9	2210	36.3	2216	
GR	31.8	2216	27.3	2226	27.3	2236	32.3	2246	36.3	2246	
GR	37.1	2250	37.2	2300	37.3	2350	37.4	2400	38	5100	
GR	41	5110									
SB	1.05	1.5	2.6		18	1	184	.750			
X1	44	21	2216	2246	36	36	36				
X2			1	35.3	36.3						
X3	10										
BT	-15	500	39		2000	36.6		2050	36		
BT		2100	37.2		2150	36.8		2190	37.0		
BT		2200	37.4		2210	36.9		2216	36.3		
BT		2246	36.3		2250	37.1		2300	37.2		
BT		2350	37.3		2400	37.4		5100	38		
GR	41	0	39	500	36.6	2000	36	2050	37.2	2100	
GR	36.8	2150	37	2190	37.4	2200	36.9	2210	36.3	2216	
GR	31.8	2216	27.3	2226	27.3	2236	32.3	2246	36.3	2246	
GR	37.1	2250	37.2	2300	37.3	2350	37.4	2400	38	5100	
GR	41	5110									
QT	3	655	761	969							
X1	45	20	2213	2252	82	82	82				
X3				2213	37.4	2275	38.1				
GR	41	0	39	500	36.4	2050	36.4	2100	36.6	2150	
GR	35.7	2181	37.3	2190	37.4	2200	36.8	2210	37.4	2213	
GR	28.2	2229	27.5	2234	28.1	2236	36.9	2252	38.1	2275	
GR	37.7	2300	37.5	2350	37.2	2400	38	5100	41	5110	
NC	.1	.1	.04	.1	.3						
X1	46	19	2262	2307	1000	1500	1200				
GR	41	0	39	800	38.5	2100	37.5	2150	36.7	2200	
GR	34.5	2233	32.1	2241	37.3	2250	37	2259	36.9	2262	
GR	27.9	2278	28	2282	27.9	2285	35.3	2307	37	2350	
GR	36.7	2400	38	3300	39	3900	40	4000			

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NC				.3	.5					
X1	47	19	2280	2290	68	68	68			
X3	10									
GR	41	0	39	800	38.5	2100	37.5	2150	36.7	2200
GR	34.5	2233	32.1	2241	37.3	2250	37	2259	36.9	2262
GR	36.3	2280	28	2280	28	2290	36.3	2290	37	2350
GR	36.7	2400	38	3300	39	3900	40	4000		
SB	1.05	1.5	2.6		10	1	56			
X1	48	19	2280	2290	402	402	402			
X2			1	34	36.3					
X3	10									
BT	-15	800	39		2100	38.5		2150	37.5	
BT		2200	36.7		2233	34.5		2241	32.1	
BT		2250	37.3		2259	37		2262	36.9	
BT		2280	36.3		2290	36.3		2350	37	
BT		2400	36.7		3300	38		3900	39	
GR	41	0	39	800	38.5	2100	37.5	2150	36.7	2200
GR	34.5	2233	32.1	2241	37.3	2250	37	2259	36.9	2262
GR	36.3	2280	28	2280	28	2290	36.3	2290	37	2350
GR	36.7	2400	38	3300	39	3900	40	4000		
X1	49	11	2300	2326	10	10	10			
X3	10									
GR	42	0	39	900	38	2200	37.3	2300	32	2300
GR	28.7	2313	32	2326	37.3	2326	38	3000	39	3900
GR	40	4000								
SB	1.05	1.5	2.6		14	1	145	.79		
X1	50	11	2300	2326	20	20	20			
X2			1	36.3	37.3					
X3	10									
BT	-6	900	39		2200	38		2300	37.3	
BT		2326	37.3		3000	38		3900	39	
GR	42	0	39	900	38	2200	37.3	2300	32	2300
GR	28.7	2313	32	2326	37.3	2326	38	3000	39	3900
GR	40	4000								
NC	.1	.1	.015							
X1	51	12	2321	2350	10	10	10			
GR	42	0	39	900	38	2200	37.3	2300	36.3	2321
GR	29.6	2325	29.6	2336	36.8	2350	38	2360	39	2700
GR	40	3900	41	4000						





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X1	58	13	2544	2574	85	85	85				
GR	44	0	39	2200	37.3	2400	37.6	2450	38.2	2500	
GR	36.9	2544	30.9	2562	30.9	2564	36.9	2574	37	2600	
GR	38.7	2700	37.3	2800	40.2	2810					

NC				.1	.3						
X1	59	13	2544	2574	850	850	850		.9		
X3				2500	39.1	2700	39.6				
GR	44	0	39	2200	37.3	2400	37.6	2450	38.2	2500	
GR	36.9	2544	30.9	2562	30.9	2564	36.9	2574	37	2600	
GR	38.7	2700	37.3	2800	40.2	2810					

NC				.3	.5						
X1	60	9	2520	2528	85	85	85				
X3	10										
GR	44	0	39	2500	38.6	2520	31.9	2520	31.9	2528	
GR	38.6	2528	37.5	2600	39	3200	41.2	3210			

SB	1.05	1.5	2.6		8	.1	45				
X1	61	9	2520	2528	30	30	30				
X2			1	37.7	38.6						
X3	10										
BT	-6	0	44		2500	39		2520	38.6		
BT		2528	38.6		2600	37.5		3200	39		
GR	44	0	39	2500	38.6	2520	31.9	2520	31.9	2528	
GR	38.6	2528	37.5	2600	39	3200	41.2	3210			

X1	62	13	3153	3174	85	85	85		.7		
GR	44	0	41	3000	40.6	3050	40	3100	38.9	3153	
GR	32.7	3162	32.7	3164	38.8	3174	39	3200	40.2	3250	
GR	39	3700	39	4600	42	4610					

X1	63	13	3153	3174	650	650	650		.7		
X3				3100	40.7	3250	40.9				
GR	44	0	41	3000	40.6	3050	40	3100	38.9	3153	
GR	32.7	3162	32.7	3164	38.8	3174	39	3200	40.2	3250	
GR	39	3700	39	4600	42	4610					

X1	64	13	3159	3167	85	85	85				
X3	10										
GR	44	0	41	3000	40.6	3050	40	3100	38.9	3159	
GR	32.9	3159	32.9	3167	38.9	3167	39	3200	40.2	3250	
GR	39	3700	39	4600	44	4610					

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
17.000	1326.00	28.39	2.08	15.57	27.92	30.16	25.93	1326.00	100.00	50.00	74.82
17.000	1506.00	27.57	2.61	15.57	27.92	30.16	25.93	1506.00	100.00	50.00	72.68
17.000	1809.00	27.43	3.18	15.57	27.92	30.16	25.93	1809.00	100.00	50.00	72.19
*	17.100	1326.00	.58	15.65	24.89	32.04	30.00	302.19	22.79	60.00	2506.61
*	17.100	1506.00	27.72	1.33	15.65	24.89	32.04	620.13	41.18	60.00	1730.00
*	17.100	1809.00	27.67	1.68	15.65	24.89	32.04	780.48	43.14	60.00	1672.78
*	18.000	1326.00	28.68	1.86	15.20	26.00	34.00	888.25	66.99	1440.00	1321.97
*	18.000	1506.00	28.53	2.34	15.20	26.00	34.00	1098.19	72.92	1440.00	1128.02
	18.000	1809.00	28.77	2.40	15.20	26.00	34.00	1153.53	63.77	1440.00	1425.15
*	19.000	1326.00	28.74	1.41	15.40	28.40	34.00	1026.09	77.38	88.00	1397.08
*	19.000	1506.00	28.62	1.70	15.40	28.40	34.00	1223.37	81.23	88.00	1247.15
*	19.000	1809.00	28.86	1.80	15.40	28.40	34.00	1326.52	73.33	88.00	1547.25
	20.000	1326.00	28.81	1.35	15.40	28.40	34.00	991.16	74.75	24.00	1495.29
	20.000	1506.00	28.71	1.62	15.40	28.40	34.00	1176.85	78.14	24.00	1368.15
	20.000	1809.00	29.01	1.64	15.40	28.40	34.00	1222.19	67.56	24.00	1755.32
	21.000	1194.00	28.84	1.41	16.30	26.20	31.00	809.69	67.81	88.00	1519.67
	21.000	1389.00	28.75	1.74	16.30	26.20	31.00	989.82	71.26	88.00	1401.55
	21.000	1666.00	29.05	1.67	16.30	26.20	31.00	988.39	59.33	88.00	1811.74
*	22.000	1122.00	29.54	1.31	18.30	27.20	27.50	742.64	66.19	3900.00	2078.64
*	22.000	1302.00	29.65	1.41	18.30	27.20	27.50	806.48	61.94	3900.00	2306.05
*	22.000	1516.00	29.87	1.38	18.30	27.20	27.50	815.55	53.80	3900.00	2764.15
*	23.000	1122.00	31.15	3.63	21.80	32.40	33.90	1122.00	100.00	6800.00	53.39
*	23.000	1302.00	31.47	3.99	21.80	32.40	33.90	1302.00	100.00	6800.00	54.73
*	23.000	1516.00	31.62	4.53	21.80	32.40	33.90	1516.00	100.00	6800.00	55.39
	24.000	1122.00	31.24	4.52	23.00	32.00	38.00	1122.00	100.00	88.00	38.00
	24.000	1302.00	31.56	5.00	23.00	32.00	38.00	1302.00	100.00	88.00	38.00
	24.000	1516.00	31.74	5.68	23.00	32.00	38.00	1516.00	100.00	88.00	38.00
	25.000	1122.00	31.27	4.50	23.00	32.00	38.00	1122.00	100.00	24.00	38.00
	25.000	1302.00	31.61	4.97	23.00	32.00	38.00	1302.00	100.00	24.00	38.00
	25.000	1516.00	31.81	5.62	23.00	32.00	38.00	1516.00	100.00	24.00	38.00
*	26.000	1122.00	31.60	3.10	22.20	31.00	32.00	1121.01	99.91	88.00	65.91
*	26.000	1302.00	32.00	3.35	22.20	31.00	32.00	1294.20	99.40	88.00	124.84
*	26.000	1516.00	32.32	3.68	22.20	31.00	32.00	1487.79	98.14	88.00	266.31
	27.000	1005.00	33.56	2.53	23.40	31.50	33.00	576.35	57.35	2300.00	1004.54
	27.000	1105.00	33.82	2.20	23.40	31.50	33.00	525.50	47.56	2300.00	1114.73
*	27.000	1304.00	34.09	2.05	23.40	31.50	33.00	511.49	39.22	2300.00	1229.44
*	28.000	1005.00	33.62	1.56	22.10	32.10	39.00	720.07	71.65	62.00	1027.73
*	28.000	1105.00	33.86	1.49	22.10	32.10	39.00	702.00	63.53	62.00	1133.15
*	28.000	1304.00	34.12	1.51	22.10	32.10	39.00	726.34	55.70	62.00	1245.18

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X1	71	13	653	673	100	100	100				
GR	43		41.1	600	40.2	650	40.3	653	33.8	662	
GR	33.8	664	40.3	673	40.7	700	40.9	750	40.4	800	
GR	40.5	850	40.6	900	43	2800					
NC			.04								
X1	72	6	3000	3007	50	50	50				
X3	10										
GR	44	0	41	3000	33.8	3000	33.8	3007	41	3007	
GR	43.1	3500									
SB	1.05	1.5	2.6		6	.1	28				
X1	73	6	3000	3007	50	50	50				
X2			1	39.1	42.1				.3		
X3	10										
BT	-6	0	44.3		3000	41.3		3000	42.1		
BT		3007	42.1		3007	41.3		3500	43.3		
GR	44	0	41	3000	33.8	3000	33.8	3007	41	3007	
GR	43	3500									
X1	74	10	2975	3024	75	75	75				
X3				2953	41.8	3024	42.2				
GR	44	0	41.8	2953	41.3	2975	34.4	3000	34.4	3006	
GR	42.2	3024	42	3053	41.2	3103	40.8	3153	43.2	3500	
QT	3	132	153	189							
NC				.1	.3						
X1	75	17	1186	1229	3000	3500	3300				
X3				1153	43.4	1253	44.8				
GR	46	0	43.1	1053	43.4	1153	42.1	1186	35.9	1196	
GR	35.7	1206	36.5	1215	43.2	1229	44.3	1241	44.8	1253	
GR	44.3	1266	42.5	1296	42.3	1353	42.4	1403	41.9	1453	
GR	42	2100	46	2110							
NC				.3	.5						
X1	76	18	1200	1206	70	70	70				
X3	10										
GR	46	0	43.1	1053	43.4	1153	42.1	1186	44.8	1200	
GR	35.8	1200	35.8	1206	44.8	1206	43.2	1229	44.3	1241	
GR	44.8	1253	44.3	1266	42.5	1296	42.3	1353	42.4	1403	
GR	41.9	1453	42	2100	46	2110					

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SB	1.25	1.5	2.6		6	.1	20			
X1	77	18	1200	1206	60	60	60			
X2			1	39.3	44.8					
X3	10									
BT	-15	0	46		1053	43.1	1153	43.4		
BT		1186	42.1		1200	44.8	1206	44.8		
BT		1229	43.2		1241	44.3	1253	44.8		
BT		1266	44.3		1296	42.5	1353	42.3		
BT		1403	42.4		1453	41.9	2100	42		
GR	46	0	43.1	1053	43.4	1153	42.1	1186	44.8	1200
GR	35.8	1200	35.8	1206	44.8	1206	43.2	1229	44.3	1241
GR	44.8	1253	44.3	1266	42.5	1296	42.3	1353	42.4	1403
GR	41.9	1453	42	2100	46	2110				
NC	.06	.06	.04							
X1	78	17	1189	1226	70	70	70			
X3				1103	43.4	1253	44.9			
GR	46	0	45	0	43.3	1053	43.4	1103	43.2	1153
GR	43.3	1189	38	1204	38	1210	43	1226	44.7	1241
GR	44.9	1253	44.5	1264	43.5	1353	43.7	1403	43.4	1453
GR	45	2100	46	2100						
NC				.1	.3					
X1	79	14	1291	1326	600	600	600			
X3				1250	44.8	1350	45.4			
GR	46	0	45	0	44.4	1150	44.8	1250	44.7	1291
GR	38	1305	38	1311	45	1326	45.4	1350	44	1397
GR	43.9	1450	44	1550	44	2000	46	2010		
NC				.3	.5					
X1	80	14	1306	1309	83	83	83			
X3	10									
GR	46	0	44.4	1150	44.8	1250	44.7	1291	44.7	1306
GR	38.3	1306	38.3	1309	44.7	1309	45.4	1350	44	1397
GR	43.9	1450	44	1550	45	2000	46	2010		
SB	1.05	1.5	2.6		3	.5	8			
X1	81	14	1306	1309	34	34	34			
X2			1	41.5	44.7					
X3	10			1250	44.8	1350	45.4			
BT	-5	1250	44.8		1291	44.7		1306	44.7	
BT		1309	44.7		1350	45.4				
GR	46	0	44.4	1150	44.8	1250	44.7	1291	44.7	1306
GR	38.3	1306	38.3	1309	44.7	1309	45.4	1350	44	1397
GR	43.9	1450	44	1550	45	2000	46	2010		

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X1	82	13	1291	1326	83	83	83				
X3				1250	44.8	1350	45.4				
GR	46	0	44.4	1150	44.8	1250	44.7	1291	38.5	1305	
GR	38	1311	45	1326	45.4	1350	44	1397	43.9	1450	
GR	44	1550	45	2000	46	2010					
NC				.1	.3						
X1	83	15	1283	1318	400	400	400				
X3				1250	44	1350	45.3				
GR	46	0	44.2	1150	44	1250	43.7	1283	39.2	1300	
GR	39.2	1306	43.1	1318	44.6	1336	45.3	1350	44.7	1366	
GR	44.2	1400	44.1	1450	44.2	1500	43.9	1550	46	2000	
NC				.3	.5						
X1	84	17	1300	1303	88	88	88				
X3	10			1250	44	1350	45.3				
GR	46	0	44.2	1150	44	1250	43.7	1283	43	1300	
GR	38.2	1300	38.2	1303	43	1303	43.1	1318	44.6	1336	
GR	45.3	1350	44.7	1366	44.2	1400	44.1	1450	44.2	1500	
GR	43.9	1550	46	2000							
SB	1.05	1.5	2.6		3	.5	7				
X1	85	17	1300	1303	24	24	24				
X2			1	42	44.5				.8		
X3	10			1283	44.5	1350	46.1				
BT	-7	1150	45.0		1250	44.8		1283	44.5		
BT		1300	44.5		1303	44.5		1336	45.4		
BT		1350	46.1								
GR	46	0	44.2	1150	44	1250	43.7	1283	43	1300	
GR	38.2	1300	38.2	1303	43	1303	43.1	1318	44.6	1336	
GR	45.3	1350	44.7	1366	44.2	1400	44.1	1450	44.2	1500	
GR	43.9	1550	46	2000							

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T1 DITCH M-1..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: M1DITCH.IH2.....25 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3							24.53	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							

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T1 DITCH M-1..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: MIDITCH.IH2.....100 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		4							25.95	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1							

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

L REVISED BY KLOTZ ASSOC

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
1.000	1126.00	23.58	1.52	6.10	29.90	30.00	29.90	1126.00	100.00	.00	96.13	
1.000	1316.00	24.53	1.57	6.10	29.90	30.00	29.90	1316.00	100.00	.00	102.67	
1.000	1510.00	25.95	1.53	6.10	29.90	30.00	29.90	1510.00	100.00	.00	112.44	
*	2.000	1126.00	23.63	1.23	6.20	22.00	23.50	29.00	870.07	77.27	100.00	763.57
*	2.000	1316.00	24.58	.78	6.20	22.00	23.50	29.00	597.39	45.39	100.00	1682.74
*	2.000	1510.00	25.99	.39	6.20	22.00	23.50	29.00	331.33	21.94	100.00	1691.45
*	3.000	1126.00	23.94	.48	9.98	21.34	22.62	28.00	323.59	28.74	3600.00	3260.39
*	3.000	1316.00	24.69	.29	9.98	21.34	22.62	28.00	213.76	16.24	3600.00	3798.47
*	3.000	1510.00	26.02	.15	9.98	21.34	22.62	28.00	125.53	8.31	3600.00	4680.20
	4.000	1126.00	23.95	.54	9.84	22.44	22.54	28.00	335.38	29.79	100.00	3240.50
	4.000	1316.00	24.69	.32	9.84	22.44	22.54	28.00	214.61	16.31	100.00	3775.23
	4.000	1510.00	26.02	.16	9.84	22.44	22.54	28.00	121.41	8.04	100.00	4666.24
	5.000	1126.00	23.95	.54	9.48	22.30	22.34	28.00	349.11	31.00	24.00	3227.48
	5.000	1316.00	24.69	.32	9.48	22.30	22.34	28.00	223.90	17.01	24.00	3772.85
	5.000	1510.00	26.02	.16	9.48	22.30	22.34	28.00	126.67	8.39	24.00	4665.80
*	6.000	1126.00	23.95	.86	10.03	20.97	25.75	28.00	414.78	36.84	100.00	1327.87
*	6.000	1316.00	24.69	.58	10.03	20.97	25.75	28.00	308.66	23.45	100.00	1823.54
*	6.000	1510.00	26.02	.29	10.03	20.97	25.75	28.00	181.08	11.99	100.00	4672.90
*	7.000	1126.00	24.19	.50	11.90	22.50	22.20	30.00	262.59	23.32	3600.00	1010.54
	7.000	1316.00	24.82	.44	11.90	22.50	22.20	30.00	248.54	18.89	3600.00	1944.30
	7.000	1510.00	26.05	.26	11.90	22.50	22.20	30.00	168.55	11.16	3600.00	3961.94
*	8.000	1126.00	24.29	1.47	11.80	23.80	23.80	30.00	485.26	43.10	900.00	796.49
*	8.000	1316.00	24.89	1.06	11.80	23.80	23.80	30.00	376.88	28.64	900.00	1391.63
*	8.000	1510.00	26.07	.50	11.80	23.80	23.80	30.00	200.47	13.28	900.00	2444.94



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SECNO	Q	CWSBL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
8.100	1126.00	24.29	1.46	11.80	23.80	23.80	30.00	482.41	42.84	20.00	799.24	
8.100	1316.00	24.89	1.05	11.80	23.80	23.80	30.00	373.25	28.36	20.00	1403.86	
8.100	1510.00	26.07	.50	11.80	23.80	23.80	30.00	199.60	13.22	20.00	2451.69	
*	8.900	1382.00	24.63	1.18	13.80	22.95	22.01	29.00	471.57	34.12	1170.00	2384.41
*	8.900	1479.00	25.04	.80	13.80	22.95	22.01	29.00	336.33	22.74	1170.00	3106.93
*	8.900	1536.00	26.10	.32	13.80	22.95	22.01	29.00	152.00	9.90	1170.00	4939.06
*	9.000	1382.00	24.65	2.89	12.38	24.69	24.62	29.00	1380.64	99.90	130.00	228.04
*	9.000	1479.00	25.04	2.51	12.38	24.69	24.62	29.00	1269.51	85.84	130.00	1640.64
*	9.000	1536.00	26.10	.71	12.38	24.69	24.62	29.00	409.62	26.67	130.00	4221.54
10.000	1382.00	24.81	2.79	13.33	24.59	24.80	29.00	1349.15	97.62	26.00	915.56	
10.000	1479.00	25.32	1.86	13.33	24.59	24.80	29.00	961.56	65.01	26.00	2388.43	
10.000	1536.00	26.10	.71	13.33	24.59	24.80	29.00	406.89	26.49	26.00	4221.53	
11.000	1382.00	24.88	3.46	13.64	24.41	21.55	28.73	1382.00	100.00	50.00	57.00	
*	11.000	1479.00	25.30	3.50	13.64	24.41	21.55	28.73	1479.00	100.00	50.00	57.00
*	11.000	1536.00	26.03	3.31	13.64	24.41	21.55	28.73	1536.00	100.00	50.00	57.00
12.000	1382.00	24.94	3.37	13.65	25.38	23.17	28.73	1382.00	100.00	50.00	58.99	
12.000	1479.00	25.36	3.40	13.65	25.38	23.17	28.73	1479.00	100.00	50.00	59.96	
12.000	1536.00	26.07	3.22	13.65	25.38	23.17	28.73	1536.00	100.00	50.00	60.00	
12.100	1382.00	25.52	2.87	13.74	26.23	26.71	29.00	1382.00	100.00	200.00	81.46	
12.100	1479.00	25.95	2.85	13.74	26.23	26.71	29.00	1479.00	100.00	200.00	94.61	
*	12.100	1536.00	26.31	.42	13.74	26.23	26.71	29.00	232.56	15.14	200.00	2256.25
*	13.000	1382.00	26.99	.84	14.30	26.80	26.00	30.00	305.97	22.14	3400.00	3453.89
*	13.000	1479.00	27.14	.73	14.30	26.80	26.00	30.00	270.95	18.32	3400.00	3667.66
*	13.000	1536.00	26.78	1.93	14.30	26.80	26.00	30.00	688.25	44.81	3400.00	1677.64
*	14.000	1382.00	27.00	.55	13.80	25.30	25.30	30.00	133.77	9.68	85.00	3965.88
14.000	1479.00	27.15	.49	13.80	25.30	25.30	30.00	120.21	8.13	85.00	4141.93	
*	14.000	1536.00	26.84	.74	13.80	25.30	25.30	30.00	178.63	11.63	85.00	3656.41
14.100	1382.00	27.00	.55	13.80	25.30	25.30	30.00	133.48	9.66	30.00	3969.69	
14.100	1479.00	27.15	.49	13.80	25.30	25.30	30.00	119.96	8.11	30.00	4144.12	
14.100	1536.00	26.84	.74	13.80	25.30	25.30	30.00	178.10	11.60	30.00	3661.20	
*	15.000	1382.00	26.89	4.06	15.20	25.80	25.10	30.00	1335.23	96.62	85.00	79.11
*	15.000	1479.00	27.03	4.23	15.20	25.80	25.10	30.00	1417.95	95.87	85.00	82.61
*	15.000	1536.00	26.71	4.67	15.20	25.80	25.10	30.00	1497.43	97.49	85.00	74.44
*	15.900	1326.00	27.43	.94	16.05	24.03	31.81	30.00	449.33	33.89	440.00	1794.12
*	15.900	1506.00	27.59	.93	16.05	24.03	31.81	30.00	455.91	30.27	440.00	1927.55
*	15.900	1809.00	27.46	1.24	16.05	24.03	31.81	30.00	598.20	33.07	440.00	1822.72
*	16.000	1326.00	27.42	2.42	15.37	27.92	28.93	26.15	1326.00	100.00	60.00	66.91
*	16.000	1506.00	27.56	2.70	15.37	27.92	28.93	26.15	1506.00	100.00	60.00	67.36
*	16.000	1809.00	27.42	3.29	15.37	27.92	28.93	26.15	1809.00	100.00	60.00	66.92

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
17.000	1326.00	28.39	2.08	15.57	27.92	30.16	25.93	1326.00	100.00	50.00	74.82
17.000	1506.00	27.57	2.61	15.57	27.92	30.16	25.93	1506.00	100.00	50.00	72.68
17.000	1809.00	27.43	3.18	15.57	27.92	30.16	25.93	1809.00	100.00	50.00	72.19
*	17.100	1326.00	28.49	.58	15.65	24.89	32.04	302.19	22.79	60.00	2506.61
*	17.100	1506.00	27.72	1.33	15.65	24.89	32.04	620.13	41.18	60.00	1730.00
*	17.100	1809.00	27.67	1.68	15.65	24.89	32.04	780.48	43.14	60.00	1672.78
*	18.000	1326.00	28.68	1.86	15.20	26.00	34.00	888.25	66.99	1440.00	1321.97
*	18.000	1506.00	28.53	2.34	15.20	26.00	34.00	1098.19	72.92	1440.00	1128.02
	18.000	1809.00	28.77	2.40	15.20	26.00	34.00	1153.53	63.77	1440.00	1425.15
*	19.000	1326.00	28.74	1.41	15.40	28.40	34.00	1026.09	77.38	88.00	1397.08
*	19.000	1506.00	28.62	1.70	15.40	28.40	34.00	1223.37	81.23	88.00	1247.15
*	19.000	1809.00	28.86	1.80	15.40	28.40	34.00	1326.52	73.33	88.00	1547.25
	20.000	1326.00	28.81	1.35	15.40	28.40	34.00	991.16	74.75	24.00	1495.29
	20.000	1506.00	28.71	1.62	15.40	28.40	34.00	1176.85	78.14	24.00	1368.15
	20.000	1809.00	29.01	1.64	15.40	28.40	34.00	1222.19	67.56	24.00	1755.32
	21.000	1194.00	28.84	1.41	16.30	26.20	34.00	809.69	67.81	88.00	1519.67
	21.000	1389.00	28.75	1.74	16.30	26.20	34.00	989.82	71.26	88.00	1401.55
	21.000	1666.00	29.05	1.67	16.30	26.20	34.00	988.39	59.33	88.00	1811.74
*	22.000	1122.00	29.54	1.31	18.30	27.20	27.50	742.64	66.19	3900.00	2078.64
*	22.000	1302.00	29.65	1.41	18.30	27.20	27.50	806.48	61.94	3900.00	2306.05
*	22.000	1516.00	29.87	1.38	18.30	27.20	27.50	815.55	53.80	3900.00	2764.15
*	23.000	1122.00	31.15	3.63	21.80	32.40	33.90	1122.00	100.00	6800.00	53.39
*	23.000	1302.00	31.47	3.99	21.80	32.40	33.90	1302.00	100.00	6800.00	54.73
*	23.000	1516.00	31.62	4.53	21.80	32.40	33.90	1516.00	100.00	6800.00	55.39
	24.000	1122.00	31.24	4.52	23.00	32.00	38.00	1122.00	100.00	88.00	38.00
	24.000	1302.00	31.56	5.00	23.00	32.00	38.00	1302.00	100.00	88.00	38.00
	24.000	1516.00	31.74	5.68	23.00	32.00	38.00	1516.00	100.00	88.00	38.00
	25.000	1122.00	31.27	4.50	23.00	32.00	38.00	1122.00	100.00	24.00	38.00
	25.000	1302.00	31.61	4.97	23.00	32.00	38.00	1302.00	100.00	24.00	38.00
	25.000	1516.00	31.81	5.62	23.00	32.00	38.00	1516.00	100.00	24.00	38.00
*	26.000	1122.00	31.60	3.10	22.20	31.00	32.00	1121.01	99.91	88.00	65.91
*	26.000	1302.00	32.00	3.35	22.20	31.00	32.00	1294.20	99.40	88.00	124.84
*	26.000	1516.00	32.32	3.68	22.20	31.00	32.00	1487.79	98.14	88.00	266.31
	27.000	1005.00	33.56	2.53	23.40	31.50	33.00	576.35	57.35	2300.00	1004.54
	27.000	1105.00	33.82	2.20	23.40	31.50	33.00	525.50	47.56	2300.00	1114.73
*	27.000	1304.00	34.09	2.05	23.40	31.50	33.00	511.49	39.22	2300.00	1229.44
*	28.000	1005.00	33.62	1.56	22.10	32.10	39.00	720.07	71.65	62.00	1027.73
*	28.000	1105.00	33.86	1.49	22.10	32.10	39.00	702.00	63.53	62.00	1133.15
*	28.000	1304.00	34.12	1.51	22.10	32.10	39.00	726.34	55.70	62.00	1245.18

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
29.000	1005.00	33.78	1.42	22.10	32.10	32.10	39.00	664.71	66.14	76.00	1098.37	
29.000	1105.00	34.06	1.33	22.10	32.10	32.10	39.00	634.31	57.40	76.00	1219.62	
29.000	1304.00	34.32	1.35	22.10	32.10	32.10	39.00	657.96	50.46	76.00	1329.36	
*	30.000	1005.00	33.71	4.79	25.60	34.50	34.20	40.00	1005.00	100.00	250.00	45.65
*	30.000	1105.00	33.96	4.99	25.60	34.50	34.20	40.00	1105.00	100.00	250.00	46.88
*	30.000	1304.00	34.18	5.63	25.60	34.50	34.20	40.00	1304.00	100.00	250.00	47.92
*	31.000	1005.00	34.13	2.31	24.30	34.50	34.50	40.00	1005.00	100.00	100.00	48.00
*	31.000	1105.00	34.41	2.47	24.30	34.50	34.50	40.00	1105.00	100.00	100.00	48.00
*	31.000	1304.00	34.76	2.64	24.30	34.50	34.50	40.00	1227.69	94.15	100.00	2183.65
32.000	1005.00	34.13	2.31	24.30	34.50	34.50	40.00	1005.00	100.00	30.00	48.00	
32.000	1105.00	34.41	2.47	24.30	34.50	34.50	40.00	1105.00	100.00	30.00	48.00	
32.000	1304.00	34.76	2.64	24.30	34.50	34.50	40.00	1226.32	94.04	30.00	2185.83	
*	33.000	1005.00	34.24	1.14	24.40	33.60	33.30	40.00	386.42	38.45	100.00	2822.41
*	33.000	1105.00	34.54	.98	24.40	33.60	33.30	40.00	348.73	31.56	100.00	2972.04
*	33.000	1304.00	34.90	.89	24.40	33.60	33.30	40.00	334.68	25.67	100.00	3152.58
*	34.000	1005.00	34.52	4.45	25.50	34.40	34.70	39.00	1005.00	100.00	1900.00	40.94
*	34.000	1105.00	34.66	4.77	25.50	34.40	34.70	39.00	1104.93	99.99	1900.00	42.59
*	34.000	1304.00	34.88	5.42	25.50	34.40	34.70	39.00	1303.30	99.95	1900.00	56.53
35.000	1005.00	34.64	4.96	25.30	34.20	34.20	39.00	1004.04	99.90	90.00	41.18	
35.000	1105.00	34.80	5.33	25.30	34.20	34.20	39.00	1102.48	99.77	90.00	50.02	
35.000	1304.00	35.05	6.03	25.30	34.20	34.20	39.00	1289.98	98.92	90.00	1024.31	
36.000	1005.00	34.64	4.95	25.30	34.20	34.20	39.00	1003.99	99.90	20.00	41.46	
36.000	1105.00	34.80	5.32	25.30	34.20	34.20	39.00	1102.39	99.76	20.00	50.53	
36.000	1304.00	35.05	6.01	25.30	34.20	34.20	39.00	1287.55	98.74	20.00	1026.35	
37.000	1005.00	34.98	3.75	25.30	34.80	33.90	39.00	962.58	95.78	90.00	396.61	
*	37.000	1105.00	35.23	3.76	25.30	34.80	33.90	39.00	1003.19	90.79	90.00	586.61
*	37.000	1304.00	35.74	3.12	25.30	34.80	33.90	39.00	897.48	68.82	90.00	2084.40
*	38.000	1005.00	35.50	2.18	26.10	32.60	34.60	39.00	786.89	78.30	700.00	1132.03
*	38.000	1105.00	35.71	2.12	26.10	32.60	34.60	39.00	792.59	71.73	700.00	1324.43
*	38.000	1304.00	36.04	2.04	26.10	32.60	34.60	39.00	798.78	61.26	700.00	1588.44
*	39.000	1005.00	35.52	2.97	27.40	33.40	33.40	39.00	626.08	62.30	65.00	1148.41
39.000	1105.00	35.73	2.77	27.40	33.40	33.40	39.00	599.24	54.23	65.00	1343.11	
39.000	1304.00	36.06	2.46	27.40	33.40	33.40	39.00	555.48	42.60	65.00	1589.44	
40.000	1005.00	35.52	2.97	27.40	33.40	33.40	39.00	626.07	62.30	70.00	1148.42	
40.000	1105.00	35.73	2.74	27.40	33.40	33.40	39.00	594.76	53.82	70.00	1353.34	
40.000	1304.00	36.06	2.47	27.40	33.40	33.40	39.00	557.20	42.73	70.00	1589.31	
41.000	1005.00	35.51	3.59	26.70	34.70	35.80	39.00	999.92	99.49	65.00	336.87	
*	41.000	1105.00	35.71	3.73	26.70	34.70	35.80	39.00	1079.18	97.66	65.00	456.64
*	41.000	1304.00	36.02	3.82	26.70	34.70	35.80	39.00	1168.09	89.58	65.00	1983.93

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
42.000	1005.00	37.19	4.58	26.60	36.90	37.10	41.00	1004.19	99.92	1300.00	97.56
42.000	1105.00	37.44	4.78	26.60	36.90	37.10	41.00	1090.81	98.72	1300.00	638.83
42.000	1304.00	37.72	4.81	26.60	36.90	37.10	41.00	1149.07	88.12	1300.00	2151.31
*	43.000	1005.00	37.52	3.24	27.30	36.30	41.00	840.52	83.63	82.00	1516.74
*	43.000	1105.00	37.87	2.67	27.30	36.30	41.00	720.21	65.18	82.00	3340.26
*	43.000	1304.00	38.13	2.32	27.30	36.30	41.00	644.68	49.44	82.00	4055.27
	44.000	1005.00	37.52	3.24	27.30	36.30	41.00	840.17	83.60	36.00	1521.35
	44.000	1105.00	37.87	2.68	27.30	36.30	41.00	723.15	65.44	36.00	3317.58
	44.000	1304.00	38.13	2.31	27.30	36.30	41.00	641.65	49.21	36.00	4057.72
*	45.000	655.00	37.59	2.87	27.50	37.40	41.00	647.54	98.86	82.00	390.52
*	45.000	761.00	37.88	3.00	27.50	37.40	41.00	713.15	93.71	82.00	685.10
*	45.000	969.00	38.11	3.43	27.50	37.40	41.00	846.40	87.35	82.00	3733.81
*	46.000	655.00	38.04	1.54	27.90	36.90	40.00	466.45	71.21	1200.00	1196.11
*	46.000	761.00	38.32	1.53	27.90	36.90	40.00	483.36	63.52	1200.00	1384.51
*	46.000	969.00	38.63	1.65	27.90	36.90	40.00	543.68	56.11	1200.00	1912.21
*	47.000	655.00	38.05	2.34	28.00	36.30	40.00	235.31	35.92	68.00	1212.34
*	47.000	761.00	38.34	2.04	28.00	36.30	40.00	210.99	27.73	68.00	1403.68
*	47.000	969.00	38.66	1.96	28.00	36.30	40.00	208.51	21.52	68.00	2024.10
	48.000	655.00	38.05	2.35	28.00	36.30	40.00	235.89	36.01	402.00	1210.57
	48.000	761.00	38.34	2.05	28.00	36.30	40.00	211.69	27.82	402.00	1401.13
	48.000	969.00	38.66	1.96	28.00	36.30	40.00	208.90	21.56	402.00	2016.71
	49.000	655.00	38.01	3.01	28.70	37.30	40.00	599.28	91.49	10.00	822.38
	49.000	761.00	38.31	2.93	28.70	37.30	40.00	605.89	79.62	10.00	1475.32
	49.000	969.00	38.63	2.91	28.70	37.30	40.00	626.08	64.61	10.00	2181.43
	50.000	655.00	38.01	3.01	28.70	37.30	40.00	599.28	91.49	20.00	822.40
	50.000	761.00	38.31	2.91	28.70	37.30	40.00	602.70	79.20	20.00	1495.78
	50.000	969.00	38.63	2.90	28.70	37.30	40.00	624.17	64.41	20.00	2190.69
*	51.000	655.00	37.98	3.61	29.60	36.30	41.00	646.41	98.69	10.00	156.60
*	51.000	761.00	38.24	3.97	29.60	36.30	41.00	741.61	97.45	10.00	561.34
*	51.000	969.00	38.51	4.72	29.60	36.30	41.00	918.25	94.76	10.00	997.18
	52.000	655.00	38.00	4.10	30.30	37.00	41.70	653.44	99.76	300.00	54.35
	52.000	761.00	38.27	4.53	30.30	37.00	41.70	757.18	99.50	300.00	94.57
	52.000	969.00	38.53	5.49	30.30	37.00	41.70	959.82	99.05	300.00	133.75
*	53.000	655.00	38.25	2.21	30.40	36.40	40.00	642.45	98.08	50.00	236.98
*	53.000	761.00	38.57	2.44	30.40	36.40	40.00	738.33	97.02	50.00	285.08
*	53.000	969.00	38.97	2.91	30.40	36.40	40.00	923.85	95.34	50.00	346.07
	54.000	655.00	38.25	2.21	30.40	36.40	40.00	642.46	98.08	120.00	236.96
	54.000	761.00	38.57	2.44	30.40	36.40	40.00	738.33	97.02	120.00	285.05
	54.000	969.00	38.97	2.91	30.40	36.40	40.00	923.89	95.34	120.00	345.94

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	55.000	655.00	38.05	5.90	30.70	36.80	37.10	40.20	586.16	89.49	100.00	399.94
*	55.000	761.00	38.40	5.92	30.70	36.80	37.10	40.20	632.78	83.15	100.00	475.02
*	55.000	969.00	38.82	6.30	30.70	36.80	37.10	40.20	731.84	75.52	100.00	566.49
*	56.000	655.00	38.24	7.99	30.70	36.90	36.90	40.20	482.30	73.63	85.00	440.64
*	56.000	761.00	38.52	7.88	30.70	36.90	36.90	40.20	493.49	64.85	85.00	502.19
*	56.000	969.00	38.80	8.56	30.70	36.90	36.90	40.20	554.49	57.22	85.00	561.69
	57.000	655.00	38.29	7.82	30.70	36.90	36.90	40.20	474.25	72.40	30.00	448.95
	57.000	761.00	38.55	7.78	30.70	36.90	36.90	40.20	488.37	64.17	30.00	507.16
*	57.000	969.00	38.82	8.46	30.70	36.90	36.90	40.20	549.33	56.69	30.00	566.14
*	58.000	655.00	39.03	3.30	30.90	36.90	36.90	40.20	527.42	80.52	85.00	619.04
*	58.000	761.00	39.15	3.65	30.90	36.90	36.90	40.20	597.13	78.47	85.00	673.31
*	58.000	969.00	39.41	4.20	30.90	36.90	36.90	40.20	719.39	74.24	85.00	788.57
*	59.000	655.00	39.06	4.71	31.80	37.80	37.80	42.00	631.74	96.45	850.00	167.75
*	59.000	761.00	39.18	5.29	31.80	37.80	37.80	42.00	728.51	95.73	850.00	297.52
*	59.000	969.00	39.41	6.29	31.80	37.80	37.80	42.00	909.25	93.83	850.00	367.87
*	60.000	655.00	39.08	6.68	31.90	38.60	38.60	41.20	383.75	58.59	85.00	743.00
	60.000	761.00	39.49	5.58	31.90	38.60	38.60	41.20	338.26	44.45	85.00	942.54
	60.000	969.00	40.08	4.49	31.90	38.60	38.60	41.20	294.06	30.35	85.00	1246.97
	61.000	655.00	39.08	6.67	31.90	38.60	38.60	41.20	383.57	58.56	30.00	743.33
	61.000	761.00	39.50	5.52	31.90	38.60	38.60	41.20	335.21	44.05	30.00	949.33
*	61.000	969.00	40.08	4.49	31.90	38.60	38.60	41.20	293.74	30.31	30.00	1247.93
*	62.000	655.00	39.51	3.45	32.00	38.20	38.10	41.30	342.45	52.28	85.00	1521.44
*	62.000	761.00	39.68	3.50	32.00	38.20	38.10	41.30	360.44	47.36	85.00	1536.48
*	62.000	969.00	40.15	3.24	32.00	38.20	38.10	41.30	365.23	37.69	85.00	1587.08
*	63.000	655.00	39.29	10.01	33.40	39.60	39.50	43.40	655.00	100.00	650.00	20.22
*	63.000	761.00	41.15	6.34	33.40	39.60	39.50	43.40	660.51	86.80	650.00	1538.45
*	63.000	969.00	41.42	6.55	33.40	39.60	39.50	43.40	721.18	74.43	650.00	1568.51
*	64.000	655.00	41.32	1.56	32.90	38.90	38.90	44.00	105.11	16.05	85.00	1921.42
*	64.000	761.00	41.85	1.31	32.90	38.90	38.90	44.00	94.09	12.36	85.00	2458.23
*	64.000	969.00	42.07	1.48	32.90	38.90	38.90	44.00	108.60	11.21	85.00	2679.79
	65.000	655.00	41.32	1.56	32.90	38.90	38.90	44.00	104.91	16.02	30.00	1925.10
	65.000	761.00	41.85	1.31	32.90	38.90	38.90	44.00	94.09	12.36	30.00	2458.10
	65.000	969.00	42.07	1.48	32.90	38.90	38.90	44.00	108.58	11.21	30.00	2680.23
	66.000	655.00	41.32	1.66	32.90	39.60	39.30	44.00	190.62	29.10	85.00	1927.73
	66.000	761.00	41.85	1.46	32.90	39.60	39.30	44.00	184.00	24.18	85.00	2459.44
	66.000	969.00	42.07	1.67	32.90	39.60	39.30	44.00	218.07	22.50	85.00	2681.98
*	67.000	655.00	40.94	7.40	33.80	40.30	40.30	43.00	623.92	95.25	500.00	560.55
*	67.000	761.00	41.62	5.77	33.80	40.30	40.30	43.00	565.54	74.31	500.00	1274.71
*	67.000	969.00	41.82	6.39	33.80	40.30	40.30	43.00	651.94	67.28	500.00	1498.59

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	68.000	655.00	41.59	7.07	33.80	40.30	40.30	43.00	330.76	50.50	88.00	1242.49
	68.000	761.00	41.97	5.44	33.80	40.30	40.30	43.00	266.72	35.05	88.00	1652.88
	68.000	969.00	42.31	4.87	33.80	40.30	40.30	43.00	248.19	25.61	88.00	2024.90
*	69.000	655.00	41.60	7.03	33.80	40.30	40.30	43.00	329.02	50.23	24.00	1248.41
*	69.000	761.00	41.97	5.40	33.80	40.30	40.30	43.00	264.86	34.80	24.00	1660.87
*	69.000	969.00	42.31	4.81	33.80	40.30	40.30	43.00	245.70	25.36	24.00	2037.38
*	70.000	655.00	41.94	3.98	33.80	40.30	40.30	43.00	415.09	63.37	88.00	1627.55
*	70.000	761.00	42.00	4.44	33.80	40.30	40.30	43.00	468.42	61.55	88.00	1689.45
*	70.000	969.00	42.31	4.53	33.80	40.30	40.30	43.00	505.67	52.18	88.00	2035.74
	71.000	655.00	41.98	3.87	33.80	40.30	40.30	43.00	406.77	62.10	100.00	1670.64
	71.000	761.00	42.05	4.27	33.80	40.30	40.30	43.00	454.88	59.77	100.00	1751.38
	71.000	969.00	42.35	4.39	33.80	40.30	40.30	43.00	493.82	50.96	100.00	2085.44
*	72.000	655.00	42.01	4.77	33.80	41.00	41.00	43.10	273.61	41.77	50.00	1238.20
*	72.000	761.00	42.18	4.17	33.80	41.00	41.00	43.10	244.90	32.18	50.00	1464.63
*	72.000	969.00	42.53	3.21	33.80	41.00	41.00	43.10	196.02	20.23	50.00	1898.67
*	73.000	655.00	42.31	4.62	34.10	41.30	41.30	43.30	265.64	40.56	50.00	1270.67
*	73.000	761.00	42.27	5.72	34.10	41.30	41.30	43.30	327.41	43.02	50.00	1219.70
*	73.000	969.00	42.37	6.29	34.10	41.30	41.30	43.30	364.26	37.59	50.00	1336.40
*	74.000	655.00	42.47	2.46	34.40	41.30	42.20	43.20	589.38	89.98	75.00	1199.55
*	74.000	761.00	42.55	2.74	34.40	41.30	42.20	43.20	664.72	87.35	75.00	1327.78
*	74.000	969.00	42.65	3.25	34.40	41.30	42.20	43.20	806.40	83.22	75.00	1512.09
	75.000	132.00	43.29	.57	35.70	42.10	43.20	46.00	130.99	99.24	3300.00	74.51
	75.000	153.00	43.52	.63	35.70	42.10	43.20	46.00	150.92	98.64	3300.00	228.29
	75.000	189.00	43.91	.70	35.70	42.10	43.20	46.00	180.55	95.53	3300.00	385.62
*	76.000	132.00	43.23	2.96	35.80	44.80	44.80	46.00	132.00	100.00	70.00	6.00
*	76.000	153.00	43.45	3.34	35.80	44.80	44.80	46.00	153.00	100.00	70.00	6.00
*	76.000	189.00	43.80	3.94	35.80	44.80	44.80	46.00	189.00	100.00	70.00	6.00
	77.000	132.00	44.14	2.64	35.80	44.80	44.80	46.00	132.00	100.00	60.00	6.00
*	77.000	153.00	43.45	3.33	35.80	44.80	44.80	46.00	153.00	100.00	60.00	6.00
*	77.000	189.00	43.80	3.94	35.80	44.80	44.80	46.00	189.00	100.00	60.00	6.00
*	78.000	132.00	44.29	.58	38.00	43.30	43.00	46.00	88.49	67.04	70.00	765.47
*	78.000	153.00	43.68	1.09	38.00	43.30	43.00	46.00	142.48	93.13	70.00	362.27
*	78.000	189.00	44.12	.96	38.00	43.30	43.00	46.00	140.80	74.50	70.00	656.36
*	79.000	132.00	44.32	1.08	38.00	44.70	45.00	46.00	132.00	100.00	600.00	32.74
*	79.000	153.00	43.81	1.44	38.00	44.70	45.00	46.00	153.00	100.00	600.00	30.57
*	79.000	189.00	44.21	1.59	38.00	44.70	45.00	46.00	189.00	100.00	600.00	32.29
*	80.000	132.00	43.89	7.86	38.30	44.70	44.70	46.00	132.00	100.00	83.00	3.00
*	80.000	153.00	43.00	10.84	38.30	44.70	44.70	46.00	153.00	100.00	83.00	3.00
*	80.000	189.00	44.83	1.16	38.30	44.70	44.70	46.00	22.72	12.02	83.00	1026.76

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	81.000	132.00	45.24	2.04	38.30	44.70	44.70	46.00	42.47	32.18	34.00	607.84
*	81.000	153.00	45.24	2.29	38.30	44.70	44.70	46.00	47.80	31.24	34.00	617.75
*	81.000	189.00	45.53	1.15	38.30	44.70	44.70	46.00	24.88	13.17	34.00	1555.42
*	82.000	132.00	45.27	.77	38.00	44.70	45.00	46.00	115.08	87.18	83.00	641.90
*	82.000	153.00	45.29	.88	38.00	44.70	45.00	46.00	132.34	86.50	83.00	656.66
*	82.000	189.00	45.54	.84	38.00	44.70	45.00	46.00	134.43	71.13	83.00	1562.87
*	83.000	132.00	45.29	.48	39.20	43.70	43.10	46.00	72.43	54.87	400.00	898.49
*	83.000	153.00	45.32	.54	39.20	43.70	43.10	46.00	82.54	53.94	400.00	1125.71
*	83.000	189.00	45.56	.52	39.20	43.70	43.10	46.00	84.46	44.69	400.00	1442.26
*	84.000	132.00	45.30	.44	38.20	43.00	43.00	46.00	9.28	7.03	88.00	901.42
*	84.000	153.00	45.33	.49	38.20	43.00	43.00	46.00	10.37	6.78	88.00	1133.73
*	84.000	189.00	45.57	.41	38.20	43.00	43.00	46.00	9.13	4.83	88.00	1448.10
*	85.000	132.00	45.30	1.83	39.00	43.80	43.80	47.60	34.63	26.23	24.00	376.43
*	85.000	153.00	45.33	2.01	39.00	43.80	43.80	47.60	38.12	24.91	24.00	394.89
*	85.000	189.00	45.57	1.51	39.00	43.80	43.80	47.60	29.84	15.79	24.00	560.05

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## SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	2.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	3.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	3.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	3.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	8.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	8.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	8.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	8.900	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	9.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	9.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	9.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	11.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	11.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	12.100	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	13.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	13.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	14.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	14.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	15.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	15.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	15.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	15.900	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	15.900	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	15.900	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	16.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	16.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	16.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	17.100	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE





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WARNING SECNO=	41.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	43.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	43.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	43.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	45.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	45.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	45.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	46.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	46.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	46.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	47.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	47.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	47.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	51.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	51.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	51.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	53.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	53.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	53.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	55.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	55.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	55.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	56.000	PROFILE=	1	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	56.000	PROFILE=	1	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	56.000	PROFILE=	2	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	56.000	PROFILE=	2	MINIMUM SPECIFIC ENERGY
WARNING SECNO=	56.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	57.000	PROFILE=	3	HYDRAULIC JUMP D.S.
WARNING SECNO=	58.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	58.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	58.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	59.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	59.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	59.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	60.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	61.000	PROFILE=	3	HYDRAULIC JUMP D.S.
WARNING SECNO=	62.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	62.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	62.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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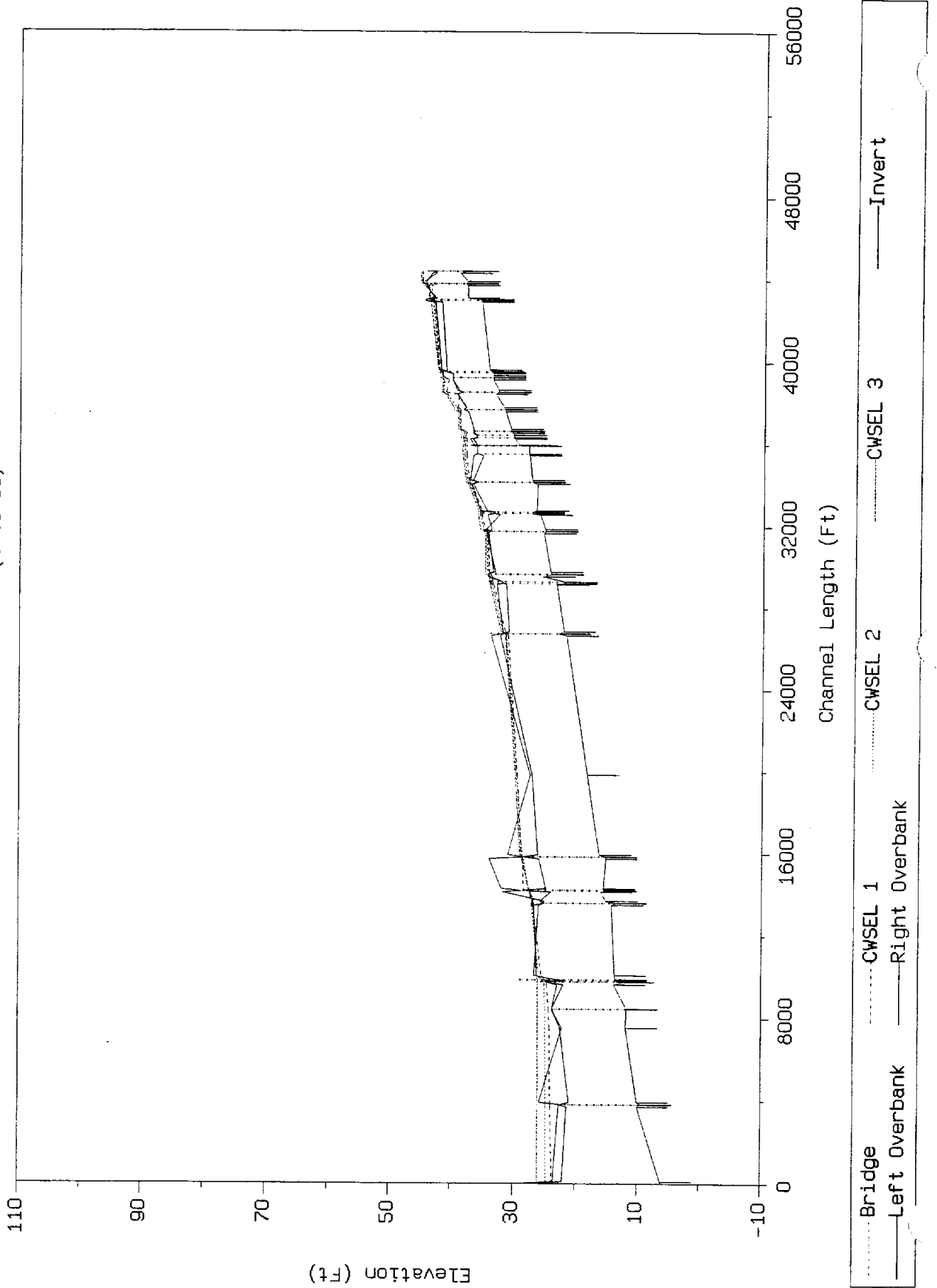
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CAUTION SECNO=	63.000	PROFILE=	1	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	63.000	PROFILE=	2	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	63.000	PROFILE=	2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	63.000	PROFILE=	2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=	63.000	PROFILE=	3	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	63.000	PROFILE=	3	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	63.000	PROFILE=	3	20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=	64.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	64.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	64.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	67.000	PROFILE=	1	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	67.000	PROFILE=	1	MINIMUM SPECIFIC ENERGY
WARNING SECNO=	67.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	67.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	68.000	PROFILE=	1	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	68.000	PROFILE=	1	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	69.000	PROFILE=	1	HYDRAULIC JUMP D.S.
CAUTION SECNO=	69.000	PROFILE=	2	HYDRAULIC JUMP D.S.
CAUTION SECNO=	69.000	PROFILE=	3	HYDRAULIC JUMP D.S.
WARNING SECNO=	70.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	70.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	70.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	72.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	72.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	72.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	73.000	PROFILE=	1	WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=	73.000	PROFILE=	1	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=	73.000	PROFILE=	2	WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=	73.000	PROFILE=	2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=	73.000	PROFILE=	2	HYDRAULIC JUMP D.S.
CAUTION SECNO=	73.000	PROFILE=	3	WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=	73.000	PROFILE=	3	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=	73.000	PROFILE=	3	HYDRAULIC JUMP D.S.
WARNING SECNO=	74.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	74.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	74.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	76.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	76.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	76.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	77.000	PROFILE=	2	20 TRIALS OF EG NOT ENOUGH
CAUTION SECNO=	77.000	PROFILE=	3	20 TRIALS OF EG NOT ENOUGH
WARNING SECNO=	78.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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WARNING SECNO=	78.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	78.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	79.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	79.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	80.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	80.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	80.000	PROFILE=	3	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	80.000	PROFILE=	3	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	81.000	PROFILE=	1	HYDRAULIC JUMP D.S.
WARNING SECNO=	81.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	81.000	PROFILE=	2	HYDRAULIC JUMP D.S.
WARNING SECNO=	81.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	81.000	PROFILE=	3	HYDRAULIC JUMP D.S.
WARNING SECNO=	82.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	82.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	82.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	83.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	83.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	83.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	84.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	84.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	84.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	85.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	85.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	85.000	PROFILE=	3	HYDRAULIC JUMP D.S.
WARNING SECNO=	85.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

L REVISED BY KLOTZ ASSOC  
Cross-Sections (1 to 85)



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*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JUN 1998
*   VERSION 4.1
*
* RUN DATE 20AUG02 TIME 07:00:31
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****

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X   X  XXXXXXX  XXXXX      X
X   X X        X   X      XX
X   X X        X           X
XXXXXXXX XXXX   X           XXXXX X
X   X X        X           X
X   X X        X   X      X
X   X  XXXXXXX  XXXXX      XXX

```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.  
 THE DEFINITION OF -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM



LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

38 KK SUB3  
 39 KM COMBINE HYDROS AT 3  
 40 HC 2  
 \*

41 KK 3TO4  
 42 KM REACH EXTENDS FROM X-SECT. 144.900 TO X-SECT. 151.000  
 43 RS 4 FLOW -1  
 44 SV 0 92 317 458 606 843 940  
 45 SQ 0 685 1370 2055 2740 3425 4110  
 46 SE 40.9 48.1 49.3 51.84 53.42 54.52  
 \*

47 KK N-04  
 48 KM RUNOFF FROM SUBAREA 4  
 49 BA 3.48  
 50 LU 1 .1 8  
 51 UC 4.24 16.45  
 \*

52 KK SUB4  
 53 KM COMBINE HYDROS AT 4  
 54 HC 2  
 \*

55 KK 4TO5  
 56 KM REACH EXTENDS FROM X-SECT. 133.000 TO X-SECT. 144.900  
 57 RS 3 FLOW -1  
 58 SV 0 78 217 429 602 752 901  
 59 SQ 0 780 1560 2341 3121 3901 4681  
 60 SE 40.9 48.1 49.3 51.84 53.42 54.52  
 \*

61 KK N-05  
 62 KM RUNOFF FROM SUBAREA 5  
 63 BA 2.6  
 64 LU 1 .1 15  
 65 UC 1.84 12.35  
 \*

66 KK SUB5  
 67 KM COMBINE HYDROS AT 5  
 68 HC 2  
 \*

69 KK 5TO7  
 70 KM REACH EXTENDS FROM X-SECT. 127.000 TO X-SECT. 133.000  
 71 RS 2 FLOW -1  
 72 SV 0 29 38 84 131 256 337  
 73 SQ 0 811 1622 2433 3244 4055 4866  
 74 SE 40.9 48.1 49.3 51.84 53.42 54.52  
 \*



LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

75 KK N-07  
 76 KM RUNOFF FROM SUBAREA 7  
 77 BA .72  
 78 LU 1 .1 2  
 79 UC 1.77 18.49  
 \*

80 KK SUB7  
 81 KM COMBINE HYDROS AT 7  
 82 HC 2  
 \*

83 KK 7TO6  
 84 KM REACH EXTENDS FROM X-SECT. 123.000 TO X-SECT. 127.000  
 85 RS 2 FLOW -1  
 86 SV 0 67 1068 1289 1585 1928 2081  
 87 SQ 0 828 1656 2484 3312 4140 4968  
 88 SE 40.9 48.1 49.3 51.84 53.42 54.52  
 \*

89 KK N-06  
 90 KM RUNOFF FROM SUBAREA 6  
 91 BA 2.03  
 92 LU 1 .1 20  
 93 UC 1.38 3.88  
 \*

94 KK SUB6  
 95 KM COMBINE HYDROS AT 6  
 96 HC 2  
 \*

97 KK 6TO8  
 98 KM REACH EXTENDS FROM X-SECT. 115.000 TO X-SECT. 123.000  
 99 RS 2 FLOW -1  
 100 SV 0 64 394 506 709 941 1106  
 101 SQ 0 845 1690 2534 3379 4224 5069  
 102 SE 40.9 48.1 49.3 51.84 53.42 54.52  
 \*

103 KK N-08  
 104 KM RUNOFF FROM SUBAREA 8  
 105 BA .5  
 106 LU 1 .1 2  
 107 UC 0.83 6.97  
 \*

108 KK SUB8  
 109 KM COMBINE HYDROS AT 8  
 110 HC 2  
 \*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

111 KK 8TO9  
 112 KM REACH EXTENDS FROM X-SECT. 43.300 TO X-SECT. 115.000  
 113 RS 11 FLOW -1  
 114 SV 0 132 412 2050 2223 2477 2711  
 115 SQ 0 958 1917 2875 3834 4792 5750  
 116 SE 40.9 48.1 49.3 51.84 53.42 54.52  
 \*

117 KK N-09  
 118 KM RUNOFF FROM SUBAREA 9  
 119 BA 2.98  
 120 LU 1 .1 2  
 121 UC 5.25 21.63  
 \*

122 KK SUB9  
 123 KM COMBINE HYDROS AT 9  
 124 HC 2  
 \*

125 KK SUB9  
 126 KM SUBTRACT FLOWS WHICH GO THROUGH DITCH C-1  
 127 DT DIV  
 128 DI 0 1000 2000 3000 4000  
 129 DQ 0 200 400 600 800  
 \*

130 KK 9TO10  
 131 KM REACH EXTENDS FROM X-SECT. 39.900 TO X-SECT. 43.300  
 132 RS 1 FLOW -1  
 133 SV 0 4 26 78 97 107 118  
 134 SQ 0 973 1947 2920 3893 4866 5840  
 135 SE 40.9 48.1 49.3 51.84 53.42 54.52  
 \*

136 KK N-10  
 137 KM RUNOFF FROM SUBAREA 10  
 138 BA .47  
 139 LU 1 .1 2  
 140 UC 0.64 6.58  
 \*

141 KK SUB10  
 142 KM COMBINE HYDROS AT 10  
 143 HC 2  
 \*

144 KK 10TO11  
 145 KM REACH EXTENDS FROM X-SECT. 32.000 TO X-SECT. 39.900  
 146 RS 4 FLOW -1  
 147 SV 0 244 855 1719 2479 3173 3992  
 148 SQ 0 1036 2072 3109 4145 5181 6217  
 149 SE 40.9 48.1 49.3 51.84 53.42 54.52  
 \*

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
150	KK N-11
151	KM RUNOFF FROM SUBAREA 11
152	BA 2.2
153	LU 1 .1 2
154	UC 2.71 32.22
	*
155	KK SUB11
156	KM COMBINE HYDROS AT 11
157	HC 2
	*
158	KK 11TO12
159	KM REACH EXTENDS FROM X-SECT. 22.000 TO X-SECT. 32.000
160	RS 5 FLOW -1
161	SV 0 251 827 1268 1523 1862 2432
162	SQ 0 1047 2094 3141 4188 5235 6282
163	SE 40.9 48.1 49.3 51.84 53.42 54.52
	*
164	KK N-12
165	KM RUNOFF FROM SUBAREA 12
166	BA 1.61
167	LU 1 .1 2
168	UC 0.99 22.73
	*
169	KK SUB12
170	KM COMBINE HYDROS AT 12
171	HC 2
	*
172	KK 12TO13
173	KM REACH EXTENDS FROM X-SECT. 9.000 TO X-SECT. 22.000
174	RS 2 FLOW -1
175	SV 0 470 973 1431 1839 2149 2607
176	SQ 0 1074 2148 3223 4297 5371 6445
177	SE 40.9 48.1 49.3 51.84 53.42 54.52
	*
178	KK N-13
179	KM RUNOFF FROM SUBAREA 13
180	BA 1.3
181	LU 1 .1 4
182	UC 2.01 13.20
	*
183	KK SUB13
184	KM COMBINE HYDROS AT 13
185	HC 2
	*

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
186	KK 13TO14
187	KM REACH EXTENDS FROM X-SECT. 1.000 TO X-SECT. 9.000
188	RS 3 FLOW -1
189	SV 0 757 844 984 1243 1511 1834
190	SQ 0 900 1800 2700 3600 4500 5400
191	SE 40.9 48.1 49.3 51.84 53.42 54.52
	*
192	KK N-14
193	KM RUNOFF FROM SUBAREA 14
194	BA 1.6
195	LU 1 .1 4
196	UC 1.54 11.12
	*
197	KK SUB14
198	KM COMBINE HYDROS AT 14
199	HC 2
200	ZZ

```

*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JUN 1998
*   VERSION 4.1
*
* RUN DATE 20AUG02 TIME 07:00:31
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
*   609 SECOND STREET
*   DAVIS, CALIFORNIA 95616
*   (916) 756-1104
*
*****

```

KLOTZ ASSOCIATES, INC.  
 NEW BAYOU WATERSHED, 100-YR. HYDROGRAPH FOR REVISED EXISTING CONDITIONS  
 BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 FILENAME: NEWB10RR.IH1

```

6 IO      OUTPUT CONTROL VARIABLES
          IPRNT      5  PRINT CONTROL
          IPLOT      0  PLOT CONTROL
          QSCAL      0. HYDROGRAPH PLOT SCALE

```

```

IT        HYDROGRAPH TIME DATA
          NMIN      15  MINUTES IN COMPUTATION INTERVAL
          IDATE     1JAN92 STARTING DATE
          ITIME     0000 STARTING TIME
          NQ        300 NUMBER OF HYDROGRAPH ORDINATES
          NDDATE    4JAN92 ENDING DATE
          NDTIME    0245 ENDING TIME
          ICENT     19  CENTURY MARK

```

```

          COMPUTATION INTERVAL .25 HOURS
          TOTAL TIME BASE     74.75 HOURS

```

```

ENGLISH UNITS
DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW               CUBIC FEET PER SECOND
STORAGE VOLUME    ACRE-FEET
SURFACE AREA       ACRES
TEMPERATURE        DEGREES FAHRENHEIT

```

RUNOFF SUMMARY  
FLOW IN CUBIC FEET PER SECOND  
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	N-01	260.	13.75	225.	113.	41.	.76		
ROUTED TO	1TO2	236.	16.25	214.	113.	41.	.76	48.67	16.25
HYDROGRAPH AT	N-02	331.	13.25	265.	115.	39.	.74		
2 COMBINED AT	SUB2	496.	15.25	451.	227.	80.	1.50		
ROUTED TO	2TO3	472.	19.25	438.	226.	80.	1.50	48.20	19.25
HYDROGRAPH AT	N-03	931.	15.00	856.	525.	209.	3.74		
2 COMBINED AT	SUB3	1311.	16.75	1254.	751.	289.	5.24		
ROUTED TO	3TO4	1225.	21.75	1173.	748.	289.	5.24	49.05	21.75
HYDROGRAPH AT	N-04	625.	16.75	594.	416.	186.	3.48		
2 COMBINED AT	SUB4	1767.	21.00	1709.	1164.	474.	8.72		
ROUTED TO	4TO5	1711.	24.00	1669.	1161.	474.	8.72	49.79	24.00
HYDROGRAPH AT	N-05	616.	14.75	572.	359.	146.	2.60		
2 COMBINED AT	SUB5	2086.	23.00	2055.	1502.	619.	11.32		
ROUTED TO	5TO7	2083.	23.50	2053.	1501.	619.	11.32	50.74	23.50
HYDROGRAPH AT	N-07	118.	15.00	113.	81.	37.	.72		
2 COMBINED AT	SUB7	2170.	23.25	2140.	1581.	656.	12.04		
ROUTED TO	7TO6	1616.	31.50	1602.	1399.	656.	12.04	49.24	31.50
HYDROGRAPH AT	N-06	1200.	13.75	878.	343.	117.	2.03		
2 COMBINED AT	SUB6	1803.	14.75	1626.	1526.	772.	14.07		
ROUTED TO	6TO8	1592.	35.75	1581.	1480.	772.	14.07	49.16	35.75
HYDROGRAPH AT	N-08	188.	13.50	158.	76.	27.	.50		
2 COMBINED AT	SUB8	1603.	35.50	1592.	1514.	798.	14.57		
ROUTED TO	8TO9	1599.	39.00	1588.	1512.	797.	14.57	48.90	39.00
HYDROGRAPH AT	N-09	417.	18.00	401.	303.	149.	2.98		
2 COMBINED AT	SUB9	1869.	23.00	1836.	1760.	946.	17.55		
DIVERSION TO	DIV	374.	23.00	367.	352.	189.	17.55		
HYDROGRAPH AT	SUB9	1495.	23.00	1469.	1408.	757.	17.55		
ROUTED TO	9TO10	1495.	23.25	1468.	1408.	757.	17.55	48.74	23.25
HYDROGRAPH AT	N-10	185.	13.50	154.	72.	25.	.47		
2 COMBINED AT	SUB10	1554.	22.75	1525.	1436.	782.	18.02		
ROUTED TO	10TO11	1464.	30.50	1453.	1414.	779.	18.02	48.60	30.50
HYDROGRAPH AT	N-11	219.	17.25	216.	178.	100.	2.20		
2 COMBINED AT	SUB11	1621.	30.00	1609.	1545.	879.	20.22		
ROUTED TO	11TO12	1587.	37.25	1580.	1533.	873.	20.22	48.72	37.25
HYDROGRAPH AT	N-12	219.	14.75	214.	162.	81.	1.61		

New Bayou Rev.Exist. NEWB10RR.IH1

2 COMBINED AT	SUB12	1682.	36.50	1673.	1612.	954.	21.83		
ROUTED TO	12T013	1642.	43.25	1638.	1593.	937.	21.83	48.73	43.25
HYDROGRAPH AT	N-13	285.	14.75	266.	169.	70.	1.30		
2 COMBINED AT	SUB13	1684.	42.25	1679.	1629.	1007.	23.13		
ROUTED TO	13T014	1683.	43.50	1678.	1629.	931.	23.13	49.14	43.50
HYDROGRAPH AT	N-14	407.	14.25	371.	221.	86.	1.60		
2 COMBINED AT	SUB14	1722.	42.50	1717.	1663.	1017.	24.73		

\*\*\* NORMAL END OF HEC-1 \*\*\*

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*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JUN 1998
*   VERSION 4.1
*
* RUN DATE 19AUG02 TIME 17:17:11
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS
*   HYDROLOGIC ENGINEERING CENTER
*   609 SECOND STREET
*   DAVIS, CALIFORNIA 95616
*   (916) 756-1104
*
*****

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X   X XXXXXXX XXXXX   X
X   X X   X   X   X   XX
X   X X   X   X   X   X
XXXXXXX XXXX   X   XXXXX X
X   X X   X   X   X   X
X   X X   X   X   X   X
X   X XXXXXXX XXXXX   XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.  
 THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM



LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
1	ID KLOTZ ASSOCIATES, INC.
2	ID NEW BAYOU WATERSHED, 100-YR. HYDROGRAPH FOR REVISED EXISTING CONDITIONS
3	ID BRAZORIA COUNTY MASTER DRAINAGE PLAN
4	ID FILENAME: NEWB25R.IH1
5	IT 15 01JAN92 0000 300
6	IO 5
	*
7	KK N-01
8	KM RUNOFF FROM SUBAREA 1
9	PH 1 0 0.78 1.71 3.78 5.00 5.60 6.85 8.50 9.95
10	BA .76
11	LU 1 .1 2
12	UC 0.79 7.81
	*
13	KK 1T02
14	KM REACH EXTENDS FROM X-SECT. 156.900 TO X-SECT. 172.000
15	RS 3 FLOW -1
16	SV 0 22 46 84 125 162 200
17	SQ 0 160 321 481 642 802 962
18	SE 40.9 48.1 49.3 51.84 53.42 54.52
	*
19	KK N-02
20	KM RUNOFF FROM SUBAREA 2
21	BA .74
22	LU 1 .1 2
23	UC 0.44 5.63
	*
24	KK SUB2
25	KM COMBINE HYDROS AT 2
26	HC 2
	*
27	KK 2T03
28	KM REACH EXTENDS FROM X-SECT. 151.000 TO X-SECT. 156.900
29	RS 9 FLOW -1
30	SV 0 97 243 533 916 2019 2166
31	SQ 0 434 867 1301 1734 2168 2602
32	SE 40.9 48.1 49.3 51.84 53.42 54.52
	*
33	KK N-03
34	KM RUNOFF FROM SUBAREA 3
35	BA 3.74
36	LU 1 .1 14
37	UC 2.52 11.48
	*

HEC-1 INPUT

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

38	KK	SUB3								
39	KM	COMBINE HYDROS AT 3								
40	HC	2								
	*									
41	KK	3TO4								
42	KM	REACH EXTENDS FROM X-SECT. 144.900 TO X-SECT. 151.000								
43	RS	4	FLOW	-1						
44	SV	0	92	317	458	606	843	940		
45	SQ	0	685	1370	2055	2740	3425	4110		
46	SE	40.9	48.1	49.3	51.84	53.42	54.52			
	*									
47	KK	N-04								
48	KM	RUNOFF FROM SUBAREA 4								
49	BA	3.48								
50	LU	1	.1	8						
51	UC	4.24	16.45							
	*									
52	KK	SUB4								
53	KM	COMBINE HYDROS AT 4								
54	HC	2								
	*									
55	KK	4TO5								
56	KM	REACH EXTENDS FROM X-SECT. 133.000 TO X-SECT. 144.900								
57	RS	3	FLOW	-1						
58	SV	0	78	217	429	602	752	901		
59	SQ	0	780	1560	2341	3121	3901	4681		
60	SE	40.9	48.1	49.3	51.84	53.42	54.52			
	*									
61	KK	N-05								
62	KM	RUNOFF FROM SUBAREA 5								
63	BA	2.6								
64	LU	1	.1	15						
65	UC	1.84	12.35							
	*									
66	KK	SUB5								
67	KM	COMBINE HYDROS AT 5								
68	HC	2								
	*									
69	KK	5TO7								
70	KM	REACH EXTENDS FROM X-SECT. 127.000 TO X-SECT. 133.000								
71	RS	2	FLOW	-1						
72	SV	0	29	38	84	131	256	337		
73	SQ	0	811	1622	2433	3244	4055	4866		
74	SE	40.9	48.1	49.3	51.84	53.42	54.52			
	*									

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
75	KK N-07
76	KM RUNOFF FROM SUBAREA 7
77	BA .72
78	LU 1 .1 2
79	UC 1.77 18.49
	*
80	KK SUB7
81	KM COMBINE HYDROS AT 7
82	HC 2
	*
83	KK 7TO6
84	KM REACH EXTENDS FROM X-SECT. 123.000 TO X-SECT. 127.000
85	RS 2 FLOW -1
86	SV 0 67 1068 1289 1585 1928 2081
87	SQ 0 828 1656 2484 3312 4140 4968
88	SE 40.9 48.1 49.3 51.84 53.42 54.52
	*
89	KK N-06
90	KM RUNOFF FROM SUBAREA 6
91	BA 2.03
92	LU 1 .1 20
93	UC 1.38 3.88
	*
94	KK SUB6
95	KM COMBINE HYDROS AT 6
96	HC 2
	*
97	KK 6TO8
98	KM REACH EXTENDS FROM X-SECT. 115.000 TO X-SECT. 123.000
99	RS 2 FLOW -1
100	SV 0 64 394 506 709 941 1106
101	SQ 0 845 1690 2534 3379 4224 5069
102	SE 40.9 48.1 49.3 51.84 53.42 54.52
	*
103	KK N-08
104	KM RUNOFF FROM SUBAREA 8
105	BA .5
106	LU 1 .1 2
107	UC 0.83 6.97
	*
108	KK SUB8
109	KM COMBINE HYDROS AT 8
110	HC 2
	*

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
111	KK	8TO9									
112	KM	REACH EXTENDS FROM X-SECT.		43.300 TO X-SECT.		115.000					
113	RS	11	FLOW	-1							
114	SV	0	132	412	2050	2223	2477	2711			
115	SQ	0	958	1917	2875	3834	4792	5750			
116	SE	40.9	48.1	49.3	51.84	53.42	54.52				
	*										
117	KK	N-09									
118	KM	RUNOFF FROM SUBAREA 9									
119	BA	2.98									
120	LU	1	.1	2							
121	UC	5.25	21.63								
	*										
122	KK	SUB9									
123	KM	COMBINE HYDROS AT 9									
124	HC	2									
	*										
125	KK	SUB9									
126	KM	SUBTRACT FLOWS WHICH GO THROUGH DITCH C-1									
127	DT	DIV									
128	DI	0	1000	2000	3000	4000					
129	DQ	0	200	400	600	800					
	*										
130	KK	9TO10									
131	KM	REACH EXTENDS FROM X-SECT.		39.900 TO X-SECT.		43.300					
132	RS	1	FLOW	-1							
133	SV	0	4	26	78	97	107	118			
134	SQ	0	973	1947	2920	3893	4866	5840			
135	SE	40.9	48.1	49.3	51.84	53.42	54.52				
	*										
136	KK	N-10									
137	KM	RUNOFF FROM SUBAREA 10									
138	BA	.47									
139	LU	1	.1	2							
140	UC	0.64	6.58								
	*										
141	KK	SUB10									
142	KM	COMBINE HYDROS AT 10									
143	HC	2									
	*										
144	KK	10TO11									
145	KM	REACH EXTENDS FROM X-SECT.		32.000 TO X-SECT.		39.900					
146	RS	4	FLOW	-1							
147	SV	0	244	855	1719	2479	3173	3992			
148	SQ	0	1036	2072	3109	4145	5181	6217			
149	SE	40.9	48.1	49.3	51.84	53.42	54.52				
	*										

HEC-1 INPUT

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

150 KK N-11  
 151 KM RUNOFF FROM SUBAREA 11  
 152 BA 2.2  
 153 LU 1 .1 2  
 154 UC 2.71 32.22  
 \*

155 KK SUB11  
 156 KM COMBINE HYDROS AT 11  
 157 HC 2  
 \*

158 KK 11TO12  
 159 KM REACH EXTENDS FROM X-SECT. 22.000 TO X-SECT. 32.000  
 160 RS 5 FLOW -1  
 161 SV 0 251 827 1268 1523 1862 2432  
 162 SQ 0 1047 2094 3141 4188 5235 6282  
 163 SE 40.9 48.1 49.3 51.84 53.42 54.52  
 \*

164 KK N-12  
 165 KM RUNOFF FROM SUBAREA 12  
 166 BA 1.61  
 167 LU 1 .1 2  
 168 UC 0.99 22.73  
 \*

169 KK SUB12  
 170 KM COMBINE HYDROS AT 12  
 171 HC 2  
 \*

172 KK 12TO13  
 173 KM REACH EXTENDS FROM X-SECT. 9.000 TO X-SECT. 22.000  
 174 RS 2 FLOW -1  
 175 SV 0 470 973 1431 1839 2149 2607  
 176 SQ 0 1074 2148 3223 4297 5371 6445  
 177 SE 40.9 48.1 49.3 51.84 53.42 54.52  
 \*

178 KK N-13  
 179 KM RUNOFF FROM SUBAREA 13  
 180 BA 1.3  
 181 LU 1 .1 4  
 182 UC 2.01 13.20  
 \*

183 KK SUB13  
 184 KM COMBINE HYDROS AT 13  
 185 HC 2  
 \*

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
186	KK 13TO14
187	KM REACH EXTENDS FROM X-SECT. 1.000 TO X-SECT. 9.000
188	RS 3 FLOW -1
189	SV 0 757 844 984 1243 1511 1834
190	SQ 0 900 1800 2700 3600 4500 5400
191	SE 40.9 48.1 49.3 51.84 53.42 54.52
	*
192	KK N-14
193	KM RUNOFF FROM SUBAREA 14
194	BA 1.6
195	LU 1 .1 4
196	UC 1.54 11.12
	*
197	KK SUB14
198	KM COMBINE HYDROS AT 14
199	HC 2
200	ZZ

```

*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* JUN 1998
* VERSION 4.1
*
* RUN DATE 19AUG02 TIME 17:17:11
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****

```

KLOTZ ASSOCIATES, INC.  
 NEW BAYOU WATERSHED, 100-YR. HYDROGRAPH FOR REVISED EXISTING CONDITIONS  
 BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 FILENAME: NEWB25R.IH1

```

6 IO      OUTPUT CONTROL VARIABLES
          IPRNT      5  PRINT CONTROL
          IPLOT      0  PLOT CONTROL
          QSCAL      0.  HYDROGRAPH PLOT SCALE

```

```

IT        HYDROGRAPH TIME DATA
          NMIN       15  MINUTES IN COMPUTATION INTERVAL
          IDATE      1JAN92  STARTING DATE
          ITIME      0000  STARTING TIME
          NQ         300  NUMBER OF HYDROGRAPH ORDINATES
          NDDATE     4JAN92  ENDING DATE
          NDTIME     0245  ENDING TIME
          ICENT      19  CENTURY MARK

```

```

          COMPUTATION INTERVAL .25 HOURS
          TOTAL TIME BASE      74.75 HOURS

```

ENGLISH UNITS

```

          DRAINAGE AREA      SQUARE MILES
          PRECIPITATION DEPTH  INCHES
          LENGTH, ELEVATION   FEET
          FLOW                CUBIC FEET PER SECOND
          STORAGE VOLUME      ACRE-FEET
          SURFACE AREA        ACRES
          TEMPERATURE         DEGREES FAHRENHEIT

```

RUNOFF SUMMARY  
FLOW IN CUBIC FEET PER SECOND  
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	N-01	308.	13.50	269.	138.	50.	.76		
ROUTED TO	1TO2	282.	16.25	256.	137.	50.	.76	49.01	16.25
HYDROGRAPH AT	N-02	390.	13.25	317.	140.	48.	.74		
2 COMBINED AT	SUB2	593.	15.25	540.	276.	98.	1.50		
ROUTED TO	2TO3	558.	19.50	521.	276.	98.	1.50	48.44	19.50
HYDROGRAPH AT	N-03	1104.	15.25	1025.	635.	253.	3.74		
2 COMBINED AT	SUB3	1528.	17.75	1486.	910.	351.	5.24		
ROUTED TO	3TO4	1475.	21.00	1400.	907.	351.	5.24	49.69	21.00
HYDROGRAPH AT	N-04	748.	16.75	714.	504.	226.	3.48		
2 COMBINED AT	SUB4	2147.	20.50	2045.	1411.	577.	8.72		
ROUTED TO	4TO5	2037.	24.00	1980.	1407.	576.	8.72	50.85	24.00
HYDROGRAPH AT	N-05	730.	14.75	684.	434.	177.	2.60		
2 COMBINED AT	SUB5	2488.	23.25	2427.	1821.	753.	11.32		
ROUTED TO	5TO7	2483.	24.00	2423.	1820.	753.	11.32	51.94	24.00
HYDROGRAPH AT	N-07	141.	15.25	136.	98.	45.	.72		
2 COMBINED AT	SUB7	2586.	23.75	2527.	1917.	798.	12.04		
ROUTED TO	7TO6	2290.	29.50	2190.	1684.	797.	12.04	51.24	29.50
HYDROGRAPH AT	N-06	1405.	13.75	1043.	415.	141.	2.03		
2 COMBINED AT	SUB6	2341.	29.25	2239.	1834.	938.	14.07		
ROUTED TO	6TO8	2287.	31.00	2184.	1776.	938.	14.07	51.10	31.00
HYDROGRAPH AT	N-08	222.	13.50	190.	92.	33.	.50		
2 COMBINED AT	SUB8	2313.	31.00	2209.	1821.	970.	14.57		
ROUTED TO	8TO9	1970.	44.25	1949.	1816.	969.	14.57	49.44	44.25
HYDROGRAPH AT	N-09	502.	18.00	485.	369.	182.	2.98		
2 COMBINED AT	SUB9	2189.	33.25	2170.	2105.	1151.	17.55		
DIVERSION TO	DIV	438.	33.25	434.	421.	230.	17.55		
HYDROGRAPH AT	SUB9	1751.	33.25	1736.	1684.	921.	17.55		
ROUTED TO	9TO10	1751.	33.75	1736.	1684.	921.	17.55	49.06	33.75
HYDROGRAPH AT	N-10	219.	13.50	184.	88.	31.	.47		
2 COMBINED AT	SUB10	1777.	22.75	1748.	1710.	951.	18.02		
ROUTED TO	10TO11	1724.	43.00	1722.	1681.	947.	18.02	48.90	43.00
HYDROGRAPH AT	N-11	265.	17.75	261.	217.	122.	2.20		
2 COMBINED AT	SUB11	1858.	41.00	1854.	1833.	1070.	20.22		
ROUTED TO	11TO12	1850.	47.50	1848.	1817.	1063.	20.22	49.02	47.50
HYDROGRAPH AT	N-12	263.	15.50	258.	198.	98.	1.61		



New Bayou Rev.Exist. 25 yr. NEWB25R.IH1

2 COMBINED AT	SUB12	1934.	38.00	1931.	1905.	1161.	21.83		
ROUTED TO	12TO13	1921.	49.50	1920.	1880.	1139.	21.83	49.05	49.50
HYDROGRAPH AT	N-13	339.	15.00	319.	206.	85.	1.30		
2 COMBINED AT	SUB13	1955.	47.00	1953.	1917.	1224.	23.13		
ROUTED TO	13TO14	1954.	49.00	1953.	1916.	1125.	23.13	49.73	49.00
HYDROGRAPH AT	N-14	482.	14.50	446.	268.	105.	1.60		
2 COMBINED AT	SUB14	1985.	46.50	1983.	1949.	1230.	24.73		

\*\*\* NORMAL END OF HEC-1 \*\*\*

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*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JUN 1998
*   VERSION 4.1
*
* RUN DATE 16AUG02 TIME 07:34:23
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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
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X   X   X         X           X
XXXXXXXX XXXX     X           XXXXX X
X   X   X         X           X
X   X   X         X   X      X
X   X   XXXXXXXX  XXXXX      XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.  
 THE DEFINITION OF -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM



HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
38	KK	SUB3									
39	KM	COMBINE HYDROS AT 3									
40	HC	2									
	*										
41	KK	3TO4									
42	KM	REACH EXTENDS FROM X-SECT. 144.900 TO X-SECT. 151.000									
43	RS	4	FLOW	-1							
44	SV	0	92	317	458	606	843	940			
45	SQ	0	685	1370	2055	2740	3425	4110			
46	SE	40.9	48.1	49.3	51.84	53.42	54.52				
	*										
47	KK	N-04									
48	KM	RUNOFF FROM SUBAREA 4									
49	BA	3.48									
50	LU	1	.1	8							
51	UC	4.24	16.45								
	*										
52	KK	SUB4									
53	KM	COMBINE HYDROS AT 4									
54	HC	2									
	*										
55	KK	4TO5									
56	KM	REACH EXTENDS FROM X-SECT. 133.000 TO X-SECT. 144.900									
57	RS	3	FLOW	-1							
58	SV	0	78	217	429	602	752	901			
59	SQ	0	780	1560	2341	3121	3901	4681			
60	SE	40.9	48.1	49.3	51.84	53.42	54.52				
	*										
61	KK	N-05									
62	KM	RUNOFF FROM SUBAREA 5									
63	BA	2.6									
64	LU	1	.1	15							
65	UC	1.84	12.35								
	*										
66	KK	SUB5									
67	KM	COMBINE HYDROS AT 5									
68	HC	2									
	*										
69	KK	5TO7									
70	KM	REACH EXTENDS FROM X-SECT. 127.000 TO X-SECT. 133.000									
71	RS	2	FLOW	-1							
72	SV	0	29	38	84	131	256	337			
73	SQ	0	811	1622	2433	3244	4055	4866			
74	SE	40.9	48.1	49.3	51.84	53.42	54.52				
	*										

## HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
75	KK	N-07									
76	KM	RUNOFF FROM SUBAREA 7									
77	BA	.72									
78	LU	1	.1	2							
79	UC	1.77	18.49								
	*										
80	KK	SUB7									
81	KM	COMBINE HYDROS AT 7									
82	HC	2									
	*										
83	KK	7TO6									
84	KM	REACH EXTENDS FROM X-SECT. 123.000 TO X-SECT. 127.000									
85	RS	2	FLOW	-1							
86	SV	0	67	1068	1289	1585	1928	2081			
87	SQ	0	828	1656	2484	3312	4140	4968			
88	SE	40.9	48.1	49.3	51.84	53.42	54.52				
	*										
89	KK	N-06									
90	KM	RUNOFF FROM SUBAREA 6									
91	BA	2.03									
92	LU	1	.1	20							
93	UC	1.38	3.88								
	*										
94	KK	SUB6									
95	KM	COMBINE HYDROS AT 6									
96	HC	2									
	*										
97	KK	6TO8									
98	KM	REACH EXTENDS FROM X-SECT. 115.000 TO X-SECT. 123.000									
99	RS	2	FLOW	-1							
100	SV	0	64	394	506	709	941	1106			
101	SQ	0	845	1690	2534	3379	4224	5069			
102	SE	40.9	48.1	49.3	51.84	53.42	54.52				
	*										
103	KK	N-08									
104	KM	RUNOFF FROM SUBAREA 8									
105	BA	.5									
106	LU	1	.1	2							
107	UC	0.83	6.97								
	*										
108	KK	SUB8									
109	KM	COMBINE HYDROS AT 8									
110	HC	2									
	*										

LINE	ID	1	2	3	4	5	6	7	8	9	10
111	KK	8TO9									
112	KM	REACH EXTENDS FROM X-SECT.		43.300 TO X-SECT.		115.000					
113	RS	11	FLOW	-1							
114	SV	0	132	412	2050	2223	2477	2711			
115	SQ	0	958	1917	2875	3834	4792	5750			
116	SE	40.9	48.1	49.3	51.84	53.42	54.52				
	*										
117	KK	N-09									
118	KM	RUNOFF FROM SUBAREA 9									
119	BA	2.98									
120	LU	1	.1	2							
121	UC	5.25	21.63								
	*										
122	KK	SUB9									
123	KM	COMBINE HYDROS AT 9									
124	HC	2									
	*										
125	KK	SUB9									
126	KM	SUBTRACT FLOWS WHICH GO THROUGH DITCH C-1									
127	DT	DIV									
128	DI	0	1000	2000	3000	4000					
129	DQ	0	200	400	600	800					
	*										
130	KK	9TO10									
131	KM	REACH EXTENDS FROM X-SECT.		39.900 TO X-SECT.		43.300					
132	RS	1	FLOW	-1							
133	SV	0	4	26	78	97	107	118			
134	SQ	0	973	1947	2920	3893	4866	5840			
135	SE	40.9	48.1	49.3	51.84	53.42	54.52				
	*										
136	KK	N-10									
137	KM	RUNOFF FROM SUBAREA 10									
138	BA	.47									
139	LU	1	.1	2							
140	UC	0.64	6.58								
	*										
141	KK	SUB10									
142	KM	COMBINE HYDROS AT 10									
143	HC	2									
	*										
144	KK	10TO11									
145	KM	REACH EXTENDS FROM X-SECT.		32.000 TO X-SECT.		39.900					
146	RS	4	FLOW	-1							
147	SV	0	244	855	1719	2479	3173	3992			
148	SQ	0	1036	2072	3109	4145	5181	6217			
149	SE	40.9	48.1	49.3	51.84	53.42	54.52				
	*										

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
150	KK	N-11									
151	KM	RUNOFF FROM SUBAREA 11									
152	BA	2.2									
153	LU	1	.1	2							
154	UC	2.71	32.22								
	*										
155	KK	SUB11									
156	KM	COMBINE HYDROS AT 11									
157	HC	2									
	*										
158	KK	11TO12									
159	KM	REACH EXTENDS FROM X-SECT. 22.000 TO X-SECT. 32.000									
160	RS	5	FLOW	-1							
161	SV	0	251	827	1268	1523	1862	2432			
162	SQ	0	1047	2094	3141	4188	5235	6282			
163	SE	40.9	48.1	49.3	51.84	53.42	54.52				
	*										
164	KK	N-12									
165	KM	RUNOFF FROM SUBAREA 12									
166	BA	1.61									
167	LU	1	.1	2							
168	UC	0.99	22.73								
	*										
169	KK	SUB12									
170	KM	COMBINE HYDROS AT 12									
171	HC	2									
	*										
172	KK	12TO13									
173	KM	REACH EXTENDS FROM X-SECT. 9.000 TO X-SECT. 22.000									
174	RS	2	FLOW	-1							
175	SV	0	470	973	1431	1839	2149	2607			
176	SQ	0	1074	2148	3223	4297	5371	6445			
177	SE	40.9	48.1	49.3	51.84	53.42	54.52				
	*										
178	KK	N-13									
179	KM	RUNOFF FROM SUBAREA 13									
180	BA	1.3									
181	LU	1	.1	4							
182	UC	2.01	13.20								
	*										
183	KK	SUB13									
184	KM	COMBINE HYDROS AT 13									
185	HC	2									
	*										

LINE	ID	1	2	3	4	5	6	7	8	9	10		
186	KK	13TO14											
187	KM	REACH EXTENDS FROM X-SECT.									1.000	TO X-SECT.	9.000
188	RS	3	FLOW	-1									
189	SV	0	757	844	984	1243	1511	1834					
190	SQ	0	900	1800	2700	3600	4500	5400					
191	SE	40.9	48.1	49.3	51.84	53.42	54.52						
	*												
192	KK	N-14											
193	KM	RUNOFF FROM SUBAREA 14											
194	BA	1.6											
195	LU	1	.1	4									
196	UC	1.54	11.12										
	*												
197	KK	SUB14											
198	KM	COMBINE HYDROS AT 14											
199	HC	2											
200	ZZ												



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*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   JUN 1998                       *
*   VERSION 4.1                     *
*
* RUN DATE 16AUG02 TIME 07:34:23 *
*
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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****

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KLOTZ ASSOCIATES, INC.  
 NEW BAYOU WATERSHED, 100-YR. HYDROGRAPH FOR REVISED EXISTING CONDITIONS  
 BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 FILENAME: NEWB100R.IH1

```

6 IO      OUTPUT CONTROL VARIABLES
          IPRNT      5  PRINT CONTROL
          IPLOT      0  PLOT CONTROL
          QSCAL      0.  HYDROGRAPH PLOT SCALE

```

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IT        HYDROGRAPH TIME DATA
          NMIN      15  MINUTES IN COMPUTATION INTERVAL
          IDATE     1JAN92  STARTING DATE
          ITIME     0000  STARTING TIME
          NQ        300  NUMBER OF HYDROGRAPH ORDINATES
          NDDATE    4JAN92  ENDING DATE
          NDTIME    0245  ENDING TIME
          ICENT     19  CENTURY MARK

          COMPUTATION INTERVAL .25 HOURS
          TOTAL TIME BASE 74.75 HOURS

```

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ENGLISH UNITS
DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH  INCHES
LENGTH, ELEVATION  FEET
FLOW               CUBIC FEET PER SECOND
STORAGE VOLUME     ACRE-FEET
SURFACE AREA       ACRES
TEMPERATURE        DEGREES FAHRENHEIT

```

New Bayou 100 Year NEWB100R.IH1

RUNOFF SUMMARY  
FLOW IN CUBIC FEET PER SECOND  
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	N-01	404.	13.75	355.	189.	69.	.76		
ROUTED TO	1TO2	361.	17.25	338.	189.	69.	.76	49.94	17.25
HYDROGRAPH AT	N-02	506.	13.25	416.	194.	67.	.74		
2 COMBINED AT	SUB2	766.	15.00	708.	380.	136.	1.50		
ROUTED TO	2TO3	722.	19.75	678.	379.	136.	1.50	48.90	19.75
HYDROGRAPH AT	N-03	1457.	15.25	1355.	864.	349.	3.74		
2 COMBINED AT	SUB3	1993.	18.00	1933.	1244.	486.	5.24		
ROUTED TO	3TO4	1951.	20.75	1871.	1240.	486.	5.24	51.46	20.75
HYDROGRAPH AT	N-04	994.	17.00	951.	690.	313.	3.48		
2 COMBINED AT	SUB4	2865.	20.25	2761.	1930.	799.	8.72		
ROUTED TO	4TO5	2756.	23.50	2658.	1923.	798.	8.72	52.68	23.50
HYDROGRAPH AT	N-05	964.	14.75	904.	590.	244.	2.60		
2 COMBINED AT	SUB5	3404.	22.75	3287.	2481.	1042.	11.32		
ROUTED TO	5TO7	3357.	24.50	3277.	2481.	1041.	11.32	53.57	24.50
HYDROGRAPH AT	N-07	188.	15.50	182.	135.	63.	.72		
2 COMBINED AT	SUB7	3498.	24.50	3421.	2614.	1105.	12.04		
ROUTED TO	7TO6	3189.	28.50	3107.	2310.	1104.	12.04	53.19	28.50
HYDROGRAPH AT	N-06	1806.	13.75	1357.	568.	193.	2.03		
2 COMBINED AT	SUB6	3295.	28.25	3213.	2545.	1297.	14.07		
ROUTED TO	6TO8	3183.	31.25	3120.	2479.	1296.	14.07	53.05	31.25
HYDROGRAPH AT	N-08	290.	13.75	250.	127.	45.	.50		
2 COMBINED AT	SUB8	3220.	31.00	3158.	2559.	1342.	14.57		
ROUTED TO	8TO9	2720.	49.50	2695.	2367.	1340.	14.57	51.43	49.50
HYDROGRAPH AT	N-09	670.	18.00	651.	507.	254.	2.98		
2 COMBINED AT	SUB9	2908.	49.00	2885.	2624.	1593.	17.55		
DIVERSION TO	DIV	582.	49.00	577.	525.	319.	17.55		
HYDROGRAPH AT	SUB9	2327.	49.00	2308.	2099.	1275.	17.55		
ROUTED TO	9TO10	2324.	49.50	2306.	2098.	1275.	17.55	50.28	49.50
HYDROGRAPH AT	N-10	286.	13.50	243.	121.	43.	.47		
2 COMBINED AT	SUB10	2325.	49.50	2306.	2105.	1317.	18.02		
ROUTED TO	10TO11	2222.	57.25	2203.	2063.	1312.	18.02	49.67	57.25
HYDROGRAPH AT	N-11	355.	17.50	351.	298.	170.	2.20		
2 COMBINED AT	SUB11	2340.	56.75	2323.	2219.	1482.	20.22		
ROUTED TO	11TO12	2317.	60.75	2301.	2214.	1472.	20.22	49.84	60.75
HYDROGRAPH AT	N-12	352.	15.50	345.	271.	137.	1.61		

New Bayou 100 Year NEWB100R.IH1

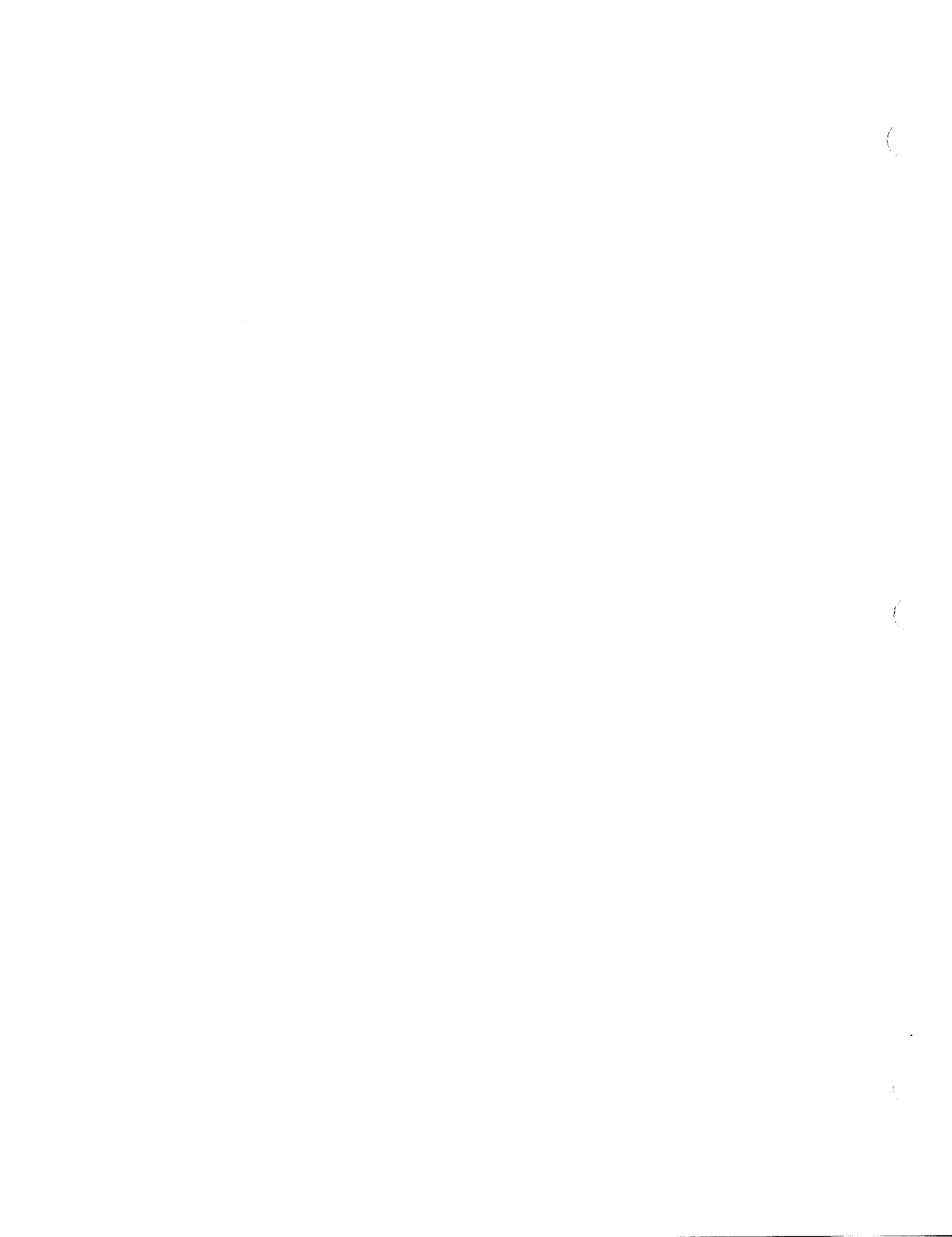
2 COMBINED AT	SUB12	2430.	36.00	2413.	2318.	1610.	21.83		
ROUTED TO	12TO13	2351.	42.50	2342.	2305.	1548.	21.83	49.78	42.50
HYDROGRAPH AT	N-13	450.	15.00	424.	282.	118.	1.30		
2 COMBINED AT	SUB13	2427.	41.75	2416.	2349.	1666.	23.13		
ROUTED TO	13TO14	2422.	43.75	2412.	2348.	1533.	23.13	51.06	43.75
HYDROGRAPH AT	N-14	639.	14.50	591.	367.	146.	1.60		
2 COMBINED AT	SUB14	2488.	43.00	2476.	2389.	1679.	24.73		

\*\*\* NORMAL END OF HEC-1 \*\*\*

\*\*\*\*\*  
\* HEC-2 WATER SURFACE PROFILES \*  
\* \*  
\* Version 4.6.2; May 1991 \*  
\* \*  
\* RUN DATE 21AUG02 TIME 14:01:44 \*  
\*\*\*\*\*

\*\*\*\*\*  
\* U.S. ARMY CORPS OF ENGINEERS \*  
\* HYDROLOGIC ENGINEERING CENTER \*  
\* 609 SECOND STREET, SUITE D \*  
\* DAVIS, CALIFORNIA 95616-4687 \*  
\* (916) 756-1104 \*  
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21AUG02 14:01:44

PAGE 1

THIS RUN EXECUTED 21AUG02 14:01:44

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

\*\*\*\*\*

T1 NEW BAYOU (INCLUDING C-1 DITCH)..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
 T3 FILENAME: C1NEWX.IH2.....10-YEAR FREQUENCY  
 T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

NOTES\*\*\*\*\*

REVISED MODEL INCLUDES 2000 BAKER & LAWSON SURVEY SECTIONS AND REVISED  
 BRIDGE SECTIONS  
 MODEL KEYED IN FROM 09 JUL 88 RUN DATE FEMA MODEL

ORIGINAL INPUT DATA PROVIDED BY BRAZORIA COUNTY FLOOD PLAIN ADMINISTRATOR

\*\*\*\*\*

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2							13.94	
J2	NPROF	IPLLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1							
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38	43	1	26	42	23	24	63	14	60
	39	4								
J5	LPRNT	NUMSEC	*****REQUESTED SECTION NUMBERS*****							
	-10	-10								
NC	.05	.05	.045	.1	.3					
QT	3	1722	1985	2488						
X1	1	13	88	135	0	0	0			
GR	15	0	10	5	7.3	10	7.2	60	7.1	88
GR	1.2	90	-2.5	110	1.4	130	7.1	135	5.6	160
GR	5.7	185	10	200	15	3300				

2000 BAKER & LAWSON SURVEY SECTION

21AUG02 14:01:44

PAGE 2

X1	2	9	5000	5087.2	3000	2900	2900				
GR	15.6	4950	12.58	5000	1.64	5028.1	-.71	5037.6	1.83	5065	
GR	10.73	5087.2	12.64	5130.9	14	5180	15.0	5400			

NC .3 .5

2000 BAKER & LAWSON SURVEY SECTION

X1	3	5	5000	5107	85	85	85				
X3	10							15.94	15.94		
GR	15.58	5000	1.97	5045	-1.19	5055	1.31	5069	14.66	5107	

AMOCO ROAD

SB	1.05	1.5	2.6		1	1	710	2.7			
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2000 BAKER & LAWSON SURVEY SECTION

AMOCO ROAD

X1	4	13	10530.0	10637.5	30	30	30				
X2			1	15.59	16.29						
X3	10							16.29	16.29		
BT	-11	10000.0	15.33		10137.2	15.58		10261.2	15.83		
BT		10446.7	16.16		10539.2	16.29		10584.5	16.47		
BT		10629.6	16.39		10724.1	16.54		10818.8	16.07		
BT		10912.5	15.71		11008.9	15.46					
GR	15.33	10000.0	15.58	10137.2	15.83	10261.2	16.16	10446.7	15.58	10530.0	
GR	1.97	10574.9	-1.19	10584.7	1.31	10599.1	14.66	10637.5	16.54	10724.1	
GR	16.07	10818.8	15.71	10912.5	15.46	11008.9					

2000 BAKER & LAWSON SURVEY SECTION

X1	5	8	5000	5102.1	30	30	30				
X3	10							15.73	15.73		
GR	15	4950	13.55	5000	3.75	5039.8	-.64	5048.2	3.50	5061.8	
GR	5.55	5074.4	14.95	5102.1	15.3	5129					

RAIL ROAD NEAR AMOCO ROAD

SB	1.05	1.5	2.6		12	3	750	2.6			
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2000 BAKER & LAWSON SURVEY SECTION

RAIL ROAD Nt AMOCO ROAD

X1	6	11	10433.9	10532.0	20	20	20				
X2			1	14.73	16.73						
X3	10							16.73	16.73		
BT	-9	10000.0	16.55		10159.2	16.68		10251.2	16.63		
BT		10346.9	16.77		10433.8	16.92		10482.9	16.73		
BT		10531.7	16.80		10621.0	16.72		10711.3	16.26		
GR	16.55	10000.0	16.68	10159.2	16.63	10251.2	16.77	10346.9	15.66	10433.9	
GR	1.05	10473.1	-1.99	10486.7	2.1	10498.8	15.69	10532.0	16.72	10621.0	
GR	16.26	10711.3									

2000 BAKER & LAWSON SURVEY SECTION

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X1	8	9	10023.7	10132.3	115	115	115			
GR	18.64	10000.0	14.19	10023.7	2.58	10076.2	-1.07	10085.0	1.09	10099.6
GR	11.87	10132.3	12	10141	16	10157	18	10165		

2000 BAKER & LAWSON SURVEY SECTION

X1	8.02	11	10027.9	10093.7	225	225	225			
GR	17.00	6569.0	13.00	6569.0	8.67	10000.0	6.31	10027.9	1.91	10042.8
GR	-0.29	10069.0	2.40	10076.9	10.55	10093.7	11.87	10116.3	13.00	13269.0
GR	17.00	13269.0								

2000 BAKER & LAWSON SURVEY SECTION

X1	8.03	15	10123.8	10219.7	36	36	36			
X3	10							5.43	5.43	
GR	17.00	6664.8	14.19	6664.8	14.19	10000.0	12.88	10049.1	9.89	10098.5
GR	8.31	10123.8	2.44	10153.8	-1.14	10164.8	2.50	10183.0	9.15	10219.7
GR	10.73	10230.8	12.45	10256.4	13.42	10285.6	13.42	13364.8	17.00	13364.8

DIRT ROAD

SB	1.05	1.5	2.6		20	3	750	1.0		
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2000 BAKER & LAWSON SURVEY SECTION

DIRT ROAD

X1	8.04	15	10107.8	10202.0	16	16	16			
X2			1	4.93	5.93					
X3	10							5.93	5.93	
BT	-11	6659.1	14.19		10000.0	14.19		10049.1	12.88	
BT		10098.5	9.89		10132.7	6.26		10182.3	5.93	
BT		10205.7	8.88		10230.8	10.73		10256.4	12.45	
BT		10285.6	13.42		13359.1	13.42				
GR	17.00	6659.1	14.19	6659.1	14.19	10000.0	12.88	10049.1	9.89	10098.5
GR	9.25	10107.8	2.98	10148.9	-1.02	10159.1	2.29	10169.1	8.35	10202.0
GR	10.73	10230.8	12.45	10256.4	13.42	10285.6	13.42	13359.1	17.00	13359.1

2000 BAKER & LAWSON SURVEY SECTION

X1	8.05	11	10000.0	10082.1	45	45	45			
GR	17	7000.0	15	7000.0	14	9000.0	12.34	10000.0	1.59	10031.8
GR	-1.34	10043.4	1.78	10060.9	11.91	10082.1	12	11000.0	15	13000.0
GR	17	13000.0								

2000 BAKER & LAWSON SURVEY SECTION

X1	8.16	11	10012.1	10116.7	742	742	742			
GR	17	7000	15	7000	14.14	10000	13.88	10012.1	1.42	10043.1
GR	-.98	10054.6	2.38	10093.7	12.89	10116.7	14.26	10139.2	15	13139
GR	17	13139								

2000 BAKER & LAWSON SURVEY SECTION



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X1	8.17	15	10192.3	10273.3	73	73	73			
X3	10							12.71	12.71	
GR	17.00	7192.3	15.5	7192.3	13.85	10000.0	13.61	10039.3	13.56	10117.1
GR	13.65	10117.1	13.75	10153.7	13.00	10192.3	1.83	10220.5	-.21	10234.9
GR	2.09	10251.1	12.89	10273.3	12.73	10324.8	15.5	13324.8	17.00	13324.8

WASTE ROAD

SB	1.05	1.5	2.6		20	3	750	1.0		
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2000 BAKER & LAWSON SURVEY SECTION  
WASTE ROAD

X1	8.18	15	10193.1	10274.4	18	18	18			
X2			1	12.21	13.21					
X3	10							13.21	13.21	
BT	-11	7193.1	15.5		10000.0	13.85		10039.3	13.61	
BT		10078.5	13.56		10117.1	13.65		10153.7	13.75	
BT		10192.4	13.25		10230.7	13.21		10269.3	13.33	
BT		10324.8	12.73		13324.8	15.50				
GR	17.00	7193.1	15.5	7193.1	13.85	10000.0	13.61	10039.3	13.56	10078.5
GR	13.65	10117.1	13.75	10153.7	12.73	10193.1	1.47	10216.5	-0.24	10233.0
GR	2.05	10250.0	12.63	10274.4	12.73	10324.8	15.5	13324.8	17.00	13324.8

2000 BAKER & LAWSON SURVEY SECTION

X1	8.19	11	10023.9	10113.1	80	80	80			
GR	17	7000.0	15	7000.0	13.24	10000.0	11.95	10023.9	1.79	10051.4
GR	-1.66	10061.0	1.95	10087.2	11.76	10113.1	13.34	10145.5	15	13145
GR	17	13145								

NC	.045	.05	.04	.1	.3					
QT	3	1684	1955	2427						

2000 BAKER & LAWSON SURVEY SECTION

X1	9	11	10019.6	10098.8	2365	2365	2365			
GR	17.00	6046.3	14.00	6046.3	11.61	10000.0	10.43	10019.6	2.89	10034.6
GR	1.18	10046.3	2.67	10074.1	10.75	10098.8	12.18	10118.3	15.00	14046.3
GR	17.00	14046.3								

NC				.3	.5					
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2000 BAKER & LAWSON SURVEY SECTION

X1	10	17	10281.1	10355.1	90	90	90			
X3	10							14.61	14.61	
GR	17.00	6319.1	16.14	6319.1	16.14	10000.0	15.78	10092.4	15.46	10185.9
GR	13.89	10281.1	9.97	10283.0	1.06	10299.5	0.24	10319.1	1.31	10333.6
GR	8.81	10352.9	14.69	10355.1	15.65	10441.9	15.74	10536.8	15.78	10634.2
GR	15.78	14319.1	17.00	14319.1						

RR NEAR SOLUTIA ROAD

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2000 BAKER & LAWSON SURVEY SECTION

RAIL ROAD Nr SOLUTIA ROAD

X1	11	17	10275.2	10345.8	20	20	20			
X2			1	13.61	15.61					
X3	10							14	14	
BT	-11	6309.2	16.14		10000.0	16.14		10092.4	15.78	
BT		10185.9	15.46		10279.9	15.61		10311.2	15.64	
BT		10349.4	15.63		10441.9	15.65		10536.8	15.74	
BT		10634.2	15.78		14309.2	15.78				
GR	17.00	6309.2	16.14	6309.2	16.14	10000.0	15.78	10092.4	15.46	10185.9
GR	14.28	10275.2	8.96	10276.3	2.57	10294.7	-0.22	10309.2	1.25	10326.8
GR	10.28	10344.1	14.63	10345.8	15.65	10441.9	15.74	10536.8	15.78	10634.2
GR	15.78	14309.2	17.00	14309.2						

2000 BAKER & LAWSON SURVEY SECTION

X1	12	17	10398.6	10475.7	50	50	50			
X3	10			10293.1	15.40	10558.0	15.44	14.92	14.92	
GR	17.00	6444.9	15.41	6444.9	15.41	10000.0	15.42	10100.6	15.37	10197.2
GR	15.40	10293.1	14.45	10398.6	2.53	10430.8	0.46	10444.9	1.67	10453.7
GR	13.60	10475.7	15.44	10558.0	15.41	10656.2	15.41	10753.0	15.32	10851.8
GR	15.32	14444.9	17.00	14444.9						

SOLUTIA ROAD

SB 1.05 1.5 2.6 10 2 530 2.3

2000 BAKER & LAWSON SURVEY SECTION

SOLUTIA ROAD

X1	13	17	10375.5	10457.0	40	40	40			
X2			1	14.42	15.42					
X3	10			10293.1	15.40	10558.0	15.44	15.42	15.42	
BT	-13	6417.4	15.41		10000.0	15.41		10100.	15.42	
BT		10197.2	15.37		10293.1	15.40		10387.7	15.61	
BT		10426.5	15.42		10463.9	15.59		10558.0	15.44	
BT		10656.2	15.41		10753.0	15.41		10851.8	15.32	
BT		14417.4	15.32							
GR	17.00	6417.4	15.41	6417.4	15.41	10000.0	15.42	10100.6	15.37	10197.2
GR	15.40	10293.1	13.32	10375.5	2.36	10401.5	0.01	10417.4	1.47	10430.1
GR	14.44	10457.0	15.44	10558.0	15.41	10656.2	15.41	10753.0	15.32	10851.8
GR	15.32	14417.4	17.00	14417.4						

2000 BAKER & LAWSON SURVEY SECTION

X1	14	11	10013.4	10093.5	80	80	80			
GR	17.00	6044.8	14.00	6044.8	11.36	10000.0	10.38	10013.4	2.09	10036.6
GR	-0.28	10044.8	1.69	10070.9	11.22	10093.5	12.05	10119.4	15.00	14044.8
GR	17.00	14044.8								

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NC				.1	.3						
X1	15	14	1470	1530	700	1600	900				
X3				1450	15.4	1530	13.5				
GR	17	0	15	10	14.7	1400	15.4	1450	13	1470	
GR	2.9	1485	1	1500	2.7	1515	13.5	1530	13.1	1550	
GR	13.7	1600	14	3700	14.5	5000	17	5200			

NC				.3	.5						
X1	16	18	1681	1719	88	88	88				
X3	10							13	13		
GR	17	0	15	1	12.3	1550	12.5	1600	12.9	1650	
GR	13.2	1675	14	1681	2.4	1685	1.1	1700	2.3	1713	
GR	14	1719	13	1725	12.9	1760	13.7	1800	13.8	1850	
GR	14.5	3900	14.5	5200	17	5400					

PRIVATE ROAD

SB	1.05	1.5	2.6		28	1	358	.45			
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PRIVATE ROAD

X1	17				24	24	24				
X2			1	12.3	13						
X3	10							13	13		
BT	-16	1	15		1550	12.3		1600	12.5		
BT		1650	12.9		1675	13.2		1681	14		
BT		1685	13.3		1700	13.3		1713	13.3		
BT		1719	14		1725	13		1760	12.9		
BT		1800	13.7		1850	13.8		3900	14.5		
BT		5200	14.5								

X1	18	15	1770	1830	88	88	88				
X3				1650	15.5	1830	14				
GR	17	0	15	10	15.5	1650	15.4	1700	14.5	1750	
GR	14	1770	2.3	1780	1.1	1800	2.4	1815	14	1830	
GR	12	1850	13.7	1950	14.5	4200	14.5	5500	17	5600	

NC				.1	.3						
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2000 BAKER & LAWSON SURVEY SECTION

X1	19	13	10012.4	10083.6	2000	1500	1600				
GR	17.00	8538.1	15.00	8538.1	15.00	9538.1	12.89	10000.0	11.47	10012.4	
GR	3.83	10031.1	0.41	10038.1	2.95	10054.7	12.21	10083.6	12.12	10108.8	
GR	15.00	11338.1	15.00	11838.1	17.00	11838.1					

NC				.3	.5						
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2000 BAKER & LAWSON SURVEY SECTION

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X1	20	13	10394.9	10456.1	88	88	88			
X3	10							17.06	17.06	
GR	16.70	10000.0	16.92	10098.6	17.15	10191.9	17.37	10287.6	16.98	10394.9
GR	3.09	10422.3	1.39	10428.9	3.17	10434.0	17.10	10456.1	17.59	10546.3
GR	17.24	10639.1	16.97	10732.2	16.59	10824.4				

EQUISTAR ROAD

SB	1.05	1.5	2.6		24	2	490	.74		
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2000 BAKER & LAWSON SURVEY SECTION

EQUISTAR ROAD

X1	20.1	13	10376.7	10439.1	24	24	24			
X2			1	16.56	17.56					
X3	10							18	18	
BT	-11	10000.0	16.70		10098.6	16.92		10191.9	17.15	
BT		10287.6	17.37		10385.5	17.56		10411.0	17.90	
BT		10451.6	17.60		10546.3	17.59		10639.1	17.24	
BT		10732.2	16.97		10824.4	16.59				
GR	16.70	10000.0	16.92	10098.6	17.15	10191.9	17.37	10287.6	16.98	10376.7
GR	5.11	10396.0	1.03	10409.9	5.21	10420.4	17.06	10439.1	17.59	10546.3
GR	17.24	10639.1	16.97	10732.2	16.59	10824.4				

2000 BAKER & LAWSON SURVEY SECTION

X1	21	15	10010.0	10104.1	88	88	88			
GR	19.0	7670	17.5	7670	14.5	9670	13.7	9880	13.5	9930
GR	12.9	10000	12.31	10010	3.71	10032.5	-.22	10041.9	2.8	10068.1
GR	12.1	10104.1	12.43	10115.3	12.53	10116	17.5	12667	19.0	12667

QT	3	1682	1934	2427						
NC	.045	.05	.045	.1	.3					

2000 BAKER & LAWSON SURVEY SECTION

X1	22	12	10029.0	10113.7	1700	3700	3100			
GR	19.00	8079.3	15.00	8079.3	15.00	9779.3	13.71	10000.0	13.44	10029.0
GR	3.33	10059.0	1.09	10079.3	3.19	10086.8	12.81	10113.7	13.59	10130.9
GR	15.00	12579.3	19.00	12579.3						

NC				.3	.5					
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2000 BAKER & LAWSON SURVEY SECTION

X1	23	17	10398.0	10517.7	83	83	83			
X3	10			10292.8	16.46	10652.7	16.61	16.12	16.12	
GR	19.00	8454.1	16.40	8454.1	16.40	10000.0	16.40	10096.6	16.40	10196.4
GR	16.46	10292.8	16.11	10398.0	3.72	10441.3	1.58	10454.1	4.22	10473.7
GR	15.81	10517.7	16.61	10641.4	16.67	10738.9	16.55	10835.1	16.59	10931.0
GR	16.59	12954.1	19.00	12954.1						

FM 2917

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILES 02/97

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SB 1.05 1.5 2.6 9 2.67 891.27 3.

2000 BAKER & LAWSON SURVEY SECTION

FM 2917

X1	24	17	10425.8	10544.8	34	34	34			
X2			1	15.62	16.62					
X3	10							16.9	16.9	
BT	-12	8489.0	16.40		10000.0	16.40		10096.6	16.40	
BT		10196.4	16.40		10292.8	16.46		10396.4	16.71	
BT		10541.4	16.62		10641.4	16.61		10738.9	16.67	
BT		10835.1	16.55		10931.0	16.59		12989.0	16.59	
GR	19.00	8489.0	16.40	8489.0	16.40	10000.0	16.40	10096.6	16.40	10196.4
GR	16.46	10292.8	15.60	10425.8	3.09	10471.5	2.29	10489.0	4.61	10502.3
GR	15.99	10544.8	16.61	10641.4	16.67	10738.9	16.55	10835.1	16.59	10931.0
GR	16.59	12989.0	19.00	12989.0						

2000 BAKER & LAWSON SURVEY SECTION

X1	24.1	11	10000.0	10098.0	55	55	55			
GR	19.00	8061.4	15.00	8061.4	15.00	9761.4	13.61	10000.0	3.50	10045.8
GR	2.53	10061.4	4.04	10069.8	12.78	10098.0	14.49	10112.9	15.00	12561.4
GR	19.00	12561.4								

2000 BAKER & LAWSON SURVEY SECTION

X1	25	17	10190.8	10268.3	95	95	95			
X3	10							16.27	16.27	
GR	19.00	8226.7	17.30	8226.7	17.30	10000.0	17.25	10039.2	17.21	10093.9
GR	17.20	10148.3	15.57	10190.8	4.51	10213.5	2.22	10226.7	4.42	10240.4
GR	15.28	10268.3	17.43	10326.4	17.43	10367.1	17.54	10415.6	17.57	10463.3
GR	17.57	12726.7	19.00	12726.7						

RR NEAR FM2917

SB 1.05 1.5 2.6 12 4 390 2.3

2000 BAKER & LAWSON SURVEY SECTION

RAIL ROAD Nr FM 2917

X1	26	17	10204.8	10275.8	20	20	20			
X2			1	15.27	17.27					
X3	10							16	16	
BT	-13	8241.2	17.30		10000.0	17.30		10039.2	17.25	
BT		10093.9	17.21		10148.3	17.20		10198.0	17.28	
BT		10234.1	17.27		10272.3	17.38		10325.1	17.43	
BT		10365.8	17.43		10414.2	17.54		10462.0	17.57	
BT		12741.2	17.57							
GR	19.00	8241.2	17.30	8241.2	17.30	10000.0	17.25	10039.2	17.21	10093.9
GR	17.20	10148.3	16.00	10204.8	3.16	10226.4	2.55	10241.2	4.31	10256.5
GR	16.47	10275.8	17.43	10325.1	17.43	10365.8	17.54	10414.2	17.57	10462.0
GR	17.57	12741.2	19.00	12741.2						

2000 BAKER & LAWSON SURVEY SECTION

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X1	27	12	10028.8	10112.9	40	40	40			
GR	19.00	8075.1	15.00	8075.1	15.00	9775.1	13.81	10000.0	13.75	10028.8
GR	3.10	10060.3	2.38	10075.1	4.41	10086.9	12.03	10112.9	13.35	10134.4
GR	15.00	12575.1	19.00	12575.1						

NC .1 .3

2000 BAKER & LAWSON SURVEY SECTION

X1	28	10	10008.4	10123.7	5000	3000	4000			
GR	19.00	7378.3	15.24	10000.0	14.31	10008.4	5.44	10032.3	2.82	10078.3
GR	6.77	10097.2	15.05	10123.7	15.55	10141.8	15.55	10878.3	19.00	10878.3

NC .3 .5

2000 BAKER & LAWSON SURVEY SECTION

X1	29	18	10288.3	10367.3	90	90	90			
X3	10							14.48	14.48	
GR	19.00	7623.7	15.89	10000.0	15.93	10095.8	15.84	10151.1	15.56	10212.4
GR	14.90	10288.3	4.75	10307.5	4.22	10323.7	5.15	10345.9	13.86	10367.3
GR	14.78	10378.9	14.56	10405.9	14.42	10434.4	14.87	10529.7	15.15	10601.2
GR	15.98	10676.5	15.98	11123.7	19.00	11123.7				

PRIVATE BRIDGE Nr MONSANTO CANAL

SB 1.05 1.5 2.6 20 3 325 1.5

2000 BAKER & LAWSON SURVEY SECTION

PRIVATE BRIDGE Nr MONSANTO CANAL

X1	30	18	10285.5	10362.1	20	20	20			
X2			1	13.98	14.98					
X3	10							14.98	14.98	
BT	-15	7623.6	19.00		10000.0	15.89		10095.8	15.93	
BT		10151.1	15.84		10212.4	15.56		10288.7	15.11	
BT		10321.3	15.08		10354.8	14.98		10378.9	14.78	
BT		10405.9	14.56		10434.4	14.42		10529.7	14.87	
BT		10601.2	15.15		10676.5	15.98		11123.6	15.98	
GR	19.00	7623.6	15.89	10000.0	15.93	10095.8	15.84	10151.1	15.56	10212.4
GR	14.82	10285.5	4.40	10307.0	3.37	10323.6	5.25	10342.2	14.78	10362.1
GR	14.78	10378.9	14.56	10405.9	14.42	10434.4	14.87	10529.7	15.15	10601.2
GR	15.98	10676.5	15.98	11123.6	19.00	11123.6				

2000 BAKER & LAWSON SURVEY SECTION

X1	31	9	10018.9	10118.9	90	90	90			
GR	19.00	7374.6	15.23	10000.0	15.05	10018.9	5.92	10047.5	3.93	10074.6
GR	6.45	10092.0	14.53	10118.9	14.53	10874.6	19.00	10874.6		

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QT	3	1621	1858	2340						
NC				.1	.3					
X1	32	10	5266	5333	4500	4500	4500			
X3	10									
GR	21	0	19.5	2300	18.1	5200	17.8	5250	18.1	5266
GR	9.5	5285	3.5	5300	9.6	5315	18	5333	20	5700

NC				.3	.5					
X1	33	7		87	100	100	100			
GR	22	0	18.7	11	10	30	3.6	45	10	60
GR	19.4	79	22	87						

X1	34	10	7166	7236	100	100	100			
GR	21	0	19.5	3400	19.6	7100	19.5	7150	18.7	7166
GR	10	7185	5.5	7200	10	7215	19.4	7236	21	7600

2000 BAKER & LAWSON SURVEY SECTION

X1	34.2	23	12766.6	12864.3	3300	3300	3300			
GR	22.00	9819.3	18.86	9819.3	18.86	10000.0	18.67	10585.4	18.37	11109.4
GR	17.61	11602.4	16.89	12129.6	16.97	12650.7	16.59	12766.6	6.88	12791.1
GR	4.96	12819.3	7.81	12843.1	16.25	12864.3	16.64	12888.2	16.48	12985.6
GR	17.19	13174.8	17.26	13366.2	17.40	13557.4	17.30	13752.9	17.41	13948.4
GR	17.20	14144.2	20.00	15319.3	22.00	15319.3				

2000 BAKER & LAWSON SURVEY SECTION

X1	34.9	7	10014.7	10110.9	6540	6540	6540			
GR	22.33	10000.0	22.32	10014.7	8.22	10047.4	6.23	10057.2	8.00	10083.9
GR	21.06	10110.9	21.89	10131.6						

2000 BAKER & LAWSON SURVEY SECTION

X1	35	13	10354.1	10428.9	60	60	60			
X3	10							21.35	21.35	
GR	21.62	10000.0	21.57	10089.3	21.47	10178.0	21.73	10268.7	21.39	10354.1
GR	8.03	10373.5	6.41	10394.7	7.88	10409.5	21.49	10428.9	21.46	10513.5
GR	22.05	10603.6	22.35	10690.8	22.45	10776.6				

PRIVATE BRIDGE Nr CBWC CANAL

SB	1.05	1.5	2.6		18	2	220	.5		
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2000 BAKER & LAWSON SURVEY SECTION

PRIVATE BRIDGE Nr CBWC CANAL

X1	36	16	10356.5	10428.1	20	20	20			
X2			1	20.85	21.85					
X3	10							21.85	21.85	
BT	-13	8591.6	21.62		10000.0	21.62		10089.3	21.57	
BT		10178.0	21.47		10268.7	21.73		10358.4	21.98	
BT		10391.8	21.85		10424.7	21.99		10513.5	21.46	
BT		10603.6	22.05		10690.8	22.35		10776.6	22.45	
BT		10891.6	25.00							
GR	25.00	8591.6	21.62	8591.6	21.62	10000.0	21.57	10089.3	21.47	10178.0
GR	21.73	10268.7	20.52	10356.5	8.26	10375.4	6.85	10391.6	8.09	10407.9
GR	21.86	10428.1	21.46	10513.5	22.05	10603.6	22.35	10690.8	22.45	10776.6
GR	25.00	10891.6								

2000 BAKER & LAWSON SURVEY SECTION

X1	36.1	10	10014.2	10105.1	60	60	60			
GR	25.00	8252.0	21.92	8252.0	21.92	10000.0	21.21	10014.2	8.37	10041.8
GR	5.58	10052.0	8.32	10077.0	20.18	10105.1	20.53	10125.3	25.00	10552.0

NC .1 .3

X1	37	16	1465	1536	3140	3540	3340			
X3	10			1430	25.5	1536	23.8			
GR	27	0	24.5	0	22	1300	22.5	1350	23	1400
GR	25.5	1430	24.1	1465	13.1	1488	7.5	1500	13.1	1512
GR	23.8	1536	21.9	1550	22.1	1600	22.1	1650	25	2000
GR	26	2600								

NC .3 .5

X1	38	7	1000	1073	1800	1500	1700			
GR	29.0	0	27.9	0	27.9	1000	14.7	1028	7	1033
GR	14.5	1038	28.9	1073						

X1	39	14	1070	1140	100	100	100			
GR	31.0	0	26.2	0	24.5	650	24.5	1000	22	1070
GR	15.1	1085	14	1100	15	1115	24.1	1140	23.9	1200
GR	23.9	1250	26.2	1300	26.2	4100	31.0	4100		

QT 3 1554 1777 2325  
 NC .05 .05 .05

2000 BAKER & LAWSON SURVEY SECTION

X1	39.9	13	10020.1	10112.0	1060	1060	1060			
GR	31.00	8358.9	26.00	8358.9	25.00	9758.9	22.57	10000.0	22.10	10020.1
GR	12.73	10046.1	7.23	10058.9	12.42	10091.9	22.66	10112.0	22.85	10139.8
GR	25.00	10158.9	25.00	12558.9	31.00	12558.9				

2000 BAKER & LAWSON SURVEY SECTION



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PAGE 12

X1	40	17	10382.2	10452.5	140	140	140			
X3	10							25.19	25.19	
GR	31.00	8714.7	26.00	8714.7	24.98	10000.0	25.24	10098.3	25.10	10194.3
GR	25.21	10290.3	24.90	10382.2	12.47	10399.0	9.81	10414.7	12.33	10433.5
GR	23.91	10452.5	25.47	10542.8	25.32	10635.0	25.21	10727.6	25.16	10818.7
GR	25.16	12914.7	31.00	12914.7						

CR 169

SB	1.05	1.5	2.6		40	3	510	1.3		
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2000 BAKER & LAWSON SURVEY SECTION

CR 169

X1	41	17	10382.3	10450.5	30	30	30			
X2			1	24.69	25.69					
X3	10							25.69	25.69	
BT	-13	8716.7	26.00		10000.0	24.98		10098.3	25.24	
BT		10194.3	25.10		10290.3	25.21		10383.7	25.69	
BT		10417.7	25.81		10451.1	25.69		10542.8	25.47	
BT		10635.0	25.32		10727.6	25.21		10818.7	25.16	
BT		12916.7	25.16							
GR	31.00	8716.7	26.00	8716.7	24.98	10000.0	25.24	10098.3	25.10	10194.3
GR	25.21	10290.3	24.85	10382.3	12.28	10402.2	9.97	10416.7	12.84	10434.3
GR	23.61	10450.5	25.47	10542.8	25.32	10635.0	25.21	10727.6	25.16	10818.7
GR	25.16	12916.7	31.00	12916.7						

2000 BAKER & LAWSON SURVEY SECTION

X1	42	15	10371.2	10424.7	60	60	60			
X3	10			10279.7	29.11	10515.9	29.13	28.04	28.04	
GR	28.83	10000.0	28.93	10094.2	28.97	10188.1	29.11	10279.7	28.12	10371.2
GR	24.54	10372.5	12.56	10394.0	10.73	10397.7	12.77	10401.0	24.66	10424.0
GR	28.17	10424.7	29.13	10515.9	29.13	10608.3	29.19	10701.9	29.16	10796.8

RR Nr CR 169

SB	1.05	1.5	2.6		10	2	250	1.36		
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2000 BAKER & LAWSON SURVEY SECTION

RAIL ROAD Nr CR 169

X1	43	19	10369.9	10424.1	20	20	20			
X2			1	26.94	29.14					
X3	10			10279.7	29.11	10515.9	29.13	27.5	27.5	
BT	-13	8797.6	28.83		10000.0	28.83		10094.2	28.93	
BT		10188.1	28.97		10279.7	29.11		10396.5	29.18	
BT		10397.1	29.21		10424.8	29.14		10515.9	29.13	
BT		10608.3	29.13		10701.9	29.19		10796.8	29.16	
BT		13097.6	29.16							
GR	31.00	8797.6	28.83	8797.6	28.83	10000.0	28.93	10094.2	28.97	10188.1
GR	29.11	10279.7	28.11	10369.9	24.52	10371.2	12.48	10394.5	10.75	10397.6
GR	12.90	10401.7	24.48	10422.8	28.07	10424.1	29.13	10515.9	29.13	10608.3
GR	29.19	10701.9	29.16	10796.8	29.16	13097.6	31.00	13097.6		

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QT 3 1869 2189 2908

2000 BAKER & LAWSON SURVEY SECTION

X1	43.3	11	10021.4	10093.2	105	105	105			
GR	31.00	8267.4	25.00	8267.4	23.99	10000.0	23.36	10021.4	14.45	10042.3
GR	11.90	10067.4	13.69	10074.9	22.49	10093.2	23.01	10101.2	25.00	10867.4
GR	31.00	10867.4								

2000 BAKER & LAWSON SURVEY SECTION

X1	43.4	18	10184.9	10242.7	73	73	73			
X3	10							23.84	23.84	
GR	31.00	8421.7	25.00	8421.7	24.74	10000.0	24.41	10033.6	24.07	10089.3
GR	23.82	10138.1	23.61	10184.9	12.67	10204.0	11.90	10221.7	12.88	10235.9
GR	23.46	10242.7	24.30	10264.2	24.04	10290.4	24.26	10339.0	23.66	10442.0
GR	23.76	10512.3	25.00	11021.7	31.00	11021.7				

PRIVATE BRIDGE Nr CR 169

SB 1.05 1.5 2.6 10 2 250 1.36

2000 BAKER & LAWSON SURVEY SECTION

PRIVATE BRIDGE Nr CR 169

X1	43.5	18	10186.2	10242.3	17	17	17			
X2			1	23.34	24.34					
X3	10							24.34	24.34	
BT	-14	8423.3	25.00		10000.0	24.74		10033.6	24.41	
BT		10089.3	24.07		10138.1	23.82		10187.2	24.34	
BT		10217.7	24.45		10240.6	24.45		10264.2	24.30	
BT		10290.4	24.04		10339.0	24.26		10442.0	23.66	
BT		10512.3	23.76		11024.3	25.00				
GR	31.00	8423.3	25.00	8423.3	24.74	10000.0	24.41	10033.6	24.07	10089.3
GR	23.82	10138.1	23.85	10186.2	13.37	10209.3	11.76	10224.3	13.07	10236.2
GR	24.20	10242.3	24.30	10264.2	24.04	10290.4	24.26	10339.0	23.66	10442.0
GR	23.76	10512.3	25.00	11024.3	31.00	11024.3				

2000 BAKER & LAWSON SURVEY SECTION

X1	43.6	11	10014.3	10077.4	56	56	56			
GR	31.00	8255.2	25.00	8255.2	24.62	10000.0	24.35	10014.3	12.65	10038.7
GR	11.93	10055.2	13.08	10059.5	23.27	10077.4	23.00	10092.1	25.00	10855.2
GR	31.00	10855.2								

2000 BAKER & LAWSON SURVEY SECTION

X1	43.7	11	10013.4	10100.7	104	104	104			
GR	31.00	8265.1	26.33	8265.1	26.33	10000.0	26.02	10013.4	13.13	10038.6
GR	11.63	10065.1	14.21	10077.2	23.33	10100.7	23.22	10124.1	25.00	10865.1
GR	31.00	10865.1								

Along Dirt Dam

2000 BAKER & LAWSON SURVEY SECTION

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X1	43.9	20	11083.3	11170.6	2645	2645	2645			
X3				10673.6	24.63	11170.6	16.33			
GR	31.00	8622.5	26.00	8622.5	24.44	10000.0	24.39	10410.7	24.63	10673.6
GR	22.67	11067.1	21.43	11083.3	12.23	11103.8	10.76	11122.5	12.97	11143.4
GR	25.60	11170.6	25.54	11185.9	23.60	11209.8	10.40	11235.8	6.71	11244.3
GR	8.63	11251.5	25.97	11284.4	26.88	11306.7	26.88	11722.5	31.00	11722.5

QT 2 3830 2730

NC .1 .3

\*\*\*\*\* FOLLOWED BY C-1 DITCH CROSS-SECTIONS \*\*\*\*\*

QT 3 1603 2313 3220

2000 BAKER & LAWSON SURVEY SECTION

X1	115	7	10015.3	10110.3	7610	6810	7760			
GR	32.50	10000.0	31.00	10015.3	14.22	10047.1	11.81	10055.4	15.15	10070.0
GR	32.66	10110.3	34.35	10124.1						

NC 0.05 0.06 0.06 .30 .50

2000 BAKER & LAWSON SURVEY SECTION

X1	116	5	10000.0	10105.5	37	37	37			
X3	10							30.95	30.95	
GR	33.31	10000.0	19.44	10030.4	16.91	10049.6	16.80	10061.3	34.70	10105.5

BRISCOE CANAL CROSSING

SB 1.05 1.5 2.6 10 4 750 2.6

2000 BAKER & LAWSON SURVEY SECTION

BRISCOE CANAL CROSSING

X1	117	5	10000.0	10105.5	26	26	26			
X2			1.0	28.3	33.60					
X3	10							33.60	33.60	
BT	-4	10000.0	33.60		10048.2	33.87		10095.5	34.56	
BT		10105.5	34.70							
GR	33.31	10000.0	19.44	10030.4	16.91	10049.6	16.80	10061.3	34.70	10105.5

2000 BAKER & LAWSON SURVEY SECTION

X1	118	9	10017.9	10118.2	37	37	37			
GR	36.00	7568.3	31.13	7568.3	31.13	10000.0	30.74	10017.9	14.63	10063.6
GR	12.90	10068.3	13.98	10073.8	35.28	10118.2	36.17	10131.6		

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NC .10 .30

2000 BAKER & LAWSON SURVEY SECTION

X1	119	12	10019.0	10112.0	2500	2300	2400			
GR	35.00	8049.8	31.11	8049.8	31.11	10000.0	30.80	10019.0	16.37	10043.7
GR	14.11	10049.8	15.22	10068.7	21.25	10091.3	28.27	10112.0	29.41	10131.4
GR	30.00	16049.8	35.00	16049.8						

NC .30 .50

2000 BAKER & LAWSON SURVEY SECTION

X1	120	17	10376.2	10564.2	84	84	84			
X3	10			10269.9	31.31	10828.7	31.35	30.05	30.05	
GR	35.00	8472.7	31.18	8472.7	31.18	10000.0	31.23	10090.3	31.18	10178.1
GR	31.31	10269.9	30.11	10376.2	16.40	10455.6	14.16	10472.7	15.61	10482.8
GR	30.42	10564.2	31.05	10642.5	31.11	10732.9	31.35	10828.7	31.23	10922.2
GR	31.23	16472.7	35.00	16472.7						

FM 2403

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILES 02/97

SB 1.05 1.5 2.6 44 3 1018 6.0

2000 BAKER & LAWSON SURVEY SECTION

FM 2403

X1	121	17	10332.9	10533.6	32	32	32			
X2			1	29.05	31.05					
X3	10			10269.9	31.31	10828.7	31.35	31.05	31.05	
BT	-15	8404.2	31.18		10000.0	31.18		10090.3	31.23	
BT		10178.1	31.18		10269.9	31.31		10350.2	31.74	
BT		10369.8	31.05		10445.4	31.75		10532.6	31.68	
BT		10552.4	31.00		10642.5	31.05		10732.9	31.11	
BT		10828.7	31.35		10922.2	31.23		16404.2	31.23	
GR	35.00	8404.2	31.18	8404.2	31.18	10000.0	31.23	10090.3	31.18	10178.1
GR	31.31	10269.9	30.53	10332.9	16.33	10394.7	14.96	10404.2	15.96	10420.8
GR	30.56	10533.6	31.05	10642.5	31.11	10732.9	31.35	10828.7	31.23	10922.2
GR	31.23	16404.2	35.00	16404.2						

2000 BAKER & LAWSON SURVEY SECTION

X1	122	8	10009.7	10115.7	59	59	59			
GR	35.00	8045.9	31.36	8045.9	31.36	10000.0	30.27	10009.7	17.34	10040.6
GR	14.42	10045.9	17.00	10061.0	36.49	10115.7				

NC .10 .30  
QT 3 1803 2341 3295

2000 BAKER & LAWSON SURVEY SECTION

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X1	123	11	10014.6	10111.5	3600	3300	3300			
GR	35.00	8069.8	31.38	8069.8	31.38	10000.0	30.66	10014.6	18.26	10059.4
GR	16.05	10069.8	18.73	10077.9	30.16	10111.5	30.93	10135.8	30.93	16069.0
GR	35.00	16069.0								

NC	0.04	0.06	0.06	.30	.50					
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2000 BAKER & LAWSON SURVEY SECTION

X1	124	18	10371.0	10504.0	73	73	73			
X3	10							32.27	32.27	
GR	36.00	8441.2	33.29	8441.2	33.29	10000.0	33.40	10090.9	33.47	10181.0
GR	33.57	10277.2	32.77	10371.0	22.54	10396.5	18.12	10432.7	16.83	10441.2
GR	18.33	10449.1	22.49	10478.7	33.00	10504.0	33.81	10652.5	33.79	10756.4
GR	33.51	10853.9	33.51	16441.2	36.00	16441.2				

SH 35

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILES 04/97

SB	1.05	1.5	2.6	81	2	934.23	2.0			
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2000 BAKER & LAWSON SURVEY SECTION

SH 35										
X1	125	17	10369.9	10503.8	54	54	54			
X2			1	30.77	33.77					
X3	10							33.77	33.77	
BT	-13	8431.9	33.29		10000.0	33.29		10090.9	33.40	
BT		10181.0	33.47		10277.2	33.57		10377.4	34.87	
BT		10404.2	33.77		10527.0	34.73		10553.6	33.78	
BT		10652.5	33.81		10756.4	33.79		10853.9	33.51	
BT		16431.9	33.51							
GR	36.00	8431.9	33.29	8431.9	33.29	10000.0	33.40	10090.9	33.47	10181.0
GR	33.57	10277.2	32.91	10369.9	22.05	10401.8	16.82	10431.9	22.16	10445.4
GR	21.95	10477.3	32.95	10503.8	33.81	10652.5	33.79	10756.4	33.51	10853.9
GR	33.51	16431.9	36.00	16431.9						

2000 BAKER & LAWSON SURVEY SECTION

X1	126	12	10010.8	10102.5	73	73	73			
GR	36.00	8054.1	30.13	8054.1	30.13	10000.0	29.57	10010.8	19.34	10043.7
GR	18.23	10054.1	18.95	10064.9	23.74	10081.8	29.39	10102.5	29.69	10115.2
GR	29.69	16054.1	36.00	16054.1						

NC				.10	.30					
QT	3	2170	2586	3498						

2000 BAKER & LAWSON SURVEY SECTION

X1	127	5	10000.0	10075.6	5300	5400	5400			
GR	36.67	10000.0	21.01	10020.3	19.22	10034.9	20.79	10046.2	38.35	10075.6

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NC			.30		.50					
2000 BAKER & LAWSON SURVEY SECTION										
X1	128	13	10377.3	10434.2	20	20	20			
X3	10							33.22	33.22	
GR	34.56	10000.0	34.42	10093.8	34.37	10188.4	34.59	10282.0	34.22	10377.3
GR	20.89	10393.5	19.63	10407.6	21.04	10420.0	34.10	10434.2	34.23	10521.3
GR	33.58	10633.7	33.63	10732.4	33.73	10845.0				
CR 172										
SB	1.05	1.5	2.6		22	1.0	556	2		
2000 BAKER & LAWSON SURVEY SECTION										
CR 172										
X1	129	13	10376.2	10436.5	3	3	3			
X2			1	31.72	34.72					
X3	10							34.72	34.72	
BT	-11	10000.0	34.56		10093.8	34.42		10188.4	34.37	
BT		10282.0	34.59		10377.0	34.80		10404.5	34.72	
BT		10430.8	34.58		10521.3	34.23		10633.7	33.58	
BT		10732.4	33.63		10845.0	33.73				
GR	34.56	10000.0	34.42	10093.8	34.37	10188.4	34.59	10282.0	33.72	10376.2
GR	21.94	10390.9	20.02	10403.6	21.08	10415.6	33.91	10436.5	34.23	10521.3
GR	33.58	10633.7	33.63	10732.4	33.73	10845.0				
2000 BAKER & LAWSON SURVEY SECTION										
X1	130	6	10006.6	10095.9	64	64	64			
X3	10							35.4	35.4	
GR	34.33	10000.0	33.91	10006.6	21.59	10036.5	20.47	10047.7	22.47	10059.7
GR	41.35	10095.9								
PIPELINE Nr CR 172										
SB	1.05	1.5	2.6		20	3	430	1.33		
PIPELINE Nr CR 172										
X1	131	8	7700	7761	26	26	26			
X2			1	34.9	35.9					
X3	10							35.9	35.9	
BT	-5	0	37		3000	34.5		7700	35.9	
BT		7761	35.9		7770	40				
GR	37	0	34.5	3000	34.4	7700	22.7	7721	22.2	7734
GR	22.7	7743	34.5	7761	40	7770				
PIPELINE Nr CR 172										
X1	132	7	7510	7559	87	87	87			
GR	37	0	34.5	3000	35.2	7510	22.7	7518	21.9	7531
GR	21.7	7548	40.1	7559						

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NC .10 .30  
 QT 3 2086 2488 3404

2000 BAKER & LAWSON SURVEY SECTION

X1 133 8 10025.7 10120.6 2700 2900 2900  
 GR 40.00 7065.7 36.04 7065.7 36.04 10000.0 34.77 10025.7 23.56 10056.7  
 GR 20.48 10065.7 23.87 10082.7 39.05 10120.6

NC 0.05 0.06 0.06 .30 .50

2000 BAKER & LAWSON SURVEY SECTION

X1 134 16 10373.9 10492.2 77 77 77  
 X3 10 37.84 37.84  
 GR 40.00 7439.2 35.79 7439.2 35.79 10000.0 36.28 10096.3 37.26 10198.4  
 GR 38.06 10290.3 37.63 10373.9 23.25 10425.2 21.97 10439.2 23.14 10446.8  
 GR 37.68 10492.2 37.95 10636.9 37.08 10740.5 36.33 10838.3 36.27 10935.6  
 GR 40.00 10935.6

FM 1462  
 SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILES 04/97

SB 1.05 1.5 2.6 15 2.67 870.74 2.5

2000 BAKER & LAWSON SURVEY SECTION

FM 1462

X1 135 16 10388.1 10507.0 46 46 46  
 X2 1 37.19 38.49  
 X3 10 38.49 38.49  
 BT -14 7458.5 35.79 10000.0 35.79 10096.3 36.28  
 BT 10198.4 37.26 10290.3 38.06 10383.8 38.49  
 BT 10410.1 40.68 10464.2 38.62 10514.3 38.56  
 BT 10540.4 40.69 10636.9 37.95 10740.5 37.08  
 BT 10838.3 36.33 10935.6 36.27  
 GR 40.00 7458.5 35.79 7458.5 35.79 10000.0 36.28 10096.3 37.26 10198.4  
 GR 38.06 10290.3 37.64 10388.1 22.67 10443.4 22.36 10458.5 22.69 10462.6  
 GR 37.72 10507.0 37.95 10636.9 37.08 10740.5 36.33 10838.3 36.27 10935.6  
 GR 40.00 10935.6

2000 BAKER & LAWSON SURVEY SECTION

X1 136 7 10000.0 10116.0 77 77 77  
 GR 40.00 8057.0 38.28 8057.0 38.28 10000.0 23.92 10050.7 21.86 10057.0  
 GR 23.82 10067.9 40.01 10116.0

NC .10 .30

2000 BAKER & LAWSON SURVEY SECTION

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X1	137	9	10021.1	10102.5	3700	3450	3450			
GR	45.00	46.4	40.00	4046.4	34.96	10000.0	33.58	10021.1	27.41	10039.0
GR	23.34	10046.4	24.12	10073.6	40.91	10102.5	45.00	10102.5		

NC .30 .50

2000 BAKER & LAWSON SURVEY SECTION

X1	138	19	10280.3	10345.1	88	88	88			
X3	10			10094.1	37.17	10431.8	39.85	36.97	36.97	
GR	45.00	320.8	40.00	4320.8	37.15	10000.0	37.17	10094.1	37.07	10185.2
GR	36.65	10280.3	30.28	10281.5	23.63	10301.1	21.31	10320.8	24.24	10336.7
GR	27.93	10343.7	37.19	10345.1	39.68	10399.6	39.85	10431.8	37.29	10533.4
GR	36.58	10630.7	36.56	10723.4	36.55	10820.7	45.00	10820.7		

CR 179

SB 1.05 1.5 2.6 40 6 655 .880

2000 BAKER & LAWSON SURVEY SECTION

CR 179

X1	139	18	10280.2	10344.0	24	24	24			
X2			1	36.47	37.17					
X3	10			10094.1	37.17	10431.8	39.85	37.47	37.47	
BT	-14	318.1	45.00		4318.1	40.00		10000.0	37.15	
BT		10094.1	37.17		10185.2	37.07		10278.3	37.47	
BT		10312.1	37.50		10346.3	37.88		10399.6	39.68	
BT		10431.8	39.85		10533.4	37.29		10630.7	36.58	
BT		10723.4	36.56		10820.7	36.55				
GR	45.00	318.1	40.00	4318.1	37.15	10000.0	37.17	10094.1	37.07	10185.2
GR	36.61	10280.2	30.20	10281.6	24.77	10299.3	21.56	10318.1	23.52	10334.7
GR	37.05	10344.0	39.68	10399.6	39.85	10431.8	37.29	10533.4	36.58	10630.7
GR	36.56	10723.4	36.55	10820.7	45.00	10820.7				

2000 BAKER & LAWSON SURVEY SECTION

X1	140	9	10013.9	10094.5	88	88	88			
GR	45.00	43.3	40.00	4043.3	36.05	10000.0	34.67	10013.9	25.85	10038.7
GR	22.99	10043.3	25.55	10060.3	41.01	10094.5	45.00	10094.5		

NC .10 .30

X1	141	8	10900	10969	2600	2600	2600			
GR	45	1939	41	5000	39.4	10900	25.5	10934	23.1	10939
GR	25.7	10944	43	10969	45	10969				

NC .30 .50



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X1	142	12	10900	10965	90	90	90				
X3	10							39.5	39.5		
GR	45	1944	41	5000	39.4	10890	40.2	10900	33	10900	
GR	26.8	10929	25.7	10944	26.7	10951	33	10965	38.6	10965	
GR	41	10970	45	10970							

CR 392

SB	1.05	1.5	2.6		40	6	610	.93			
CR 392											
X1	143	12	10900	10965	20	20	20				
X2			1	39	40						
X3	10							40	40		
BT	-5	1944	45		5000	41		10900	40		
BT		10965	40		10970	41					
GR	45	1944	41	5000	39.4	10890	40.2	10900	33	10900	
GR	26.8	10929	25.7	10944	26.7	10951	33	10965	38.6	10965	
GR	41	10970	45	10970							

X1	144	9	10900	10980	90	90	90				
X3	10										
GR	45	1944	41	5000	39.4	10890	42.9	10900	27.5	10931	
GR	25.6	10944	27.4	10950	44.6	10980	45	10980			

NC	0.04	0.06	0.06								
QT	3	1767	2147	2865							

2000 BAKER & LAWSON SURVEY SECTION

X1	144.9	9	10013.4	10077.2	1420	1420	1420				
X3	10										
GR	45.00	3041.1	40.00	7041.1	39.44	10000.0	37.85	10013.4	27.41	10032.2	
GR	26.17	10041.1	27.77	10056.6	40.16	10077.2	45.00	10077.2			

2000 BAKER & LAWSON SURVEY SECTION

X1	145	15	10330.8	10385.8	30	30	30				
X3	10			10330.8	39.95	10435.9	42.04	39.56	39.56		
GR	45.00	3359.1	40.00	7359.1	39.68	10000.0	39.10	10143.6	38.64	10239.3	
GR	39.95	10330.8	26.79	10344.6	25.95	10359.1	27.09	10371.8	40.12	10385.8	
GR	42.04	10435.9	42.06	10476.5	39.38	10549.9	38.78	10698.9	45.00	10698.9	

CR 180

SB	1.05	1.5	2.6		10	4	333	1.6			
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2000 BAKER & LAWSON SURVEY SECTION

CR 180										
X1	146	15	10329.9	10385.1	20	20	20			
X2			1	38.66	40.46					
X3	10			10329.9	39.99	10435.9	42.04	40.46	40.46	
BT	-12	3349.8	45.00		7349.8	40.00		10000.0	39.68	
BT		10143.6	39.10		10239.3	38.64		10330.5	40.46	
BT		10359.0	40.77		10384.2	41.07		10435.9	42.04	
BT		10476.5	42.06		10549.9	39.38		10698.9	38.78	
GR	45.00	3349.8	40.00	7349.8	39.68	10000.0	39.10	10143.6	38.64	10239.3
GR	39.99	10329.9	26.37	10341.6	24.80	10349.8	26.73	10370.1	40.07	10385.1
GR	42.04	10435.9	42.06	10476.5	39.38	10549.9	38.78	10698.9	45.00	10698.9

2000 BAKER & LAWSON SURVEY SECTION

X1	146.1	9	10009.8	10089.7	80	80	80			
GR	45.00	3053.6	40.00	7053.6	37.74	10000.0	37.07	10009.8	29.73	10029.5
GR	27.32	10042.8	27.03	10053.6	41.69	10089.7	45.00	10089.7		

PIPELINE IN SOUTH OF CR 138

SB	1.05	1.5	2.6		35	.1	900	1.66		
PIPELINE IN SOUTH OF CR 138										
X1	148	7	5720	5805	4022	4022	4022			
X2			1	41.7	43.2					
X3	10							43.2	43.2	
BT	6	0	44.5		5700	40		5720	38.6	
BT	5721	43.2		5800	43.2		5805	45.8		
GR	44.5	0	40	5700	38.6	5720	28.2	5739	26.7	5761
GR	28.6	5784	45.8	5805						

PIPELINE BETWEEN CR 138 & CR 941

SB	1.05	1.5	2.6		25	2	586	1.2		
PIPELINE BETWEEN CR 138 & CR 941										
X1	150	6	6400	6460	3402	3352	3352			
X2			1	46	47.6					
X3	10							47.6	47.6	
BT	4	0	46.5		6400	43.8		6400	47.6	
BT	6460	47.6								
GR	46.5	0	43.8	6400	32.8	6414	31.6	6429	32.5	6444
GR	46.5	6460								

QT	3	1311	1528	1993						
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PIPELINE BETWEEN CR 138 & CR 941

SB	1.05	1.5	2.6		20	3	300	2		
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X1	171	11	10025.5	10063.7	85	85	85			
GR	55.00	9040.6	53.79	9040.6	53.79	10000.0	51.58	10025.5	47.34	10034.4
GR	45.63	10040.6	46.58	10050.4	50.98	10063.7	53.12	10113.2	53.12	12040.6
GR	55.00	12040.6								

2000 BAKER & LAWSON SURVEY SECTION

X1	171.3	11	10013.0	10047.1	1200	1200	1200			
GR	55.00	9031.3	53.73	9031.3	53.73	10000.0	51.88	10013.0	46.85	10025.8
GR	46.28	10031.3	46.77	10036.5	51.60	10047.1	53.92	10072.6	53.92	12031.3
GR	55.00	12031.3								

2000 BAKER & LAWSON SURVEY SECTION

X1	171.4	12	10000.0	10046.3	60	60	60			
X3	10							53.49	53.49	
GR	55.00	9019.8	52.97	9019.8	52.97	10000.0	46.66	10014.6	46.41	10019.8
GR	47.09	10030.3	52.26	10046.3	53.85	10139.2	53.74	10237.1	53.96	10329.9
GR	53.96	12329.9	55.00	12329.9						

CEDAR

SB	1.25	1.5	2.6		24	3	240	2.0		
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2000 BAKER & LAWSON SURVEY SECTION

CEDAR

X1	171.5	12	10000.0	10047.5	45	45	45			
X2			1	52.99	53.99					
X3	10							54.16	54.16	
BT	-8	9022.4	53.38		10000.0	53.38		10014.7	54.16	
BT		10035.7	53.99		10139.2	53.85		10237.1	53.74	
BT		10329.9	53.96		12022.4	53.96				
GR	55.00	9022.4	53.38	9022.4	53.38	10000.0	47.13	10014.7	46.01	10022.4
GR	47.11	10036.1	52.83	10047.5	53.85	10139.2	53.74	10237.1	53.96	10329.9
GR	53.96	12022.4	55.00	12022.4						

2000 BAKER & LAWSON SURVEY SECTION

X1	171.6	9	10029.2	10069.2	80	80	80			
GR	55.09	10000.0	53.54	10029.2	47.30	10045.1	46.32	10051.4	47.27	10059.6
GR	51.95	10069.2	54.08	10094.3	54.08	12051.4	55.00	12051.4		

NC				.10	.30					
QT	3	260	308	404						

2000 BAKER & LAWSON SURVEY SECTION

X1	172	11	10021.0	10059.9	1215	115	715	.57		
GR	57.00	9238.8	54.70	9238.8	54.70	10000.0	52.54	10021.0	47.44	10030.4
GR	47.05	10038.8	47.47	10049.7	51.51	10059.9	55.22	10084.0	55.22	11338.8
GR	57.00	11338.8								

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X1	156.1	12	10000.0	10045.6	60	60	60			
GR	50.00	5025.8	48.61	10000.0	40.33	10019.6	39.04	10025.8	40.40	10030.2
GR	47.65	10045.6	48.42	10071.9	48.72	10232.2	48.68	10302.5	48.80	10374.2
GR	48.80	11623.4	52.00	11623.4						

QT	3	496	593	766						
NC	0.07	0.045	0.07							

X1	156.5	9	10000.0	10047.4	75	75	75			
GR	55.00	7520.4	51.00	7520.4	50.84	10000.0	44.16	10016.8	42.56	10020.4
GR	44.27	10025.9	50.76	10047.4	51.00	12520.4	55.00	12520.4		

X1	156.6	9	10000.0	10047.4	925	925	925			
GR	55.00	7520.4	51.00	7520.4	50.84	10000.0	44.16	10016.8	42.56	10020.4
GR	44.27	10025.9	50.76	10047.4	51.00	12520.4	55.00	12520.4		

X1	156.7	9	10000.0	10047.4	1000	1000	1000			
GR	55.00	7520.4	51.00	7520.4	50.84	10000.0	44.16	10016.8	42.56	10020.4
GR	44.27	10025.9	50.76	10047.4	51.00	12520.4	55.00	12520.4		

X1	156.9	9	10000.0	10047.4	865	1265	1065			
GR	55.00	7520.4	51.00	7520.4	50.84	10000.0	44.16	10016.8	42.56	10020.4
GR	44.27	10025.9	50.76	10047.4	51.00	12520.4	55.00	12520.4		

2000 BAKER & LAWSON SURVEY SECTION

X1	157	17	10375.2	10418.8	75	75	75			
X3	10							52.39	52.39	
GR	55.00	7900.3	51.58	7900.3	51.58	10000.0	51.60	10091.5	51.64	10185.0
GR	51.68	10282.0	52.01	10375.2	44.49	10378.6	43.35	10400.3	46.06	10416.8
GR	51.88	10418.8	51.87	10513.7	51.75	10606.3	51.90	10698.5	51.86	10789.9
GR	51.86	12900.3	55.00	12900.3						

CR 190

SB	1.05	1.5	2.6		24	2	214	.63		
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2000 BAKER & LAWSON SURVEY SECTION

CR 190

X1	158	17	10374.5	10419.7	30	30	30			
X2			1	51.89	52.89					
X3	10							52.89	52.89	
BT	-13	7894.0	51.58		10000.0	51.58		10091.5	51.60	
BT		10185.0	51.64		10282.0	51.68		10376.4	52.90	
BT		10395.2	52.95		10416.6	52.89		10513.7	51.87	
BT		10606.3	51.75		10698.5	51.90		10789.9	51.86	
BT		12894.0	51.86							
GR	55.00	7894.0	51.58	7894.0	51.58	10000.0	51.60	10091.5	51.64	10185.0
GR	51.68	10282.0	51.81	10374.5	45.34	10377.9	43.86	10394.0	47.48	10418.2

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GR	51.97	10419.7	51.87	10513.7	51.75	10606.3	51.90	10698.5	51.86	10789.9
GR	51.86	12894.0	55.00	12894.0						

2000 BAKER & LAWSON SURVEY SECTION

X1	159	9	10000.0	10057.4	40	40	40			
X3	10							54.10	54.10	
GR	55.00	7527.8	53.68	7527.8	53.68	10000.0	43.79	10019.5	42.91	10027.8
GR	43.84	10041.0	53.64	10057.4	53.64	12527.8	55.00	12527.8		

RAIL ROAD Nr CR 190

SB	1.05	1.5	2.6		18	1	230	.88		
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2000 BAKER & LAWSON SURVEY SECTION

RAIL ROAD Nr CR 190

X1	160	13	10370.8	10428.8	36	36	36			
X2			1	53.10	55.10					
X3	10							55.10	55.10	
BT	-10	10000.0	54.72		10091.6	54.77		10185.2	54.93	
BT		10280.1	55.07		10371.4	55.10		10399.7	55.12	
BT		10428.0	55.11		10524.1	55.06		10618.8	54.95	
BT		10719.0	54.78							
GR	54.72	10000.0	54.77	10091.6	54.93	10185.2	55.07	10280.1	53.00	10370.8
GR	44.09	10392.4	43.36	10404.5	44.82	10414.0	53.32	10428.8	55.06	10524.1
GR	54.95	10618.8	54.84	10719.0	54.78	10819.0				

2000 BAKER & LAWSON SURVEY SECTION

X1	160.1	9	10012.8	10059.3	60	60	60			
GR	55.00	7532.9	50.96	7532.9	50.96	10000.0	49.93	10012.8	44.61	10025.6
GR	43.53	10032.9	44.73	10046.5	50.27	10059.3	52.29	10077.6		

NC			.10	.30						
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2000 BAKER & LAWSON SURVEY SECTION

X1	161	11	10016.1	10057.5	790	990	890			
GR	55.00	8037.1	51.73	8037.1	51.73	10000.0	49.78	10016.1	44.83	10027.0
GR	43.74	10037.1	45.13	10044.2	51.05	10057.5	51.74	10080.9	51.74	12537.1
GR	55.00	12537.1								

NC			.30	.50						
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2000 BAKER & LAWSON SURVEY SECTION

X1	162	14	10271.5	10315.7	34	34	34			
X3	10							51.01	51.01	
GR	55.00	8288.9	51.69	8288.9	51.69	10000.0	51.58	10111.3	51.72	10183.6
GR	50.26	10271.5	44.05	10288.9	44.91	10296.5	46.21	10305.8	50.59	10315.7
GR	51.69	10411.9	52.34	10943.5	52.34	12788.9	55.00	12788.9		

ROGERS ROAD

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SB 1.25 1.5 2.6 11 1 150 2.0

2000 BAKER & LAWSON SURVEY SECTION  
ROGERS ROAD

X1	163	14	10294.2	10348.9	32	32	32			
X2			1	50.51	51.51					
X3	10							51.51	51.51	
BT	-10	8310.8	51.69		10000.0	51.69		10111.3	51.58	
BT		10183.6	51.72		10275.8	51.79		10302.3	51.51	
BT		10319.8	51.88		10411.9	51.69		10943.5	52.34	
BT		12810.8	52.34							
GR	55.00	8310.8	51.69	8310.8	51.69	10000.0	51.58	10111.3	51.72	10183.6
GR	50.03	10294.2	44.14	10307.9	43.88	10310.8	44.21	10318.5	49.44	10348.9
GR	51.69	10411.9	52.34	10943.5	52.34	12810.8	55.00	12810.8		

2000 BAKER & LAWSON SURVEY SECTION

X1	164	11	10018.7	10063.8	34	34	34			
GR	55.00	8042.8	51.83	8042.8	51.83	10000.0	49.86	10018.7	44.33	10036.5
GR	43.83	10042.8	44.42	10050.0	50.54	10063.8	51.45	10079.2	51.45	12542.8
GR	55.00	12542.8								

NC .10 .30

2000 BAKER & LAWSON SURVEY SECTION

X1	165	11	10024.4	10067.5	300	300	350			
GR	55.00	8045.3	52.23	8045.3	52.23	10000.0	50.87	10024.4	44.63	10037.7
GR	44.04	10045.3	44.47	10056.4	50.00	10067.5	51.87	10091.6	51.87	12045.3
GR	55.00	12045.3								

NC .30 .50

2000 BAKER & LAWSON SURVEY SECTION

X1	166	18	10289.1	10404.0	25	25	25			
X3	10							51.22	51.22	
GR	57.49	10000.0	57.71	10094.4	52.58	10187.8	51.66	10289.1	44.89	10303.8
GR	44.33	10311.3	44.29	10324.9	44.14	10338.6	44.35	10352.3	44.39	10366.6
GR	44.54	10380.1	45.57	10393.0	50.69	10404.0	51.82	10470.6	52.03	10567.3
GR	52.38	10663.8	52.38	12338.6	55.00	12338.6				

SH 6

SB 1.25 1.5 2.6 50 2 360 2.0

2000 BAKER & LAWSON SURVEY SECTION  
SH 6

X1	167	18	10269.9	10377.6	50	50	50			
X2			1	50.22	52.22					
X3	10							52.22	52.22	
BT	-11	10000.0	57.49		10094.4	57.71		10187.8	52.58	
BT		10269.6	52.47		10289.0	52.44		10369.2	52.22	

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BT		10389.0	52.46		10470.6	51.82		10567.3	52.03	
BT		10663.8	52.38		12321.3	52.38				
GR	57.49	10000.0	57.71	10094.4	52.58	10187.8	51.62	10269.9	46.13	10285.8
GR	44.91	10293.8	44.52	10307.7	44.47	10321.3	44.50	10335.5	45.18	10348.7
GR	44.71	10361.5	46.39	10366.8	51.45	10377.6	51.82	10470.6	52.03	10567.3
GR	52.38	10663.8	52.38	12321.3	55.00	12321.3				

2000 BAKER & LAWSON SURVEY SECTION

X1	167.1	11	10028.6	10060.6	100	100	100			
GR	55.00	8043.4	52.98	8043.4	52.98	10000.0	49.94	10028.6	44.84	10038.5
GR	44.18	10043.4	44.64	10047.6	50.35	10060.6	52.21	10073.5	52.21	12043.4
GR	55.00	12043.4								

NC .10 .30

2000 BAKER & LAWSON SURVEY SECTION

X1	168	11	10016.8	10054.3	1900	1900	1900			
GR	55.00	9037.6	53.57	9037.6	53.57	10000.0	51.72	10016.8	45.78	10031.7
GR	44.66	10037.6	46.03	10043.4	50.76	10054.3	52.89	10076.4	52.89	12037.6
GR	55.00	12037.6								

NC .30 .50

2000 BAKER & LAWSON SURVEY SECTION

X1	169	15	10265.0	10307.6	85	85	85			
X3	10							53.59	53.59	
GR	55.00	9283.5	54.43	9283.5	54.43	10000.0	54.36	10091.2	54.49	10181.3
GR	51.69	10265.0	47.23	10275.1	45.38	10283.5	46.80	10293.8	51.83	10307.6
GR	53.82	10423.0	53.70	10515.9	53.73	10606.7	53.73	12283.5	55.00	12283.5

LEWIS STREET

SB 1.05 1.5 2.6 24 3 268 1.9

2000 BAKER & LAWSON SURVEY SECTION

LEWIS STREET										
X1	170	15	10295.6	10337.4	30	30	30			
X2			1	53.09	54.09					
X3	10							54.09	54.09	
BT	-11	9319.4	54.43		10000.0	54.43		10091.2	54.36	
BT		10181.3	54.49		10270.1	54.22		10296.3	54.09	
BT		10324.0	54.16		10423.0	53.82		10515.9	53.70	
BT		10606.7	53.73		12319.4	53.73				
GR	55.00	9319.4	54.43	9319.4	54.43	10000.0	54.36	10091.2	54.49	10181.3
GR	52.12	10295.6	46.92	10308.2	45.78	10319.4	46.78	10326.7	51.51	10337.4
GR	53.82	10423.0	53.70	10515.9	53.73	10606.7	53.73	12319.4	55.00	12319.4

2000 BAKER & LAWSON SURVEY SECTION

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X1	171	11	10025.5	10063.7	85	85	85			
GR	55.00	9040.6	53.79	9040.6	53.79	10000.0	51.58	10025.5	47.34	10034.4
GR	45.63	10040.6	46.58	10050.4	50.98	10063.7	53.12	10113.2	53.12	12040.6
GR	55.00	12040.6								

2000 BAKER & LAWSON SURVEY SECTION

X1	171.3	11	10013.0	10047.1	1200	1200	1200			
GR	55.00	9031.3	53.73	9031.3	53.73	10000.0	51.88	10013.0	46.85	10025.8
GR	46.28	10031.3	46.77	10036.5	51.60	10047.1	53.92	10072.6	53.92	12031.3
GR	55.00	12031.3								

2000 BAKER & LAWSON SURVEY SECTION

X1	171.4	12	10000.0	10046.3	60	60	60			
X3	10							53.49	53.49	
GR	55.00	9019.8	52.97	9019.8	52.97	10000.0	46.66	10014.6	46.41	10019.8
GR	47.09	10030.3	52.26	10046.3	53.85	10139.2	53.74	10237.1	53.96	10329.9
GR	53.96	12329.9	55.00	12329.9						

CEDAR

SB	1.25	1.5	2.6		24	3	240	2.0		
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2000 BAKER & LAWSON SURVEY SECTION

CEDAR

X1	171.5	12	10000.0	10047.5	45	45	45			
X2			1	52.99	53.99					
X3	10							54.16	54.16	
BT	-8	9022.4	53.38		10000.0	53.38		10014.7	54.16	
BT		10035.7	53.99		10139.2	53.85		10237.1	53.74	
BT		10329.9	53.96		12022.4	53.96				
GR	55.00	9022.4	53.38	9022.4	53.38	10000.0	47.13	10014.7	46.01	10022.4
GR	47.11	10036.1	52.83	10047.5	53.85	10139.2	53.74	10237.1	53.96	10329.9
GR	53.96	12022.4	55.00	12022.4						

2000 BAKER & LAWSON SURVEY SECTION

X1	171.6	9	10029.2	10069.2	80	80	80			
GR	55.09	10000.0	53.54	10029.2	47.30	10045.1	46.32	10051.4	47.27	10059.6
GR	51.95	10069.2	54.08	10094.3	54.08	12051.4	55.00	12051.4		

NC				.10	.30					
QT	3	260	308	404						

2000 BAKER & LAWSON SURVEY SECTION

X1	172	11	10021.0	10059.9	1215	115	715	.57		
GR	57.00	9238.8	54.70	9238.8	54.70	10000.0	52.54	10021.0	47.44	10030.4
GR	47.05	10038.8	47.47	10049.7	51.51	10059.9	55.22	10084.0	55.22	11338.8
GR	57.00	11338.8								



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NC 0.06 0.05 0.06 .30 .50

2000 BAKER & LAWSON SURVEY SECTION

X1	173	16	10387.6	10454.6	70	70	70			
X3	10			10284.2	55.36	10506.3	55.19	54.81	54.81	
GR	57.00	9629.7	55.29	9629.7	55.29	10000.0	55.23	10092.3	55.31	10190.5
GR	55.36	10284.2	54.19	10387.6	49.16	10410.6	47.07	10429.7	48.42	10438.0
GR	53.12	10454.6	55.19	10506.3	54.95	10602.1	54.83	10694.1	54.83	11729.7
GR	57.00	11729.7								

FM 1128

SB 1.25 1.5 2.6 12 2 76 2.0

2000 BAKER & LAWSON SURVEY SECTION

FM 1128

X1	174	16	10335.7	10400.6	60	60	60			
X2			1	54.31	55.31					
X3	10			10284.2	55.36	10506.3	55.19	55.31	55.31	
BT	-3	10284.2	55.36		10413.9	55.31		10506.3	55.19	
GR	57.00	9569.5	55.29	9569.5	55.29	10000.0	55.23	10092.3	55.31	10190.5
GR	55.36	10284.2	53.60	10335.7	48.34	10358.9	46.85	10369.5	47.91	10382.6
GR	53.63	10400.6	55.19	10506.3	54.95	10602.1	54.83	10694.1	54.83	11669.5
GR	57.00	11669.5								

2000 BAKER & LAWSON SURVEY SECTION

X1	175	11	10008.5	10040.5	70	70	70			
GR	57.00	9222.9	53.27	9222.9	53.27	10000.0	52.25	10008.5	49.03	10018.8
GR	48.04	10022.9	48.92	10027.9	52.93	10040.5	53.66	10052.5	53.66	11322.9
GR	57.00	11322.9								

NC .10 .30

X1	176	7	500	534	350	1350	850			
GR	56	0	53.8	500	49.9	512	49	517	50.1	522
GR	54.2	534	56	3300						

NC .30 .50

X1	177	6	500	534	40	40	40			
X3	10							54.95	54.95	
GR	56	0	53.8	500	49.2	515	49.2	519	54.2	534
GR	56	3300								

TANKERSLEY ROAD

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SB	1.05	1.5	2.6		4	1	16	3.0		
TANKERSLEY ROAD										
X1	178	9	10500	10534	20	20	20			
X2			1	54.2	55.7					
X3	10							55.7	55.7	
BT	-5	9515	56		10000	56		10515	55.7	
BT		10519	55.7		13300	56				
GR	58	9515	56	9515	56	10000	53.8	10500	49.2	10515
GR	49.2	10519	54.2	10534	56	13300	58	13300		
X1	179	10	10500	10536	40	40	40			
GR	58	9518	56	9518	56	10000	55.5	10500	50.1	10514
GR	49	10518	50.2	10522	54.1	10536	56	13300	58	13300
NC				.10	.30					
X1	180	9	10700	10732	125	125	125			
GR	58	9721	56	9721	56	10000	54	10700	50.3	10711
GR	50.1	10721	53.9	10732	56	13000	58	13000		
NC				.30	.50					
X1	181	9	10700	10732	68	68	68			
X3	10							54.5	54.5	
GR	58	9714	56	9714	56	10000	54	10700	49.3	10714
GR	49.3	10718	53.9	10732	56	13000	58	13000		
PRIVATE ROAD Nr TANKERLEY ROAD										
SB	1.05	1.5	2.5		4	1	12	3.0		
PRIVATE ROAD Nr TANKERSLEY ROAD										
X1	182	9	10700	10732	14	14	14			
X2			1	53.3	55.7					
X3	10							55.7	55.7	
BT	-5	9714	56		10000	56		10714	55.7	
BT		10718	55.7		13000	56				
GR	58	9714	56	9714	56	10000	54	10700	49.3	10714
GR	49.3	10718	53.9	10732	56	13000	58	13000		

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T1 NEW BAYOU (INCLUDING C-1 DITCH)..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: NEW&C1S6.IH2.....25-YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3							14.61	
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							

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T1 NEW BAYOU (INCLUDING C-1 DITCH)..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: NEW&C1S7.IH2.....100-YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		4							15.48	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1							

THIS RUN EXECUTED 21AUG02 14:01:49

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

L REVISED BY KLOTZ ASSOC

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
1.000	1722.00	13.94	.66	-2.50	7.10	7.10	15.00	427.75	24.84	.00	2641.74	
1.000	1985.00	14.61	.59	-2.50	7.10	7.10	15.00	403.84	20.34	.00	3057.81	
1.000	2488.00	15.48	.53	-2.50	7.10	7.10	15.00	385.94	15.51	.00	3300.00	
*	2.000	1722.00	14.01	1.90	-.71	12.58	10.73	15.00	1638.84	95.17	2900.00	204.73
*	2.000	1985.00	14.65	1.99	-.71	12.58	10.73	15.00	1829.62	92.17	2900.00	356.74
*	2.000	2488.00	15.50	2.15	-.71	12.58	10.73	15.00	2133.16	85.74	2900.00	448.42
	3.000	1722.00	14.01	2.15	-1.19	15.58	14.66	14.66	1722.00	100.00	85.00	99.98
	3.000	1985.00	14.66	2.29	-1.19	15.58	14.66	14.66	1985.00	100.00	85.00	103.96
	3.000	2488.00	15.50	2.60	-1.19	15.58	14.66	14.66	2488.00	100.00	85.00	106.77
	4.000	1722.00	14.02	2.14	-1.19	15.58	14.66	15.33	1722.00	100.00	30.00	100.49
	4.000	1985.00	14.66	2.28	-1.19	15.58	14.66	15.33	1985.00	100.00	30.00	104.47
	4.000	2488.00	15.69	2.54	-1.19	15.58	14.66	15.33	2488.00	100.00	30.00	107.50
	5.000	1722.00	14.02	2.41	-.64	13.55	14.95	15.00	1722.00	100.00	30.00	99.37
	5.000	1985.00	14.66	2.54	-.64	13.55	14.95	15.00	1985.00	100.00	30.00	101.28
	5.000	2488.00	15.69	2.81	-.64	13.55	14.95	15.00	2488.00	100.00	30.00	102.10
	6.000	1722.00	14.02	2.25	-1.99	15.66	15.69	16.26	1722.00	100.00	20.00	89.63
	6.000	1985.00	14.74	2.39	-1.99	15.66	15.69	16.26	1985.00	100.00	20.00	93.29
	6.000	2488.00	15.83	2.66	-1.99	15.66	15.69	16.26	2488.00	100.00	20.00	98.10
	8.000	1722.00	14.08	1.96	-1.07	14.19	11.87	18.00	1704.12	98.96	115.00	125.14
	8.000	1985.00	14.80	2.06	-1.07	14.19	11.87	18.00	1953.89	98.43	115.00	131.63
	8.000	2488.00	15.91	2.27	-1.07	14.19	11.87	18.00	2424.06	97.43	115.00	142.08
*	8.020	1722.00	14.16	.24	-.29	6.31	10.55	17.00	179.15	10.40	225.00	6700.00
*	8.020	1985.00	14.88	.20	-.29	6.31	10.55	17.00	158.78	8.00	225.00	6700.00
*	8.020	2488.00	16.01	.17	-.29	6.31	10.55	17.00	147.39	5.92	225.00	6700.00

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	8.030	1722.00	14.15	1.14	-1.14	8.31	9.15	17.00	1094.25	63.55	36.00	3363.66
*	8.030	1985.00	14.88	.73	-1.14	8.31	9.15	17.00	752.35	37.90	36.00	6700.00
*	8.030	2488.00	16.01	.43	-1.14	8.31	9.15	17.00	492.95	19.81	36.00	6700.00
	8.040	1722.00	14.15	1.18	-1.02	9.25	8.35	17.00	1049.63	60.95	16.00	3357.87
	8.040	1985.00	14.88	.73	-1.02	9.25	8.35	17.00	703.39	35.44	16.00	6700.00
	8.040	2488.00	16.01	.43	-1.02	9.25	8.35	17.00	454.11	18.25	16.00	6700.00
	8.050	1722.00	14.17	.84	-1.34	12.34	11.91	17.00	666.65	38.71	45.00	3765.89
	8.050	1985.00	14.88	.62	-1.34	12.34	11.91	17.00	527.74	26.59	45.00	5686.83
	8.050	2488.00	16.01	.40	-1.34	12.34	11.91	17.00	380.83	15.31	45.00	6000.00
*	8.160	1722.00	14.19	1.65	-.98	13.88	12.89	17.00	1718.06	99.77	742.00	342.84
*	8.160	1985.00	14.89	1.53	-.98	13.88	12.89	17.00	1704.21	85.85	742.00	5376.78
*	8.160	2488.00	16.02	.78	-.98	13.88	12.89	17.00	964.77	38.78	742.00	6139.00
	8.170	1722.00	14.21	1.73	-.21	13.00	12.89	17.00	1292.04	75.03	73.00	2525.92
	8.170	1985.00	14.92	1.24	-.21	13.00	12.89	17.00	1001.81	50.47	73.00	4530.38
	8.170	2488.00	16.02	.68	-.21	13.00	12.89	17.00	611.50	24.58	73.00	6132.50
	8.180	1722.00	14.21	1.66	-.24	12.73	12.63	17.00	1303.88	75.72	18.00	2558.29
	8.180	1985.00	14.92	1.22	-.24	12.73	12.63	17.00	1031.60	51.97	18.00	4536.45
	8.180	2488.00	16.02	.68	-.24	12.73	12.63	17.00	638.32	25.66	18.00	6131.70
	8.190	1722.00	14.23	1.55	-1.66	11.95	11.76	17.00	1394.34	80.97	80.00	3425.34
	8.190	1985.00	14.93	1.11	-1.66	11.95	11.76	17.00	1062.99	53.55	80.00	5899.87
	8.190	2488.00	16.02	.59	-1.66	11.95	11.76	17.00	626.76	25.19	80.00	6145.00
*	9.000	1684.00	14.32	.56	1.18	10.43	10.75	17.00	446.48	26.51	2365.00	7052.10
*	9.000	1955.00	14.97	.41	1.18	10.43	10.75	17.00	345.76	17.69	2365.00	7961.51
*	9.000	2427.00	16.04	.28	1.18	10.43	10.75	17.00	257.57	10.61	2365.00	8000.00
*	10.000	1684.00	14.29	2.11	.24	13.89	14.69	17.00	1684.00	100.00	90.00	73.85
*	10.000	1955.00	14.93	2.31	.24	13.89	14.69	17.00	1945.32	99.50	90.00	159.23
*	10.000	2427.00	16.00	2.40	.24	13.89	14.69	17.00	2209.70	91.05	90.00	4281.95
	11.000	1684.00	14.54	2.21	-.22	14.28	14.63	17.00	1683.71	99.98	20.00	90.17
	11.000	1955.00	15.29	2.39	-.22	14.28	14.63	17.00	1939.99	99.23	20.00	208.37
	11.000	2427.00	15.98	2.57	-.22	14.28	14.63	17.00	2218.87	91.42	20.00	4268.76
	12.000	1684.00	14.54	2.59	.46	14.45	13.60	17.00	1684.00	100.00	50.00	77.10
	12.000	1955.00	15.29	2.70	.46	14.45	13.60	17.00	1912.56	97.83	50.00	246.64
*	12.000	2427.00	16.09	1.54	.46	14.45	13.60	17.00	1186.22	48.88	50.00	8000.00
	13.000	1684.00	14.69	2.24	.01	13.32	14.44	17.00	1684.00	100.00	40.00	81.50
	13.000	1955.00	15.36	2.43	.01	13.32	14.44	17.00	1955.00	100.00	40.00	81.50
	13.000	2427.00	16.09	1.48	.01	13.32	14.44	17.00	1278.92	52.70	40.00	8000.00
*	14.000	1684.00	14.80	.37	-.28	10.38	11.22	17.00	321.94	19.12	80.00	7727.70
*	14.000	1955.00	15.48	.28	-.28	10.38	11.22	17.00	262.39	13.42	80.00	8000.00
*	14.000	2427.00	16.11	.26	-.28	10.38	11.22	17.00	252.54	10.41	80.00	8000.00

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	15.000	1684.00	14.79	1.60	1.00	13.00	13.50	17.00	940.92	55.87	900.00	3568.41
*	15.000	1955.00	15.48	1.05	1.00	13.00	13.50	17.00	662.29	33.88	900.00	5069.13
*	15.000	2427.00	16.11	.82	1.00	13.00	13.50	17.00	549.71	22.65	900.00	5123.64
	16.000	1684.00	14.82	1.31	1.10	14.00	14.00	17.00	567.52	33.70	88.00	5112.94
	16.000	1955.00	15.49	.79	1.10	14.00	14.00	17.00	360.58	18.44	88.00	5278.00
	16.000	2427.00	16.12	.61	1.10	14.00	14.00	17.00	294.71	12.14	88.00	5328.82
	17.000	1684.00	14.82	1.30	1.10	14.00	14.00	17.00	561.17	33.32	24.00	5120.74
	17.000	1955.00	15.49	.78	1.10	14.00	14.00	17.00	358.41	18.33	24.00	5278.63
	17.000	2427.00	16.12	.61	1.10	14.00	14.00	17.00	293.95	12.11	24.00	5329.18
*	18.000	1684.00	14.81	2.01	1.10	14.00	14.00	17.00	1253.58	74.44	88.00	3780.21
*	18.000	1955.00	15.49	1.29	1.10	14.00	14.00	17.00	855.49	43.76	88.00	3886.14
*	18.000	2427.00	16.12	.96	1.10	14.00	14.00	17.00	671.13	27.65	88.00	5558.95
*	19.000	1684.00	15.01	1.36	.41	11.47	12.21	17.00	904.29	53.70	1600.00	3300.00
	19.000	1955.00	15.57	1.10	.41	11.47	12.21	17.00	770.94	39.43	1600.00	3300.00
	19.000	2427.00	16.17	.95	.41	11.47	12.21	17.00	708.52	29.19	1600.00	3300.00
*	20.000	1684.00	14.89	4.27	1.39	16.98	17.10	16.59	1684.00	100.00	88.00	53.57
*	20.000	1955.00	15.42	4.62	1.39	16.98	17.10	16.59	1955.00	100.00	88.00	55.47
*	20.000	2427.00	15.96	5.36	1.39	16.98	17.10	16.59	2427.00	100.00	88.00	57.36
	20.100	1684.00	14.89	3.82	1.03	16.98	17.06	16.59	1684.00	100.00	24.00	55.65
	20.100	1955.00	15.42	4.15	1.03	16.98	17.06	16.59	1955.00	100.00	24.00	57.37
	20.100	2427.00	15.96	4.82	1.03	16.98	17.06	16.59	2427.00	100.00	24.00	59.12
*	21.000	1684.00	15.23	1.12	-.22	12.31	12.10	19.00	1047.87	62.22	88.00	2324.32
*	21.000	1955.00	15.83	.99	-.22	12.31	12.10	19.00	979.87	50.12	88.00	3029.35
*	21.000	2427.00	16.51	.90	-.22	12.31	12.10	19.00	945.79	38.97	88.00	3828.19
	22.000	1682.00	15.40	1.08	1.09	13.44	12.81	19.00	836.23	49.72	3100.00	4500.00
	22.000	1934.00	15.93	.79	1.09	13.44	12.81	19.00	648.65	33.54	3100.00	4500.00
	22.000	2427.00	16.58	.64	1.09	13.44	12.81	19.00	560.60	23.10	3100.00	4500.00
*	23.000	1682.00	15.38	1.90	1.58	16.11	15.81	19.00	1682.00	100.00	83.00	115.62
*	23.000	1934.00	15.91	2.05	1.58	16.11	15.81	19.00	1934.00	100.00	83.00	118.99
*	23.000	2427.00	16.54	2.35	1.58	16.11	15.81	19.00	2395.10	98.69	83.00	2176.13
	24.000	1682.00	15.39	1.92	2.29	15.60	15.99	19.00	1682.00	100.00	34.00	115.98
	24.000	1934.00	15.95	2.06	2.29	15.60	15.99	19.00	1934.00	100.00	34.00	118.85
	24.000	2427.00	16.55	2.40	2.29	15.60	15.99	19.00	2427.00	100.00	34.00	119.00
*	24.100	1682.00	15.45	1.28	2.53	13.61	12.78	19.00	1039.76	61.82	55.00	4500.00
*	24.100	1934.00	16.03	.86	2.53	13.61	12.78	19.00	745.96	38.57	55.00	4500.00
*	24.100	2427.00	16.66	.68	2.53	13.61	12.78	19.00	633.98	26.12	55.00	4500.00
*	25.000	1682.00	15.41	2.79	2.22	15.57	15.28	19.00	1682.00	100.00	95.00	77.18
*	25.000	1934.00	15.98	3.00	2.22	15.57	15.28	19.00	1934.00	100.00	95.00	77.50
*	25.000	2427.00	16.58	3.48	2.22	15.57	15.28	19.00	2407.03	99.18	95.00	138.84

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
26.000	1682.00	15.73	2.73	2.55	16.00	16.47	19.00	1682.00	100.00	20.00	69.38	
26.000	1934.00	16.42	2.91	2.55	16.00	16.47	19.00	1932.99	99.95	20.00	90.55	
26.000	2427.00	17.20	3.34	2.55	16.00	16.47	19.00	2403.95	99.05	20.00	164.80	
*	27.000	1682.00	15.88	.67	2.38	13.75	12.03	19.00	522.84	31.08	40.00	4500.00
*	27.000	1934.00	16.59	.48	2.38	13.75	12.03	19.00	401.74	20.77	40.00	4500.00
*	27.000	2427.00	17.43	.39	2.38	13.75	12.03	19.00	356.84	14.70	40.00	4500.00
*	28.000	1682.00	16.03	1.50	2.82	14.31	15.05	19.00	1564.87	93.04	4000.00	1428.05
*	28.000	1934.00	16.66	1.35	2.82	14.31	15.05	19.00	1507.41	77.94	4000.00	1870.78
*	28.000	2427.00	17.47	1.18	2.82	14.31	15.05	19.00	1432.25	59.01	4000.00	2436.29
*	29.000	1682.00	16.03	2.10	4.22	14.90	13.86	19.00	1466.06	87.16	90.00	1231.96
	29.000	1934.00	16.66	1.82	4.22	14.90	13.86	19.00	1364.76	70.57	90.00	1715.96
	29.000	2427.00	17.48	1.49	4.22	14.90	13.86	19.00	1210.96	49.90	90.00	2335.11
	30.000	1682.00	16.02	2.16	3.37	14.82	14.78	19.00	1463.32	87.00	20.00	1224.92
	30.000	1934.00	16.66	1.86	3.37	14.82	14.78	19.00	1349.00	69.75	20.00	1718.31
	30.000	2427.00	17.48	1.50	3.37	14.82	14.78	19.00	1186.32	48.88	20.00	2339.87
*	31.000	1682.00	16.09	1.39	3.93	15.05	14.53	19.00	1118.12	66.48	90.00	1475.60
*	31.000	1934.00	16.71	1.19	3.93	15.05	14.53	19.00	1029.92	53.25	90.00	1902.17
*	31.000	2427.00	17.50	1.03	3.93	15.05	14.53	19.00	975.22	40.18	90.00	2449.20
*	32.000	1621.00	17.10	3.67	3.50	18.10	18.00	20.00	1621.00	100.00	4500.00	62.86
*	32.000	1858.00	17.39	4.04	3.50	18.10	18.00	20.00	1858.00	100.00	4500.00	64.14
*	32.000	2340.00	17.90	4.74	3.50	18.10	18.00	20.00	2340.00	100.00	4500.00	66.35
	33.000	1621.00	17.20	3.85	3.60	22.00	22.00	22.00	1621.00	100.00	100.00	60.27
	33.000	1858.00	17.51	4.22	3.60	22.00	22.00	22.00	1858.00	100.00	100.00	61.57
	33.000	2340.00	18.06	4.94	3.60	22.00	22.00	22.00	2340.00	100.00	100.00	63.87
	34.000	1621.00	17.31	4.01	5.50	18.70	19.40	21.00	1621.00	100.00	100.00	62.29
	34.000	1858.00	17.64	4.37	5.50	18.70	19.40	21.00	1858.00	100.00	100.00	63.74
	34.000	2340.00	18.23	5.05	5.50	18.70	19.40	21.00	2340.00	100.00	100.00	66.33
*	34.200	1621.00	18.13	1.07	4.96	16.59	16.25	22.00	975.73	60.19	3300.00	3274.43
*	34.200	1858.00	18.45	.98	4.96	16.59	16.25	22.00	926.00	49.84	3300.00	3706.33
*	34.200	2340.00	19.05	.82	4.96	16.59	16.25	22.00	824.16	35.22	3300.00	5102.00
*	34.900	1621.00	18.84	2.39	6.23	22.32	21.06	21.89	1621.00	100.00	6540.00	83.57
*	34.900	1858.00	19.08	2.66	6.23	22.32	21.06	21.89	1858.00	100.00	6540.00	84.57
*	34.900	2340.00	19.48	3.19	6.23	22.32	21.06	21.89	2340.00	100.00	6540.00	86.36
	35.000	1621.00	18.85	2.74	6.41	21.39	21.49	21.62	1621.00	100.00	60.00	67.37
	35.000	1858.00	19.09	3.06	6.41	21.39	21.49	21.62	1858.00	100.00	60.00	68.04
	35.000	2340.00	19.50	3.68	6.41	21.39	21.49	21.62	2340.00	100.00	60.00	69.22
	36.000	1621.00	18.86	3.00	6.85	20.52	21.86	25.00	1621.00	100.00	20.00	64.65
	36.000	1858.00	19.10	3.34	6.85	20.52	21.86	25.00	1858.00	100.00	20.00	65.36
	36.000	2340.00	19.52	4.01	6.85	20.52	21.86	25.00	2340.00	100.00	20.00	66.62



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SECNO	Q	CWSBL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
36.100	1621.00	18.96	2.40	5.58	21.21	20.18	25.00	1621.00	100.00	60.00	83.16	
36.100	1858.00	19.21	2.66	5.58	21.21	20.18	25.00	1858.00	100.00	60.00	84.32	
36.100	2340.00	19.68	3.17	5.58	21.21	20.18	25.00	2340.00	100.00	60.00	86.44	
*	37.000	1621.00	20.92	4.18	7.50	24.10	23.80	26.00	1621.00	100.00	3340.00	57.89
*	37.000	1858.00	21.49	4.41	7.50	24.10	23.80	26.00	1858.00	100.00	3340.00	60.36
*	37.000	2340.00	22.55	4.80	7.50	24.10	23.80	26.00	2340.00	100.00	3340.00	64.98
38.000	1621.00	24.01	4.85	7.00	27.90	28.90	28.90	1621.00	100.00	1700.00	52.88	
38.000	1858.00	24.67	5.02	7.00	27.90	28.90	28.90	1858.00	100.00	1700.00	55.88	
38.000	2340.00	25.86	5.32	7.00	27.90	28.90	28.90	2340.00	100.00	1700.00	61.30	
*	39.000	1621.00	24.43	2.99	14.00	22.00	24.10	31.00	1519.10	93.71	100.00	259.47
*	39.000	1858.00	25.15	2.64	14.00	22.00	24.10	31.00	1474.09	79.34	100.00	878.09
*	39.000	2340.00	26.44	1.72	14.00	22.00	24.10	31.00	1111.90	47.52	100.00	4100.00
*	39.900	1554.00	24.78	1.39	7.23	22.10	22.66	31.00	1421.92	91.50	1060.00	375.89
*	39.900	1777.00	25.41	1.30	7.23	22.10	22.66	31.00	1404.05	79.01	1060.00	3367.63
*	39.900	2325.00	26.53	.86	7.23	22.10	22.66	31.00	1009.76	43.43	1060.00	4200.00
*	40.000	1554.00	24.77	2.22	9.81	24.90	23.91	31.00	1554.00	100.00	140.00	70.13
*	40.000	1777.00	25.40	2.16	9.81	24.90	23.91	31.00	1611.00	90.66	140.00	3399.35
40.000	2325.00	26.53	1.09	9.81	24.90	23.91	31.00	897.96	38.62	140.00	4200.00	
41.000	1554.00	24.91	2.31	9.97	24.85	23.61	31.00	1554.00	100.00	30.00	68.20	
41.000	1777.00	25.59	2.47	9.97	24.85	23.61	31.00	1777.00	100.00	30.00	68.20	
41.000	2325.00	26.53	1.10	9.97	24.85	23.61	31.00	862.36	37.09	30.00	4200.00	
*	42.000	1554.00	24.85	4.22	10.73	28.12	28.17	29.16	1554.00	100.00	60.00	51.65
*	42.000	1777.00	25.53	4.40	10.73	28.12	28.17	29.16	1777.00	100.00	60.00	52.03
*	42.000	2325.00	26.33	5.21	10.73	28.12	28.17	29.16	2325.00	100.00	60.00	52.49
43.000	1554.00	24.88	4.16	10.75	28.11	28.07	31.00	1554.00	100.00	20.00	51.87	
43.000	1777.00	25.55	4.34	10.75	28.11	28.07	31.00	1777.00	100.00	20.00	52.36	
43.000	2325.00	26.38	5.14	10.75	28.11	28.07	31.00	2325.00	100.00	20.00	52.96	
*	43.300	1869.00	25.23	1.58	11.90	23.36	22.49	31.00	1044.07	55.86	105.00	2600.00
*	43.300	2189.00	25.94	1.10	11.90	23.36	22.49	31.00	783.64	35.80	105.00	2600.00
*	43.300	2908.00	26.91	.86	11.90	23.36	22.49	31.00	669.16	23.01	105.00	2600.00
43.400	1869.00	25.23	2.06	11.90	23.61	23.46	31.00	1227.08	65.65	73.00	2600.00	
43.400	2189.00	25.95	1.39	11.90	23.61	23.46	31.00	893.02	40.34	73.00	2600.00	
43.400	2908.00	26.92	1.02	11.90	23.61	23.46	31.00	705.08	24.25	73.00	2600.00	
43.500	1869.00	25.23	2.17	11.76	23.85	24.20	31.00	1162.23	62.18	17.00	2601.00	
43.500	2189.00	25.95	1.40	11.76	23.85	24.20	31.00	805.31	36.79	17.00	2601.00	
43.500	2908.00	26.92	1.00	11.76	23.85	24.20	31.00	632.13	21.74	17.00	2601.00	
43.600	1869.00	25.26	1.94	11.93	24.35	23.27	31.00	1089.35	58.29	56.00	2600.00	
43.600	2189.00	25.95	1.30	11.93	24.35	23.27	31.00	784.81	35.85	56.00	2600.00	
43.600	2908.00	26.92	.96	11.93	24.35	23.27	31.00	636.68	21.89	56.00	2600.00	

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
43.700	1869.00	25.28	1.80	11.63	26.02	23.33	31.00	1420.48	76.00	104.00	850.28
43.700	2189.00	25.96	1.62	11.63	26.02	23.33	31.00	1376.22	62.87	104.00	851.59
* 43.700	2908.00	26.92	1.44	11.63	26.02	23.33	31.00	1339.09	46.05	104.00	2600.00
* 43.900	1869.00	25.60	1.08	6.71	21.43	25.60	31.00	977.02	52.28	2645.00	2253.47
* 43.900	2189.00	26.19	.96	6.71	21.43	25.60	31.00	913.27	41.72	2645.00	2667.27
* 43.900	2908.00	27.08	.84	6.71	21.43	25.60	31.00	867.00	29.81	2645.00	3100.00
* 115.000	1603.00	26.53	2.69	11.81	31.00	32.66	32.50	1603.00	100.00	7760.00	72.43
* 115.000	2313.00	27.04	3.66	11.81	31.00	32.66	32.50	2313.00	100.00	7760.00	74.54
* 115.000	3220.00	27.65	4.74	11.81	31.00	32.66	32.50	3220.00	100.00	7760.00	77.11
* 116.000	1603.00	26.52	3.60	16.80	33.31	34.70	33.31	1603.00	100.00	37.00	70.43
* 116.000	2313.00	27.02	4.81	16.80	33.31	34.70	33.31	2313.00	100.00	37.00	72.75
* 116.000	3220.00	27.63	6.13	16.80	33.31	34.70	33.31	3220.00	100.00	37.00	75.58
117.000	1603.00	26.55	3.58	16.80	33.31	34.70	33.31	1603.00	100.00	26.00	70.58
117.000	2313.00	27.09	4.76	16.80	33.31	34.70	33.31	2313.00	100.00	26.00	73.06
117.000	3220.00	27.76	6.01	16.80	33.31	34.70	33.31	3220.00	100.00	26.00	76.18
118.000	1603.00	26.67	3.16	12.90	30.74	35.28	36.00	1603.00	100.00	37.00	70.80
118.000	2313.00	27.29	4.19	12.90	30.74	35.28	36.00	2313.00	100.00	37.00	73.84
118.000	3220.00	28.07	5.27	12.90	30.74	35.28	36.00	3220.00	100.00	37.00	77.68
* 119.000	1603.00	28.43	2.08	14.11	30.80	28.27	35.00	1602.98	100.00	2400.00	91.62
* 119.000	2313.00	29.74	2.48	14.11	30.80	28.27	35.00	2207.95	95.46	2400.00	3455.34
* 119.000	3220.00	30.33	2.06	14.11	30.80	28.27	35.00	1943.60	60.36	2400.00	6030.01
* 120.000	1603.00	28.51	1.29	14.16	30.11	30.42	35.00	1603.00	100.00	84.00	168.14
* 120.000	2313.00	29.84	1.56	14.16	30.11	30.42	35.00	2313.00	100.00	84.00	183.37
120.000	3220.00	30.35	2.04	14.16	30.11	30.42	35.00	3219.63	99.99	84.00	208.93
121.000	1603.00	28.51	1.26	14.96	30.53	30.56	35.00	1603.00	100.00	32.00	176.03
121.000	2313.00	29.93	1.51	14.96	30.53	30.56	35.00	2313.00	100.00	32.00	193.20
121.000	3220.00	30.52	1.95	14.96	30.53	30.56	35.00	3220.00	100.00	32.00	200.40
* 122.000	1603.00	28.48	2.70	14.42	30.27	36.49	35.00	1603.00	100.00	59.00	79.26
* 122.000	2313.00	29.89	3.26	14.42	30.27	36.49	35.00	2313.00	100.00	59.00	86.57
* 122.000	3220.00	30.46	4.24	14.42	30.27	36.49	35.00	3219.96	100.00	59.00	90.73
123.000	1803.00	30.92	2.37	16.05	30.66	30.16	35.00	1799.92	99.83	3300.00	126.13
* 123.000	2341.00	31.54	1.56	16.05	30.66	30.16	35.00	1277.07	54.55	3300.00	7999.20
* 123.000	3295.00	31.96	1.27	16.05	30.66	30.16	35.00	1096.34	33.27	3300.00	7999.20
* 124.000	1803.00	31.00	1.64	16.83	32.77	33.00	36.00	1803.00	100.00	73.00	123.79
124.000	2341.00	31.54	2.01	16.83	32.77	33.00	36.00	2341.00	100.00	73.00	126.44
* 124.000	3295.00	31.92	2.72	16.83	32.77	33.00	36.00	3295.00	100.00	73.00	128.29
125.000	1803.00	31.04	1.78	16.82	32.91	32.95	36.00	1803.00	100.00	54.00	123.81
125.000	2341.00	31.62	2.16	16.82	32.91	32.95	36.00	2341.00	100.00	54.00	126.89
125.000	3295.00	32.08	2.88	16.82	32.91	32.95	36.00	3295.00	100.00	54.00	129.38

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	126.000	1803.00	31.11	.43	18.23	29.57	29.39	36.00	320.95	17.80	73.00	8000.00
*	126.000	2341.00	31.71	.34	18.23	29.57	29.39	36.00	266.99	11.40	73.00	8000.00
*	126.000	3295.00	32.25	.33	18.23	29.57	29.39	36.00	282.40	8.57	73.00	8000.00
*	127.000	2170.00	31.28	4.81	19.22	36.67	38.35	36.67	2170.00	100.00	5400.00	56.79
*	127.000	2586.00	31.61	5.50	19.22	36.67	38.35	36.67	2586.00	100.00	5400.00	57.79
*	127.000	3498.00	31.90	7.19	19.22	36.67	38.35	36.67	3498.00	100.00	5400.00	58.61
	128.000	2170.00	31.31	5.23	19.63	34.22	34.10	33.73	2170.00	100.00	20.00	50.33
	128.000	2586.00	31.65	5.98	19.63	34.22	34.10	33.73	2586.00	100.00	20.00	51.11
	128.000	3498.00	31.95	7.80	19.63	34.22	34.10	33.73	3498.00	100.00	20.00	51.82
	129.000	2170.00	31.32	5.41	20.02	33.72	33.91	33.73	2170.00	100.00	3.00	53.10
	129.000	2586.00	31.67	6.16	20.02	33.72	33.91	33.73	2586.00	100.00	3.00	54.09
	129.000	3498.00	32.00	7.99	20.02	33.72	33.91	33.73	3498.00	100.00	3.00	55.05
	130.000	2170.00	31.66	4.87	20.47	33.91	41.35	34.33	2170.00	100.00	64.00	65.26
	130.000	2586.00	32.11	5.44	20.47	33.91	41.35	34.33	2586.00	100.00	64.00	67.22
	130.000	3498.00	32.80	6.69	20.47	33.91	41.35	34.33	3498.00	100.00	64.00	70.23
	131.000	2170.00	31.71	6.41	22.20	34.40	34.50	37.00	2170.00	100.00	26.00	51.92
	131.000	2586.00	32.18	7.12	22.20	34.40	34.50	37.00	2586.00	100.00	26.00	53.48
	131.000	3498.00	32.92	8.66	22.20	34.40	34.50	37.00	3498.00	100.00	26.00	55.95
	132.000	2170.00	32.29	5.84	21.70	35.20	40.10	37.00	2170.00	100.00	87.00	42.47
	132.000	2586.00	32.86	6.54	21.70	35.20	40.10	37.00	2586.00	100.00	87.00	43.18
	132.000	3498.00	33.87	7.95	21.70	35.20	40.10	37.00	3498.00	100.00	87.00	44.43
*	133.000	2086.00	36.27	2.38	20.48	34.77	39.05	39.05	1858.11	89.08	2900.00	3047.94
*	133.000	2488.00	36.55	2.15	20.48	34.77	39.05	39.05	1729.21	69.50	2900.00	3048.66
*	133.000	3404.00	37.08	1.74	20.48	34.77	39.05	39.05	1482.44	43.55	2900.00	3049.97
	134.000	2086.00	36.31	2.40	21.97	37.63	37.68	40.00	2086.00	100.00	77.00	109.28
	134.000	2488.00	36.56	2.77	21.97	37.63	37.68	40.00	2488.00	100.00	77.00	110.99
*	134.000	3404.00	37.03	3.58	21.97	37.63	37.68	40.00	3404.00	100.00	77.00	114.13
	135.000	2086.00	36.31	2.36	22.36	37.64	37.72	40.00	2086.00	100.00	46.00	109.83
	135.000	2488.00	36.57	2.73	22.36	37.64	37.72	40.00	2488.00	100.00	46.00	111.53
	135.000	3404.00	37.20	3.46	22.36	37.64	37.72	40.00	3404.00	100.00	46.00	115.74
	136.000	2086.00	36.35	2.82	21.86	38.28	40.01	40.00	2086.00	100.00	77.00	98.36
	136.000	2488.00	36.62	3.25	21.86	38.28	40.01	40.00	2488.00	100.00	77.00	100.08
	136.000	3404.00	37.27	4.09	21.86	38.28	40.01	40.00	3404.00	100.00	77.00	104.32
*	137.000	2086.00	37.35	1.14	23.34	33.58	45.00	45.00	837.97	40.17	3450.00	2923.26
*	137.000	2488.00	37.66	1.11	23.34	33.58	45.00	45.00	839.15	33.73	3450.00	3297.17
*	137.000	3404.00	38.33	1.01	23.34	33.58	45.00	45.00	816.74	23.99	3450.00	4078.76
*	138.000	2086.00	37.33	2.52	21.31	36.65	37.19	45.00	2059.00	98.71	88.00	660.92
*	138.000	2488.00	37.62	2.81	21.31	36.65	37.19	45.00	2351.59	94.52	88.00	1265.83
*	138.000	3404.00	38.30	2.84	21.31	36.65	37.19	45.00	2503.99	73.56	88.00	2642.45

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
139.000	2086.00	37.32	2.76	21.56	36.61	37.05	45.00	2086.00	100.00	24.00	63.80
139.000	2488.00	37.61	3.03	21.56	36.61	37.05	45.00	2345.85	94.29	24.00	1230.36
139.000	3404.00	38.29	2.99	21.56	36.61	37.05	45.00	2447.50	71.90	24.00	2628.37
140.000	2086.00	37.46	2.10	22.99	34.67	45.00	45.00	1303.10	62.47	88.00	2214.30
140.000	2488.00	37.78	1.96	22.99	34.67	45.00	45.00	1260.55	50.67	88.00	2701.17
* 140.000	3404.00	38.44	1.62	22.99	34.67	45.00	45.00	1122.64	32.98	88.00	3689.43
* 141.000	2086.00	39.42	3.98	23.10	39.40	45.00	45.00	2085.93	100.00	2600.00	150.10
* 141.000	2488.00	39.60	4.60	23.10	39.40	45.00	45.00	2463.03	99.00	2600.00	823.64
* 141.000	3404.00	39.69	6.14	23.10	39.40	45.00	45.00	3322.34	97.60	2600.00	1128.99
* 142.000	2086.00	39.68	2.87	25.70	40.20	38.60	45.00	2056.01	98.56	90.00	1082.56
* 142.000	2488.00	39.96	3.11	25.70	40.20	38.60	45.00	2283.87	91.80	90.00	2110.03
* 142.000	3404.00	40.43	3.09	25.70	40.20	38.60	45.00	2365.90	69.50	90.00	3872.38
143.000	2086.00	39.82	2.87	25.70	40.20	38.60	45.00	2086.00	100.00	20.00	65.00
143.000	2488.00	40.18	2.73	25.70	40.20	38.60	45.00	2046.50	82.25	20.00	2945.55
143.000	3404.00	40.54	2.82	25.70	40.20	38.60	45.00	2179.62	64.03	20.00	4264.67
* 144.000	2086.00	39.86	3.85	25.60	42.90	45.00	45.00	2086.00	100.00	90.00	65.62
* 144.000	2488.00	40.17	4.42	25.60	42.90	45.00	45.00	2488.00	100.00	90.00	66.77
* 144.000	3404.00	40.42	5.87	25.60	42.90	45.00	45.00	3404.00	100.00	90.00	67.73
* 144.900	1767.00	40.61	1.16	26.17	37.85	45.00	45.00	720.32	40.77	1420.00	3527.95
* 144.900	2147.00	40.93	1.00	26.17	37.85	45.00	45.00	643.87	29.99	1420.00	3781.97
* 144.900	2865.00	41.42	.86	26.17	37.85	45.00	45.00	579.05	20.21	1420.00	4175.05
145.000	1767.00	40.61	1.60	25.95	39.95	40.12	45.00	936.26	52.99	30.00	3529.86
145.000	2147.00	40.93	1.32	25.95	39.95	40.12	45.00	795.17	37.04	30.00	3793.52
145.000	2865.00	41.42	1.07	25.95	39.95	40.12	45.00	671.06	23.42	30.00	4199.10
146.000	1767.00	40.61	1.60	24.80	39.99	40.07	45.00	994.33	56.27	20.00	3542.10
146.000	2147.00	40.93	1.34	24.80	39.99	40.07	45.00	852.54	39.71	20.00	3805.60
146.000	2865.00	41.42	1.09	24.80	39.99	40.07	45.00	722.54	25.22	20.00	4211.13
* 146.100	1767.00	40.64	.50	27.03	37.07	45.00	45.00	340.55	19.27	80.00	3543.09
* 146.100	2147.00	40.95	.49	27.03	37.07	45.00	45.00	343.54	16.00	80.00	3788.60
* 146.100	2865.00	41.43	.48	27.03	37.07	45.00	45.00	355.54	12.41	80.00	4179.36
* 148.000	1767.00	40.64	2.17	26.70	38.60	45.80	44.50	1767.00	100.00	4022.00	78.71
* 148.000	2147.00	40.95	2.56	26.70	38.60	45.80	44.50	2147.00	100.00	4022.00	79.08
* 148.000	2865.00	41.43	3.26	26.70	38.60	45.80	44.50	2865.00	100.00	4022.00	79.67
* 150.000	1767.00	40.65	5.31	31.60	43.80	46.50	46.50	1767.00	100.00	3352.00	49.30
* 150.000	2147.00	40.95	6.17	31.60	43.80	46.50	46.50	2147.00	100.00	3352.00	50.04
* 150.000	2865.00	41.44	7.69	31.60	43.80	46.50	46.50	2865.00	100.00	3352.00	51.22
152.000	1311.00	40.65	4.83	32.50	45.00	48.00	47.50	1311.00	100.00	1503.00	42.97
152.000	1528.00	41.13	5.28	32.50	45.00	48.00	47.50	1528.00	100.00	1503.00	43.87
152.000	1993.00	41.88	6.16	32.50	45.00	48.00	47.50	1993.00	100.00	1503.00	45.51

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	154.000	1311.00	40.70	7.30	33.10	47.30	47.30	50.00	1311.00	100.00	10403.00	36.96
*	154.000	1528.00	41.19	7.72	33.10	47.30	47.30	50.00	1528.00	100.00	10403.00	38.38
*	154.000	1993.00	41.97	8.71	33.10	47.30	47.30	50.00	1993.00	100.00	10403.00	40.64
*	154.900	1311.00	48.63	2.60	38.66	47.47	46.60	50.00	837.72	63.90	2840.00	1746.11
*	154.900	1528.00	48.79	2.51	38.66	47.47	46.60	50.00	830.51	54.35	2840.00	2305.44
*	154.900	1993.00	49.07	2.33	38.66	47.47	46.60	50.00	801.89	40.24	2840.00	3244.97
*	155.000	1311.00	48.59	4.75	39.14	47.56	47.63	50.00	1288.84	98.31	60.00	79.86
*	155.000	1528.00	48.70	5.42	39.14	47.56	47.63	50.00	1495.33	97.86	60.00	83.66
*	155.000	1993.00	48.83	6.87	39.14	47.56	47.63	50.00	1937.69	97.22	60.00	88.43
	156.000	1311.00	48.68	4.25	38.79	46.84	47.96	52.00	1311.00	100.00	24.00	44.90
	156.000	1528.00	48.78	4.88	38.79	46.84	47.96	52.00	1528.00	100.00	24.00	44.90
*	156.000	1993.00	49.46	3.06	38.79	46.84	47.96	52.00	1052.81	52.83	24.00	3706.61
	156.100	1311.00	48.87	4.47	39.04	48.61	47.65	50.00	1153.56	87.99	60.00	2546.07
*	156.100	1528.00	49.30	2.32	39.04	48.61	47.65	50.00	645.18	42.22	60.00	4084.11
*	156.100	1993.00	49.59	1.74	39.04	48.61	47.65	50.00	506.82	25.43	60.00	5136.22
*	156.500	496.00	49.24	3.92	42.56	50.84	50.76	55.00	496.00	100.00	75.00	38.32
*	156.500	593.00	49.25	4.67	42.56	50.84	50.76	55.00	593.00	100.00	75.00	38.42
*	156.500	766.00	49.40	5.77	42.56	50.84	50.76	55.00	766.00	100.00	75.00	39.28
*	156.600	496.00	51.07	1.46	42.56	50.84	50.76	55.00	301.31	60.75	925.00	5000.00
*	156.600	593.00	51.14	1.36	42.56	50.84	50.76	55.00	284.69	48.01	925.00	5000.00
*	156.600	766.00	51.26	1.18	42.56	50.84	50.76	55.00	253.14	33.05	925.00	5000.00
*	156.700	496.00	51.33	.60	42.56	50.84	50.76	55.00	132.36	26.69	1000.00	5000.00
*	156.700	593.00	51.39	.62	42.56	50.84	50.76	55.00	138.08	23.29	1000.00	5000.00
*	156.700	766.00	51.48	.65	42.56	50.84	50.76	55.00	147.07	19.20	1000.00	5000.00
	156.900	496.00	51.43	.47	42.56	50.84	50.76	55.00	105.70	21.31	1065.00	5000.00
	156.900	593.00	51.49	.50	42.56	50.84	50.76	55.00	112.81	19.02	1065.00	5000.00
	156.900	766.00	51.59	.52	42.56	50.84	50.76	55.00	119.80	15.64	1065.00	5000.00
*	157.000	496.00	51.42	1.71	43.35	52.01	51.88	55.00	496.00	100.00	75.00	43.18
*	157.000	593.00	51.48	2.03	43.35	52.01	51.88	55.00	593.00	100.00	75.00	43.22
*	157.000	766.00	51.56	2.59	43.35	52.01	51.88	55.00	766.00	100.00	75.00	43.29
	158.000	496.00	51.42	1.90	43.86	51.81	51.97	55.00	496.00	100.00	30.00	44.81
	158.000	593.00	51.48	2.25	43.86	51.81	51.97	55.00	593.00	100.00	30.00	44.86
	158.000	766.00	51.57	2.86	43.86	51.81	51.97	55.00	766.00	100.00	30.00	44.94
	159.000	496.00	51.47	1.77	42.91	53.68	53.64	55.00	496.00	100.00	40.00	49.37
	159.000	593.00	51.54	2.09	42.91	53.68	53.64	55.00	593.00	100.00	40.00	49.64
	159.000	766.00	51.66	2.63	42.91	53.68	53.64	55.00	766.00	100.00	40.00	50.12
	160.000	496.00	51.47	1.85	43.36	53.00	53.32	54.72	496.00	100.00	36.00	51.06
	160.000	593.00	51.54	2.18	43.36	53.00	53.32	54.72	593.00	100.00	36.00	51.38
	160.000	766.00	51.67	2.75	43.36	53.00	53.32	54.72	766.00	100.00	36.00	51.90

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	160.100	496.00	51.55	.82	43.53	49.93	50.27	52.29	215.57	43.46	60.00	2537.99
*	160.100	593.00	51.66	.84	43.53	49.93	50.27	52.29	223.17	37.63	60.00	2538.95
*	160.100	766.00	51.84	.84	43.53	49.93	50.27	52.29	230.62	30.11	60.00	2540.62
*	161.000	496.00	51.79	1.97	43.74	49.78	51.05	55.00	446.50	90.02	890.00	4500.00
*	161.000	593.00	51.90	1.81	43.74	49.78	51.05	55.00	416.02	70.15	890.00	4500.00
*	161.000	766.00	52.05	1.46	43.74	49.78	51.05	55.00	344.99	45.04	890.00	4500.00
	162.000	496.00	51.85	1.56	44.05	50.26	50.59	55.00	359.14	72.41	34.00	2257.47
	162.000	593.00	51.93	1.67	44.05	50.26	50.59	55.00	390.10	65.78	34.00	2312.44
	162.000	766.00	52.07	1.70	44.05	50.26	50.59	55.00	407.34	53.18	34.00	2427.53
*	163.000	496.00	51.87	1.17	43.88	50.03	49.44	55.00	351.98	70.96	32.00	2247.78
	163.000	593.00	51.94	1.27	43.88	50.03	49.44	55.00	389.74	65.72	32.00	2306.02
	163.000	766.00	52.07	1.38	43.88	50.03	49.44	55.00	431.90	56.38	32.00	2413.66
	164.000	496.00	51.89	.85	43.83	49.86	50.54	55.00	214.55	43.26	34.00	4500.00
*	164.000	593.00	51.97	.85	43.83	49.86	50.54	55.00	215.97	36.42	34.00	4500.00
*	164.000	766.00	52.10	.82	43.83	49.86	50.54	55.00	213.42	27.86	34.00	4500.00
*	165.000	496.00	51.97	1.73	44.04	50.87	50.00	55.00	436.02	87.91	350.00	2040.57
*	165.000	593.00	52.04	1.79	44.04	50.87	50.00	55.00	458.87	77.38	350.00	2042.15
*	165.000	766.00	52.17	1.86	44.04	50.87	50.00	55.00	486.41	63.50	350.00	2044.27
*	166.000	496.00	52.02	.63	44.14	51.66	50.69	55.00	483.39	97.46	25.00	310.43
*	166.000	593.00	52.09	.74	44.14	51.66	50.69	55.00	574.70	96.91	25.00	342.04
*	166.000	766.00	52.21	.92	44.14	51.66	50.69	55.00	734.33	95.86	25.00	387.91
	167.000	496.00	52.05	.74	44.47	51.62	51.45	55.00	496.00	100.00	50.00	107.70
	167.000	593.00	52.14	.87	44.47	51.62	51.45	55.00	593.00	100.00	50.00	107.70
	167.000	766.00	52.28	1.05	44.47	51.62	51.45	55.00	731.95	95.55	50.00	424.30
*	167.100	496.00	52.03	2.67	44.18	49.94	50.35	55.00	464.54	93.66	100.00	63.33
*	167.100	593.00	52.11	3.13	44.18	49.94	50.35	55.00	552.15	93.11	100.00	64.69
*	167.100	766.00	52.23	3.90	44.18	49.94	50.35	55.00	702.89	91.76	100.00	2036.32
*	168.000	496.00	53.28	1.12	44.66	51.72	50.76	55.00	239.61	48.31	1900.00	2034.95
*	168.000	593.00	53.39	1.06	44.66	51.72	50.76	55.00	232.46	39.20	1900.00	2035.99
*	168.000	766.00	53.57	1.01	44.66	51.72	50.76	55.00	227.24	29.67	1900.00	2037.57
*	169.000	496.00	53.29	2.19	45.38	51.69	51.83	55.00	496.00	100.00	85.00	42.60
*	169.000	593.00	53.39	2.57	45.38	51.69	51.83	55.00	593.00	100.00	85.00	42.60
*	169.000	766.00	53.53	3.24	45.38	51.69	51.83	55.00	766.00	100.00	85.00	42.60
	170.000	496.00	53.30	2.24	45.78	52.12	51.51	55.00	496.00	100.00	30.00	41.80
	170.000	593.00	53.40	2.63	45.78	52.12	51.51	55.00	593.00	100.00	30.00	41.80
	170.000	766.00	53.55	3.30	45.78	52.12	51.51	55.00	766.00	100.00	30.00	41.80
*	171.000	496.00	53.43	1.22	45.63	51.58	50.98	55.00	259.37	52.29	85.00	2036.50
*	171.000	593.00	53.57	1.11	45.63	51.58	50.98	55.00	240.91	40.62	85.00	2038.10
*	171.000	766.00	53.81	.95	45.63	51.58	50.98	55.00	214.78	28.04	85.00	3000.00

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	171.300	496.00	54.03	1.77	46.28	51.88	51.60	55.00	337.40	68.02	1200.00	3000.00
*	171.300	593.00	54.09	1.79	46.28	51.88	51.60	55.00	346.21	58.38	1200.00	3000.00
*	171.300	766.00	54.21	1.74	46.28	51.88	51.60	55.00	342.50	44.71	1200.00	3000.00
*	171.400	496.00	54.08	.68	46.41	52.97	52.26	55.00	168.19	33.91	60.00	3310.10
*	171.400	593.00	54.14	.75	46.41	52.97	52.26	55.00	187.44	31.61	60.00	3310.10
*	171.400	766.00	54.25	.81	46.41	52.97	52.26	55.00	207.47	27.08	60.00	3310.10
*	171.500	496.00	54.03	1.90	46.01	53.38	52.83	55.00	496.00	100.00	45.00	47.50
*	171.500	593.00	54.07	2.25	46.01	53.38	52.83	55.00	593.00	100.00	45.00	47.50
	171.500	766.00	54.24	1.10	46.01	53.38	52.83	55.00	299.84	39.14	45.00	3000.00
	171.600	496.00	54.11	2.19	46.32	53.54	51.95	55.00	455.01	91.74	80.00	2032.89
	171.600	593.00	54.18	2.37	46.32	53.54	51.95	55.00	499.98	84.31	80.00	2034.20
*	171.600	766.00	54.25	2.61	46.32	53.54	51.95	55.00	557.66	72.80	80.00	2035.78
	172.000	260.00	54.79	1.62	47.05	52.54	51.51	57.00	225.87	86.87	715.00	480.17
	172.000	308.00	54.95	1.73	47.05	52.54	51.51	57.00	247.80	80.45	715.00	480.76
	172.000	404.00	55.15	1.94	47.05	52.54	51.51	57.00	286.67	70.96	715.00	481.51
*	173.000	260.00	54.84	.75	47.07	54.19	53.12	57.00	246.83	94.94	70.00	168.48
*	173.000	308.00	55.00	.85	47.07	54.19	53.12	57.00	288.05	93.52	70.00	187.05
*	173.000	404.00	55.21	1.05	47.07	54.19	53.12	57.00	369.24	91.40	70.00	1432.16
	174.000	260.00	55.11	.73	46.85	53.60	53.63	57.00	260.00	100.00	60.00	64.90
	174.000	308.00	55.35	.69	46.85	53.60	53.63	57.00	257.74	83.68	60.00	1385.20
*	174.000	404.00	55.59	.70	46.85	53.60	53.63	57.00	272.39	67.42	60.00	2100.00
*	175.000	260.00	55.12	.13	48.04	52.25	52.93	57.00	21.23	8.17	70.00	2100.00
*	175.000	308.00	55.36	.13	48.04	52.25	52.93	57.00	21.78	7.07	70.00	2100.00
*	175.000	404.00	55.60	.15	48.04	52.25	52.93	57.00	25.32	6.27	70.00	2100.00
*	176.000	260.00	55.13	.66	49.00	53.80	54.20	56.00	86.81	33.39	850.00	1760.05
*	176.000	308.00	55.37	.52	49.00	53.80	54.20	56.00	73.20	23.77	850.00	2183.51
*	176.000	404.00	55.61	.48	49.00	53.80	54.20	56.00	71.06	17.59	850.00	2605.72
	177.000	260.00	55.13	.66	49.20	53.80	54.20	56.00	85.15	32.75	40.00	1764.56
	177.000	308.00	55.37	.52	49.20	53.80	54.20	56.00	71.85	23.33	40.00	2186.17
	177.000	404.00	55.61	.48	49.20	53.80	54.20	56.00	69.77	17.27	40.00	2607.85
*	178.000	260.00	55.89	.21	49.20	53.80	54.20	58.00	32.84	12.63	20.00	3113.45
*	178.000	308.00	55.92	.24	49.20	53.80	54.20	58.00	37.90	12.30	20.00	3159.32
*	178.000	404.00	55.96	.30	49.20	53.80	54.20	58.00	47.87	11.85	20.00	3226.70
	179.000	260.00	55.89	.21	49.00	55.50	54.10	58.00	31.14	11.98	40.00	3046.58
	179.000	308.00	55.92	.24	49.00	55.50	54.10	58.00	35.99	11.68	40.00	3107.86
	179.000	404.00	55.96	.31	49.00	55.50	54.10	58.00	45.50	11.26	40.00	3200.87
	180.000	260.00	55.90	.19	50.10	54.00	53.90	58.00	27.03	10.40	125.00	2851.11
	180.000	308.00	55.92	.22	50.10	54.00	53.90	58.00	31.30	10.16	125.00	2889.01
	180.000	404.00	55.96	.28	50.10	54.00	53.90	58.00	39.70	9.83	125.00	2945.32

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
181.000	260.00	55.90	.19	49.30	54.00	53.90	58.00	28.31	10.89	68.00	2852.04
181.000	308.00	55.92	.22	49.30	54.00	53.90	58.00	32.77	10.64	68.00	2890.25
181.000	404.00	55.96	.28	49.30	54.00	53.90	58.00	41.54	10.28	68.00	2947.25
182.000	260.00	55.94	.19	49.30	54.00	53.90	58.00	27.31	10.50	14.00	2911.17
182.000	308.00	55.96	.22	49.30	54.00	53.90	58.00	31.84	10.34	14.00	2937.76
182.000	404.00	55.99	.27	49.30	54.00	53.90	58.00	40.66	10.06	14.00	2983.59



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## SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	2.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	8.020	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	8.020	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	23.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

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WARNING SECNO=	24.100	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	43.300	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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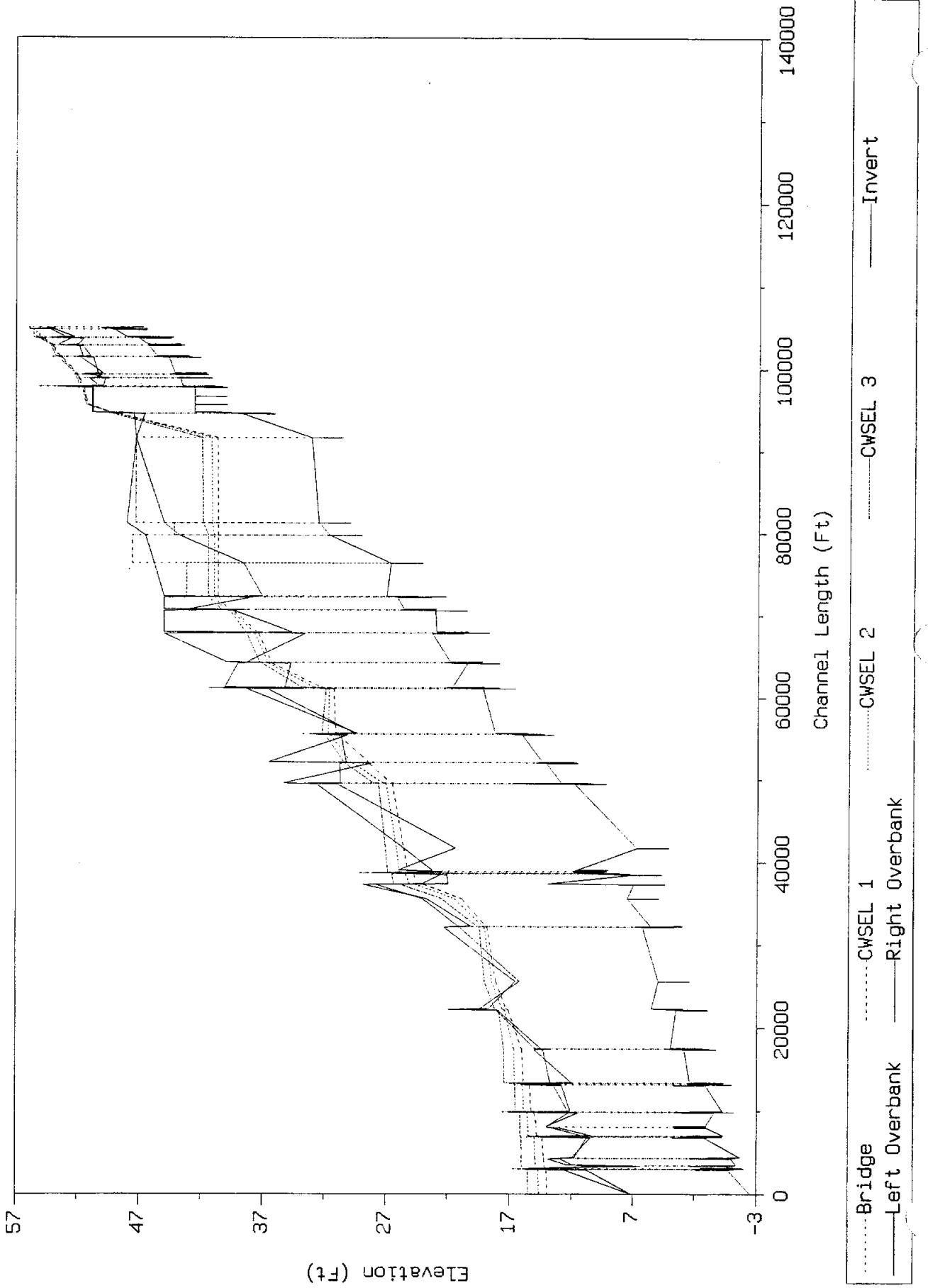
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L REVISED BY KLOTZ ASSOC  
Cross-Sections (1 to 182)









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* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JUN 1998
*   VERSION 4.1
*
* RUN DATE 23AUG02 TIME 13:52:07
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*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
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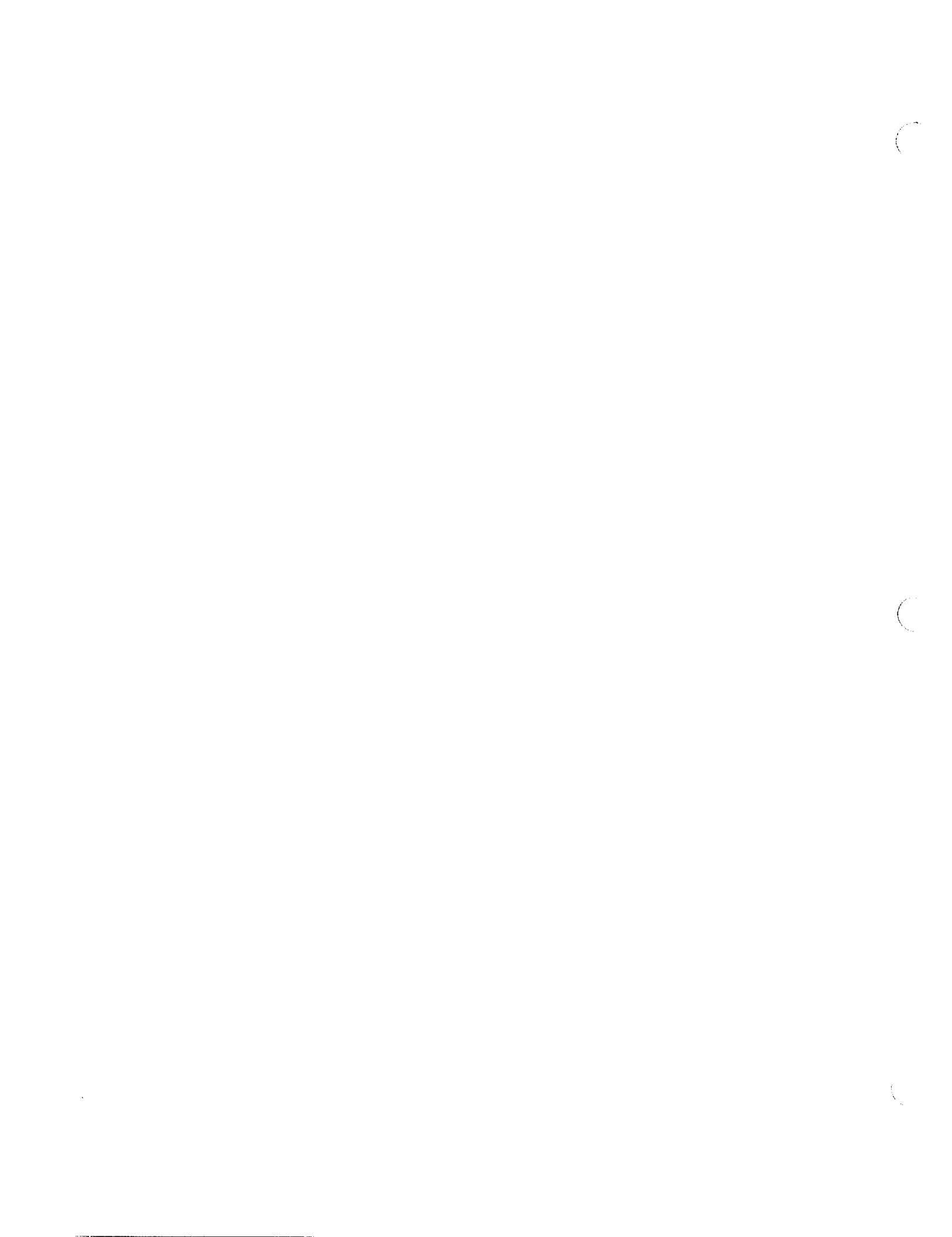
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.  
 THE DEFINITION OF -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM







Oyster Creek 10 year flows OC\_BL10.IH1

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
72	KK	0507									
73	RM	13	2.1	.25							
74	KK	0-07									
75	BA	5.46									
76	LU	.75	.1	1							
77	UC	0.87	33.11								
78	KK	C6									
79	HC	2									
80	KK	0710									
81	RM	6	1	.25							
82	KK	0-10									
83	BA	2.21									
84	LU	.75	.1	0							
85	UC	0.78	12.35								
86	KK	C7									
87	HC	2									
88	KK	1014									
89	RM	7	1.2	.25							
90	KK	0-14									
91	BA	2.83									
92	LU	.75	.1	0							
93	UC	1.20	16.48								
94	KK	C8									
95	HC	3									
96	KK	RCH12									
97	KM	REACH EXTENDS FROM X-SECT.			33.600	TO X-SECT.			30.300		
98	RS	10	STOR	0							
99	SV	0	371	408	656	1070	1577	2075	2576		
100	SQ	0	200	1750	1887	2831	3774	4718	5662		
101	KK	0-18									
102	BA	3.04									
103	LU	.75	.1	1							
104	UC	3.91	35.39								
105	KK	C9									
106	HC	2									
107	KK	RCH11									
108	KM	REACH EXTENDS FROM X-SECT.			35.000	TO X-SECT.			33.900		
109	RS	8	STOR	0							
110	SV	0	176	305	651	1125	1636	2128	2512		
111	SQ	0	671	1341	2682	4023	5364	6705	8046		









Oyster Creek 10 year flows OC\_BL10.IH1

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
226	KK	C21									
227	HC	2									
228	KK	RCH 6									
229	KM		REACH EXTENDS FROM X-SECT.			79.100	TO X-SECT.		63.200		
230	RS	45	STOR	0							
231	SV	0	1194	1484	1902	2641	3277	3919	4763		
232	SQ	0	732	1464	2927	4391	5854	7318	8782		
233	KK	0-27									
234	BA	4.79									
235	LU	.75	.1	5							
236	UC	9.40	65.31								
237	KK	C22									
238	HC	2									
239	KK	RCH 5									
240	KM		REACH EXTENDS FROM X-SECT.			86.100	TO X-SECT.		79.300		
241	RS	21	STOR	0							
242	SV	0	352	573	934	1252	1502	1775	2273		
243	SQ	0	763	1525	3050	4576	6101	7626	9151		
244	KK	0-28									
245	BA	2.85									
246	LU	.75	.1	35							
247	UC	3.95	4.31								
248	KK	C22									
249	HC	2									
250	KK	RCH 4									
251	KM		REACH EXTENDS FROM X-SECT.			94.100	TO X-SECT.		86.700		
252	RS	19	STOR	0							
253	SV	0	356	533	820	1070	1250	1458	1992		
254	SQ	0	763	1525	3050	4576	6101	7626	9151		
255	KK	0-29									
256	BA	3.31									
257	LU	.75	.1	22							
258	UC	3.34	15.37								
259	KK	C23									
260	HC	2									
261	KK	RCH 3									
262	KM		REACH EXTENDS FROM X-SECT.			103.000	TO X-SECT.		94.200		
263	RS	32	STOR	0							
264	SV	0	640	930	1432	2230	3914	5767	7917		
265	SQ	0	763	1525	3050	4576	6101	7626	9151		



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* FLOOD HYDROGRAPH PACKAGE (HEC-1) *  
* JUN 1998 *  
* VERSION 4.1 *  
*  
* RUN DATE 23AUG02 TIME 13:52:07 *  
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*  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET *  
* DAVIS, CALIFORNIA 95616 *  
* (916) 756-1104 *  
*  
*****
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FILE: OC\_BL10.IH1  
OYSTER CREEK, 10-YR  
BRAZORIA CO DRAINAGE MASTER PLAN  
BAKER & LAWSON, MGG

6 IO OUTPUT CONTROL VARIABLES  
IPRNT 5 PRINT CONTROL  
IPLOT 0 PLOT CONTROL  
QSCAL 0. HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA  
NMIN 10 MINUTES IN COMPUTATION INTERVAL  
IDATE 24APR 0 STARTING DATE  
ITIME 1200 STARTING TIME  
NQ 1000 NUMBER OF HYDROGRAPH ORDINATES  
NDDATE 1MAY 0 ENDING DATE  
NDTIME 1030 ENDING TIME  
ICENT 19 CENTURY MARK

COMPUTATION INTERVAL .17 HOURS  
TOTAL TIME BASE 166.50 HOURS

ENGLISH UNITS  
DRAINAGE AREA SQUARE MILES  
PRECIPITATION DEPTH INCHES  
LENGTH, ELEVATION FEET  
FLOW CUBIC FEET PER SECOND  
STORAGE VOLUME ACRE-Feet  
SURFACE AREA ACRES  
TEMPERATURE DEGREES FAHRENHEIT

## Oyster Creek 10 year flows OC\_BL10.IH1

RUNOFF SUMMARY  
 FLOW IN CUBIC FEET PER SECOND  
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	O-01	596.	19.00	588.	507.	276.	7.47		
ROUTED TO	0102	595.	21.83	587.	506.	276.	7.47		
HYDROGRAPH AT	O-02	336.	16.83	331.	262.	130.	2.85		
HYDROGRAPH AT	O-03	632.	15.67	619.	471.	223.	4.60		
3 COMBINED AT	C1	1505.	19.33	1459.	1199.	629.	14.92		
ROUTED TO	RCH16	1483.	24.67	1445.	1191.	629.	14.92		
HYDROGRAPH AT	O-04	517.	17.83	511.	442.	242.	6.42		
2 COMBINED AT	C2	1938.	24.33	1893.	1586.	872.	21.34		
ROUTED TO	RCH15	1832.	32.17	1780.	1533.	871.	21.34		
HYDROGRAPH AT	O-08	362.	16.00	357.	284.	141.	3.05		
2 COMBINED AT	C3	2048.	32.00	1987.	1705.	1008.	24.39		
ROUTED TO	RCH14	1871.	51.67	1855.	1649.	999.	24.39		
HYDROGRAPH AT	O-11	371.	20.50	365.	315.	172.	4.74		
2 COMBINED AT	C4	2060.	51.17	2045.	1809.	1121.	29.13		
ROUTED TO	RCH13	2021.	60.83	2007.	1803.	1119.	29.13		
HYDROGRAPH AT	O-15	200.	18.83	198.	169.	92.	2.36		
2 COMBINED AT	C5	2087.	60.17	2070.	1865.	1170.	31.49		
HYDROGRAPH AT	O-05	556.	15.33	537.	387.	174.	3.44		
ROUTED TO	0507	554.	17.67	535.	387.	174.	3.44		
HYDROGRAPH AT	O-07	541.	16.67	535.	444.	232.	5.46		
2 COMBINED AT	C6	1094.	17.50	1059.	822.	405.	8.90		
ROUTED TO	0710	1093.	18.50	1058.	821.	405.	8.90		
HYDROGRAPH AT	O-10	520.	13.83	484.	298.	119.	2.21		
2 COMBINED AT	C7	1534.	18.00	1459.	1101.	524.	11.11		
ROUTED TO	1014	1530.	19.33	1457.	1100.	524.	11.11		
HYDROGRAPH AT	O-14	518.	14.50	496.	341.	147.	2.83		
3 COMBINED AT	C8	2413.	51.00	2394.	2221.	1766.	45.43		
ROUTED TO	RCH12	2387.	62.17	2386.	2135.	1745.	45.43		
HYDROGRAPH AT	O-18	285.	18.50	281.	235.	124.	3.04		
2 COMBINED AT	C9	2483.	57.67	2470.	2197.	1859.	48.47		
ROUTED TO	RCH11	2474.	61.83	2457.	2196.	1851.	48.47		
HYDROGRAPH AT	O-16	456.	15.50	433.	294.	125.	2.37		
2 COMBINED AT	C10	2495.	61.33	2470.	2265.	1944.	50.84		
HYDROGRAPH AT	O-09	421.	16.50	414.	324.	158.	3.40		
ROUTED TO	0912	421.	18.00	413.	324.	158.	3.40		

## Oyster Creek 10 year flows OC\_BL10.IH1

HYDROGRAPH AT	O-12	413.	23.50	402.	334.	172.	4.19
2 COMBINED AT	C11	792.	22.67	773.	647.	330.	7.59
ROUTED TO	1234	791.	24.17	773.	646.	330.	7.59
HYDROGRAPH AT	O-17	532.	15.00	509.	354.	153.	2.94
3 COMBINED AT	C12	3570.	22.17	3504.	3162.	2403.	61.37
ROUTED TO	RCH10	3386.	43.50	3360.	3129.	2395.	61.37
HYDROGRAPH AT	O-20	373.	23.67	369.	338.	195.	7.61
2 COMBINED AT	C13	3678.	43.33	3650.	3418.	2555.	68.98
ROUTED TO	RCH 9	3634.	50.33	3614.	3396.	2544.	68.98
HYDROGRAPH AT	O-22	351.	16.33	346.	281.	142.	3.20
2 COMBINED AT	C14	3754.	50.00	3732.	3516.	2614.	72.18
HYDROGRAPH AT	O-06	370.	15.67	362.	277.	132.	2.74
ROUTED TO	0613	369.	18.17	361.	277.	132.	2.74
HYDROGRAPH AT	O-13	220.	15.33	215.	162.	76.	1.54
2 COMBINED AT	C15	584.	17.67	566.	432.	208.	4.28
ROUTED TO	1333	583.	19.67	565.	431.	208.	4.28
HYDROGRAPH AT	O-33	235.	15.33	229.	173.	81.	1.64
2 COMBINED AT	C16	803.	19.17	773.	594.	289.	5.92
ROUTED TO	3319	801.	21.33	771.	593.	289.	5.92
HYDROGRAPH AT	O-19	356.	17.67	352.	296.	157.	3.87
2 COMBINED AT	C17	1139.	21.17	1098.	877.	445.	9.79
ROUTED TO	1921	1133.	25.00	1095.	876.	445.	9.79
HYDROGRAPH AT	O-21	446.	19.33	441.	393.	225.	7.05
3 COMBINED AT	C18	4492.	48.67	4468.	4297.	3157.	89.02
ROUTED TO	RCH 8	4489.	51.17	4466.	4296.	3157.	89.02
HYDROGRAPH AT	O-23	348.	19.00	340.	275.	139.	3.20
2 COMBINED AT	C19	4615.	51.00	4593.	4436.	3264.	92.22
HYDROGRAPH AT	O-24	631.	17.17	622.	505.	256.	5.78
HYDROGRAPH AT	O-25	654.	32.17	646.	536.	224.	3.90
3 COMBINED AT	C20	5207.	38.17	5170.	4966.	3652.	101.90
ROUTED TO	RCH 7	5193.	42.50	5158.	4962.	3652.	101.90
HYDROGRAPH AT	O-26	129.	20.50	128.	116.	68.	2.41
2 COMBINED AT	C21	5288.	42.50	5252.	5047.	3707.	104.31
ROUTED TO	RCH 6	5280.	48.00	5244.	5044.	3642.	104.31
HYDROGRAPH AT	O-27	259.	23.00	256.	232.	133.	4.79
2 COMBINED AT	C22	5463.	47.83	5425.	5191.	3732.	109.10
ROUTED TO	RCH 5	5460.	49.83	5423.	5191.	3714.	109.10
HYDROGRAPH AT	O-28	1432.	15.67	1165.	515.	177.	2.85

Oyster Creek 10 year flows OC\_BLI0.IH1

2 COMBINED AT	C22	5460.	49.83	5423.	5191.	3717.	111.95
ROUTED TO	RCH 4	5459.	51.33	5422.	5190.	3702.	111.95
HYDROGRAPH AT	O-29	666.	16.00	634.	438.	189.	3.31
2 COMBINED AT	C23	5541.	51.17	5501.	5247.	3746.	115.26
ROUTED TO	RCH 3	5469.	65.33	5442.	5215.	3737.	115.26
HYDROGRAPH AT	O-30	983.	17.33	967.	771.	383.	8.04
2 COMBINED AT	C24	5489.	65.00	5465.	5273.	3845.	123.30
ROUTED TO	RCH 2	5482.	68.67	5461.	5270.	3844.	123.30
HYDROGRAPH AT	O-31	240.	17.00	237.	198.	104.	2.48
2 COMBINED AT	C25	5482.	68.67	5462.	5281.	3876.	125.78
ROUTED TO	RCH 1	5480.	70.67	5461.	5280.	3874.	125.78
HYDROGRAPH AT	O-32	175.	35.33	173.	164.	89.	5.29
2 COMBINED AT	C26	5480.	70.67	5462.	5295.	3951.	131.07

\*\*\* NORMAL END OF HEC-1 \*\*\*

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*****  
* HEC-2 WATER SURFACE PROFILES *  
* *  
* version 4.6.2; May 1991 *  
* *  
* RUN DATE 21AUG02 TIME 14:01:44 *  
*****
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*****  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET, SUITE D *  
* DAVIS, CALIFORNIA 95616-4687 *  
* (916) 756-1104 *  
*****
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      X   X  XXXXXXXX  XXXXX          XXXXX  
      X   X  X        X   X          X   X  
      X   X  X        X              X  
      XXXXXXX XXXX   X              XXXXX  
      X   X  X        X              X  
      X   X  X        X   X          X  
      X   X  XXXXXXXX  XXXXX          XXXXXXX
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THIS RUN EXECUTED 21AUG02 14:01:44

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

T1 NEW BAYOU (INCLUDING C-1 DITCH)..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
 T3 FILENAME: C1NEWX.IH2.....10-YEAR FREQUENCY  
 T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

NOTES\*\*\*\*\*  
 REVISED MODEL INCLUDES 2000 BAKER & LAWSON SURVEY SECTIONS AND REVISED  
 BRIDGE SECTIONS  
 MODEL KEYED IN FROM 09 JUL 88 RUN DATE FEMA MODEL  
 ORIGINAL INPUT DATA PROVIDED BY BRAZORIA COUNTY FLOOD PLAIN ADMINISTRATOR  
 \*\*\*\*\*

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2							13.94	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1							
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38	43	1	26	42	23	24	63	14	60
	39	4								
J5	LPRNT	NUMSEC	*****REQUESTED SECTION NUMBERS*****							
	-10	-10								
NC	.05	.05	.045	.1	.3					
QT	3	1722	1985	2488						
X1	1	13	88	135	0	0	0			
GR	15	0	10	5	7.3	10	7.2	60	7.1	88
GR	1.2	90	-2.5	110	1.4	130	7.1	135	5.6	160
GR	5.7	185	10	200	15	3300				

2000 BAKER & LAWSON SURVEY SECTION

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X1	2	9	5000	5087.2	3000	2900	2900				
GR	15.6	4950	12.58	5000	1.64	5028.1	-.71	5037.6	1.83	5065	
GR	10.73	5087.2	12.64	5130.9	14	5180	15.0	5400			

NC				.3		.5					
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2000 BAKER & LAWSON SURVEY SECTION

X1	3	5	5000	5107	85	85	85				
X3	10							15.94	15.94		
GR	15.58	5000	1.97	5045	-1.19	5055	1.31	5069	14.66	5107	

AMOCO ROAD

SB	1.05	1.5	2.6		1	1	710	2.7			
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2000 BAKER & LAWSON SURVEY SECTION

AMOCO ROAD

X1	4	13	10530.0	10637.5	30	30	30				
X2			1	15.59	16.29						
X3	10							16.29	16.29		
BT	-11	10000.0	15.33		10137.2	15.58		10261.2	15.83		
BT		10446.7	16.16		10539.2	16.29		10584.5	16.47		
BT		10629.6	16.39		10724.1	16.54		10818.8	16.07		
BT		10912.5	15.71		11008.9	15.46					
GR	15.33	10000.0	15.58	10137.2	15.83	10261.2	16.16	10446.7	15.58	10530.0	
GR	1.97	10574.9	-1.19	10584.7	1.31	10599.1	14.66	10637.5	16.54	10724.1	
GR	16.07	10818.8	15.71	10912.5	15.46	11008.9					

2000 BAKER & LAWSON SURVEY SECTION

X1	5	8	5000	5102.1	30	30	30				
X3	10							15.73	15.73		
GR	15	4950	13.55	5000	3.75	5039.8	-.64	5048.2	3.50	5061.8	
GR	5.55	5074.4	14.95	5102.1	15.3	5129					

RAIL ROAD NEAR AMOCO ROAD

SB	1.05	1.5	2.6		12	3	750	2.6			
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2000 BAKER & LAWSON SURVEY SECTION

RAIL ROAD NEAR AMOCO ROAD

X1	6	11	10433.9	10532.0	20	20	20				
X2			1	14.73	16.73						
X3	10							16.73	16.73		
BT	-9	10000.0	16.55		10159.2	16.68		10251.2	16.63		
BT		10346.9	16.77		10433.8	16.92		10482.9	16.73		
BT		10531.7	16.80		10621.0	16.72		10711.3	16.26		
GR	16.55	10000.0	16.68	10159.2	16.63	10251.2	16.77	10346.9	15.66	10433.9	
GR	1.05	10473.1	-1.99	10486.7	2.1	10498.8	15.69	10532.0	16.72	10621.0	
GR	16.26	10711.3									

2000 BAKER & LAWSON SURVEY SECTION

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X1	8	9	10023.7	10132.3	115	115	115			
GR	18.64	10000.0	14.19	10023.7	2.58	10076.2	-1.07	10085.0	1.09	10099.6
GR	11.87	10132.3	12	10141	16	10157	18	10165		

2000 BAKER & LAWSON SURVEY SECTION

X1	8.02	11	10027.9	10093.7	225	225	225			
GR	17.00	6569.0	13.00	6569.0	8.67	10000.0	6.31	10027.9	1.91	10042.8
GR	-0.29	10069.0	2.40	10076.9	10.55	10093.7	11.87	10116.3	13.00	13269.0
GR	17.00	13269.0								

2000 BAKER & LAWSON SURVEY SECTION

X1	8.03	15	10123.8	10219.7	36	36	36			
X3	10							5.43	5.43	
GR	17.00	6664.8	14.19	6664.8	14.19	10000.0	12.88	10049.1	9.89	10098.5
GR	8.31	10123.8	2.44	10153.8	-1.14	10164.8	2.50	10183.0	9.15	10219.7
GR	10.73	10230.8	12.45	10256.4	13.42	10285.6	13.42	13364.8	17.00	13364.8

DIRT ROAD

SB	1.05	1.5	2.6		20	3	750	1.0		
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2000 BAKER & LAWSON SURVEY SECTION

DIRT ROAD

X1	8.04	15	10107.8	10202.0	16	16	16			
X2			1	4.93	5.93					
X3	10							5.93	5.93	
BT	-11	6659.1	14.19		10000.0	14.19		10049.1	12.88	
BT		10098.5	9.89		10132.7	6.26		10182.3	5.93	
BT		10205.7	8.88		10230.8	10.73		10256.4	12.45	
BT		10285.6	13.42		13359.1	13.42				
GR	17.00	6659.1	14.19	6659.1	14.19	10000.0	12.88	10049.1	9.89	10098.5
GR	9.25	10107.8	2.98	10148.9	-1.02	10159.1	2.29	10169.1	8.35	10202.0
GR	10.73	10230.8	12.45	10256.4	13.42	10285.6	13.42	13359.1	17.00	13359.1

2000 BAKER & LAWSON SURVEY SECTION

X1	8.05	11	10000.0	10082.1	45	45	45			
GR	17	7000.0	15	7000.0	14	9000.0	12.34	10000.0	1.59	10031.8
GR	-1.34	10043.4	1.78	10060.9	11.91	10082.1	12	11000.0	15	13000.0
GR	17	13000.0								

2000 BAKER & LAWSON SURVEY SECTION

X1	8.16	11	10012.1	10116.7	742	742	742			
GR	17	7000	15	7000	14.14	10000	13.88	10012.1	1.42	10043.1
GR	-0.98	10054.6	2.38	10093.7	12.89	10116.7	14.26	10139.2	15	13139
GR	17	13139								

2000 BAKER & LAWSON SURVEY SECTION

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X1	8.17	15	10192.3	10273.3	73	73	73			
X3	10							12.71	12.71	
GR	17.00	7192.3	15.5	7192.3	13.85	10000.0	13.61	10039.3	13.56	10117.1
GR	13.65	10117.1	13.75	10153.7	13.00	10192.3	1.83	10220.5	-.21	10234.9
GR	2.09	10251.1	12.89	10273.3	12.73	10324.8	15.5	13324.8	17.00	13324.8

WASTE ROAD

SB	1.05	1.5	2.6		20	3	750	1.0		
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2000 BAKER & LAWSON SURVEY SECTION  
WASTE ROAD

X1	8.18	15	10193.1	10274.4	18	18	18			
X2			1	12.21	13.21					
X3	10							13.21	13.21	
BT	-11	7193.1	15.5		10000.0	13.85		10039.3	13.61	
BT		10078.5	13.56		10117.1	13.65		10153.7	13.75	
BT		10192.4	13.25		10230.7	13.21		10269.3	13.33	
BT		10324.8	12.73		13324.8	15.50				
GR	17.00	7193.1	15.5	7193.1	13.85	10000.0	13.61	10039.3	13.56	10078.5
GR	13.65	10117.1	13.75	10153.7	12.73	10193.1	1.47	10216.5	-0.24	10233.0
GR	2.05	10250.0	12.63	10274.4	12.73	10324.8	15.5	13324.8	17.00	13324.8

2000 BAKER & LAWSON SURVEY SECTION

X1	8.19	11	10023.9	10113.1	80	80	80			
GR	17	7000.0	15	7000.0	13.24	10000.0	11.95	10023.9	1.79	10051.4
GR	-1.66	10061.0	1.95	10087.2	11.76	10113.1	13.34	10145.5	15	13145
GR	17	13145								

NC	.045	.05	.04	.1	.3					
QT	3	1684	1955	2427						

2000 BAKER & LAWSON SURVEY SECTION

X1	9	11	10019.6	10098.8	2365	2365	2365			
GR	17.00	6046.3	14.00	6046.3	11.61	10000.0	10.43	10019.6	2.89	10034.6
GR	1.18	10046.3	2.67	10074.1	10.75	10098.8	12.18	10118.3	15.00	14046.3
GR	17.00	14046.3								

NC				.3	.5					
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2000 BAKER & LAWSON SURVEY SECTION

X1	10	17	10281.1	10355.1	90	90	90			
X3	10							14.61	14.61	
GR	17.00	6319.1	16.14	6319.1	16.14	10000.0	15.78	10092.4	15.46	10185.9
GR	13.89	10281.1	9.97	10283.0	1.06	10299.5	0.24	10319.1	1.31	10333.6
GR	8.81	10352.9	14.69	10355.1	15.65	10441.9	15.74	10536.8	15.78	10634.2
GR	15.78	14319.1	17.00	14319.1						

RR NEAR SOLUTIA ROAD

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SB 1.05 1.5 2.6 12 2 450 2.3

2000 BAKER & LAWSON SURVEY SECTION  
RAIL ROAD Nr SOLUTIA ROAD

X1	11	17	10275.2	10345.8	20	20	20			
X2			1	13.61	15.61					
X3	10							14	14	
BT	-11	6309.2	16.14		10000.0	16.14		10092.4	15.78	
BT		10185.9	15.46		10279.9	15.61		10311.2	15.64	
BT		10349.4	15.63		10441.9	15.65		10536.8	15.74	
BT		10634.2	15.78		14309.2	15.78				
GR	17.00	6309.2	16.14	6309.2	16.14	10000.0	15.78	10092.4	15.46	10185.9
GR	14.28	10275.2	8.96	10276.3	2.57	10294.7	-0.22	10309.2	1.25	10326.8
GR	10.28	10344.1	14.63	10345.8	15.65	10441.9	15.74	10536.8	15.78	10634.2
GR	15.78	14309.2	17.00	14309.2						

2000 BAKER & LAWSON SURVEY SECTION

X1	12	17	10398.6	10475.7	50	50	50			
X3	10			10293.1	15.40	10558.0	15.44	14.92	14.92	
GR	17.00	6444.9	15.41	6444.9	15.41	10000.0	15.42	10100.6	15.37	10197.2
GR	15.40	10293.1	14.45	10398.6	2.53	10430.8	0.46	10444.9	1.67	10453.7
GR	13.60	10475.7	15.44	10558.0	15.41	10656.2	15.41	10753.0	15.32	10851.8
GR	15.32	14444.9	17.00	14444.9						

SOLUTIA ROAD

SB 1.05 1.5 2.6 10 2 530 2.3

2000 BAKER & LAWSON SURVEY SECTION  
SOLUTIA ROAD

X1	13	17	10375.5	10457.0	40	40	40			
X2			1	14.42	15.42					
X3	10			10293.1	15.40	10558.0	15.44	15.42	15.42	
BT	-13	6417.4	15.41		10000.0	15.41		10100.	15.42	
BT		10197.2	15.37		10293.1	15.40		10387.7	15.61	
BT		10426.5	15.42		10463.9	15.59		10558.0	15.44	
BT		10656.2	15.41		10753.0	15.41		10851.8	15.32	
BT		14417.4	15.32							
GR	17.00	6417.4	15.41	6417.4	15.41	10000.0	15.42	10100.6	15.37	10197.2
GR	15.40	10293.1	13.32	10375.5	2.36	10401.5	0.01	10417.4	1.47	10430.1
GR	14.44	10457.0	15.44	10558.0	15.41	10656.2	15.41	10753.0	15.32	10851.8
GR	15.32	14417.4	17.00	14417.4						

2000 BAKER & LAWSON SURVEY SECTION

X1	14	11	10013.4	10093.5	80	80	80			
GR	17.00	6044.8	14.00	6044.8	11.36	10000.0	10.38	10013.4	2.09	10036.6
GR	-0.28	10044.8	1.69	10070.9	11.22	10093.5	12.05	10119.4	15.00	14044.8
GR	17.00	14044.8								

NC				.1	.3						
X1	15	14	1470	1530	700	1600	900				
X3				1450	15.4	1530	13.5				
GR	17	0	15	10	14.7	1400	15.4	1450	13	1470	
GR	2.9	1485	1	1500	2.7	1515	13.5	1530	13.1	1550	
GR	13.7	1600	14	3700	14.5	5000	17	5200			

NC				.3	.5						
X1	16	18	1681	1719	88	88	88				
X3	10							13	13		
GR	17	0	15	1	12.3	1550	12.5	1600	12.9	1650	
GR	13.2	1675	14	1681	2.4	1685	1.1	1700	2.3	1713	
GR	14	1719	13	1725	12.9	1760	13.7	1800	13.8	1850	
GR	14.5	3900	14.5	5200	17	5400					

PRIVATE ROAD

SB	1.05	1.5	2.6		28	1	358	.45			
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PRIVATE ROAD

X1	17				24	24	24				
X2			1	12.3	13						
X3	10							13	13		
BT	-16	1	15		1550	12.3		1600	12.5		
BT		1650	12.9		1675	13.2		1681	14		
BT		1685	13.3		1700	13.3		1713	13.3		
BT		1719	14		1725	13		1760	12.9		
BT		1800	13.7		1850	13.8		3900	14.5		
BT		5200	14.5								

X1	18	15	1770	1830	88	88	88				
X3				1650	15.5	1830	14				
GR	17	0	15	10	15.5	1650	15.4	1700	14.5	1750	
GR	14	1770	2.3	1780	1.1	1800	2.4	1815	14	1830	
GR	12	1850	13.7	1950	14.5	4200	14.5	5500	17	5600	

NC				.1	.3						
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2000 BAKER & LAWSON SURVEY SECTION

X1	19	13	10012.4	10083.6	2000	1500	1600				
GR	17.00	8538.1	15.00	8538.1	15.00	9538.1	12.89	10000.0	11.47	10012.4	
GR	3.83	10031.1	0.41	10038.1	2.95	10054.7	12.21	10083.6	12.12	10108.8	
GR	15.00	11338.1	15.00	11838.1	17.00	11838.1					

NC				.3	.5						
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2000 BAKER & LAWSON SURVEY SECTION

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X1	20	13	10394.9	10456.1	88	88	88			
X3	10							17.06	17.06	
GR	16.70	10000.0	16.92	10098.6	17.15	10191.9	17.37	10287.6	16.98	10394.9
GR	3.09	10422.3	1.39	10428.9	3.17	10434.0	17.10	10456.1	17.59	10546.3
GR	17.24	10639.1	16.97	10732.2	16.59	10824.4				

EQUISTAR ROAD

SB	1.05	1.5	2.6		24	2	490	.74		
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2000 BAKER & LAWSON SURVEY SECTION

EQUISTAR ROAD

X1	20.1	13	10376.7	10439.1	24	24	24			
X2			1	16.56	17.56					
X3	10							18	18	
BT	-11	10000.0	16.70		10098.6	16.92		10191.9	17.15	
BT		10287.6	17.37		10385.5	17.56		10411.0	17.90	
BT		10451.6	17.60		10546.3	17.59		10639.1	17.24	
BT		10732.2	16.97		10824.4	16.59				
GR	16.70	10000.0	16.92	10098.6	17.15	10191.9	17.37	10287.6	16.98	10376.7
GR	5.11	10396.0	1.03	10409.9	5.21	10420.4	17.06	10439.1	17.59	10546.3
GR	17.24	10639.1	16.97	10732.2	16.59	10824.4				

2000 BAKER & LAWSON SURVEY SECTION

X1	21	15	10010.0	10104.1	88	88	88			
GR	19.0	7670	17.5	7670	14.5	9670	13.7	9880	13.5	9930
GR	12.9	10000	12.31	10010	3.71	10032.5	-.22	10041.9	2.8	10068.1
GR	12.1	10104.1	12.43	10115.3	12.53	10116	17.5	12667	19.0	12667

QT	3	1682	1934	2427						
NC	.045	.05	.045	.1	.3					

2000 BAKER & LAWSON SURVEY SECTION

X1	22	12	10029.0	10113.7	1700	3700	3100			
GR	19.00	8079.3	15.00	8079.3	15.00	9779.3	13.71	10000.0	13.44	10029.0
GR	3.33	10059.0	1.09	10079.3	3.19	10086.8	12.81	10113.7	13.59	10130.9
GR	15.00	12579.3	19.00	12579.3						

NC				.3	.5					
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2000 BAKER & LAWSON SURVEY SECTION

X1	23	17	10398.0	10517.7	83	83	83			
X3	10			10292.8	16.46	10652.7	16.61	16.12	16.12	
GR	19.00	8454.1	16.40	8454.1	16.40	10000.0	16.40	10096.6	16.40	10196.4
GR	16.46	10292.8	16.11	10398.0	3.72	10441.3	1.58	10454.1	4.22	10473.7
GR	15.81	10517.7	16.61	10641.4	16.67	10738.9	16.55	10835.1	16.59	10931.0
GR	16.59	12954.1	19.00	12954.1						

FM 2917  
SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILES 02/97



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SB 1.05 1.5 2.6 9 2.67 891.27 3.

2000 BAKER & LAWSON SURVEY SECTION

FM 2917

X1	24	17	10425.8	10544.8	34	34	34			
X2			1	15.62	16.62					
X3	10							16.9	16.9	
BT	-12	8489.0	16.40		10000.0	16.40		10096.6	16.40	
BT		10196.4	16.40		10292.8	16.46		10396.4	16.71	
BT		10541.4	16.62		10641.4	16.61		10738.9	16.67	
BT		10835.1	16.55		10931.0	16.59		12989.0	16.59	
GR	19.00	8489.0	16.40	8489.0	16.40	10000.0	16.40	10096.6	16.40	10196.4
GR	16.46	10292.8	15.60	10425.8	3.09	10471.5	2.29	10489.0	4.61	10502.3
GR	15.99	10544.8	16.61	10641.4	16.67	10738.9	16.55	10835.1	16.59	10931.0
GR	16.59	12989.0	19.00	12989.0						

2000 BAKER & LAWSON SURVEY SECTION

X1	24.1	11	10000.0	10098.0	55	55	55			
GR	19.00	8061.4	15.00	8061.4	15.00	9761.4	13.61	10000.0	3.50	10045.8
GR	2.53	10061.4	4.04	10069.8	12.78	10098.0	14.49	10112.9	15.00	12561.4
GR	19.00	12561.4								

2000 BAKER & LAWSON SURVEY SECTION

X1	25	17	10190.8	10268.3	95	95	95			
X3	10							16.27	16.27	
GR	19.00	8226.7	17.30	8226.7	17.30	10000.0	17.25	10039.2	17.21	10093.9
GR	17.20	10148.3	15.57	10190.8	4.51	10213.5	2.22	10226.7	4.42	10240.4
GR	15.28	10268.3	17.43	10326.4	17.43	10367.1	17.54	10415.6	17.57	10463.3
GR	17.57	12726.7	19.00	12726.7						

RR NEAR FM2917

SB 1.05 1.5 2.6 12 4 390 2.3

2000 BAKER & LAWSON SURVEY SECTION

RAIL ROAD Nr FM 2917

X1	26	17	10204.8	10275.8	20	20	20			
X2			1	15.27	17.27					
X3	10							16	16	
BT	-13	8241.2	17.30		10000.0	17.30		10039.2	17.25	
BT		10093.9	17.21		10148.3	17.20		10198.0	17.28	
BT		10234.1	17.27		10272.3	17.38		10325.1	17.43	
BT		10365.8	17.43		10414.2	17.54		10462.0	17.57	
BT		12741.2	17.57							
GR	19.00	8241.2	17.30	8241.2	17.30	10000.0	17.25	10039.2	17.21	10093.9
GR	17.20	10148.3	16.00	10204.8	3.16	10226.4	2.55	10241.2	4.31	10256.5
GR	16.47	10275.8	17.43	10325.1	17.43	10365.8	17.54	10414.2	17.57	10462.0
GR	17.57	12741.2	19.00	12741.2						

2000 BAKER & LAWSON SURVEY SECTION

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X1	27	12	10028.8	10112.9	40	40	40			
GR	19.00	8075.1	15.00	8075.1	15.00	9775.1	13.81	10000.0	13.75	10028.8
GR	3.10	10060.3	2.38	10075.1	4.41	10086.9	12.03	10112.9	13.35	10134.4
GR	15.00	12575.1	19.00	12575.1						

NC .1 .3

2000 BAKER & LAWSON SURVEY SECTION

X1	28	10	10008.4	10123.7	5000	3000	4000			
GR	19.00	7378.3	15.24	10000.0	14.31	10008.4	5.44	10032.3	2.82	10078.3
GR	6.77	10097.2	15.05	10123.7	15.55	10141.8	15.55	10878.3	19.00	10878.3

NC .3 .5

2000 BAKER & LAWSON SURVEY SECTION

X1	29	18	10288.3	10367.3	90	90	90			
X3	10							14.48	14.48	
GR	19.00	7623.7	15.89	10000.0	15.93	10095.8	15.84	10151.1	15.56	10212.4
GR	14.90	10288.3	4.75	10307.5	4.22	10323.7	5.15	10345.9	13.86	10367.3
GR	14.78	10378.9	14.56	10405.9	14.42	10434.4	14.87	10529.7	15.15	10601.2
GR	15.98	10676.5	15.98	11123.7	19.00	11123.7				

PRIVATE BRIDGE Nr MONSANTO CANAL

SB 1.05 1.5 2.6 20 3 325 1.5

2000 BAKER & LAWSON SURVEY SECTION

PRIVATE BRIDGE Nr MONSANTO CANAL

X1	30	18	10285.5	10362.1	20	20	20			
X2			1	13.98	14.98					
X3	10							14.98	14.98	
BT	-15	7623.6	19.00		10000.0	15.89		10095.8	15.93	
BT		10151.1	15.84		10212.4	15.56		10288.7	15.11	
BT		10321.3	15.08		10354.8	14.98		10378.9	14.78	
BT		10405.9	14.56		10434.4	14.42		10529.7	14.87	
BT		10601.2	15.15		10676.5	15.98		11123.6	15.98	
GR	19.00	7623.6	15.89	10000.0	15.93	10095.8	15.84	10151.1	15.56	10212.4
GR	14.82	10285.5	4.40	10307.0	3.37	10323.6	5.25	10342.2	14.78	10362.1
GR	14.78	10378.9	14.56	10405.9	14.42	10434.4	14.87	10529.7	15.15	10601.2
GR	15.98	10676.5	15.98	11123.6	19.00	11123.6				

2000 BAKER & LAWSON SURVEY SECTION

X1	31	9	10018.9	10118.9	90	90	90			
GR	19.00	7374.6	15.23	10000.0	15.05	10018.9	5.92	10047.5	3.93	10074.6
GR	6.45	10092.0	14.53	10118.9	14.53	10874.6	19.00	10874.6		

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QT	3	1621	1858	2340						
NC				.1	.3					
X1	32	10	5266	5333	4500	4500	4500			
X3	10									
GR	21	0	19.5	2300	18.1	5200	17.8	5250	18.1	5266
GR	9.5	5285	3.5	5300	9.6	5315	18	5333	20	5700

NC				.3	.5					
X1	33	7		87	100	100	100			
GR	22	0	18.7	11	10	30	3.6	45	10	60
GR	19.4	79	22	87						

X1	34	10	7166	7236	100	100	100			
GR	21	0	19.5	3400	19.6	7100	19.5	7150	18.7	7166
GR	10	7185	5.5	7200	10	7215	19.4	7236	21	7600

2000 BAKER & LAWSON SURVEY SECTION

X1	34.2	23	12766.6	12864.3	3300	3300	3300			
GR	22.00	9819.3	18.86	9819.3	18.86	10000.0	18.67	10585.4	18.37	11109.4
GR	17.61	11602.4	16.89	12129.6	16.97	12650.7	16.59	12766.6	6.88	12791.1
GR	4.96	12819.3	7.81	12843.1	16.25	12864.3	16.64	12888.2	16.48	12985.6
GR	17.19	13174.8	17.26	13366.2	17.40	13557.4	17.30	13752.9	17.41	13948.4
GR	17.20	14144.2	20.00	15319.3	22.00	15319.3				

2000 BAKER & LAWSON SURVEY SECTION

X1	34.9	7	10014.7	10110.9	6540	6540	6540			
GR	22.33	10000.0	22.32	10014.7	8.22	10047.4	6.23	10057.2	8.00	10083.9
GR	21.06	10110.9	21.89	10131.6						

2000 BAKER & LAWSON SURVEY SECTION

X1	35	13	10354.1	10428.9	60	60	60			
X3	10							21.35	21.35	
GR	21.62	10000.0	21.57	10089.3	21.47	10178.0	21.73	10268.7	21.39	10354.1
GR	8.03	10373.5	6.41	10394.7	7.88	10409.5	21.49	10428.9	21.46	10513.5
GR	22.05	10603.6	22.35	10690.8	22.45	10776.6				

PRIVATE BRIDGE Nr CBWC CANAL

SB	1.05	1.5	2.6		18	2	220	.5		
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2000 BAKER & LAWSON SURVEY SECTION

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PRIVATE BRIDGE Nr CBWC CANAL

X1	36	16	10356.5	10428.1	20	20	20			
X2			1	20.85	21.85					
X3	10							21.85	21.85	
BT	-13	8591.6	21.62		10000.0	21.62		10089.3	21.57	
BT		10178.0	21.47		10268.7	21.73		10358.4	21.98	
BT		10391.8	21.85		10424.7	21.99		10513.5	21.46	
BT		10603.6	22.05		10690.8	22.35		10776.6	22.45	
BT		10891.6	25.00							
GR	25.00	8591.6	21.62	8591.6	21.62	10000.0	21.57	10089.3	21.47	10178.0
GR	21.73	10268.7	20.52	10356.5	8.26	10375.4	6.85	10391.6	8.09	10407.9
GR	21.86	10428.1	21.46	10513.5	22.05	10603.6	22.35	10690.8	22.45	10776.6
GR	25.00	10891.6								

2000 BAKER & LAWSON SURVEY SECTION

X1	36.1	10	10014.2	10105.1	60	60	60			
GR	25.00	8252.0	21.92	8252.0	21.92	10000.0	21.21	10014.2	8.37	10041.8
GR	5.58	10052.0	8.32	10077.0	20.18	10105.1	20.53	10125.3	25.00	10552.0

NC .1 .3

X1	37	16	1465	1536	3140	3540	3340			
X3	10			1430	25.5	1536	23.8			
GR	27	0	24.5	0	22	1300	22.5	1350	23	1400
GR	25.5	1430	24.1	1465	13.1	1488	7.5	1500	13.1	1512
GR	23.8	1536	21.9	1550	22.1	1600	22.1	1650	25	2000
GR	26	2600								

NC .3 .5

X1	38	7	1000	1073	1800	1500	1700			
GR	29.0	0	27.9	0	27.9	1000	14.7	1028	7	1033
GR	14.5	1038	28.9	1073						

X1	39	14	1070	1140	100	100	100			
GR	31.0	0	26.2	0	24.5	650	24.5	1000	22	1070
GR	15.1	1085	14	1100	15	1115	24.1	1140	23.9	1200
GR	23.9	1250	26.2	1300	26.2	4100	31.0	4100		

QT	3	1554	1777	2325						
NC	.05	.05	.05							

2000 BAKER & LAWSON SURVEY SECTION

X1	39.9	13	10020.1	10112.0	1060	1060	1060			
GR	31.00	8358.9	26.00	8358.9	25.00	9758.9	22.57	10000.0	22.10	10020.1
GR	12.73	10046.1	7.23	10058.9	12.42	10091.9	22.66	10112.0	22.85	10139.8
GR	25.00	10158.9	25.00	12558.9	31.00	12558.9				

2000 BAKER & LAWSON SURVEY SECTION

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X1	40	17	10382.2	10452.5	140	140	140			
X3	10							25.19	25.19	
GR	31.00	8714.7	26.00	8714.7	24.98	10000.0	25.24	10098.3	25.10	10194.3
GR	25.21	10290.3	24.90	10382.2	12.47	10399.0	9.81	10414.7	12.33	10433.5
GR	23.91	10452.5	25.47	10542.8	25.32	10635.0	25.21	10727.6	25.16	10818.7
GR	25.16	12914.7	31.00	12914.7						

CR 169

SB	1.05	1.5	2.6		40	3	510	1.3		
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2000 BAKER & LAWSON SURVEY SECTION

CR 169

X1	41	17	10382.3	10450.5	30	30	30			
X2			1	24.69	25.69					
X3	10							25.69	25.69	
BT	-13	8716.7	26.00		10000.0	24.98		10098.3	25.24	
BT		10194.3	25.10		10290.3	25.21		10383.7	25.69	
BT		10417.7	25.81		10451.1	25.69		10542.8	25.47	
BT		10635.0	25.32		10727.6	25.21		10818.7	25.16	
BT		12916.7	25.16							
GR	31.00	8716.7	26.00	8716.7	24.98	10000.0	25.24	10098.3	25.10	10194.3
GR	25.21	10290.3	24.85	10382.3	12.28	10402.2	9.97	10416.7	12.84	10434.3
GR	23.61	10450.5	25.47	10542.8	25.32	10635.0	25.21	10727.6	25.16	10818.7
GR	25.16	12916.7	31.00	12916.7						

2000 BAKER & LAWSON SURVEY SECTION

X1	42	15	10371.2	10424.7	60	60	60			
X3	10			10279.7	29.11	10515.9	29.13	28.04	28.04	
GR	28.83	10000.0	28.93	10094.2	28.97	10188.1	29.11	10279.7	28.12	10371.2
GR	24.54	10372.5	12.56	10394.0	10.73	10397.7	12.77	10401.0	24.66	10424.0
GR	28.17	10424.7	29.13	10515.9	29.13	10608.3	29.19	10701.9	29.16	10796.8

RR Nr CR 169

SB	1.05	1.5	2.6		10	2	250	1.36		
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2000 BAKER & LAWSON SURVEY SECTION

RAIL ROAD Nr CR 169

X1	43	19	10369.9	10424.1	20	20	20			
X2			1	26.94	29.14					
X3	10			10279.7	29.11	10515.9	29.13	27.5	27.5	
BT	-13	8797.6	28.83		10000.0	28.83		10094.2	28.93	
BT		10188.1	28.97		10279.7	29.11		10396.5	29.18	
BT		10397.1	29.21		10424.8	29.14		10515.9	29.13	
BT		10608.3	29.13		10701.9	29.19		10796.8	29.16	
BT		13097.6	29.16							
GR	31.00	8797.6	28.83	8797.6	28.83	10000.0	28.93	10094.2	28.97	10188.1
GR	29.11	10279.7	28.11	10369.9	24.52	10371.2	12.48	10394.5	10.75	10397.6
GR	12.90	10401.7	24.48	10422.8	28.07	10424.1	29.13	10515.9	29.13	10608.3
GR	29.19	10701.9	29.16	10796.8	29.16	13097.6	31.00	13097.6		

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QT 3 1869 2189 2908

2000 BAKER & LAWSON SURVEY SECTION

X1	43.3	11	10021.4	10093.2	105	105	105			
GR	31.00	8267.4	25.00	8267.4	23.99	10000.0	23.36	10021.4	14.45	10042.3
GR	11.90	10067.4	13.69	10074.9	22.49	10093.2	23.01	10101.2	25.00	10867.4
GR	31.00	10867.4								

2000 BAKER & LAWSON SURVEY SECTION

X1	43.4	18	10184.9	10242.7	73	73	73			
X3	10							23.84	23.84	
GR	31.00	8421.7	25.00	8421.7	24.74	10000.0	24.41	10033.6	24.07	10089.3
GR	23.82	10138.1	23.61	10184.9	12.67	10204.0	11.90	10221.7	12.88	10235.9
GR	23.46	10242.7	24.30	10264.2	24.04	10290.4	24.26	10339.0	23.66	10442.0
GR	23.76	10512.3	25.00	11021.7	31.00	11021.7				

PRIVATE BRIDGE Nr CR 169

SB 1.05 1.5 2.6 10 2 250 1.36

2000 BAKER & LAWSON SURVEY SECTION

PRIVATE BRIDGE Nr CR 169

X1	43.5	18	10186.2	10242.3	17	17	17			
X2			1	23.34	24.34					
X3	10							24.34	24.34	
BT	-14	8423.3	25.00		10000.0	24.74		10033.6	24.41	
BT		10089.3	24.07		10138.1	23.82		10187.2	24.34	
BT		10217.7	24.45		10240.6	24.45		10264.2	24.30	
BT		10290.4	24.04		10339.0	24.26		10442.0	23.66	
BT		10512.3	23.76		11024.3	25.00				
GR	31.00	8423.3	25.00	8423.3	24.74	10000.0	24.41	10033.6	24.07	10089.3
GR	23.82	10138.1	23.85	10186.2	13.37	10209.3	11.76	10224.3	13.07	10236.2
GR	24.20	10242.3	24.30	10264.2	24.04	10290.4	24.26	10339.0	23.66	10442.0
GR	23.76	10512.3	25.00	11024.3	31.00	11024.3				

2000 BAKER & LAWSON SURVEY SECTION

X1	43.6	11	10014.3	10077.4	56	56	56			
GR	31.00	8255.2	25.00	8255.2	24.62	10000.0	24.35	10014.3	12.65	10038.7
GR	11.93	10055.2	13.08	10059.5	23.27	10077.4	23.00	10092.1	25.00	10855.2
GR	31.00	10855.2								

2000 BAKER & LAWSON SURVEY SECTION

X1	43.7	11	10013.4	10100.7	104	104	104			
GR	31.00	8265.1	26.33	8265.1	26.33	10000.0	26.02	10013.4	13.13	10038.6
GR	11.63	10065.1	14.21	10077.2	23.33	10100.7	23.22	10124.1	25.00	10865.1
GR	31.00	10865.1								

Along Dirt Dam

2000 BAKER & LAWSON SURVEY SECTION

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X1	43.9	20	11083.3	11170.6	2645	2645	2645			
X3				10673.6	24.63	11170.6	16.33			
GR	31.00	8622.5	26.00	8622.5	24.44	10000.0	24.39	10410.7	24.63	10673.6
GR	22.67	11067.1	21.43	11083.3	12.23	11103.8	10.76	11122.5	12.97	11143.4
GR	25.60	11170.6	25.54	11185.9	23.60	11209.8	10.40	11235.8	6.71	11244.3
GR	8.63	11251.5	25.97	11284.4	26.88	11306.7	26.88	11722.5	31.00	11722.5

QT 2 3830 2730

NC .1 .3

\*\*\*\*\* FOLLOWED BY C-1 DITCH CROSS-SECTIONS \*\*\*\*\*

QT 3 1603 2313 3220

2000 BAKER & LAWSON SURVEY SECTION

X1	115	7	10015.3	10110.3	7610	6810	7760			
GR	32.50	10000.0	31.00	10015.3	14.22	10047.1	11.81	10055.4	15.15	10070.0
GR	32.66	10110.3	34.35	10124.1						

NC 0.05 0.06 0.06 .30 .50

2000 BAKER & LAWSON SURVEY SECTION

X1	116	5	10000.0	10105.5	37	37	37			
X3	10							30.95	30.95	
GR	33.31	10000.0	19.44	10030.4	16.91	10049.6	16.80	10061.3	34.70	10105.5

BRISCOE CANAL CROSSING

SB 1.05 1.5 2.6 10 4 750 2.6

2000 BAKER & LAWSON SURVEY SECTION

BRISCOE CANAL CROSSING

X1	117	5	10000.0	10105.5	26	26	26			
X2			1.0	28.3	33.60					
X3	10							33.60	33.60	
BT	-4	10000.0	33.60		10048.2	33.87		10095.5	34.56	
BT		10105.5	34.70							
GR	33.31	10000.0	19.44	10030.4	16.91	10049.6	16.80	10061.3	34.70	10105.5

2000 BAKER & LAWSON SURVEY SECTION

X1	118	9	10017.9	10118.2	37	37	37			
GR	36.00	7568.3	31.13	7568.3	31.13	10000.0	30.74	10017.9	14.63	10063.6
GR	12.90	10068.3	13.98	10073.8	35.28	10118.2	36.17	10131.6		

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NC .10 .30

2000 BAKER & LAWSON SURVEY SECTION

X1	119	12	10019.0	10112.0	2500	2300	2400			
GR	35.00	8049.8	31.11	8049.8	31.11	10000.0	30.80	10019.0	16.37	10043.7
GR	14.11	10049.8	15.22	10068.7	21.25	10091.3	28.27	10112.0	29.41	10131.4
GR	30.00	16049.8	35.00	16049.8						

NC .30 .50

2000 BAKER & LAWSON SURVEY SECTION

X1	120	17	10376.2	10564.2	84	84	84			
X3	10			10269.9	31.31	10828.7	31.35	30.05	30.05	
GR	35.00	8472.7	31.18	8472.7	31.18	10000.0	31.23	10090.3	31.18	10178.1
GR	31.31	10269.9	30.11	10376.2	16.40	10455.6	14.16	10472.7	15.61	10482.8
GR	30.42	10564.2	31.05	10642.5	31.11	10732.9	31.35	10828.7	31.23	10922.2
GR	31.23	16472.7	35.00	16472.7						

FM 2403

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILES 02/97

SB 1.05 1.5 2.6 44 3 1018 6.0

2000 BAKER & LAWSON SURVEY SECTION

FM 2403

X1	121	17	10332.9	10533.6	32	32	32			
X2			1	29.05	31.05					
X3	10			10269.9	31.31	10828.7	31.35	31.05	31.05	
BT	-15	8404.2	31.18		10000.0	31.18		10090.3	31.23	
BT		10178.1	31.18		10269.9	31.31		10350.2	31.74	
BT		10369.8	31.05		10445.4	31.75		10532.6	31.68	
BT		10552.4	31.00		10642.5	31.05		10732.9	31.11	
BT		10828.7	31.35		10922.2	31.23		16404.2	31.23	
GR	35.00	8404.2	31.18	8404.2	31.18	10000.0	31.23	10090.3	31.18	10178.1
GR	31.31	10269.9	30.53	10332.9	16.33	10394.7	14.96	10404.2	15.96	10420.8
GR	30.56	10533.6	31.05	10642.5	31.11	10732.9	31.35	10828.7	31.23	10922.2
GR	31.23	16404.2	35.00	16404.2						

2000 BAKER & LAWSON SURVEY SECTION

X1	122	8	10009.7	10115.7	59	59	59			
GR	35.00	8045.9	31.36	8045.9	31.36	10000.0	30.27	10009.7	17.34	10040.6
GR	14.42	10045.9	17.00	10061.0	36.49	10115.7				

NC .10 .30

QT 3 1803 2341 3295

2000 BAKER & LAWSON SURVEY SECTION



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X1	123	11	10014.6	10111.5	3600	3300	3300			
GR	35.00	8069.8	31.38	8069.8	31.38	10000.0	30.66	10014.6	18.26	10059.4
GR	16.05	10069.8	18.73	10077.9	30.16	10111.5	30.93	10135.8	30.93	16069.0
GR	35.00	16069.0								

NC	0.04	0.06	0.06	.30	.50					
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2000 BAKER & LAWSON SURVEY SECTION

X1	124	18	10371.0	10504.0	73	73	73			
X3	10							32.27	32.27	
GR	36.00	8441.2	33.29	8441.2	33.29	10000.0	33.40	10090.9	33.47	10181.0
GR	33.57	10277.2	32.77	10371.0	22.54	10396.5	18.12	10432.7	16.83	10441.2
GR	18.33	10449.1	22.49	10478.7	33.00	10504.0	33.81	10652.5	33.79	10756.4
GR	33.51	10853.9	33.51	16441.2	36.00	16441.2				

SH 35

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILES 04/97

SB	1.05	1.5	2.6		81	2	934.23	2.0		
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2000 BAKER & LAWSON SURVEY SECTION

SH 35

X1	125	17	10369.9	10503.8	54	54	54			
X2			1	30.77	33.77					
X3	10							33.77	33.77	
BT	-13	8431.9	33.29		10000.0	33.29		10090.9	33.40	
BT		10181.0	33.47		10277.2	33.57		10377.4	34.87	
BT		10404.2	33.77		10527.0	34.73		10553.6	33.78	
BT		10652.5	33.81		10756.4	33.79		10853.9	33.51	
BT		16431.9	33.51							
GR	36.00	8431.9	33.29	8431.9	33.29	10000.0	33.40	10090.9	33.47	10181.0
GR	33.57	10277.2	32.91	10369.9	22.05	10401.8	16.82	10431.9	22.16	10445.4
GR	21.95	10477.3	32.95	10503.8	33.81	10652.5	33.79	10756.4	33.51	10853.9
GR	33.51	16431.9	36.00	16431.9						

2000 BAKER & LAWSON SURVEY SECTION

X1	126	12	10010.8	10102.5	73	73	73			
GR	36.00	8054.1	30.13	8054.1	30.13	10000.0	29.57	10010.8	19.34	10043.7
GR	18.23	10054.1	18.95	10064.9	23.74	10081.8	29.39	10102.5	29.69	10115.2
GR	29.69	16054.1	36.00	16054.1						

NC				.10	.30					
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QT	3	2170	2586	3498						
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2000 BAKER & LAWSON SURVEY SECTION

X1	127	5	10000.0	10075.6	5300	5400	5400			
GR	36.67	10000.0	21.01	10020.3	19.22	10034.9	20.79	10046.2	38.35	10075.6

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NC			.30		.50					
2000 BAKER & LAWSON SURVEY SECTION										
X1	128	13	10377.3	10434.2	20	20	20			
X3	10							33.22	33.22	
GR	34.56	10000.0	34.42	10093.8	34.37	10188.4	34.59	10282.0	34.22	10377.3
GR	20.89	10393.5	19.63	10407.6	21.04	10420.0	34.10	10434.2	34.23	10521.3
GR	33.58	10633.7	33.63	10732.4	33.73	10845.0				
CR 172										
SB	1.05	1.5	2.6		22	1.0	556		2	
2000 BAKER & LAWSON SURVEY SECTION										
CR 172										
X1	129	13	10376.2	10436.5	3	3	3			
X2			1	31.72	34.72					
X3	10							34.72	34.72	
BT	-11	10000.0	34.56		10093.8	34.42		10188.4	34.37	
BT		10282.0	34.59		10377.0	34.80		10404.5	34.72	
BT		10430.8	34.58		10521.3	34.23		10633.7	33.58	
BT		10732.4	33.63		10845.0	33.73				
GR	34.56	10000.0	34.42	10093.8	34.37	10188.4	34.59	10282.0	33.72	10376.2
GR	21.94	10390.9	20.02	10403.6	21.08	10415.6	33.91	10436.5	34.23	10521.3
GR	33.58	10633.7	33.63	10732.4	33.73	10845.0				
2000 BAKER & LAWSON SURVEY SECTION										
X1	130	6	10006.6	10095.9	64	64	64			
X3	10							35.4	35.4	
GR	34.33	10000.0	33.91	10006.6	21.59	10036.5	20.47	10047.7	22.47	10059.7
GR	41.35	10095.9								
PIPELINE Nr CR 172										
SB	1.05	1.5	2.6		20	3	430		1.33	
PIPELINE Nr CR 172										
X1	131	8	7700	7761	26	26	26			
X2			1	34.9	35.9					
X3	10							35.9	35.9	
BT	-5	0	37		3000	34.5		7700	35.9	
BT		7761	35.9		7770	40				
GR	37	0	34.5	3000	34.4	7700	22.7	7721	22.2	7734
GR	22.7	7743	34.5	7761	40	7770				
X1	132	7	7510	7559	87	87	87			
GR	37	0	34.5	3000	35.2	7510	22.7	7518	21.9	7531
GR	21.7	7548	40.1	7559						

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NC .10 .30  
 QT 3 2086 2488 3404

2000 BAKER & LAWSON SURVEY SECTION

X1 133 8 10025.7 10120.6 2700 2900 2900  
 GR 40.00 7065.7 36.04 7065.7 36.04 10000.0 34.77 10025.7 23.56 10056.7  
 GR 20.48 10065.7 23.87 10082.7 39.05 10120.6

NC 0.05 0.06 0.06 .30 .50

2000 BAKER & LAWSON SURVEY SECTION

X1 134 16 10373.9 10492.2 77 77 77  
 X3 10 37.84 37.84  
 GR 40.00 7439.2 35.79 7439.2 35.79 10000.0 36.28 10096.3 37.26 10198.4  
 GR 38.06 10290.3 37.63 10373.9 23.25 10425.2 21.97 10439.2 23.14 10446.8  
 GR 37.68 10492.2 37.95 10636.9 37.08 10740.5 36.33 10838.3 36.27 10935.6  
 GR 40.00 10935.6

FM 1462

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILES 04/97

SB 1.05 1.5 2.6 15 2.67 870.74 2.5

2000 BAKER & LAWSON SURVEY SECTION

FM 1462

X1 135 16 10388.1 10507.0 46 46 46  
 X2 1 37.19 38.49  
 X3 10 38.49 38.49  
 BT -14 7458.5 35.79 10000.0 35.79 10096.3 36.28  
 BT 10198.4 37.26 10290.3 38.06 10383.8 38.49  
 BT 10410.1 40.68 10464.2 38.62 10514.3 38.56  
 BT 10540.4 40.69 10636.9 37.95 10740.5 37.08  
 BT 10838.3 36.33 10935.6 36.27  
 GR 40.00 7458.5 35.79 7458.5 35.79 10000.0 36.28 10096.3 37.26 10198.4  
 GR 38.06 10290.3 37.64 10388.1 22.67 10443.4 22.36 10458.5 22.69 10462.6  
 GR 37.72 10507.0 37.95 10636.9 37.08 10740.5 36.33 10838.3 36.27 10935.6  
 GR 40.00 10935.6

2000 BAKER & LAWSON SURVEY SECTION

X1 136 7 10000.0 10116.0 77 77 77  
 GR 40.00 8057.0 38.28 8057.0 38.28 10000.0 23.92 10050.7 21.86 10057.0  
 GR 23.82 10067.9 40.01 10116.0

NC .10 .30

2000 BAKER & LAWSON SURVEY SECTION

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X1	137	9	10021.1	10102.5	3700	3450	3450			
GR	45.00	46.4	40.00	4046.4	34.96	10000.0	33.58	10021.1	27.41	10039.0
GR	23.34	10046.4	24.12	10073.6	40.91	10102.5	45.00	10102.5		

NC .30 .50

2000 BAKER & LAWSON SURVEY SECTION

X1	138	19	10280.3	10345.1	88	88	88			
X3	10			10094.1	37.17	10431.8	39.85	36.97	36.97	
GR	45.00	320.8	40.00	4320.8	37.15	10000.0	37.17	10094.1	37.07	10185.2
GR	36.65	10280.3	30.28	10281.5	23.63	10301.1	21.31	10320.8	24.24	10336.7
GR	27.93	10343.7	37.19	10345.1	39.68	10399.6	39.85	10431.8	37.29	10533.4
GR	36.58	10630.7	36.56	10723.4	36.55	10820.7	45.00	10820.7		

CR 179

SB	1.05	1.5	2.6		40	6	655	.880		
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2000 BAKER & LAWSON SURVEY SECTION

CR 179

X1	139	18	10280.2	10344.0	24	24	24			
X2			1	36.47	37.47					
X3	10			10094.1	37.17	10431.8	39.85	37.47	37.47	
BT	-14	318.1	45.00		4318.1	40.00		10000.0	37.15	
BT		10094.1	37.17		10185.2	37.07		10278.3	37.47	
BT		10312.1	37.50		10346.3	37.88		10399.6	39.68	
BT		10431.8	39.85		10533.4	37.29		10630.7	36.58	
BT		10723.4	36.56		10820.7	36.55				
GR	45.00	318.1	40.00	4318.1	37.15	10000.0	37.17	10094.1	37.07	10185.2
GR	36.61	10280.2	30.20	10281.6	24.77	10299.3	21.56	10318.1	23.52	10334.7
GR	37.05	10344.0	39.68	10399.6	39.85	10431.8	37.29	10533.4	36.58	10630.7
GR	36.56	10723.4	36.55	10820.7	45.00	10820.7				

2000 BAKER & LAWSON SURVEY SECTION

X1	140	9	10013.9	10094.5	88	88	88			
GR	45.00	43.3	40.00	4043.3	36.05	10000.0	34.67	10013.9	25.85	10038.7
GR	22.99	10043.3	25.55	10060.3	41.01	10094.5	45.00	10094.5		

NC .10 .30

X1	141	8	10900	10969	2600	2600	2600			
GR	45	1939	41	5000	39.4	10900	25.5	10934	23.1	10939
GR	25.7	10944	43	10969	45	10969				

NC .30 .50

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X1	142	12	10900	10965	90	90	90			
X3	10							39.5	39.5	
GR	45	1944	41	5000	39.4	10890	40.2	10900	33	10900
GR	26.8	10929	25.7	10944	26.7	10951	33	10965	38.6	10965
GR	41	10970	45	10970						

CR 392

SB	1.05	1.5	2.6		40	6	610	.93		
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CR 392

X1	143	12	10900	10965	20	20	20			
X2			1	39	40					
X3	10							40	40	
BT	-5	1944	45	5000		41		10900	40	
BT		10965	40		10970	41				
GR	45	1944	41	5000	39.4	10890	40.2	10900	33	10900
GR	26.8	10929	25.7	10944	26.7	10951	33	10965	38.6	10965
GR	41	10970	45	10970						

X1	144	9	10900	10980	90	90	90			
X3	10									
GR	45	1944	41	5000	39.4	10890	42.9	10900	27.5	10931
GR	25.6	10944	27.4	10950	44.6	10980	45	10980		

NC	0.04	0.06	0.06							
QT	3	1767	2147	2865						

2000 BAKER & LAWSON SURVEY SECTION

X1	144.9	9	10013.4	10077.2	1420	1420	1420			
X3	10									
GR	45.00	3041.1	40.00	7041.1	39.44	10000.0	37.85	10013.4	27.41	10032.2
GR	26.17	10041.1	27.77	10056.6	40.16	10077.2	45.00	10077.2		

2000 BAKER & LAWSON SURVEY SECTION

X1	145	15	10330.8	10385.8	30	30	30			
X3	10			10330.8	39.95	10435.9	42.04	39.56	39.56	
GR	45.00	3359.1	40.00	7359.1	39.68	10000.0	39.10	10143.6	38.64	10239.3
GR	39.95	10330.8	26.79	10344.6	25.95	10359.1	27.09	10371.8	40.12	10385.8
GR	42.04	10435.9	42.06	10476.5	39.38	10549.9	38.78	10698.9	45.00	10698.9

CR 180

SB	1.05	1.5	2.6		10	4	333	1.6		
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2000 BAKER & LAWSON SURVEY SECTION

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CR 180										
X1	146	15	10329.9	10385.1	20	20	20			
X2			1	38.66	40.46					
X3	10			10329.9	39.99	10435.9	42.04	40.46	40.46	
BT	-12	3349.8	45.00		7349.8	40.00		10000.0	39.68	
BT		10143.6	39.10		10239.3	38.64		10330.5	40.46	
BT		10359.0	40.77		10384.2	41.07		10435.9	42.04	
BT		10476.5	42.06		10549.9	39.38		10698.9	38.78	
GR	45.00	3349.8	40.00	7349.8	39.68	10000.0	39.10	10143.6	38.64	10239.3
GR	39.99	10329.9	26.37	10341.6	24.80	10349.8	26.73	10370.1	40.07	10385.1
GR	42.04	10435.9	42.06	10476.5	39.38	10549.9	38.78	10698.9	45.00	10698.9

2000 BAKER & LAWSON SURVEY SECTION

X1	146.1	9	10009.8	10089.7	80	80	80			
GR	45.00	3053.6	40.00	7053.6	37.74	10000.0	37.07	10009.8	29.73	10029.5
GR	27.32	10042.8	27.03	10053.6	41.69	10089.7	45.00	10089.7		

PIPELINE IN SOUTH OF CR 138

SB	1.05	1.5	2.6		35	.1	900	1.66		
PIPELINE IN SOUTH OF CR 138										
X1	148	7	5720	5805	4022	4022	4022			
X2			1	41.7	43.2					
X3	10							43.2	43.2	
BT	6	0	44.5		5700	40		5720	38.6	
BT	5721	43.2		5800	43.2		5805	45.8		
GR	44.5	0	40	5700	38.6	5720	28.2	5739	26.7	5761
GR	28.6	5784	45.8	5805						

PIPELINE BETWEEN CR 138 & CR 941

SB	1.05	1.5	2.6		25	2	586	1.2		
PIPELINE BETWEEN CR 138 & CR 941										
X1	150	6	6400	6460	3402	3352	3352			
X2			1	46	47.6					
X3	10							47.6	47.6	
BT	4	0	46.5		6400	43.8		6400	47.6	
BT	6460	47.6								
GR	46.5	0	43.8	6400	32.8	6414	31.6	6429	32.5	6444
GR	46.5	6460								

QT 3 1311 1528 1993

PIPELINE BETWEEN CR 138 & CR 941

SB	1.05	1.5	2.6		20	3	300	2		
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PIPELINE BETWEEN CR 138 & CR 941

X1	152	8	7200	7255	1503	1503	1503			
X2			1	41.2	44.2					
X3	10									
BT	2	7213	44.2		7243	44.2				
GR	47.5	0	44	7190	45	7200	34.8	7213	32.5	7219
GR	32.5	7237	34.7	7243	48	7255				

PIPELINE IN SOUTH OF JORDAN ROAD

SB	1.05	1.5	2.6		15	2	312	1.4		
PIPELINE IN SOUTH OF JORDAN ROAD										
X1	154	10	2702	2758	10353	10403	10403			
X2			1	44.3	47.3					
X3	10									
BT	2	2702	47.3		2758	47.3				
GR	50	0	49	10	49	2690	49.8	2700	47.3	2702
GR	35.6	2711	33.1	2729	36.9	2736	47.3	2758	52.2	2766

2000 BAKER & LAWSON SURVEY SECTION

X1	154.9	10	10021.9	10072.2	2440	2940	2840			
GR	50.00	5040.0	48.57	10000.0	47.47	10021.9	40.97	10036.0	38.66	10040.0
GR	40.06	10053.7	46.60	10072.2	48.07	10098.6	48.07	11540.0	50.00	11540.0

2000 BAKER & LAWSON SURVEY SECTION

X1	155	16	10090.9	10135.2	60	60	60			
X3	10			10061.7	49.00	10154.4	48.9	48.55	48.55	
GR	50.00	5113.2	49.06	10000.0	49.00	10061.7	47.56	10090.9	40.60	10105.9
GR	39.14	10113.2	40.48	10122.6	47.63	10135.2	48.90	10154.4	48.77	10178.6
GR	48.62	10203.8	48.72	10232.2	48.68	10302.5	48.80	10374.2	48.80	11613.2
GR	50.00	11613.2								

JORDAN ROAD

SB	1.05	1.5	2.6		25	2	260	1		
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2000 BAKER & LAWSON SURVEY SECTION

JORDAN ROAD

X1	156	17	10097.2	10142.1	24	24	24			
X2			1	48.05	49.05					
X3	10							49.05	49.05	
BT	-13	5123.4	50.00		10000.0	49.06		10061.7	49.00	
BT		10091.7	49.05		10114.3	49.05		10132.3	49.06	
BT		10154.4	48.90		10178.6	48.77		10203.8	48.62	
BT		10232.2	48.72		10302.5	48.68		10374.2	48.80	
BT		11623.4	48.80							
GR	52.00	5123.4	50.00	5123.4	49.06	10000.0	49.00	10061.7	46.84	10097.2
GR	39.82	10112.9	38.79	10123.4	39.59	10130.9	47.96	10142.1	48.90	10154.4
GR	48.77	10178.6	48.62	10203.8	48.72	10232.2	48.68	10302.5	48.80	10374.2
GR	48.80	11623.4	52.00	11623.4						

2000 BAKER & LAWSON SURVEY SECTION

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X1	156.1	12	10000.0	10045.6	60	60	60			
GR	50.00	5025.8	48.61	10000.0	40.33	10019.6	39.04	10025.8	40.40	10030.2
GR	47.65	10045.6	48.42	10071.9	48.72	10232.2	48.68	10302.5	48.80	10374.2
GR	48.80	11623.4	52.00	11623.4						

QT	3	496	593	766						
NC	0.07	0.045	0.07							

X1	156.5	9	10000.0	10047.4	75	75	75			
GR	55.00	7520.4	51.00	7520.4	50.84	10000.0	44.16	10016.8	42.56	10020.4
GR	44.27	10025.9	50.76	10047.4	51.00	12520.4	55.00	12520.4		

X1	156.6	9	10000.0	10047.4	925	925	925			
GR	55.00	7520.4	51.00	7520.4	50.84	10000.0	44.16	10016.8	42.56	10020.4
GR	44.27	10025.9	50.76	10047.4	51.00	12520.4	55.00	12520.4		

X1	156.7	9	10000.0	10047.4	1000	1000	1000			
GR	55.00	7520.4	51.00	7520.4	50.84	10000.0	44.16	10016.8	42.56	10020.4
GR	44.27	10025.9	50.76	10047.4	51.00	12520.4	55.00	12520.4		

X1	156.9	9	10000.0	10047.4	865	1265	1065			
GR	55.00	7520.4	51.00	7520.4	50.84	10000.0	44.16	10016.8	42.56	10020.4
GR	44.27	10025.9	50.76	10047.4	51.00	12520.4	55.00	12520.4		

2000 BAKER & LAWSON SURVEY SECTION

X1	157	17	10375.2	10418.8	75	75	75			
X3	10							52.39	52.39	
GR	55.00	7900.3	51.58	7900.3	51.58	10000.0	51.60	10091.5	51.64	10185.0
GR	51.68	10282.0	52.01	10375.2	44.49	10378.6	43.35	10400.3	46.06	10416.8
GR	51.88	10418.8	51.87	10513.7	51.75	10606.3	51.90	10698.5	51.86	10789.9
GR	51.86	12900.3	55.00	12900.3						

CR 190

SB	1.05	1.5	2.6	24	2	214	.63			
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2000 BAKER & LAWSON SURVEY SECTION

CR 190

X1	158	17	10374.5	10419.7	30	30	30			
X2			1	51.89	52.89					
X3	10							52.89	52.89	
BT	-13	7894.0	51.58		10000.0	51.58		10091.5	51.60	
BT		10185.0	51.64		10282.0	51.68		10376.4	52.90	
BT		10395.2	52.95		10416.6	52.89		10513.7	51.87	
BT		10606.3	51.75		10698.5	51.90		10789.9	51.86	
BT		12894.0	51.86							
GR	55.00	7894.0	51.58	7894.0	51.58	10000.0	51.60	10091.5	51.64	10185.0
GR	51.68	10282.0	51.81	10374.5	45.34	10377.9	43.86	10394.0	47.48	10418.2



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PAGE 24

GR	51.97	10419.7	51.87	10513.7	51.75	10606.3	51.90	10698.5	51.86	10789.9
GR	51.86	12894.0	55.00	12894.0						

2000 BAKER & LAWSON SURVEY SECTION

X1	159	9	10000.0	10057.4	40	40	40			
X3	10							54.10	54.10	
GR	55.00	7527.8	53.68	7527.8	53.68	10000.0	43.79	10019.5	42.91	10027.8
GR	43.84	10041.0	53.64	10057.4	53.64	12527.8	55.00	12527.8		

RAIL ROAD Nr CR 190

SB	1.05	1.5	2.6		18	1	230	.88		
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2000 BAKER & LAWSON SURVEY SECTION

RAIL ROAD Nr CR 190

X1	160	13	10370.8	10428.8	36	36	36			
X2			1	53.10	55.10					
X3	10							55.10	55.10	
BT	-10	10000.0	54.72		10091.6	54.77		10185.2	54.93	
BT		10280.1	55.07		10371.4	55.10		10399.7	55.12	
BT		10428.0	55.11		10524.1	55.06		10618.8	54.95	
BT		10719.0	54.78							
GR	54.72	10000.0	54.77	10091.6	54.93	10185.2	55.07	10280.1	53.00	10370.8
GR	44.09	10392.4	43.36	10404.5	44.82	10414.0	53.32	10428.8	55.06	10524.1
GR	54.95	10618.8	54.84	10719.0	54.78	10819.0				

2000 BAKER & LAWSON SURVEY SECTION

X1	160.1	9	10012.8	10059.3	60	60	60			
GR	55.00	7532.9	50.96	7532.9	50.96	10000.0	49.93	10012.8	44.61	10025.6
GR	43.53	10032.9	44.73	10046.5	50.27	10059.3	52.29	10077.6		

NC			.10	.30						
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2000 BAKER & LAWSON SURVEY SECTION

X1	161	11	10016.1	10057.5	790	990	890			
GR	55.00	8037.1	51.73	8037.1	51.73	10000.0	49.78	10016.1	44.83	10027.0
GR	43.74	10037.1	45.13	10044.2	51.05	10057.5	51.74	10080.9	51.74	12537.1
GR	55.00	12537.1								

NC			.30	.50						
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2000 BAKER & LAWSON SURVEY SECTION

X1	162	14	10271.5	10315.7	34	34	34			
X3	10							51.01	51.01	
GR	55.00	8288.9	51.69	8288.9	51.69	10000.0	51.58	10111.3	51.72	10183.6
GR	50.26	10271.5	44.05	10288.9	44.91	10296.5	46.21	10305.8	50.59	10315.7
GR	51.69	10411.9	52.34	10943.5	52.34	12788.9	55.00	12788.9		

ROGERS ROAD

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SB 1.25 1.5 2.6 11 1 150 2.0

2000 BAKER & LAWSON SURVEY SECTION  
ROGERS ROAD

X1	163	14	10294.2	10348.9	32	32	32			
X2			1	50.51	51.51					
X3	10							51.51	51.51	
BT	-10	8310.8	51.69		10000.0	51.69		10111.3	51.58	
BT		10183.6	51.72		10275.8	51.79		10302.3	51.51	
BT		10319.8	51.88		10411.9	51.69		10943.5	52.34	
BT		12810.8	52.34							
GR	55.00	8310.8	51.69	8310.8	51.69	10000.0	51.58	10111.3	51.72	10183.6
GR	50.03	10294.2	44.14	10307.9	43.88	10310.8	44.21	10318.5	49.44	10348.9
GR	51.69	10411.9	52.34	10943.5	52.34	12810.8	55.00	12810.8		

2000 BAKER & LAWSON SURVEY SECTION

X1	164	11	10018.7	10063.8	34	34	34			
GR	55.00	8042.8	51.83	8042.8	51.83	10000.0	49.86	10018.7	44.33	10036.5
GR	43.83	10042.8	44.42	10050.0	50.54	10063.8	51.45	10079.2	51.45	12542.8
GR	55.00	12542.8								

NC .10 .30

2000 BAKER & LAWSON SURVEY SECTION

X1	165	11	10024.4	10067.5	300	300	350			
GR	55.00	8045.3	52.23	8045.3	52.23	10000.0	50.87	10024.4	44.63	10037.7
GR	44.04	10045.3	44.47	10056.4	50.00	10067.5	51.87	10091.6	51.87	12045.3
GR	55.00	12045.3								

NC .30 .50

2000 BAKER & LAWSON SURVEY SECTION

X1	166	18	10289.1	10404.0	25	25	25			
X3	10							51.22	51.22	
GR	57.49	10000.0	57.71	10094.4	52.58	10187.8	51.66	10289.1	44.89	10303.8
GR	44.33	10311.3	44.29	10324.9	44.14	10338.6	44.35	10352.3	44.39	10366.6
GR	44.54	10380.1	45.57	10393.0	50.69	10404.0	51.82	10470.6	52.03	10567.3
GR	52.38	10663.8	52.38	12338.6	55.00	12338.6				

SH 6

SB 1.25 1.5 2.6 50 2 360 2.0

2000 BAKER & LAWSON SURVEY SECTION

SH 6										
X1	167	18	10269.9	10377.6	50	50	50			
X2			1	50.22	52.22					
X3	10							52.22	52.22	
BT	-11	10000.0	57.49		10094.4	57.71		10187.8	52.58	
BT		10269.6	52.47		10289.0	52.44		10369.2	52.22	

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BT		10389.0	52.46		10470.6	51.82		10567.3	52.03	
BT		10663.8	52.38		12321.3	52.38				
GR	57.49	10000.0	57.71	10094.4	52.58	10187.8	51.62	10269.9	46.13	10285.8
GR	44.91	10293.8	44.52	10307.7	44.47	10321.3	44.50	10335.5	45.18	10348.7
GR	44.71	10361.5	46.39	10366.8	51.45	10377.6	51.82	10470.6	52.03	10567.3
GR	52.38	10663.8	52.38	12321.3	55.00	12321.3				

2000 BAKER & LAWSON SURVEY SECTION

X1	167.1	11	10028.6	10060.6	100	100	100			
GR	55.00	8043.4	52.98	8043.4	52.98	10000.0	49.94	10028.6	44.84	10038.5
GR	44.18	10043.4	44.64	10047.6	50.35	10060.6	52.21	10073.5	52.21	12043.4
GR	55.00	12043.4								

NC .10 .30

2000 BAKER & LAWSON SURVEY SECTION

X1	168	11	10016.8	10054.3	1900	1900	1900			
GR	55.00	9037.6	53.57	9037.6	53.57	10000.0	51.72	10016.8	45.78	10031.7
GR	44.66	10037.6	46.03	10043.4	50.76	10054.3	52.89	10076.4	52.89	12037.6
GR	55.00	12037.6								

NC .30 .50

2000 BAKER & LAWSON SURVEY SECTION

X1	169	15	10265.0	10307.6	85	85	85			
X3	10							53.59	53.59	
GR	55.00	9283.5	54.43	9283.5	54.43	10000.0	54.36	10091.2	54.49	10181.3
GR	51.69	10265.0	47.23	10275.1	45.38	10283.5	46.80	10293.8	51.83	10307.6
GR	53.82	10423.0	53.70	10515.9	53.73	10606.7	53.73	12283.5	55.00	12283.5

LEWIS STREET

SB 1.05 1.5 2.6 24 3 268 1.9

2000 BAKER & LAWSON SURVEY SECTION

LEWIS STREET

X1	170	15	10295.6	10337.4	30	30	30			
X2			1	53.09	54.09					
X3	10							54.09	54.09	
BT	-11	9319.4	54.43		10000.0	54.43		10091.2	54.36	
BT		10181.3	54.49		10270.1	54.22		10296.3	54.09	
BT		10324.0	54.16		10423.0	53.82		10515.9	53.70	
BT		10606.7	53.73		12319.4	53.73				
GR	55.00	9319.4	54.43	9319.4	54.43	10000.0	54.36	10091.2	54.49	10181.3
GR	52.12	10295.6	46.92	10308.2	45.78	10319.4	46.78	10326.7	51.51	10337.4
GR	53.82	10423.0	53.70	10515.9	53.73	10606.7	53.73	12319.4	55.00	12319.4

2000 BAKER & LAWSON SURVEY SECTION

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X1	171	11	10025.5	10063.7	85	85	85			
GR	55.00	9040.6	53.79	9040.6	53.79	10000.0	51.58	10025.5	47.34	10034.4
GR	45.63	10040.6	46.58	10050.4	50.98	10063.7	53.12	10113.2	53.12	12040.6
GR	55.00	12040.6								

2000 BAKER & LAWSON SURVEY SECTION

X1	171.3	11	10013.0	10047.1	1200	1200	1200			
GR	55.00	9031.3	53.73	9031.3	53.73	10000.0	51.88	10013.0	46.85	10025.8
GR	46.28	10031.3	46.77	10036.5	51.60	10047.1	53.92	10072.6	53.92	12031.3
GR	55.00	12031.3								

2000 BAKER & LAWSON SURVEY SECTION

X1	171.4	12	10000.0	10046.3	60	60	60			
X3	10							53.49	53.49	
GR	55.00	9019.8	52.97	9019.8	52.97	10000.0	46.66	10014.6	46.41	10019.8
GR	47.09	10030.3	52.26	10046.3	53.85	10139.2	53.74	10237.1	53.96	10329.9
GR	53.96	12329.9	55.00	12329.9						

CEDAR

SB	1.25	1.5	2.6		24	3	240	2.0		
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2000 BAKER & LAWSON SURVEY SECTION

CEDAR

X1	171.5	12	10000.0	10047.5	45	45	45			
X2			1	52.99	53.99					
X3	10							54.16	54.16	
BT	-8	9022.4	53.38		10000.0	53.38		10014.7	54.16	
BT		10035.7	53.99		10139.2	53.85		10237.1	53.74	
BT		10329.9	53.96		12022.4	53.96				
GR	55.00	9022.4	53.38	9022.4	53.38	10000.0	47.13	10014.7	46.01	10022.4
GR	47.11	10036.1	52.83	10047.5	53.85	10139.2	53.74	10237.1	53.96	10329.9
GR	53.96	12022.4	55.00	12022.4						

2000 BAKER & LAWSON SURVEY SECTION

X1	171.6	9	10029.2	10069.2	80	80	80			
GR	55.09	10000.0	53.54	10029.2	47.30	10045.1	46.32	10051.4	47.27	10059.6
GR	51.95	10069.2	54.08	10094.3	54.08	12051.4	55.00	12051.4		

NC				.10	.30					
QT	3	260	308	404						

2000 BAKER & LAWSON SURVEY SECTION

X1	172	11	10021.0	10059.9	1215	115	715	.57		
GR	57.00	9238.8	54.70	9238.8	54.70	10000.0	52.54	10021.0	47.44	10030.4
GR	47.05	10038.8	47.47	10049.7	51.51	10059.9	55.22	10084.0	55.22	11338.8
GR	57.00	11338.8								

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NC 0.06 0.05 0.06 .30 .50

2000 BAKER & LAWSON SURVEY SECTION

X1	173	16	10387.6	10454.6	70	70	70			
X3	10			10284.2	55.36	10506.3	55.19	54.81	54.81	
GR	57.00	9629.7	55.29	9629.7	55.29	10000.0	55.23	10092.3	55.31	10190.5
GR	55.36	10284.2	54.19	10387.6	49.16	10410.6	47.07	10429.7	48.42	10438.0
GR	53.12	10454.6	55.19	10506.3	54.95	10602.1	54.83	10694.1	54.83	11729.7
GR	57.00	11729.7								

FM 1128

SB 1.25 1.5 2.6 12 2 76 2.0

2000 BAKER & LAWSON SURVEY SECTION

FM 1128

X1	174	16	10335.7	10400.6	60	60	60			
X2			1	54.31	55.31					
X3	10			10284.2	55.36	10506.3	55.19	55.31	55.31	
BT	-3	10284.2	55.36		10413.9	55.31		10506.3	55.19	
GR	57.00	9569.5	55.29	9569.5	55.29	10000.0	55.23	10092.3	55.31	10190.5
GR	55.36	10284.2	53.60	10335.7	48.34	10358.9	46.85	10369.5	47.91	10382.6
GR	53.63	10400.6	55.19	10506.3	54.95	10602.1	54.83	10694.1	54.83	11669.5
GR	57.00	11669.5								

2000 BAKER & LAWSON SURVEY SECTION

X1	175	11	10008.5	10040.5	70	70	70			
GR	57.00	9222.9	53.27	9222.9	53.27	10000.0	52.25	10008.5	49.03	10018.8
GR	48.04	10022.9	48.92	10027.9	52.93	10040.5	53.66	10052.5	53.66	11322.9
GR	57.00	11322.9								

NC .10 .30

X1	176	7	500	534	350	1350	850			
GR	56	0	53.8	500	49.9	512	49	517	50.1	522
GR	54.2	534	56	3300						

NC .30 .50

X1	177	6	500	534	40	40	40			
X3	10							54.95	54.95	
GR	56	0	53.8	500	49.2	515	49.2	519	54.2	534
GR	56	3300								

TANKERSLEY ROAD

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SB	1.05	1.5	2.6		4	1	16	3.0		
TANKERSLEY ROAD										
X1	178	9	10500	10534	20	20	20			
X2			1	54.2	55.7					
X3	10							55.7	55.7	
BT	-5	9515	56		10000	56		10515	55.7	
BT		10519	55.7		13300	56				
GR	58	9515	56	9515	56	10000	53.8	10500	49.2	10515
GR	49.2	10519	54.2	10534	56	13300	58	13300		
X1	179	10	10500	10536	40	40	40			
GR	58	9518	56	9518	56	10000	55.5	10500	50.1	10514
GR	49	10518	50.2	10522	54.1	10536	56	13300	58	13300
NC				.10	.30					
X1	180	9	10700	10732	125	125	125			
GR	58	9721	56	9721	56	10000	54	10700	50.3	10711
GR	50.1	10721	53.9	10732	56	13000	58	13000		
NC				.30	.50					
X1	181	9	10700	10732	68	68	68			
X3	10							54.5	54.5	
GR	58	9714	56	9714	56	10000	54	10700	49.3	10714
GR	49.3	10718	53.9	10732	56	13000	58	13000		
PRIVATE ROAD Nr TANKERLEY ROAD										
SB	1.05	1.5	2.5		4	1	12	3.0		
PRIVATE ROAD Nr TANKERSLEY ROAD										
X1	182	9	10700	10732	14	14	14			
X2			1	53.3	55.7					
X3	10							55.7	55.7	
BT	-5	9714	56		10000	56		10714	55.7	
BT		10718	55.7		13000	56				
GR	58	9714	56	9714	56	10000	54	10700	49.3	10714
GR	49.3	10718	53.9	10732	56	13000	58	13000		

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T1 NEW BAYOU (INCLUDING C-1 DITCH)..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: NEW&C1S6.IH2.....25-YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3							14.61	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							

21AUG02 14:01:44

T1 NEW BAYOU (INCLUDING C-1 DITCH)..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: NEW&C1S7.IH2.....100-YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		4							15.48	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1							



THIS RUN EXECUTED 21AUG02 14:01:49

\*\*\*\*\*  
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991  
\*\*\*\*\*

NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

L REVISED BY KLOTZ ASSOC

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
1.000	1722.00	13.94	.66	-2.50	7.10	7.10	15.00	427.75	24.84	.00	2641.74	
1.000	1985.00	14.61	.59	-2.50	7.10	7.10	15.00	403.84	20.34	.00	3057.81	
1.000	2488.00	15.48	.53	-2.50	7.10	7.10	15.00	385.94	15.51	.00	3300.00	
*	2.000	1722.00	14.01	1.90	-.71	12.58	10.73	15.00	1638.84	95.17	2900.00	204.73
*	2.000	1985.00	14.65	1.99	-.71	12.58	10.73	15.00	1829.62	92.17	2900.00	356.74
*	2.000	2488.00	15.50	2.15	-.71	12.58	10.73	15.00	2133.16	85.74	2900.00	448.42
3.000	1722.00	14.01	2.15	-1.19	15.58	14.66	14.66	1722.00	100.00	85.00	99.98	
3.000	1985.00	14.66	2.29	-1.19	15.58	14.66	14.66	1985.00	100.00	85.00	103.96	
3.000	2488.00	15.50	2.60	-1.19	15.58	14.66	14.66	2488.00	100.00	85.00	106.77	
4.000	1722.00	14.02	2.14	-1.19	15.58	14.66	15.33	1722.00	100.00	30.00	100.49	
4.000	1985.00	14.66	2.28	-1.19	15.58	14.66	15.33	1985.00	100.00	30.00	104.47	
4.000	2488.00	15.69	2.54	-1.19	15.58	14.66	15.33	2488.00	100.00	30.00	107.50	
5.000	1722.00	14.02	2.41	-.64	13.55	14.95	15.00	1722.00	100.00	30.00	99.37	
5.000	1985.00	14.66	2.54	-.64	13.55	14.95	15.00	1985.00	100.00	30.00	101.28	
5.000	2488.00	15.69	2.81	-.64	13.55	14.95	15.00	2488.00	100.00	30.00	102.10	
6.000	1722.00	14.02	2.25	-1.99	15.66	15.69	16.26	1722.00	100.00	20.00	89.63	
6.000	1985.00	14.74	2.39	-1.99	15.66	15.69	16.26	1985.00	100.00	20.00	93.29	
6.000	2488.00	15.83	2.66	-1.99	15.66	15.69	16.26	2488.00	100.00	20.00	98.10	
8.000	1722.00	14.08	1.96	-1.07	14.19	11.87	18.00	1704.12	98.96	115.00	125.14	
8.000	1985.00	14.80	2.06	-1.07	14.19	11.87	18.00	1953.89	98.43	115.00	131.63	
8.000	2488.00	15.91	2.27	-1.07	14.19	11.87	18.00	2424.06	97.43	115.00	142.08	
*	8.020	1722.00	14.16	.24	-.29	6.31	10.55	17.00	179.15	10.40	225.00	6700.00
*	8.020	1985.00	14.88	.20	-.29	6.31	10.55	17.00	158.78	8.00	225.00	6700.00
*	8.020	2488.00	16.01	.17	-.29	6.31	10.55	17.00	147.39	5.92	225.00	6700.00

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	8.030	1722.00	14.15	1.14	-1.14	8.31	9.15	17.00	1094.25	63.55	36.00	3363.66
*	8.030	1985.00	14.88	.73	-1.14	8.31	9.15	17.00	752.35	37.90	36.00	6700.00
*	8.030	2488.00	16.01	.43	-1.14	8.31	9.15	17.00	492.95	19.81	36.00	6700.00
	8.040	1722.00	14.15	1.18	-1.02	9.25	8.35	17.00	1049.63	60.95	16.00	3357.87
	8.040	1985.00	14.88	.73	-1.02	9.25	8.35	17.00	703.39	35.44	16.00	6700.00
	8.040	2488.00	16.01	.43	-1.02	9.25	8.35	17.00	454.11	18.25	16.00	6700.00
	8.050	1722.00	14.17	.84	-1.34	12.34	11.91	17.00	666.65	38.71	45.00	3765.89
	8.050	1985.00	14.88	.62	-1.34	12.34	11.91	17.00	527.74	26.59	45.00	5686.83
	8.050	2488.00	16.01	.40	-1.34	12.34	11.91	17.00	380.83	15.31	45.00	6000.00
*	8.160	1722.00	14.19	1.65	-.98	13.88	12.89	17.00	1718.06	99.77	742.00	342.84
*	8.160	1985.00	14.89	1.53	-.98	13.88	12.89	17.00	1704.21	85.85	742.00	5376.78
*	8.160	2488.00	16.02	.78	-.98	13.88	12.89	17.00	964.77	38.78	742.00	6139.00
	8.170	1722.00	14.21	1.73	-.21	13.00	12.89	17.00	1292.04	75.03	73.00	2525.92
	8.170	1985.00	14.92	1.24	-.21	13.00	12.89	17.00	1001.81	50.47	73.00	4530.38
	8.170	2488.00	16.02	.68	-.21	13.00	12.89	17.00	611.50	24.58	73.00	6132.50
	8.180	1722.00	14.21	1.66	-.24	12.73	12.63	17.00	1303.88	75.72	18.00	2558.29
	8.180	1985.00	14.92	1.22	-.24	12.73	12.63	17.00	1031.60	51.97	18.00	4536.45
	8.180	2488.00	16.02	.68	-.24	12.73	12.63	17.00	638.32	25.66	18.00	6131.70
	8.190	1722.00	14.23	1.55	-1.66	11.95	11.76	17.00	1394.34	80.97	80.00	3425.34
	8.190	1985.00	14.93	1.11	-1.66	11.95	11.76	17.00	1062.99	53.55	80.00	5899.87
	8.190	2488.00	16.02	.59	-1.66	11.95	11.76	17.00	626.76	25.19	80.00	6145.00
*	9.000	1684.00	14.32	.56	1.18	10.43	10.75	17.00	446.48	26.51	2365.00	7052.10
*	9.000	1955.00	14.97	.41	1.18	10.43	10.75	17.00	345.76	17.69	2365.00	7961.51
*	9.000	2427.00	16.04	.28	1.18	10.43	10.75	17.00	257.57	10.61	2365.00	8000.00
*	10.000	1684.00	14.29	2.11	.24	13.89	14.69	17.00	1684.00	100.00	90.00	73.85
*	10.000	1955.00	14.93	2.31	.24	13.89	14.69	17.00	1945.32	99.50	90.00	159.23
*	10.000	2427.00	16.00	2.40	.24	13.89	14.69	17.00	2209.70	91.05	90.00	4281.95
	11.000	1684.00	14.54	2.21	-.22	14.28	14.63	17.00	1683.71	99.98	20.00	90.17
	11.000	1955.00	15.29	2.39	-.22	14.28	14.63	17.00	1939.99	99.23	20.00	208.37
	11.000	2427.00	15.98	2.57	-.22	14.28	14.63	17.00	2218.87	91.42	20.00	4268.76
	12.000	1684.00	14.54	2.59	.46	14.45	13.60	17.00	1684.00	100.00	50.00	77.10
	12.000	1955.00	15.29	2.70	.46	14.45	13.60	17.00	1912.56	97.83	50.00	246.64
*	12.000	2427.00	16.09	1.54	.46	14.45	13.60	17.00	1186.22	48.88	50.00	8000.00
	13.000	1684.00	14.69	2.24	.01	13.32	14.44	17.00	1684.00	100.00	40.00	81.50
	13.000	1955.00	15.36	2.43	.01	13.32	14.44	17.00	1955.00	100.00	40.00	81.50
	13.000	2427.00	16.09	1.48	.01	13.32	14.44	17.00	1278.92	52.70	40.00	8000.00
*	14.000	1684.00	14.80	.37	-.28	10.38	11.22	17.00	321.94	19.12	80.00	7727.70
*	14.000	1955.00	15.48	.28	-.28	10.38	11.22	17.00	262.39	13.42	80.00	8000.00
*	14.000	2427.00	16.11	.26	-.28	10.38	11.22	17.00	252.54	10.41	80.00	8000.00

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	15.000	1684.00	14.79	1.60	1.00	13.00	13.50	17.00	940.92	55.87	900.00	3568.41
*	15.000	1955.00	15.48	1.05	1.00	13.00	13.50	17.00	662.29	33.88	900.00	5069.13
*	15.000	2427.00	16.11	.82	1.00	13.00	13.50	17.00	549.71	22.65	900.00	5123.64
	16.000	1684.00	14.82	1.31	1.10	14.00	14.00	17.00	567.52	33.70	88.00	5112.94
	16.000	1955.00	15.49	.79	1.10	14.00	14.00	17.00	360.58	18.44	88.00	5278.00
	16.000	2427.00	16.12	.61	1.10	14.00	14.00	17.00	294.71	12.14	88.00	5328.82
	17.000	1684.00	14.82	1.30	1.10	14.00	14.00	17.00	561.17	33.32	24.00	5120.74
	17.000	1955.00	15.49	.78	1.10	14.00	14.00	17.00	358.41	18.33	24.00	5278.63
	17.000	2427.00	16.12	.61	1.10	14.00	14.00	17.00	293.95	12.11	24.00	5329.18
*	18.000	1684.00	14.81	2.01	1.10	14.00	14.00	17.00	1253.58	74.44	88.00	3780.21
*	18.000	1955.00	15.49	1.29	1.10	14.00	14.00	17.00	855.49	43.76	88.00	3886.14
*	18.000	2427.00	16.12	.96	1.10	14.00	14.00	17.00	671.13	27.65	88.00	5558.95
*	19.000	1684.00	15.01	1.36	.41	11.47	12.21	17.00	904.29	53.70	1600.00	3300.00
	19.000	1955.00	15.57	1.10	.41	11.47	12.21	17.00	770.94	39.43	1600.00	3300.00
	19.000	2427.00	16.17	.95	.41	11.47	12.21	17.00	708.52	29.19	1600.00	3300.00
*	20.000	1684.00	14.89	4.27	1.39	16.98	17.10	16.59	1684.00	100.00	88.00	53.57
*	20.000	1955.00	15.42	4.62	1.39	16.98	17.10	16.59	1955.00	100.00	88.00	55.47
*	20.000	2427.00	15.96	5.36	1.39	16.98	17.10	16.59	2427.00	100.00	88.00	57.36
	20.100	1684.00	14.89	3.82	1.03	16.98	17.06	16.59	1684.00	100.00	24.00	55.65
	20.100	1955.00	15.42	4.15	1.03	16.98	17.06	16.59	1955.00	100.00	24.00	57.37
	20.100	2427.00	15.96	4.82	1.03	16.98	17.06	16.59	2427.00	100.00	24.00	59.12
*	21.000	1684.00	15.23	1.12	-.22	12.31	12.10	19.00	1047.87	62.22	88.00	2324.32
*	21.000	1955.00	15.83	.99	-.22	12.31	12.10	19.00	979.87	50.12	88.00	3029.35
*	21.000	2427.00	16.51	.90	-.22	12.31	12.10	19.00	945.79	38.97	88.00	3828.19
	22.000	1682.00	15.40	1.08	1.09	13.44	12.81	19.00	836.23	49.72	3100.00	4500.00
	22.000	1934.00	15.93	.79	1.09	13.44	12.81	19.00	648.65	33.54	3100.00	4500.00
	22.000	2427.00	16.58	.64	1.09	13.44	12.81	19.00	560.60	23.10	3100.00	4500.00
*	23.000	1682.00	15.38	1.90	1.58	16.11	15.81	19.00	1682.00	100.00	83.00	115.62
*	23.000	1934.00	15.91	2.05	1.58	16.11	15.81	19.00	1934.00	100.00	83.00	118.99
*	23.000	2427.00	16.54	2.35	1.58	16.11	15.81	19.00	2395.10	98.69	83.00	2176.13
	24.000	1682.00	15.39	1.92	2.29	15.60	15.99	19.00	1682.00	100.00	34.00	115.98
	24.000	1934.00	15.95	2.06	2.29	15.60	15.99	19.00	1934.00	100.00	34.00	118.85
	24.000	2427.00	16.55	2.40	2.29	15.60	15.99	19.00	2427.00	100.00	34.00	119.00
*	24.100	1682.00	15.45	1.28	2.53	13.61	12.78	19.00	1039.76	61.82	55.00	4500.00
*	24.100	1934.00	16.03	.86	2.53	13.61	12.78	19.00	745.96	38.57	55.00	4500.00
*	24.100	2427.00	16.66	.68	2.53	13.61	12.78	19.00	633.98	26.12	55.00	4500.00
*	25.000	1682.00	15.41	2.79	2.22	15.57	15.28	19.00	1682.00	100.00	95.00	77.18
*	25.000	1934.00	15.98	3.00	2.22	15.57	15.28	19.00	1934.00	100.00	95.00	77.50
*	25.000	2427.00	16.58	3.48	2.22	15.57	15.28	19.00	2407.03	99.18	95.00	138.84

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
26.000	1682.00	15.73	2.73	2.55	16.00	16.47	19.00	1682.00	100.00	20.00	69.38	
26.000	1934.00	16.42	2.91	2.55	16.00	16.47	19.00	1932.99	99.95	20.00	90.55	
26.000	2427.00	17.20	3.34	2.55	16.00	16.47	19.00	2403.95	99.05	20.00	164.80	
*	27.000	1682.00	15.88	.67	2.38	13.75	12.03	19.00	522.84	31.08	40.00	4500.00
*	27.000	1934.00	16.59	.48	2.38	13.75	12.03	19.00	401.74	20.77	40.00	4500.00
*	27.000	2427.00	17.43	.39	2.38	13.75	12.03	19.00	356.84	14.70	40.00	4500.00
*	28.000	1682.00	16.03	1.50	2.82	14.31	15.05	19.00	1564.87	93.04	4000.00	1428.05
*	28.000	1934.00	16.66	1.35	2.82	14.31	15.05	19.00	1507.41	77.94	4000.00	1870.78
*	28.000	2427.00	17.47	1.18	2.82	14.31	15.05	19.00	1432.25	59.01	4000.00	2436.29
*	29.000	1682.00	16.03	2.10	4.22	14.90	13.86	19.00	1466.06	87.16	90.00	1231.96
	29.000	1934.00	16.66	1.82	4.22	14.90	13.86	19.00	1364.76	70.57	90.00	1715.96
	29.000	2427.00	17.48	1.49	4.22	14.90	13.86	19.00	1210.96	49.90	90.00	2335.11
	30.000	1682.00	16.02	2.16	3.37	14.82	14.78	19.00	1463.32	87.00	20.00	1224.92
	30.000	1934.00	16.66	1.86	3.37	14.82	14.78	19.00	1349.00	69.75	20.00	1718.31
	30.000	2427.00	17.48	1.50	3.37	14.82	14.78	19.00	1186.32	48.88	20.00	2339.87
*	31.000	1682.00	16.09	1.39	3.93	15.05	14.53	19.00	1118.12	66.48	90.00	1475.60
*	31.000	1934.00	16.71	1.19	3.93	15.05	14.53	19.00	1029.92	53.25	90.00	1902.17
*	31.000	2427.00	17.50	1.03	3.93	15.05	14.53	19.00	975.22	40.18	90.00	2449.20
*	32.000	1621.00	17.10	3.67	3.50	18.10	18.00	20.00	1621.00	100.00	4500.00	62.86
*	32.000	1858.00	17.39	4.04	3.50	18.10	18.00	20.00	1858.00	100.00	4500.00	64.14
*	32.000	2340.00	17.90	4.74	3.50	18.10	18.00	20.00	2340.00	100.00	4500.00	66.35
	33.000	1621.00	17.20	3.85	3.60	22.00	22.00	22.00	1621.00	100.00	100.00	60.27
	33.000	1858.00	17.51	4.22	3.60	22.00	22.00	22.00	1858.00	100.00	100.00	61.57
	33.000	2340.00	18.06	4.94	3.60	22.00	22.00	22.00	2340.00	100.00	100.00	63.87
	34.000	1621.00	17.31	4.01	5.50	18.70	19.40	21.00	1621.00	100.00	100.00	62.29
	34.000	1858.00	17.64	4.37	5.50	18.70	19.40	21.00	1858.00	100.00	100.00	63.74
	34.000	2340.00	18.23	5.05	5.50	18.70	19.40	21.00	2340.00	100.00	100.00	66.33
*	34.200	1621.00	18.13	1.07	4.96	16.59	16.25	22.00	975.73	60.19	3300.00	3274.43
*	34.200	1858.00	18.45	.98	4.96	16.59	16.25	22.00	926.00	49.84	3300.00	3706.33
*	34.200	2340.00	19.05	.82	4.96	16.59	16.25	22.00	824.16	35.22	3300.00	5102.00
*	34.900	1621.00	18.84	2.39	6.23	22.32	21.06	21.89	1621.00	100.00	6540.00	83.57
*	34.900	1858.00	19.08	2.66	6.23	22.32	21.06	21.89	1858.00	100.00	6540.00	84.57
*	34.900	2340.00	19.48	3.19	6.23	22.32	21.06	21.89	2340.00	100.00	6540.00	86.36
	35.000	1621.00	18.85	2.74	6.41	21.39	21.49	21.62	1621.00	100.00	60.00	67.37
	35.000	1858.00	19.09	3.06	6.41	21.39	21.49	21.62	1858.00	100.00	60.00	68.04
	35.000	2340.00	19.50	3.68	6.41	21.39	21.49	21.62	2340.00	100.00	60.00	69.22
	36.000	1621.00	18.86	3.00	6.85	20.52	21.86	25.00	1621.00	100.00	20.00	64.65
	36.000	1858.00	19.10	3.34	6.85	20.52	21.86	25.00	1858.00	100.00	20.00	65.36
	36.000	2340.00	19.52	4.01	6.85	20.52	21.86	25.00	2340.00	100.00	20.00	66.62

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
36.100	1621.00	18.96	2.40	5.58	21.21	20.18	25.00	1621.00	100.00	60.00	83.16	
36.100	1858.00	19.21	2.66	5.58	21.21	20.18	25.00	1858.00	100.00	60.00	84.32	
36.100	2340.00	19.68	3.17	5.58	21.21	20.18	25.00	2340.00	100.00	60.00	86.44	
*	37.000	1621.00	20.92	4.18	7.50	24.10	23.80	26.00	1621.00	100.00	3340.00	57.89
*	37.000	1858.00	21.49	4.41	7.50	24.10	23.80	26.00	1858.00	100.00	3340.00	60.36
*	37.000	2340.00	22.55	4.80	7.50	24.10	23.80	26.00	2340.00	100.00	3340.00	64.98
38.000	1621.00	24.01	4.85	7.00	27.90	28.90	28.90	1621.00	100.00	1700.00	52.88	
38.000	1858.00	24.67	5.02	7.00	27.90	28.90	28.90	1858.00	100.00	1700.00	55.88	
38.000	2340.00	25.86	5.32	7.00	27.90	28.90	28.90	2340.00	100.00	1700.00	61.30	
*	39.000	1621.00	24.43	2.99	14.00	22.00	24.10	31.00	1519.10	93.71	100.00	259.47
*	39.000	1858.00	25.15	2.64	14.00	22.00	24.10	31.00	1474.09	79.34	100.00	878.09
*	39.000	2340.00	26.44	1.72	14.00	22.00	24.10	31.00	1111.90	47.52	100.00	4100.00
*	39.900	1554.00	24.78	1.39	7.23	22.10	22.66	31.00	1421.92	91.50	1060.00	375.89
*	39.900	1777.00	25.41	1.30	7.23	22.10	22.66	31.00	1404.05	79.01	1060.00	3367.63
*	39.900	2325.00	26.53	.86	7.23	22.10	22.66	31.00	1009.76	43.43	1060.00	4200.00
*	40.000	1554.00	24.77	2.22	9.81	24.90	23.91	31.00	1554.00	100.00	140.00	70.13
*	40.000	1777.00	25.40	2.16	9.81	24.90	23.91	31.00	1611.00	90.66	140.00	3399.35
40.000	2325.00	26.53	1.09	9.81	24.90	23.91	31.00	897.96	38.62	140.00	4200.00	
41.000	1554.00	24.91	2.31	9.97	24.85	23.61	31.00	1554.00	100.00	30.00	68.20	
41.000	1777.00	25.59	2.47	9.97	24.85	23.61	31.00	1777.00	100.00	30.00	68.20	
41.000	2325.00	26.53	1.10	9.97	24.85	23.61	31.00	862.36	37.09	30.00	4200.00	
*	42.000	1554.00	24.85	4.22	10.73	28.12	28.17	29.16	1554.00	100.00	60.00	51.65
*	42.000	1777.00	25.53	4.40	10.73	28.12	28.17	29.16	1777.00	100.00	60.00	52.03
*	42.000	2325.00	26.33	5.21	10.73	28.12	28.17	29.16	2325.00	100.00	60.00	52.49
43.000	1554.00	24.88	4.16	10.75	28.11	28.07	31.00	1554.00	100.00	20.00	51.87	
43.000	1777.00	25.55	4.34	10.75	28.11	28.07	31.00	1777.00	100.00	20.00	52.36	
43.000	2325.00	26.38	5.14	10.75	28.11	28.07	31.00	2325.00	100.00	20.00	52.96	
*	43.300	1869.00	25.23	1.58	11.90	23.36	22.49	31.00	1044.07	55.86	105.00	2600.00
*	43.300	2189.00	25.94	1.10	11.90	23.36	22.49	31.00	783.64	35.80	105.00	2600.00
*	43.300	2908.00	26.91	.86	11.90	23.36	22.49	31.00	669.16	23.01	105.00	2600.00
43.400	1869.00	25.23	2.06	11.90	23.61	23.46	31.00	1227.08	65.65	73.00	2600.00	
43.400	2189.00	25.95	1.39	11.90	23.61	23.46	31.00	883.02	40.34	73.00	2600.00	
43.400	2908.00	26.92	1.02	11.90	23.61	23.46	31.00	705.08	24.25	73.00	2600.00	
43.500	1869.00	25.23	2.17	11.76	23.85	24.20	31.00	1162.23	62.18	17.00	2601.00	
43.500	2189.00	25.95	1.40	11.76	23.85	24.20	31.00	805.31	36.79	17.00	2601.00	
43.500	2908.00	26.92	1.00	11.76	23.85	24.20	31.00	632.13	21.74	17.00	2601.00	
43.600	1869.00	25.26	1.94	11.93	24.35	23.27	31.00	1089.35	58.29	56.00	2600.00	
43.600	2189.00	25.95	1.30	11.93	24.35	23.27	31.00	784.81	35.85	56.00	2600.00	
43.600	2908.00	26.92	.96	11.93	24.35	23.27	31.00	636.68	21.89	56.00	2600.00	

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
43.700	1869.00	25.28	1.80	11.63	26.02	23.33	31.00	1420.48	76.00	104.00	850.28
43.700	2189.00	25.96	1.62	11.63	26.02	23.33	31.00	1376.22	62.87	104.00	851.59
*	43.700	2908.00	26.92	1.44	11.63	26.02	31.00	1339.09	46.05	104.00	2600.00
*	43.900	1869.00	25.60	1.08	6.71	21.43	25.60	31.00	977.02	52.28	2645.00
*	43.900	2189.00	26.19	.96	6.71	21.43	25.60	31.00	913.27	41.72	2645.00
*	43.900	2908.00	27.08	.84	6.71	21.43	25.60	31.00	867.00	29.81	2645.00
*	115.000	1603.00	26.53	2.69	11.81	31.00	32.66	32.50	1603.00	100.00	7760.00
*	115.000	2313.00	27.04	3.66	11.81	31.00	32.66	32.50	2313.00	100.00	7760.00
*	115.000	3220.00	27.65	4.74	11.81	31.00	32.66	32.50	3220.00	100.00	7760.00
*	116.000	1603.00	26.52	3.60	16.80	33.31	34.70	33.31	1603.00	100.00	37.00
*	116.000	2313.00	27.02	4.81	16.80	33.31	34.70	33.31	2313.00	100.00	37.00
*	116.000	3220.00	27.63	6.13	16.80	33.31	34.70	33.31	3220.00	100.00	37.00
117.000	1603.00	26.55	3.58	16.80	33.31	34.70	33.31	1603.00	100.00	26.00	70.58
117.000	2313.00	27.09	4.76	16.80	33.31	34.70	33.31	2313.00	100.00	26.00	73.06
117.000	3220.00	27.76	6.01	16.80	33.31	34.70	33.31	3220.00	100.00	26.00	76.18
118.000	1603.00	26.67	3.16	12.90	30.74	35.28	36.00	1603.00	100.00	37.00	70.80
118.000	2313.00	27.29	4.19	12.90	30.74	35.28	36.00	2313.00	100.00	37.00	73.84
118.000	3220.00	28.07	5.27	12.90	30.74	35.28	36.00	3220.00	100.00	37.00	77.68
*	119.000	1603.00	28.43	2.08	14.11	30.80	28.27	35.00	1602.98	100.00	2400.00
*	119.000	2313.00	29.74	2.48	14.11	30.80	28.27	35.00	2207.95	95.46	2400.00
*	119.000	3220.00	30.33	2.06	14.11	30.80	28.27	35.00	1943.60	60.36	2400.00
*	120.000	1603.00	28.51	1.29	14.16	30.11	30.42	35.00	1603.00	100.00	84.00
*	120.000	2313.00	29.84	1.56	14.16	30.11	30.42	35.00	2313.00	100.00	84.00
120.000	3220.00	30.35	2.04	14.16	30.11	30.42	35.00	3219.63	99.99	84.00	208.93
121.000	1603.00	28.51	1.26	14.96	30.53	30.56	35.00	1603.00	100.00	32.00	176.03
121.000	2313.00	29.93	1.51	14.96	30.53	30.56	35.00	2313.00	100.00	32.00	193.20
121.000	3220.00	30.52	1.95	14.96	30.53	30.56	35.00	3220.00	100.00	32.00	200.40
*	122.000	1603.00	28.48	2.70	14.42	30.27	36.49	35.00	1603.00	100.00	59.00
*	122.000	2313.00	29.89	3.26	14.42	30.27	36.49	35.00	2313.00	100.00	59.00
*	122.000	3220.00	30.46	4.24	14.42	30.27	36.49	35.00	3219.96	100.00	59.00
123.000	1803.00	30.92	2.37	16.05	30.66	30.16	35.00	1799.92	99.83	3300.00	126.13
*	123.000	2341.00	31.54	1.56	16.05	30.66	30.16	35.00	1277.07	54.55	3300.00
*	123.000	3295.00	31.96	1.27	16.05	30.66	30.16	35.00	1096.34	33.27	3300.00
*	124.000	1803.00	31.00	1.64	16.83	32.77	33.00	36.00	1803.00	100.00	73.00
124.000	2341.00	31.54	2.01	16.83	32.77	33.00	36.00	2341.00	100.00	73.00	123.79
*	124.000	3295.00	31.92	2.72	16.83	32.77	33.00	36.00	3295.00	100.00	73.00
125.000	1803.00	31.04	1.78	16.82	32.91	32.95	36.00	1803.00	100.00	54.00	123.81
125.000	2341.00	31.62	2.16	16.82	32.91	32.95	36.00	2341.00	100.00	54.00	126.89
125.000	3295.00	32.08	2.88	16.82	32.91	32.95	36.00	3295.00	100.00	54.00	129.38

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	126.000	1803.00	31.11	.43	18.23	29.57	29.39	36.00	320.95	17.80	73.00	8000.00
*	126.000	2341.00	31.71	.34	18.23	29.57	29.39	36.00	266.99	11.40	73.00	8000.00
*	126.000	3295.00	32.25	.33	18.23	29.57	29.39	36.00	282.40	8.57	73.00	8000.00
*	127.000	2170.00	31.28	4.81	19.22	36.67	38.35	36.67	2170.00	100.00	5400.00	56.79
*	127.000	2586.00	31.61	5.50	19.22	36.67	38.35	36.67	2586.00	100.00	5400.00	57.79
*	127.000	3498.00	31.90	7.19	19.22	36.67	38.35	36.67	3498.00	100.00	5400.00	58.61
	128.000	2170.00	31.31	5.23	19.63	34.22	34.10	33.73	2170.00	100.00	20.00	50.33
	128.000	2586.00	31.65	5.98	19.63	34.22	34.10	33.73	2586.00	100.00	20.00	51.11
	128.000	3498.00	31.95	7.80	19.63	34.22	34.10	33.73	3498.00	100.00	20.00	51.82
	129.000	2170.00	31.32	5.41	20.02	33.72	33.91	33.73	2170.00	100.00	3.00	53.10
	129.000	2586.00	31.67	6.16	20.02	33.72	33.91	33.73	2586.00	100.00	3.00	54.09
	129.000	3498.00	32.00	7.99	20.02	33.72	33.91	33.73	3498.00	100.00	3.00	55.05
	130.000	2170.00	31.66	4.87	20.47	33.91	41.35	34.33	2170.00	100.00	64.00	65.26
	130.000	2586.00	32.11	5.44	20.47	33.91	41.35	34.33	2586.00	100.00	64.00	67.22
	130.000	3498.00	32.80	6.69	20.47	33.91	41.35	34.33	3498.00	100.00	64.00	70.23
	131.000	2170.00	31.71	6.41	22.20	34.40	34.50	37.00	2170.00	100.00	26.00	51.92
	131.000	2586.00	32.18	7.12	22.20	34.40	34.50	37.00	2586.00	100.00	26.00	53.48
	131.000	3498.00	32.92	8.66	22.20	34.40	34.50	37.00	3498.00	100.00	26.00	55.95
	132.000	2170.00	32.29	5.84	21.70	35.20	40.10	37.00	2170.00	100.00	87.00	42.47
	132.000	2586.00	32.86	6.54	21.70	35.20	40.10	37.00	2586.00	100.00	87.00	43.18
	132.000	3498.00	33.87	7.95	21.70	35.20	40.10	37.00	3498.00	100.00	87.00	44.43
*	133.000	2086.00	36.27	2.38	20.48	34.77	39.05	39.05	1858.11	89.08	2900.00	3047.94
*	133.000	2488.00	36.55	2.15	20.48	34.77	39.05	39.05	1729.21	69.50	2900.00	3048.66
*	133.000	3404.00	37.08	1.74	20.48	34.77	39.05	39.05	1482.44	43.55	2900.00	3049.97
	134.000	2086.00	36.31	2.40	21.97	37.63	37.68	40.00	2086.00	100.00	77.00	109.28
	134.000	2488.00	36.56	2.77	21.97	37.63	37.68	40.00	2488.00	100.00	77.00	110.99
*	134.000	3404.00	37.03	3.58	21.97	37.63	37.68	40.00	3404.00	100.00	77.00	114.13
	135.000	2086.00	36.31	2.36	22.36	37.64	37.72	40.00	2086.00	100.00	46.00	109.83
	135.000	2488.00	36.57	2.73	22.36	37.64	37.72	40.00	2488.00	100.00	46.00	111.53
	135.000	3404.00	37.20	3.46	22.36	37.64	37.72	40.00	3404.00	100.00	46.00	115.74
	136.000	2086.00	36.35	2.82	21.86	38.28	40.01	40.00	2086.00	100.00	77.00	98.36
	136.000	2488.00	36.62	3.25	21.86	38.28	40.01	40.00	2488.00	100.00	77.00	100.08
	136.000	3404.00	37.27	4.09	21.86	38.28	40.01	40.00	3404.00	100.00	77.00	104.32
*	137.000	2086.00	37.35	1.14	23.34	33.58	45.00	45.00	837.97	40.17	3450.00	2923.26
*	137.000	2488.00	37.66	1.11	23.34	33.58	45.00	45.00	839.15	33.73	3450.00	3297.17
*	137.000	3404.00	38.33	1.01	23.34	33.58	45.00	45.00	816.74	23.99	3450.00	4078.76
*	138.000	2086.00	37.33	2.52	21.31	36.65	37.19	45.00	2059.00	98.71	88.00	660.92
*	138.000	2488.00	37.62	2.81	21.31	36.65	37.19	45.00	2351.59	94.52	88.00	1265.83
*	138.000	3404.00	38.30	2.84	21.31	36.65	37.19	45.00	2503.99	73.56	88.00	2642.45

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
139.000	2086.00	37.32	2.76	21.56	36.61	37.05	45.00	2086.00	100.00	24.00	63.80
139.000	2488.00	37.61	3.03	21.56	36.61	37.05	45.00	2345.85	94.29	24.00	1230.36
139.000	3404.00	38.29	2.99	21.56	36.61	37.05	45.00	2447.50	71.90	24.00	2628.37
140.000	2086.00	37.46	2.10	22.99	34.67	45.00	45.00	1303.10	62.47	88.00	2214.30
140.000	2488.00	37.78	1.96	22.99	34.67	45.00	45.00	1260.55	50.67	88.00	2701.17
* 140.000	3404.00	38.44	1.62	22.99	34.67	45.00	45.00	1122.64	32.98	88.00	3689.43
* 141.000	2086.00	39.42	3.98	23.10	39.40	45.00	45.00	2085.93	100.00	2600.00	150.10
* 141.000	2488.00	39.60	4.60	23.10	39.40	45.00	45.00	2463.03	99.00	2600.00	823.64
* 141.000	3404.00	39.69	6.14	23.10	39.40	45.00	45.00	3322.34	97.60	2600.00	1128.99
* 142.000	2086.00	39.68	2.87	25.70	40.20	38.60	45.00	2056.01	98.56	90.00	1082.56
* 142.000	2488.00	39.96	3.11	25.70	40.20	38.60	45.00	2283.87	91.80	90.00	2110.03
* 142.000	3404.00	40.43	3.09	25.70	40.20	38.60	45.00	2365.90	69.50	90.00	3872.38
143.000	2086.00	39.82	2.87	25.70	40.20	38.60	45.00	2086.00	100.00	20.00	65.00
143.000	2488.00	40.18	2.73	25.70	40.20	38.60	45.00	2046.50	82.25	20.00	2945.55
143.000	3404.00	40.54	2.82	25.70	40.20	38.60	45.00	2179.62	64.03	20.00	4264.67
* 144.000	2086.00	39.86	3.85	25.60	42.90	45.00	45.00	2086.00	100.00	90.00	65.62
* 144.000	2488.00	40.17	4.42	25.60	42.90	45.00	45.00	2488.00	100.00	90.00	66.77
* 144.000	3404.00	40.42	5.87	25.60	42.90	45.00	45.00	3404.00	100.00	90.00	67.73
* 144.900	1767.00	40.61	1.16	26.17	37.85	45.00	45.00	720.32	40.77	1420.00	3527.95
* 144.900	2147.00	40.93	1.00	26.17	37.85	45.00	45.00	643.87	29.99	1420.00	3781.97
* 144.900	2865.00	41.42	.86	26.17	37.85	45.00	45.00	579.05	20.21	1420.00	4175.05
145.000	1767.00	40.61	1.60	25.95	39.95	40.12	45.00	936.26	52.99	30.00	3529.86
145.000	2147.00	40.93	1.32	25.95	39.95	40.12	45.00	795.17	37.04	30.00	3793.52
145.000	2865.00	41.42	1.07	25.95	39.95	40.12	45.00	671.06	23.42	30.00	4199.10
146.000	1767.00	40.61	1.60	24.80	39.99	40.07	45.00	994.33	56.27	20.00	3542.10
146.000	2147.00	40.93	1.34	24.80	39.99	40.07	45.00	852.54	39.71	20.00	3805.60
146.000	2865.00	41.42	1.09	24.80	39.99	40.07	45.00	722.54	25.22	20.00	4211.13
* 146.100	1767.00	40.64	.50	27.03	37.07	45.00	45.00	340.55	19.27	80.00	3543.09
* 146.100	2147.00	40.95	.49	27.03	37.07	45.00	45.00	343.54	16.00	80.00	3788.60
* 146.100	2865.00	41.43	.48	27.03	37.07	45.00	45.00	355.54	12.41	80.00	4179.36
* 148.000	1767.00	40.64	2.17	26.70	38.60	45.80	44.50	1767.00	100.00	4022.00	78.71
* 148.000	2147.00	40.95	2.56	26.70	38.60	45.80	44.50	2147.00	100.00	4022.00	79.08
* 148.000	2865.00	41.43	3.26	26.70	38.60	45.80	44.50	2865.00	100.00	4022.00	79.67
* 150.000	1767.00	40.65	5.31	31.60	43.80	46.50	46.50	1767.00	100.00	3352.00	49.30
* 150.000	2147.00	40.95	6.17	31.60	43.80	46.50	46.50	2147.00	100.00	3352.00	50.04
* 150.000	2865.00	41.44	7.69	31.60	43.80	46.50	46.50	2865.00	100.00	3352.00	51.22
152.000	1311.00	40.65	4.83	32.50	45.00	48.00	47.50	1311.00	100.00	1503.00	42.97
152.000	1528.00	41.13	5.28	32.50	45.00	48.00	47.50	1528.00	100.00	1503.00	43.87
152.000	1993.00	41.88	6.16	32.50	45.00	48.00	47.50	1993.00	100.00	1503.00	45.51



New Bayou with Ditch C-1 included Rev.Exist. Multi-Freq. C1NEWX.IH2

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	154.000	1311.00	40.70	7.30	33.10	47.30	47.30	50.00	1311.00	100.00	10403.00	36.96
*	154.000	1528.00	41.19	7.72	33.10	47.30	47.30	50.00	1528.00	100.00	10403.00	38.38
*	154.000	1993.00	41.97	8.71	33.10	47.30	47.30	50.00	1993.00	100.00	10403.00	40.64
*	154.900	1311.00	48.63	2.60	38.66	47.47	46.60	50.00	837.72	63.90	2840.00	1746.11
*	154.900	1528.00	48.79	2.51	38.66	47.47	46.60	50.00	830.51	54.35	2840.00	2305.44
*	154.900	1993.00	49.07	2.33	38.66	47.47	46.60	50.00	801.89	40.24	2840.00	3244.97
*	155.000	1311.00	48.59	4.75	39.14	47.56	47.63	50.00	1288.84	98.31	60.00	79.86
*	155.000	1528.00	48.70	5.42	39.14	47.56	47.63	50.00	1495.33	97.86	60.00	83.66
*	155.000	1993.00	48.83	6.87	39.14	47.56	47.63	50.00	1937.69	97.22	60.00	88.43
	156.000	1311.00	48.68	4.25	38.79	46.84	47.96	52.00	1311.00	100.00	24.00	44.90
	156.000	1528.00	48.78	4.88	38.79	46.84	47.96	52.00	1528.00	100.00	24.00	44.90
*	156.000	1993.00	49.46	3.06	38.79	46.84	47.96	52.00	1052.81	52.83	24.00	3706.61
	156.100	1311.00	48.87	4.47	39.04	48.61	47.65	50.00	1153.56	87.99	60.00	2546.07
*	156.100	1528.00	49.30	2.32	39.04	48.61	47.65	50.00	645.18	42.22	60.00	4084.11
*	156.100	1993.00	49.59	1.74	39.04	48.61	47.65	50.00	506.82	25.43	60.00	5136.22
*	156.500	496.00	49.24	3.92	42.56	50.84	50.76	55.00	496.00	100.00	75.00	38.32
*	156.500	593.00	49.25	4.67	42.56	50.84	50.76	55.00	593.00	100.00	75.00	38.42
*	156.500	766.00	49.40	5.77	42.56	50.84	50.76	55.00	766.00	100.00	75.00	39.28
*	156.600	496.00	51.07	1.46	42.56	50.84	50.76	55.00	301.31	60.75	925.00	5000.00
*	156.600	593.00	51.14	1.36	42.56	50.84	50.76	55.00	284.69	48.01	925.00	5000.00
*	156.600	766.00	51.26	1.18	42.56	50.84	50.76	55.00	253.14	33.05	925.00	5000.00
*	156.700	496.00	51.33	.60	42.56	50.84	50.76	55.00	132.36	26.69	1000.00	5000.00
*	156.700	593.00	51.39	.62	42.56	50.84	50.76	55.00	138.08	23.29	1000.00	5000.00
*	156.700	766.00	51.48	.65	42.56	50.84	50.76	55.00	147.07	19.20	1000.00	5000.00
	156.900	496.00	51.43	.47	42.56	50.84	50.76	55.00	105.70	21.31	1065.00	5000.00
	156.900	593.00	51.49	.50	42.56	50.84	50.76	55.00	112.81	19.02	1065.00	5000.00
	156.900	766.00	51.59	.52	42.56	50.84	50.76	55.00	119.80	15.64	1065.00	5000.00
*	157.000	496.00	51.42	1.71	43.35	52.01	51.88	55.00	496.00	100.00	75.00	43.18
*	157.000	593.00	51.48	2.03	43.35	52.01	51.88	55.00	593.00	100.00	75.00	43.22
*	157.000	766.00	51.56	2.59	43.35	52.01	51.88	55.00	766.00	100.00	75.00	43.29
	158.000	496.00	51.42	1.90	43.86	51.81	51.97	55.00	496.00	100.00	30.00	44.81
	158.000	593.00	51.48	2.25	43.86	51.81	51.97	55.00	593.00	100.00	30.00	44.86
	158.000	766.00	51.57	2.86	43.86	51.81	51.97	55.00	766.00	100.00	30.00	44.94
	159.000	496.00	51.47	1.77	42.91	53.68	53.64	55.00	496.00	100.00	40.00	49.37
	159.000	593.00	51.54	2.09	42.91	53.68	53.64	55.00	593.00	100.00	40.00	49.64
	159.000	766.00	51.66	2.63	42.91	53.68	53.64	55.00	766.00	100.00	40.00	50.12
	160.000	496.00	51.47	1.85	43.36	53.00	53.32	54.72	496.00	100.00	36.00	51.06
	160.000	593.00	51.54	2.18	43.36	53.00	53.32	54.72	593.00	100.00	36.00	51.38
	160.000	766.00	51.67	2.75	43.36	53.00	53.32	54.72	766.00	100.00	36.00	51.90

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	160.100	496.00	51.55	.82	43.53	49.93	50.27	52.29	215.57	43.46	60.00	2537.99
*	160.100	593.00	51.66	.84	43.53	49.93	50.27	52.29	223.17	37.63	60.00	2538.95
*	160.100	766.00	51.84	.84	43.53	49.93	50.27	52.29	230.62	30.11	60.00	2540.62
*	161.000	496.00	51.79	1.97	43.74	49.78	51.05	55.00	446.50	90.02	890.00	4500.00
*	161.000	593.00	51.90	1.81	43.74	49.78	51.05	55.00	416.02	70.15	890.00	4500.00
*	161.000	766.00	52.05	1.46	43.74	49.78	51.05	55.00	344.99	45.04	890.00	4500.00
	162.000	496.00	51.85	1.56	44.05	50.26	50.59	55.00	359.14	72.41	34.00	2257.47
	162.000	593.00	51.93	1.67	44.05	50.26	50.59	55.00	390.10	65.78	34.00	2312.44
	162.000	766.00	52.07	1.70	44.05	50.26	50.59	55.00	407.34	53.18	34.00	2427.53
*	163.000	496.00	51.87	1.17	43.88	50.03	49.44	55.00	351.98	70.96	32.00	2247.78
	163.000	593.00	51.94	1.27	43.88	50.03	49.44	55.00	389.74	65.72	32.00	2306.02
	163.000	766.00	52.07	1.38	43.88	50.03	49.44	55.00	431.90	56.38	32.00	2413.66
	164.000	496.00	51.89	.85	43.83	49.86	50.54	55.00	214.55	43.26	34.00	4500.00
*	164.000	593.00	51.97	.85	43.83	49.86	50.54	55.00	215.97	36.42	34.00	4500.00
*	164.000	766.00	52.10	.82	43.83	49.86	50.54	55.00	213.42	27.86	34.00	4500.00
*	165.000	496.00	51.97	1.73	44.04	50.87	50.00	55.00	436.02	87.91	350.00	2040.57
*	165.000	593.00	52.04	1.79	44.04	50.87	50.00	55.00	458.87	77.38	350.00	2042.15
*	165.000	766.00	52.17	1.86	44.04	50.87	50.00	55.00	486.41	63.50	350.00	2044.27
*	166.000	496.00	52.02	.63	44.14	51.66	50.69	55.00	483.39	97.46	25.00	310.43
*	166.000	593.00	52.09	.74	44.14	51.66	50.69	55.00	574.70	96.91	25.00	342.04
*	166.000	766.00	52.21	.92	44.14	51.66	50.69	55.00	734.33	95.86	25.00	387.91
	167.000	496.00	52.05	.74	44.47	51.62	51.45	55.00	496.00	100.00	50.00	107.70
	167.000	593.00	52.14	.87	44.47	51.62	51.45	55.00	593.00	100.00	50.00	107.70
	167.000	766.00	52.28	1.05	44.47	51.62	51.45	55.00	731.95	95.55	50.00	424.30
*	167.100	496.00	52.03	2.67	44.18	49.94	50.35	55.00	464.54	93.66	100.00	63.33
*	167.100	593.00	52.11	3.13	44.18	49.94	50.35	55.00	552.15	93.11	100.00	64.69
*	167.100	766.00	52.23	3.90	44.18	49.94	50.35	55.00	702.89	91.76	100.00	2036.32
*	168.000	496.00	53.28	1.12	44.66	51.72	50.76	55.00	239.61	48.31	1900.00	2034.95
*	168.000	593.00	53.39	1.06	44.66	51.72	50.76	55.00	232.46	39.20	1900.00	2035.99
*	168.000	766.00	53.57	1.01	44.66	51.72	50.76	55.00	227.24	29.67	1900.00	2037.57
*	169.000	496.00	53.29	2.19	45.38	51.69	51.83	55.00	496.00	100.00	85.00	42.60
*	169.000	593.00	53.39	2.57	45.38	51.69	51.83	55.00	593.00	100.00	85.00	42.60
*	169.000	766.00	53.53	3.24	45.38	51.69	51.83	55.00	766.00	100.00	85.00	42.60
	170.000	496.00	53.30	2.24	45.78	52.12	51.51	55.00	496.00	100.00	30.00	41.80
	170.000	593.00	53.40	2.63	45.78	52.12	51.51	55.00	593.00	100.00	30.00	41.80
	170.000	766.00	53.55	3.30	45.78	52.12	51.51	55.00	766.00	100.00	30.00	41.80
*	171.000	496.00	53.43	1.22	45.63	51.58	50.98	55.00	259.37	52.29	85.00	2036.50
*	171.000	593.00	53.57	1.11	45.63	51.58	50.98	55.00	240.91	40.62	85.00	2038.10
*	171.000	766.00	53.81	.95	45.63	51.58	50.98	55.00	214.78	28.04	85.00	3000.00

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
*	171.300	496.00	54.03	1.77	46.28	51.88	51.60	55.00	337.40	68.02	1200.00	3000.00
*	171.300	593.00	54.09	1.79	46.28	51.88	51.60	55.00	346.21	58.38	1200.00	3000.00
*	171.300	766.00	54.21	1.74	46.28	51.88	51.60	55.00	342.50	44.71	1200.00	3000.00
*	171.400	496.00	54.08	.68	46.41	52.97	52.26	55.00	168.19	33.91	60.00	3310.10
*	171.400	593.00	54.14	.75	46.41	52.97	52.26	55.00	187.44	31.61	60.00	3310.10
*	171.400	766.00	54.25	.81	46.41	52.97	52.26	55.00	207.47	27.08	60.00	3310.10
*	171.500	496.00	54.03	1.90	46.01	53.38	52.83	55.00	496.00	100.00	45.00	47.50
*	171.500	593.00	54.07	2.25	46.01	53.38	52.83	55.00	593.00	100.00	45.00	47.50
	171.500	766.00	54.24	1.10	46.01	53.38	52.83	55.00	299.84	39.14	45.00	3000.00
	171.600	496.00	54.11	2.19	46.32	53.54	51.95	55.00	455.01	91.74	80.00	2032.89
	171.600	593.00	54.18	2.37	46.32	53.54	51.95	55.00	499.98	84.31	80.00	2034.20
*	171.600	766.00	54.25	2.61	46.32	53.54	51.95	55.00	557.66	72.80	80.00	2035.78
	172.000	260.00	54.79	1.62	47.05	52.54	51.51	57.00	225.87	86.87	715.00	480.17
	172.000	308.00	54.95	1.73	47.05	52.54	51.51	57.00	247.80	80.45	715.00	480.76
	172.000	404.00	55.15	1.94	47.05	52.54	51.51	57.00	286.67	70.96	715.00	481.51
*	173.000	260.00	54.84	.75	47.07	54.19	53.12	57.00	246.83	94.94	70.00	168.48
*	173.000	308.00	55.00	.85	47.07	54.19	53.12	57.00	288.05	93.52	70.00	187.05
*	173.000	404.00	55.21	1.05	47.07	54.19	53.12	57.00	369.24	91.40	70.00	1432.16
	174.000	260.00	55.11	.73	46.85	53.60	53.63	57.00	260.00	100.00	60.00	64.90
	174.000	308.00	55.35	.69	46.85	53.60	53.63	57.00	257.74	83.68	60.00	1385.20
*	174.000	404.00	55.59	.70	46.85	53.60	53.63	57.00	272.39	67.42	60.00	2100.00
*	175.000	260.00	55.12	.13	48.04	52.25	52.93	57.00	21.23	8.17	70.00	2100.00
*	175.000	308.00	55.36	.13	48.04	52.25	52.93	57.00	21.78	7.07	70.00	2100.00
*	175.000	404.00	55.60	.15	48.04	52.25	52.93	57.00	25.32	6.27	70.00	2100.00
*	176.000	260.00	55.13	.66	49.00	53.80	54.20	56.00	86.81	33.39	850.00	1760.05
*	176.000	308.00	55.37	.52	49.00	53.80	54.20	56.00	73.20	23.77	850.00	2183.51
*	176.000	404.00	55.61	.48	49.00	53.80	54.20	56.00	71.06	17.59	850.00	2605.72
	177.000	260.00	55.13	.66	49.20	53.80	54.20	56.00	85.15	32.75	40.00	1764.56
	177.000	308.00	55.37	.52	49.20	53.80	54.20	56.00	71.85	23.33	40.00	2186.17
	177.000	404.00	55.61	.48	49.20	53.80	54.20	56.00	69.77	17.27	40.00	2607.85
*	178.000	260.00	55.89	.21	49.20	53.80	54.20	58.00	32.84	12.63	20.00	3113.45
*	178.000	308.00	55.92	.24	49.20	53.80	54.20	58.00	37.90	12.30	20.00	3159.32
*	178.000	404.00	55.96	.30	49.20	53.80	54.20	58.00	47.87	11.85	20.00	3226.70
	179.000	260.00	55.89	.21	49.00	55.50	54.10	58.00	31.14	11.98	40.00	3046.58
	179.000	308.00	55.92	.24	49.00	55.50	54.10	58.00	35.99	11.68	40.00	3107.86
	179.000	404.00	55.96	.31	49.00	55.50	54.10	58.00	45.50	11.26	40.00	3200.87
	180.000	260.00	55.90	.19	50.10	54.00	53.90	58.00	27.03	10.40	125.00	2851.11
	180.000	308.00	55.92	.22	50.10	54.00	53.90	58.00	31.30	10.16	125.00	2889.01
	180.000	404.00	55.96	.28	50.10	54.00	53.90	58.00	39.70	9.83	125.00	2945.32

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
181.000	260.00	55.90	.19	49.30	54.00	53.90	58.00	28.31	10.89	68.00	2852.04
181.000	308.00	55.92	.22	49.30	54.00	53.90	58.00	32.77	10.64	68.00	2890.25
181.000	404.00	55.96	.28	49.30	54.00	53.90	58.00	41.54	10.28	68.00	2947.25
182.000	260.00	55.94	.19	49.30	54.00	53.90	58.00	27.31	10.50	14.00	2911.17
182.000	308.00	55.96	.22	49.30	54.00	53.90	58.00	31.84	10.34	14.00	2937.76
182.000	404.00	55.99	.27	49.30	54.00	53.90	58.00	40.66	10.06	14.00	2983.59

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## SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	2.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	8.020	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	8.020	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	8.030	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	8.030	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	8.160	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	9.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	24.100	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	32.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	32.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	34.200	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	34.200	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	34.200	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	34.900	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	34.900	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	34.900	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	37.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	37.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	37.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	39.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	39.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	39.900	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	39.900	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	40.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	42.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	42.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

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WARNING SECNO=	43.300	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	138.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

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WARNING SECNO=	156.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	156.100	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	156.100	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	156.500	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	156.500	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	156.500	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE



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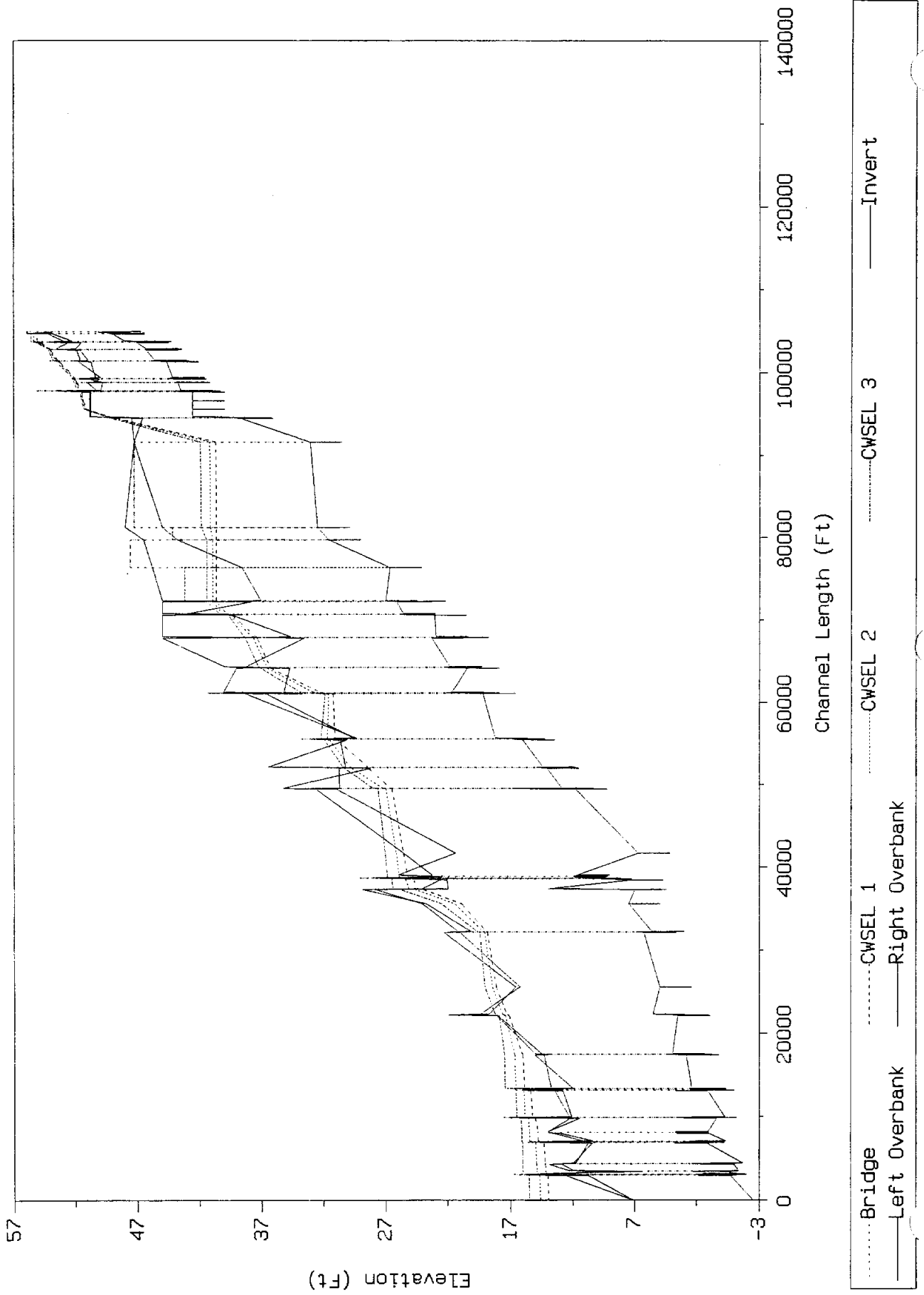
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WARNING SECNO=	156.600	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	156.600	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	156.700	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	156.700	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	156.700	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	160.100	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	161.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	161.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	161.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	163.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	164.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	165.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	165.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	165.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	166.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	171.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	171.300	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	171.400	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

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WARNING SECNO=	171.400	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	171.600	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	173.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	176.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	176.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	176.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	178.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	178.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	178.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

L REVISED BY KLOTZ ASSOC  
Cross-Sections (1 to 182)







```
*****  
*  
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *  
* JUN 1998 *  
* VERSION 4.1 *  
*  
* RUN DATE 23AUG02 TIME 13:52:07 *  
*  
*****
```

```
*****  
*  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET *  
* DAVIS, CALIFORNIA 95616 *  
* (916) 756-1104 *  
*  
*****
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X X XXXXXXX XXXXX X  
X X X X X XX  
X X X X X  
XXXXXXXX XXXX X XXXXX X  
X X X X X  
X X X X X  
X X XXXXXXX XXXXX XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.  
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM







Oyster Creek 10 year flows OC\_BL10.IH1

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
72	KK	0507									
73	RM	13	2.1	.25							
74	KK	0-07									
75	BA	5.46									
76	LU	.75	.1	1							
77	UC	0.87	33.11								
78	KK	C6									
79	HC	2									
80	KK	0710									
81	RM	6	1	.25							
82	KK	0-10									
83	BA	2.21									
84	LU	.75	.1	0							
85	UC	0.78	12.35								
86	KK	C7									
87	HC	2									
88	KK	1014									
89	RM	7	1.2	.25							
90	KK	0-14									
91	BA	2.83									
92	LU	.75	.1	0							
93	UC	1.20	16.48								
94	KK	C8									
95	HC	3									
96	KK	RCH12									
97	KM	REACH EXTENDS FROM X-SECT.				33.600	TO X-SECT.		30.300		
98	RS	10	STOR	0							
99	SV	0	371	408	656	1070	1577	2075	2576		
100	SQ	0	200	1750	1887	2831	3774	4718	5662		
101	KK	0-18									
102	BA	3.04									
103	LU	.75	.1	1							
104	UC	3.91	35.39								
105	KK	C9									
106	HC	2									
107	KK	RCH11									
108	KM	REACH EXTENDS FROM X-SECT.				35.000	TO X-SECT.		33.900		
109	RS	8	STOR	0							
110	SV	0	176	305	651	1125	1636	2128	2512		
111	SQ	0	671	1341	2682	4023	5364	6705	8046		







Oyster Creek 10 year flows OC\_BLI0.IH1

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
226	KK	C21									
227	HC	2									
228	KK	RCH 6									
229	KM	REACH EXTENDS FROM X-SECT.				79.100	TO X-SECT.		63.200		
230	RS	45	STOR	0							
231	SV	0	1194	1484	1902	2641	3277	3919	4763		
232	SQ	0	732	1464	2927	4391	5854	7318	8782		
233	KK	0-27									
234	BA	4.79									
235	LU	.75	.1	5							
236	UC	9.40	65.31								
237	KK	C22									
238	HC	2									
239	KK	RCH 5									
240	KM	REACH EXTENDS FROM X-SECT.				86.100	TO X-SECT.		79.300		
241	RS	21	STOR	0							
242	SV	0	352	573	934	1252	1502	1775	2273		
243	SQ	0	763	1525	3050	4576	6101	7626	9151		
244	KK	0-28									
245	BA	2.85									
246	LU	.75	.1	35							
247	UC	3.95	4.31								
248	KK	C22									
249	HC	2									
250	KK	RCH 4									
251	KM	REACH EXTENDS FROM X-SECT.				94.100	TO X-SECT.		86.700		
252	RS	19	STOR	0							
253	SV	0	356	533	820	1070	1250	1458	1992		
254	SQ	0	763	1525	3050	4576	6101	7626	9151		
255	KK	0-29									
256	BA	3.31									
257	LU	.75	.1	22							
258	UC	3.34	15.37								
259	KK	C23									
260	HC	2									
261	KK	RCH 3									
262	KM	REACH EXTENDS FROM X-SECT.				103.000	TO X-SECT.		94.200		
263	RS	32	STOR	0							
264	SV	0	640	930	1432	2230	3914	5767	7917		
265	SQ	0	763	1525	3050	4576	6101	7626	9151		



```

*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JUN 1998
*   VERSION 4.1
*
* RUN DATE 23AUG02 TIME 13:52:07
*
*****

```

```

*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****

```

```

FILE: OC_BL10.IH1
OYSTER CREEK, 10-YR
BRAZORIA CO DRAINAGE MASTER PLAN
BAKER & LAWSON, MGG

```

```

6 IO      OUTPUT CONTROL VARIABLES
          IPRNT      5  PRINT CONTROL
          IPLOT      0  PLOT CONTROL
          QSCAL      0. HYDROGRAPH PLOT SCALE

```

```

IT        HYDROGRAPH TIME DATA
          NMIN       10  MINUTES IN COMPUTATION INTERVAL
          IDATE      24APR 0  STARTING DATE
          ITIME      1200  STARTING TIME
          NQ         1000  NUMBER OF HYDROGRAPH ORDINATES
          NDDATE     1MAY 0  ENDING DATE
          NDTIME     1030  ENDING TIME
          ICENT      19   CENTURY MARK

```

```

COMPUTATION INTERVAL .17 HOURS
TOTAL TIME BASE 166.50 HOURS

```

```

ENGLISH UNITS
DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH  INCHES
LENGTH, ELEVATION  FEET
FLOW               CUBIC FEET PER SECOND
STORAGE VOLUME     ACRE-FEET
SURFACE AREA       ACRES
TEMPERATURE        DEGREES FAHRENHEIT

```

## Oyster Creek 10 year flows OC\_BL10.IH1

RUNOFF SUMMARY  
FLOW IN CUBIC FEET PER SECOND  
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	O-01	596.	19.00	588.	507.	276.	7.47		
ROUTED TO	0102	595.	21.83	587.	506.	276.	7.47		
HYDROGRAPH AT	O-02	336.	16.83	331.	262.	130.	2.85		
HYDROGRAPH AT	O-03	632.	15.67	619.	471.	223.	4.60		
3 COMBINED AT	C1	1505.	19.33	1459.	1199.	629.	14.92		
ROUTED TO	RCH16	1483.	24.67	1445.	1191.	629.	14.92		
HYDROGRAPH AT	O-04	517.	17.83	511.	442.	242.	6.42		
2 COMBINED AT	C2	1938.	24.33	1893.	1586.	872.	21.34		
ROUTED TO	RCH15	1832.	32.17	1780.	1533.	871.	21.34		
HYDROGRAPH AT	O-08	362.	16.00	357.	284.	141.	3.05		
2 COMBINED AT	C3	2048.	32.00	1987.	1705.	1008.	24.39		
ROUTED TO	RCH14	1871.	51.67	1855.	1649.	999.	24.39		
HYDROGRAPH AT	O-11	371.	20.50	365.	315.	172.	4.74		
2 COMBINED AT	C4	2060.	51.17	2045.	1809.	1121.	29.13		
ROUTED TO	RCH13	2021.	60.83	2007.	1803.	1119.	29.13		
HYDROGRAPH AT	O-15	200.	18.83	198.	169.	92.	2.36		
2 COMBINED AT	C5	2087.	60.17	2070.	1865.	1170.	31.49		
HYDROGRAPH AT	O-05	556.	15.33	537.	387.	174.	3.44		
ROUTED TO	0507	554.	17.67	535.	387.	174.	3.44		
HYDROGRAPH AT	O-07	541.	16.67	535.	444.	232.	5.46		
2 COMBINED AT	C6	1094.	17.50	1059.	822.	405.	8.90		
ROUTED TO	0710	1093.	18.50	1058.	821.	405.	8.90		
HYDROGRAPH AT	O-10	520.	13.83	484.	298.	119.	2.21		
2 COMBINED AT	C7	1534.	18.00	1459.	1101.	524.	11.11		
ROUTED TO	1014	1530.	19.33	1457.	1100.	524.	11.11		
HYDROGRAPH AT	O-14	518.	14.50	496.	341.	147.	2.83		
3 COMBINED AT	C8	2413.	51.00	2394.	2221.	1766.	45.43		
ROUTED TO	RCH12	2387.	62.17	2386.	2135.	1745.	45.43		
HYDROGRAPH AT	O-18	285.	18.50	281.	235.	124.	3.04		
2 COMBINED AT	C9	2483.	57.67	2470.	2197.	1859.	48.47		
ROUTED TO	RCH11	2474.	61.83	2457.	2196.	1851.	48.47		
HYDROGRAPH AT	O-16	456.	15.50	433.	294.	125.	2.37		
2 COMBINED AT	C10	2495.	61.33	2470.	2265.	1944.	50.84		
HYDROGRAPH AT	O-09	421.	16.50	414.	324.	158.	3.40		
ROUTED TO	0912	421.	18.00	413.	324.	158.	3.40		



Oyster Creek 10 year flows OC\_BLI0.IH1

HYDROGRAPH AT	O-12	413.	23.50	402.	334.	172.	4.19
2 COMBINED AT	C11	792.	22.67	773.	647.	330.	7.59
ROUTED TO	1234	791.	24.17	773.	646.	330.	7.59
HYDROGRAPH AT	O-17	532.	15.00	509.	354.	153.	2.94
3 COMBINED AT	C12	3570.	22.17	3504.	3162.	2403.	61.37
ROUTED TO	RCH10	3386.	43.50	3360.	3129.	2395.	61.37
HYDROGRAPH AT	O-20	373.	23.67	369.	338.	195.	7.61
2 COMBINED AT	C13	3678.	43.33	3650.	3418.	2555.	68.98
ROUTED TO	RCH 9	3634.	50.33	3614.	3396.	2544.	68.98
HYDROGRAPH AT	O-22	351.	16.33	346.	281.	142.	3.20
2 COMBINED AT	C14	3754.	50.00	3732.	3516.	2614.	72.18
HYDROGRAPH AT	O-06	370.	15.67	362.	277.	132.	2.74
ROUTED TO	0613	369.	18.17	361.	277.	132.	2.74
HYDROGRAPH AT	O-13	220.	15.33	215.	162.	76.	1.54
2 COMBINED AT	C15	584.	17.67	566.	432.	208.	4.28
ROUTED TO	1333	583.	19.67	565.	431.	208.	4.28
HYDROGRAPH AT	O-33	235.	15.33	229.	173.	81.	1.64
2 COMBINED AT	C16	803.	19.17	773.	594.	289.	5.92
ROUTED TO	3319	801.	21.33	771.	593.	289.	5.92
HYDROGRAPH AT	O-19	356.	17.67	352.	296.	157.	3.87
2 COMBINED AT	C17	1139.	21.17	1098.	877.	445.	9.79
ROUTED TO	1921	1133.	25.00	1095.	876.	445.	9.79
HYDROGRAPH AT	O-21	446.	19.33	441.	393.	225.	7.05
3 COMBINED AT	C18	4492.	48.67	4468.	4297.	3157.	89.02
ROUTED TO	RCH 8	4489.	51.17	4466.	4296.	3157.	89.02
HYDROGRAPH AT	O-23	348.	19.00	340.	275.	139.	3.20
2 COMBINED AT	C19	4615.	51.00	4593.	4436.	3264.	92.22
HYDROGRAPH AT	O-24	631.	17.17	622.	505.	256.	5.78
HYDROGRAPH AT	O-25	654.	32.17	646.	536.	224.	3.90
3 COMBINED AT	C20	5207.	38.17	5170.	4966.	3652.	101.90
ROUTED TO	RCH 7	5193.	42.50	5158.	4962.	3652.	101.90
HYDROGRAPH AT	O-26	129.	20.50	128.	116.	68.	2.41
2 COMBINED AT	C21	5288.	42.50	5252.	5047.	3707.	104.31
ROUTED TO	RCH 6	5280.	48.00	5244.	5044.	3642.	104.31
HYDROGRAPH AT	O-27	259.	23.00	256.	232.	133.	4.79
2 COMBINED AT	C22	5463.	47.83	5425.	5191.	3732.	109.10
ROUTED TO	RCH 5	5460.	49.83	5423.	5191.	3714.	109.10
HYDROGRAPH AT	O-28	1432.	15.67	1165.	515.	177.	2.85

Oyster Creek 10 year flows OC\_BL10.IH1

2 COMBINED AT	C22	5460.	49.83	5423.	5191.	3717.	111.95
ROUTED TO	RCH 4	5459.	51.33	5422.	5190.	3702.	111.95
HYDROGRAPH AT	O-29	666.	16.00	634.	438.	189.	3.31
2 COMBINED AT	C23	5541.	51.17	5501.	5247.	3746.	115.26
ROUTED TO	RCH 3	5469.	65.33	5442.	5215.	3737.	115.26
HYDROGRAPH AT	O-30	983.	17.33	967.	771.	383.	8.04
2 COMBINED AT	C24	5489.	65.00	5465.	5273.	3845.	123.30
ROUTED TO	RCH 2	5482.	68.67	5461.	5270.	3844.	123.30
HYDROGRAPH AT	O-31	240.	17.00	237.	198.	104.	2.48
2 COMBINED AT	C25	5482.	68.67	5462.	5281.	3876.	125.78
ROUTED TO	RCH 1	5480.	70.67	5461.	5280.	3874.	125.78
HYDROGRAPH AT	O-32	175.	35.33	173.	164.	89.	5.29
2 COMBINED AT	C26	5480.	70.67	5462.	5295.	3951.	131.07

\*\*\* NORMAL END OF HEC-1 \*\*\*

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*****  
* HEC-2 WATER SURFACE PROFILES *  
* *  
* version 4.6.2; May 1991 *  
* *  
* RUN DATE 21AUG02 TIME 14:01:44 *  
*****
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*****  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET, SUITE D *  
* DAVIS, CALIFORNIA 95616-4687 *  
* (916) 756-1104 *  
*****
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      X   X  XXXXXXX  XXXXX          XXXXX  
      X   X  X        X   X          X   X  
      X   X  X        X           X  
      XXXXXXX  XXXX   X           XXXXX  XXXXX  
      X   X  X        X           X  
      X   X  X        X   X          X  
      X   X  XXXXXXX  XXXXX          XXXXXXX
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21AUG02 14:01:44

THIS RUN EXECUTED 21AUG02 14:01:44

\*\*\*\*\*  
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

\*\*\*\*\*

T1 NEW BAYOU (INCLUDING C-1 DITCH)..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: C1NEW.IH2.....10-YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

NOTES\*\*\*\*\*

REVISED MODEL INCLUDES 2000 BAKER & LAWSON SURVEY SECTIONS AND REVISED  
BRIDGE SECTIONS  
MODEL KEYED IN FROM 09 JUL 88 RUN DATE FEMA MODEL  
ORIGINAL INPUT DATA PROVIDED BY BRAZORIA COUNTY FLOOD PLAIN ADMINISTRATOR

\*\*\*\*\*

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2							13.94	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1							
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38	43	1	26	42	23	24	63	14	60
	39	4								

J5 LPRNT NUMSEC \*\*\*\*\*REQUESTED SECTION NUMBERS\*\*\*\*\*  
-10 -10

NC	.05	.05	.045	.1	.3					
QT	3	1722	1985	2488						
X1	1	13	88	135	0	0	0			
GR	15	0	10	5	7.3	10	7.2	60	7.1	88
GR	1.2	90	-2.5	110	1.4	130	7.1	135	5.6	160
GR	5.7	185	10	200	15	3300				

2000 BAKER & LAWSON SURVEY SECTION

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X1	2	9	5000	5087.2	3000	2900	2900				
GR	15.6	4950	12.58	5000	1.64	5028.1	-.71	5037.6	1.83	5065	
GR	10.73	5087.2	12.64	5130.9	14	5180	15.0	5400			

NC .3 .5

2000 BAKER & LAWSON SURVEY SECTION

X1	3	5	5000	5107	85	85	85				
X3	10							15.94	15.94		
GR	15.58	5000	1.97	5045	-1.19	5055	1.31	5069	14.66	5107	

AMOCO ROAD

SB	1.05	1.5	2.6		1	1	710	2.7			
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2000 BAKER & LAWSON SURVEY SECTION

AMOCO ROAD

X1	4	13	10530.0	10637.5	30	30	30				
X2			1	15.59	16.29						
X3	10							16.29	16.29		
BT	-11	10000.0	15.33		10137.2	15.58		10261.2	15.83		
BT		10446.7	16.16		10539.2	16.29		10584.5	16.47		
BT		10629.6	16.39		10724.1	16.54		10818.8	16.07		
BT		10912.5	15.71		11008.9	15.46					
GR	15.33	10000.0	15.58	10137.2	15.83	10261.2	16.16	10446.7	15.58	10530.0	
GR	1.97	10574.9	-1.19	10584.7	1.31	10599.1	14.66	10637.5	16.54	10724.1	
GR	16.07	10818.8	15.71	10912.5	15.46	11008.9					

2000 BAKER & LAWSON SURVEY SECTION

X1	5	8	5000	5102.1	30	30	30				
X3	10							15.73	15.73		
GR	15	4950	13.55	5000	3.75	5039.8	-.64	5048.2	3.50	5061.8	
GR	5.55	5074.4	14.95	5102.1	15.3	5129					

RAIL ROAD NEAR AMOCO ROAD

SB	1.05	1.5	2.6		12	3	750	2.6			
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2000 BAKER & LAWSON SURVEY SECTION

RAIL ROAD Nr AMOCO ROAD

X1	6	11	10433.9	10532.0	20	20	20				
X2			1	14.73	16.73						
X3	10							16.73	16.73		
BT	-9	10000.0	16.55		10159.2	16.68		10251.2	16.63		
BT		10346.9	16.77		10433.8	16.92		10482.9	16.73		
BT		10531.7	16.80		10621.0	16.72		10711.3	16.26		
GR	16.55	10000.0	16.68	10159.2	16.63	10251.2	16.77	10346.9	15.66	10433.9	
GR	1.05	10473.1	-1.99	10486.7	2.1	10498.8	15.69	10532.0	16.72	10621.0	
GR	16.26	10711.3									

2000 BAKER & LAWSON SURVEY SECTION

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X1	8	9	10023.7	10132.3	115	115	115			
GR	18.64	10000.0	14.19	10023.7	2.58	10076.2	-1.07	10085.0	1.09	10099.6
GR	11.87	10132.3	12	10141	16	10157	18	10165		

2000 BAKER & LAWSON SURVEY SECTION

X1	8.02	11	10027.9	10093.7	225	225	225			
GR	17.00	6569.0	13.00	6569.0	8.67	10000.0	6.31	10027.9	1.91	10042.8
GR	-0.29	10069.0	2.40	10076.9	10.55	10093.7	11.87	10116.3	13.00	13269.0
GR	17.00	13269.0								

2000 BAKER & LAWSON SURVEY SECTION

X1	8.03	15	10123.8	10219.7	36	36	36			
X3	10							5.43	5.43	
GR	17.00	6664.8	14.19	6664.8	14.19	10000.0	12.88	10049.1	9.89	10098.5
GR	8.31	10123.8	2.44	10153.8	-1.14	10164.8	2.50	10183.0	9.15	10219.7
GR	10.73	10230.8	12.45	10256.4	13.42	10285.6	13.42	13364.8	17.00	13364.8

DIRT ROAD

SB	1.05	1.5	2.6		20	3	750	1.0		
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2000 BAKER & LAWSON SURVEY SECTION

DIRT ROAD

X1	8.04	15	10107.8	10202.0	16	16	16			
X2			1	4.93	5.93					
X3	10							5.93	5.93	
BT	-11	6659.1	14.19		10000.0	14.19		10049.1	12.88	
BT		10098.5	9.89		10132.7	6.26		10182.3	5.93	
BT		10205.7	8.88		10230.8	10.73		10256.4	12.45	
BT		10285.6	13.42		13359.1	13.42				
GR	17.00	6659.1	14.19	6659.1	14.19	10000.0	12.88	10049.1	9.89	10098.5
GR	9.25	10107.8	2.98	10148.9	-1.02	10159.1	2.29	10169.1	8.35	10202.0
GR	10.73	10230.8	12.45	10256.4	13.42	10285.6	13.42	13359.1	17.00	13359.1

2000 BAKER & LAWSON SURVEY SECTION

X1	8.05	11	10000.0	10082.1	45	45	45			
GR	17	7000.0	15	7000.0	14	9000.0	12.34	10000.0	1.59	10031.8
GR	-1.34	10043.4	1.78	10060.9	11.91	10082.1	12	11000.0	15	13000.0
GR	17	13000.0								

2000 BAKER & LAWSON SURVEY SECTION

X1	8.16	11	10012.1	10116.7	742	742	742			
GR	17	7000	15	7000	14.14	10000	13.88	10012.1	1.42	10043.1
GR	-.98	10054.6	2.38	10093.7	12.89	10116.7	14.26	10139.2	15	13139
GR	17	13139								

2000 BAKER & LAWSON SURVEY SECTION

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X1	8.17	15	10192.3	10273.3	73	73	73			
X3	10									
GR	17.00	7192.3	15.5	7192.3	13.85	10000.0	13.61	10039.3	12.71	12.71
GR	13.65	10117.1	13.75	10153.7	13.00	10192.3	1.83	10220.5	13.56	10117.1
GR	2.09	10251.1	12.89	10273.3	12.73	10324.8	15.5	13324.8	-0.21	10234.9
									17.00	13324.8

WASTE ROAD

SB	1.05	1.5	2.6		20	3	750	1.0		
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2000 BAKER & LAWSON SURVEY SECTION

WASTE ROAD

X1	8.18	15	10193.1	10274.4	18	18	18			
X2			1	12.21	13.21					
X3	10									
BT	-11	7193.1	15.5		10000.0	13.85		13.21	13.21	
BT		10078.5	13.56		10117.1	13.65		10039.3	13.61	
BT		10192.4	13.25		10230.7	13.21		10153.7	13.75	
BT		10324.8	12.73		13324.8	15.50		10269.3	13.33	
GR	17.00	7193.1	15.5	7193.1	13.85	10000.0	13.61	10039.3	13.56	10078.5
GR	13.65	10117.1	13.75	10153.7	12.73	10193.1	1.47	10216.5	-0.24	10233.0
GR	2.05	10250.0	12.63	10274.4	12.73	10324.8	15.5	13324.8	17.00	13324.8

2000 BAKER & LAWSON SURVEY SECTION

X1	8.19	11	10023.9	10113.1	80	80	80			
GR	17	7000.0	15	7000.0	13.24	10000.0	11.95	10023.9	1.79	10051.4
GR	-1.66	10061.0	1.95	10087.2	11.76	10113.1	13.34	10145.5	15	13145
GR	17	13145								

NC	.045	.05	.04	.1	.3					
QT	3	1684	1955	2427						

2000 BAKER & LAWSON SURVEY SECTION

X1	9	11	10019.6	10098.8	2365	2365	2365			
GR	17.00	6046.3	14.00	6046.3	11.61	10000.0	10.43	10019.6	2.89	10034.6
GR	1.18	10046.3	2.67	10074.1	10.75	10098.8	12.18	10118.3	15.00	14046.3
GR	17.00	14046.3								

NC				.3	.5					
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2000 BAKER & LAWSON SURVEY SECTION

X1	10	17	10281.1	10355.1	90	90	90			
X3	10									
GR	17.00	6319.1	16.14	6319.1	16.14	10000.0	15.78	10092.4	14.61	14.61
GR	13.89	10281.1	9.97	10283.0	1.06	10299.5	0.24	10319.1	15.46	10185.9
GR	8.81	10352.9	14.69	10355.1	15.65	10441.9	15.74	10536.8	1.31	10333.6
GR	15.78	14319.1	17.00	14319.1					15.78	10634.2

RR NEAR SOLUTIA ROAD

21AUG02 14:01:44

SB	1.05	1.5	2.6		12	2	450	2.3		
2000 BAKER & LAWSON SURVEY SECTION										
RAIL ROAD Nr SOLUTIA ROAD										
X1	11	17	10275.2	10345.8	20	20	20			
X2			1	13.61	15.61					
X3	10								14	14
BT	-11	6309.2	16.14		10000.0	16.14		10092.4	15.78	
BT		10185.9	15.46		10279.9	15.61		10311.2	15.64	
BT		10349.4	15.63		10441.9	15.65		10536.8	15.74	
BT		10634.2	15.78		14309.2	15.78				
GR	17.00	6309.2	16.14	6309.2	16.14	10000.0	15.78	10092.4	15.46	10185.9
GR	14.28	10275.2	8.96	10276.3	2.57	10294.7	-0.22	10309.2	1.25	10326.8
GR	10.28	10344.1	14.63	10345.8	15.65	10441.9	15.74	10536.8	15.78	10634.2
GR	15.78	14309.2	17.00	14309.2						

2000 BAKER & LAWSON SURVEY SECTION

X1	12	17	10398.6	10475.7	50	50	50			
X3	10			10293.1	15.40	10558.0	15.44	14.92	14.92	
GR	17.00	6444.9	15.41	6444.9	15.41	10000.0	15.42	10100.6	15.37	10197.2
GR	15.40	10293.1	14.45	10398.6	2.53	10430.8	0.46	10444.9	1.67	10453.7
GR	13.60	10475.7	15.44	10558.0	15.41	10656.2	15.41	10753.0	15.32	10851.8
GR	15.32	14444.9	17.00	14444.9						

SOLUTIA ROAD

SB	1.05	1.5	2.6		10	2	530	2.3		
2000 BAKER & LAWSON SURVEY SECTION										
SOLUTIA ROAD										
X1	13	17	10375.5	10457.0	40	40	40			
X2			1	14.42	15.42					
X3	10			10293.1	15.40	10558.0	15.44	15.42	15.42	
BT	-13	6417.4	15.41		10000.0	15.41		10100.	15.42	
BT		10197.2	15.37		10293.1	15.40		10387.7	15.61	
BT		10426.5	15.42		10463.9	15.59		10558.0	15.44	
BT		10656.2	15.41		10753.0	15.41		10851.8	15.32	
BT		14417.4	15.32							
GR	17.00	6417.4	15.41	6417.4	15.41	10000.0	15.42	10100.6	15.37	10197.2
GR	15.40	10293.1	13.32	10375.5	2.36	10401.5	0.01	10417.4	1.47	10430.1
GR	14.44	10457.0	15.44	10558.0	15.41	10656.2	15.41	10753.0	15.32	10851.8
GR	15.32	14417.4	17.00	14417.4						

2000 BAKER & LAWSON SURVEY SECTION

X1	14	11	10013.4	10093.5	80	80	80			
GR	17.00	6044.8	14.00	6044.8	11.36	10000.0	10.38	10013.4	2.09	10036.6
GR	-0.28	10044.8	1.69	10070.9	11.22	10093.5	12.05	10119.4	15.00	14044.8
GR	17.00	14044.8								



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NC				.1	.3					
X1	15	14	1470	1530	700	1600	900			
X3				1450	15.4	1530	13.5			
GR	17	0	15	10	14.7	1400	15.4	1450	13	1470
GR	2.9	1485	1	1500	2.7	1515	13.5	1530	13.1	1550
GR	13.7	1600	14	3700	14.5	5000	17	5200		

NC				.3	.5					
X1	16	18	1681	1719	88	88	88			
X3	10							13	13	
GR	17	0	15	1	12.3	1550	12.5	1600	12.9	1650
GR	13.2	1675	14	1681	2.4	1685	1.1	1700	2.3	1713
GR	14	1719	13	1725	12.9	1760	13.7	1800	13.8	1850
GR	14.5	3900	14.5	5200	17	5400				

PRIVATE ROAD

SB	1.05	1.5	2.6		28	1	358	.45		
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PRIVATE ROAD

X1	17				24	24	24			
X2			1	12.3	13					
X3	10							13	13	
BT	-16	1	15		1550	12.3		1600	12.5	
BT		1650	12.9		1675	13.2		1681	14	
BT		1685	13.3		1700	13.3		1713	13.3	
BT		1719	14		1725	13		1760	12.9	
BT		1800	13.7		1850	13.8		3900	14.5	
BT		5200	14.5							

X1	18	15	1770	1830	88	88	88			
X3				1650	15.5	1830	14			
GR	17	0	15	10	15.5	1650	15.4	1700	14.5	1750
GR	14	1770	2.3	1780	1.1	1800	2.4	1815	14	1830
GR	12	1850	13.7	1950	14.5	4200	14.5	5500	17	5600

NC				.1	.3					
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2000 BAKER & LAWSON SURVEY SECTION

X1	19	13	10012.4	10083.6	2000	1500	1600			
GR	17.00	8538.1	15.00	8538.1	15.00	9538.1	12.89	10000.0	11.47	10012.4
GR	3.83	10031.1	0.41	10038.1	2.95	10054.7	12.21	10083.6	12.12	10108.8
GR	15.00	11338.1	15.00	11838.1	17.00	11838.1				

NC				.3	.5					
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2000 BAKER & LAWSON SURVEY SECTION

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X1	20	13	10394.9	10456.1	88	88	88			
X3	10							17.06	17.06	
GR	16.70	10000.0	16.92	10098.6	17.15	10191.9	17.37	10287.6	16.98	10394.9
GR	3.09	10422.3	1.39	10428.9	3.17	10434.0	17.10	10456.1	17.59	10546.3
GR	17.24	10639.1	16.97	10732.2	16.59	10824.4				

EQUISTAR ROAD

SB	1.05	1.5	2.6		24	2	490	.74		
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2000 BAKER & LAWSON SURVEY SECTION

EQUISTAR ROAD

X1	20.1	13	10376.7	10439.1	24	24	24			
X2			1	16.56	17.56					
X3	10							18	18	
BT	-11	10000.0	16.70		10098.6	16.92		10191.9	17.15	
BT		10287.6	17.37		10385.5	17.56		10411.0	17.90	
BT		10451.6	17.60		10546.3	17.59		10639.1	17.24	
BT		10732.2	16.97		10824.4	16.59				
GR	16.70	10000.0	16.92	10098.6	17.15	10191.9	17.37	10287.6	16.98	10376.7
GR	5.11	10396.0	1.03	10409.9	5.21	10420.4	17.06	10439.1	17.59	10546.3
GR	17.24	10639.1	16.97	10732.2	16.59	10824.4				

2000 BAKER & LAWSON SURVEY SECTION

X1	21	15	10010.0	10104.1	88	88	88			
GR	19.0	7670	17.5	7670	14.5	9670	13.7	9880	13.5	9930
GR	12.9	10000	12.31	10010	3.71	10032.5	-.22	10041.9	2.8	10068.1
GR	12.1	10104.1	12.43	10115.3	12.53	10116	17.5	12667	19.0	12667

QT	3	1682	1934	2427						
NC	.045	.05	.045	.1	.3					

2000 BAKER & LAWSON SURVEY SECTION

X1	22	12	10029.0	10113.7	1700	3700	3100			
GR	19.00	8079.3	15.00	8079.3	15.00	9779.3	13.71	10000.0	13.44	10029.0
GR	3.33	10059.0	1.09	10079.3	3.19	10086.8	12.81	10113.7	13.59	10130.9
GR	15.00	12579.3	19.00	12579.3						

NC				.3	.5					
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2000 BAKER & LAWSON SURVEY SECTION

X1	23	17	10398.0	10517.7	83	83	83			
X3	10			10292.8	16.46	10652.7	16.61	16.12	16.12	
GR	19.00	8454.1	16.40	8454.1	16.40	10000.0	16.40	10096.6	16.40	10196.4
GR	16.46	10292.8	16.11	10398.0	3.72	10441.3	1.58	10454.1	4.22	10473.7
GR	15.81	10517.7	16.61	10641.4	16.67	10738.9	16.55	10835.1	16.59	10931.0
GR	16.59	12954.1	19.00	12954.1						

FM 2917

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILES 02/97

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SB 1.05 1.5 2.6 9 2.67 891.27 3.

2000 BAKER & LAWSON SURVEY SECTION  
FM 2917

X1	24	17	10425.8	10544.8	34	34	34			
X2			1	15.62	16.62					
X3	10									
BT	-12	8489.0	16.40		10000.0	16.40		16.9	16.9	
BT		10196.4	16.40		10292.8	16.46		10096.6	16.40	
BT		10541.4	16.62		10641.4	16.61		10396.4	16.71	
BT		10835.1	16.55		10931.0	16.59		10738.9	16.67	
GR	19.00	8489.0	16.40	8489.0	16.40	10000.0	16.40	12989.0	16.59	
GR	16.46	10292.8	15.60	10425.8	3.09	10471.5	2.29	10096.6	16.40	10196.4
GR	15.99	10544.8	16.61	10641.4	16.67	10738.9	16.55	10489.0	4.61	10502.3
GR	16.59	12989.0	19.00	12989.0				10835.1	16.59	10931.0

2000 BAKER & LAWSON SURVEY SECTION

X1	24.1	11	10000.0	10098.0	55	55	55			
GR	19.00	8061.4	15.00	8061.4	15.00	9761.4	13.61	10000.0	3.50	10045.8
GR	2.53	10061.4	4.04	10069.8	12.78	10098.0	14.49	10112.9	15.00	12561.4
GR	19.00	12561.4								

2000 BAKER & LAWSON SURVEY SECTION

X1	25	17	10190.8	10268.3	95	95	95			
X3	10									
GR	19.00	8226.7	17.30	8226.7	17.30	10000.0	17.25	16.27	16.27	
GR	17.20	10148.3	15.57	10190.8	4.51	10213.5	2.22	10039.2	17.21	10093.9
GR	15.28	10268.3	17.43	10326.4	17.43	10367.1	17.54	10226.7	4.42	10240.4
GR	17.57	12726.7	19.00	12726.7				10415.6	17.57	10463.3

RR NEAR FM2917

SB 1.05 1.5 2.6 12 4 390 2.3

2000 BAKER & LAWSON SURVEY SECTION  
RAIL ROAD Nr FM 2917

X1	26	17	10204.8	10275.8	20	20	20			
X2			1	15.27	17.27					
X3	10									
BT	-13	8241.2	17.30		10000.0	17.30		16	16	
BT		10093.9	17.21		10148.3	17.20		10039.2	17.25	
BT		10234.1	17.27		10272.3	17.38		10198.0	17.28	
BT		10365.8	17.43		10414.2	17.54		10325.1	17.43	
BT		12741.2	17.57					10462.0	17.57	
GR	19.00	8241.2	17.30	8241.2	17.30	10000.0	17.25	10039.2	17.21	10093.9
GR	17.20	10148.3	16.00	10204.8	3.16	10226.4	2.55	10241.2	4.31	10256.5
GR	16.47	10275.8	17.43	10325.1	17.43	10365.8	17.54	10414.2	17.57	10462.0
GR	17.57	12741.2	19.00	12741.2						

2000 BAKER & LAWSON SURVEY SECTION

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X1	27	12	10028.8	10112.9	40	40	40			
GR	19.00	8075.1	15.00	8075.1	15.00	9775.1	13.81	10000.0	13.75	10028.8
GR	3.10	10060.3	2.38	10075.1	4.41	10086.9	12.03	10112.9	13.35	10134.4
GR	15.00	12575.1	19.00	12575.1						

NC .1 .3

2000 BAKER & LAWSON SURVEY SECTION

X1	28	10	10008.4	10123.7	5000	3000	4000			
GR	19.00	7378.3	15.24	10000.0	14.31	10008.4	5.44	10032.3	2.82	10078.3
GR	6.77	10097.2	15.05	10123.7	15.55	10141.8	15.55	10878.3	19.00	10878.3

NC .3 .5

2000 BAKER & LAWSON SURVEY SECTION

X1	29	18	10288.3	10367.3	90	90	90			
X3	10							14.48	14.48	
GR	19.00	7623.7	15.89	10000.0	15.93	10095.8	15.84	10151.1	15.56	10212.4
GR	14.90	10288.3	4.75	10307.5	4.22	10323.7	5.15	10345.9	13.86	10367.3
GR	14.78	10378.9	14.56	10405.9	14.42	10434.4	14.87	10529.7	15.15	10601.2
GR	15.98	10676.5	15.98	11123.7	19.00	11123.7				

PRIVATE BRIDGE Nr MONSANTO CANAL

SB 1.05 1.5 2.6 20 3 325 1.5

2000 BAKER & LAWSON SURVEY SECTION

PRIVATE BRIDGE Nr MONSANTO CANAL

X1	30	18	10285.5	10362.1	20	20	20			
X2			1	13.98	14.98					
X3	10							14.98	14.98	
BT	-15	7623.6	19.00		10000.0	15.89		10095.8	15.93	
BT		10151.1	15.84		10212.4	15.56		10288.7	15.11	
BT		10321.3	15.08		10354.8	14.98		10378.9	14.78	
BT		10405.9	14.56		10434.4	14.42		10529.7	14.87	
BT		10601.2	15.15		10676.5	15.98		11123.6	15.98	
GR	19.00	7623.6	15.89	10000.0	15.93	10095.8	15.84	10151.1	15.56	10212.4
GR	14.82	10285.5	4.40	10307.0	3.37	10323.6	5.25	10342.2	14.78	10362.1
GR	14.78	10378.9	14.56	10405.9	14.42	10434.4	14.87	10529.7	15.15	10601.2
GR	15.98	10676.5	15.98	11123.6	19.00	11123.6				

2000 BAKER & LAWSON SURVEY SECTION

X1	31	9	10018.9	10118.9	90	90	90			
GR	19.00	7374.6	15.23	10000.0	15.05	10018.9	5.92	10047.5	3.93	10074.6
GR	6.45	10092.0	14.53	10118.9	14.53	10874.6	19.00	10874.6		

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QT	3	1621	1858	2340						
NC				.1	.3					
X1	32	10	5266	5333	4500	4500	4500			
X3	10									
GR	21	0	19.5	2300	18.1	5200	17.8	5250	18.1	5266
GR	9.5	5285	3.5	5300	9.6	5315	18	5333	20	5700

NC				.3	.5					
X1	33	7		87	100	100	100			
GR	22	0	18.7	11	10	30	3.6	45	10	60
GR	19.4	79	22	87						

X1	34	10	7166	7236	100	100	100			
GR	21	0	19.5	3400	19.6	7100	19.5	7150	18.7	7166
GR	10	7185	5.5	7200	10	7215	19.4	7236	21	7600

2000 BAKER & LAWSON SURVEY SECTION

X1	34.2	23	12766.6	12864.3	3300	3300	3300			
GR	22.00	9819.3	18.86	9819.3	18.86	10000.0	18.67	10585.4	18.37	11109.4
GR	17.61	11602.4	16.89	12129.6	16.97	12650.7	16.59	12766.6	6.88	12791.1
GR	4.96	12819.3	7.81	12843.1	16.25	12864.3	16.64	12888.2	16.48	12985.6
GR	17.19	13174.8	17.26	13366.2	17.40	13557.4	17.30	13752.9	17.41	13948.4
GR	17.20	14144.2	20.00	15319.3	22.00	15319.3				

2000 BAKER & LAWSON SURVEY SECTION

X1	34.9	7	10014.7	10110.9	6540	6540	6540			
GR	22.33	10000.0	22.32	10014.7	8.22	10047.4	6.23	10057.2	8.00	10083.9
GR	21.06	10110.9	21.89	10131.6						

2000 BAKER & LAWSON SURVEY SECTION

X1	35	13	10354.1	10428.9	60	60	60			
X3	10							21.35	21.35	
GR	21.62	10000.0	21.57	10089.3	21.47	10178.0	21.73	10268.7	21.39	10354.1
GR	8.03	10373.5	6.41	10394.7	7.88	10409.5	21.49	10428.9	21.46	10513.5
GR	22.05	10603.6	22.35	10690.8	22.45	10776.6				

PRIVATE BRIDGE Nr CBWC CANAL

SB	1.05	1.5	2.6		18	2	220	.5		
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2000 BAKER & LAWSON SURVEY SECTION

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PRIVATE BRIDGE Nr CBWC CANAL

X1	36	16	10356.5	10428.1	20	20	20			
X2			1	20.85		21.85				
X3	10									
BT	-13	8591.6	21.62		10000.0	21.62		21.85	21.85	
BT		10178.0	21.47		10268.7	21.73		10089.3	21.57	
BT		10391.8	21.85		10424.7	21.99		10358.4	21.98	
BT		10603.6	22.05		10690.8	22.35		10513.5	21.46	
BT		10891.6	25.00					10776.6	22.45	
GR	25.00	8591.6	21.62	8591.6	21.62	10000.0	21.57	10089.3	21.47	10178.0
GR	21.73	10268.7	20.52	10356.5	8.26	10375.4	6.85	10391.6	8.09	10407.9
GR	21.86	10428.1	21.46	10513.5	22.05	10603.6	22.35	10690.8	22.45	10776.6
GR	25.00	10891.6								

2000 BAKER & LAWSON SURVEY SECTION

X1	36.1	10	10014.2	10105.1	60	60	60			
GR	25.00	8252.0	21.92	8252.0	21.92	10000.0	21.21	10014.2	8.37	10041.8
GR	5.58	10052.0	8.32	10077.0	20.18	10105.1	20.53	10125.3	25.00	10552.0

NC .1 .3

X1	37	16	1465	1536	3140	3540	3340			
X3	10			1430	25.5	1536	23.8			
GR	27	0	24.5	0	22	1300	22.5	1350	23	1400
GR	25.5	1430	24.1	1465	13.1	1488	7.5	1500	13.1	1512
GR	23.8	1536	21.9	1550	22.1	1600	22.1	1650	25	2000
GR	26	2600								

NC .3 .5

X1	38	7	1000	1073	1800	1500	1700			
GR	29.0	0	27.9	0	27.9	1000	14.7	1028	7	1033
GR	14.5	1038	28.9	1073						

X1	39	14	1070	1140	100	100	100			
GR	31.0	0	26.2	0	24.5	650	24.5	1000	22	1070
GR	15.1	1085	14	1100	15	1115	24.1	1140	23.9	1200
GR	23.9	1250	26.2	1300	26.2	4100	31.0	4100		

QT	3	1554	1777	2325						
NC	.05	.05	.05							

2000 BAKER & LAWSON SURVEY SECTION

X1	39.9	13	10020.1	10112.0	1060	1060	1060			
GR	31.00	8358.9	26.00	8358.9	25.00	9758.9	22.57	10000.0	22.10	10020.1
GR	12.73	10046.1	7.23	10058.9	12.42	10091.9	22.66	10112.0	22.85	10139.8
GR	25.00	10158.9	25.00	12558.9	31.00	12558.9				

2000 BAKER & LAWSON SURVEY SECTION

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X1	40	17	10382.2	10452.5	140	140	140			
X3	10							25.19	25.19	
GR	31.00	8714.7	26.00	8714.7	24.98	10000.0	25.24	10098.3	25.10	10194.3
GR	25.21	10290.3	24.90	10382.2	12.47	10399.0	9.81	10414.7	12.33	10433.5
GR	23.91	10452.5	25.47	10542.8	25.32	10635.0	25.21	10727.6	25.16	10818.7
GR	25.16	12914.7	31.00	12914.7						

CR 169

SB	1.05	1.5	2.6	40	3	510	1.3			
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2000 BAKER & LAWSON SURVEY SECTION

CR 169

X1	41	17	10382.3	10450.5	30	30	30			
X2			1	24.69	25.69					
X3	10							25.69	25.69	
BT	-13	8716.7	26.00		10000.0	24.98		10098.3	25.24	
BT		10194.3	25.10		10290.3	25.21		10383.7	25.69	
BT		10417.7	25.81		10451.1	25.69		10542.8	25.47	
BT		10635.0	25.32		10727.6	25.21		10818.7	25.16	
BT		12916.7	25.16							
GR	31.00	8716.7	26.00	8716.7	24.98	10000.0	25.24	10098.3	25.10	10194.3
GR	25.21	10290.3	24.85	10382.3	12.28	10402.2	9.97	10416.7	12.84	10434.3
GR	23.61	10450.5	25.47	10542.8	25.32	10635.0	25.21	10727.6	25.16	10818.7
GR	25.16	12916.7	31.00	12916.7						

2000 BAKER & LAWSON SURVEY SECTION

X1	42	15	10371.2	10424.7	60	60	60			
X3	10			10279.7	29.11	10515.9	29.13	28.04	28.04	
GR	28.83	10000.0	28.93	10094.2	28.97	10188.1	29.11	10279.7	28.12	10371.2
GR	24.54	10372.5	12.56	10394.0	10.73	10397.7	12.77	10401.0	24.66	10424.0
GR	28.17	10424.7	29.13	10515.9	29.13	10608.3	29.19	10701.9	29.16	10796.8

RR Nr CR 169

SB	1.05	1.5	2.6	10	2	250	1.36			
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2000 BAKER & LAWSON SURVEY SECTION

RAIL ROAD Nr CR 169

X1	43	19	10369.9	10424.1	20	20	20			
X2			1	26.94	29.14					
X3	10			10279.7	29.11	10515.9	29.13	27.5	27.5	
BT	-13	8797.6	28.83		10000.0	28.83		10094.2	28.93	
BT		10188.1	28.97		10279.7	29.11		10396.5	29.18	
BT		10397.1	29.21		10424.8	29.14		10515.9	29.13	
BT		10608.3	29.13		10701.9	29.19		10796.8	29.16	
BT		13097.6	29.16							
GR	31.00	8797.6	28.83	8797.6	28.83	10000.0	28.93	10094.2	28.97	10188.1
GR	29.11	10279.7	28.11	10369.9	24.52	10371.2	12.48	10394.5	10.75	10397.6
GR	12.90	10401.7	24.48	10422.8	28.07	10424.1	29.13	10515.9	29.13	10608.3
GR	29.19	10701.9	29.16	10796.8	29.16	13097.6	31.00	13097.6		

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QT 3 1869 2189 2908

2000 BAKER & LAWSON SURVEY SECTION

X1	43.3	11	10021.4	10093.2	105	105	105			
GR	31.00	8267.4	25.00	8267.4	23.99	10000.0	23.36	10021.4	14.45	10042.3
GR	11.90	10067.4	13.69	10074.9	22.49	10093.2	23.01	10101.2	25.00	10867.4
GR	31.00	10867.4								

2000 BAKER & LAWSON SURVEY SECTION

X1	43.4	18	10184.9	10242.7	73	73	73			
X3	10							23.84	23.84	
GR	31.00	8421.7	25.00	8421.7	24.74	10000.0	24.41	10033.6	24.07	10089.3
GR	23.82	10138.1	23.61	10184.9	12.67	10204.0	11.90	10221.7	12.88	10235.9
GR	23.46	10242.7	24.30	10264.2	24.04	10290.4	24.26	10339.0	23.66	10442.0
GR	23.76	10512.3	25.00	11021.7	31.00	11021.7				

PRIVATE BRIDGE Nr CR 169

SB 1.05 1.5 2.6 10 2 250 1.36

2000 BAKER & LAWSON SURVEY SECTION

PRIVATE BRIDGE Nr CR 169

X1	43.5	18	10186.2	10242.3	17	17	17			
X2			1	23.34	24.34					
X3	10							24.34	24.34	
BT	-14	8423.3	25.00		10000.0	24.74		10033.6	24.41	
BT		10089.3	24.07		10138.1	23.82		10187.2	24.34	
BT		10217.7	24.45		10240.6	24.45		10264.2	24.30	
BT		10290.4	24.04		10339.0	24.26		10442.0	23.66	
BT		10512.3	23.76		11024.3	25.00				
GR	31.00	8423.3	25.00	8423.3	24.74	10000.0	24.41	10033.6	24.07	10089.3
GR	23.82	10138.1	23.85	10186.2	13.37	10209.3	11.76	10224.3	13.07	10236.2
GR	24.20	10242.3	24.30	10264.2	24.04	10290.4	24.26	10339.0	23.66	10442.0
GR	23.76	10512.3	25.00	11024.3	31.00	11024.3				

2000 BAKER & LAWSON SURVEY SECTION

X1	43.6	11	10014.3	10077.4	56	56	56			
GR	31.00	8255.2	25.00	8255.2	24.62	10000.0	24.35	10014.3	12.65	10038.7
GR	11.93	10055.2	13.08	10059.5	23.27	10077.4	23.00	10092.1	25.00	10855.2
GR	31.00	10855.2								

2000 BAKER & LAWSON SURVEY SECTION

X1	43.7	11	10013.4	10100.7	104	104	104			
GR	31.00	8265.1	26.33	8265.1	26.33	10000.0	26.02	10013.4	13.13	10038.6
GR	11.63	10065.1	14.21	10077.2	23.33	10100.7	23.22	10124.1	25.00	10865.1
GR	31.00	10865.1								

Along Dirt Dam

2000 BAKER & LAWSON SURVEY SECTION



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PAGE 14

X1	43.9	20	11083.3	11170.6	2645	2645	2645			
X3				10673.6	24.63	11170.6	16.33			
GR	31.00	8622.5	26.00	8622.5	24.44	10000.0	24.39	10410.7	24.63	10673.6
GR	22.67	11067.1	21.43	11083.3	12.23	11103.8	10.76	11122.5	12.97	11143.4
GR	25.60	11170.6	25.54	11185.9	23.60	11209.8	10.40	11235.8	6.71	11244.3
GR	8.63	11251.5	25.97	11284.4	26.88	11306.7	26.88	11722.5	31.00	11722.5

QT 2 3830 2730

NC .1 .3

\*\*\*\*\* FOLLOWED BY C-1 DITCH CROSS-SECTIONS \*\*\*\*\*

QT 3 1603 2313 3220

2000 BAKER & LAWSON SURVEY SECTION

X1	115	7	10015.3	10110.3	7610	6810	7760			
GR	32.50	10000.0	31.00	10015.3	14.22	10047.1	11.81	10055.4	15.15	10070.0
GR	32.66	10110.3	34.35	10124.1						

NC 0.05 0.06 0.06 .30 .50

2000 BAKER & LAWSON SURVEY SECTION

X1	116	5	10000.0	10105.5	37	37	37			
X3	10							30.95	30.95	
GR	33.31	10000.0	19.44	10030.4	16.91	10049.6	16.80	10061.3	34.70	10105.5

BRISCOE CANAL CROSSING

SB 1.05 1.5 2.6 10 4 750 2.6

2000 BAKER & LAWSON SURVEY SECTION

BRISCOE CANAL CROSSING

X1	117	5	10000.0	10105.5	26	26	26			
X2			1.0	28.3	33.60					
X3	10							33.60	33.60	
BT	-4	10000.0	33.60		10048.2	33.87		10095.5	34.56	
BT		10105.5	34.70							
GR	33.31	10000.0	19.44	10030.4	16.91	10049.6	16.80	10061.3	34.70	10105.5

2000 BAKER & LAWSON SURVEY SECTION

X1	118	9	10017.9	10118.2	37	37	37			
GR	36.00	7568.3	31.13	7568.3	31.13	10000.0	30.74	10017.9	14.63	10063.6
GR	12.90	10068.3	13.98	10073.8	35.28	10118.2	36.17	10131.6		

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NC .10 .30

2000 BAKER & LAWSON SURVEY SECTION

X1	119	12	10019.0	10112.0	2500	2300	2400			
GR	35.00	8049.8	31.11	8049.8	31.11	10000.0	30.80	10019.0	16.37	10043.7
GR	14.11	10049.8	15.22	10068.7	21.25	10091.3	28.27	10112.0	29.41	10131.4
GR	30.00	16049.8	35.00	16049.8						

NC .30 .50

2000 BAKER & LAWSON SURVEY SECTION

X1	120	17	10376.2	10564.2	84	84	84			
X3	10			10269.9	31.31	10828.7	31.35	30.05	30.05	
GR	35.00	8472.7	31.18	8472.7	31.18	10000.0	31.23	10090.3	31.18	10178.1
GR	31.31	10269.9	30.11	10376.2	16.40	10455.6	14.16	10472.7	15.61	10482.8
GR	30.42	10564.2	31.05	10642.5	31.11	10732.9	31.35	10828.7	31.23	10922.2
GR	31.23	16472.7	35.00	16472.7						

FM 2403

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILES 02/97

SB 1.05 1.5 2.6 44 3 1018 6.0

2000 BAKER & LAWSON SURVEY SECTION

FM 2403

X1	121	17	10332.9	10533.6	32	32	32			
X2			1	29.05	31.05					
X3	10			10269.9	31.31	10828.7	31.35	31.05	31.05	
BT	-15	8404.2	31.18		10000.0	31.18		10090.3	31.23	
BT		10178.1	31.18		10269.9	31.31		10350.2	31.74	
BT		10369.8	31.05		10445.4	31.75		10532.6	31.68	
BT		10552.4	31.00		10642.5	31.05		10732.9	31.11	
BT		10828.7	31.35		10922.2	31.23		16404.2	31.23	
GR	35.00	8404.2	31.18	8404.2	31.18	10000.0	31.23	10090.3	31.18	10178.1
GR	31.31	10269.9	30.53	10332.9	16.33	10394.7	14.96	10404.2	15.96	10420.8
GR	30.56	10533.6	31.05	10642.5	31.11	10732.9	31.35	10828.7	31.23	10922.2
GR	31.23	16404.2	35.00	16404.2						

2000 BAKER & LAWSON SURVEY SECTION

X1	122	8	10009.7	10115.7	59	59	59			
GR	35.00	8045.9	31.36	8045.9	31.36	10000.0	30.27	10009.7	17.34	10040.6
GR	14.42	10045.9	17.00	10061.0	36.49	10115.7				

NC .10 .30  
QT 3 1803 2341 3295

2000 BAKER & LAWSON SURVEY SECTION

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X1	123	11	10014.6	10111.5	3600	3300	3300			
GR	35.00	8069.8	31.38	8069.8	31.38	10000.0	30.66	10014.6	18.26	10059.4
GR	16.05	10069.8	18.73	10077.9	30.16	10111.5	30.93	10135.8	30.93	16069.0
GR	35.00	16069.0								

NC	0.04	0.06	0.06	.30	.50					
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2000 BAKER & LAWSON SURVEY SECTION

X1	124	18	10371.0	10504.0	73	73	73			
X3	10							32.27	32.27	
GR	36.00	8441.2	33.29	8441.2	33.29	10000.0	33.40	10090.9	33.47	10181.0
GR	33.57	10277.2	32.77	10371.0	22.54	10396.5	18.12	10432.7	16.83	10441.2
GR	18.33	10449.1	22.49	10478.7	33.00	10504.0	33.81	10652.5	33.79	10756.4
GR	33.51	10853.9	33.51	16441.2	36.00	16441.2				

SH 35

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILES 04/97

SB	1.05	1.5	2.6		81	2	934.23	2.0		
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2000 BAKER & LAWSON SURVEY SECTION

SH 35

X1	125	17	10369.9	10503.8	54	54	54			
X2			1	30.77	33.77					
X3	10							33.77	33.77	
BT	-13	8431.9	33.29		10000.0	33.29		10090.9	33.40	
BT		10181.0	33.47		10277.2	33.57		10377.4	34.87	
BT		10404.2	33.77		10527.0	34.73		10553.6	33.78	
BT		10652.5	33.81		10756.4	33.79		10853.9	33.51	
BT		16431.9	33.51							
GR	36.00	8431.9	33.29	8431.9	33.29	10000.0	33.40	10090.9	33.47	10181.0
GR	33.57	10277.2	32.91	10369.9	22.05	10401.8	16.82	10431.9	22.16	10445.4
GR	21.95	10477.3	32.95	10503.8	33.81	10652.5	33.79	10756.4	33.51	10853.9
GR	33.51	16431.9	36.00	16431.9						

2000 BAKER & LAWSON SURVEY SECTION

X1	126	12	10010.8	10102.5	73	73	73			
GR	36.00	8054.1	30.13	8054.1	30.13	10000.0	29.57	10010.8	19.34	10043.7
GR	18.23	10054.1	18.95	10064.9	23.74	10081.8	29.39	10102.5	29.69	10115.2
GR	29.69	16054.1	36.00	16054.1						

NC				.10	.30					
QT	3	2170	2586	3498						

2000 BAKER & LAWSON SURVEY SECTION

X1	127	5	10000.0	10075.6	5300	5400	5400			
GR	36.67	10000.0	21.01	10020.3	19.22	10034.9	20.79	10046.2	38.35	10075.6

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NC			.30		.50					
2000 BAKER & LAWSON SURVEY SECTION										
X1	128	13	10377.3	10434.2	20	20	20			
X3	10							33.22	33.22	
GR	34.56	10000.0	34.42	10093.8	34.37	10188.4	34.59	10282.0	34.22	10377.3
GR	20.89	10393.5	19.63	10407.6	21.04	10420.0	34.10	10434.2	34.23	10521.3
GR	33.58	10633.7	33.63	10732.4	33.73	10845.0				
CR 172										
SB	1.05	1.5	2.6		22	1.0	556		2	
2000 BAKER & LAWSON SURVEY SECTION										
CR 172										
X1	129	13	10376.2	10436.5	3	3	3			
X2			1	31.72	34.72					
X3	10							34.72	34.72	
BT	-11	10000.0	34.56		10093.8	34.42		10188.4	34.37	
BT		10282.0	34.59		10377.0	34.80		10404.5	34.72	
BT		10430.8	34.58		10521.3	34.23		10633.7	33.58	
BT		10732.4	33.63		10845.0	33.73				
GR	34.56	10000.0	34.42	10093.8	34.37	10188.4	34.59	10282.0	33.72	10376.2
GR	21.94	10390.9	20.02	10403.6	21.08	10415.6	33.91	10436.5	34.23	10521.3
GR	33.58	10633.7	33.63	10732.4	33.73	10845.0				
2000 BAKER & LAWSON SURVEY SECTION										
X1	130	6	10006.6	10095.9	64	64	64			
X3	10							35.4	35.4	
GR	34.33	10000.0	33.91	10006.6	21.59	10036.5	20.47	10047.7	22.47	10059.7
GR	41.35	10095.9								
PIPELINE Nr CR 172										
SB	1.05	1.5	2.6		20	3	430		1.33	
PIPELINE Nr CR 172										
X1	131	8	7700	7761	26	26	26			
X2			1	34.9	35.9					
X3	10							35.9	35.9	
BT	-5	0	37		3000	34.5		7700	35.9	
BT		7761	35.9		7770	40				
GR	37	0	34.5	3000	34.4	7700	22.7	7721	22.2	7734
GR	22.7	7743	34.5	7761	40	7770				
X1	132	7	7510	7559	87	87	87			
GR	37	0	34.5	3000	35.2	7510	22.7	7518	21.9	7531
GR	21.7	7548	40.1	7559						

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NC .10 .30  
 QT 3 2086 2488 3404

2000 BAKER & LAWSON SURVEY SECTION

X1 133 8 10025.7 10120.6 2700 2900 2900  
 GR 40.00 7065.7 36.04 7065.7 36.04 10000.0 34.77 10025.7 23.56 10056.7  
 GR 20.48 10065.7 23.87 10082.7 39.05 10120.6

NC 0.05 0.06 0.06 .30 .50

2000 BAKER & LAWSON SURVEY SECTION

X1 134 16 10373.9 10492.2 77 77 77  
 X3 10 37.84 37.84  
 GR 40.00 7439.2 35.79 7439.2 35.79 10000.0 36.28 10096.3 37.26 10198.4  
 GR 38.06 10290.3 37.63 10373.9 23.25 10425.2 21.97 10439.2 23.14 10446.8  
 GR 37.68 10492.2 37.95 10636.9 37.08 10740.5 36.33 10838.3 36.27 10935.6  
 GR 40.00 10935.6

FM 1462

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILES 04/97

SB 1.05 1.5 2.6 15 2.67 870.74 2.5

2000 BAKER & LAWSON SURVEY SECTION

FM 1462

X1 135 16 10388.1 10507.0 46 46 46  
 X2 1 37.19 38.49  
 X3 10 38.49 38.49  
 BT -14 7458.5 35.79 10000.0 35.79 10096.3 36.28  
 BT 10198.4 37.26 10290.3 38.06 10383.8 38.49  
 BT 10410.1 40.68 10464.2 38.62 10514.3 38.56  
 BT 10540.4 40.69 10636.9 37.95 10740.5 37.08  
 BT 10838.3 36.33 10935.6 36.27  
 GR 40.00 7458.5 35.79 7458.5 35.79 10000.0 36.28 10096.3 37.26 10198.4  
 GR 38.06 10290.3 37.64 10388.1 22.67 10443.4 22.36 10458.5 22.69 10462.6  
 GR 37.72 10507.0 37.95 10636.9 37.08 10740.5 36.33 10838.3 36.27 10935.6  
 GR 40.00 10935.6

2000 BAKER & LAWSON SURVEY SECTION

X1 136 7 10000.0 10116.0 77 77 77  
 GR 40.00 8057.0 38.28 8057.0 38.28 10000.0 23.92 10050.7 21.86 10057.0  
 GR 23.82 10067.9 40.01 10116.0

NC .10 .30

2000 BAKER & LAWSON SURVEY SECTION

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X1	137	9	10021.1	10102.5	3700	3450	3450			
GR	45.00	46.4	40.00	4046.4	34.96	10000.0	33.58	10021.1	27.41	10039.0
GR	23.34	10046.4	24.12	10073.6	40.91	10102.5	45.00	10102.5		

NC .30 .50

2000 BAKER & LAWSON SURVEY SECTION

X1	138	19	10280.3	10345.1	88	88	88			
X3	10			10094.1	37.17	10431.8	39.85	36.97	36.97	
GR	45.00	320.8	40.00	4320.8	37.15	10000.0	37.17	10094.1	37.07	10185.2
GR	36.65	10280.3	30.28	10281.5	23.63	10301.1	21.31	10320.8	24.24	10336.7
GR	27.93	10343.7	37.19	10345.1	39.68	10399.6	39.85	10431.8	37.29	10533.4
GR	36.58	10630.7	36.56	10723.4	36.55	10820.7	45.00	10820.7		

CR 179

SB	1.05	1.5	2.6		40	6	655	.880		
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2000 BAKER & LAWSON SURVEY SECTION

CR 179

X1	139	18	10280.2	10344.0	24	24	24			
X2			1	36.47	37.47					
X3	10			10094.1	37.17	10431.8	39.85	37.47	37.47	
BT	-14	318.1	45.00		4318.1	40.00		10000.0	37.15	
BT		10094.1	37.17		10185.2	37.07		10278.3	37.47	
BT		10312.1	37.50		10346.3	37.88		10399.6	39.68	
BT		10431.8	39.85		10533.4	37.29		10630.7	36.58	
BT		10723.4	36.56		10820.7	36.55				
GR	45.00	318.1	40.00	4318.1	37.15	10000.0	37.17	10094.1	37.07	10185.2
GR	36.61	10280.2	30.20	10281.6	24.77	10299.3	21.56	10318.1	23.52	10334.7
GR	37.05	10344.0	39.68	10399.6	39.85	10431.8	37.29	10533.4	36.58	10630.7
GR	36.56	10723.4	36.55	10820.7	45.00	10820.7				

2000 BAKER & LAWSON SURVEY SECTION

X1	140	9	10013.9	10094.5	88	88	88			
GR	45.00	43.3	40.00	4043.3	36.05	10000.0	34.67	10013.9	25.85	10038.7
GR	22.99	10043.3	25.55	10060.3	41.01	10094.5	45.00	10094.5		

NC .10 .30

X1	141	8	10900	10969	2600	2600	2600			
GR	45	1939	41	5000	39.4	10900	25.5	10934	23.1	10939
GR	25.7	10944	43	10969	45	10969				

NC .30 .50

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X1	142	12	10900	10965	90	90	90			
X3	10							39.5	39.5	
GR	45	1944	41	5000	39.4	10890	40.2	10900	33	10900
GR	26.8	10929	25.7	10944	26.7	10951	33	10965	38.6	10965
GR	41	10970	45	10970						

CR 392

SB	1.05	1.5	2.6		40	6	610	.93		
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CR 392

X1	143	12	10900	10965	20	20	20			
X2			1	39	40					
X3	10							40	40	
BT	-5	1944	45		5000	41		10900	40	
BT		10965	40		10970	41				
GR	45	1944	41	5000	39.4	10890	40.2	10900	33	10900
GR	26.8	10929	25.7	10944	26.7	10951	33	10965	38.6	10965
GR	41	10970	45	10970						

X1	144	9	10900	10980	90	90	90			
X3	10									
GR	45	1944	41	5000	39.4	10890	42.9	10900	27.5	10931
GR	25.6	10944	27.4	10950	44.6	10980	45	10980		

NC	0.04	0.06	0.06							
QT	3	1767	2147	2865						

2000 BAKER & LAWSON SURVEY SECTION

X1	144.9	9	10013.4	10077.2	1420	1420	1420			
X3	10									
GR	45.00	3041.1	40.00	7041.1	39.44	10000.0	37.85	10013.4	27.41	10032.2
GR	26.17	10041.1	27.77	10056.6	40.16	10077.2	45.00	10077.2		

2000 BAKER & LAWSON SURVEY SECTION

X1	145	15	10330.8	10385.8	30	30	30			
X3	10			10330.8	39.95	10435.9	42.04	39.56	39.56	
GR	45.00	3359.1	40.00	7359.1	39.68	10000.0	39.10	10143.6	38.64	10239.3
GR	39.95	10330.8	26.79	10344.6	25.95	10359.1	27.09	10371.8	40.12	10385.8
GR	42.04	10435.9	42.06	10476.5	39.38	10549.9	38.78	10698.9	45.00	10698.9

CR 180

SB	1.05	1.5	2.6		10	4	333	1.6		
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2000 BAKER & LAWSON SURVEY SECTION

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CR 180										
X1	146	15	10329.9	10385.1	20	20	20			
X2			1	38.66	40.46					
X3	10			10329.9	39.99	10435.9	42.04	40.46	40.46	
BT	-12	3349.8	45.00		7349.8	40.00		10000.0	39.68	
BT		10143.6	39.10		10239.3	38.64		10330.5	40.46	
BT		10359.0	40.77		10384.2	41.07		10435.9	42.04	
BT		10476.5	42.06		10549.9	39.38		10698.9	38.78	
GR	45.00	3349.8	40.00	7349.8	39.68	10000.0	39.10	10143.6	38.64	10239.3
GR	39.99	10329.9	26.37	10341.6	24.80	10349.8	26.73	10370.1	40.07	10385.1
GR	42.04	10435.9	42.06	10476.5	39.38	10549.9	38.78	10698.9	45.00	10698.9

2000 BAKER & LAWSON SURVEY SECTION

X1	146.1	9	10009.8	10089.7	80	80	80			
GR	45.00	3053.6	40.00	7053.6	37.74	10000.0	37.07	10009.8	29.73	10029.5
GR	27.32	10042.8	27.03	10053.6	41.69	10089.7	45.00	10089.7		

PIPELINE IN SOUTH OF CR 138

SB	1.05	1.5	2.6	35	.1	900	1.66			
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PIPELINE IN SOUTH OF CR 138

X1	148	7	5720	5805	4022	4022	4022			
X2			1	41.7	43.2					
X3	10							43.2	43.2	
BT	6	0	44.5		5700	40		5720	38.6	
BT	5721	43.2		5800	43.2		5805	45.8		
GR	44.5	0	40	5700	38.6	5720	28.2	5739	26.7	5761
GR	28.6	5784	45.8	5805						

PIPELINE BETWEEN CR 138 & CR 941

SB	1.05	1.5	2.6	25	2	586	1.2			
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PIPELINE BETWEEN CR 138 & CR 941

X1	150	6	6400	6460	3402	3352	3352			
X2			1	46	47.6					
X3	10							47.6	47.6	
BT	4	0	46.5		6400	43.8		6400	47.6	
BT	6460	47.6								
GR	46.5	0	43.8	6400	32.8	6414	31.6	6429	32.5	6444
GR	46.5	6460								

QT	3	1311	1528	1993						
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PIPELINE BETWEEN CR 138 & CR 941

SB	1.05	1.5	2.6	20	3	300	2			
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PIPELINE BETWEEN CR 138 & CR 941

X1	152	8	7200	7255	1503	1503	1503			
X2			1	41.2	44.2					
X3	10									
BT	2	7213	44.2		7243	44.2				
GR	47.5	0	44	7190	45	7200	34.8	7213	32.5	7219
GR	32.5	7237	34.7	7243	48	7255				

PIPELINE IN SOUTH OF JORDAN ROAD

SB	1.05	1.5	2.6		15	2	312	1.4		
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PIPELINE IN SOUTH OF JORDAN ROAD

X1	154	10	2702	2758	10353	10403	10403			
X2			1	44.3	47.3					
X3	10									
BT	2	2702	47.3		2758	47.3				
GR	50	0	49	10	49	2690	49.8	2700	47.3	2702
GR	35.6	2711	33.1	2729	36.9	2736	47.3	2758	52.2	2766

2000 BAKER & LAWSON SURVEY SECTION

X1	154.9	10	10021.9	10072.2	2440	2940	2840			
GR	50.00	5040.0	48.57	10000.0	47.47	10021.9	40.97	10036.0	38.66	10040.0
GR	40.06	10053.7	46.60	10072.2	48.07	10098.6	48.07	11540.0	50.00	11540.0

2000 BAKER & LAWSON SURVEY SECTION

X1	155	16	10090.9	10135.2	60	60	60			
X3	10			10061.7	49.00	10154.4	48.9	48.55	48.55	
GR	50.00	5113.2	49.06	10000.0	49.00	10061.7	47.56	10090.9	40.60	10105.9
GR	39.14	10113.2	40.48	10122.6	47.63	10135.2	48.90	10154.4	48.77	10178.6
GR	48.62	10203.8	48.72	10232.2	48.68	10302.5	48.80	10374.2	48.80	11613.2
GR	50.00	11613.2								

JORDAN ROAD

SB	1.05	1.5	2.6		25	2	260	1		
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2000 BAKER & LAWSON SURVEY SECTION

JORDAN ROAD

X1	156	17	10097.2	10142.1	24	24	24			
X2			1	48.05	49.05					
X3	10							49.05	49.05	
BT	-13	5123.4	50.00		10000.0	49.06		10061.7	49.00	
BT		10091.7	49.05		10114.3	49.05		10132.3	49.06	
BT		10154.4	48.90		10178.6	48.77		10203.8	48.62	
BT		10232.2	48.72		10302.5	48.68		10374.2	48.80	
BT		11623.4	48.80							
GR	52.00	5123.4	50.00	5123.4	49.06	10000.0	49.00	10061.7	46.84	10097.2
GR	39.82	10112.9	38.79	10123.4	39.59	10130.9	47.96	10142.1	48.90	10154.4
GR	48.77	10178.6	48.62	10203.8	48.72	10232.2	48.68	10302.5	48.80	10374.2
GR	48.80	11623.4	52.00	11623.4						

2000 BAKER & LAWSON SURVEY SECTION

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X1	156.1	12	10000.0	10045.6	60	60	60			
GR	50.00	5025.8	48.61	10000.0	40.33	10019.6	39.04	10025.8	40.40	10030.2
GR	47.65	10045.6	48.42	10071.9	48.72	10232.2	48.68	10302.5	48.80	10374.2
GR	48.80	11623.4	52.00	11623.4						

QT	3	496	593	766						
NC	0.07	0.045	0.07							

X1	156.5	9	10000.0	10047.4	75	75	75			
GR	55.00	7520.4	51.00	7520.4	50.84	10000.0	44.16	10016.8	42.56	10020.4
GR	44.27	10025.9	50.76	10047.4	51.00	12520.4	55.00	12520.4		

X1	156.6	9	10000.0	10047.4	925	925	925			
GR	55.00	7520.4	51.00	7520.4	50.84	10000.0	44.16	10016.8	42.56	10020.4
GR	44.27	10025.9	50.76	10047.4	51.00	12520.4	55.00	12520.4		

X1	156.7	9	10000.0	10047.4	1000	1000	1000			
GR	55.00	7520.4	51.00	7520.4	50.84	10000.0	44.16	10016.8	42.56	10020.4
GR	44.27	10025.9	50.76	10047.4	51.00	12520.4	55.00	12520.4		

X1	156.9	9	10000.0	10047.4	865	1265	1065			
GR	55.00	7520.4	51.00	7520.4	50.84	10000.0	44.16	10016.8	42.56	10020.4
GR	44.27	10025.9	50.76	10047.4	51.00	12520.4	55.00	12520.4		

2000 BAKER & LAWSON SURVEY SECTION

X1	157	17	10375.2	10418.8	75	75	75			
X3	10							52.39	52.39	
GR	55.00	7900.3	51.58	7900.3	51.58	10000.0	51.60	10091.5	51.64	10185.0
GR	51.68	10282.0	52.01	10375.2	44.49	10378.6	43.35	10400.3	46.06	10416.8
GR	51.88	10418.8	51.87	10513.7	51.75	10606.3	51.90	10698.5	51.86	10789.9
GR	51.86	12900.3	55.00	12900.3						

CR 190

SB	1.05	1.5	2.6		24	2	214	.63		
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2000 BAKER & LAWSON SURVEY SECTION

CR 190

X1	158	17	10374.5	10419.7	30	30	30			
X2			1	51.89	52.89					
X3	10							52.89	52.89	
BT	-13	7894.0	51.58		10000.0	51.58		10091.5	51.60	
BT		10185.0	51.64		10282.0	51.68		10376.4	52.90	
BT		10395.2	52.95		10416.6	52.89		10513.7	51.87	
BT		10606.3	51.75		10698.5	51.90		10789.9	51.86	
BT		12894.0	51.86							
GR	55.00	7894.0	51.58	7894.0	51.58	10000.0	51.60	10091.5	51.64	10185.0
GR	51.68	10282.0	51.81	10374.5	45.34	10377.9	43.86	10394.0	47.48	10418.2

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GR	51.97	10419.7	51.87	10513.7	51.75	10606.3	51.90	10698.5	51.86	10789.9
GR	51.86	12894.0	55.00	12894.0						

2000 BAKER & LAWSON SURVEY SECTION

X1	159	9	10000.0	10057.4	40	40	40			
X3	10							54.10	54.10	
GR	55.00	7527.8	53.68	7527.8	53.68	10000.0	43.79	10019.5	42.91	10027.8
GR	43.84	10041.0	53.64	10057.4	53.64	12527.8	55.00	12527.8		

RAIL ROAD Nr CR 190

SB	1.05	1.5	2.6		18	1	230	.88		
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2000 BAKER & LAWSON SURVEY SECTION

RAIL ROAD Nr CR 190

X1	160	13	10370.8	10428.8	36	36	36			
X2			1	53.10	55.10					
X3	10							55.10	55.10	
BT	-10	10000.0	54.72		10091.6	54.77		10185.2	54.93	
BT		10280.1	55.07		10371.4	55.10		10399.7	55.12	
BT		10428.0	55.11		10524.1	55.06		10618.8	54.95	
BT		10719.0	54.78							
GR	54.72	10000.0	54.77	10091.6	54.93	10185.2	55.07	10280.1	53.00	10370.8
GR	44.09	10392.4	43.36	10404.5	44.82	10414.0	53.32	10428.8	55.06	10524.1
GR	54.95	10618.8	54.84	10719.0	54.78	10819.0				

2000 BAKER & LAWSON SURVEY SECTION

X1	160.1	9	10012.8	10059.3	60	60	60			
GR	55.00	7532.9	50.96	7532.9	50.96	10000.0	49.93	10012.8	44.61	10025.6
GR	43.53	10032.9	44.73	10046.5	50.27	10059.3	52.29	10077.6		

NC			.10	.30						
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2000 BAKER & LAWSON SURVEY SECTION

X1	161	11	10016.1	10057.5	790	990	890			
GR	55.00	8037.1	51.73	8037.1	51.73	10000.0	49.78	10016.1	44.83	10027.0
GR	43.74	10037.1	45.13	10044.2	51.05	10057.5	51.74	10080.9	51.74	12537.1
GR	55.00	12537.1								

NC			.30	.50						
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2000 BAKER & LAWSON SURVEY SECTION

X1	162	14	10271.5	10315.7	34	34	34			
X3	10							51.01	51.01	
GR	55.00	8288.9	51.69	8288.9	51.69	10000.0	51.58	10111.3	51.72	10183.6
GR	50.26	10271.5	44.05	10288.9	44.91	10296.5	46.21	10305.8	50.59	10315.7
GR	51.69	10411.9	52.34	10943.5	52.34	12788.9	55.00	12788.9		

ROGERS ROAD

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SB 1.25 1.5 2.6 11 1 150 2.0

2000 BAKER & LAWSON SURVEY SECTION  
ROGERS ROAD

X1	163	14	10294.2	10348.9	32	32	32			
X2			1	50.51	51.51					
X3	10									
BT	-10	8310.8	51.69		10000.0	51.69		51.51	51.51	
BT		10183.6	51.72		10275.8	51.79		10111.3	51.58	
BT		10319.8	51.88		10411.9	51.69		10302.3	51.51	
BT		12810.8	52.34					10943.5	52.34	
GR	55.00	8310.8	51.69	8310.8	51.69	10000.0	51.58	10111.3	51.72	10183.6
GR	50.03	10294.2	44.14	10307.9	43.88	10310.8	44.21	10318.5	49.44	10348.9
GR	51.69	10411.9	52.34	10943.5	52.34	12810.8	55.00	12810.8		

2000 BAKER & LAWSON SURVEY SECTION

X1	164	11	10018.7	10063.8	34	34	34			
GR	55.00	8042.8	51.83	8042.8	51.83	10000.0	49.86	10018.7	44.33	10036.5
GR	43.83	10042.8	44.42	10050.0	50.54	10063.8	51.45	10079.2	51.45	12542.8
GR	55.00	12542.8								

NC .10 .30

2000 BAKER & LAWSON SURVEY SECTION

X1	165	11	10024.4	10067.5	300	300	350			
GR	55.00	8045.3	52.23	8045.3	52.23	10000.0	50.87	10024.4	44.63	10037.7
GR	44.04	10045.3	44.47	10056.4	50.00	10067.5	51.87	10091.6	51.87	12045.3
GR	55.00	12045.3								

NC .30 .50

2000 BAKER & LAWSON SURVEY SECTION

X1	166	18	10289.1	10404.0	25	25	25			
X3	10									
GR	57.49	10000.0	57.71	10094.4	52.58	10187.8	51.66	10289.1	44.89	10303.8
GR	44.33	10311.3	44.29	10324.9	44.14	10338.6	44.35	10352.3	44.39	10366.6
GR	44.54	10380.1	45.57	10393.0	50.69	10404.0	51.82	10470.6	52.03	10567.3
GR	52.38	10663.8	52.38	12338.6	55.00	12338.6				

SH 6

SB 1.25 1.5 2.6 50 2 360 2.0

2000 BAKER & LAWSON SURVEY SECTION  
SH 6

X1	167	18	10269.9	10377.6	50	50	50			
X2			1	50.22	52.22					
X3	10									
BT	-11	10000.0	57.49		10094.4	57.71		52.22	52.22	
BT		10269.6	52.47		10289.0	52.44		10187.8	52.58	
								10369.2	52.22	

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PAGE 26

BT		10389.0	52.46		10470.6	51.82		10567.3	52.03	
BT		10663.8	52.38		12321.3	52.38				
GR	57.49	10000.0	57.71	10094.4	52.58	10187.8	51.62	10269.9	46.13	10285.8
GR	44.91	10293.8	44.52	10307.7	44.47	10321.3	44.50	10335.5	45.18	10348.7
GR	44.71	10361.5	46.39	10366.8	51.45	10377.6	51.82	10470.6	52.03	10567.3
GR	52.38	10663.8	52.38	12321.3	55.00	12321.3				

2000 BAKER & LAWSON SURVEY SECTION

X1	167.1	11	10028.6	10060.6	100	100	100			
GR	55.00	8043.4	52.98	8043.4	52.98	10000.0	49.94	10028.6	44.84	10038.5
GR	44.18	10043.4	44.64	10047.6	50.35	10060.6	52.21	10073.5	52.21	12043.4
GR	55.00	12043.4								

NC .10 .30

2000 BAKER & LAWSON SURVEY SECTION

X1	168	11	10016.8	10054.3	1900	1900	1900			
GR	55.00	9037.6	53.57	9037.6	53.57	10000.0	51.72	10016.8	45.78	10031.7
GR	44.66	10037.6	46.03	10043.4	50.76	10054.3	52.89	10076.4	52.89	12037.6
GR	55.00	12037.6								

NC .30 .50

2000 BAKER & LAWSON SURVEY SECTION

X1	169	15	10265.0	10307.6	85	85	85			
X3	10							53.59	53.59	
GR	55.00	9283.5	54.43	9283.5	54.43	10000.0	54.36	10091.2	54.49	10181.3
GR	51.69	10265.0	47.23	10275.1	45.38	10283.5	46.80	10293.8	51.83	10307.6
GR	53.82	10423.0	53.70	10515.9	53.73	10606.7	53.73	12283.5	55.00	12283.5

LEWIS STREET

SB 1.05 1.5 2.6 24 3 268 1.9

2000 BAKER & LAWSON SURVEY SECTION

LEWIS STREET										
X1	170	15	10295.6	10337.4	30	30	30			
X2			1	53.09	54.09					
X3	10							54.09	54.09	
BT	-11	9319.4	54.43		10000.0	54.43		10091.2	54.36	
BT		10181.3	54.49		10270.1	54.22		10296.3	54.09	
BT		10324.0	54.16		10423.0	53.82		10515.9	53.70	
BT		10606.7	53.73		12319.4	53.73				
GR	55.00	9319.4	54.43	9319.4	54.43	10000.0	54.36	10091.2	54.49	10181.3
GR	52.12	10295.6	46.92	10308.2	45.78	10319.4	46.78	10326.7	51.51	10337.4
GR	53.82	10423.0	53.70	10515.9	53.73	10606.7	53.73	12319.4	55.00	12319.4

2000 BAKER & LAWSON SURVEY SECTION

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X1	171	11	10025.5	10063.7	85	85	85			
GR	55.00	9040.6	53.79	9040.6	53.79	10000.0	51.58	10025.5	47.34	10034.4
GR	45.63	10040.6	46.58	10050.4	50.98	10063.7	53.12	10113.2	53.12	12040.6
GR	55.00	12040.6								

2000 BAKER & LAWSON SURVEY SECTION

X1	171.3	11	10013.0	10047.1	1200	1200	1200			
GR	55.00	9031.3	53.73	9031.3	53.73	10000.0	51.88	10013.0	46.85	10025.8
GR	46.28	10031.3	46.77	10036.5	51.60	10047.1	53.92	10072.6	53.92	12031.3
GR	55.00	12031.3								

2000 BAKER & LAWSON SURVEY SECTION

X1	171.4	12	10000.0	10046.3	60	60	60			
X3	10							53.49	53.49	
GR	55.00	9019.8	52.97	9019.8	52.97	10000.0	46.66	10014.6	46.41	10019.8
GR	47.09	10030.3	52.26	10046.3	53.85	10139.2	53.74	10237.1	53.96	10329.9
GR	53.96	12329.9	55.00	12329.9						

CEDAR

SB	1.25	1.5	2.6		24	3	240	2.0		
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2000 BAKER & LAWSON SURVEY SECTION

CEDAR

X1	171.5	12	10000.0	10047.5	45	45	45			
X2			1	52.99	53.99					
X3	10							54.16	54.16	
BT	-8	9022.4	53.38		10000.0	53.38		10014.7	54.16	
BT		10035.7	53.99		10139.2	53.85		10237.1	53.74	
BT		10329.9	53.96		12022.4	53.96				
GR	55.00	9022.4	53.38	9022.4	53.38	10000.0	47.13	10014.7	46.01	10022.4
GR	47.11	10036.1	52.83	10047.5	53.85	10139.2	53.74	10237.1	53.96	10329.9
GR	53.96	12022.4	55.00	12022.4						

2000 BAKER & LAWSON SURVEY SECTION

X1	171.6	9	10029.2	10069.2	80	80	80			
GR	55.09	10000.0	53.54	10029.2	47.30	10045.1	46.32	10051.4	47.27	10059.6
GR	51.95	10069.2	54.08	10094.3	54.08	12051.4	55.00	12051.4		

NC				.10	.30					
QT	3	260	308	404						

2000 BAKER & LAWSON SURVEY SECTION

X1	172	11	10021.0	10059.9	1215	115	715	.57		
GR	57.00	9238.8	54.70	9238.8	54.70	10000.0	52.54	10021.0	47.44	10030.4
GR	47.05	10038.8	47.47	10049.7	51.51	10059.9	55.22	10084.0	55.22	11338.8
GR	57.00	11338.8								

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NC 0.06 0.05 0.06 .30 .50

2000 BAKER & LAWSON SURVEY SECTION

X1	173	16	10387.6	10454.6	70	70	70			
X3	10			10284.2	55.36	10506.3	55.19	54.81	54.81	
GR	57.00	9629.7	55.29	9629.7	55.29	10000.0	55.23	10092.3	55.31	10190.5
GR	55.36	10284.2	54.19	10387.6	49.16	10410.6	47.07	10429.7	48.42	10438.0
GR	53.12	10454.6	55.19	10506.3	54.95	10602.1	54.83	10694.1	54.83	11729.7
GR	57.00	11729.7								

FM 1128

SB 1.25 1.5 2.6 12 2 76 2.0

2000 BAKER & LAWSON SURVEY SECTION

FM 1128

X1	174	16	10335.7	10400.6	60	60	60			
X2			1	54.31	55.31					
X3	10			10284.2	55.36	10506.3	55.19	55.31	55.31	
BT	-3	10284.2	55.36		10413.9	55.31		10506.3	55.19	
GR	57.00	9569.5	55.29	9569.5	55.29	10000.0	55.23	10092.3	55.31	10190.5
GR	55.36	10284.2	53.60	10335.7	48.34	10358.9	46.85	10369.5	47.91	10382.6
GR	53.63	10400.6	55.19	10506.3	54.95	10602.1	54.83	10694.1	54.83	11669.5
GR	57.00	11669.5								

2000 BAKER & LAWSON SURVEY SECTION

X1	175	11	10008.5	10040.5	70	70	70			
GR	57.00	9222.9	53.27	9222.9	53.27	10000.0	52.25	10008.5	49.03	10018.8
GR	48.04	10022.9	48.92	10027.9	52.93	10040.5	53.66	10052.5	53.66	11322.9
GR	57.00	11322.9								

NC .10 .30

X1	176	7	500	534	350	1350	850			
GR	56	0	53.8	500	49.9	512	49	517	50.1	522
GR	54.2	534	56	3300						

NC .30 .50

X1	177	6	500	534	40	40	40			
X3	10							54.95	54.95	
GR	56	0	53.8	500	49.2	515	49.2	519	54.2	534
GR	56	3300								

TANKERSLEY ROAD

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SB	1.05	1.5	2.6		4	1	16	3.0		
TANKERSLEY ROAD										
X1	178	9	10500	10534	20	20	20			
X2			1	54.2	55.7					
X3	10							55.7	55.7	
BT	-5	9515	56		10000	56		10515	55.7	
BT		10519	55.7		13300	56				
GR	58	9515	56	9515	56	10000	53.8	10500	49.2	10515
GR	49.2	10519	54.2	10534	56	13300	58	13300		
X1	179	10	10500	10536	40	40	40			
GR	58	9518	56	9518	56	10000	55.5	10500	50.1	10514
GR	49	10518	50.2	10522	54.1	10536	56	13300	58	13300
NC				.10	.30					
X1	180	9	10700	10732	125	125	125			
GR	58	9721	56	9721	56	10000	54	10700	50.3	10711
GR	50.1	10721	53.9	10732	56	13000	58	13000		
NC				.30	.50					
X1	181	9	10700	10732	68	68	68			
X3	10							54.5	54.5	
GR	58	9714	56	9714	56	10000	54	10700	49.3	10714
GR	49.3	10718	53.9	10732	56	13000	58	13000		
PRIVATE ROAD Nr TANKERLEY ROAD										
SB	1.05	1.5	2.5		4	1	12	3.0		
PRIVATE ROAD Nr TANKERSLEY ROAD										
X1	182	9	10700	10732	14	14	14			
X2			1	53.3	55.7					
X3	10							55.7	55.7	
BT	-5	9714	56		10000	56		10714	55.7	
BT		10718	55.7		13000	56				
GR	58	9714	56	9714	56	10000	54	10700	49.3	10714
GR	49.3	10718	53.9	10732	56	13000	58	13000		



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T1 NEW BAYOU (INCLUDING C-1 DITCH)..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: NEW&C1S6.IH2.....25-YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3							14.61	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							

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T1 NEW BAYOU (INCLUDING C-1 DITCH)..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: NEW&C1S7.IH2.....100-YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		4							15.48	
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1							

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

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NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

L REVISED BY KLOTZ ASSOC

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
1.000	1722.00	13.94	.66	-2.50	7.10	7.10	15.00	427.75	24.84	.00	2641.74	
1.000	1985.00	14.61	.59	-2.50	7.10	7.10	15.00	403.84	20.34	.00	3057.81	
1.000	2488.00	15.48	.53	-2.50	7.10	7.10	15.00	385.94	15.51	.00	3300.00	
*	2.000	1722.00	14.01	1.90	-.71	12.58	10.73	15.00	1638.84	95.17	2900.00	204.73
*	2.000	1985.00	14.65	1.99	-.71	12.58	10.73	15.00	1829.62	92.17	2900.00	356.74
*	2.000	2488.00	15.50	2.15	-.71	12.58	10.73	15.00	2133.16	85.74	2900.00	448.42
	3.000	1722.00	14.01	2.15	-1.19	15.58	14.66	14.66	1722.00	100.00	85.00	99.98
	3.000	1985.00	14.66	2.29	-1.19	15.58	14.66	14.66	1985.00	100.00	85.00	103.96
	3.000	2488.00	15.50	2.60	-1.19	15.58	14.66	14.66	2488.00	100.00	85.00	106.77
	4.000	1722.00	14.02	2.14	-1.19	15.58	14.66	15.33	1722.00	100.00	30.00	100.49
	4.000	1985.00	14.66	2.28	-1.19	15.58	14.66	15.33	1985.00	100.00	30.00	104.47
	4.000	2488.00	15.69	2.54	-1.19	15.58	14.66	15.33	2488.00	100.00	30.00	107.50
	5.000	1722.00	14.02	2.41	-.64	13.55	14.95	15.00	1722.00	100.00	30.00	99.37
	5.000	1985.00	14.66	2.54	-.64	13.55	14.95	15.00	1985.00	100.00	30.00	101.28
	5.000	2488.00	15.69	2.81	-.64	13.55	14.95	15.00	2488.00	100.00	30.00	102.10
	6.000	1722.00	14.02	2.25	-1.99	15.66	15.69	16.26	1722.00	100.00	20.00	89.63
	6.000	1985.00	14.74	2.39	-1.99	15.66	15.69	16.26	1985.00	100.00	20.00	93.29
	6.000	2488.00	15.83	2.66	-1.99	15.66	15.69	16.26	2488.00	100.00	20.00	98.10
	8.000	1722.00	14.08	1.96	-1.07	14.19	11.87	18.00	1704.12	98.96	115.00	125.14
	8.000	1985.00	14.80	2.06	-1.07	14.19	11.87	18.00	1953.89	98.43	115.00	131.63
	8.000	2488.00	15.91	2.27	-1.07	14.19	11.87	18.00	2424.06	97.43	115.00	142.08
*	8.020	1722.00	14.16	.24	-.29	6.31	10.55	17.00	179.15	10.40	225.00	6700.00
*	8.020	1985.00	14.88	.20	-.29	6.31	10.55	17.00	158.78	8.00	225.00	6700.00
*	8.020	2488.00	16.01	.17	-.29	6.31	10.55	17.00	147.39	5.92	225.00	6700.00

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	8.030	1722.00	14.15	1.14	-1.14	8.31	9.15	17.00	1094.25	63.55	36.00	3363.66
*	8.030	1985.00	14.88	.73	-1.14	8.31	9.15	17.00	752.35	37.90	36.00	6700.00
*	8.030	2488.00	16.01	.43	-1.14	8.31	9.15	17.00	492.95	19.81	36.00	6700.00
	8.040	1722.00	14.15	1.18	-1.02	9.25	8.35	17.00	1049.63	60.95	16.00	3357.87
	8.040	1985.00	14.88	.73	-1.02	9.25	8.35	17.00	703.39	35.44	16.00	6700.00
	8.040	2488.00	16.01	.43	-1.02	9.25	8.35	17.00	454.11	18.25	16.00	6700.00
	8.050	1722.00	14.17	.84	-1.34	12.34	11.91	17.00	666.65	38.71	45.00	3765.89
	8.050	1985.00	14.88	.62	-1.34	12.34	11.91	17.00	527.74	26.59	45.00	5686.83
	8.050	2488.00	16.01	.40	-1.34	12.34	11.91	17.00	380.83	15.31	45.00	6000.00
*	8.160	1722.00	14.19	1.65	-.98	13.88	12.89	17.00	1718.06	99.77	742.00	342.84
*	8.160	1985.00	14.89	1.53	-.98	13.88	12.89	17.00	1704.21	85.85	742.00	5376.78
*	8.160	2488.00	16.02	.78	-.98	13.88	12.89	17.00	964.77	38.78	742.00	6139.00
	8.170	1722.00	14.21	1.73	-.21	13.00	12.89	17.00	1292.04	75.03	73.00	2525.92
	8.170	1985.00	14.92	1.24	-.21	13.00	12.89	17.00	1001.81	50.47	73.00	4530.38
	8.170	2488.00	16.02	.68	-.21	13.00	12.89	17.00	611.50	24.58	73.00	6132.50
	8.180	1722.00	14.21	1.66	-.24	12.73	12.63	17.00	1303.88	75.72	18.00	2558.29
	8.180	1985.00	14.92	1.22	-.24	12.73	12.63	17.00	1031.60	51.97	18.00	4536.45
	8.180	2488.00	16.02	.68	-.24	12.73	12.63	17.00	638.32	25.66	18.00	6131.70
	8.190	1722.00	14.23	1.55	-1.66	11.95	11.76	17.00	1394.34	80.97	80.00	3425.34
	8.190	1985.00	14.93	1.11	-1.66	11.95	11.76	17.00	1062.99	53.55	80.00	5899.87
	8.190	2488.00	16.02	.59	-1.66	11.95	11.76	17.00	626.76	25.19	80.00	6145.00
*	9.000	1684.00	14.32	.56	1.18	10.43	10.75	17.00	446.48	26.51	2365.00	7052.10
*	9.000	1955.00	14.97	.41	1.18	10.43	10.75	17.00	345.76	17.69	2365.00	7961.51
*	9.000	2427.00	16.04	.28	1.18	10.43	10.75	17.00	257.57	10.61	2365.00	8000.00
*	10.000	1684.00	14.29	2.11	.24	13.89	14.69	17.00	1684.00	100.00	90.00	73.85
*	10.000	1955.00	14.93	2.31	.24	13.89	14.69	17.00	1945.32	99.50	90.00	159.23
*	10.000	2427.00	16.00	2.40	.24	13.89	14.69	17.00	2209.70	91.05	90.00	4281.95
	11.000	1684.00	14.54	2.21	-.22	14.28	14.63	17.00	1683.71	99.98	20.00	90.17
	11.000	1955.00	15.29	2.39	-.22	14.28	14.63	17.00	1939.99	99.23	20.00	208.37
	11.000	2427.00	15.98	2.57	-.22	14.28	14.63	17.00	2218.87	91.42	20.00	4268.76
	12.000	1684.00	14.54	2.59	.46	14.45	13.60	17.00	1684.00	100.00	50.00	77.10
	12.000	1955.00	15.29	2.70	.46	14.45	13.60	17.00	1912.56	97.83	50.00	246.64
*	12.000	2427.00	16.09	1.54	.46	14.45	13.60	17.00	1186.22	48.88	50.00	8000.00
	13.000	1684.00	14.69	2.24	.01	13.32	14.44	17.00	1684.00	100.00	40.00	81.50
	13.000	1955.00	15.36	2.43	.01	13.32	14.44	17.00	1955.00	100.00	40.00	81.50
	13.000	2427.00	16.09	1.48	.01	13.32	14.44	17.00	1278.92	52.70	40.00	8000.00
*	14.000	1684.00	14.80	.37	-.28	10.38	11.22	17.00	321.94	19.12	80.00	7727.70
*	14.000	1955.00	15.48	.28	-.28	10.38	11.22	17.00	262.39	13.42	80.00	8000.00
*	14.000	2427.00	16.11	.26	-.28	10.38	11.22	17.00	252.54	10.41	80.00	8000.00

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	15.000	1684.00	14.79	1.60	1.00	13.00	13.50	17.00	940.92	55.87	900.00	3568.41
*	15.000	1955.00	15.48	1.05	1.00	13.00	13.50	17.00	662.29	33.88	900.00	5069.13
*	15.000	2427.00	16.11	.82	1.00	13.00	13.50	17.00	549.71	22.65	900.00	5123.64
	16.000	1684.00	14.82	1.31	1.10	14.00	14.00	17.00	567.52	33.70	88.00	5112.94
	16.000	1955.00	15.49	.79	1.10	14.00	14.00	17.00	360.58	18.44	88.00	5278.00
	16.000	2427.00	16.12	.61	1.10	14.00	14.00	17.00	294.71	12.14	88.00	5328.82
	17.000	1684.00	14.82	1.30	1.10	14.00	14.00	17.00	561.17	33.32	24.00	5120.74
	17.000	1955.00	15.49	.78	1.10	14.00	14.00	17.00	358.41	18.33	24.00	5278.63
	17.000	2427.00	16.12	.61	1.10	14.00	14.00	17.00	293.95	12.11	24.00	5329.18
*	18.000	1684.00	14.81	2.01	1.10	14.00	14.00	17.00	1253.58	74.44	88.00	3780.21
*	18.000	1955.00	15.49	1.29	1.10	14.00	14.00	17.00	855.49	43.76	88.00	3886.14
*	18.000	2427.00	16.12	.96	1.10	14.00	14.00	17.00	671.13	27.65	88.00	5558.95
*	19.000	1684.00	15.01	1.36	.41	11.47	12.21	17.00	904.29	53.70	1600.00	3300.00
	19.000	1955.00	15.57	1.10	.41	11.47	12.21	17.00	770.94	39.43	1600.00	3300.00
	19.000	2427.00	16.17	.95	.41	11.47	12.21	17.00	708.52	29.19	1600.00	3300.00
*	20.000	1684.00	14.89	4.27	1.39	16.98	17.10	16.59	1684.00	100.00	88.00	53.57
*	20.000	1955.00	15.42	4.62	1.39	16.98	17.10	16.59	1955.00	100.00	88.00	55.47
*	20.000	2427.00	15.96	5.36	1.39	16.98	17.10	16.59	2427.00	100.00	88.00	57.36
	20.100	1684.00	14.89	3.82	1.03	16.98	17.06	16.59	1684.00	100.00	24.00	55.65
	20.100	1955.00	15.42	4.15	1.03	16.98	17.06	16.59	1955.00	100.00	24.00	57.37
	20.100	2427.00	15.96	4.82	1.03	16.98	17.06	16.59	2427.00	100.00	24.00	59.12
*	21.000	1684.00	15.23	1.12	-.22	12.31	12.10	19.00	1047.87	62.22	88.00	2324.32
*	21.000	1955.00	15.83	.99	-.22	12.31	12.10	19.00	979.87	50.12	88.00	3029.35
*	21.000	2427.00	16.51	.90	-.22	12.31	12.10	19.00	945.79	38.97	88.00	3828.19
	22.000	1682.00	15.40	1.08	1.09	13.44	12.81	19.00	836.23	49.72	3100.00	4500.00
	22.000	1934.00	15.93	.79	1.09	13.44	12.81	19.00	648.65	33.54	3100.00	4500.00
	22.000	2427.00	16.58	.64	1.09	13.44	12.81	19.00	560.60	23.10	3100.00	4500.00
*	23.000	1682.00	15.38	1.90	1.58	16.11	15.81	19.00	1682.00	100.00	83.00	115.62
*	23.000	1934.00	15.91	2.05	1.58	16.11	15.81	19.00	1934.00	100.00	83.00	118.99
*	23.000	2427.00	16.54	2.35	1.58	16.11	15.81	19.00	2395.10	98.69	83.00	2176.13
	24.000	1682.00	15.39	1.92	2.29	15.60	15.99	19.00	1682.00	100.00	34.00	115.98
	24.000	1934.00	15.95	2.06	2.29	15.60	15.99	19.00	1934.00	100.00	34.00	118.85
	24.000	2427.00	16.55	2.40	2.29	15.60	15.99	19.00	2427.00	100.00	34.00	119.00
*	24.100	1682.00	15.45	1.28	2.53	13.61	12.78	19.00	1039.76	61.82	55.00	4500.00
*	24.100	1934.00	16.03	.86	2.53	13.61	12.78	19.00	745.96	38.57	55.00	4500.00
*	24.100	2427.00	16.66	.68	2.53	13.61	12.78	19.00	633.98	26.12	55.00	4500.00
*	25.000	1682.00	15.41	2.79	2.22	15.57	15.28	19.00	1682.00	100.00	95.00	77.18
*	25.000	1934.00	15.98	3.00	2.22	15.57	15.28	19.00	1934.00	100.00	95.00	77.50
*	25.000	2427.00	16.58	3.48	2.22	15.57	15.28	19.00	2407.03	99.18	95.00	138.84

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
26.000	1682.00	15.73	2.73	2.55	16.00	16.47	19.00	1682.00	100.00	20.00	69.38	
26.000	1934.00	16.42	2.91	2.55	16.00	16.47	19.00	1932.99	99.95	20.00	90.55	
26.000	2427.00	17.20	3.34	2.55	16.00	16.47	19.00	2403.95	99.05	20.00	164.80	
*	27.000	1682.00	15.88	.67	2.38	13.75	12.03	19.00	522.84	31.08	40.00	4500.00
*	27.000	1934.00	16.59	.48	2.38	13.75	12.03	19.00	401.74	20.77	40.00	4500.00
*	27.000	2427.00	17.43	.39	2.38	13.75	12.03	19.00	356.84	14.70	40.00	4500.00
*	28.000	1682.00	16.03	1.50	2.82	14.31	15.05	19.00	1564.87	93.04	4000.00	1428.05
*	28.000	1934.00	16.66	1.35	2.82	14.31	15.05	19.00	1507.41	77.94	4000.00	1870.78
*	28.000	2427.00	17.47	1.18	2.82	14.31	15.05	19.00	1432.25	59.01	4000.00	2436.29
*	29.000	1682.00	16.03	2.10	4.22	14.90	13.86	19.00	1466.06	87.16	90.00	1231.96
29.000	1934.00	16.66	1.82	4.22	14.90	13.86	19.00	1364.76	70.57	90.00	1715.96	
29.000	2427.00	17.48	1.49	4.22	14.90	13.86	19.00	1210.96	49.90	90.00	2335.11	
30.000	1682.00	16.02	2.16	3.37	14.82	14.78	19.00	1463.32	87.00	20.00	1224.92	
30.000	1934.00	16.66	1.86	3.37	14.82	14.78	19.00	1349.00	69.75	20.00	1718.31	
30.000	2427.00	17.48	1.50	3.37	14.82	14.78	19.00	1186.32	48.88	20.00	2339.87	
*	31.000	1682.00	16.09	1.39	3.93	15.05	14.53	19.00	1118.12	66.48	90.00	1475.60
*	31.000	1934.00	16.71	1.19	3.93	15.05	14.53	19.00	1029.92	53.25	90.00	1902.17
*	31.000	2427.00	17.50	1.03	3.93	15.05	14.53	19.00	975.22	40.18	90.00	2449.20
*	32.000	1621.00	17.10	3.67	3.50	18.10	18.00	20.00	1621.00	100.00	4500.00	62.86
*	32.000	1858.00	17.39	4.04	3.50	18.10	18.00	20.00	1858.00	100.00	4500.00	64.14
*	32.000	2340.00	17.90	4.74	3.50	18.10	18.00	20.00	2340.00	100.00	4500.00	66.35
33.000	1621.00	17.20	3.85	3.60	22.00	22.00	22.00	1621.00	100.00	100.00	60.27	
33.000	1858.00	17.51	4.22	3.60	22.00	22.00	22.00	1858.00	100.00	100.00	61.57	
33.000	2340.00	18.06	4.94	3.60	22.00	22.00	22.00	2340.00	100.00	100.00	63.87	
34.000	1621.00	17.31	4.01	5.50	18.70	19.40	21.00	1621.00	100.00	100.00	62.29	
34.000	1858.00	17.64	4.37	5.50	18.70	19.40	21.00	1858.00	100.00	100.00	63.74	
34.000	2340.00	18.23	5.05	5.50	18.70	19.40	21.00	2340.00	100.00	100.00	66.33	
*	34.200	1621.00	18.13	1.07	4.96	16.59	16.25	22.00	975.73	60.19	3300.00	3274.43
*	34.200	1858.00	18.45	.98	4.96	16.59	16.25	22.00	926.00	49.84	3300.00	3706.33
*	34.200	2340.00	19.05	.82	4.96	16.59	16.25	22.00	824.16	35.22	3300.00	5102.00
*	34.900	1621.00	18.84	2.39	6.23	22.32	21.06	21.89	1621.00	100.00	6540.00	83.57
*	34.900	1858.00	19.08	2.66	6.23	22.32	21.06	21.89	1858.00	100.00	6540.00	84.57
*	34.900	2340.00	19.48	3.19	6.23	22.32	21.06	21.89	2340.00	100.00	6540.00	86.36
35.000	1621.00	18.85	2.74	6.41	21.39	21.49	21.62	1621.00	100.00	60.00	67.37	
35.000	1858.00	19.09	3.06	6.41	21.39	21.49	21.62	1858.00	100.00	60.00	68.04	
35.000	2340.00	19.50	3.68	6.41	21.39	21.49	21.62	2340.00	100.00	60.00	69.22	
36.000	1621.00	18.86	3.00	6.85	20.52	21.86	25.00	1621.00	100.00	20.00	64.65	
36.000	1858.00	19.10	3.34	6.85	20.52	21.86	25.00	1858.00	100.00	20.00	65.36	
36.000	2340.00	19.52	4.01	6.85	20.52	21.86	25.00	2340.00	100.00	20.00	66.62	

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
36.100	1621.00	18.96	2.40	5.58	21.21	20.18	25.00	1621.00	100.00	60.00	83.16
36.100	1858.00	19.21	2.66	5.58	21.21	20.18	25.00	1858.00	100.00	60.00	84.32
36.100	2340.00	19.68	3.17	5.58	21.21	20.18	25.00	2340.00	100.00	60.00	86.44
*	37.000	1621.00	20.92	4.18	7.50	24.10	23.80	1621.00	100.00	3340.00	57.89
*	37.000	1858.00	21.49	4.41	7.50	24.10	23.80	1858.00	100.00	3340.00	60.36
*	37.000	2340.00	22.55	4.80	7.50	24.10	23.80	2340.00	100.00	3340.00	64.98
38.000	1621.00	24.01	4.85	7.00	27.90	28.90	28.90	1621.00	100.00	1700.00	52.88
38.000	1858.00	24.67	5.02	7.00	27.90	28.90	28.90	1858.00	100.00	1700.00	55.88
38.000	2340.00	25.86	5.32	7.00	27.90	28.90	28.90	2340.00	100.00	1700.00	61.30
*	39.000	1621.00	24.43	2.99	14.00	22.00	24.10	1519.10	93.71	100.00	259.47
*	39.000	1858.00	25.15	2.64	14.00	22.00	24.10	1474.09	79.34	100.00	878.09
*	39.000	2340.00	26.44	1.72	14.00	22.00	24.10	1111.90	47.52	100.00	4100.00
*	39.900	1554.00	24.78	1.39	7.23	22.10	22.66	1421.92	91.50	1060.00	375.89
*	39.900	1777.00	25.41	1.30	7.23	22.10	22.66	1404.05	79.01	1060.00	3367.63
*	39.900	2325.00	26.53	.86	7.23	22.10	22.66	1009.76	43.43	1060.00	4200.00
*	40.000	1554.00	24.77	2.22	9.81	24.90	23.91	1554.00	100.00	140.00	70.13
*	40.000	1777.00	25.40	2.16	9.81	24.90	23.91	1611.00	90.66	140.00	3399.35
	40.000	2325.00	26.53	1.09	9.81	24.90	23.91	897.96	38.62	140.00	4200.00
41.000	1554.00	24.91	2.31	9.97	24.85	23.61	31.00	1554.00	100.00	30.00	68.20
41.000	1777.00	25.59	2.47	9.97	24.85	23.61	31.00	1777.00	100.00	30.00	68.20
41.000	2325.00	26.53	1.10	9.97	24.85	23.61	31.00	862.36	37.09	30.00	4200.00
*	42.000	1554.00	24.85	4.22	10.73	28.12	28.17	1554.00	100.00	60.00	51.65
*	42.000	1777.00	25.53	4.40	10.73	28.12	28.17	1777.00	100.00	60.00	52.03
*	42.000	2325.00	26.33	5.21	10.73	28.12	28.17	2325.00	100.00	60.00	52.49
43.000	1554.00	24.88	4.16	10.75	28.11	28.07	31.00	1554.00	100.00	20.00	51.87
43.000	1777.00	25.55	4.34	10.75	28.11	28.07	31.00	1777.00	100.00	20.00	52.36
43.000	2325.00	26.38	5.14	10.75	28.11	28.07	31.00	2325.00	100.00	20.00	52.96
*	43.300	1869.00	25.23	1.58	11.90	23.36	22.49	1044.07	55.86	105.00	2600.00
*	43.300	2189.00	25.94	1.10	11.90	23.36	22.49	783.64	35.80	105.00	2600.00
*	43.300	2908.00	26.91	.86	11.90	23.36	22.49	669.16	23.01	105.00	2600.00
43.400	1869.00	25.23	2.06	11.90	23.61	23.46	31.00	1227.08	65.65	73.00	2600.00
43.400	2189.00	25.95	1.39	11.90	23.61	23.46	31.00	883.02	40.34	73.00	2600.00
43.400	2908.00	26.92	1.02	11.90	23.61	23.46	31.00	705.08	24.25	73.00	2600.00
43.500	1869.00	25.23	2.17	11.76	23.85	24.20	31.00	1162.23	62.18	17.00	2601.00
43.500	2189.00	25.95	1.40	11.76	23.85	24.20	31.00	805.31	36.79	17.00	2601.00
43.500	2908.00	26.92	1.00	11.76	23.85	24.20	31.00	632.13	21.74	17.00	2601.00
43.600	1869.00	25.26	1.94	11.93	24.35	23.27	31.00	1089.35	58.29	56.00	2600.00
43.600	2189.00	25.95	1.30	11.93	24.35	23.27	31.00	784.81	35.85	56.00	2600.00
43.600	2908.00	26.92	.96	11.93	24.35	23.27	31.00	636.68	21.89	56.00	2600.00

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
43.700	1869.00	25.28	1.80	11.63	26.02	23.33	31.00	1420.48	76.00	104.00	850.28
43.700	2189.00	25.96	1.62	11.63	26.02	23.33	31.00	1376.22	62.87	104.00	851.59
*	43.700	2908.00	26.92	1.44	11.63	26.02	31.00	1339.09	46.05	104.00	2600.00
*	43.900	1869.00	25.60	1.08	6.71	21.43	25.60	977.02	52.28	2645.00	2253.47
*	43.900	2189.00	26.19	.96	6.71	21.43	25.60	913.27	41.72	2645.00	2667.27
*	43.900	2908.00	27.08	.84	6.71	21.43	25.60	867.00	29.81	2645.00	3100.00
*	115.000	1603.00	26.53	2.69	11.81	31.00	32.66	1603.00	100.00	7760.00	72.43
*	115.000	2313.00	27.04	3.66	11.81	31.00	32.66	2313.00	100.00	7760.00	74.54
*	115.000	3220.00	27.65	4.74	11.81	31.00	32.66	3220.00	100.00	7760.00	77.11
*	116.000	1603.00	26.52	3.60	16.80	33.31	34.70	1603.00	100.00	37.00	70.43
*	116.000	2313.00	27.02	4.81	16.80	33.31	34.70	2313.00	100.00	37.00	72.75
*	116.000	3220.00	27.63	6.13	16.80	33.31	34.70	3220.00	100.00	37.00	75.58
117.000	1603.00	26.55	3.58	16.80	33.31	34.70	33.31	1603.00	100.00	26.00	70.58
117.000	2313.00	27.09	4.76	16.80	33.31	34.70	33.31	2313.00	100.00	26.00	73.06
117.000	3220.00	27.76	6.01	16.80	33.31	34.70	33.31	3220.00	100.00	26.00	76.18
118.000	1603.00	26.67	3.16	12.90	30.74	35.28	36.00	1603.00	100.00	37.00	70.80
118.000	2313.00	27.29	4.19	12.90	30.74	35.28	36.00	2313.00	100.00	37.00	73.84
118.000	3220.00	28.07	5.27	12.90	30.74	35.28	36.00	3220.00	100.00	37.00	77.68
*	119.000	1603.00	28.43	2.08	14.11	30.80	28.27	1602.98	100.00	2400.00	91.62
*	119.000	2313.00	29.74	2.48	14.11	30.80	28.27	2207.95	95.46	2400.00	3455.34
*	119.000	3220.00	30.33	2.06	14.11	30.80	28.27	1943.60	60.36	2400.00	6030.01
*	120.000	1603.00	28.51	1.29	14.16	30.11	30.42	1603.00	100.00	84.00	168.14
*	120.000	2313.00	29.84	1.56	14.16	30.11	30.42	2313.00	100.00	84.00	183.37
120.000	3220.00	30.35	2.04	14.16	30.11	30.42	35.00	3219.63	99.99	84.00	208.93
121.000	1603.00	28.51	1.26	14.96	30.53	30.56	35.00	1603.00	100.00	32.00	176.03
121.000	2313.00	29.93	1.51	14.96	30.53	30.56	35.00	2313.00	100.00	32.00	193.20
121.000	3220.00	30.52	1.95	14.96	30.53	30.56	35.00	3220.00	100.00	32.00	200.40
*	122.000	1603.00	28.48	2.70	14.42	30.27	36.49	1603.00	100.00	59.00	79.26
*	122.000	2313.00	29.89	3.26	14.42	30.27	36.49	2313.00	100.00	59.00	86.57
*	122.000	3220.00	30.46	4.24	14.42	30.27	36.49	3219.96	100.00	59.00	90.73
123.000	1803.00	30.92	2.37	16.05	30.66	30.16	35.00	1799.92	99.83	3300.00	126.13
*	123.000	2341.00	31.54	1.56	16.05	30.66	30.16	1277.07	54.55	3300.00	7999.20
*	123.000	3295.00	31.96	1.27	16.05	30.66	30.16	1096.34	33.27	3300.00	7999.20
*	124.000	1803.00	31.00	1.64	16.83	32.77	33.00	1803.00	100.00	73.00	123.79
124.000	2341.00	31.54	2.01	16.83	32.77	33.00	36.00	2341.00	100.00	73.00	126.44
*	124.000	3295.00	31.92	2.72	16.83	32.77	33.00	3295.00	100.00	73.00	128.29
125.000	1803.00	31.04	1.78	16.82	32.91	32.95	36.00	1803.00	100.00	54.00	123.81
125.000	2341.00	31.62	2.16	16.82	32.91	32.95	36.00	2341.00	100.00	54.00	126.89
125.000	3295.00	32.08	2.88	16.82	32.91	32.95	36.00	3295.00	100.00	54.00	129.38



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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	126.000	1803.00	31.11	.43	18.23	29.57	29.39	36.00	320.95	17.80	73.00	8000.00
*	126.000	2341.00	31.71	.34	18.23	29.57	29.39	36.00	266.99	11.40	73.00	8000.00
*	126.000	3295.00	32.25	.33	18.23	29.57	29.39	36.00	282.40	8.57	73.00	8000.00
*	127.000	2170.00	31.28	4.81	19.22	36.67	38.35	36.67	2170.00	100.00	5400.00	56.79
*	127.000	2586.00	31.61	5.50	19.22	36.67	38.35	36.67	2586.00	100.00	5400.00	57.79
*	127.000	3498.00	31.90	7.19	19.22	36.67	38.35	36.67	3498.00	100.00	5400.00	58.61
	128.000	2170.00	31.31	5.23	19.63	34.22	34.10	33.73	2170.00	100.00	20.00	50.33
	128.000	2586.00	31.65	5.98	19.63	34.22	34.10	33.73	2586.00	100.00	20.00	51.11
	128.000	3498.00	31.95	7.80	19.63	34.22	34.10	33.73	3498.00	100.00	20.00	51.82
	129.000	2170.00	31.32	5.41	20.02	33.72	33.91	33.73	2170.00	100.00	3.00	53.10
	129.000	2586.00	31.67	6.16	20.02	33.72	33.91	33.73	2586.00	100.00	3.00	54.09
	129.000	3498.00	32.00	7.99	20.02	33.72	33.91	33.73	3498.00	100.00	3.00	55.05
	130.000	2170.00	31.66	4.87	20.47	33.91	41.35	34.33	2170.00	100.00	64.00	65.26
	130.000	2586.00	32.11	5.44	20.47	33.91	41.35	34.33	2586.00	100.00	64.00	67.22
	130.000	3498.00	32.80	6.69	20.47	33.91	41.35	34.33	3498.00	100.00	64.00	70.23
	131.000	2170.00	31.71	6.41	22.20	34.40	34.50	37.00	2170.00	100.00	26.00	51.92
	131.000	2586.00	32.18	7.12	22.20	34.40	34.50	37.00	2586.00	100.00	26.00	53.48
	131.000	3498.00	32.92	8.66	22.20	34.40	34.50	37.00	3498.00	100.00	26.00	55.95
	132.000	2170.00	32.29	5.84	21.70	35.20	40.10	37.00	2170.00	100.00	87.00	42.47
	132.000	2586.00	32.86	6.54	21.70	35.20	40.10	37.00	2586.00	100.00	87.00	43.18
	132.000	3498.00	33.87	7.95	21.70	35.20	40.10	37.00	3498.00	100.00	87.00	44.43
*	133.000	2086.00	36.27	2.38	20.48	34.77	39.05	39.05	1858.11	89.08	2900.00	3047.94
*	133.000	2488.00	36.55	2.15	20.48	34.77	39.05	39.05	1729.21	69.50	2900.00	3048.66
*	133.000	3404.00	37.08	1.74	20.48	34.77	39.05	39.05	1482.44	43.55	2900.00	3049.97
	134.000	2086.00	36.31	2.40	21.97	37.63	37.68	40.00	2086.00	100.00	77.00	109.28
	134.000	2488.00	36.56	2.77	21.97	37.63	37.68	40.00	2488.00	100.00	77.00	110.99
*	134.000	3404.00	37.03	3.58	21.97	37.63	37.68	40.00	3404.00	100.00	77.00	114.13
	135.000	2086.00	36.31	2.36	22.36	37.64	37.72	40.00	2086.00	100.00	46.00	109.83
	135.000	2488.00	36.57	2.73	22.36	37.64	37.72	40.00	2488.00	100.00	46.00	111.53
	135.000	3404.00	37.20	3.46	22.36	37.64	37.72	40.00	3404.00	100.00	46.00	115.74
	136.000	2086.00	36.35	2.82	21.86	38.28	40.01	40.00	2086.00	100.00	77.00	98.36
	136.000	2488.00	36.62	3.25	21.86	38.28	40.01	40.00	2488.00	100.00	77.00	100.08
	136.000	3404.00	37.27	4.09	21.86	38.28	40.01	40.00	3404.00	100.00	77.00	104.32
*	137.000	2086.00	37.35	1.14	23.34	33.58	45.00	45.00	837.97	40.17	3450.00	2923.26
*	137.000	2488.00	37.66	1.11	23.34	33.58	45.00	45.00	839.15	33.73	3450.00	3297.17
*	137.000	3404.00	38.33	1.01	23.34	33.58	45.00	45.00	816.74	23.99	3450.00	4078.76
*	138.000	2086.00	37.33	2.52	21.31	36.65	37.19	45.00	2059.00	98.71	88.00	660.92
*	138.000	2488.00	37.62	2.81	21.31	36.65	37.19	45.00	2351.59	94.52	88.00	1265.83
*	138.000	3404.00	38.30	2.84	21.31	36.65	37.19	45.00	2503.99	73.56	88.00	2642.45

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
139.000	2086.00	37.32	2.76	21.56	36.61	37.05	45.00	2086.00	100.00	24.00	63.80
139.000	2488.00	37.61	3.03	21.56	36.61	37.05	45.00	2345.85	94.29	24.00	1230.36
139.000	3404.00	38.29	2.99	21.56	36.61	37.05	45.00	2447.50	71.90	24.00	2628.37
140.000	2086.00	37.46	2.10	22.99	34.67	45.00	45.00	1303.10	62.47	88.00	2214.30
140.000	2488.00	37.78	1.96	22.99	34.67	45.00	45.00	1260.55	50.67	88.00	2701.17
* 140.000	3404.00	38.44	1.62	22.99	34.67	45.00	45.00	1122.64	32.98	88.00	3689.43
* 141.000	2086.00	39.42	3.98	23.10	39.40	45.00	45.00	2085.93	100.00	2600.00	150.10
* 141.000	2488.00	39.60	4.60	23.10	39.40	45.00	45.00	2463.03	99.00	2600.00	823.64
* 141.000	3404.00	39.69	6.14	23.10	39.40	45.00	45.00	3322.34	97.60	2600.00	1128.99
* 142.000	2086.00	39.68	2.87	25.70	40.20	38.60	45.00	2056.01	98.56	90.00	1082.56
* 142.000	2488.00	39.96	3.11	25.70	40.20	38.60	45.00	2283.87	91.80	90.00	2110.03
* 142.000	3404.00	40.43	3.09	25.70	40.20	38.60	45.00	2365.90	69.50	90.00	3872.38
143.000	2086.00	39.82	2.87	25.70	40.20	38.60	45.00	2086.00	100.00	20.00	65.00
143.000	2488.00	40.18	2.73	25.70	40.20	38.60	45.00	2046.50	82.25	20.00	2945.55
143.000	3404.00	40.54	2.82	25.70	40.20	38.60	45.00	2179.62	64.03	20.00	4264.67
* 144.000	2086.00	39.86	3.85	25.60	42.90	45.00	45.00	2086.00	100.00	90.00	65.62
* 144.000	2488.00	40.17	4.42	25.60	42.90	45.00	45.00	2488.00	100.00	90.00	66.77
* 144.000	3404.00	40.42	5.87	25.60	42.90	45.00	45.00	3404.00	100.00	90.00	67.73
* 144.900	1767.00	40.61	1.16	26.17	37.85	45.00	45.00	720.32	40.77	1420.00	3527.95
* 144.900	2147.00	40.93	1.00	26.17	37.85	45.00	45.00	643.87	29.99	1420.00	3781.97
* 144.900	2865.00	41.42	.86	26.17	37.85	45.00	45.00	579.05	20.21	1420.00	4175.05
145.000	1767.00	40.61	1.60	25.95	39.95	40.12	45.00	936.26	52.99	30.00	3529.86
145.000	2147.00	40.93	1.32	25.95	39.95	40.12	45.00	795.17	37.04	30.00	3793.52
145.000	2865.00	41.42	1.07	25.95	39.95	40.12	45.00	671.06	23.42	30.00	4199.10
146.000	1767.00	40.61	1.60	24.80	39.99	40.07	45.00	994.33	56.27	20.00	3542.10
146.000	2147.00	40.93	1.34	24.80	39.99	40.07	45.00	852.54	39.71	20.00	3805.60
146.000	2865.00	41.42	1.09	24.80	39.99	40.07	45.00	722.54	25.22	20.00	4211.13
* 146.100	1767.00	40.64	.50	27.03	37.07	45.00	45.00	340.55	19.27	80.00	3543.09
* 146.100	2147.00	40.95	.49	27.03	37.07	45.00	45.00	343.54	16.00	80.00	3788.60
* 146.100	2865.00	41.43	.48	27.03	37.07	45.00	45.00	355.54	12.41	80.00	4179.36
* 148.000	1767.00	40.64	2.17	26.70	38.60	45.80	44.50	1767.00	100.00	4022.00	78.71
* 148.000	2147.00	40.95	2.56	26.70	38.60	45.80	44.50	2147.00	100.00	4022.00	79.08
* 148.000	2865.00	41.43	3.26	26.70	38.60	45.80	44.50	2865.00	100.00	4022.00	79.67
* 150.000	1767.00	40.65	5.31	31.60	43.80	46.50	46.50	1767.00	100.00	3352.00	49.30
* 150.000	2147.00	40.95	6.17	31.60	43.80	46.50	46.50	2147.00	100.00	3352.00	50.04
* 150.000	2865.00	41.44	7.69	31.60	43.80	46.50	46.50	2865.00	100.00	3352.00	51.22
152.000	1311.00	40.65	4.83	32.50	45.00	48.00	47.50	1311.00	100.00	1503.00	42.97
152.000	1528.00	41.13	5.28	32.50	45.00	48.00	47.50	1528.00	100.00	1503.00	43.87
152.000	1993.00	41.88	6.16	32.50	45.00	48.00	47.50	1993.00	100.00	1503.00	45.51

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	154.000	1311.00	40.70	7.30	33.10	47.30	47.30	50.00	1311.00	100.00	10403.00	36.96
*	154.000	1528.00	41.19	7.72	33.10	47.30	47.30	50.00	1528.00	100.00	10403.00	38.38
*	154.000	1993.00	41.97	8.71	33.10	47.30	47.30	50.00	1993.00	100.00	10403.00	40.64
*	154.900	1311.00	48.63	2.60	38.66	47.47	46.60	50.00	837.72	63.90	2840.00	1746.11
*	154.900	1528.00	48.79	2.51	38.66	47.47	46.60	50.00	830.51	54.35	2840.00	2305.44
*	154.900	1993.00	49.07	2.33	38.66	47.47	46.60	50.00	801.89	40.24	2840.00	3244.97
*	155.000	1311.00	48.59	4.75	39.14	47.56	47.63	50.00	1288.84	98.31	60.00	79.86
*	155.000	1528.00	48.70	5.42	39.14	47.56	47.63	50.00	1495.33	97.86	60.00	83.66
*	155.000	1993.00	48.83	6.87	39.14	47.56	47.63	50.00	1937.69	97.22	60.00	88.43
	156.000	1311.00	48.68	4.25	38.79	46.84	47.96	52.00	1311.00	100.00	24.00	44.90
	156.000	1528.00	48.78	4.88	38.79	46.84	47.96	52.00	1528.00	100.00	24.00	44.90
*	156.000	1993.00	49.46	3.06	38.79	46.84	47.96	52.00	1052.81	52.83	24.00	3706.61
	156.100	1311.00	48.87	4.47	39.04	48.61	47.65	50.00	1153.56	87.99	60.00	2546.07
*	156.100	1528.00	49.30	2.32	39.04	48.61	47.65	50.00	645.18	42.22	60.00	4084.11
*	156.100	1993.00	49.59	1.74	39.04	48.61	47.65	50.00	506.82	25.43	60.00	5136.22
*	156.500	496.00	49.24	3.92	42.56	50.84	50.76	55.00	496.00	100.00	75.00	38.32
*	156.500	593.00	49.25	4.67	42.56	50.84	50.76	55.00	593.00	100.00	75.00	38.42
*	156.500	766.00	49.40	5.77	42.56	50.84	50.76	55.00	766.00	100.00	75.00	39.28
*	156.600	496.00	51.07	1.46	42.56	50.84	50.76	55.00	301.31	60.75	925.00	5000.00
*	156.600	593.00	51.14	1.36	42.56	50.84	50.76	55.00	284.69	48.01	925.00	5000.00
*	156.600	766.00	51.26	1.18	42.56	50.84	50.76	55.00	253.14	33.05	925.00	5000.00
*	156.700	496.00	51.33	.60	42.56	50.84	50.76	55.00	132.36	26.69	1000.00	5000.00
*	156.700	593.00	51.39	.62	42.56	50.84	50.76	55.00	138.08	23.29	1000.00	5000.00
*	156.700	766.00	51.48	.65	42.56	50.84	50.76	55.00	147.07	19.20	1000.00	5000.00
	156.900	496.00	51.43	.47	42.56	50.84	50.76	55.00	105.70	21.31	1065.00	5000.00
	156.900	593.00	51.49	.50	42.56	50.84	50.76	55.00	112.81	19.02	1065.00	5000.00
	156.900	766.00	51.59	.52	42.56	50.84	50.76	55.00	119.80	15.64	1065.00	5000.00
*	157.000	496.00	51.42	1.71	43.35	52.01	51.88	55.00	496.00	100.00	75.00	43.18
*	157.000	593.00	51.48	2.03	43.35	52.01	51.88	55.00	593.00	100.00	75.00	43.22
*	157.000	766.00	51.56	2.59	43.35	52.01	51.88	55.00	766.00	100.00	75.00	43.29
	158.000	496.00	51.42	1.90	43.86	51.81	51.97	55.00	496.00	100.00	30.00	44.81
	158.000	593.00	51.48	2.25	43.86	51.81	51.97	55.00	593.00	100.00	30.00	44.86
	158.000	766.00	51.57	2.86	43.86	51.81	51.97	55.00	766.00	100.00	30.00	44.94
	159.000	496.00	51.47	1.77	42.91	53.68	53.64	55.00	496.00	100.00	40.00	49.37
	159.000	593.00	51.54	2.09	42.91	53.68	53.64	55.00	593.00	100.00	40.00	49.64
	159.000	766.00	51.66	2.63	42.91	53.68	53.64	55.00	766.00	100.00	40.00	50.12
	160.000	496.00	51.47	1.85	43.36	53.00	53.32	54.72	496.00	100.00	36.00	51.06
	160.000	593.00	51.54	2.18	43.36	53.00	53.32	54.72	593.00	100.00	36.00	51.38
	160.000	766.00	51.67	2.75	43.36	53.00	53.32	54.72	766.00	100.00	36.00	51.90

	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	160.100	496.00	51.55	.82	43.53	49.93	50.27	52.29	215.57	43.46	60.00	2537.99
*	160.100	593.00	51.66	.84	43.53	49.93	50.27	52.29	223.17	37.63	60.00	2538.95
*	160.100	766.00	51.84	.84	43.53	49.93	50.27	52.29	230.62	30.11	60.00	2540.62
*	161.000	496.00	51.79	1.97	43.74	49.78	51.05	55.00	446.50	90.02	890.00	4500.00
*	161.000	593.00	51.90	1.81	43.74	49.78	51.05	55.00	416.02	70.15	890.00	4500.00
*	161.000	766.00	52.05	1.46	43.74	49.78	51.05	55.00	344.99	45.04	890.00	4500.00
	162.000	496.00	51.85	1.56	44.05	50.26	50.59	55.00	359.14	72.41	34.00	2257.47
	162.000	593.00	51.93	1.67	44.05	50.26	50.59	55.00	390.10	65.78	34.00	2312.44
	162.000	766.00	52.07	1.70	44.05	50.26	50.59	55.00	407.34	53.18	34.00	2427.53
*	163.000	496.00	51.87	1.17	43.88	50.03	49.44	55.00	351.98	70.96	32.00	2247.78
	163.000	593.00	51.94	1.27	43.88	50.03	49.44	55.00	389.74	65.72	32.00	2306.02
	163.000	766.00	52.07	1.38	43.88	50.03	49.44	55.00	431.90	56.38	32.00	2413.66
	164.000	496.00	51.89	.85	43.83	49.86	50.54	55.00	214.55	43.26	34.00	4500.00
*	164.000	593.00	51.97	.85	43.83	49.86	50.54	55.00	215.97	36.42	34.00	4500.00
*	164.000	766.00	52.10	.82	43.83	49.86	50.54	55.00	213.42	27.86	34.00	4500.00
*	165.000	496.00	51.97	1.73	44.04	50.87	50.00	55.00	436.02	87.91	350.00	2040.57
*	165.000	593.00	52.04	1.79	44.04	50.87	50.00	55.00	458.87	77.38	350.00	2042.15
*	165.000	766.00	52.17	1.86	44.04	50.87	50.00	55.00	486.41	63.50	350.00	2044.27
*	166.000	496.00	52.02	.63	44.14	51.66	50.69	55.00	483.39	97.46	25.00	310.43
*	166.000	593.00	52.09	.74	44.14	51.66	50.69	55.00	574.70	96.91	25.00	342.04
*	166.000	766.00	52.21	.92	44.14	51.66	50.69	55.00	734.33	95.86	25.00	387.91
	167.000	496.00	52.05	.74	44.47	51.62	51.45	55.00	496.00	100.00	50.00	107.70
	167.000	593.00	52.14	.87	44.47	51.62	51.45	55.00	593.00	100.00	50.00	107.70
	167.000	766.00	52.28	1.05	44.47	51.62	51.45	55.00	731.95	95.55	50.00	424.30
*	167.100	496.00	52.03	2.67	44.18	49.94	50.35	55.00	464.54	93.66	100.00	63.33
*	167.100	593.00	52.11	3.13	44.18	49.94	50.35	55.00	552.15	93.11	100.00	64.69
*	167.100	766.00	52.23	3.90	44.18	49.94	50.35	55.00	702.89	91.76	100.00	2036.32
*	168.000	496.00	53.28	1.12	44.66	51.72	50.76	55.00	239.61	48.31	1900.00	2034.95
*	168.000	593.00	53.39	1.06	44.66	51.72	50.76	55.00	232.46	39.20	1900.00	2035.99
*	168.000	766.00	53.57	1.01	44.66	51.72	50.76	55.00	227.24	29.67	1900.00	2037.57
*	169.000	496.00	53.29	2.19	45.38	51.69	51.83	55.00	496.00	100.00	85.00	42.60
*	169.000	593.00	53.39	2.57	45.38	51.69	51.83	55.00	593.00	100.00	85.00	42.60
*	169.000	766.00	53.53	3.24	45.38	51.69	51.83	55.00	766.00	100.00	85.00	42.60
	170.000	496.00	53.30	2.24	45.78	52.12	51.51	55.00	496.00	100.00	30.00	41.80
	170.000	593.00	53.40	2.63	45.78	52.12	51.51	55.00	593.00	100.00	30.00	41.80
	170.000	766.00	53.55	3.30	45.78	52.12	51.51	55.00	766.00	100.00	30.00	41.80
*	171.000	496.00	53.43	1.22	45.63	51.58	50.98	55.00	259.37	52.29	85.00	2036.50
*	171.000	593.00	53.57	1.11	45.63	51.58	50.98	55.00	240.91	40.62	85.00	2038.10
*	171.000	766.00	53.81	.95	45.63	51.58	50.98	55.00	214.78	28.04	85.00	3000.00

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMK	QCH	QCHP	XLCH	TOPWID
*	171.300	496.00	54.03	1.77	46.28	51.88	51.60	55.00	337.40	68.02	1200.00	3000.00
*	171.300	593.00	54.09	1.79	46.28	51.88	51.60	55.00	346.21	58.38	1200.00	3000.00
*	171.300	766.00	54.21	1.74	46.28	51.88	51.60	55.00	342.50	44.71	1200.00	3000.00
*	171.400	496.00	54.08	.68	46.41	52.97	52.26	55.00	168.19	33.91	60.00	3310.10
*	171.400	593.00	54.14	.75	46.41	52.97	52.26	55.00	187.44	31.61	60.00	3310.10
*	171.400	766.00	54.25	.81	46.41	52.97	52.26	55.00	207.47	27.08	60.00	3310.10
*	171.500	496.00	54.03	1.90	46.01	53.38	52.83	55.00	496.00	100.00	45.00	47.50
*	171.500	593.00	54.07	2.25	46.01	53.38	52.83	55.00	593.00	100.00	45.00	47.50
	171.500	766.00	54.24	1.10	46.01	53.38	52.83	55.00	299.84	39.14	45.00	3000.00
	171.600	496.00	54.11	2.19	46.32	53.54	51.95	55.00	455.01	91.74	80.00	2032.89
	171.600	593.00	54.18	2.37	46.32	53.54	51.95	55.00	499.98	84.31	80.00	2034.20
*	171.600	766.00	54.25	2.61	46.32	53.54	51.95	55.00	557.66	72.80	80.00	2035.78
	172.000	260.00	54.79	1.62	47.05	52.54	51.51	57.00	225.87	86.87	715.00	480.17
	172.000	308.00	54.95	1.73	47.05	52.54	51.51	57.00	247.80	80.45	715.00	480.76
	172.000	404.00	55.15	1.94	47.05	52.54	51.51	57.00	286.67	70.96	715.00	481.51
*	173.000	260.00	54.84	.75	47.07	54.19	53.12	57.00	246.83	94.94	70.00	168.48
*	173.000	308.00	55.00	.85	47.07	54.19	53.12	57.00	288.05	93.52	70.00	187.05
*	173.000	404.00	55.21	1.05	47.07	54.19	53.12	57.00	369.24	91.40	70.00	1432.16
	174.000	260.00	55.11	.73	46.85	53.60	53.63	57.00	260.00	100.00	60.00	64.90
	174.000	308.00	55.35	.69	46.85	53.60	53.63	57.00	257.74	83.68	60.00	1385.20
*	174.000	404.00	55.59	.70	46.85	53.60	53.63	57.00	272.39	67.42	60.00	2100.00
*	175.000	260.00	55.12	.13	48.04	52.25	52.93	57.00	21.23	8.17	70.00	2100.00
*	175.000	308.00	55.36	.13	48.04	52.25	52.93	57.00	21.78	7.07	70.00	2100.00
*	175.000	404.00	55.60	.15	48.04	52.25	52.93	57.00	25.32	6.27	70.00	2100.00
*	176.000	260.00	55.13	.66	49.00	53.80	54.20	56.00	86.81	33.39	850.00	1760.05
*	176.000	308.00	55.37	.52	49.00	53.80	54.20	56.00	73.20	23.77	850.00	2183.51
*	176.000	404.00	55.61	.48	49.00	53.80	54.20	56.00	71.06	17.59	850.00	2605.72
	177.000	260.00	55.13	.66	49.20	53.80	54.20	56.00	85.15	32.75	40.00	1764.56
	177.000	308.00	55.37	.52	49.20	53.80	54.20	56.00	71.85	23.33	40.00	2186.17
	177.000	404.00	55.61	.48	49.20	53.80	54.20	56.00	69.77	17.27	40.00	2607.85
*	178.000	260.00	55.89	.21	49.20	53.80	54.20	58.00	32.84	12.63	20.00	3113.45
*	178.000	308.00	55.92	.24	49.20	53.80	54.20	58.00	37.90	12.30	20.00	3159.32
*	178.000	404.00	55.96	.30	49.20	53.80	54.20	58.00	47.87	11.85	20.00	3226.70
	179.000	260.00	55.89	.21	49.00	55.50	54.10	58.00	31.14	11.98	40.00	3046.58
	179.000	308.00	55.92	.24	49.00	55.50	54.10	58.00	35.99	11.68	40.00	3107.86
	179.000	404.00	55.96	.31	49.00	55.50	54.10	58.00	45.50	11.26	40.00	3200.87
	180.000	260.00	55.90	.19	50.10	54.00	53.90	58.00	27.03	10.40	125.00	2851.11
	180.000	308.00	55.92	.22	50.10	54.00	53.90	58.00	31.30	10.16	125.00	2889.01
	180.000	404.00	55.96	.28	50.10	54.00	53.90	58.00	39.70	9.83	125.00	2945.32

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
181.000	260.00	55.90	.19	49.30	54.00	53.90	58.00	28.31	10.89	68.00	2852.04
181.000	308.00	55.92	.22	49.30	54.00	53.90	58.00	32.77	10.64	68.00	2890.25
181.000	404.00	55.96	.28	49.30	54.00	53.90	58.00	41.54	10.28	68.00	2947.25
182.000	260.00	55.94	.19	49.30	54.00	53.90	58.00	27.31	10.50	14.00	2911.17
182.000	308.00	55.96	.22	49.30	54.00	53.90	58.00	31.84	10.34	14.00	2937.76
182.000	404.00	55.99	.27	49.30	54.00	53.90	58.00	40.66	10.06	14.00	2983.59

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## SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	2.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	8.020	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	8.020	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	8.020	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	8.030	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	8.030	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	23.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

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WARNING SECNO=	24.100	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	43.300	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	138.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

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WARNING SECNO=	156.500	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	156.500	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

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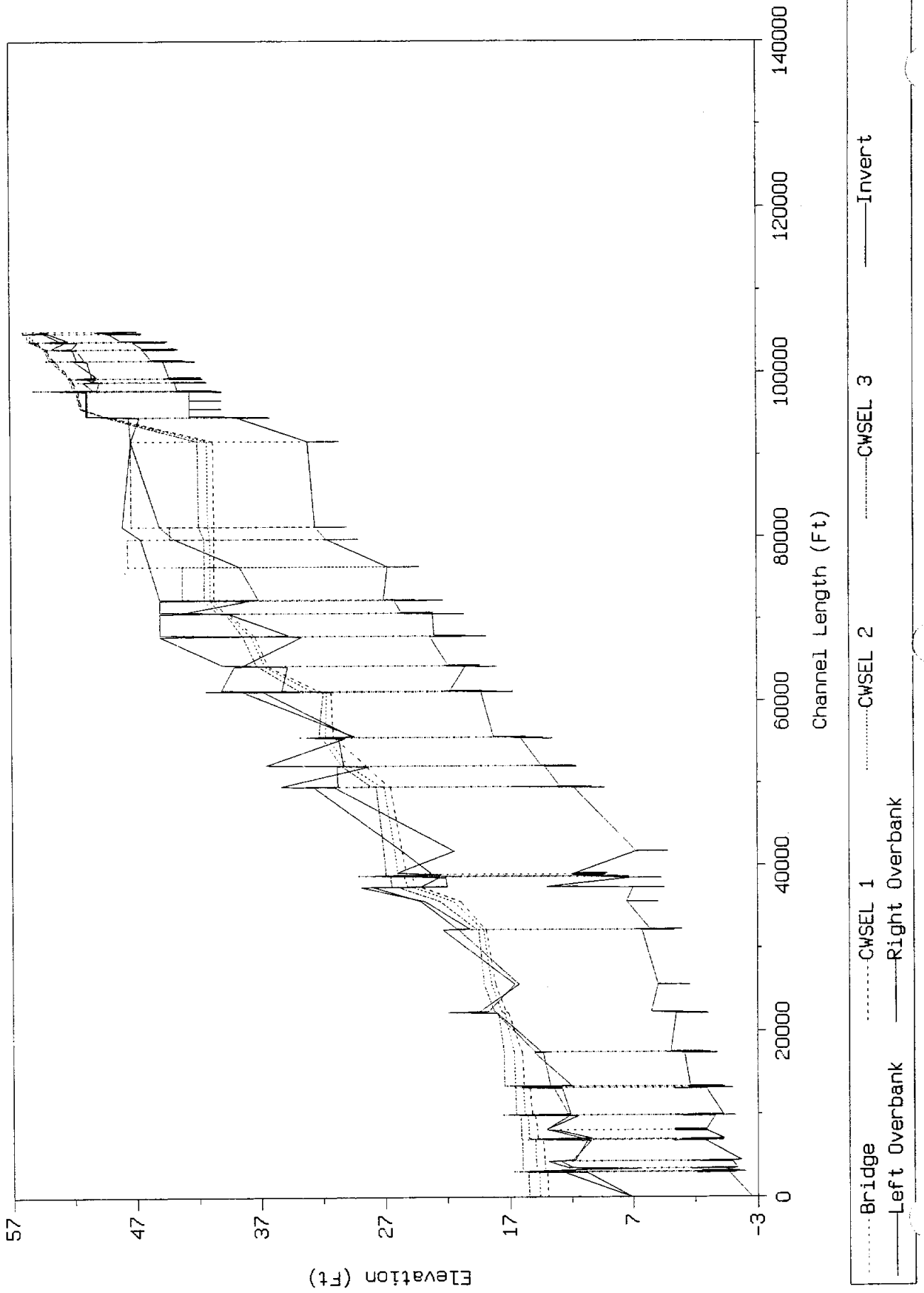
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WARNING SECNO=	171.400	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

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WARNING SECNO=	171.400	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	171.500	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	171.600	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	173.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	175.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	178.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	178.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

L REVISED BY KLOTZ ASSOC  
Cross-Sections (1 to 182)



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*****
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* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JUN 1998
*   VERSION 4.1
*
* RUN DATE 23AUG02 TIME 13:52:07
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****

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X   X XXXXXXX XXXXX      X
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X   X X      X           X
XXXXXXX XXXX  X           XXXXX X
X   X X      X           X
X   X X      X   X      X
X   X XXXXXXX XXXXX      XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.  
 THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM







Oyster Creek 10 year flows OC\_BL10.IH1

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
72	KK	0507									
73	RM	13	2.1	.25							
74	KK	0-07									
75	BA	5.46									
76	LU	.75	.1	1							
77	UC	0.87	33.11								
78	KK	C6									
79	HC	2									
80	KK	0710									
81	RM	6	1	.25							
82	KK	0-10									
83	BA	2.21									
84	LU	.75	.1	0							
85	UC	0.78	12.35								
86	KK	C7									
87	HC	2									
88	KK	1014									
89	RM	7	1.2	.25							
90	KK	0-14									
91	BA	2.83									
92	LU	.75	.1	0							
93	UC	1.20	16.48								
94	KK	C8									
95	HC	3									
96	KK	RCH12									
97	KM	REACH EXTENDS FROM X-SECT. 33.600 TO X-SECT. 30.300									
98	RS	10	STOR	0							
99	SV	0	371	408	656	1070	1577	2075	2576		
100	SQ	0	200	1750	1887	2831	3774	4718	5662		
101	KK	0-18									
102	BA	3.04									
103	LU	.75	.1	1							
104	UC	3.91	35.39								
105	KK	C9									
106	HC	2									
107	KK	RCH11									
108	KM	REACH EXTENDS FROM X-SECT. 35.000 TO X-SECT. 33.900									
109	RS	8	STOR	0							
110	SV	0	176	305	651	1125	1636	2128	2512		
111	SQ	0	671	1341	2682	4023	5364	6705	8046		







Oyster Creek 10 year flows OC\_BL10.IH1

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
226	KK	C21									
227	HC	2									
228	KK	RCH 6									
229	KM	REACH EXTENDS FROM X-SECT.		79.100 TO X-SECT.		63.200					
230	RS	45	STOR	0							
231	SV	0	1194	1484	1902	2641	3277	3919	4763		
232	SQ	0	732	1464	2927	4391	5854	7318	8782		
233	KK	O-27									
234	BA	4.79									
235	LU	.75	.1	5							
236	UC	9.40	65.31								
237	KK	C22									
238	HC	2									
239	KK	RCH 5									
240	KM	REACH EXTENDS FROM X-SECT.		86.100 TO X-SECT.		79.300					
241	RS	21	STOR	0							
242	SV	0	352	573	934	1252	1502	1775	2273		
243	SQ	0	763	1525	3050	4576	6101	7626	9151		
244	KK	O-28									
245	BA	2.85									
246	LU	.75	.1	35							
247	UC	3.95	4.31								
248	KK	C22									
249	HC	2									
250	KK	RCH 4									
251	KM	REACH EXTENDS FROM X-SECT.		94.100 TO X-SECT.		86.700					
252	RS	19	STOR	0							
253	SV	0	356	533	820	1070	1250	1458	1992		
254	SQ	0	763	1525	3050	4576	6101	7626	9151		
255	KK	O-29									
256	BA	3.31									
257	LU	.75	.1	22							
258	UC	3.34	15.37								
259	KK	C23									
260	HC	2									
261	KK	RCH 3									
262	KM	REACH EXTENDS FROM X-SECT.		103.000 TO X-SECT.		94.200					
263	RS	32	STOR	0							
264	SV	0	640	930	1432	2230	3914	5767	7917		
265	SQ	0	763	1525	3050	4576	6101	7626	9151		



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*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JUN 1998
*   VERSION 4.1
*
* RUN DATE 23AUG02 TIME 13:52:07
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*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
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FILE: OC_BL10.IH1
OYSTER CREEK, 10-YR
BRAZORIA CO DRAINAGE MASTER PLAN
BAKER & LAWSON, MGG

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6 IO      OUTPUT CONTROL VARIABLES
          IPRNT      5  PRINT CONTROL
          IPLOT      0  PLOT CONTROL
          QSCAL      0. HYDROGRAPH PLOT SCALE

```

```

IT        HYDROGRAPH TIME DATA
          NMIN       10  MINUTES IN COMPUTATION INTERVAL
          IDATE      24APR 0  STARTING DATE
          ITIME      1200  STARTING TIME
          NQ         1000  NUMBER OF HYDROGRAPH ORDINATES
          NDDATE     1MAY 0  ENDING DATE
          NDTIME     1030  ENDING TIME
          ICENT      19   CENTURY MARK

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COMPUTATION INTERVAL .17 HOURS
TOTAL TIME BASE 166.50 HOURS

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ENGLISH UNITS
DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH  INCHES
LENGTH, ELEVATION  FEET
FLOW               CUBIC FEET PER SECOND
STORAGE VOLUME     ACRE-FEET
SURFACE AREA       ACRES
TEMPERATURE        DEGREES FAHRENHEIT

```

Oyster Creek 10 year flows OC\_BL10.IH1

RUNOFF SUMMARY  
 FLOW IN CUBIC FEET PER SECOND  
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	O-01	596.	19.00	588.	507.	276.	7.47		
ROUTED TO	0102	595.	21.83	587.	506.	276.	7.47		
HYDROGRAPH AT	O-02	336.	16.83	331.	262.	130.	2.85		
HYDROGRAPH AT	O-03	632.	15.67	619.	471.	223.	4.60		
3 COMBINED AT	C1	1505.	19.33	1459.	1199.	629.	14.92		
ROUTED TO	RCH16	1483.	24.67	1445.	1191.	629.	14.92		
HYDROGRAPH AT	O-04	517.	17.83	511.	442.	242.	6.42		
2 COMBINED AT	C2	1938.	24.33	1893.	1586.	872.	21.34		
ROUTED TO	RCH15	1832.	32.17	1780.	1533.	871.	21.34		
HYDROGRAPH AT	O-08	362.	16.00	357.	284.	141.	3.05		
2 COMBINED AT	C3	2048.	32.00	1987.	1705.	1008.	24.39		
ROUTED TO	RCH14	1871.	51.67	1855.	1649.	999.	24.39		
HYDROGRAPH AT	O-11	371.	20.50	365.	315.	172.	4.74		
2 COMBINED AT	C4	2060.	51.17	2045.	1809.	1121.	29.13		
ROUTED TO	RCH13	2021.	60.83	2007.	1803.	1119.	29.13		
HYDROGRAPH AT	O-15	200.	18.83	198.	169.	92.	2.36		
2 COMBINED AT	C5	2087.	60.17	2070.	1865.	1170.	31.49		
HYDROGRAPH AT	O-05	556.	15.33	537.	387.	174.	3.44		
ROUTED TO	0507	554.	17.67	535.	387.	174.	3.44		
HYDROGRAPH AT	O-07	541.	16.67	535.	444.	232.	5.46		
2 COMBINED AT	C6	1094.	17.50	1059.	822.	405.	8.90		
ROUTED TO	0710	1093.	18.50	1058.	821.	405.	8.90		
HYDROGRAPH AT	O-10	520.	13.83	484.	298.	119.	2.21		
2 COMBINED AT	C7	1534.	18.00	1459.	1101.	524.	11.11		
ROUTED TO	1014	1530.	19.33	1457.	1100.	524.	11.11		
HYDROGRAPH AT	O-14	518.	14.50	496.	341.	147.	2.83		
3 COMBINED AT	C8	2413.	51.00	2394.	2221.	1766.	45.43		
ROUTED TO	RCH12	2387.	62.17	2386.	2135.	1745.	45.43		
HYDROGRAPH AT	O-18	285.	18.50	281.	235.	124.	3.04		
2 COMBINED AT	C9	2483.	57.67	2470.	2197.	1859.	48.47		
ROUTED TO	RCH11	2474.	61.83	2457.	2196.	1851.	48.47		
HYDROGRAPH AT	O-16	456.	15.50	433.	294.	125.	2.37		
2 COMBINED AT	C10	2495.	61.33	2470.	2265.	1944.	50.84		
HYDROGRAPH AT	O-09	421.	16.50	414.	324.	158.	3.40		
ROUTED TO	0912	421.	18.00	413.	324.	158.	3.40		



Oyster Creek 10 year flows OC\_BL10.IH1

HYDROGRAPH AT	O-12	413.	23.50	402.	334.	172.	4.19
2 COMBINED AT	C11	792.	22.67	773.	647.	330.	7.59
ROUTED TO	1234	791.	24.17	773.	646.	330.	7.59
HYDROGRAPH AT	O-17	532.	15.00	509.	354.	153.	2.94
3 COMBINED AT	C12	3570.	22.17	3504.	3162.	2403.	61.37
ROUTED TO	RCH10	3386.	43.50	3360.	3129.	2395.	61.37
HYDROGRAPH AT	O-20	373.	23.67	369.	338.	195.	7.61
2 COMBINED AT	C13	3678.	43.33	3650.	3418.	2555.	68.98
ROUTED TO	RCH 9	3634.	50.33	3614.	3396.	2544.	68.98
HYDROGRAPH AT	O-22	351.	16.33	346.	281.	142.	3.20
2 COMBINED AT	C14	3754.	50.00	3732.	3516.	2614.	72.18
HYDROGRAPH AT	O-06	370.	15.67	362.	277.	132.	2.74
ROUTED TO	0613	369.	18.17	361.	277.	132.	2.74
HYDROGRAPH AT	O-13	220.	15.33	215.	162.	76.	1.54
2 COMBINED AT	C15	584.	17.67	566.	432.	208.	4.28
ROUTED TO	1333	583.	19.67	565.	431.	208.	4.28
HYDROGRAPH AT	O-33	235.	15.33	229.	173.	81.	1.64
2 COMBINED AT	C16	803.	19.17	773.	594.	289.	5.92
ROUTED TO	3319	801.	21.33	771.	593.	289.	5.92
HYDROGRAPH AT	O-19	356.	17.67	352.	296.	157.	3.87
2 COMBINED AT	C17	1139.	21.17	1098.	877.	445.	9.79
ROUTED TO	1921	1133.	25.00	1095.	876.	445.	9.79
HYDROGRAPH AT	O-21	446.	19.33	441.	393.	225.	7.05
3 COMBINED AT	C18	4492.	48.67	4468.	4297.	3157.	89.02
ROUTED TO	RCH 8	4489.	51.17	4466.	4296.	3157.	89.02
HYDROGRAPH AT	O-23	348.	19.00	340.	275.	139.	3.20
2 COMBINED AT	C19	4615.	51.00	4593.	4436.	3264.	92.22
HYDROGRAPH AT	O-24	631.	17.17	622.	505.	256.	5.78
HYDROGRAPH AT	O-25	654.	32.17	646.	536.	224.	3.90
3 COMBINED AT	C20	5207.	38.17	5170.	4966.	3652.	101.90
ROUTED TO	RCH 7	5193.	42.50	5158.	4962.	3652.	101.90
HYDROGRAPH AT	O-26	129.	20.50	128.	116.	68.	2.41
2 COMBINED AT	C21	5288.	42.50	5252.	5047.	3707.	104.31
ROUTED TO	RCH 6	5280.	48.00	5244.	5044.	3642.	104.31
HYDROGRAPH AT	O-27	259.	23.00	256.	232.	133.	4.79
2 COMBINED AT	C22	5463.	47.83	5425.	5191.	3732.	109.10
ROUTED TO	RCH 5	5460.	49.83	5423.	5191.	3714.	109.10
HYDROGRAPH AT	O-28	1432.	15.67	1165.	515.	177.	2.85

Oyster Creek 10 year flows OC\_BL10.IH1

2 COMBINED AT	C22	5460.	49.83	5423.	5191.	3717.	111.95
ROUTED TO	RCH 4	5459.	51.33	5422.	5190.	3702.	111.95
HYDROGRAPH AT	O-29	666.	16.00	634.	438.	189.	3.31
2 COMBINED AT	C23	5541.	51.17	5501.	5247.	3746.	115.26
ROUTED TO	RCH 3	5469.	65.33	5442.	5215.	3737.	115.26
HYDROGRAPH AT	O-30	983.	17.33	967.	771.	383.	8.04
2 COMBINED AT	C24	5489.	65.00	5465.	5273.	3845.	123.30
ROUTED TO	RCH 2	5482.	68.67	5461.	5270.	3844.	123.30
HYDROGRAPH AT	O-31	240.	17.00	237.	198.	104.	2.48
2 COMBINED AT	C25	5482.	68.67	5462.	5281.	3876.	125.78
ROUTED TO	RCH 1	5480.	70.67	5461.	5280.	3874.	125.78
HYDROGRAPH AT	O-32	175.	35.33	173.	164.	89.	5.29
2 COMBINED AT	C26	5480.	70.67	5462.	5295.	3951.	131.07

\*\*\* NORMAL END OF HEC-1 \*\*\*

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* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JUN 1998
*   VERSION 4.1
*
* RUN DATE 23AUG02 TIME 14:06:58
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*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
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X   X XXXXXXX XXXXX      X
X   X X      X   X      XX
X   X X      X           X
XXXXXXX XXXX  X           XXXXX X
X   X X      X           X
X   X X      X   X      X
X   X XXXXXXX XXXXX      XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM





Oyster Creek 25 year flows OC\_BL25.IH1

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
72	KK	0507									
73	RM	13	2.1	.25							
74	KK	0-07									
75	BA	5.46									
76	LU	.75	.1	1							
77	UC	0.87	29.16								
78	KK	C6									
79	HC	2									
80	KK	0710									
81	RM	6	1	.25							
82	KK	0-10									
83	BA	2.21									
84	LU	.75	.1	0							
85	UC	0.78	10.81								
86	KK	C7									
87	HC	2									
88	KK	1014									
89	RM	7	1.2	.25							
90	KK	0-14									
91	BA	2.83									
92	LU	.75	.1	0							
93	UC	1.20	14.51								
94	KK	C8									
95	HC	3									
96	KK	RCH12									
97	KM		REACH EXTENDS FROM X-SECT.			33.600	TO X-SECT.		30.300		
98	RS	10	STOR	0							
99	SV	0	371	408	656	1070	1577	2075	2576		
100	SQ	0	200	1750	1887	2831	3774	4718	5662		
101	KK	0-18									
102	BA	3.04									
103	LU	.75	.1	1							
104	UC	3.91	30.97								
105	KK	C9									
106	HC	2									
107	KK	RCH11									
108	KM		REACH EXTENDS FROM X-SECT.			35.000	TO X-SECT.		33.900		
109	RS	8	STOR	0							
110	SV	0	176	305	651	1125	1636	2128	2512		
111	SQ	0	671	1341	2682	4023	5364	6705	8046		









Oyster Creek 25 year flows OC\_BL25.IH1

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
226	KK	C21									
227	HC	2									
228	KK	RCH 6									
229	KM	REACH EXTENDS FROM X-SECT.				79.100	TO X-SECT.		63.200		
230	RS	45	STOR	0							
231	SV	0	1194	1484	1902	2641	3277	3919	4763		
232	SQ	0	732	1464	2927	4391	5854	7318	8782		
233	KK	O-27									
234	BA	4.79									
235	LU	.75	.1	5							
236	UC	9.40	57.52								
237	KK	C22									
238	HC	2									
239	KK	RCH 5									
240	KM	REACH EXTENDS FROM X-SECT.				86.100	TO X-SECT.		79.300		
241	RS	21	STOR	0							
242	SV	0	352	573	934	1252	1502	1775	2273		
243	SQ	0	763	1525	3050	4576	6101	7626	9151		
244	KK	O-28									
245	BA	2.85									
246	LU	.75	.1	35							
247	UC	3.95	3.95								
248	KK	C22									
249	HC	2									
250	KK	RCH 4									
251	KM	REACH EXTENDS FROM X-SECT.				94.100	TO X-SECT.		86.700		
252	RS	19	STOR	0							
253	SV	0	356	533	820	1070	1250	1458	1992		
254	SQ	0	763	1525	3050	4576	6101	7626	9151		
255	KK	O-29									
256	BA	3.31									
257	LU	.75	.1	22							
258	UC	3.34	13.80								
259	KK	C23									
260	HC	2									
261	KK	RCH 3									
262	KM	REACH EXTENDS FROM X-SECT.				103.000	TO X-SECT.		94.200		
263	RS	32	STOR	0							
264	SV	0	640	930	1432	2230	3914	5767	7917		
265	SQ	0	763	1525	3050	4576	6101	7626	9151		

Oyster Creek 25 year flows OC\_BL25.IH1

HEC-1 INPUT

PAGE 8

LINE	ID	1	2	3	4	5	6	7	8	9	10
266	KK	O-30									
267	BA	8.04									
268	LU	.75	.1	12							
269	UC	3.29	23.61								
270	KK	C24									
271	HC	2									
272	KK	RCH 2									
273	KM	REACH EXTENDS FROM X-SECT.			108.000 TO X-SECT.			103.500			
274	RS	17	STOR	0							
275	SV	0	281	430	645	1010	1477	1937	2624		
276	SQ	0	797	1593	3187	4780	6374	7967	9560		
277	KK	O-31									
278	BA	2.48									
279	LU	.75	.1	1							
280	UC	1.16	30.20								
281	KK	C25									
282	HC	2									
283	KK	RCH 1									
284	KM	REACH EXTENDS FROM X-SECT.			112.000 TO X-SECT.			108.200			
285	RS	15	STOR	0							
286	SV	0	276	463	727	934	1211	1689	2066		
287	SQ	0	797	1593	3187	4780	6374	7967	9560		
288	KK	O-32									
289	BA	5.29									
290	LU	.75	.1	5							
291	UC	23.14	94.05								
292	KK	C26									
293	HC	2									
294	ZZ										

Oyster Creek 25 year flows OC\_BL25.IH1

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* FLOOD HYDROGRAPH PACKAGE (HEC-1) *  
* JUN 1998 *  
* VERSION 4.1 *  
* RUN DATE 23AUG02 TIME 14:06:58 *  
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* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET *  
* DAVIS, CALIFORNIA 95616 *  
* (916) 756-1104 *  
*  
*****
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FILE: OC\_BL25.IH1  
OYSTER CREEK, 25-YR  
BRAZORIA CO DRAINAGE MASTER PLAN  
BAKER & LAWSON, MGG

6 IO OUTPUT CONTROL VARIABLES  
IPRNT 5 PRINT CONTROL  
IPLOT 0 PLOT CONTROL  
QSCAL 0. HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA  
NMIN 10 MINUTES IN COMPUTATION INTERVAL  
IDATE 24APR 0 STARTING DATE  
ITIME 1200 STARTING TIME  
NQ 1000 NUMBER OF HYDROGRAPH ORDINATES  
NDDATE 1MAY 0 ENDING DATE  
NDTIME 1030 ENDING TIME  
ICENT 19 CENTURY MARK

COMPUTATION INTERVAL .17 HOURS  
TOTAL TIME BASE 166.50 HOURS

ENGLISH UNITS  
DRAINAGE AREA SQUARE MILES  
PRECIPITATION DEPTH INCHES  
LENGTH, ELEVATION FEET  
FLOW CUBIC FEET PER SECOND  
STORAGE VOLUME ACRE-FEET  
SURFACE AREA ACRES  
TEMPERATURE DEGREES FAHRENHEIT

Oyster Creek 25 year flows OC\_BL25.IH1

RUNOFF SUMMARY  
 FLOW IN CUBIC FEET PER SECOND  
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	O-01	782.	18.00	769.	659.	353.	7.47		
ROUTED TO	0102	781.	20.67	767.	658.	353.	7.47		
HYDROGRAPH AT	O-02	451.	16.33	436.	339.	163.	2.85		
HYDROGRAPH AT	O-03	837.	15.83	804.	600.	276.	4.60		
3 COMBINED AT	C1	1948.	19.17	1890.	1545.	793.	14.92		
ROUTED TO	RCH16	1913.	25.67	1868.	1534.	792.	14.92		
HYDROGRAPH AT	O-04	682.	16.00	669.	574.	309.	6.42		
2 COMBINED AT	C2	2496.	25.17	2445.	2047.	1101.	21.34		
ROUTED TO	RCH15	2430.	31.33	2383.	1975.	1100.	21.34		
HYDROGRAPH AT	O-08	488.	15.33	471.	367.	176.	3.05		
2 COMBINED AT	C3	2711.	31.00	2657.	2192.	1272.	24.39		
ROUTED TO	RCH14	2115.	69.67	2097.	1985.	1261.	24.39		
HYDROGRAPH AT	O-11	492.	19.83	483.	414.	221.	4.74		
2 COMBINED AT	C4	2133.	48.33	2127.	2111.	1420.	29.13		
ROUTED TO	RCH13	2120.	66.67	2119.	2101.	1418.	29.13		
HYDROGRAPH AT	O-15	265.	17.67	260.	221.	117.	2.36		
2 COMBINED AT	C5	2199.	59.00	2192.	2135.	1490.	31.49		
HYDROGRAPH AT	O-05	739.	15.50	701.	492.	214.	3.44		
ROUTED TO	0507	736.	17.67	697.	491.	214.	3.44		
HYDROGRAPH AT	O-07	724.	15.50	704.	576.	293.	5.46		
2 COMBINED AT	C6	1441.	17.33	1381.	1057.	507.	8.90		
ROUTED TO	0710	1439.	18.33	1379.	1056.	507.	8.90		
HYDROGRAPH AT	O-10	685.	13.83	628.	371.	144.	2.21		
2 COMBINED AT	C7	1991.	17.83	1886.	1405.	651.	11.11		
ROUTED TO	1014	1985.	19.17	1883.	1403.	651.	11.11		
HYDROGRAPH AT	O-14	685.	14.83	646.	430.	180.	2.83		
3 COMBINED AT	C8	2848.	19.00	2745.	2482.	2242.	45.43		
ROUTED TO	RCH12	2725.	25.50	2658.	2475.	2224.	45.43		
HYDROGRAPH AT	O-18	380.	17.50	371.	307.	158.	3.04		
2 COMBINED AT	C9	3051.	25.33	2973.	2607.	2371.	48.47		
ROUTED TO	RCH11	2981.	30.17	2928.	2601.	2363.	48.47		
HYDROGRAPH AT	O-16	603.	15.50	561.	369.	152.	2.37		
2 COMBINED AT	C10	3236.	29.83	3176.	2816.	2478.	50.84		
HYDROGRAPH AT	O-09	562.	16.17	542.	417.	197.	3.40		
ROUTED TO	0912	561.	17.67	541.	416.	197.	3.40		

Oyster Creek 25 year flows OC\_BL25.IH1

HYDROGRAPH AT	O-12	541.	23.50	525.	432.	218.	4.19
2 COMBINED AT	C11	1028.	22.67	1005.	835.	415.	7.59
ROUTED TO	1234	1027.	24.17	1004.	835.	415.	7.59
HYDROGRAPH AT	O-17	703.	15.33	662.	446.	188.	2.94
3 COMBINED AT	C12	4468.	28.67	4406.	3962.	3044.	61.37
ROUTED TO	RCH10	4273.	50.33	4242.	3893.	3030.	61.37
HYDROGRAPH AT	O-20	493.	23.50	489.	447.	256.	7.61
2 COMBINED AT	C13	4613.	50.17	4587.	4242.	3228.	68.98
ROUTED TO	RCH 9	4559.	57.00	4534.	4217.	3220.	68.98
HYDROGRAPH AT	O-22	470.	15.33	455.	363.	179.	3.20
2 COMBINED AT	C14	4664.	56.67	4642.	4327.	3303.	72.18
HYDROGRAPH AT	O-06	497.	15.67	477.	356.	164.	2.74
ROUTED TO	0613	495.	18.00	475.	356.	164.	2.74
HYDROGRAPH AT	O-13	291.	15.50	279.	206.	94.	1.54
2 COMBINED AT	C15	771.	17.50	738.	553.	258.	4.28
ROUTED TO	1333	769.	19.50	736.	552.	258.	4.28
HYDROGRAPH AT	O-33	310.	15.50	297.	219.	100.	1.64
2 COMBINED AT	C16	1048.	19.17	1002.	758.	358.	5.92
ROUTED TO	3319	1044.	21.33	999.	758.	358.	5.92
HYDROGRAPH AT	O-19	474.	16.50	463.	385.	199.	3.87
2 COMBINED AT	C17	1484.	21.00	1427.	1127.	557.	9.79
ROUTED TO	1921	1476.	25.00	1422.	1125.	557.	9.79
HYDROGRAPH AT	O-21	588.	17.83	582.	518.	292.	7.05
3 COMBINED AT	C18	5382.	54.50	5370.	5150.	3909.	89.02
ROUTED TO	RCH 8	5369.	61.83	5357.	5108.	3908.	89.02
HYDROGRAPH AT	O-23	459.	18.67	444.	356.	175.	3.20
2 COMBINED AT	C19	5454.	60.67	5435.	5217.	4037.	92.22
HYDROGRAPH AT	O-24	836.	16.33	812.	649.	321.	5.78
HYDROGRAPH AT	O-25	792.	31.67	783.	647.	268.	3.90
3 COMBINED AT	C20	6033.	36.00	5975.	5681.	4525.	101.90
ROUTED TO	RCH 7	5855.	47.33	5854.	5678.	4524.	101.90
HYDROGRAPH AT	O-26	171.	19.50	169.	154.	89.	2.41
2 COMBINED AT	C21	5982.	39.67	5977.	5788.	4598.	104.31
ROUTED TO	RCH 6	5980.	45.67	5976.	5786.	4567.	104.31
HYDROGRAPH AT	O-27	342.	22.83	338.	307.	174.	4.79
2 COMBINED AT	C22	6225.	45.17	6214.	5979.	4691.	109.10
ROUTED TO	RCH 5	6223.	47.50	6213.	5978.	4677.	109.10
HYDROGRAPH AT	O-28	1768.	15.67	1414.	610.	210.	2.85

Oyster Creek 25 year flows OC\_BL25.IH1

2 COMBINED AT	C22	6223.	47.50	6213.	5978.	4682.	111.95
ROUTED TO	RCH 4	6223.	49.17	6213.	5977.	4672.	111.95
HYDROGRAPH AT	O-29	860.	16.00	804.	542.	227.	3.31
2 COMBINED AT	C23	6322.	48.67	6304.	6040.	4727.	115.26
ROUTED TO	RCH 3	6281.	65.33	6264.	6016.	4719.	115.26
HYDROGRAPH AT	O-30	1295.	16.67	1254.	984.	476.	8.04
2 COMBINED AT	C24	6367.	61.50	6322.	6083.	4860.	123.30
ROUTED TO	RCH 2	6344.	64.67	6318.	6081.	4859.	123.30
HYDROGRAPH AT	O-31	321.	15.67	312.	257.	132.	2.48
2 COMBINED AT	C25	6352.	64.67	6324.	6095.	4899.	125.78
ROUTED TO	RCH 1	6346.	66.83	6323.	6094.	4898.	125.78
HYDROGRAPH AT	O-32	233.	35.33	231.	218.	118.	5.29
2 COMBINED AT	C26	6357.	66.67	6331.	6116.	4999.	131.07

\*\*\* NORMAL END OF HEC-1 \*\*\*

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*  
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *  
* JUN 1998 *  
* VERSION 4.1 *  
*  
* RUN DATE 23AUG02 TIME 14:05:37 *  
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*  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET *  
* DAVIS, CALIFORNIA 95616 *  
* (916) 756-1104 *  
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.  
THE DEFINITION OF -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM









Oyster Creek 100 year flows OC\_BL100.IH1

HEC-1 INPUT

PAGE 3

LINE	ID	1	2	3	4	5	6	7	8	9	10
72	KK	0507									
73	RM	13	2.1	.25							
74	KK	0-07									
75	BA	5.46									
76	LU	.75	.1	1							
77	UC	0.87	24.44								
78	KK	C6									
79	HC	2									
80	KK	0710									
81	RM	6	1	.25							
82	KK	0-10									
83	BA	2.21									
84	LU	.75	.1	0							
85	UC	0.78	8.98								
86	KK	C7									
87	HC	2									
88	KK	1014									
89	RM	7	1.2	.25							
90	KK	0-14									
91	BA	2.83									
92	LU	.75	.1	0							
93	UC	1.20	12.17								
94	KK	C8									
95	HC	3									
96	KK	RCH12									
97	KM	REACH EXTENDS FROM X-SECT.		33.600	TO X-SECT.		30.300				
98	RS	10	STOR	0							
99	SV	0	371	408	656	1070	1577	2075	2576		
100	SQ	0	200	1750	1887	2831	3774	4718	5662		
101	KK	0-18									
102	BA	3.04									
103	LU	.75	.1	1							
104	UC	3.91	25.74								
105	KK	C9									
106	HC	2									
107	KK	RCH11									
108	KM	REACH EXTENDS FROM X-SECT.		35.000	TO X-SECT.		33.900				
109	RS	8	STOR	0							
110	SV	0	176	305	651	1125	1636	2128	2512		
111	SQ	0	671	1341	2682	4023	5364	6705	8046		







Oyster Creek 100 year flows OC\_BL100.IH1

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
226	KK	C21									
227	HC	2									
228	KK	RCH 6									
229	KM	REACH EXTENDS FROM X-SECT.				79.100	TO X-SECT.		63.200		
230	RS	45	STOR	0							
231	SV	0	1194	1484	1902	2641	3277	3919	4763		
232	SQ	0	732	1464	2927	4391	5854	7318	8782		
233	KK	O-27									
234	BA	4.79									
235	LU	.75	.1	5							
236	UC	9.40	48.22								
237	KK	C22									
238	HC	2									
239	KK	RCH 5									
240	KM	REACH EXTENDS FROM X-SECT.				86.100	TO X-SECT.		79.300		
241	RS	21	STOR	0							
242	SV	0	352	573	934	1252	1502	1775	2273		
243	SQ	0	763	1525	3050	4576	6101	7626	9151		
244	KK	O-28									
245	BA	2.85									
246	LU	.75	.1	35							
247	UC	3.95	3.49								
248	KK	C22									
249	HC	2									
250	KK	RCH 4									
251	KM	REACH EXTENDS FROM X-SECT.				94.100	TO X-SECT.		86.700		
252	RS	19	STOR	0							
253	SV	0	356	533	820	1070	1250	1458	1992		
254	SQ	0	763	1525	3050	4576	6101	7626	9151		
255	KK	O-29									
256	BA	3.31									
257	LU	.75	.1	22							
258	UC	3.34	11.89								
259	KK	C23									
260	HC	2									
261	KK	RCH 3									
262	KM	REACH EXTENDS FROM X-SECT.				103.000	TO X-SECT.		94.200		
263	RS	32	STOR	0							
264	SV	0	640	930	1432	2230	3914	5767	7917		
265	SQ	0	763	1525	3050	4576	6101	7626	9151		





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*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JUN 1998
*   VERSION 4.1
*
* RUN DATE 23AUG02 TIME 14:05:37
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*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
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FILE: OC_BL100.IH1
OYSTER CREEK, 100-YR
BRAZORIA CO DRAINAGE MASTER PLAN
BAKER & LAWSON, MGG

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6 IO      OUTPUT CONTROL VARIABLES
          IPRNT      5 PRINT CONTROL
          IPLOT      0 PLOT CONTROL
          QSCAL      0. HYDROGRAPH PLOT SCALE

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IT        HYDROGRAPH TIME DATA
          NMIN      10 MINUTES IN COMPUTATION INTERVAL
          IDATE     24APR 0 STARTING DATE
          ITIME     1200 STARTING TIME
          NQ        1000 NUMBER OF HYDROGRAPH ORDINATES
          NDDATE    1MAY 0 ENDING DATE
          NDTIME    1030 ENDING TIME
          ICENT     19 CENTURY MARK

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COMPUTATION INTERVAL .17 HOURS
TOTAL TIME BASE 166.50 HOURS

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ENGLISH UNITS
DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW               CUBIC FEET PER SECOND
STORAGE VOLUME    ACRE-FEET
SURFACE AREA      ACRES
TEMPERATURE        DEGREES FAHRENHEIT

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Oyster Creek 100 year flows OC\_BLI100.IH1

RUNOFF SUMMARY  
 FLOW IN CUBIC FEET PER SECOND  
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR 6-HOUR	MAXIMUM PERIOD 24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	O-01	1234.	18.33	1216.	1022.	533.	7.47		
ROUTED TO	0102	1233.	21.17	1214.	1021.	533.	7.47		
HYDROGRAPH AT	O-02	711.	16.33	690.	519.	240.	2.85		
HYDROGRAPH AT	O-03	1290.	15.67	1244.	899.	399.	4.60		
3 COMBINED AT	C1	3056.	19.17	2956.	2364.	1172.	14.92		
ROUTED TO	RCH16	2839.	34.33	2778.	2350.	1172.	14.92		
HYDROGRAPH AT	O-04	1071.	16.67	1057.	891.	466.	6.42		
2 COMBINED AT	C2	3528.	33.67	3493.	3142.	1637.	21.34		
ROUTED TO	RCH15	3505.	37.33	3472.	3070.	1635.	21.34		
HYDROGRAPH AT	O-08	767.	15.17	746.	560.	259.	3.05		
2 COMBINED AT	C3	3878.	28.83	3838.	3404.	1886.	24.39		
ROUTED TO	RCH14	3191.	69.00	3166.	2913.	1872.	24.39		
HYDROGRAPH AT	O-11	791.	20.00	776.	651.	337.	4.74		
2 COMBINED AT	C4	3199.	68.83	3175.	2945.	2125.	29.13		
ROUTED TO	RCH13	3056.	87.33	3045.	2888.	2121.	29.13		
HYDROGRAPH AT	O-15	420.	18.17	413.	343.	176.	2.36		
2 COMBINED AT	C5	3056.	87.33	3045.	2889.	2245.	31.49		
HYDROGRAPH AT	O-05	1143.	15.33	1086.	732.	306.	3.44		
ROUTED TO	0507	1139.	17.50	1080.	731.	306.	3.44		
HYDROGRAPH AT	O-07	1138.	15.67	1115.	889.	435.	5.46		
2 COMBINED AT	C6	2261.	17.33	2166.	1610.	742.	8.90		
ROUTED TO	0710	2257.	18.33	2163.	1609.	742.	8.90		
HYDROGRAPH AT	O-10	1057.	13.83	958.	539.	202.	2.21		
2 COMBINED AT	C7	3093.	17.83	2921.	2114.	944.	11.11		
ROUTED TO	1014	3083.	19.00	2917.	2112.	944.	11.11		
HYDROGRAPH AT	O-14	1057.	14.50	995.	633.	256.	2.83		
3 COMBINED AT	C8	4456.	23.17	4347.	3716.	3142.	45.43		
ROUTED TO	RCH12	4301.	28.17	4255.	3670.	3126.	45.43		
HYDROGRAPH AT	O-18	606.	17.67	593.	478.	237.	3.04		
2 COMBINED AT	C9	4766.	27.50	4724.	4064.	3302.	48.47		
ROUTED TO	RCH11	4723.	32.17	4666.	4042.	3296.	48.47		
HYDROGRAPH AT	O-16	927.	15.50	861.	542.	216.	2.37		
2 COMBINED AT	C10	5014.	31.50	4957.	4282.	3400.	50.84		
HYDROGRAPH AT	O-09	878.	16.17	851.	633.	289.	3.40		
ROUTED TO	0912	877.	17.67	849.	632.	289.	3.40		

## Oyster Creek 100 year flows OC\_BL100.IH1

HYDROGRAPH AT	0-12	854.	23.50	828.	667.	326.	4.19
2 COMBINED AT	C11	1615.	22.33	1580.	1282.	614.	7.59
ROUTED TO	1234	1614.	23.83	1579.	1281.	614.	7.59
HYDROGRAPH AT	0-17	1084.	15.17	1019.	657.	267.	2.94
3 COMBINED AT	C12	6744.	29.50	6669.	5928.	4186.	61.37
ROUTED TO	RCH10	6359.	56.83	6313.	5780.	4179.	61.37
HYDROGRAPH AT	0-20	796.	23.67	789.	711.	401.	7.61
2 COMBINED AT	C13	6802.	56.33	6755.	6210.	4467.	68.98
ROUTED TO	RCH 9	6680.	64.67	6636.	6137.	4463.	68.98
HYDROGRAPH AT	0-22	736.	15.50	718.	556.	264.	3.20
2 COMBINED AT	C14	6694.	64.50	6662.	6213.	4572.	72.18
HYDROGRAPH AT	0-06	778.	15.67	750.	539.	239.	2.74
ROUTED TO	0613	776.	18.00	747.	538.	239.	2.74
HYDROGRAPH AT	0-13	448.	15.50	431.	307.	135.	1.54
2 COMBINED AT	C15	1205.	17.50	1153.	836.	373.	4.28
ROUTED TO	1333	1201.	19.50	1150.	835.	373.	4.28
HYDROGRAPH AT	0-33	477.	15.50	459.	328.	144.	1.64
2 COMBINED AT	C16	1634.	19.17	1559.	1146.	517.	5.92
ROUTED TO	3319	1629.	21.17	1555.	1145.	517.	5.92
HYDROGRAPH AT	0-19	749.	16.67	735.	597.	298.	3.87
2 COMBINED AT	C17	2328.	21.00	2233.	1720.	816.	9.79
ROUTED TO	1921	2315.	24.83	2226.	1718.	816.	9.79
HYDROGRAPH AT	0-21	945.	18.67	935.	819.	450.	7.05
3 COMBINED AT	C18	7308.	61.00	7242.	6905.	5536.	89.02
ROUTED TO	RCH 8	7229.	69.17	7197.	6875.	5535.	89.02
HYDROGRAPH AT	0-23	724.	18.67	701.	546.	260.	3.20
2 COMBINED AT	C19	7233.	69.17	7202.	6922.	5736.	92.22
HYDROGRAPH AT	0-24	1299.	16.33	1268.	988.	472.	5.78
HYDROGRAPH AT	0-25	1117.	31.17	1102.	908.	370.	3.90
3 COMBINED AT	C20	7654.	37.83	7586.	7197.	6456.	101.90
ROUTED TO	RCH 7	7274.	63.83	7259.	7106.	6453.	101.90
HYDROGRAPH AT	0-26	276.	20.17	274.	245.	138.	2.41
2 COMBINED AT	C21	7339.	61.50	7309.	7152.	6569.	104.31
ROUTED TO	RCH 6	7323.	67.50	7306.	7151.	6558.	104.31
HYDROGRAPH AT	0-27	550.	23.00	545.	486.	271.	4.79
2 COMBINED AT	C22	7341.	66.17	7326.	7210.	6756.	109.10
ROUTED TO	RCH 5	7340.	68.67	7326.	7209.	6752.	109.10
HYDROGRAPH AT	0-28	2441.	15.67	1947.	835.	285.	2.85

Oyster Creek 100 year flows OC\_BL100.IH1

2 COMBINED AT	C22	7340.	68.67	7326.	7209.	6761.	111.95
ROUTED TO	RCH 4	7340.	70.33	7325.	7209.	6755.	111.95
HYDROGRAPH AT	O-29	1280.	15.83	1197.	778.	316.	3.31
2 COMBINED AT	C23	7341.	70.17	7326.	7215.	6835.	115.26
ROUTED TO	RCH 3	7319.	84.50	7311.	7201.	6755.	115.26
HYDROGRAPH AT	O-30	1996.	16.83	1940.	1478.	689.	8.04
2 COMBINED AT	C24	7319.	84.50	7311.	7201.	6898.	123.30
ROUTED TO	RCH 2	7317.	88.00	7310.	7200.	6887.	123.30
HYDROGRAPH AT	O-31	504.	16.00	495.	397.	196.	2.48
2 COMBINED AT	C25	7317.	88.00	7310.	7200.	6925.	125.78
ROUTED TO	RCH 1	7315.	91.50	7307.	7199.	6918.	125.78
HYDROGRAPH AT	O-32	377.	35.17	373.	349.	189.	5.29
2 COMBINED AT	C26	7530.	58.67	7486.	7199.	6994.	131.07

\*\*\* NORMAL END OF HEC-1 \*\*\*

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*****  
* HEC-2 WATER SURFACE PROFILES *  
* *  
* Version 4.6.2; May 1991 *  
* *  
* RUN DATE 23AUG02 TIME 11:11:53 *  
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*****  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET, SUITE D *  
* DAVIS, CALIFORNIA 95616-4687 *  
* (916) 756-1104 *  
*****
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      X   X  X        X           X  
XXXXXXX XXXX  X           XXXXX  XXXXX  
      X   X  X        X           X  
      X   X  X        X   X          X  
      X   X  XXXXXXXX  XXXXX          XXXXXXXX
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THIS RUN EXECUTED 23AUG02 11:11:53

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

T1 OYSTER CREEK  
 T2 BRAZORIA CO DRAINAGE MASTER PLAN  
 T3 10-YR RUN  
 T3 FILE: OC\_BL\_R.IH2

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2							13	
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1							

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

38	43	1	26	42	23	24	63	14	60
39	4								
112	108.2	108	103.5	103	94.2	94.1	86.7	86.1	79.3
79.1	63.2	63.1	57.3	57.2	51	50	47.3	47.2	36
35	33.9	33.6	30.3	29	25	24	19.3	18	16.2
16.1	12								

J5 LPRNT NUMSEC \*\*\*\*\*REQUESTED SECTION NUMBERS\*\*\*\*\*  
 -10 -10

NC	.05	.05	.025	.1	.3					
	10-YR	25-YR	100-YR							
QT	3	5590	6413	7533						
X1	112	46	20100	20553						
GR	3.6	20100	1.8	20106	.4	20128		20138	-.5	20148
GR	-.4	20158	-.9	20168	-1.3	20178	-1.6	20188	-1.8	20198
GR	-2.1	20208	-2.3	20218	-3.1	20228	-3.7	20238	-4.3	20248
GR	-6.5	20258	-6.3	20268	-7.7	20278	-7.6	20288	-.8	20298
GR	-8.1	20308	-8.2	20318	-7.5	20328	-7.5	20338	-6.6	20348
GR	-5.1	20358	-4.4	20368	-3.4	20378	-3.4	20388	-3.3	20398
GR	-2.9	20408	-2.7	20418	-.2	20428	-.2	20438	-1.8	20448
GR	-1.5	20458	-.5	20468	-.3	20478	.3	20488	1.8	20518
GR	2.5	20552	4	20553	3.9	20603	3.8	20653	5	26450
GR	10	26460								

X1	111	47	20100	20594	5300	5400	5702			
GR	5.20	20050	4.8	20100	2.8	20108	1.9	20150	.1	20195
GR		20205	-4	20215		20225	-1.1	20235	-1.2	20245
GR	-2.2	20255	-1.9	20265	-2.1	20275	-2.3	20285	-3.2	20295
GR	-3.3	20305	-4.3	20315	-5.1	20325	-5.3	20335	-6.7	20345
GR	-6.9	20355	-7.9	20365	-7.7	20375	-7	20385	-6.7	20395
GR	-6.3	20405	-5.4	20415	-4.4	20425	-4.2	20435	-2.8	20445
GR	-2.5	20455	-2.8	20465	-2	20475	-1.7	20485	-.8	20495
GR	-1.4	20505	-1.1	20515	-.9	20525	-.8	20535	.1	20545
GR	.1	20555	1.7	20584	3.8	20594	4.2	20644	4.4	20694
GR	5	22500	10	22510						

X1	110	35	20100	20452	4200	2600	4012			
GR	6	19240	5	19250	4.3	20000	4.2	20042	1.9	20053
GR	1.7	20060	4.8	20071	5.1	20100	1.6	20116	1.1	20150
GR	-.5	20160	-.7	20170	-1.5	20180	-2.6	20190	-4.4	20200
GR	-.5	20210	-5.8	20220	-6.6	20230	-6.4	20240	-6.7	20250
GR	-7.4	20260	-6.9	20270	-6.7	20290	-5.8	20290	-5.4	20300
GR	-4.5	20310	-4.4	20320	-4.7	20330	-4.3	20340	-.6	20350
GR	4.3	20352	4.5	20402	4.7	20452	5	21500	8	21525

X1	109	32	20100	20398	3800	4300	4012			
GR	11.5	20000	10.7	20050	7.8	20100	2.9	20110	1	20120
GR	-.5	20130	-1	20137	-.7	20140	-2.2	20150	-3.7	20160
GR	-4.4	20170	-4.5	20180	-5.8	20190	-6.2	20200	-5.7	20210
GR	-6.2	20220	-6.7	20230	-6.7	20240	-6.6	20250	-6.3	20260
GR	-5.9	20270	-5.7	20280	-5.6	20290	-4.1	20300	-3.5	20310
GR	-2.7	20320	-2.2	20330	-.2	20340	-1.1	20350	1.6	20387
GR	6.5	20398	8	20441						

X1	108.3	34	20100	20365	3300	3800	3754			
GR	7.1	20000	7.6	20050	6	20100	1.3	20109	-.6	20127
GR	-2	20137	-3.2	20147	-4.3	20157	-5.1	20167	-6.3	20177
GR	-6.7	20187	-7.6	20197	-8.3	20207	-8.3	20217	-8.2	20227
GR	-7.3	20237	-7.1	20247	-5.7	20257	-3.9	20267	-3.3	20277
GR	-3.4	20287	-3.2	20297	-2.2	20307	-1.3	20317	-.7	20327
GR	.5	20347	4.1	20350	6.3	20365	7.5	20403	8.3	20418
GR	13.6	20447	12.9	20466	11.7	20477	16.1	20504		

NC

.3 .5

INSERTED SURVEYED X-SECTION  
 BAKER & LAWSON, INC  
 BRAZORIA CO DRAINAGE MASTER PLAN

X1	108.25	7	20100	20301	100	100	100			
GR	7.6	20050	6.2	20100	3.9	20126	1.5	20128	-8.3	20235
GR	3.6	20301	13.4	20333						



X1	108.2	34	20100	20365	50	50	50			
X3	10									
GR	7.1	20000	7.6	20050	6	20100	1.3	20109	- .6	20127
GR	-2	20137	-3.2	20147	-4.3	20157	-5.1	20167	-6.3	20177
GR	-6.7	20187	-7.6	20197	-8.3	20207	-8.3	20217	-8.2	20227
GR	-7.3	20237	-7.1	20247	-5.7	20257	-3.9	20267	-3.3	20277
GR	-3.4	20287	-3.2	20297	-2.2	20307	-1.3	20317	- .7	20327
GR	.5	20347	4.1	20350	6.3	20365	7.5	20403	8.3	20418
GR	13.6	20447	12.9	20466	11.7	20477	16.1	20504		

SB	1.250	1.5	2.6		120	10	3975	3.243		
	FM 523									
X1	108.1				50	50	50			
X2			1	11.8	13.8					
X3	10									
BT	6	20000	12		20050	13.6		20447	13.6	
BT	20466	12.9		20477	11.7		20504	16.1		

X1	108	34	20100	20365	50	50	50			
GR	7.1	20000	7.6	20050	6	20100	1.3	20109	- .6	20127
GR	-2	20137	-3.2	20147	-4.3	20157	-5.1	20167	-6.3	20177
GR	-6.7	20187	-7.6	20197	-8.3	20207	-8.3	20217	-8.2	20227
GR	-7.3	20237	-7.1	20247	-5.7	20257	-3.9	20267	-3.3	20277
GR	-3.4	20287	-3.2	20297	-2.2	20307	-1.3	20317	- .7	20327
GR	.5	20347	4.1	20350	6.3	20365	7.5	20403	8.3	20418
GR	13.6	20447	12.9	20466	11.7	20477	16.1	20504		

INSERTED SURVEYED X-SECTION  
 BAKER & LAWSON, INC  
 BRAZORIA CO DRAINAGE MASTER PLAN

X1	108.75	7	20100	20301	100	100	100			
GR	7.6	20050	6.2	20100	3.9	20126	1.5	20128	-7	20235
GR	3.6	20301	13.4	20333						

INSERTED SURVEYED X-SECTION  
 BAKER & LAWSON, INC  
 BRAZORIA CO DRAINAGE MASTER PLAN

NC	.07	.03	.025	.10	.3					
X1	107.5	8	7000	7301	4066	4375	3939			
GR	6.4	7000	3.4	7068	1.5	7070	-8.1	7153	1.1	7259
GR	7.4	7301	9.8	7337	19.9	7401				

X1	107	11	7000	7314	1234	1325	1196			
GR	5	5750	5	7000		7070	-7.2	7150	-7.2	7186
GR		7266	3.4	7291	9	7314	9	7351	19.6	7412
GR	19.6	7433								

X1	106	15	8093	8399	5000	4870	4805			
GR	17	5500	10	7450	5	8000	5.2	8093	.4	8109
GR	-3	8135	-7.9	8160	-7.9	8200	-3	8229	.4	8247
GR	4.8	8260	5.4	8281	12.8	8309	19	8376	19	8399

X1	105	15	12400	12571	3100	3010	3115			
GR	13	6200	10	9000	5	12400	3.8	12417	.4	12429
GR	-3.5	12449	-8.4	12469	-8.4	12482	-8.4	12494	-8.4	12495
GR	-3.5	12514	.4	12534	5.6	12552	4.6	12571	19	12650

X1	104	15	13927	14125	2850	2950	3010			
GR	13	4400	10	7800	10	8800	9	12500	10.2	13882
GR	6.4	13927	.4	13949	-3	13976	-7.5	14006	-3	14036
GR	.4	14063	5.6	14071	10	14095	16	14114	16	14125

INSERTED SURVEYED X-SECTION  
 BAKER & LAWSON, INC  
 BRAZORIA CO DRAINAGE MASTER PLAN

X1	103.5	8	14324	14534	3890	3990	4008			
GR	5.5	14237	3	14324	.71	14325	-8	14399	2.2	14534
GR	7.2	14551	10.4	14612	16.4	14639				

XS 103 IS AT THE RR BRIDGE  
 RR BRIDGE NOT MODELED

QT	3	5639	6342	7392						
RR BRIDGE, NOT MODELED										
X1	103	23	14294	14567	110	110	110			
GR	14	2300	10	5800	10	7000	9.4	13163	10	13478
GR	10.8	13816	11.4	14009	11	14194	10.2	14257	9	14294
GR	6	14323	3	14335	.4	14335	-2	14356	-4	14377
GR	-7.9	14399	-4	14421	-2	14440	.4	14463	10.8	14502
GR	14.2	14535	16.6	14567	16.6	14595				

X1	102	21	11791	12044	2100	2420	2904			
GR	15	1000	10	5500	10	10500	10.8	11791	4.6	11825
GR	1.4	11841	.4	11848	-2	11860	-4	11875	-7.7	11898
GR	-4	11921	-2	11936	.4	11948	4.8	11971	8.2	12008
GR	10.8	12044	11	12180	10.2	12298	9.8	12589	9.4	12744
GR	10	14100								

X1	101	19	11515	11794	2904	2904	2904			
GR	15	3150	15	3500	10.5	7500	10	11000	9.4	11515
GR	6	11562	14	11570	-3	11590	-9.4	11610	-9.4	11640
GR	-3	11660	.4	11681	6.8	11694	8.8	11744	12.4	11794
GR	12.6	11941	12.4	12208	9	12411	13	13800		

NC				.3		.5				
PIPELINE X-ING										
X1	100.7	11	11320	11470	264	264	264			
X3	10									
GR	16	3300	15	4200	11.5	11200	11.5	11250	2	11320
GR	-2.7	11340	-9.3	11390	-3.5	11440	.3	11450	3	11470
GR	13	13800								
SB	1.25	1.56	2.6		66.7	10.5	2020	2	-9.3	-9.3
PIPELINE X-ING										
X1	100.6				14	14	14			
X2			1	11.4	14					
X3	10							14	14	
BT	4	11162	13.4		11257	14		11521	14	
BT	11602	13								
X1	100.5				50	50	50			
X3	10									
NC				.1		.3				
X1	100.3	26	9957	10225	2900	2700	2734			
GR	17	3050	16	4676	16	4677	16	4678	16	4679
GR	15.8	5087	14.2	5627	12	6325	11.8	6944	12.8	7620
GR	14.2	8227	14.2	8752	12.4	9385	12.2	9723	13.2	9898
GR	12.8	9957	12.1	9995	-.1	10045	-3.1	10055	-8.8	10100
GR	-2.7	10145	-.1	10155	12.3	10225	12.2	10361	12.6	10535
GR	13	12300								
NC				.3		.5				
CR 226										
X1	100.2				100	100	100			
X3	10							11.9	11.9	
SB	1.25	1.56	2.6		23.8	9	2210	5	-8.8	-8.8
CR 226										
X1	100.1				22	22	22			
X2			1	10.8	13					
X3	10							13	13	
BT	5	9585	13		10005	13		10215	13	
BT	10385	13.2		10585	14					

INSERTED SURVEYED X-SECTION  
 BAKER & LAWSON, INC  
 BRAZORIA CO DRAINAGE MASTER PLAN



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SB	1.05	1.56	2.6		5	8	1380	3	-10	-10
	CR 228									
X1	95.1	15	1361	1570	10	10	10			
X2			1	10.6	15.3					
X3	10							10.7	10.7	
BT	8	1291	15		1322	16.3		1361	17.7	
BT	1468	19.8		1574	17.5		1650	15.3		1694
BT	15.5		1774	16.2						
GR	15	1291	16.3	1322	17.7	1361	13.9	1377	3.6	1429
GR	-10	1465	1.3	1524	8.6	1547	9.2	1570	15.3	1650
GR	15.5	1694	16.2	1774	14.4	1992	16.8	2017	16.8	2047

X1	95	16	1420	1631	50	50	50			
GR	15	1347	14.8	1420	4	1448	-2.7	1465	-10	1510
GR	-1	1555	2	1570	12.6	1631	13.8	1672	15.8	1687
GR	16	1706	14.8	1727	14.6	1837	14.4	1992	16.8	2017
GR	16.8	2047								

NC .1 .3

LOWERED FLOW LINE BASED ON FIELD SURVEY

BAKER & LAWSON, INC

BRAZORIA CO DRAINAGE MASTER PLAN

X1	94.3	10	2170	2373	2796	2796	2796			
GR	15.3	1000	15.9	2114	14.8	2170	.3	2210	-2.9	2220
GR	-10.5	2260	-3.9	2300	10.2	2340	14.3	2352	15.9	2373

288B BRIDGE

NC				.3	.5					
X1	94.2				100	100	100			
X3	10							16.7	16.9	

SB	1.25	1.56	2.6		78.7	4	2515	2	-10.5	-10.5
	HWY 288B									
X1	94.1				40	40	40			
X2			1	15.3	18.5					
X3	10							16.7	16.9	
BT	6	1230	16.3		1767	16.7		2170	18.5	
BT	2373	18.5		2659	16.9		3230	13.5		

X1	94				50	50	50			
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NC				.1	.3					
X1	93	17	2344	2600	1350	1700	1605			
GR	14.7	1000	14.5	1690	15.1	2344	10.5	2383	.3	2440
GR	-2	2450	-4	2465	-10.3	2485	-4	2505	-2	2520
GR	.3	2530	5.9	2542	15.5	2600	15.7	2788	14.9	3001
GR	14.7	3202	14.9	3335						

X1	92	13	2262	2483	3100	3350	3168			
GR	16.5	1629	16.1	1688	15.1	1724	15.5	1951	15.1	2262
GR	.3	2306	-4	2326	-10.2	2346	-10.2	2378	-4	2398
GR	.3	2418	14.9	2483	16.1	2638				

X1	91.3	11	1950	2130	1478	1478	1478			
GR	15.7	1237	13.7	1334	15.7	1880	13	1930	10	1950
GR	1.3	2016	-11	2045	1.6	2074	9	2130	16	2187
GR	17	2190								

NC .3 .5

INSERTED SURVEYED X-SECTION  
 BAKER & LAWSON, INC  
 BRAZORIA CO DRAINAGE MASTER PLAN

X1	91.2	13	1880	2187	100	100	100			
X3	10							17	17	
GR	15.7	1237	13.7	1334	15.7	1880	15.2	1897	14.2	1924
GR	7.3	1980	3.2	1995	-12	2045	2.6	2086	8.1	2097
GR	13	2147	16	2187	17	2190				

SB	1.25	1.56	2.6		9.6	1.7	2400	3	-12	-12
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COLLEGE DR

X1	91.1				38	38	38			
X2			1	16	18					
X3	10							18	18	
BT	7	1510	15.4		1948	17		1950	18	
BT	2130	18		2132	17		2593	17		3110
BT	16.8									

X1	91				50	50	50			
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NC .1 .3

X1	90	20	1970	2251	1871	1871	1871			
GR	16.7	1362	16.5	1654	16.9	1970	13.5	2009	5.5	2051
GR	.3	2073	-4	2090	-10.5	2110	-10.5	2138	-4	2158
GR	.3	2175	8.5	2209	18.3	2251	18.1	2332	17.1	2541
GR	12.9	2683	15.9	2733	16.5	2909	18.3	3162	18.3	3280

X1	89	21	2889	3123	1480	1400	1478			
GR	17.2	1000	16.4	1184	16.4	1608	16.6	1963	16.8	2418
GR	18.3	2689	18.5	2812	15.9	2889	12.5	2936	7.9	2964
GR	.3	2968	-4	2978	-9.2	2988	-9.2	3017	-4	3027
GR	.3	3037	17.9	3123	18.1	3168	17.9	3255	18.7	3343
GR	17.7	3489								



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X1	86.5				50	50	50			
OLD ANGLETON RD BRIDGE										
X1	86.2				50	50	50			
X3	10							18.4	18.4	
SB	1.25	1.56	2.6		64	4.7	2970	3	-5.8	-5.8
X1	86.1				26	26	26			
X2			1	17.2	19.5					
X3	10									
BT	5	2322	19.9		2660	19.5		2905	19.5	
BT	3110	19.7		3371	21.7					
OLD ANGLETON RD										
X1	86				50	50	50			
NC				.1	.3					
X1	85.3	18	2074	2326	4450	4750	4572			
GR	17	1605	17	1606	17	1670	17	1777	17.2	1860
GR	18.6	1880	18.2	1902	18.2	1973	18.6	2074	.9	2154
GR	-4	2164	-7.1	2193	-3.2	2222	.8	2232	19.2	2326
GR	18.3	2332	17.9	2397	18.1	2528				
NC				.3	.5					
X1	85.2				100	100	100			
X3	10							18.7	18.7	
SB	1.25	1.56	2.6		13.4	4	2590	4	-7.1	-7.1
WILLOW DR										
X1	85.1	18	2074	2326	31	31	31			
X2			1	17.2	20.2					
X3	10							20.2	20.2	
BT	10	1268	17.5		1503	17.1		1690	17.9	
BT	1873	18.5		2072	19.4		2074	20.2		2326
BT	20.2		2328	19.4		2411	19		2557	17.6
BT	0									
GR	17	1605	17	1606	17	1670	17	1777	17.2	1860
GR	18.6	1880	18.2	1902	18.2	1973	18.6	2074	.9	2154
GR	-4	2164	-7.1	2193	-3.2	2222	.8	2232	19.2	2326
GR	18.3	2332	17.9	2397	18.1	2528				



X1	85				50	50	50			
NC				.1	.3					
X1	84	19	1947	2244	3050	2650	2881			
GR	18.2	1398	18.8	1569	19.2	1750	20.4	1839	20.4	1947
GR	16.6	1996	.6	2042	-3	2057	-7.3	2077	-3	2098
GR	.6	2113	12.4	2183	20.4	2244	20.4	2338	19.4	2387
GR	19.2	2400	18.8	2433	19.4	2437	20.4	2510		
X1	83	20	1970	2209	3590	3590	3590			
GR	20.8	1790	20.8	1791	20.8	1792	20.8	1793	18.4	1816
GR	18.4	1841	22.8	1882	20.4	1970	9.8	2009	5.2	2059
GR	.2	2077	-2	2087	-5.8	2102	-5.8	2121	-2	2136
GR	.2	2146	9	2168	16.8	2191	20.2	2209	19.4	2322

REACH LENGTHS REDUCED FOR THIS CROSS-SECTION  
 BAKER & LAWSON  
 BRAZORIA CO DRAINAGE MASTER PLAN

X1	82.3	13	1690	1901	663	795	783			
GR	21.4	1589	21.4	1590	21.4	1591	20.4	1671	19.1	1690
GR	.9	1768	-2.3	1770	-5	1811	-2.5	1844	.9	1854
GR	19.4	1901	21.6	2004	22.2	2104				
NC				.3	.5					
X1	82.2				100	100	100			
X3	10							19.8	19.8	
SB	1.25	1.56	2.6		57.6	1.4	2840	3	-5	-5
YAUPON ST										
X1	82.1				66	66	66			
X2			1	17.8	21.8					
X3	10							21.8	21.8	
BT	13	824	18.6		960	19		1327	19.4	
BT	1688	21.1		1690	21.8		1901	21.8		1903
BT	21.1		2085	18.4		2145	19.2		2264	16.4
BT		2391	16.2		2426	14.8		2479	15.8	
X1	82				50	50	50			
NC				.1	.3					
X1	81	15	2028	2278	4900	5200	4378			
GR	20	1984	19.6	2028	.7	2104	-4.6	2130	-4.6	2155
GR	.7	2182	12.3	2210	13.5	2237	20.7	2278	20.9	2302
GR	20.3	2446	18.1	2488	18.3	2515	19.7	2553	20.3	2612

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X1	80.3	12	2165	2387	3150	2850	3010			
GR	21.4	2140	21	2150	20.5	2165	1.8	2203	-2.5	2213
GR	-4.4	2237	-2.6	2261	1.5	2271	20.9	2387	21.4	2391
GR	21.6	2409	22.4	2462						

NC				.3	.5					
THAT WAY STRUCTURE										
X1	80.2				100	100	100			
X3	10							20.7	20.7	

SB	1.25	1.56	2.6		45.9	3.5	2745	3	-4.4	-4.4
THAT WAY ST										
X1	80.1					33	33	33		
X2			1	19.6	21.8					
X3	10							21.8	21.8	
BT	5	1929	20.4		2080	21.2		2165	21.8	
BT	2222	21.8		2635	19.4					

X1	80				50	50	50			
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NC				.1	.3					
X1	79.9	14	5311	5713	2300	2496	2488			
GR	21.4	5311	8.4	5400	4.4	5431	2	5457	-1.5	5467
GR	-3.4	5512	-1.5	5557	2	5567	7.2	5603	11.2	5628
GR	14.6	5673	19	5703	21.2	5713	21.6	5747		

INSERTED SH288 STRUCTURE

NC				.3	.5					
X1	79.8	9	10095	10357	50	50	50			
X3	10									
GR	20.6	10000	20	10095	13.4	10135	13	10181	2.4	10213
GR	-6.6	10253	2.8	10290	17.5	10338	20.4	10357		

SB	1.25	1.56	2.6		10	10	9548	4	-6.6	-6.6
SH 288 FWY										
X1	79.7				150	150	150			
X2			1	25	28					
X3	10									

X1	79.6				50	50	50			
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NC				.1	.3					
X1	79.3	14	5311	5713	2154	2358	2003			
GR	21.4	5311	8.4	5400	4.4	5431	2	5457	-1.5	5467
GR	-3.4	5512	-1.5	5557	2	5567	7.2	5603	11.2	5628
GR	14.6	5673	19	5703	21.2	5713	21.6	5747		

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NC				.3	.5					
QT	3	5557	6732	7393						
FM 2004 BRIDGE										
X1	79.2				100	100	100			
X3	10							23.8	23.8	
SB	1.05	1.56	2.6		124.1	5.8	5490	4	-3.4	-3.4
FM 2004										
X1	79.1				31	31	31			
X2			1	21.7	25.9					
X3	10							25.6	25.6	
BT	9	4419	22		4680	23.4		5076	24.8	
BT	5310	25.6		5512	25.9		5747	25.6		5990
BT	24.6		6238	22.4		6419	21.2			
NC	.04	.055	.03	.1	.3					
X1	79				50	50	50			
NC				.1	.3					
X1	78	13	1984	2237	5100	5400	5205			
GR	22.3	1944	22.3	1984	19.9	1997	4.3	2028	1	2044
GR	-3.3	2064	1	2087	4.3	2101	9.7	2151	15.7	2193
GR	20.1	2219	23.7	2237	23.9	2252				
NC	.045	.045	.03	.1	.3					
X1	77	13	2067	2328	2750	2600	2693			
GR	21.9	1530	21.9	1763	20	1810	19.4	1897	16.2	2067
GR	8.4	2104	2.4	2134	-.4	2144	-3.3	2164	-.4	2184
GR	2.4	2194	19.4	2328	20.4	2379				
X1	76	24	3460	3697	3310	3510	3749			
GR	22.7	2427	22.7	2428	22.7	2429	22.7	2430	22.1	2755
GR	23.5	3145	24.9	3387	21.9	3412	21.9	3460	8.1	3516
GR	8.1	3534	4.5	3551		3561	-3	3578		3595
GR	4.5	3605	14.7	3627	17.3	3697	24.3	3753	23.3	3895
GR	22.7	4177	22.7	4268	18.9	4351	25.1	4434		
X1	75	15	2361	2527	1600	2050	1900			
GR	24.1	2271	24.1	2323	20.1	2361	12.5	2380	10.3	2403
GR	4.5	2422	2	2430	-2.8	2442	-2.8	2452	2	2464
GR	4.5	2472	7.3	2490	18.9	2527	19.9	2584	25.3	2630

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X1	74	14	2435	2663	5438	5438	5438				
GR	23.4	2297	22.4	2377	15	2435	4.6	2506	6.6	2537	
GR	4.2	2562	1.9	2565	-1	2585	4.2	2601	7.2	2629	
GR	18.2	2663	18.2	2705	22.4	2745	22.4	2926			
X1	73	15	6715	6927	1400	1650	1848				
GR	24.2	6009	23.4	6371	24	6715	10.6	6782	6.2	6831	
GR	4.4	6834	-1.7	6849	-1.7	6865	4.4	6880	9.2	6914	
GR	17	6927	21.8	6986	23	7078	23.1	7306	23.5	7360	
X1	72.8	23	5250	5503	898	898	898				
GR	23.6	3894	23.6	3895	21.8	3951	22.6	4499	22.8	5005	
GR	23.5	5050	23.9	5240	23.8	5250	8	5360	6.1	5374	
GR	.1	5384	-.1	5400	.4	5420	6	5430	7.6	5438	
GR	15.2	5472	21.1	5503	22.3	5539	22.3	5556	24.5	5709	
GR	23.5	6000	23.5	6025	24.7	6050					
NC				.3	.5						
X1	72.7	23	5360	5438	100	100	100				
X3	10										
GR	23.6	3894	23.6	3895	21.8	3951	22.6	4499	15.6	15.6	
GR	23.5	5050	23.9	5240	23.8	5250	8	5360	22.8	5005	
GR	.1	5384	-.1	5400	.4	5420	6	5430	6.1	5374	
GR	15.2	5472	21.1	5503	22.3	5539	22.3	5556	7.6	5438	
GR	23.5	6000	23.5	6025	24.7	6050			24.5	5709	
SB	1.05	1.56	2.6		33.2	3.3	925	2	-.1	-.1	
	PVT X-ING										
X1	72.6	22	5360	5438	15	15	15				
X2			1	15.2	16						
X3	10										
BT	9	5033	23.7		5211	18.5		16	16		
BT	5360	16		5438	16			5300	16.1		
BT	20.1		5762	24.1		5823	24.5	5540	17.7	5650	
GR	23.6	3894	23.6	3895	21.8	3951	22.6	4499	22.8	5005	
GR	23.7	5033	18.5	5211	16.1	5300	16	5360	6.1	5374	
GR	.1	5384	-.1	5400	.4	5420	6	5430	16	5438	
GR	17.7	5540	20.1	5650	24.1	5762	24.5	5823	23.5	6000	
GR	23.5	6025	24.7	6050							
X1	72.5	23	5250	5503	50	50	50				
GR	23.6	3894	23.6	3895	21.8	3951	22.6	4499	22.8	5005	
GR	23.5	5050	23.9	5240	23.8	5250	8	5360	6.1	5374	
GR	.1	5384	-.1	5400	.4	5420	6	5430	7.6	5438	
GR	15.2	5472	21.1	5503	22.3	5539	22.3	5556	24.5	5709	
GR	23.5	6000	23.5	6025	24.7	6050					

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NC				.1	.3					
X1	72	23	2831	3010	5450	5100	4429			
GR	25	2095	25	2096	25	2097	24.2	2424	23	2526
GR	20.9	2556	15.5	2608	14.7	2695	12.1	2831	9.5	2889
GR	8.5	2920	4.5	2930	.1	2940	2.6	2951	.1	2962
GR	4.5	2972	13.3	3010	18.7	3043	18.7	3062	18.7	3159
GR	21.5	3237	24.7	3536	25.3	3939				

INSERT RETRIEVE UNIT FIELD BRIDGE HERE

X1	71.7	11	2140	2347	561	569	710			
GR	26.2	2058	20.8	2140	8.4	2197	4.6	2216		2226
GR	-3	2238		2250	6.6	2260	12.4	2289	26	2347
GR	27	2361								

NC				.3	.5					
X1	71.6	9	10384	10479	50	50	50			
X3	10									
GR	22.8	10000	15.5	10117	10.6	10384	5	10416	-2.9	10422
GR	5.4	10449	15.5	10479	18	10547	23.8	10597		

SB	1.05	1.56	2.6		1	0	1045.3	3	-2.9	-2.9
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RETRIEVE FIELD BR

X1	71.5	10	10384	10479	20	20	20			
X2			1	14	15.5					
X3	10									
BT	5	10000	22.8		10117	15.5		10479	15.5	
BT	10547	18		10597	23.8					
GR	22.8	10000	15.5	10117	15.5	10363	10.6	10384	5	10416
GR	-2.9	10422	5.4	10449	15.5	10479	18	10547	23.8	10597

X1	71.2	9	10384	10479	50	50	50			
GR	22.8	10000	15.5	10117	10.6	10384	5	10416	-2.9	10422
GR	5.4	10449	15.5	10479	18	10547	23.8	10597		

NC				.1	.3					
X1	71	11	2140	2347	3239	3281	3145			
GR	26.2	2058	20.8	2140	8.4	2197	4.6	2216		2226
GR	-3	2238		2250	6.6	2260	12.4	2289	26	2347
GR	27	2361								

X1	70	17	2031	2230	4550	3400	4224			
GR	24.8	1340	24.8	1341	23.8	1399	24.4	1989	18.2	2031
GR	8.2	2065	5	2072	2	2082	-.1	2100	2	2117
GR	5	2127	7.8	2147	20.6	2230	25.4	2257	24.4	2279
GR	24.6	2781	26	2844						

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X1	69.3	13	2130	2318	3900	3700	4224				
GR	26.2	1972	26	2071	21.6	2130	10	2166	6.9	2177	
GR	2.7	2217	6.9	2257	9.8	2268	21.9	2318	24.6	2347	
GR	26.4	2416	26.8	2459	26.7	2712					

THIS BRIDGE DEMOLISHED, WAS AN ACCESS RD TO RETRIEVE UNIT  
 BAKER & LAWSON, INC  
 BRAZORIA CO DRAINAGE MASTER PLAN

X1	69.2	14	2166	2268	100	100	100				
GR	26.2	1972	26	2071	21.6	2130	10	2166	6.9	2177	
GR	2.7	2217	6.9	2257	9.8	2268	21.9	2318	24.6	2347	
GR	26	2400	26.4	2416	26.8	2459	26.7	2712			

X1	69.1				21	21	21				
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X1	69	13	2130	2318	50	50	50				
GR	26.2	1972	26	2071	21.6	2130	10	2166	6.9	2177	
GR	2.7	2217	6.9	2257	9.8	2268	21.9	2318	24.6	2347	
GR	26.4	2416	26.8	2459	26.7	2712					

X1	68	15	1526	1763	1994	1994	1994				
GR	27.6	1429	27.6	1430	26	1526	17.8	1569	10.2	1599	
GR	8.6	1612	5.6	1619	2	1629	.7	1646	2	1663	
GR	5.6	1673	10	1680	12.2	1713	24.2	1763	28.2	1797	

X1	67	16	1942	2181	1700	2500	2059				
GR	27.6	1898	27.6	1899	27.6	1900	25.4	1942	18.4	1982	
GR	13.4	2012	5.6	2035	1	2047	-2	2067	1	2086	
GR	5.6	2098	19	2181	20	2207	27.6	2253	27.6	2345	
GR	28.6	2594									

X1	66	14	1352	1591	2720	2640	2640				
GR	21	1352	6.6	1454	5.6	1463	.5	1472	-3	1484	
GR	.5	1497	5.6	1506	17.2	1557	21.2	1591	24.4	1615	
GR	26.6	1669	27.8	1744	26.8	2016	27.4	2051			

X1	65	13	1606	1840	2500	2600	2270				
GR	27.8	1606	5.6	1682	4.5	1690	3.7	1716	-3.9	1742	
GR	-.2	1768	4.5	1795	5.6	1803	23.6	1840	25.6	1866	
GR	27.4	1921	27.6	2140	30.4	2204					



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X1	63			50	50	50					
NC	.09	.07	.04	.1	.3						
X1	62	19	13363	13620	2300	3100	2958				
X4	4	23	400	24	2500	25	8100	28	11402		
GR	30	390	28	11403	25.4	11465	24.8	11601	25	11885	
GR	26	12155	27.6	12444	28.8	12730	29.6	12906	29	13256	
GR	28.6	13265	26.8	13363	5.6	13449	-2.6	13474	-1.3	13499	
GR	5.6	13514	15.2	13570	21	13620	28	13699			
X1	61	6	13136	13445	2050	2770	2376				
X4	4	23	2200	24	4300	25	9700	30.2	13136	0	
GR	30	2190	6.2	13280	-2.1	13310	6.2	13339	21.8	13407	
GR	30.6	13445									
NC	.08	.09	.04	.1	.3						
X1	60	15	11769	12066	5200	3900	4382				
X4	4	24	1000	25	5200	26	8700	29.8	11644		
GR	31	990	29.8	11645	29.8	11646	29.4	11769	20.8	11822	
GR	15.4	11861	10.8	11893	6.2	11903	-1.2	11923	-1.3	11934	
GR	6.2	11954	11	11979	24.8	12030	29.8	12066	30	12161	
X1	59	15	12183	12422	3100	4050	3643				
X4	4	25	4100	25	10000	25	11000	30.6	12087		
GR	32		29.6	12183	20.2	12242	13.8	12279	6.2	12300	
GR	3	12307	1	12315	-.3	12320	1	12325	3	12333	
GR	6.2	12340	11.4	12373	23.2	12422	29.2	12503	30.2	12551	
X1	58	10	12138	12257	2100	2480	2376				
X4	4	25	1000	25	4600	27	9500	30.4	11913		
GR	33	990	30.2	12057	26.8	12102	26.4	12138	11.6	12195	
GR	6.2	12214	1.3	12218	.3	12236	.3	12239	30	12257	
NC	.08	.05	.03	.1	.3						
X1	57.3	15	13390	13636	6250	5750	6072				
X4	1	26	8760								
GR	33.4	8750	25	11150	20	11250	25	11350	30	13100	
GR	31.4	13365	30.9	13390	10.9	13450	7.8	13460	4.2	13492	
GR	10.8	13534	30.1	13636	30.8	13723	29.8	13868	30.4	14028	
NC				.3	.5						
QT	3	5298	6150	7877							

SH 35 BRIDGE





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X1	52	12	21723	22025	1480	1850	1637			
GR	36	8680	32	8700	30	19500	30	21300	32.8	21382
GR	32.8	21723	22.8	21776	15.2	21814	1.4	21874	15.2	21937
GR	25	21975	32.8	22025						

X1	51.3	21	15311	15554	4750	4300	4541			
X4	1	32	5110							
GR	36	5100	34.3	12030	32.5	14623	33.6	14825	31	14974
GR	31.8	15199	31	15311	14	15376	9	15386	6.9	15405
GR	9.3	15424	14	15434	31	15554	31.4	15576	33.4	15772
GR	32.6	16032	32.8	16595	33.6	17083	33.6	18161	33	19118
GR	34	19197								

NC				.3	.5					
FM 521 BRIDGE										
X1	51.2				120	100	100			
X3	10							35.4	35.4	

SB	1.25	1.56	2.6		79.2	6	3636	2	6.9	6.9
FM 521										
X1	51.1				31	31	31			
X2			1	35	37					
X3	10							35.4	35.4	
BT	10	4264	35.6		4613	35.4		5008	36	
BT	5185	37		5310	37.1		5311	37.8		5554
BT	37.8		5555	37.1		5757	36.9		6076	35.4
BT	0									

X1	51				50	50	50			
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NC				.1	.3					
NH	4	.04	16000	.1	24547	.05	24761	.1	24761	
QT	3	3932	4847	6932						
X1	50	29	24547	24761	5500	4000	5046			
X4	2	33	9310	32	16000					
GR	37	9300	30	19400	25	19500	25	19700	30	19800
GR	30	20950	25	21000	15	21100	25	21300	30	21800
GR	30	23300	35.6	23840	27.4	23899	26.4	23960	26.4	24083
GR	28	24201	32.4	24321	34.8	24417	34.1	24461	28.8	24547
GR	17.2	24608	16.6	24622	14	24627	12.1	24637	14	24647
GR	16.6	24652	17.2	24666	26.8	24709	35.8	24761		

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NH	4	.04	9300	.1	19930	.05	20079	.1	20549	
X1	49	25	19930	20079	2300	2800	2482			
X4	2	33	2810	32	9300					
GR	38	2800	25	13000	30	13100	25	13500	30	14000
GR	15	14500	30	14700	30	18600	30	19400	33	19431
GR	33	19432	33	19433	33	19436	33.8	19571	34.6	19833
GR	34.2	19930	15.6	19968	11	20003	15.6	20039	28.6	20079
GR	29.6	20150	33.2	20228	34.2	20263	33.8	20360	34	20549
NH	4	.04	8500	.1	18837	.05	19098	.1	20999	
X1	48	39	18837	19098	2300	2800	2640			
X4	2	33	2210	32	8500					
GR	38	2200	30	10700	25	12050	10	12500	30	13200
GR	30	14800	34.6	18159	34.6	18160	34.6	18161	34.6	18162
GR	34.6	18163	34.4	18328	35.6	18570	36	18680	34.6	18837
GR	15.8	18916	9.9	18956	9.9	18957	9.9	18968	9.9	18985
GR	9.9	18986	15.8	19026	35.6	19098	34	19290	30.2	19574
GR	32.2	19673	31.4	19780	21	19803	21.2	19841	25.2	19856
GR	22	19907	21.2	20031	29.4	20063	19	20111	17.8	20144
GR	32.6	20170	31.6	20320	34.2	20585	34.4	20999		
NH	4	.04	13000	.1	23710	.05	23971	.1	24262	
X1	47.3	19	23710	23971	5750	5500	5386			
X4	2	35	4010	30	13000					
GR	40	4000	30	12000	25	13700	25	13950	30	14200
GR	30	17200	35	20300	35	23400	33.8	23588	33.8	23592
GR	34.5	23710	12.3	23809	4.6	23819	6	23828	7.6	23837
GR	12.8	23856	33.6	23971	32.6	24125	35	24262		
NC				.3	.5					
NH	4	.04	13000	.1	23710	.05	23971	.1	24262	
X1	47.2				130	100	100			
X3	10						33.2	33.2		
X4	1	30	13000							
SB	1.05	1.56	2.6		10	18	3140	2	4.6	4.6
NH	4	.04	13000	.1	23710	.05	23971	.1	24262	
X1	47.1	19	23710	23971	23	23	23			
X2			1	32.6	33.9					
X3	10							33.9	33.9	
X4	2	35	4010	30	13000					
BT	6	23505	34.5		23545	33.9		23806	33.9	
BT	23841	34.7		23897	35.3		24123	35.5		
GR	40	4000	30	12000	25	13700	25	13950	30	14200
GR	30	17200	35	20300	35	23400	33.8	23588	33.8	23592
GR	34.5	23710	12.3	23809	4.6	23819	6	23828	7.6	23837
GR	12.8	23856	33.6	23971	32.6	24125	35	24262		

NH	4	.04	13000	.1	23710	.05	23971	.1	24262	
X1	47				50	50	50			
X4	1	30	13000							
NC				.1	.3					
NH	4	.04	16000	.1	27400	.05	27765	.1	27765	
X1	46	25	27400	27765	1550	1150	1517			
X4	1	35	7010							
GR	40	7000	30	12600	30	15000	25	16000	25	16500
GR	30	18000	30	21000	35	25050	35.1	25724	25.9	25768
GR	25.9	26476	32.3	26589	33.1	26813	32.7	27065	33.3	27107
GR	33.1	27142	33.9	27248	33.7	27277	33.7	27400	32.5	27491
GR	16.2	27587	7	27622	7	27640	16.2	27675	35.2	27765
NH	4	.04	11500	.1	24912	.05	25238	.1	25238	
X1	45	25	24912	25238	3600	3800	3854			
X4	1	35	1610							
GR	40	1600	35	6000	35	9300	30	9700	25	11500
GR	25	12000	30	14700	35	20800	35.4	24299	35.4	24300
GR	35.4	24303	31.6	24369	32.4	24478	34.4	24588	33.8	24912
GR	16.4	24961	15.3	24980	13	24988	10.3	25008	13	25026
GR	15.3	25034	16.4	25055	20.8	25078	23	25169	35.8	25238
NH	4	.04	21000	.1	32640	.05	32934	.1	32934	
X1	44	20	32640	32934	3150	2750	2798			
X4	1	35	15005							
GR	36	15000	35	20900	30	21000	30	23900	35	29800
GR	30	30300	30	31000	35	31500	36.2	32093	36.2	32094
GR	35	32408	36	32640	27.4	32679	26.6	32694	16.6	32732
GR	10.9	32760	5.4	32773	10.9	32785	16.6	32814	36	32934
NH	3	.04	31300	.1	41567	.05	41826			
X1	43	27	41567	41826	1300	1200	1162			
GR	35	12500	35	31300	30	32000	30	33100	35	37400
GR	35	38350	36	39679	35.2	39829	30.2	39871	34.4	39897
GR	23.6	39988	27.2	40063	25.6	40285	21	40304	21	40448
GR	26.8	40462	34	40580	31.4	40909	33.8	41210	33	41419
GR	33.8	41567	16.8	41650	6.6	41675	6.6	41688	16.8	41713
GR	25	41781	34.6	41826						
NH	4	.04	23800	.1	31421	.05	31703	.1	31703	
X1	42	37	31421	31703	2300	2534	2534			
X4	1	35	23800							
GR	35	1200	35	12800	40	18200	40	21800	35	22200
GR	30	22700	35	27000	35	29494	35	29495	35	29498
GR	34.4	29604	30.6	29694	32.2	29796	31.4	29936	25.4	29986
GR	25.4	30152	27.4	30203	27.8	30297	32.8	30380	24.6	30467
GR	26.2	30755	30.2	30784	30.8	30902	32.4	30954	30.8	31026

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GR	34.4	31109	34	31263	34	31355	35.4	31421	17.2	31528
GR	14.2	31563	9.8	31574	8.5	31584	8	31595	13.1	31606
GR	17.2	31641	33.4	31703						
NH	4	.04	24800	.1	37432	.05	37833	.1	37936	
X1	40	20	37432	37833	1000	1000	8660			
X4	1	35	24800							
GR	35	8700	35	29600	30	32900	25	33150	25	33190
GR	30	33200	35	35300	34.7	35427	28.1	36052	33.3	36410
GR	33.9	36950	35.5	37393	32.3	37432	19.1	37581	16	37590
GR	13.8	37600	16	37610	19.1	37618	32.7	37833	44.7	37936
NH	9	.04	7500	.1	16500	.04	22500	.1	27700	.04
NH	29768	.1	30450	.05	30765	.1	32276	0.05	34200	
X1	38	32	30450	30765	10600	10800	10877			
X4	3	37	7500	35	16500	34	22500			
GR	40	2350	35	2400	35	4700	40	10700	40	12400
GR	35	13000	35	20500	30	26540	25	26550	25	26800
GR	35	27700	37	28495	37	28500	35	28750	34.3	29729
GR	34.7	29768	35.3	30450	20.5	30611	20.5	30638	17.5	30648
GR	15.5	30658	15.5	30668	17.5	30678	20.5	30688	31.7	30765
GR	35.5	30789	25.7	31277	36.7	31959	32.6	32276	36	32973
GR	44.6	33130	45	34200						
NH	8	.04	25200	.1	27500	.04	29300	.1	29500	.04
NH	31700	.1	31856	.05	31944	.04	39500			
X1	37.3	31	31856	31944	4350	4100	3750			
X4	5	35	25200	31	27500	31	29300	32	29500	30
X4	31700									
GR	40	5550	35	5600	40	14400	40	17300	35	18150
GR	35	26200	30	28600	30	28650	35	30400	36.7	31641
GR	36.7	31643	29.9	31731	28.3	31856	21.9	31873	17.1	31886
GR	16	31893	16	31895	17.1	31902	21.9	31915	27.3	31944
GR	35.3	32214	36.5	32259	33.1	32898	33.3	33306	35.7	33786
GR	35.7	34016	37.9	34077	37.5	34370	35	37000	35	39000
GR	44	39500								
NC				.3	.5					
NH	8	.04	25200	.1	27500	.04	29300	.1	29500	.04
NH	31700	.1	31856	.05	31944	.04	39500			
X1	37.2				50	50	50			
X3	10									
SB	1.25	1.5	2.6		4	3	386	3.6		
NH	8	.04	25200	.1	27500	.04	29300	.1	29500	.04
NH	31700	.1	31856	.05	31944	.04	39500			

CR 34										
X1	37.1				50	50	50			
X2			1	25.5	28.5					
X3	10									
BT	25	5550	40		5600	35		14400	40	
BT	17300	40		18150	35		26200	35		28600
BT	30		28650	30		30400	35		31641	36.7
BT		31643	36.7		31731	29.9		31856	28.3	
BT	31944	27.3		32214	35.3		32259	36.5		32898
BT	33.1		33306	33.3		33786	35.7		34016	35.7
BT		34077	37.9		34370	37.5		37000	35	
BT	39000	35		39500	44					
NH	8	.04	25200	.1	27500	.04	29300	.1	29500	.04
NH	31700	.1	31856	.05	31944	.04	39500			
X1	37				50	50	50			
X4	5	35	25200	31	27500	31	29300	32	29500	30
X4	31700									
NC				.1	.3					
NH	7	.04	27800	.1	30500	.04	34766	.05	34860	.04
NH	36500	.1	38200	.04	41010					
X1	36	31	34766	34860	5800	4000	9565			
X4	5	35	27800	35	30500	35	34766	35	36500	35
X4	38200									
GR	40	4350	35	4400	40	11650	40	18450	35	24300
GR	35	28850	37.6	32392	36.8	32973	36.6	33458	36.6	33543
GR	31	33594	37.4	34483	37.4	34484	37.4	34485	37.4	34486
GR	35.4	34691	30.2	34766	26.8	34792	25.6	34802	20.1	34817
GR	20.1	34820	25.6	34835	31.8	34860	33.2	34911	36.4	35013
GR	37.2	35594	36.4	35771	40.2	35820	35	36500	35	41000
GR	40	41010								
NH	9	.04	17500	.1	18200	.04	22000	.1	23100	.04
NH	27800	.1	31200	.04	36080	.06	36169	.04	47000	
QT	3	3573	4467	6607						
X1	35	47	36080	36169	1500	1584	1584			
X4	6	40	17500	40	18200	40	22000	37	23100	35
X4	27800	35	31200							
GR	40	4180	35	4200	40	11000	40	19000	35	24000
GR	35	33000	39	33996	39	34000	34.2	34236	31.6	34478
GR	37.2	34868	36.2	35335	37	35677	36.6	35934	34.8	35979
GR	29.8	36014	28.4	36080	26.2	36107	24	36113	22	36125
GR	20.1	36130	22	36135	24	36146	26.2	36152	29.4	36169
GR	29.4	36241	38.4	36280	38	36313	36	36633	34	36805
GR	30.6	36984	37.2	37280	36	37733	35.4	37980	35	38164
GR	36.4	38288	35.8	38559	35.4	39176	35.6	39690	35.8	39855
GR	37	40710	35.8	41514	36.6	42475	31.4	43126	35	43171
GR	38.2	43304	40	47000						

NH	7	.04	16200	.1	19200	.04	24600	.1	31700	.04
NH	33270	.06	33596	.04	46200					
X1	34.3	37	33270	33596	3950	4030	4118			
X4	4	44	16200	40	19200	35	24600	35	31700	
GR	40	3300	35	3500	40	10500	40	21800	35	25500
GR	35	32500	37.4	32835	37.4	32836	37.4	32837	37.4	32838
GR	37.4	32839	37.8	33254	36.3	33270	25	33430	24.5	33438
GR	20.1	33457	23.9	33472	24.5	33476	36.7	33596	38.2	34089
GR	37.8	34308	35.2	34413	39.6	34560	40.2	34992	39.4	35573
GR	39.8	36248	39.2	36627	43	36642	43	36651	38	36677
GR	40.4	36691	38.4	36714	38.2	36955	38.6	37743	38.8	37806
GR	39	38667	40	46200						
NH	5	.04	12400	.1	24300	.04	34625	.06	34745	.04
NH	42500									
X1	33.9	30	34625	34745	4031	4572	5025			
X4	2	45	12400	37	24300					
GR	45		35	50	40	2800	45	9200	45	13600
GR	40	16500	40	28500	40	34048	40	34049	40	34050
GR	38.2	34460	36.6	34475	34.4	34595	30.4	34625	23.6	34675
GR	21.22	34685	23.6	34695	29.4	34745	33.8	34780	34	34785
GR	41	35134	39.6	36005	38.8	36268	38.6	36631	38.4	37046
GR	38.8	37657	39.4	38139	39.4	38234	40	39000	40	42500
NH	5	.04	12400	.1	24300	.04	34625	.06	34745	.04
NH	42500									
X1	33.7	30	34625	34745	3548	4023	4378			
X4	2	45	12400	37	24300					
GR	45		35	50	40	2800	45	9200	45	13600
GR	40	16500	40	28500	40	34048	40	34049	40	34050
GR	38.2	34460	36.6	34475	34.4	34595	30.4	34625	23.6	34675
GR	22.2	34685	23.6	34695	29.4	34745	33.8	34780	34	34785
GR	41	35134	39.6	36005	38.8	36268	38.6	36631	38.4	37046
GR	38.8	37657	39.4	38139	39.4	38234	40	39000	40	42500
NC				.3	.5					
QT	3	1534	1991	3093						
X1	33.6	11	34645	34726	50	50	50			
X3	10									
GR	45	13600	37	24300	36.4	34531	33.2	34645	27.4	34675
GR	25.7	34685	26.8	34698	30.3	34726	33.7	34870	40.8	35013
GR	39.7	35094								
SB	1.25	1.5	2.6		1	0	505	5	25.7	25.7
RAMSEY I BR										
X1	33.5				21	21	21			
X2			1	33	34.5					
X3	10									
BT	7	13600	45		24300	37		34531	36.4	
BT	34645	34.5		34870	34.5		35013	40.8		35094

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BT 39.7

X1	33.4	30	34625	34745	50	50	50			
X4	2	45	12400	37	24300					
GR	45		35	50	40	2800	45	9200	45	13600
GR	40	16500	40	28500	40	34048	40	34049	40	34050
GR	38.2	34460	36.6	34475	34.4	34595	30.4	34625	23.6	34675
GR	22.2	34685	23.6	34695	29.4	34745	33.8	34780	34	34785
GR	41	35134	39.6	36005	38.8	36268	38.6	36631	38.4	37046
GR	38.8	37657	39.4	38139	39.4	38234	40	39000	40	42500

NC .1 .3

X1	33.3	30	34625	34745	1994	2261	2485			
X4	2	45	12400	37	24300					
GR	45		35	50	40	2800	45	9200	45	13600
GR	40	16500	40	28500	40	34048	40	34049	40	34050
GR	38.2	34460	36.6	34475	34.4	34595	30.4	34625	23.6	34675
GR	22.2	34685	23.6	34695	29.4	34745	33.8	34780	34	34785
GR	41	35134	39.6	36005	38.8	36268	38.6	36631	38.4	37046
GR	38.8	37657	39.4	38139	39.4	38234	40	39000	40	42500

NH	5	.04	15200	.1	26700	.04	35667	.06	35760	.04
NH	44600									
X1	32	32	35667	35760	2300	2765	2640			
X4	2	45	15200	37	26700					
GR	45	2500	40	2600	40	4500	45	11500	45	16600
GR	40	19000	40	31200	42.3	34904	42.1	34930	37.7	34976
GR	39.5	35011	40.3	35538	35.9	35577	34.7	35667	28.7	35694
GR	24.7	35704	24.7	35721	28.7	35731	34.1	35760	32.3	35801
GR	32.3	35850	39.1	35905	39.9	35935	39.9	36117	39.9	36463
GR	38.1	37091	38.3	37627	39	37756	40.2	38008	40	40800
GR	40	42500	40	44600						

NH	5	.04	20500	.1	31500	.04	44704	.06	44868	.04
NH	51000									
X1	31	40	44704	44868	5400	5300	5544			
X4	2	45	20500	40	31500					
GR	45	7480	40	7500	40	9150	45	15900	45	21400
GR	40	23700	40.1	40996	40.1	40997	40.1	40998	40.1	40999
GR	40.1	41000	40.1	42340	40.1	43241	39.5	43692	39.7	44075
GR	41.7	44652	38.7	44704	30.1	44749	27.1	44769	24.3	44794
GR	27.1	44813	30.1	44838	33.9	44868	33.3	44898	30.1	44929
GR	30.1	44930	30.1	45066	42.3	45100	41.9	45172	33.5	45318
GR	39.5	45367	39.5	45562	39.9	45764	40.4	46141	39.6	46683
GR	39.8	46980	40	47000	40	48000	40	50300	43	51000



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NH	8	.04	23700	.1	34600	.04	48240	.06	48330	.04
NH	49300	.1	51200	.04	52500	.1	54300			
X1	30.3	27	48240	48330	1300	1380	1320			
X4	5	45	23700	40	34600	40	49300	40	51200	40
X4	52500									
GR	45	10980	40	11000	40	12700	45	19400	45	25900
GR	40	27200	41.1	46277	41.1	47624	37.1	47833	35.5	47927
GR	36.3	48092	34.9	48146	33.3	48178	32	48240	26.4	48260
GR	25.4	48270	23.8	48305	24.6	48320	32	48330	30.5	48416
GR	34.5	48483	36.9	48534	41.7	48560	41.7	48678	40	50000
GR	40	52500	45	54300						
NH	6	.04	24300	.1	34900	.04	44183	.06	44565	.04
NH	53000	.1	55500							
QT	3	2087	2199	3056						
X1	29	24	44183	44565	4800	5400	5069			
X4	3	45	24300	40	34900	45	53000			
GR	45	11330	40	11350	40	12000	45	20200	45	25700
GR	40	27800	40	39000	42.9	43686	42.7	43826	42.9	44094
GR	39.7	44183	32.7	44213	26.1	44373	26.1	44377	32.7	44537
GR	41.9	44565	42.7	44585	42.9	44751	42.3	47577	40	49200
GR	40	50500	40	52500	45	53500	45	55500		
NH	6	.04	21800	.1	34200	.04	42240	.06	42469	.04
NH	54000	.1	55500							
X1	28	31	42240	42469	2500	2250	2323			
X4	3	45	21800	40	34200	44	54000			
GR	45	11080	40	11100	45	17800	45	23100	40	25700
GR	40	39100	40.4	41000	41	41539	41.6	41792	43.6	42104
GR	43	42201	43	42240	32.8	42274	29.3	42314	26.3	42354
GR	29.3	42394	32.8	42434	42	42469	42	42889	40.4	43458
GR	41	43529	38.3	44137	42.5	44243	43.5	44353	42.9	44774
GR	40.3	45364	37.3	45816	37.3	46172	41.9	46544	41.6	50760
GR	45	55500								
NH	4	.04	41457	.06	41810	.04	49000	.1	52300	
X1	27.5	23	41457	41810	5500	4900	5122			
X4	1	43	49000							
GR	45	95	40	100	40	5400	45	10100	45	12200
GR	45	16200	40	20400	40.2	41000	40.2	41457	30.2	41560
GR	29	41605	27.6	41640	29	41676	42.1	41810	41.8	41912
GR	40.6	42373	40.2	42498	38.6	43218	38	43566	37.2	44055
GR	37.8	44678	41.8	46420	45	52300				

NC	.05	.05	.06	.1	.3					
X1	26	21	51258	51444	1400	2400	1848			
GR	45	9050	40	9100	45	31400	45	34800	40	44000
GR	40	44150	44.3	51000	40.9	51258	32.9	51285	28	51335
GR	28	51379	32.9	51429	43.5	51444	42.9	51890	40.5	52379
GR	37.9	52975	36.1	53672	38.5	53740	41.6	56700	45	58700
GR	46	59100								

X1	25	25	51406	51679	6600	4500	5702			
GR	45	15280	40	15300	40	20000	45	24200	45	26300
GR	40	33000	40	45000	44.2	51401	43.2	51406	32.8	51454
GR	28	51514	28	51565	32.8	51625	42.6	51679	43	51693
GR	42.6	52090	42.8	52167	42.7	52186	39.1	52789	40.5	53562
GR	38.7	54274	42.1	55765	43.2	61020	46	62200	45	62700

X1	24	35	51495	51683	1650	1780	1742			
X4	5	45	55136	38.9	56251	41.3	56682	40.5	57289	42.6
X4	59780									
GR	45	14500	40	14550	40	16700	45	22300	45	26400
GR	40	31700	40	44700	44.8	51000	44.2	51229	41.4	51495
GR	38.4	51514	33	51523	31	51547	29.7	51571	28	51586
GR	29.7	51601	31	51625	33	51649	41.6	51683	41.6	51730
GR	44.8	51783	45.4	51919	44	52056	45.2	52204	44.2	52322
GR	42.6	52524	44.6	53228	44	53596	44.4	54008	43.8	54448
GR	43.8	55091	45	55136	42.6	59780	45	61500	47	62000

X1	23.9	30	51871	52138	165	165	165			
GR	45	12280	40	12300	40	13900	45	20000	45	24500
GR	40	27500	40	29400	45	48600	43.4	51605	45.6	51831
GR	43.7	51849	43.5	51871	32.2	51930	28	51968	32	52033
GR	34.5	52045	45.1	52138	46.1	52151	45.3	52331	43	52372
GR	41.6	52575	43.2	52848	41.6	53000	44	53373	45.2	53747
GR	44.6	53969	33	54065	39.5	56492	42.4	60000	45.2	60900

INSERT RAMSEY II FIELD BR HERE

NC				.3	.5					
X1	23.8	30	51871	52138	50	50	50			
X3	10							43.5	43.5	
GR	45	12280	40	12300	40	13900	45	20000	45	24500
GR	40	27500	40	29400	45	48600	43.4	51605	45.6	51831
GR	43.7	51849	43.5	51871	32.2	51930	31	51968	32	52033
GR	34.5	52045	45.1	52138	46.1	52151	45.3	52331	43	52372
GR	41.6	52575	43.2	52848	41.6	53000	44	53373	45.2	53747
GR	44.6	53969	33	54065	39.5	56492	42.4	60000	45.2	60900

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SB	1.25	1.05	2.6		100	0	1458	5	31	31
	RAMSEY II BR									
X1	23.7				27	27	27			
X2			1	41	42.5					
X3	10							43.5	43.5	
BT	12	48600	45	45	51605	43.4	43.4	51831	45.6	45.6
BT	51849	43.7	43.7	51871	43.5	43.5	51930	42.5	32.2	51930
BT	42.5	41	52045	42.5	41	52045	42.5	34.5	52138	45.1
BT	45.1	52151	46.1	46.1	52331	45.3	45.3			
X1	23.6	30	51871	52138	50	50	50			
GR	45	12280	40	12300	40	13900	45	20000	45	24500
GR	40	27500	40	29400	45	48600	43.4	51605	45.6	51831
GR	43.7	51849	43.5	51871	32.2	51930	28	51968	32	52033
GR	34.5	52045	45.1	52138	46.1	52151	45.3	52331	43	52372
GR	41.6	52575	43.2	52848	41.6	53000	44	53373	45.2	53747
GR	44.6	53969	33	54065	39.5	56492	42.4	60000	45.2	60900
NC				.1	.3					
X1	23.1	30	51938	52042	3650	3650	3650			
X4	5	45.2	53747	44.6	53969	33	54065	39.5	56492	42.4
X4	60000									
GR	45	12280	40	12300	40	13900	45	20000	45	24500
GR	40	27500	40	29400	45	46800	45.6	51831	45.6	51832
GR	44.8	51907	41.6	51938	33	51970	31.2	51975	30	51980
GR	28.1	51986	30	51992	31.2	51998	33	52003	40	52019
GR	44.6	52042	45	52070	43	52372	41.6	52575	43.2	52848
GR	41.6	53000	44	53373	45.2	53747	42.4	60000	45.2	60900
X1	21	35	52133	52419	10400	10200	10138			
X4	5	44.6	54970	43.8	55378	42.2	56942	42.4	58662	42.4
X4	58665									
GR	45	16680	40	16700	40	18500	45	25500	45	29000
GR	40	31400	40	42400	45.5	51560	45.5	51561	45.7	51918
GR	46.1	52033	45.1	52133	40.1	52168	33.1	52189	30.5	52229
GR	28.3	52275	30.5	52321	33.1	52361	46.5	52419	46.3	52502
GR	43.9	52994	43.1	53777	44.9	53834	41.9	53878	42.7	53986
GR	41.8	54196	43.4	54426	44.6	54970	42.4	58665	45	59700
GR	40	61400	40	61600	45	62800	45	65000	46	65700
NH	8	0.04	30300	.1	36800	.04	39400	.1	41200	.04
NH	53146	.06	53392	.04	61500	.1	67000			
X1	20	34	53146	53392	1850	2000	1848			
X4	10	45	30300	40	36800	40	39400	40	41200	43
X4	55514	41.6	55956	36.8	56235	42.4	56478	41.4	59066	40
X4	61500									
GR	45	17180	40	17200	40	19200	45	25000	45	29600
GR	40	33400	40	41000	45	46800	45	50250	43.9	51000
GR	44.9	52250	45.7	53089	43.9	53146	37.9	53176	33.1	53219
GR	31.7	53238	28	53274	28	53287	31.7	53324	33.1	53342

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GR	43.3	53392	44.5	53417	44.5	53810	46.3	53861	43.5	53886
GR	42.9	54422	43	55064	43	55514	41.4	59066	40	61600
GR	35	61650	40	61700	45	65700	50	67000		

NH	10	.04	35000	.1	47500	.04	49500	.1	50000	.04
NH	51989	.06	52245	.04	57800	.1	63000	.04	65500	.1
NH	69000									
X1	19.3	31	51989	52245	4600	4760	4963			
X4	12	45	35000	45	47500	45	49500	45	50000	46.2
X4	56403	42.8	57186	44	57800	44.4	58736	38.8	59238	43.8
X4	61058	45	63000	46	65500					
GR	45	20080	41	20100	45	27700	45	33700	45	48050
GR	45	48850	45.2	51000	47	51528	46.6	51989	31.4	52060
GR	29.6	52080	27.7	52105	29.5	52127	44.8	52245	46.6	52455
GR	46	52548	45.8	52564	43	53017	45.4	53420	46.8	54264
GR	45	55088	40.8	55285	42.6	55315	40.4	55347	44.2	55535
GR	45	56207	43.6	56362	46.2	56403	43.8	61058	45	64000
GR	50	69000								

NH	9	.04	37000	.1	42500	.04	44500	.1	46000	.04
NH	54560	.06	54880	.04	61800	.1	67000	.04	69000	0
QT	3	2048	2711	3878						
X1	18	26	54560	54880	5850	6060	6125			
X4	7	45	37000	42	42500	42	44500	43	46000	45.4
X4	51000	45	61800	47	67000					
GR	45	20300	44.8	51724	46.8	52378	45.8	52620	45.8	52707
GR	45.2	52945	44.6	53522	46.4	54349	47.2	54560	33.4	54649
GR	32	54662	30.5	54682	26.5	54711	30.5	54720	32	54759
GR	33.4	54772	44.2	54880	45.4	55161	45	55680	42.8	56160
GR	42.8	56371	41	56668	40	56815	45.4	56981	45	62154
GR	50	69000								

NH	7	.04	25000	.1	29000	.04	35428	.06	35701	.04
NH	36500	.1	46500	.04	49500					
X1	17	39	35428	35701	3060	3000	3062			
X4	9	45	25000	45	29000	45	36500	43.8	38480	41.6
X4	40224	34.4	41105	42.3	42431	45	43711	48	46500	
GR	50	2830	45	2890	45	29000	47.4	32899	47.4	32900
GR	47.4	32901	47.4	32902	44	33212	44.6	33333	42	33382
GR	42	33574	44.4	33637	46	33903	44.6	34000	42	34010
GR	42	34689	44.2	34706	46.8	35159	46	35428	37.8	35467
GR	33.6	35497	27.9	35537	27.9	35572	33.6	35612	40.4	35665
GR	46.4	35701	45.6	36076	45.8	36287	44.8	36520	43.8	36720
GR	40	36776	40	37035	45.4	37095	43.4	37318	43	37659
GR	43	38091	43.8	38480	45	43711	50	49500		

NC	.08	.09	.07	.1	.3						
X1	16.3	35	32998	33349	7230	6830	6917				
GR	50	2530	45	2600	51.2	31475	51.2	31476	51.2	31706	
GR	50	32006	46.6	32188	48.6	32783	49	32958	49	32998	
GR	45.2	33039	47.2	33070	41.2	33110	30.9	33180	29.6	33187	
GR	29.6	33189	30.9	33196	41	33270	47	33306	46.4	33308	
GR	49.6	33349	49.4	33680	46.4	33971	46.6	34474	44.8	34660	
GR	47.8	35537	48.2	35883	45.8	35910	47.8	35935	46.6	36279	
GR	46	36987	49.4	37035	49.4	44812	53	44868	50	50000	
NC				.3	.5						
X1	16.2				50	50	50				
X3	10							25	25		
SB	1.25	1.5	2.6		30	3	1616	3.75			
	FM 1462										
X1	16.1				50	50	50				
X2			1	46.2	50						
X3	10										
BT	24	2580	50		2600	45		31475	51.2		
BT	31476	51.2		31706	51.2		32006	50		32188	
BT	46.6		32733	48.6		32958	49		33349	49.6	
BT		33680	49.4		33971	46.4		34474	46.6		
BT	34660	44.8		35537	47.8		35883	48.2		35910	
BT	45.8		35935	47.8		36279	46.6		36987	46	
BT		37035	49.4		44812	49.4		44868	53		
BT	50000	50									
X1	16				50	50	50				
NC				.1	.3						
NH	8	.04	24000	.1	29700	.04	32357	.06	32750	.04	
NH	34600	.1	37100	.04	38500	.1	49500				
X1	15	37	32357	32750	7000	6600	6820				
X4	10	50	24000	50	29700	45	34600	50.9	35805	43.3	
X4	36100	47.5	36156	47.5	36572	45	37100	46.7	38081	45	
X4	38500										
GR	55	1780	50	1800	50	7000	50	30000	49.4	31000	
GR	48.8	31718	50.2	32121	49.8	32357	47.2	32439	42.6	32496	
GR	34.4	32530	32.4	32547	31	32565	32.4	32583	34.4	32600	
GR	42.2	32669	48.4	32750	50.2	32805	50.6	33022	49.4	33384	
GR	45.6	34115	48.4	34140	45.6	34178	46.8	34353	46.1	34520	
GR	43.3	34700	44.3	34803	41.3	34854	41.3	35029	45.3	35134	
GR	42.9	35415	43.5	35713	50.9	35805	46.7	38081	45	40100	
GR	45	44500	50	49500							

NC	.07	.08	.06	.1	.3					
X1	14.3	30	39775	39957	2218	2218	2218			
GR	55	8050	50	8100	50	11200	55	21700	55	24800
GR	50	30300	50	36500	51.8	37462	51.4	38040	48.6	38336
GR	46.8	38750	48.6	39232	49.2	39454	50.3	39755	44.4	39775
GR	32.6	39815	31.4	39825	32.6	39835	48.6	39957	51	39989
GR	51.4	40115	50	40347	48.9	40616	47.5	40806	49.5	41266
GR	49.7	41718	49.3	42545	45	43700	45	43900	50	51000

NC				.3	.5					
X1	14.2				50	50	50			
X3	10									

SB	1.25	1.5	2.6		100	5	3293	4.65		
	CR 42									
X1	14.1				50	50	50			
X2			1	50.3	50					
X3	10									
BT	32	8050	55		8100	50		11200	50	
BT	21700	55		24800	55		30300	50		36500
BT	50		37462	51.8		38040	51.4		38336	48.6
BT		38750	46.8		39232	48.6		39454	49.2	
BT	39755	50.3		39775	50.3		39776	55.8		40031
BT	55.8		40032	50.3		40115	51.4		40347	50
BT		40616	48.9		40806	47.5		41266	49.5	
BT	41718	49.7		42545	49.3		42947	48.3		43093
BT	47.7		43166	47.3		43214	44.9		43276	48.3
BT		44106	49.7		53500	51				

X1	14				50	50	50			
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NC	.05	.05	.05	.1	.3					
X1	13	28	40301	40692	11700	11700	11677			
GR	55	15480	50	15500	50	19400	55	29100	55	32200
GR	55	35600	50	37700	54	40083	53.8	40254	52.6	40301
GR	40.2	40390	34.6	40430	40.2	40469	50.8	40587	53.8	40692
GR	53	41246	50.6	42164	50.7	42392	51.5	42604	49.1	42703
GR	50.1	42763	51.7	42901	50.9	42970	50.5	43200	51.9	43320
GR	51.9	43495	50	46500	51	56000				

QT	3	1505	1948	3056						
X1	12	40	22049	22251	5000	4620	5280			
GR	60	5280	55	5300	55	12300	59	14481	58.2	14788
GR	52.8	15029	52.2	15793	51	15819	52.4	15846	52.4	16157
GR	53	16528	53	16888	53.2	17097	53.8	17230	53.8	17941
GR	53.2	18858	53	20014	51.6	20576	51.9	21131	53.5	21847
GR	51.5	22027	50.1	22049	42.7	22120	43.3	22161	42.1	22165
GR	39	22170	36.5	22173	39	22176	42.1	22181	43.1	22199



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X1	7	34	27428	27695	1650	1750	1584				
X4	5	54.8	29050	51.7	31019	46.3	31492	53.7	32102	52.7	
X4	32230										
GR	65	20700	60	20800	59.8	22323	59.8	22324	59.8	23217	
GR	60.2	24739	59.4	25127	56.8	25302	50.8	25376	47.2	25393	
GR	47.2	25969	52.8	26160	47.4	26302	53	26573	52.4	26635	
GR	50	26698	49.4	26836	52.2	26959	54.4	27335	53.8	27428	
GR	46	27501	42.5	27570	46	27641	53.8	27695	54.4	27838	
GR	53	28045	54.2	28280	50.8	28366	50.8	28419	52.8	28550	
GR	52.6	28806	54.8	29050	52.7	32230	55	41500			
QT	3	596	782	1234							
X1	6	28	26760	26960	2300	2300	2429				
GR	65	21200	60	21225	61.8	24945	61.8	24946	61.8	24947	
GR	61	25456	53.2	25982	54.4	26113	55.4	26633	50.2	26660	
GR	54.8	26679	54.6	26703	53	26720	49.6	26760	43.8	26838	
GR	43.4	26860	43.8	26883	49.6	26960	51.2	26999	54.8	27022	
GR	52.4	27084	52.4	27110	54	27134	54.4	27351	55.2	27877	
GR	55	28386	55	28660	55	38700					
X1	4	30	25295	25437	3000	1000	5597				
GR	65	17180	60	17200	63.6	21810	63.6	21811	63	22474	
GR	60	22909	56.2	23192	55.4	23365	52.4	23480	53.2	23980	
GR	52.6	24524	52.2	25005	56.6	25242	54.6	25295	48	25296	
GR	43.1	25346	43.1	25360	48	25410	54.4	25437	55	25502	
GR	56.4	25563	56	25987	54.8	26512	52.2	27070	52	27445	
GR	55	27698	53.8	28036	56.2	28081	52.6	31622	56	34500	
X1	3	30	27251	27404	3250	3250	3485				
GR	65	16200	62	16220	62.8	21000	64.6	22261	64.6	23016	
GR	64.6	23017	55.8	23672	54.4	23915	55.4	24254	51.4	24411	
GR	51.4	25033	52.2	25433	52.8	25746	54.4	26397	55	26793	
GR	56.8	27039	56	27149	55	27212	51.6	27251	47.8	27257	
GR	44	27300	44	27324	47.8	27367	57.4	27404	56.2	27796	
GR	54.2	28506	53.6	29021	52.6	29913	51.8	31350	53	32300	
X1	2.3	30	46705	46815	3210	3460	3379				
X4	2	60	37800	62.8	41000						
GR	65	37750	64.6	44571	64.6	44572	64.6	44573	64.6	44858	
GR	61.6	44958	57.6	45139	57.6	45269	51.8	45351	51.8	45736	
GR	51.8	45965	54.2	46052	55.8	46243	57.8	46267	55.6	46287	
GR	56.2	46405	56.8	46491	54	46618	51.4	46705	46.1	46740	
GR	45.7	46747	44.7	46760	46.1	46780	54.3	46815	57.4	46848	
GR	56.4	46980	56.2	47395	56.2	47565	55.6	47650	53	52200	



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X1	1	30	46300	46500	1800	1800	1954				
X4	6	62	38200	61.6	41000	52	48481	51.8	49130	54	
X4	49394	54.8	50895								
GR	64	38150	62	41546	62	42099	62	42596	61.2	43134	
GR	54	43433	53	43845	52.4	44161	50.8	44283	51.2	44767	
GR	51.6	45320	51	45507	54	45719	58.8	45745	54.6	45776	
GR	56.2	46118	55.8	46300	48.4	46349	44.9	46400	44.9	46415	
GR	48.4	46465	50.4	46487	55.6	46500	56.4	46682	54.6	47116	
GR	53.4	47319	52.2	47478	52.6	47570	54.8	50895	54	52300	

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T1 OYSTER CREEK  
T2 BRAZORIA CO DRAINAGE MASTER PLAN  
T3 25-YEAR RUN

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3							14	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							

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T1 OYSTER CREEK  
T2 BRAZORIA CO DRAINAGE MASTER PLAN  
T3 100-YEAR RUN

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		4							15	
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1							

THIS RUN EXECUTED 23AUG02 11:11:59

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FILE: OC\_BL\_R.IH2

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
112.000	5590.00	13.00	.23	-8.20	3.60	4.00	3.60	1606.47	28.74	.00	6360.00
112.000	6413.00	14.00	.23	-8.20	3.60	4.00	3.60	1739.03	27.12	.00	6360.00
112.000	7533.00	15.00	.24	-8.20	3.60	4.00	3.60	1942.36	25.78	.00	6360.00
* 111.000	5590.00	13.00	.43	-7.90	4.80	3.80	5.20	3178.40	56.86	5702.00	2460.00
* 111.000	6413.00	14.00	.45	-7.90	4.80	3.80	5.20	3519.84	54.89	5702.00	2460.00
* 111.000	7533.00	15.00	.48	-7.90	4.80	3.80	5.20	4008.47	53.21	5702.00	2460.00
110.000	5590.00	13.01	.53	-7.40	5.10	4.70	6.00	2603.79	46.58	4012.00	2285.00
110.000	6413.00	14.01	.54	-7.40	5.10	4.70	6.00	2867.55	44.71	4012.00	2285.00
110.000	7533.00	15.01	.58	-7.40	5.10	4.70	6.00	3251.29	43.16	4012.00	2285.00
* 109.000	5590.00	13.01	1.15	-6.70	7.80	6.50	8.00	5466.59	97.79	4012.00	441.00
* 109.000	6413.00	14.01	1.24	-6.70	7.80	6.50	8.00	6231.46	97.17	4012.00	441.00
* 109.000	7533.00	15.01	1.36	-6.70	7.80	6.50	8.00	7274.21	96.56	4012.00	441.00
108.300	5590.00	13.05	1.23	-8.30	6.00	6.30	7.10	5297.47	94.77	3754.00	467.05
108.300	6413.00	14.05	1.31	-8.30	6.00	6.30	7.10	6015.45	93.80	3754.00	491.37
108.300	7533.00	15.05	1.44	-8.30	6.00	6.30	7.10	6992.52	92.83	3754.00	497.52
* 108.250	5590.00	13.04	1.79	-8.30	6.20	3.60	7.60	5387.26	96.37	100.00	281.84
* 108.250	6413.00	14.04	1.92	-8.30	6.20	3.60	7.60	6145.15	95.82	100.00	283.00
* 108.250	7533.00	15.04	2.11	-8.30	6.20	3.60	7.60	7179.78	95.31	100.00	283.00
* 108.200	5590.00	13.07	1.23	-8.30	6.00	6.30	7.10	5295.85	94.74	50.00	468.24
* 108.200	6413.00	14.08	1.31	-8.30	6.00	6.30	7.10	6013.29	93.77	50.00	491.58
* 108.200	7533.00	15.08	1.44	-8.30	6.00	6.30	7.10	6989.59	92.79	50.00	497.77
108.100	5590.00	13.10	1.22	-8.30	6.00	6.30	7.10	5294.57	94.72	50.00	469.17
108.100	6413.00	14.10	1.31	-8.30	6.00	6.30	7.10	6011.70	93.74	50.00	491.73
108.100	7533.00	15.10	1.44	-8.30	6.00	6.30	7.10	6988.22	92.77	50.00	497.88

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
108.000	5590.00	13.10	1.22	-8.30	6.00	6.30	7.10	5294.55	94.71	50.00	469.19	
108.000	6413.00	14.10	1.31	-8.30	6.00	6.30	7.10	6011.67	93.74	50.00	491.74	
108.000	7533.00	15.10	1.44	-8.30	6.00	6.30	7.10	6988.17	92.77	50.00	497.88	
*	108.750	5590.00	13.08	1.85	-7.00	6.20	3.60	7.60	5373.24	96.12	100.00	281.99
*	108.750	6413.00	14.09	1.97	-7.00	6.20	3.60	7.60	6127.92	95.55	100.00	283.00
*	108.750	7533.00	15.09	2.17	-7.00	6.20	3.60	7.60	7158.98	95.03	100.00	283.00
107.500	5590.00	13.19	1.34	-8.10	6.40	7.40	6.40	5488.69	98.19	3939.00	358.50	
107.500	6413.00	14.20	1.42	-8.10	6.40	7.40	6.40	6263.46	97.67	3939.00	364.89	
107.500	7533.00	15.22	1.55	-8.10	6.40	7.40	6.40	7317.24	97.14	3939.00	371.32	
*	107.000	5590.00	13.23	.78	-7.20	5.00	9.00	5.00	3601.72	64.43	1196.00	1625.29
*	107.000	6413.00	14.24	.81	-7.20	5.00	9.00	5.00	4000.88	62.39	1196.00	1631.10
*	107.000	7533.00	15.26	.87	-7.20	5.00	9.00	5.00	4565.17	60.60	1196.00	1636.99
*	106.000	5590.00	13.25	1.38	-7.90	5.20	19.00	17.00	4275.55	76.49	4805.00	1770.36
*	106.000	6413.00	14.27	1.39	-7.90	5.20	19.00	17.00	4607.34	71.84	4805.00	2063.38
*	106.000	7533.00	15.29	1.42	-7.90	5.20	19.00	17.00	5069.65	67.30	4805.00	2359.28
*	105.000	5590.00	13.30	.81	-8.40	5.00	4.60	13.00	2064.31	36.93	3115.00	6418.70
*	105.000	6413.00	14.31	.76	-8.40	5.00	4.60	13.00	2051.25	31.99	3115.00	6424.24
*	105.000	7533.00	15.33	.74	-8.40	5.00	4.60	13.00	2126.43	28.23	3115.00	6429.82
104.000	5590.00	13.32	.85	-7.50	6.40	16.00	13.00	2013.83	36.03	3010.00	9705.53	
104.000	6413.00	14.32	.72	-7.50	6.40	16.00	13.00	1833.45	28.59	3010.00	9708.72	
104.000	7533.00	15.34	.65	-7.50	6.40	16.00	13.00	1781.34	23.65	3010.00	9711.95	
*	103.500	5590.00	13.34	1.46	-8.00	3.00	2.20	5.50	5062.83	90.57	4008.00	388.24
*	103.500	6413.00	14.33	1.56	-8.00	3.00	2.20	5.50	5735.22	89.43	4008.00	392.73
*	103.500	7533.00	15.34	1.71	-8.00	3.00	2.20	5.50	6655.13	88.35	4008.00	397.27
*	103.000	5639.00	13.37	.69	-7.90	9.00	16.60	14.00	1899.13	33.68	110.00	11675.95
*	103.000	6342.00	14.37	.57	-7.90	9.00	16.60	14.00	1686.97	26.60	110.00	12237.24
*	103.000	7392.00	15.39	.50	-7.90	9.00	16.60	14.00	1600.40	21.65	110.00	12250.81
102.000	5639.00	13.38	.59	-7.70	10.80	10.80	10.00	1661.68	29.47	2904.00	11649.67	
102.000	6342.00	14.38	.49	-7.70	10.80	10.80	10.00	1491.94	23.52	2904.00	12544.88	
102.000	7392.00	15.39	.43	-7.70	10.80	10.80	10.00	1440.50	19.49	2904.00	13100.00	
*	101.000	5639.00	13.40	.83	-9.40	9.40	12.40	13.00	2317.78	41.10	2904.00	8872.62
*	101.000	6342.00	14.38	.67	-9.40	9.40	12.40	13.00	2038.90	32.15	2904.00	9752.00
*	101.000	7392.00	15.40	.58	-9.40	9.40	12.40	13.00	1933.14	26.15	2904.00	10650.00
*	100.700	5639.00	13.40	.73	-9.30	2.00	3.00	13.00	1908.49	33.84	264.00	6398.79
*	100.700	6342.00	14.39	.66	-9.30	2.00	3.00	13.00	1827.31	28.81	264.00	8370.91
100.700	7392.00	15.40	.62	-9.30	2.00	3.00	13.00	1810.20	24.49	264.00	9957.80	
*	100.600	5639.00	13.52	2.14	-9.30	2.00	3.00	13.00	5639.00	100.00	14.00	150.00
100.600	6342.00	14.57	.63	-9.30	2.00	3.00	13.00	1773.64	27.97	14.00	8747.08	
100.600	7392.00	15.55	.60	-9.30	2.00	3.00	13.00	1765.77	23.89	14.00	10095.52	

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	100.500	5639.00	13.61	.70	-9.30	2.00	3.00	13.00	1843.74	32.70	50.00	6813.70
	100.500	6342.00	14.57	.63	-9.30	2.00	3.00	13.00	1774.30	27.98	50.00	8742.41
	100.500	7392.00	15.55	.60	-9.30	2.00	3.00	13.00	1766.33	23.90	50.00	10093.77
*	100.300	5639.00	13.61	1.58	-8.80	12.80	12.30	13.00	4747.94	84.20	2734.00	5492.02
*	100.300	6342.00	14.57	1.29	-8.80	12.80	12.30	13.00	4199.13	66.21	2734.00	6800.48
*	100.300	7392.00	15.55	1.09	-8.80	12.80	12.30	13.00	3855.58	52.16	2734.00	7130.00
	100.200	5639.00	13.61	1.58	-8.80	12.80	12.30	13.00	4746.23	84.17	100.00	5493.77
	100.200	6342.00	14.58	1.29	-8.80	12.80	12.30	13.00	4201.59	66.25	100.00	6799.72
	100.200	7392.00	15.55	1.09	-8.80	12.80	12.30	13.00	3855.41	52.16	100.00	7130.07
	100.100	5639.00	13.68	1.55	-8.80	12.80	12.30	13.00	4671.45	82.84	22.00	5569.95
	100.100	6342.00	14.61	1.27	-8.80	12.80	12.30	13.00	4155.68	65.53	22.00	6814.14
	100.100	7392.00	15.58	1.08	-8.80	12.80	12.30	13.00	3827.16	51.77	22.00	7140.98
	100.000	5639.00	13.66	2.20	-10.00	5.30	6.10	10.10	5160.51	91.51	50.00	328.00
*	100.000	6342.00	14.58	2.30	-10.00	5.30	6.10	10.10	5711.94	90.07	50.00	328.00
*	100.000	7392.00	15.54	2.49	-10.00	5.30	6.10	10.10	6554.63	88.67	50.00	328.00
*	99.000	5639.00	13.81	1.15	-8.80	9.60	6.60	10.00	2669.09	47.33	3893.00	3300.00
*	99.000	6342.00	14.73	1.06	-8.80	9.60	6.60	10.00	2611.78	41.18	3893.00	3300.00
*	99.000	7392.00	15.70	1.03	-8.80	9.60	6.60	10.00	2686.33	36.34	3893.00	3300.00
*	98.000	5639.00	13.86	.77	-8.70	8.60	9.40	10.00	2018.75	35.80	5333.00	5025.00
*	98.000	6342.00	14.77	.71	-8.70	8.60	9.40	10.00	1964.99	30.98	5333.00	5025.00
*	98.000	7392.00	15.73	.68	-8.70	8.60	9.40	10.00	2013.64	27.24	5333.00	5025.00
*	97.000	5639.00	13.92	1.53	-9.10	13.80	14.20	10.00	4378.09	77.64	6019.00	4478.95
*	97.000	6342.00	14.82	1.33	-9.10	13.80	14.20	10.00	4111.45	64.83	6019.00	4500.00
*	97.000	7392.00	15.77	1.21	-9.10	13.80	14.20	10.00	4023.71	54.43	6019.00	4500.00
	96.000	5639.00	14.18	1.79	-10.90	15.00	13.80	13.40	5597.38	99.26	6230.00	1018.33
	96.000	6342.00	15.02	1.83	-10.90	15.00	13.80	13.40	6117.52	96.46	6230.00	1311.00
*	96.000	7392.00	15.93	1.89	-10.90	15.00	13.80	13.40	6813.31	92.17	6230.00	1311.00
	95.300	5639.00	14.42	1.96	-10.50	14.80	12.60	15.00	5628.85	99.82	4963.00	274.85
	95.300	6342.00	15.26	2.06	-10.50	14.80	12.60	15.00	6289.12	99.17	4963.00	617.89
	95.300	7392.00	16.17	2.22	-10.50	14.80	12.60	15.00	7210.44	97.54	4963.00	663.45
	95.200	5639.00	14.42	2.33	-10.00	4.00	2.00	15.00	5293.17	93.87	100.00	274.85
	95.200	6342.00	15.25	2.47	-10.00	4.00	2.00	15.00	5869.76	92.55	100.00	617.88
	95.200	7392.00	16.16	2.68	-10.00	4.00	2.00	15.00	6673.65	90.28	100.00	663.43
	95.100	5639.00	14.74	2.27	-10.00	17.70	9.20	15.00	5552.87	98.47	10.00	314.64
	95.100	6342.00	15.67	2.35	-10.00	17.70	9.20	15.00	6189.39	97.59	10.00	527.72
	95.100	7392.00	16.66	2.50	-10.00	17.70	9.20	15.00	7062.84	95.55	10.00	691.14
	95.000	5639.00	14.78	1.92	-10.00	14.80	12.60	15.00	5620.38	99.67	50.00	514.99
	95.000	6342.00	15.71	2.00	-10.00	14.80	12.60	15.00	6242.75	98.43	50.00	633.74
	95.000	7392.00	16.69	2.14	-10.00	14.80	12.60	15.00	7121.83	96.35	50.00	668.89

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
94.300	5639.00	14.91	2.08	-10.50	14.80	15.90	15.30	5638.99	100.00	2796.00	195.55
94.300	6342.00	15.84	2.18	-10.50	14.80	15.90	15.30	6316.86	99.60	2796.00	1262.85
94.300	7392.00	16.84	2.28	-10.50	14.80	15.90	15.30	7068.50	95.62	2796.00	1373.00
94.200	5639.00	14.91	2.08	-10.50	14.80	15.90	15.30	5639.00	100.00	100.00	190.06
94.200	6342.00	15.85	2.19	-10.50	14.80	15.90	15.30	6342.00	100.00	100.00	202.32
94.200	7392.00	16.84	2.28	-10.50	14.80	15.90	15.30	7066.44	95.60	100.00	1373.00
94.100	5639.00	14.92	2.08	-10.50	14.80	15.90	15.30	5639.00	100.00	40.00	190.11
94.100	6342.00	15.93	2.18	-10.50	14.80	15.90	15.30	6342.00	100.00	40.00	203.00
94.100	7392.00	16.98	2.25	-10.50	14.80	15.90	15.30	7014.12	94.89	40.00	1373.00
94.000	5639.00	14.92	2.08	-10.50	14.80	15.90	15.30	5638.99	100.00	50.00	196.30
94.000	6342.00	15.93	2.17	-10.50	14.80	15.90	15.30	6304.53	99.41	50.00	1373.00
94.000	7392.00	16.98	2.24	-10.50	14.80	15.90	15.30	7012.99	94.87	50.00	1373.00
93.000	5639.00	15.02	2.02	-10.30	15.10	15.50	14.70	5588.80	99.11	1605.00	1866.65
93.000	6342.00	16.05	1.91	-10.30	15.10	15.50	14.70	5804.33	91.52	1605.00	2335.00
93.000	7392.00	17.10	1.83	-10.30	15.10	15.50	14.70	6036.83	81.67	1605.00	2335.00
92.000	5639.00	15.20	1.76	-10.20	15.10	14.90	16.10	5638.63	99.99	3168.00	392.86
92.000	6342.00	16.19	1.83	-10.20	15.10	14.90	16.10	6260.88	98.72	3168.00	963.32
92.000	7392.00	17.22	1.93	-10.20	15.10	14.90	16.10	7071.83	95.67	3168.00	1009.00
91.300	5639.00	15.25	2.32	-11.00	10.00	9.00	15.70	5448.22	96.62	1478.00	790.53
91.300	6342.00	16.24	2.32	-11.00	10.00	9.00	15.70	5881.10	92.73	1478.00	950.75
91.300	7392.00	17.28	2.38	-11.00	10.00	9.00	15.70	6481.73	87.69	1478.00	953.00
91.200	5639.00	15.27	2.17	-12.00	15.70	16.00	15.70	5639.00	100.00	100.00	282.21
91.200	6342.00	16.26	2.19	-12.00	15.70	16.00	15.70	6342.00	100.00	100.00	307.00
91.200	7392.00	17.30	2.08	-12.00	15.70	16.00	15.70	6693.45	90.55	100.00	953.00
91.100	5639.00	15.27	2.17	-12.00	15.70	16.00	15.70	5639.00	100.00	38.00	282.63
91.100	6342.00	16.35	2.17	-12.00	15.70	16.00	15.70	6342.00	100.00	38.00	307.00
91.100	7392.00	17.45	2.26	-12.00	15.70	16.00	15.70	7392.00	100.00	38.00	307.00
91.000	5639.00	15.28	2.13	-12.00	15.70	16.00	15.70	5554.93	98.51	50.00	789.15
91.000	6342.00	16.37	2.05	-12.00	15.70	16.00	15.70	5995.06	94.53	50.00	951.09
91.000	7392.00	17.49	2.03	-12.00	15.70	16.00	15.70	6638.31	89.80	50.00	953.00
*	90.000	5639.00	15.42	1.73	-10.50	16.90	18.30	5609.10	99.47	1871.00	378.88
*	90.000	6342.00	16.50	1.78	-10.50	16.90	18.30	6257.89	98.67	1871.00	615.33
	90.000	7392.00	17.60	1.85	-10.50	16.90	18.30	7069.04	95.63	1871.00	1512.89
*	89.000	5639.00	15.48	2.43	-9.20	15.90	17.90	5639.00	100.00	1478.00	216.41
*	89.000	6342.00	16.56	2.47	-9.20	15.90	17.90	6335.03	99.89	1478.00	989.30
*	89.000	7392.00	17.66	2.47	-9.20	15.90	17.90	6971.53	94.31	1478.00	1859.14
88.000	5639.00	15.84	2.31	-8.00	17.20	16.60	17.00	5639.00	100.00	3854.00	189.61
88.000	6342.00	16.91	2.39	-8.00	17.20	16.60	17.00	6340.79	99.98	3854.00	334.86
88.000	7392.00	17.99	2.56	-8.00	17.20	16.60	17.00	7331.12	99.18	3854.00	428.00

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
87.300	5639.00	16.05	2.08	-7.10	17.00	18.20	16.00	5624.80	99.75	2904.00	354.88
87.300	6342.00	17.12	2.13	-7.10	17.00	18.20	16.00	6267.71	98.83	2904.00	539.16
87.300	7392.00	18.22	2.25	-7.10	17.00	18.20	16.00	7167.67	96.97	2904.00	556.51
87.200	5639.00	16.06	2.08	-7.10	17.00	18.20	16.00	5639.00	100.00	100.00	210.02
87.200	6342.00	17.13	2.16	-7.10	17.00	18.20	16.00	6336.88	99.92	100.00	284.22
87.200	7392.00	18.23	2.25	-7.10	17.00	18.20	16.00	7166.69	96.95	100.00	556.55
87.100	5639.00	16.06	2.08	-7.10	17.00	18.20	16.00	5639.00	100.00	25.50	210.06
87.100	6342.00	17.18	2.15	-7.10	17.00	18.20	16.00	6336.25	99.91	25.50	284.71
87.100	7392.00	18.31	2.23	-7.10	17.00	18.20	16.00	7154.38	96.79	25.50	557.08
87.000	5639.00	16.07	2.07	-7.10	17.00	18.20	16.00	5624.45	99.74	50.00	355.96
87.000	6342.00	17.18	2.12	-7.10	17.00	18.20	16.00	6262.62	98.75	50.00	540.07
87.000	7392.00	18.32	2.23	-7.10	17.00	18.20	16.00	7153.95	96.78	50.00	557.10
86.800	5639.00	16.38	1.97	-5.80	18.00	18.30	16.20	5637.46	99.97	5263.00	658.54
86.800	6342.00	17.49	1.98	-5.80	18.00	18.30	16.20	6184.79	97.52	5263.00	1258.17
86.800	7392.00	18.63	1.99	-5.80	18.00	18.30	16.20	6749.05	91.30	5263.00	1950.00
86.700	5639.00	16.38	1.97	-5.80	18.00	18.30	16.20	5639.00	100.00	100.00	228.81
86.700	6342.00	17.49	2.03	-5.80	18.00	18.30	16.20	6342.00	100.00	100.00	238.96
86.700	7392.00	18.62	2.17	-5.80	18.00	18.30	16.20	7392.00	100.00	100.00	245.00
86.600	5639.00	16.39	1.97	-5.80	18.00	18.30	16.20	5639.00	100.00	9.00	228.87
86.600	6342.00	17.50	2.03	-5.80	18.00	18.30	16.20	6342.00	100.00	9.00	239.00
86.600	7392.00	18.63	2.17	-5.80	18.00	18.30	16.20	7392.00	100.00	9.00	245.00
86.500	5639.00	16.39	1.97	-5.80	18.00	18.30	16.20	5637.32	99.97	50.00	673.75
86.500	6342.00	17.51	1.98	-5.80	18.00	18.30	16.20	6181.47	97.47	50.00	1262.56
86.500	7392.00	18.66	1.98	-5.80	18.00	18.30	16.20	6733.44	91.09	50.00	1950.00
86.200	5639.00	16.40	1.97	-5.80	18.00	18.30	16.20	5639.00	100.00	50.00	228.92
86.200	6342.00	17.51	2.03	-5.80	18.00	18.30	16.20	6342.00	100.00	50.00	239.11
86.200	7392.00	18.66	1.98	-5.80	18.00	18.30	16.20	6732.07	91.07	50.00	1950.00
86.100	5639.00	16.40	1.97	-5.80	18.00	18.30	16.20	5639.00	100.00	26.00	228.96
86.100	6342.00	17.56	2.02	-5.80	18.00	18.30	16.20	6342.00	100.00	26.00	239.52
86.100	7392.00	18.76	1.95	-5.80	18.00	18.30	16.20	6683.12	90.41	26.00	1950.00
86.000	5639.00	16.40	1.97	-5.80	18.00	18.30	16.20	5637.07	99.97	50.00	689.84
86.000	6342.00	17.57	1.97	-5.80	18.00	18.30	16.20	6167.09	97.24	50.00	1281.19
86.000	7392.00	18.76	1.95	-5.80	18.00	18.30	16.20	6681.89	90.39	50.00	1950.00
85.300	5639.00	16.66	1.98	-7.10	18.60	19.20	17.00	5639.00	100.00	4572.00	230.25
85.300	6342.00	17.81	2.03	-7.10	18.60	19.20	17.00	6310.10	99.50	4572.00	505.14
85.300	7392.00	18.99	2.11	-7.10	18.60	19.20	17.00	7189.23	97.26	4572.00	920.43
85.200	5639.00	16.67	1.98	-7.10	18.60	19.20	17.00	5639.00	100.00	100.00	230.34
85.200	6342.00	17.82	2.04	-7.10	18.60	19.20	17.00	6342.00	100.00	100.00	241.41
85.200	7392.00	18.99	2.11	-7.10	18.60	19.20	17.00	7186.90	97.23	100.00	920.56



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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
85.100	5639.00	16.67	1.98	-7.10	18.60	19.20	17.00	5639.00	100.00	31.00	230.38
85.100	6342.00	17.90	2.02	-7.10	18.60	19.20	17.00	6342.00	100.00	31.00	242.19
85.100	7392.00	19.12	2.15	-7.10	18.60	19.20	17.00	7392.00	100.00	31.00	251.59
85.000	5639.00	16.68	1.98	-7.10	18.60	19.20	17.00	5639.00	100.00	50.00	230.40
85.000	6342.00	17.90	2.01	-7.10	18.60	19.20	17.00	6304.21	99.40	50.00	509.23
85.000	7392.00	19.13	2.08	-7.10	18.60	19.20	17.00	7159.20	96.85	50.00	922.08
84.000	5639.00	16.86	2.15	-7.30	20.40	20.40	18.20	5639.00	100.00	2881.00	224.12
84.000	6342.00	18.08	2.18	-7.30	20.40	20.40	18.20	6342.00	100.00	2881.00	249.26
84.000	7392.00	19.31	2.27	-7.30	20.40	20.40	18.20	7358.97	99.55	2881.00	677.36
83.000	5639.00	17.11	2.14	-5.80	20.40	20.20	19.40	5639.00	100.00	3590.00	210.44
83.000	6342.00	18.33	2.19	-5.80	20.40	20.20	19.40	6342.00	100.00	3590.00	221.44
83.000	7392.00	19.58	2.32	-5.80	20.40	20.20	19.40	7383.21	99.88	3590.00	305.28
82.300	5639.00	17.16	2.12	-5.00	19.10	19.40	21.40	5639.00	100.00	783.00	196.99
82.300	6342.00	18.38	2.18	-5.00	19.10	19.40	21.40	6342.00	100.00	783.00	205.36
82.300	7392.00	19.63	2.33	-5.00	19.10	19.40	21.40	7391.77	100.00	783.00	229.84
82.200	5639.00	17.16	2.12	-5.00	19.10	19.40	21.40	5639.00	100.00	100.00	197.02
82.200	6342.00	18.39	2.18	-5.00	19.10	19.40	21.40	6342.00	100.00	100.00	205.39
82.200	7392.00	19.64	2.33	-5.00	19.10	19.40	21.40	7392.00	100.00	100.00	211.00
82.100	5639.00	17.17	2.12	-5.00	19.10	19.40	21.40	5639.00	100.00	66.00	197.03
82.100	6342.00	18.44	2.17	-5.00	19.10	19.40	21.40	6342.00	100.00	66.00	205.71
82.100	7392.00	19.72	2.32	-5.00	19.10	19.40	21.40	7392.00	100.00	66.00	211.00
82.000	5639.00	17.17	2.12	-5.00	19.10	19.40	21.40	5639.00	100.00	50.00	197.05
82.000	6342.00	18.44	2.17	-5.00	19.10	19.40	21.40	6342.00	100.00	50.00	205.73
82.000	7392.00	19.72	2.32	-5.00	19.10	19.40	21.40	7391.61	99.99	50.00	235.05
81.000	5639.00	17.46	2.15	-4.60	19.60	20.70	20.00	5639.00	100.00	4378.00	222.91
81.000	6342.00	18.72	2.18	-4.60	19.60	20.70	20.00	6339.56	99.96	4378.00	285.63
81.000	7392.00	20.01	2.28	-4.60	19.60	20.70	20.00	7360.34	99.57	4378.00	423.04
80.300	5639.00	17.68	2.33	-4.40	20.50	20.90	21.40	5639.00	100.00	3010.00	197.01
80.300	6342.00	18.93	2.37	-4.40	20.50	20.90	21.40	6342.00	100.00	3010.00	207.06
80.300	7392.00	20.23	2.51	-4.40	20.50	20.90	21.40	7392.00	100.00	3010.00	217.39
80.200	5639.00	17.69	2.33	-4.40	20.50	20.90	21.40	5639.00	100.00	100.00	197.08
80.200	6342.00	18.94	2.37	-4.40	20.50	20.90	21.40	6342.00	100.00	100.00	207.13
80.200	7392.00	20.24	2.51	-4.40	20.50	20.90	21.40	7392.00	100.00	100.00	217.53
80.100	5639.00	17.69	2.33	-4.40	20.50	20.90	21.40	5639.00	100.00	33.00	197.12
80.100	6342.00	18.95	2.37	-4.40	20.50	20.90	21.40	6342.00	100.00	33.00	207.17
80.100	7392.00	20.32	2.49	-4.40	20.50	20.90	21.40	7392.00	100.00	33.00	218.17
80.000	5639.00	17.70	2.33	-4.40	20.50	20.90	21.40	5639.00	100.00	50.00	197.15
80.000	6342.00	18.95	2.37	-4.40	20.50	20.90	21.40	6342.00	100.00	50.00	207.20
80.000	7392.00	20.33	2.49	-4.40	20.50	20.90	21.40	7392.00	100.00	50.00	218.21

	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	79.900	5639.00	17.87	1.36	-3.40	21.40	21.20	21.40	5639.00	100.00	2488.00	360.15
*	79.900	6342.00	19.12	1.37	-3.40	21.40	21.20	21.40	6342.00	100.00	2488.00	376.98
*	79.900	7392.00	20.51	1.44	-3.40	21.40	21.20	21.40	7392.00	100.00	2488.00	392.82
*	79.800	5639.00	17.85	2.26	-6.60	20.00	20.40	20.40	5639.00	100.00	50.00	232.25
*	79.800	6342.00	19.10	2.27	-6.60	20.00	20.40	20.40	6342.00	100.00	50.00	248.04
*	79.800	7392.00	20.48	2.35	-6.60	20.00	20.40	20.40	7390.39	99.98	50.00	338.19
	79.700	5639.00	17.86	2.26	-6.60	20.00	20.40	20.40	5639.00	100.00	150.00	232.41
	79.700	6342.00	19.11	2.26	-6.60	20.00	20.40	20.40	6342.00	100.00	150.00	248.19
	79.700	7392.00	20.49	2.34	-6.60	20.00	20.40	20.40	7390.28	99.98	150.00	340.16
	79.600	5639.00	17.87	2.25	-6.60	20.00	20.40	20.40	5639.00	100.00	50.00	232.47
	79.600	6342.00	19.12	2.26	-6.60	20.00	20.40	20.40	6342.00	100.00	50.00	248.24
	79.600	7392.00	20.50	2.34	-6.60	20.00	20.40	20.40	7390.24	99.98	50.00	340.82
*	79.300	5639.00	18.02	1.34	-3.40	21.40	21.20	21.40	5639.00	100.00	2003.00	362.11
*	79.300	6342.00	19.26	1.36	-3.40	21.40	21.20	21.40	6342.00	100.00	2003.00	378.54
*	79.300	7392.00	20.64	1.42	-3.40	21.40	21.20	21.40	7392.00	100.00	2003.00	394.30
	79.200	5557.00	18.02	1.32	-3.40	21.40	21.20	21.40	5557.00	100.00	100.00	362.19
	79.200	6732.00	19.26	1.44	-3.40	21.40	21.20	21.40	6732.00	100.00	100.00	378.61
	79.200	7393.00	20.65	1.42	-3.40	21.40	21.20	21.40	7393.00	100.00	100.00	394.37
	79.100	5557.00	18.02	1.32	-3.40	21.40	21.20	21.40	5557.00	100.00	31.00	362.18
	79.100	6732.00	19.26	1.44	-3.40	21.40	21.20	21.40	6732.00	100.00	31.00	378.56
	79.100	7393.00	20.65	1.42	-3.40	21.40	21.20	21.40	7393.00	100.00	31.00	394.34
	79.000	5557.00	18.02	1.32	-3.40	21.40	21.20	21.40	5557.00	100.00	50.00	362.20
	79.000	6732.00	19.26	1.44	-3.40	21.40	21.20	21.40	6732.00	100.00	50.00	378.58
	79.000	7393.00	20.65	1.42	-3.40	21.40	21.20	21.40	7393.00	100.00	50.00	394.36
*	78.000	5557.00	18.22	2.41	-3.30	22.30	23.70	22.30	5557.00	100.00	5205.00	207.57
*	78.000	6732.00	19.48	2.62	-3.30	22.30	23.70	22.30	6732.00	100.00	5205.00	217.51
*	78.000	7393.00	20.84	2.57	-3.30	22.30	23.70	22.30	7393.00	100.00	5205.00	230.78
	77.000	5557.00	18.47	1.97	-3.30	16.20	19.40	20.40	5517.17	99.28	2693.00	374.28
	77.000	6732.00	19.75	2.11	-3.30	16.20	19.40	20.40	6591.23	97.91	2693.00	499.44
	77.000	7393.00	21.07	2.03	-3.30	16.20	19.40	20.40	7041.13	95.24	2693.00	595.59
*	76.000	5557.00	18.80	2.70	-3.00	21.90	17.30	22.70	5553.91	99.94	3749.00	236.41
*	76.000	6732.00	20.07	2.86	-3.00	21.90	17.30	22.70	6709.51	99.67	3749.00	292.74
*	76.000	7393.00	21.33	2.77	-3.00	21.90	17.30	22.70	7309.29	98.87	3749.00	353.02
	75.000	5557.00	19.08	3.00	-2.80	20.10	18.90	24.10	5556.93	100.00	1900.00	173.59
	75.000	6732.00	20.35	3.26	-2.80	20.10	18.90	24.10	6710.13	99.68	1900.00	229.17
	75.000	7393.00	21.56	3.23	-2.80	20.10	18.90	24.10	7306.20	98.83	1900.00	250.94
*	74.000	5557.00	19.63	1.94	-1.00	15.00	18.20	22.40	5500.68	98.99	5438.00	319.96
*	74.000	6732.00	20.94	2.10	-1.00	15.00	18.20	22.40	6595.18	97.97	5438.00	342.58
*	74.000	7393.00	22.09	2.11	-1.00	15.00	18.20	22.40	7164.56	96.91	5438.00	362.57

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
73.000	5557.00	19.74	2.48	-1.70	24.00	17.00	23.50	5538.32	99.66	1848.00	224.38	
73.000	6732.00	21.04	2.69	-1.70	24.00	17.00	23.50	6677.66	99.19	1848.00	246.92	
73.000	7393.00	22.18	2.69	-1.70	24.00	17.00	23.50	7286.90	98.56	1848.00	291.25	
72.800	5557.00	19.84	2.57	-.10	23.80	21.10	23.60	5557.00	100.00	898.00	218.77	
72.800	6732.00	21.15	2.74	-.10	23.80	21.10	23.60	6732.00	100.00	898.00	235.97	
72.800	7393.00	22.28	2.71	-.10	23.80	21.10	23.60	7376.13	99.77	898.00	620.33	
72.700	5557.00	19.82	3.43	-.10	8.00	7.60	23.60	4546.65	81.82	100.00	218.62	
72.700	6732.00	21.13	3.74	-.10	8.00	7.60	23.60	5343.41	79.37	100.00	235.31	
72.700	7393.00	22.26	3.76	-.10	8.00	7.60	23.60	5700.01	77.10	100.00	606.05	
72.600	5557.00	19.77	3.90	-.10	16.00	16.00	23.60	4805.38	86.47	15.00	467.52	
72.600	6732.00	21.12	3.93	-.10	16.00	16.00	23.60	5254.79	78.06	15.00	557.12	
72.600	7393.00	22.28	3.66	-.10	16.00	16.00	23.60	5240.59	70.89	15.00	981.61	
72.500	5557.00	19.92	2.55	-.10	23.80	21.10	23.60	5557.00	100.00	50.00	219.73	
72.500	6732.00	21.22	2.72	-.10	23.80	21.10	23.60	6731.99	100.00	50.00	238.77	
72.500	7393.00	22.34	2.69	-.10	23.80	21.10	23.60	7370.89	99.70	50.00	686.26	
*	72.000	5557.00	20.33	1.88	.10	12.10	13.30	25.00	4228.45	76.09	4429.00	642.76
*	72.000	6732.00	21.64	1.94	.10	12.10	13.30	25.00	4822.75	71.64	4429.00	704.77
*	72.000	7393.00	22.72	1.88	.10	12.10	13.30	25.00	5040.99	68.19	4429.00	820.50
*	71.700	5557.00	20.32	2.91	-3.00	20.80	26.00	26.20	5557.00	100.00	710.00	180.58
*	71.700	6732.00	21.62	3.13	-3.00	20.80	26.00	26.20	6730.81	99.98	710.00	200.79
*	71.700	7393.00	22.69	3.14	-3.00	20.80	26.00	26.20	7382.54	99.86	710.00	221.49
*	71.600	5557.00	20.42	2.36	-2.90	10.60	15.50	22.80	3160.94	56.88	50.00	529.83
*	71.600	6732.00	21.75	2.43	-2.90	10.60	15.50	22.80	3551.64	52.76	50.00	562.50
*	71.600	7393.00	22.82	2.36	-2.90	10.60	15.50	22.80	3692.58	49.95	50.00	588.55
71.500	5557.00	20.39	2.87	-2.90	10.60	15.50	22.80	3830.62	68.93	20.00	528.92	
71.500	6732.00	21.72	2.89	-2.90	10.60	15.50	22.80	4222.09	62.72	20.00	561.74	
71.500	7393.00	22.80	2.77	-2.90	10.60	15.50	22.80	4327.78	58.54	20.00	588.26	
71.200	5557.00	20.44	2.36	-2.90	10.60	15.50	22.80	3157.95	56.83	50.00	530.22	
71.200	6732.00	21.76	2.42	-2.90	10.60	15.50	22.80	3549.05	52.72	50.00	562.84	
71.200	7393.00	22.83	2.36	-2.90	10.60	15.50	22.80	3690.45	49.92	50.00	588.65	
71.000	5557.00	20.71	2.80	-3.00	20.80	26.00	26.20	5557.00	100.00	3145.00	184.01	
*	71.000	6732.00	22.01	3.02	-3.00	20.80	26.00	26.20	6728.81	99.95	3145.00	208.39
*	71.000	7393.00	23.04	3.04	-3.00	20.80	26.00	26.20	7376.95	99.78	3145.00	228.60
70.000	5557.00	21.22	2.39	-.10	18.20	20.60	24.80	5544.15	99.77	4224.00	222.93	
70.000	6732.00	22.54	2.59	-.10	18.20	20.60	24.80	6694.97	99.45	4224.00	239.31	
70.000	7393.00	23.54	2.64	-.10	18.20	20.60	24.80	7326.81	99.10	4224.00	251.66	
69.300	5557.00	21.63	2.60	2.70	21.60	21.90	26.20	5557.00	100.00	4224.00	187.28	
69.300	6732.00	22.96	2.82	2.70	21.60	21.90	26.20	6727.28	99.93	4224.00	217.56	
69.300	7393.00	23.93	2.87	2.70	21.60	21.90	26.20	7371.84	99.71	4224.00	240.94	

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
69.200	5557.00	21.62	3.08	2.70	10.00	9.80	26.20	5042.15	90.74	100.00	187.09
69.200	6732.00	22.94	3.38	2.70	10.00	9.80	26.20	5980.67	88.84	100.00	217.21
69.200	7393.00	23.91	3.46	2.70	10.00	9.80	26.20	6460.95	87.39	100.00	240.56
69.100	5557.00	21.62	3.08	2.70	10.00	9.80	26.20	5042.00	90.73	21.00	187.13
69.100	6732.00	22.95	3.38	2.70	10.00	9.80	26.20	5980.44	88.84	21.00	217.27
69.100	7393.00	23.91	3.45	2.70	10.00	9.80	26.20	6460.71	87.39	21.00	240.61
69.000	5557.00	21.66	2.59	2.70	21.60	21.90	26.20	5557.00	100.00	50.00	187.81
69.000	6732.00	22.99	2.81	2.70	21.60	21.90	26.20	6726.96	99.93	50.00	218.38
69.000	7393.00	23.96	2.86	2.70	21.60	21.90	26.20	7371.07	99.70	50.00	241.75
68.000	5557.00	21.89	2.47	.70	26.00	24.20	27.60	5557.00	100.00	1994.00	205.69
68.000	6732.00	23.23	2.65	.70	26.00	24.20	27.60	6732.00	100.00	1994.00	218.44
68.000	7393.00	24.19	2.68	.70	26.00	24.20	27.60	7393.00	100.00	1994.00	227.46
67.000	5557.00	22.09	2.08	-2.00	25.40	19.00	27.60	5519.60	99.33	2059.00	258.68
67.000	6732.00	23.44	2.24	-2.00	25.40	19.00	27.60	6647.31	98.74	2059.00	274.79
67.000	7393.00	24.40	2.28	-2.00	25.40	19.00	27.60	7266.70	98.29	2059.00	285.99
66.000	5557.00	22.27	2.13	-3.00	21.00	21.20	21.00	5556.16	99.98	2640.00	247.05
66.000	6732.00	23.64	2.30	-3.00	21.00	21.20	21.00	6724.55	99.89	2640.00	257.28
66.000	7393.00	24.58	2.34	-3.00	21.00	21.20	21.00	7375.04	99.76	2640.00	267.50
* 65.000	5557.00	22.41	1.69	-3.90	27.80	23.60	27.80	5557.00	100.00	2270.00	213.11
* 65.000	6732.00	23.78	1.87	-3.90	27.80	23.60	27.80	6731.99	100.00	2270.00	222.66
* 65.000	7393.00	24.73	1.94	-3.90	27.80	23.60	27.80	7391.87	99.98	2270.00	238.15
* 64.000	5557.00	22.59	2.08	.70	24.20	22.20	26.40	5556.95	100.00	4330.00	242.20
64.000	6732.00	23.99	2.23	.70	24.20	22.20	26.40	6729.39	99.96	4330.00	257.28
64.000	7393.00	24.93	2.27	.70	24.20	22.20	26.40	7384.73	99.89	4330.00	272.25
63.800	5557.00	22.68	2.64	2.10	23.60	25.00	27.20	5557.00	100.00	1320.00	179.71
63.800	6732.00	24.07	2.85	2.10	23.60	25.00	27.20	6731.77	100.00	1320.00	197.00
63.800	7393.00	25.01	2.90	2.10	23.60	25.00	27.20	7388.77	99.94	1320.00	215.56
63.700	5557.00	22.68	2.75	2.10	30.20	26.70	28.40	5557.00	100.00	100.00	147.15
63.700	6732.00	24.07	3.02	2.10	30.20	26.70	28.40	6732.00	100.00	100.00	153.80
63.700	7393.00	25.01	3.11	2.10	30.20	26.70	28.40	7393.00	100.00	100.00	158.24
63.600	5557.00	22.71	2.63	2.10	23.60	25.00	27.23	5557.00	100.00	100.00	179.89
63.600	6732.00	24.10	2.84	2.10	23.60	25.00	27.23	6731.73	100.00	100.00	197.62
63.600	7393.00	25.04	2.90	2.10	23.60	25.00	27.23	7388.47	99.94	100.00	217.25
63.300	5557.00	22.71	2.77	2.10	27.20	26.90	27.20	5557.00	100.00	100.00	145.60
63.300	6732.00	24.11	3.04	2.10	27.20	26.90	27.20	6732.00	100.00	100.00	152.17
63.300	7393.00	25.04	3.13	2.10	27.20	26.90	27.20	7393.00	100.00	100.00	156.54
63.200	5557.00	22.72	2.77	2.10	27.20	26.90	27.20	5557.00	100.00	100.00	145.63
63.200	6732.00	24.12	3.04	2.10	27.20	26.90	27.20	6732.00	100.00	100.00	152.18
63.200	7393.00	25.05	3.13	2.10	27.20	26.90	27.20	7393.00	100.00	100.00	156.57

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
63.100	5557.00	22.73	2.76	2.10	27.20	26.90	27.20	5557.00	100.00	24.00	145.65
63.100	6732.00	24.13	3.03	2.10	27.20	26.90	27.20	6732.00	100.00	24.00	152.22
63.100	7393.00	25.06	3.13	2.10	27.20	26.90	27.20	7393.00	100.00	24.00	156.60
63.000	5557.00	22.73	2.76	2.10	27.20	26.90	27.20	5557.00	100.00	50.00	145.68
63.000	6732.00	24.13	3.03	2.10	27.20	26.90	27.20	6732.00	100.00	50.00	152.24
63.000	7393.00	25.07	3.13	2.10	27.20	26.90	27.20	7393.00	100.00	50.00	156.63
62.000	5557.00	23.08	1.82	-2.60	26.80	21.00	28.00	5552.03	99.91	2958.00	431.34
62.000	6732.00	24.51	1.87	-2.60	26.80	21.00	28.00	6357.10	94.43	2958.00	5239.46
* 62.000	7393.00	25.42	1.64	-2.60	26.80	21.00	28.00	5952.12	80.51	2958.00	9006.24
61.000	5557.00	23.30	2.01	-2.10	30.20	30.60	30.00	5552.27	99.91	2376.00	869.10
61.000	6732.00	24.72	1.97	-2.10	30.20	30.60	30.00	6133.80	91.11	2376.00	6217.58
61.000	7393.00	25.57	1.68	-2.10	30.20	30.60	30.00	5579.55	75.47	2376.00	8139.42
60.000	5557.00	23.84	2.17	-1.30	29.40	29.80	30.00	5557.00	100.00	4382.00	223.15
60.000	6732.00	25.21	2.16	-1.30	29.40	29.80	30.00	6232.74	92.58	4382.00	5171.39
60.000	7393.00	25.93	1.91	-1.30	29.40	29.80	30.00	5832.35	78.89	4382.00	7716.25
59.000	5557.00	24.37	2.35	-.30	29.60	23.20	30.20	5555.66	99.98	3643.00	221.90
59.000	6732.00	25.68	2.25	-.30	29.60	23.20	30.20	5932.26	88.12	3643.00	7674.85
59.000	7393.00	26.27	1.95	-.30	29.60	23.20	30.20	5405.21	73.11	3643.00	8152.64
* 58.000	5557.00	24.86	3.92	.30	26.40	30.00	30.00	5557.00	100.00	2376.00	109.96
* 58.000	6732.00	26.08	3.28	.30	26.40	30.00	30.00	5100.02	75.76	2376.00	6371.60
* 58.000	7393.00	26.57	2.85	.30	26.40	30.00	30.00	4587.63	62.05	2376.00	7578.51
* 57.300	5557.00	25.90	2.08	4.20	30.90	30.10	30.40	5228.42	94.09	6072.00	2865.97
* 57.300	6732.00	26.88	2.09	4.20	30.90	30.10	30.40	5694.35	84.59	6072.00	3466.81
* 57.300	7393.00	27.25	2.12	4.20	30.90	30.10	30.40	5951.71	80.50	6072.00	3599.77
57.200	5298.00	25.90	2.11	4.20	30.90	30.10	30.40	5298.00	100.00	100.00	208.80
57.200	6150.00	26.88	2.26	4.20	30.90	30.10	30.40	6150.00	100.00	100.00	216.92
57.200	7877.00	27.23	2.81	4.20	30.90	30.10	30.40	7877.00	100.00	100.00	219.80
57.100	5298.00	25.90	2.11	4.20	30.90	30.10	30.40	5298.00	100.00	32.00	208.83
57.100	6150.00	26.88	2.26	4.20	30.90	30.10	30.40	6150.00	100.00	32.00	216.96
57.100	7877.00	27.24	2.81	4.20	30.90	30.10	30.40	7877.00	100.00	32.00	219.87
57.000	5298.00	25.92	1.98	4.20	30.90	30.10	30.40	4978.80	93.98	50.00	2915.08
57.000	6150.00	26.93	1.89	4.20	30.90	30.10	30.40	5169.77	84.06	50.00	3483.99
57.000	7877.00	27.32	2.23	4.20	30.90	30.10	30.40	6282.84	79.76	50.00	3623.99
56.000	4784.00	26.21	1.60	2.70	30.80	27.20	32.00	4630.61	96.79	5415.00	3304.60
56.000	5621.00	27.18	1.56	2.70	30.80	27.20	32.00	4885.97	86.92	5415.00	5625.00
56.000	7503.00	27.66	1.84	2.70	30.80	27.20	32.00	6014.10	80.16	5415.00	6183.17
55.000	4784.00	26.32	1.85	2.80	32.00	28.60	31.00	4553.43	95.18	2323.00	3463.45
55.000	5621.00	27.27	1.73	2.80	32.00	28.60	31.00	4643.80	82.62	2323.00	5397.10
55.000	7503.00	27.78	1.98	2.80	32.00	28.60	31.00	5552.25	74.00	2323.00	5852.23

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	54.000	4784.00	26.53	1.29	3.20	32.00	32.60	32.60	4784.00	100.00	5597.00	266.85
*	54.000	5621.00	27.48	1.41	3.20	32.00	32.60	32.60	5621.00	100.00	5597.00	276.01
	54.000	7503.00	28.07	1.81	3.20	32.00	32.60	32.60	7503.00	100.00	5597.00	281.69
*	53.000	4784.00	26.63	2.04	2.00	32.80	31.80	33.00	4784.00	100.00	3538.00	218.38
*	53.000	5621.00	27.59	2.19	2.00	32.80	31.80	33.00	5621.00	100.00	3538.00	233.74
*	53.000	7503.00	28.25	2.75	2.00	32.80	31.80	33.00	7503.00	100.00	3538.00	244.33
	52.000	4784.00	26.74	1.67	1.40	32.80	32.80	32.80	4784.00	100.00	1637.00	231.00
	52.000	5621.00	27.72	1.82	1.40	32.80	32.80	32.80	5621.00	100.00	1637.00	242.46
	52.000	7503.00	28.44	2.29	1.40	32.80	32.80	32.80	7503.00	100.00	1637.00	250.95
*	51.300	4784.00	27.00	2.45	6.90	31.00	31.00	34.00	4784.00	100.00	4541.00	199.45
*	51.300	5621.00	28.01	2.61	6.90	31.00	31.00	34.00	5621.00	100.00	4541.00	210.46
*	51.300	7503.00	28.88	3.20	6.90	31.00	31.00	34.00	7503.00	100.00	4541.00	220.01
	51.200	4784.00	27.01	2.45	6.90	31.00	31.00	34.00	4784.00	100.00	100.00	199.56
	51.200	5621.00	28.02	2.61	6.90	31.00	31.00	34.00	5621.00	100.00	100.00	210.53
	51.200	7503.00	28.90	3.20	6.90	31.00	31.00	34.00	7503.00	100.00	100.00	220.08
	51.100	4784.00	27.02	2.45	6.90	31.00	31.00	34.00	4784.00	100.00	31.00	199.69
	51.100	5621.00	28.03	2.60	6.90	31.00	31.00	34.00	5621.00	100.00	31.00	210.67
	51.100	7503.00	28.91	3.19	6.90	31.00	31.00	34.00	7503.00	100.00	31.00	220.29
	51.000	4784.00	27.03	2.45	6.90	31.00	31.00	34.00	4784.00	100.00	50.00	199.76
	51.000	5621.00	28.04	2.60	6.90	31.00	31.00	34.00	5621.00	100.00	50.00	210.74
	51.000	7503.00	28.92	3.19	6.90	31.00	31.00	34.00	7503.00	100.00	50.00	220.39
	50.000	3932.00	27.80	1.44	12.10	28.80	35.80	35.80	1829.02	46.52	5046.00	1373.71
	50.000	4847.00	28.82	1.42	12.10	28.80	35.80	35.80	2058.12	42.46	5046.00	1582.46
	50.000	6932.00	29.97	1.64	12.10	28.80	35.80	35.80	2697.73	38.92	5046.00	1819.09
*	49.000	3932.00	28.05	1.16	11.00	34.20	28.60	34.00	1679.13	42.70	2482.00	2964.12
*	49.000	4847.00	29.04	1.14	11.00	34.20	28.60	34.00	1800.55	37.15	2482.00	3769.79
*	49.000	6932.00	30.21	1.23	11.00	34.20	28.60	34.00	2149.77	31.01	2482.00	9381.82
*	48.000	3932.00	28.11	.49	9.90	34.60	35.60	34.40	1154.72	29.37	2640.00	2494.16
*	48.000	4847.00	29.10	.53	9.90	34.60	35.60	34.40	1357.97	28.02	2640.00	2817.36
*	48.000	6932.00	30.29	.64	9.90	34.60	35.60	34.40	1822.79	26.30	2640.00	5244.17
*	47.300	3932.00	28.23	1.58	4.60	34.50	33.60	35.00	3410.81	86.74	5386.00	1067.24
*	47.300	4847.00	29.24	1.65	4.60	34.50	33.60	35.00	3905.21	80.57	5386.00	1268.20
*	47.300	6932.00	30.47	1.82	4.60	34.50	33.60	35.00	4806.06	69.33	5386.00	6464.99
	47.200	3932.00	28.24	1.82	4.60	34.50	33.60	35.00	3932.00	100.00	100.00	203.43
	47.200	4847.00	29.24	2.04	4.60	34.50	33.60	35.00	4847.00	100.00	100.00	213.47
*	47.200	6932.00	30.45	2.63	4.60	34.50	33.60	35.00	6932.00	100.00	100.00	225.57
	47.100	3932.00	28.26	1.81	4.60	34.50	33.60	35.00	3932.00	100.00	23.00	203.65
	47.100	4847.00	29.26	2.04	4.60	34.50	33.60	35.00	4847.00	100.00	23.00	213.69
	47.100	6932.00	30.50	2.62	4.60	34.50	33.60	35.00	6932.00	100.00	23.00	226.01

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
	47.000	3932.00	28.29	1.56	4.60	34.50	33.60	35.00	3396.53	86.38	50.00	1079.22
	47.000	4847.00	29.31	1.62	4.60	34.50	33.60	35.00	3882.15	80.09	50.00	1283.66
*	47.000	6932.00	30.61	1.73	4.60	34.50	33.60	35.00	4632.69	66.83	50.00	6769.54
*	46.000	3932.00	28.43	1.03	7.00	33.70	35.20	35.20	2430.09	61.80	1517.00	3198.43
*	46.000	4847.00	29.44	.94	7.00	33.70	35.20	35.20	2432.76	50.19	1517.00	3737.37
*	46.000	6932.00	30.72	.86	7.00	33.70	35.20	35.20	2483.02	35.82	1517.00	10851.09
	45.000	3932.00	28.61	.85	10.30	33.80	35.80	35.80	2152.99	54.76	3854.00	4023.89
	45.000	4847.00	29.58	.76	10.30	33.80	35.80	35.80	2131.63	43.98	3854.00	4900.96
	45.000	6932.00	30.83	.72	10.30	33.80	35.80	35.80	2256.81	32.56	3854.00	6365.82
*	44.000	3932.00	28.81	1.84	5.40	36.00	36.00	36.00	3932.00	100.00	2798.00	216.89
*	44.000	4847.00	29.73	2.07	5.40	36.00	36.00	36.00	4847.00	100.00	2798.00	226.76
*	44.000	6932.00	30.95	2.30	5.40	36.00	36.00	36.00	6056.53	87.37	2798.00	5168.04
	43.000	3932.00	29.00	1.36	6.60	33.80	34.60	34.60	2868.34	72.95	1162.00	764.84
*	43.000	4847.00	29.95	1.46	6.60	33.80	34.60	34.60	3377.56	69.68	1162.00	797.59
	43.000	6932.00	31.21	1.68	6.60	33.80	34.60	34.60	4345.50	62.69	1162.00	3164.71
	42.000	3932.00	29.22	1.30	8.00	35.40	33.40	33.40	3246.47	82.57	2534.00	955.17
	42.000	4847.00	30.19	1.39	8.00	35.40	33.40	33.40	3769.26	77.76	2534.00	1067.45
	42.000	6932.00	31.50	1.61	8.00	35.40	33.40	33.40	4898.62	70.67	2534.00	1829.64
*	40.000	3932.00	30.18	1.56	13.80	32.30	32.70	35.00	3406.71	86.64	8660.00	1172.75
*	40.000	4847.00	31.10	1.56	13.80	32.30	32.70	35.00	3897.97	80.42	8660.00	2340.35
	40.000	6932.00	32.40	1.57	13.80	32.30	32.70	35.00	4719.00	68.08	8660.00	3986.51
*	38.000	3932.00	31.51	.99	15.50	35.30	31.70	40.00	2051.51	52.17	10877.00	3288.18
*	38.000	4847.00	32.31	.98	15.50	35.30	31.70	40.00	2270.53	46.84	10877.00	4273.94
*	38.000	6932.00	33.52	1.02	15.50	35.30	31.70	40.00	2717.19	39.20	10877.00	6023.78
*	37.300	3932.00	31.95	1.87	16.00	28.30	27.30	40.00	1682.82	42.80	3750.00	2713.43
	37.300	4847.00	32.66	1.55	16.00	28.30	27.30	40.00	1490.86	30.76	3750.00	3187.05
	37.300	6932.00	33.81	1.31	16.00	28.30	27.30	40.00	1392.07	20.08	3750.00	4593.04
	37.200	3932.00	31.95	1.86	16.00	28.30	27.30	40.00	1677.20	42.66	50.00	2717.20
	37.200	4847.00	32.67	1.54	16.00	28.30	27.30	40.00	1487.71	30.69	50.00	3190.43
	37.200	6932.00	33.81	1.31	16.00	28.30	27.30	40.00	1390.21	20.05	50.00	4597.18
	37.100	3932.00	31.96	1.85	16.00	28.30	27.30	40.00	1668.77	42.44	50.00	2722.90
	37.100	4847.00	32.67	1.54	16.00	28.30	27.30	40.00	1482.08	30.58	50.00	3196.48
	37.100	6932.00	33.81	1.30	16.00	28.30	27.30	40.00	1386.85	20.01	50.00	4604.66
	37.000	3932.00	31.96	1.85	16.00	28.30	27.30	40.00	1666.47	42.38	50.00	2724.46
	37.000	4847.00	32.68	1.54	16.00	28.30	27.30	40.00	1483.16	30.60	50.00	3195.32
	37.000	6932.00	33.82	1.30	16.00	28.30	27.30	40.00	1388.32	20.03	50.00	4601.38
*	36.000	3932.00	34.43	3.16	20.10	35.00	31.80	40.00	2238.07	56.92	9565.00	751.80
*	36.000	4847.00	34.52	3.77	20.10	35.00	31.80	40.00	2699.97	55.70	9565.00	768.66
*	36.000	6932.00	35.05	4.38	20.10	35.00	31.80	40.00	3352.05	48.36	9565.00	11738.57

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	35.000	3573.00	34.89	1.12	20.10	28.40	29.40	40.00	962.41	26.94	1584.00	1725.36
*	35.000	4467.00	35.13	1.26	20.10	28.40	29.40	40.00	1104.10	24.72	1584.00	11144.68
*	35.000	6607.00	35.65	1.22	20.10	28.40	29.40	40.00	1121.22	16.97	1584.00	13704.84
*	34.300	3573.00	35.52	1.40	20.10	36.30	36.70	40.00	2749.62	76.96	4118.00	9347.84
	34.300	4467.00	35.81	1.34	20.10	36.30	36.70	40.00	2758.23	61.75	4118.00	9999.06
	34.300	6607.00	36.26	1.33	20.10	36.30	36.70	40.00	2922.48	44.23	4118.00	10996.00
	33.900	3573.00	36.73	1.86	21.22	30.40	29.40	40.00	2387.91	66.83	5025.00	1405.22
	33.900	4467.00	37.02	2.09	21.22	30.40	29.40	40.00	2755.46	61.68	5025.00	1672.01
	33.900	6607.00	37.55	2.48	21.22	30.40	29.40	40.00	3428.61	51.89	5025.00	4122.87
	33.700	3573.00	37.45	1.41	22.20	30.40	29.40	40.00	1913.98	53.57	4378.00	3665.97
*	33.700	4467.00	37.83	1.47	22.20	30.40	29.40	40.00	2064.76	46.22	4378.00	5389.57
*	33.700	6607.00	38.45	1.54	22.20	30.40	29.40	40.00	2284.31	34.57	4378.00	8492.48
	33.600	1534.00	37.47	.89	25.70	33.20	30.30	39.70	643.09	41.92	50.00	11273.02
	33.600	1991.00	37.85	.83	25.70	33.20	30.30	39.70	623.02	31.29	50.00	11783.05
*	33.600	3093.00	38.47	.81	25.70	33.20	30.30	39.70	648.47	20.97	50.00	12625.66
*	33.500	1534.00	37.47	.89	25.70	33.20	30.30	39.70	639.46	41.69	21.00	11282.38
*	33.500	1991.00	37.85	.83	25.70	33.20	30.30	39.70	619.97	31.14	21.00	11792.19
	33.500	3093.00	38.47	.81	25.70	33.20	30.30	39.70	645.44	20.87	21.00	12636.87
	33.400	1534.00	37.47	.90	22.20	30.40	29.40	40.00	1221.16	79.61	50.00	3768.58
	33.400	1991.00	37.85	1.04	22.20	30.40	29.40	40.00	1466.40	73.65	50.00	5500.33
	33.400	3093.00	38.47	1.28	22.20	30.40	29.40	40.00	1902.86	61.52	50.00	8693.00
	33.300	1534.00	37.50	.89	22.20	30.40	29.40	40.00	1214.29	79.16	2485.00	3915.89
	33.300	1991.00	37.89	1.03	22.20	30.40	29.40	40.00	1455.53	73.11	2485.00	5641.62
	33.300	3093.00	38.52	1.26	22.20	30.40	29.40	40.00	1876.73	60.68	2485.00	9039.98
*	32.000	1534.00	37.57	1.00	24.70	34.70	34.10	40.00	777.74	50.70	2640.00	2663.93
*	32.000	1991.00	37.97	1.07	24.70	34.70	34.10	40.00	866.07	43.50	2640.00	4300.18
*	32.000	3093.00	38.63	1.06	24.70	34.70	34.10	40.00	928.83	30.03	2640.00	7800.04
*	31.000	1534.00	37.80	.45	24.30	38.70	33.90	43.00	573.64	37.40	5544.00	488.54
*	31.000	1991.00	38.25	.54	24.30	38.70	33.90	43.00	728.39	36.58	5544.00	503.71
	31.000	3093.00	38.99	.75	24.30	38.70	33.90	43.00	1098.31	35.51	5544.00	532.29
	30.300	1534.00	37.83	.58	23.80	32.00	32.00	45.00	607.77	39.62	1320.00	743.99
	30.300	1991.00	38.29	.67	23.80	32.00	32.00	45.00	732.51	36.79	1320.00	770.61
	30.300	3093.00	39.06	.87	23.80	32.00	32.00	45.00	1014.35	32.79	1320.00	815.09
	29.000	2087.00	38.00	.72	26.10	39.70	41.90	45.00	2087.00	100.00	5069.00	362.83
	29.000	2199.00	38.47	.72	26.10	39.70	41.90	45.00	2199.00	100.00	5069.00	366.30
	29.000	3056.00	39.33	.90	26.10	39.70	41.90	45.00	3056.00	100.00	5069.00	372.60
*	28.000	2087.00	38.19	1.27	26.30	43.00	42.00	45.00	1913.41	91.68	2323.00	761.59
*	28.000	2199.00	38.65	1.17	26.30	43.00	42.00	45.00	1865.99	84.86	2323.00	955.95
	28.000	3056.00	39.55	1.20	26.30	43.00	42.00	45.00	2129.77	69.69	2323.00	1396.61



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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	27.500	2087.00	38.77	.75	27.60	40.20	42.10	45.00	1517.58	72.72	5122.00	2261.42
*	27.500	2199.00	39.09	.67	27.60	40.20	42.10	45.00	1412.40	64.23	5122.00	2553.28
*	27.500	3056.00	39.91	.60	27.60	40.20	42.10	45.00	1432.63	46.88	5122.00	3296.68
	26.000	2087.00	38.94	.98	28.00	40.90	43.50	45.00	1392.99	66.75	1848.00	1591.18
	26.000	2199.00	39.23	.92	28.00	40.90	43.50	45.00	1352.07	61.49	1848.00	1936.66
	26.000	3056.00	40.02	.91	28.00	40.90	43.50	45.00	1463.79	47.90	1848.00	3223.53
	25.000	2087.00	39.52	1.06	28.00	43.20	42.60	45.00	2031.00	97.32	5702.00	1218.80
	25.000	2199.00	39.74	1.06	28.00	43.20	42.60	45.00	2083.53	94.75	5702.00	1576.49
	25.000	3056.00	40.40	.83	28.00	43.20	42.60	45.00	1774.79	58.08	5702.00	20802.87
*	24.000	2087.00	39.80	1.58	28.00	41.40	41.60	45.00	2043.81	97.93	1742.00	497.55
*	24.000	2199.00	40.02	1.58	28.00	41.40	41.60	45.00	2107.01	95.82	1742.00	15814.51
*	24.000	3056.00	40.54	.95	28.00	41.40	41.60	45.00	1348.48	44.13	1742.00	17839.54
*	23.900	2087.00	39.85	.25	28.00	43.50	45.10	45.00	339.16	16.25	165.00	3097.48
*	23.900	2199.00	40.07	.24	28.00	43.50	45.10	45.00	339.96	15.46	165.00	7214.29
*	23.900	3056.00	40.55	.27	28.00	43.50	45.10	45.00	407.35	13.33	165.00	10587.28
*	23.800	2087.00	39.83	1.73	31.00	43.50	45.10	45.00	2087.00	100.00	50.00	201.54
*	23.800	2199.00	40.04	1.75	31.00	43.50	45.10	45.00	2199.00	100.00	50.00	204.60
*	23.800	3056.00	40.51	2.26	31.00	43.50	45.10	45.00	3056.00	100.00	50.00	211.10
	23.700	2087.00	39.82	2.24	31.00	43.50	45.10	45.00	2087.00	100.00	27.00	201.54
	23.700	2199.00	40.04	2.30	31.00	43.50	45.10	45.00	2199.00	100.00	27.00	204.60
	23.700	3056.00	40.50	3.02	31.00	43.50	45.10	45.00	3056.00	100.00	27.00	211.10
*	23.600	2087.00	39.92	.24	28.00	43.50	45.10	45.00	332.83	15.95	50.00	3200.95
*	23.600	2199.00	40.15	.23	28.00	43.50	45.10	45.00	332.28	15.11	50.00	7815.12
*	23.600	3056.00	40.68	.25	28.00	43.50	45.10	45.00	388.64	12.72	50.00	11513.51
	23.100	2087.00	39.95	.24	28.10	41.60	44.60	45.00	110.69	5.30	3650.00	3108.69
	23.100	2199.00	40.18	.23	28.10	41.60	44.60	45.00	109.78	4.99	3650.00	7803.75
	23.100	3056.00	40.71	.24	28.10	41.60	44.60	45.00	126.16	4.13	3650.00	11300.67
*	21.000	2087.00	40.17	1.02	28.30	45.10	46.50	45.00	1884.25	90.29	10138.00	13913.47
*	21.000	2199.00	40.36	.85	28.30	45.10	46.50	45.00	1598.08	72.67	10138.00	14698.40
*	21.000	3056.00	40.87	.59	28.30	45.10	46.50	45.00	1174.90	38.45	10138.00	16818.61
	20.000	2087.00	40.34	.83	28.00	43.90	43.30	45.00	1303.76	62.47	1848.00	12436.71
	20.000	2199.00	40.48	.74	28.00	43.90	43.30	45.00	1183.09	53.80	1848.00	13212.89
	20.000	3056.00	40.93	.59	28.00	43.90	43.30	45.00	1011.42	33.10	1848.00	15721.30
*	19.300	2087.00	40.89	1.26	27.70	46.60	44.80	45.00	1882.85	90.22	4963.00	1184.84
*	19.300	2199.00	40.96	1.31	27.70	46.60	44.80	45.00	1968.78	89.53	4963.00	1225.19
*	19.300	3056.00	41.31	1.65	27.70	46.60	44.80	45.00	2604.09	85.21	4963.00	2022.02
	18.000	2048.00	41.76	1.00	26.50	47.20	44.20	45.00	1934.75	94.47	6125.00	587.44
	18.000	2711.00	42.05	1.24	26.50	47.20	44.20	45.00	2492.95	91.96	6125.00	2836.91
*	18.000	3878.00	42.67	1.31	26.50	47.20	44.20	45.00	2859.12	73.73	6125.00	5013.13

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMK	QCH	QCHP	XLCH	TOPWID
*	17.000	2048.00	41.89	.42	27.90	46.00	46.40	50.00	780.21	38.10	3062.00	2897.55
*	17.000	2711.00	42.23	.50	27.90	46.00	46.40	50.00	976.64	36.03	3062.00	4124.90
*	17.000	3878.00	42.87	.58	27.90	46.00	46.40	50.00	1214.73	31.32	3062.00	4977.77
*	16.300	2048.00	42.20	1.87	29.60	49.00	49.60	50.00	2048.00	100.00	6917.00	173.87
*	16.300	2711.00	42.67	2.31	29.60	49.00	49.60	50.00	2711.00	100.00	6917.00	179.79
*	16.300	3878.00	43.42	2.95	29.60	49.00	49.60	50.00	3878.00	100.00	6917.00	189.30
	16.200	2048.00	42.23	1.87	29.60	49.00	49.60	50.00	2048.00	100.00	50.00	174.20
	16.200	2711.00	42.72	2.29	29.60	49.00	49.60	50.00	2711.00	100.00	50.00	180.42
	16.200	3878.00	43.49	2.92	29.60	49.00	49.60	50.00	3878.00	100.00	50.00	190.27
	16.100	2048.00	42.24	1.86	29.60	49.00	49.60	50.00	2048.00	100.00	50.00	174.35
	16.100	2711.00	42.72	2.29	29.60	49.00	49.60	50.00	2711.00	100.00	50.00	180.49
	16.100	3878.00	43.50	2.91	29.60	49.00	49.60	50.00	3878.00	100.00	50.00	190.38
	16.000	2048.00	42.27	1.85	29.60	49.00	49.60	50.00	2048.00	100.00	50.00	174.78
	16.000	2711.00	42.77	2.27	29.60	49.00	49.60	50.00	2711.00	100.00	50.00	181.10
	16.000	3878.00	43.58	2.88	29.60	49.00	49.60	50.00	3878.00	100.00	50.00	191.29
*	15.000	2048.00	44.32	1.13	31.00	49.80	48.40	50.00	1682.85	82.17	6820.00	1219.39
*	15.000	2711.00	45.13	1.17	31.00	49.80	48.40	50.00	1955.43	72.13	6820.00	7708.15
*	15.000	3878.00	45.83	1.06	31.00	49.80	48.40	50.00	1958.16	50.49	6820.00	9380.58
*	14.300	2048.00	44.86	1.89	31.40	44.40	48.60	50.00	2047.94	100.00	2218.00	155.09
*	14.300	2711.00	45.69	2.12	31.40	44.40	48.60	50.00	2578.06	95.10	2218.00	1549.13
*	14.300	3878.00	46.34	2.42	31.40	44.40	48.60	50.00	3196.41	82.42	2218.00	2629.27
	14.200	2048.00	44.89	1.88	31.40	44.40	48.60	50.00	2047.94	100.00	50.00	155.25
	14.200	2711.00	45.72	2.22	31.40	44.40	48.60	50.00	2709.93	99.96	50.00	164.42
	14.200	3878.00	46.34	2.93	31.40	44.40	48.60	50.00	3874.09	99.90	50.00	171.45
	14.100	2048.00	44.89	1.88	31.40	44.40	48.60	50.00	2047.93	100.00	50.00	155.36
	14.100	2711.00	45.72	2.22	31.40	44.40	48.60	50.00	2709.92	99.96	50.00	164.51
	14.100	3878.00	46.35	2.93	31.40	44.40	48.60	50.00	3874.08	99.90	50.00	171.48
	14.000	2048.00	44.91	1.87	31.40	44.40	48.60	50.00	2047.92	100.00	50.00	155.60
	14.000	2711.00	45.76	2.09	31.40	44.40	48.60	50.00	2556.72	94.31	50.00	1638.16
	14.000	3878.00	46.48	2.28	31.40	44.40	48.60	50.00	3066.07	79.06	50.00	2863.87
*	13.000	2048.00	48.20	1.42	34.60	52.60	53.80	51.00	2048.00	100.00	11677.00	225.41
*	13.000	2711.00	49.39	1.58	34.60	52.60	53.80	51.00	2710.51	99.98	11677.00	276.22
*	13.000	3878.00	50.38	1.69	34.60	52.60	53.80	51.00	3346.66	86.30	11677.00	9663.98
*	12.000	1505.00	49.49	1.59	36.50	50.10	50.30	53.00	1505.00	100.00	5280.00	190.22
*	12.000	1948.00	50.61	1.52	36.50	50.10	50.30	53.00	1776.33	91.19	5280.00	2745.51
	12.000	3056.00	51.41	1.32	36.50	50.10	50.30	53.00	1761.36	57.64	5280.00	5504.66
*	11.000	1505.00	50.10	.44	39.20	50.40	49.20	55.00	350.13	23.26	7180.00	3672.08
*	11.000	1948.00	50.95	.36	39.20	50.40	49.20	55.00	339.63	17.43	7180.00	4529.04
*	11.000	3056.00	51.70	.39	39.20	50.40	49.20	55.00	426.93	13.97	7180.00	5486.55

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	10.300	1505.00	50.31	1.45	40.20	46.00	48.40	53.70	549.12	36.49	2904.00	955.79
*	10.300	1948.00	51.07	1.27	40.20	46.00	48.40	53.70	550.70	28.27	2904.00	1690.33
*	10.300	3056.00	51.81	1.35	40.20	46.00	48.40	53.70	662.53	21.68	2904.00	2187.81
	9.200	1505.00	50.95	1.59	41.50	52.70	47.20	55.00	886.06	58.87	1954.00	2852.55
	9.200	1948.00	51.46	1.24	41.50	52.70	47.20	55.00	761.51	39.09	1954.00	4305.35
	9.200	3056.00	52.12	1.03	41.50	52.70	47.20	55.00	712.04	23.30	1954.00	6405.84
*	8.000	1505.00	51.04	.22	41.50	50.40	48.00	55.00	155.44	10.33	4752.00	6069.35
*	8.000	1948.00	51.54	.22	41.50	50.40	48.00	55.00	174.16	8.94	4752.00	8580.37
*	8.000	3056.00	52.20	.26	41.50	50.40	48.00	55.00	219.92	7.20	4752.00	12881.20
*	7.000	1505.00	51.06	.33	42.50	53.80	53.80	55.00	378.40	25.14	1584.00	2346.18
*	7.000	1948.00	51.55	.35	42.50	53.80	53.80	55.00	446.07	22.90	1584.00	2576.48
*	7.000	3056.00	52.21	.43	42.50	53.80	53.80	55.00	620.29	20.30	1584.00	3169.20
*	6.000	596.00	51.09	.58	43.40	49.60	49.60	55.00	589.18	98.86	2429.00	261.93
*	6.000	782.00	51.59	.69	43.40	49.60	49.60	55.00	764.31	97.74	2429.00	277.56
*	6.000	1234.00	52.27	.94	43.40	49.60	49.60	55.00	1182.91	95.86	2429.00	296.52
	4.000	596.00	51.41	.82	43.10	54.60	54.40	56.00	596.00	100.00	5597.00	128.90
	4.000	782.00	51.98	.97	43.10	54.60	54.40	56.00	782.00	100.00	5597.00	131.40
	4.000	1234.00	52.83	1.19	43.10	54.60	54.40	56.00	1088.58	88.22	5597.00	2164.49
	3.000	596.00	51.68	.80	44.00	51.60	57.40	53.00	575.50	96.56	3485.00	904.07
	3.000	782.00	52.26	.77	44.00	51.60	57.40	53.00	614.91	78.63	3485.00	2425.09
*	3.000	1234.00	53.05	.62	44.00	51.60	57.40	53.00	561.52	45.50	3485.00	4445.77
*	2.300	596.00	52.08	1.22	44.70	51.40	54.30	53.00	561.30	94.18	3379.00	751.31
*	2.300	782.00	52.59	1.18	44.70	51.40	54.30	53.00	602.03	76.99	3379.00	796.54
*	2.300	1234.00	53.27	1.24	44.70	51.40	54.30	53.00	719.72	58.32	3379.00	1331.93
*	1.000	596.00	52.22	.46	44.90	55.80	55.60	54.00	358.80	60.20	1954.00	2635.21
*	1.000	782.00	52.70	.39	44.90	55.80	55.60	54.00	341.73	43.70	1954.00	3619.76
*	1.000	1234.00	53.36	.36	44.90	55.80	55.60	54.00	356.91	28.92	1954.00	4145.56

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## SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	111.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	111.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	111.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	109.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	109.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	109.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	108.250	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	108.250	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	108.250	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	108.200	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	108.200	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	108.200	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	108.750	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	108.750	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	108.750	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	107.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	107.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	107.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	106.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	106.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	106.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	105.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	105.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	105.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	103.500	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	103.500	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	103.500	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	103.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	103.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	101.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	101.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	101.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	100.700	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	100.700	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	100.600	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

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WARNING SECNO=	100.500	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	100.300	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	100.300	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	100.300	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	100.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	100.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	99.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	98.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	98.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	98.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	97.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	78.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	78.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	76.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	76.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	74.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

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WARNING SECNO=	74.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	48.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	48.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	47.200	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	33.700	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	33.600	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
CAUTION SECNO=	33.500	PROFILE=	1	20 TRIALS OF EG	NOT ENOUGH			
CAUTION SECNO=	33.500	PROFILE=	2	20 TRIALS OF EG	NOT ENOUGH			
WARNING SECNO=	32.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	32.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	32.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	31.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

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WARNING SECNO=	31.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	27.500	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	23.800	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	23.800	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	23.800	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	23.600	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	23.600	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	21.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	21.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	19.300	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	19.300	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	18.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	17.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	17.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	17.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	15.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	15.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	14.300	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	14.300	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	14.300	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	13.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

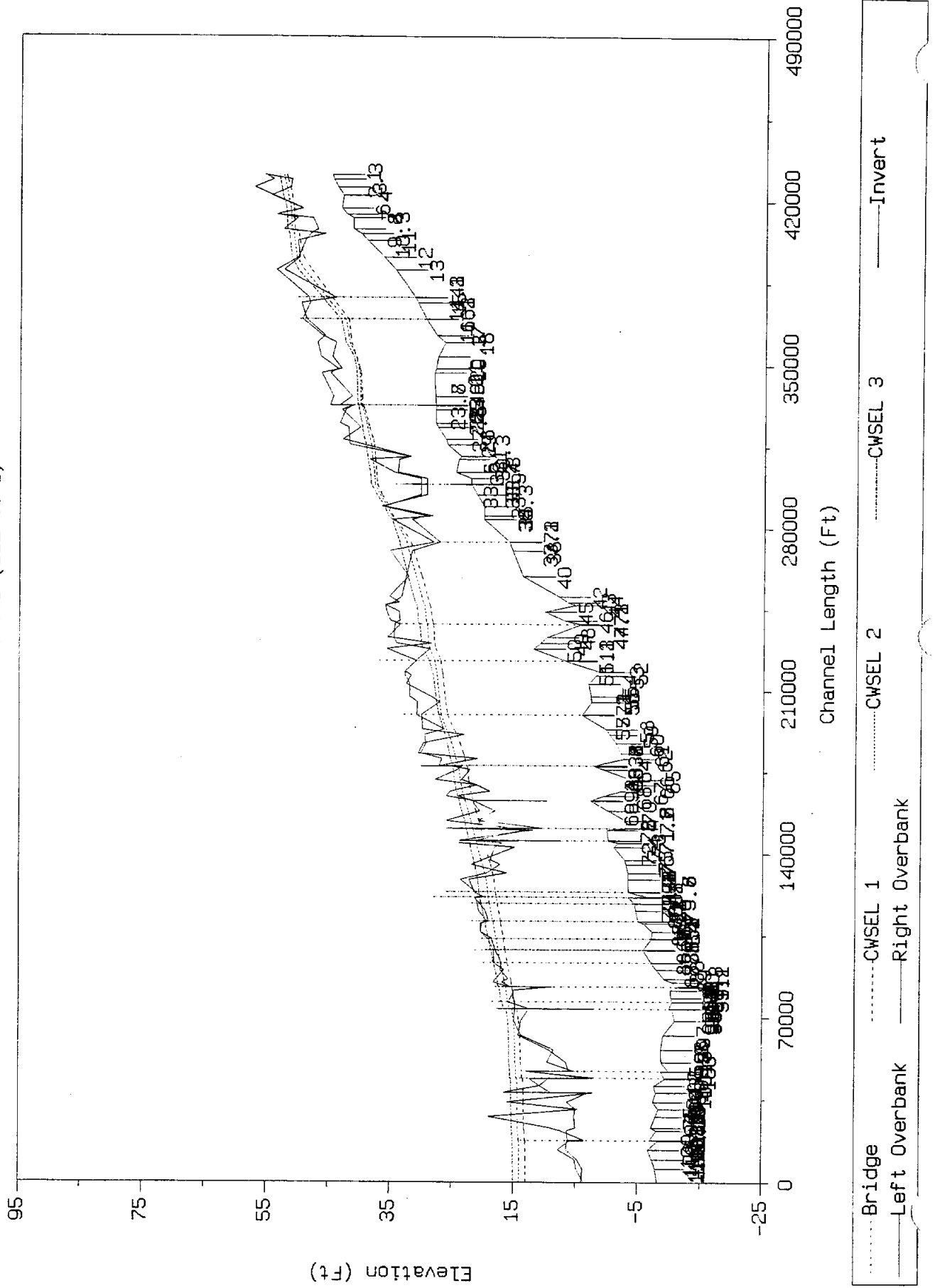


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WARNING SECNO=	13.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	13.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	12.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	12.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	11.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	11.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	10.300	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	10.300	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	8.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	3.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	2.300	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	1.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

FILE: OC\_BL\_R.IH2  
 Cross-Sections (112 to 1)



```
*****  
* HEC-2 WATER SURFACE PROFILES *  
* *  
* rsion 4.6.2; May 1991 *  
* *  
* RUN DATE 27AUG02 TIME 22:42:07 *  
*****
```

```
*****  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET, SUITE D *  
* DAVIS, CALIFORNIA 95616-4687 *  
* (916) 756-1104 *  
*****
```

```
X X XXXXXXXX XXXXX XXXXX  
X X X X X X  
X X X X X X  
XXXXXXXX XXXX X XXXXX XXXXX  
X X X X X X  
X X X X X X  
X X XXXXXXXX XXXXX XXXXXXXX
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27AUG02 22:42:07

THIS RUN EXECUTED 27AUG02 22:42:07

\*\*\*\*\*  
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

\*\*\*\*\*

T1 SAN BERNARD RIVER RESTUDY JULY 87  
T2 BRAZORIA COUNTY, TEXAS  
T3 10 YEAR  
T4 XT VERSION AUGUST 1985

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2							9.31	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1							
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38	43	1	26	42	23	24	63	14	60
	39	4								
J5	LPRNT	NUMSEC	*****REQUESTED SECTION NUMBERS*****							
	-10	-10								
NC				0.1	0.3					
NH	3	0.05	23000	0.12	30000	0.03	30630			
ET						9.1				
QT	5	18400	28800	33500	45000	33500			30100	30533
X1	25	48	30100	30533	3400	4752	4752			
X4	1	12	23000							
GR	25	9200	20	15400	15	19500	10	27300	6.9	30000
GR	6.9	30000	8.4	30050	5.6	30100	1.9	30104	0.1	30141
GR	-0.8	30150	-1.8	30160	-3.6	30170	-5.4	30180	-7.1	30190
GR	-8.1	30200	-9.6	30210	-9.8	30220	-11.3	30230	-13.5	30240
GR	-14.1	30250	-15.1	30260	-15.5	30270	-15.5	30280	-15.7	30290
GR	-15.7	30300	-15	30310	-14.9	30320	-14.3	30330	-13.7	30340
GR	-13.3	30350	-12.6	30360	-11.9	30370	-11.2	30380	-10	30390
GR	-8.9	30400	-7.5	30410	-6	30420	-4.6	30430	-2.6	30440
GR	-0.7	30450	-0.3	30460	0.1	30464	2.4	30500	2.5	30515
GR	7.6	30533	6.9	30580	7.9	30630				

San Bernard River Multi Freq. SANBERNA.IH2

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NC	0.1	0.1	.035	0.1	0.3					
QT	5	17800	27900	32400	42500	32400				
ET					6.		(6377)	(724)		
ET						6.4				
X1	2261	40	6825	7193	1001	1584	1584			
GR	11		9.8	2500	10.4	3130	9.4	4822	9.4	4831
GR	9.4	4858	9	4875	9	4900	8.6	5951	8.8	6602
GR	9.8	6725	6.8	6755	5.2	6788	2.8	6796	1.6	6818
GR		6825	-17.3	6985	-17.3	6985	-17.3	6985	-17.3	6985
GR		7193	7.2	7227	8	7245	9	7395	10.8	7413
GR	10.8	7436	6.8	7453	7.2	7463	8.8	7482	9.4	7601
GR	9.4	8770	8.4	9238	8.8	9841	8.8	10375	8.8	10678
GR	9.2	11113	6.4	11149	9.4	11190	9.2	11500	12	14000
ET						2.41		9343		10203
X1	2260	15	9633	9913	4500	3500	4000			
GR	13.	6000	12.7	8390	12.1	8636	11.9	9152	7.3	9358
GR	5.9	9471	5.3	9610	0.1	9633	-17.3	9792	-17.3	9793
GR	0.1	9913	9.9	9939	11.7	9987	11.5	10157	13.9	14000
NC				0.3	0.5					
ET						9.1		9435		9913
X1	2260.1				100	100	100			
SB	1.25	1.5	2.7		203	68.4	14741	1.43	-17.32	-17.32
ET						9.1		9435		9913
X1	60.2	15	9633	9913	50	50	50			
X2			1	47.44	13.1					
BT	22	1000	14.3		2511	14.1		2617	15.7	
BT	2766	20.9		3000	32.5		3139	39.7		3307
BT	47.5		3429	50.7		3569	51.7		3674	51.7
BT		3760	51.5		3895	47.1		4022	41.3	
BT	4139	35.7		4200	32.5		4357	24.7		4443
BT	18.7		4585	15.5		4707	13.3		4820	13.1
BT		5023	13.1		5450	13.1				
GR	13.	6000	12.7	8390	12.1	8636	11.9	9152	7.3	9358
GR	5.9	9471	5.3	9610	0.1	9633	-17.3	9792	-17.3	9793
GR	0.1	9913	9.9	9939	11.7	9987	11.5	10157	13.9	14000
ET						9.1		9435		9913
X1	60.3				100	100	100			
NC	0.08	0.1	0.35	0.1	0.3					
ET						15.4				

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X1	2259	33	9268	9678	3900	4300	5900			
GR	15	4500	13.2	7433	13.2	7435	13.2	7436	13.2	7437
GR	12.2	8576	10.6	8905	5.8	8940	4.2	9024	4.8	9197
GR	4.9	9238	0.1	9268	-17.5	9430	-17.5	9430	-17.5	9430
GR	0.1	9678	11.7	9729	8.1	9838	6.9	10025	6.9	10175
GR	11.9	10258	11.7	10507	11.1	11056	11.7	11068	11.7	11101
GR	10.9	11121	10.7	11976	10.9	12801	11.5	12810	11.5	12843
GR	10.8	12861	11.2	13127	15	18500				
NC	.08	0.1	0.35							
ET						9.4				
X1	2257	40	11560	11830	5000	5000	6250			
GR	16.	3100	15.	3400	14.4	7917	10	8017	12.4	8031
GR	11.8	8460	11.8	8461	11.8	8462	11	8650	13.2	8742
GR	11.4	8901	11.4	8902	11.2	9088	11.4	9601	11.8	11155
GR	12.1	11335	10.5	11461	9.7	11522	0.1	11560	-3.94	11590
GR	-7.49	11620	-9.49	11650	-16.49	11665	-18.49	11680	-14.49	11710
GR	-10.4	11740	-7.99	11770	0.1	11830	4.9	11838	11.9	11904
GR	11.5	11957	11.5	12015	11.5	12043	13.9	12060	11.9	12138
GR	11.5	12238	10.5	12330	10.7	12480	11.1	12811	14.	15000
NC	.08	0.1	.035							
ET						9.4				
X1	2255	30	7517	7799	6060	5500	6500			
GR	20.	2100	15.3	3500	13.	5600	13.	6400	11.9	6552
GR	13.3	7027	13.1	7099	12.7	7289	13.5	7395	8.5	7449
GR	8.1	7511		7517	-1.32	7611	-4.32	7636	-8.02	7661
GR	-13.42	7687	-14.82	7715	-14.82	7738	-10.82	7763	-8.32	7789
GR		7799	10.6	7854	12.6	7890	12.6	7968	12.6	8063
GR	15.5	8121	13.3	8420	12.5	8763	15.	14000	16.	14500
NC	0.1	0.1	.04							
ET						8.4				
X1	2254	37	9793	10081	3900	4600	5500			
GR	20		15	1200	14	6000	15	9000	16.2	9078
GR	15.4	9137	15.4	9355	8.2	9427	7.4	9480	10.6	9584
GR	11	9698	9.8	9765		9793	-0.69	9837	-2.49	9869
GR	-4.49	9901	-10.49	9933	-12.49	9965	-9.49	9997	-7.49	10029
GR	-2.99	10061	-0.49	10074		10081	15.4	10114	14.4	10354
GR	13.4	10709	14	10751	13.2	10790	12.4	11125	7.4	11160
GR	12.4	11193	13.8	11360	14	11671	14.8	12063	14.8	12179
GR	15.2	12700	17	13174						
ET						8.41				
X1	2253	25	9272	9549	3000	5500	4400			
GR	20.	600	17	2500	15.	4500	14.	6000	15.	8400
GR	16.7	8500	14.1	8679	15.1	9172	7.5	9236		9272
GR	-1.32	9304	-6.32	9338	-11.82	9370	-12.82	9402	-13.32	9429
GR	-12.82	9466	-10.82	9498	-7.82	9530		9549	8	9584
GR	8.5	9611	15.4	9652	14.4	10000	15.	11900	18.	13500

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NC	0.1	.08	.035	0.1	0.3					
X1	2251	29	5179	5434	4500	4100	4700			
GR	20.	200	17.1	2015	17.1	2016	17.1	2017	17.1	2018
GR	15.3	2839	11.6	4256	12.2	4822	8.8	4993	7	5082
GR	10	5144	9.2	5160		5179	-3.25	5249	-11.25	5319
GR	-5.25	5389	-5.25	5389.1	-5.25	5389.2	-5.25	5389.3	-5.25	5389.4
GR		5434	6	5446	8	5471	13	5504	13.4	5645
GR	14	6002	15.4	6429	16.4	7054	20	14000		
NC				0.3	0.5					
X1	51.1				500	500	500			
SB	0.9	1.5	2.7		310.6	22	33696	5.1	-11.25	-11.25
X1	51.2	29	5179	5434	52	52	52			
X2			1	46.37	17.4					
BT	15	3562	18		3716	19.2		3941	26.6	
BT	4120	35.6		4194	38.8			4379	46.8	4598
BT	50.4		4822	50.4		5002	45.2			5083
BT		5190	36	0	5368	27.6	0	5488	22.8	41.4
BT	5628	19.6		5796	17.4					
GR	20.	200	17.1	2015	17.1	2016	17.1	2017	17.1	2018
GR	15.3	2839	11.6	4256	12.2	4822	8.8	4993	7	5082
GR	10	5144	9.2	5160		5179	-3.25	5249	-11.25	5319
GR	-5.25	5389	-5.25	5389.1	-5.25	5389.2	-5.25	5389.3	-5.25	5389.4
GR		5434	6	5446	8	5471	13	5504	13.4	5645
GR	14	6002	15.4	6429	16.4	7054	20	14000		
X1	51.3				500	500	500			
NC	.15	.15	.035	0.1	0.3					
ET						10.41				
X1	2250	40	8604	8845	4900	4000	4500			
GR	20.	1800	17.	2500	16.4	3486	15.8	4049	14.4	5364
GR	13.9	5848	11.3	7006	10.2	7423	10.2	7532	10.2	7543
GR	9.6	7662	9.6	7903	9.6	7943	9.6	8060	9.8	8240
GR	11.2	8520	8.8	8561	6	8597	0	8604	-0.82	8626
GR	-6.82	8648	-9.82	8670	-11.82	8692	-12.32	8714	-13.32	8736
GR	-10.32	8762	-8.32	8787	-8.32	8787	-8.32	8787	-8.32	8787
GR	0	8845	4.8	8854	13.2	8908	12.2	9026	11.4	9128
GR	11.6	9953	12.6	11493	14	12711	15.6	13062	20	17900
X1	2249	40	7874	8124	2200	2500	2500			
GR	20.	1050	18.6	1196	18.6	1197	18.6	1198	17.4	1934
GR	17.2	2462	17.4	2898	16.2	3610	15.6	4480	15	5041
GR	11.6	7015	10.5	7470	9.5	7801	0	7874	-0.82	7896
GR	-6.82	7918	-9.8	7940	-11.82	7962	-12.32	7984	-13.32	8006
GR	-10.32	8032	-8.32	8057	0	8124	0	8124	0	8124

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GR	0	8124	12.2	8147	16.2	8230	13.2	8300	11.8	8464
GR	11.8	8648	17	8732	11.8	8835	12	9304	12.8	10826
GR	13.2	11472	13.6	12356	14.2	12999	13.3	13477	19.	17000
X1	2248	25	13054	13291	7500	6500	7500			
GR	20	700	15.	3800	13.2	11526	13.2	11527	13.2	11628
GR	17.8	11995	15.2	12168	13	12500	13.8	12803	15.8	12963
GR	14.4	13007	0	13054	-3.48	13115	-17.78	13162	-2.83	13211
GR	0	13291	8.6	13303	5.8	13391	11.6	13520	15.6	13970
GR	16.3	14441	17.7	14890	17.7	15453	18.	17500	20.	20000
QT	5	18600	30100	35400	46600	35400				
ET						7.41				
X1	2247	22	14817	15035	3000	4000	4200			
GR	20.	1500	15.	4800	13.2	11524	13.2	11525	13.2	11526
GR	12.8	12589	11	13650	12	14141	13.6	14575		14817
GR	-3.48	14865	-17.78	14912	-2.83	14961	-2.83	14962	-2.83	14963
GR		15035	8	15058	12.4	15101	16.6	15241	13.4	15873
GR	16	16200	20	16220						
NC			.035	0.3	0.5					
X1	2247				50	50	50			
SB	0.9	1.5	2.7		51	50	8636	5	-17.78	-17.78
ET						9.1			6405	15035
X1	47.2	22	14817	15035	31.	31.	31.			
X2			1	23.52	28					
BT	11	13200	28		13780	29				
BT	14090	30		14275	30			13980	29.8	
BT	31.6		15336	31.6			14575	31.6		15241
BT		16408	30.2			15658	31.6		16236	30.8
GR	20.	1500	15.	4800	13.2	11524	13.2	11525	13.2	11526
GR	12.8	12589	11	13650	12	14141	13.6	14575		14817
GR	-3.48	14865	-17.78	14912	-2.83	14961	-2.83	14962	-2.83	14963
GR		15035	8	15058	12.4	15101	16.6	15241	13.4	15873
GR	16	16200	20	16220						
ET						7.41				
X1	2247				450	450	450			
NC	0.1	.08	.035	0.1	0.3					
ET						8.4				
X1	2246	36	13484	13667	4000	2000	3900			
GR	25	1400	18	7735	18	7736	18	7737	18	7738
GR	17.8	8135	17.6	8752	18.6	9318	16.8	9390	15.8	9944
GR	15.2	10600	14.6	12535	13.6	12641	14.6	12743	15.	12798
GR	17.2	12818	15.6	12918	17.2	13165	17.8	13243	19.4	13354
GR	12.6	13413	8.4	13457	0.4	13484	-14.55	13614	-14.55	13614



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GR	0.4	13667	18.2	13762	19	13879	19.2	14074	17.6	14212
GR	16.4	14671	15	15997	15.4	16043	15.8	16103	27.4	16144
GR	27.4	16218								
QT	5	18600	30100	35400	46600	35400				
NC			.035	0.1	0.3					
ET						6.41				
X1	2244	33	13478	13666	6500	8000	8000			
GR	24	3600	20	5800	20	10500	20	11300	20	12024
GR	20.	12228	20	12528	20	12891	20.8	13035	20	13182
GR	21.2	13354	7.4	13423	4.8	13470	0.4	13478	-1.68	13502
GR	-13.68	13550	-17.68	13598	-4.68	13644	-4.68	13644	-4.68	13644
GR	0.4	13666	11	13704	11.4	13722	22	13750	21	13852
GR	21.6	13920	20.8	13949	18.8	14356	20.6	14565	20.2	14634
GR	17.8	14660	25	14685	25	14696				
QT	5	18600	30100	35400	46600	35400				
NC	0.1	0.1	.035							
ET						12.4				
X1	2242.1	29	10318	10492	6300	6500	6500			
GR	25	2500	20	4000	20	7000	21	9000	20	9700
GR	20.	9710	13.2	10242	10	10257	0.4	10318	-1.68	10358
GR	-1.68	10358	-13.68	10406	-17.68	10454	-4.68	10490	-4.68	10490
GR	0.4	10492	17.8	10584	17.6	10723	17.6	10911	17.2	11358
GR	17.4	11952	18.4	12546	20	13080	20.2	13240	20	13473
GR	21.4	14012	23.2	14731	28.6	14831	28.6	14855		
ET						8.4				
X1	2242	21	7726	7925	3400	3300	3000			
GR	25	2300	20	5500	21	6500	20	7200	20	7201
GR	19.6	7625	15.2	7644	11.6	7696	0.4	7726	-1.18	7762
GR	-2.68	7795	-4.18	7834	-6.68	7870	-9.68	7906	-11.68	7920
GR	0.4	7925	9.8	7957	18.4	8007	19	8146	20.	12000
GR	25	14000								
ET						12.41				
X1	2241	25	7824	7991	4500	5500	5000			
GR	25.		23	3642	21.2	4386	20.4	5202	20	5746
GR	19.6	6226	19.4	7119	18.4	7396	18.4	7582	18.4	7742
GR	5	7781	4	7815	0.8	7824	-3.88	7868	-12.68	7948
GR	0.8	7991	23.6	8060	23	8145	19.6	8250	18.4	8832
GR	21.2	9571	21.2	10591	20.8	11071	20	11828	25.	12500
QT	5	18600	30100	35400	46600	35400				
NC			.035	0.1	0.3					
ET						8.41				

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X1	2239	33	8837	9016	6100	3900	5900			
GR	25	1400	23	5277	23	5278	22.6	5445	20.8	5735
GR	20	6198	20.2	6970	20.8	7222	20.6	7395	22.6	7735
GR	21.8	7839	21.8	8093	20.8	8183	20.8	8355	22.2	8475
GR	23	8571	21.2	8744	7.2	8815	0.6	8837	-1.08	8854
GR	-3.68	8873	-12.68	8928	-15.68	8947	-9.38	8984	-5.68	9002
GR	0.6	9016	7.8	9035	11	9178	21.8	9411	20	9604
GR	22.8	9703	25	9750	30	10500				
NC				0.3	0.5					
X1	39.1				100	100	100			
SB	1.25	1.5	2.7		79.7	13	7315	3.61	-15.7	-15.7
X1	39.2	33	8837	9016	49.5	49.5	49.5			
X2			1	21.01	20.8					
BT	12	8080	20.8		8440	21.8		8585	22.6	
BT	8700	24.6		8781	26			8947	27.3	8950
BT	27.8		9116	26.6				25.4	9382	25
BT		9685	23.8		9998	23.2				
GR	25	1400	23	5277	23	5278	22.6	5445	20.8	5735
GR	20	6198	20.2	6970	20.8	7222	20.6	7395	22.6	7735
GR	21.8	7839	21.8	8093	20.8	8183	20.8	8355	22.2	8475
GR	23	8571	21.2	8744	7.2	8815	0.6	8837	-1.08	8854
GR	-3.68	8873	-12.68	8928	-15.68	8947	-9.38	8984	-5.68	9002
GR	0.6	9016	7.8	9035	11	9178	21.8	9411	20	9604
GR	22.8	9703	25	9750	30	10500				
X1	39.3				100	100	100			
NC				0.1	0.3					
ET						7.41				
X1	2238	26	3814	3992	4800	5800	5400			
GR	31		30	200	25	1500	25	3600	25	3610
GR	20.8	3781	7	3804	0.8	3814	-1.08	3834	-3.68	3853
GR	-12.68	3908	-15.68	3927	-9.38	3964	-5.68	3982	-5.68	3982
GR	0.8	3992	10.6	4034	19.2	4084	17.6	4134	17.6	4217
GR	12.8	4302	15	4399	16.8	4553	20.8	4698	25.	4800
GR	27	5800								
NC	0.1	.08	.035							
ET						3.41				
X1	2236	25	5536	5703	4800	3800	5000			
GR	30	1800	25	5440	20.6	5493	1	5536	-1.68	5566
GR	-6.18	5586	-9.18	5617	-11.68	5647	-14.18	5670	-12.68	5700
GR	1	5703	7.8	5736	22.8	5777	22.6	5796	20.2	5853
GR	22.4	5890	19	5947	14.4	6019	17.2	6090	22	6192
GR	15.2	6346	21.2	6500	19.8	6641	25.	7300	30.	9250

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BT						10.41				
X1	2234	21	4656	4776	6800	4900	6500			
GR	30	1710	25	3150	20	3350	15	3600	10.9	4634
GR	1	4656	-1.34	4688	-5.84	4719	-9.84	4750	-2.34	4775
GR	1	4776	6.8	4785	8.2	4823	16.8	4887	13.2	5254
GR	15.4	5426	15.4	5826	16.6	6097	20.	7300	25.	7500
GR	30	9800								
QT	5	17800	27900	32400	42500	32400				
NC			.035	0.1	0.3					
X1	2233	19	4307	4432	1200	1300	1900			
GR	31	200	25	1800	20	3000	20.3	4202	12.7	4284
GR	1.1	4307	-1.34	4338	-5.84	4369	-9.84	4400	-2.34	4431
GR	1.1	4432	15.1	4519	12.7	4706	10.	4800	15.	5720
GR	20	5950	25	6200	30	6600	30	6601		
NC				0.3	0.5					
X1	33.1				100	100	100			
SB	0.9	1.5	2.7		172.5	7.5	24315	10.84	-12	-12
X1	33.2	19	4307	4432	52	52	52			
X2			1	28.34	26.2					
BT	12	1355	27.6		1355	27.6		1821	32.2	
BT	1954	33		2145	33.6		2340	33.6		2871
BT	31		2920	29.4		3012	29		3354	27
BT		3654	26.8		4000	26.2				
GR	31	200	25	1800	20	3000	20.3	4202	12.7	4284
GR	1.1	4307	-1.34	4338	-5.84	4369	-9.84	4400	-2.34	4431
GR	1.1	4432	15.1	4519	12.7	4706	10.	4800	15.	5720
GR	20	5950	25	6200	30	6600	30	6601		
X1	33.3				100	100	100			
NC				0.1	0.3					
X1	2231	30	6060	6172	4200	4100	4800			
GR	30.	4000	29.5	4612	29.5	4613	29.5	4614	15.98	4876
GR	12.5	5146	11.7	5389	11.9	5709	15.1	5873	18.9	5978
GR	7.7	6032	7.3	6050	1.1	6060	-3.81	6081	-10.81	6129
GR	-11.41	6153	-12.31	6170	-12.31	6170	-12.31	6170	-12.31	6170
GR	1.1	6172	10.7	6189	11.1	6222	23.9	6259	18.7	6632
GR	15.1	7239	25.	7500	30.7	7600	32.5	8000	32.5	8001

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ET						10.41					
X1	2229	16	6946	7055	6000	5700	7500				
GR	33	4400	30	5550	25	5620	20	5750	20	6800	
GR	12.9	6916	2.2	6946	-2.18	6970	-11.5	6995	-4.48	7015	
GR	2.2	7055	19.4	7107	21.6	7231	25	7400	30.	7450	
GR	36	8200									
X1	2229.1	20	6937	7045	10	10	10				
GR	34	5663	34	5664	34	5665	34	5666	18	5855	
GR	20.3	5999	18.9	6244	13.5	6500	16.7	6672	26.9	6764	
GR	27.1	6839	16.9	6865	15.7	6888	3.1	6937	3.1	7045	
GR	18.9	7080	18.7	7199	18.7	7443	22.7	7500	35.4	8014	
NC	0.1	0.1	0.05								
X1	2228	19	6856	6970	4050	5200	5000				
GR	33	2250	30	6200	25	6300	25	6700	2.2	6856	
GR	-6.64	6885	-8.94	6915	-10.74	6945	-9.14	6968	2.2	6970	
GR	11.6	7016	21.4	7103	23.8	7150	19.2	7222	18.6	7364	
GR	25	7800	30	7850	35	7970	40	11000			
X1	2226	22	5495	5600	4200	3300	3800				
GR	40	700	35	4050	30	4300	30	4301	25	4450	
GR	23.2	5341	18.2	5396	6.8	5445	9.6	5461	5.6	5465	
GR	2.8	5495	-0.24	5510	-3.14	5530	-4.94	5550	-2.44	5576	
GR	-0.84	5580	1.26	5600	25	5700	25	6650	30	6800	
GR	35	6900	40	7200							
QT	5	17400	28400	33500	44200	33600					
ET						8.41					
X1	2224	19	2309	2360	3650	3100	3700				
GR	38	1200	35	1700	30	1900	25	2182	25	2183	
GR	25	2284	2.8	2300	1.92	2309	-1.78	2316	-2.58	2325	
GR	-4.88	2334	-2.98	2343	-0.88	2351	1.42	2360	25	2480	
GR	25	3200	30	3300	35	3500	40	3750			
ET						9.41					
X1	2223	22	3473	3541	3300	3400	5500				
GR	43.	1200	40	2700	34.2	3200	34.2	3201	27.4	3436	
GR	8.4	3448	2.8	3473	-1.58	3485	-2.88	3496	-4.58	3507	
GR	-2.98	3518	-0.88	3530	2.02	3541	2.02	3541	2.02	3541	
GR	2.8	3564	10.4	3575	25	3600	30	4100	35	4200	
GR	40	4700	43	7500							



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ET						10.41				
X1	2218				100	100	100			
ET						8.4				
X1	2217	36	6395	6445	2450	2000	2400			
GR	49.	4700	45	5950	40.8	6050	23.2	6232	14.8	6331
GR	12	6352	4	6373	1.92	6395	1.52	6408	0.32	6421
GR	1.32	6433	2.02	6445	2.02	6445	2.02	6445	2.02	6445
GR	4	6447	17.6	6499	36	6536	40.6	6568	39.6	6679
GR	43.4	6850	46.2	7242	46.6	7546	46.2	7865	46.8	8300
GR	45.8	8441	44.4	8701	45.6	9097	40.8	9308	45.8	9428
GR	5.2	9503	45	9700	44.2	9777	46.4	9915	48	11700
GR	50	14200								
X1	2216	16	7895	7934	5400	5000	6500			
GR	49.	6400	45.	7550	29.2	7865	3.66	7895	0.76	7905
GR	-0.14	7915	0.36	7925	3.66	7934	14.18	7961	14.18	7961
GR	29.2	8107	31	8156	45	9100	49	14000	50	16400
GR	53	19200								
X1	2215	14	8216	8255	2000	1650	2300			
GR	49.5	5400	45	8000	42.6	8086	39.2	8141	29.6	8186
GR	3.66	8216	0.76	8226	-0.14	8236	0.36	8246	3.66	8255
GR	14.88	8296	45	8700	50	15200	53	18600		
ET						8.4				
X1	2214	14	5569	5614	4500	4300	6000			
GR	53	1700	50	4400	45	5400	32	5539	5.1	5569
GR	2.12	5594	3.25	5614	12.24	5660	32.	5795	47.2	5876
GR	48.8	7228	50	10000	53	11500	54	16000		
X1	2213	14	4683	4727	3900	3800	5000			
GR	53	1500	50	3900	45	4350	35	4567	33.2	4657
GR	6.62	4683	3.47	4707	6.62	4727	24.12	4757	45	4900
GR	50	10000	53	11000	54	17000	55	22000		
ET						10.4				
X1	2211	23	5158	5198	4500	5500	5700			
GR	53	2500	50	4500	50	4500	50	4500	50.2	4700
GR	47.6	4749	33.4	4800	34.4	4875	37	4900	40	4963
GR	41.4	5001	35.8	5066	34.2	5134	7.6	5158	3.6	5178
GR	7.6	5198	34.2	5278	49.8	5336	50	5660	50	11000
GR	55	14200	56	15200	57	19100				

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X1	2209	15	10267	10317	6300	4500	7200			
GR	55	5000	52.1	10152	44.7	10218	36.1	10249	10.63	10267
GR	6.63	10280	6.63	10292	6.63	10305	10.63	10317	36.1	10559
GR	43.5	10619	52.5	10723	55	14100	56	16000	58	21500
X1	2208	20	10750	10840	2800	1500	3000			
GR	57		55	1900	53.7	10000	50	10525	41.9	10591
GR	38.1	10623	36.9	10737	14	10750	12	10765	16	10780
GR	8.5	10795	12	10810	15.61	10825	17.61	10840	27.48	10855
GR	36.9	10922	53.9	10988	54.3	12907	55	17100	58	21800
X1	2206	22	7047	7107	7200	4800	5800			
GR	59		55.9	6555	44.5	6658	42.7	6715	41.9	6847
GR	42.5	6949	43.5	6993	39.5	7027	17.61	7047	15.61	7057
GR	13.61	7067	10.11	7077	13.11	7087	14.51	7097	17.61	7107
GR	28.96	7127	39.5	7274	57.7	7312	56.9	7515	56.1	7847
GR	57	11900	60	15600						
X1	2205	18	7977	8037	2000	1850	1800			
GR	62		60	950	55	7790	46.7	7801	39.7	7957
GR	17.61	7977	15.61	7987	13.61	7997	10.81	8007	13.11	8017
GR	14.51	8027	17.61	8037	28.98	8057	50	8200	55.9	8491
GR	55	8650	60	10600	62	12250				

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T1 SAN BERNARD RIVER RESTUDY JULY 87  
T2 BRAZORIA COUNTY  
T3 50 YEAR

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3							10.31	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							



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T1 SAN BERNARD RIVER RESTUDY JULY 87  
T2 BRAZORIA COUNTY  
T3 100 YEAR

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		4							11.31	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1							

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\*\*\*\*\*  
HEC-2 WATER SURFACE PROFILES

THIS RUN EXECUTED 27AUG02 22:42:09

Version 4.6.2; May 1991  
\*\*\*\*\*

NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

YEAR

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
25.000	18400.00	9.31	2.59	-15.70	5.60	7.60	7.90	17850.73	97.01	.00	2729.03
25.000	28800.00	10.31	3.69	-15.70	5.60	7.60	7.90	27043.32	93.90	.00	3996.50
25.000	33500.00	11.31	3.86	-15.70	5.60	7.60	7.90	29985.98	89.51	.00	6146.50
2261.000	17800.00	9.43	2.59	-17.30	.00	.00	11.00	17234.07	96.82	1584.00	6803.67
2261.000	27900.00	10.55	3.50	-17.30	.00	.00	11.00	24715.19	88.58	1584.00	11732.44
2261.000	32400.00	11.58	3.37	-17.30	.00	.00	11.00	25051.78	77.32	1584.00	13621.69
2260.000	17800.00	9.78	3.34	-17.30	.10	.10	13.00	17231.36	96.81	4000.00	691.62
2260.000	27900.00	11.13	4.81	-17.30	.10	.10	13.00	26598.71	95.34	4000.00	785.18
* 2260.000	32400.00	12.06	5.26	-17.30	.10	.10	13.00	30486.66	94.09	4000.00	2348.27
2260.100	17800.00	9.79	3.34	-17.30	.10	.10	13.00	17229.48	96.79	100.00	692.11
2260.100	27900.00	11.15	4.80	-17.30	.10	.10	13.00	26592.72	95.31	100.00	786.52
2260.100	32400.00	12.09	5.25	-17.30	.10	.10	13.00	30476.86	94.06	100.00	2415.75
60.200	17800.00	9.90	3.32	-17.30	.10	.10	13.00	17208.39	96.68	50.00	697.71
60.200	27900.00	11.40	4.73	-17.30	.10	.10	13.00	26511.58	95.02	50.00	804.55
60.200	32400.00	12.39	5.14	-17.30	.10	.10	13.00	30258.69	93.39	50.00	3060.03
60.300	17800.00	9.92	3.31	-17.30	.10	.10	13.00	17206.03	96.66	100.00	698.62
60.300	27900.00	11.42	4.72	-17.30	.10	.10	13.00	26503.94	95.00	100.00	806.23
60.300	32400.00	12.42	5.13	-17.30	.10	.10	13.00	30236.92	93.32	100.00	3113.06
* 2259.000	17800.00	11.59	1.06	-17.50	.10	.10	15.00	8824.80	49.58	5900.00	4566.77
* 2259.000	27900.00	13.68	.88	-17.50	.10	.10	15.00	8053.41	28.87	5900.00	10015.89
2259.000	32400.00	14.58	.76	-17.50	.10	.10	15.00	7208.90	22.25	5900.00	12698.13
* 2257.000	17800.00	14.74	.64	-18.49	.10	.10	14.00	4024.73	22.61	6250.00	9701.26
* 2257.000	27900.00	15.95	.61	-18.49	.10	.10	14.00	4034.10	14.46	6250.00	11883.83
2257.000	32400.00	16.42	.59	-18.49	.10	.10	14.00	4001.87	12.35	6250.00	11900.00

## San Bernard River Multi Freq. SANBERNA.IH2

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	2255.000	17800.00	15.33	2.30	-14.82	.00	.00	16.00	14325.01	80.48	6500.00	10648.71
*	2255.000	27900.00	16.64	2.79	-14.82	.00	.00	16.00	18447.61	66.12	6500.00	11398.14
*	2255.000	32400.00	17.13	2.95	-14.82	.00	.00	16.00	19886.44	61.38	6500.00	11544.26
	2254.000	17800.00	15.63	2.38	-12.49	.00	.00	17.00	14534.90	81.66	5500.00	11682.98
	2254.000	27900.00	17.02	2.80	-12.49	.00	.00	17.00	18220.66	65.31	5500.00	12459.49
	2254.000	32400.00	17.54	2.92	-12.49	.00	.00	17.00	19429.22	59.97	5500.00	12583.32
	2253.000	17800.00	15.89	2.33	-13.32	.00	.00	18.00	15890.28	89.27	4400.00	8659.09
	2253.000	27900.00	17.37	2.92	-13.32	.00	.00	18.00	21149.34	75.80	4400.00	10883.13
	2253.000	32400.00	17.90	3.10	-13.32	.00	.00	18.00	22887.38	70.64	4400.00	11511.62
	2251.000	17800.00	16.16	2.60	-11.25	.00	.00	20.00	14163.85	79.57	4700.00	4472.37
	2251.000	27900.00	17.76	3.30	-11.25	.00	.00	20.00	19314.00	69.23	4700.00	8051.13
	2251.000	32400.00	18.33	3.52	-11.25	.00	.00	20.00	21091.24	65.10	4700.00	9501.27
	51.100	17800.00	16.20	2.60	-11.25	.00	.00	20.00	14141.90	79.45	500.00	4494.61
	51.100	27900.00	17.80	3.28	-11.25	.00	.00	20.00	19216.55	68.88	500.00	8175.67
	51.100	32400.00	18.38	3.49	-11.25	.00	.00	20.00	20956.46	64.68	500.00	9645.35
	51.200	17800.00	16.20	2.59	-11.25	.00	.00	20.00	14136.43	79.42	52.00	4500.15
	51.200	27900.00	17.80	3.28	-11.25	.00	.00	20.00	19204.59	68.83	52.00	8190.93
	51.200	32400.00	18.38	3.49	-11.25	.00	.00	20.00	20938.93	64.63	52.00	9664.08
	51.300	17800.00	16.23	2.58	-11.25	.00	.00	20.00	14102.55	79.23	500.00	4534.41
	51.300	27900.00	17.85	3.26	-11.25	.00	.00	20.00	19112.44	68.50	500.00	8308.26
	51.300	32400.00	18.43	3.46	-11.25	.00	.00	20.00	20818.66	64.26	500.00	9792.46
	2250.000	17800.00	16.48	2.10	-13.32	.00	.00	20.00	12195.96	68.52	4500.00	10674.54
	2250.000	27900.00	18.20	2.56	-13.32	.00	.00	20.00	15963.93	57.22	4500.00	13706.17
	2250.000	32400.00	18.82	2.72	-13.32	.00	.00	20.00	17372.21	53.62	4500.00	14521.98
	2249.000	17800.00	16.57	2.11	-13.32	.00	.00	19.00	12684.39	71.26	2500.00	12086.66
	2249.000	27900.00	18.32	2.52	-13.32	.00	.00	19.00	16304.19	58.44	2500.00	15210.54
	2249.000	32400.00	18.94	2.66	-13.32	.00	.00	19.00	17627.13	54.40	2500.00	15805.11
	2248.000	17800.00	16.88	2.48	-17.78	.00	.00	20.00	12969.19	72.86	7500.00	11857.32
	2248.000	27900.00	18.72	2.82	-17.78	.00	.00	20.00	15944.13	57.15	7500.00	16897.13
	2248.000	32400.00	19.36	2.91	-17.78	.00	.00	20.00	16935.13	52.27	7500.00	18108.91
	2247.000	18600.00	17.10	2.33	-17.78	.00	.00	20.00	11462.60	61.63	4200.00	12791.37
	2247.000	30100.00	18.96	2.72	-17.78	.00	.00	20.00	14498.60	48.17	4200.00	14029.25
	2247.000	35400.00	19.62	2.88	-17.78	.00	.00	20.00	15749.81	44.49	4200.00	14464.48
	2247.000	18600.00	17.10	2.33	-17.78	.00	.00	20.00	11458.42	61.60	50.00	12793.11
	2247.000	30100.00	18.96	2.72	-17.78	.00	.00	20.00	14492.96	48.15	50.00	14031.33
	2247.000	35400.00	19.62	2.88	-17.78	.00	.00	20.00	15743.67	44.47	50.00	14466.67
	47.200	18600.00	17.11	2.32	-17.78	.00	.00	20.00	11446.53	61.54	31.00	12798.09
	47.200	30100.00	18.97	2.72	-17.78	.00	.00	20.00	14479.17	48.10	31.00	14036.42
	47.200	35400.00	19.63	2.87	-17.78	.00	.00	20.00	15729.05	44.43	31.00	14471.90

San Bernard River Multi Freq. SANBERNA.IH2

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
2247.000	18600.00	17.13	2.31	-17.78	.00	.00	20.00	11412.10	61.36	450.00	12812.54
2247.000	30100.00	19.00	2.70	-17.78	.00	.00	20.00	14431.25	47.94	450.00	14054.17
2247.000	35400.00	19.66	2.86	-17.78	.00	.00	20.00	15675.62	44.28	450.00	14491.08
2246.000	18600.00	17.31	3.40	-14.55	.40	.40	25.00	15169.92	81.56	3900.00	5982.46
2246.000	30100.00	19.23	4.00	-14.55	.40	.40	25.00	19249.94	63.95	3900.00	9479.01
2246.000	35400.00	19.91	4.16	-14.55	.40	.40	25.00	20527.66	57.99	3900.00	10108.94
2244.000	18600.00	17.99	3.44	-17.68	.40	.40	24.00	17490.02	94.03	8000.00	372.02
2244.000	30100.00	20.15	5.08	-17.68	.40	.40	24.00	27843.15	92.50	8000.00	8095.45
2244.000	35400.00	20.88	5.58	-17.68	.40	.40	24.00	31400.39	88.70	8000.00	9107.66
2242.100	18600.00	18.54	3.52	-17.68	.40	.40	25.00	16807.70	90.36	6500.00	2771.64
2242.100	30100.00	21.21	4.36	-17.68	.40	.40	25.00	22882.29	76.02	6500.00	10299.10
2242.100	35400.00	22.09	4.46	-17.68	.40	.40	25.00	24086.12	68.04	6500.00	10913.33
2242.000	18600.00	18.83	3.80	-11.68	.40	.40	25.00	17584.46	94.54	3000.00	477.08
2242.000	30100.00	21.60	4.76	-11.68	.40	.40	25.00	24668.80	81.96	3000.00	8161.63
2242.000	35400.00	22.49	4.89	-11.68	.40	.40	25.00	26161.96	73.90	3000.00	9086.32
2241.000	18600.00	19.45	4.07	-12.68	.80	.80	25.00	17232.19	92.65	5000.00	1924.52
2241.000	30100.00	22.43	4.75	-12.68	.80	.80	25.00	22492.40	74.73	5000.00	8169.19
2241.000	35400.00	23.32	4.85	-12.68	.80	.80	25.00	23652.33	66.81	5000.00	9178.58
2239.000	18600.00	20.09	3.33	-15.68	.60	.60	25.00	16633.46	89.43	5900.00	1049.48
2239.000	30100.00	23.18	4.32	-15.68	.60	.60	25.00	24010.33	79.77	5900.00	4790.54
2239.000	35400.00	24.08	4.66	-15.68	.60	.60	25.00	26594.23	75.12	5900.00	6538.97
39.100	18600.00	20.10	3.33	-15.68	.60	.60	25.00	16631.44	89.42	100.00	1095.67
39.100	30100.00	23.20	4.32	-15.68	.60	.60	25.00	23991.51	79.71	100.00	4815.75
39.100	35400.00	24.09	4.65	-15.68	.60	.60	25.00	26567.79	75.05	100.00	6565.35
39.200	18600.00	20.12	3.32	-15.68	.60	.60	25.00	16628.54	89.40	49.50	1161.48
39.200	30100.00	23.27	4.29	-15.68	.60	.60	25.00	23881.40	79.34	49.50	4962.20
39.200	35400.00	24.18	4.60	-15.68	.60	.60	25.00	26381.39	74.52	49.50	6750.13
39.300	18600.00	20.12	3.32	-15.68	.60	.60	25.00	16627.02	89.39	100.00	1195.63
39.300	30100.00	23.28	4.28	-15.68	.60	.60	25.00	23865.50	79.29	100.00	4983.20
39.300	35400.00	24.20	4.60	-15.68	.60	.60	25.00	26357.86	74.46	100.00	6773.31
2238.000	18600.00	20.52	3.36	-15.68	.80	.80	27.00	16967.58	91.22	5400.00	906.36
2238.000	30100.00	23.86	4.56	-15.68	.80	.80	27.00	25731.06	85.49	5400.00	1115.41
2238.000	35400.00	24.83	5.10	-15.68	.80	.80	27.00	29651.64	83.76	5400.00	1178.79
2236.000	18600.00	20.90	3.50	-14.18	1.00	1.00	30.00	16973.20	91.25	5000.00	1090.54
2236.000	30100.00	24.45	4.54	-14.18	1.00	1.00	30.00	24719.81	82.13	5000.00	1783.47
2236.000	35400.00	25.54	4.95	-14.18	1.00	1.00	30.00	27832.76	78.62	5000.00	2467.77
2234.000	18600.00	21.46	2.72	-9.84	1.00	1.00	30.00	8393.90	45.13	6500.00	4066.74
* 2234.000	30100.00	25.14	2.74	-9.84	1.00	1.00	30.00	9683.10	32.17	6500.00	4451.29
* 2234.000	35400.00	26.29	2.84	-9.84	1.00	1.00	30.00	10415.08	29.42	6500.00	5317.94

San Bernard River Multi Freq. SANBERNA.IH2

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PAGE 18

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
2233.000	17800.00	21.54	2.84	-9.84	1.10	1.10	30.00	9192.06	51.64	1900.00	3397.15
2233.000	27900.00	25.20	2.94	-9.84	1.10	1.10	30.00	10883.66	39.01	1900.00	4469.62
2233.000	32400.00	26.36	3.01	-9.84	1.10	1.10	30.00	11582.43	35.75	1900.00	4871.43
33.100	17800.00	21.55	2.83	-9.84	1.10	1.10	30.00	9187.91	51.62	100.00	3398.85
33.100	27900.00	25.21	2.94	-9.84	1.10	1.10	30.00	10879.35	38.99	100.00	4471.40
33.100	32400.00	26.37	3.01	-9.84	1.10	1.10	30.00	11578.00	35.73	100.00	4873.23
33.200	17800.00	21.55	2.83	-9.84	1.10	1.10	30.00	9187.27	51.61	52.00	3399.11
33.200	27900.00	25.21	2.94	-9.84	1.10	1.10	30.00	10878.63	38.99	52.00	4471.70
33.200	32400.00	26.37	3.01	-9.84	1.10	1.10	30.00	11577.67	35.73	52.00	4873.36
33.300	17800.00	21.55	2.83	-9.84	1.10	1.10	30.00	9182.97	51.59	100.00	3400.87
33.300	27900.00	25.21	2.94	-9.84	1.10	1.10	30.00	10874.04	38.98	100.00	4473.60
33.300	32400.00	26.37	3.01	-9.84	1.10	1.10	30.00	11573.01	35.72	100.00	4875.25
2231.000	17800.00	21.83	3.07	-12.31	1.10	1.10	30.00	10123.51	56.87	4800.00	2498.06
2231.000	27900.00	25.46	3.34	-12.31	1.10	1.10	30.00	12399.49	44.44	4800.00	2815.67
2231.000	32400.00	26.62	3.49	-12.31	1.10	1.10	30.00	13398.60	41.35	4800.00	2858.45
* 2229.000	17800.00	22.40	5.27	-11.50	2.20	2.20	33.00	14856.42	83.46	7500.00	1582.86
* 2229.000	27900.00	26.02	5.90	-11.50	2.20	2.20	33.00	18958.53	67.95	7500.00	1804.48
* 2229.000	32400.00	27.20	6.16	-11.50	2.20	2.20	33.00	20573.86	63.50	7500.00	1832.74
2229.100	17800.00	22.46	5.48	3.10	3.10	3.10	34.00	11449.39	64.32	10.00	1567.47
2229.100	27900.00	26.15	5.61	3.10	3.10	3.10	34.00	13964.00	50.05	10.00	1796.83
2229.100	32400.00	27.34	5.78	3.10	3.10	3.10	34.00	15125.23	46.68	10.00	1943.05
2228.000	17800.00	23.80	3.89	-10.74	2.20	2.20	33.00	13769.22	77.36	5000.00	1009.96
2228.000	27900.00	27.41	4.66	-10.74	2.20	2.20	33.00	18438.74	66.09	5000.00	1572.37
2228.000	32400.00	28.62	4.93	-10.74	2.20	2.20	33.00	20153.92	62.20	5000.00	1608.52
2226.000	17800.00	24.69	4.78	-4.94	2.80	1.26	40.00	13307.85	74.76	3800.00	1097.16
2226.000	27900.00	28.46	5.15	-4.94	2.80	1.26	40.00	16382.85	58.72	3800.00	2406.75
2226.000	32400.00	29.71	5.21	-4.94	2.80	1.26	40.00	17273.80	53.31	3800.00	2481.37
* 2224.000	17400.00	26.23	8.22	-4.88	1.92	1.42	38.00	11822.06	67.94	3700.00	1112.37
* 2224.000	28400.00	29.98	8.97	-4.88	1.92	1.42	38.00	14626.19	51.50	3700.00	1398.96
* 2224.000	33500.00	31.20	9.22	-4.88	1.92	1.42	38.00	15612.97	46.61	3700.00	1496.57
* 2223.000	17400.00	29.50	5.92	-4.58	2.80	2.02	43.00	12561.04	72.19	5500.00	687.05
2223.000	28400.00	33.41	7.48	-4.58	2.80	2.02	43.00	17862.51	62.90	5500.00	939.82
2223.000	33500.00	34.68	8.08	-4.58	2.80	2.02	43.00	19984.79	59.66	5500.00	1034.39
2221.000	17400.00	30.89	4.68	-4.58	2.80	2.02	43.00	10072.43	57.89	4000.00	390.51
2221.000	28400.00	35.28	6.03	-4.58	2.80	2.02	43.00	14744.49	51.92	4000.00	1140.66
2221.000	33500.00	36.75	6.49	-4.58	2.80	2.02	43.00	16495.19	49.24	4000.00	1284.13
2220.000	17400.00	31.69	4.19	-3.98	1.42	3.20	43.00	9083.46	52.20	4000.00	733.51
2220.000	28400.00	36.37	5.12	-3.98	1.42	3.20	43.00	12641.84	44.51	4000.00	1066.76
2220.000	33500.00	37.93	5.49	-3.98	1.42	3.20	43.00	14102.70	42.10	4000.00	1424.72

## San Bernard River Multi Freq. SANBERNA.IH2

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	2219.000	17400.00	32.66	5.95	-3.98	1.42	3.40	46.00	9870.36	56.73	5500.00	548.17
*	2219.000	28400.00	37.49	7.16	-3.98	1.42	3.40	46.00	13539.33	47.67	5500.00	956.51
	2219.000	33500.00	39.12	7.58	-3.98	1.42	3.40	46.00	14914.80	44.52	5500.00	1073.10
	2218.000	17400.00	35.66	8.13	-1.33	.50	.75	47.00	7998.70	45.97	7952.00	399.25
	2218.000	28400.00	41.02	10.16	-1.33	.50	.75	47.00	11463.04	40.36	7952.00	1096.75
	2218.000	33500.00	42.80	10.76	-1.33	.50	.75	47.00	12655.33	37.78	7952.00	2025.98
	2218.100	17400.00	35.72	8.11	-1.33	.50	.75	47.00	7986.93	45.90	100.00	400.04
	2218.100	28400.00	41.12	10.11	-1.33	.50	.75	47.00	11431.22	40.25	100.00	1144.53
	2218.100	33500.00	42.91	10.68	-1.33	.50	.75	47.00	12594.25	37.59	100.00	2081.45
	2218.200	17400.00	35.78	8.08	-1.33	.50	.75	47.00	7975.13	45.83	48.00	400.84
	2218.200	28400.00	41.19	10.07	-1.33	.50	.75	47.00	11407.06	40.17	48.00	1180.22
	2218.200	33500.00	42.98	10.63	-1.33	.50	.75	47.00	12554.40	37.48	48.00	2117.14
	2218.000	17400.00	35.85	8.06	-1.33	.50	.75	47.00	7963.13	45.77	100.00	401.65
	2218.000	28400.00	41.28	10.02	-1.33	.50	.75	47.00	11377.57	40.06	100.00	1223.15
	2218.000	33500.00	43.08	10.56	-1.33	.50	.75	47.00	12499.23	37.31	100.00	2165.95
*	2217.000	17400.00	37.02	4.47	.32	1.92	2.02	49.00	7995.58	45.95	2400.00	670.40
*	2217.000	28400.00	42.81	5.60	.32	1.92	2.02	49.00	11625.29	40.93	2400.00	1214.24
*	2217.000	33500.00	44.68	6.03	.32	1.92	2.02	49.00	13088.22	39.07	2400.00	1826.11
*	2216.000	17400.00	38.51	6.79	-.14	3.66	3.66	49.00	9895.10	56.87	6500.00	983.32
	2216.000	28400.00	44.54	7.37	-.14	3.66	3.66	49.00	12475.48	43.93	6500.00	1510.07
	2216.000	33500.00	46.48	7.47	-.14	3.66	3.66	49.00	13208.33	39.43	6500.00	3800.39
	2215.000	17400.00	39.39	6.60	-.14	3.66	3.66	49.50	9852.56	56.62	2300.00	486.73
	2215.000	28400.00	45.37	8.18	-.14	3.66	3.66	49.50	14116.03	49.70	2300.00	1391.02
	2215.000	33500.00	47.29	8.46	-.14	3.66	3.66	49.50	15221.66	45.44	2300.00	4992.29
	2214.000	17400.00	41.33	5.96	2.12	5.10	3.25	53.00	10225.05	58.76	6000.00	405.44
	2214.000	28400.00	47.77	7.48	2.12	5.10	3.25	53.00	15002.25	52.82	6000.00	1510.43
	2214.000	33500.00	49.69	7.88	2.12	5.10	3.25	53.00	16480.73	49.20	6000.00	4829.60
	2213.000	17400.00	42.99	7.56	3.47	6.62	6.62	53.00	12618.40	72.52	5000.00	492.72
	2213.000	28400.00	49.60	7.56	3.47	6.62	6.62	53.00	14826.48	52.21	5000.00	5657.04
	2213.000	33500.00	51.51	6.71	3.47	6.62	6.62	53.00	13708.99	40.92	5000.00	7814.60
	2211.000	17400.00	45.67	6.67	3.60	7.60	7.60	53.00	10684.96	61.41	5700.00	564.71
	2211.000	28400.00	51.78	7.06	3.60	7.60	7.60	53.00	13048.74	45.95	5700.00	8832.19
	2211.000	33500.00	53.17	6.61	3.60	7.60	7.60	53.00	12570.19	37.52	5700.00	10527.75
	2209.000	17400.00	47.65	4.86	6.63	10.63	10.63	55.00	9725.24	55.89	7200.00	475.20
	2209.000	28400.00	53.71	6.16	6.63	10.63	10.63	55.00	14183.08	49.94	7200.00	5072.66
	2209.000	33500.00	54.89	6.59	6.63	10.63	10.63	55.00	15568.71	46.47	7200.00	8766.49
	2208.000	17400.00	48.17	4.64	8.50	14.00	17.61	57.00	14542.55	83.58	3000.00	425.83
	2208.000	28400.00	54.37	5.81	8.50	14.00	17.61	57.00	21459.81	75.56	3000.00	7517.69
	2208.000	33500.00	55.60	5.87	8.50	14.00	17.61	57.00	22342.26	66.69	3000.00	16728.98

## San Bernard River Multi Freq. SANBERNA.IH2

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
2206.000	17400.00	49.67	5.58	10.11	17.61	17.61	59.00	11910.95	68.45	5800.00	683.98
2206.000	28400.00	56.21	6.41	10.11	17.61	17.61	59.00	16202.58	57.05	5800.00	1926.09
2206.000	33500.00	57.47	6.87	10.11	17.61	17.61	59.00	17881.52	53.38	5800.00	9169.66
2205.000	17400.00	50.24	6.36	10.81	17.61	17.61	62.00	13750.81	79.03	1800.00	415.33
2205.000	28400.00	56.80	7.48	10.81	17.61	17.61	62.00	19108.35	67.28	1800.00	4013.25
2205.000	33500.00	58.13	7.79	10.81	17.61	17.61	62.00	20541.07	61.32	1800.00	6362.88

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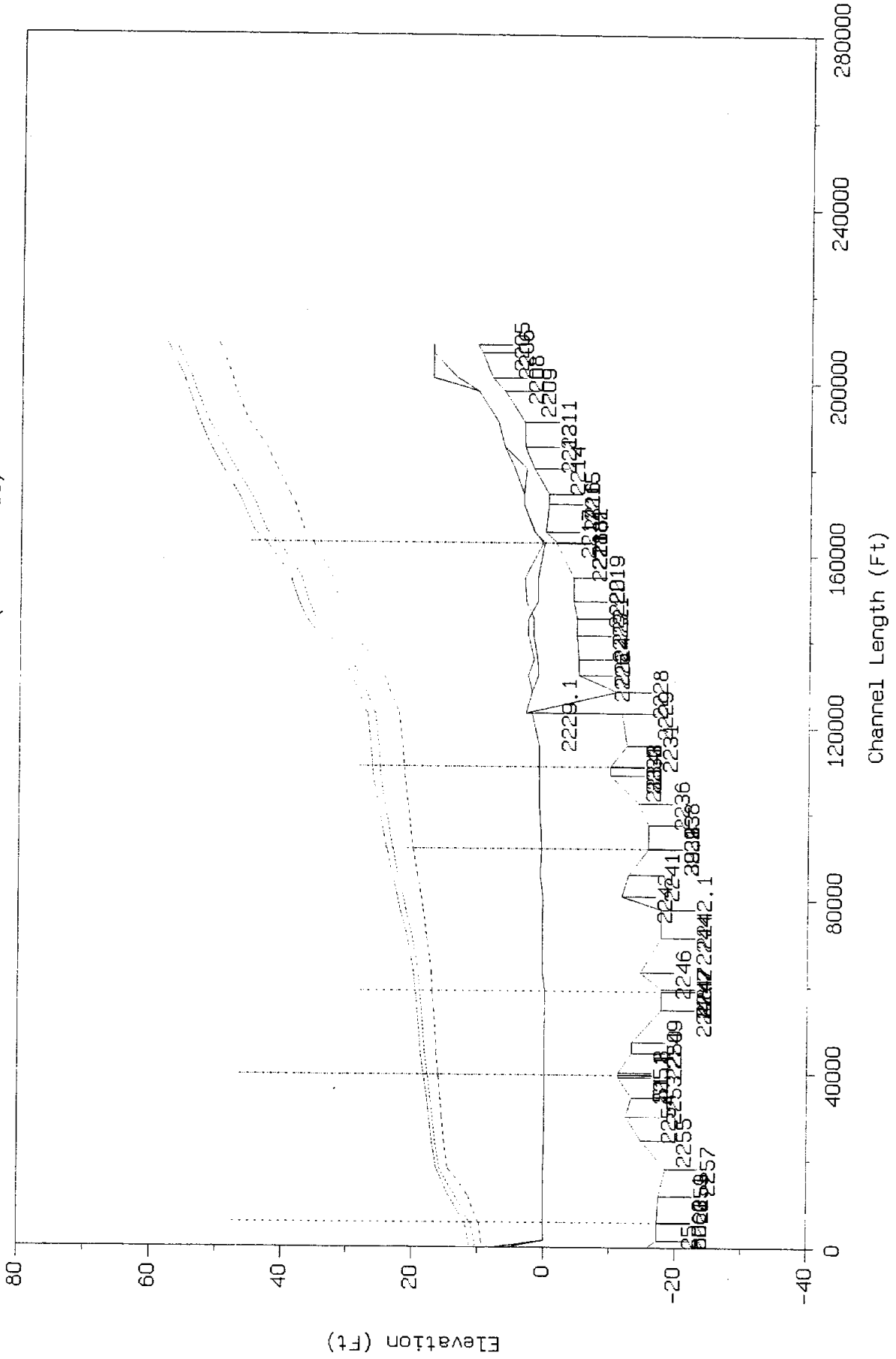
## SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	2260.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2259.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2259.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2257.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2257.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2255.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2255.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2255.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2234.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2234.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2229.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2229.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2229.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2224.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2224.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2224.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2223.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2219.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2219.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2217.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2217.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2217.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2216.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE



YEAR

Cross-Sections (25 to 2205)



```
*****  
* HEC-2 WATER SURFACE PROFILES *  
*                               *  
*   rsion  4.6.2; May 1991     *  
*                               *  
* RUN DATE  25AUG02   TIME  18:41:29 *  
*****
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```
*****  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET, SUITE D    *  
* DAVIS, CALIFORNIA 95616-4687 *  
* (916) 756-1104               *  
*****
```

```
  X   X  XXXXXXXX  XXXXX          XXXXX  
  X   X  X        X   X          X   X  
  X   X  X        X              X  
  XXXXXX  XXXX  X              XXXXX  XXXXX  
  X   X  X        X              X  
  X   X  X        X   X          X  
  X   X  XXXXXXXX  XXXXX          XXXXXXXX
```



25AUG02 18:41:29

THIS RUN EXECUTED 25AUG02 18:41:29

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

- C
- C 9
- C 5600 CR 192
- C 28020 FIELD ROAD
- C 32570 LOW WATER CROSSING
- C 39170 FM 1462
- C 53020 CR 60
- C 57220 HAY MEADOW ROAD
- C 58320 PRIVATE ROAD NEAR CR65 & CR121
- C 59720 CR 61
- C 60320 PRIVATE ROAD
- C 60740 PASTURE ROAD

T1 BRUNNER DITCH..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 T2 PROPOSED CONDITION MODEL.....1973 DATUM ADJUSTMENT  
 T3 FILENAME: BRUNNERP.IH2.....100 YEAR FREQUENCY  
 T3 MODEL CREATED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

NOTES\*\*\*\*\*  
 MODEL CREATED BASED ON 2000 BAKER & LAWSON SURVEY SECTIONS  
 \*\*\*\*\*

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2			.00053					
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1							
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38	43	1	26	42	23	24	63	14	60
	39	4								

J5 LPRNT NUMSEC \*\*\*\*\*REQUESTED SECTION NUMBERS\*\*\*\*\*  
 -10 -10

NC .04 .04 .04 .1 .3  
 QT 3 1403 1666 2178

\* CR192  
 X1 5600 8 10000 10125.2 0 0 0  
 GR 30.00 2534.5 26.61 10000 24.15 10034.5 25.78 10125.2 25.78 10222

GR	26.03	10319.9	26.03	12034.5	30.00	12034.5				
X1	5650				50	50	50			
X5	-3	0.3	0.4	0.5						
X1	0	8	10515.3	10581.6	0	0	0		-35	
GR	47.88	9750	40.14	10482.3	42.38	10509.1	41.45	10515.3	35.23	10540.4
GR	35.00	10554.3	42.98	10581.6	48.25	11132.5				
X1	12335	8	10515.3	10581.6	12335	12335	12335		-25	
GR	47.88	9750	40.14	10482.3	42.38	10509.1	41.45	10515.3	35.23	10540.4
GR	35.00	10554.3	42.98	10581.6	48.25	11132.5				
X1	29335	8	10515.3	10581.6	17000	17000	17000		-15	
GR	47.88	9750	40.14	10482.3	42.38	10509.1	41.45	10515.3	35.23	10540.4
GR	35.00	10554.3	42.98	10581.6	48.25	11132.5				
X1	44835	8	10515.3	10581.6	15500	15500	15500		-10	
GR	47.88	9750	40.14	10482.3	42.38	10509.1	41.45	10515.3	35.23	10540.4
GR	35.00	10554.3	42.98	10581.6	48.25	11132.5				
*****										
X1	15650	10	10058.9	10127.5	10000	10000	10000			
X1	52335	10	10058.9	10127.5	7500	7500	7500			
X3				10047.3	36.36	10127.5	38.41			
GR	40.00	4087.8	35.00	9087.8	33.65	10000	36.36	10047.3	35.67	10058.9
GR	29.03	10081.2	26.82	10087.8	28.49	10097.1	38.41	10127.5	39.47	10138.2
FIELD ROAD										
X1	28020	10	10058.9	10127.5	12370	12370	12370			
X1	64705	10	10058.9	10127.5	12370	12370	12370			
GR	40.00	4087.8	35.00	9087.8	33.65	10000	36.36	10047.3	35.67	10058.9
GR	29.03	10081.2	26.82	10087.8	28.49	10097.1	38.41	10127.5	39.47	10138.2
X1	28240	10	10059.0	10131.1	220	220	220			
X1	64925	10	10059.0	10131.1	220	220	220			
GR	40.00	4091	35.00	9091	33.55	10000	36.54	10048.6	35.68	10059
GR	29.16	10082.5	27.06	10091	28.41	10099.2	38.71	10131.1	39.09	10140.9
QT	3	1072	1296	1750						
X1	32430	7	10009.2	10083.7	4190	4190	4190			
X1	69115	7	10009.2	10083.7	4190	4190	4190			
GR	44.12	10000	43.55	10009.2	31.06	10045.5	29.67	10052.3	30.80	10057.9
GR	45.43	10083.7	46.53	10099.1						
X1	32550	11	10013.0	10025.0	120	120	120			

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X1	69235	11	10013.0	10025.0	120	120	120			
X3	10									
GR	44.46	9716.9	39.46	9966.9	36.97	9984.8	29.76	10013.0	29.66	10015.9
GR	29.60	10019.0	29.66	10022.0	29.72	10025.0	36.33	10053.8	39.15	10082.1
GR	44.15	10332.1								

LOW WATER CROSSING

SC	5.013	0.4	3.0		2.0		20	2.3		
X1	32570	13	10013.0	10024.9	20	20	20			
X1	69255	13	10013.0	10024.9	20	20	20			
X2			2		32.13					
X3	10									
BT	-9	9716.9	44.46		9966.9	39.46		32.13	32.13	
BT		10009.1	32.72		10019.2	32.20		9984.8	36.97	
BT		10053.8	36.33		10082.1	39.15		10027.9	32.13	
GR	44.46	9716.9	39.46	9966.9	36.97	9984.8	32.72	10332.1	44.15	
GR	29.85	10016.0	30.19	10019.2	29.82	10021.9	29.66	10009.1	29.90	10013.0
GR	36.33	10053.8	39.15	10082.1	44.15	10332.1		10024.9	32.13	10027.9

X1	32650	8	10009.1	10074.4	80	80	80			
X1	69335	8	10009.1	10074.4	80	80	80			
GR	42.85	10000	41.91	10009.1	30.76	10040.4	30.32	10046.3	31.53	10052.3
GR	39.37	10074.4	40.64	10090.5	45.64	10340.5				

FM1462										
X1	39170	8	10515.3	10581.6	6520	6520	6520			
X1	75855	8	10515.3	10581.6	6520	6520	6520			
GR	47.88	9750	40.14	10482.3	42.38	10509.1	41.45	10515.3	35.23	10540.4
GR	34.76	10554.3	42.98	10581.6	48.25	11132.5				

X1	39220				50	50	50			
X1	75905				50	50	50			
X5	-3	0.3	0.4	0.5						

QT	3	814	972	1286						
X1	52915	11	10348.5	10385.2	13695	13695	13695			
X1	89600	11	10348.5	10385.2	13695	13695	13695			
X3				10326.3	47.38	10395.8	47.54			
GR	50.00	3365.5	45.00	3365.5	44.89	10254.2	47.38	10326.3	44.75	10348.5
GR	40.89	10358.4	40.68	10365.5	41.18	10372.5	45.14	10385.2	47.54	10395.8
GR	50.00	19365.5								

X1	52990	16	10359.0	10371.9	75	75	75			
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X1	89675	16	10359.0	10371.9	75	75	75			
X3	10							46.88	46.88	
GR	50.00	3365.5	45.47	3365.5	45.47	10000.0	45.43	10086.3	45.84	10177.0
GR	46.37	10269.0	46.24	10358.4	42.83	10359.0	41.97	10365.5	42.77	10371.9
GR	45.50	10372.7	46.22	10460.9	46.16	10549.4	46.59	10639.9	47.16	10728.7
GR	50.00	19365.5								

CR60

SB	1.05	1.5	2.6		12.9	2	50.0	0.1		
X1	53020	16	10359.0	10371.9	30	30	30			
X1	89705	16	10359.0	10371.9	30	30	30			
X2			1.0	46.25	47.50					
X3	10							47.50	47.50	
BT	-11	10000.0	45.47		10086.3	45.43		10177.0	45.84	
BT		10269.0	46.37		10358.5	47.65		10365.5	47.50	
BT		10372.9	47.37		10460.9	46.22		10549.4	46.16	
BT		10639.9	46.59		10728.7	47.16				
GR	50.00	3365.5	45.47	3365.5	45.47	10000.0	45.43	10086.3	45.84	10177.0
GR	46.37	10269.0	46.24	10358.4	42.83	10359.0	41.97	10365.5	42.77	10371.9
GR	45.50	10372.7	46.22	10460.9	46.16	10549.4	46.59	10639.9	47.16	10728.7
GR	50.00	19365.5								

X1 53080 11 10344.8 10383.7 60 60 60

X1	89765	11	10344.8	10383.7	60	60	60			
GR	50.00	3365.5	47.26	3365.5	47.26	10336.5	46.40	10344.8	42.35	10356.3
GR	41.31	10365.5	42.07	10373.3	45.67	10383.7	46.87	10393.2	44.88	10464.4
GR	50.00	19365.5								

QT 3 431 511 675

X1	57150	12	10022.6	10044.6	4070	4070	4070			
X1	93835	12	10022.6	10044.6	4070	4070	4070			
GR	50.00	4032.1	47.24	4032.1	47.24	10000	46.73	10011.4	44.43	10022.6
GR	41.62	10027.7	40.71	10032.1	41.05	10036.9	43.65	10044.6	44.45	10068.2
GR	44.57	10135.9	49.00	15032.1						

X1 57200 12 10022.1 10045.6 50 50 50

X1	93885	12	10022.1	10045.6	50	50	50			
X3	10							45.55	45.55	
GR	50.00	4032.6	47.37	4032.6	47.37	10000.0	46.53	10014.9	44.10	10022.1
GR	40.70	10029.5	39.20	10032.6	40.55	10036.5	43.26	10045.6	45.39	10050.9
GR	45.27	10082.2	49.00	15032.6						

HAY MEADOW ROAD

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SC	1.013	0.4	3.0		5.67		21.0	2.3		
X1	57220	13	10023.7	10042.3	20	20	20			
X1	93905	13	10023.7	10042.3			20			
X2			2.0				20			
X3	10									
BT	-5	10000.0	47.34						46.05	46.05
BT		10050.9	45.39		10014.9	46.53			10032.6	46.05
GR	50.00	4032.6	47.37	4032.6	10082.2	45.27				
GR	40.93	10029.1	39.95	10032.6	47.34	10000.0	46.53	10014.9		10023.7
GR	45.27	10082.2	49.00	15032.6	40.72	10035.5	43.83	10042.3	45.39	10050.9
					50.00	15032.6				
X1	57315	13	10019.6	10045.6	95	95	95			
X1	94000	13	10019.6	10045.6						
GR	50.00	4034.2	47.50	4034.2	95	95	95			
GR	41.35	10028.8	40.36	10034.2	47.50	10000	47.12	10010.2	44.64	10019.6
GR	44.61	10114.2	49.00	15034.2	40.78	10040.1	43.54	10045.6	45.48	10067.8
					50.00	15034.2				
X1	58225	11	10019.1	10045.4	910	910	910			
X1	94910	11	10019.1	10045.4						
GR	51.00	4032.0	46.95	4032.0	910	910	910			
GR	41.58	10026.7	40.48	10032.0	46.95	10000	46.60	10009.4	44.64	10019.1
GR	51.00	15032.0			41.08	10037.4	44.19	10045.4	49.00	15032.0
X1	58275	10	10019.2	10047.0	50	50	50			
X1	94960	10	10019.2	10047.0						
X3	10				50	50	50			
GR	51.00	4031.8	45.93	4031.8	45.93	9902.6	47.04	45.58	45.58	
GR	40.83	10031.8	43.47	10047.0	44.38	10105.3	49.00	9996.9	43.96	10019.2
								15031.8	51.00	15031.8
PRIVATE RD. Nr CR65 & CR121										
SC	1.013	0.4	3.0		5.0		24.5	2.3		
X1	58320	10	10018.5	10047.0	45	45	45			
X1	95005	10	10018.5	10047.0						
X2			2.0				45			
X3	10									
BT	-6	9996.9	47.04		10000.0	47.07			46.08	46.08
BT		10031.8	46.08		10063.4	45.14			10017.5	46.48
GR	51.00	4031.8	45.93	4031.8	45.93	9902.6	47.04	10105.3	44.38	
GR	40.70	10031.8	43.77	10047.0	44.38	10105.3	49.00	9996.9	43.83	10018.5
								15031.8	51.00	15031.8
X1	58362	13	10018.8	10043.0	42	42	42			



X1	95047	13	10018.8	10043.0	42	42	42				
GR	51.00	4032.2	46.90	4032.2	46.90	10000	46.55	10010.6	44.57	10018.8	
GR	41.66	10027.2	40.65	10032.2	41.29	10036.7	43.81	10043.0	45.59	10061.9	
GR	44.68	10086.5	49.00	15032.2	51.00	15032.2					

X1 59590 13 9997.5 10016.8 1228 1228 1228

X1	96275	13	9997.5	10016.8	1228	1228	1228				
GR	51.00	8007.0	47.35	8007.0	47.35	9974.8	46.84	9984.2	43.73	9997.5	
GR	41.95	10002.7	41.52	10007.0	41.93	10011.5	43.78	10016.8	45.65	10038.4	
GR	44.58	10060.4	50.00	16007.0	51.00	16007.0					

X1 59700 9 10001.0 10012.6 110 110 110

X1	96385	9	10001.0	10012.6	110	110	110				
X3	10							45.15	45.15		
GR	51.00	8007.0	44.58	8007.0	44.58	10001.0	43.12	10001.6	42.32	10007.0	
GR	42.90	10011.6	44.50	10012.6	50.00	16007.0	51.00	16007.0			

CR61

SB	1.05	1.5	2.6		10.0	2.0	20.0	0.1			
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X1 59720 9 10001.7 10013.6 20 20 20

X1	96405	9	10001.7	10013.6	20	20	20				
X2			1.0	44.52	45.77						
X3	10							45.77	45.77		
BT	-6	9980.4	47.29		10000	45.68		10007	45.77		
BT		10013.8	45.83		10113.6	44.98		10207.2	45.34		
GR	51.00	8007.0	44.57	8007.0	44.57	10001.7	43.30	10002.7	42.23	10007.0	
GR	43.55	10012.4	45.03	10013.6	50.00	16007.0	51.00	16007.0			

X1 59805 13 9996.8 10019.3 85 85 85

X1	96490	13	9996.8	10019.3	85	85	85				
GR	51.00	8007.0	47.28	8007.0	47.28	9978.6	46.87	9987.8	45.15	9996.8	
GR	43.44	10003.5	42.73	10007.0	43.13	10010.9	44.52	10019.3	45.21	10025.7	
GR	44.80	10055.5	50.00	16007.0	51.00	16007.0					

X1 60225 11 9998.5 10022.0 420 420 420

X1	96910	11	9998.5	10022.0	420	420	420				
GR	51.00	9004.8	48.42	9004.8	48.42	9980.9	47.98	9990.3	45.84	9998.5	
GR	43.27	10004.8	42.51	10010.2	42.92	10014.3	45.03	10022.0	49.00	15004.8	
GR	51.00	15004.8									

X1 60290 12 9998.3 10018.4 65 65 65

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X1	96975	12	9998.3	10018.4	65	65	65			
X3	10							46.72	46.72	
GR	51.00	9008.7	48.41	9008.7	48.41	9980.0	47.82	9992.6	44.99	9998.3
GR	42.44	10004.8	42.36	10008.7	44.70	10018.4	46.49	10030.8	46.20	10053.1
GR	49.00	15008.7	51.00	15008.7						
PRIVATE ROAD										
SC	2.013	0.4	3.0		4.0		25.0	2.3		
X1	60320	12	9998.3	10019.5	30	30	30			
X1	97005	12	9998.3	10019.5		30	30			
X2			2.0			47.22				
X3	10							47.22	47.22	
BT	-5	9980.0	48.41			9992.6	47.82	10010.2	47.22	
BT		10030.8	46.49			10053.1	46.20			
GR	51.00	9010.7	48.41	9010.7		48.41	9980.0	47.82	9992.6	46.00
GR	42.47	10007.2	42.44	10010.7	44.71	10019.5	46.49	10030.8	46.20	9998.3
GR	49.00	15010.7	51.00	15010.7						10053.1
X1	60380	11	9998.3	10021.2	60	60	60			
X1	97065	11	9998.3	10021.2		60	60			
GR	51.00	9010.2	47.96	9010.2	47.96	9980.7	47.47	9990.3	45.81	9998.3
GR	43.45	10004.8	42.65	10010.2	43.04	10014.8	44.79	10021.2	49.00	15010.2
GR	51.00	15010.2								
X1	60570	11	9999.4	10019.8	190	190	190			
X1	97255	11	9999.4	10019.8		190	190			
GR	52.00	9009.3	47.84	9009.3	47.84	9981.2	47.35	9992.0	45.19	9999.4
GR	43.30	10005.4	42.77	10009.3	42.84	10013.3	44.17	10019.8	49.00	15009.3
GR	52.00	15009.3								
X1	60705	10	10000.0	10019.9	135	135	135			
X1	97390	10	10000.0	10019.9		135	135			
X3	10							46.14	46.14	
GR	52.00	9011.5	47.86	9011.5	47.86	9981	45.26	10000	42.41	10006.9
GR	42.23	10011.5	43.94	10019.9	46.40	10030	49.00	15011.5	52.00	15011.5
PASTURE ROAD										
SC	2.013	0.4	3.0		4.0		30.0	2.3		
X1	60740	10	10000.0	10021.7	35	35	35			
X1	97425	10	10000.0	10021.7		35	35			
X2			2.0			46.64				
X3	10							46.64	46.64	
BT	-5	9981	47.86			9994	46.98	10009.3	46.64	
BT		10019.2	46.40			10030	46.40			
GR	52.00	9006.9	47.86	9006.9	47.86	9981	45.31	10000	42.35	10006.9
GR	42.39	10011.6	43.23	10021.7	46.40	10030	49.00	15006.9	52.00	15006.9



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T1 BRUNNER DITCH.....2000 BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: BRUNNERD.IH2.....25 YEAR FREQUENCY  
T3 MODEL CREATED BY KLOTZ ASSOCIATES/BAKER & LAWSON..... 11/00

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3			.00053					
J2	NPROP	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							

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T1 BRUNNER DITCH.....2000 BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: BRUNNERD.IH2.....100 YEAR FREQUENCY  
T3 MODEL CREATED BY KLOTZ ASSOCIATES/BAKER & LAWSON..... 11/00

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		4			.00053					
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1							

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\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES

THIS RUN EXECUTED 25AUG02 18:41:30

Version 4.6.2; May 1991

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NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

L CREATED BY KLOTZ ASSOC

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
.000	1403.00	8.11	2.53	.00	6.45	7.98	12.88	866.45	61.76	.00	393.03
.000	1666.00	8.44	2.61	.00	6.45	7.98	12.88	954.19	57.27	.00	459.61
.000	2178.00	8.95	2.78	.00	6.45	7.98	12.88	1110.41	50.98	.00	561.46
* 12335.000	1403.00	17.41	3.44	10.00	16.45	17.98	22.88	1022.71	72.89	12335.00	312.28
* 12335.000	1666.00	17.70	3.57	10.00	16.45	17.98	22.88	1130.23	67.84	12335.00	341.29
* 12335.000	2178.00	18.21	3.76	10.00	16.45	17.98	22.88	1313.99	60.33	12335.00	413.71
* 29335.000	1403.00	28.36	2.27	20.00	26.45	27.98	32.88	817.08	58.24	17000.00	444.90
* 29335.000	1666.00	28.69	2.36	20.00	26.45	27.98	32.88	900.38	54.04	17000.00	510.53
* 29335.000	2178.00	29.22	2.51	20.00	26.45	27.98	32.88	1044.98	47.98	17000.00	614.46
44835.000	1403.00	33.68	2.00	25.00	31.45	32.98	37.88	761.79	54.30	15500.00	506.46
44835.000	1666.00	34.01	2.08	25.00	31.45	32.98	37.88	838.18	50.31	15500.00	573.03
44835.000	2178.00	34.56	2.20	25.00	31.45	32.98	37.88	967.51	44.42	15500.00	682.07
* 52335.000	1403.00	36.86	2.96	26.82	35.67	38.41	39.47	1043.03	74.34	7500.00	1711.17
* 52335.000	1666.00	37.05	2.83	26.82	35.67	38.41	39.47	1031.63	61.92	7500.00	1984.93
52335.000	2178.00	37.36	2.62	26.82	35.67	38.41	39.47	1008.34	46.30	7500.00	2411.62
* 64705.000	1403.00	37.43	.41	26.82	35.67	38.41	39.47	160.13	11.41	12370.00	3468.67
* 64705.000	1666.00	37.63	.44	26.82	35.67	38.41	39.47	175.09	10.51	12370.00	3665.82
* 64705.000	2178.00	37.95	.48	26.82	35.67	38.41	39.47	201.63	9.26	12370.00	3991.93
64925.000	1403.00	37.44	.40	27.06	35.68	38.71	39.09	162.57	11.59	220.00	3471.67
64925.000	1666.00	37.63	.43	27.06	35.68	38.71	39.09	178.10	10.69	220.00	3668.76
64925.000	2178.00	37.96	.47	27.06	35.68	38.71	39.09	205.66	9.44	220.00	3994.92
* 69115.000	1072.00	37.17	6.12	29.67	43.55	45.43	44.12	1072.00	100.00	4190.00	41.40
* 69115.000	1296.00	37.21	7.32	29.67	43.55	45.43	44.12	1296.00	100.00	4190.00	41.61
* 69115.000	1750.00	36.92	10.60	29.67	43.55	45.43	44.12	1750.00	100.00	4190.00	40.25

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
* 69235.000	1072.00	37.81	3.86	29.60	29.76	29.72	44.15	377.69	35.23	120.00	89.96
* 69235.000	1296.00	38.13	4.34	29.60	29.76	29.72	44.15	440.49	33.99	120.00	95.39
* 69235.000	1750.00	38.87	4.97	29.60	29.76	29.72	44.15	549.20	31.38	120.00	108.10
69255.000	1072.00	37.73	4.90	29.66	29.90	29.66	44.15	456.06	42.54	20.00	88.51
69255.000	1296.00	38.03	5.46	29.66	29.90	29.66	44.15	527.65	40.71	20.00	93.69
69255.000	1750.00	38.76	6.11	29.66	29.90	29.66	44.15	644.12	36.81	20.00	106.27
* 69335.000	1072.00	37.73	5.21	30.32	41.91	39.37	42.85	1072.00	100.00	80.00	48.97
* 69335.000	1296.00	38.02	5.90	30.32	41.91	39.37	42.85	1296.00	100.00	80.00	50.55
* 69335.000	1750.00	38.68	6.87	30.32	41.91	39.37	42.85	1750.00	100.00	80.00	54.28
* 75855.000	1072.00	43.03	1.98	34.76	41.45	42.98	47.88	678.93	63.33	6520.00	378.41
* 75855.000	1296.00	43.44	2.02	34.76	41.45	42.98	47.88	748.10	57.72	6520.00	460.84
* 75855.000	1750.00	44.14	2.07	34.76	41.45	42.98	47.88	863.25	49.33	6520.00	598.75
* 75905.000	1072.00	43.33	1.75	34.76	41.45	42.98	47.88	634.65	59.20	50.00	438.42
* 75905.000	1296.00	43.84	1.72	34.76	41.45	42.98	47.88	683.58	52.75	50.00	540.17
* 75905.000	1750.00	44.64	1.71	34.76	41.45	42.98	47.88	770.68	44.04	50.00	698.53
* 89600.000	814.00	47.55	2.39	40.68	44.75	45.14	50.00	471.33	57.90	13695.00	7075.42
* 89600.000	972.00	47.60	2.35	40.68	44.75	45.14	50.00	467.07	48.05	13695.00	7273.49
* 89600.000	1286.00	47.72	2.11	40.68	44.75	45.14	50.00	428.71	33.34	13695.00	7691.73
* 89675.000	814.00	47.61	.10	41.97	42.83	42.77	50.00	6.47	.80	75.00	8734.54
* 89675.000	972.00	47.65	.11	41.97	42.83	42.77	50.00	7.59	.78	75.00	8844.92
* 89675.000	1286.00	47.75	.14	41.97	42.83	42.77	50.00	9.62	.75	75.00	9124.92
* 89705.000	814.00	47.62	.10	41.97	42.83	42.77	50.00	6.45	.79	30.00	8753.13
* 89705.000	972.00	47.65	.11	41.97	42.83	42.77	50.00	7.57	.78	30.00	8867.38
* 89705.000	1286.00	47.76	.14	41.97	42.83	42.77	50.00	9.54	.74	30.00	9177.80
* 89765.000	814.00	47.62	.22	41.31	46.40	45.67	50.00	38.38	4.71	60.00	11857.24
* 89765.000	972.00	47.65	.25	41.31	46.40	45.67	50.00	44.08	4.53	60.00	11922.55
* 89765.000	1286.00	47.76	.29	41.31	46.40	45.67	50.00	52.62	4.09	60.00	12100.00
93835.000	431.00	47.63	.14	40.71	44.43	43.65	49.00	18.02	4.18	4070.00	9484.03
93835.000	511.00	47.67	.16	40.71	44.43	43.65	49.00	20.52	4.02	4070.00	9529.20
93835.000	675.00	47.78	.19	40.71	44.43	43.65	49.00	24.46	3.62	4070.00	9647.63
* 93885.000	431.00	47.63	.26	39.20	44.10	43.26	49.00	36.95	8.57	50.00	9181.46
* 93885.000	511.00	47.67	.28	39.20	44.10	43.26	49.00	41.39	8.10	50.00	9236.03
* 93885.000	675.00	47.78	.32	39.20	44.10	43.26	49.00	47.29	7.01	50.00	9378.63
93905.000	431.00	47.64	.24	39.95	44.00	43.83	50.00	27.06	6.28	20.00	9193.29
93905.000	511.00	47.69	.27	39.95	44.00	43.83	50.00	29.98	5.87	20.00	9257.18
93905.000	675.00	47.83	.29	39.95	44.00	43.83	50.00	32.63	4.83	20.00	9448.82
* 94000.000	431.00	47.64	.17	40.36	44.64	43.54	50.00	25.88	6.01	95.00	9474.64
* 94000.000	511.00	47.69	.19	40.36	44.64	43.54	50.00	29.42	5.76	95.00	9528.67
94000.000	675.00	47.83	.22	40.36	44.64	43.54	50.00	34.08	5.05	95.00	9690.57

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
* 94910.000	431.00	47.64	.10	40.48	44.64	44.19	51.00	15.26	3.54	910.00	9592.05
* 94910.000	511.00	47.69	.12	40.48	44.64	44.19	51.00	17.34	3.39	910.00	9642.69
* 94910.000	675.00	47.83	.13	40.48	44.64	44.19	51.00	20.34	3.01	910.00	9792.95
* 94960.000	431.00	47.64	.06	40.83	43.96	43.47	51.00	8.34	1.94	50.00	9549.99
* 94960.000	511.00	47.69	.06	40.83	43.96	43.47	51.00	9.62	1.88	50.00	9601.72
* 94960.000	675.00	47.83	.08	40.83	43.96	43.47	51.00	11.74	1.74	50.00	9756.17
95005.000	431.00	47.65	.06	40.70	43.83	43.77	51.00	8.54	1.98	45.00	9559.85
95005.000	511.00	47.70	.06	40.70	43.83	43.77	51.00	9.83	1.92	45.00	9614.72
95005.000	675.00	47.86	.07	40.70	43.83	43.77	51.00	11.93	1.77	45.00	9779.75
* 95047.000	431.00	47.65	.12	40.65	44.57	43.81	51.00	15.80	3.67	42.00	9453.84
* 95047.000	511.00	47.70	.13	40.65	44.57	43.81	51.00	17.80	3.48	42.00	9512.75
* 95047.000	675.00	47.86	.15	40.65	44.57	43.81	51.00	20.37	3.02	42.00	9689.92
96275.000	431.00	47.65	.17	41.52	43.73	43.78	51.00	17.00	3.94	1228.00	5421.99
* 96275.000	511.00	47.70	.19	41.52	43.73	43.78	51.00	19.45	3.81	1228.00	5478.66
* 96275.000	675.00	47.86	.22	41.52	43.73	43.78	51.00	23.17	3.43	1228.00	5648.70
* 96385.000	431.00	47.65	.05	42.32	44.58	44.50	51.00	3.05	.71	110.00	5440.37
* 96385.000	511.00	47.70	.06	42.32	44.58	44.50	51.00	3.56	.70	110.00	5496.99
* 96385.000	675.00	47.86	.08	42.32	44.58	44.50	51.00	4.49	.67	110.00	5666.30
* 96405.000	431.00	47.66	.06	42.23	44.57	45.03	51.00	3.28	.76	20.00	5176.50
* 96405.000	511.00	47.71	.07	42.23	44.57	45.03	51.00	3.82	.75	20.00	5240.71
* 96405.000	675.00	47.87	.08	42.23	44.57	45.03	51.00	4.82	.71	20.00	5431.04
* 96490.000	431.00	47.66	.16	42.73	45.15	44.52	51.00	14.08	3.27	85.00	5320.25
* 96490.000	511.00	47.71	.18	42.73	45.15	44.52	51.00	16.09	3.15	85.00	5381.19
* 96490.000	675.00	47.87	.20	42.73	45.15	44.52	51.00	19.16	2.84	85.00	5561.82
96910.000	431.00	47.66	.19	42.51	45.84	45.03	51.00	18.29	4.24	420.00	3330.56
96910.000	511.00	47.71	.22	42.51	45.84	45.03	51.00	21.05	4.12	420.00	3397.82
96910.000	675.00	47.87	.26	42.51	45.84	45.03	51.00	25.52	3.78	420.00	3596.82
* 96975.000	431.00	47.66	.60	42.36	44.99	44.70	51.00	52.11	12.09	65.00	2644.76
* 96975.000	511.00	47.71	.66	42.36	44.99	44.70	51.00	57.91	11.33	65.00	2739.89
* 96975.000	675.00	47.87	.71	42.36	44.99	44.70	51.00	63.93	9.47	65.00	3021.57
* 97005.000	431.00	48.00	.37	42.44	46.00	44.71	51.00	33.93	7.87	30.00	3247.64
* 97005.000	511.00	48.23	.33	42.44	46.00	44.71	51.00	32.35	6.33	30.00	3667.95
* 97005.000	675.00	48.65	.29	42.44	46.00	44.71	51.00	30.37	4.50	30.00	5379.32
* 97065.000	431.00	48.00	.13	42.65	45.81	44.79	51.00	12.73	2.95	60.00	4813.93
* 97065.000	511.00	48.23	.13	42.65	45.81	44.79	51.00	13.55	2.65	60.00	5092.13
* 97065.000	675.00	48.65	.13	42.65	45.81	44.79	51.00	14.94	2.21	60.00	5586.36
97255.000	431.00	48.00	.10	42.77	45.19	44.17	52.00	8.87	2.06	190.00	4966.67
97255.000	511.00	48.23	.10	42.77	45.19	44.17	52.00	9.68	1.89	190.00	5208.58
97255.000	675.00	48.65	.11	42.77	45.19	44.17	52.00	11.11	1.65	190.00	5638.87



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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
* 97390.000	431.00	48.00	.48	42.23	45.26	43.94	52.00	46.16	10.71	135.00	4081.30
* 97390.000	511.00	48.23	.41	42.23	45.26	43.94	52.00	40.92	8.01	135.00	4530.61
* 97390.000	675.00	48.65	.32	42.23	45.26	43.94	52.00	35.05	5.19	135.00	5329.37
97425.000	431.00	48.17	.38	42.35	45.31	43.23	52.00	41.81	9.70	35.00	4421.48
97425.000	511.00	48.44	.31	42.35	45.31	43.23	52.00	36.73	7.19	35.00	4935.56
* 97425.000	675.00	48.95	.24	42.35	45.31	43.23	52.00	30.75	4.56	35.00	5907.21
* 97555.000	431.00	48.18	.09	42.15	44.97	44.09	52.00	12.30	2.85	130.00	5165.09
* 97555.000	511.00	48.44	.09	42.15	44.97	44.09	52.00	13.22	2.59	130.00	5436.99
* 97555.000	675.00	48.95	.09	42.15	44.97	44.09	52.00	14.77	2.19	130.00	5951.46

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SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	12335.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	12335.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	12335.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	29335.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	29335.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	29335.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	52335.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	52335.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	64705.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	64705.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	64705.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	69115.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	69115.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	69115.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	69235.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	69235.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	69235.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	69335.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	69335.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	69335.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	75855.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	75855.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	75855.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
NOTE SECNO=	75905.000	PROFILE=	1	WSEL	BASED	ON	X5	CARD
NOTE SECNO=	75905.000	PROFILE=	2	WSEL	BASED	ON	X5	CARD
NOTE SECNO=	75905.000	PROFILE=	3	WSEL	BASED	ON	X5	CARD
WARNING SECNO=	89600.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	89600.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	89600.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	89675.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	89675.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	89675.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
CAUTION SECNO=	89705.000	PROFILE=	1	HYDRAULIC	JUMP	D.S.		
CAUTION SECNO=	89705.000	PROFILE=	2	HYDRAULIC	JUMP	D.S.		
CAUTION SECNO=	89705.000	PROFILE=	3	HYDRAULIC	JUMP	D.S.		
WARNING SECNO=	89765.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	89765.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	89765.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

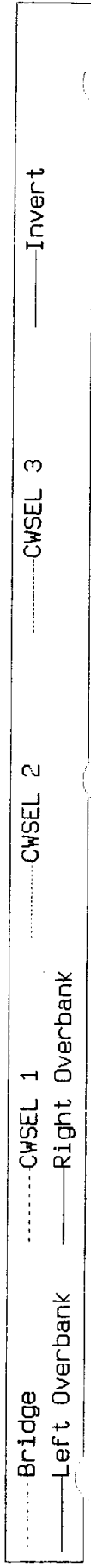
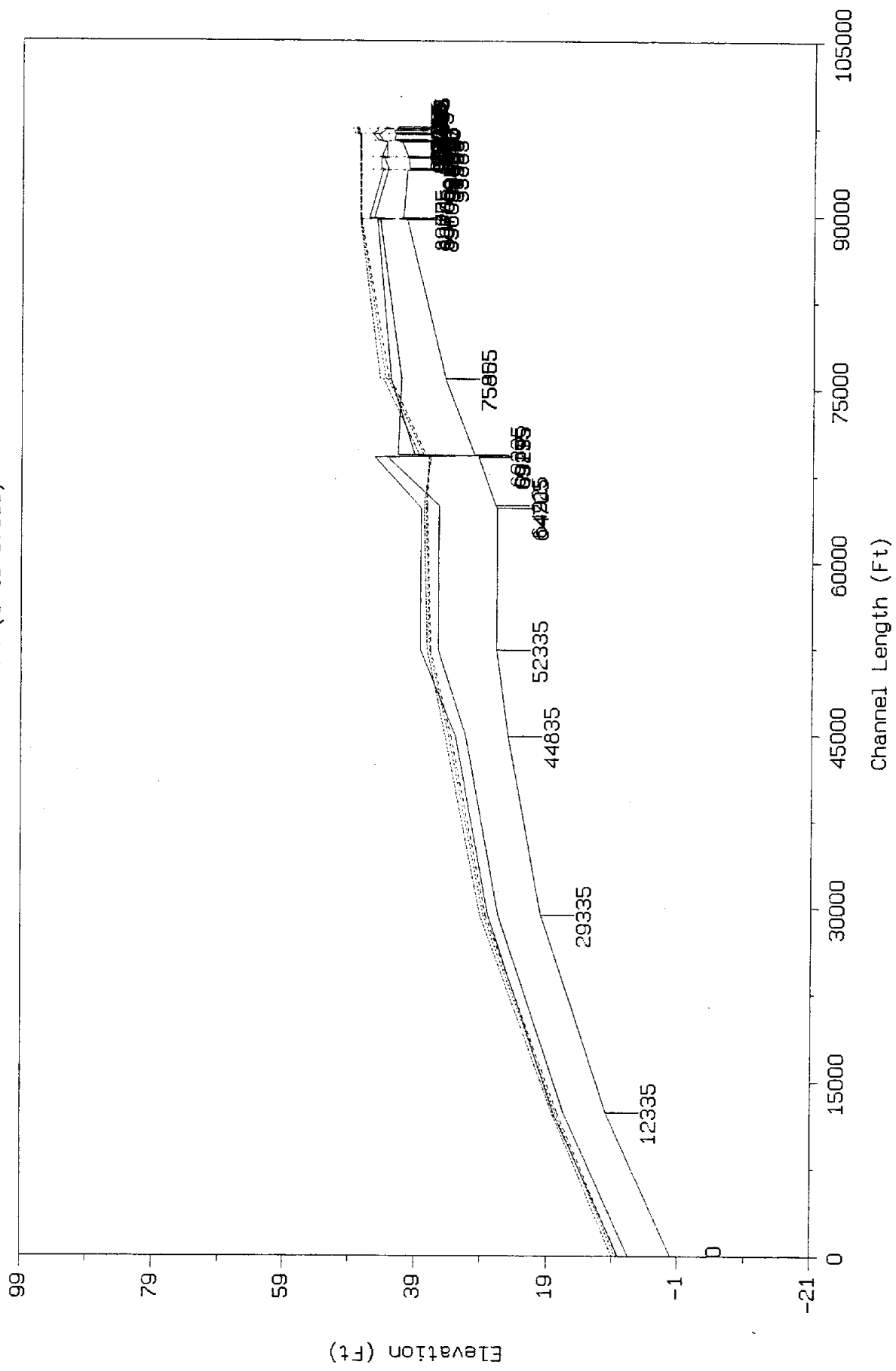
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WARNING SECNO=	93885.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	93885.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	93885.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	94000.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	94000.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	94910.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	94910.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	94910.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	94960.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	94960.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	94960.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	95047.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	95047.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	95047.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	96275.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	96275.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	96385.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	96385.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	96385.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
CAUTION SECNO=	96405.000	PROFILE=	1	HYDRAULIC	JUMP	D.S.		
CAUTION SECNO=	96405.000	PROFILE=	2	HYDRAULIC	JUMP	D.S.		
CAUTION SECNO=	96405.000	PROFILE=	3	HYDRAULIC	JUMP	D.S.		
WARNING SECNO=	96490.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	96490.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	96490.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	96975.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	96975.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	96975.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	97005.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	97005.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	97005.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	97065.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	97065.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	97065.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	97390.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	97390.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	97390.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	97425.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	97555.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	97555.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

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WARNING SECNO= 97555.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

L CREATED BY KLOTZ ASSOC  
 Cross-Sections (0 to 97555)



\*\*\*\*\*  
\* HEC-2 WATER SURFACE PROFILES \*  
\* \*  
\* rsion 4.6.2; May 1991 \*  
\* \*  
\* RUN DATE 21AUG02 TIME 10:09:26 \*  
\*\*\*\*\*

\*\*\*\*\*  
\* U.S. ARMY CORPS OF ENGINEERS \*  
\* HYDROLOGIC ENGINEERING CENTER \*  
\* 609 SECOND STREET, SUITE D \*  
\* DAVIS, CALIFORNIA 95616-4687 \*  
\* (916) 756-1104 \*  
\*\*\*\*\*

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X   X  XXXXXXXX  XXXXX          XXXXX
X   X  X          X   X          X   X
X   X  X          X           X
XXXXXXXX XXXX  X           XXXXX  XXXXX
X   X  X          X           X
X   X  X          X   X          X
X   X  XXXXXXXX  XXXXX          XXXXXXXX
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21AUG02 10:09:26

THIS RUN EXECUTED 21AUG02 10:09:26

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

T1 NORTH HAYES CREEK..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
 T3 FILENAME: NORHAYES.IH2.....10 YEAR FREQUENCY  
 T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

NOTES\*\*\*\*\*  
 REVISED MODEL INCLUDES 2000 BAKER & LAWSON SURVEY SECTIONS AND REVISED  
 BRIDGE SECTIONS  
 MODEL KEYED IN FROM 03 FEB 81 RUN DATE FEMA MODEL  
 ORIGINAL INPUT DATA PROVIDED BY BRAZORIA COUNTY FLOOD PLAIN ADMINISTRATOR  
 \*\*\*\*\*

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2							34.85	
J2	NPROF	IPL0T	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-7							
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38	43	1	26	42	23	24	63	14	60
	39	4								
J5	LPRNT	NUMSEC	*****REQUESTED SECTION NUMBERS*****							
	-10	-10								

NC	0.08	0.08	0.06	0.1	0.3
QT	3	1008	1285	1743	

2000 BAKER & LAWSON SURVEY SECTION										
X1	17	15	10047.3	10095.1						
GR	39.00	8071.0	37.00	8071.00	34.29	10000.0	34.93	10033.5	33.18	10047.3
GR	25.88	10065.3	22.34	10071.0	26.85	10078.6	32.49	10095.1	34.34	10113.2
GR	35.96	10142.3	34.94	10172.8	34.91	10193.8	37.00	13071.0	39.00	13071.0

NC			0.3		0.5					
2000 BAKER & LAWSON SURVEY SECTION										
X1	16.9	19	10123.4	10160.7	450.	350.	400.			
X3	10							33.34	33.34	
GR	40.00	8144.2	38.00	8144.2	34.67	10000.0	34.54	10024.7	34.59	10049.1
GR	34.79	10072.6	35.35	10095.6	30.54	10123.4	25.99	10138.2	23.26	10144.2
GR	26.30	10149.6	32.65	10160.7	35.35	10188.6	35.71	10211.9	35.58	10234.9
GR	35.42	10257.0	35.33	10277.8	37.00	13144.2	39.00	13144.2		

ACCESS ROAD NEAR CR 308 & CR 121

SB	1.05	1.56	2.9		4.6	1.3	220.	2.	23.49	23.26
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2000 BAKER & LAWSON SURVEY SECTION

ACCESS ROAD NEAR CR 308 & CR 121

X1	16.8	19	10124.0	10160.4	14.5	14.5	14.5			
X2			1	32.34	34.34					
X3	10							34.34	34.34	
BT	-15	8146.0	38.00		10000.0	34.67		10024.7	34.54	
BT		10049.1	34.59		10072.6	34.79		10095.6	35.35	
BT		10124.0	34.34		10146.0	34.36		10160.4	34.64	
BT		10188.1	35.35		10211.4	35.71		10234.4	35.58	
BT		10256.5	35.42		10277.4	35.33		13146.0	37.00	
GR	40.00	8146.0	38.00	8146.0	34.67	10000.0	34.54	10024.7	34.59	10049.1
GR	34.79	10072.6	35.35	10095.6	30.77	10124.0	25.64	10138.5	23.49	10146.0
GR	26.50	10152.3	32.71	10160.4	35.35	10188.1	35.71	10211.4	35.58	10234.4
GR	35.42	10256.5	35.33	10277.4	37.00	13146.0	39.00	13146.0		

X1	16.7	19	10124.0	10160.4	50.	50.	50.			
GR	40.00	8146.0	38.00	8146.0	34.67	10000.0	34.54	10024.7	34.59	10049.1
GR	34.79	10072.6	35.35	10095.6	30.77	10124.0	25.64	10138.5	23.49	10146.0
GR	26.50	10152.3	32.71	10160.4	35.35	10188.1	35.71	10211.4	35.58	10234.4
GR	35.42	10256.5	35.33	10277.4	37.00	13146.0	39.00	13146.0		

NC				0.1	0.3					
QT	3	1008	1285	1743						
X1	16.0	13	11544.	11589.	800	850.	1080.			
GR	40.0	9068.	39.2	11000.	39.	11355.	38.2	11456.	38.4	11528.
GR	38.3	11544.	30.3	11562.	28.7	11568.	30.3	11573.	38.4	11589.
GR	39.	11604.	39.2	11735.	40.0	14068.				

2000 BAKER & LAWSON SURVEY SECTION

X1	15.9	13	11544.	11589.	2370.	2420.	2400.		0.5	
GR	40.1	9068.	39.2	11000.	39.	11355.	38.2	11456.	38.4	11528.
GR	38.3	11544.	30.3	11562.	28.7	11568.	30.3	11573.	38.4	11589.
GR	39.	11604.	39.2	11735.	40.1	14068.				



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NC				0.3	0.5					
X1	15.8					100.	100.	100.		
X3	10								38.5	38.5
ACCESS ROAD										
SB	1.05	1.56	2.9		5.1	2.	182.	2.	28.7	28.7
ACCESS ROAD										
X1	15.7				15.	15.	15.			
X2			1	38.	39.1					
X3	10								39.1	39.1
BT	-10	9068.	40.6		11000.	39.7		11355.	39.5	
BT		11456.	38.7		11528.	38.9		11544.	38.8	
BT		11589.	38.9		11604.	39.5		11735.	39.7	
BT		14068.	40.6							
X1	15.6	13	11544.	11589.	50.	50.	50.		0.5	
GR	40.15	9068.	39.2	11000.	39.	11355.	38.2	11456.	38.4	11528.
GR	38.3	11544.	30.3	11562.	28.7	11568.	30.3	11573.	38.4	11589.
GR	39.	11604.	39.2	11735.	40.15	14068.				
NC	0.035	0.035	0.045	0.1	0.3					
QT	3	800	1000	1300						
2000 BAKER & LAWSON SURVEY SECTION										
X1	15.4	13	10030.8	10080.5	3300.	2900.	3150.			
X3	10									
GR	43.00	953.7	42.00	953.7	40.93	10000.0	39.67	10030.8	34.02	10044.4
GR	32.03	10053.7	34.20	10064.7	41.96	10080.5	43.12	10113.0	41.02	10183.9
GR	40.85	10267.9	41.18	10431.7	43.00	60053.7				
NC				0.3	0.5					
2000 BAKER & LAWSON SURVEY SECTION										
X1	15.3	12	10000.0	10041.5	100.	100.	100.			
X3	10			10000.0	40.5	10115.3	41.79	40.5	40.5	
GR	43.00	9022.3	42.00	9022.3	37.21	10000.0	33.48	10005.0	31.40	10022.3
GR	32.47	10035.3	37.10	10041.5	41.79	10115.3	41.53	10208.3	41.71	10302.0
GR	42.02	10396.3	43.00	60022.3						
PRIVATE BRIDGE DOWN STREAM OF CR 67										
SB	1.05	1.56	2.8		7.9	1.7	178.	2.	31.40	31.40
2000 BAKER & LAWSON SURVEY SECTION										

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PRIVATE BRIDGE DOWN STREAM OF CR 67

X1	15.2	12	10000.	10041.5	16.	16.	16.			
X2			1	40.	41.					
X3	10			10000.0	41.	10115.3	41.79	41.	41.	
BT	-11	9022.3	42.0		9486.3	42.3		9695.3	41.9	
BT		9929.3	41.1		10004.3	41.		10040.3	41.	
BT		10115.3	41.79		10208.3	41.53		10302.0	41.71	
BT		10396.3	42.02		60022.3	43.00				
GR	43.00	9022.3	42.00	9022.3	37.21	10000.0	33.48	10005.0	31.40	10022.3
GR	32.47	10035.3	37.10	10041.5	41.79	10115.3	41.53	10208.3	41.71	10302.0
GR	42.02	10396.3	43.00	60022.3						

2000 BAKER & LAWSON SURVEY SECTION

X1	15.1	8	10000.0	10054.8	50.	50.	50.			
GR	43.00	9029.7	42.00	9029.7	40.39	10000.0	33.65	10018.7	31.94	10029.7
GR	34.00	10040.3	42.06	10054.8	43.00	60029.7				

NC 0.1 0.3

X1	15.	15	2964	3000	330.	450.	400.		0.4	
X3				2960	41.5	3087	42.9			
GR	42.3	2382.	42.3	2383.	42.3	2384.	42.3	2385.	40.7	2837.
GR	41.1	2960.	39.	2964.	34.7	2972.	32.4	2982.	34.7	2991.
GR	39.3	3000.	41.3	3004.	42.5	3087.	41.5	3182.	41.9	3842.

2000 BAKER & LAWSON SURVEY SECTION

X1	13.9	12	10047.2	10102.2	2200	2050	2150			
X3	10									
GR	45.00	8081.1	44.00	8081.1	41.81	10000.0	40.95	10047.2	35.72	10070.8
GR	34.49	10081.1	35.45	10087.0	43.86	10102.2	45.08	10136.7	42.58	10232.1
GR	43.00	14781.1	45.00	14781.1						

NC 0.3 0.5

2000 BAKER & LAWSON SURVEY SECTION

X1	13.8	15	10379.4	10417.4	100.	100.	100.			
X3	10							43.34	43.34	
GR	44.67	10000.	44.32	10093.7	43.96	10189.5	43.85	10282.1	43.69	10375.5
GR	40.22	10379.4	36.35	10399.1	34.30	10404.2	35.52	10408.7	40.08	10417.4
GR	43.84	10421.5	43.92	10518.6	43.88	10614.8	44.12	10710.1	44.27	10803.5

CR 67

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILE 11/97

SB	1.05	1.56	2.8		11.5	2.	259	1.5	34.3	34.4
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2000 BAKER & LAWSON SURVEY SECTION

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CR 67										
X1	13.7	15	10379.4	10417.4	24.	24.	24.			
X2			1	42.34	44.34					
X3	10									
BT	-12	10000.0	44.67		10093.7	44.32		44.34	44.34	
BT		10282.1	43.85		10379.4	44.39		10189.5	43.96	
BT		10417.4	44.34		10421.5	43.84		10399.1	44.54	
BT		10614.8	43.88		10710.1	44.12		10518.6	43.92	
GR	44.67	10000.	44.32	10093.7	43.96	10189.5	43.85	10803.5	44.27	
GR	40.22	10379.4	36.35	10399.1	34.30	10404.2	35.52	10282.1	43.69	10375.5
GR	43.84	10421.5	43.92	10518.6	43.88	10614.8	44.12	10408.7	40.08	10417.4
								10710.1	44.27	10803.5

2000 BAKER & LAWSON SURVEY SECTION

X1	13.6	13	10144.1	10195.4	50.	50.	50.			
X3				10144.1	41.68	10215.4	44.72			
GR	46.00	8167.6	44.00	8167.6	42.13	10000.0	41.68	10144.1	35.68	10158.7
GR	34.35	10167.6	34.71	10174.4	43.65	10195.4	44.72	10215.4	43.10	10270.4
GR	42.33	10319.8	43.00	14867.6	45.00	14867.6				

NC										
				0.1	0.3					
X1	13.3	25	3780.	3830.	550.	450.	500.			-0.1
X3	10									
GR	45.	1301.	45.	1302.	44.6	1651.	43.8	2331.	43.8	2856.
GR	43.2	3324.	43.4	3599.	43.	3686.	42.8	3737.	42.2	3755.
GR	44.2	3780.	38.2	3794.	37.4	3796.	34.5	3807.	37.4	3820.
GR	38.	3821.	44.	3830.	44.4	3896.	42.8	3926.	43.4	4060.
GR	43.2	4227.	43.2	4278.	43.4	4420.	43.1	8507.	45.1	8507.

NC										
				0.3	0.5					
X1	13.2	27	3794.	3821.	100.	100.	100.			
X3	10							44.2	44.	
GR	44.4	1000.	45.	1302.	44.6	1651.	43.8	2331.	43.8	2856.
GR	43.2	3324.	43.4	3599.	43.	3686.	42.8	3737.	42.2	3755.
GR	44.2	3780.	38.2	3794.	37.4	3796.	34.5	3807.	37.4	3820.
GR	38.	3821.	44.	3830.	44.4	3896.	42.8	3926.	43.4	4060.
GR	43.2	4227.	43.2	4278.	43.4	4420.	43.	4767.	43.2	5045.
GR	43.0	8507.	45.0	8507.						

PRIVATE ROAD

SB,	1.05	1.56	2.8		19.5	1.	173.	0.25	34.5	34.5
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PRIVATE ROAD

X1	13.1	27	3794	3821	12.5	12.5	12.5			
X2			1	41.4	42.4					
X3	10							44.2	44.	
BT	-23	1000.	44.4		1302.	45.		1651.	44.6	
BT		2331.	43.8		2856.	43.8		3324.	43.2	
BT		3599.	43.4		3686.	43.		3737.	42.8	
BT		3755.	42.2		3780.	44.2		3794.	44.	

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BT		3821.	44.		3830.	44.		3896.	44.4	
BT		3926.	42.8		4060.	43.4		4227.	43.2	
BT		4278.	43.2		4420.	43.4		4767.	43.	
BT		5045.	43.2		8507.	43.				
GR	44.4	1000.	45.	1302.	44.6	1651.	43.8	2331.	43.8	2856.
GR	43.2	3324.	43.4	3599.	43.	3686.	42.8	3737.	42.2	3755.
GR	44.2	3780.	38.2	3794.	37.4	3796.	34.5	3807.	37.4	3820.
GR	38.	3821.	44.	3830.	44.4	3896.	42.8	3926.	43.4	4060.
GR	43.2	4227.	43.2	4278.	43.4	4420.	43.	4767.	43.2	5045.
GR	43.0	8507.	45.0	8507.						

X1	13.	25	3780.	3830.	280.	280.	280.		0.1	
X3				3780.	44.3	3896.	44.5			
GR	45.	1301.	45.	1302.	44.6	1651.	43.8	2331.	43.8	2856.
GR	43.2	3324.	43.4	3599.	43.	3686.	42.8	3737.	42.2	3755.
GR	44.2	3780.	38.2	3794.	37.4	3796.	34.5	3807.	37.4	3820.
GR	38.	3821.	44.	3830.	44.4	3896.	42.8	3926.	43.4	4060.
GR	43.2	4227.	43.2	4278.	43.4	4420.	42.9	8507.	44.9	8507.

NC	0.035	0.035	0.050	0.1	0.3					
QT	3	640	758	993						

2000 BAKER & LAWSON SURVEY SECTION

X1	11.39	10	10010.8	10064.2	2800.	3100.	3020.			
X3				10000.0	45.81	10085.5	47.13			
GR	47.00	7037.7	45.81	7037.7	45.81	10000.0	44.35	10010.8	37.40	10029.2
GR	36.18	10037.7	37.51	10047.6	44.87	10064.2	47.13	10085.5	44.72	10174.1

NC			0.3	0.5						
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2000 BAKER & LAWSON SURVEY SECTION

X1	11.38	10	10091.1	10124.0	100.	100.	100.			
X3	10							45.1	45.1	
GR	47.00	7106.5	45.00	7106.5	44.69	10000.0	42.13	10091.1	37.66	10099.0
GR	36.22	10106.5	37.80	10115.8	40.52	10124.0	45.00	13406.5	47.00	13406.5

2ND PRIVATE BRIDGE DOWN STREAM OF CR 65

SB	1.05	1.56	2.6		31.	1.3	200.	0.25	36.25	36.22
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2000 BAKER & LAWSON SURVEY SECTION

2ND PRIVATE BRIDGE DOWN STREAM OF CR 65

X1	11.37	13	10091.5	10126.0	12.	12.	12.			
X2			1	44.3	45.91					
X3	10							45.91	45.91	
BT	-9	7109.9	45.00		10000.0	44.69		10091.5	45.91	
BT		10109.9	46.32		10126.0	46.34		10484.9	42.00	
BT		10859.9	43.00		11609.9	44.00		13409.9	45.00	
GR	47.00	7109.9	45.00	7109.9	44.69	10000.0	40.59	10091.5	37.76	10099.6
GR	36.25	10109.9	37.77	10117.5	40.91	10126.0	42.00	10484.9	43.00	10859.9
GR	44.00	11609.9	45.00	13409.9	47.00	13409.9				

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2000 BAKER & LAWSON SURVEY SECTION

X1	11.36	15	10055.3	10113.6	50.	50.	50.			
X3				10044.5	46.20	10149.6	46.91			
GR	47.00	7084.6	45.00	7084.6	44.64	10000.0	45.05	10025.4	46.20	10044.5
GR	44.80	10055.3	37.53	10073.5	36.17	10084.6	38.70	10096.2	45.83	10113.6
GR	46.91	10149.6	44.22	10201.9	44.10	10255.2	45.00	13384.6	47.00	13384.6

NC 0.1 0.3

2000 BAKER & LAWSON SURVEY SECTION

X1	11.03	11	10062.0	10108.1	1500.	1280.	1400.			
GR	47.00	7085.1	45.00	7085.1	44.35	10000.0	43.41	10062.0	37.88	10076.7
GR	37.21	10085.1	38.54	10095.5	44.39	10108.1	45.76	10122.7	45.76	13385.1
GR	47.00	13385.1								

NC 0.3 0.5

2000 BAKER & LAWSON SURVEY SECTION

1ST PRIVATE BRIDGE DOWN STREAM OF CR 65

X1	11.02	12	10082.2	10104.7	100.	100.	100.			
X3	10									
GR	47.00	7094.4	45.00	7094.4	44.41	10000.0	40.57	41.69	41.69	
GR	36.28	10094.4	37.58	10101.3	40.84	10104.7	42.31	10082.2	37.57	10089.7
GR	45.48	13394.4	47.00	13394.4				10109.1	45.48	10139.2

1ST PRIVATE BRIDGE DOWN STREAM OF CR 65

SB	1.05	1.56	2.6		24.6	2.	205.	0.25	36.28	36.28
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2000 BAKER & LAWSON SURVEY SECTION

X1	11.01	12	10082.2	10104.7	23.	23.	23.			
X2			1	41.19	42.19					
X3	10									
BT	-7	7094.4	45.00		10000.0	44.41		42.19	42.19	
BT		10094.4	42.19		10109.1	42.45		10082.2	42.46	
BT		13394.4	45.48					10139.2	45.48	
GR	47.00	7094.4	45.00	7094.4	44.41	10000.0	40.57	10082.2	37.57	10089.7
GR	36.28	10094.4	37.58	10101.3	40.84	10104.7	42.31	10109.1	45.48	10139.2
GR	45.48	13394.4	47.00	13394.4						

2000 BAKER & LAWSON SURVEY SECTION

X1	11.00	10	10000.0	10049.2	50.	50.	50.			
GR	47.00	7025.6	45.00	7025.6	42.94	10000.0	37.78	10011.9	37.08	10025.6
GR	37.19	10032.7	44.05	10049.2	46.15	10064.8	46.15	13325.6	47.00	13325.6

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NC 0.035 0.035 0.06

2000 BAKER & LAWSON SURVEY SECTION

X1	9.23	11	10030.5	10076.3	400.	600.	500.			
GR	49.00	6555.8	47.00	6555.8	45.70	10000.0	43.93	10030.5	37.87	10047.6
GR	37.38	10055.8	38.74	10062.7	44.23	10076.3	46.94	10133.6	46.94	13355.8
GR	48.00	13355.8								

2000 BAKER & LAWSON SURVEY SECTION

X1	9.22	16	10400.6	10438.7	100.	100.	100.			
X3	10							46.81	46.81	
GR	49.09	10000.0	48.25	10111.6	48.05	10205.7	47.41	10299.4	46.82	10395.9
GR	44.21	10400.6	38.61	10417.4	36.79	10424.6	38.42	10430.4	42.37	10438.7
GR	46.83	10442.2	46.84	10533.1	47.02	10623.2	47.76	10714.1	48.00	10804.3
GR	48.19	10891.4								

CR 65

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILE 11/97

SB 1.05 1.56 2.6 12. 2, 277. 2. 36.79 36.79

2000 BAKER & LAWSON SURVEY SECTION

CR 65

X1	9.21	17	10398.1	10441.7	22.	22.	22.			
X2			1	45.71	47.91					
X3	10							47.91	47.91	
BT	-12	10000.0	49.09	10111.6	48.25	10205.7	47.41	10299.4	46.66	10392.4
BT		10299.4	47.41	10392.4	47.99	10447.1	47.91	10447.1	47.91	
BT		10475.1	46.41	10542.1	46.84	10632.3	47.02	10632.3	47.02	
BT		10723.1	47.76	10813.3	48.00	10900.4	48.19	10900.4	48.19	
GR	49.09	10000.0	48.25	10111.6	48.05	10205.7	47.41	10299.4	46.66	10392.4
GR	43.07	10398.1	38.28	10411.0	36.79	10421.4	38.62	10428.5	41.93	10441.7
GR	46.81	10447.1	46.41	10475.1	46.84	10542.1	47.02	10632.3	47.76	10723.1
GR	48.00	10813.3	48.19	10900.4						

2000 BAKER & LAWSON SURVEY SECTION

X1	9.20	17	10398.1	10441.7	50.	50.	50.			
X3				10392.4	46.66	10447.1	46.81			
GR	49.09	10000.0	48.25	10111.6	48.05	10205.7	47.41	10299.4	46.66	10392.4
GR	43.07	10398.1	38.28	10411.0	36.79	10421.4	38.62	10428.5	41.93	10441.7
GR	46.81	10447.1	46.41	10475.1	46.84	10542.1	47.02	10632.3	47.76	10723.1
GR	48.00	10813.3	48.19	10900.4						

2000 BAKER & LAWSON SURVEY SECTION

X1	9.14	12	10049.5	10093.8	280	280	280			
X3				10031.1	46.93	10191.9	44.78			
GR	48.00	6869.9	46.00	6869.9	44.85	10000.0	46.93	10031.1	44.00	10049.5
GR	38.32	10063.4	36.93	10069.9	38.12	10075.0	44.07	10093.8	44.78	10191.9
GR	47.00	13569.9	49.00	13569.9						

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NC			0.3		0.5					
2000 BAKER & LAWSON SURVEY SECTION										
X1	9.13	14	10044.8	10068.3	100.	100.	100.			
X3	10								41.89	41.89
GR	48.00	6858.3	46.00	6858.3	44.97	10000.0	42.73	10041.9	40.40	10044.8
GR	38.63	10049.2	37.33	10058.3	38.14	10063.3	40.04	10068.3	42.54	10073.0
GR	44.77	10115.4	44.81	10146.7	47.00	13563.3	49.00	13563.3		

PRIVATE BRIDGE NEAR CR 65 & CR 62

SB	1.05	1.56	2.6		25.8	1.	180.	0.25	37.45	37.33
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2000 BAKER & LAWSON SURVEY SECTION

PRIVATE BRIDGE NEAR CR 65 & CR 62

X1	9.12	14	10046.7	10069.9	20	20	20			
X2			1	41.39	42.39					
X3	10								42.39	42.39
BT	-10	6860.3	46.00		10000.0	44.97		10042.0	42.63	
BT		10046.7	42.39		10065.5	42.39		10069.9	42.68	
BT		10072.1	42.73		10115.0	44.77		10146.3	44.81	
BT		13560.3	47.00							
GR	48.00	6860.3	46.00	6860.3	44.97	10000.0	42.63	10042.0	40.79	10046.7
GR	38.42	10051.8	37.45	10060.3	38.41	10065.5	39.63	10069.9	42.73	10072.1
GR	44.77	10115.0	44.81	10146.3	47.00	13560.3	49.00	13560.3		

2000 BAKER & LAWSON SURVEY SECTION

X1	9.11	12	10066.6	10108.5	50.	50.	50.			
X3				10039.2	47.20	10183.7	45.03			
GR	48.00	6882.8	46.00	6882.8	44.77	10000.0	47.20	10039.2	43.59	10066.6
GR	38.85	10077.7	37.48	10082.8	38.22	10088.2	44.15	10108.5	45.03	10183.7
GR	47.00	13582.8	49.00	13582.8						
NC	0.035	0.035	0.06	0.1	0.3					

2000 BAKER & LAWSON SURVEY SECTION

X1	9.07	18	10494.9	10542.2	380.	380.	380.			
GR	49.09	10000.0	47.58	10082.3	47.25	10180.6	47.34	10278.9	47.30	10375.0
GR	47.75	10468.9	43.51	10494.9	39.05	10511.5	38.01	10516.9	39.16	10524.2
GR	44.20	10542.2	47.87	10591.7	47.44	10683.0	47.68	10777.3	48.07	10869.6
GR	48.12	10962.3	48.09	11054.6	49.00	16054.6				

CR 62

2000 BAKER & LAWSON SURVEY SECTION

CR 62										
X1	9.06	18	10517.5	10566.2	20.	20.	20.			
BT	-7	10468.9	47.75	47.75	10517.5	47.75	46.25	10537.9	47.75	46.25
BT		10542.2	47.75	46.25	10547.6	47.75	46.25	10566.2	47.75	46.25
BT		10591.8	47.87	47.87						
GR	49.09	10000.0	47.58	10082.3	47.25	10180.6	47.34	10278.9	47.30	10375.0
GR	47.75	10468.9	44.47	10517.5	39.20	10537.9	37.81	10542.2	39.12	10547.6

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GR	44.09	10566.2	47.87	10591.8	47.44	10683.1	47.68	10777.4	48.07	10869.6
GR	48.12	10962.4	48.09	11054.7	49.00	16054.6				

2000 BAKER & LAWSON SURVEY SECTION

X1	9.03	14	10047.5	10105.6	1700.	1700.	1700.			
X3				10047.5	47.86	10120.1	48.03			
GR	49.00	6876.1	47.00	6876.1	46.74	10000.0	47.86	10047.5	40.99	10064.0
GR	40.16	10076.1	40.44	10085.3	47.45	10105.6	48.03	10120.1	47.64	10133.0
GR	46.56	10148.8	46.40	10191.8	50.00	15191.8	52.00	15191.8		

NC 0.3 0.5

X1	9.02	19	12766.	12794.	100.	100.	100.			
X3	10							46.8	49.4	
GR	50.	9568.	47.	9568.	47.3	11823.	47.3	11824.	47.3	11825.
GR	47.	12535.	47.	12748.	46.8	12760.	41.6	12766.	39.8	12768.
GR	39.8	12792.	41.4	12794.	46.8	12800.	49.4	12842.	49.	12872.
GR	47.2	12910.	48.	13481.	50.	62800.	52.	62800.		

CR 63

SB	1.05	1.56	2.6		25.8	1.	180.	0.25	39.8	39.8
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CR 63

X1	9.01				18.	18.	18.			
X2			1	45.1	46.6					
X3	10							46.8	49.4	
BT	-13	9568.	47.		11823.	47.3		11824.	47.3	
BT		11825.	47.3		12535.	47.		12739.	48.	
BT		12766.	47.9		12794.	47.9		12842.	49.4	
BT		12872.	49.		12910.	47.2		13481.	48.	
BT		62800.	50.							

QT 3 1280 1515 1985

2000 BAKER & LAWSON SURVEY SECTION

X1	9.0	15	10107.2	10161.7	50.	50.	50.			
X3				10100.1	48.51	10161.7	48.87			
GR	50.00	6933.9	47.00	6933.9	46.05	10000.0	48.21	10064.5	46.45	10082.1
GR	48.51	10100.1	47.55	10107.2	40.90	10128.1	39.47	10133.9	40.67	10138.3
GR	48.87	10161.7	48.73	10172.9	47.26	10189.7	50.00	15133.9	52.00	15133.9

NC 0.035 0.035 0.06 0.1 0.3

QT 3 1000 1300 1500

2000 BAKER & LAWSON SURVEY SECTION

X1	8.05	12	10085.5	10131.2	4100.	3100.	3780.			
X3				10074.2	51.20	10153.6	49.95			
GR	53.00	7610.1	51.00	7610.1	48.75	10000.0	51.20	10074.2	50.02	10085.5
GR	41.82	10102.6	41.06	10110.1	42.55	10118.3	48.89	10131.2	49.95	10153.6
GR	49.95	14610.1	52.00	14610.1						



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NC			0.3		0.5					
X1	8.04	34	12922.	12958.	100.	100.	100.			
X3	10							50.6	49.	
GR	53.0	10422.1	51.0	10422.1	50.8	11100.	50.8	11101.1	50.8	11102.
GR	50.8	11103.	50.6	11725.	49.8	12664.	49.2	12781.	50.6	12898.
GR	47.4	12910.	46.	12922.	36.9	12922.1	36.9	12933.3	46.	12933.4
GR	46.	12933.5	36.9	12933.6	36.9	12945.3	46.	12945.4	46.	12945.5
GR	36.9	12945.6	36.9	12957.9	46.	12958.	46.	12967.	47.3	12969.
GR	49.	12984.	49.	13267.	50.2	13902.	51.	14500.	50.6	14958.
GR	51.	15548.	51.2	16280.	51.2	17422.1	53.	17422.1		

NC 0.012

SH288

SH288 (CULVERT)

X1	8.03	34	12922	12958	10.	10.	10.			
X3				12898.	50.6	12984	49.			
BT	-7	12898.	50.6	50.6	12910.	49.6	47.4	12922.	49.6	46.
BT		12958.	49.6	46.	12967.	49.6	46.	12969.	49.6	47.3
BT		12984.	49.	49.						
GR	53.0	10433.6	51.0	10433.6	50.8	11100.	50.8	11101.	50.8	11102.
GR	50.8	11103.	50.6	11725.	49.8	12664.	49.2	12781.	50.6	12898.
GR	47.4	12910.	46.	12922.	36.9	12922.1	36.9	12933.3	46.	12933.4
GR	46.	12933.5	36.9	12933.6	36.9	12945.3	46.	12945.4	46.	12945.5
GR	36.9	12945.6	36.9	12957.9	46.	12958.	46.	12967.	47.3	12969.
GR	49.	12984.	49.	13267.	50.2	13902.	51.	14500.	50.6	14958.
GR	51.	15548.	51.2	16280.	51.2	17433.6	53.	17433.6		

SH288

SH288 (CULVERT)

X1	8.02	34	12922.	12958.	600.	600.	600.			
X3				12898.	50.6	12984.	49.			
BT	-7	12898.	50.6	50.6	12910.	49.6	47.4	12922.	49.6	46.8
BT		12958.	49.6	46.8	12967.	49.6	46.	12969.	49.6	47.3
BT		12984.	49.	49.						
GR	53.0	10433.6	51.0	10433.6	50.8	11100.	50.8	11101.	50.8	11102.
GR	50.8	11103.	50.6	11725.	49.8	12664.	49.2	12781.	50.6	12898.
GR	47.4	12910.	46.8	12922.	37.7	12922.6	37.7	12933.3	46.8	12933.4
GR	46.8	12933.5	37.7	12933.6	37.7	12945.3	46.8	12945.4	46.8	12945.5
GR	37.7	12945.6	37.7	12957.9	46.8	12958.	46.	12967.	47.3	12969.
GR	49.	12984.	49.	13267.	50.2	13902.	51.	14500.	50.6	14958.
GR	51.	15548.	51.2	16280.	51.2	17433.6	53.	17433.6		

NC 0.06

X1	8.01				10.	10.	10.			
X3				12898.	50.6	12984.	49.			



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NC 0.1 0.3  
 QT 3 210 276 395

2000 BAKER & LAWSON SURVEY SECTION

X1	7.	12	10045.3	10097.8	1900.	2350.	2280.			
X3				10000.0	51.68	10097.8	52.39			
GR	54.00	7574.0	52.00	7574.0	51.68	10000.0	50.69	10045.3	45.86	10064.0
GR	45.04	10074.3	46.08	10082.3	52.39	10097.8	52.18	10126.3	52.19	10150.7
GR	51.03	10188.3	55.00	15074.0						

NC 0.3 0.5

2000 BAKER & LAWSON SURVEY SECTION

X1	6.9	18	10448.2	10474.0	100.	100.	100.			
X3	10							52.45	52.45	
GR	54.00	7958.2	52.00	7958.2	52.87	10000.0	52.74	10087.1	52.78	10178.0
GR	52.87	10267.1	52.76	10356.2	47.67	10448.2	46.42	10453.2	45.50	10458.2
GR	46.11	10464.1	48.66	10474.0	53.35	10563.2	53.70	10653.3	53.77	10744.7
GR	54.04	10836.9	54.14	10928.6	55.00	15458.2				

CR 64

SB 1.05 1.56 2.6 23.7 1. 117. 0.25 45.5 45.5

CR 64

2000 BAKER & LAWSON SURVEY SECTION

CR 64

X1	6.8	18	10448.2	10474.0	17.	17.	17.			
X2			1	51.75	53.15					
X3	10							53.15	53.15	
BT	-14	7958.2	52.00		10000.0	52.87		10087.1	52.74	
BT		10178.0	52.78		10267.1	52.87		10356.2	52.76	
BT		10448.2	53.15		10474.0	53.33		10563.2	53.35	
BT		10653.3	53.70		10744.7	53.77		10836.9	54.04	
BT		10928.6	54.14		15458.2	55.00				
GR	54.00	7958.2	52.00	7958.2	52.87	10000.0	52.74	10087.1	52.78	10178.0
GR	52.87	10267.1	52.76	10356.2	47.67	10448.2	46.42	10453.2	45.50	10458.2
GR	46.11	10464.1	48.66	10474.0	53.35	10563.2	53.70	10653.3	53.77	10744.7
GR	54.04	10836.9	54.14	10928.6	55.00	15458.2				

2000 BAKER & LAWSON SURVEY SECTION

X1	6.7	16	10012.2	10047.6	50.	50.	50.			
X3				10000.0	51.86	10069.0	53.89			
GR	54.00	7529.8	52.00	7529.8	51.86	10000.0	51.17	10012.2	46.78	10022.7
GR	45.34	10029.8	46.59	10035.6	52.33	10047.6	53.65	10059.4	53.89	10069.0
GR	53.41	10079.0	52.22	10082.5	50.48	10088.7	51.46	10095.2	51.06	10181.8
GR	55.00	15029.8								

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T1 NORTH HAYES CREEK..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: NORHAYES.IH2.....25 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3							35.35	
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-7							

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T1 NORTH HAYES CREEK..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: NORHAYES.IH2.....100 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		4							36.19	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-7							

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

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NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

L REVISED BY KLOTZ ASSOC

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
17.000	1008.00	34.85	2.95	22.34	33.18	32.49	39.00	945.23	93.77	.00	516.15	
17.000	1285.00	35.35	2.96	22.34	33.18	32.49	39.00	1020.29	79.40	.00	1524.84	
17.000	1743.00	36.19	2.03	22.34	33.18	32.49	39.00	781.88	44.86	.00	3308.35	
16.900	1008.00	35.33	2.93	23.26	30.54	32.65	39.00	851.33	84.46	400.00	553.54	
16.900	1285.00	35.80	2.94	23.26	30.54	32.65	39.00	904.64	70.40	400.00	1703.10	
16.900	1743.00	36.40	2.47	23.26	30.54	32.65	39.00	815.89	46.81	400.00	3056.07	
16.800	1008.00	35.33	2.91	23.49	30.77	32.71	39.00	860.74	85.39	14.50	552.58	
16.800	1285.00	35.80	2.92	23.49	30.77	32.71	39.00	913.19	71.07	14.50	1723.80	
16.800	1743.00	36.40	2.46	23.49	30.77	32.71	39.00	823.31	47.24	14.50	3085.31	
16.700	1008.00	35.38	2.86	23.49	30.77	32.71	39.00	850.12	84.34	50.00	675.92	
16.700	1285.00	35.85	2.85	23.49	30.77	32.71	39.00	894.27	69.59	50.00	1809.24	
16.700	1743.00	36.43	2.40	23.49	30.77	32.71	39.00	806.54	46.27	50.00	3146.16	
*	16.000	1008.00	37.25	5.39	28.70	38.30	38.40	40.00	1008.00	100.00	1080.00	40.35
*	16.000	1285.00	37.56	6.43	28.70	38.30	38.40	40.00	1285.00	100.00	1080.00	41.67
*	16.000	1743.00	37.16	9.48	28.70	38.30	38.40	40.00	1743.00	100.00	1080.00	40.01
*	15.900	1008.00	40.39	1.74	29.20	38.80	38.90	40.60	529.21	52.50	2400.00	3984.61
*	15.900	1285.00	40.62	1.61	29.20	38.80	38.90	40.60	505.19	39.31	2400.00	5000.00
*	15.900	1743.00	40.90	1.49	29.20	38.80	38.90	40.60	484.92	27.82	2400.00	5000.00
15.800	1008.00	40.43	1.63	29.20	38.80	38.90	40.60	498.96	49.50	100.00	4229.07	
15.800	1285.00	40.66	1.52	29.20	38.80	38.90	40.60	481.16	37.44	100.00	5000.00	
15.800	1743.00	40.93	1.43	29.20	38.80	38.90	40.60	469.22	26.92	100.00	5000.00	
15.700	1008.00	40.43	1.64	29.20	38.80	38.90	40.60	500.42	49.65	15.00	4217.03	
15.700	1285.00	40.66	1.53	29.20	38.80	38.90	40.60	482.29	37.53	15.00	5000.00	
15.700	1743.00	40.93	1.43	29.20	38.80	38.90	40.60	468.21	26.86	15.00	5000.00	

North Hayes Creek Rev. Exist. Multi-Freq. NORHAYEX.IH2

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
15.600	1008.00	40.45	1.62	29.20	38.80	38.90	40.65	497.08	49.31	50.00	4110.51	
15.600	1285.00	40.68	1.54	29.20	38.80	38.90	40.65	487.13	37.91	50.00	5000.00	
15.600	1743.00	40.94	1.44	29.20	38.80	38.90	40.65	474.35	27.21	50.00	5000.00	
15.400	800.00	41.44	1.64	32.03	39.67	41.96	43.00	467.78	58.47	3150.00	4435.25	
15.400	1000.00	41.56	1.59	32.03	39.67	41.96	43.00	462.87	46.29	3150.00	5424.80	
15.400	1300.00	41.70	1.51	32.03	39.67	41.96	43.00	450.57	34.66	3150.00	6617.29	
15.300	800.00	41.46	1.62	31.40	37.21	37.10	43.00	570.53	71.32	100.00	738.09	
15.300	1000.00	41.57	1.91	31.40	37.21	37.10	43.00	681.29	68.13	100.00	814.46	
15.300	1300.00	41.70	2.32	31.40	37.21	37.10	43.00	838.45	64.50	100.00	898.85	
15.200	800.00	41.64	1.68	31.40	37.21	37.10	43.00	601.68	75.21	16.00	733.83	
15.200	1000.00	41.77	1.97	31.40	37.21	37.10	43.00	718.15	71.82	16.00	864.47	
15.200	1300.00	41.91	2.35	31.40	37.21	37.10	43.00	872.84	67.14	16.00	1245.45	
15.100	800.00	41.65	1.71	31.94	40.39	42.06	43.00	561.47	70.18	50.00	809.14	
15.100	1000.00	41.79	1.93	31.94	40.39	42.06	43.00	647.38	64.74	50.00	894.04	
15.100	1300.00	41.95	2.21	31.94	40.39	42.06	43.00	761.68	58.59	50.00	994.66	
*	15.000	800.00	41.73	3.45	32.80	39.40	39.70	42.70	768.78	96.10	400.00	256.19
*	15.000	1000.00	41.88	4.05	32.80	39.40	39.70	42.70	924.88	92.49	400.00	326.68
*	15.000	1300.00	42.06	4.85	32.80	39.40	39.70	42.70	1137.24	87.48	400.00	400.88
*	13.900	800.00	42.93	1.62	34.49	40.95	43.86	45.00	464.81	58.10	2150.00	1088.12
*	13.900	1000.00	43.19	1.59	34.49	40.95	43.86	45.00	477.81	47.78	2150.00	1310.03
*	13.900	1300.00	43.49	1.56	34.49	40.95	43.86	45.00	493.58	37.97	2150.00	1571.31
*	13.800	800.00	42.89	3.82	34.30	40.22	40.08	44.27	800.00	100.00	100.00	38.00
*	13.800	1000.00	43.09	4.61	34.30	40.22	40.08	44.27	1000.00	100.00	100.00	38.00
*	13.800	1300.00	43.29	5.78	34.30	40.22	40.08	44.27	1300.00	100.00	100.00	38.00
13.700	800.00	42.92	3.80	34.30	40.22	40.08	44.27	800.00	100.00	24.00	38.00	
13.700	1000.00	43.14	4.57	34.30	40.22	40.08	44.27	1000.00	100.00	24.00	38.00	
13.700	1300.00	43.40	5.67	34.30	40.22	40.08	44.27	1300.00	100.00	24.00	38.00	
*	13.600	800.00	43.20	1.49	34.35	41.68	43.65	45.00	422.29	52.79	50.00	1248.57
*	13.600	1000.00	43.56	1.30	34.35	41.68	43.65	45.00	390.80	39.08	50.00	1601.51
*	13.600	1300.00	44.06	1.05	34.35	41.68	43.65	45.00	343.28	26.41	50.00	2035.46
*	13.300	800.00	43.32	3.20	34.40	44.10	43.90	44.90	800.00	100.00	500.00	47.33
*	13.300	1000.00	43.60	3.80	34.40	44.10	43.90	44.90	1000.00	100.00	500.00	48.38
*	13.300	1300.00	44.09	.63	34.40	44.10	43.90	44.90	182.67	14.05	500.00	4688.71
13.200	800.00	43.39	4.09	34.50	38.20	38.00	44.40	800.00	100.00	100.00	27.00	
13.200	1000.00	43.68	4.92	34.50	38.20	38.00	44.40	1000.00	100.00	100.00	27.00	
13.200	1300.00	44.10	.77	34.50	38.20	38.00	44.40	164.62	12.66	100.00	4657.57	
13.100	800.00	43.39	4.09	34.50	38.20	38.00	44.40	800.00	100.00	12.50	27.00	
13.100	1000.00	43.68	4.92	34.50	38.20	38.00	44.40	1000.00	100.00	12.50	27.00	
13.100	1300.00	44.10	.77	34.50	38.20	38.00	44.40	165.00	12.69	12.50	4657.24	

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
13.000	800.00	43.84	3.02	34.60	44.30	44.10	45.10	800.00	100.00	280.00	48.52	
13.000	1000.00	44.31	3.46	34.60	44.30	44.10	45.10	998.49	99.85	280.00	1542.69	
*	13.000	1300.00	43.95	4.80	34.60	44.30	44.10	1300.00	100.00	280.00	48.96	
11.390	640.00	45.78	1.91	36.18	44.35	44.87	44.72	633.08	98.92	3020.00	72.50	
*	11.390	758.00	46.06	1.59	36.18	44.35	44.87	44.72	551.70	72.78	3020.00	3037.69
*	11.390	993.00	46.21	1.56	36.18	44.35	44.87	44.72	553.95	55.79	3020.00	3039.15
*	11.380	640.00	45.85	.07	36.22	42.13	40.52	47.00	16.50	2.58	100.00	6300.00
*	11.380	758.00	46.10	.07	36.22	42.13	40.52	47.00	17.58	2.32	100.00	6300.00
*	11.380	993.00	46.24	.08	36.22	42.13	40.52	47.00	21.77	2.19	100.00	6300.00
*	11.370	640.00	45.76	2.42	36.25	40.59	40.91	47.00	640.00	100.00	12.00	34.50
*	11.370	758.00	46.10	.10	36.25	40.59	40.91	47.00	27.14	3.58	12.00	6300.00
*	11.370	993.00	46.24	.12	36.25	40.59	40.91	47.00	32.98	3.32	12.00	6300.00
11.360	640.00	45.83	1.85	36.17	44.80	45.83	47.00	637.80	99.66	50.00	66.30	
*	11.360	758.00	46.06	2.11	36.17	44.80	45.83	47.00	753.61	99.42	50.00	75.79
*	11.360	993.00	46.19	2.70	36.17	44.80	45.83	47.00	985.46	99.24	50.00	80.76
*	11.030	640.00	45.93	.28	37.21	43.41	44.39	47.00	81.00	12.66	1400.00	6300.00
*	11.030	758.00	46.17	.24	37.21	43.41	44.39	47.00	72.64	9.58	1400.00	6300.00
*	11.030	993.00	46.34	.26	37.21	43.41	44.39	47.00	79.92	8.05	1400.00	6300.00
11.020	640.00	45.93	.27	36.28	40.57	40.84	47.00	47.98	7.50	100.00	6300.00	
11.020	758.00	46.17	.24	36.28	40.57	40.84	47.00	43.43	5.73	100.00	6300.00	
11.020	993.00	46.34	.25	36.28	40.57	40.84	47.00	47.65	4.80	100.00	6300.00	
*	11.010	640.00	45.93	.27	36.28	40.57	40.84	47.00	48.51	7.58	23.00	6300.00
*	11.010	758.00	46.17	.24	36.28	40.57	40.84	47.00	43.38	5.72	23.00	6300.00
*	11.010	993.00	46.34	.25	36.28	40.57	40.84	47.00	47.60	4.79	23.00	6300.00
*	11.000	640.00	45.93	.16	37.08	42.94	44.05	47.00	51.95	8.12	50.00	3037.55
11.000	758.00	46.17	.16	37.08	42.94	44.05	47.00	54.34	7.17	50.00	6300.00	
11.000	993.00	46.34	.18	37.08	42.94	44.05	47.00	64.67	6.51	50.00	6300.00	
*	9.230	640.00	45.90	2.08	37.38	43.93	44.23	48.00	557.14	87.05	500.00	646.71
*	9.230	758.00	46.15	2.01	37.38	43.93	44.23	48.00	561.42	74.07	500.00	1299.22
*	9.230	993.00	46.32	2.13	37.38	43.93	44.23	48.00	610.25	61.45	500.00	1773.76
9.220	640.00	45.96	2.77	36.79	44.21	42.37	48.19	640.00	100.00	100.00	38.10	
*	9.220	758.00	46.19	3.17	36.79	44.21	42.37	48.19	758.00	100.00	100.00	38.10
*	9.220	993.00	46.34	4.06	36.79	44.21	42.37	48.19	993.00	100.00	100.00	38.10
9.210	640.00	46.02	2.19	36.79	43.07	41.93	48.19	640.00	100.00	22.00	43.60	
9.210	758.00	46.27	2.50	36.79	43.07	41.93	48.19	758.00	100.00	22.00	43.60	
9.210	993.00	46.49	3.18	36.79	43.07	41.93	48.19	993.00	100.00	22.00	43.60	
9.200	640.00	46.06	2.10	36.79	43.07	41.93	48.19	618.35	96.62	50.00	52.93	
9.200	758.00	46.32	2.39	36.79	43.07	41.93	48.19	729.07	96.18	50.00	53.64	
9.200	993.00	46.57	3.00	36.79	43.07	41.93	48.19	950.84	95.75	50.00	54.32	



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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	9.140	640.00	46.18	.61	36.93	44.00	44.07	49.00	162.57	25.40	280.00	2290.26
*	9.140	758.00	46.46	.52	36.93	44.00	44.07	49.00	144.33	19.04	280.00	2718.24
*	9.140	993.00	46.78	.49	36.93	44.00	44.07	49.00	141.65	14.26	280.00	3199.06
*	9.130	640.00	46.19	.37	37.33	40.40	40.04	48.00	67.80	10.59	100.00	5437.94
*	9.130	758.00	46.47	.29	37.33	40.40	40.04	48.00	54.47	7.19	100.00	5872.15
*	9.130	993.00	46.78	.26	37.33	40.40	40.04	48.00	50.34	5.07	100.00	6362.43
*	9.120	640.00	46.19	.37	37.45	40.79	39.63	48.00	66.58	10.40	20.00	5435.45
*	9.120	758.00	46.47	.29	37.45	40.79	39.63	48.00	53.40	7.04	20.00	5869.34
*	9.120	993.00	46.78	.26	37.45	40.79	39.63	48.00	49.32	4.97	20.00	6359.25
*	9.110	640.00	46.19	.81	37.48	43.59	44.15	49.00	196.21	30.66	50.00	2136.76
*	9.110	758.00	46.47	.66	37.48	43.59	44.15	49.00	167.63	22.12	50.00	2618.86
*	9.110	993.00	46.78	.59	37.48	43.59	44.15	49.00	157.83	15.89	50.00	3163.35
*	9.070	640.00	46.23	2.19	38.01	43.51	44.20	49.00	571.82	89.35	380.00	91.40
*	9.070	758.00	46.47	2.42	38.01	43.51	44.20	49.00	661.75	87.30	380.00	96.29
*	9.070	993.00	46.75	2.95	38.01	43.51	44.20	49.00	844.45	85.04	380.00	101.56
*	9.060	640.00	46.24	2.34	37.81	44.47	44.09	49.00	588.15	91.90	20.00	89.51
*	9.060	758.00	46.49	2.60	37.81	44.47	44.09	49.00	654.98	86.41	20.00	94.87
*	9.060	993.00	46.77	3.37	37.81	44.47	44.09	49.00	848.47	85.45	20.00	100.80
*	9.030	640.00	47.89	2.11	40.16	47.86	47.45	52.00	625.28	97.70	1700.00	3240.57
*	9.030	758.00	48.12	1.50	40.16	47.86	47.45	52.00	463.97	61.21	1700.00	3540.17
*	9.030	993.00	48.28	1.30	40.16	47.86	47.45	52.00	414.36	41.73	1700.00	3953.23
*	9.020	640.00	47.98	.49	39.80	41.60	41.40	50.00	110.83	17.32	100.00	3226.00
*	9.020	758.00	48.15	.46	39.80	41.60	41.40	50.00	105.10	13.87	100.00	3226.00
*	9.020	993.00	48.30	.49	39.80	41.60	41.40	50.00	115.82	11.66	100.00	3226.00
*	9.010	640.00	47.98	.49	39.80	41.60	41.40	50.00	111.01	17.35	18.00	3226.00
*	9.010	758.00	48.15	.46	39.80	41.60	41.40	50.00	104.96	13.85	18.00	3226.00
*	9.010	993.00	48.30	.49	39.80	41.60	41.40	50.00	115.67	11.65	18.00	3226.00
*	9.000	1280.00	47.73	5.76	39.47	47.55	48.87	52.00	1279.90	99.99	50.00	52.62
*	9.000	1515.00	47.81	6.70	39.47	47.55	48.87	52.00	1514.71	99.98	50.00	53.44
*	9.000	1985.00	47.67	9.06	39.47	47.55	48.87	52.00	1984.99	100.00	50.00	52.01
*	8.050	1000.00	50.43	.99	41.06	50.02	48.89	52.00	274.64	27.46	3780.00	4528.54
*	8.050	1300.00	50.81	.61	41.06	50.02	48.89	52.00	179.74	13.83	3780.00	4532.17
*	8.050	1500.00	51.46	.31	41.06	50.02	48.89	52.00	100.54	6.70	3780.00	7000.00
*	8.040	1000.00	50.44	.87	36.90	46.00	46.00	53.00	421.22	42.12	100.00	1160.73
*	8.040	1300.00	50.82	.64	36.90	46.00	46.00	53.00	315.40	24.26	100.00	3882.35
*	8.040	1500.00	51.46	.33	36.90	46.00	46.00	53.00	173.67	11.58	100.00	7000.00
*	8.030	1000.00	50.43	1.77	36.90	46.00	46.00	53.00	626.66	62.67	10.00	1180.84
*	8.030	1300.00	50.81	1.76	36.90	46.00	46.00	53.00	643.52	49.50	10.00	3848.89
*	8.030	1500.00	51.46	.98	36.90	46.00	46.00	53.00	380.85	25.39	10.00	7000.00

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
8.020	1000.00	50.48	1.73	37.70	46.80	46.80	53.00	608.82	60.88	600.00	1216.30	
8.020	1300.00	50.85	1.70	37.70	46.80	46.80	53.00	622.23	47.86	600.00	4083.58	
8.020	1500.00	51.47	.97	37.70	46.80	46.80	53.00	374.86	24.99	600.00	7000.00	
8.010	1000.00	50.51	.79	37.70	46.80	46.80	53.00	358.62	35.86	10.00	1232.69	
8.010	1300.00	50.87	.71	37.70	46.80	46.80	53.00	333.41	25.65	10.00	4256.75	
8.010	1500.00	51.48	.37	37.70	46.80	46.80	53.00	181.27	12.08	10.00	7000.00	
*	8.000	640.00	50.52	.08	41.66	48.83	47.95	53.00	31.85	4.98	50.00	6442.71
*	8.000	750.00	50.88	.07	41.66	48.83	47.95	53.00	30.58	4.08	50.00	6858.50
*	8.000	1000.00	51.48	.06	41.66	48.83	47.95	53.00	30.99	3.10	50.00	7000.00
*	7.490	640.00	50.40	4.01	44.04	48.52	50.25	54.00	588.45	91.95	900.00	58.82
*	7.490	750.00	50.75	4.18	44.04	48.52	50.25	54.00	668.27	89.10	900.00	66.28
*	7.490	1000.00	51.32	4.65	44.04	48.52	50.25	54.00	839.23	83.92	900.00	78.19
*	7.480	640.00	50.83	2.10	43.71	49.86	51.30	54.00	576.33	90.05	100.00	873.18
*	7.480	750.00	51.18	1.55	43.71	49.86	51.30	54.00	462.59	61.68	100.00	1369.59
*	7.480	1000.00	51.76	.79	43.71	49.86	51.30	54.00	268.12	26.81	100.00	4417.13
7.470	640.00	50.83	2.17	44.01	49.86	51.30	54.00	573.35	89.59	12.00	869.71	
7.470	750.00	51.18	1.58	44.01	49.86	51.30	54.00	454.61	60.61	12.00	1364.85	
7.470	1000.00	51.76	.78	44.01	49.86	51.30	54.00	257.98	25.80	12.00	4432.28	
*	7.460	640.00	50.87	3.41	44.04	49.16	50.63	54.00	591.88	92.48	50.00	71.34
*	7.460	750.00	51.16	3.55	44.04	49.16	50.63	54.00	657.04	87.60	50.00	777.63
*	7.460	1000.00	51.77	1.62	44.04	49.16	50.63	54.00	338.55	33.86	50.00	3954.42
*	7.000	210.00	52.08	.51	45.04	50.69	52.39	55.00	121.38	57.80	2280.00	2523.05
*	7.000	276.00	52.20	.50	45.04	50.69	52.39	55.00	120.50	43.66	2280.00	2523.34
7.000	395.00	52.28	.60	45.04	50.69	52.39	55.00	146.85	37.18	2280.00	2523.52	
*	6.900	210.00	52.08	1.51	45.50	47.67	48.66	54.00	210.00	100.00	100.00	25.80
*	6.900	276.00	52.19	1.94	45.50	47.67	48.66	54.00	276.00	100.00	100.00	25.80
*	6.900	395.00	52.24	2.75	45.50	47.67	48.66	54.00	395.00	100.00	100.00	25.80
6.800	210.00	52.12	1.50	45.50	47.67	48.66	54.00	210.00	100.00	17.00	25.80	
6.800	276.00	52.26	1.92	45.50	47.67	48.66	54.00	276.00	100.00	17.00	25.80	
6.800	395.00	52.40	2.68	45.50	47.67	48.66	54.00	395.00	100.00	17.00	25.80	
*	6.700	210.00	52.17	.68	45.34	51.17	52.33	55.00	98.30	46.81	50.00	2517.47
*	6.700	276.00	52.34	.51	45.34	51.17	52.33	55.00	76.88	27.85	50.00	2517.93
*	6.700	395.00	52.55	.44	45.34	51.17	52.33	55.00	69.19	17.52	50.00	2519.80

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## SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	16.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	16.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	16.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	15.900	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	15.900	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	15.900	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	15.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	15.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	15.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	13.900	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	13.900	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	13.900	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	13.800	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	13.800	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	13.800	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	13.600	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	13.600	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	13.600	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	13.300	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	13.300	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	13.300	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	13.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	11.390	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	11.390	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	11.380	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	11.380	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	11.380	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
CAUTION SECNO=	11.370	PROFILE=	1	20 TRIALS OF EG NOT ENOUGH				
WARNING SECNO=	11.370	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
CAUTION SECNO=	11.370	PROFILE=	2	20 TRIALS OF EG NOT ENOUGH				
CAUTION SECNO=	11.370	PROFILE=	3	20 TRIALS OF EG NOT ENOUGH				
WARNING SECNO=	11.360	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	11.360	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	11.030	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	11.030	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	11.030	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
CAUTION SECNO=	11.010	PROFILE=	1	20 TRIALS OF EG NOT ENOUGH				
CAUTION SECNO=	11.010	PROFILE=	2	20 TRIALS OF EG NOT ENOUGH				

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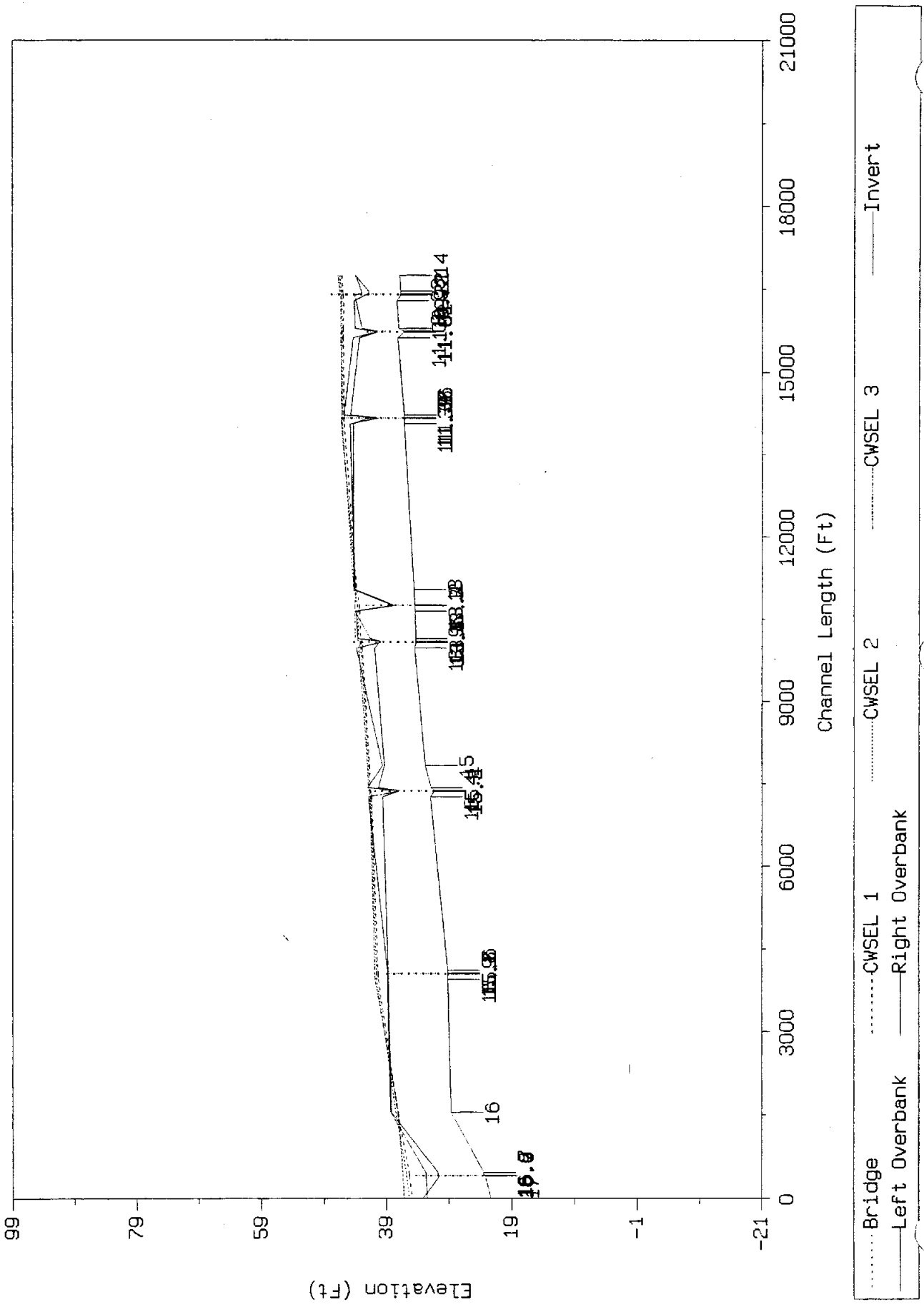
CAUTION SECNO=	11.010	PROFILE=	3	20 TRIALS OF EG NOT ENOUGH
WARNING SECNO=	11.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.230	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.230	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.230	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.220	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.220	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.140	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.140	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.140	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.130	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.130	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.130	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	9.120	PROFILE=	1	20 TRIALS OF EG NOT ENOUGH
CAUTION SECNO=	9.120	PROFILE=	2	20 TRIALS OF EG NOT ENOUGH
CAUTION SECNO=	9.120	PROFILE=	3	20 TRIALS OF EG NOT ENOUGH
WARNING SECNO=	9.110	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.110	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.110	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.070	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.070	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.070	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.060	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.060	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.030	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.030	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.020	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.020	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.020	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	9.010	PROFILE=	3	20 TRIALS OF EG NOT ENOUGH
WARNING SECNO=	9.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.050	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	8.050	PROFILE=	2	WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=	8.050	PROFILE=	2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=	8.050	PROFILE=	3	WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=	8.050	PROFILE=	3	20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=	8.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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WARNING SECNO=	8.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	8.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.490	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.490	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.490	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.480	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.480	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.480	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.460	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.460	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.460	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.900	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.900	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.900	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.700	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.700	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.700	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

L REVISED BY KLOTZ ASSOC  
 Cross-Sections (17 to 9.14)



```
*****  
* HEC-2 WATER SURFACE PROFILES *  
* *  
* rsion 4.6.2; May 1991 *  
* *  
* RUN DATE 25AUG02 TIME 18:22:44 *  
*****
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*****  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET, SUITE D *  
* DAVIS, CALIFORNIA 95616-4687 *  
* (916) 756-1104 *  
*****
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X X XXXXXXX XXXXX XXXXX  
X X X X X X X  
X X X X X X X  
XXXXXXXX XXXX X XXXXX XXXXX  
X X X X X X  
X X X X X X  
X X XXXXXXX XXXXX XXXXXXX
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25AUG02 18:22:44

THIS RUN EXECUTED 25AUG02 18:22:44

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

T1 NORTH HAYES CREEK..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 T2 PROPOSED CONDITION MODEL.....1973 DATUM ADJUSTMENT  
 T3 FILENAME: NORHAYEP.IH2.....10 YEAR FREQUENCY  
 T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

NOTES\*\*\*\*\*  
 REVISED MODEL INCLUDES 2000 BAKER & LAWSON SURVEY SECTIONS AND REVISED  
 BRIDGE SECTIONS  
 MODEL KEYED IN FROM 03 FEB 81 RUN DATE FEMA MODEL  
 ORIGINAL INPUT DATA PROVIDED BY BRAZORIA COUNTY FLOOD PLAIN ADMINISTRATOR  
 \*\*\*\*\*

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2			0.0005					
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-7							
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38	43	1	26	42	23	24	63	14	60
	39	4								
J5	LPRNT	NUMSEC	*****REQUESTED SECTION NUMBERS*****							
	-10	-10								

NC	0.08	0.08	0.06	0.1	0.3
QT	3	723	952	1363	

2000 BAKER & LAWSON SURVEY SECTION

X1	17	15	10047.3	10095.1						
CI	-1	-1	0.04	1	1	10				
GR	39.00	8071.0	37.00	8071.00	34.29	10000.0	34.93	10033.5	33.18	10047.3
GR	25.88	10065.3	22.34	10071.0	26.85	10078.6	32.49	10095.1	34.34	10113.2
GR	35.96	10142.3	34.94	10172.8	34.91	10193.8	37.00	13071.0	39.00	13071.0



NC 0.3 0.5

2000 BAKER & LAWSON SURVEY SECTION

X1	16.9	19	10123.4	10160.7	450.	350.	400.			
X3	10							33.34	33.34	
GR	40.00	8144.2	38.00	8144.2	34.67	10000.0	34.54	10024.7	34.59	10049.1
GR	34.79	10072.6	35.35	10095.6	30.54	10123.4	25.99	10138.2	23.26	10144.2
GR	26.30	10149.6	32.65	10160.7	35.35	10188.6	35.71	10211.9	35.58	10234.9
GR	35.42	10257.0	35.33	10277.8	37.00	13144.2	39.00	13144.2		

ACCESS ROAD NEAR CR 308 & CR 121

SB	1.05	1.56	2.9		4.6	1.3	220.	2.	23.49	23.26
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2000 BAKER & LAWSON SURVEY SECTION

ACCESS ROAD NEAR CR 308 & CR 121

X1	16.8	19	10124.0	10160.4	14.5	14.5	14.5			
X2			1	32.34	34.34					
X3	10							34.34	34.34	
BT	-15	8146.0	38.00		10000.0	34.67		10024.7	34.54	
BT		10049.1	34.59		10072.6	34.79		10095.6	35.35	
BT		10124.0	34.34		10146.0	34.36		10160.4	34.64	
BT		10188.1	35.35		10211.4	35.71		10234.4	35.58	
BT		10256.5	35.42		10277.4	35.33		13146.0	37.00	
GR	40.00	8146.0	38.00	8146.0	34.67	10000.0	34.54	10024.7	34.59	10049.1
GR	34.79	10072.6	35.35	10095.6	30.77	10124.0	25.64	10138.5	23.49	10146.0
GR	26.50	10152.3	32.71	10160.4	35.35	10188.1	35.71	10211.4	35.58	10234.4
GR	35.42	10256.5	35.33	10277.4	37.00	13146.0	39.00	13146.0		

X1	16.7	19	10124.0	10160.4	50.	50.	50.			
GR	40.00	8146.0	38.00	8146.0	34.67	10000.0	34.54	10024.7	34.59	10049.1
GR	34.79	10072.6	35.35	10095.6	30.77	10124.0	25.64	10138.5	23.49	10146.0
GR	26.50	10152.3	32.71	10160.4	35.35	10188.1	35.71	10211.4	35.58	10234.4
GR	35.42	10256.5	35.33	10277.4	37.00	13146.0	39.00	13146.0		

NC 0.1 0.3

QT	3	654	862	1234						
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X1	16.0	13	11544.	11589.	800	850.	1080.			
GR	40.0	9068.	39.2	11000.	39.	11355.	38.2	11456.	38.4	11528.
GR	38.3	11544.	30.3	11562.	28.7	11568.	30.3	11573.	38.4	11589.
GR	39.	11604.	39.2	11735.	40.0	14068.				

2000 BAKER & LAWSON SURVEY SECTION

X1	15.9	13	11544.	11589.	2370.	2420.	2400.		0.5	
CI						0.01				
GR	40.1	9068.	39.2	11000.	39.	11355.	38.2	11456.	38.4	11528.
GR	38.3	11544.	30.3	11562.	28.7	11568.	30.3	11573.	38.4	11589.
GR	39.	11604.	39.2	11735.	40.1	14068.				

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NC				0.3	0.5					
X1	15.8				100.	100.	100.			
X3	10							38.5	38.5	
ACCESS ROAD										
SB	1.05	1.56	2.9		5.1	2.	182.	2.	28.7	28.7
ACCESS ROAD										
X1	15.7				15.	15.	15.			
X2			1	38.	39.1					
X3	10							39.1	39.1	
BT	-10	9068.	40.6		11000.	39.7		11355.	39.5	
BT		11456.	38.7		11528.	38.9		11544.	38.8	
BT		11589.	38.9		11604.	39.5		11735.	39.7	
BT		14068.	40.6							
X1	15.6	13	11544.	11589.	50.	50.	50.		0.5	
GR	40.15	9068.	39.2	11000.	39.	11355.	38.2	11456.	38.4	11528.
GR	38.3	11544.	30.3	11562.	28.7	11568.	30.3	11573.	38.4	11589.
GR	39.	11604.	39.2	11735.	40.15	14068.				
NC	0.035	0.035	0.04	0.1	0.3					
QT	3	582	766	1097						
2000 BAKER & LAWSON SURVEY SECTION										
X1	15.4	13	10030.8	10080.5	3300.	2900.	3150.			
X3	10									
GR	43.00	953.7	42.00	953.7	40.93	10000.0	39.67	10030.8	34.02	10044.4
GR	32.03	10053.7	34.20	10064.7	41.96	10080.5	43.12	10113.0	41.02	10183.9
GR	40.85	10267.9	41.18	10431.7	43.00	60053.7				
NC				0.3	0.5					
2000 BAKER & LAWSON SURVEY SECTION										
X1	15.3	12	10000.0	10041.5	100.	100.	100.			
X3	10			10000.0	40.5	10115.3	41.79	40.5	40.5	
GR	43.00	9022.3	42.00	9022.3	37.21	10000.0	33.48	10005.0	31.40	10022.3
GR	32.47	10035.3	37.10	10041.5	41.79	10115.3	41.53	10208.3	41.71	10302.0
GR	42.02	10396.3	43.00	60022.3						
PRIVATE BRIDGE DOWN STREAM OF CR 67										
SB	1.05	1.56	2.8		7.9	1.7	178.	2.	31.40	31.40
2000 BAKER & LAWSON SURVEY SECTION										

PRIVATE BRIDGE DOWN STREAM OF CR 67

X1	15.2	12	10000.0	10041.5	16.	16.	16.			
X2			1	40.	41.					
X3	10			10000.0	41.	10115.3	41.79	41.	41.	
BT	-11	9022.3	42.0		9486.3	42.3		9695.3	41.9	
BT		9929.3	41.1		10004.3	41.		10040.3	41.	
BT		10115.3	41.79		10208.3	41.53		10302.0	41.71	
BT		10396.3	42.02		60022.3	43.00				
GR	43.00	9022.3	42.00	9022.3	37.21	10000.0	33.48	10005.0	31.40	10022.3
GR	32.47	10035.3	37.10	10041.5	41.79	10115.3	41.53	10208.3	41.71	10302.0
GR	42.02	10396.3	43.00	60022.3						

2000 BAKER & LAWSON SURVEY SECTION

X1	15.1	8	10000.0	10054.8	50.	50.	50.			
GR	43.00	9029.7	42.00	9029.7	40.39	10000.0	33.65	10018.7	31.94	10029.7
GR	34.00	10040.3	42.06	10054.8	43.00	60029.7				

NC 0.1 0.3

X1	15.	15	2964	3000	330.	450.	400.		0.4	
X3				2960	41.5	3087	42.9			
GR	42.3	2382.	42.3	2383.	42.3	2384.	42.3	2385.	40.7	2837.
GR	41.1	2960.	39.	2964.	34.7	2972.	32.4	2982.	34.7	2991.
GR	39.3	3000.	41.3	3004.	42.5	3087.	41.5	3182.	41.9	3842.

2000 BAKER & LAWSON SURVEY SECTION

X1	13.9	12	10047.2	10102.2	2200	2050	2150			
X3	10									
GR	45.00	8081.1	44.00	8081.1	41.81	10000.0	40.95	10047.2	35.72	10070.8
GR	34.49	10081.1	35.45	10087.0	43.86	10102.2	45.08	10136.7	42.58	10232.1
GR	43.00	14781.1	45.00	14781.1						

NC 0.3 0.5

2000 BAKER & LAWSON SURVEY SECTION

X1	13.8	15	10379.4	10417.4	100.	100.	100.			
X3	10							43.34	43.34	
GR	44.67	10000.	44.32	10093.7	43.96	10189.5	43.85	10282.1	43.69	10375.5
GR	40.22	10379.4	36.35	10399.1	34.30	10404.2	35.52	10408.7	40.08	10417.4
GR	43.84	10421.5	43.92	10518.6	43.88	10614.8	44.12	10710.1	44.27	10803.5

CR 67

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILE 11/97

SB	1.05	1.56	2.8		11.5	2.	259	1.5	34.3	34.4
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2000 BAKER & LAWSON SURVEY SECTION

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CR 67

X1	13.7	15	10379.4	10417.4	24.	24.	24.			
X2			1	42.34	44.34					
X3	10							44.34	44.34	
BT	-12	10000.0	44.67		10093.7	44.32		10189.5	43.96	
BT		10282.1	43.85		10379.4	44.39		10399.1	44.54	
BT		10417.4	44.34		10421.5	43.84		10518.6	43.92	
BT		10614.8	43.88		10710.1	44.12		10803.5	44.27	
GR	44.67	10000.	44.32	10093.7	43.96	10189.5	43.85	10282.1	43.69	10375.5
GR	40.22	10379.4	36.35	10399.1	34.30	10404.2	35.52	10408.7	40.08	10417.4
GR	43.84	10421.5	43.92	10518.6	43.88	10614.8	44.12	10710.1	44.27	10803.5

2000 BAKER & LAWSON SURVEY SECTION

X1	13.6	13	10144.1	10195.4	50.	50.	50.			
X3				10144.1	41.68	10215.4	44.72			
GR	46.00	8167.6	44.00	8167.6	42.13	10000.0	41.68	10144.1	35.68	10158.7
GR	34.35	10167.6	34.71	10174.4	43.65	10195.4	44.72	10215.4	43.10	10270.4
GR	42.33	10319.8	43.00	14867.6	45.00	14867.6				

NC 0.1 0.3

X1	13.3	25	3780.	3830.	550.	450.	500.			
X3	10									
GR	45.	1301.	45.	1302.	44.6	1651.	43.8	2331.	43.8	2856.
GR	43.2	3324.	43.4	3599.	43.	3686.	42.8	3737.	42.2	3755.
GR	44.2	3780.	38.2	3794.	37.4	3796.	34.5	3807.	37.4	3820.
GR	38.	3821.	44.	3830.	44.4	3896.	42.8	3926.	43.4	4060.
GR	43.2	4227.	43.2	4278.	43.4	4420.	43.1	8507.	45.1	8507.

NC 0.3 0.5

X1	13.2	27	3794.	3821.	100.	100.	100.			
X3	10							44.2	44.	
GR	44.4	1000.	45.	1302.	44.6	1651.	43.8	2331.	43.8	2856.
GR	43.2	3324.	43.4	3599.	43.	3686.	42.8	3737.	42.2	3755.
GR	44.2	3780.	38.2	3794.	37.4	3796.	34.5	3807.	37.4	3820.
GR	38.	3821.	44.	3830.	44.4	3896.	42.8	3926.	43.4	4060.
GR	43.2	4227.	43.2	4278.	43.4	4420.	43.	4767.	43.2	5045.
GR	43.0	8507.	45.0	8507.						

PRIVATE ROAD

SB	1.05	1.56	2.8		19.5	1.	173.	0.25	34.5	34.5
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PRIVATE ROAD

X1	13.1	27	3794	3821	12.5	12.5	12.5			
X2			1	41.4	42.4					
X3	10							44.2	44.	
BT	-23	1000.	44.4		1302.	45.		1651.	44.6	
BT		2331.	43.8		2856.	43.8		3324.	43.2	
BT		3599.	43.4		3686.	43.		3737.	42.8	
BT		3755.	42.2		3780.	44.2		3794.	44.	

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BT		3821.	44.		3830.	44.		3896.	44.4	
BT		3926.	42.8		4060.	43.4		4227.	43.2	
BT		4278.	43.2		4420.	43.4		4767.	43.	
BT		5045.	43.2		8507.	43.				
GR	44.4	1000.	45.	1302.	44.6	1651.	43.8	2331.	43.8	2856.
GR	43.2	3324.	43.4	3599.	43.	3686.	42.8	3737.	42.2	3755.
GR	44.2	3780.	38.2	3794.	37.4	3796.	34.5	3807.	37.4	3820.
GR	38.	3821.	44.	3830.	44.4	3896.	42.8	3926.	43.4	4060.
GR	43.2	4227.	43.2	4278.	43.4	4420.	43.	4767.	43.2	5045.
GR	43.0	8507.	45.0	8507.						

X1	13.	25	3780.	3830.	280.	280.	280.		0.1	
X3			3780.	3780.	44.3	3896.	44.5			
GR	45.	1301.	45.	1302.	44.6	1651.	43.8	2331.	43.8	2856.
GR	43.2	3324.	43.4	3599.	43.	3686.	42.8	3737.	42.2	3755.
GR	44.2	3780.	38.2	3794.	37.4	3796.	34.5	3807.	37.4	3820.
GR	38.	3821.	44.	3830.	44.4	3896.	42.8	3926.	43.4	4060.
GR	43.2	4227.	43.2	4278.	43.4	4420.	42.9	8507.	44.9	8507.

NC	0.035	0.035	0.04	0.1	0.3					
QT	3	450	593	849						

2000 BAKER & LAWSON SURVEY SECTION

X1	11.39	10	10010.8	10064.2	2800.	3100.	3020.			
X3				10000.0	45.81	10085.5	47.13			
GR	47.00	7037.7	45.81	7037.7	45.81	10000.0	44.35	10010.8	37.40	10029.2
GR	36.18	10037.7	37.51	10047.6	44.87	10064.2	47.13	10085.5	44.72	10174.1

NC			0.3	0.5						
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2000 BAKER & LAWSON SURVEY SECTION

X1	11.38	10	10091.1	10124.0	100.	100.	100.			
X3	10						45.1	45.1		
GR	47.00	7106.5	45.00	7106.5	44.69	10000.0	42.13	10091.1	37.66	10099.0
GR	36.22	10106.5	37.80	10115.8	40.52	10124.0	45.00	13406.5	47.00	13406.5

2ND PRIVATE BRIDGE DOWN STREAM OF CR 65

SB	1.05	1.56	2.6		31.	1.3	200.	0.25	36.25	36.22
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2000 BAKER & LAWSON SURVEY SECTION

2ND PRIVATE BRIDGE DOWN STREAM OF CR 65

X1	11.37	13	10091.5	10126.0	12.	12.	12.			
X2			1	44.3	45.91					
X3	10						45.91	45.91		
BT	-9	7109.9	45.00		10000.0	44.69		10091.5	45.91	
BT		10109.9	46.32		10126.0	46.34		10484.9	42.00	
BT		10859.9	43.00		11609.9	44.00		13409.9	45.00	
GR	47.00	7109.9	45.00	7109.9	44.69	10000.0	40.59	10091.5	37.76	10099.6
GR	36.25	10109.9	37.77	10117.5	40.91	10126.0	42.00	10484.9	43.00	10859.9
GR	44.00	11609.9	45.00	13409.9	47.00	13409.9				

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## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	11.36	15	10055.3	10113.6	50.	50.	50.			
X3				10044.5	46.20	10149.6	46.91			
GR	47.00	7084.6	45.00	7084.6	44.64	10000.0	45.05	10025.4	46.20	10044.5
GR	44.80	10055.3	37.53	10073.5	36.17	10084.6	38.70	10096.2	45.83	10113.6
GR	46.91	10149.6	44.22	10201.9	44.10	10255.2	45.00	13384.6	47.00	13384.6

NC				0.1	0.3					
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## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	11.03	11	10062.0	10108.1	1500.	1280.	1400.			
GR	47.00	7085.1	45.00	7085.1	44.35	10000.0	43.41	10062.0	37.88	10076.7
GR	37.21	10085.1	38.54	10095.5	44.39	10108.1	45.76	10122.7	45.76	13385.1
GR	47.00	13385.1								

NC				0.3	0.5					
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## 2000 BAKER &amp; LAWSON SURVEY SECTION

## 1ST PRIVATE BRIDGE DOWN STREAM OF CR 65

X1	11.02	12	10082.2	10104.7	100.	100.	100.			
X3	10							41.69	41.69	
GR	47.00	7094.4	45.00	7094.4	44.41	10000.0	40.57	10082.2	37.57	10089.7
GR	36.28	10094.4	37.58	10101.3	40.84	10104.7	42.31	10109.1	45.48	10139.2
GR	45.48	13394.4	47.00	13394.4						

## 1ST PRIVATE BRIDGE DOWN STREAM OF CR 65

SB	1.05	1.56	2.6		24.6	2.	205.	0.25	36.28	36.28
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## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	11.01	12	10082.2	10104.7	23.	23.	23.			
X2			1	41.19	42.19					
X3	10							42.19	42.19	
BT	-7	7094.4	45.00		10000.0	44.41		10082.2	42.46	
BT		10094.4	42.19		10109.1	42.45		10139.2	45.48	
BT		13394.4	45.48							
GR	47.00	7094.4	45.00	7094.4	44.41	10000.0	40.57	10082.2	37.57	10089.7
GR	36.28	10094.4	37.58	10101.3	40.84	10104.7	42.31	10109.1	45.48	10139.2
GR	45.48	13394.4	47.00	13394.4						

## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	11.00	10	10000.0	10049.2	50.	50.	50.			
GR	47.00	7025.6	45.00	7025.6	42.94	10000.0	37.78	10011.9	37.08	10025.6
GR	37.19	10032.7	44.05	10049.2	46.15	10064.8	46.15	13325.6	47.00	13325.6

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NC 0.035 0.035 0.04

2000 BAKER & LAWSON SURVEY SECTION

X1	9.23	11	10030.5	10076.3	400.	600.	500.			
GR	49.00	6555.8	47.00	6555.8	45.70	10000.0	43.93	10030.5	37.87	10047.6
GR	37.38	10055.8	38.74	10062.7	44.23	10076.3	46.94	10133.6	46.94	13355.8
GR	48.00	13355.8								

2000 BAKER & LAWSON SURVEY SECTION

X1	9.22	16	10400.6	10438.7	100.	100.	100.			
X3	10							46.81	46.81	
GR	49.09	10000.0	48.25	10111.6	48.05	10205.7	47.41	10299.4	46.82	10395.9
GR	44.21	10400.6	38.61	10417.4	36.79	10424.6	38.42	10430.4	42.37	10438.7
GR	46.83	10442.2	46.84	10533.1	47.02	10623.2	47.76	10714.1	48.00	10804.3
GR	48.19	10891.4								

CR 65

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILE 11/97

SB 1.05 1.56 2.6 12. 2, 277. 2. 36.79 36.79

2000 BAKER & LAWSON SURVEY SECTION

CR 65

X1	9.21	17	10398.1	10441.7	22.	22.	22.			
X2			1	45.71	47.91					
X3	10							47.91	47.91	
BT	-12	10000.0	49.09		10111.6	48.25		10205.7	48.05	
BT		10299.4	47.41		10392.4	47.99		10447.1	47.91	
BT		10475.1	46.41		10542.1	46.84		10632.3	47.02	
BT		10723.1	47.76		10813.3	48.00		10900.4	48.19	
GR	49.09	10000.0	48.25	10111.6	48.05	10205.7	47.41	10299.4	46.66	10392.4
GR	43.07	10398.1	38.28	10411.0	36.79	10421.4	38.62	10428.5	41.93	10441.7
GR	46.81	10447.1	46.41	10475.1	46.84	10542.1	47.02	10632.3	47.76	10723.1
GR	48.00	10813.3	48.19	10900.4						

2000 BAKER & LAWSON SURVEY SECTION

X1	9.20	17	10398.1	10441.7	50.	50.	50.			
X3					46.66	10447.1	46.81			
GR	49.09	10000.0	48.25	10111.6	48.05	10205.7	47.41	10299.4	46.66	10392.4
GR	43.07	10398.1	38.28	10411.0	36.79	10421.4	38.62	10428.5	41.93	10441.7
GR	46.81	10447.1	46.41	10475.1	46.84	10542.1	47.02	10632.3	47.76	10723.1
GR	48.00	10813.3	48.19	10900.4						

2000 BAKER & LAWSON SURVEY SECTION

X1	9.14	12	10049.5	10093.8	280	280	280			
X3					46.93	10191.9	44.78			
GR	48.00	6869.9	46.00	6869.9	44.85	10000.0	46.93	10031.1	44.00	10049.5
GR	38.32	10063.4	36.93	10069.9	38.12	10075.0	44.07	10093.8	44.78	10191.9
GR	47.00	13569.9	49.00	13569.9						

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NC 0.3 0.5

2000 BAKER & LAWSON SURVEY SECTION

X1	9.13	14	10044.8	10068.3	100.	100.	100.			
X3	10									
GR	48.00	6858.3	46.00	6858.3	44.97	10000.0	42.73	41.89	41.89	
GR	38.63	10049.2	37.33	10058.3	38.14	10063.3	40.04	10041.9	40.40	10044.8
GR	44.77	10115.4	44.81	10146.7	47.00	13563.3	49.00	10068.3	42.54	10073.0
								13563.3		

PRIVATE BRIDGE NEAR CR 65 & CR 62

SB	1.05	1.56	2.6		25.8	1.	180.	0.25	37.45	37.33
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2000 BAKER & LAWSON SURVEY SECTION

PRIVATE BRIDGE NEAR CR 65 & CR 62

X1	9.12	14	10046.7	10069.9	20	20	20			
X2			1	41.39	42.39					
X3	10									
BT	-10	6860.3	46.00		10000.0	44.97		42.39	42.39	
BT		10046.7	42.39		10065.5	42.39		10042.0	42.63	
BT		10072.1	42.73		10115.0	44.77		10069.9	42.68	
BT		13560.3	47.00					10146.3	44.81	
GR	48.00	6860.3	46.00	6860.3	44.97	10000.0	42.63	10042.0	40.79	10046.7
GR	38.42	10051.8	37.45	10060.3	38.41	10065.5	39.63	10069.9	42.73	10072.1
GR	44.77	10115.0	44.81	10146.3	47.00	13560.3	49.00	13560.3		

2000 BAKER & LAWSON SURVEY SECTION

X1	9.11	12	10066.6	10108.5	50.	50.	50.			
X3				10039.2	47.20	10183.7	45.03			
GR	48.00	6882.8	46.00	6882.8	44.77	10000.0	47.20	10039.2	43.59	10066.6
GR	38.85	10077.7	37.48	10082.8	38.22	10088.2	44.15	10108.5	45.03	10183.7
GR	47.00	13582.8	49.00	13582.8						

NC 0.035 0.035 0.04 0.1 0.3

2000 BAKER & LAWSON SURVEY SECTION

X1	9.07	18	10494.9	10542.2	380.	380.	380.			
GR	49.09	10000.0	47.58	10082.3	47.25	10180.6	47.34	10278.9	47.30	10375.0
GR	47.75	10468.9	43.51	10494.9	39.05	10511.5	38.01	10516.9	39.16	10524.2
GR	44.20	10542.2	47.87	10591.7	47.44	10683.0	47.68	10777.3	48.07	10869.6
GR	48.12	10962.3	48.09	11054.6	49.00	16054.6				

CR 62

2000 BAKER & LAWSON SURVEY SECTION

CR 62										
X1	9.06	18	10517.5	10566.2	20.	20.	20.			
BT	-7	10468.9	47.75	47.75	10517.5	47.75	46.25	10537.9	47.75	46.25
BT		10542.2	47.75	46.25	10547.6	47.75	46.25	10566.2	47.75	46.25
BT		10591.8	47.87	47.87						
GR	49.09	10000.0	47.58	10082.3	47.25	10180.6	47.34	10278.9	47.30	10375.0
GR	47.75	10468.9	44.47	10517.5	39.20	10537.9	37.81	10542.2	39.12	10547.6



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GR	44.09	10566.2	47.87	10591.8	47.44	10683.1	47.68	10777.4	48.07	10869.6
GR	48.12	10962.4	48.09	11054.7	49.00	16054.6				

2000 BAKER & LAWSON SURVEY SECTION

X1	9.03	14	10047.5	10105.6	1700.	1700.	1700.			
X3				10047.5	47.86	10120.1	48.03			
GR	49.00	6876.1	47.00	6876.1	46.74	10000.0	47.86	10047.5	40.99	10064.0
GR	40.16	10076.1	40.44	10085.3	47.45	10105.6	48.03	10120.1	47.64	10133.0
GR	46.56	10148.8	46.40	10191.8	50.00	15191.8	52.00	15191.8		

NC 0.3 0.5

X1	9.02	19	12766.	12794.	100.	100.	100.			
X3	10							46.8	49.4	
GR	50.	9568.	47.	9568.	47.3	11823.	47.3	11824.	47.3	11825.
GR	47.	12535.	47.	12748.	46.8	12760.	41.6	12766.	39.8	12768.
GR	39.8	12792.	41.4	12794.	46.8	12800.	49.4	12842.	49.	12872.
GR	47.2	12910.	48.	13481.	50.	62800.	52.	62800.		

CR 63

SB	1.05	1.56	2.6		25.8	1.	180.	0.25	39.8	39.8
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CR 63

X1	9.01				18.	18.	18.			
X2			1	45.1	46.6					
X3	10							46.8	49.4	
BT	-13	9568.	47.		11823.	47.3		11824.	47.3	
BT		11825.	47.3		12535.	47.		12739.	48.	
BT		12766.	47.9		12794.	47.9		12842.	49.4	
BT		12872.	49.		12910.	47.2		13481.	48.	
BT		62800.	50.							

2000 BAKER & LAWSON SURVEY SECTION

X1	9.0	15	10107.2	10161.7	50.	50.	50.			
X3				10100.1	48.51	10161.7	48.87			
GR	50.00	6933.9	47.00	6933.9	46.05	10000.0	48.21	10064.5	46.45	10082.1
GR	48.51	10100.1	47.55	10107.2	40.90	10128.1	39.47	10133.9	40.67	10138.3
GR	48.87	10161.7	48.73	10172.9	47.26	10189.7	50.00	15133.9	52.00	15133.9

NC 0.035 0.035 0.04 0.1 0.3  
 QT 3 277 365 522

2000 BAKER & LAWSON SURVEY SECTION

X1	8.05	12	10085.5	10131.2	4100.	3100.	3780.			
X3				10074.2	51.20	10153.6	49.95			
GR	53.00	7610.1	51.00	7610.1	48.75	10000.0	51.20	10074.2	50.02	10085.5
GR	41.82	10102.6	41.06	10110.1	42.55	10118.3	48.89	10131.2	49.95	10153.6
GR	49.95	14610.1	52.00	14610.1						

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NC			0.3		0.5					
X1	8.04	34	12922.	12958.	100.	100.	100.			
X3	10									
GR	53.0	10422.1	51.0	10422.1	50.8	11100.	50.8	11101.1	50.8	11102.
GR	50.8	11103.	50.6	11725.	49.8	12664.	49.2	12781.	50.6	12898.
GR	47.4	12910.	46.	12922.	36.9	12922.1	36.9	12933.3	46.	12933.4
GR	46.	12933.5	36.9	12933.6	36.9	12945.3	46.	12945.4	46.	12945.5
GR	36.9	12945.6	36.9	12957.9	46.	12958.	46.	12967.	47.3	12969.
GR	49.	12984.	49.	13267.	50.2	13902.	51.	14500.	50.6	14958.
GR	51.	15548.	51.2	16280.	51.2	17422.1	53.	17422.1		
NC			0.012							
SH288										
SH288 (CULVERT)										
X1	8.03	34	12922	12958	10.	10.	10.			
X3				12898.	50.6	12984	49.			
BT	-7	12898.	50.6	50.6	12910.	49.6	47.4	12922.	49.6	46.
BT		12958.	49.6	46.	12967.	49.6	46.	12969.	49.6	47.3
BT		12984.	49.	49.						
GR	53.0	10433.6	51.0	10433.6	50.8	11100.	50.8	11101.	50.8	11102.
GR	50.8	11103.	50.6	11725.	49.8	12664.	49.2	12781.	50.6	12898.
GR	47.4	12910.	46.	12922.	36.9	12922.1	36.9	12933.3	46.	12933.4
GR	46.	12933.5	36.9	12933.6	36.9	12945.3	46.	12945.4	46.	12945.5
GR	36.9	12945.6	36.9	12957.9	46.	12958.	46.	12967.	47.3	12969.
GR	49.	12984.	49.	13267.	50.2	13902.	51.	14500.	50.6	14958.
GR	51.	15548.	51.2	16280.	51.2	17433.6	53.	17433.6		
SH288										
SH288 (CULVERT)										
X1	8.02	34	12922.	12958.	600.	600.	600.			
X3				12898.	50.6	12984.	49.			
BT	-7	12898.	50.6	50.6	12910.	49.6	47.4	12922.	49.6	46.8
BT		12958.	49.6	46.8	12967.	49.6	46.	12969.	49.6	47.3
BT		12984.	49.	49.						
GR	53.0	10433.6	51.0	10433.6	50.8	11100.	50.8	11101.	50.8	11102.
GR	50.8	11103.	50.6	11725.	49.8	12664.	49.2	12781.	50.6	12898.
GR	47.4	12910.	46.8	12922.	37.7	12922.6	37.7	12933.3	46.8	12933.4
GR	46.8	12933.5	37.7	12933.6	37.7	12945.3	46.8	12945.4	46.8	12945.5
GR	37.7	12945.6	37.7	12957.9	46.8	12958.	46.	12967.	47.3	12969.
GR	49.	12984.	49.	13267.	50.2	13902.	51.	14500.	50.6	14958.
GR	51.	15548.	51.2	16280.	51.2	17433.6	53.	17433.6		
NC			0.04							
X1	8.01				10.	10.	10.			
X3				12898.	50.6	12984.	49.			

2000 BAKER & LAWSON SURVEY SECTION

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X1	8.00	9	10000.0	10064.8	50.	50.	50.			
GR	53.00	7526.8	51.00	7526.8	48.83	10000.0	43.11	10015.3	41.66	10026.8
GR	42.48	10044.9	47.95	10064.8	49.00	14526.8	53.00	14526.8		

2000 BAKER & LAWSON SURVEY SECTION

X1	7.49	16	10115.2	10152.2	900.	900.	900.			
X3				10079.7	51.81	10164.4	51.43			
GR	54.00	7634.6	52.00	7634.6	50.00	9534.6	50.35	10000.0	50.35	10049.5
GR	51.81	10079.7	48.52	10115.2	45.34	10127.9	44.04	10134.6	46.09	10142.7
GR	50.25	10152.2	51.43	10164.4	49.73	10190.1	50.00	10634.6	52.00	13334.6
GR	54.00	13334.6								

NC 0.3 0.5

2000 BAKER & LAWSON SURVEY SECTION

X1	7.48	16	10116.7	10188.2	100.	100.	100.			
X3	10			10080.8	50.67	10188.2	51.30	49.37	49.37	
GR	54.00	7647.2	52.00	7647.2	50.0	9547.2	49.78	10000.0	49.93	10048.4
GR	50.67	10080.8	49.86	10116.7	43.71	10147.2	44.27	10154.4	45.70	10160.9
GR	51.30	10188.2	51.48	10221.1	51.16	10254.8	51.16	10647.2	52.00	13347.2
GR	54.00	13347.2								

SB 1.05 1.56 2.6 15.8 1. 116. 0.25 44.01 43.71

2000 BAKER & LAWSON SURVEY SECTION

X1	7.47	16	10116.7	10187.1	12.	12.	12.			
X2			1	48.87	49.87					
X3	10			10080.8	50.67	10188.2	51.30	49.87	49.87	
BT	-12	7649.8	52.00		9549.8	50.00		10000.0	49.78	
BT		10048.4	49.93		10080.8	50.67		10116.7	49.86	
BT		10150.7	49.87		10187.1	51.30		10220.0	51.48	
BT		10253.7	51.16		10643.3	50.00		13343.3	52.00	
GR	54.00	7649.8	52.00	7649.8	50.0	9549.8	49.78	10000.0	49.93	10048.4
GR	50.67	10080.8	49.86	10116.7	44.13	10143.3	44.01	10149.8	45.27	10156.1
GR	51.30	10187.1	51.48	10220.0	51.16	10253.7	50.00	10643.3	52.00	13343.3
GR	54.00	13343.3								

PRIVATE ROAD

2000 BAKER & LAWSON SURVEY SECTION

PRIVATE ROAD										
X1	7.46	16	10104.1	10144.0	50.	50.	50.			
X3				10072.9	51.09	10158.1	51.50			
GR	54.00	7623.7	52.00	7623.7	50.00	9523.7	49.78	10000.0	49.99	10027.6
GR	51.09	10072.9	49.16	10104.1	45.34	10115.4	44.04	10123.7	45.68	10131.7
GR	50.63	10144.0	51.50	10158.1	50.03	10203.4	50.00	10623.7	52.00	13323.7
GR	54.00	13323.7								

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NC  
 QT 3 210 276 0.1 0.3  
 395

2000 BAKER & LAWSON SURVEY SECTION

X1	7.	12	10045.3	10097.8	1900.	2350.	2280.			
X3				10000.0	51.68	10097.8	52.39			
GR	54.00	7574.0	52.00	7574.0	51.68	10000.0	50.69	10045.3	45.86	10064.0
GR	45.04	10074.3	46.08	10082.3	52.39	10097.8	52.18	10126.3	52.19	10150.7
GR	51.03	10188.3	55.00	15074.0						

NC 0.3 0.5

2000 BAKER & LAWSON SURVEY SECTION

X1	6.9	18	10448.2	10474.0	100.	100.	100.			
X3	10									
GR	54.00	7958.2	52.00	7958.2	52.87	10000.0	52.74	52.45	52.45	
GR	52.87	10267.1	52.76	10356.2	47.67	10448.2	46.42	10087.1	52.78	10178.0
GR	46.11	10464.1	48.66	10474.0	53.35	10563.2	53.70	10453.2	45.50	10458.2
GR	54.04	10836.9	54.14	10928.6	55.00	15458.2		10653.3	53.77	10744.7

CR 64

SB 1.05 1.56 2.6 23.7 1. 117. 0.25 45.5 45.5

CR 64

2000 BAKER & LAWSON SURVEY SECTION

CR 64

X1	6.8	18	10448.2	10474.0	17.	17.	17.			
X2			1	51.75	53.15					
X3	10									
BT	-14	7958.2	52.00		10000.0	52.87		53.15	53.15	
BT		10178.0	52.78		10267.1	52.87		10087.1	52.74	
BT		10448.2	53.15		10474.0	53.33		10356.2	52.76	
BT		10653.3	53.70		10744.7	53.77		10563.2	53.35	
BT		10928.6	54.14		15458.2	55.00		10836.9	54.04	
GR	54.00	7958.2	52.00	7958.2	52.87	10000.0	52.74	10087.1	52.78	10178.0
GR	52.87	10267.1	52.76	10356.2	47.67	10448.2	46.42	10453.2	45.50	10458.2
GR	46.11	10464.1	48.66	10474.0	53.35	10563.2	53.70	10653.3	53.77	10744.7
GR	54.04	10836.9	54.14	10928.6	55.00	15458.2				

2000 BAKER & LAWSON SURVEY SECTION

X1	6.7	16	10012.2	10047.6	50.	50.	50.			
X3				10000.0	51.86	10069.0	53.89			
GR	54.00	7529.8	52.00	7529.8	51.86	10000.0	51.17	10012.2	46.78	10022.7
GR	45.34	10029.8	46.59	10035.6	52.33	10047.6	53.65	10059.4	53.89	10069.0
GR	53.41	10079.0	52.22	10082.5	50.48	10088.7	51.46	10095.2	51.06	10181.8
GR	55.00	15029.8								

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T1 NORTH HAYES CREEK.....2000 BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: NORHAYES.IH2.....25 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....REV 09/00

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3			0.0005					
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-7							

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T1 NORTH HAYES CREEK.....2000 BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: NORHAYES.IH2.....100 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....REV 09/00

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		4			0.0005				37.1	
J2	NPROF	IPL0T	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-7							

THIS RUN EXECUTED 25AUG02 18:22:45

\*\*\*\*\*  
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

L REVISED BY KLOTZ ASSOC

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
17.000	723.00	33.44	2.52	22.34	33.18	32.49	39.00	721.85	99.84	.00	59.18	
17.000	952.00	34.50	2.79	22.34	33.18	32.49	39.00	939.62	98.70	.00	243.33	
17.000	1363.00	35.40	3.06	22.34	33.18	32.49	39.00	1162.21	85.27	.00	1640.27	
16.900	723.00	33.64	2.81	23.26	30.54	32.65	39.00	705.77	97.62	400.00	65.48	
16.900	952.00	34.70	3.12	23.26	30.54	32.65	39.00	906.83	95.26	400.00	162.22	
16.900	1363.00	35.61	3.56	23.26	30.54	32.65	39.00	1156.70	84.86	400.00	1247.38	
16.800	723.00	33.78	2.82	23.49	30.77	32.71	39.00	723.00	100.00	14.50	36.40	
16.800	952.00	34.88	3.05	23.49	30.77	32.71	39.00	902.49	94.80	14.50	276.48	
16.800	1363.00	35.60	3.61	23.49	30.77	32.71	39.00	1162.70	85.30	14.50	1235.98	
16.700	723.00	33.81	2.74	23.49	30.77	32.71	39.00	706.00	97.65	50.00	66.76	
16.700	952.00	34.90	3.03	23.49	30.77	32.71	39.00	900.96	94.64	50.00	292.50	
16.700	1363.00	35.64	3.56	23.49	30.77	32.71	39.00	1152.57	84.56	50.00	1313.32	
*	16.000	654.00	34.66	6.01	28.70	38.30	38.40	40.00	654.00	100.00	1080.00	29.47
*	16.000	862.00	35.73	6.05	28.70	38.30	38.40	40.00	862.00	100.00	1080.00	33.95
*	16.000	1234.00	36.57	7.15	28.70	38.30	38.40	40.00	1234.00	100.00	1080.00	37.51
*	15.900	654.00	38.82	2.81	29.20	38.80	38.90	40.60	653.74	99.96	2400.00	105.78
*	15.900	862.00	39.62	3.02	29.20	38.80	38.90	40.60	812.48	94.25	2400.00	537.34
*	15.900	1234.00	40.28	2.82	29.20	38.80	38.90	40.60	842.64	68.29	2400.00	3487.46
15.800	654.00	38.90	2.76	29.20	38.80	38.90	40.60	652.98	99.84	100.00	156.09	
15.800	862.00	39.70	2.94	29.20	38.80	38.90	40.60	800.52	92.87	100.00	738.58	
15.800	1234.00	40.35	2.61	29.20	38.80	38.90	40.60	789.38	63.97	100.00	3850.00	
15.700	654.00	39.02	2.70	29.20	38.80	38.90	40.60	654.00	100.00	15.00	45.00	
15.700	862.00	39.70	2.94	29.20	38.80	38.90	40.60	800.24	92.84	15.00	746.12	
15.700	1234.00	40.35	2.62	29.20	38.80	38.90	40.60	792.32	64.21	15.00	3829.95	

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
15.600	654.00	39.06	2.66	29.20	38.80	38.90	40.65	648.83	99.21	50.00	182.08	
15.600	862.00	39.74	2.90	29.20	38.80	38.90	40.65	794.22	92.14	50.00	889.07	
15.600	1234.00	40.37	2.60	29.20	38.80	38.90	40.65	786.39	63.73	50.00	3748.33	
15.400	582.00	40.73	2.28	32.03	39.67	41.96	43.00	574.02	98.63	3150.00	73.07	
15.400	766.00	41.29	2.16	32.03	39.67	41.96	43.00	601.88	78.57	3150.00	3120.34	
15.400	1097.00	41.53	1.97	32.03	39.67	41.96	43.00	571.69	52.11	3150.00	5173.98	
*	15.300	582.00	40.81	1.54	31.40	37.21	37.10	43.00	501.31	86.14	100.00	302.00
*	15.300	766.00	41.34	1.70	31.40	37.21	37.10	43.00	587.97	76.76	100.00	655.04
	15.300	1097.00	41.55	2.21	31.40	37.21	37.10	43.00	587.97	76.76	100.00	655.04
	15.300	1097.00	41.55	2.21	31.40	37.21	37.10	43.00	784.48	71.51	100.00	792.65
15.200	582.00	41.03	1.49	31.40	37.21	37.10	43.00	497.35	85.46	16.00	137.31	
15.200	766.00	41.55	1.71	31.40	37.21	37.10	43.00	606.87	79.23	16.00	645.83	
15.200	1097.00	41.78	2.21	31.40	37.21	37.10	43.00	808.79	73.73	16.00	880.03	
*	15.100	582.00	41.03	1.83	31.94	40.39	42.06	43.00	540.40	92.85	50.00	444.96
	15.100	766.00	41.55	1.80	31.94	40.39	42.06	43.00	581.68	75.94	50.00	754.93
	15.100	1097.00	41.81	2.18	31.94	40.39	42.06	43.00	732.65	66.79	50.00	903.80
*	15.000	582.00	41.14	2.87	32.80	39.40	39.70	42.70	577.68	99.26	400.00	42.18
*	15.000	766.00	41.61	3.43	32.80	39.40	39.70	42.70	750.98	98.04	400.00	212.04
*	15.000	1097.00	41.86	4.53	32.80	39.40	39.70	42.70	1029.98	93.89	400.00	314.87
	13.900	582.00	42.29	2.04	34.49	40.95	43.86	45.00	515.32	88.54	2150.00	520.49
*	13.900	766.00	42.78	1.87	34.49	40.95	43.86	45.00	520.32	67.93	2150.00	949.71
*	13.900	1097.00	43.22	1.78	34.49	40.95	43.86	45.00	539.97	49.22	2150.00	1345.87
*	13.800	582.00	42.30	3.11	34.30	40.22	40.08	44.27	582.00	100.00	100.00	38.00
*	13.800	766.00	42.74	3.76	34.30	40.22	40.08	44.27	766.00	100.00	100.00	38.00
*	13.800	1097.00	43.09	5.05	34.30	40.22	40.08	44.27	1097.00	100.00	100.00	38.00
	13.700	582.00	42.32	3.10	34.30	40.22	40.08	44.27	582.00	100.00	24.00	38.00
	13.700	766.00	42.77	3.74	34.30	40.22	40.08	44.27	766.00	100.00	24.00	38.00
	13.700	1097.00	43.15	5.00	34.30	40.22	40.08	44.27	1097.00	100.00	24.00	38.00
*	13.600	582.00	42.46	2.13	34.35	41.68	43.65	45.00	522.58	89.79	50.00	513.90
*	13.600	766.00	43.03	1.78	34.35	41.68	43.65	45.00	486.85	63.56	50.00	1079.78
*	13.600	1097.00	43.66	1.39	34.35	41.68	43.65	45.00	425.78	38.81	50.00	1698.58
	13.300	582.00	42.68	2.64	34.40	44.10	43.90	44.90	582.00	100.00	500.00	44.87
*	13.300	766.00	43.17	3.15	34.40	44.10	43.90	44.90	766.00	100.00	500.00	46.72
*	13.300	1097.00	43.65	4.13	34.40	44.10	43.90	44.90	1097.00	100.00	500.00	48.57
	13.200	582.00	42.72	3.28	34.50	38.20	38.00	44.40	582.00	100.00	100.00	27.00
	13.200	766.00	43.21	4.02	34.50	38.20	38.00	44.40	766.00	100.00	100.00	27.00
	13.200	1097.00	43.70	5.38	34.50	38.20	38.00	44.40	1097.00	100.00	100.00	27.00
	13.100	582.00	42.80	3.24	34.50	38.20	38.00	44.40	582.00	100.00	12.50	27.00
	13.100	766.00	43.21	4.02	34.50	38.20	38.00	44.40	766.00	100.00	12.50	27.00
	13.100	1097.00	43.70	5.38	34.50	38.20	38.00	44.40	1097.00	100.00	12.50	27.00



North Hayes Prop. Multi Freq. NORHAYEP.IH2

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMK	QCH	QCHP	XLCH	TOPWID
13.000	582.00	43.06	2.55	34.60	44.30	44.10	45.10	582.00	100.00	280.00	45.54
13.000	766.00	43.59	3.03	34.60	44.30	44.10	45.10	766.00	100.00	280.00	47.56
13.000	1097.00	44.36	3.71	34.60	44.30	44.10	45.10	1078.90	98.35	280.00	1634.53
11.390	450.00	44.39	1.75	36.18	44.35	44.87	44.72	450.00	100.00	3020.00	52.53
11.390	593.00	45.17	1.98	36.18	44.35	44.87	44.72	591.89	99.81	3020.00	62.31
*	11.390	849.00	46.03	1.97	36.18	44.35	44.87	678.94	79.97	3020.00	3037.44
11.380	450.00	44.40	2.21	36.22	42.13	40.52	47.00	450.00	100.00	100.00	32.90
*	11.380	593.00	45.25	.11	36.22	42.13	40.52	25.51	4.30	100.00	6300.00
*	11.380	849.00	46.09	.09	36.22	42.13	40.52	24.48	2.88	100.00	6300.00
11.370	450.00	44.46	2.05	36.25	40.59	40.91	47.00	450.00	100.00	12.00	34.50
*	11.370	593.00	45.38	2.36	36.25	40.59	40.91	47.00	593.00	100.00	34.50
*	11.370	849.00	46.09	.14	36.25	40.59	40.91	37.72	4.44	12.00	6300.00
11.360	450.00	44.50	1.67	36.17	44.80	45.83	47.00	450.00	100.00	50.00	54.31
11.360	593.00	45.43	1.85	36.17	44.80	45.83	47.00	592.50	99.92	50.00	62.23
*	11.360	849.00	46.05	2.37	36.17	44.80	45.83	845.17	99.55	50.00	75.30
11.030	450.00	44.81	1.36	37.21	43.41	44.39	47.00	322.26	71.61	1400.00	2186.19
*	11.030	593.00	45.56	.50	37.21	43.41	44.39	136.25	22.98	1400.00	3035.40
*	11.030	849.00	46.18	.33	37.21	43.41	44.39	98.11	11.56	1400.00	6300.00
11.020	450.00	44.84	1.31	36.28	40.57	40.84	47.00	201.84	44.85	100.00	2217.47
11.020	593.00	45.56	.54	36.28	40.57	40.84	47.00	91.51	15.43	100.00	6300.00
11.020	849.00	46.18	.32	36.28	40.57	40.84	47.00	58.66	6.91	100.00	6300.00
11.010	450.00	44.84	1.30	36.28	40.57	40.84	47.00	200.64	44.59	23.00	2243.44
*	11.010	593.00	45.56	.54	36.28	40.57	40.84	92.21	15.55	23.00	6300.00
*	11.010	849.00	46.18	.32	36.28	40.57	40.84	59.18	6.97	23.00	6300.00
* 11.000	450.00	44.85	.37	37.08	42.94	44.05	47.00	102.86	22.86	50.00	2808.33
* 11.000	593.00	45.56	.23	37.08	42.94	44.05	47.00	73.86	12.46	50.00	3034.82
11.000	849.00	46.18	.22	37.08	42.94	44.05	47.00	74.33	8.75	50.00	6300.00
* 9.230	450.00	44.84	2.03	37.38	43.93	44.23	48.00	445.00	98.89	500.00	74.20
* 9.230	593.00	45.53	2.26	37.38	43.93	44.23	48.00	565.27	95.32	500.00	100.82
* 9.230	849.00	46.14	2.48	37.38	43.93	44.23	48.00	689.81	81.25	500.00	1290.46
9.220	450.00	44.87	2.38	36.79	44.21	42.37	48.19	450.00	100.00	100.00	38.10
9.220	593.00	45.56	2.76	36.79	44.21	42.37	48.19	593.00	100.00	100.00	38.10
*	9.220	849.00	46.14	3.57	36.79	44.21	42.37	849.00	100.00	100.00	38.10
* 9.210	450.00	44.87	1.86	36.79	43.07	41.93	48.19	450.00	100.00	22.00	43.60
9.210	593.00	45.56	2.18	36.79	43.07	41.93	48.19	593.00	100.00	22.00	43.60
9.210	849.00	46.25	2.81	36.79	43.07	41.93	48.19	849.00	100.00	22.00	43.60
9.200	450.00	44.92	1.82	36.79	43.07	41.93	48.19	444.85	98.86	50.00	49.84
9.200	593.00	45.62	2.12	36.79	43.07	41.93	48.19	582.27	98.19	50.00	51.74
9.200	849.00	46.28	2.73	36.79	43.07	41.93	48.19	827.60	97.48	50.00	53.51

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
	9.140	450.00	45.00	1.94	36.93	44.00	44.07	49.00	411.53	91.45	280.00	471.99
*	9.140	593.00	45.75	1.25	36.93	44.00	44.07	49.00	308.54	52.03	280.00	1622.49
*	9.140	849.00	46.45	.81	36.93	44.00	44.07	49.00	223.55	26.33	280.00	2701.73
	9.130	450.00	45.04	2.04	37.33	40.40	40.04	48.00	315.07	70.02	100.00	686.92
*	9.130	593.00	45.76	1.01	37.33	40.40	40.04	48.00	173.34	29.23	100.00	4067.71
*	9.130	849.00	46.46	.47	37.33	40.40	40.04	48.00	88.31	10.40	100.00	5872.56
	9.120	450.00	45.04	2.09	37.45	40.79	39.63	48.00	317.54	70.57	20.00	745.50
	9.120	593.00	45.76	1.02	37.45	40.79	39.63	48.00	172.15	29.03	20.00	4060.38
*	9.120	849.00	46.46	.47	37.45	40.79	39.63	48.00	87.58	10.32	20.00	5855.82
	9.110	450.00	45.05	2.18	37.48	43.59	44.15	49.00	424.92	94.43	50.00	163.46
*	9.110	593.00	45.76	1.63	37.48	43.59	44.15	49.00	367.69	62.01	50.00	1405.17
*	9.110	849.00	46.46	1.01	37.48	43.59	44.15	49.00	255.88	30.14	50.00	2603.45
	9.070	450.00	45.22	2.05	38.01	43.51	44.20	49.00	439.03	97.56	380.00	71.58
*	9.070	593.00	45.84	2.31	38.01	43.51	44.20	49.00	562.15	94.80	380.00	83.66
*	9.070	849.00	46.44	2.86	38.01	43.51	44.20	49.00	776.20	91.42	380.00	95.43
	9.060	450.00	45.22	2.20	37.81	44.47	44.09	49.00	444.76	98.84	20.00	67.70
	9.060	593.00	45.84	2.47	37.81	44.47	44.09	49.00	572.26	96.50	20.00	80.95
*	9.060	849.00	46.45	3.06	37.81	44.47	44.09	49.00	769.77	90.67	20.00	93.89
	9.030	450.00	46.19	2.22	40.16	47.86	47.45	52.00	450.00	100.00	1700.00	50.45
	9.030	593.00	46.88	2.49	40.16	47.86	47.45	52.00	593.00	100.00	1700.00	54.09
*	9.030	849.00	48.00	2.42	40.16	47.86	47.45	52.00	730.34	86.02	1700.00	3243.32
	9.020	450.00	46.23	2.54	39.80	41.60	41.40	50.00	450.00	100.00	100.00	28.00
	9.020	593.00	46.92	2.90	39.80	41.60	41.40	50.00	568.34	95.84	100.00	41.16
*	9.020	849.00	48.11	.75	39.80	41.60	41.40	50.00	171.73	20.23	100.00	3226.00
	9.010	450.00	46.28	2.53	39.80	41.60	41.40	50.00	450.00	100.00	18.00	28.00
	9.010	593.00	47.01	2.86	39.80	41.60	41.40	50.00	567.40	95.68	18.00	296.74
	9.010	849.00	48.11	.76	39.80	41.60	41.40	50.00	173.20	20.40	18.00	3226.00
*	9.000	450.00	46.30	2.92	39.47	47.55	48.87	52.00	450.00	100.00	50.00	43.25
*	9.000	593.00	47.03	3.17	39.47	47.55	48.87	52.00	593.00	100.00	50.00	47.63
*	9.000	849.00	48.01	3.59	39.47	47.55	48.87	52.00	848.54	99.95	50.00	55.49
*	8.050	277.00	48.46	1.47	41.06	50.02	48.89	52.00	277.00	100.00	3780.00	41.53
*	8.050	365.00	49.29	1.62	41.06	50.02	48.89	52.00	364.62	99.89	3780.00	52.66
*	8.050	522.00	50.09	1.58	41.06	50.02	48.89	52.00	411.36	78.80	3780.00	4525.30
*	8.040	277.00	48.50	.67	36.90	46.00	46.00	53.00	277.00	100.00	100.00	36.00
*	8.040	365.00	49.34	.72	36.90	46.00	46.00	53.00	320.91	87.92	100.00	527.39
*	8.040	522.00	50.13	.69	36.90	46.00	46.00	53.00	327.74	62.79	100.00	944.92
*	8.030	277.00	48.50	.86	36.90	46.00	46.00	53.00	277.00	100.00	10.00	73.75
*	8.030	365.00	49.34	1.09	36.90	46.00	46.00	53.00	353.30	96.79	10.00	547.44
	8.030	522.00	50.13	1.12	36.90	46.00	46.00	53.00	382.11	73.20	10.00	967.78

North Hayes Prop. Multi Freq. NORHAYEP.IH2

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
8.020	277.00	48.51	.86	37.70	46.80	46.80	53.00	277.00	100.00	600.00	73.92	
8.020	365.00	49.35	1.10	37.70	46.80	46.80	53.00	352.35	96.53	600.00	554.76	
8.020	522.00	50.15	1.11	37.70	46.80	46.80	53.00	378.59	72.53	600.00	975.79	
*	8.010	277.00	.68	37.70	46.80	46.80	53.00	258.39	93.28	10.00	73.81	
*	8.010	365.00	.74	37.70	46.80	46.80	53.00	304.02	83.29	10.00	554.95	
*	8.010	522.00	.68	37.70	46.80	46.80	53.00	298.04	57.10	10.00	978.01	
8.000	277.00	48.52	.67	41.66	48.83	47.95	53.00	194.44	70.19	50.00	2467.74	
*	8.000	365.00	.20	41.66	48.83	47.95	53.00	71.09	19.48	50.00	5141.28	
*	8.000	522.00	.12	41.66	48.83	47.95	53.00	47.63	9.12	50.00	6044.86	
*	7.490	277.00	3.38	44.04	48.52	50.25	54.00	277.00	100.00	900.00	33.57	
*	7.490	365.00	3.38	44.04	48.52	50.25	54.00	361.72	99.10	900.00	43.25	
*	7.490	522.00	3.74	44.04	48.52	50.25	54.00	502.05	96.18	900.00	53.25	
*	7.480	277.00	1.86	43.71	49.86	51.30	54.00	277.00	100.00	100.00	54.41	
*	7.480	365.00	1.91	43.71	49.86	51.30	54.00	365.00	100.00	100.00	61.47	
*	7.480	522.00	2.15	43.71	49.86	51.30	54.00	519.86	99.59	100.00	88.33	
7.470	277.00	48.92	1.90	44.01	49.86	51.30	54.00	277.00	100.00	12.00	53.78	
7.470	365.00	49.74	1.89	44.01	49.86	51.30	54.00	365.00	100.00	12.00	61.81	
7.470	522.00	50.34	2.24	44.01	49.86	51.30	54.00	519.71	99.56	12.00	87.13	
7.460	277.00	48.94	2.76	44.04	49.16	50.63	54.00	277.00	100.00	50.00	35.07	
7.460	365.00	49.75	2.80	44.04	49.16	50.63	54.00	363.24	99.52	50.00	47.17	
7.460	522.00	50.34	3.34	44.04	49.16	50.63	54.00	509.44	97.59	50.00	58.26	
*	7.000	210.00	50.43	1.37	45.04	50.69	52.39	55.00	210.00	100.00	2280.00	46.66
*	7.000	276.00	51.11	1.48	45.04	50.69	52.39	55.00	275.05	99.65	2280.00	68.11
*	7.000	395.00	51.84	1.63	45.04	50.69	52.39	55.00	365.48	92.53	2280.00	1327.65
*	6.900	210.00	50.45	2.16	45.50	47.67	48.66	54.00	210.00	100.00	100.00	25.80
*	6.900	276.00	51.12	2.41	45.50	47.67	48.66	54.00	276.00	100.00	100.00	25.80
*	6.900	395.00	51.84	2.97	45.50	47.67	48.66	54.00	395.00	100.00	100.00	25.80
6.800	210.00	50.45	2.16	45.50	47.67	48.66	54.00	210.00	100.00	17.00	25.80	
6.800	276.00	51.12	2.41	45.50	47.67	48.66	54.00	276.00	100.00	17.00	25.80	
6.800	395.00	51.98	2.89	45.50	47.67	48.66	54.00	395.00	100.00	17.00	25.80	
6.700	210.00	50.48	2.34	45.34	51.17	52.33	55.00	210.00	100.00	50.00	29.87	
6.700	276.00	51.16	2.49	45.34	51.17	52.33	55.00	276.00	100.00	50.00	32.90	
6.700	395.00	52.14	1.76	45.34	51.17	52.33	55.00	253.84	64.26	50.00	2517.38	

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## SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	16.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	16.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	16.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	15.900	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	15.900	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	15.900	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	15.300	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	15.300	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	15.100	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	15.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	15.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	15.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.900	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.900	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.800	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.800	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.800	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.600	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.600	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.600	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.300	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.300	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	11.390	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	11.380	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	11.380	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	11.370	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	11.370	PROFILE=	3	20 TRIALS OF EG NOT ENOUGH
WARNING SECNO=	11.360	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	11.030	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	11.030	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	11.010	PROFILE=	2	20 TRIALS OF EG NOT ENOUGH
CAUTION SECNO=	11.010	PROFILE=	3	20 TRIALS OF EG NOT ENOUGH
WARNING SECNO=	11.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	11.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.230	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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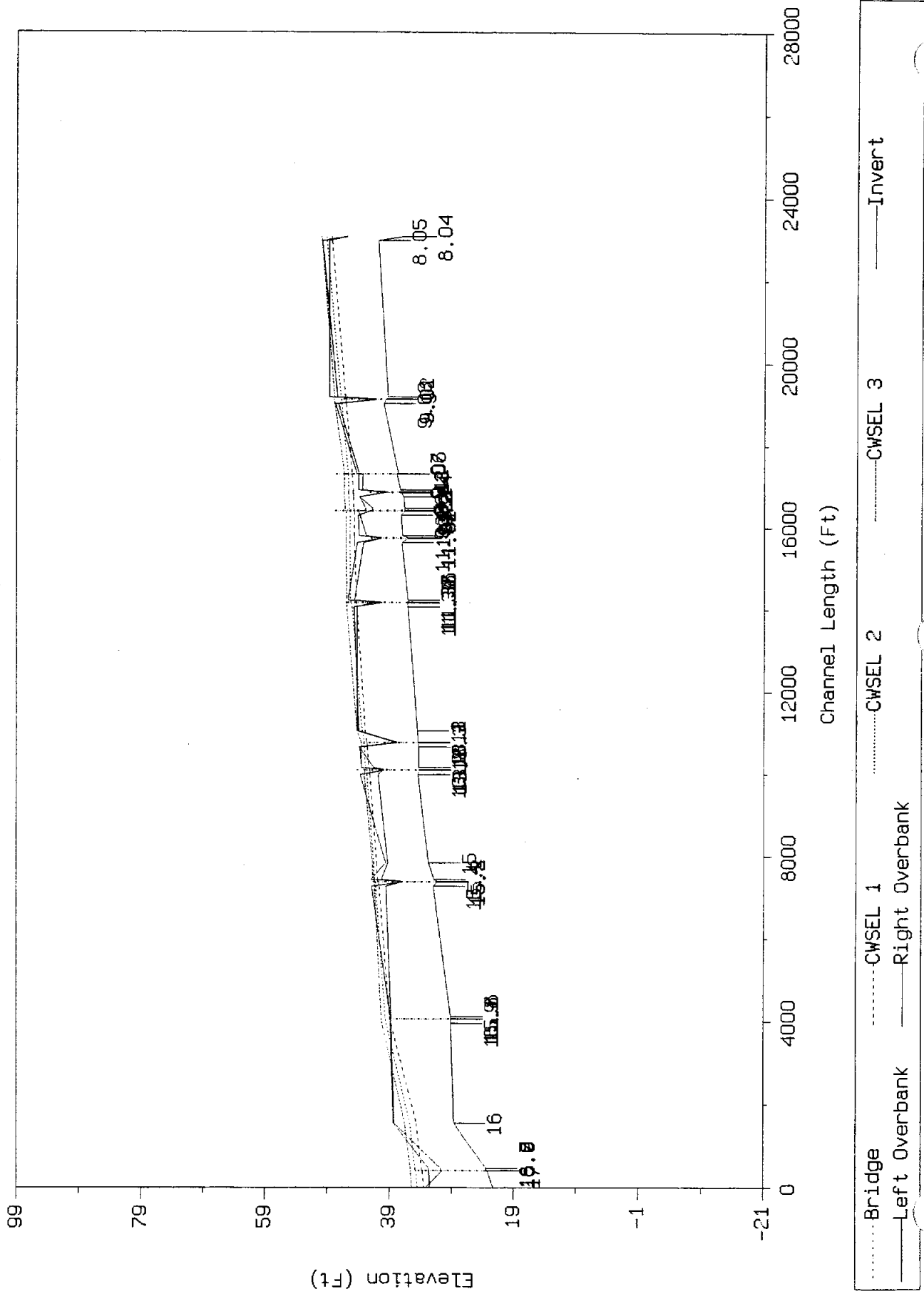
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WARNING SECNO=	9.230	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.230	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.220	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.210	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.140	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.140	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.130	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.130	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	9.120	PROFILE=	3	20 TRIALS OF EG NOT ENOUGH
WARNING SECNO=	9.110	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.110	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.070	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.070	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.060	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.030	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.020	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.050	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.050	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.050	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.040	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.040	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.040	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.030	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.030	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.010	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.010	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.490	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.490	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.490	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.480	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.480	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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WARNING SECNO=	7.480	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.900	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.900	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.900	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

L REVISED BY KLOTZ ASSOC  
 Cross-Sections (17 to 8.04)



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*****  
* HEC-2 WATER SURFACE PROFILES *  
*  
* version 4.6.2; May 1991 *  
*  
* RUN DATE 21AUG02 TIME 10:26:47 *  
*****
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*****  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET, SUITE D *  
* DAVIS, CALIFORNIA 95616-4687 *  
* (916) 756-1104 *  
*****
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      X   X  XXXXXXXX  XXXXX          XXXXX  
      X   X  X        X   X          X   X  
      X   X  X        X                X  
      XXXXXXXX  XXXX  X          XXXXX  XXXXX  
      X   X  X        X                X  
      X   X  X        X   X          X  
      X   X  XXXXXXXX  XXXXX          XXXXXXXX
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21AUG02 10:26:47

THIS RUN EXECUTED 21AUG02 10:26:47

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

\*\*\*\*\*

T1 SOUTH HAYES CREEK..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
 T3 FILENAME: SOUHAYES.IH2.....10 YEAR FREQUENCY  
 T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

NOTES\*\*\*\*\*  
 REVISED MODEL INCLUDES 2000 BAKER & LAWSON SURVEY SECTIONS AND REVISED  
 BRIDGE SECTIONS  
 MODEL KEYED IN FROM 19 JAN 81 RUN DATE FEMA MODEL  
 ORIGINAL INPUT DATA PROVIDED BY BRAZORIA COUNTY FLOOD PLAIN ADMINISTRATOR  
 \*\*\*\*\*

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2							34.18	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-7							

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

38	43	1	26	42	23	24	63	14	60
39	4								

J5 LPRNT NUMSEC \*\*\*\*\*REQUESTED SECTION NUMBERS\*\*\*\*\*  
 -10 -10

NC	.04	.04	.05	0.1	0.3
QT	3	2015	2300	2816	

2000 BAKER & LAWSON SURVEY SECTION

X1	18.5	11	10000.0	10038.9						
GR	37.00	8518.0	35.00	8518.0	33.01	10000.0	27.93	10009.7	24.20	10011.4
GR	23.06	10018.0	23.70	10024.1	26.78	10025.4	32.87	10038.9	35.00	10618.0
GR	40.00	18518.0								

NC			0.3	0.5
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2000 BAKER & LAWSON SURVEY SECTION

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X1	18.4	18	10198.1	10234.0	100.	100.	100.			
X3	10									
GR	38.00	8715.9	35.00	8715.9	34.90	10000.0	34.71	10109.6	34.57	10198.1
GR	26.97	10202.5	26.92	10204.2	24.13	10207.7	23.75	10215.9	23.82	10223.4
GR	26.96	10225.5	28.18	10228.2	34.45	10234.0	35.17	10271.7	35.12	10314.8
GR	35.05	10358.9	35.00	10815.9	40.00	18715.9				

CR 221

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILE 11/97

SB	1.05	1.56	2.9		19.1	0.1	185.	0.01	23.75	23.75
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2000 BAKER & LAWSON SURVEY SECTION

CR 221

X1	18.3	18	10198.1	10234.0	20.	20.	20.			
X2			1	33.	35.25					
X3	10							35.25	35.25	
BT	-5	10198.1	34.57		10202.5	35.25		10215.9	35.96	
BT		10234.0	35.59		10271.7	35.17				
GR	38.00	8715.9	35.00	8715.9	34.90	10000.0	34.71	10109.6	34.57	10198.1
GR	26.97	10202.5	26.92	10204.2	24.13	10207.7	23.75	10215.9	23.82	10223.4
GR	26.96	10225.5	28.18	10228.2	34.45	10234.0	35.17	10271.7	35.12	10314.8
GR	35.05	10358.9	35.00	10815.9	40.00	18715.9				

X1	18.2	11	10000.0	10031.9	50.	50.	50.			
GR	38.00	8513.0	35.00	8513.0	31.77	10000.0	27.37	10008.4	23.48	10009.2
GR	22.25	10013.0	23.45	10022.3	28.31	10026.2	32.30	10031.9	35.00	10613.0
GR	40.00	18513.0								

NC				0.1	0.3					
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X1	18.	16	13300.	13340.	480.	270.	350.			
X3				13195.	35.5	13794.	35.7			
GR	38.0	3319.	36.0	3319.	35.1	12924.	35.5	13035.	35.5	13195.
GR	35.3	13279.	34.6	13300.	29.1	13307.	23.9	13319.	29.2	13332.
GR	34.7	13340.	35.7	13794.	36.7	14099.	37.5	14622.	38.1	14745.
GR	40.0	22319.								

2000 BAKER & LAWSON SURVEY SECTION

X1	17.5	11	10000.0	10044.4	180	180	180			
GR	38.00	8519.2	36.00	8519.2	35.00	9919.2	34.71	10000.0	24.25	10011.0
GR	24.07	10019.2	24.65	10029.8	34.18	10044.4	35.00	13619.2	36.00	15419.2
GR	38.00	15419.2								

NC				0.3	0.5					
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2000 BAKER & LAWSON SURVEY SECTION

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X1	17.4	14	10206.8	10266.6	100.	100.	100.			
X3	10			10000.0	36.35	10360.6	36.22	36.09	36.09	
GR	38.00	8746.5	36.00	8746.5	36.35	10000.0	36.23	10101.3	35.68	10206.8
GR	28.66	10217.5	25.77	10224.5	23.16	10246.5	25.43	10255.4	35.29	10266.6
GR	36.22	10360.6	35.96	10460.8	36.00	15646.5	38.00	15646.5		

CR 121

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILE 11/97

SB	1.05	1.56	2.9		39.	3.	420.	0.4	24.22	23.16
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2000 BAKER & LAWSON SURVEY SECTION

CR 121

X1	17.3	13	10202.2	10250.5	20.	20.	20.			
X2			1	35.59	36.59					
X3	10							36.59	36.59	
BT	-9	8721.7	36.35		10000.0	36.35		10101.3	36.23	
BT		10204.8	36.72		10221.7	36.73		10250.5	36.59	
BT		10360.3	36.22		10460.6	35.96		15621.7	36.00	
GR	38.00	8721.7	36.35	8721.7	36.35	10000.0	36.23	10101.3	28.33	10202.2
GR	25.78	10204.8	24.22	10221.7	24.57	10233.8	34.39	10250.5	36.22	10360.3
GR	35.96	10460.6	36.00	15621.7	38.00	15621.7				

2000 BAKER & LAWSON SURVEY SECTION

X1	17.2	11	10000.0	10030.2	50.	50.	50.			
GR	38.00	8514.5	36.00	8514.5	35.00	9914.5	33.91	10000.0	24.16	10007.6
GR	24.10	10014.5	25.03	10025.1	32.51	10030.2	35.00	13614.5	36.00	15414.5
GR	38.00	15414.5								

NC 0.1 0.3

X1	17.	13	6847.	6932.	2300.	2200.	2500.			
X3	10									
GR	40.0	5595.	38.0	5595.	36.6	6198.	36.6	6199.	36.2	6812.
GR	40.6	6847.	26.8	6895.	39.8	6932.	37.	6957.	35.8	7091.
GR	37.8	7384.	36.8	7674.	40.0	14895.				

X1	16.	20	6692.	6744.	1630.	1630.	1630.			
X3				6692	40.7	6744	40.1			
GR	41.0	5571.	39.0	5571.	38.2	6253.	38.2	6254.	38.2	6255.
GR	38.2	6256.	38.2	6257.	38.1	6669.	40.7	6679.	40.7	6692.
GR	30.3	6715.	28.8	6721.	30.3	6727.	40.1	6744.	40.1	6763.
GR	37.1	6777.	36.5	7542.	37.5	7586.	40.0	15021.	42.0	15021.

NC .035 .035 .05

2000 BAKER & LAWSON SURVEY SECTION

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X1	14.4	15	10051.2	10102.1	1870.	1800.	1870.			
X3				10040.9	41.87	10125.9	41.77			
GR	45.00	9377.3	39.88	9377.3	39.88	10000.0	40.12	10026.9	41.87	10040.9
GR	40.82	10051.2	31.04	10071.7	30.31	10077.3	31.30	10085.2	40.65	10102.1
GR	41.77	10125.9	40.08	10153.9	39.79	10180.7	39.79	18677.3	45.00	18677.3

NC 0.3 0.5

2000 BAKER & LAWSON SURVEY SECTION

X1	14.3	16	10249.2	10301.8	100.	100.	100.			
X3	10									
GR	45.00	9581.5	40.66	9581.5	40.66	10000.0	40.43	10110.9	42.02	10205.9
GR	41.62	10249.2	31.86	10273.7	30.68	10281.5	31.36	10290.0	38.69	10301.8
GR	40.60	10349.0	41.02	10448.8	40.96	10548.7	41.05	10650.5	41.05	18881.5
GR	45.00	18881.5								

CR 571

SB	1.05	1.56	2.7		11.	2.	170.	1.	31.05	30.68
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2000 BAKER & LAWSON SURVEY SECTION

CR 571

X1	14.2	14	10246.2	10294.2	14.	14.	14.			
X2			1	45.12	46.12					
X3	10									
BT	-5	10205.9	42.02		10246.2	46.15	46.12	46.12		
BT		10294.2	46.12		10341.1	40.60	10268.8	46.98		
GR	40.66	10000.0	40.43	10110.9	42.02	10205.9	38.21	10246.2	32.74	10257.5
GR	31.05	10268.8	31.41	10277.0	40.55	10294.2	40.60	10341.1	41.02	10440.8
GR	40.96	10540.8	41.05	10642.5	41.05	18868.8	42.00	18868.8		

2000 BAKER & LAWSON SURVEY SECTION

X1	14.1	12	10000.0	10055.7	50.	50.	50.			
X3				10000.0	41.88	10066.9	43.24			
GR	45.00	9329.0	41.88	9329.0	41.88	10000.0	31.31	10022.6	30.82	10029.0
GR	31.56	10035.8	42.27	10055.7	43.24	10066.9	40.49	10095.7	40.01	10147.3
GR	40.00	18629.0	45.00	18629.0						

NC 0.1 0.3

X1	14.	19	4291.	4351.	1730.	1730.	1730.			
X3	10									
GR	45.	3976.	41.	3976.	40.	4026.	40.	4027.	40.	4028.
GR	40.	4236.	42.6	4254.	38.8	4277.	43.2	4291.	39.4	4307.
GR	32.4	4321.	31.4	4326.	32.4	4331.	42.2	4351.	42.2	4376.
GR	39.8	4402.	40.4	4629.	41.	4726.	45.	4726.		

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X1	12	19	4291.	4351.	2570	2570	2570			
X3	10									1.0
GR	45.	3976.	41.	3976.	40.	4026.	40.	4027.	40.	4028.
GR	40.	4236.	42.6	4254.	38.8	4277.	43.2	4291.	39.4	4307.
GR	32.4	4321.	31.4	4326.	32.4	4331.	42.2	4351.	42.2	4376.
GR	39.8	4402.	40.4	4629.	41.	4726.	45.	4726.		

NC	.04	.04	.065							
QT	3	1345	1601	2108						

2000 BAKER & LAWSON SURVEY SECTION

X1	10.3	13	10063.2	10119.6	3810.	3810.	3810.			
X3				10000.0	43.95	10146.6	47.11			
GR	47.00	7987.0	45.00	7987.0	43.95	10000.0	43.24	10063.2	37.25	10076.7
GR	35.08	10087.0	36.88	10103.5	45.27	10119.6	47.11	10146.6	44.03	10176.6
GR	43.53	10206.6	45.00	13287.0	47.00	13287.0				

NC				0.3	0.5					
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2000 BAKER & LAWSON SURVEY SECTION

X1	10.2	16	10351.9	10391.6	100.	100.	100.			
X3	10							46.24	46.24	
GR	47.00	10000.0	46.73	10087.4	46.57	10174.7	46.50	10261.5	41.61	10351.9
GR	37.40	10362.5	35.30	10373.8	36.93	10383.8	39.80	10391.6	46.23	10463.8
GR	46.07	10482.5	45.88	10571.7	45.70	10659.3	45.72	10748.8	45.72	13578.3
GR	47.00	13578.3								

CR 65

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILE 11/97

SB	1.05	1.56	2.6		24.6	2.	282.	0.6	35.3	35.3
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2000 BAKER & LAWSON SURVEY SECTION

CR 65

X1	10.1	16	10351.9	10391.6	24.	24.	24.			
X2			1	45.4	47.07					
X3	10							47.07	47.07	
BT	-13	10000.0	47.00		10087.4	46.73		10174.7	46.57	
BT		10261.5	46.50		10351.9	47.07		10373.8	47.30	
BT		10391.6	47.24		10463.8	46.23		10482.5	46.07	
BT		10571.7	45.88		10659.3	45.70		10748.8	45.72	
BT		13578.3	45.72							
GR	47.00	10000.0	46.73	10087.4	46.57	10174.7	46.50	10261.5	41.61	10351.9
GR	37.40	10362.5	35.30	10373.8	36.93	10383.8	39.80	10391.6	46.23	10463.8
GR	46.07	10482.5	45.88	10571.7	45.70	10659.3	45.72	10748.8	45.72	13578.3
GR	47.00	13578.3								

2000 BAKER & LAWSON SURVEY SECTION

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X1	10.	13	10113.9	10175.7	50.	50.	50.			
X3				10090.5	47.4	10204.0	45.37			
GR	48.00	8052.0	45.00	8052.0	43.34	10000.0	43.55	10045.0	47.40	10090.5
GR	46.01	10113.9	37.58	10138.4	35.73	10152.0	37.91	10163.5	44.29	10175.7
GR	45.37	10204.0	45.37	13352.0	48.00	13352.0				

QT	3	2068	2463	3248						
X1	6.5	13	10113.9	10175.7	1000	1000	1000			
X3				10090.5	47.54	10204.0	45.51			
GR	48.00	8052.0	45.00	8052.0	43.34	10000.0	43.55	10045.0	47.40	10090.5
GR	46.01	10113.9	37.58	10138.4	35.73	10152.0	37.91	10163.5	44.29	10175.7
GR	45.37	10204.0	45.37	13352.0	48.00	13352.0				

NC				0.1	0.3					
X1	6.	21	4863.	4950.	1700	1700	1700			
X3	10									
GR	49.0	2290.	47.8	2290.	47.8	4052.	47.8	4053.	47.	4510.
GR	45.4	4776.	49.	4863.	37.8	4882.	36.8	4885.	36.	4890.
GR	36.	4892.	36.8	4897.	37.8	4900.	41.4	4915.	47.4	4929.
GR	49.	4950.	47.2	5057.	47.	5396.	46.4	5768.	49.2	6143.
GR	49.4	6174.								

2000 BAKER & LAWSON SURVEY SECTION

X1	5.13	8	10000.0	10051.9	3210.	3210.	3210.			
GR	51.00	6624.0	49.00	6624.0	46.61	10000.0	39.94	10013.9	39.39	10024.0
GR	41.25	10031.1	47.37	10051.9	50.00	14324.0				

NC				0.3	0.5					
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2000 BAKER & LAWSON SURVEY SECTION

X1	5.12	19	10516.4	10615.8	140.	140.	140.			
X3	10							50.08	50.08	
GR	51.09	10000.0	51.06	10094.1	51.40	10188.7	51.49	10286.0	51.61	10382.3
GR	51.61	10476.8	48.34	10516.4	41.68	10536.8	45.19	10560.2	38.82	10576.7
GR	40.34	10584.0	42.34	10600.8	48.40	10615.8	51.89	10639.9	51.96	10738.4
GR	51.79	10833.7	51.57	10929.8	51.31	11024.8	51.15	11122.0		

SH 288

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILE 11/97

SB	1.25	1.56	2.6		30.0	2.67	807.27	4.	39.84	38.82
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2000 BAKER & LAWSON SURVEY SECTION

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SH 288										
X1	5.11	20	10582.9	10678.6	110.	110.	110.			
X2			1	48.58	51.58					
X3	10									
BT	-13	10000.0	50.95		10091.0	50.95		51.58	51.58	
BT		10284.5	51.26		10378.7	51.49		10188.9	51.06	
BT		10490.8	51.84		10608.9	51.94		10473.4	51.63	
BT		10851.1	51.84		10949.3	51.65		10745.5	52.00	
BT		11139.2	51.20					11043.5	51.38	
GR	50.95	10000.0	50.95	10091.0	51.06	10188.9	51.26	10284.5	51.49	10378.7
GR	51.63	10473.4	51.32	10564.2	47.93	10582.9	42.62	10595.9	40.86	10613.6
GR	39.84	10629.5	40.37	10641.0	42.14	10662.9	48.21	10678.6	51.12	10705.4
GR	51.79	10726.1	51.84	10851.1	51.65	10949.3	51.38	11043.5	51.20	11139.2

2000 BAKER & LAWSON SURVEY SECTION

X1	5.1	9	10000.0	10057.5	50.	50.	50.			
GR	51.00	6638.8	49.68	6638.8	49.68	10000.0	41.28	10014.6	41.27	10036.8
GR	49.80	10057.5	50.67	10073.8	50.67	14336.8	52.00	14336.8		

NC	.04	.04	.075	0.1	0.3					
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QT 3 1500 2000 2700										
X1	5.03	22	5180.	5228.	300.	300.	300.			
X3				5171.	52.3	5249.	51.3			
GR	49.8	4539.	48.9	4985.	48.7	5050.	48.5	5126.	52.3	5171.
GR	48.9	5180.	47.6	5187.	38.5	5195.	37.4	5203.	38.5	5213.
GR	47.6	5222.	48.7	5225.	49.	5228.	48.9	5238.	51.3	5249.
GR	47.7	5272.	46.9	5416.	45.5	5452.	43.9	5457.	46.9	5483.
GR	48.7	5517.	50.0	7303.						

NC				0.3	0.5					
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X1	5.02	22	5187.	5222.	100.	100.	100.			
X3	10			5171.	52.3	5249.	51.3	48.1	48.1	
GR	49.8	4539.	48.9	4985.	48.7	5050.	48.5	5126.	52.3	5171.
GR	48.9	5180.	47.6	5187.	38.5	5195.	37.4	5203.	38.5	5213.
GR	47.6	5222.	48.7	5225.	49.	5228.	48.9	5238.	51.3	5249.
GR	47.7	5272.	46.9	5416.	45.5	5452.	43.9	5457.	46.9	5483.
GR	48.7	5517.	50.0	7303.						

SB	1.05	1.56	2.6		15.	1.7	240.	1.	37.4	37.4
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CR 572										
X1	5.01	22	5187	5222	15.	15.	15.			
X2			1	47.6	48.6					
X3	10			5171.	52.3	5249.	51.3	48.6	48.6	
BT	-19	4539.	49.8		4985.	48.9		5050.	48.7	
BT		5126.	48.5		5171.	52.3		5180.	48.9	
BT		5187.	48.6		5222.	48.6		5225.	48.7	
BT		5228.	49.		5238.	48.9		5249.	51.3	

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BT		5272.	47.7		5416.	46.9		5452.	45.5	
BT		5457.	43.9		5483.	46.9		5517.	48.7	
BT		7303.	50.0							
GR	49.8	4539.	48.9	4985.	48.7	5050.	48.5	5126.	52.3	5171.
GR	48.9	5180.	47.6	5187.	38.5	5195.	37.4	5203.	38.5	5213.
GR	47.6	5222.	48.7	5225.	49.	5228.	48.9	5238.	51.3	5249.
GR	47.7	5272.	46.9	5416.	45.5	5452.	43.9	5457.	46.9	5483.
GR	48.7	5517.	50.0	7303.						

X1	5.	22	5180.	5228.	50.	50.	50.			
X3				5171.	52.3	5249.	51.3			
GR	49.8	4539.	48.9	4985.	48.7	5050.	48.5	5126.	52.3	5171.
GR	48.9	5180.	47.6	5187.	38.5	5195.	37.4	5203.	38.5	5213.
GR	47.6	5222.	48.7	5225.	49.	5228.	48.9	5238.	51.3	5249.
GR	47.7	5272.	46.9	5416.	45.5	5452.	43.9	5457.	46.9	5483.
GR	48.7	5517.	50.0	7303.						

NC				0.1	0.3					
QT	3	1000	1250	1600						

2000 BAKER & LAWSON SURVEY SECTION

X1	4.4	14	10226.7	10283.2	3830	3830	3830			
X3				10212.3	52.38	10307.7	51.76			
GR	53.00	7658.5	50.00	7658.5	50.00	9858.5	49.59	10000.0	50.53	10196.4
GR	52.38	10212.3	50.87	10226.7	42.83	10250.3	41.78	10258.5	43.12	10266.4
GR	50.56	10283.2	51.76	10307.7	52.5	17258.5	53.00	17258.5		

NC				0.3	0.5					
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2000 BAKER & LAWSON SURVEY SECTION

X1	4.3	12	10335.7	10394.4	100.	100.	100.			
X3	10			10293.7	52.75	10400.5	52.65	51.88	51.88	
GR	51.37	10000.0	51.19	10091.3	49.57	10152.9	51.34	10201.5	52.75	10293.7
GR	48.20	10335.7	43.79	10357.9	41.57	10366.9	42.38	10382.5	49.43	10394.4
GR	52.65	10400.5	51.79	10422.6						

WOODFIN BRIDGE

SB	1.05	1.56	2.9		20.	1.	348.	2.0	41.57	41.57
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2000 BAKER & LAWSON SURVEY SECTION

X1	4.2	12	10320.6	10382.0	20	20	20			
X2			1	51.38	52.38					
X3	10			10293.7	52.75	10397.1	52.65	52.38	52.38	
BT	-9	10000.0	51.37		10091.3	51.19		10152.9	49.57	
BT		10201.5	51.34		10293.7	52.75		10320.6	52.38	
BT		10351.3	52.53		10397.1	52.65		10419.2	51.79	
GR	51.37	10000.0	51.19	10091.3	49.57	10152.9	51.34	10201.5	52.75	10293.7
GR	49.14	10320.6	42.25	10334.1	41.57	10342.7	42.80	10351.3	49.54	10382.0
GR	52.65	10397.1	51.79	10419.2						

2000 BAKER & LAWSON SURVEY SECTION



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WOODFIN BRIDGE

X1	4.1	14	10216.4	10275.2	50.	50.	50.			
X3				10206.5	52.07	10287.9	51.60			
GR	53.00	7646.8	50.00	7646.8	51.37	10000.0	51.19	10091.3	49.57	10152.9
GR	52.07	10206.5	50.92	10216.4	43.79	10234.5	41.86	10246.8	42.78	10257.6
GR	50.67	10275.2	51.60	10287.9	52.50	17246.8	53.00	17246.8		
NC				0.1	0.3					

2000 BAKER & LAWSON SURVEY SECTION

X1	3.9	12	10013.2	10072.1	1300	1450	1400			
X3				10000.0	52.57	10102.7	53.06			
GR	55.00	7653.1	52.57	7653.1	52.57	10000.0	51.03	10013.2	44.40	10031.9
GR	42.23	10040.7	44.03	10053.1	51.64	10072.1	53.06	10102.7	50.12	10147.8
GR	49.99	10215.2	55.00	15340.7						
NC				0.3	0.5					

2000 BAKER & LAWSON SURVEY SECTION

X1	3.8	18	10463.8	10490.2	100.	100.	100.			
X3	10							51.65	51.65	
GR	53.00	7173.8	51.80	7173.8	51.80	10000.0	51.59	10096.0	51.49	10187.3
GR	51.66	10278.4	51.71	10371.2	46.78	10463.8	43.54	10468.8	42.63	10473.8
GR	43.75	10480.1	48.07	10490.2	51.99	10585.2	51.99	10676.8	52.48	10766.2
GR	52.68	10853.5	52.79	10943.1	55.00	15473.8				

CR 62

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILE 11/97

SB	1.05	1.56	2.9		16.	1.	154.95	0.5	42.63	42.63
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2000 BAKER & LAWSON SURVEY SECTION

CR 62

X1	3.7	18	10472.1	10498.0	23.	23.	23.			
X2			1	51.0	52.30					
X3	10							52.30	52.30	
BT	-15	7182.6	51.80		10000.0	51.80		10096.0	51.59	
BT		10187.3	51.49		10278.4	51.66		10371.2	51.71	
BT		10472.1	52.30		10487.5	52.32		10498.0	52.32	
BT		10585.1	51.99		10676.7	51.99		10766.1	52.48	
BT		10853.4	52.68		10943.0	52.79		15782.6	55.00	
GR	54.00	7182.6	51.80	7182.6	51.80	10000.0	51.59	10096.0	51.49	10187.3
GR	51.66	10278.4	51.71	10371.2	44.68	10472.1	42.90	10477.9	42.63	10482.6
GR	43.03	10487.5	48.26	10498.0	51.99	10585.1	51.99	10676.7	52.48	10766.1
GR	52.68	10853.4	52.79	10943.0	55.00	15782.6				

2000 BAKER & LAWSON SURVEY SECTION

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X1	3.6	11	10034.0	10080.1	50.	50.	50.			
X3				10018.5	52.33	10100.0	51.22			
GR	54.00	6758.5	50.27	6758.5	50.27	10000.0	52.33	10018.5	50.92	10034.0
GR	44.83	10049.3	42.59	10058.5	44.34	10069.1	49.72	10080.1	51.22	10100.0
GR	55.00	15358.5								

NC 0.1 0.3

2000 BAKER & LAWSON SURVEY SECTION

X1	3.3	11	10013.1	10063.2	1750.	1300.	1650.			
GR	55.00	7538.6	53.00	7538.6	52.55	10000.0	51.27	10013.1	45.50	10030.1
GR	43.70	10038.6	45.11	10048.3	52.45	10063.2	54.10	10075.2	54.10	18238.6
GR	56.00	18238.6								

NC 0.3 0.5

X1	3.2	13	2850.	2892.	100.	100.	100.			
X3	10			2840.	50.9	2905.	51.7	51.1	51.1	
GR	55.0	365.	53.0	365.	52.8	2704.	50.9	2840.	46.3	2850.
GR	46.	2854.	44.6	2865.	46.	2892.	51.7	2905.	50.6	2949.
GR	50.6	3296.	53.0	11065.	55.0	11065.				

CR 48

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILE 12/97

SB	1.05	1.56	2.9		12.0	2.	209.19	2.25	44.6	44.6
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CR 48

X1	3.1	13	2850.	2892	24.5	24.5	24.5			
X2			1	50.6	51.6					
X3	10			2840.	50.9	2905.	51.7	51.6	51.6	
BT	-7	365.	53.0		2704.	52.8		2840.	51.6	
BT		2905.	51.7		2949.	50.6		3296.	50.6	
BT		11065.	53.0							
GR	55.0	365.	53.0	365.	52.8	2704.	50.9	2840.	46.3	2850.
GR	46.	2854.	44.6	2865.	46.	2892.	51.7	2905.	50.6	2949.
GR	50.6	3296.	53.0	11065.	55.0	11065.				

X1	3.	13	2840.	2905.	50.	50.	50.			
X3	10									
GR	55.0	365.	53.0	365.	52.8	2704.	50.9	2840.	46.3	2850.
GR	46.	2854.	44.6	2865.	46.	2892.	51.7	2905.	50.6	2949.
GR	50.6	3296.	53.0	11065.	55.0	11065.				

NC .035 .035 .075 0.1 0.3  
 QT 3 285 340 450

2000 BAKER & LAWSON SURVEY SECTION

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X1	2.	12	10120.9	10173.6	2400.	2550.	2440.			
X3				10113.2	54.34	10187.8	54.71			
GR	56.00	7649.3	53.00	7649.3	52.31	10000.0	54.34	10113.2	53.69	10120.9
GR	47.71	10141.3	45.66	10149.3	47.83	10157.3	54.14	10173.6	54.71	10187.8
GR	55.00	12649.3	56.00	12649.3						

X1	1.9	18	3203.	3228.	100.	100.	100.			
X3	10			3175.	55.4	3272.	56.2	53.45	53.45	
GR	56.0	714.	53.6	714.	53.6	2753.	53.4	2998.	53.	3157.
GR	55.4	3175.	53.5	3190.	50.	3203.	45.8	3214.	49.7	3228.
GR	54.2	3243.	56.2	3272.	52.4	3278.	52.4	3545.	52.8	4136.
GR	53.8	5148.	55.0	5714.	56.0	5714.				

CR 382  
SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILE 12/97

SB	1.05	1.56	2.9		12.0	1.	152.7	1.5	45.8	45.8
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CR 382

X1	1.8	18	3203	3228	16.	16.	16.			
X2			1	52.8	54.1					
X3	10			3175.	55.4	3272.	56.2	54.1	54.1	
BT	-14	714.	53.6		2753.	53.6		2998.	53.4	
BT		3157.	53.0		3175.	55.4		3190.	54.1	
BT		3236.	54.1		3243.	54.2		3272.	56.2	
BT		3278.	52.4		3545.	52.4		4136.	52.8	
BT		5148.	53.8		5714.	55.0				
GR	56.0	714.	53.6	714.	53.6	2753.	53.4	2998.	53.	3157.
GR	55.4	3175.	53.5	3190.	50.	3203.	45.8	3214.	49.7	3228.
GR	54.2	3243.	56.2	3272.	52.4	3278.	52.4	3545.	52.8	4136.
GR	53.8	5148.	55.0	5714.	56.0	5714.				

2000 BAKER & LAWSON SURVEY SECTION

X1	1.7	14	10065.1	10108.7	50.	50.	50.			
X3				10047.7	54.33	10178.6	56.03			
GR	56.00	7584.7	53.00	7584.7	52.49	10000.0	52.92	10027.6	54.33	10047.7
GR	52.33	10065.1	47.26	10077.0	46.00	10084.7	47.76	10093.3	53.51	10108.7
GR	56.03	10178.6	52.97	10207.4	55.00	12584.7	56.00	12584.7		

NC 0.1 0.3

X1	1.	19	2080.	2130.	2600.	2200.	2400.			
X3				2071.	56.2	2147.	55.6			
GR	58.0	209.	56.0	209.	55.8	1632.	55.8	1633.	54.8	1960.
GR	53.4	2058.	56.2	2071.	55.6	2080.	53.2	2097.	50.4	2106.
GR	47.2	2109.	47.2	2110.	50.4	2114.	55.	2130.	55.6	2147.
GR	54.2	2157.	55.	2548.	55.	8109.	58.	8109.		

21AUG02 10:26:47

T1 SOUTH HAYES CREEK..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: SOUHAYES.IH2.....25 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3							34.66	
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-7							

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T1 SOUTH HAYES CREEK..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: SOUHAYES.IH2.....100 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		4							35.44	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-7							

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\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
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THIS RUN EXECUTED 21AUG02 10:26:49

NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

L REVISED BY KLOTZ ASSOC

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
18.500	2015.00	34.18	4.31	23.06	33.01	32.87	37.00	1101.19	54.65	.00	1266.39
18.500	2300.00	34.66	3.00	23.06	33.01	32.87	37.00	822.54	35.76	.00	1754.36
18.500	2816.00	35.44	1.67	23.06	33.01	32.87	37.00	507.95	18.04	.00	2795.20
* 18.400	2015.00	34.17	7.41	23.75	34.57	34.45	38.00	2015.00	100.00	100.00	35.40
* 18.400	2300.00	34.36	8.25	23.75	34.57	34.45	38.00	2300.00	100.00	100.00	35.69
* 18.400	2816.00	35.30	6.19	23.75	34.57	34.45	38.00	1937.87	68.82	100.00	2587.58
* 18.300	2015.00	36.45	.96	23.75	34.57	34.45	38.00	339.54	16.85	20.00	4403.12
* 18.300	2300.00	36.95	.69	23.75	34.57	34.45	38.00	257.03	11.18	20.00	5185.64
* 18.300	2816.00	38.02	.40	23.75	34.57	34.45	38.00	164.20	5.83	20.00	6865.96
* 18.200	2015.00	36.46	.42	22.25	31.77	32.30	38.00	135.73	6.74	50.00	4404.76
* 18.200	2300.00	36.95	.37	22.25	31.77	32.30	38.00	123.90	5.39	50.00	5186.05
* 18.200	2816.00	38.02	.27	22.25	31.77	32.30	38.00	100.62	3.57	50.00	6865.75
* 18.000	2015.00	36.47	.77	23.90	34.60	34.70	40.00	243.26	12.07	350.00	10710.92
18.000	2300.00	36.96	.43	23.90	34.60	34.70	40.00	143.44	6.24	350.00	10950.58
18.000	2816.00	38.02	.21	23.90	34.60	34.70	40.00	78.55	2.79	350.00	11409.37
* 17.500	2015.00	36.47	.43	24.07	34.71	34.18	38.00	177.59	8.81	180.00	6900.00
17.500	2300.00	36.96	.33	24.07	34.71	34.18	38.00	143.62	6.24	180.00	6900.00
17.500	2816.00	38.02	.22	24.07	34.71	34.18	38.00	105.72	3.75	180.00	6900.00
* 17.400	2015.00	36.43	2.89	23.16	35.68	35.29	38.00	1587.90	78.80	100.00	6900.00
* 17.400	2300.00	36.96	1.30	23.16	35.68	35.29	38.00	752.84	32.73	100.00	6900.00
* 17.400	2816.00	38.02	.50	23.16	35.68	35.29	38.00	324.35	11.52	100.00	6900.00
17.300	2015.00	36.24	4.29	24.22	28.33	34.39	38.00	2015.00	100.00	20.00	48.30
* 17.300	2300.00	36.96	.92	24.22	28.33	34.39	38.00	464.88	20.21	20.00	6900.00
17.300	2816.00	38.02	.44	24.22	28.33	34.39	38.00	242.15	8.60	20.00	6900.00

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	17.200	2015.00	36.61	.25	24.10	33.91	32.51	38.00	77.86	3.86	50.00	6900.00
*	17.200	2300.00	36.97	.23	24.10	33.91	32.51	38.00	74.41	3.24	50.00	6900.00
*	17.200	2816.00	38.02	.17	24.10	33.91	32.51	38.00	60.83	2.16	50.00	6900.00
*	17.000	2015.00	36.05	7.43	26.80	40.60	39.80	40.00	2015.00	100.00	2500.00	58.56
*	17.000	2300.00	36.29	8.07	26.80	40.60	39.80	40.00	2300.00	100.00	2500.00	60.05
*	17.000	2816.00	37.34	8.02	26.80	40.60	39.80	40.00	2816.00	100.00	2500.00	66.65
*	16.000	2015.00	40.37	2.94	28.80	40.70	40.10	42.00	970.56	48.17	1630.00	8328.27
*	16.000	2300.00	40.43	2.70	28.80	40.70	40.10	42.00	899.17	39.09	1630.00	8328.42
*	16.000	2816.00	40.58	2.23	28.80	40.70	40.10	42.00	759.18	26.96	1630.00	8328.73
	14.400	2015.00	41.98	3.10	30.31	40.82	40.65	45.00	1167.93	57.96	1870.00	9300.00
	14.400	2300.00	42.00	3.36	30.31	40.82	40.65	45.00	1268.54	55.15	1870.00	9300.00
*	14.400	2816.00	41.99	4.12	30.31	40.82	40.65	45.00	1558.92	55.36	1870.00	9300.00
*	14.300	2015.00	42.10	.44	30.68	41.62	38.69	45.00	173.83	8.63	100.00	9300.00
*	14.300	2300.00	42.13	.48	30.68	41.62	38.69	45.00	191.53	8.33	100.00	9300.00
*	14.300	2816.00	42.19	.55	30.68	41.62	38.69	45.00	218.52	7.76	100.00	9300.00
*	14.200	2015.00	42.10	5.24	31.05	38.21	40.55	40.66	2015.00	100.00	14.00	48.00
*	14.200	2300.00	42.13	5.96	31.05	38.21	40.55	40.66	2300.00	100.00	14.00	48.00
*	14.200	2816.00	43.30	6.37	31.05	38.21	40.55	40.66	2816.00	100.00	14.00	48.00
	14.100	2015.00	42.50	3.88	30.82	41.88	42.27	45.00	1531.18	75.99	50.00	729.38
*	14.100	2300.00	42.74	3.73	30.82	41.88	42.27	45.00	1520.17	66.09	50.00	732.12
*	14.100	2816.00	44.12	.72	30.82	41.88	42.27	45.00	349.56	12.41	50.00	9300.00
*	14.000	2015.00	43.20	.93	31.40	43.20	42.20	45.00	339.18	16.83	1730.00	750.00
*	14.000	2300.00	43.35	1.01	31.40	43.20	42.20	45.00	374.52	16.28	1730.00	750.00
*	14.000	2816.00	44.21	.91	31.40	43.20	42.20	45.00	387.51	13.76	1730.00	750.00
*	12.000	2015.00	43.66	2.00	32.40	44.20	43.20	46.00	662.74	32.89	2570.00	432.71
*	12.000	2300.00	43.85	2.08	32.40	44.20	43.20	46.00	712.89	31.00	2570.00	433.52
	12.000	2816.00	44.47	1.17	32.40	44.20	43.20	46.00	445.44	15.82	2570.00	750.00
	10.300	1345.00	45.20	1.35	35.08	43.24	45.27	47.00	510.59	37.96	3810.00	2132.45
	10.300	1601.00	45.36	1.30	35.08	43.24	45.27	47.00	504.86	31.53	3810.00	2133.87
*	10.300	2108.00	45.33	1.77	35.08	43.24	45.27	47.00	682.45	32.37	3810.00	2133.51
*	10.200	1345.00	45.12	4.47	35.30	41.61	39.80	47.00	1345.00	100.00	100.00	39.70
*	10.200	1601.00	45.22	5.24	35.30	41.61	39.80	47.00	1601.00	100.00	100.00	39.70
*	10.200	2108.00	45.08	7.03	35.30	41.61	39.80	47.00	2108.00	100.00	100.00	39.70
	10.100	1345.00	45.38	4.32	35.30	41.61	39.80	47.00	1345.00	100.00	24.00	39.70
	10.100	1601.00	45.61	4.99	35.30	41.61	39.80	47.00	1601.00	100.00	24.00	39.70
	10.100	2108.00	45.80	6.42	35.30	41.61	39.80	47.00	2108.00	100.00	24.00	39.70
*	10.000	1345.00	45.77	1.84	35.73	46.01	44.29	48.00	701.47	52.15	50.00	3237.40
*	10.000	1601.00	46.13	1.14	35.73	46.01	44.29	48.00	459.92	28.73	50.00	3240.30
*	10.000	2108.00	46.64	.81	35.73	46.01	44.29	48.00	352.40	16.72	50.00	3248.59

	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	6.500	2068.00	46.25	1.54	35.73	46.01	44.29	48.00	634.58	30.69	1000.00	3242.12
	6.500	2463.00	46.41	1.46	35.73	46.01	44.29	48.00	613.54	24.91	1000.00	3244.86
	6.500	3248.00	46.79	1.23	35.73	46.01	44.29	48.00	544.96	16.78	1000.00	3251.36
*	6.000	2068.00	47.53	4.72	36.00	49.00	49.00	49.00	2068.00	100.00	1700.00	65.08
*	6.000	2463.00	47.54	5.61	36.00	49.00	49.00	49.00	2463.00	100.00	1700.00	65.26
*	6.000	3248.00	47.30	7.66	36.00	49.00	49.00	49.00	3248.00	100.00	1700.00	62.88
*	5.130	2068.00	48.82	.73	39.39	46.61	47.37	50.00	236.85	11.45	3210.00	5519.67
*	5.130	2463.00	48.98	.72	39.39	46.61	47.37	50.00	240.63	9.77	3210.00	6027.19
*	5.130	3248.00	49.22	.73	39.39	46.61	47.37	50.00	250.32	7.71	3210.00	6435.36
*	5.120	2068.00	48.75	3.73	38.82	48.34	48.40	51.09	2068.00	100.00	140.00	99.40
*	5.120	2463.00	48.87	4.35	38.82	48.34	48.40	51.09	2463.00	100.00	140.00	99.40
*	5.120	3248.00	49.02	5.58	38.82	48.34	48.40	51.09	3248.00	100.00	140.00	99.40
	5.110	2068.00	48.75	3.31	39.84	47.93	48.21	50.95	2068.00	100.00	110.00	95.70
	5.110	2463.00	48.87	3.87	39.84	47.93	48.21	50.95	2463.00	100.00	110.00	95.70
	5.110	3248.00	49.02	4.97	39.84	47.93	48.21	50.95	3248.00	100.00	110.00	95.70
*	5.100	2068.00	48.63	7.49	41.27	49.68	49.80	51.00	2068.00	100.00	50.00	52.85
*	5.100	2463.00	48.70	8.81	41.27	49.68	49.80	51.00	2463.00	100.00	50.00	53.13
*	5.100	3248.00	48.67	11.68	41.27	49.68	49.80	51.00	3248.00	100.00	50.00	53.00
*	5.030	1500.00	50.95	3.53	37.40	48.90	49.00	50.00	1416.73	94.45	300.00	72.80
*	5.030	2000.00	51.51	3.72	37.40	48.90	49.00	50.00	1594.55	79.73	300.00	2129.90
*	5.030	2700.00	52.00	2.62	37.40	48.90	49.00	50.00	1185.26	43.90	300.00	2131.20
	5.020	1500.00	51.16	3.47	37.40	47.60	47.60	50.00	1303.52	86.90	100.00	74.32
*	5.020	2000.00	51.79	2.69	37.40	47.60	47.60	50.00	1067.81	53.39	100.00	2130.64
	5.020	2700.00	52.10	2.45	37.40	47.60	47.60	50.00	1000.90	37.07	100.00	2131.48
	5.010	1500.00	51.16	3.47	37.40	47.60	47.60	50.00	1303.15	86.88	15.00	74.35
	5.010	2000.00	51.79	2.68	37.40	47.60	47.60	50.00	1065.74	53.29	15.00	2130.65
	5.010	2700.00	52.10	2.45	37.40	47.60	47.60	50.00	999.69	37.03	15.00	2131.48
	5.000	1500.00	51.26	3.36	37.40	48.90	49.00	50.00	1397.39	93.16	50.00	75.01
	5.000	2000.00	51.86	2.33	37.40	48.90	49.00	50.00	1038.34	51.92	50.00	2130.82
	5.000	2700.00	52.15	2.19	37.40	48.90	49.00	50.00	1005.79	37.25	50.00	2131.59
*	4.400	1000.00	52.60	.64	41.78	50.87	50.56	53.00	252.19	25.22	3830.00	9600.00
*	4.400	1250.00	52.72	.57	41.78	50.87	50.56	53.00	231.13	18.49	3830.00	9600.00
*	4.400	1600.00	52.88	.52	41.78	50.87	50.56	53.00	214.54	13.41	3830.00	9600.00
*	4.300	1000.00	52.59	1.79	41.57	48.20	49.43	51.79	862.25	86.22	100.00	105.23
*	4.300	1250.00	52.71	2.20	41.57	48.20	49.43	51.79	1070.44	85.64	100.00	128.49
*	4.300	1600.00	52.84	2.72	41.57	48.20	49.43	51.79	1349.78	84.36	100.00	422.60
	4.200	1000.00	52.58	1.93	41.57	49.14	49.54	51.79	911.47	91.15	20.00	101.84
	4.200	1250.00	52.69	2.37	41.57	49.14	49.54	51.79	1132.35	90.59	20.00	125.08
	4.200	1600.00	52.82	2.95	41.57	49.14	49.54	51.79	1431.78	89.49	20.00	419.20



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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	4.100	1000.00	52.66	.39	41.86	50.92	50.67	53.00	169.21	16.92	50.00	9600.00
*	4.100	1250.00	52.80	.36	41.86	50.92	50.67	53.00	160.38	12.83	50.00	9600.00
*	4.100	1600.00	52.98	.34	41.86	50.92	50.67	53.00	154.63	9.66	50.00	9600.00
*	3.900	1000.00	52.74	2.15	42.23	51.03	51.64	55.00	834.66	83.47	1400.00	2442.65
*	3.900	1250.00	52.87	2.13	42.23	51.03	51.64	55.00	847.32	67.79	1400.00	2445.57
*	3.900	1600.00	53.05	2.02	42.23	51.03	51.64	55.00	822.83	51.43	1400.00	2449.33
*	3.800	1000.00	52.82	.39	42.63	46.78	48.07	53.00	85.14	8.51	100.00	3832.93
*	3.800	1250.00	52.94	.43	42.63	46.78	48.07	53.00	94.19	7.53	100.00	4082.95
*	3.800	1600.00	53.10	.47	42.63	46.78	48.07	53.00	104.64	6.54	100.00	4395.74
	3.700	1000.00	52.82	.37	42.63	44.68	48.26	54.00	83.93	8.39	23.00	3831.39
	3.700	1250.00	52.94	.41	42.63	44.68	48.26	54.00	93.68	7.49	23.00	4098.93
	3.700	1600.00	53.10	.45	42.63	44.68	48.26	54.00	104.49	6.53	23.00	4446.04
*	3.600	1000.00	52.82	.58	42.59	50.92	49.72	55.00	185.93	18.59	50.00	5571.13
*	3.600	1250.00	52.95	.58	42.59	50.92	49.72	55.00	191.52	15.32	50.00	5741.09
*	3.600	1600.00	53.10	.58	42.59	50.92	49.72	55.00	196.01	12.25	50.00	5961.55
*	3.300	1000.00	53.07	1.99	43.70	51.27	52.45	55.00	597.09	59.71	1650.00	2529.12
*	3.300	1250.00	53.20	1.90	43.70	51.27	52.45	55.00	581.64	46.53	1650.00	2530.03
*	3.300	1600.00	53.35	1.79	43.70	51.27	52.45	55.00	561.92	35.12	1650.00	2531.16
*	3.200	1000.00	53.13	.29	44.60	46.30	46.00	55.00	95.02	9.50	100.00	10700.00
*	3.200	1250.00	53.24	.30	44.60	46.30	46.00	55.00	98.15	7.85	100.00	10700.00
*	3.200	1600.00	53.38	.30	44.60	46.30	46.00	55.00	102.40	6.40	100.00	10700.00
*	3.100	1000.00	53.13	.29	44.60	46.30	46.00	55.00	94.76	9.48	24.50	10700.00
*	3.100	1250.00	53.24	.30	44.60	46.30	46.00	55.00	98.84	7.91	24.50	10700.00
*	3.100	1600.00	53.38	.31	44.60	46.30	46.00	55.00	103.36	6.46	24.50	10700.00
*	3.000	1000.00	53.13	.12	44.60	50.90	51.70	55.00	50.47	5.05	50.00	10700.00
*	3.000	1250.00	53.24	.13	44.60	50.90	51.70	55.00	56.86	4.55	50.00	10700.00
*	3.000	1600.00	53.38	.15	44.60	50.90	51.70	55.00	64.50	4.03	50.00	10700.00
*	2.000	285.00	53.12	1.51	45.66	53.69	54.14	56.00	285.00	100.00	2440.00	48.09
*	2.000	340.00	53.22	1.76	45.66	53.69	54.14	56.00	340.00	100.00	2440.00	48.73
*	2.000	450.00	53.34	2.26	45.66	53.69	54.14	56.00	450.00	100.00	2440.00	49.46
	1.900	285.00	53.21	2.12	45.80	50.00	49.70	56.00	285.00	100.00	100.00	25.00
	1.900	340.00	53.34	2.46	45.80	50.00	49.70	56.00	340.00	100.00	100.00	25.00
	1.900	450.00	53.52	2.36	45.80	50.00	49.70	56.00	336.67	74.81	100.00	50.85
	1.800	285.00	53.22	2.11	45.80	50.00	49.70	56.00	285.00	100.00	16.00	25.00
	1.800	340.00	53.37	2.45	45.80	50.00	49.70	56.00	340.00	100.00	16.00	25.00
	1.800	450.00	53.57	3.13	45.80	50.00	49.70	56.00	450.00	100.00	16.00	25.00
	1.700	285.00	53.31	1.48	46.00	52.33	53.51	56.00	281.83	98.89	50.00	51.59
	1.700	340.00	53.48	1.69	46.00	52.33	53.51	56.00	334.51	98.38	50.00	53.58
	1.700	450.00	53.76	2.09	46.00	52.33	53.51	56.00	438.02	97.34	50.00	63.11

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
1.000	285.00	55.65	1.40	47.20	55.60	55.00	58.00	223.25	78.33	2400.00	6029.74
1.000	340.00	55.69	1.18	47.20	55.60	55.00	58.00	191.15	56.22	2400.00	6030.43
* 1.000	450.00	55.76	.96	47.20	55.60	55.00	58.00	158.81	35.29	2400.00	6031.47

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## SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	18.400	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	18.400	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	18.400	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	18.300	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	18.300	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	18.300	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	18.200	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	18.200	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	18.200	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	18.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	17.500	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	17.400	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	17.400	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	17.400	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	17.300	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	17.200	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	17.200	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	17.200	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	17.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	17.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	17.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	16.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	16.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	16.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	14.400	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	14.300	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	14.300	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	14.300	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	14.200	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	14.200	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
CAUTION SECNO=	14.200	PROFILE=	3	HYDRAULIC	JUMP	D.S.			
WARNING SECNO=	14.200	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	14.100	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	14.100	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
CAUTION SECNO=	14.000	PROFILE=	1	WSEL	ASSUMED	BASED	ON	MIN	DIFF
CAUTION SECNO=	14.000	PROFILE=	1	20	TRIALS	ATTEMPTED	TO	BALANCE	WSEL
WARNING SECNO=	14.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	

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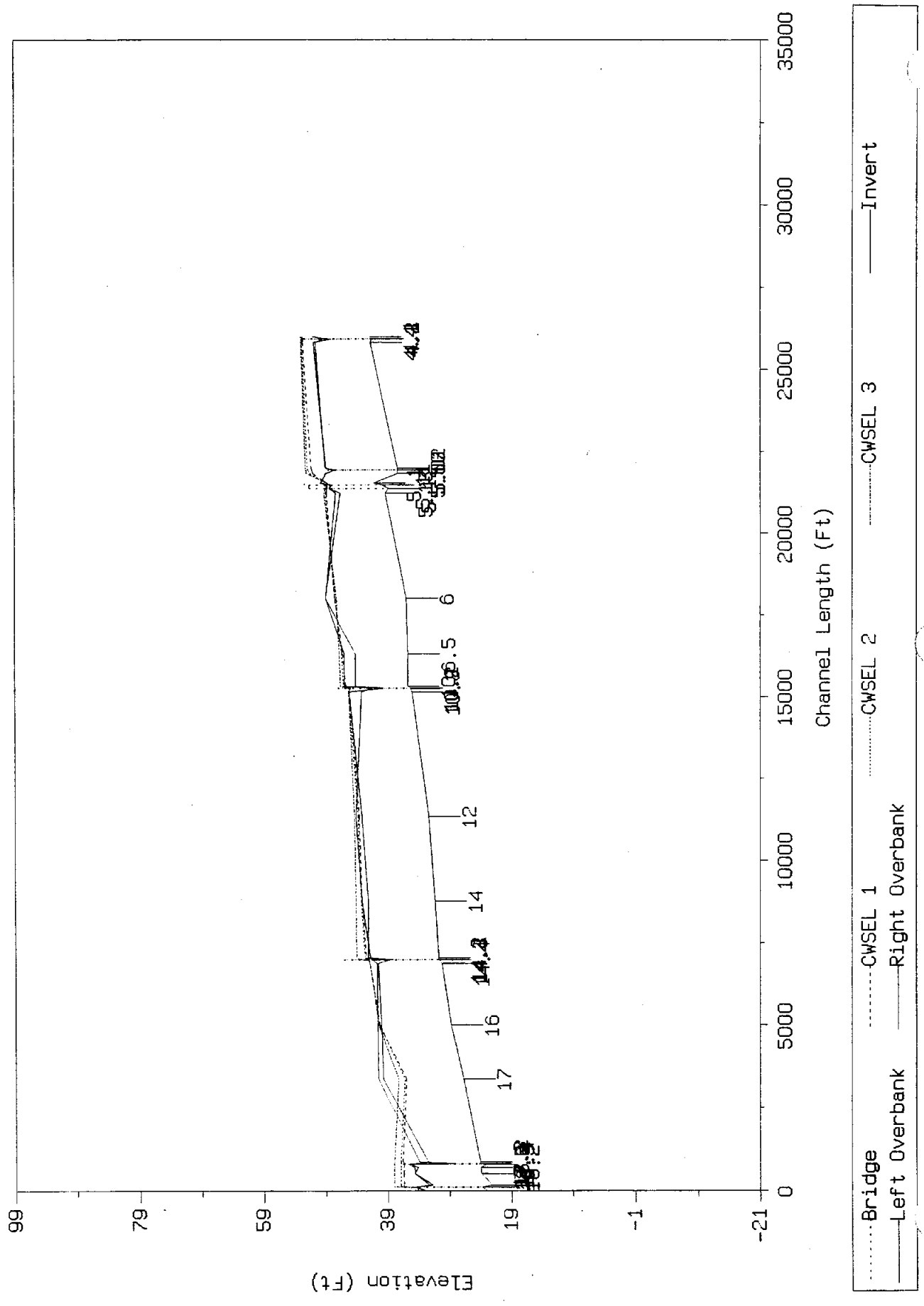
PAGE 20

WARNING SECNO=	14.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	12.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	12.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	10.300	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	10.200	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	10.200	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	10.200	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	10.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	10.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	10.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.500	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.130	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.130	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.130	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.120	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.120	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.120	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.100	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.100	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.100	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.030	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.030	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.030	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.020	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	4.400	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	4.400	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	4.400	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	4.300	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	4.300	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	4.300	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	4.100	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	4.100	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	4.100	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	3.900	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	3.900	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	3.900	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

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WARNING SECNO=	3.800	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.800	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.800	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.600	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.600	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.600	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.300	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.300	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.300	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.200	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.200	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.200	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	3.100	PROFILE=	1	20 TRIALS OF EG NOT ENOUGH
CAUTION SECNO=	3.100	PROFILE=	2	20 TRIALS OF EG NOT ENOUGH
CAUTION SECNO=	3.100	PROFILE=	3	20 TRIALS OF EG NOT ENOUGH
WARNING SECNO=	3.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	2.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	2.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	2.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

L REVISED BY KLOTZ ASSOC  
 Cross-Sections (18.5 to 4.1)



```
*****  
* HEC-2 WATER SURFACE PROFILES *  
* *  
* Version 4.6.2; May 1991 *  
* *  
* RUN DATE 21AUG02 TIME 10:53:42 *  
*****
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*****  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET, SUITE D *  
* DAVIS, CALIFORNIA 95616-4687 *  
* (916) 756-1104 *  
*****
```

```
      X   X  XXXXXXX  XXXXX          XXXXX  
      X   X  X      X   X          X   X  
      X   X  X      X              X  
      XXXXXXX  XXXX  X              XXXXX  XXXXX  
      X   X  X      X              X  
      X   X  X      X   X          X  
      X   X  XXXXXXX  XXXXX          XXXXXXX
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THIS RUN EXECUTED 21AUG02 10:53:42

\*\*\*\*\*  
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

\*\*\*\*\*

T1 WEST FORK CHOCOLATE BAYOU..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: WESTFORX.IH2.....10 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

NOTES\*\*\*\*\*  
REVISED MODEL INCLUDES 2000 BAKER & LAWSON SURVEY SECTIONS AND REVISED  
BRIDGE SECTIONS  
MODEL KEYED IN FROM 21 JUL 82 RUN DATE HUD-FEMA FLOOD INSURANCE STUDY MODEL,  
WCC PROJECT 79CH1080  
ORIGINAL INPUT DATA PROVIDED BY BRAZORIA COUNTY FLOOD PLAIN ADMINISTRATOR  
\*\*\*\*\*

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2							36.69	
J2	NPROP	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-7							
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38	43	1	26	42	23	24	63	14	60
	39	4								
J5	LPRNT	NUMSEC	*****REQUESTED SECTION NUMBERS*****							
	-10	-10								

NC	.09	.09	.06	0.1	0.3					
QT	3	3789	4437	5873						
X1	15.3	18	11960	12120						
GR	42.0	7836.	41.0	7836.	40.0	8836.	38.3	11000.	38.3	11738.
GR	38.1	11913.	35.9	11960.	25.8	12018.	24.8	12036.	25.8	12052.
GR	37.5	12120.	39.1	12149.	39.1	12253.	36.7	12276.	38.3	12298.
GR	39.7	12808.	39.7	14036.	42.0	14036.				



NC				0.3		0.5				
X1	15.2	19	12018.	12052.	100.	100.	100.			
X3	10							29.8	29.8	
GR	42.0	7836.	41.0	7836.	40.0	8836.	38.3	11000.	38.3	11738.
GR	38.1	11913.	35.9	11960.	25.8	12018.	24.8	12036.	25.8	12052.
GR	37.5	12120.	39.1	12149.	39.1	12253.	36.7	12276.	38.3	12298.
GR	39.7	12808.	39.7	14036.	41.0	14036.	42.0	14036.		

PRIVATE ROAD

SB	1.05	1.56	2.9		29.8	2.	130.	0.25	24.8	24.8
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PRIVATE ROAD

X1	15.1				17.	17.	17.			
X2			1	29.3	30.3					
X3	10							30.3	30.3	
BT	-17	7836.	41.0		8836.	40.0		11000.	38.3	
BT		11738.	38.3		11913.	38.1		11947.	38.3	
BT		11986.	35.9		12018.	30.3		12052.	30.3	
BT		12070.	34.7		12110.	37.9		12149.	39.1	
BT		12253.	39.1		12276.	36.7		12298.	38.3	
BT		12808.	39.7		14036.	39.7				

X1	15.	18	11960	12120	50.	50.	50.			
GR	42.0	7836.	41.0	7836.	40.0	8836.	38.3	11000.	38.3	11738.
GR	38.1	11913.	35.9	11960.	25.8	12018.	24.8	12036.	25.8	12052.
GR	37.5	12120.	39.1	12149.	39.1	12253.	36.7	12276.	38.3	12298.
GR	39.7	12808.	39.7	14036.	42.0	14036.				

NC				0.1		0.3				
X1	14.	19	4036.	4175.	2600.	2900.	3100.			
X3	10									
GR	42.0	0.	41.0	1108.	40.0	2308.	39.5	3152.	39.7	3576.
GR	38.7	3804.	37.9	3918.	38.1	3988.	40.9	4020.	40.9	4036.
GR	33.9	4067.	28.7	4088.	28.0	4108.	28.7	4127.	37.5	4175.
GR	37.7	4324.	39.9	4901.	40.0	6008.	42.0	6008.		

2000 BAKER & LAWSON SURVEY SECTION

X1	13.7	15	10020.0	10103.8	2850.	2850.	2850.			
X3	10			10000.0	41.11	10109.4	42.52			
GR	45.00	4061.2	40.00	9361.2	41.11	10000.0	40.62	10020.0	29.44	10049.2
GR	29.01	10061.2	29.72	10070.2	42.49	10103.8	42.52	10109.4	39.19	10131.2
GR	40.00	10561.2	41.00	11061.2	42.00	12061.2	42.00	12361.2	44.00	12361.2

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NC			0.3		0.5					
2000 BAKER & LAWSON SURVEY SECTION										
X1	13.6	19	10075.8	10145.9	100.	100.	100.			
X3	10							40.47	40.47	
GR	45.00	4117.5	40.00	9417.5	39.62	10000.0	40.56	10041.4	40.76	10075.8
GR	29.72	10102.0	29.73	10110.2	29.42	10117.5	36.38	10140.7	41.24	10145.9
GR	41.22	10168.3	40.42	10192.7	40.13	10218.5	39.90	10244.7	40.00	10617.5
GR	41.00	11117.5	42.00	12117.5	42.00	12417.5	44.00	12417.5		

CR 63

SB	1.05	1.56	2.9		15.0	3.3	355.	2.5	29.42	29.42
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2000 BAKER & LAWSON SURVEY SECTION

CR 63

X1	13.5	19	10075.8	10145.9	16.	16.	16.			
X2			1	39.72	41.22					
X3	10							41.22	41.22	
BT	-14	4117.5	45.00		9417.5	40.00		10000.0	39.62	
BT		10041.4	40.56		10075.8	41.84		10140.7	41.43	
BT		10168.3	41.22		10192.7	40.42		10218.5	40.13	
BT		10244.7	39.90		10617.5	40.00		11117.5	41.00	
BT		12117.5	42.00		12417.5	42.00				
GR	45.00	4117.5	40.00	9417.5	39.62	10000.0	40.56	10041.4	40.76	10075.8
GR	29.72	10102.0	29.73	10110.2	29.42	10117.5	36.38	10140.7	41.24	10145.9
GR	41.22	10168.3	40.42	10192.7	40.13	10218.5	39.90	10244.7	40.00	10617.5
GR	41.00	11117.5	42.00	12117.5	42.00	12417.5	44.00	12417.5		

2000 BAKER & LAWSON SURVEY SECTION

X1	13.4	20	10108.8	10195.5	50.	50.	50.			
X3	10									
GR	45.00	4155.9	40.00	9455.9	39.45	10000.0	31.93	10027.4	40.54	10053.6
GR	43.64	10092.5	43.96	10108.8	29.68	10148.0	29.65	10155.9	29.82	10164.6
GR	40.18	10195.5	40.94	10218.7	40.43	10256.5	33.93	10276.5	38.67	10290.2
GR	40.00	10655.9	41.00	11155.9	42.00	12155.9	42.00	12455.9	44.00	12455.9

NC			0.1		0.3					
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X1	13.				750.	750.	750.			0.6
X3	10									

QT	3	3600	4300	5600						
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X1	12.3	17	4850.	4956.	3700.	3600.	3650.			
X3				4838.	46.	5008.	43.6			
GR	48.0	1313.	45.0	2713.	44.0	3736.	43.6	4251.	42.8	4819.
GR	46.0	4838.	40.6	4850.	33.4	4900.	32.0	4913.	33.4	4926.
GR	40.8	4956.	43.6	5008.	40.8	5043.	42.8	5134.	43.2	5850.
GR	44.0	8063.	47.0	8063.						

NC			0.3	0.5						
X1	12.2	17	4850.	4956.	100.	100.	100.			
X3	10			4838.	46.	5008.	43.6	43.44	43.44	
GR	48.0	1313.	45.0	2713.	44.	3736.	43.6	4251.	42.8	4819.
GR	46.	4838.	40.6	4850.	35.7	4880.	32.0	4913.	35.	4934.
GR	40.8	4956.	43.6	5008.	40.8	5043.	42.8	5134.	43.2	5850.
GR	44.0	8063.	47.0	8063.						

CR 67

SB	1.05	1.56	2.6		30.	3.	370.	1.	32.0	32.0
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CR 67

X1	12.1				24.	24.	24.			
X2			1	42.94	43.94					
X3	10			4838.	46.	5008.	43.6	43.94	43.94	
BT	-16	1313.	48.00		2713.	45.00		3736.	44.00	
BT		4251.	43.60		4819.	42.80		4838.	46.00	
BT		4850.	40.60		4880.	44.21		4905.7	44.20	
BT		4934.6	43.94		4956.	40.80		5008.	43.60	
BT		5043.	40.80		5134.	42.80		5850.	43.20	
BT		8063.	44.00							

2000 BAKER & LAWSON SURVEY SECTION

X1	12.	17	10306.5	10387.6	50.	50.	50.			
GR	48.00	6744.3	45.00	8144.3	43.67	10000.0	43.66	10093.8	40.17	10273.4
GR	39.15	10306.5	33.58	10333.9	32.06	10344.3	33.00	10352.4	44.09	10387.6
GR	43.94	10421.8	41.87	10433.7	41.25	10476.9	43.33	10707.2	44.03	10822.1
GR	44.00	13494.3	47.00	13494.3						

NC			0.1	0.3						
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QT	3	3519	4132	5437						
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2000 BAKER & LAWSON SURVEY SECTION

X1	11.3	15	10374.9	10463.8	3900.	4400.	4650.			
X3	10									
GR	48.00	8119.0	45.32	10000.0	45.26	10047.9	45.27	10095.0	45.17	10188.6
GR	43.27	10344.9	41.34	10374.9	35.96	10407.2	33.44	10419.0	34.25	10426.4
GR	47.34	10463.8	46.91	10489.9	44.80	10810.6	45.60	10901.1	48.00	13219.0

NC			0.3	0.5						
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X1	11.2	23	4070	4190	100.	100.	100.			
X3	10							45.92	45.92	
GR	48.0	1825.	45.2	3221.	45.2	3222.	45.2	3223.	45.2	3224.
GR	45.2	3225.	44.4	3291.	44.2	3818.	43.8	3981.	43.4	4021.
GR	45.6	4049.	45.2	4070.	38.5	4103.	35.	4120.	34.2	4125.
GR	35.2	4130.	39.5	4157.	45.1	4190.	44.8	4265.	44.6	4362.
GR	44.8	4728.	45.6	5229.	48.0	6925.				



QT	3	3000	3600	4600						
2000 BAKER & LAWSON SURVEY SECTION										
X1	8.	19	10318.5	10373.2	700	700	700			
X3				10225.1	54.50	10488.2	55.67			
GR	55.00	6047.5	54.00	7847.5	51.46	10000.0	51.83	10056.3	52.46	10113.4
GR	53.52	10168.0	54.50	10225.1	50.46	10318.5	44.70	10329.9	42.06	10340.4
GR	39.13	10347.5	40.66	10363.2	43.69	10373.2	55.09	10431.7	55.67	10488.2
GR	54.79	10544.5	53.47	10600.8	53.04	10656.5	52.72	10709.6		

NC			0.3	0.5						
X1	7.99				100.	100.	100.			
X3	10							53.85	53.85	

CR 48  
SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILE 11/97

SB	1.05	1.56	2.6	14.	5.	798.	2.	39.13	39.13	
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2000 BAKER & LAWSON SURVEY SECTION										
CR 48										
X1	7.98				22.	22.	22.			
X2			1	53.20	54.50					
X3	10							54.50	54.50	
BT	-16	6047.5	55.00	7847.5	54.00	10000.0	51.46			
BT		10056.3	51.83	10113.4	52.46	10168.0	53.52			
BT		10225.1	54.50	10303.	54.50	10341.	54.54			
BT		10388.	54.60	10431.7	55.09	10488.2	55.67			
BT		10544.5	54.79	10600.8	53.47	10656.5	53.04			
BT		10709.6	52.72							

X1	7.97				50.	50.	50.			
X3				10225.1	54.50	10488.2	55.67			
NC			0.1	0.3						

QT	3	2664	3107	3983						
2000 BAKER & LAWSON SURVEY SECTION										
X1	7.6	13	10059.9	10096.2	3300.	3500.	3800.			
GR	56.00	6981.3	51.36	10000.0	42.19	10031.1	48.99	10059.9	42.42	10073.7
GR	40.50	10081.3	42.13	10090.0	46.08	10096.2	41.53	10130.7	50.58	10160.0
GR	55.00	17081.3	55.00	19081.3	57.00	19081.3				

NC			0.3	0.5						
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2000 BAKER & LAWSON SURVEY SECTION

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X1	7.59	16	10623.7	10761.5	100.	100.	100.			
X3	10			10541.5	56.04	10904.5	55.65	52.55	52.55	
GR	55.95	10000.0	55.82	10126.7	55.86	10228.3	55.98	10329.6	56.07	10434.7
GR	56.04	10541.5	54.43	10623.7	42.27	10662.3	41.12	10696.9	42.40	10727.6
GR	53.83	10761.5	55.65	10904.5	55.38	11004.6	54.90	11105.2	54.71	11204.6
GR	54.60	11305.1								

SH 288

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILE 01/97

SB	1.25	1.56	2.6	40	2.	939.	3.5	41.12	41.12	
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2000 BAKER & LAWSON SURVEY SECTION

SH 288

X1	7.58	16	10623.7	10761.5	60.	60.	60.			
X2			1	55.2	58.1					
X3	10						58.1	58.1		
BT	-4	10541.5	56.04		10624.3	58.1	10762.3	58.1		
BT		10904.5	55.65							
GR	55.95	10000.0	55.82	10126.7	55.86	10228.3	55.98	10329.6	56.07	10434.7
GR	56.04	10541.5	54.43	10623.7	42.27	10662.3	41.12	10696.9	42.40	10727.6
GR	53.83	10761.5	55.65	10904.5	55.38	11004.6	54.90	11105.2	54.71	11204.6
GR	54.60	11305.1								

2000 BAKER & LAWSON SURVEY SECTION

X1	7.57	13	10100.8	10169.0	50.	150.	100.			
GR	57.00	7035.2	56.00	7035.2	53.22	10000.0	51.34	10100.8	42.37	10127.2
GR	41.92	10135.2	42.57	10142.7	50.99	10169.0	51.93	10217.3	52.09	10265.0
GR	55.00	17135.2	55.00	19135.2	57.00	19135.2				

NC				0.1	0.3					
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X1	6.93	13	2135.	2179.	40.	200.	140.			
GR	57.	157	56.	157.	55.	1783.	54.2	2027.	53.2	2135.
GR	43.5	2149.	42.7	2157.	43.5	2167.	53.	2179.	53.	2798.
GR	53.4	3000.	56.	9157.	57.	9157.				

NC				0.3	0.5					
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X1	6.92				100.	100.	100.			
X3	10							52.25	52.25	

CR 57

SB	1.05	1.56	2.9	20.	1.7	275.	1.2	42.7	42.7	
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CR 57

X1	6.91				100.	100.	100.			
X2			1	52.5	53.9					
X3	10							53.9	53.9	
BT	9	157.	56.		1783.	55.		2027	54.2	
BT	2135.	53.9		2179.	53.9		2469.	53.		2798.
BT	53.		3000.	53.4		9157.	56.			

X1	6.9				50.	50.	50.			
NC				0.1	0.3					

X1	6.0	19	18150.	18231.	3000.	3100.	3100.			
GR	60.0	10802.	55.0	17702.	54.6	17758.	54.6	17759.	54.6	17760.
GR	54.6	17761.	54.6	17762.	53.2	18124.	54.	18150.	52.	18165.
GR	46.8	18193.	44.7	18202.	46.8	18210.	53.2	18231.	52.8	18257.
GR	53.2	18433.	53.2	18683.	55.0	19302.	60.0	30402.		

QT 3 2038 2385 3087

2000 BAKER & LAWSON SURVEY SECTION

X1	5.3	19	13172.6	13239.5	2500.	2150.	2380.			
X3	10									
GR	59.00	9898.9	57.00	9898.9	53.99	10034.7	54.22	11076.6	54.31	11740.1
GR	53.81	12877.0	53.89	12977.0	54.08	13079.0	55.45	13172.6	46.02	13193.4
GR	45.00	13198.9	47.10	13220.6	53.93	13239.5	54.30	13351.5	54.01	13454.5
GR	54.20	13557.1	54.68	14369.2	57.00	15198.9	60.00	25648.9		

NC				0.3	0.5					
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2000 BAKER & LAWSON SURVEY SECTION

X1	5.2	22	13180.3	13232.3	100.	100.	100.			
X3	10							54.79	54.79	
GR	59.00	9901.5	57.00	9901.5	56.27	10000.0	56.05	10009.8	55.05	10019.4
GR	53.99	10034.7	54.22	11076.6	54.31	11740.1	53.81	12877.0	53.89	12977.0
GR	54.08	13079.0	55.84	13180.3	46.96	13191.3	46.00	13201.5	46.70	13211.2
GR	55.23	13232.3	54.30	13335.3	54.01	13438.4	54.20	13541.0	54.68	14353.1
GR	57.00	15201.5	60.00	25651.5						

CR 81

SB	1.05	1.56	2.9		17.7	2.	209.	1.	46.0	46.0
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2000 BAKER & LAWSON SURVEY SECTION

CR 81

X1	5.1	22	13180.1	13231.7	15.	15.	15.			
X2			1	53.79	55.79					
X3	10							53.81	53.81	
BT	-19	9910.	57.00		10000.	56.27		10009.8	56.05	
BT		10019.4	55.05		10034.7	53.99		11076.6	54.22	
BT		11740.1	54.31		12877.0	53.81		12977.0	53.89	
BT		13079.0	54.08		13180.1	55.81		13210.9	56.04	

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BT		13231.7	55.79		13335.1	54.30		13483.1	54.01	
BT		13540.7	54.20		14352.8	54.68		15210.9	57.00	
BT		25660.9	60.00							
GR	59.00	9910.9	57.00	9910.9	56.27	10000.0	56.05	10009.8	55.05	10019.4
GR	53.99	10034.7	54.22	11076.6	54.31	11740.1	53.81	12877.0	53.89	12977.0
GR	54.08	13079.0	55.62	13180.1	47.96	13197.9	45.95	13210.9	46.68	13220.4
GR	55.21	13231.7	54.30	13335.1	54.01	13483.1	54.20	13540.7	54.68	14352.8
GR	57.00	15210.9	60.00	25660.9						

2000 BAKER & LAWSON SURVEY SECTION

X1	5.0	20	13238.5	13286.7	70.	70.	70.			
GR	59.00	9958.4	57.00	9958.4	53.99	10034.7	54.22	11076.6	54.31	11740.1
GR	53.81	12877.0	53.89	12977.0	54.08	13079.0	53.63	13225.0	51.61	13238.5
GR	46.56	13249.1	45.61	13258.4	46.89	13277.0	51.16	13286.7	54.30	13378.9
GR	54.01	13481.9	54.20	13584.5	54.68	14396.6	57.00	15258.4	60.00	25708.4

NC 0.1 0.3

QT 3 1303 1489 1943

2000 BAKER & LAWSON SURVEY SECTION

X1	4.	23	16360.	16465.	2050.	1800.	1990.			
X3	10									
GR	61.0	11516.	57.0	11516.	54.2	15463.	54.2	15464.	54.2	15465.
GR	54.2	15466.	54.4	16260.	56.	16360.	54.8	16396.	48.2	16404.
GR	47.4	16408.	47.	16412.	46.7	16416.	47.	16420.	47.4	16424.
GR	48.2	16427.	56.2	16465.	55.	16519.	51.	16522.	54.2	16538.
GR	54.8	17004.	57.0	18816.	61.0	26116.				

2000 BAKER & LAWSON SURVEY SECTION

X1	3.3	25	10894.8	10948.2	3650.	3350.	3710.			
X3				10224.5	60.34	11300.2	57.61			
GR	60.00	6783.9	59.00	7933.9	57.72	10000.0	57.59	10085.4	60.33	10183.5
GR	60.34	10224.5	57.30	10299.2	57.06	10357.4	57.27	10453.8	56.87	10549.4
GR	56.62	10644.7	56.19	10740.3	55.50	10894.8	48.17	10911.6	47.61	10923.5
GR	47.28	10933.9	55.25	10948.2	56.37	11019.6	56.56	11113.2	57.06	11206.0
GR	57.61	11300.2	57.58	11393.5	58.00	12933.9	58.00	19933.9	60.00	19933.9

NC 0.3 0.5

2000 BAKER & LAWSON SURVEY SECTION

X1	3.2	25	10828.1	10884.9	100.	100.	100.			
X3	10			10224.5	60.34	11254.4	57.61	54.7	54.7	
GR	60.00	6106.8	59.00	7856.8	57.72	10000.0	57.59	10085.4	60.33	10183.5
GR	60.34	10224.5	57.30	10299.2	57.06	10357.4	57.27	10453.8	56.87	10549.4
GR	56.62	10644.7	56.19	10740.3	54.72	10828.1	47.55	10845.6	46.85	10856.8
GR	47.51	10870.2	56.39	10884.9	56.37	10973.7	56.56	11067.4	57.06	11160.1
GR	57.61	11254.4	57.58	11347.6	58.00	12856.8	58.00	19856.8	60.00	19856.8

CR 383



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SB 1.05 1.56 2.8 8.85 1. 144. 1. 46.85 46.85

2000 BAKER & LAWSON SURVEY SECTION  
CR 383

X1	3.1				15.	15.	15.			
X2			1	54.0	55.4					
X3	10			10244.5	60.34	11254.4	57.61	55.4	55.4	
BT	-21	6106.8	60.00		7856.8	59.00		10000.0	57.72	
BT		10085.4	57.59		10183.5	60.33		10224.5	60.34	
BT		10299.2	57.30		10357.4	57.06		10453.8	57.27	
BT		10549.4	56.87		10644.7	56.62		10740.3	56.19	
BT		10787.9	55.4		10836.9	57.5		10868.9	57.5	
BT		10973.7	56.37		11067.4	56.56		11254.4	57.61	
BT		11347.6	57.58		12856.8	58.0		19856.8	58.0	

X1	3.0				50.	50.	50.			
X3	10			10244.5	60.34	11254.4	57.61			

NC 0.1 0.3

X1	2.0	15	5122.	5178.	3400.	3500.	3640.			
X3	10									
GR	60.0	855.	58.4	4663.	58.4	4664.	58.4	4666.	58.4	4667.
GR	56.6	5077.	59.4	5122.	57.2	5144.	50.8	5145.	49.5	5155.
GR	50.8	5165.	56.6	5178.	57.4	5398.	58.6	6123.	61.0	6855.

QT 3 900 1100 1500

2000 BAKER & LAWSON SURVEY SECTION

X1	1.5	13	10194.6	10264.7	948	948	948			
X3	10									
GR	60.00	6243.3	56.92	10000.0	56.51	10121.0	56.90	10180.6	60.41	10194.6
GR	57.01	10210.1	55.93	10225.6	51.64	10235.6	50.56	10243.3	51.54	10251.2
GR	55.41	10264.7	55.94	10357.9	60.00	19243.3				

QT 3 679 809 1069

2000 BAKER & LAWSON SURVEY SECTION

X1	1.0	15	14876.	14928.	2192	2052	2192			
GR	65.0	6689.	60.0	14339.	58.9	14430.	58.9	14431.	58.9	14432.
GR	57.9	14860.	58.7	14876.	55.3	14887.	54.	14889.	55.3	14891.
GR	59.7	14905.	58.1	14928.	58.1	15370.	60.0	15889.	61.0	26689.

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T1 WEST FORK CHOCOLATE BAYOU..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: WESTFORK.IH2.....25 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

J1	ICHECK	INQ	NINV	IDIR	SIRT	METRIC	HVINS	Q	WSEL	FQ
		3							37.02	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-7							

21AUG02 10:53:42

T1 WEST FORK CHOCOLATE BAYOU..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: WESTFORK.IH2.....100 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		4							37.65	
J2	NPROP	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-7							

21AUG02 10:53:42

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

THIS RUN EXECUTED 21AUG02 10:53:44

NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

L REVISED BY KLOTZ ASSOC

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
15.300	3789.00	36.69	3.54	24.80	35.90	37.50	42.00	3786.65	99.94	.00	172.17
15.300	4437.00	37.02	3.95	24.80	35.90	37.50	42.00	4430.24	99.85	.00	188.60
15.300	5873.00	37.65	4.78	24.80	35.90	37.50	42.00	5842.91	99.49	.00	222.27
15.200	3789.00	36.81	5.56	24.80	25.80	25.80	42.00	2175.44	57.41	100.00	177.83
15.200	4437.00	37.16	6.20	24.80	25.80	25.80	42.00	2500.82	56.36	100.00	195.62
15.200	5873.00	37.84	7.46	24.80	25.80	25.80	42.00	3178.81	54.13	100.00	234.14
15.100	3789.00	37.09	5.34	24.80	25.80	25.80	42.00	2142.75	56.55	17.00	192.41
15.100	4437.00	37.48	5.93	24.80	25.80	25.80	42.00	2458.12	55.40	17.00	211.98
15.100	5873.00	38.06	7.22	24.80	25.80	25.80	42.00	3131.86	53.33	17.00	248.25
15.000	3789.00	37.32	3.23	24.80	35.90	37.50	42.00	3777.89	99.71	50.00	204.01
15.000	4437.00	37.76	3.56	24.80	35.90	37.50	42.00	4410.29	99.40	50.00	229.03
15.000	5873.00	38.46	4.26	24.80	35.90	37.50	42.00	5748.86	97.89	50.00	1427.17
*	14.000	3789.00	40.26	2.66	28.00	40.90	42.00	2885.69	76.16	3100.00	1969.19
*	14.000	4437.00	40.72	2.59	28.00	40.90	42.00	2978.43	67.13	3100.00	1971.21
*	14.000	5873.00	41.08	2.18	28.00	40.90	42.00	2614.24	44.51	3100.00	4994.57
	13.700	3789.00	42.67	3.16	29.01	40.62	42.49	2292.77	60.51	2850.00	5123.51
*	13.700	4437.00	42.91	3.09	29.01	40.62	42.49	2300.61	51.85	2850.00	5454.00
*	13.700	5873.00	43.05	3.71	29.01	40.62	42.49	2800.29	47.68	2850.00	5626.69
*	13.600	3789.00	42.82	1.21	29.42	40.76	41.24	793.22	20.93	100.00	5984.23
*	13.600	4437.00	43.03	1.25	29.42	40.76	41.24	835.40	18.83	100.00	6216.81
*	13.600	5873.00	43.21	1.50	29.42	40.76	41.24	1019.48	17.36	100.00	6406.19
	13.500	3789.00	42.82	1.21	29.42	40.76	41.24	792.24	20.91	16.00	5986.86
	13.500	4437.00	43.03	1.25	29.42	40.76	41.24	834.35	18.80	16.00	6219.65
	13.500	5873.00	43.21	1.49	29.42	40.76	41.24	1017.97	17.33	16.00	6409.74

	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	13.400	3789.00	42.82	1.92	29.65	43.96	40.18	44.00	1335.55	35.25	50.00	2343.98
*	13.400	4437.00	43.04	2.02	29.65	43.96	40.18	44.00	1447.07	32.61	50.00	2344.58
*	13.400	5873.00	43.22	2.47	29.65	43.96	40.18	44.00	1802.48	30.69	50.00	2345.08
	13.000	3789.00	43.14	2.21	30.25	44.56	40.78	44.60	1485.45	39.20	750.00	2343.20
	13.000	4437.00	43.38	2.29	30.25	44.56	40.78	44.60	1587.27	35.77	750.00	2343.87
	13.000	5873.00	43.69	2.62	30.25	44.56	40.78	44.60	1884.02	32.08	750.00	2344.71
	12.300	3600.00	44.89	2.26	32.00	40.60	40.80	47.00	2131.95	59.22	3650.00	3222.54
	12.300	4300.00	45.16	2.29	32.00	40.60	40.80	47.00	2231.51	51.90	3650.00	3223.16
	12.300	5600.00	45.65	2.32	32.00	40.60	40.80	47.00	2374.89	42.41	3650.00	3224.22
	12.200	3600.00	44.94	2.18	32.00	40.60	40.80	47.00	2104.24	58.45	100.00	3222.65
	12.200	4300.00	45.21	2.23	32.00	40.60	40.80	47.00	2215.79	51.53	100.00	3223.25
	12.200	5600.00	45.69	2.26	32.00	40.60	40.80	47.00	2360.97	42.16	100.00	3224.33
	12.100	3600.00	44.94	2.18	32.00	40.60	40.80	47.00	2101.26	58.37	24.00	3222.65
	12.100	4300.00	45.21	2.23	32.00	40.60	40.80	47.00	2215.17	51.52	24.00	3223.25
	12.100	5600.00	45.69	2.26	32.00	40.60	40.80	47.00	2362.63	42.19	24.00	3224.32
	12.000	3600.00	44.99	1.95	32.06	39.15	44.09	47.00	1343.81	37.33	50.00	5331.87
	12.000	4300.00	45.26	1.90	32.06	39.15	44.09	47.00	1351.48	31.43	50.00	5470.34
	12.000	5600.00	45.74	1.79	32.06	39.15	44.09	47.00	1346.43	24.04	50.00	5693.42
*	11.300	3519.00	47.17	2.79	33.44	41.34	47.34	48.00	2122.35	60.31	4650.00	1764.55
*	11.300	4132.00	47.34	3.06	33.44	41.34	47.34	48.00	2373.08	57.43	4650.00	1880.41
*	11.300	5437.00	47.54	2.82	33.44	41.34	47.34	48.00	2232.88	41.07	4650.00	4336.75
*	11.200	3519.00	47.29	1.20	34.20	45.20	45.10	48.00	1098.69	31.22	100.00	4245.38
*	11.200	4132.00	47.47	1.28	34.20	45.20	45.10	48.00	1206.74	29.20	100.00	4465.70
*	11.200	5437.00	47.64	1.56	34.20	45.20	45.10	48.00	1499.36	27.58	100.00	4661.48
	11.100	3519.00	47.29	1.19	34.20	45.20	45.10	48.00	1097.36	31.18	24.00	4249.29
	11.100	4132.00	47.47	1.28	34.20	45.20	45.10	48.00	1205.21	29.17	24.00	4469.97
	11.100	5437.00	47.64	1.56	34.20	45.20	45.10	48.00	1497.10	27.54	24.00	4666.72
	11.000	3519.00	47.30	1.19	34.20	45.20	45.10	48.00	1095.45	31.13	50.00	4254.94
	11.000	4132.00	47.48	1.28	34.20	45.20	45.10	48.00	1202.92	29.11	50.00	4476.36
	11.000	5437.00	47.65	1.55	34.20	45.20	45.10	48.00	1492.75	27.46	50.00	4676.84
*	10.000	3519.00	47.78	5.89	34.20	49.50	49.50	49.00	3519.00	100.00	1840.00	87.08
*	10.000	4132.00	47.96	6.73	34.20	49.50	49.50	49.00	4132.00	100.00	1840.00	88.27
*	10.000	5437.00	48.28	8.46	34.20	49.50	49.50	49.00	5437.00	100.00	1840.00	90.30
*	9.000	3519.00	50.33	1.45	36.80	46.50	46.50	52.00	1529.58	43.47	3930.00	8853.75
*	9.000	4132.00	50.58	1.39	36.80	46.50	46.50	52.00	1512.54	36.61	3930.00	9357.98
*	9.000	5437.00	51.07	1.28	36.80	46.50	46.50	52.00	1459.39	26.84	3930.00	10228.40
*	8.500	3519.00	51.56	2.08	39.13	51.46	43.69	52.72	3311.22	94.10	3500.00	502.15
*	8.500	4132.00	51.76	2.34	39.13	51.46	43.69	52.72	3884.68	94.01	3500.00	669.28
*	8.500	5437.00	52.09	2.84	39.13	51.46	43.69	52.72	5073.68	93.32	3500.00	951.16

	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	8.000	3000.00	52.34	4.91	39.13	50.46	43.69	52.72	2595.82	86.53	700.00	142.45
*	8.000	3600.00	52.68	5.63	39.13	50.46	43.69	52.72	3082.65	85.63	700.00	152.17
*	8.000	4600.00	53.29	6.64	39.13	50.46	43.69	52.72	3858.61	83.88	700.00	169.53
	7.990	3000.00	52.49	5.59	39.13	50.46	43.69	52.72	3000.00	100.00	100.00	54.70
	7.990	3600.00	52.86	6.46	39.13	50.46	43.69	52.72	3600.00	100.00	100.00	54.70
	7.990	4600.00	53.50	7.77	39.13	50.46	43.69	52.72	4600.00	100.00	100.00	54.70
	7.980	3000.00	52.59	5.53	39.13	50.46	43.69	52.72	3000.00	100.00	22.00	54.70
	7.980	3600.00	53.02	6.36	39.13	50.46	43.69	52.72	3600.00	100.00	22.00	54.70
	7.980	4600.00	53.50	7.77	39.13	50.46	43.69	52.72	4600.00	100.00	22.00	54.70
	7.970	3000.00	52.95	4.53	39.13	50.46	43.69	52.72	2546.66	84.89	50.00	159.74
	7.970	3600.00	53.51	5.05	39.13	50.46	43.69	52.72	2996.24	83.23	50.00	175.66
	7.970	4600.00	54.30	5.84	39.13	50.46	43.69	52.72	3713.19	80.72	50.00	197.94
*	7.600	2664.00	53.89	.85	40.50	48.99	46.08	56.00	320.71	12.04	3800.00	6988.74
*	7.600	3107.00	54.40	.75	40.50	48.99	46.08	56.00	296.98	9.56	3800.00	8112.90
*	7.600	3983.00	55.16	.65	40.50	48.99	46.08	56.00	274.36	6.89	3800.00	11555.66
*	7.590	2664.00	53.87	2.22	41.12	54.43	53.83	54.60	2664.00	100.00	100.00	138.99
*	7.590	3107.00	54.36	2.45	41.12	54.43	53.83	54.60	3105.26	99.94	100.00	179.41
*	7.590	3983.00	55.10	2.89	41.12	54.43	53.83	54.60	3960.79	99.44	100.00	271.83
	7.580	2664.00	53.87	2.22	41.12	54.43	53.83	54.60	2664.00	100.00	60.00	136.03
	7.580	3107.00	54.37	2.45	41.12	54.43	53.83	54.60	3107.00	100.00	60.00	137.60
	7.580	3983.00	55.41	2.82	41.12	54.43	53.83	54.60	3983.00	100.00	60.00	137.80
	7.570	2664.00	53.99	1.93	41.92	51.34	50.99	57.00	1081.26	40.59	100.00	5557.31
*	7.570	3107.00	54.51	1.47	41.92	51.34	50.99	57.00	875.33	28.17	100.00	7351.74
*	7.570	3983.00	55.59	.81	41.92	51.34	50.99	57.00	543.67	13.65	100.00	11657.83
*	6.930	2664.00	53.93	5.40	42.70	53.20	53.00	57.00	1841.19	69.11	140.00	2197.01
*	6.930	3107.00	54.53	3.69	42.70	53.20	53.00	57.00	1354.77	43.60	140.00	3737.42
*	6.930	3983.00	55.60	1.84	42.70	53.20	53.00	57.00	763.65	19.17	140.00	7393.27
*	6.920	2664.00	54.43	3.45	42.70	53.20	53.00	57.00	1253.93	47.07	100.00	3485.42
	6.920	3107.00	54.70	3.13	42.70	53.20	53.00	57.00	1174.11	37.79	100.00	4209.91
	6.920	3983.00	55.63	1.80	42.70	53.20	53.00	57.00	749.63	18.82	100.00	7498.53
	6.910	2664.00	54.44	3.42	42.70	53.20	53.00	57.00	1245.18	46.74	100.00	3508.54
	6.910	3107.00	54.70	3.12	42.70	53.20	53.00	57.00	1170.75	37.68	100.00	4219.41
	6.910	3983.00	55.63	1.79	42.70	53.20	53.00	57.00	744.58	18.69	100.00	7537.07
	6.900	2664.00	54.52	3.21	42.70	53.20	53.00	57.00	1175.70	44.13	50.00	3697.71
	6.900	3107.00	54.76	2.98	42.70	53.20	53.00	57.00	1124.11	36.18	50.00	4354.73
	6.900	3983.00	55.65	1.77	42.70	53.20	53.00	57.00	737.65	18.52	50.00	7590.50
*	6.000	2664.00	56.05	1.36	44.70	54.00	53.20	60.00	725.97	27.25	3100.00	5374.06
*	6.000	3107.00	56.22	1.41	44.70	54.00	53.20	60.00	769.88	24.78	3100.00	5978.15
	6.000	3983.00	56.52	1.45	44.70	54.00	53.20	60.00	831.38	20.87	3100.00	7078.14

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	5.300	2038.00	56.29	.63	45.00	55.45	53.93	59.00	317.18	15.56	2380.00	5016.55
*	5.300	2385.00	56.47	.66	45.00	55.45	53.93	59.00	340.75	14.29	2380.00	5088.31
*	5.300	3087.00	56.80	.71	45.00	55.45	53.93	59.00	384.86	12.47	2380.00	5216.00
	5.200	2038.00	56.30	.62	46.00	55.84	55.23	59.00	223.89	10.99	100.00	4953.71
	5.200	2385.00	56.48	.65	46.00	55.84	55.23	59.00	240.47	10.08	100.00	5041.34
	5.200	3087.00	56.80	.69	46.00	55.84	55.23	59.00	269.83	8.74	100.00	5205.68
	5.100	2038.00	56.30	.62	45.95	55.62	55.21	59.00	220.51	10.82	15.00	4955.68
	5.100	2385.00	56.48	.64	45.95	55.62	55.21	59.00	236.25	9.91	15.00	5044.20
	5.100	3087.00	56.80	.69	45.95	55.62	55.21	59.00	265.61	8.60	15.00	5203.47
	5.000	2038.00	56.30	.67	45.61	51.61	51.16	59.00	287.64	14.11	70.00	5023.25
	5.000	2385.00	56.48	.70	45.61	51.61	51.16	59.00	308.02	12.91	70.00	5094.70
	5.000	3087.00	56.81	.76	45.61	51.61	51.16	59.00	345.36	11.19	70.00	5223.24
*	4.000	1303.00	56.39	.47	46.70	56.00	56.20	61.00	209.11	16.05	1990.00	5947.53
*	4.000	1489.00	56.58	.47	46.70	56.00	56.20	61.00	215.77	14.49	1990.00	6362.48
*	4.000	1943.00	56.91	.48	46.70	56.00	56.20	61.00	238.65	12.28	1990.00	7108.38
*	3.300	1303.00	56.86	3.08	47.28	55.50	55.25	60.00	1134.87	87.10	3710.00	614.01
*	3.300	1489.00	57.00	3.31	47.28	55.50	55.25	60.00	1248.57	83.85	3710.00	677.29
*	3.300	1943.00	57.31	3.77	47.28	55.50	55.25	60.00	1481.58	76.25	3710.00	949.73
	3.200	1303.00	57.00	2.74	46.85	54.72	56.39	60.00	1146.70	88.00	100.00	629.38
	3.200	1489.00	57.16	2.95	46.85	54.72	56.39	60.00	1261.40	84.71	100.00	767.29
	3.200	1943.00	57.50	3.33	46.85	54.72	56.39	60.00	1488.25	76.60	100.00	941.96
	3.100	1303.00	57.11	2.63	46.85	54.72	56.39	60.00	1117.61	85.77	15.00	711.37
	3.100	1489.00	57.21	2.90	46.85	54.72	56.39	60.00	1246.78	83.73	15.00	817.62
	3.100	1943.00	57.50	3.33	46.85	54.72	56.39	60.00	1488.43	76.60	15.00	941.88
	3.000	1303.00	57.16	2.59	46.85	54.72	56.39	60.00	1105.45	84.84	50.00	760.81
	3.000	1489.00	57.26	2.84	46.85	54.72	56.39	60.00	1229.66	82.58	50.00	874.86
	3.000	1943.00	57.58	3.23	46.85	54.72	56.39	60.00	1455.73	74.92	50.00	955.25
*	2.000	1303.00	59.40	1.56	49.50	59.40	56.60	60.00	449.47	34.50	3640.00	1244.89
*	2.000	1489.00	59.40	1.12	49.50	59.40	56.60	60.00	323.94	21.76	3640.00	4084.29
*	2.000	1943.00	59.60	1.22	49.50	59.40	56.60	60.00	366.16	18.85	3640.00	4611.83
*	1.500	900.00	59.44	.18	50.56	60.41	55.41	60.00	58.15	6.46	948.00	7822.64
*	1.500	1100.00	59.44	.22	50.56	60.41	55.41	60.00	71.21	6.47	948.00	7812.60
*	1.500	1500.00	59.64	.26	50.56	60.41	55.41	60.00	89.21	5.95	948.00	8259.13
*	1.000	679.00	59.48	.89	54.00	58.70	58.10	61.00	78.63	11.58	2192.00	1359.65
*	1.000	809.00	59.48	1.05	54.00	58.70	58.10	61.00	93.12	11.51	2192.00	1363.03
*	1.000	1069.00	59.71	1.09	54.00	58.70	58.10	61.00	108.09	10.11	2192.00	1445.86

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## SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	14.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	14.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.700	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.600	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.600	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.600	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.400	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.400	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.400	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	11.300	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	11.300	PROFILE=	2	WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=	11.300	PROFILE=	2	20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=	11.300	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	11.200	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	11.200	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	11.200	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	10.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	10.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	10.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.500	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.500	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.500	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.600	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.600	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.600	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.590	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.590	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.590	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.570	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.570	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.930	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.930	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

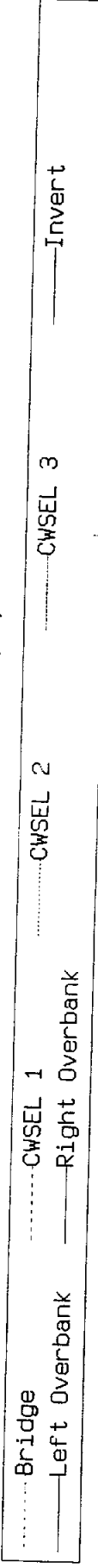
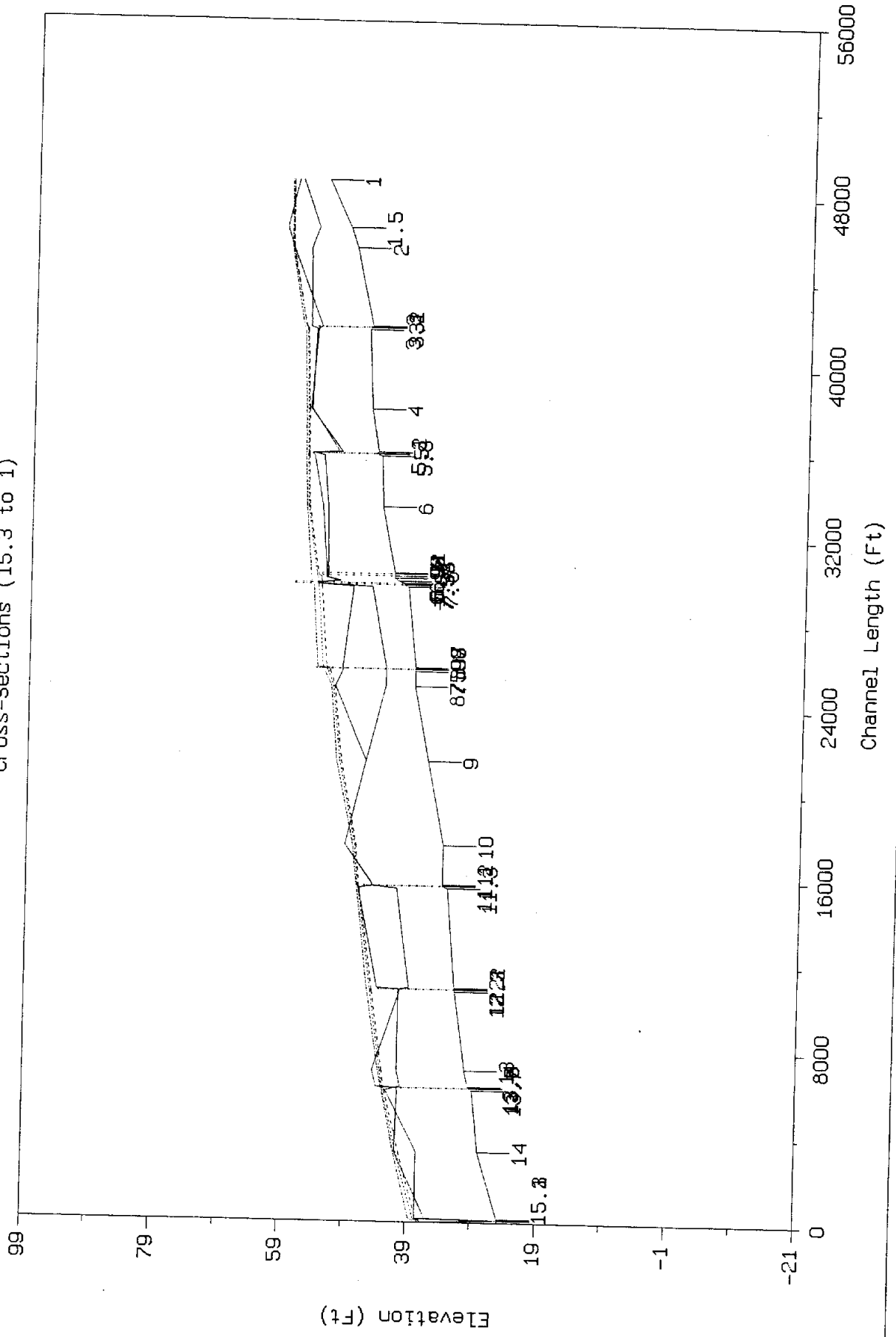


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WARNING SECNO=	6.930	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.920	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.300	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.300	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.300	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	4.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	4.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	4.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.300	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.300	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.300	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	2.000	PROFILE=	1	WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=	2.000	PROFILE=	1	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=	2.000	PROFILE=	2	WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=	2.000	PROFILE=	2	20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=	2.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.500	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.500	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.500	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

L REVISED BY KLOTZ ASSOC  
 Cross-Sections (15.3 to 1)



```
*****  
* HEC-2 WATER SURFACE PROFILES *  
* *  
* version 4.6.2; May 1991 *  
* *  
* RUN DATE 25AUG02 TIME 18:19:07 *  
*****
```

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*****  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET, SUITE D *  
* DAVIS, CALIFORNIA 95616-4687 *  
* (916) 756-1104 *  
*****
```

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X X XXXXXXX XXXXX XXXXX  
X X X X X X X  
X X X X X X  
XXXXXXXX XXXX X XXXXX XXXXX  
X X X X X X  
X X X X X X  
X X XXXXXXX XXXXX XXXXXXX
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25AUG02 18:19:07

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES

THIS RUN EXECUTED 25AUG02 18:19:07

Version 4.6.2; May 1991

T1 WEST FORK CHOCOLATE BAYOU..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 T2 PROPOSED CONDITION MODEL.....1973 DATUM ADJUSTMENT  
 T3 FILENAME: WESTFORP.IH2.....10 YEAR FREQUENCY  
 T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

NOTES\*\*\*\*\*  
 REVISED MODEL INCLUDES 2000 BAKER & LAWSON SURVEY SECTIONS AND REVISED  
 BRIDGE SECTIONS  
 MODEL KEYED IN FROM 21 JUL 82 RUN DATE HUD-FEMA FLOOD INSURANCE STUDY MODEL,  
 WCC PROJECT 79CH1080  
 ORIGINAL INPUT DATA PROVIDED BY BRAZORIA COUNTY FLOOD PLAIN ADMINISTRATOR  
 \*\*\*\*\*

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2			0.00035					
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-7							
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38	43	1	26	42	23	24	63	14	60
	39	4								
J5	LPRNT	NUMSEC	*****REQUESTED SECTION NUMBERS*****							
	-10	-10								
NC	.09	.09	.06	0.1	0.3					
QT	3	3600	4254	5664						
X1	15.3	18	11960	12120						
CI	-1	-1	.04	3	3	40				
GR	42.0	7836.	41.0	7836.	40.0	8836.	38.3	11000.	38.3	11738.
GR	38.1	11913.	35.9	11960.	25.8	12018.	24.8	12036.	25.8	12052.
GR	37.5	12120.	39.1	12149.	39.1	12253.	36.7	12276.	38.3	12298.
GR	39.7	12808.	39.7	14036.	42.0	14036.				

NC				0.3		0.5				
X1	15.2	19	12018.	12052.	100.	100.	100.			
X3	10							29.8	29.8	
GR	42.0	7836.	41.0	7836.	40.0	8836.	38.3	11000.	38.3	11738.
GR	38.1	11913.	35.9	11960.	25.8	12018.	24.8	12036.	25.8	12052.
GR	37.5	12120.	39.1	12149.	39.1	12253.	36.7	12276.	38.3	12298.
GR	39.7	12808.	39.7	14036.	41.0	14036.	42.0	14036.		

PRIVATE ROAD

SB	1.05	1.56	2.9		29.8	2.	130.	0.25	24.8	24.8
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PRIVATE ROAD

X1	15.1				17.	17.	17.			
X2			1	29.3	30.3					
X3	10							30.3	30.3	
BT	-17	7836.	41.0		8836.	40.0		11000.	38.3	
BT		11738.	38.3		11913.	38.1		11947.	38.3	
BT		11986.	35.9		12018.	30.3		12052.	30.3	
BT		12070.	34.7		12110.	37.9		12149.	39.1	
BT		12253.	39.1		12276.	36.7		12298.	38.3	
BT		12808.	39.7		14036.	39.7				

X1	15.	18	11960	12120	50.	50.	50.			
GR	42.0	7836.	41.0	7836.	40.0	8836.	38.3	11000.	38.3	11738.
GR	38.1	11913.	35.9	11960.	25.8	12018.	24.8	12036.	25.8	12052.
GR	37.5	12120.	39.1	12149.	39.1	12253.	36.7	12276.	38.3	12298.
GR	39.7	12808.	39.7	14036.	42.0	14036.				

NC				0.1		0.3				
X1	14.	19	4036.	4175.	2600.	2900.	3100.			
X3	10									
GR	42.0	0.	41.0	1108.	40.0	2308.	39.5	3152.	39.7	3576.
GR	38.7	3804.	37.9	3918.	38.1	3988.	40.9	4020.	40.9	4036.
GR	33.9	4067.	28.7	4088.	28.0	4108.	28.7	4127.	37.5	4175.
GR	37.7	4324.	39.9	4901.	40.0	6008.	42.0	6008.		

2000 BAKER & LAWSON SURVEY SECTION

X1	13.7	15	10020.0	10103.8	2850.	2850.	2850.			
CI	10061	-1	0.0	2	2	25				
X3	10			10000.0	41.11	10109.4	42.52			
GR	45.00	4061.2	40.00	9361.2	41.11	10000.0	40.62	10020.0	29.44	10049.2
GR	29.01	10061.2	29.72	10070.2	42.49	10103.8	42.52	10109.4	39.19	10131.2
GR	40.00	10561.2	41.00	11061.2	42.00	12061.2	42.00	12361.2	44.00	12361.2

2000 BAKER & LAWSON SURVEY SECTION

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X1	13.6	19	10075.8	10145.9	100.	100.	100.			
CI	-1	-1	0.0	2	2	20				
X3	10									
GR	45.00	4117.5	40.00	9417.5	39.62	10000.0	40.56	40.47	40.47	
GR	29.72	10102.0	29.73	10110.2	29.42	10117.5	36.38	10041.4	40.76	10075.8
GR	41.22	10168.3	40.42	10192.7	40.13	10218.5	39.90	10140.7	41.24	10145.9
GR	41.00	11117.5	42.00	12117.5	42.00	12417.5	44.00	10244.7	40.00	10617.5
								12417.5		

CR 63

SB	1.05	1.56	2.9		15.0	3.3	355.	2.5	29.42	29.42
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2000 BAKER & LAWSON SURVEY SECTION

CR 63

X1	13.5	19	10075.8	10145.9	16.	16.	16.			
X2			1	39.72	41.22					
X3	10									
BT	-14	4117.5	45.00		9417.5	40.00		41.22	41.22	
BT		10041.4	40.56		10075.8	41.84		10000.0	39.62	
BT		10168.3	41.22		10192.7	40.42		10140.7	41.43	
BT		10244.7	39.90		10617.5	40.00		10218.5	40.13	
BT		12117.5	42.00		12417.5	42.00		11117.5	41.00	
GR	45.00	4117.5	40.00	9417.5	39.62	10000.0	40.56	10041.4	40.76	10075.8
GR	29.72	10102.0	29.73	10110.2	29.42	10117.5	36.38	10140.7	41.24	10145.9
GR	41.22	10168.3	40.42	10192.7	40.13	10218.5	39.90	10244.7	40.00	10617.5
GR	41.00	11117.5	42.00	12117.5	42.00	12417.5	44.00	12417.5		

2000 BAKER & LAWSON SURVEY SECTION

X1	13.4	20	10108.8	10195.5	50.	50.	50.			
CI	10156	-1	0.0	2	2	25				
X3	10									
GR	45.00	4155.9	40.00	9455.9	39.45	10000.0	31.93	10027.4	40.54	10053.6
GR	43.64	10092.5	43.96	10108.8	29.68	10148.0	29.65	10155.9	29.82	10164.6
GR	40.18	10195.5	40.94	10218.7	40.43	10256.5	33.93	10276.5	38.67	10290.2
GR	40.00	10655.9	41.00	11155.9	42.00	12155.9	42.00	12455.9	44.00	12455.9

NC

0.1 0.3

X1	13.				750.	750.	750.			
CI	10156	30.25	0.0	2	2	25			0.6	
X3	10									

QT	3	3421	4049	5301						
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X1	12.3	17	4850.	4956.	3700.	3600.	3650.			
CI	4913	-1	0.0	3	3	25				
X3				4838.	46.	5008.	43.6			
GR	48.0	1313.	45.0	2713.	44.0	3736.	43.6	4251.	42.8	4819.
GR	46.0	4838.	40.6	4850.	33.4	4900.	32.0	4913.	33.4	4926.
GR	40.8	4956.	43.6	5008.	40.8	5043.	42.8	5134.	43.2	5850.
GR	44.0	8063.	47.0	8063.						

NC				0.3		0.5				
X1	12.2	17	4850.	4956.	100.	100.	100.			
X3	10			4838.	46.	5008.	43.6	43.44	43.44	
GR	48.0	1313.	45.0	2713.	44.	3736.	43.6	4251.	42.8	4819.
GR	46.	4838.	40.6	4850.	35.7	4880.	32.0	4913.	35.	4934.
GR	40.8	4956.	43.6	5008.	40.8	5043.	42.8	5134.	43.2	5850.
GR	44.0	8063.	47.0	8063.						

CR 67

SB	1.05	1.56	2.6		30.	3.	370.	1.	32.0	32.0
CR 67										
X1	12.1				24.		24.		24.	
CI	-1	-1	0.0	3	3		30			
X2			1	42.94	43.94					
X3	10			4838.	46.	5008.	43.6	43.94	43.94	
BT	-16	1313.	48.00		2713.	45.00		3736.	44.00	
BT		4251.	43.60		4819.	42.80		4838.	46.00	
BT		4850.	40.60		4880.	44.21		4905.7	44.20	
BT		4934.6	43.94		4956.	40.80		5008.	43.60	
BT		5043.	40.80		5134.	42.80		5850.	43.20	
BT		8063.	44.00							

2000 BAKER & LAWSON SURVEY SECTION

X1	12.	17	10306.5	10387.6	50.	50.	50.			
CI	10344	-1	0.0	3	2.5	20				
GR	48.00	6744.3	45.00	8144.3	43.67	10000.0	43.66	10093.8	40.17	10273.4
GR	39.15	10306.5	33.58	10333.9	32.06	10344.3	33.00	10352.4	44.09	10387.6
GR	43.94	10421.8	41.87	10433.7	41.25	10476.9	43.33	10707.2	44.03	10822.1
GR	44.00	13494.3	47.00	13494.3						

NC				0.1		0.3				
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2000 BAKER & LAWSON SURVEY SECTION

X1	11.3	15	10374.9	10463.8	3900.	4400.	4650.			
CI	-1	-1	0.0	3	2	20				
X3	10									
GR	48.00	8119.0	45.32	10000.0	45.26	10047.9	45.27	10095.0	45.17	10188.6
GR	43.27	10344.9	41.34	10374.9	35.96	10407.2	33.44	10419.0	34.25	10426.4
GR	47.34	10463.8	46.91	10489.9	44.80	10810.6	45.60	10901.1	48.00	13219.0

X1	11.2	23	4070	4190	100.	100.	100.			
CI	4125	-1	0.0	3	3	20				
X3	10							45.92	45.92	
GR	48.0	1825.	45.2	3221.	45.2	3222.	45.2	3223.	45.2	3224.
GR	45.2	3225.	44.4	3291.	44.2	3818.	43.8	3981.	43.4	4021.
GR	45.6	4049.	45.2	4070.	38.5	4103.	35.	4120.	34.2	4125.
GR	35.2	4130.	39.5	4157.	45.1	4190.	44.8	4265.	44.6	4362.
GR	44.8	4728.	45.6	5229.	48.0	6925.				

CR 64  
SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILE 11/97

SB	1.05	1.56	2.9		13.	3.	481.	4.	34.2	34.2
2000 BAKER & LAWSON SURVEY SECTION										
CR 64										
X1	11.1				24.	24.	24.			
CI	-1	-1	0.0	3	3	20				
X2			1	45.32	46.52					
X3	10							46.52	46.52	
BT	-21	1825.	48.00		3221.	45.2		3222.	45.2	
BT		3223.	45.2		3224.	45.2		3225.	45.2	
BT		3291.	44.4		3818.	44.2		3981.	43.8	
BT		4021.	43.4		4049.	45.6		4070.	45.2	
BT		4103.	46.66		4128.2	46.87		4154.7	46.52	
BT		4190.	45.1		4265.	44.8		4362.	44.6	
BT		4728.	44.8		5229.	45.6		6925.	48.0	
X1	11.	23	4070.	4190.	50.	50.	50.			
CI	4125	-1	0.0	3	3	20				
GR	48.0	1825.	45.2	3221.	45.2	3222.	45.2	3223.	45.2	3224.
GR	45.2	3225.	44.4	3291.	44.2	3818.	43.8	3981.	43.4	4021.
GR	45.6	4049.	45.2	4070.	38.5	4103.	35.	4120.	34.2	4125.
GR	35.2	4130.	39.5	4157.	45.1	4190.	44.8	4265.	44.6	4362.
GR	44.8	4728.	45.6	5229.	48.0	6925.				
NC				0.1	0.3					
X1	10.	16	5011.	5109.	1940.	2100.	1840.			
CI			.06			0.01				
X3	10									
GR	50.0	145.	49.1	3111.	48.9	3995.	47.3	4316.	46.3	4711.
GR	45.3	4812.	43.5	4969.	49.5	5011.	35.3	5041.	34.2	5045.
GR	35.3	5049.	49.5	5109.	45.9	5147.	45.7	5309.	46.	5821.
GR	49.	11045.								
X1	9.	19	4391.	4507.	3550.	3650.	3930.			
X3				4363.	50.1	4695.	47.9			
GR	51.7	1000.	50.3	1925.	49.7	2973.	49.5	3454.	49.3	3854.
GR	48.3	4328.	50.1	4363.	49.9	4383.	46.5	4391.	37.3	4431.
GR	36.8	4439.	37.3	4447.	46.5	4507.	47.9	4695.	48.3	5382.
GR	48.9	5885.	50.0	10339.	51.0	11639.	52.0	11639		
X1	8.5	14	10000.0	10373.2	3500	3500	3500			
GR	55.00	6047.5	54.00	7847.5	51.46	10000.0	44.70	10329.9	42.06	10340.4
GR	39.13	10347.5	40.66	10363.2	43.69	10373.2	55.09	10431.7	55.67	10488.2
GR	54.79	10544.5	53.47	10600.8	53.04	10656.5	52.72	10709.6		

2000 BAKER & LAWSON SURVEY SECTION



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X1	8.	19	10318.5	10373.2	700	700	700			
X3				10225.1	54.50	10488.2	55.67			
GR	55.00	6047.5	54.00	7847.5	51.46	10000.0	51.83	10056.3	52.46	10113.4
GR	53.52	10168.0	54.50	10225.1	50.46	10318.5	44.70	10329.9	42.06	10340.4
GR	39.13	10347.5	40.66	10363.2	43.69	10373.2	55.09	10431.7	55.67	10488.2
GR	54.79	10544.5	53.47	10600.8	53.04	10656.5	52.72	10709.6		

NC 0.3 0.5

X1	7.99				100.	100.	100.			
X3	10							53.85	53.85	

CR 48  
SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILE 11/97

SB	1.05	1.56	2.6		14.	5.	798.	2.	39.13	39.13
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2000 BAKER & LAWSON SURVEY SECTION  
CR 48

X1	7.98				22.	22.	22.			
X2			1	53.20	54.50					
X3	10							54.50	54.50	
BT	-16	6047.5	55.00		7847.5	54.00	10000.0		51.46	
BT		10056.3	51.83		10113.4	52.46	10168.0		53.52	
BT		10225.1	54.50		10303.	54.50		10341.	54.54	
BT		10388.	54.60		10431.7	55.09		10488.2	55.67	
BT		10544.5	54.79		10600.8	53.47		10656.5	53.04	
BT		10709.6	52.72							

X1	7.97				50.	50.	50.			
X3				10225.1	54.50	10488.2	55.67			

NC 0.1 0.3

QT	3	2762	3269	4187						
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2000 BAKER & LAWSON SURVEY SECTION

X1	7.6	13	10059.9	10096.2	3300.	3500.	3800.			
GR	56.00	6981.3	51.36	10000.0	42.19	10031.1	48.99	10059.9	42.42	10073.7
GR	40.50	10081.3	42.13	10090.0	46.08	10096.2	41.53	10130.7	50.58	10160.0
GR	55.00	17081.3	55.00	19081.3	57.00	19081.3				

NC 0.3 0.5

2000 BAKER & LAWSON SURVEY SECTION

X1	7.59	16	10623.7	10761.5	100.	100.	100.			
X3	10			10541.5	56.04	10904.5	55.65	52.55	52.55	
GR	55.95	10000.0	55.82	10126.7	55.86	10228.3	55.98	10329.6	56.07	10434.7
GR	56.04	10541.5	54.43	10623.7	42.27	10662.3	41.12	10696.9	42.40	10727.6
GR	53.83	10761.5	55.65	10904.5	55.38	11004.6	54.90	11105.2	54.71	11204.6
GR	54.60	11305.1								

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SH 288  
SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILE 01/97

SB	1.25	1.56	2.6		40	2.	939.	3.5	41.12	41.12
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2000 BAKER & LAWSON SURVEY SECTION  
SH 288

X1	7.58	16	10623.7	10761.5	60.	60.	60.			
X2			1	55.2	58.1					
X3	10							58.1	58.1	
BT	-4	10541.5	56.04		10624.3	58.1		10762.3	58.1	
BT		10904.5	55.65							
GR	55.95	10000.0	55.82	10126.7	55.86	10228.3	55.98	10329.6	56.07	10434.7
GR	56.04	10541.5	54.43	10623.7	42.27	10662.3	41.12	10696.9	42.40	10727.6
GR	53.83	10761.5	55.65	10904.5	55.38	11004.6	54.90	11105.2	54.71	11204.6
GR	54.60	11305.1								

2000 BAKER & LAWSON SURVEY SECTION

X1	7.57	13	10100.8	10169.0	50.	150.	100.			
GR	57.00	7035.2	56.00	7035.2	53.22	10000.0	51.34	10100.8	42.37	10127.2
GR	41.92	10135.2	42.57	10142.7	50.99	10169.0	51.93	10217.3	52.09	10265.0
GR	55.00	17135.2	55.00	19135.2	57.00	19135.2				

NC 0.1 0.3

X1	6.93	13	2135.	2179.	40.	200.	140.			
GR	57.	157	56.	157.	55.	1783.	54.2	2027.	53.2	2135.
GR	43.5	2149.	42.7	2157.	43.5	2167.	53.	2179.	53.	2798.
GR	53.4	3000.	56.	9157.	57.	9157.				

NC .035 .01 .03

X1	6.92				100.	100.	100.			
X3	10							52.25	52.25	

CR 57

SB	1.05	1.56	2.9		20.	1.7	275.	1.2	42.7	42.7
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CR 57

X1	6.91				100.	100.	100.			
X2			1	52.5	53.9					
X3	10							53.9	53.9	
BT	9	157.	56.		1783.	55.		2027	54.2	
BT	2135.	53.9		2179.	53.9		2469.	53.		2798.
BT	53.		3000.	53.4		9157.	56.			

X1	6.9				50.	50.	50.			
NC			0.1		0.3					
X1	6.0	19	18150.	18231.	3000.	3100.	3100.			
GR	60.0	10802.	55.0	17702.	54.6	17758.	54.6	17759.	54.6	17760.
GR	54.6	17761.	54.6	17762.	53.2	18124.	54.	18150.	52.	18165.
GR	46.8	18193.	44.7	18202.	46.8	18210.	53.2	18231.	52.8	18257.
GR	53.2	18433.	53.2	18683.	55.0	19302.	60.0	30402.		

2000 BAKER & LAWSON SURVEY SECTION

X1	5.3	19	13172.6	13239.5	2500.	2150.	2380.			
X3	10									
GR	59.00	9898.9	57.00	9898.9	53.99	10034.7	54.22	11076.6	54.31	11740.1
GR	53.81	12877.0	53.89	12977.0	54.08	13079.0	55.45	13172.6	46.02	13193.4
GR	45.00	13198.9	47.10	13220.6	53.93	13239.5	54.30	13351.5	54.01	13454.5
GR	54.20	13557.1	54.68	14369.2	57.00	15198.9	60.00	25648.9		

NC			0.3		0.5					
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2000 BAKER & LAWSON SURVEY SECTION

X1	5.2	22	13180.3	13232.3	100.	100.	100.			
X3	10							54.79	54.79	
GR	59.00	9901.5	57.00	9901.5	56.27	10000.0	56.05	10009.8	55.05	10019.4
GR	53.99	10034.7	54.22	11076.6	54.31	11740.1	53.81	12877.0	53.89	12977.0
GR	54.08	13079.0	55.84	13180.3	46.96	13191.3	46.00	13201.5	46.70	13211.2
GR	55.23	13232.3	54.30	13335.3	54.01	13438.4	54.20	13541.0	54.68	14353.1
GR	57.00	15201.5	60.00	25651.5						

CR 81

SB	1.05	1.56	2.9		17.7	2.	209.	1.	46.0	46.0
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2000 BAKER & LAWSON SURVEY SECTION

CR 81										
X1	5.1	22	13180.1	13231.7	15.	15.	15.			
X2			1	53.79	55.79					
X3	10							53.81	53.81	
BT	-19	9910.	57.00		10000.	56.27		10009.8	56.05	
BT		10019.4	55.05		10034.7	53.99		11076.6	54.22	
BT		11740.1	54.31		12877.0	53.81		12977.0	53.89	
BT		13079.0	54.08		13180.1	55.81		13210.9	56.04	
BT		13231.7	55.79		13335.1	54.30		13483.1	54.01	
BT		13540.7	54.20		14352.8	54.68		15210.9	57.00	
BT		25660.9	60.00							
GR	59.00	9910.9	57.00	9910.9	56.27	10000.0	56.05	10009.8	55.05	10019.4
GR	53.99	10034.7	54.22	11076.6	54.31	11740.1	53.81	12877.0	53.89	12977.0
GR	54.08	13079.0	55.62	13180.1	47.96	13197.9	45.95	13210.9	46.68	13220.4
GR	55.21	13231.7	54.30	13335.1	54.01	13483.1	54.20	13540.7	54.68	14352.8
GR	57.00	15210.9	60.00	25660.9						

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## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	5.0	20	13238.5	13286.7	70.	70.	70.			
GR	59.00	9958.4	57.00	9958.4	53.99	10034.7	54.22	11076.6	54.31	11740.1
GR	53.81	12877.0	53.89	12977.0	54.08	13079.0	53.63	13225.0	51.61	13238.5
GR	46.56	13249.1	45.61	13258.4	46.89	13277.0	51.16	13286.7	54.30	13378.9
GR	54.01	13481.9	54.20	13584.5	54.68	14396.6	57.00	15258.4	60.00	25708.4

NC				0.1	0.3					
QT	3	1661	1968	2455						

## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	4.	23	16360.	16465.	2050.	1800.	1990.			
X3	10									
GR	61.0	11516.	57.0	11516.	54.2	15463.	54.2	15464.	54.2	15465.
GR	54.2	15466.	54.4	16260.	56.	16360.	54.8	16396.	48.2	16404.
GR	47.4	16408.	47.	16412.	46.7	16416.	47.	16420.	47.4	16424.
GR	48.2	16427.	56.2	16465.	55.	16519.	51.	16522.	54.2	16538.
GR	54.8	17004.	57.0	18816.	61.0	26116.				

## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	3.3	25	10894.8	10948.2	3650.	3350.	3710.			
X3				10224.5	60.34	11300.2	57.61			
GR	60.00	6783.9	59.00	7933.9	57.72	10000.0	57.59	10085.4	60.33	10183.5
GR	60.34	10224.5	57.30	10299.2	57.06	10357.4	57.27	10453.8	56.87	10549.4
GR	56.62	10644.7	56.19	10740.3	55.50	10894.8	48.17	10911.6	47.61	10923.5
GR	47.28	10933.9	55.25	10948.2	56.37	11019.6	56.56	11113.2	57.06	11206.0
GR	57.61	11300.2	57.58	11393.5	58.00	12933.9	58.00	19933.9	60.00	19933.9

NC				0.3	0.5					
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## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	3.2	25	10828.1	10884.9	100.	100.	100.			
X3	10			10224.5	60.34	11254.4	57.61	54.7	54.7	
GR	60.00	6106.8	59.00	7856.8	57.72	10000.0	57.59	10085.4	60.33	10183.5
GR	60.34	10224.5	57.30	10299.2	57.06	10357.4	57.27	10453.8	56.87	10549.4
GR	56.62	10644.7	56.19	10740.3	54.72	10828.1	47.55	10845.6	46.85	10856.8
GR	47.51	10870.2	56.39	10884.9	56.37	10973.7	56.56	11067.4	57.06	11160.1
GR	57.61	11254.4	57.58	11347.6	58.00	12856.8	58.00	19856.8	60.00	19856.8

## CR 383

SB	1.05	1.56	2.8		8.85	1.	144.	1.	46.85	46.85
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## 2000 BAKER &amp; LAWSON SURVEY SECTION

## CR 383

X1	3.1				15.	15.	15.			
X2			1	54.0	55.4					
X3	10			10244.5	60.34	11254.4	57.61	55.4	55.4	
BT	-21	6106.8	60.00		7856.8	59.00		10000.0	57.72	
BT		10085.4	57.59		10183.5	60.33		10224.5	60.34	

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BT	10299.2	57.30		10357.4	57.06	10453.8	57.27
BT	10549.4	56.87		10644.7	56.62	10740.3	56.19
BT	10787.9	55.4		10836.9	57.5	10868.9	57.5
BT	10973.7	56.37		11067.4	56.56	11254.4	57.61
BT	11347.6	57.58		12856.8	58.0	19856.8	58.0

X1	3.0			50.	50.	50.	
X3	10		10244.5	60.34	11254.4	57.61	

NC			0.1	0.3			
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X1	2.0	15	5122.	5178.	3400.	3500.	3640.			
X3	10									
GR	60.0	855.	58.4	4663.	58.4	4664.	58.4	4666.	58.4	4667.
GR	56.6	5077.	59.4	5122.	57.2	5144.	50.8	5145.	49.5	5155.
GR	50.8	5165.	56.6	5178.	57.4	5398.	58.6	6123.	61.0	6855.

2000 BAKER & LAWSON SURVEY SECTION

X1	1.5	13	10194.6	10264.7	948	948	948			
X3	10									
GR	60.00	6243.3	56.92	10000.0	56.51	10121.0	56.90	10180.6	60.41	10194.6
GR	57.01	10210.1	55.93	10225.6	51.64	10235.6	50.56	10243.3	51.54	10251.2
GR	55.41	10264.7	55.94	10357.9	60.00	19243.3				

2000 BAKER & LAWSON SURVEY SECTION

X1	1.0	15	14876.	14928.	2192	2052	2192			
GR	65.0	6689.	60.0	14339.	58.9	14430.	58.9	14431.	58.9	14432.
GR	57.9	14860.	58.7	14876.	55.3	14887.	54.	14889.	55.3	14891.
GR	59.7	14905.	58.1	14928.	58.1	15370.	60.0	15889.	61.0	26689.

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T1 WEST FORK CHOCOLATE BAYOU.....2000 BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: WESTFORK.IH2.....25 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....REV 09/00

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3			0.00035					
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-7							

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T1 WEST FORK CHOCOLATE BAYOU.....2000 BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: WESTFORK.IH2.....100 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....REV 09/00

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		4			0.00035				41.55	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-7							

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\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

THIS RUN EXECUTED 25AUG02 18:19:08

NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

L REVISED BY KLOTZ ASSOC

SUMMARY PRINTOUT

SECNO	Q	CWSBL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
15.300	3600.00	37.81	2.77	24.80	35.90	37.50	42.00	3585.38	99.59	.00	232.10	
15.300	4254.00	38.56	2.95	24.80	35.90	37.50	42.00	4171.43	98.06	.00	1600.22	
15.300	5664.00	39.48	3.14	24.80	35.90	37.50	42.00	4912.05	86.72	.00	3232.69	
15.200	3600.00	37.79	4.09	24.80	27.99	27.93	42.00	3010.20	83.62	100.00	231.35	
15.200	4254.00	38.54	4.40	24.80	27.99	27.93	42.00	3429.69	80.62	100.00	1573.68	
15.200	5664.00	39.47	4.64	24.80	27.99	27.93	42.00	3872.08	68.36	100.00	3219.24	
15.100	3600.00	37.83	4.07	24.80	27.99	27.93	42.00	3006.03	83.50	17.00	233.89	
15.100	4254.00	38.54	4.40	24.80	27.99	27.93	42.00	3429.79	80.63	17.00	1573.16	
15.100	5664.00	39.47	4.64	24.80	27.99	27.93	42.00	3872.10	68.36	17.00	3219.22	
15.000	3600.00	37.99	2.70	24.80	35.90	37.50	42.00	3581.24	99.48	50.00	243.55	
15.000	4254.00	38.72	2.86	24.80	35.90	37.50	42.00	4118.65	96.82	50.00	1867.32	
15.000	5664.00	39.64	3.00	24.80	35.90	37.50	42.00	4760.48	84.05	50.00	3489.87	
14.000	3600.00	39.28	3.41	28.00	40.90	37.50	42.00	3345.95	92.94	3100.00	694.12	
14.000	4254.00	39.97	3.46	28.00	40.90	37.50	42.00	3711.99	87.26	3100.00	1689.48	
14.000	5664.00	40.83	3.54	28.00	40.90	37.50	42.00	4210.99	74.35	3100.00	1971.69	
*	13.700	3600.00	41.54	5.26	29.01	40.62	42.49	44.00	3471.66	96.43	2850.00	1327.50
*	13.700	4254.00	42.09	5.17	29.01	40.62	42.49	44.00	3647.30	85.74	2850.00	2080.45
	13.700	5664.00	42.79	4.98	29.01	40.62	42.49	44.00	3799.23	67.08	2850.00	5286.71
*	13.600	3600.00	42.00	2.55	29.42	40.76	41.24	44.00	1553.57	43.15	100.00	5130.23
*	13.600	4254.00	42.50	2.22	29.42	40.76	41.24	44.00	1429.63	33.61	100.00	5650.24
*	13.600	5664.00	43.09	2.13	29.42	40.76	41.24	44.00	1456.65	25.72	100.00	6275.25
	13.500	3600.00	42.00	2.55	29.42	40.76	41.24	44.00	1555.89	43.22	16.00	5127.21
	13.500	4254.00	42.50	2.22	29.42	40.76	41.24	44.00	1428.94	33.59	16.00	5651.31
	13.500	5664.00	43.09	2.12	29.42	40.76	41.24	44.00	1454.86	25.69	16.00	6278.35



West Fork Prop. Multi Freq. WESTFORP.IH2

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
	13.400	3600.00	41.98	3.34	29.65	43.96	40.18	44.00	2175.76	60.44	50.00	2020.84
*	13.400	4254.00	42.47	3.17	29.65	43.96	40.18	44.00	2195.67	51.61	50.00	2343.02
*	13.400	5664.00	43.06	3.29	29.65	43.96	40.18	44.00	2438.12	43.05	50.00	2344.64
	13.000	3600.00	42.40	3.58	30.25	44.56	40.78	44.60	2285.08	63.47	750.00	1844.58
	13.000	4254.00	42.84	3.51	30.25	44.56	40.78	44.60	2366.25	55.62	750.00	2342.38
	13.000	5664.00	43.43	3.61	30.25	44.56	40.78	44.60	2610.36	46.09	750.00	2344.01
	12.300	3421.00	44.31	3.22	32.00	40.60	40.80	47.00	2944.50	86.07	3650.00	3221.23
	12.300	4049.00	44.63	3.26	32.00	40.60	40.80	47.00	3094.96	76.44	3650.00	3221.97
	12.300	5301.00	45.18	3.31	32.00	40.60	40.80	47.00	3333.74	62.89	3650.00	3223.17
	12.200	3421.00	44.36	3.10	32.00	40.60	40.80	47.00	2903.49	84.87	100.00	3221.35
	12.200	4049.00	44.68	3.16	32.00	40.60	40.80	47.00	3068.02	75.77	100.00	3222.07
	12.200	5301.00	45.22	3.22	32.00	40.60	40.80	47.00	3309.44	62.43	100.00	3223.28
	12.100	3421.00	44.37	3.03	32.00	40.60	40.80	47.00	2914.12	85.18	24.00	3221.37
	12.100	4049.00	44.69	3.11	32.00	40.60	40.80	47.00	3091.18	76.34	24.00	3222.08
	12.100	5301.00	45.22	3.19	32.00	40.60	40.80	47.00	3352.64	63.25	24.00	3223.28
	12.000	3421.00	44.40	3.33	32.06	39.15	44.09	47.00	2256.23	65.95	50.00	4501.34
	12.000	4049.00	44.74	3.20	32.06	39.15	44.09	47.00	2256.31	55.73	50.00	4984.55
	12.000	5301.00	45.30	2.95	32.06	39.15	44.09	47.00	2209.33	41.68	50.00	5488.70
	11.300	3421.00	46.69	3.54	33.44	41.34	47.34	48.00	2689.21	78.61	4650.00	1424.00
	11.300	4049.00	46.97	3.85	33.44	41.34	47.34	48.00	3013.60	74.43	4650.00	1619.37
*	11.300	5301.00	47.34	4.46	33.44	41.34	47.34	48.00	3642.16	68.71	4650.00	1881.39
*	11.200	3421.00	46.86	1.83	34.20	45.20	45.10	48.00	1661.78	48.58	100.00	3723.99
*	11.200	4049.00	47.16	1.89	34.20	45.20	45.10	48.00	1782.51	44.02	100.00	4084.23
*	11.200	5301.00	47.58	2.06	34.20	45.20	45.10	48.00	2042.69	38.53	100.00	4594.33
	11.100	3421.00	46.86	1.83	34.20	45.20	45.10	48.00	1665.89	48.70	24.00	3728.45
	11.100	4049.00	47.16	1.89	34.20	45.20	45.10	48.00	1787.27	44.14	24.00	4088.77
	11.100	5301.00	47.58	2.05	34.20	45.20	45.10	48.00	2048.41	38.64	24.00	4599.29
	11.000	3421.00	46.87	1.83	34.20	45.20	45.10	48.00	1657.17	48.44	50.00	3734.01
	11.000	4049.00	47.17	1.88	34.20	45.20	45.10	48.00	1777.70	43.90	50.00	4094.29
	11.000	5301.00	47.59	2.05	34.20	45.20	45.10	48.00	2036.98	38.43	50.00	4605.38
*	10.000	3421.00	47.26	6.18	34.20	49.50	49.50	49.00	3421.00	100.00	1840.00	83.79
*	10.000	4049.00	47.48	7.08	34.20	49.50	49.50	49.00	4049.00	100.00	1840.00	85.17
*	10.000	5301.00	47.72	8.94	34.20	49.50	49.50	49.00	5301.00	100.00	1840.00	86.75
*	9.000	3421.00	49.85	2.29	36.80	46.50	46.50	52.00	2291.10	66.97	3930.00	5390.75
*	9.000	4049.00	50.21	2.22	36.80	46.50	46.50	52.00	2309.18	57.03	3930.00	8203.85
*	9.000	5301.00	50.74	2.04	36.80	46.50	46.50	52.00	2247.54	42.40	3930.00	9678.41
*	8.500	3421.00	51.05	2.34	39.13	51.46	43.69	52.72	3284.80	96.02	3500.00	391.00
*	8.500	4049.00	51.36	2.57	39.13	51.46	43.69	52.72	3886.28	95.98	3500.00	407.30
*	8.500	5301.00	51.75	3.07	39.13	51.46	43.69	52.72	5085.76	95.94	3500.00	654.22

	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	8.000	3421.00	51.38	6.62	39.13	50.46	43.69	52.72	3152.43	92.15	700.00	115.47
*	8.000	4049.00	51.70	7.53	39.13	50.46	43.69	52.72	3712.55	91.69	700.00	124.22
*	8.000	5301.00	52.10	9.35	39.13	50.46	43.69	52.72	4824.43	91.01	700.00	135.91
	7.990	3421.00	51.51	7.08	39.13	50.46	43.69	52.72	3421.00	100.00	100.00	54.70
	7.990	4049.00	51.85	8.06	39.13	50.46	43.69	52.72	4049.00	100.00	100.00	54.70
	7.990	5301.00	52.30	10.07	39.13	50.46	43.69	52.72	5301.00	100.00	100.00	54.70
	7.980	3421.00	51.74	6.90	39.13	50.46	43.69	52.72	3421.00	100.00	22.00	54.70
	7.980	4049.00	52.19	7.78	39.13	50.46	43.69	52.72	4049.00	100.00	22.00	54.70
*	7.980	5301.00	53.02	9.36	39.13	50.46	43.69	52.72	5301.00	100.00	22.00	54.70
	7.970	3421.00	52.11	6.03	39.13	50.46	43.69	52.72	3112.90	90.99	50.00	136.17
	7.970	4049.00	52.71	6.63	39.13	50.46	43.69	52.72	3639.35	89.88	50.00	152.95
	7.970	5301.00	53.90	7.53	39.13	50.46	43.69	52.72	4625.36	87.25	50.00	186.54
*	7.600	2762.00	53.57	1.49	40.50	48.99	46.08	56.00	545.73	19.76	3800.00	6267.12
*	7.600	3269.00	54.09	1.32	40.50	48.99	46.08	56.00	509.13	15.57	3800.00	7438.38
*	7.600	4187.00	55.16	.99	40.50	48.99	46.08	56.00	418.64	10.00	3800.00	11554.20
*	7.590	2762.00	53.54	2.39	41.12	54.43	53.83	54.60	2762.00	100.00	100.00	134.11
*	7.590	3269.00	54.05	2.66	41.12	54.43	53.83	54.60	3268.87	100.00	100.00	154.12
*	7.590	4187.00	55.09	3.05	41.12	54.43	53.83	54.60	4171.67	99.63	100.00	270.81
	7.580	2762.00	53.54	2.39	41.12	54.43	53.83	54.60	2762.00	100.00	60.00	134.13
	7.580	3269.00	54.06	2.66	41.12	54.43	53.83	54.60	3269.00	100.00	60.00	136.62
	7.580	4187.00	55.44	2.95	41.12	54.43	53.83	54.60	4187.00	100.00	60.00	137.80
*	7.570	2762.00	53.57	3.34	41.92	51.34	50.99	57.00	1775.85	64.30	100.00	4122.11
	7.570	3269.00	54.17	2.58	41.92	51.34	50.99	57.00	1480.51	45.29	100.00	6195.50
*	7.570	4187.00	55.62	1.17	41.92	51.34	50.99	57.00	786.36	18.78	100.00	11695.24
*	6.930	2762.00	52.89	9.35	42.70	53.20	53.00	57.00	2762.00	100.00	140.00	43.41
*	6.930	3269.00	53.11	10.62	42.70	53.20	53.00	57.00	3244.09	99.24	140.00	721.43
*	6.930	4187.00	55.62	2.61	42.70	53.20	53.00	57.00	1082.74	25.86	140.00	7484.87
*	6.920	2762.00	54.15	5.60	42.70	53.20	53.00	57.00	1963.16	71.08	100.00	2739.53
*	6.920	3269.00	54.90	3.84	42.70	53.20	53.00	57.00	1472.69	45.05	100.00	4731.33
	6.920	4187.00	55.64	2.84	42.70	53.20	53.00	57.00	1180.70	28.20	100.00	7553.67
	6.910	2762.00	54.17	5.50	42.70	53.20	53.00	57.00	1935.39	70.07	100.00	2804.71
	6.910	3269.00	54.90	3.82	42.70	53.20	53.00	57.00	1467.24	44.88	100.00	4746.86
	6.910	4187.00	55.64	2.82	42.70	53.20	53.00	57.00	1176.33	28.09	100.00	7577.70
	6.900	2762.00	54.29	5.06	42.70	53.20	53.00	57.00	1807.44	65.44	50.00	3123.66
	6.900	3269.00	54.93	3.75	42.70	53.20	53.00	57.00	1444.32	44.18	50.00	4812.82
	6.900	4187.00	55.66	2.80	42.70	53.20	53.00	57.00	1168.38	27.90	50.00	7621.63
*	6.000	2762.00	55.89	2.23	44.70	54.00	53.20	60.00	1161.74	42.06	3100.00	4814.92
*	6.000	3269.00	56.09	2.34	44.70	54.00	53.20	60.00	1258.37	38.49	3100.00	5493.29
	6.000	4187.00	56.44	2.39	44.70	54.00	53.20	60.00	1352.00	32.29	3100.00	6807.67

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	5.300	2762.00	56.21	1.37	45.00	55.45	53.93	59.00	688.37	24.92	2380.00	4983.82
*	5.300	3269.00	56.43	1.44	45.00	55.45	53.93	59.00	741.25	22.68	2380.00	5069.15
*	5.300	4187.00	56.78	1.53	45.00	55.45	53.93	59.00	824.98	19.70	2380.00	5211.62
	5.200	2762.00	56.22	1.39	46.00	55.84	55.23	59.00	501.23	18.15	100.00	4917.65
	5.200	3269.00	56.44	1.45	46.00	55.84	55.23	59.00	536.47	16.41	100.00	5021.30
	5.200	4187.00	56.79	1.52	46.00	55.84	55.23	59.00	593.36	14.17	100.00	5199.35
	5.100	2762.00	56.22	1.40	45.95	55.62	55.21	59.00	493.04	17.85	15.00	4922.54
*	5.100	3269.00	56.44	1.45	45.95	55.62	55.21	59.00	527.69	16.14	15.00	5024.50
*	5.100	4187.00	56.79	1.52	45.95	55.62	55.21	59.00	583.38	13.93	15.00	5200.02
	5.000	2762.00	56.23	1.48	45.61	51.61	51.16	59.00	628.23	22.75	70.00	4994.51
	5.000	3269.00	56.44	1.55	45.61	51.61	51.16	59.00	673.80	20.61	70.00	5079.52
	5.000	4187.00	56.80	1.64	45.61	51.61	51.16	59.00	745.17	17.80	70.00	5221.06
*	4.000	1661.00	56.38	.93	46.70	56.00	56.20	61.00	412.83	24.85	1990.00	5917.39
*	4.000	1968.00	56.59	.94	46.70	56.00	56.20	61.00	438.80	22.30	1990.00	6407.31
*	4.000	2455.00	56.95	.93	46.70	56.00	56.20	61.00	468.19	19.07	1990.00	7186.91
*	3.300	1661.00	56.84	4.17	47.28	55.50	55.25	60.00	1533.16	92.30	3710.00	603.42
*	3.300	1968.00	57.02	4.67	47.28	55.50	55.25	60.00	1763.50	89.61	3710.00	685.28
*	3.300	2455.00	57.29	5.32	47.28	55.50	55.25	60.00	2086.09	84.97	3710.00	944.19
	3.200	1661.00	56.97	3.71	46.85	54.72	56.39	60.00	1543.77	92.94	100.00	618.63
	3.200	1968.00	57.19	4.14	46.85	54.72	56.39	60.00	1773.44	90.11	100.00	795.38
	3.200	2455.00	57.50	4.66	46.85	54.72	56.39	60.00	2082.73	84.84	100.00	942.35
	3.100	1661.00	57.13	3.55	46.85	54.72	56.39	60.00	1509.78	90.90	15.00	734.13
	3.100	1968.00	57.22	4.09	46.85	54.72	56.39	60.00	1762.78	89.57	15.00	836.22
*	3.100	2455.00	57.50	4.66	46.85	54.72	56.39	60.00	2083.01	84.85	15.00	942.23
	3.000	1661.00	57.16	3.52	46.85	54.72	56.39	60.00	1503.37	90.51	50.00	764.71
	3.000	1968.00	57.26	4.05	46.85	54.72	56.39	60.00	1752.73	89.06	50.00	873.65
	3.000	2455.00	57.56	4.59	46.85	54.72	56.39	60.00	2062.24	84.00	50.00	951.55
	2.000	1661.00	59.30	2.91	49.50	59.40	56.60	60.00	824.29	49.63	3640.00	1212.33
*	2.000	1968.00	59.40	2.19	49.50	59.40	56.60	60.00	633.67	32.20	3640.00	4094.66
*	2.000	2455.00	59.64	2.25	49.50	59.40	56.60	60.00	679.45	27.68	3640.00	4733.46
*	1.500	1661.00	59.42	.54	50.56	60.41	55.41	60.00	177.34	10.68	948.00	7777.75
*	1.500	1968.00	59.49	.62	50.56	60.41	55.41	60.00	204.26	10.38	948.00	7929.36
*	1.500	2455.00	59.73	.67	50.56	60.41	55.41	60.00	232.39	9.47	948.00	8446.79
*	1.000	1661.00	59.54	3.20	54.00	58.70	58.10	61.00	291.99	17.58	2192.00	1385.84
*	1.000	1968.00	59.64	3.41	54.00	58.70	58.10	61.00	328.14	16.67	2192.00	1421.92
*	1.000	2455.00	59.90	3.44	54.00	58.70	58.10	61.00	376.22	15.32	2192.00	1513.48

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## SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	13.700	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.700	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.600	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.600	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.600	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.400	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.400	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	11.300	PROFILE=	3	WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=	11.300	PROFILE=	3	20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=	11.200	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	11.200	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	11.200	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	10.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	10.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	10.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.500	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.500	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.500	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	7.980	PROFILE=	3	HYDRAULIC JUMP D.S.
WARNING SECNO=	7.600	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.600	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.600	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.590	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.590	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.590	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.570	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.570	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.930	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.930	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.930	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.920	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

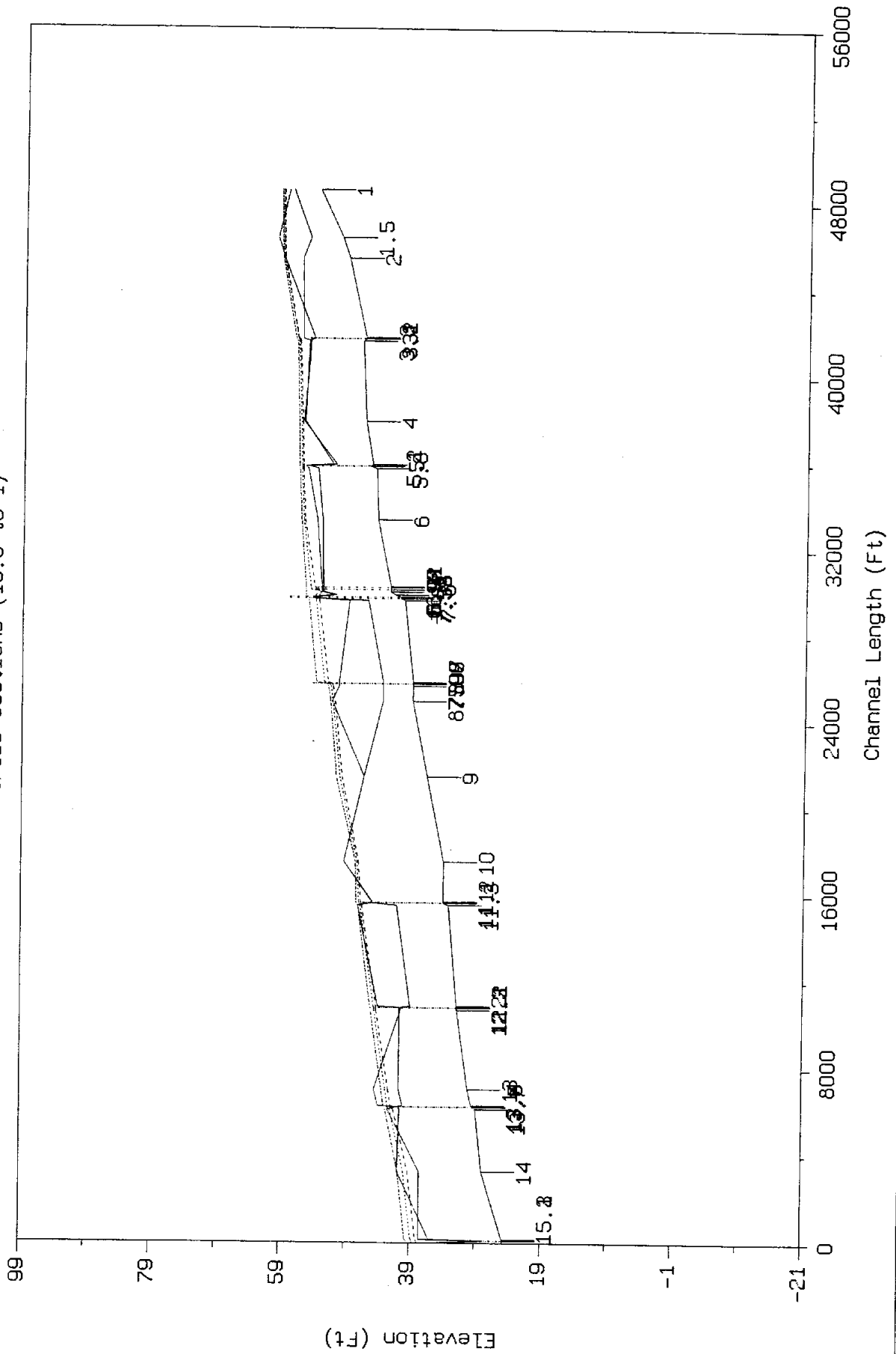
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WARNING SECNO=	6.920	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.300	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.300	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.300	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	5.100	PROFILE=	2	HYDRAULIC JUMP D.S.
CAUTION SECNO=	5.100	PROFILE=	3	HYDRAULIC JUMP D.S.
WARNING SECNO=	4.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	4.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	4.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.300	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.300	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.300	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	3.100	PROFILE=	3	HYDRAULIC JUMP D.S.
CAUTION SECNO=	2.000	PROFILE=	2	WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=	2.000	PROFILE=	2	20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=	2.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.500	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.500	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.500	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

L REVISED BY KLOTZ ASSOC  
 Cross-Sections (15.3 to 1)



- ..... Bridge
- ..... CWSEL 1
- ..... CWSEL 2
- ..... CWSEL 3
- Invert
- Left Overbank
- Right Overbank

West Fork Replace Culvert at CR 48 WESTFO48.IH2

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*****  
* HEC-2 WATER SURFACE PROFILES *  
*  
* Version 4.6.2; May 1991 *  
*  
* RUN DATE 25AUG02 TIME 19:03:56 *  
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* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET, SUITE D *  
* DAVIS, CALIFORNIA 95616-4687 *  
* (916) 756-1104 *  
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      X   X  XXXXXXXX  XXXXX          XXXXX  
      X   X X          X   X          X   X  
      X   X X          X           X  
XXXXXXX XXXX X           XXXXX XXXXX  
      X   X X          X           X  
      X   X X          X   X          X  
      X   X XXXXXXXX  XXXXX          XXXXXXXX
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\*\*\*\*\*  
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

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T1 WEST FORK CHOCOLATE BAYOU..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 PROPOSED CONDITION MODEL (CR 48 STRUCTURE REPLACEMENT).1973 DATUM ADJUSTMENT  
T3 FILENAME: WESTFO48.IH2.....10 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....

NOTES\*\*\*\*\*  
REVISED MODEL INCLUDES 2000 BAKER & LAWSON SURVEY SECTIONS AND REVISED  
BRIDGE SECTIONS  
MODEL KEYED IN FROM 21 JUL 82 RUN DATE HUD-FEMA FLOOD INSURANCE STUDY MODEL,  
WCC PROJECT 79CH1080  
ORIGINAL INPUT DATA PROVIDED BY BRAZORIA COUNTY FLOOD PLAIN ADMINISTRATOR  
\*\*\*\*\*

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2			0.00035					
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-7							
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38	43	1	26	42	23	24	63	14	60
	39	4								
J5	LPRNT	NUMSEC	*****REQUESTED SECTION NUMBERS*****							
	-10	-10								
NC	.09	.09	.06	0.1	0.3					
QT	3	3600	4254	5664						
X1	15.3	18	11960	12120						
CI	-1	-1	.04	3	3	40				
GR	42.0	7836.	41.0	7836.	40.0	8836.	38.3	11000.	38.3	11738.
GR	38.1	11913.	35.9	11960.	25.8	12018.	24.8	12036.	25.8	12052.
GR	37.5	12120.	39.1	12149.	39.1	12253.	36.7	12276.	38.3	12298.
GR	39.7	12808.	39.7	14036.	42.0	14036.				



West Fork Replace Culvert at CR 48 WESTFO48.IH2

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PAGE 2

NC			0.3	0.5						
X1	15.2	19	12018.	12052.	100.	100.	100.			
X3	10							29.8	29.8	
GR	42.0	7836.	41.0	7836.	40.0	8836.	38.3	11000.	38.3	11738.
GR	38.1	11913.	35.9	11960.	25.8	12018.	24.8	12036.	25.8	12052.
GR	37.5	12120.	39.1	12149.	39.1	12253.	36.7	12276.	38.3	12298.
GR	39.7	12808.	39.7	14036.	41.0	14036.	42.0	14036.		

PRIVATE ROAD

SB	1.05	1.56	2.9		29.8	2.	130.	0.25	24.8	24.8
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PRIVATE ROAD

X1	15.1				17.	17.	17.			
X2			1	29.3	30.3					
X3	10							30.3	30.3	
BT	-17	7836.	41.0		8836.	40.0		11000.	38.3	
BT		11738.	38.3		11913.	38.1		11947.	38.3	
BT		11986.	35.9		12018.	30.3		12052.	30.3	
BT		12070.	34.7		12110.	37.9		12149.	39.1	
BT		12253.	39.1		12276.	36.7		12298.	38.3	
BT		12808.	39.7		14036.	39.7				

X1	15.	18	11960	12120	50.	50.	50.			
GR	42.0	7836.	41.0	7836.	40.0	8836.	38.3	11000.	38.3	11738.
GR	38.1	11913.	35.9	11960.	25.8	12018.	24.8	12036.	25.8	12052.
GR	37.5	12120.	39.1	12149.	39.1	12253.	36.7	12276.	38.3	12298.
GR	39.7	12808.	39.7	14036.	42.0	14036.				

NC			0.1	0.3						
X1	14.	19	4036.	4175.	2600.	2900.	3100.			
X3	10									
GR	42.0	0.	41.0	1108.	40.0	2308.	39.5	3152.	39.7	3576.
GR	38.7	3804.	37.9	3918.	38.1	3988.	40.9	4020.	40.9	4036.
GR	33.9	4067.	28.7	4088.	28.0	4108.	28.7	4127.	37.5	4175.
GR	37.7	4324.	39.9	4901.	40.0	6008.	42.0	6008.		

2000 BAKER & LAWSON SURVEY SECTION

X1	13.7	15	10020.0	10103.8	2850.	2850.	2850.			
CI	10061	-1	0.0	2	2	25				
X3	10			10000.0	41.11	10109.4	42.52			
GR	45.00	4061.2	40.00	9361.2	41.11	10000.0	40.62	10020.0	29.44	10049.2
GR	29.01	10061.2	29.72	10070.2	42.49	10103.8	42.52	10109.4	39.19	10131.2
GR	40.00	10561.2	41.00	11061.2	42.00	12061.2	42.00	12361.2	44.00	12361.2

2000 BAKER & LAWSON SURVEY SECTION

West Fork Replace Culvert at CR 48 WESTFO48.IH2

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X1	13.6	19	10075.8	10145.9	100.	100.	100.			
CI	-1	-1	0.0	2	2	20				
X3	10							40.47	40.47	
GR	45.00	4117.5	40.00	9417.5	39.62	10000.0	40.56	10041.4	40.76	10075.8
GR	29.72	10102.0	29.73	10110.2	29.42	10117.5	36.38	10140.7	41.24	10145.9
GR	41.22	10168.3	40.42	10192.7	40.13	10218.5	39.90	10244.7	40.00	10617.5
GR	41.00	11117.5	42.00	12117.5	42.00	12417.5	44.00	12417.5		

CR 63

SB	1.05	1.56	2.9		15.0	3.3	355.	2.5	29.42	29.42
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2000 BAKER & LAWSON SURVEY SECTION  
CR 63

X1	13.5	19	10075.8	10145.9	16.	16.	16.			
X2			1	39.72	41.22					
X3	10							41.22	41.22	
BT	-14	4117.5	45.00		9417.5	40.00		10000.0	39.62	
BT		10041.4	40.56		10075.8	41.84		10140.7	41.43	
BT		10168.3	41.22		10192.7	40.42		10218.5	40.13	
BT		10244.7	39.90		10617.5	40.00		11117.5	41.00	
BT		12117.5	42.00		12417.5	42.00				
GR	45.00	4117.5	40.00	9417.5	39.62	10000.0	40.56	10041.4	40.76	10075.8
GR	29.72	10102.0	29.73	10110.2	29.42	10117.5	36.38	10140.7	41.24	10145.9
GR	41.22	10168.3	40.42	10192.7	40.13	10218.5	39.90	10244.7	40.00	10617.5
GR	41.00	11117.5	42.00	12117.5	42.00	12417.5	44.00	12417.5		

2000 BAKER & LAWSON SURVEY SECTION

X1	13.4	20	10108.8	10195.5	50.	50.	50.			
CI	10156	-1	0.0	2	2	25				
X3	10									
GR	45.00	4155.9	40.00	9455.9	39.45	10000.0	31.93	10027.4	40.54	10053.6
GR	43.64	10092.5	43.96	10108.8	29.68	10148.0	29.65	10155.9	29.82	10164.6
GR	40.18	10195.5	40.94	10218.7	40.43	10256.5	33.93	10276.5	38.67	10290.2
GR	40.00	10655.9	41.00	11155.9	42.00	12155.9	42.00	12455.9	44.00	12455.9

NC

0.1 0.3

X1	13.				750.	750.	750.		0.6	
CI	10156	30.25	0.0	2	2	25				
X3	10									

QT 3 3421 4049 5301

X1	12.3	17	4850.	4956.	3700.	3600.	3650.			
CI	4913	-1	0.0	3	3	25				
X3				4838.	46.	5008.	43.6			
GR	48.0	1313.	45.0	2713.	44.0	3736.	43.6	4251.	42.8	4819.
GR	46.0	4838.	40.6	4850.	33.4	4900.	32.0	4913.	33.4	4926.
GR	40.8	4956.	43.6	5008.	40.8	5043.	42.8	5134.	43.2	5850.
GR	44.0	8063.	47.0	8063.						

West Fork Replace Culvert at CR 48 WESTFO48.IH2

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NC				0.3		0.5					
X1	12.2	17	4850.	4956.	100.	100.	100.				
X3	10			4838.	46.	5008.	43.6	43.44	43.44		
GR	48.0	1313.	45.0	2713.	44.	3736.	43.6	4251.	42.8	4819.	
GR	46.	4838.	40.6	4850.	35.7	4880.	32.0	4913.	35.	4934.	
GR	40.8	4956.	43.6	5008.	40.8	5043.	42.8	5134.	43.2	5850.	
GR	44.0	8063.	47.0	8063.							

CR 67

SB	1.05	1.56	2.6		30.	3.	370.	1.	32.0	32.0	
CR 67											
X1	12.1				24.	24.	24.				
CI	-1	-1	0.0	3	3	30					
X2			1	42.94	43.94						
X3	10			4838.	46.	5008.	43.6	43.94	43.94		
BT	-16	1313.	48.00		2713.	45.00		3736.	44.00		
BT		4251.	43.60		4819.	42.80		4838.	46.00		
BT		4850.	40.60		4880.	44.21		4905.7	44.20		
BT		4934.6	43.94		4956.	40.80		5008.	43.60		
BT		5043.	40.80		5134.	42.80		5850.	43.20		
BT		8063.	44.00								

2000 BAKER & LAWSON SURVEY SECTION

X1	12.	17	10306.5	10387.6	50.	50.	50.				
CI	10344	-1	0.0	3	2.5	20					
GR	48.00	6744.3	45.00	8144.3	43.67	10000.0	43.66	10093.8	40.17	10273.4	
GR	39.15	10306.5	33.58	10333.9	32.06	10344.3	33.00	10352.4	44.09	10387.6	
GR	43.94	10421.8	41.87	10433.7	41.25	10476.9	43.33	10707.2	44.03	10822.1	
GR	44.00	13494.3	47.00	13494.3							

NC 0.1 0.3

2000 BAKER & LAWSON SURVEY SECTION

X1	11.3	15	10374.9	10463.8	3900.	4400.	4650.				
CI	-1	-1	0.0	3	2	20					
X3	10										
GR	48.00	8119.0	45.32	10000.0	45.26	10047.9	45.27	10095.0	45.17	10188.6	
GR	43.27	10344.9	41.34	10374.9	35.96	10407.2	33.44	10419.0	34.25	10426.4	
GR	47.34	10463.8	46.91	10489.9	44.80	10810.6	45.60	10901.1	48.00	13219.0	

X1	11.2	23	4070	4190	100.	100.	100.				
CI	4125	-1	0.0	3	3	20					
X3	10							45.92	45.92		
GR	48.0	1825.	45.2	3221.	45.2	3222.	45.2	3223.	45.2	3224.	
GR	45.2	3225.	44.4	3291.	44.2	3818.	43.8	3981.	43.4	4021.	
GR	45.6	4049.	45.2	4070.	38.5	4103.	35.	4120.	34.2	4125.	
GR	35.2	4130.	39.5	4157.	45.1	4190.	44.8	4265.	44.6	4362.	
GR	44.8	4728.	45.6	5229.	48.0	6925.					

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CR 64  
SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILE 11/97

SB	1.05	1.56	2.9	13.	3.	481.	4.	34.2	34.2
2000 BAKER & LAWSON SURVEY SECTION									
CR 64									
X1	11.1				24.		24.		24.
CI	-1	-1	0.0	3	3		20		
X2			1	45.32		46.52			
X3	10								
BT	-21	1825.	48.00		3221.	45.2		46.52	46.52
BT		3223.	45.2		3224.	45.2		3222.	45.2
BT		3291.	44.4		3818.	44.2		3225.	45.2
BT		4021.	43.4		4049.	45.6		3981.	43.8
BT		4103.	46.66		4128.2	46.87		4070.	45.2
BT		4190.	45.1		4265.	44.8		4154.7	46.52
BT		4728.	44.8		5229.	45.6		4362.	44.6
								6925.	48.0
X1	11.	23	4070.	4190.	50.	50.	50.		
CI	4125	-1	0.0	3	3	20			
GR	48.0	1825.	45.2	3221.	45.2	3222.	45.2	3223.	45.2
GR	45.2	3225.	44.4	3291.	44.2	3818.	43.8	3981.	43.4
GR	45.6	4049.	45.2	4070.	38.5	4103.	35.	4120.	4021.
GR	35.2	4130.	39.5	4157.	45.1	4190.	44.8	4265.	4125.
GR	44.8	4728.	45.6	5229.	48.0	6925.			44.6
									4362.
NC				0.1	0.3				
X1	10.	16	5011.	5109.	1940.	2100.	1840.		
CI			.06			0.01			
X3	10								
GR	50.0	145.	49.1	3111.	48.9	3995.	47.3	4316.	46.3
GR	45.3	4812.	43.5	4969.	49.5	5011.	35.3	5041.	4711.
GR	35.3	5049.	49.5	5109.	45.9	5147.	45.7	5309.	34.2
GR	49.	11045.							46.
									5821.
X1	9.	19	4391.	4507.	3550.	3650.	3930.		
X3				4363.	50.1	4695.	47.9		
GR	51.7	1000.	50.3	1925.	49.7	2973.	49.5	3454.	49.3
GR	48.3	4328.	50.1	4363.	49.9	4383.	46.5	4391.	3854.
GR	36.8	4439.	37.3	4447.	46.5	4507.	47.9	4695.	37.3
GR	48.9	5885.	50.0	10339.	51.0	11639.	52.0	11639	48.3
									5382.
X1	8.5	14	10000.0	10373.2	3500	3500	3500		
GR	55.00	6047.5	54.00	7847.5	51.46	10000.0	44.70	10329.9	42.06
GR	39.13	10347.5	40.66	10363.2	43.69	10373.2	55.09	10431.7	10340.4
GR	54.79	10544.5	53.47	10600.8	53.04	10656.5	52.72	10709.6	10488.2

2000 BAKER & LAWSON SURVEY SECTION

West Fork Replace Culvert at CR 48 WESTFO48.IH2

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X1	8.	19	10318.5	10373.2	700	700	700			
X3				10225.1	54.50	10488.2	55.67			
GR	55.00	6047.5	54.00	7847.5	51.46	10000.0	51.83	10056.3	52.46	10113.4
GR	53.52	10168.0	54.50	10225.1	50.46	10318.5	44.70	10329.9	42.06	10340.4
GR	39.13	10347.5	40.66	10363.2	43.69	10373.2	55.09	10431.7	55.67	10488.2
GR	54.79	10544.5	53.47	10600.8	53.04	10656.5	52.72	10709.6		

NC				0.3	0.5					
X1	7.99				100.	100.	100.			
X3	10							53.85	53.85	

CR 48  
SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILE 11/97

SB	1.05	1.56	2.6	14.	5.	798.	2.	39.13	39.	
SB	1.05	1.56	2.6		24	5.	798.	2.5	39.13	39.13

2000 BAKER & LAWSON SURVEY SECTION  
CR 48

X1	7.98				22.	22.	22.			
X2			1	53.20	54.50					
X3	10							54.50	54.50	
BT	-16	6047.5	55.00		7847.5	54.00		10000.0	51.46	
BT		10056.3	51.83		10113.4	52.46		10168.0	53.52	
BT		10225.1	54.50		10303.	54.50		10341.	54.54	
BT		10388.	54.60		10431.7	55.09		10488.2	55.67	
BT		10544.5	54.79		10600.8	53.47		10656.5	53.04	
BT		10709.6	52.72							

X1	7.97				50.	50.	50.			
X3				10225.1	54.50	10488.2	55.67			

NC				0.1	0.3					
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QT	3	2762	3269	4187						
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2000 BAKER & LAWSON SURVEY SECTION

X1	7.6	13	10059.9	10096.2	3300.	3500.	3800.			
GR	56.00	6981.3	51.36	10000.0	42.19	10031.1	48.99	10059.9	42.42	10073.7
GR	40.50	10081.3	42.13	10090.0	46.08	10096.2	41.53	10130.7	50.58	10160.0
GR	55.00	17081.3	55.00	19081.3	57.00	19081.3				

NC				0.3	0.5					
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2000 BAKER & LAWSON SURVEY SECTION

X1	7.59	16	10623.7	10761.5	100.	100.	100.			
X3	10			10541.5	56.04	10904.5	55.65	52.55	52.55	
GR	55.95	10000.0	55.82	10126.7	55.86	10228.3	55.98	10329.6	56.07	10434.7
GR	56.04	10541.5	54.43	10523.7	42.27	10662.3	41.12	10696.9	42.40	10727.6
GR	53.83	10761.5	55.65	10904.5	55.38	11004.6	54.90	11105.2	54.71	11204.6

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GR 54.60 11305.1

SH 288

SPECIAL BRIDGE DATA UPDATED USING TXDOT BRINSAP FILE 01/97

SB 1.25 1.56 2.6 40 2. 939. 3.5 41.12 41.12

2000 BAKER & LAWSON SURVEY SECTION

SH 288

X1	7.58	16	10623.7	10761.5	60.	60.	60.			
X2			1	55.2	58.1					
X3	10							58.1	58.1	
BT	-4	10541.5	56.04		10624.3	58.1		10762.3	58.1	
BT		10904.5	55.65							
GR	55.95	10000.0	55.82	10126.7	55.86	10228.3	55.98	10329.6	56.07	10434.7
GR	56.04	10541.5	54.43	10623.7	42.27	10662.3	41.12	10696.9	42.40	10727.6
GR	53.83	10761.5	55.65	10904.5	55.38	11004.6	54.90	11105.2	54.71	11204.6
GR	54.60	11305.1								

2000 BAKER & LAWSON SURVEY SECTION

X1	7.57	13	10100.8	10169.0	50.	150.	100.			
GR	57.00	7035.2	56.00	7035.2	53.22	10000.0	51.34	10100.8	42.37	10127.2
GR	41.92	10135.2	42.57	10142.7	50.99	10169.0	51.93	10217.3	52.09	10265.0
GR	55.00	17135.2	55.00	19135.2	57.00	19135.2				

NC 0.1 0.3

X1	6.93	13	2135.	2179.	40.	200.	140.			
GR	57.	157	56.	157.	55.	1783.	54.2	2027.	53.2	2135.
GR	43.5	2149.	42.7	2157.	43.5	2167.	53.	2179.	53.	2798.
GR	53.4	3000.	56.	9157.	57.	9157.				

NC .035 .01 .03

X1	6.92				100.	100.	100.			
X3	10							52.25	52.25	

CR 57

SB 1.05 1.56 2.9 20. 1.7 275. 1.2 42.7 42.7

CR 57

X1	6.91				100.	100.	100.			
X2			1	52.5	53.9					
X3	10							53.9	53.9	
BT	9	157.	56.		1783.	55.		2027	54.2	
BT	2135.	53.9		2179.	53.9		2469.	53.		2798.
BT	53.		3000.	53.4		9157.	56.			

West Fork Replace Culvert at CR 48 WESTFO48.IH2

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X1	6.9				50.	50.	50.			
NC			0.1	0.3						
X1	6.0	19	18150.	18231.	3000.	3100.	3100.			
GR	60.0	10802.	55.0	17702.	54.6	17758.	54.6	17759.	54.6	17760.
GR	54.6	17761.	54.6	17762.	53.2	18124.	54.	18150.	52.	18165.
GR	46.8	18193.	44.7	18202.	46.8	18210.	53.2	18231.	52.8	18257.
GR	53.2	18433.	53.2	18683.	55.0	19302.	60.0	30402.		

2000 BAKER & LAWSON SURVEY SECTION

X1	5.3	19	13172.6	13239.5	2500.	2150.	2380.			
X3	10									
GR	59.00	9898.9	57.00	9898.9	53.99	10034.7	54.22	11076.6	54.31	11740.1
GR	53.81	12877.0	53.89	12977.0	54.08	13079.0	55.45	13172.6	46.02	13193.4
GR	45.00	13198.9	47.10	13220.6	53.93	13239.5	54.30	13351.5	54.01	13454.5
GR	54.20	13557.1	54.68	14369.2	57.00	15198.9	60.00	25648.9		

NC 0.3 0.5

2000 BAKER & LAWSON SURVEY SECTION

X1	5.2	22	13180.3	13232.3	100.	100.	100.			
X3	10							54.79	54.79	
GR	59.00	9901.5	57.00	9901.5	56.27	10000.0	56.05	10009.8	55.05	10019.4
GR	53.99	10034.7	54.22	11076.6	54.31	11740.1	53.81	12877.0	53.89	12977.0
GR	54.08	13079.0	55.84	13180.3	46.96	13191.3	46.00	13201.5	46.70	13211.2
GR	55.23	13232.3	54.30	13335.3	54.01	13438.4	54.20	13541.0	54.68	14353.1
GR	57.00	15201.5	60.00	25651.5						

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SB	1.05	1.56	2.9		17.7	2.	209.	1.	46.0	46.0
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2000 BAKER & LAWSON SURVEY SECTION

CR 81										
X1	5.1	22	13180.1	13231.7	15.	15.	15.			
X2			1	53.79	55.79					
X3	10							53.81	53.81	
BT	-19	9910.	57.00		10000.	56.27		10009.8	56.05	
BT		10019.4	55.05		10034.7	53.99		11076.6	54.22	
BT		11740.1	54.31		12877.0	53.81		12977.0	53.89	
BT		13079.0	54.08		13180.1	55.81		13210.9	56.04	
BT		13231.7	55.79		13335.1	54.30		13483.1	54.01	
BT		13540.7	54.20		14352.8	54.68		15210.9	57.00	
BT		25660.9	60.00							
GR	59.00	9910.9	57.00	9910.9	56.27	10000.0	56.05	10009.8	55.05	10019.4
GR	53.99	10034.7	54.22	11076.6	54.31	11740.1	53.81	12877.0	53.89	12977.0
GR	54.08	13079.0	55.62	13180.1	47.96	13197.9	45.95	13210.9	46.68	13220.4
GR	55.21	13231.7	54.30	13335.1	54.01	13483.1	54.20	13540.7	54.68	14352.8
GR	57.00	15210.9	60.00	25660.9						

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## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	5.0	20	13238.5	13286.7	70.	70.	70.			
GR	59.00	9958.4	57.00	9958.4	53.99	10034.7	54.22	11076.6	54.31	11740.1
GR	53.81	12877.0	53.89	12977.0	54.08	13079.0	53.63	13225.0	51.61	13238.5
GR	46.56	13249.1	45.61	13258.4	46.89	13277.0	51.16	13286.7	54.30	13378.9
GR	54.01	13481.9	54.20	13584.5	54.68	14396.6	57.00	15258.4	60.00	25708.4

NC				0.1	0.3					
QT	3	1661	1968	2455						

## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	4.	23	16360.	16465.	2050.	1800.	1990.			
X3	10									
GR	61.0	11516.	57.0	11516.	54.2	15463.	54.2	15464.	54.2	15465.
GR	54.2	15466.	54.4	16260.	56.	16360.	54.8	16396.	48.2	16404.
GR	47.4	16408.	47.	16412.	46.7	16416.	47.	16420.	47.4	16424.
GR	48.2	16427.	56.2	16465.	55.	16519.	51.	16522.	54.2	16538.
GR	54.8	17004.	57.0	18816.	61.0	26116.				

## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	3.3	25	10894.8	10948.2	3650.	3350.	3710.			
X3					60.34	11300.2	57.61			
GR	60.00	6783.9	59.00	7933.9	57.72	10000.0	57.59	10085.4	60.33	10183.5
GR	60.34	10224.5	57.30	10299.2	57.06	10357.4	57.27	10453.8	56.87	10549.4
GR	56.62	10644.7	56.19	10740.3	55.50	10894.8	48.17	10911.6	47.61	10923.5
GR	47.28	10933.9	55.25	10948.2	56.37	11019.6	56.56	11113.2	57.06	11206.0
GR	57.61	11300.2	57.58	11393.5	58.00	12933.9	58.00	19933.9	60.00	19933.9

NC				0.3	0.5					
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## 2000 BAKER &amp; LAWSON SURVEY SECTION

X1	3.2	25	10828.1	10884.9	100.	100.	100.			
X3	10				60.34	11254.4	57.61	54.7	54.7	
GR	60.00	6106.8	59.00	7856.8	57.72	10000.0	57.59	10085.4	60.33	10183.5
GR	60.34	10224.5	57.30	10299.2	57.06	10357.4	57.27	10453.8	56.87	10549.4
GR	56.62	10644.7	56.19	10740.3	54.72	10828.1	47.55	10845.6	46.85	10856.8
GR	47.51	10870.2	56.39	10884.9	56.37	10973.7	56.56	11067.4	57.06	11160.1
GR	57.61	11254.4	57.58	11347.6	58.00	12856.8	58.00	19856.8	60.00	19856.8

## CR 383

SB	1.05	1.56	2.8		8.85	1.	144.	1.	46.85	46.85
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## 2000 BAKER &amp; LAWSON SURVEY SECTION

CR 383										
X1	3.1				15.	15.	15.			
X2			1	54.0	55.4					
X3	10			10244.5	60.34	11254.4	57.61	55.4	55.4	
BT	-21	6106.8	60.00		7856.8	59.00		10000.0	57.72	
BT		10085.4	57.59		10183.5	60.33		10224.5	60.34	



West Fork Replace Culvert at CR 48 WESTFO48.IH2

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BT	10299.2	57.30	10357.4	57.06	10453.8	57.27
BT	10549.4	56.87	10644.7	56.62	10740.3	56.19
BT	10787.9	55.4	10836.9	57.5	10868.9	57.5
BT	10973.7	56.37	11067.4	56.56	11254.4	57.61
BT	11347.6	57.58	12856.8	58.0	19856.8	58.0

X1	3.0		50.	50.	50.
X3	10	10244.5	60.34	11254.4	57.61
NC		0.1	0.3		

X1	2.0	15	5122.	5178.	3400.	3500.	3640.			
X3	10									
GR	60.0	855.	58.4	4663.	58.4	4664.	58.4	4666.	58.4	4667.
GR	56.6	5077.	59.4	5122.	57.2	5144.	50.8	5145.	49.5	5155.
GR	50.8	5165.	56.6	5178.	57.4	5398.	58.6	6123.	61.0	6855.

2000 BAKER & LAWSON SURVEY SECTION

X1	1.5	13	10194.6	10264.7	948	948	948			
X3	10									
GR	60.00	6243.3	56.92	10000.0	56.51	10121.0	56.90	10180.6	60.41	10194.6
GR	57.01	10210.1	55.93	10225.6	51.64	10235.6	50.56	10243.3	51.54	10251.2
GR	55.41	10264.7	55.94	10357.9	60.00	19243.3				

2000 BAKER & LAWSON SURVEY SECTION

X1	1.0	15	14876.	14928.	2192	2052	2192			
GR	65.0	6689.	60.0	14339.	58.9	14430.	58.9	14431.	58.9	14432.
GR	57.9	14860.	58.7	14876.	55.3	14887.	54.	14889.	55.3	14891.
GR	59.7	14905.	58.1	14928.	58.1	15370.	60.0	15889.	61.0	26689.

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T1 WEST FORK CHOCOLATE BAYOU.....2000 BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: WESTFORK.IH2.....25 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....REV 09/00

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3			0.00035					
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-7							

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T1 WEST FORK CHOCOLATE BAYOU.....2000 BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING CONDITION MODEL.....1973 DATUM ADJUSTMENT  
T3 FILENAME: WESTFORK.IH2.....100 YEAR FREQUENCY  
T3 MODEL REVISED BY KLOTZ ASSOCIATES/BAKER & LAWSON.....REV 09/00

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		4			0.00035				41.55	
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-7							

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES

THIS RUN EXECUTED 25AUG02 19:03:58

Version 4.6.2; May 1991

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NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

L REVISED BY KLOTZ ASSOC

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
15.300	3600.00	37.81	2.77	24.80	35.90	37.50	42.00	3585.38	99.59	.00	232.10
15.300	4254.00	38.56	2.95	24.80	35.90	37.50	42.00	4171.43	98.06	.00	1600.22
15.300	5664.00	39.48	3.14	24.80	35.90	37.50	42.00	4912.05	86.72	.00	3232.69
15.200	3600.00	37.79	4.09	24.80	27.99	27.93	42.00	3010.20	83.62	100.00	231.35
15.200	4254.00	38.54	4.40	24.80	27.99	27.93	42.00	3429.69	80.62	100.00	1573.68
15.200	5664.00	39.47	4.64	24.80	27.99	27.93	42.00	3872.08	68.36	100.00	3219.24
15.100	3600.00	37.83	4.07	24.80	27.99	27.93	42.00	3006.03	83.50	17.00	233.89
15.100	4254.00	38.54	4.40	24.80	27.99	27.93	42.00	3429.79	80.63	17.00	1573.16
15.100	5664.00	39.47	4.64	24.80	27.99	27.93	42.00	3872.10	68.36	17.00	3219.22
15.000	3600.00	37.99	2.70	24.80	35.90	37.50	42.00	3581.24	99.48	50.00	243.55
15.000	4254.00	38.72	2.86	24.80	35.90	37.50	42.00	4118.65	96.82	50.00	1867.32
15.000	5664.00	39.64	3.00	24.80	35.90	37.50	42.00	4760.48	84.05	50.00	3489.87
14.000	3600.00	39.28	3.41	28.00	40.90	37.50	42.00	3345.95	92.94	3100.00	694.12
14.000	4254.00	39.97	3.46	28.00	40.90	37.50	42.00	3711.99	87.26	3100.00	1689.48
14.000	5664.00	40.83	3.54	28.00	40.90	37.50	42.00	4210.99	74.35	3100.00	1971.69
*	13.700	3600.00	41.54	5.26	29.01	40.62	42.49	3471.66	96.43	2850.00	1327.50
*	13.700	4254.00	42.09	5.17	29.01	40.62	42.49	3647.30	85.74	2850.00	2080.45
	13.700	5664.00	42.79	4.98	29.01	40.62	42.49	3799.23	67.08	2850.00	5286.71
*	13.600	3600.00	42.00	2.55	29.42	40.76	41.24	1553.57	43.15	100.00	5130.23
*	13.600	4254.00	42.50	2.22	29.42	40.76	41.24	1429.63	33.61	100.00	5650.24
*	13.600	5664.00	43.09	2.13	29.42	40.76	41.24	1456.65	25.72	100.00	6275.25
	13.500	3600.00	42.00	2.55	29.42	40.76	41.24	1555.89	43.22	16.00	5127.21
	13.500	4254.00	42.50	2.22	29.42	40.76	41.24	1428.94	33.59	16.00	5651.31
	13.500	5664.00	43.09	2.12	29.42	40.76	41.24	1454.86	25.69	16.00	6278.35

West Fork Replace Culvert at CR 48 WESTFO48.IH2

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
	13.400	3600.00	41.98	3.34	29.65	43.96	40.18	44.00	2175.76	60.44	50.00	2020.84
*	13.400	4254.00	42.47	3.17	29.65	43.96	40.18	44.00	2195.67	51.61	50.00	2343.02
*	13.400	5664.00	43.06	3.29	29.65	43.96	40.18	44.00	2438.12	43.05	50.00	2344.64
	13.000	3600.00	42.40	3.58	30.25	44.56	40.78	44.60	2285.08	63.47	750.00	1844.58
	13.000	4254.00	42.84	3.51	30.25	44.56	40.78	44.60	2366.25	55.62	750.00	2342.38
	13.000	5664.00	43.43	3.61	30.25	44.56	40.78	44.60	2610.36	46.09	750.00	2344.01
	12.300	3421.00	44.31	3.22	32.00	40.60	40.80	47.00	2944.50	86.07	3650.00	3221.23
	12.300	4049.00	44.63	3.26	32.00	40.60	40.80	47.00	3094.96	76.44	3650.00	3221.97
	12.300	5301.00	45.18	3.31	32.00	40.60	40.80	47.00	3333.74	62.89	3650.00	3223.17
	12.200	3421.00	44.36	3.10	32.00	40.60	40.80	47.00	2903.49	84.87	100.00	3221.35
	12.200	4049.00	44.68	3.16	32.00	40.60	40.80	47.00	3068.02	75.77	100.00	3222.07
	12.200	5301.00	45.22	3.22	32.00	40.60	40.80	47.00	3309.44	62.43	100.00	3223.28
	12.100	3421.00	44.37	3.03	32.00	40.60	40.80	47.00	2914.12	85.18	24.00	3221.37
	12.100	4049.00	44.69	3.11	32.00	40.60	40.80	47.00	3091.18	76.34	24.00	3222.08
	12.100	5301.00	45.22	3.19	32.00	40.60	40.80	47.00	3352.64	63.25	24.00	3223.28
	12.000	3421.00	44.40	3.33	32.06	39.15	44.09	47.00	2256.23	65.95	50.00	4501.34
	12.000	4049.00	44.74	3.20	32.06	39.15	44.09	47.00	2256.31	55.73	50.00	4984.55
	12.000	5301.00	45.30	2.95	32.06	39.15	44.09	47.00	2209.33	41.68	50.00	5488.70
	11.300	3421.00	46.69	3.54	33.44	41.34	47.34	48.00	2689.21	78.61	4650.00	1424.00
	11.300	4049.00	46.97	3.85	33.44	41.34	47.34	48.00	3013.60	74.43	4650.00	1619.37
*	11.300	5301.00	47.34	4.46	33.44	41.34	47.34	48.00	3642.16	68.71	4650.00	1881.39
*	11.200	3421.00	46.86	1.83	34.20	45.20	45.10	48.00	1661.78	48.58	100.00	3723.99
*	11.200	4049.00	47.16	1.89	34.20	45.20	45.10	48.00	1782.51	44.02	100.00	4084.23
*	11.200	5301.00	47.58	2.06	34.20	45.20	45.10	48.00	2042.69	38.53	100.00	4594.33
	11.100	3421.00	46.86	1.83	34.20	45.20	45.10	48.00	1665.89	48.70	24.00	3728.45
	11.100	4049.00	47.16	1.89	34.20	45.20	45.10	48.00	1787.27	44.14	24.00	4088.77
	11.100	5301.00	47.58	2.05	34.20	45.20	45.10	48.00	2048.41	38.64	24.00	4599.29
	11.000	3421.00	46.87	1.83	34.20	45.20	45.10	48.00	1657.17	48.44	50.00	3734.01
	11.000	4049.00	47.17	1.88	34.20	45.20	45.10	48.00	1777.70	43.90	50.00	4094.29
	11.000	5301.00	47.59	2.05	34.20	45.20	45.10	48.00	2036.98	38.43	50.00	4605.38
*	10.000	3421.00	47.26	6.18	34.20	49.50	49.50	49.00	3421.00	100.00	1840.00	83.79
*	10.000	4049.00	47.48	7.08	34.20	49.50	49.50	49.00	4049.00	100.00	1840.00	85.17
*	10.000	5301.00	47.72	8.94	34.20	49.50	49.50	49.00	5301.00	100.00	1840.00	86.75
*	9.000	3421.00	49.85	2.29	36.80	46.50	46.50	52.00	2291.10	66.97	3930.00	5390.75
*	9.000	4049.00	50.21	2.22	36.80	46.50	46.50	52.00	2309.18	57.03	3930.00	8203.85
*	9.000	5301.00	50.74	2.04	36.80	46.50	46.50	52.00	2247.54	42.40	3930.00	9678.41
*	8.500	3421.00	51.05	2.34	39.13	51.46	43.69	52.72	3284.80	96.02	3500.00	391.00
*	8.500	4049.00	51.36	2.57	39.13	51.46	43.69	52.72	3886.28	95.98	3500.00	407.30
*	8.500	5301.00	51.75	3.07	39.13	51.46	43.69	52.72	5085.76	95.94	3500.00	654.22

	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	8.000	3421.00	51.38	6.62	39.13	50.46	43.69	52.72	3152.43	92.15	700.00	115.47
*	8.000	4049.00	51.70	7.53	39.13	50.46	43.69	52.72	3712.55	91.69	700.00	124.22
*	8.000	5301.00	52.10	9.35	39.13	50.46	43.69	52.72	4824.43	91.01	700.00	135.91
	7.990	3421.00	51.51	7.08	39.13	50.46	43.69	52.72	3421.00	100.00	100.00	54.70
	7.990	4049.00	51.85	8.06	39.13	50.46	43.69	52.72	4049.00	100.00	100.00	54.70
	7.990	5301.00	52.30	10.07	39.13	50.46	43.69	52.72	5301.00	100.00	100.00	54.70
	7.980	3421.00	51.67	6.95	39.13	50.46	43.69	52.72	3421.00	100.00	22.00	54.70
	7.980	4049.00	52.09	7.86	39.13	50.46	43.69	52.72	4049.00	100.00	22.00	54.70
	7.980	5301.00	52.78	9.59	39.13	50.46	43.69	52.72	5301.00	100.00	22.00	54.70
	7.970	3421.00	52.05	6.08	39.13	50.46	43.69	52.72	3116.85	91.11	50.00	134.28
	7.970	4049.00	52.61	6.71	39.13	50.46	43.69	52.72	3646.93	90.07	50.00	150.27
	7.970	5301.00	53.70	7.71	39.13	50.46	43.69	52.72	4650.62	87.73	50.00	180.86
*	7.600	2762.00	53.54	1.52	40.50	48.99	46.08	56.00	552.79	20.01	3800.00	6205.80
*	7.600	3269.00	54.05	1.35	40.50	48.99	46.08	56.00	518.84	15.87	3800.00	7342.41
*	7.600	4187.00	55.05	1.05	40.50	48.99	46.08	56.00	439.30	10.49	3800.00	11487.02
*	7.590	2762.00	53.51	2.39	41.12	54.43	53.83	54.60	2762.00	100.00	100.00	133.94
*	7.590	3269.00	54.01	2.68	41.12	54.43	53.83	54.60	3268.93	100.00	100.00	150.66
*	7.590	4187.00	54.99	3.08	41.12	54.43	53.83	54.60	4174.87	99.71	100.00	257.21
	7.580	2762.00	53.52	2.39	41.12	54.43	53.83	54.60	2762.00	100.00	60.00	133.97
	7.580	3269.00	54.02	2.68	41.12	54.43	53.83	54.60	3269.00	100.00	60.00	136.48
	7.580	4187.00	54.99	3.09	41.12	54.43	53.83	54.60	4187.00	100.00	60.00	137.80
*	7.570	2762.00	53.54	3.40	41.92	51.34	50.99	57.00	1801.33	65.22	100.00	4031.18
	7.570	3269.00	54.13	2.67	41.92	51.34	50.99	57.00	1521.41	46.54	100.00	6039.43
*	7.570	4187.00	55.19	1.60	41.92	51.34	50.99	57.00	1026.98	24.53	100.00	11238.47
*	6.930	2762.00	52.86	9.38	42.70	53.20	53.00	57.00	2762.00	100.00	140.00	43.34
*	6.930	3269.00	54.00	7.05	42.70	53.20	53.00	57.00	2426.09	74.22	140.00	2373.38
*	6.930	4187.00	55.18	3.64	42.70	53.20	53.00	57.00	1443.90	34.49	140.00	5733.04
*	6.920	2762.00	54.13	5.68	42.70	53.20	53.00	57.00	1985.86	71.90	100.00	2686.23
*	6.920	3269.00	54.49	5.20	42.70	53.20	53.00	57.00	1903.40	58.23	100.00	3645.03
	6.920	4187.00	55.23	3.86	42.70	53.20	53.00	57.00	1537.48	36.72	100.00	5875.09
	6.910	2762.00	54.15	5.57	42.70	53.20	53.00	57.00	1956.04	70.82	100.00	2756.25
	6.910	3269.00	54.50	5.16	42.70	53.20	53.00	57.00	1889.80	57.81	100.00	3676.18
	6.910	4187.00	55.23	3.83	42.70	53.20	53.00	57.00	1526.17	36.45	100.00	5921.43
	6.900	2762.00	54.28	5.11	42.70	53.20	53.00	57.00	1823.90	66.04	50.00	3081.73
	6.900	3269.00	54.59	4.84	42.70	53.20	53.00	57.00	1790.50	54.77	50.00	3908.36
	6.900	4187.00	55.26	3.76	42.70	53.20	53.00	57.00	1502.59	35.89	50.00	6019.28
*	6.000	2762.00	55.89	2.23	44.70	54.00	53.20	60.00	1160.75	42.03	3100.00	4821.49
*	6.000	3269.00	56.09	2.32	44.70	54.00	53.20	60.00	1247.51	38.16	3100.00	5558.81
	6.000	4187.00	56.40	2.47	44.70	54.00	53.20	60.00	1386.05	33.10	3100.00	6622.43

West Fork Replace Culvert at CR 48 WESTFO48.IH2

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	5.300	2762.00	56.21	1.37	45.00	55.45	53.93	59.00	688.05	24.91	2380.00	4984.22
*	5.300	3269.00	56.43	1.44	45.00	55.45	53.93	59.00	740.99	22.67	2380.00	5069.47
*	5.300	4187.00	56.76	1.55	45.00	55.45	53.93	59.00	833.56	19.91	2380.00	5200.41
	5.200	2762.00	56.22	1.39	46.00	55.84	55.23	59.00	501.03	18.14	100.00	4917.99
	5.200	3269.00	56.44	1.45	46.00	55.84	55.23	59.00	536.56	16.41	100.00	5021.12
	5.200	4187.00	56.77	1.54	46.00	55.84	55.23	59.00	598.04	14.28	100.00	5189.10
	5.100	2762.00	56.22	1.39	45.95	55.62	55.21	59.00	492.83	17.84	15.00	4922.89
*	5.100	3269.00	56.44	1.45	45.95	55.62	55.21	59.00	527.70	16.14	15.00	5024.48
*	5.100	4187.00	56.77	1.54	45.95	55.62	55.21	59.00	588.12	14.05	15.00	5189.63
	5.000	2762.00	56.23	1.48	45.61	51.61	51.16	59.00	627.97	22.74	70.00	4994.85
	5.000	3269.00	56.44	1.55	45.61	51.61	51.16	59.00	673.82	20.61	70.00	5079.51
	5.000	4187.00	56.78	1.66	45.61	51.61	51.16	59.00	751.23	17.94	70.00	5212.74
*	4.000	1661.00	56.38	.93	46.70	56.00	56.20	61.00	412.69	24.85	1990.00	5918.89
*	4.000	1968.00	56.59	.94	46.70	56.00	56.20	61.00	438.81	22.30	1990.00	6407.23
*	4.000	2455.00	56.93	.94	46.70	56.00	56.20	61.00	471.61	19.21	1990.00	7148.46
*	3.300	1661.00	56.84	4.17	47.28	55.50	55.25	60.00	1533.14	92.30	3710.00	603.46
*	3.300	1968.00	57.02	4.67	47.28	55.50	55.25	60.00	1763.50	89.61	3710.00	685.28
*	3.300	2455.00	57.29	5.33	47.28	55.50	55.25	60.00	2088.21	85.06	3710.00	942.29
	3.200	1661.00	56.97	3.71	46.85	54.72	56.39	60.00	1543.75	92.94	100.00	618.66
	3.200	1968.00	57.19	4.14	46.85	54.72	56.39	60.00	1773.43	90.11	100.00	795.39
	3.200	2455.00	57.50	4.67	46.85	54.72	56.39	60.00	2084.16	84.89	100.00	941.71
	3.100	1661.00	57.13	3.55	46.85	54.72	56.39	60.00	1509.78	90.90	15.00	734.14
	3.100	1968.00	57.22	4.09	46.85	54.72	56.39	60.00	1762.78	89.57	15.00	836.22
*	3.100	2455.00	57.50	4.67	46.85	54.72	56.39	60.00	2084.42	84.90	15.00	941.59
	3.000	1661.00	57.16	3.52	46.85	54.72	56.39	60.00	1503.36	90.51	50.00	764.73
	3.000	1968.00	57.26	4.05	46.85	54.72	56.39	60.00	1752.73	89.06	50.00	873.65
	3.000	2455.00	57.56	4.59	46.85	54.72	56.39	60.00	2063.62	84.06	50.00	950.93
*	2.000	1661.00	59.30	2.91	49.50	59.40	56.60	60.00	824.29	49.63	3640.00	1212.33
*	2.000	1968.00	59.40	2.19	49.50	59.40	56.60	60.00	633.67	32.20	3640.00	4094.66
*	2.000	2455.00	59.64	2.25	49.50	59.40	56.60	60.00	679.49	27.68	3640.00	4733.22
*	1.500	1661.00	59.42	.54	50.56	60.41	55.41	60.00	177.34	10.68	948.00	7777.75
*	1.500	1968.00	59.49	.62	50.56	60.41	55.41	60.00	204.26	10.38	948.00	7929.36
*	1.500	2455.00	59.73	.67	50.56	60.41	55.41	60.00	232.41	9.47	948.00	8446.43
*	1.000	1661.00	59.54	3.20	54.00	58.70	58.10	61.00	291.99	17.58	2192.00	1385.84
*	1.000	1968.00	59.64	3.41	54.00	58.70	58.10	61.00	328.14	16.67	2192.00	1421.92
*	1.000	2455.00	59.90	3.44	54.00	58.70	58.10	61.00	376.23	15.33	2192.00	1513.44

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## SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	13.700	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.700	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.600	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.600	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.600	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.400	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	13.400	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	11.300	PROFILE=	3	WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=	11.300	PROFILE=	3	20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=	11.200	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	11.200	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	11.200	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	10.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	10.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	10.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	9.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.500	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.500	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.500	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.600	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.600	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.600	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.590	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.590	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.590	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.570	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.570	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.930	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	6.930	PROFILE=	2	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	6.930	PROFILE=	2	MINIMUM SPECIFIC ENERGY
WARNING SECNO=	6.930	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.920	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.920	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE



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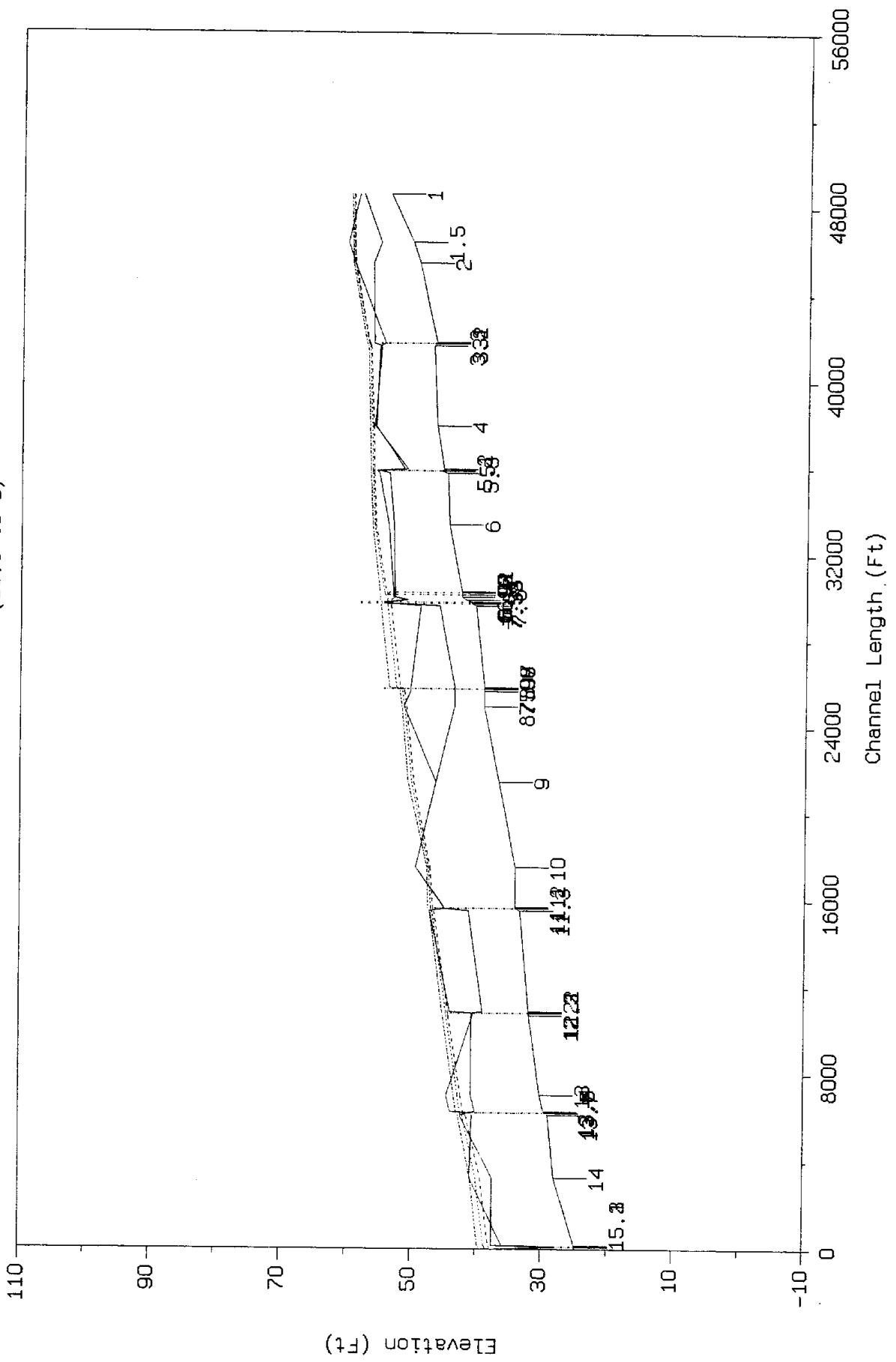
WARNING SECNO=	6.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	6.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	5.300	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	5.300	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	5.300	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
CAUTION SECNO=	5.100	PROFILE=	2	HYDRAULIC	JUMP	D.S.			
CAUTION SECNO=	5.100	PROFILE=	3	HYDRAULIC	JUMP	D.S.			
WARNING SECNO=	4.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	4.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	4.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	3.300	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	3.300	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	3.300	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
CAUTION SECNO=	3.100	PROFILE=	3	HYDRAULIC	JUMP	D.S.			
CAUTION SECNO=	2.000	PROFILE=	2	WSEL	ASSUMED	BASED	ON	MIN	DIFF
CAUTION SECNO=	2.000	PROFILE=	2	20	TRIALS	ATTEMPTED	TO	BALANCE	WSEL
WARNING SECNO=	2.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	1.500	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	1.500	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	1.500	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	1.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	1.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	1.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	

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WARNING SECNO=	6.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.300	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.300	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.300	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	5.100	PROFILE=	2	HYDRAULIC JUMP D.S.
CAUTION SECNO=	5.100	PROFILE=	3	HYDRAULIC JUMP D.S.
WARNING SECNO=	4.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	4.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	4.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.300	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.300	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.300	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	3.100	PROFILE=	3	HYDRAULIC JUMP D.S.
CAUTION SECNO=	2.000	PROFILE=	2	WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=	2.000	PROFILE=	2	20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=	2.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.500	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.500	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.500	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

L REVISED BY KLOTZ ASSOC  
 Cross-Sections (15.3 to 1)



..... Bridge  
 — Left Overbank — Right Overbank  
 ..... CWSEL 1 ..... CWSEL 2 ..... CWSEL 3  
 — Invert

```

*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   JUN 1998 *
*   VERSION 4.1 *
*
* RUN DATE 23AUG02 TIME 13:28:13 *
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 756-1104 *
*
*****

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X   X XXXXXXX XXXXX      X
X   X X      X   X      XX
X   X X      X           X
XXXXXXX XXXX  X          XXXXX X
X   X X      X           X
X   X X      X   X      X
X   X XXXXXXX XXXXX      XXX

```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.  
 THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

Flores Bayou 10 year flows FB\_10.IH1

HEC-1 INPUT

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
1	ID FILE: FB_10.IH1
2	ID BRAZORIA COUNTY MASTER DRAINAGE STUDY
3	ID 10 YEAR FLOW RUNS
4	ID BAKER & LAWSON, DBR
5	IT 10 20JUN02 1200 300
6	IO 5
7	KK FB01
8	KM PERCENT PONDED AREA = 50%
	* 21
9	BA 1.71
	* 2 YEAR STORM 5 MIN 15 MIN 60 MIN 2 HR 3 HR 6 HR 12 HR 24 HR
	* 50 0 0.56 1.22 2.38 2.90 3.20 3.70 4.50 5.10
	* 5 YEAR STORM
	* 20 0 0.63 1.38 2.82 3.70 4.10 5.00 6.00 7.00
	* 10 YEAR STORM
10	PH 10 0 0.70 1.54 3.27 4.40 4.90 5.90 7.40 8.70
	* 25 YEAR STORM
	* 4 0 0.77 1.71 3.71 5.00 5.60 7.00 8.20 10.00
	* 50 YEAR STORM
	* 2 0 0.84 1.87 4.16 5.60 6.40 7.90 9.90 11.70
	* 100 YEAR STORM
	* 1 0 0.91 2.02 4.62 6.20 7.15 8.75 10.75 13.00
11	LU 0.75 0.1 1
12	UC 1.61 20.95
13	KK FB02
14	KM FB01 RTE TO FB02
	* 0
15	RM 4.5 0.74 .1
16	KK FB02
17	KM PERCENT PONDED AREA = 50%
	* 0
18	BA 2.04
19	LU 0.75 0.1 1
20	UC 1.50 17.31
21	KK FB02
22	KM COMBINE 2 HYDROGRAPHS
	* 0 21
23	HC 2
24	KK FB05
25	KM FB01&02 RTE TO FB05
	* 0 21
26	RM 10 1.6 .1
	* START TRIBUTARY FB03 TO FB05
	*

Flores Bayou 10 year flows FB\_10.IH1

HEC-1 INPUT

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
27	KK FB03
28	KM PERCENT PONDED AREA = 40%
	* 21
29	BA 1.69
30	LU 0.75 0.1 1
31	UC 1.05 17.92
32	KK FB04
33	KM FB03 RTE TO FB04
34	RM 3.5 0.60 .1
35	KK FB04
36	KM PERCENT PONDED AREA = 50%
37	BA 1.44
38	LU 0.75 0.1 1
39	UC 2.46 27.43
40	KK FB04
41	KM COMBINE 2 HYDROGRAPHS
	* 21
42	HC 2
43	KK FB05
44	KM FB03&04 RTE TO FB05
45	RM 14.5 2.41 .1
46	KK FB05
47	KM PERCENT PONDED AREA = 50%
48	BA 1.82
49	LU 0.75 0.1 1
50	UC 2.31 22.88
51	KK FB05
52	KM COMBINE 3 HYDROGRAPHS
	* 21
53	HC 3
	* START TRIBUTARY FB06 TO NODE1
	*
54	KK FB06
55	KM PERCENT PONDED AREA = 50%
	* 21
56	BA 1.33
57	LU 0.75 0.1 1
58	UC 1.51 24.02
59	KK FB07
60	KM FB06 RTE TO FB07
61	RM 2.8 0.46 .1



LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
97	KK NODE1
98	KM COMBINE 3 HYDROGRAPHS
	* 21
99	HC 3
100	KK FB11
101	KM NODE1 RTE TO FB11
102	RM 3.4 0.57 .1
103	KK FB11
104	KM PERCENT PONDED AREA = 50%
	* 1
105	BA 0.96
106	LU 0.75 0.1 1
107	UC 1.19 17.89
108	KK FB11
109	KM COMBINE 2 HYDROGRAPHS
	* 21
110	HC 2
111	KK FB12
112	KM FB06&11 RTE TO FB12
113	RM 11.1 1.85 .1
114	KK FB12
115	KM PERCENT PONDED AREA = 50%
116	BA 1.72
117	LU 0.75 0.1 1
118	UC 0.99 20.21
119	KK FB12
120	KM COMBINE 2 HYDROGRAPHS
	* 21
121	HC 2
122	KK FB05
123	KM FB06-12 RTE TO FB05
124	RM 1 0.17 .1
125	KK FB05
126	KM COMBINE 2 HYDROGRAPHS
127	KO 21
128	HC 2
129	KK DIV1
130	KM FLOW SPLIT FB/ICD
131	DT DIV1
132	DI 510 1020 2526 3289 5104
133	DQ 100 185 375 475 562





LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

```

171      KK  NODE4
172      KM  FB01-16 RTE TO NODE4 (BUT NOT FB13)
173      RM  6.67  1.11  .1
          *
          * START TRIBUTARY FB13 & FB17 TO NODE3
          *

174      KK  FB13
175      KM  PERCENT PONDED AREA = 50%
176      BA  3.51
177      LU  0.75  0.1  1
178      UC  2.83  28.51

179      KK  RET1
180      KM  FLOW SPLIT TO ICD
181      DR  DIV1

182      KK  COMB1
183      HC  2

184      KK  ICD1
185      KM  REACH EXTENDS FROM X-SECT. 2.400 TO X-SECT. 3.400
186      RS  6  STOR -1
187      SV  0  14  23  39  497  551  625
188      SQ  0  153  306  612  1224  1530  1836

189      KK  FB17
190      KM  PERCENT PONDED AREA = 50%
191      BA  0.88
192      LU  0.75  0.1  1
193      UC  1.68  31.51

194      KK  FB17
195      KM  COMBINE 2 HYDROGRAPHS
          *
          * 21
196      HC  2

197      KK  ICD2
198      KM  REACH EXTENDS FROM X-SECT. .980 TO X-SECT. 2.370
199      RS  8  STORE -1
200      SV  0  17  37  51  103  165  262
201      SQ  0  185  371  741  1482  1853  2224

202      KK  FB18
203      KM  PERCENT PONDED AREA = 50%
204      BA  0.96
205      LU  0.75  0.1  1
206      UC  .54  6.03
    
```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

207 KK FB18  
 208 KM COMBINE 2 HYDROGRAPHS  
 \*  
 209 HC 2 21  
 210 KK ICD3  
 211 KM REACH EXTENDS FROM X-SECT. .120 TO X-SECT. .960  
 212 RS 2 STOR -1  
 213 SV 0 8 27 28 51 72 96  
 214 SQ 0 185 371 741 1482 1853 2224  
 \*

\* START TRIBUTARYS FB19 TO NODE2  
 \*

215 KK FB19  
 216 KM PERCENT PONDED AREA = 50%  
 217 BA 1.91  
 218 LU 0.75 0.1 1  
 219 UC 1.16 20.17

220 KK FB20  
 221 KM FB19 RTE TO FB20  
 222 RM 4.44 0.74 .1

223 KK FB20  
 224 KM PERCENT PONDED AREA = 50%  
 225 BA 1.01  
 226 LU 0.75 0.1 1  
 227 UC 0.38 11.11

228 KK FB20  
 229 KM COMBINE 2 HYDROGRAPHS  
 \*  
 230 HC 2 21

231 KK NODE2  
 232 KM FB19-20 RTE TO NODE2  
 233 RM 5.00 0.83 .1  
 \*

\* START TRIBUTARY FB21 TO NODE2  
 \*

234 KK FB21  
 235 KM PERCENT PONDED AREA = 50%  
 236 BA 1.17  
 237 LU 0.75 0.1 1  
 238 UC 1.14 17.60

239 KK NODE2  
 240 KM FB21 RTE TO NODE2  
 241 RM 5.56 0.93 .1

Flores Bayou 10 year flows FB\_10.IH1

HEC-1 INPUT

PAGE 8

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
242	KK NODE2
243	KM COMBINE 2 HYDROGRAPHS
	* 21
244	HC 2
245	KK FB22
246	KM NODE2 RTE TO FB22
247	RM 3.33 0.56 .1
248	KK FB22
249	KM PERCENT PONDED AREA = 50%
250	BA 1.16
251	LU 0.75 0.1 1
252	UC 1.16 20.71
253	KK FB22
254	KM COMBINE 2 HYDROGRAPHS
	* 21
255	HC 2
256	KK NODE3
257	KM NODE2 RTE TO NODE3
258	RM 3.33 0.56 .1
259	KK NODE3
260	KM COMBINE 2 HYDROGRAPHS
	* 21
261	HC 2
262	KK NODE4
263	KM NODE3 RTE TO NODE4
264	RM 3.33 0.56 .1
265	KK NODE4
266	KM COMBINE 2 HYDROGRAPHS
	* 21
267	HC 2
268	KK FB24
269	KM REACH EXTENDS FROM X-SECT. 2.050 TO X-SECT. 2.890
270	RS 6 STOR 0
271	SV 0 48 89 254 529 947 1285 1566
272	SQ 0 506 1012 2024 3036 4048 5060 6072
273	KK FB23
274	KM PERCENT PONDED AREA = 50%
275	BA 2.00
276	LU 0.75 0.1 1
277	UC 1.42 17.22

Flores Bayou 10 year flows FB\_10.IH1

HEC-1 INPUT

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
278	KK FB24
279	KM PERCENT PONDED AREA = 30%
280	BA 2.16
281	LU 0.75 0.1 1
282	UC 1.20 16.71
283	KK FB24
284	KM COMBINE 3 HYDROGRAPHS
	* 21
285	HC 3
286	KK FB25
287	KM REACH EXTENDS FROM X-SECT. .000 TO X-SECT. 2.030
288	RS 9 STOR 0
289	SV 0 111 180 397 649 911 1153 1394
290	SQ 0 528 1055 2111 3166 4222 5277 6332
291	KK FB25
292	KM PERCENT PONDED AREA = 50%
293	BA 1.49
294	LU 0.75 0.1 1
295	UC 9.33 39.72
296	KK FB25
297	KM COMBINE 2 HYDROGRAPHS
	* 1 1 1 21 1 300 1
298	HC 2
299	ZZ

```
*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   JUN 1998 *
*   VERSION 4.1 *
*
* RUN DATE 23AUG02 TIME 13:28:13 *
*
*****
```

```
*****
*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENT *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 756-1104 *
*
*****
```

FILE: FB\_10.IH1  
 BRAZORIA COUNTY MASTER DRAINAGE STUDY  
 10 YEAR FLOW RUNS  
 BAKER & LAWSON, DBR

6 IO OUTPUT CONTROL VARIABLES

```
IPRNT 5 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE
```

IT HYDROGRAPH TIME DATA

```
NMIN 10 MINUTES IN COMPUTATION INTERVAL
IDATE 20JUN 2 STARTING DATE
ITIME 1200 STARTING TIME
NQ 300 NUMBER OF HYDROGRAPH ORDINATES
NDDATE 22JUN 2 ENDING DATE
NDTIME 1350 ENDING TIME
ICENT 19 CENTURY MARK
```

```
COMPUTATION INTERVAL .17 HOURS
TOTAL TIME BASE 49.83 HOURS
```

ENGLISH UNITS

```
DRAINAGE AREA SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW CUBIC FEET PER SECOND
STORAGE VOLUME ACRE-FEET
SURFACE AREA ACRES
TEMPERATURE DEGREES FAHRENHEIT
```

\*\*\* \*\*

```
*****
*
* 125 KK *
*   FB05 *
*
*****
```

127 KO OUTPUT CONTROL VARIABLES

```
IPRNT 5 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE
IPNCH 0 PUNCH COMPUTED HYDROGRAPH
IOUT 21 SAVE HYDROGRAPH ON THIS UNIT
ISAV1 1 FIRST ORDINATE PUNCHED OR SAVED
ISAV2 300 LAST ORDINATE PUNCHED OR SAVED
TIMINT .167 TIME INTERVAL IN HOURS
```

Flores Bayou 10 year flows FB\_10.IH1

RUNOFF SUMMARY  
FLOW IN CUBIC FEET PER SECOND  
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	FB01	255.	15.17	248.	184.	112.	1.71		
ROUTED TO	FB02	254.	16.00	248.	184.	112.	1.71		
HYDROGRAPH AT	FB02	359.	14.67	345.	242.	143.	2.04		
2 COMBINED AT	FB02	610.	15.50	589.	425.	254.	3.75		
ROUTED TO	FB05	608.	17.33	586.	424.	251.	3.75		
HYDROGRAPH AT	FB03	289.	14.50	279.	197.	117.	1.69		
ROUTED TO	FB04	288.	15.17	278.	197.	117.	1.69		
HYDROGRAPH AT	FB04	169.	16.67	167.	133.	84.	1.44		
2 COMBINED AT	FB04	456.	15.50	444.	330.	201.	3.13		
ROUTED TO	FB05	455.	18.33	441.	328.	196.	3.13		
HYDROGRAPH AT	FB05	251.	15.83	245.	187.	115.	1.82		
3 COMBINED AT	FB05	1306.	17.83	1260.	932.	561.	8.70		
HYDROGRAPH AT	FB06	176.	15.33	173.	133.	83.	1.33		
ROUTED TO	FB07	176.	16.00	172.	133.	83.	1.33		
HYDROGRAPH AT	FB07	134.	15.50	131.	101.	62.	.99		
2 COMBINED AT	FB07	310.	15.83	304.	233.	145.	2.32		
ROUTED TO	NODE1	309.	16.50	303.	233.	144.	2.32		
HYDROGRAPH AT	FB08	510.	14.50	479.	309.	175.	2.37		
ROUTED TO	FB09	507.	15.83	476.	309.	174.	2.37		
HYDROGRAPH AT	FB09	152.	14.50	148.	110.	67.	1.02		
2 COMBINED AT	FB09	657.	15.83	621.	418.	242.	3.39		
ROUTED TO	NODE1	651.	18.33	616.	417.	238.	3.39		
HYDROGRAPH AT	FB10	192.	15.50	188.	143.	88.	1.38		
3 COMBINED AT	NODE1	1144.	18.17	1090.	788.	470.	7.09		
ROUTED TO	FB11	1142.	18.83	1088.	787.	467.	7.09		
HYDROGRAPH AT	FB11	165.	14.50	159.	112.	67.	.96		
2 COMBINED AT	FB11	1293.	18.67	1231.	894.	534.	8.05		
ROUTED TO	FB12	1286.	20.67	1226.	893.	524.	8.05		
HYDROGRAPH AT	FB12	265.	14.67	258.	189.	115.	1.72		
2 COMBINED AT	FB12	1514.	20.50	1444.	1064.	639.	9.77		
ROUTED TO	FB05	1513.	20.67	1443.	1064.	637.	9.77		
2 COMBINED AT	FB05	2762.	20.17	2651.	1993.	1199.	18.47		
DIVERSION TO	DIV1	406.	20.17	391.	308.	197.	18.47		
HYDROGRAPH AT	DIV1	2356.	20.17	2259.	1685.	1002.	18.47		
ROUTED TO	FB14	1930.	35.17	1902.	1595.	904.	18.47		

Flores Bayou 10 year flows FB\_10.IH1

HYDROGRAPH AT	FB14	641.	13.67	594.	362.	201.	2.65
2 COMBINED AT	FB14	2066.	34.50	2038.	1732.	1104.	21.12
ROUTED TO	FB15	2065.	35.17	2037.	1731.	1091.	21.12
HYDROGRAPH AT	FB15	155.	14.17	148.	101.	59.	.83
2 COMBINED AT	FB15	2117.	35.00	2088.	1784.	1151.	21.95
ROUTED TO	FB16	2041.	44.83	2018.	1676.	991.	21.95
HYDROGRAPH AT	FB16	259.	17.17	255.	206.	131.	2.33
2 COMBINED AT	FB16	2150.	44.67	2127.	1818.	1122.	24.28
ROUTED TO	NODE4	2148.	45.83	2126.	1785.	1078.	24.28
HYDROGRAPH AT	FB13	397.	17.17	391.	314.	200.	3.51
HYDROGRAPH AT	RET1	406.	20.17	391.	308.	197.	.00
2 COMBINED AT	COMB1	791.	19.67	771.	621.	397.	3.51
ROUTED TO	ICD1	732.	28.50	724.	620.	392.	3.51
HYDROGRAPH AT	FB17	92.	17.00	91.	75.	48.	.88
2 COMBINED AT	FB17	801.	28.00	793.	693.	440.	4.39
ROUTED TO	ICD2	801.	28.83	793.	693.	433.	4.39
HYDROGRAPH AT	FB18	412.	13.33	336.	152.	76.	.96
2 COMBINED AT	FB18	1011.	16.17	946.	808.	509.	5.35
ROUTED TO	ICD3	1006.	16.67	944.	808.	503.	5.35
HYDROGRAPH AT	FB19	294.	14.83	286.	210.	128.	1.91
ROUTED TO	FB20	294.	15.67	286.	210.	127.	1.91
HYDROGRAPH AT	FB20	262.	13.50	240.	142.	78.	1.01
2 COMBINED AT	FB20	543.	14.83	514.	349.	204.	2.92
ROUTED TO	NODE2	541.	15.83	512.	348.	203.	2.92
HYDROGRAPH AT	FB21	204.	14.50	196.	138.	82.	1.17
ROUTED TO	NODE2	203.	15.67	195.	138.	81.	1.17
2 COMBINED AT	NODE2	743.	15.83	707.	486.	284.	4.09
ROUTED TO	FB22	742.	16.50	706.	485.	283.	4.09
HYDROGRAPH AT	FB22	175.	14.83	171.	126.	77.	1.16
2 COMBINED AT	FB22	914.	16.33	872.	610.	360.	5.25
ROUTED TO	NODE3	912.	17.00	870.	609.	358.	5.25
2 COMBINED AT	NODE3	1915.	16.83	1814.	1417.	861.	10.60
ROUTED TO	NODE4	1909.	17.50	1811.	1415.	855.	10.60
2 COMBINED AT	NODE4	2812.	31.50	2808.	2729.	1933.	34.88
ROUTED TO	FB24	2810.	34.00	2802.	2725.	1830.	34.88
HYDROGRAPH AT	FB23	354.	14.67	340.	238.	140.	2.00
HYDROGRAPH AT	FB24	392.	14.50	376.	260.	153.	2.16
3 COMBINED AT	FB24	3308.	22.17	3251.	3070.	2123.	39.04



Flores Bayou 10 year flows FB\_10.IH1

ROUTED TO	FB25	3282.	25.50	3237.	3065.	1984.	39.04
HYDROGRAPH AT	FB25	125.	22.00	122.	104.	67.	1.49
2 COMBINED AT	FB25	3401.	25.50	3353.	3164.	2050.	40.53

\*\*\* NORMAL END OF HEC-1 \*\*\*

```

*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JUN 1998
*   VERSION 4.1
*
* RUN DATE 23AUG02 TIME 13:43:38
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
*   609 SECOND STREET
*   DAVIS, CALIFORNIA 95616
*   (916) 756-1104
*
*****

```

```

X   X XXXXXXXX XXXXX      X
X   X X      X   X      XX
X   X X      X           X
XXXXXXX XXXX  X           XXXXX X
X   X X      X           X
X   X X      X   X      X
X   X XXXXXXXX XXXXX      XXX

```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM



LINE	ID	1	2	3	4	5	6	7	8	9	10
27	KK	FB03									
28	KM	PERCENT PONDED AREA = 40%									
	*										21
29	BA	1.69									
30	LU	0.75	0.1	1							
31	UC	1.05	15.78								
32	KK	FB04									
33	KM	FB03 RTE TO FB04									
34	RM	3.5	0.60	.1							
35	KK	FB04									
36	KM	PERCENT PONDED AREA = 50%									
37	BA	1.44									
38	LU	0.75	0.1	1							
39	UC	2.46	24.01								
40	KK	FB04									
41	KM	COMBINE 2 HYDROGRAPHS									
	*										21
42	HC	2									
43	KK	FB05									
44	KM	FB03&04 RTE TO FB05									
45	RM	14.5	2.41	.1							
46	KK	FB05									
47	KM	PERCENT PONDED AREA = 50%									
48	BA	1.82									
49	LU	0.75	0.1	1							
50	UC	2.31	20.02								
51	KK	FB05									
52	KM	COMBINE 3 HYDROGRAPHS									
	*										21
53	HC	3									
	*										
	*	START TRIBUTARY FB06 TO NODE1									
	*										
54	KK	FB06									
55	KM	PERCENT PONDED AREA = 50%									
	*										21
56	BA	1.33									
57	LU	0.75	0.1	1							
58	UC	1.51	21.02								
59	KK	FB07									
60	KM	FB06 RTE TO FB07									
61	RM	2.8	0.46	.1							



Flores Bayou 25 year flows FB\_25.IH1

HEC-1 INPUT

PAGE 4

LINE	ID	1	2	3	4	5	6	7	8	9	10
97	KK	NOE1									
98	KM	COMBINE 3 HYDROGRAPHS									
	*									21	
99	HC	3									
100	KK	FB11									
101	KM	NOE1 RTE TO FB11									
102	RM	3.4	0.57	.1							
103	KK	FB11									
104	KM	PERCENT PONDED AREA = 50%									
	*	1									
105	BA	0.96									
106	LU	0.75	0.1	1							
107	UC	1.19	15.66								
108	KK	FB11									
109	KM	COMBINE 2 HYDROGRAPHS									
	*									21	
110	HC	2									
111	KK	FB12									
112	KM	FB06&11 RTE TO FB12									
113	RM	11.1	1.85	.1							
114	KK	FB12									
115	KM	PERCENT PONDED AREA = 50%									
116	BA	1.72									
117	LU	0.75	0.1	1							
118	UC	0.99	17.69								
119	KK	FB12									
120	KM	COMBINE 2 HYDROGRAPHS									
	*									21	
121	HC	2									
122	KK	FB05									
123	KM	FB06-12 RTE TO FB05									
124	RM	1	0.17	.1							
125	KK	FB05									
126	KM	COMBINE 2 HYDROGRAPHS									
	*	1	2							21	
127	HC	2									
128	KK	DIV1									
129	KM	FLOW SPLIT FB/ICD									
130	DT	DIV1									
131	DI	510	1020	2526	3289	5104					
132	DQ	175	275	500	600	800					

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

133 KK FB14  
 134 KM REACH EXTENDS FROM X-SECT. 8.020 TO X-SECT. 9.270  
 135 RS 8 STOR 0  
 136 SV 0 143 354 1178 2028 3293 4972 7141  
 137 SQ 0 380 760 1520 2279 3039 3799 4559  
 \*

138 KK FB14  
 139 KM PERCENT PONDED AREA = 45%  
 140 BA 2.65  
 141 LU 0.75 0.1 1  
 142 UC 0.57 10.53

143 KK FB14  
 144 KM COMBINE 2 HYDROGRAPHS  
 \* 21  
 145 HC 2

146 KK FB15  
 147 KM FB01-14 RTE TO FB15 (BUT NOT FB13)  
 148 RM 3.3 0.56 .1

149 KK FB15  
 150 KM PERCENT PONDED AREA = 50%  
 151 BA 0.83  
 152 LU 0.75 0.1 1  
 153 UC 0.81 14.27

154 KK FB15  
 155 KM COMBINE 2 HYDROGRAPHS  
 \* 21  
 156 HC 2

157 KK FB16  
 158 KM REACH EXTENDS FROM X-SECT. 5.050 TO X-SECT. 7.460  
 159 RS 11 STOR 0  
 160 SV 0 71 175 559 1145 1779 2512 3301  
 161 SQ 0 362 724 1448 2173 2897 3621 4345

162 KK FB16  
 163 KM PERCENT PONDED AREA = 45%  
 164 BA 2.33  
 165 LU 0.75 0.1 1  
 166 UC 2.85 25.69

167 KK FB16  
 168 KM COMBINE 2 HYDROGRAPHS  
 \* 21  
 169 HC 2

HEC-1 INPUT

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

170 KK NODE4  
 171 KM REACH EXTENDS FROM X-SECT. 3.850 TO X-SECT. 5.030  
 172 RS 5 STOR 0  
 173 SV 0 39 96 301 483 642 776 899  
 174 SQ 0 506 1012 2024 3036 4048 5060 6072

\*  
 \* START TRIBUTARY FB13 & FB17 TO NODE3  
 \*

175 KK FB13  
 176 KM PERCENT PONDED AREA = 50%  
 177 BA 3.51  
 178 LU 0.75 0.1 1  
 179 UC 2.83 24.95

180 KK RET1  
 181 KM FLOW SPLIT TO ICD  
 182 DR DIV1

183 KK COMB1  
 184 HC 2

185 KK ICD1  
 186 KM REACH EXTENDS FROM X-SECT. 2.400 TO X-SECT. 3.400  
 187 RS 6 STOR -1  
 188 SV 0 14 23 39 497 551 625  
 189 SQ 0 153 306 612 1224 1530 1836

190 KK FB17  
 191 KM PERCENT PONDED AREA = 50%  
 192 BA 0.88  
 193 LU 0.75 0.1 1  
 194 UC 1.68 27.58

195 KK FB17  
 196 KM COMBINE 2 HYDROGRAPHS  
 \* 21  
 197 HC 2

198 KK ICD2  
 199 KM REACH EXTENDS FROM X-SECT. .980 TO X-SECT. 2.370  
 200 RS 8 STORE -1  
 201 SV 0 17 37 51 103 165 262  
 202 SQ 0 185 371 741 1482 1853 2224

203 KK FB18  
 204 KM PERCENT PONDED AREA = 50%  
 205 BA 0.96  
 206 LU 0.75 0.1 1  
 207 UC 0.54 5.28



LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

208 KK FB18  
 209 KM COMBINE 2 HYDROGRAPHS  
 \*  
 210 HC 2 21

211 KK ICD3  
 212 KM REACH EXTENDS FROM X-SECT. .120 TO X-SECT. .960  
 213 RS 2 STOR -1  
 214 SV 0 8 27 28 51 72 96  
 215 SQ 0 185 371 741 1482 1853 2224

\* START TRIBUTARYS FB19 TO NODE2  
 \*

216 KK FB19  
 217 KM PERCENT PONDED AREA = 50%  
 218 BA 1.91  
 219 LU 0.75 0.1 1  
 220 UC 1.16 17.65

221 KK FB20  
 222 KM FB19 RTE TO FB20  
 223 RM 4.44 0.74 .1

224 KK FB20  
 225 KM PERCENT PONDED AREA = 50%  
 226 BA 1.01  
 227 LU 0.75 0.1 1  
 228 UC 0.38 9.72

229 KK FB20  
 230 KM COMBINE 2 HYDROGRAPHS  
 \*  
 231 HC 2 21

232 KK NODE2  
 233 KM FB19-20 RTE TO NODE2  
 234 RM 5.00 0.83 .1  
 \*  
 \* START TRIBUTARY FB21 TO NODE2  
 \*

235 KK FB21  
 236 KM PERCENT PONDED AREA = 50%  
 237 BA 1.17  
 238 LU 0.75 0.1 1  
 239 UC 1.14 15.40

240 KK NODE2  
 241 KM FB21 RTE TO NODE2  
 242 RM 5.56 0.93 .1





```

*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JUN 1998
*   VERSION 4.1
*
* RUN DATE 23AUG02 TIME 13:43:38
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENT
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****

```

```

FILE: FB_25.IH1
BRAZORIA COUNTY MASTER DRAINAGE STUDY
25 YEAR FLOW RUNS
BAKER & LAWSON, DBR

```

```

6 IO      OUTPUT CONTROL VARIABLES
          IPRNT      5  PRINT CONTROL
          IPLOT      0  PLOT CONTROL
          QSCAL      0.  HYDROGRAPH PLOT SCALE

```

```

IT        HYDROGRAPH TIME DATA
          NMIN      10  MINUTES IN COMPUTATION INTERVAL
          IDATE     20JUN 2  STARTING DATE
          ITIME     1200  STARTING TIME
          NQ        300  NUMBER OF HYDROGRAPH ORDINATES
          NDDATE    22JUN 2  ENDING DATE
          NDTIME    1350  ENDING TIME
          ICENT     19  CENTURY MARK

          COMPUTATION INTERVAL .17 HOURS
          TOTAL TIME BASE 49.83 HOURS

```

```

ENGLISH UNITS
DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH  INCHES
LENGTH, ELEVATION  FEET
FLOW               CUBIC FEET PER SECOND
STORAGE VOLUME     ACRE-FEET
SURFACE AREA       ACRES
TEMPERATURE        DEGREES FAHRENHEIT

```

Flores Bayou 25 year flows FB\_25.IH1

RUNOFF SUMMARY  
 FLOW IN CUBIC FEET PER SECOND  
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	FB01	341.	15.33	326.	236.	141.	1.71		
ROUTED TO	FB02	341.	16.17	325.	235.	140.	1.71		
HYDROGRAPH AT	FB02	478.	15.00	452.	306.	177.	2.04		
2 COMBINED AT	FB02	815.	15.50	771.	540.	317.	3.75		
ROUTED TO	FB05	811.	17.17	767.	539.	313.	3.75		
HYDROGRAPH AT	FB03	383.	14.83	364.	249.	146.	1.69		
ROUTED TO	FB04	383.	15.50	362.	249.	145.	1.69		
HYDROGRAPH AT	FB04	227.	16.17	220.	172.	107.	1.44		
2 COMBINED AT	FB04	609.	15.67	581.	421.	252.	3.13		
ROUTED TO	FB05	605.	18.33	576.	419.	246.	3.13		
HYDROGRAPH AT	FB05	336.	15.83	322.	239.	145.	1.82		
3 COMBINED AT	FB05	1733.	17.67	1645.	1189.	705.	8.70		
HYDROGRAPH AT	FB06	237.	15.50	228.	171.	105.	1.33		
ROUTED TO	FB07	236.	16.00	227.	171.	104.	1.33		
HYDROGRAPH AT	FB07	180.	15.50	173.	129.	79.	.99		
2 COMBINED AT	FB07	416.	15.83	399.	300.	183.	2.32		
ROUTED TO	NODE1	415.	16.33	399.	300.	182.	2.32		
HYDROGRAPH AT	FB08	674.	14.67	623.	387.	215.	2.37		
ROUTED TO	FB09	671.	15.83	619.	386.	214.	2.37		
HYDROGRAPH AT	FB09	204.	15.00	195.	141.	85.	1.02		
2 COMBINED AT	FB09	872.	15.83	808.	526.	299.	3.39		
ROUTED TO	NODE1	863.	18.33	801.	525.	295.	3.39		
HYDROGRAPH AT	FB10	258.	15.50	247.	183.	111.	1.38		
3 COMBINED AT	NODE1	1507.	18.00	1418.	1002.	588.	7.09		
ROUTED TO	FB11	1503.	18.50	1416.	1001.	585.	7.09		
HYDROGRAPH AT	FB11	220.	15.00	208.	142.	83.	.96		
2 COMBINED AT	FB11	1696.	18.50	1599.	1137.	668.	8.05		
ROUTED TO	FB12	1684.	20.50	1592.	1135.	657.	8.05		
HYDROGRAPH AT	FB12	354.	15.00	338.	241.	144.	1.72		
2 COMBINED AT	FB12	1978.	20.33	1874.	1353.	800.	9.77		
ROUTED TO	FB05	1977.	20.50	1873.	1353.	799.	9.77		
2 COMBINED AT	FB05	3591.	20.00	3442.	2540.	1504.	18.47		
DIVERSION TO	DIV1	633.	20.00	617.	495.	321.	18.47		
HYDROGRAPH AT	DIV1	2957.	20.00	2825.	2044.	1183.	18.47		
ROUTED TO	FB14	2329.	37.33	2305.	1921.	1072.	18.47		

Flores Bayou 25 year flows FB\_25.IH1

HYDROGRAPH AT	FB14	840.	13.67	769.	450.	245.	2.65
2 COMBINED AT	FB14	2452.	36.33	2435.	2072.	1317.	21.12
ROUTED TO	FB15	2451.	36.83	2435.	2072.	1302.	21.12
HYDROGRAPH AT	FB15	205.	14.50	194.	128.	73.	.83
2 COMBINED AT	FB15	2504.	36.50	2488.	2133.	1376.	21.95
ROUTED TO	FB16	2433.	46.67	2409.	1933.	1148.	21.95
HYDROGRAPH AT	FB16	346.	16.50	335.	266.	167.	2.33
2 COMBINED AT	FB16	2554.	46.33	2531.	2109.	1316.	24.28
ROUTED TO	NODE4	2547.	48.50	2507.	2013.	1222.	24.28
HYDROGRAPH AT	FB13	533.	16.50	516.	407.	255.	3.51
HYDROGRAPH AT	RET1	633.	20.00	617.	495.	321.	.00
2 COMBINED AT	COMB1	1136.	19.17	1114.	901.	576.	3.51
ROUTED TO	ICD1	1039.	29.33	1026.	885.	569.	3.51
HYDROGRAPH AT	FB17	124.	16.00	120.	97.	62.	.88
2 COMBINED AT	FB17	1124.	29.00	1111.	968.	631.	4.39
ROUTED TO	ICD2	1124.	29.83	1110.	968.	622.	4.39
HYDROGRAPH AT	FB18	534.	13.33	424.	184.	91.	.96
2 COMBINED AT	FB18	1186.	15.00	1153.	1078.	713.	5.35
ROUTED TO	ICD3	1176.	15.50	1152.	1078.	706.	5.35
HYDROGRAPH AT	FB19	394.	15.17	376.	268.	160.	1.91
ROUTED TO	FB20	393.	15.83	375.	268.	159.	1.91
HYDROGRAPH AT	FB20	344.	13.50	311.	176.	94.	1.01
2 COMBINED AT	FB20	720.	15.00	668.	440.	253.	2.92
ROUTED TO	NODE2	717.	15.83	665.	439.	252.	2.92
HYDROGRAPH AT	FB21	271.	14.83	257.	175.	102.	1.17
ROUTED TO	NODE2	271.	15.83	255.	174.	101.	1.17
2 COMBINED AT	NODE2	988.	15.83	921.	614.	353.	4.09
ROUTED TO	FB22	985.	16.50	918.	613.	351.	4.09
HYDROGRAPH AT	FB22	235.	15.17	224.	161.	96.	1.16
2 COMBINED AT	FB22	1214.	16.33	1136.	772.	448.	5.25
ROUTED TO	NODE3	1211.	17.00	1133.	772.	446.	5.25
2 COMBINED AT	NODE3	2331.	16.33	2196.	1847.	1152.	10.60
ROUTED TO	NODE4	2325.	17.00	2192.	1846.	1145.	10.60
2 COMBINED AT	NODE4	3435.	28.83	3414.	3338.	2367.	34.88
ROUTED TO	FB24	3408.	33.67	3391.	3331.	2219.	34.88
HYDROGRAPH AT	FB23	471.	15.00	445.	301.	174.	2.00
HYDROGRAPH AT	FB24	515.	14.83	486.	327.	189.	2.16
3 COMBINED AT	FB24	3829.	22.50	3805.	3698.	2582.	39.04

Flores Bayou 25 year flows FB\_25.IH1

ROUTED TO	FB25	3819.	25.67	3795.	3692.	2407.	39.04
HYDROGRAPH AT	FB25	165.	21.67	161.	137.	87.	1.49
2 COMBINED AT	FB25	3975.	25.67	3947.	3820.	2493.	40.53

\*\*\* NORMAL END OF HEC-1 \*\*\*

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*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   JUN 1998 *
*   VERSION 4.1 *
*
* RUN DATE 23AUG02 TIME 13:31:36 *
*
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*****
*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 756-1104 *
*
*****

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X   X XXXXXXX XXXXX   X
X   X X   X   X   X   XX
X   X X   X   X   X   X
XXXXXXX XXXX X   XXXXX X
X   X X   X   X   X   X
X   X X   X   X   X   X
X   X XXXXXXX XXXXX   XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM



Flores Bayou 100 year flows FB\_100.IH1

HEC-1 INPUT

PAGE 1

LINE	ID	1	2	3	4	5	6	7	8	9	10
1	ID	FILE: FB_100.IH1									
2	ID	BRAZORIA COUNTY MASTER DRAINAGE STUDY									
3	ID	100 YEAR FLOW RUNS									
4	ID	BAKER & LAWSON, DBR									
5	IT	10	20JUN02	1200	1000						
6	IO	5									
7	KK	FB01									
8	KM	PERCENT PONDED AREA = 50%									
	*										21
9	BA	1.71									
	* 2 YEAR STORM	5 MIN	15 MIN	60 MIN	2 HR	3 HR	6 HR	12 HR	24 HR		
	*	50	0	0.56	1.22	2.38	2.90	3.20	3.70	4.50	5.10
	* 5 YEAR STORM										
	*	20	0	0.63	1.38	2.82	3.70	4.10	5.00	6.00	7.00
	* 10 YEAR STORM										
	*	10	0	0.70	1.54	3.27	4.40	4.90	5.90	7.40	8.70
	* 25 YEAR STORM										
	*	4	0	0.77	1.71	3.71	5.00	5.60	7.00	8.20	10.00
	* 50 YEAR STORM										
	*	2	0	0.84	1.87	4.16	5.60	6.40	7.90	9.90	11.70
	* 100 YEAR STORM										
10	PH	1	0	0.91	2.02	4.62	6.20	7.15	8.75	10.75	13.00
11	LU	0.75	0.1	1							
12	UC	1.61	15.24								
13	KK	FB02									
14	KM	FB01 RTE TO FB02									
	*	0									
15	RM	4.5	0.74	.1							
16	KK	FB02									
17	KM	PERCENT PONDED AREA = 50%									
	*	0									
18	BA	2.04									
19	LU	0.75	0.1	1							
20	UC	1.50	12.59								
21	KK	FB02									
22	KM	COMBINE 2 HYDROGRAPHS									
	*	0									
23	HC	2									
24	KK	FB05									
25	KM	FB01&02 RTE TO FB05									
	*	0									
26	RM	10	1.6	.1							
	*										
	*	START TRIBUTARY FB03 TO FB05									
	*										

LINE	ID	1	2	3	4	5	6	7	8	9	10
27	KK	FB03									
28	KM	PERCENT PONDED AREA = 40%									21
	*										
29	BA	1.69									
30	LU	0.75	0.1	1							
31	UC	1.05	13.23								
32	KK	FB04									
33	KM	FB03 RTE TO FB04									
34	RM	3.5	0.60	.1							
35	KK	FB04									
36	KM	PERCENT PONDED AREA = 50%									
37	BA	1.44									
38	LU	0.75	0.1	1							
39	UC	2.46	19.95								
40	KK	FB04									
41	KM	COMBINE 2 HYDROGRAPHS									21
	*										
42	HC	2									
43	KK	FB05									
44	KM	FB03&04 RTE TO FB05									
45	RM	14.5	2.41	.1							
46	KK	FB05									
47	KM	PERCENT PONDED AREA = 50%									
48	BA	1.82									
49	LU	0.75	0.1	1							
50	UC	2.31	16.64								
51	KK	FB05									
52	KM	COMBINE 3 HYDROGRAPHS									21
	*										
53	HC	3									
	*										
	*	START TRIBUTARY FB06 TO NODE1									
	*										
54	KK	FB06									
55	KM	PERCENT PONDED AREA = 50%									21
	*										
56	BA	1.33									
57	LU	0.75	0.1	1							
58	UC	1.51	17.47								
59	KK	FB07									
60	KM	FB06 RTE TO FB07									
61	RM	2.8	0.46	.1							

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

62	KK	FB07								
63	KM	PERCENT PONDED AREA = 50%								
64	BA	0.99								
65	LU	0.75	0.1	1						
66	UC	1.66	17.04							
67	KK	FB07								
68	KM	COMBINE 2 HYDROGRAPHS								
	*								21	
69	HC	2								
70	KK	NODE1								
71	KM	FB06&07 RTE TO NODE1								
72	RM	3.3	0.56	.1						
	*									
	*	START TRIBUTARY FB08 TO NODE1								
	*									
73	KK	FB08								
74	KM	PERCENT PONDED AREA = 50%								
	*								21	
75	BA	2.37								
76	LU	0.75	0.1	1						
77	UC	1.66	9.96							
78	KK	FB09								
79	KM	FB08 RTE TO FB09								
80	RM	6.4	1.07	.1						
81	KK	FB09								
82	KM	PERCENT PONDED AREA = 50%								
83	BA	1.02								
84	LU	0.75	0.1	1						
85	UC	0.59	15.29							
86	KK	FB09								
87	KM	COMBINE 2 HYDROGRAPHS								
	*								21	
88	HC	2								
89	KK	NODE1								
90	KM	FB08&09 RTE TO NODE1								
91	RM	13.3	2.22	.1						
92	KK	FB10								
93	KM	PERCENT PONDED AREA = 50%								
94	BA	1.38								
95	LU	0.75	0.1	1						
96	UC	1.80	16.46							

LINE	ID	1	2	3	4	5	6	7	8	9	10
97	KK	NODE1									
98	KM	COMBINE 3 HYDROGRAPHS									
	*					21					
99	HC	3									
100	KK	FB11									
101	KM	NODE1 RTE TO FB11									
102	RM	3.4	0.57	.1							
103	KK	FB11									
104	KM	PERCENT PONDED AREA = 50%									
	*	1									
105	BA	0.96									
106	LU	0.75	0.1	1							
107	UC	1.19	13.02								
108	KK	FB11									
109	KM	COMBINE 2 HYDROGRAPHS									
	*					21					
110	HC	2									
111	KK	FB12									
112	KM	FB06&11 RTE TO FB12									
113	RM	11.1	1.85	.1							
114	KK	FB12									
115	KM	PERCENT PONDED AREA = 50%									
116	BA	1.72									
117	LU	0.75	0.1	1							
118	UC	0.99	14.70								
119	KK	FB12									
120	KM	COMBINE 2 HYDROGRAPHS									
	*					21					
	*	1	1		1	21	1	1000		1	
121	HC	2									
122	KK	FB05									
123	KM	FB06-12 RTE TO FB05									
124	RM	1	.17	.1							
125	KK	FB05									
126	KM	COMBINE 2 HYDROGRAPHS									
	*					21					
127	HC	2									
128	KK	DIV1									
129	KM	FLOW SPLIT FB/ICD									
130	DT	DIV1									
131	DI	510	1020	2526	3289	5104					
132	DQ	237	387	695	779	988					

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

133 KK FB14  
 134 KM REACH EXTENDS FROM X-SECT. 8.020 TO X-SECT. 9.270  
 135 RS 8 STOR 0  
 136 SV 0 143 354 1178 2028 3293 4972 7141  
 137 SQ 0 380 760 1520 2279 3039 3799 4559

138 KK FB14  
 139 KM PERCENT PONDED AREA = 45%  
 140 BA 2.65  
 141 LU 0.75 0.1 1  
 142 UC 0.57 8.78

143 KK FB14  
 144 KM COMBINE 2 HYDROGRAPHS  
 \* 21  
 145 HC 2

146 KK FB15  
 147 KM FB01-14 RTE TO FB15 (BUT NOT FB13)  
 148 RM 3.3 0.56 .1

149 KK FB15  
 150 KM PERCENT PONDED AREA = 50%  
 151 BA 0.83  
 152 LU 0.75 0.1 1  
 153 UC 0.81 11.86

154 KK FB15  
 155 KM COMBINE 2 HYDROGRAPHS  
 \* 21  
 156 HC 2

157 KK FB16  
 158 KM REACH EXTENDS FROM X-SECT. 5.050 TO X-SECT. 7.460  
 159 RS 11 STOR 0  
 160 SV 0 71 175 559 1145 1779 2512 3301  
 161 SQ 0 362 724 1448 2173 2897 3621 4345

162 KK FB16  
 163 KM PERCENT PONDED AREA = 45%  
 164 BA 2.33  
 165 LU 0.75 0.1 1  
 166 UC 2.85 21.44

167 KK FB16  
 168 KM COMBINE 2 HYDROGRAPHS  
 \* 21  
 169 HC 2

LINE	ID.....	1.....	2.....	3.....	4.....	5.....	6.....	7.....	8.....	9.....	10
170	KK	NODE4									
171	KM	REACH EXTENDS FROM X-SECT.				3.850 TO X-SECT.			5.030		
172	RS	5	STOR	0							
173	SV	0	39	96	301	483	642	776	899		
174	SQ	0	506	1012	2024	3036	4048	5060	6072		
	*	* START TRIBUTARY FB13 & FB17 TO NODE3									
	*										
175	KK	FB13									
176	KM	PERCENT PONDED AREA = 50%									
177	BA	3.51									
178	LU	0.75	0.1	1							
179	UC	2.83	20.74								
180	KK	RET1									
181	KM	FLOW SPLIT TO ICD									
182	DR	DIV1									
183	KK	COMB1									
184	HC	2									
185	KK	RCH 3									
186	KM	REACH EXTENDS FROM X-SECT.				2.400 TO X-SECT.			3.400		
187	RS	6	STOR	-1							
188	SV	0	14	23	39	497	551	625			
189	SQ	0	153	306	612	1224	1530	1836			
190	KK	FB17									
191	KM	PERCENT PONDED AREA = 50%									
192	BA	0.88									
193	LU	0.75	0.1	1							
194	UC	1.68	22.92								
195	KK	FB17									
196	KM	COMBINE 2 HYDROGRAPHS					21				
	*										
197	HC	2									
198	KK	RCH 2									
199	KM	REACH EXTENDS FROM X-SECT.				.980 TO X-SECT.			2.370		
200	RS	8	STORE	-1							
201	SV	0	17	37	51	103	165	262			
202	SQ	0	185	371	741	1482	1853	2224			
203	KK	FB18									
204	KM	PERCENT PONDED AREA = 50%									
205	BA	0.96									
206	LU	0.75	0.1	1							
207	UC	0.54	4.39								

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

208 KK FB18  
 209 KM COMBINE 2 HYDROGRAPHS  
 \* 21  
 210 HC 2  
 211 KK RCH 1  
 212 KM REACH EXTENDS FROM X-SECT. .120 TO X-SECT. .960  
 213 RS 2 STOR -1  
 214 SV 0 8 27 28 51 72 96  
 215 SQ 0 185 371 741 1482 1853 2224

\* START TRIBUTARYS FB19 TO NODE2  
 \*

216 KK FB19  
 217 KM PERCENT PONDED AREA = 50%  
 218 BA 1.91  
 219 LU 0.75 0.1 1  
 220 UC 1.16 14.67

221 KK FB20  
 222 KM FB19 RTE TO FB20  
 223 RM 4.44 0.74 .1

224 KK FB20  
 225 KM PERCENT PONDED AREA = 50%  
 226 BA 1.01  
 227 LU 0.75 0.1 1  
 228 UC 0.38 8.08

229 KK FB20  
 230 KM COMBINE 2 HYDROGRAPHS  
 \* 21  
 231 HC 2

232 KK NODE2  
 233 KM FB19-20 RTE TO NODE2  
 234 RM 5.00 0.83 .1  
 \*  
 \* START TRIBUTARY FB21 TO NODE2  
 \*

235 KK FB21  
 236 KM PERCENT PONDED AREA = 50%  
 237 BA 1.17  
 238 LU 0.75 0.1 1  
 239 UC 1.14 12.80

240 KK NODE2  
 241 KM FB21 RTE TO NODE2  
 242 RM 5.56 0.93 .1

LINE	ID	1	2	3	4	5	6	7	8	9	10
243	KK	NODE2									
244	KM	COMBINE 2 HYDROGRAPHS									
	*										
245	HC	2									
246	KK	FB22									
247	KM	NODE2 RTE TO FB22									
248	RM	3.33	0.56	.1							
249	KK	FB22									
250	KM	PERCENT PONDED AREA = 50%									
251	BA	1.16									
252	LU	0.75	0.1	1							
253	UC	1.16	15.06								
254	KK	FB22									
255	KM	COMBINE 2 HYDROGRAPHS									
	*										
256	HC	2									
257	KK	NODE3									
258	KM	NODE2 RTE TO NODE3									
259	RM	3.33	0.56	.1							
260	KK	NODE3									
261	KM	COMBINE 2 HYDROGRAPHS									
	*										
262	HC	2									
263	KK	NODE4									
264	KM	NODE3 RTE TO NODE4									
265	RM	3.33	0.56	.1							
266	KK	NODE4									
267	KM	COMBINE 2 HYDROGRAPHS									
	*										
268	HC	2									
269	KK	FB24									
270	KM	REACH EXTENDS FROM X-SECT. 2.050 TO X-SECT. 2.890									
271	RS	6	STOR	0							
272	SV	0	48	89	264	529	947	1285	1566		
273	SQ	0	506	1012	2024	3036	4048	5060	6072		
274	KK	FB23									
275	KM	PERCENT PONDED AREA = 50%									
276	BA	2.00									
277	LU	0.75	0.1	1							
278	UC	1.42	12.52								





```

*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   JUN 1998 *
*   VERSION 4.1 *
* RUN DATE 23AUG02 TIME 13:31:36 *
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENT *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 756-1104 *
*
*****

```

FILE: FB\_100.IH1  
 BRAZORIA COUNTY MASTER DRAINAGE STUDY  
 100 YEAR FLOW RUNS  
 BAKER & LAWSON, DBR

6 IO OUTPUT CONTROL VARIABLES

```

IPRNT      5 PRINT CONTROL
IPLOT      0 PLOT CONTROL
QSCAL     0. HYDROGRAPH PLOT SCALE

```

IT HYDROGRAPH TIME DATA

```

NMIN      10 MINUTES IN COMPUTATION INTERVAL
IDATE     20JUN 2 STARTING DATE
ITIME     1200 STARTING TIME
NQ        1000 NUMBER OF HYDROGRAPH ORDINATES
NDDATE    27JUN 2 ENDING DATE
NDTIME    1030 ENDING TIME
ICENT     19 CENTURY MARK

```

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COMPUTATION INTERVAL .17 HOURS
TOTAL TIME BASE 166.50 HOURS

```

ENGLISH UNITS

```

DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION  FEET
FLOW               CUBIC FEET PER SECOND
STORAGE VOLUME     ACRE-FEET
SURFACE AREA       ACRES
TEMPERATURE        DEGREES FAHRENHEIT

```

Flores Bayou 100 year flows FB\_100.IH1

RUNOFF SUMMARY  
FLOW IN CUBIC FEET PER SECOND  
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR 6-HOUR	MAXIMUM PERIOD 24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	FB01	529.	14.83	505.	352.	151.	1.71		
ROUTED TO	FB02	528.	15.83	504.	352.	151.	1.71		
HYDROGRAPH AT	FB02	739.	14.67	694.	451.	184.	2.04		
2 COMBINED AT	FB02	1257.	15.17	1187.	801.	335.	3.75		
ROUTED TO	FB05	1250.	17.00	1181.	800.	335.	3.75		
HYDROGRAPH AT	FB03	589.	14.33	556.	367.	152.	1.69		
ROUTED TO	FB04	588.	15.00	554.	367.	152.	1.69		
HYDROGRAPH AT	FB04	355.	16.00	345.	261.	121.	1.44		
2 COMBINED AT	FB04	940.	15.33	897.	628.	273.	3.13		
ROUTED TO	FB05	933.	18.00	889.	626.	273.	3.13		
HYDROGRAPH AT	FB05	522.	15.50	501.	360.	159.	1.82		
3 COMBINED AT	FB05	2674.	17.50	2539.	1777.	767.	8.70		
HYDROGRAPH AT	FB06	367.	15.00	355.	258.	115.	1.33		
ROUTED TO	FB07	367.	15.67	354.	258.	115.	1.33		
HYDROGRAPH AT	FB07	279.	15.17	269.	194.	86.	.99		
2 COMBINED AT	FB07	646.	15.50	622.	452.	202.	2.32		
ROUTED TO	NODE1	645.	16.00	621.	452.	202.	2.32		
HYDROGRAPH AT	FB08	1036.	14.50	945.	561.	217.	2.37		
ROUTED TO	FB09	1028.	15.67	939.	561.	217.	2.37		
HYDROGRAPH AT	FB09	316.	14.33	302.	210.	90.	1.02		
2 COMBINED AT	FB09	1338.	15.67	1232.	771.	307.	3.39		
ROUTED TO	NODE1	1320.	18.17	1221.	769.	307.	3.39		
HYDROGRAPH AT	FB10	400.	15.17	385.	275.	121.	1.38		
3 COMBINED AT	NODE1	2325.	17.83	2181.	1491.	629.	7.09		
ROUTED TO	FB11	2318.	18.50	2177.	1491.	629.	7.09		
HYDROGRAPH AT	FB11	340.	14.50	320.	210.	87.	.96		
2 COMBINED AT	FB11	2615.	18.33	2457.	1693.	716.	8.05		
ROUTED TO	FB12	2596.	20.33	2447.	1690.	716.	8.05		
HYDROGRAPH AT	FB12	549.	14.50	524.	359.	153.	1.72		
2 COMBINED AT	FB12	3046.	20.17	2878.	2019.	869.	9.77		
ROUTED TO	FB05	3044.	20.33	2877.	2019.	869.	9.77		
2 COMBINED AT	FB05	5540.	19.83	5303.	3793.	1636.	18.47		
DIVERSION TO	DIV1	1038.	19.83	1011.	832.	432.	18.47		
HYDROGRAPH AT	DIV1	4502.	19.83	4292.	2961.	1204.	18.47		
ROUTED TO	FB14	3143.	42.33	3117.	2712.	1204.	18.47		

Flores Bayou 100 year flows FB\_100.IH1

HYDROGRAPH AT	FB14	1288.	13.67	1156.	646.	243.	2.65
2 COMBINED AT	FB14	3217.	41.83	3197.	2861.	1446.	21.12
ROUTED TO	FB15	3216.	42.33	3196.	2860.	1446.	21.12
HYDROGRAPH AT	FB15	318.	14.17	296.	187.	75.	.83
2 COMBINED AT	FB15	3256.	42.17	3238.	2924.	1522.	21.95
ROUTED TO	FB16	3171.	53.00	3147.	2851.	1522.	21.95
HYDROGRAPH AT	FB16	538.	16.33	525.	406.	192.	2.33
2 COMBINED AT	FB16	3289.	52.50	3268.	3004.	1714.	24.28
ROUTED TO	NODE4	3284.	54.33	3263.	2998.	1714.	24.28
HYDROGRAPH AT	FB13	832.	16.33	809.	621.	291.	3.51
HYDROGRAPH AT	RET1	1038.	19.83	1011.	832.	432.	.00
2 COMBINED AT	COMB1	1830.	19.00	1795.	1452.	724.	3.51
ROUTED TO	RCH 3	1798.	22.67	1736.	1385.	724.	3.51
HYDROGRAPH AT	FB17	193.	15.83	189.	149.	72.	.88
2 COMBINED AT	FB17	1966.	22.50	1895.	1505.	796.	4.39
ROUTED TO	RCH 2	1934.	26.00	1880.	1504.	796.	4.39
HYDROGRAPH AT	FB18	791.	13.17	608.	259.	88.	.96
2 COMBINED AT	FB18	2032.	25.33	1981.	1592.	884.	5.35
ROUTED TO	RCH 1	2027.	26.17	1975.	1591.	884.	5.35
HYDROGRAPH AT	FB19	611.	14.50	582.	399.	170.	1.91
ROUTED TO	FB20	609.	15.50	580.	399.	170.	1.91
HYDROGRAPH AT	FB20	527.	13.50	466.	251.	93.	1.01
2 COMBINED AT	FB20	1101.	14.83	1016.	645.	263.	2.92
ROUTED TO	NODE2	1096.	15.67	1013.	644.	263.	2.92
HYDROGRAPH AT	FB21	420.	14.33	395.	258.	106.	1.17
ROUTED TO	NODE2	418.	15.50	393.	257.	106.	1.17
2 COMBINED AT	NODE2	1513.	15.67	1405.	902.	368.	4.09
ROUTED TO	FB22	1508.	16.33	1402.	901.	368.	4.09
HYDROGRAPH AT	FB22	363.	14.67	347.	240.	103.	1.16
2 COMBINED AT	FB22	1862.	16.17	1737.	1140.	471.	5.25
ROUTED TO	NODE3	1856.	16.83	1734.	1140.	471.	5.25
2 COMBINED AT	NODE3	3240.	24.17	3164.	2730.	1355.	10.60
ROUTED TO	NODE4	3237.	24.67	3163.	2729.	1355.	10.60
2 COMBINED AT	NODE4	5200.	25.67	5129.	4616.	3069.	34.88
ROUTED TO	FB24	5142.	29.50	5066.	4609.	3069.	34.88
HYDROGRAPH AT	FB23	728.	14.50	683.	443.	181.	2.00
HYDROGRAPH AT	FB24	784.	14.33	736.	477.	195.	2.16
3 COMBINED AT	FB24	5765.	28.83	5679.	5124.	3444.	39.04

Flores Bayou 100 year flows FB\_100.IH1

ROUTED TO	FB25	5737.	31.67	5663.	5120.	3444.	39.04
HYDROGRAPH AT	FB25	266.	21.67	260.	215.	110.	1.49
2 COMBINED AT	FB25	5948.	31.50	5874.	5318.	3554.	40.53

\*\*\* NORMAL END OF HEC-1 \*\*\*

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*****  
* HEC-2 WATER SURFACE PROFILES *  
* *  
* Version 4.6.2; May 1991 *  
* *  
* RUN DATE 23AUG02 TIME 10:16:52 *  
*****
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*****  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET, SUITE D *  
* DAVIS, CALIFORNIA 95616-4687 *  
* (916) 756-1104 *  
*****
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      X   X  XXXXXXXX  XXXXX          XXXXX  
      X   X  X        X   X          X   X  
      X   X  X        X                X  
XXXXXXX XXXX  X          XXXXX  XXXXX  
      X   X  X        X                X  
      X   X  X        X   X          X  
      X   X  XXXXXXXX  XXXXX          XXXXXXXX
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THIS RUN EXECUTED 23AUG02 10:16:52

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

T1FLORES BAYOU..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 T2REVISED EXISTING..... CONDITION MODEL 1973 DATUM ADJUSTMENT  
 T3FILE: FB\_BL\_R.IH2..... FEMA 10 YEAR  
 T3MODEL DRFLORES REVISED BY B&L,

NOTES \*\*\*\*\*  
 REVISED MODEL INCLUDES BAKER & LAWSON SURVEY SECTIONS AND REVISED  
 BRIDGE SECTIONS  
 MODEL KEYED IN FROM 21 JULY 1988 FEMA MODEL  
 ORIGINAL INPUT DATA PROVIDED BY BRAZORIA COUNTY FLOOD PLAIN ADMINISTRATOR  
 STARTING WATER SURFACE ELEVATION IS BACKWATER EFFECT FROM AUSTIN BAYOU

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	2							13.12	
J2	NPROF	IPLLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1							
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38	43	1	26	42	23	24	63	14	60
	39	4								
J5	LPRNT	NUMSEC	*****REQUESTED SECTION NUMBERS*****							
	-10	-10								
NC	.045	.045	0.050	.1	.3					
	10-YR	25-YR	100-YR							
QT	3	3401	3975	5948						
	SURVEYED CROSS-SECTION UPSTREAM OF CONFLUENCE WITH AUSTIN BAYOU									
	FIELD X-SECTION JUST BEFORE CONFLUENCE WITH AUSTIN BAYOU									
X1	0.00	11	10000	10112						
GR	13	9000	10	9970	6.77	10000	6.38	10018	1.59	10021
GR	-4.70	10048	1.22	10070	3.91	10072	4.40	10112	10	10412
GR	13	11412								
	X-SECTION F-14 FROM FEMA, HALF WAY BETWEEN CR 210 AND CONFLUENCE									
	1.03									

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FEMA X-SECTION F-14

X1	1.03	37	10000	10115	4000	4000	5411			
X3	10			8543	18	11849	15.0			
GR	12.	4707	12.	5198	12.4	5971	15.	6010	13.2	6072
GR	13.	6399	13.6	6631	13.8	7007	14.	7235	13.8	7611
GR	15.2	8490	18.	8543	15.	8593	15.	8837	14.2	9366
GR	12.4	9792	11.	9935	9.4	10000	6.2	10017	3.2	10032
GR	-3	10039	-3.1	10050	-3.1	10062	-4.	10074	-1.5	10085
GR	3.2	10096	8.6	10115	9.2	10242	12.6	10524	14.2	11021
GR	14.6	11357	15.0	11635	15.0	11849	14.4	12530	13.6	13043
GR	14.2	13776	14.6	14667						

BRIDGE DATA INPUT FOR CR 210 BRIDGE  
 SURVEYED SECTION AT 116 FEET DOWNSTREAM OF CR 210 IS FOR THE 4 SB SECTIONS  
 SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1996  
 SPECIAL BRIDGES SECTION 1  
 2.03

X1	2.03	10	10000	10095	4000	4000	5314			
GR	16.5	3000	9.21	10000	8.37	10025	5.68	10034	2.51	10051
GR	-3.31	10063	2.46	10081	10.14	10095	10.87	10135	16.5	15135

QT	3	3308	3829	5765						
NC	0.035	0.035	0.050	0.3	0.5					

SPECIAL BRIDGE SECTION 2  
 2.05

X1	2.05				97	97	97			0.1
X3	10							13.0		13.0

SB	1.05	1.6	2.6	0	8	2.3	711	3	-3.02	-3.32
----	------	-----	-----	---	---	-----	-----	---	-------	-------

SPECIAL BRIDGE SECTION 3  
 2.06

CR 210 BRIDGE

X1	2.06	10	10000	10081	28	28	28			
X2			1	12.0	14.0					
X3	10							14.0		14.0
X4	6	14.47	9740	14.3	9826	14.16	9914	13.98	10167	13.9
X4	10258	13.79	10343							
BT	-9	9740	14.47		9826	14.3		9914	14.16	
BT		10000	14.09		10040	13.99		10081	14.05	
BT		10167	13.98		10258	13.90		10343	13.79	
GR	16.5	3000	9.31	10000	8.47	10025	5.78	10034	2.61	10051
GR	-3.21	10063	2.56	10081	10.24	10095	10.97	10135	16.5	15135

SPECIAL BRIDGE SECTION 4  
 2.10

X1	2.10	35	10658	10740	277	277	277			
GR	15	5981	15	5982	15	6399	14.8	6804	14.8	7728
GR	14.9	8137	13.7	8570	13.7	9049	13.9	9420	13.1	9753
GR	13.3	10138	12.5	10320	11.1	10514	11.5	10658	5.3	10685
GR	-1.8	10715	5.3	10720	11.6	10740	12.3	10951	12.3	11071
GR	12.5	11231	13.1	11586	12.9	11936	13.1	12207	13.1	12442



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GR	13.2	12909	13.4	13839	13.8	14863	14	15399	14.2	16141
GR	14.5	16854	14.7	17134	15.3	17168	15.5	17286	16.7	17315
	2.10	10	10000	10081	277	277	277	0.1		
	16.5	3000	9.31	10000	8.47	10025	5.78	10034	2.61	10051
	-3.21	10063	2.56	10081	10.24	10095	10.97	10135	16.5	15135

NC 0.06 0.045 0.045 0.1 0.3  
 X-SECTION F-12 FROM FEMA, LEVEE FOR LAKE ON RIGHT OVERBANK FOR F-12 AND F-11  
 F-12 IS DOWNSTREAM OF CONFLUENCE OF IOWA COLONY DITCH AND FLORES  
 2.88

FEMA X-SECTION F-12, LEVEE FOR LAKE ON RIGHT OVERBANK

X1	2.88	25	10000	10160	3700.	4100.	4080.			
GR	18.1	5527	18.1	5528	18.1	5529	18.1	5530	16.1	5546
GR	16.9	6092	17.5	6475	17.5	6822	19.9	6860	17.9	6889
GR	17.2	7118	17.2	7393	17.2	8087	17.2	8648	16.8	8809
GR	13.8	9918	15.	10000	6.4	10024	.23	10036	.23	10048
GR	6.4	10060	15.	10088	15.2	10129	20.8	10160	20.8	10217

INSERTED X-SECTION AT NODE 4 OF HEC-1 MODEL  
 2.89

X1	2.89	25	10000	10160	3127	3127	3227			
GR	18.1	5527	18.1	5528	18.1	5529	18.1	5530	16.1	5546
GR	16.9	6092	17.5	6475	17.5	6822	19.9	6860	17.9	6889
GR	17.2	7118	17.2	7393	17.2	8087	17.2	8648	16.8	8809
GR	13.8	9918	15.	10000	6.4	10024	1.84	10036	1.84	10048
GR	6.4	10060	15.	10088	15.2	10129	20.8	10160	20.8	10217

X-SECTION F-11 FROM FEMA, F-12 AND F11 ARE BETWEEN CR 210 AND CR 171  
 F-11 IS UPSTRAEM OF CONFLUENCE BETWEEN IOWA COLONY DITCH AND FLORES  
 3.85

FEMA X-SECTION F-11, LEVEE FOR LAKE ON RIGHT OVERBANK

X1	3.85	23	10000	10086	1873	1873	1933			
GR	22.1	5272	22.1	5273	21.9	5601	21.9	6073	20.9	6448
GR	20.7	6739	20.7	6969	20.1	7414	18.1	7713	17.1	7867
GR	16.9	7921	18.3	8277	18.5	8736	18.9	9511	21.1	9566
GR	18.9	9612	18.9	9759	15.1	10000	7.3	10018	2.8	10036
GR	7.3	10053	22.5	10086	22.5	10118				

BRIDGE DATA INPUT FOR CR 171 BRIDGE  
 SURVEYED SECTION AT 80 FEET DOWNSTREAM OF CR 171 FOR 1ST & 2ND SB SECTIONS  
 SURVEYED SECTION AT 66 FEET UPSTREAM OF CR 171 FOR 3RD & 4TH SB SECTIONS  
 SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1996  
 SPECIAL BRIDGES SECTION 1  
 5.03

X1	5.03	11	10000	10070	4800	4800	6512			
GR	23	7400	20	8400	16.22	10000	11.25	10010	7.97	10025
GR	5.22	10034	8.79	10044	15.80	10070	17	11770	20	14000
GR	23	15000								

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NC				0.3	0.5					
SPECIAL BRIDGE SECTION 2										
QT	3	1909	2325	3237						
5.05										
X1	5.05				111	111	111			0.1
X3	10							19.9		19.9
SB	1.05	1.6	2.6	0	10	2.3	618	3	6.49	5.22

SPECIAL BRIDGE SECTION 3										
5.06										
CR 171 BRIDGE										
X1	5.06	13	10000	10163	24	24	24			
X2			1	19.6	20.8					
X3	10							20.8		20.8
BT	-9	9730	20.82		9818	20.66		9908		20.67
BT		10000	20.88		10040	20.89		10081		20.82
BT		10172	20.60		10263	20.46		10350		20.37
GR	23	7400	20	8400	17.04	10000	15.37	10043	8.06	10080
GR	6.49	10085	7.61	10094	10.84	10115	15.01	10130	17.16	10163
GR	17	11863	20	14000	23	15000				

SPECIAL BRIDGE SECTION 4										
5.11										
X1	5.11				277	277	277			0.1
NC	0.055	0.055	0.040	0.1	0.3					

RAILROAD BRIDGE NOT MODELLED - NO IMPACT ON WSEL

BRIDGE DATA INPUT FOR CR 207 BRIDGE (6TH STREET)  
 SURVEYED SECTION AT 125 FEET DOWNSTREAM OF CR 207 FOR 1ST & 2ND SB SECTIONS  
 SURVEYED SECTION AT 115 FEET UPSTREAM OF CR 207 FOR 3RD & 4TH SB SECTIONS  
 SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1996  
 SPECIAL BRIDGES SECTION 1

5.63										
X1	5.63	11	10000	10085	2800	3000	3033			
GR	23	7000	20	9577	18.11	9977	16.79	10000	10.68	10021
GR	8.23	10031	10.23	10043	12.65	10053	15.78	10085	20	10235
GR	23	12000								

NC				0.3	0.5					
SPECIAL BRIDGE SECTION 2										
5.64										
X1	5.64				88	88	88			0.1
X3	10							19.8		19.8

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SB 1.05 1.6 2.6 0 12 0.1 394 3 8.64 8.23

SPECIAL BRIDGE SECTION 3

5.65

CR 207 (6TH ST.)

X1	5.65	16	10000	10097	28	28	28			
X2			1	18.8	20.8					
X3	10							20.8	20.8	
BT	-5	9896	19.62		10000	20.82		10030	20.79	
BT		10060	20.89		10138	20.03				
GR	24.5	6000	20	9600	17.30	10000	16.10	10017	9.30	10039
GR	8.54	10053	10.88	10062	15.11	10072	17.19	10097	16.45	10112
GR	12.10	10116	16.92	10125	19.17	10148	19.31	10160	20	13160
GR	24.5	16000								

SPECIAL BRIDGE SECTION 4

5.70

X1 5.70 268 268 268 0.1 0.3 0.1

NC

.1 .3

X-SECTION F-8 FROM FEMA, 1/3 DIST BETWEEN CR 207 AND SH 35  
"J" IN MARGIN

6.23

FEMA X-SECTION F-8

X1	6.23	17	10000	10080	2750.	2850.	3060.			
GR	24.5	7000	23.6	8380	23.6	9102	21.6	9554	21.4	9798
GR	19.6	10000	17.2	10032	12.6	10055	11.	10060	10.	10064
GR	11.	10068	12.6	10072	19.4	10080	21.	10093	22.8	10131
GR	22.8	10145	24.5	13000						

X-SECTION F-7 FROM FEMA, 2/3 DIST BETWEEN CR 207 AND SH 35  
"K" IN MARGIN

6.77

FEMA X-SECTION F-7

X1	6.77	21	10000	10036	2860.	2860.	2860.			
GR	26.5	9120	26.	9121	26.	9124	24.6	9185	23.	9569
GR	22.	9783	22.2	9953	14.8	10000	11.4	10012	11.4	10024
GR	14.8	10036	21.4	10078	21.	10146	21.4	10436	22.2	10767
GR	22.4	10997	22.4	11173	22.8	11316	23.6	12245	26.0	12320
GR	26.5	12340								

BRIDGE DATA INPUT FOR SH 35 BRIDGE

SURVEYED SECTION AT 123 FEET DOWNSTREAM OF SH 35 FOR 1ST SB SECTIONS

SURVEYED SECTION AT 34 FEET DOWNSTREAM OF SH 35 FOR 2ND SB SECTIONS

SURVEYED SECTION AT 14 FEET UPSTREAM OF SH 35 FOR 3RD SB SECTIONS

SURVEYED SECTION AT 88 FEET UPSTREAM OF SH 35 FOR 4TH SB SECTIONS

SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1997

SPECIAL BRIDGES SECTION 1

7.34

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X1	7.34	7	10000	10061	2940	3000	3028			
GR	27.3	9300	18.61	10000	15.52	10022	13.43	10031	15.21	10042
GR	19.17	10061	27	12061						

NC 0.065 0.065 0.050 0.3 0.5

SPECIAL BRIDGE SECTION 2  
7.37

X1	7.37	6	10000	10048	147	147	147			
X3	10							28.5	28.5	
GR	27.83	9964	15.96	10000	12.51	10014	15.02	10028	19.47	10048
GR	28.51	10073								

SB 1.05 1.6 2.6 0 25 3 688 3 13.77 12.51

SPECIAL BRIDGE SECTION 3  
7.38

SH 35 BRIDGE

X1	7.38	6	10000	10077	44	44	44			
X2			1	26.3	29.5					
X3	10							29.5	29.5	
BT	-9	9720	29.19		9810	29.27		9905	29.55	
BT		10000	29.52		10052	29.75		10103	29.66	
BT		10198	29.66		10290	29.23		10379	28.81	
GR	27.92	9974	20.80	10000	14.80	10025	13.77	10063	16.77	10077
GR	28.23	10109								

SPECIAL BRIDGE SECTION 4  
7.46

X1	7.46	9	10000	10073	458	458	458			
GR	28	5000	25	9300	18.94	10000	16.19	10026	13.07	10036
GR	15.61	10044	20.13	10073	27	12073	28	15000		

NC 0.045 0.045 0.045 0.1 0.3

QT 3 2066 2452 3217

BRIDGE DATA INPUT FOR CR 46 BRIDGE

SURVEYED SECTION AT 93 FEET DOWNSTREAM OF CR 46 FOR 1ST SB SECTIONS  
 SURVEYED SECTION AT 14 FEET DOWNSTREAM OF CR 46 FOR 2ND SB SECTIONS  
 SURVEYED SECTION AT 14 FEET UPSTREAM OF CR 46 FOR 3RD SB SECTIONS  
 SURVEYED SECTION AT 58 FEET UPSTREAM OF CR 46 FOR 4TH SB SECTIONS  
 SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1994

SPECIAL BRIDGES SECTION 1  
8.02

X1	8.02	9	10000	10048	2600	2750	2936			
GR	27.7	5000	25	7500	20.64	10000	15.83	10008	14.29	10011
GR	15.98	10020	19.26	10048	25	11448	27.7	15000		

NC 0.3 0.5

SPECIAL BRIDGE SECTION 2  
8.04

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X1	8.04	9	10000	10066	109	109	109			
X3	10							24.3	24.3	
GR	27.7	5000	25	7500	21.65	10000	17.73	10016	14.65	10047
GR	16.32	10053	21.94	10066	25	11466	27.7	15000		

SB	1.05	1.6	2.6	0	10	1.2	440	4	14.29	13.97
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SPECIAL BRIDGE SECTION 3  
8.05

CR 46 BRIDGE

X1	8.05	9	10000	10076	28	28	28			
X2			1	23.9	25.1					
X3	10							25.1	25.1	
BT	-8	8752	25.3		9211	25.1		9698	25.1	
BT		9752	25.1		10000	25.1		10287	25.4	
BT		11053	25.2		11462	26				
GR	27.7	4500	25	7500	21.34	10000	15.72	10021	14.26	10029
GR	16.23	10036	21.37	10076	25	11476	27.8	15000		

SPECIAL BRIDGE SECTION 4  
8.11

X1	8.11	9	10000	10050	350	350	350			
GR	28.2	2000	25	7500	20.00	10000	16.46	10018	13.97	10023
GR	16.77	10042	20.21	10050	25	11450	28.2	16000		
NC				0.1	0.3					
QT	3	2356	2957	4502						

9.09

X1	9.09	13	10000	10035	4646	5227	5227			
GR	28.1	7963	26.1	9363	24.9	9830	19.3	10000	17.2	10007
GR	16.3	10009	17.7	10024	18.6	10028	21	10035	24.8	10048
GR	25.5	10068	26.7	11074	28.1	14451				

QT	3	2762	3591	5540						
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9.21

X1	9.21	13	10000	10035	522	587	587			
GR	28.1	7963	26.1	9363	24.9	9830	19.3	10000	17.2	10007
GR	16.54	10009	17.7	10024	18.6	10028	21	10035	24.8	10048
GR	25.5	10068	26.7	11074	28.1	14451				

QT	3	1306	1733	2674						
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9.24

X1	9.24	13	10000	10032	367	413	413			
GR	28	9103	26.3	9720	25.5	9925	19.2	10000	17.3	10005
GR	16.72	10006	18	10021	18.9	10025	21.2	10032	25.7	10044
GR	26.5	10063	27.1	11002	28	14155				

BRIDGE DATA INPUT FOR CR 45 BRIDGE  
 SURVEYED SECTION AT 57 FEET DOWNSTREAM OF CR 45 FOR 1ST SB SECTIONS  
 SURVEYED SECTION AT 15 FEET DOWNSTREAM OF CR 45 FOR 2ND SB SECTIONS  
 SURVEYED SECTION AT 14 FEET UPSTREAM OF CR 45 FOR 3RD SB SECTIONS  
 SURVEYED SECTION AT 66 FEET UPSTREAM OF CR 45 FOR 4TH SB SECTIONS  
 SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1994

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SPECIAL BRIDGES SECTION 1  
9.27

X1	9.27	9	10000	10031	465	523	523				
GR	28	9700	25.88	9975	19.09	10000	16.95	10005	18.16	10020	
GR	21.28	10031	26.16	10042	27.00	10060	28	14000			

NC 0.3 0.5

SPECIAL BRIDGE SECTION 2  
9.44

X1	9.44	8	10000	10053	88	88	88				
X3	10							26.95	26.95		
GR	28	9700	23.02	10000	18.91	10008	17.46	10021	19.17	10030	
GR	22.75	10053	26	11053	28	15000					

SB 1.05 1.6 2.6 0 30 3 516 3 17.5 16.9

SPECIAL BRIDGE SECTION 3  
9.45

CR 45 BRIDGE

X1	9.45	7	10000	10083	28	28	28				
X2			1	26.35	27.98						
X3	10							27.98	27.98		
X4	4	27.89	9755	27.68	9763	27.82	10172	27.62	10268		
BT	-7	9755	27.89		9763	27.68		10000	27.98		
BT		10044	27.98		10083	27.88		10172	27.82		
BT		10268	27.62								
GR	30	7500	27.98	10000	18.91	10008	17.46	10021	19.17	10030	
GR	27.88	10083	28	10553							

SPECIAL BRIDGE SECTION 4  
9.50

X1	9.50	10	10000	10067	268	268	268				
GR	30	7500	24.31	9975	21.87	10000	17.84	10017	16.66	10022	
GR	18.32	10032	21.28	10067	24.56	10112	28	10512	29	15000	

QT 3 455 605 1250  
NC 0.1 0.3

X-SECTION F-2 FROM FEMA, 1/3 DIST BETWEEN CR 45 AND CR 49  
10.18

FEMA X-SECTION F-2

X1	10.18	18	10000	10062	3200	2900	3550				
GR	32.	7654	31.	8091	29.6	8733	28.	9249	27.6	9865	
GR	27.	10000	21.	10014	19.2	10019	17.8	10027	19.2	10035	
GR	21.	10040	26.4	10062	26.4	10274	26.2	10866	26.4	11610	
GR	26.4	12016	26.4	12129	30.	15000					

X-SECTION F-1 FROM FEMA, 2/3 DIST BETWEEN CR 45 AND CR 49  
10.90

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FEMA X-SECTION F-1

X1	10.90	15	10000	10070	3600	3600	3800			
GR	32.6	8995	31.	9509	30.8	9884	29.8	10000	25.8	10030
GR	23.	10031	22.	10033	21.	10035	22.	10037	23.	10038
GR	25.8	10040	28.2	10070	29.6	10235	29.8	10478	30.6	11115

QT 3 254 341 528

BRIDGE DATA INPUT FOR CR 49 BRIDGE  
 SURVEYED SECTION AT 75 FEET DOWNSTREAM OF CR 49 FOR 1ST SB SECTIONS  
 SURVEYED SECTION AT 13 FEET DOWNSTREAM OF CR 49 FOR 2ND SB SECTIONS  
 SURVEYED SECTION AT 11 FEET UPSTREAM OF CR 49 FOR 3RD SB SECTIONS  
 SURVEYED SECTION AT 93 FEET UPSTREAM OF CR 49 FOR 4TH SB SECTIONS  
 SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1994  
 SPECIAL BRIDGES SECTION 1

11.90

X1	11.90	11	10000	10059	5200	5200	5318			
GR	35	7200	31.99	9987	30.45	10000	28.18	10008	26.02	10026
GR	28.55	10050	31.11	10059	31.54	10069	35	11569	35.2	12069
GR	37	12089								

NC 0.045 0.075 0.045 0.3 0.5

SPECIAL BRIDGE SECTION 2

11.91

X1	11.91	9	10000	10047	74	74	74			
X3	10							34	34	
GR	35.2	7000	35.10	10000	28.98	10001	26.90	10028	28.81	10047
GR	34	10052	35	11552	35.2	12052	37	12072		

SB 1.05 1.6 2.6 0 45 2 400 .1 26.9 26.74

SPECIAL BRIDGE SECTION 3

11.92

CR 49 BRIDGE

X1	11.92	9	10000	10050	24	24	24			
X2			1	34.0	35.2					
X3	10							34.6	34.6	
X4	7	33.18	9728	32.95	9822	33.23	9911	34.96	10050	33.7
X4	10141	33.41	10236	33.59	10330					
BT	-9	9728	33.18		9822	32.95		9911	33.23	
BT		10000	35.08		10022	35.19		10050	34.96	
BT		10141	33.70		10236	33.41		10330	33.59	
GR	35.1	7200	35.08	10000	29.6	10000	28.9	10017	26.9	10033
GR	28.7	10050	34.96	10050	35.2	11237	37	11257		

SPECIAL BRIDGE SECTION 4

11.96

X1	11.96	10	10000	10066	224	224	224			
GR	35	7200	34.15	9993	34.00	10000	28.14	10019	25.73	10029
GR	28.60	10052	34.54	10066	35.13	10079	35.2	11279	37	11299

BEGIN THE IOWA COLONY DITCH (BIG DITCH) TRIBUTARY

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NC	0.06	0.045	0.045	.1	.3					
QT	3	1915	2331	3240						
X-SECTION F-12 FROM FEMA, LEVEE FOR LAKE ON RIGHT OVERBANK FOR F-12 AND F-11										
X1	-2.88	25	10000	10160						
GR	18.1	5527	18.1	5528	18.1	5529	18.1	5530	16.1	5546
GR	16.9	6092	17.5	6475	17.5	6822	19.9	6860	17.9	6889
GR	17.2	7118	17.2	7393	17.2	8087	17.2	8648	16.8	8809
GR	13.8	9918	15.	10000	6.4	10024	1.	10036	1.	10048
GR	6.4	10060	15.	10088	15.2	10129	20.8	10160	20.8	10217

NC	0.045	0.045	0.045							
X-SECTION F-12 FROM FEMA COPIED FOR SECTION JUST UPSTREAM ON TRIBUTARY FLOWS REDUCED FOR TRIBUTARY FLOW ONLY										
QT	3	1006	1176	2027						
IOWA COLONY DITCH (ICD) 100' U.S. OF FLORES										
X1	0.02	25	10000	10160	100	100	100			
GR	18.1	5527	18.1	5528	18.1	5529	18.1	5530	16.1	5546
GR	16.9	6092	17.5	6475	17.5	6822	19.9	6860	17.9	6889
GR	17.2	7118	17.2	7393	17.2	8087	17.2	8648	16.8	8809
GR	13.8	9918	15.	10000	6.4	10024	1.	10036	1.	10048
GR	6.4	10060	15.	10088	15.2	10129	20.8	10160	20.8	10217

INSERT HEC-RAS INTERPOLATED X-SECTION

X1	0.12	28	10000	10184	2650	2400	2493			
GR	20.6	6464	20.6	6466	19.5	6479	19.5	6910	19.4	7213
GR	19.1	7487	20.3	7517	19.3	7540	18.7	7721	18.6	7824
GR	18.6	7939	18.4	8488	18.3	8931	16.3	9935	16.9	10000
GR	11.2	10047	10.2	10054	4.5	10068	3.2	10071	3.2	10077
GR	6.2	10088	9.8	10107	12.1	10115	15.8	10143	16	10154
GR	19.1	10184	20.4	12103	21.9	12609				

SURVEYED CROSS-SECTION 91 FEET DOWNSTREAM OF CR 171

XS 1 OF SB

ICD 171' D.S. OF CR 171										
X1	0.94	11	10000	10208	2650	2400	2493			
GR	23	7400	20	8400	18.71	10000	15.57	10081	7.34	10102
GR	5.37	10106	7.09	10135	16.49	10169	17.39	10208	20	14000
GR	23	15000								

NC				.3	.5					
XS 2 OF SB										
X1	.96			100	100	100				
X3	10									

SB	1.05	1.6	2.6	0	17	2.33	621	2.8	6.7	6.7
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XS 3 OF SB



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X1	.97	18	10088	10167	28	28	28			
X2			1	19.5	20.7					
X3	10									
BT	6	10000	20.6		10013	20.8		10054	20.7	
BT	10094	20.8		10188	20.6		10284	20.4		
GR	23	7400	20	8400	20.6	10000	20.8	10013	19.5	10088
GR	16.7	10088	14.7	10102	11.7	10114	6.7	10120	6.7	10137
GR	12.2	10147	15.7	10157	18.2	10167	19.5	10167	20.6	10188
GR	20.4	10284	20	14000	23	15000				

NC .1 .3

XS 4 OF SB

X1	.98	11	10000	10208	100	100	100			
GR	23	7400	20	8400	18.71	10000	15.57	10081	7.34	10102
GR	5.37	10106	7.09	10135	16.49	10169	17.39	10208	20	14000
GR	23	15000								

SURVEYED CROSS-SECTION 84' DOWNSTREAM OF CR 207

XS 1 OF SB

ICD 84' D.S. OF CR 207

X1	1.48	10	10000	10085	2810	2810	2810			
GR	23	8000	20	9765	20.05	10000	17.77	10015	9.63	10036
GR	9.04	10051	10.61	10059	22.42	10085	22.14	10118	23	11000

NC .3 .5

XS 2 OF SB

X1	1.50				100	100	100			
X3	10									

SB	1.05	1.6	2.6	0	13	1.2	246	.5	9.6	9.6
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XS 3 OF SB

X1	1.51	16	10031	10054	21	21	21			
X2			1	21.5	22.9					
X3	10									
BT	10	9505	22.1		9853	21.7		9939	21.6	
BT	10027	22.9		10040	22.9		10054	23		10150
BT	22.2		10242	21.9		10335	22		10422	21.8
BT										
GR	23	8000	22.1	9505	21.7	9853	21.6	9939	22.9	10027
GR	21.5	10031	14.9	10031	9.6	10037	9.6	10048	14.4	10054
GR	21.5	10054	22.2	10150	21.9	10242	22	10335	21.8	10422
GR	23	11000								

NC .1 .3

XS 4 OF SB

X1	1.52	10	10000	10085	100	100	100			
GR	23	8000	20	9765	20.05	10000	17.77	10015	9.63	10036
GR	9.04	10051	10.61	10059	22.42	10085	22.14	10118	23	11000

INSERT HEC-RAS INTERPOLATED X-SECTION

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X1	2.00	15	10000	10097	2110	2110	2110			
GR	24.3	7750	22.6	9736	22.6	10000	20.5	10020	19.8	10023
GR	12.2	10047	12	10048	11	10068	13.4	10074	15.8	10079
GR	23.3	10097	24.2	10117	23.9	10130	22.8	10186	23.5	11000

SURVEYED CROSS-SECTION 120' DOWNSTREAM OF SH 35  
XS 1 OF SC

ICD 120' D.S. OF SH 35										
X1	2.37	10	10000	10109	2110	2110	2110			
GR	25.5	7500	25.11	10000	22.82	10029	14.39	10058	12.86	10084
GR	18.39	10094	24.12	10109	26.24	10129	23.37	10197	24	11000

QT	3	801	1124	1966						
NC				.3	.5					

XS 2 OF SC

X1	2.39				100	100	100			
X3	10									

SC	3.014	.5	2.6	0	6	7	44	8.1	12.9	12.8
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XS 3 OF SC

X1	2.40	17	10000	10109	44	44	44			
X2			2		26					
X3	10									
BT	12	9582	26.2		9676	26.2		9770	26	
BT	9865	26		9960	26.2		10055	26.2		10087
BT	26.2		10111	26.1		10202	25.8		10295	25.5
BT		10386	25.3		10478	25.2				
GR	25.3	8250	26.2	9582	26.2	9676	26	9770	26	9865
GR	26.2	9960	25.11	10000	22.82	10029	14.39	10058	12.86	10084
GR	18.39	10094	24.12	10109	26.1	10111	25.8	10202	25.5	10295
GR	25.3	10386	25.2	10478						

NC				.1	.3					
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XS 4 OF SC

X1	2.42	10	10000	10109	100	100	100			
GR	25.5	7500	25.11	10000	22.82	10029	14.39	10058	12.86	10084
GR	18.39	10094	24.12	10109	26.24	10129	23.37	10197	24	11000

INSERT HEC-RAS INTERPOLATED X-SECTION

X1	3.00	13	10000	10112	2708	2708	2708			
GR	25.3	8250	24.7	10000	23.6	10025	20.4	10044	14.3	10067
GR	13.5	10072	15.7	10083	18.33	10088	21.5	10093	24.5	10112
GR	25.6	10131	24.1	10199	24.5	11000				

SURVEYED CROSS-SECTION 28' DOWNSTREAM OF CR 621  
XS 1 OF SB

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ICD 28' D.S. OF CR 621										
X1	3.40	9	10000	10114	2708	2708	2708			
GR	25	9000	24.32	10000	24.35	10036	15.37	10055	14.09	10059
GR	14.52	10075	23.28	10089	24.89	10114	25	11000		
QT	3	732	1039	1716						
NC				.3	.5					
XS 2 OF SB										
X1	3.42				100	100	100			
X3	10									
SB	1.05	1.6	2.6	0	18	1.5	376	2.1	15	15
XS 3 OF SB										
X1	3.43	12	10036	10094	16	16	16			
X2			1	25.3	26.7					
X3	10									
BT	8	9682	25.3		9773	25.1		9863	24.7	
BT	9956	25		10046	26.7		10064	26.9		10083
BT	27		10114	27						
GR	25	9000	25.3	9682	25.1	9773	24.7	9863	25	9956
GR	25.3	10036	24.4	10036	15	10056	15	10074	24.4	10094
GR	25.3	10094	27	10114						
NC				.1	.3					
XS 4 OF SB										
X1	3.44	9	10000	10114	100	100	100			
GR	25	9000	24.32	10000	24.35	10036	15.37	10055	14.09	10059
GR	14.52	10075	23.28	10089	24.89	10114	25	11000		
INSERT HEC-RAS INTERPOLATED X-SECTION										
X1	5.00	14	10025	10108	1531	1531	1531			
GR	26.5	9000	25.4	9976	25.1	10025	22.3	10050	18.4	10058
GR	15.9	10063	14.7	10066	14.7	10072	16.3	10082	21.9	10091
GR	24.9	10108	25.7	10120	25.7	10139	26.5	12500		
QT	3	1513	1977	3044						
NC	0.045	.035	0.045							
X1	-9.21	12	10025	10108	1531	1531	1531			
GR	26.5	9000	25.4	9976	25.1	10025	22.3	10050	18.4	10058
GR	16.54	10066	16.54	10072	21.9	10091	24.9	10108	25.7	10120
GR	25.7	10139	26.5	12500						
XS 1 OF SB										
ICD 46' D.S. OF CR 45										
X1	4.32	10	10000	10124	714	714	714			
GR	28	9000	27.03	10000	26.26	10053	19.28	10071	17.43	10075
GR	20.27	10088	25.30	10104	28.26	10124	26.47	10152	28	14000

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NC				.3		.5				
XS 2 OF SB										
X1	4.34				100	100	100			
X3	10									
SB	1.05	1.6	2.6	0	43	3	467	2.3	18.3	18.3
XS 3 OF SB										
X1	4.35	19	10046	10134	28	28	28			
X2			1	27.8	29					
X3	10									
BT	9	9690	28.7		9779	28.7		9870	28.8	
BT	9959	29		10051	29.2		10081	29.3		10113
BT	29.4		10202	28.3		10295	28.1			
GR	28	9000	28.7	9690	28.7	9779	28.8	9870	29	9959
GR	27.8	10046	23.7	10046	21	10052	19.4	10060	18.3	10069
GR	17.9	10075	18	10112	20.6	10119	22.6	10127	23.7	10134
GR	27.8	10134	28.3	10202	28.1	10295	28	14000		
NC				.1		.3				
XS 4 OF SB										
SURVEYED CROSS-SECTION 46' UPSTREAM OF CR 45										
X1	4.36	10	10000	10124	100	100	100			
GR	28	9000	27.03	10000	26.26	10053	19.28	10071	17.43	10075
GR	20.27	10088	25.30	10104	28.26	10124	26.47	10152	28	14000
INSERT HEC-RAS INTERPOLATED X-SECTION										
X1	4.00	14	10000	10111	2886	2886	2886			
GR	31	7500	29.7	10000	28.2	10043	27.1	10052	23.7	10064
GR	21.7	10070	20.3	10074	21.9	10084	22.1	10085	26.4	10096
GR	30.4	10111	29.6	10139	29.6	10149	31	14000		
QT	3	1293	1696	2615						
SURVEYED CROSS-SECTION 50' DOWNSTREAM OF A PRIVATE ROAD										
ICD 50' D.S. OF EXTENSION OF CR 49										
X1	5.41	9	10000	10097	2886	2886	2886			
GR	34	6000	32.45	10000	30.02	10042	25.62	10063	23.15	10073
GR	23.59	10080	32.62	10097	32.77	10136	34	14000		
INSERT HEC-RAS INTERPOLATED X-SECTION										
X1	5.00	13	10011	10100	2665	2665	2665			
GR	34.3	6667	33.4	9533	33.3	10011	30.4	10048	29.1	10054
GR	26.5	10067	24.4	10077	24.9	10083	27	10087	33.5	10100
GR	33.6	10132	33.9	10513	34.2	13337				
INSERT HEC-RAS INTERPOLATED X-SECTION										
X1	6.00	13	10021	10102	2665	2665	2665			
GR	34.5	7333	34.2	9637	34.2	10021	30.8	10054	29.6	10059
GR	27.4	10071	25.6	10079	26.3	10086	28.1	10090	34.4	10102
GR	34.5	10129	34.8	10435	34.4	12733				
INSERT HEC-RAS INTERPOLATED X-SECTION										

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X1	7.00	13	10032	10105	2665	2665	2665			
GR	34.8	8000	35	9741	35	10032	31.2	10060	30.1	10065
GR	28.3	10075	26.8	10082	27.6	10088	29.2	10093	35.3	10105
GR	35.4	10125	35.8	10357	34.7	12100				

INSERT HEC-RAS INTERPOLATED X-SECTION

X1	8.00	13	10042	10108	2665	2665	2665			
GR	35	8667	35.8	9846	35.9	10042	31.6	10066	30.5	10070
GR	29.1	10079	28	10084	29	10091	30.3	10095	36.2	10108
GR	36.2	10121	36.8	10279	34.9	11467				

INSERT HEC-RAS INTERPOLATED X-SECTION

X1	9.00	13	10053	10110	2665	2665	2665			
GR	35.3	9333	36.5	9950	36.8	10053	31.9	10072	31	10076
GR	30	10082	29.2	10087	30.3	10094	31.3	10098	37	10110
GR	37.1	10118	37.7	10202	35.1	10833				

QT 3 176 237 367  
 SURVEYED CROSS-SECTION 668' DOWNSTREAM OF DAM AT AUSTIN BAYOU  
 ICD D.S. OF THE DAM SOUTH OF AUSTIN BAYOU

X1	8.44	9	10063	10113	2664	2664	2664			
GR	35.56	10000	37.31	10054	37.62	10063	31.49	10081	30.45	10090
GR	32.40	10101	37.91	10113	38.69	10124	35.31	10200		

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T1FLORES BAYOU..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2REVISED EXISTING..... CONDITION MODEL 1973 DATUM ADJUSTMENT  
T3FILENAME: DRFLORES.IH2..... 25 YEAR FREQUENCY  
T3MODEL REVISED BY B&L, INC.

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3							14.14	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							

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T1FLORES BAYOU..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2REVISED EXISTING..... CONDITION MODEL 1973 DATUM ADJUSTMENT  
T3FILENAME: DRFLORES.IH2..... 100 YEAR FREQUENCY  
T3MODEL REVISED BY B&L, INC.

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		4							15.24	
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1							

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

DRFLORES REVISED BY B&L,

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
.000	3401.00	13.12	.92	-4.70	6.77	4.40	13.00	1150.82	33.84	.00	2412.00	
.000	3975.00	14.14	.75	-4.70	6.77	4.40	13.00	1025.93	25.81	.00	2412.00	
.000	5948.00	15.24	.82	-4.70	6.77	4.40	13.00	1219.08	20.50	.00	2412.00	
*	1.030	3401.00	13.40	1.56	-4.00	9.40	8.60	14.60	2088.67	61.41	5411.00	1218.68
*	1.030	3975.00	14.31	1.41	-4.00	9.40	8.60	14.60	2028.18	51.02	5411.00	1827.13
*	1.030	5948.00	15.41	1.41	-4.00	9.40	8.60	14.60	2209.64	37.15	5411.00	6080.87
*	2.030	3401.00	13.60	.55	-3.31	9.21	10.14	16.50	478.48	14.07	5314.00	6781.44
*	2.030	3975.00	14.43	.43	-3.31	9.21	10.14	16.50	403.75	10.16	5314.00	8315.12
*	2.030	5948.00	15.51	.41	-3.31	9.21	10.14	16.50	426.72	7.17	5314.00	10297.81
	2.050	3308.00	13.61	.46	-3.21	9.31	10.24	16.60	389.54	11.78	97.00	6609.11
	2.050	3829.00	14.43	.34	-3.21	9.31	10.24	16.60	320.65	8.37	97.00	8138.78
	2.050	5765.00	15.51	.32	-3.21	9.31	10.24	16.60	336.42	5.84	97.00	10120.44
*	2.060	3308.00	14.01	2.89	-3.21	9.31	2.56	16.50	2273.35	68.72	28.00	822.21
*	2.060	3829.00	14.77	2.47	-3.21	9.31	2.56	16.50	2092.97	54.66	28.00	3319.17
*	2.060	5765.00	15.76	1.69	-3.21	9.31	2.56	16.50	1566.09	27.17	28.00	8431.15
*	2.100	3308.00	14.18	.95	-1.80	11.50	11.60	15.00	672.88	20.34	277.00	7685.36
*	2.100	3829.00	14.86	.57	-1.80	11.50	11.60	15.00	435.22	11.37	277.00	10251.94
*	2.100	5765.00	15.79	.43	-1.80	11.50	11.60	15.00	357.04	6.19	277.00	11311.84
*	2.880	3308.00	14.65	4.95	.23	15.00	20.80	18.10	3218.56	97.30	4080.00	457.73
*	2.880	3829.00	14.82	5.52	.23	15.00	20.80	18.10	3670.24	95.85	4080.00	530.54
*	2.880	5765.00	15.57	6.37	.23	15.00	20.80	18.10	4781.84	82.95	4080.00	867.54
*	2.890	3308.00	17.01	2.03	1.84	15.00	20.80	18.10	1841.52	55.67	3227.00	2034.17
*	2.890	3829.00	17.30	2.01	1.84	15.00	20.80	18.10	1905.26	49.76	3227.00	3865.10
*	2.890	5765.00	18.07	1.88	1.84	15.00	20.80	18.10	1986.70	34.46	3227.00	4559.23



	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	3.850	3308.00	17.85	4.31	2.80	15.10	22.50	22.10	2971.84	89.84	1933.00	663.49
*	3.850	3829.00	18.12	4.65	2.80	15.10	22.50	22.10	3302.12	86.24	1933.00	791.49
*	3.850	5765.00	18.76	5.61	2.80	15.10	22.50	22.10	4261.58	73.92	1933.00	1951.71
*	5.030	3308.00	18.96	.99	5.22	16.22	15.80	23.00	592.67	17.92	6512.00	4390.34
*	5.030	3829.00	19.24	.98	5.22	16.22	15.80	23.00	604.70	15.79	6512.00	4707.60
*	5.030	5765.00	19.96	1.02	5.22	16.22	15.80	23.00	679.63	11.79	6512.00	5551.93
*	5.050	1909.00	18.89	3.26	5.32	16.32	15.90	23.10	1909.00	100.00	111.00	70.00
*	5.050	2325.00	19.13	3.86	5.32	16.32	15.90	23.10	2325.00	100.00	111.00	70.00
	5.050	3237.00	19.97	.60	5.32	16.32	15.90	23.10	394.95	12.20	111.00	5443.83
	5.060	1909.00	18.89	2.05	6.49	17.04	17.16	23.00	1909.00	100.00	24.00	163.00
	5.060	2325.00	19.13	2.39	6.49	17.04	17.16	23.00	2325.00	100.00	24.00	163.00
*	5.060	3237.00	20.53	2.70	6.49	17.04	17.16	23.00	3237.00	100.00	24.00	163.00
*	5.110	1909.00	19.10	.60	6.59	17.14	17.26	23.10	566.23	29.66	277.00	4343.50
*	5.110	2325.00	19.41	.59	6.59	17.14	17.26	23.10	593.00	25.51	277.00	4734.73
*	5.110	3237.00	20.69	.41	6.59	17.14	17.26	23.10	496.13	15.33	277.00	5993.04
*	5.630	1909.00	19.26	2.84	8.23	16.79	15.78	23.00	1632.16	85.50	3033.00	476.33
*	5.630	2325.00	19.55	3.19	8.23	16.79	15.78	23.00	1912.77	82.27	3033.00	547.90
*	5.630	3237.00	20.72	2.97	8.23	16.79	15.78	23.00	2075.93	64.13	3033.00	1712.96
	5.640	1909.00	19.28	3.36	8.33	16.89	15.88	23.10	1909.00	100.00	88.00	85.00
	5.640	2325.00	19.56	3.93	8.33	16.89	15.88	23.10	2325.00	100.00	88.00	85.00
	5.640	3237.00	20.75	3.07	8.33	16.89	15.88	23.10	2126.70	65.70	88.00	1594.02
	5.650	1909.00	19.71	3.17	8.54	17.30	17.19	24.50	1909.00	100.00	28.00	97.00
	5.650	2325.00	20.23	3.56	8.54	17.30	17.19	24.50	2325.00	100.00	28.00	97.00
*	5.650	3237.00	21.66	.94	8.54	17.30	17.19	24.50	742.17	22.93	28.00	5939.67
*	5.700	1909.00	19.96	2.19	8.64	17.40	17.29	24.60	1347.79	70.60	268.00	2908.84
*	5.700	2325.00	20.53	1.67	8.64	17.40	17.29	24.60	1123.89	48.34	268.00	4180.20
	5.700	3237.00	21.67	.99	8.64	17.40	17.29	24.60	777.82	24.03	268.00	5806.80
*	6.230	1909.00	21.40	3.77	10.00	19.60	19.40	24.50	1744.20	91.37	3060.00	303.38
*	6.230	2325.00	21.42	4.56	10.00	19.60	19.40	24.50	2116.40	91.03	3060.00	337.57
*	6.230	3237.00	21.79	5.61	10.00	19.60	19.40	24.50	2768.88	85.54	3060.00	599.45
*	6.770	1909.00	22.77	2.59	11.40	14.80	14.80	26.50	952.72	49.91	2860.00	1683.81
*	6.770	2325.00	23.06	2.66	11.40	14.80	14.80	26.50	1009.71	43.43	2860.00	2064.47
*	6.770	3237.00	23.62	2.66	11.40	14.80	14.80	26.50	1060.52	32.76	2860.00	2826.63
*	7.340	1909.00	23.25	1.34	13.43	18.61	19.17	27.00	576.02	30.17	3028.00	1477.96
*	7.340	2325.00	23.56	1.44	13.43	18.61	19.17	27.00	645.62	27.77	3028.00	1582.77
	7.340	3237.00	24.13	1.62	13.43	18.61	19.17	27.00	781.07	24.13	3028.00	1773.78
*	7.370	1909.00	23.09	5.14	12.51	15.96	19.47	27.83	1909.00	100.00	147.00	48.00
*	7.370	2325.00	23.32	6.08	12.51	15.96	19.47	27.83	2325.00	100.00	147.00	48.00
*	7.370	3237.00	23.68	8.10	12.51	15.96	19.47	27.83	3237.00	100.00	147.00	48.00

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	7.380	1909.00	23.09	3.30	13.77	20.80	16.77	27.92	1909.00	100.00	44.00	77.00
*	7.380	2325.00	23.32	3.88	13.77	20.80	16.77	27.92	2325.00	100.00	44.00	77.00
*	7.380	3237.00	23.68	5.11	13.77	20.80	16.77	27.92	3237.00	100.00	44.00	77.00
*	7.460	1909.00	23.67	1.21	13.07	18.94	20.13	28.00	596.96	31.27	458.00	1648.20
*	7.460	2325.00	24.09	1.24	13.07	18.94	20.13	28.00	646.56	27.81	458.00	1819.79
*	7.460	3237.00	24.94	1.24	13.07	18.94	20.13	28.00	727.53	22.48	458.00	2165.94
*	8.020	2066.00	23.86	.74	14.29	20.64	19.26	27.70	240.49	11.64	2936.00	3014.38
*	8.020	2452.00	24.26	.71	14.29	20.64	19.26	27.70	244.94	9.99	2936.00	3343.32
*	8.020	3217.00	25.07	.64	14.29	20.64	19.26	27.70	243.66	7.57	2936.00	4110.49
*	8.040	2066.00	23.67	5.12	14.65	21.65	21.94	27.70	2066.00	100.00	109.00	66.00
*	8.040	2452.00	24.02	5.75	14.65	21.65	21.94	27.70	2452.00	100.00	109.00	66.00
*	8.040	3217.00	25.07	1.07	14.65	21.65	21.94	27.70	530.73	16.50	109.00	4139.89
	8.050	2066.00	23.89	4.61	14.26	21.34	21.37	27.70	2066.00	100.00	28.00	76.00
	8.050	2452.00	24.39	5.04	14.26	21.34	21.37	27.70	2452.00	100.00	28.00	76.00
*	8.050	3217.00	25.55	.65	14.26	21.34	21.37	27.70	372.54	11.58	28.00	5285.85
*	8.110	2066.00	24.34	.58	13.97	20.00	20.21	28.20	215.50	10.43	350.00	3426.04
*	8.110	2452.00	24.92	.52	13.97	20.00	20.21	28.20	210.16	8.57	350.00	3889.73
*	8.110	3217.00	25.56	.50	13.97	20.00	20.21	28.20	215.66	6.70	350.00	5719.25
*	9.090	2356.00	24.56	4.99	16.30	19.30	21.00	28.10	1158.08	49.15	5227.00	206.88
*	9.090	2957.00	25.04	5.43	16.30	19.30	21.00	28.10	1351.64	45.71	5227.00	280.21
*	9.090	4502.00	25.57	6.89	16.30	19.30	21.00	28.10	1844.31	40.97	5227.00	562.68
*	9.210	2762.00	25.47	4.39	16.54	19.30	21.00	28.10	1150.61	41.66	587.00	458.93
*	9.210	3591.00	26.02	4.59	16.54	19.30	21.00	28.10	1292.30	35.99	587.00	1112.88
*	9.210	5540.00	26.80	4.59	16.54	19.30	21.00	28.10	1415.48	25.55	587.00	2434.52
*	9.240	1306.00	25.92	3.07	16.72	19.20	21.20	28.00	756.35	57.91	413.00	232.86
*	9.240	1733.00	26.46	3.46	16.72	19.20	21.20	28.00	913.92	52.74	413.00	401.75
*	9.240	2674.00	27.18	3.82	16.72	19.20	21.20	28.00	1097.60	41.05	413.00	1894.39
	9.270	1306.00	26.23	4.17	16.95	19.09	21.28	28.00	1013.52	77.60	523.00	113.85
	9.270	1733.00	26.81	4.87	16.95	19.09	21.28	28.00	1271.15	73.35	523.00	201.82
	9.270	2674.00	27.58	5.31	16.95	19.09	21.28	28.00	1510.09	56.47	523.00	2591.14
	9.440	1306.00	26.33	3.79	17.46	23.02	22.75	28.00	1306.00	100.00	88.00	53.00
	9.440	1733.00	26.92	4.62	17.46	23.02	22.75	28.00	1733.00	100.00	88.00	53.00
*	9.440	2674.00	27.93	.71	17.46	23.02	22.75	28.00	305.27	11.42	88.00	5155.41
	9.450	1306.00	26.33	3.63	17.46	27.98	27.88	28.00	1306.00	100.00	28.00	72.25
	9.450	1733.00	26.92	4.29	17.46	27.98	27.88	28.00	1733.00	100.00	28.00	76.38
*	9.450	2674.00	27.88	5.59	17.46	27.98	27.88	28.00	2674.00	100.00	28.00	82.91
*	9.500	1306.00	26.67	1.20	16.66	21.87	21.28	29.00	594.36	45.51	268.00	1407.00
*	9.500	1733.00	27.37	1.10	16.66	21.87	21.28	29.00	596.41	34.42	268.00	1800.89
*	9.500	2674.00	28.54	.96	16.66	21.87	21.28	29.00	595.06	22.25	268.00	4817.41

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	10.180	455.00	26.94	.71	17.80	27.00	26.40	30.00	223.73	49.17	3550.00	2558.00
*	10.180	605.00	27.53	.44	17.80	27.00	26.40	30.00	155.64	25.73	3550.00	3150.85
	10.180	1250.00	28.62	.35	17.80	27.00	26.40	30.00	146.54	11.72	3550.00	4852.90
*	10.900	455.00	27.12	7.35	21.00	29.80	28.20	30.60	455.00	100.00	3800.00	36.41
*	10.900	605.00	27.49	7.87	21.00	29.80	28.20	30.60	605.00	100.00	3800.00	43.87
*	10.900	1250.00	28.86	7.82	21.00	29.80	28.20	30.60	1194.65	95.57	3800.00	140.49
*	11.900	254.00	32.11	.95	26.02	30.45	31.11	85.00	235.93	92.88	5318.00	443.25
*	11.900	341.00	32.50	.99	26.02	30.45	31.11	185.00	268.76	78.81	5318.00	962.60
*	11.900	528.00	33.13	.84	26.02	30.45	31.11	85.00	258.56	48.97	5318.00	1838.08
	11.910	254.00	32.12	1.31	26.90	35.10	28.81	35.20	254.00	100.00	74.00	46.51
*	11.910	341.00	32.50	1.60	26.90	35.10	28.81	35.20	341.00	100.00	74.00	46.58
*	11.910	528.00	33.11	2.19	26.90	35.10	28.81	35.20	528.00	100.00	74.00	46.67
	11.920	254.00	32.12	1.34	26.90	35.08	34.96	35.10	254.00	100.00	24.00	50.00
	11.920	341.00	32.50	1.63	26.90	35.08	34.96	35.10	341.00	100.00	24.00	50.00
	11.920	528.00	33.11	2.21	26.90	35.08	34.96	35.10	528.00	100.00	24.00	50.00
	11.960	254.00	32.19	1.21	25.73	34.00	34.54	35.00	254.00	100.00	224.00	54.55
	11.960	341.00	32.60	1.47	25.73	34.00	34.54	35.00	341.00	100.00	224.00	56.84
	11.960	528.00	33.26	1.95	25.73	34.00	34.54	35.00	528.00	100.00	224.00	60.55
	-2.880	1915.00	14.65	2.94	1.00	15.00	20.80	18.10	1860.97	97.18	.00	457.83
	-2.880	2331.00	14.82	3.45	1.00	15.00	20.80	18.10	2229.65	95.65	.00	531.89
	-2.880	3240.00	15.57	3.65	1.00	15.00	20.80	18.10	2670.35	82.42	.00	867.12
	.020	1006.00	14.79	1.48	1.00	15.00	20.80	18.10	951.81	94.61	100.00	520.67
	.020	1176.00	15.01	1.62	1.00	15.00	20.80	18.10	1073.77	91.31	100.00	620.17
	.020	2027.00	15.78	1.96	1.00	15.00	20.80	18.10	1488.71	73.44	100.00	946.20
	.120	1006.00	15.27	1.56	3.20	16.90	19.10	20.60	1006.00	100.00	2493.00	125.51
	.120	1176.00	15.58	1.72	3.20	16.90	19.10	20.60	1176.00	100.00	2493.00	130.53
	.120	2027.00	16.84	2.29	3.20	16.90	19.10	20.60	1998.40	98.59	2493.00	493.57
	.940	1006.00	15.95	1.80	5.37	18.71	17.39	23.00	1006.00	100.00	2493.00	95.90
	.940	1176.00	16.41	1.94	5.37	18.71	17.39	23.00	1176.00	100.00	2493.00	109.33
	.940	2027.00	18.17	2.08	5.37	18.71	17.39	23.00	1843.82	90.96	2493.00	1334.90
	.960	1006.00	15.98	1.79	5.37	18.71	17.39	23.00	1006.00	100.00	100.00	96.71
	.960	1176.00	16.45	1.93	5.37	18.71	17.39	23.00	1176.00	100.00	100.00	110.30
	.960	2027.00	18.23	2.02	5.37	18.71	17.39	23.00	1816.69	89.62	100.00	1409.95
*	.970	1006.00	15.98	3.11	6.70	19.50	19.50	23.00	1006.00	100.00	28.00	65.13
*	.970	1176.00	16.45	3.31	6.70	19.50	19.50	23.00	1176.00	100.00	28.00	70.23
*	.970	2027.00	18.23	4.14	6.70	19.50	19.50	23.00	2027.00	100.00	28.00	79.00
*	.980	1006.00	16.15	1.74	5.37	18.71	17.39	23.00	1006.00	100.00	100.00	101.69
*	.980	1176.00	16.64	1.86	5.37	18.71	17.39	23.00	1176.00	100.00	100.00	122.01
*	.980	2027.00	18.55	1.68	5.37	18.71	17.39	23.00	1617.09	79.78	100.00	1888.09

	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	1.480	1006.00	17.46	3.20	9.04	20.05	22.42	23.00	1006.00	100.00	2810.00	58.30
*	1.480	1176.00	18.19	3.28	9.04	20.05	22.42	23.00	1176.00	100.00	2810.00	63.48
*	1.480	2027.00	20.10	4.08	9.04	20.05	22.42	23.00	2022.32	99.77	2810.00	375.29
	1.500	1006.00	17.58	3.14	9.04	20.05	22.42	23.00	1006.00	100.00	100.00	58.84
	1.500	1176.00	18.30	3.22	9.04	20.05	22.42	23.00	1176.00	100.00	100.00	64.45
	1.500	2027.00	20.27	3.92	9.04	20.05	22.42	23.00	1994.53	98.40	100.00	472.00
*	1.510	1006.00	17.59	6.55	9.60	21.50	21.50	23.00	1006.00	100.00	21.00	23.00
*	1.510	1176.00	18.32	6.91	9.60	21.50	21.50	23.00	1176.00	100.00	21.00	23.00
*	1.510	2027.00	20.69	9.02	9.60	21.50	21.50	23.00	2027.00	100.00	21.00	23.00
*	1.520	1006.00	18.35	2.73	9.04	20.05	22.42	23.00	1006.00	100.00	100.00	64.86
*	1.520	1176.00	19.15	2.78	9.04	20.05	22.42	23.00	1176.00	100.00	100.00	71.91
*	1.520	2027.00	22.10	1.65	9.04	20.05	22.42	23.00	1090.32	53.79	100.00	1562.32
	2.000	1006.00	19.93	2.77	11.00	22.60	23.30	23.50	1006.00	100.00	2110.00	66.39
	2.000	1176.00	20.69	2.82	11.00	22.60	23.30	23.50	1176.00	100.00	2110.00	72.58
*	2.000	2027.00	22.72	3.43	11.00	22.60	23.30	23.50	2017.28	99.52	2110.00	502.26
	2.370	1006.00	21.57	2.74	12.86	25.11	24.12	24.00	1006.00	100.00	2110.00	69.01
	2.370	1176.00	22.28	2.81	12.86	25.11	24.12	24.00	1176.00	100.00	2110.00	73.34
	2.370	2027.00	24.46	2.63	12.86	25.11	24.12	24.00	1593.02	78.59	2110.00	932.66
	2.390	801.00	21.69	2.13	12.86	25.11	24.12	24.00	801.00	100.00	100.00	69.74
	2.390	1124.00	22.37	2.65	12.86	25.11	24.12	24.00	1124.00	100.00	100.00	73.83
	2.390	1966.00	24.53	2.44	12.86	25.11	24.12	24.00	1493.71	75.98	100.00	936.32
	2.400	801.00	22.66	1.79	12.86	25.11	24.12	25.20	801.00	100.00	44.00	75.65
*	2.400	1124.00	24.33	1.90	12.86	25.11	24.12	25.20	1124.00	100.00	44.00	99.37
*	2.400	1966.00	26.32	1.92	12.86	25.11	24.12	25.20	1543.54	78.51	44.00	2228.00
	2.420	801.00	22.69	1.78	12.86	25.11	24.12	24.00	801.00	100.00	100.00	75.88
	2.420	1124.00	24.39	1.53	12.86	25.11	24.12	24.00	911.69	81.11	100.00	929.21
*	2.420	1966.00	26.37	.73	12.86	25.11	24.12	24.00	588.45	29.93	100.00	3500.00
	3.000	801.00	23.69	2.03	13.50	24.70	24.50	24.50	801.00	100.00	2708.00	83.76
	3.000	1124.00	25.04	1.54	13.50	24.70	24.50	24.50	819.02	72.87	2708.00	1956.06
	3.000	1966.00	26.48	.74	13.50	24.70	24.50	24.50	514.45	26.17	2708.00	2750.00
	3.400	801.00	24.97	1.61	14.09	24.32	24.89	25.00	704.54	87.96	2708.00	1616.75
	3.400	1124.00	25.61	1.09	14.09	24.32	24.89	25.00	558.07	49.65	2708.00	2000.00
	3.400	1966.00	26.63	.84	14.09	24.32	24.89	25.00	526.87	26.80	2708.00	2000.00
	3.420	732.00	25.01	1.41	14.09	24.32	24.89	25.00	623.40	85.16	100.00	2000.00
	3.420	1039.00	25.63	.98	14.09	24.32	24.89	25.00	506.55	48.75	100.00	2000.00
	3.420	1716.00	26.64	.73	14.09	24.32	24.89	25.00	458.69	26.73	100.00	2000.00
	3.430	732.00	25.02	1.86	15.00	25.30	25.30	25.00	732.00	100.00	16.00	58.00
	3.430	1039.00	25.78	1.76	15.00	25.30	25.30	25.00	770.18	74.13	16.00	1099.69
*	3.430	1716.00	26.67	1.63	15.00	25.30	25.30	25.00	796.25	46.40	16.00	1110.08

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
	3.440	732.00	25.08	1.31	14.09	24.32	24.89	25.00	589.62	80.55	100.00	2000.00
*	3.440	1039.00	25.83	.81	14.09	24.32	24.89	25.00	436.84	42.04	100.00	2000.00
*	3.440	1716.00	26.70	.71	14.09	24.32	24.89	25.00	448.78	26.15	100.00	2000.00
	5.000	732.00	25.52	1.74	14.70	25.10	24.90	26.50	727.27	99.35	1531.00	246.88
*	5.000	1039.00	26.03	2.01	14.70	25.10	24.90	26.50	924.50	88.98	1531.00	1701.62
*	5.000	1716.00	26.81	1.42	14.70	25.10	24.90	26.50	747.48	43.56	1531.00	3500.00
	-9.210	1513.00	25.47	4.22	16.54	25.10	24.90	26.50	1504.01	99.41	1531.00	203.15
	-9.210	1977.00	26.02	4.25	16.54	25.10	24.90	26.50	1707.92	86.39	1531.00	1651.83
	-9.210	3044.00	26.80	2.36	16.54	25.10	24.90	26.50	1102.39	36.22	1531.00	3500.00
	4.320	1513.00	27.18	2.80	17.43	27.03	28.26	28.00	932.58	61.64	714.00	2063.11
	4.320	1977.00	27.40	2.49	17.43	27.03	28.26	28.00	898.53	45.45	714.00	2891.78
*	4.320	3044.00	27.47	3.50	17.43	27.03	28.26	28.00	1284.50	42.20	714.00	3091.17
*	4.340	1513.00	27.34	4.21	17.43	27.03	28.26	28.00	1483.28	98.04	100.00	438.48
*	4.340	1977.00	27.47	5.12	17.43	27.03	28.26	28.00	1885.33	95.36	100.00	577.47
*	4.340	3044.00	27.92	5.78	17.43	27.03	28.26	28.00	2435.45	80.01	100.00	1038.42
*	4.350	1513.00	27.34	2.16	17.90	27.80	27.80	28.00	1513.00	100.00	28.00	88.00
*	4.350	1977.00	27.81	2.67	17.90	27.80	27.80	28.00	1977.00	100.00	28.00	89.82
*	4.350	3044.00	28.96	1.57	17.90	27.80	27.80	28.00	1317.32	43.28	28.00	4982.37
	4.360	1513.00	27.64	1.32	17.43	27.03	28.26	28.00	511.28	33.79	100.00	3700.92
*	4.360	1977.00	27.95	1.08	17.43	27.03	28.26	28.00	458.79	23.21	100.00	4825.16
*	4.360	3044.00	28.98	.51	17.43	27.03	28.26	28.00	281.20	9.24	100.00	5000.00
*	4.000	1513.00	29.74	4.20	20.30	29.70	30.40	31.00	1500.21	99.15	2886.00	588.60
*	4.000	1977.00	29.29	6.34	20.30	29.70	30.40	31.00	1977.00	100.00	2886.00	95.16
*	4.000	3044.00	30.21	5.26	20.30	29.70	30.40	31.00	2147.52	70.55	2886.00	2785.12
*	5.410	1293.00	33.21	1.98	23.15	32.45	32.62	34.00	871.66	67.41	2886.00	3536.04
*	5.410	1696.00	33.43	1.86	23.15	32.45	32.62	34.00	860.07	50.71	2886.00	4774.68
*	5.410	2615.00	33.68	1.96	23.15	32.45	32.62	34.00	952.48	36.42	2886.00	6146.66
	5.000	1293.00	34.19	1.50	24.40	33.30	33.50	34.20	640.59	49.54	2665.00	6307.83
	5.000	1696.00	34.32	1.52	24.40	33.30	33.50	34.20	664.97	39.21	2665.00	6670.00
	5.000	2615.00	34.54	1.51	24.40	33.30	33.50	34.20	688.13	26.31	2665.00	6670.00
	6.000	1293.00	34.88	1.44	25.60	34.20	34.40	34.40	551.53	42.66	2665.00	5400.00
	6.000	1696.00	35.00	1.46	25.60	34.20	34.40	34.40	571.90	33.72	2665.00	5400.00
	6.000	2615.00	35.22	1.55	25.60	34.20	34.40	34.40	633.99	24.24	2665.00	5400.00
	7.000	1293.00	35.57	1.47	26.80	35.00	35.30	34.70	498.81	38.58	2665.00	3614.60
	7.000	1696.00	35.71	1.55	26.80	35.00	35.30	34.70	541.86	31.95	2665.00	3909.33
	7.000	2615.00	35.96	1.63	26.80	35.00	35.30	34.70	599.43	22.92	2665.00	4100.00
	8.000	1293.00	36.28	1.44	28.00	35.90	36.20	34.90	431.13	33.34	2665.00	2338.55
	8.000	1696.00	36.46	1.52	28.00	35.90	36.20	34.90	471.38	27.79	2665.00	2498.17
	8.000	2615.00	36.77	1.68	28.00	35.90	36.20	34.90	557.23	21.31	2665.00	2766.41

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
9.000	1293.00	37.07	1.63	29.20	36.80	37.00	35.10	428.39	33.13	2665.00	1261.43
9.000	1696.00	37.30	1.75	29.20	36.80	37.00	35.10	481.32	28.38	2665.00	1346.97
9.000	2615.00	37.71	1.95	29.20	36.80	37.00	35.10	582.35	22.27	2665.00	1500.00
*	8.440	176.00	37.73	.62	30.45	37.62	37.91	134.62	76.49	2664.00	166.92
*	8.440	237.00	38.03	.73	30.45	37.62	37.91	170.70	72.03	2664.00	175.84
*	8.440	367.00	38.56	.92	30.45	37.62	37.91	239.72	65.32	2664.00	195.36

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	1.030	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	1.030	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	1.030	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.030	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.030	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.030	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.060	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.060	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.060	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.100	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.100	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.100	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.880	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.880	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.880	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.890	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.890	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.890	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	3.850	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	3.850	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	3.850	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.030	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.030	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.030	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.050	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.050	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.060	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.110	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.110	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.110	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.630	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.630	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.630	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.650	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.700	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.700	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.230	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

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WARNING SECNO=	6.230	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.230	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.770	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.770	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.770	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.340	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.340	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.370	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.370	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.370	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.380	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.380	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.380	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.460	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.460	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	7.460	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	8.020	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	8.020	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	8.020	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	8.040	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	8.040	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	8.040	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	8.050	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	8.110	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	9.090	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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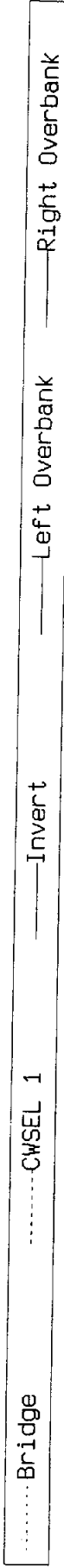
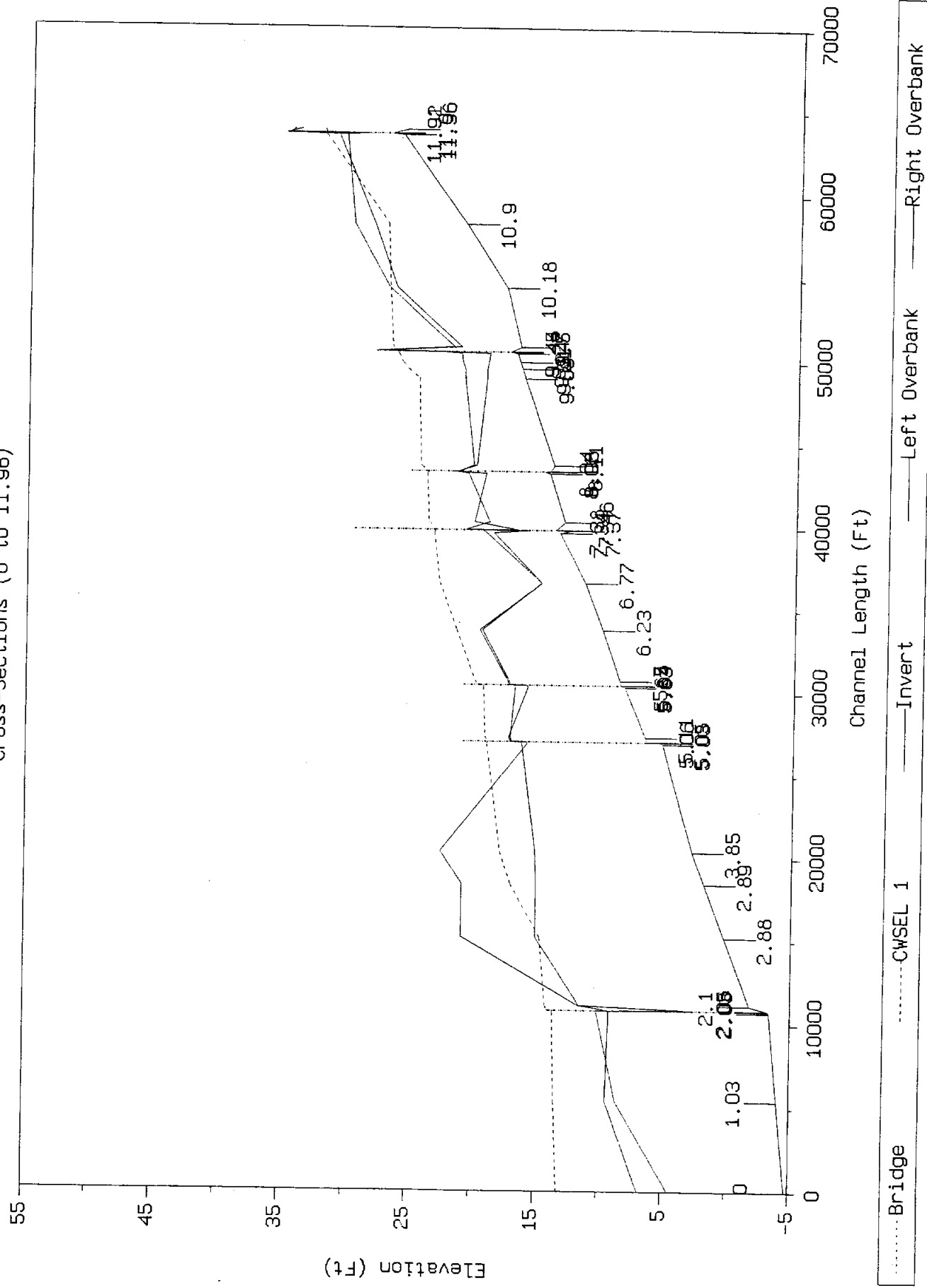


23AUG02 10:16:52

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WARNING SECNO=	10.180	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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CAUTION SECNO=	10.900	PROFILE=	2	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	10.900	PROFILE=	2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	10.900	PROFILE=	2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=	10.900	PROFILE=	3	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	10.900	PROFILE=	3	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	10.900	PROFILE=	3	20 TRIALS ATTEMPTED TO BALANCE WSEL
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WARNING SECNO=	11.900	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	11.900	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	11.910	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=	.970	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=	1.480	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=	5.000	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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CAUTION SECNO=	4.340	PROFILE=	3	MINIMUM SPECIFIC ENERGY
WARNING SECNO=	4.350	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=	4.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	4.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	4.000	PROFILE=	3	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	4.000	PROFILE=	3	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	4.000	PROFILE=	3	20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=	5.410	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.410	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=	8.440	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.440	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.440	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

DRFLORES REVISED BY B&L,  
 Cross-Sections (0 to 11.96)



```
*****  
* HEC-2 WATER SURFACE PROFILES *  
* *  
* version 4.6.2; May 1991 *  
* *  
* RUN DATE 27AUG02 TIME 22:56:25 *  
*****
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*****  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET, SUITE D *  
* DAVIS, CALIFORNIA 95616-4687 *  
* (916) 756-1104 *  
*****
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X X XXXXXXXX XXXXX XXXXX  
X X X X X X  
X X X X X X  
XXXXXXXX XXXX X XXXXX XXXXX  
X X X X X X  
X X X X X X  
X X XXXXXXXX XXXXX XXXXXXXX
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27AUG02 22:56:25

\*\*\*\*\*  
HEC-2 WATER SURFACE PROFILES

THIS RUN EXECUTED 27AUG02 22:56:25

Version 4.6.2; May 1991  
\*\*\*\*\*

T1FLORES BAYOU-IOWA COL. DITCH..... 2000 BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2REVISED EXISTING..... CONDITION MODEL 1973 DATUM ADJUSTMENT  
T3FILENAME: DRICD.IH2..... FEMA 100 YEAR  
T3MODEL REVISED BY B&L, INC.....AND KLOTZ ASSOCIATES..... REV 08/00  
NOTES \*\*\*\*\*  
REVISED MODEL INCLUDES BAKER & LAWSON SURVEY SECTIONS AND REVISED  
BRIDGE SECTIONS  
MODEL KEYED IN FROM 21 JULY 1988 FEMA MODEL  
ORIGINAL INPUT DATA PROVIDED BY BRAZORIA COUNTY FLOOD PLAIN ADMINISTRATOR  
STARTING WATER SURFACE ELEVATION IS BACKWATER EFFECT FROM AUSTIN BAYOU

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HWINS	Q	WSEL	FQ
		2							13.93	
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1							
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38	43	1	26	42	23	24	63	14	60
	39	4								

J5 LPRNT NUMSEC \*\*\*\*\*REQUESTED SECTION NUMBERS\*\*\*\*\*  
-10 -10  
3 FLOWS: PROF1 = DR1YR0 YR, PROF2 = DR25YR, PROF3 = DR100YR  
BEGIN THE IOWA COLONY DITCH (BIG DITCH) TRIBUTARY

NC	0.06	0.045	0.045							
QT	3	4429	5737	8821						
X-SECTION F-12 FROM FEMA, LEVEE FOR LAKE ON RIGHT OVERBANK FOR F-12 AND F-11										
X1	0.01	25	10000	10160						
GR	18.1	5527	18.1	5528	18.1	5529	18.1	5530	16.1	5546
GR	16.9	6092	17.5	6475	17.5	6822	19.9	6860	17.9	6889
GR	17.2	7118	17.2	7393	17.2	8087	17.2	8648	16.8	8809
GR	13.8	9918	15.	10000	6.4	10024	1.	10036	1.	10048
GR	6.4	10060	15.	10088	15.2	10129	20.8	10160	20.8	10217

NC 0.045 0.045 0.045  
 X-SECTION F-12 FROM FEMA COPIED FOR SECTION JUST UPSTREAM ON TRIBUTARY  
 FLOWS REDUCED FOR TRIBUTARY FLOW ONLY

QT	3	2380	3350	5922						
IOWA COLONY DITCH (ICD) 100' U.S. OF FLORES										
X1	0.02	25	10000	10160	100	100				
GR	18.1	5527	18.1	5528	18.1	5529	18.1	5530	16.1	5546
GR	16.9	6092	17.5	6475	17.5	6822	19.9	6860	17.9	6889
GR	17.2	7118	17.2	7393	17.2	8087	17.2	8648	16.8	8809
GR	13.8	9918	15.	10000	6.4	10024	1.	10036	1.	10048
GR	6.4	10060	15.	10088	15.2	10129	20.8	10160	20.8	10217

SURVEYED CROSS-SECTION 91 FEET DOWNSTREAM OF CR 171

ICD 171' D.S. OF CR 171										
X1	0.94	11	10000	10208	5300	4800	4986			
GR	23	7400	20	8400	18.71	10000	15.57	10081	7.34	10102
GR	5.37	10106	7.09	10135	16.49	10169	17.39	10208	20	14000
GR	23	15000								

QT 3 1629 2358 4393  
 SURVEYED CROSS-SECTION 84' DOWNSTREAM OF CR 207

ICD 84' D.S. OF CR 207										
X1	1.48	10	10000	10085	2865	2865	2865			
GR	23	8000	20	9765	20.05	10000	17.77	10015	9.63	10036
GR	9.04	10051	10.61	10059	22.42	10085	22.14	10118	23	11000

QT 3 1397 2087 4017  
 SURVEYED CROSS-SECTION 120' DOWNSTREAM OF SH 35

ICD 120' D.S. OF SH 35										
X1	2.37	10	10000	10197	4220	4220	4220			
GR	26.2	7000	25.11	10000	22.82	10029	14.39	10058	12.86	10084
GR	18.39	10094	24.12	10109	26.24	10129	23.37	10197	26.2	12000

SURVEYED CROSS-SECTION 28' DOWNSTREAM OF CR 621

ICD 28' D.S. OF CR 621										
X1	3.40	11	10000	10114	5415	5415	5415			
GR	27.5	0	25	9000	24.32	10000	24.35	10036	15.37	10055
GR	14.09	10059	14.52	10075	23.28	10089	24.89	10114	25	11000
GR	27.5	20000								

WSEL AT TRIBUTARY STATION 4.32 MUST EQUAL (=/-) WSEL AT STA 9.45 OF FLORES

3 1651 1889 2154

NC 0.045 0.045 0.045  
 QT 3 1377 1800 2786

SURVEYED CROSS-SECTION 46' UPSTREAM OF CR 45

ICD 46' D.S. OF CR 45										
X1	4.32	12	10000	10124	4835	4835	4835			
GR	29	1000	28	9000	27.03	10000	26.26	10053	19.28	10071
GR	17.43	10075	20.27	10088	25.30	10104	28.26	10124	26.47	10152
GR	28	14000	29	20000						

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QT	3	1167	1532	2374						
SURVEYED CROSS-SECTION 50' DOWNSTREAM OF A PRIVATE ROAD										
ICD 50' D.S. OF EXTENSION OF CR 49										
X1	5.41	9	10000	10097	5772	5772	5772			
GR	34	6000	32.45	10000	30.02	10042	25.62	10063	23.15	10073
GR	23.59	10080	32.62	10097	32.77	10136	34	14000		
QT	3	155	209	325						
COPIED PREVIOUS CROSS-SECTION TO REDUCE FLOWS										
COPIED PREVIOUS SECTION TO REDUCE FLOWS										
X1	5.27	9	10000	10097	1000	1000	1000			
GR	34	6000	32.45	10000	30.02	10042	25.62	10063	23.15	10073
GR	23.59	10080	32.62	10097	32.77	10136	34	14000		
QT	3	155	209	325						
SURVEYED CROSS-SECTION 668' DOWNSTREAM OF DAM AT AUSTIN BAYOU										
ICD D.S. OF THE DAM SOUTH OF AUSTIN BAYOU										
X1	8.44	9	10000	10113	14987	14987	14987			
GR	35.56	10000	37.31	10054	37.62	10063	31.49	10081	30.45	10090
GR	32.40	10101	37.91	10113	38.69	10124	35.31	10200		

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T1FLORES BAYOU..... 2000 BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2REVISED EXISTING..... CONDITION MODEL 1973 DATUM ADJUSTMENT  
T3FILENAME: DRFLORES.IH2..... 10 YEAR FREQUENCY  
T3MODEL REVISED BY B&L, INC. AND KLOTZ ASSOCIATES..... REV 08/00

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3							14.32	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							



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T1FLORES BAYOU..... 2000 BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2REVISED EXISTING..... CONDITION MODEL 1973 DATUM ADJUSTMENT  
T3FILENAME: DRFLORES.IH2..... 100 YEAR FREQUENCY  
T3MODEL REVISED BY B&L, INC. AND KLOTZ ASSOCIATES..... REV 08/00

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		4							15.81	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1							

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

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NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

REVISED BY B&L, INC.....

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
.010	4429.00	13.93	7.74	1.00	15.00	20.80	18.10	4428.02	99.98	.00	138.47
.010	5737.00	14.32	9.41	1.00	15.00	20.80	18.10	5689.59	99.17	.00	311.65
.010	8821.00	15.81	9.02	1.00	15.00	20.80	18.10	6892.25	78.13	.00	957.41
.020	2380.00	14.89	3.40	1.00	15.00	20.80	18.10	2218.72	93.22	100.00	566.20
*	.020	3350.00	15.82	3.19	1.00	15.00	18.10	2439.02	72.81	100.00	957.77
*	.020	5922.00	16.95	3.26	1.00	15.00	18.10	2992.10	50.53	100.00	1976.12
.940	2380.00	18.36	2.21	5.37	18.71	17.39	23.00	2041.25	85.77	4986.00	1608.39
*	.940	3350.00	19.02	2.04	5.37	18.71	17.39	2159.92	64.48	4986.00	2970.85
*	.940	5922.00	19.77	2.10	5.37	18.71	17.39	2562.22	43.27	4986.00	5002.32
* 1.480	1629.00	20.22	3.19	9.04	20.05	22.42	23.00	1610.67	98.88	2865.00	445.59
* 1.480	2358.00	20.66	3.98	9.04	20.05	22.42	23.00	2154.33	91.36	2865.00	708.63
* 1.480	4393.00	21.41	5.24	9.04	20.05	22.42	23.00	3148.23	71.66	2865.00	1145.29
2.370	1397.00	23.54	2.69	12.86	25.11	23.37	26.20	1395.53	99.89	4220.00	197.81
2.370	2087.00	24.81	2.41	12.86	25.11	23.37	26.20	1612.36	77.26	4220.00	1064.87
*	2.370	4017.00	25.87	2.17	12.86	25.11	23.37	1831.63	45.60	4220.00	3878.61
* 3.400	1397.00	25.54	1.26	14.09	24.32	24.89	27.50	631.63	45.21	5415.00	5851.56
* 3.400	2087.00	26.01	.91	14.09	24.32	24.89	27.50	505.25	24.21	5415.00	9206.07
* 3.400	4017.00	26.65	.77	14.09	24.32	24.89	27.50	486.46	12.11	5415.00	13873.46
* 4.320	1377.00	27.37	2.08	17.43	27.03	28.26	29.00	740.18	53.75	4835.00	2765.24
* 4.320	1800.00	27.07	4.21	17.43	27.03	28.26	29.00	1351.35	75.08	4835.00	1685.59
* 4.320	2786.00	27.16	5.81	17.43	27.03	28.26	29.00	1921.37	68.97	4835.00	1984.09
5.410	1167.00	32.87	2.66	23.15	32.45	32.62	34.00	1080.26	92.57	5772.00	1519.60
*	5.410	1532.00	33.40	1.87	23.15	32.45	34.00	854.95	55.81	5772.00	4531.49
*	5.410	2374.00	33.71	1.79	23.15	32.45	34.00	875.29	36.87	5772.00	6367.54

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	5.270	155.00	33.18	.25	23.15	32.45	32.62	34.00	111.22	71.76	1000.00	3324.48
	5.270	209.00	33.54	.20	23.15	32.45	32.62	34.00	95.86	45.87	1000.00	5401.25
	5.270	325.00	33.83	.21	23.15	32.45	32.62	34.00	103.76	31.93	1000.00	7022.17
*	8.440	155.00	33.50	2.93	30.45	35.56	37.91	35.31	155.00	100.00	14987.00	28.31
*	8.440	209.00	33.58	3.78	30.45	35.56	37.91	35.31	209.00	100.00	14987.00	28.73
*	8.440	325.00	33.53	6.06	30.45	35.56	37.91	35.31	325.00	100.00	14987.00	28.44

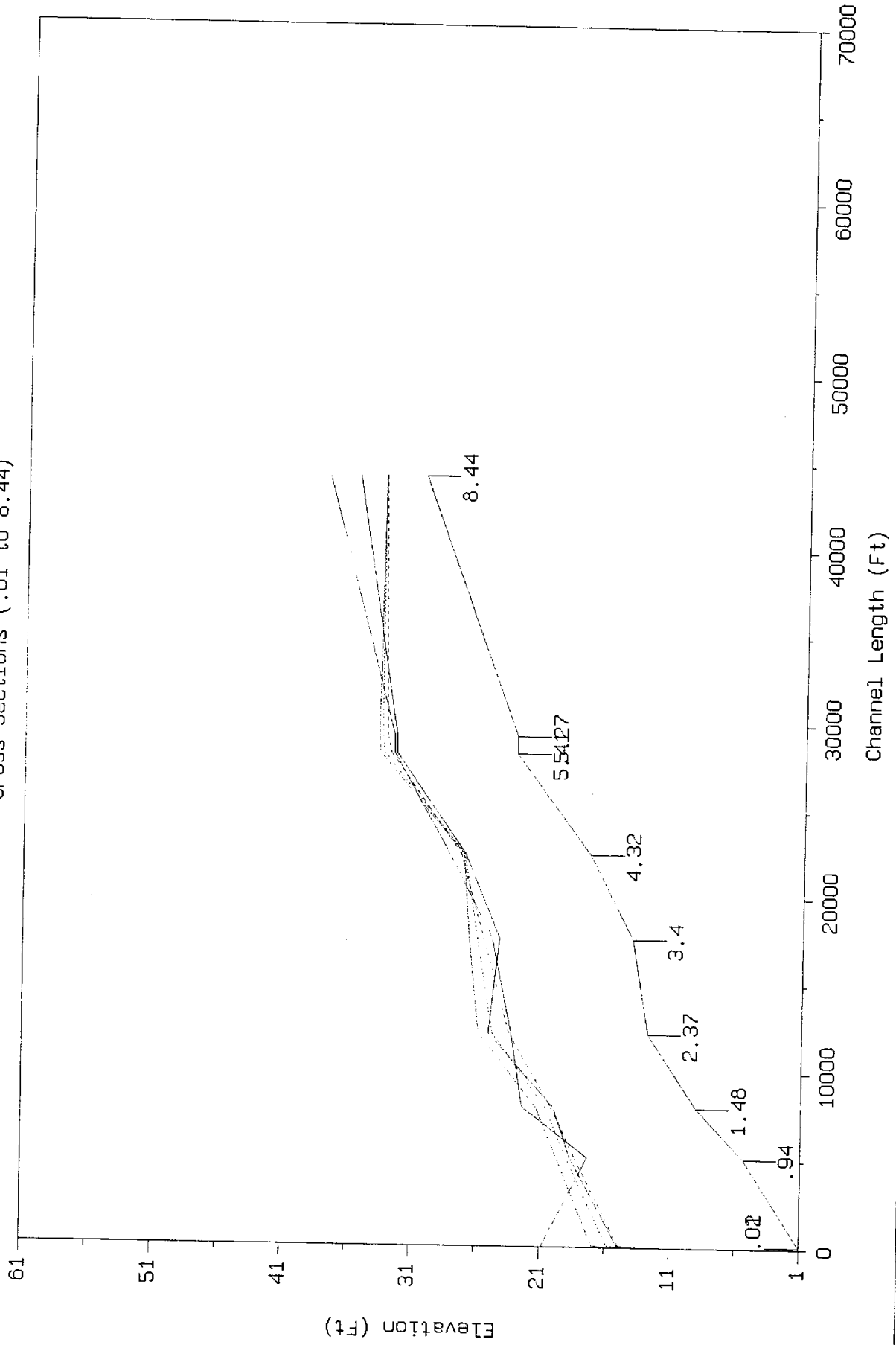
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## SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	.020	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	.020	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	.940	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	.940	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.480	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.480	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.480	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	2.370	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.400	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.400	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3.400	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	4.320	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	4.320	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	4.320	PROFILE=	3	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	4.320	PROFILE=	3	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	4.320	PROFILE=	3	20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=	5.410	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.410	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5.270	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.440	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.440	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	8.440	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

REVISED BY B&L, INC.....  
 Cross-Sections (.01 to 8.44)



..... Bridge  
 ——— Left Overbank  
 - - - - - Right Overbank  
 ..... CWSEL 1  
 ..... CWSEL 2  
 ..... CWSEL 3  
 ——— Invert

```

*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   JUN 1998 *
*   VERSION 4.1 *
*
* RUN DATE 23AUG02 TIME 13:40:18 *
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 756-1104 *
*
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X   X XXXXXXXX  XXXXX      X
X   X X      X   X      XX
X   X X      X           X
XXXXXXX XXXX  X           XXXXX X
X   X X      X           X
X   X X      X   X      X
X   X XXXXXXXX  XXXXX      XXX

```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION

NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

Flores Bayou 10 year flows with weir FB\_10W.IH1

HEC-1 INPUT

LINE	ID	.....1	.....2	.....3	.....4	.....5	.....6	.....7	.....8	.....9	.....10
1	ID	FILE: FLOR10.IH1									
2	ID	BRAZORIA COUNTY MASTER DRAINAGE STUDY									
3	ID	10 YEAR FLOW RUNS									
4	ID	BAKER & LAWSON, DBR									
5	IT	10	16AUG00	1200	300						
6	IO	5									
7	KK	FB01									
8	KM	PERCENT PONDED AREA = 50%									
	*										21
9	BA	1.71									
	* 2 YEAR STORM	5 MIN	15 MIN	60 MIN	2 HR	3 HR	6 HR	12 HR	24 HR		
	*	50	0	0.56	1.22	2.38	2.90	3.20	3.70	4.50	5.10
	* 5 YEAR STORM										
	*	20	0	0.63	1.38	2.82	3.70	4.10	5.00	6.00	7.00
	* 10 YEAR STORM										
10	PH	10	0	0.70	1.54	3.27	4.40	4.90	5.90	7.40	8.70
	* 25 YEAR STORM										
	*	4	0	0.77	1.71	3.71	5.00	5.60	7.00	8.20	10.00
	* 50 YEAR STORM										
	*	2	0	0.84	1.87	4.16	5.60	6.40	7.90	9.90	11.70
	* 100 YEAR STORM										
	*	1	0	0.91	2.02	4.62	6.20	7.15	8.75	10.75	13.00
11	LU	0.75	0.1	1							
	* 100 YEAR TC & R										
12	UC	1.61	20.95								
13	KK	FB02									
14	KM	FB01 RTE TO FB02									
	*	0									
15	RM	4.5	0.74	.1							
16	KK	FB02									
17	KM	PERCENT PONDED AREA = 50%									
	*	0									
18	BA	2.04									
19	LU	0.75	0.1	1							
	* 100 YEAR TC & R										
20	UC	1.50	17.31								
21	KK	FB02									
22	KM	COMBINE 2 HYDROGRAPHS									
	*										21
23	HC	2									
24	KK	FB05									
25	KM	FB01&02 RTE TO FB05									
	*										21
26	RM	10	1.6	.1							
	*										
	* START TRIBUTARY FB03 TO FB05										
	*										

Flores Bayou 10 year flows with weir FB\_10W.IH1

HEC-1 INPUT

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
27	KK FB03
28	KM PERCENT PONDED AREA = 40%
	* 21
29	BA 1.69
30	LU 0.75 0.1 1
	* 100 YEAR TC & R
31	UC 1.05 17.92
32	KK FB04
33	KM FB03 RTE TO FB04
34	RM 3.5 0.60 .1
35	KK FB04
36	KM PERCENT PONDED AREA = 50%
37	BA 1.44
38	LU 0.75 0.1 1
	* 100 YEAR TC & R
39	UC 2.46 27.43
40	KK FB04
41	KM COMBINE 2 HYDROGRAPHS
	* 21
42	HC 2
43	KK FB05
44	KM FB03&04 RTE TO FB05
45	RM 14.5 2.41 .1
46	KK FB05
47	KM PERCENT PONDED AREA = 50%
48	BA 1.82
49	LU 0.75 0.1 1
	* 100 YEAR TC & R
50	UC 2.31 22.88
51	KK FB05
52	KM COMBINE 3 HYDROGRAPHS
	* 21
53	HC 3
	* START TRIBUTARY FB06 TO NODE1
	*
54	KK FB06
55	KM PERCENT PONDED AREA = 50%
	* 21
56	BA 1.33
57	LU 0.75 0.1 1
	* 100 YEAR TC & R
58	UC 1.51 24.02



Flores Bayou 10 year flows with weir FB\_10W.IH1

HEC-1 INPUT

PAGE 3

LINE	ID	1	2	3	4	5	6	7	8	9	10
59	KK	FB07									
60	KM	FB06 RTE TO FB07									
61	RM	2.8	0.46	.1							
62	KK	FB07									
63	KM	PERCENT PONDED AREA = 50%									
64	BA	0.99									
65	LU	0.75	0.1	1							
		* 100 YEAR TC & R									
66	UC	1.66	23.43								
67	KK	FBO7									
68	KM	COMBINE 2 HYDROGRAPHS									
	*										21
69	HC	2									
70	KK	NODE1									
71	KM	FB06&07 RTE TO NODE1									
72	RM	3.3	0.56	.1							
	*	* START TRIBUTARY FB08 TO NODE1									
	*										
73	KK	FBO8									
74	KM	PERCENT PONDED AREA = 50%									
	*										21
75	BA	2.37									
76	LU	0.75	0.1	1							
		* 100 YEAR TC & R									
77	UC	1.66	13.69								
78	KK	FB09									
79	KM	FB08 RTE TO FB09									
80	RM	6.4	1.07	.1							
81	KK	FB09									
82	KM	PERCENT PONDED AREA = 50%									
83	BA	1.02									
84	LU	0.75	0.1	1							
		* 100 YEAR TC & R									
85	UC	0.59	21.02								
86	KK	FB09									
87	KM	COMBINE 2 HYDROGRAPHS									
	*										21
88	HC	2									
89	KK	NODE1									
90	KM	FB08&09 RTE TO NODE1									
91	RM	13.3	2.22	.1							

Flores Bayou 10 year flows with weir FB\_10W.IH1

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
92	KK	FB10									
93	KM	PERCENT PONDED AREA = 50%									
94	BA	1.38									
95	LU	0.75	0.1	1							
	*	100 YEAR TC & R									
96	UC	1.80	22.62								
97	KK	NODE1									
98	KM	COMBINE 3 HYDROGRAPHS									
	*									21	
99	HC	3									
100	KK	FB11									
101	KM	NODE1 RTE TO FB11									
102	RM	3.4	0.57	.1							
103	KK	FB11									
104	KM	PERCENT PONDED AREA = 50%									
	*	1									
105	BA	0.96									
106	LU	0.75	0.1	1							
	*	100 YEAR TC & R									
107	UC	1.19	17.89								
108	KK	FB11									
109	KM	COMBINE 2 HYDROGRAPHS									
	*									21	
110	HC	2									
111	KK	FB12									
112	KM	FB06&11 RTE TO FB12									
113	RM	11.1	1.85	.1							
114	KK	FB12									
115	KM	PERCENT PONDED AREA = 50%									
116	BA	1.72									
117	LU	0.75	0.1	1							
	*	100 YEAR TC & R									
118	UC	0.99	20.21								
119	KK	FB12									
120	KM	COMBINE 2 HYDROGRAPHS									
	*									21	
121	HC	2									
122	KK	WEIR1									
123	KM	PROPOSED WEIR									
	*	1								21	
124	RS	1	STOR	-1							
125	SA	0	0.1	300	300	1000					
126	SE	17.4	18	20	27	28					
127	SS	25	250	2.6	1.5						









Flores Bayou 10 year flows with weir FB\_10W.IH1

HEC-1 INPUT

PAGE 9

LINE	ID.....	1.....	2.....	3.....	4.....	5.....	6.....	7.....	8.....	9.....	10
267	KK	NODE4									
268	KM	NODE3 RTE TO NODE4									
269	RM	3.33	0.56	.1							
270	KK	NODE4									
271	KM	COMBINE 2 HYDROGRAPHS									
	*										21
272	HC	2									
273	KK	FB24									
274	KM	REACH EXTENDS FROM X-SECT.			2.050 TO X-SECT.			2.890			
275	RS	6	STOR	0							
276	SV	0	48	89	264	529	947	1285	1566		
277	SQ	0	506	1012	2024	3036	4048	5060	6072		
278	KK	FB23									
279	KM	PERCENT PONDED AREA = 50%									
280	BA	2.00									
281	LU	0.75	0.1	1							
	*	100 YEAR TC & R									
282	UC	1.42	17.22								
283	KK	FB24									
284	KM	PERCENT PONDED AREA = 30%									
285	BA	2.16									
286	LU	0.75	0.1	1							
	*	100 YEAR TC & R									
287	UC	1.20	16.71								
288	KK	FB24									
289	KM	COMBINE 3 HYDROGRAPHS									
	*										21
290	HC	3									
291	KK	FB25									
292	KM	REACH EXTENDS FROM X-SECT.			.000 TO X-SECT.			2.030			
293	RS	9	STOR	0							
294	SV	0	111	180	397	649	911	1153	1394		
295	SQ	0	528	1055	2111	3166	4222	5277	6332		
296	KK	FB25									
297	KM	PERCENT PONDED AREA = 50%									
298	BA	1.49									
299	LU	0.75	0.1	1							
	*	100 YEAR TC & R									
300	UC	9.33	39.72								
301	KK	FB25									
302	KM	COMBINE 2 HYDROGRAPHS									
	*	1	1	1	21	1	300	1			
303	HC	2									
304	ZZ										

Flores Bayou 10 year flows with weir FB\_10W.IH1

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*****  
*  
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *  
* JUN 1998 *  
* VERSION 4.1 *  
* RUN DATE 23AUG02 TIME 13:40:18 *  
*  
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*****  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENT *  
* 609 SECOND STREET *  
* DAVIS, CALIFORNIA 95616 *  
* (916) 756-1104 *  
*  
*****
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FILE: FLOR10.IH1  
BRAZORIA COUNTY MASTER DRAINAGE STUDY  
10 YEAR FLOW RUNS  
BAKER & LAWSON, DBR

6 IO OUTPUT CONTROL VARIABLES

IPRINT 5 PRINT CONTROL  
IPLOT 0 PLOT CONTROL  
QSCAL 0. HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA

NMIN 10 MINUTES IN COMPUTATION INTERVAL  
IDATE 16AUG 0 STARTING DATE  
ITIME 1200 STARTING TIME  
NQ 300 NUMBER OF HYDROGRAPH ORDINATES  
NDDATE 18AUG 0 ENDING DATE  
NDTIME 1350 ENDING TIME  
ICENT 19 CENTURY MARK

COMPUTATION INTERVAL .17 HOURS  
TOTAL TIME BASE 49.83 HOURS

ENGLISH UNITS

DRAINAGE AREA SQUARE MILES  
PRECIPITATION DEPTH INCHES  
LENGTH, ELEVATION FEET  
FLOW CUBIC FEET PER SECOND  
STORAGE VOLUME ACRE-FEET  
SURFACE AREA ACRES  
TEMPERATURE DEGREES FAHRENHEIT



Flores Bayou 10 year flows with weir FB\_10W.IH1

RUNOFF SUMMARY  
FLOW IN CUBIC FEET PER SECOND  
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	FB01	255.	15.17	248.	184.	112.	1.71		
ROUTED TO	FB02	254.	16.00	248.	184.	112.	1.71		
HYDROGRAPH AT	FB02	359.	14.67	345.	242.	143.	2.04		
2 COMBINED AT	FB02	610.	15.50	589.	425.	254.	3.75		
ROUTED TO	FB05	608.	17.33	586.	424.	251.	3.75		
HYDROGRAPH AT	FB03	289.	14.50	279.	197.	117.	1.69		
ROUTED TO	FB04	288.	15.17	278.	197.	117.	1.69		
HYDROGRAPH AT	FB04	169.	16.67	167.	133.	84.	1.44		
2 COMBINED AT	FB04	456.	15.50	444.	330.	201.	3.13		
ROUTED TO	FB05	455.	18.33	441.	328.	196.	3.13		
HYDROGRAPH AT	FB05	251.	15.83	245.	187.	115.	1.82		
3 COMBINED AT	FB05	1306.	17.83	1260.	932.	561.	8.70		
HYDROGRAPH AT	FB06	176.	15.33	173.	133.	83.	1.33		
ROUTED TO	FB07	176.	16.00	172.	133.	83.	1.33		
HYDROGRAPH AT	FB07	134.	15.50	131.	101.	62.	.99		
2 COMBINED AT	FB07	310.	15.83	304.	233.	145.	2.32		
ROUTED TO	NODE1	309.	16.50	303.	233.	144.	2.32		
HYDROGRAPH AT	FB08	510.	14.50	479.	309.	175.	2.37		
ROUTED TO	FB09	507.	15.83	476.	309.	174.	2.37		
HYDROGRAPH AT	FB09	152.	14.50	148.	110.	67.	1.02		
2 COMBINED AT	FB09	657.	15.83	621.	418.	242.	3.39		
ROUTED TO	NODE1	651.	18.33	616.	417.	238.	3.39		
HYDROGRAPH AT	FB10	192.	15.50	188.	143.	88.	1.38		
3 COMBINED AT	NODE1	1144.	18.17	1090.	788.	470.	7.09		
ROUTED TO	FB11	1142.	18.83	1088.	787.	467.	7.09		
HYDROGRAPH AT	FB11	165.	14.50	159.	112.	67.	.96		
2 COMBINED AT	FB11	1293.	18.67	1231.	894.	534.	8.05		
ROUTED TO	FB12	1286.	20.67	1226.	893.	524.	8.05		
HYDROGRAPH AT	FB12	265.	14.67	258.	189.	115.	1.72		
2 COMBINED AT	FB12	1514.	20.50	1444.	1064.	639.	9.77		
ROUTED TO	WEIR1	574.	40.00	563.	353.	170.	9.77	25.92	
ROUTED TO	FB05	574.	40.33	563.	350.	169.	9.77		
2 COMBINED AT	FB05	1306.	17.83	1260.	1045.	730.	18.47		
DIVERSION TO	DIV1	221.	17.83	215.	186.	136.	18.47		
HYDROGRAPH AT	DIV1	1085.	17.83	1045.	859.	594.	18.47		

Flores Bayou 10 year flows with weir FB\_10W.IH1

ROUTED TO	FB14	923.	32.00	911.	835.	507.	18.47
HYDROGRAPH AT	FB14	641.	13.67	594.	362.	201.	2.65
2 COMBINED AT	FB14	1113.	29.50	1106.	1015.	707.	21.12
ROUTED TO	FB15	1112.	30.17	1106.	1015.	698.	21.12
HYDROGRAPH AT	FB15	155.	14.17	148.	101.	59.	.83
2 COMBINED AT	FB15	1201.	24.17	1189.	1091.	757.	21.95
ROUTED TO	FB16	1184.	33.00	1182.	1085.	694.	21.95
HYDROGRAPH AT	FB16	259.	17.17	255.	206.	131.	2.33
2 COMBINED AT	FB16	1354.	31.17	1347.	1243.	826.	24.28
ROUTED TO	NODE4	1353.	32.33	1346.	1243.	804.	24.28
HYDROGRAPH AT	FB13	397.	17.17	391.	314.	200.	3.51
HYDROGRAPH AT	RET1	221.	17.83	215.	186.	136.	.00
2 COMBINED AT	COMB1	618.	17.50	604.	495.	336.	3.51
ROUTED TO	ICD1	612.	20.50	604.	495.	331.	3.51
HYDROGRAPH AT	FB17	92.	17.00	91.	75.	48.	.88
2 COMBINED AT	FB17	704.	17.67	693.	568.	379.	4.39
ROUTED TO	ICD2	704.	18.17	693.	568.	371.	4.39
HYDROGRAPH AT	FB18	412.	13.33	336.	152.	76.	.96
2 COMBINED AT	FB18	971.	17.17	923.	683.	447.	5.35
ROUTED TO	ICD3	970.	17.50	922.	682.	442.	5.35
HYDROGRAPH AT	FB19	294.	14.83	286.	210.	128.	1.91
ROUTED TO	FB20	294.	15.67	286.	210.	127.	1.91
HYDROGRAPH AT	FB20	262.	13.50	240.	142.	78.	1.01
2 COMBINED AT	FB20	543.	14.83	514.	349.	204.	2.92
ROUTED TO	NODE2	541.	15.83	512.	348.	203.	2.92
HYDROGRAPH AT	FB21	204.	14.50	196.	138.	82.	1.17
ROUTED TO	NODE2	203.	15.67	195.	138.	81.	1.17
2 COMBINED AT	NODE2	743.	15.83	707.	486.	284.	4.09
ROUTED TO	FB22	742.	16.50	706.	485.	283.	4.09
HYDROGRAPH AT	FB22	175.	14.83	171.	126.	77.	1.16
2 COMBINED AT	FB22	914.	16.33	872.	610.	360.	5.25
ROUTED TO	NODE3	912.	17.00	870.	609.	358.	5.25
2 COMBINED AT	NODE3	1880.	17.33	1792.	1291.	799.	10.60
ROUTED TO	NODE4	1877.	18.00	1789.	1290.	794.	10.60
2 COMBINED AT	NODE4	2805.	19.00	2722.	2423.	1598.	34.88
ROUTED TO	FB24	2740.	22.83	2681.	2414.	1554.	34.88
HYDROGRAPH AT	FB23	354.	14.67	340.	238.	140.	2.00
HYDROGRAPH AT	FB24	392.	14.50	376.	260.	153.	2.16

Flores Bayou 10 year flows with weir FB\_10W.IH1

3 COMBINED AT	FB24	3292.	22.17	3211.	2808.	1847.	39.04
ROUTED TO	FB25	3261.	25.50	3190.	2800.	1768.	39.04
HYDROGRAPH AT	FB25	125.	22.00	122.	104.	67.	1.49
2 COMBINED AT	FB25	3380.	25.33	3308.	2902.	1835.	40.53

\*\*\* NORMAL END OF HEC-1 \*\*\*

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*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JUN 1998
*   VERSION 4.1
*
* RUN DATE 23AUG02 TIME 13:47:01
*
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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
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X   X XXXXXXX XXXXX      X
X   X X      X   X      XX
X   X X      X           X
XXXXXXX XXXX   X       XXXXX X
X   X X      X           X
X   X X      X   X      X
X   X XXXXXXX XXXXX      XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

LINE	ID	1	2	3	4	5	6	7	8	9	10
1	ID	FILE: FLOR25.IH1									
2	ID	BRAZORIA COUNTY MASTER DRAINAGE STUDY									
3	ID	25 YEAR FLOW RUNS									
4	ID	BAKER & LAWSON, DBR									
5	IT	10	16AUG00	1200	300						
6	IO	5									
7	KK	FB01									
8	KM	PERCENT PONDED AREA = 50%									
	*										21
9	BA	1.71									
	* 2 YEAR STORM	5 MIN	15 MIN	60 MIN	2 HR	3 HR	6 HR	12 HR	24 HR		
	*	50	0	0.56	1.22	2.38	2.90	3.20	3.70	4.50	5.10
	* 5 YEAR STORM										
	*	20	0	0.63	1.38	2.82	3.70	4.10	5.00	6.00	7.00
	* 10 YEAR STORM										
	*	10	0	0.70	1.54	3.27	4.40	4.90	5.90	7.40	8.70
	* 25 YEAR STORM										
10	PH	4	0	0.77	1.71	3.71	5.00	5.60	7.00	8.20	10.00
	* 50 YEAR STORM										
	*	2	0	0.84	1.87	4.16	5.60	6.40	7.90	9.90	11.70
	* 100 YEAR STORM										
	*	1	0	0.91	2.02	4.62	6.20	7.15	8.75	10.75	13.00
11	LU	0.75	0.1	1							
	* 100 YEAR TC & R										
12	UC	1.61	18.34								
13	KK	FB02									
14	KM	FB01 RTE TO FB02									
	*	0									
15	RM	4.5	0.74	.1							
16	KK	FB02									
17	KM	PERCENT PONDED AREA = 50%									
	*	0									
18	BA	2.04									
19	LU	0.75	0.1	1							
	* 100 YEAR TC & R										
20	UC	1.50	15.15								
21	KK	FB02									
22	KM	COMBINE 2 HYDROGRAPHS									
	*										21
23	HC	2									
24	KK	FB05									
25	KM	FB01&02 RTE TO FB05									
	*										21
26	RM	10	1.6	.1							
	*										
	* START TRIBUTARY FB03 TO FB05										
	*										

Flores Bayou 25 year flows with weir FB\_25W.IH1

HEC-1 INPUT

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
27	KK FB03
28	KM PERCENT PONDED AREA = 40%
	* 21
29	BA 1.69
30	LU 0.75 0.1 1
	* 100 YEAR TC & R
31	UC 1.05 15.78
32	KK FB04
33	KM FB03 RTE TO FB04
34	RM 3.5 0.60 .1
35	KK FB04
36	KM PERCENT PONDED AREA = 50%
37	BA 1.44
38	LU 0.75 0.1 1
	* 100 YEAR TC & R
39	UC 2.46 24.01
40	KK FB04
41	KM COMBINE 2 HYDROGRAPHS
	* 21
42	HC 2
43	KK FB05
44	KM FB03&04 RTE TO FB05
45	RM 14.5 2.41 .1
46	KK FB05
47	KM PERCENT PONDED AREA = 50%
48	BA 1.82
49	LU 0.75 0.1 1
	* 100 YEAR TC & R
50	UC 2.31 20.02
51	KK FB05
52	KM COMBINE 3 HYDROGRAPHS
	* 21
53	HC 3
	* * START TRIBUTARY FB06 TO NODE1 *
54	KK FB06
55	KM PERCENT PONDED AREA = 50%
	* 21
56	BA 1.33
57	LU 0.75 0.1 1
	* 100 YEAR TC & R
58	UC 1.51 21.02

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

59	KK	FB07			
60	KM	FB06 RTE TO FB07			
61	RM	2.8	0.46	.1	
62	KK	FB07			
63	KM	PERCENT PONDED AREA = 50%			
64	BA	0.99			
65	LU	0.75	0.1	1	
		* 100 YEAR TC & R			
66	UC	1.66	20.50		
67	KK	FB07			
68	KM	COMBINE 2 HYDROGRAPHS			
	*				21
69	HC	2			
70	KK	NODE1			
71	KM	FB06&07 RTE TO NODE1			
72	RM	3.3	0.56	.1	
	*				
	*	START TRIBUTARY FB08 TO NODE1			
	*				
73	KK	FB08			
74	KM	PERCENT PONDED AREA = 50%			
	*				21
75	BA	2.37			
76	LU	0.75	0.1	1	
	*	100 YEAR TC & R			
77	UC	1.66	11.98		
78	KK	FB09			
79	KM	FB08 RTE TO FB09			
80	RM	6.4	1.07	.1	
81	KK	FB09			
82	KM	PERCENT PONDED AREA = 50%			
83	BA	1.02			
84	LU	0.75	0.1	1	
	*	100 YEAR TC & R			
85	UC	0.59	18.40		
86	KK	FB09			
87	KM	COMBINE 2 HYDROGRAPHS			
	*				21
88	HC	2			
89	KK	NODE1			
90	KM	FB08&09 RTE TO NODE1			
91	RM	13.3	2.22	.1	

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
92	KK FB10
93	KM PERCENT PONDED AREA = 50%
94	BA 1.38
95	LU 0.75 0.1 1
	* 100 YEAR TC & R
96	UC 1.80 19.80
97	KK NODE1
98	KM COMBINE 3 HYDROGRAPHS
	* 21
99	HC 3
100	KK FB11
101	KM NODE1 RTE TO FB11
102	RM 3.4 0.57 .1
103	KK FB11
104	KM PERCENT PONDED AREA = 50%
	* 1
105	BA 0.96
106	LU 0.75 0.1 1
	* 100 YEAR TC & R
107	UC 1.19 15.66
108	KK FB11
109	KM COMBINE 2 HYDROGRAPHS
	* 21
110	HC 2
111	KK FB12
112	KM FB06&11 RTE TO FB12
113	RM 11.1 1.85 .1
114	KK FB12
115	KM PERCENT PONDED AREA = 50%
116	BA 1.72
117	LU 0.75 0.1 1
	* 100 YEAR TC & R
118	UC 0.99 17.69
119	KK FB12
120	KM COMBINE 2 HYDROGRAPHS
	* 21
121	HC 2
122	KK WEIR1
123	KM PROPOSED WEIR
	* 1 21
124	RS 1 STOR -1
125	SA 0 0.1 300 300 1000
126	SE 17.4 18 20 27 28
127	SS 25 250 2.6 1.5









LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
235	KK FB20
236	KM COMBINE 2 HYDROGRAPHS
	* 21
237	HC 2
238	KK NODE2
239	KM FB19-20 RTE TO NODE2
240	RM 5.00 0.83 .1
	* * START TRIBUTARY FB21 TO NODE2 *
241	KK FB21
242	KM PERCENT PONDED AREA = 50%
243	BA 1.17
244	LU 0.75 0.1 1
	* 100 YEAR TC & R
245	UC 1.14 15.40
246	KK NODE2
247	KM FB21 RTE TO NODE2
248	RM 5.56 0.93 .1
249	KK NODE2
250	KM COMBINE 2 HYDROGRAPHS
	* 21
251	HC 2
252	KK FB22
253	KM NODE2 RTE TO FB22
254	RM 3.33 0.56 .1
255	KK FB22
256	KM PERCENT PONDED AREA = 50%
257	BA 1.16
258	LU 0.75 0.1 1
	* 100 YEAR TC & R
259	UC 1.16 18.12
260	KK FB22
261	KM COMBINE 2 HYDROGRAPHS
	* 21
262	HC 2
263	KK NODE3
264	KM NODE2 RTE TO NODE3
265	RM 3.33 0.56 .1
266	KK NODE3
267	KM COMBINE 2 HYDROGRAPHS
	* 21
268	HC 2



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*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* JUN 1998 *
* VERSION 4.1 *
* RUN DATE 23AUG02 TIME 13:47:01 *
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENT *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 756-1104 *
*
*****

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FILE: FLOR25.IH1
BRAZORIA COUNTY MASTER DRAINAGE STUDY
25 YEAR FLOW RUNS
BAKER & LAWSON, DBR

```

6 IO OUTPUT CONTROL VARIABLES

```

IPRNT 5 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

```

IT HYDROGRAPH TIME DATA

```

NMIN 10 MINUTES IN COMPUTATION INTERVAL
IDATE 16AUG 0 STARTING DATE
ITIME 1200 STARTING TIME
NQ 300 NUMBER OF HYDROGRAPH ORDINATES
NDDATE 18AUG 0 ENDING DATE
NDTIME 1350 ENDING TIME
ICENT 19 CENTURY MARK

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COMPUTATION INTERVAL .17 HOURS
TOTAL TIME BASE 49.83 HOURS

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ENGLISH UNITS

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DRAINAGE AREA SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW CUBIC FEET PER SECOND
STORAGE VOLUME ACRE-FEET
SURFACE AREA ACRES
TEMPERATURE DEGREES FAHRENHEIT

```

Flores Bayou 25 year flows with weir FB\_25W.IH1

RUNOFF SUMMARY  
 FLOW IN CUBIC FEET PER SECOND  
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	FB01	341.	15.33	326.	236.	141.	1.71		
ROUTED TO	FB02	341.	16.17	325.	235.	140.	1.71		
HYDROGRAPH AT	FB02	478.	15.00	452.	306.	177.	2.04		
2 COMBINED AT	FB02	815.	15.50	771.	540.	317.	3.75		
ROUTED TO	FB05	811.	17.17	767.	539.	313.	3.75		
HYDROGRAPH AT	FB03	383.	14.83	364.	249.	146.	1.69		
ROUTED TO	FB04	383.	15.50	362.	249.	145.	1.69		
HYDROGRAPH AT	FB04	227.	16.17	220.	172.	107.	1.44		
2 COMBINED AT	FB04	609.	15.67	581.	421.	252.	3.13		
ROUTED TO	FB05	605.	18.33	576.	419.	246.	3.13		
HYDROGRAPH AT	FB05	336.	15.83	322.	239.	145.	1.82		
3 COMBINED AT	FB05	1733.	17.67	1645.	1189.	705.	8.70		
HYDROGRAPH AT	FB06	237.	15.50	228.	171.	105.	1.33		
ROUTED TO	FB07	236.	16.00	227.	171.	104.	1.33		
HYDROGRAPH AT	FB07	180.	15.50	173.	129.	79.	.99		
2 COMBINED AT	FB07	416.	15.83	399.	300.	183.	2.32		
ROUTED TO	NODE1	415.	16.33	399.	300.	182.	2.32		
HYDROGRAPH AT	FB08	674.	14.67	623.	387.	215.	2.37		
ROUTED TO	FB09	671.	15.83	619.	386.	214.	2.37		
HYDROGRAPH AT	FB09	204.	15.00	195.	141.	85.	1.02		
2 COMBINED AT	FB09	872.	15.83	808.	526.	299.	3.39		
ROUTED TO	NODE1	863.	18.33	801.	525.	295.	3.39		
HYDROGRAPH AT	FB10	258.	15.50	247.	183.	111.	1.38		
3 COMBINED AT	NODE1	1507.	18.00	1418.	1002.	588.	7.09		
ROUTED TO	FB11	1503.	18.50	1416.	1001.	585.	7.09		
HYDROGRAPH AT	FB11	220.	15.00	208.	142.	83.	.96		
2 COMBINED AT	FB11	1696.	18.50	1599.	1137.	668.	8.05		
ROUTED TO	FB12	1684.	20.50	1592.	1135.	657.	8.05		
HYDROGRAPH AT	FB12	354.	15.00	338.	241.	144.	1.72		
2 COMBINED AT	FB12	1978.	20.33	1874.	1353.	800.	9.77		
ROUTED TO	WEIR1	956.	34.17	930.	679.	327.	9.77	26.29	
ROUTED TO	FB05	955.	34.33	930.	676.	326.	9.77		
2 COMBINED AT	FB05	1785.	32.50	1740.	1563.	1030.	18.47		
DIVERSION TO	DIV1	389.	32.50	383.	356.	251.	18.47		
HYDROGRAPH AT	DIV1	1396.	32.50	1358.	1207.	779.	18.47		

Flores Bayou 25 year flows with weir FB\_25W.IH1

ROUTED TO	FB14	1243.	45.33	1231.	1124.	653.	18.47
HYDROGRAPH AT	FB14	840.	13.67	769.	450.	245.	2.65
2 COMBINED AT	FB14	1301.	44.50	1290.	1263.	898.	21.12
ROUTED TO	FB15	1300.	45.17	1290.	1263.	885.	21.12
HYDROGRAPH AT	FB15	205.	14.50	194.	128.	73.	.83
2 COMBINED AT	FB15	1372.	30.33	1362.	1325.	958.	21.95
ROUTED TO	FB16	1362.	36.33	1356.	1315.	841.	21.95
HYDROGRAPH AT	FB16	346.	16.50	335.	266.	167.	2.33
2 COMBINED AT	FB16	1554.	30.33	1551.	1492.	1008.	24.28
ROUTED TO	NODE4	1552.	33.50	1550.	1490.	965.	24.28
HYDROGRAPH AT	FB13	533.	16.50	516.	407.	255.	3.51
HYDROGRAPH AT	RET1	389.	32.50	383.	356.	251.	.00
2 COMBINED AT	COMB1	910.	17.17	880.	756.	506.	3.51
ROUTED TO	ICD1	820.	27.83	811.	745.	500.	3.51
HYDROGRAPH AT	FB17	124.	16.00	120.	97.	62.	.88
2 COMBINED AT	FB17	911.	27.33	901.	828.	561.	4.39
ROUTED TO	ICD2	911.	28.17	901.	828.	552.	4.39
HYDROGRAPH AT	FB18	534.	13.33	424.	184.	91.	.96
2 COMBINED AT	FB18	1168.	15.33	1063.	954.	643.	5.35
ROUTED TO	ICD3	1159.	15.67	1060.	954.	636.	5.35
HYDROGRAPH AT	FB19	394.	15.17	376.	268.	160.	1.91
ROUTED TO	FB20	393.	15.83	375.	268.	159.	1.91
HYDROGRAPH AT	FB20	344.	13.50	311.	176.	94.	1.01
2 COMBINED AT	FB20	720.	15.00	668.	440.	253.	2.92
ROUTED TO	NODE2	717.	15.83	665.	439.	252.	2.92
HYDROGRAPH AT	FB21	271.	14.83	257.	175.	102.	1.17
ROUTED TO	NODE2	271.	15.83	255.	174.	101.	1.17
2 COMBINED AT	NODE2	988.	15.83	921.	614.	353.	4.09
ROUTED TO	FB22	985.	16.50	918.	613.	351.	4.09
HYDROGRAPH AT	FB22	235.	15.17	224.	161.	96.	1.16
2 COMBINED AT	FB22	1214.	16.33	1136.	772.	448.	5.25
ROUTED TO	NODE3	1211.	17.00	1133.	772.	446.	5.25
2 COMBINED AT	NODE3	2330.	16.33	2185.	1725.	1082.	10.60
ROUTED TO	NODE4	2323.	17.00	2181.	1724.	1075.	10.60
2 COMBINED AT	NODE4	3262.	18.17	3189.	3032.	2040.	34.88
ROUTED TO	FB24	3163.	24.83	3158.	3014.	1971.	34.88
HYDROGRAPH AT	FB23	471.	15.00	445.	301.	174.	2.00
HYDROGRAPH AT	FB24	515.	14.83	486.	327.	189.	2.16



Flores Bayou 25 year flows with weir FB\_25W.IH1

3 COMBINED AT	FB24	3824.	22.33	3792.	3481.	2333.	39.04
ROUTED TO	FB25	3811.	25.67	3775.	3473.	2221.	39.04
HYDROGRAPH AT	FB25	165.	21.67	161.	137.	87.	1.49
2 COMBINED AT	FB25	3968.	25.50	3929.	3606.	2307.	40.53

\*\*\* NORMAL END OF HEC-1 \*\*\*

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*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JUN 1998
*   VERSION 4.1
*
* RUN DATE 23AUG02 TIME 13:36:27
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****

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X   X XXXXXXXX XXXXX      X
X   X X      X   X      XX
X   X X      X           X
XXXXXXX XXXX  X           XXXXX X
X   X X      X           X
X   X X      X   X      X
X   X XXXXXXXX XXXXX      XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.  
 THE DEFINITION OF -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

Flores Bayou 100 year with weir FB\_100W.IH1

HEC-1 INPUT

PAGE 1

LINE	ID	1	2	3	4	5	6	7	8	9	10
1	ID	FILE: FB_100w.IH1									
2	ID	BRAZORIA COUNTY MASTER DRAINAGE STUDY									
3	ID	100 YEAR FLOW RUNS									
4	ID	BAKER & LAWSON, DBR									
5	IT	10	16AUG00	1200	1000						
6	IO	5									
7	KK	FB01									
8	KM	PERCENT PONDED AREA = 50%									
	*										21
9	BA	1.71									
	* 2 YEAR STORM	5 MIN	15 MIN	60 MIN	2 HR	3 HR	6 HR	12 HR	24 HR		
	* 50	0	0.56	1.22	2.38	2.90	3.20	3.70	4.50	5.10	
	* 5 YEAR STORM										
	* 20	0	0.63	1.38	2.82	3.70	4.10	5.00	6.00	7.00	
	* 10 YEAR STORM										
	* 10	0	0.70	1.54	3.27	4.40	4.90	5.90	7.40	8.70	
	* 25 YEAR STORM										
	* 4	0	0.77	1.71	3.71	5.00	5.60	7.00	8.20	10.00	
	* 50 YEAR STORM										
	* 2	0	0.84	1.87	4.16	5.60	6.40	7.90	9.90	11.70	
	* 100 YEAR STORM										
10	PH	1	0	0.91	2.02	4.62	6.20	7.15	8.75	10.75	13.00
11	LU	0.75	0.1	1							
	* 100 YEAR TC & R										
12	UC	1.61	15.24								
13	KK	FB02									
14	KM	FB01 RTE TO FB02									
	*	0									
15	RM	4.5	0.74	.1							
16	KK	FB02									
17	KM	PERCENT PONDED AREA = 50%									
	*	0									
18	BA	2.04									
19	LU	0.75	0.1	1							
	* 100 YEAR TC & R										
20	UC	1.50	12.59								
21	KK	FB02									
22	KM	COMBINE 2 HYDROGRAPHS									
	*										21
23	HC	2									
24	KK	FB05									
25	KM	FB01&02 RTE TO FB05									
	*										21
26	RM	10	1.6	.1							
	*										
	* START TRIBUTARY FB03 TO FB05										
	*										

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
27	KK FB03
28	KM PERCENT PONDED AREA = 40%
	* 21
29	BA 1.69
30	LU 0.75 0.1 1
	* 100 YEAR TC & R
31	UC 1.05 13.23
32	KK FB04
33	KM FB03 RTE TO FB04
34	RM 3.5 0.60 .1
35	KK FB04
36	KM PERCENT PONDED AREA = 50%
37	BA 1.44
38	LU 0.75 0.1 1
	* 100 YEAR TC & R
39	UC 2.46 19.95
40	KK FB04
41	KM COMBINE 2 HYDROGRAPHS
	* 21
42	HC 2
43	KK FB05
44	KM FB03&04 RTE TO FB05
45	RM 14.5 2.41 .1
46	KK FB05
47	KM PERCENT PONDED AREA = 50%
48	BA 1.82
49	LU 0.75 0.1 1
	* 100 YEAR TC & R
50	UC 2.31 16.64
51	KK FB05
52	KM COMBINE 3 HYDROGRAPHS
	* 21
53	HC 3
	* START TRIBUTARY FB06 TO NODE1
	*
54	KK FB06
55	KM PERCENT PONDED AREA = 50%
	* 21
56	BA 1.33
57	LU 0.75 0.1 1
	* 100 YEAR TC & R
58	UC 1.51 17.47

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

```

59      KK      FB07
60      KM      FB06 RTE TO FB07
61      RM      2.8      0.46      .1

62      KK      FB07
63      KM      PERCENT PONDED AREA = 50%
64      BA      0.99
65      LU      0.75      0.1      1
        * 100 YEAR TC & R
66      UC      1.66      17.04

67      KK      FB07
68      KM      COMBINE 2 HYDROGRAPHS
        *
69      HC      2
                                     21

70      KK      NODE1
71      KM      FB06&07 RTE TO NODE1
72      RM      3.3      0.56      .1
        *
        * START TRIBUTARY FB08 TO NODE1
        *

73      KK      FB08
74      KM      PERCENT PONDED AREA = 50%
        *
75      BA      2.37
76      LU      0.75      0.1      1
        * 100 YEAR TC & R
77      UC      1.66      9.96
                                     21

78      KK      FB09
79      KM      FB08 RTE TO FB09
80      RM      6.4      1.07      .1

81      KK      FB09
82      KM      PERCENT PONDED AREA = 50%
83      BA      1.02
84      LU      0.75      0.1      1
        * 100 YEAR TC & R
85      UC      0.59      15.29

86      KK      FB09
87      KM      COMBINE 2 HYDROGRAPHS
        *
88      HC      2
                                     21

89      KK      NODE1
90      KM      FB08&09 RTE TO NODE1
91      RM      13.3      2.22      .1
    
```

Flores Bayou 100 year with weir FB\_100W.IH1

HEC-1 INPUT

PAGE 4

LINE	ID	1	2	3	4	5	6	7	8	9	10
92	KK	FB10									
93	KM	PERCENT PONDED AREA = 50%									
94	BA	1.38									
95	LU	0.75	0.1	1							
		* 100 YEAR TC & R									
96	UC	1.80	16.46								
97	KK	NODE1									
98	KM	COMBINE 3 HYDROGRAPHS									
	*							21			
99	HC	3									
100	KK	FB11									
101	KM	NODE1 RTE TO FB11									
102	RM	3.4	0.57	.1							
103	KK	FB11									
104	KM	PERCENT PONDED AREA = 50%									
	*	1									
105	BA	0.96									
106	LU	0.75	0.1	1							
		* 100 YEAR TC & R									
107	UC	1.19	13.02								
108	KK	FB11									
109	KM	COMBINE 2 HYDROGRAPHS									
	*							21			
110	HC	2									
111	KK	FB12									
112	KM	FB06&11 RTE TO FB12									
113	RM	11.1	1.85	.1							
114	KK	FB12									
115	KM	PERCENT PONDED AREA = 50%									
116	BA	1.72									
117	LU	0.75	0.1	1							
		* 100 YEAR TC & R									
118	UC	0.99	14.70								
119	KK	FB12									
120	KM	COMBINE 2 HYDROGRAPHS									
	*							21			
	*	1	1	1	1	1	1	21	1	1000	1
121	HC	2									
122	KK	WEIR1									
123	KM	PROPOSED WEIR									
	*	1						21			
124	RS	1	STOR	-1							
125	SA	0	0.1	300	300	1000					
126	SE	17.4	18	20	27	28					
127	SS	25	250	2.6	1.5						



Flores Bayou 100 year with weir FB\_100W.IH1

HEC-1 INPUT

PAGE 6

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

163	KK	FB16							
164	KM	REACH EXTENDS FROM X-SECT.			5.050	TO X-SECT.		7.460	
165	RS	11	STOR	0					
166	SV	0	71	175	559	1145	1779	2512	3301
167	SQ	0	362	724	1448	2173	2897	3621	4345
168	KK	FB16							
169	KM	PERCENT PONDED AREA = 45%							
170	BA	2.33							
171	LU	0.75	0.1	1					
		* 100 YEAR TC & R							
172	UC	2.85	21.44						
173	KK	FB16							
174	KM	COMBINE 2 HYDROGRAPHS							
	*				21				
175	HC	2							
176	KK	NODE4							
177	KM	REACH EXTENDS FROM X-SECT.			3.850	TO X-SECT.		5.030	
178	RS	5	STOR	0					
179	SV	0	39	96	301	483	642	776	899
180	SQ	0	506	1012	2024	3036	4048	5060	6072
	*	* START TRIBUTARY FB13 & FB17 TO NODE3							
	*								
181	KK	FB13							
182	KM	PERCENT PONDED AREA = 50%							
183	BA	3.51							
184	LU	0.75	0.1	1					
		* 100 YEAR TC & R							
185	UC	2.83	20.74						
186	KK	RET1							
187	KM	FLOW SPLIT TO ICD							
188	DR	DIV1							
189	KK	COMB1							
190	HC	2							
191	KK	RCH 3							
192	KM	REACH EXTENDS FROM X-SECT.			2.400	TO X-SECT.		3.400	
193	RS	6	STOR	-1					
194	SV	0	14	23	39	497	551	625	
195	SQ	0	153	306	612	1224	1530	1836	
196	KK	FB17							
197	KM	PERCENT PONDED AREA = 50%							
198	BA	0.88							
199	LU	0.75	0.1	1					
		* 100 YEAR TC & R							
200	UC	1.68	22.92						





LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
235	KK FB20
236	KM COMBINE 2 HYDROGRAPHS
	* 21
237	HC 2
238	KK NODE2
239	KM FB19-20 RTE TO NODE2
240	RM 5.00 0.83 .1
	* * START TRIBUTARY FB21 TO NODE2 *
241	KK FB21
242	KM PERCENT PONDED AREA = 50%
243	BA 1.17
244	LU 0.75 0.1 1
	* 100 YEAR TC & R
245	UC 1.14 12.80
246	KK NODE2
247	KM FB21 RTE TO NODE2
248	RM 5.56 0.93 .1
249	KK NODE2
250	KM COMBINE 2 HYDROGRAPHS
	* 21
251	HC 2
252	KK FB22
253	KM NODE2 RTE TO FB22
254	RM 3.33 0.56 .1
255	KK FB22
256	KM PERCENT PONDED AREA = 50%
257	BA 1.16
258	LU 0.75 0.1 1
	* 100 YEAR TC & R
259	UC 1.16 15.06
260	KK FB22
261	KM COMBINE 2 HYDROGRAPHS
	* 21
262	HC 2
263	KK NODE3
264	KM NODE2 RTE TO NODE3
265	RM 3.33 0.56 .1
266	KK NODE3
267	KM COMBINE 2 HYDROGRAPHS
	* 21
268	HC 2

LINE	ID	1	2	3	4	5	6	7	8	9	10
269	KK	NODE4									
270	KM	NODE3 RTE TO NODE4									
271	RM	3.33	0.56	.1							
272	KK	NODE4									
273	KM	COMBINE 2 HYDROGRAPHS									
	*										21
274	HC	2									
275	KK	FB24									
276	KM	REACH EXTENDS FROM X-SECT.			2.050 TO X-SECT.			2.890			
277	RS	6	STOR	0							
278	SV	0	48	89	264	529	947	1285	1566		
279	SQ	0	506	1012	2024	3036	4048	5060	6072		
280	KK	FB23									
281	KM	PERCENT PONDED AREA = 50%									
282	BA	2.00									
283	LU	0.75	0.1	1							
	*	100 YEAR TC & R									
284	UC	1.42	12.52								
285	KK	FB24									
286	KM	PERCENT PONDED AREA = 30%									
287	BA	2.16									
288	LU	0.75	0.1	1							
	*	100 YEAR TC & R									
289	UC	1.20	12.58								
290	KK	FB24									
291	KM	COMBINE 3 HYDROGRAPHS									
	*										21
292	HC	3									
293	KK	FB25									
294	KM	REACH EXTENDS FROM X-SECT.			.000 TO X-SECT.			2.030			
295	RS	9	STOR	0							
296	SV	0	111	180	397	649	911	1153	1394		
297	SQ	0	528	1055	2111	3166	4222	5277	6332		
298	KK	FB25									
299	KM	PERCENT PONDED AREA = 50%									
300	BA	1.49									
301	LU	0.75	0.1	1							
	*	100 YEAR TC & R									
302	UC	9.33	28.89								
303	KK	FB25									
304	KM	COMBINE 2 HYDROGRAPHS									
	*	1	1	1	21	1	1000	1			
305	HC	2									
306	ZZ										

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*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* JUN 1998 *
* VERSION 4.1 *
* RUN DATE 23AUG02 TIME 13:36:27 *
*
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*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTI *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 756-1104 *
*
*****

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FILE: FB\_100w.IH1  
 BRAZORIA COUNTY MASTER DRAINAGE STUDY  
 100 YEAR FLOW RUNS  
 BAKER & LAWSON, DBR

6 IO OUTPUT CONTROL VARIABLES

```

IPRNT 5 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

```

IT HYDROGRAPH TIME DATA

```

NMIN 10 MINUTES IN COMPUTATION INTERVAL
IDATE 16AUG 0 STARTING DATE
ITIME 1200 STARTING TIME
NQ 1000 NUMBER OF HYDROGRAPH ORDINATES
NDDATE 23AUG 0 ENDING DATE
NDTIME 1030 ENDING TIME
ICENT 19 CENTURY MARK

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COMPUTATION INTERVAL .17 HOURS
TOTAL TIME BASE 166.50 HOURS

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ENGLISH UNITS

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DRAINAGE AREA SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW CUBIC FEET PER SECOND
STORAGE VOLUME ACRE-FEET
SURFACE AREA ACRES
TEMPERATURE DEGREES FAHRENHEIT

```

Flores Bayou 100 year with weir FB\_100W.IH1

RUNOFF SUMMARY  
 FLOW IN CUBIC FEET PER SECOND  
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	FB01	529.	14.83	505.	352.	151.	1.71		
ROUTED TO	FB02	528.	15.83	504.	352.	151.	1.71		
HYDROGRAPH AT	FB02	739.	14.67	694.	451.	184.	2.04		
2 COMBINED AT	FB02	1257.	15.17	1187.	801.	335.	3.75		
ROUTED TO	FB05	1250.	17.00	1181.	800.	335.	3.75		
HYDROGRAPH AT	FB03	589.	14.33	556.	367.	152.	1.69		
ROUTED TO	FB04	588.	15.00	554.	367.	152.	1.69		
HYDROGRAPH AT	FB04	355.	16.00	345.	261.	121.	1.44		
2 COMBINED AT	FB04	940.	15.33	897.	628.	273.	3.13		
ROUTED TO	FB05	933.	18.00	889.	626.	273.	3.13		
HYDROGRAPH AT	FB05	522.	15.50	501.	360.	159.	1.82		
3 COMBINED AT	FB05	2674.	17.50	2539.	1777.	767.	8.70		
HYDROGRAPH AT	FB06	367.	15.00	355.	258.	115.	1.33		
ROUTED TO	FB07	367.	15.67	354.	258.	115.	1.33		
HYDROGRAPH AT	FB07	279.	15.17	269.	194.	86.	.99		
2 COMBINED AT	FB07	646.	15.50	622.	452.	202.	2.32		
ROUTED TO	NODE1	645.	16.00	621.	452.	202.	2.32		
HYDROGRAPH AT	FB08	1036.	14.50	945.	561.	217.	2.37		
ROUTED TO	FB09	1028.	15.67	939.	561.	217.	2.37		
HYDROGRAPH AT	FB09	316.	14.33	302.	210.	90.	1.02		
2 COMBINED AT	FB09	1338.	15.67	1232.	771.	307.	3.39		
ROUTED TO	NODE1	1320.	18.17	1221.	769.	307.	3.39		
HYDROGRAPH AT	FB10	400.	15.17	385.	275.	121.	1.38		
3 COMBINED AT	NODE1	2325.	17.83	2181.	1491.	629.	7.09		
ROUTED TO	FB11	2318.	18.50	2177.	1491.	629.	7.09		
HYDROGRAPH AT	FB11	340.	14.50	320.	210.	87.	.96		
2 COMBINED AT	FB11	2615.	18.33	2457.	1693.	716.	8.05		
ROUTED TO	FB12	2596.	20.33	2447.	1690.	716.	8.05		
HYDROGRAPH AT	FB12	549.	14.50	524.	359.	153.	1.72		
2 COMBINED AT	FB12	3046.	20.17	2878.	2019.	869.	9.77		
ROUTED TO	WEIR1	1971.	28.50	1906.	1356.	579.	9.77	27.09	
ROUTED TO	FB05	1971.	28.67	1905.	1355.	579.	9.77		
2 COMBINED AT	FB05	3633.	27.00	3505.	2804.	1342.	18.47		
DIVERSION TO	DIV1	819.	27.00	804.	718.	413.	18.47		
HYDROGRAPH AT	DIV1	2814.	27.00	2701.	2086.	930.	18.47		

Flores Bayou 100 year with weir FB\_100W.IH1

ROUTED TO	FB14	2306.	42.67	2283.	1954.	930.	18.47
HYDROGRAPH AT	FB14	1288.	13.67	1156.	646.	243.	2.65
2 COMBINED AT	FB14	2378.	41.83	2362.	2080.	1172.	21.12
ROUTED TO	FB15	2378.	42.50	2362.	2080.	1172.	21.12
HYDROGRAPH AT	FB15	318.	14.17	296.	187.	75.	.83
2 COMBINED AT	FB15	2418.	42.00	2403.	2140.	1248.	21.95
ROUTED TO	FB16	2360.	51.83	2340.	2113.	1248.	21.95
HYDROGRAPH AT	FB16	538.	16.33	525.	406.	192.	2.33
2 COMBINED AT	FB16	2484.	51.33	2466.	2270.	1440.	24.28
ROUTED TO	NODE4	2479.	53.50	2461.	2267.	1440.	24.28
HYDROGRAPH AT	FB13	832.	16.33	809.	621.	291.	3.51
HYDROGRAPH AT	RET1	819.	27.00	804.	718.	413.	.00
2 COMBINED AT	COMB1	1538.	17.00	1494.	1329.	704.	3.51
ROUTED TO	RCH 3	1437.	27.33	1420.	1270.	704.	3.51
HYDROGRAPH AT	FB17	193.	15.83	189.	149.	72.	.88
2 COMBINED AT	FB17	1577.	26.83	1568.	1383.	775.	4.39
ROUTED TO	RCH 2	1574.	28.67	1564.	1382.	775.	4.39
HYDROGRAPH AT	FB18	791.	13.17	608.	259.	88.	.96
2 COMBINED AT	FB18	1660.	25.17	1639.	1450.	862.	5.35
ROUTED TO	RCH 1	1656.	26.00	1637.	1449.	862.	5.35
HYDROGRAPH AT	FB19	611.	14.50	582.	399.	170.	1.91
ROUTED TO	FB20	609.	15.50	580.	399.	170.	1.91
HYDROGRAPH AT	FB20	527.	13.50	466.	251.	93.	1.01
2 COMBINED AT	FB20	1101.	14.83	1016.	645.	263.	2.92
ROUTED TO	NODE2	1096.	15.67	1013.	644.	263.	2.92
HYDROGRAPH AT	FB21	420.	14.33	395.	258.	106.	1.17
ROUTED TO	NODE2	418.	15.50	393.	257.	106.	1.17
2 COMBINED AT	NODE2	1513.	15.67	1405.	902.	368.	4.09
ROUTED TO	FB22	1508.	16.33	1402.	901.	368.	4.09
HYDROGRAPH AT	FB22	363.	14.67	347.	240.	103.	1.16
2 COMBINED AT	FB22	1862.	16.17	1737.	1140.	471.	5.25
ROUTED TO	NODE3	1856.	16.83	1734.	1140.	471.	5.25
2 COMBINED AT	NODE3	3203.	16.33	3019.	2588.	1333.	10.60
ROUTED TO	NODE4	3193.	17.00	3016.	2586.	1333.	10.60
2 COMBINED AT	NODE4	4795.	25.00	4716.	4307.	2773.	34.88
ROUTED TO	FB24	4723.	29.33	4672.	4271.	2773.	34.88
HYDROGRAPH AT	FB23	728.	14.50	683.	443.	181.	2.00
HYDROGRAPH AT	FB24	784.	14.33	736.	477.	195.	2.16

Flores Bayou 100 year with weir FB\_100W.IH1

3 COMBINED AT	FB24	5369.	28.00	5322.	4877.	3147.	39.04
ROUTED TO	FB25	5355.	30.67	5313.	4867.	3146.	39.04
HYDROGRAPH AT	FB25	261.	21.67	255.	213.	109.	1.49
2 COMBINED AT	FB25	5570.	30.50	5530.	5070.	3255.	40.53

\*\*\* NORMAL END OF HEC-1 \*\*\*

```
*****  
* HEC-2 WATER SURFACE PROFILES *  
* *  
* version 4.6.2; May 1991 *  
* *  
* RUN DATE 23AUG02 TIME 10:23:24 *  
*****
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*****  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET, SUITE D *  
* DAVIS, CALIFORNIA 95616-4687 *  
* (916) 756-1104 *  
*****
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      X   X  XXXXXXXX  XXXXX          XXXXX  
      X   X X          X   X          X   X  
      X   X X          X           X  
      XXXXXXXX  XXXX  X           XXXXX  XXXXX  
      X   X X          X           X  
      X   X X          X   X          X  
      X   X  XXXXXXXX  XXXXX          XXXXXXXX
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THIS RUN EXECUTED 23AUG02 10:23:24

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991  
 \*\*\*\*\*

T1FLORES BAYOU..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 T2REVISED EXISTING..... CONDITION MODEL 1973 DATUM ADJUSTMENT  
 T3FILE: FB\_100W.IH2..... FEMA 10 YEAR  
 T3MODEL DRFLORES REVISED BY B&L,

NOTES \*\*\*\*\*  
 REVISED MODEL INCLUDES BAKER & LAWSON SURVEY SECTIONS AND REVISED  
 BRIDGE SECTIONS  
 MODEL KEYED IN FROM 21 JULY 1988 FEMA MODEL  
 ORIGINAL INPUT DATA PROVIDED BY BRAZORIA COUNTY FLOOD PLAIN ADMINISTRATOR  
 STARTING WATER SURFACE ELEVATION IS BACKWATER EFFECT FROM AUSTIN BAYOU

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2							13.12	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1							
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38	43	1	26	42	23	24	63	14	60
	39	4								
J5	LPRNT	NUMSEC	*****REQUESTED SECTION NUMBERS*****							
	-10	-10								
NC	.045	.045	0.050	.1	.3					
	10-YR	25-YR	100-YR							
QT	3	3401	3973	5573						
	SURVEYED CROSS-SECTION UPSTREAM OF CONFLUENCE WITH AUSTIN BAYOU									
	FIELD X-SECTION JUST BEFORE CONFLUENCE WITH AUSTIN BAYOU									
X1	0.00	11	10000	10112						
GR	13	9000	10	9970	6.77	10000	6.38	10018	1.59	10021
GR	-4.70	10048	1.22	10070	3.91	10072	4.40	10112	10	10412
GR	13	11412								
	X-SECTION F-14 FROM FEMA, HALF WAY BETWEEN CR 210 AND CONFLUENCE									
	1.03									

FEMA X-SECTION F-14

X1	1.03	37	10000	10115	4000	4000	5411			
X3	10			8543	18	11849	15.0			
GR	12.	4707	12.	5198	12.4	5971	15.	6010	13.2	6072
GR	13.	6399	13.6	6631	13.8	7007	14.	7235	13.8	7611
GR	15.2	8490	18.	8543	15.	8593	15.	8837	14.2	9366
GR	12.4	9792	11.	9935	9.4	10000	6.2	10017	3.2	10032
GR	-.3	10039	-3.1	10050	-3.1	10062	-4.	10074	-1.5	10085
GR	3.2	10096	8.6	10115	9.2	10242	12.6	10524	14.2	11021
GR	14.6	11357	15.0	11635	15.0	11849	14.4	12530	13.6	13043
GR	14.2	13776	14.6	14667						

BRIDGE DATA INPUT FOR CR 210 BRIDGE

SURVEYED SECTION AT 116 FEET DOWNSTREAM OF CR 210 IS FOR THE 4 SB SECTIONS

SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1996

SPECIAL BRIDGES SECTION 1

2.03

X1	2.03	10	10000	10095	4000	4000	5314			
GR	16.5	3000	9.21	10000	8.37	10025	5.68	10034	2.51	10051
GR	-3.31	10063	2.46	10081	10.14	10095	10.87	10135	16.5	15135

QT	3	3310	3828	5373						
NC	0.035	0.035	0.050	0.3	0.5					

SPECIAL BRIDGE SECTION 2

2.05

X1	2.05				97	97	97		0.1	
X3	10							13.0	13.0	

SB	1.05	1.6	2.6	0	8	2.3	711	3	-3.02	-3.32
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SPECIAL BRIDGE SECTION 3

2.06

CR 210 BRIDGE

X1	2.06	10	10000	10081	28	28	28			
X2			1	12.0	14.0					
X3	10							14.0	14.0	
X4	6	14.47	9740	14.3	9826	14.16	9914	13.98	10167	13.9
X4	10258	13.79	10343							
BT	-9	9740	14.47		9826	14.3		9914	14.16	
BT		10000	14.09		10040	13.99		10081	14.05	
BT		10167	13.98		10258	13.90		10343	13.79	
GR	16.5	3000	9.31	10000	8.47	10025	5.78	10034	2.61	10051
GR	-3.21	10063	2.56	10081	10.24	10095	10.97	10135	16.5	15135

SPECIAL BRIDGE SECTION 4

2.10

X1	2.10	35	10658	10740	277	277	277			
GR	15	5981	15	5982	15	6399	14.8	6804	14.8	7728
GR	14.9	8137	13.7	8570	13.7	9049	13.9	9420	13.1	9753
GR	13.3	10138	12.5	10320	11.1	10514	11.5	10658	5.3	10685
GR	-1.8	10715	5.3	10720	11.6	10740	12.3	10951	12.3	11071
GR	12.5	11231	13.1	11586	12.9	11936	13.1	12207	13.1	12442

GR	13.2	12909	13.4	13839	13.8	14863	14	15399	14.2	16141
GR	14.5	16854	14.7	17134	15.3	17168	15.5	17286	16.7	17315
	2.10	10	10000	10081	277	277	0.1			
	16.5	3000	9.31	10000	8.47	10025	5.78	10034	2.61	10051
	-3.21	10063	2.56	10081	10.24	10095	10.97	10135	16.5	15135

NC 0.06 0.045 0.045 0.1 0.3  
 X-SECTION F-12 FROM FEMA, LEVEE FOR LAKE ON RIGHT OVERBANK FOR F-12 AND F-11  
 F-12 IS DOWNSTREAM OF CONFLUENCE OF IOWA COLONY DITCH AND FLORES  
 2.88

FEMA X-SECTION F-12, LEVEE FOR LAKE ON RIGHT OVERBANK

X1	2.88	25	10000	10160	3700.	4100.	4080.			
GR	18.1	5527	18.1	5528	18.1	5529	18.1	5530	16.1	5546
GR	16.9	6092	17.5	6475	17.5	6822	19.9	6860	17.9	6889
GR	17.2	7118	17.2	7393	17.2	8087	17.2	8648	16.8	8809
GR	13.8	9918	15.	10000	6.4	10024	.23	10036	.23	10048
GR	6.4	10060	15.	10088	15.2	10129	20.8	10160	20.8	10217

INSERTED X-SECTION AT NODE 4 OF HEC-1 MODEL  
 2.89

X1	2.89	25	10000	10160	3127	3127	3227			
GR	18.1	5527	18.1	5528	18.1	5529	18.1	5530	16.1	5546
GR	16.9	6092	17.5	6475	17.5	6822	19.9	6860	17.9	6889
GR	17.2	7118	17.2	7393	17.2	8087	17.2	8648	16.8	8809
GR	13.8	9918	15.	10000	6.4	10024	1.84	10036	1.84	10048
GR	6.4	10060	15.	10088	15.2	10129	20.8	10160	20.8	10217

X-SECTION F-11 FROM FEMA, F-12 AND F11 ARE BETWEEN CR 210 AND CR 171  
 F-11 IS UPSTRAEM OF CONFLUENCE BETWEEN IOWA COLONY DITCH AND FLORES  
 3.85

FEMA X-SECTION F-11, LEVEE FOR LAKE ON RIGHT OVERBANK

X1	3.85	23	10000	10086	1873	1873	1933			
GR	22.1	5272	22.1	5273	21.9	5601	21.9	6073	20.9	6448
GR	20.7	6739	20.7	6969	20.1	7414	18.1	7713	17.1	7867
GR	16.9	7921	18.3	8277	18.5	8736	18.9	9511	21.1	9566
GR	18.9	9612	18.9	9759	15.1	10000	7.3	10018	2.8	10036
GR	7.3	10053	22.5	10086	22.5	10118				

BRIDGE DATA INPUT FOR CR 171 BRIDGE  
 SURVEYED SECTION AT 80 FEET DOWNSTREAM OF CR 171 FOR 1ST & 2ND SB SECTIONS  
 SURVEYED SECTION AT 66 FEET UPSTREAM OF CR 171 FOR 3RD & 4TH SB SECTIONS  
 SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1996  
 SPECIAL BRIDGES SECTION 1  
 5.03

X1	5.03	11	10000	10070	4800	4800	6512			
GR	23	7400	20	8400	16.22	10000	11.25	10010	7.97	10025
GR	5.22	10034	8.79	10044	15.80	10070	17	11770	20	14000
GR	23	15000								

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NC				0.3	0.5					
SPECIAL BRIDGE SECTION 2										
QT	3	1291	1211	2561						
5.05										
X1	5.05				111	111	111		0.1	
X3	10							19.9	19.9	
SB	1.05	1.6	2.6	0	10	2.3	618	3	6.49	5.22

SPECIAL BRIDGE SECTION 3										
5.06										
CR 171 BRIDGE										
X1	5.06	13	10000	10163	24	24	24			
X2			1	19.6	20.8					
X3	10							20.8	20.8	
BT	-9	9730	20.82		9818	20.66		9908	20.67	
BT		10000	20.88		10040	20.89		10081	20.82	
BT		10172	20.60		10263	20.46		10350	20.37	
GR	23	7400	20	8400	17.04	10000	15.37	10043	8.06	10080
GR	6.49	10085	7.61	10094	10.84	10115	15.01	10130	17.16	10163
GR	17	11863	20	14000	23	15000				

SPECIAL BRIDGE SECTION 4										
5.11										
X1	5.11				277	277	277		0.1	
NC	0.055	0.055	0.040	0.1	0.3					

RAILROAD BRIDGE NOT MODELLED - NO IMPACT ON WSEL

BRIDGE DATA INPUT FOR CR 207 BRIDGE (6TH STREET)  
 SURVEYED SECTION AT 125 FEET DOWNSTREAM OF CR 207 FOR 1ST & 2ND SB SECTIONS  
 SURVEYED SECTION AT 115 FEET UPSTREAM OF CR 207 FOR 3RD & 4TH SB SECTIONS  
 SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1996

SPECIAL BRIDGES SECTION 1										
5.63										
X1	5.63	11	10000	10085	2800	3000	3033			
GR	23	7000	20	9577	18.11	9977	16.79	10000	10.68	10021
GR	8.23	10031	10.23	10043	12.65	10053	15.78	10085	20	10235
GR	23	12000								
NC				0.3	0.5					
SPECIAL BRIDGE SECTION 2										
5.64										
X1	5.64				88	88	88		0.1	
X3	10							19.8	19.8	

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SB 1.05 1.6 2.6 0 12 0.1 394 3 8.64 8.23

SPECIAL BRIDGE SECTION 3  
5.65

CR 207 (6TH ST.)

X1	5.65	16	10000	10097	28	28	28			
X2			1	18.8	20.8					
X3	10							20.8	20.8	
BT	-5	9896	19.62		10000	20.82		10030	20.79	
BT		10060	20.89		10138	20.03				
GR	24.5	6000	20	9600	17.30	10000	16.10	10017	9.30	10039
GR	8.54	10053	10.88	10062	15.11	10072	17.19	10097	16.45	10112
GR	12.10	10116	16.92	10125	19.17	10148	19.31	10160	20	13160
GR	24.5	16000								

SPECIAL BRIDGE SECTION 4  
5.70

X1 5.70 0.1 0.3 268 268 268 0.1

NC .1 .3  
X-SECTION F-8 FROM FEMA, 1/3 DIST BETWEEN CR 207 AND SH 35  
"J" IN MARGIN

6.23

FEMA X-SECTION F-8

X1	6.23	17	10000	10080	2750.	2850.	3060.			
GR	24.5	7000	23.6	8380	23.6	9102	21.6	9554	21.4	9798
GR	19.6	10000	17.2	10032	12.6	10055	11.	10060	10.	10064
GR	11.	10068	12.6	10072	19.4	10080	21.	10093	22.8	10131
GR	22.8	10145	24.5	13000						

X-SECTION F-7 FROM FEMA, 2/3 DIST BETWEEN CR 207 AND SH 35  
"K" IN MARGIN

6.77

FEMA X-SECTION F-7

X1	6.77	21	10000	10036	2860.	2860.	2860.			
GR	26.5	9120	26.	9121	26.	9124	24.6	9185	23.	9569
GR	22.	9783	22.2	9953	14.8	10000	11.4	10012	11.4	10024
GR	14.8	10036	21.4	10078	21.	10146	21.4	10436	22.2	10767
GR	22.4	10997	22.4	11173	22.8	11316	23.6	12245	26.0	12320
GR	26.5	12340								

BRIDGE DATA INPUT FOR SH 35 BRIDGE

SURVEYED SECTION AT 123 FEET DOWNSTREAM OF SH 35 FOR 1ST SB SECTIONS  
 SURVEYED SECTION AT 34 FEET DOWNSTREAM OF SH 35 FOR 2ND SB SECTIONS  
 SURVEYED SECTION AT 14 FEET UPSTREAM OF SH 35 FOR 3RD SB SECTIONS  
 SURVEYED SECTION AT 88 FEET UPSTREAM OF SH 35 FOR 4TH SB SECTIONS  
 SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1997

SPECIAL BRIDGES SECTION 1

7.34

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X1	7.34	7	10000	10061	2940	3000	3028			
GR	27.3	9300	18.61	10000	15.52	10022	13.43	10031	15.21	10042
GR	19.17	10061	27	12061						

NC 0.065 0.065 0.050 0.3 0.5

SPECIAL BRIDGE SECTION 2  
7.37

X1	7.37	6	10000	10048	147	147	147			
X3	10							28.5	28.5	
GR	27.83	9964	15.96	10000	12.51	10014	15.02	10028	19.47	10048
GR	28.51	10073								

SB	1.05	1.6	2.6	0	25	3	688	3	13.77	12.51
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SPECIAL BRIDGE SECTION 3  
7.38

SH 35 BRIDGE

X1	7.38	6	10000	10077	44	44	44			
X2			1	26.3	29.5					
X3	10							29.5	29.5	
BT	-9	9720	29.19		9810	29.27		9905	29.55	
BT		10000	29.52		10052	29.75		10103	29.66	
BT		10198	29.66		10290	29.23		10379	28.81	
GR	27.92	9974	20.80	10000	14.80	10025	13.77	10063	16.77	10077
GR	28.23	10109								

SPECIAL BRIDGE SECTION 4  
7.46

X1	7.46	9	10000	10073	458	458	458			
GR	28	5000	25	9300	18.94	10000	16.19	10026	13.07	10036
GR	15.61	10044	20.13	10073	27	12073	28	15000		

NC 0.045 0.045 0.045 0.1 0.3

QT 3 1052 1280 2457

BRIDGE DATA INPUT FOR CR 46 BRIDGE

SURVEYED SECTION AT 93 FEET DOWNSTREAM OF CR 46 FOR 1ST SB SECTIONS  
 SURVEYED SECTION AT 14 FEET DOWNSTREAM OF CR 46 FOR 2ND SB SECTIONS  
 SURVEYED SECTION AT 14 FEET UPSTREAM OF CR 46 FOR 3RD SB SECTIONS  
 SURVEYED SECTION AT 58 FEET UPSTREAM OF CR 46 FOR 4TH SB SECTIONS  
 SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1994

SPECIAL BRIDGES SECTION 1  
8.02

X1	8.02	9	10000	10048	2600	2750	2936			
GR	27.7	5000	25	7500	20.64	10000	15.83	10008	14.29	10011
GR	15.98	10020	19.26	10048	25	11448	27.7	15000		

NC 0.3 0.5

SPECIAL BRIDGE SECTION 2  
8.04

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X1	8.04	9	10000	10066	109	109	109			
X3	10							24.3	24.3	
GR	27.7	5000	25	7500	21.65	10000	17.73	10016	14.65	10047
GR	16.32	10053	21.94	10066	25	11466	27.7	15000		

SB	1.05	1.6	2.6	0	10	1.2	440	4	14.29	13.97
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SPECIAL BRIDGE SECTION 3  
8.05

CR 46 BRIDGE

X1	8.05	9	10000	10076	28	28	28			
X2			1	23.9	25.1					
X3	10							25.1	25.1	
BT	-8	8752	25.3		9211	25.1		9698	25.1	
BT		9752	25.1		10000	25.1		10287	25.4	
BT		11053	25.2		11462	26				
GR	27.7	4500	25	7500	21.34	10000	15.72	10021	14.26	10029
GR	16.23	10036	21.37	10076	25	11476	27.8	15000		

SPECIAL BRIDGE SECTION 4  
8.11

X1	8.11	9	10000	10050	350	350	350			
GR	28.2	2000	25	7500	20.00	10000	16.46	10018	13.97	10023
GR	16.77	10042	20.21	10050	25	11450	28.2	16000		

NC				0.1	0.3					
QT	3	860	1379	2970						

9.09

X1	9.09	13	10000	10035	4646	5227	5227			
GR	28.1	7963	26.1	9363	24.9	9830	19.3	10000	17.2	10007
GR	16.3	10009	17.7	10024	18.6	10028	21	10035	24.8	10048
GR	25.5	10068	26.7	11074	28.1	14451				

QT	3	1306	1957	3808						
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9.21

X1	9.21	13	10000	10035	522	587	587			
GR	28.1	7963	26.1	9363	24.9	9830	19.3	10000	17.2	10007
GR	16.54	10009	17.7	10024	18.6	10028	21	10035	24.8	10048
GR	25.5	10068	26.7	11074	28.1	14451				

QT	3	1306	1733	2674						
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9.24

X1	9.24	13	10000	10032	367	413	413			
GR	28	9103	26.3	9720	25.5	9925	19.2	10000	17.3	10005
GR	16.72	10006	18	10021	18.9	10025	21.2	10032	25.7	10044
GR	26.5	10063	27.1	11002	28	14155				

BRIDGE DATA INPUT FOR CR 45 BRIDGE  
 SURVEYED SECTION AT 57 FEET DOWNSTREAM OF CR 45 FOR 1ST SB SECTIONS  
 SURVEYED SECTION AT 15 FEET DOWNSTREAM OF CR 45 FOR 2ND SB SECTIONS  
 SURVEYED SECTION AT 14 FEET UPSTREAM OF CR 45 FOR 3RD SB SECTIONS  
 SURVEYED SECTION AT 66 FEET UPSTREAM OF CR 45 FOR 4TH SB SECTIONS  
 SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1994

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SPECIAL BRIDGES SECTION 1  
9.27

X1	9.27	9	10000	10031	465	523	523			
GR	28	9700	25.88	9975	19.09	10000	16.95	10005	18.16	10020
GR	21.28	10031	26.16	10042	27.00	10060	28	14000		

NC 0.3 0.5

SPECIAL BRIDGE SECTION 2  
9.44

X1	9.44	8	10000	10053	88	88	88			
X3	10							26.95	26.95	
GR	28	9700	23.02	10000	18.91	10008	17.46	10021	19.17	10030
GR	22.75	10053	26	11053	28	15000				

SB	1.05	1.6	2.6	0	30	3	516	3	17.5	16.9
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SPECIAL BRIDGE SECTION 3  
9.45

CR 45 BRIDGE

X1	9.45	7	10000	10083	28	28	28			
X2			1	26.35	27.98					
X3	10							27.98	27.98	
X4	4	27.89	9755	27.68	9763	27.82	10172	27.62	10268	
BT	-7	9755	27.89		9763	27.68		10000	27.98	
BT		10044	27.98		10083	27.88		10172	27.82	
BT		10268	27.62							
GR	30	7500	27.98	10000	18.91	10008	17.46	10021	19.17	10030
GR	27.88	10083	28	10553						

SPECIAL BRIDGE SECTION 4  
9.50

X1	9.50	10	10000	10067	268	268	268			
GR	30	7500	24.31	9975	21.87	10000	17.84	10017	16.66	10022
GR	18.32	10032	21.28	10067	24.56	10112	28	10512	29	15000

QT 3 608 811 1250  
NC 0.1 0.3  
X-SECTION F-2 FROM FEMA, 1/3 DIST BETWEEN CR 45 AND CR 49  
10.18

FEMA X-SECTION F-2

X1	10.18	18	10000	10062	3200	2900	3550			
GR	32.	7654	31.	8091	29.6	8733	28.	9249	27.6	9865
GR	27.	10000	21.	10014	19.2	10019	17.8	10027	19.2	10035
GR	21.	10040	26.4	10062	26.4	10274	26.2	10866	26.4	11610
GR	26.4	12016	26.4	12129	30.	15000				

X-SECTION F-1 FROM FEMA, 2/3 DIST BETWEEN CR 45 AND CR 49  
10.90



FEMA X-SECTION F-1

X1	10.90	15	10000	10070	3600	3600	3800				
GR	32.6	8995	31.	9509	30.8	9884	29.8	10000	25.8	10030	
GR	23.	10031	22.	10033	21.	10035	22.	10037	23.	10038	
GR	25.8	10040	28.2	10070	29.6	10235	29.8	10478	30.6	11115	

QT 3 254 341 528

BRIDGE DATA INPUT FOR CR 49 BRIDGE  
 SURVEYED SECTION AT 75 FEET DOWNSTREAM OF CR 49 FOR 1ST SB SECTIONS  
 SURVEYED SECTION AT 13 FEET DOWNSTREAM OF CR 49 FOR 2ND SB SECTIONS  
 SURVEYED SECTION AT 11 FEET UPSTREAM OF CR 49 FOR 3RD SB SECTIONS  
 SURVEYED SECTION AT 93 FEET UPSTREAM OF CR 49 FOR 4TH SB SECTIONS  
 SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1994

SPECIAL BRIDGES SECTION 1

11.90

X1	11.90	11	10000	10059	5200	5200	5318				
GR	35	7200	31.99	9987	30.45	10000	28.18	10008	26.02	10026	
GR	28.55	10050	31.11	10059	31.54	10069	35	11569	35.2	12069	
GR	37	12089									

NC 0.045 0.075 0.045 0.3 0.5

SPECIAL BRIDGE SECTION 2

11.91

X1	11.91	9	10000	10047	74	74	74				
X3	10							34	34		
GR	35.2	7000	35.10	10000	28.98	10001	26.90	10028	28.81	10047	
GR	34	10052	35	11552	35.2	12052	37	12072			

SB 1.05 1.6 2.6 0 45 2 400 .1 26.9 26.74

SPECIAL BRIDGE SECTION 3

11.92

CR 49 BRIDGE

X1	11.92	9	10000	10050	24	24	24				
X2			1	34.0	35.2						
X3	10							34.6	34.6		
X4	7	33.18	9728	32.95	9822	33.23	9911	34.96	10050	33.7	
X4	10141	33.41	10236	33.59	10330						
BT	-9	9728	33.18		9822	32.95		9911	33.23		
BT		10000	35.08		10022	35.19		10050	34.96		
BT		10141	33.70		10236	33.41		10330	33.59		
GR	35.1	7200	35.08	10000	29.6	10000	28.9	10017	26.9	10033	
GR	28.7	10050	34.96	10050	35.2	11237	37	11257			

SPECIAL BRIDGE SECTION 4

11.96

X1	11.96	10	10000	10066	224	224	224				
GR	35	7200	34.15	9993	34.00	10000	28.14	10019	25.73	10029	
GR	28.60	10052	34.54	10066	35.13	10079	35.2	11279	37	11299	

BEGIN THE IOWA COLONY DITCH (BIG DITCH) TRIBUTARY

NC	0.06	0.045	0.045	.1	.3					
QT	3	1922	2331	3203						
X-SECTION F-12 FROM FEMA, LEVEE FOR LAKE ON RIGHT OVERBANK FOR F-12 AND F-11										
X1	-2.88	25	10000	10160						
GR	18.1	5527	18.1	5528	18.1	5529	18.1	5530	16.1	5546
GR	16.9	6092	17.5	6475	17.5	6822	19.9	6860	17.9	6889
GR	17.2	7118	17.2	7393	17.2	8087	17.2	8648	16.8	8809
GR	13.8	9918	15.	10000	6.4	10024	1.	10036	1.	10048
GR	6.4	10060	15.	10088	15.2	10129	20.8	10160	20.8	10217

NC	0.045	0.045	0.045							
X-SECTION F-12 FROM FEMA COPIED FOR SECTION JUST UPSTREAM ON TRIBUTARY FLOWS REDUCED FOR TRIBUTARY FLOW ONLY										
QT	3	1022	1174	1684						
IOWA COLONY DITCH (ICD) 100' U.S. OF FLORES										
X1	0.02	25	10000	10160	100	100	100			
GR	18.1	5527	18.1	5528	18.1	5529	18.1	5530	16.1	5546
GR	16.9	6092	17.5	6475	17.5	6822	19.9	6860	17.9	6889
GR	17.2	7118	17.2	7393	17.2	8087	17.2	8648	16.8	8809
GR	13.8	9918	15.	10000	6.4	10024	1.	10036	1.	10048
GR	6.4	10060	15.	10088	15.2	10129	20.8	10160	20.8	10217

INSERT HEC-RAS INTERPOLATED X-SECTION										
X1	0.12	28	10000	10184	2650	2400	2493			
GR	20.6	6464	20.6	6466	19.5	6479	19.5	6910	19.4	7213
GR	19.1	7487	20.3	7517	19.3	7540	18.7	7721	18.6	7824
GR	18.6	7939	18.4	8488	18.3	8931	16.3	9935	16.9	10000
GR	11.2	10047	10.2	10054	4.5	10068	3.2	10071	3.2	10077
GR	6.2	10088	9.8	10107	12.1	10115	15.8	10143	16	10154
GR	19.1	10184	20.4	12103	21.9	12609				

SURVEYED CROSS-SECTION 91 FEET DOWNSTREAM OF CR 171 XS 1 OF SB										
ICD 171' D.S. OF CR 171										
X1	0.94	11	10000	10208	2650	2400	2493			
GR	23	7400	20	8400	18.71	10000	15.57	10081	7.34	10102
GR	5.37	10106	7.09	10135	16.49	10169	17.39	10208	20	14000
GR	23	15000								

NC				.3	.5					
XS 2 OF SB										
X1	.96				100	100	100			
X3	10									

SB	1.05	1.6	2.6	0	17	2.33	621	2.8	6.7	6.7
XS 3 OF SB										

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X1	.97	18	10088	10167	28	28	28			
X2			1	19.5	20.7					
X3	10									
BT	6	10000	20.6		10013	20.8		10054	20.7	
BT	10094	20.8		10188	20.6		10284	20.4		
GR	23	7400	20	8400	20.6	10000	20.8	10013	19.5	10088
GR	16.7	10088	14.7	10102	11.7	10114	6.7	10120	6.7	10137
GR	12.2	10147	15.7	10157	18.2	10167	19.5	10167	20.6	10188
GR	20.4	10284	20	14000	23	15000				

NC .1 .3

XS 4 OF SB

X1	.98	11	10000	10208	100	100	100			
GR	23	7400	20	8400	18.71	10000	15.57	10081	7.34	10102
GR	5.37	10106	7.09	10135	16.49	10169	17.39	10208	20	14000
GR	23	15000								

SURVEYED CROSS-SECTION 84' DOWNSTREAM OF CR 207

XS 1 OF SB

ICD 84' D.S. OF CR 207

X1	1.48	10	10000	10085	2810	2810	2810			
GR	23	8000	20	9765	20.05	10000	17.77	10015	9.63	10036
GR	9.04	10051	10.61	10059	22.42	10085	22.14	10118	23	11000

NC .3 .5

XS 2 OF SB

X1	1.50				100	100	100			
X3	10									
SB	1.05	1.6	2.6	0	13	1.2	246	.5	9.6	9.6

XS 3 OF SB

X1	1.51	16	10031	10054	21	21	21			
X2			1	21.5	22.9					
X3	10									
BT	10	9505	22.1		9853	21.7		9939	21.6	
BT	10027	22.9		10040	22.9		10054	23		10150
BT	22.2		10242	21.9		10335	22		10422	21.8
BT										
GR	23	8000	22.1	9505	21.7	9853	21.6	9939	22.9	10027
GR	21.5	10031	14.9	10031	9.6	10037	9.6	10048	14.4	10054
GR	21.5	10054	22.2	10150	21.9	10242	22	10335	21.8	10422
GR	23	11000								

NC .1 .3

XS 4 OF SB

X1	1.52	10	10000	10085	100	100	100			
GR	23	8000	20	9765	20.05	10000	17.77	10015	9.63	10036
GR	9.04	10051	10.61	10059	22.42	10085	22.14	10118	23	11000

INSERT HEC-RAS INTERPOLATED X-SECTION

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X1	2.00	15	10000	10097	2110	2110	2110			
GR	24.3	7750	22.6	9736	22.6	10000	20.5	10020	19.8	10023
GR	12.2	10047	12	10048	11	10068	13.4	10074	15.8	10079
GR	23.3	10097	24.2	10117	23.9	10130	22.8	10186	23.5	11000

SURVEYED CROSS-SECTION 120' DOWNSTREAM OF SH 35

XS 1 OF SC

ICD 120' D.S. OF SH 35

X1	2.37	10	10000	10109	2110	2110	2110			
GR	25.5	7500	25.11	10000	22.82	10029	14.39	10058	12.86	10084
GR	18.39	10094	24.12	10109	26.24	10129	23.37	10197	24	11000

QT	3	845	1036	1618						
NC				.3	.5					

XS 2 OF SC

X1	2.39				100	100	100			
X3	10									

SC	3.014	.5	2.6	0	6	7	44	8.1	12.9	12.8
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XS 3 OF SC

X1	2.40	17	10000	10109	44	44	44			
X2			2		26					
X3	10									
BT	12	9582	26.2		9676	26.2		9770	26	
BT	9865	26		9960	26.2		10055	26.2		10087
BT	26.2		10111	26.1		10202	25.8		10295	25.5
BT		10386	25.3		10478	25.2				
GR	25.3	8250	26.2	9582	26.2	9676	26	9770	26	9865
GR	26.2	9960	25.11	10000	22.82	10029	14.39	10058	12.86	10084
GR	18.39	10094	24.12	10109	26.1	10111	25.8	10202	25.5	10295
GR	25.3	10386	25.2	10478						

NC				.1	.3					
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XS 4 OF SC

X1	2.42	10	10000	10109	100	100	100			
GR	25.5	7500	25.11	10000	22.82	10029	14.39	10058	12.86	10084
GR	18.39	10094	24.12	10109	26.24	10129	23.37	10197	24	11000

INSERT HEC-RAS INTERPOLATED X-SECTION

X1	3.00	13	10000	10112	2708	2708	2708			
GR	25.3	8250	24.7	10000	23.6	10025	20.4	10044	14.3	10067
GR	13.5	10072	15.7	10083	18.33	10088	21.5	10093	24.5	10112
GR	25.6	10131	24.1	10199	24.5	11000				

SURVEYED CROSS-SECTION 28' DOWNSTREAM OF CR 621

XS 1 OF SB

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ICD 28' D.S. OF CR 621										
X1	3.40	9	10000	10114	2708	2708	2708			
GR	25	9000	24.32	10000	24.35	10036	15.37	10055	14.09	10059
GR	14.52	10075	23.28	10089	24.89	10114	25	11000		
QT	3	782	983	1435						
NC				.3	.5					
XS 2 OF SB										
X1	3.42				100	100	100			
X3	10									
SB	1.05	1.6	2.6	0	18	1.5	376	2.1	15	15
XS 3 OF SB										
X1	3.43	12	10036	10094	16	16	16			
X2			1	25.3	26.7					
X3	10									
BT	8	9682	25.3		9773	25.1		9863	24.7	
BT	9956	25		10046	26.7		10064	26.9		10083
BT	27		10114	27						
GR	25	9000	25.3	9682	25.1	9773	24.7	9863	25	9956
GR	25.3	10036	24.4	10036	15	10056	15	10074	24.4	10094
GR	25.3	10094	27	10114						
NC				.1	.3					
XS 4 OF SB										
X1	3.44	9	10000	10114	100	100	100			
GR	25	9000	24.32	10000	24.35	10036	15.37	10055	14.09	10059
GR	14.52	10075	23.28	10089	24.89	10114	25	11000		
INSERT HEC-RAS INTERPOLATED X-SECTION										
X1	5.00	14	10025	10108	1531	1531	1531			
GR	26.5	9000	25.4	9976	25.1	10025	22.3	10050	18.4	10058
GR	15.9	10063	14.7	10066	14.7	10072	16.3	10082	21.9	10091
GR	24.9	10108	25.7	10120	25.7	10139	26.5	12500		
QT	3	661	1055	2059						
NC	0.045	0.045	0.045							
INTERPOLATED ICD CROSS-SECTION BETWEEN CR 621 AND CR 45										
X1	-9.21	10	10050	10101	1531	1531	1531			
GR	28	9000	26.5	10000	25.9	10050	18.3	10068	15.97	10072
GR	15.97	10085	24.9	10101	26.5	10122	26.5	10152	28	14000
	3	1377	1800	2786						
INSERT HEC-RAS INTERPOLATED X-SECTION										
	7.50	15	10025	10113	2418	2418	2418			
	28	9000	26.8	9976	26.5	10025	22.8	10059	20.7	10065
	17.8	10071	16.4	10074	16.4	10080	19.1	10089	23.2	10099
	26.6	10113	26.7	10133	26.5	10141	26.5	10163	28	14000
XS 1 OF SB										

ICD 46' D.S. OF CR 45										
X1	4.32	10	10000	10124	832	832	832			
GR	28	9000	27.03	10000	26.26	10053	19.28	10071	17.43	10075
GR	20.27	10088	25.30	10104	28.26	10124	26.47	10152	28	14000
NC				.3	.5					
XS 2 OF SB										
X1	4.34				100	100	100			
X3	10									
SB	1.05	1.6	2.6	0	43	3	467	2.3	18.3	18.3
XS 3 OF SB										
X1	4.35	19	10046	10134	28	28	28			
X2			1	27.8	29					
X3	10									
BT	9	9690	28.7		9779	28.7		9870	28.8	
BT	9959	29		10051	29.2		10081	29.3		10113
BT	29.4		10202	28.3		10295	28.1			
GR	28	9000	28.7	9690	28.7	9779	28.8	9870	29	9959
GR	27.8	10046	23.7	10046	21	10052	19.4	10060	18.3	10069
GR	17.9	10075	18	10112	20.6	10119	22.6	10127	23.7	10134
GR	27.8	10134	28.3	10202	28.1	10295	28	14000		
NC				.1	.3					
XS 4 OF SB										
SURVEYED CROSS-SECTION 46' UPSTREAM OF CR 45										
X1	4.36	10	10000	10124	100	100	100			
GR	28	9000	27.03	10000	26.26	10053	19.28	10071	17.43	10075
GR	20.27	10088	25.30	10104	28.26	10124	26.47	10152	28	14000
INSERT HEC-RAS INTERPOLATED X-SECTION										
X1	4.00	14	10000	10111	2886	2886	2886			
GR	31	7500	29.7	10000	28.2	10043	27.1	10052	23.7	10064
GR	21.7	10070	20.3	10074	21.9	10084	22.1	10085	26.4	10096
GR	30.4	10111	29.6	10139	29.6	10149	31	14000		
QT	3	1293	1696	2615						
SURVEYED CROSS-SECTION 50' DOWNSTREAM OF A PRIVATE ROAD										
ICD 50' D.S. OF EXTENSION OF CR 49										
X1	5.41	9	10000	10097	2886	2886	2886			
GR	34	6000	32.45	10000	30.02	10042	25.62	10063	23.15	10073
GR	23.59	10080	32.62	10097	32.77	10136	34	14000		
INSERT HEC-RAS INTERPOLATED X-SECTION										
X1	5.00	13	10011	10100	2665	2665	2665			
GR	34.3	6667	33.4	9533	33.3	10011	30.4	10048	29.1	10054
GR	26.5	10067	24.4	10077	24.9	10083	27	10087	33.5	10100
GR	33.6	10132	33.9	10513	34.2	13337				
INSERT HEC-RAS INTERPOLATED X-SECTION										

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X1	6.00	13	10021	10102	2665	2665	2665			
GR	34.5	7333	34.2	9637	34.2	10021	30.8	10054	29.6	10059
GR	27.4	10071	25.6	10079	26.3	10086	28.1	10090	34.4	10102
GR	34.5	10129	34.8	10435	34.4	12733				

INSERT HEC-RAS INTERPOLATED X-SECTION

X1	7.00	13	10032	10105	2665	2665	2665			
GR	34.8	8000	35	9741	35	10032	31.2	10060	30.1	10065
GR	28.3	10075	26.8	10082	27.6	10088	29.2	10093	35.3	10105
GR	35.4	10125	35.8	10357	34.7	12100				

INSERT HEC-RAS INTERPOLATED X-SECTION

X1	8.00	13	10042	10108	2665	2665	2665			
GR	35	8667	35.8	9846	35.9	10042	31.6	10066	30.5	10070
GR	29.1	10079	28	10084	29	10091	30.3	10095	36.2	10108
GR	36.2	10121	36.8	10279	34.9	11467				

INSERT HEC-RAS INTERPOLATED X-SECTION

X1	9.00	13	10053	10110	2665	2665	2665			
GR	35.3	9333	36.5	9950	36.8	10053	31.9	10072	31	10076
GR	30	10082	29.2	10087	30.3	10094	31.3	10098	37	10110
GR	37.1	10118	37.7	10202	35.1	10833				

QT 3 176 237 367

SURVEYED CROSS-SECTION 668' DOWNSTREAM OF DAM AT AUSTIN BAYOU  
ICD D.S. OF THE DAM SOUTH OF AUSTIN BAYOU

X1	8.44	9	10063	10113	2664	2664	2664			
GR	35.56	10000	37.31	10054	37.62	10063	31.49	10081	30.45	10090
GR	32.40	10101	37.91	10113	38.69	10124	35.31	10200		

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T1FLORES BAYOU..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2REVISED EXISTING..... CONDITION MODEL 1973 DATUM ADJUSTMENT  
T3FILENAME: DRFLORES.IH2..... 25 YEAR FREQUENCY  
T3MODEL REVISED BY B&L, INC.

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3							14.14	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							



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T1FLORES BAYOU..... 2000 BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 T2REVISED EXISTING..... CONDITION MODEL 1973 DATUM ADJUSTMENT  
 T3FILENAME: DRFLORES.IH2..... 100 YEAR FREQUENCY  
 T3MODEL REVISED BY B&L, INC.

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		4							15.24	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1							

\*\*\*\*\*  
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

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NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

DRFLORES REVISED BY B&L,

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
.000	3401.00	13.12	.92	-4.70	6.77	4.40	13.00	1150.82	33.84	.00	2412.00
.000	3973.00	14.14	.75	-4.70	6.77	4.40	13.00	1025.41	25.81	.00	2412.00
.000	5573.00	15.24	.77	-4.70	6.77	4.40	13.00	1142.22	20.50	.00	2412.00
* 1.030	3401.00	13.40	1.56	-4.00	9.40	8.60	14.60	2088.67	61.41	5411.00	1218.68
* 1.030	3973.00	14.31	1.41	-4.00	9.40	8.60	14.60	2027.24	51.03	5411.00	1826.88
* 1.030	5573.00	15.39	1.33	-4.00	9.40	8.60	14.60	2086.89	37.45	5411.00	6080.54
* 2.030	3401.00	13.60	.55	-3.31	9.21	10.14	16.50	478.48	14.07	5314.00	6781.44
* 2.030	3973.00	14.43	.43	-3.31	9.21	10.14	16.50	403.58	10.16	5314.00	8314.63
* 2.030	5573.00	15.48	.39	-3.31	9.21	10.14	16.50	403.26	7.24	5314.00	10243.70
2.050	3310.00	13.61	.46	-3.21	9.31	10.24	16.60	389.78	11.78	97.00	6609.11
2.050	3828.00	14.43	.34	-3.21	9.31	10.24	16.60	320.60	8.38	97.00	8138.29
2.050	5373.00	15.48	.31	-3.21	9.31	10.24	16.60	316.38	5.89	97.00	10065.52
* 2.060	3310.00	14.01	2.89	-3.21	9.31	2.56	16.50	2274.58	68.72	28.00	823.00
* 2.060	3828.00	14.77	2.47	-3.21	9.31	2.56	16.50	2092.78	54.67	28.00	3317.46
* 2.060	5373.00	15.70	1.66	-3.21	9.31	2.56	16.50	1534.45	28.56	28.00	8106.17
* 2.100	3310.00	14.18	.95	-1.80	11.50	11.60	15.00	672.92	20.33	277.00	7687.63
* 2.100	3828.00	14.85	.57	-1.80	11.50	11.60	15.00	435.21	11.37	277.00	10249.78
* 2.100	5373.00	15.73	.41	-1.80	11.50	11.60	15.00	344.64	6.41	277.00	11310.28
* 2.880	3310.00	14.65	4.95	.23	15.00	20.80	18.10	3220.39	97.29	4080.00	457.93
* 2.880	3828.00	14.82	5.52	.23	15.00	20.80	18.10	3669.34	95.86	4080.00	530.46
* 2.880	5373.00	15.54	6.01	.23	15.00	20.80	18.10	4488.57	83.54	4080.00	854.72
* 2.890	3310.00	17.01	2.03	1.84	15.00	20.80	18.10	1841.84	55.64	3227.00	2035.38
* 2.890	3828.00	17.30	2.01	1.84	15.00	20.80	18.10	1905.16	49.77	3227.00	3864.62
* 2.890	5373.00	17.96	1.88	1.84	15.00	20.80	18.10	1955.61	36.40	3227.00	4554.18

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	3.850	3310.00	17.86	4.32	2.80	15.10	22.50	22.10	2973.19	89.82	1933.00	664.02
*	3.850	3828.00	18.12	4.65	2.80	15.10	22.50	22.10	3301.51	86.25	1933.00	791.28
*	3.850	5373.00	18.66	5.46	2.80	15.10	22.50	22.10	4102.75	76.36	1933.00	1726.84
*	5.030	3310.00	18.96	.99	5.22	16.22	15.80	23.00	592.71	17.91	6512.00	4391.65
*	5.030	3828.00	19.23	.98	5.22	16.22	15.80	23.00	604.67	15.80	6512.00	4707.04
*	5.030	5373.00	19.84	1.01	5.22	16.22	15.80	23.00	662.99	12.34	6512.00	5409.00
*	5.050	1291.00	18.94	2.20	5.32	16.32	15.90	23.10	1291.00	100.00	111.00	70.00
*	5.050	1211.00	19.21	1.99	5.32	16.32	15.90	23.10	1211.00	100.00	111.00	70.00
*	5.050	2561.00	19.73	3.98	5.32	16.32	15.90	23.10	2561.00	100.00	111.00	70.00
	5.060	1291.00	18.94	1.37	6.49	17.04	17.16	23.00	1291.00	100.00	24.00	163.00
	5.060	1211.00	19.21	1.23	6.49	17.04	17.16	23.00	1211.00	100.00	24.00	163.00
*	5.060	2561.00	20.07	2.28	6.49	17.04	17.16	23.00	2561.00	100.00	24.00	163.00
*	5.110	1291.00	19.03	.42	6.59	17.14	17.26	23.10	396.35	30.70	277.00	4260.09
*	5.110	1211.00	19.29	.33	6.59	17.14	17.26	23.10	326.87	26.99	277.00	4582.74
*	5.110	2561.00	20.19	.42	6.59	17.14	17.26	23.10	475.10	18.55	277.00	5656.66
*	5.630	1291.00	19.12	2.00	8.23	16.79	15.78	23.00	1123.68	87.04	3033.00	439.47
*	5.630	1211.00	19.33	1.77	8.23	16.79	15.78	23.00	1026.25	84.74	3033.00	493.62
*	5.630	2561.00	20.23	2.85	8.23	16.79	15.78	23.00	1872.96	73.13	3033.00	992.14
	5.640	1291.00	19.13	2.33	8.33	16.89	15.88	23.10	1291.00	100.00	88.00	85.00
	5.640	1211.00	19.34	2.11	8.33	16.89	15.88	23.10	1211.00	100.00	88.00	85.00
	5.640	2561.00	20.26	2.93	8.33	16.89	15.88	23.10	1905.86	74.42	88.00	879.77
	5.650	1291.00	19.31	2.29	8.54	17.30	17.19	24.50	1291.00	100.00	28.00	97.00
	5.650	1211.00	19.51	2.08	8.54	17.30	17.19	24.50	1211.00	100.00	28.00	97.00
*	5.650	2561.00	21.05	1.12	8.54	17.30	17.19	24.50	820.10	32.02	28.00	5070.07
	5.700	1291.00	19.44	1.85	8.64	17.40	17.29	24.60	1047.67	81.15	268.00	588.99
	5.700	1211.00	19.61	1.64	8.64	17.40	17.29	24.60	955.01	78.86	268.00	1369.22
	5.700	2561.00	21.07	1.20	8.64	17.40	17.29	24.60	866.43	33.83	268.00	4941.93
*	6.230	1291.00	20.63	3.13	10.00	19.60	19.40	24.50	1256.40	97.32	3060.00	206.06
*	6.230	1211.00	20.56	2.99	10.00	19.60	19.40	24.50	1183.21	97.71	3060.00	197.69
*	6.230	2561.00	21.43	5.02	10.00	19.60	19.40	24.50	2331.25	91.03	3060.00	337.49
*	6.770	1291.00	21.93	2.56	11.40	14.80	14.80	26.50	865.74	67.06	2860.00	700.53
*	6.770	1211.00	21.80	2.51	11.40	14.80	14.80	26.50	836.99	69.12	2860.00	646.08
*	6.770	2561.00	23.21	2.69	11.40	14.80	14.80	26.50	1033.32	40.35	2860.00	2273.89
*	7.340	1291.00	22.46	1.29	13.43	18.61	19.17	27.00	490.57	38.00	3028.00	1213.29
*	7.340	1211.00	22.34	1.29	13.43	18.61	19.17	27.00	479.21	39.57	3028.00	1170.16
*	7.340	2561.00	23.72	1.49	13.43	18.61	19.17	27.00	682.77	26.66	3028.00	1636.29
*	7.370	1291.00	22.39	3.82	12.51	15.96	19.47	27.83	1291.00	100.00	147.00	48.00
*	7.370	1211.00	22.28	3.64	12.51	15.96	19.47	27.83	1211.00	100.00	147.00	48.00
*	7.370	2561.00	23.43	6.60	12.51	15.96	19.47	27.83	2561.00	100.00	147.00	48.00

	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	7.380	1291.00	22.39	2.46	13.77	20.80	16.77	27.92	1291.00	100.00	44.00	77.00
*	7.380	1211.00	22.28	2.35	13.77	20.80	16.77	27.92	1211.00	100.00	44.00	77.00
*	7.380	2561.00	23.43	4.21	13.77	20.80	16.77	27.92	2561.00	100.00	44.00	77.00
*	7.460	1291.00	22.76	1.25	13.07	18.94	20.13	28.00	533.78	41.35	458.00	1281.33
*	7.460	1211.00	22.62	1.26	13.07	18.94	20.13	28.00	524.78	43.33	458.00	1224.10
*	7.460	2561.00	24.31	1.25	13.07	18.94	20.13	28.00	671.09	26.20	458.00	1911.58
*	8.020	1052.00	22.98	.64	14.29	20.64	19.26	27.70	181.17	17.22	2936.00	2299.18
*	8.020	1280.00	22.90	.82	14.29	20.64	19.26	27.70	229.32	17.92	2936.00	2235.29
*	8.020	2457.00	24.46	.65	14.29	20.64	19.26	27.70	228.28	9.29	2936.00	3511.02
*	8.040	1052.00	22.93	2.97	14.65	21.65	21.94	27.70	1052.00	100.00	109.00	66.00
*	8.040	1280.00	22.82	3.68	14.65	21.65	21.94	27.70	1280.00	100.00	109.00	66.00
*	8.040	2457.00	24.47	1.23	14.65	21.65	21.94	27.70	563.73	22.94	109.00	3331.38
	8.050	1052.00	22.93	2.81	14.26	21.34	21.37	27.70	1052.00	100.00	28.00	76.00
	8.050	1280.00	22.82	3.49	14.26	21.34	21.37	27.70	1280.00	100.00	28.00	76.00
*	8.050	2457.00	25.20	.62	14.26	21.34	21.37	27.70	338.21	13.77	28.00	4444.45
*	8.110	1052.00	23.13	.59	13.97	20.00	20.21	28.20	183.53	17.45	350.00	2465.42
*	8.110	1280.00	23.13	.72	13.97	20.00	20.21	28.20	223.32	17.45	350.00	2465.29
*	8.110	2457.00	25.20	.45	13.97	20.00	20.21	28.20	188.44	7.67	350.00	4613.58
*	9.090	860.00	23.42	2.58	16.30	19.30	21.00	28.10	497.09	57.80	5227.00	168.41
*	9.090	1379.00	23.66	3.83	16.30	19.30	21.00	28.10	768.67	55.74	5227.00	176.67
*	9.090	2970.00	25.26	5.06	16.30	19.30	21.00	28.10	1299.72	43.76	5227.00	372.94
	9.210	1306.00	23.87	3.41	16.54	19.30	21.00	28.10	702.48	53.79	587.00	183.41
	9.210	1957.00	24.43	4.31	16.54	19.30	21.00	28.10	972.39	49.69	587.00	202.56
*	9.210	3808.00	26.13	4.62	16.54	19.30	21.00	28.10	1318.72	34.63	587.00	1258.05
	9.240	1306.00	24.31	4.53	16.72	19.20	21.20	28.00	882.49	67.57	413.00	101.06
	9.240	1733.00	25.01	5.08	16.72	19.20	21.20	28.00	1103.58	63.68	413.00	111.22
*	9.240	2674.00	26.58	5.12	16.72	19.20	21.20	28.00	1372.17	51.32	413.00	579.75
	9.270	1306.00	25.17	5.09	16.95	19.09	21.28	28.00	1067.65	81.75	523.00	62.16
	9.270	1733.00	25.94	5.86	16.95	19.09	21.28	28.00	1370.05	79.06	523.00	74.86
	9.270	2674.00	27.33	6.34	16.95	19.09	21.28	28.00	1754.99	65.63	523.00	1571.77
	9.440	1306.00	25.40	4.42	17.46	23.02	22.75	28.00	1306.00	100.00	88.00	53.00
	9.440	1733.00	26.20	5.14	17.46	23.02	22.75	28.00	1733.00	100.00	88.00	53.00
*	9.440	2674.00	27.90	.72	17.46	23.02	22.75	28.00	308.88	11.55	88.00	5103.39
	9.450	1306.00	25.43	4.41	17.46	27.98	27.88	28.00	1306.00	100.00	28.00	65.83
	9.450	1733.00	26.24	4.93	17.46	27.98	27.88	28.00	1733.00	100.00	28.00	71.46
*	9.450	2674.00	27.86	5.60	17.46	27.98	27.88	28.00	2674.00	100.00	28.00	82.84
*	9.500	1306.00	25.93	1.79	16.66	21.87	21.28	29.00	795.42	60.91	268.00	1000.09
*	9.500	1733.00	26.80	1.48	16.66	21.87	21.28	29.00	746.44	43.07	268.00	1482.98
*	9.500	2674.00	28.53	.97	16.66	21.87	21.28	29.00	599.01	22.40	268.00	4741.06

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	10.180	608.00	26.71	1.34	17.80	27.00	26.40	30.00	404.53	66.53	3550.00	2379.85
*	10.180	811.00	27.19	.89	17.80	27.00	26.40	30.00	294.02	36.25	3550.00	2802.43
	10.180	1250.00	28.61	.35	17.80	27.00	26.40	30.00	147.70	11.82	3550.00	4837.47
*	10.900	608.00	28.73	4.08	21.00	29.80	28.20	30.60	591.20	97.24	3800.00	124.66
*	10.900	811.00	28.06	7.73	21.00	29.80	28.20	30.60	811.00	100.00	3800.00	55.16
*	10.900	1250.00	29.00	7.22	21.00	29.80	28.20	30.60	1166.91	93.35	3800.00	158.00
*	11.900	254.00	32.30	.85	26.02	30.45	31.11	35.00	220.64	86.87	5318.00	705.59
*	11.900	341.00	32.72	.82	26.02	30.45	31.11	135.00	232.69	68.24	5318.00	1259.39
*	11.900	528.00	33.12	.85	26.02	30.45	31.11	85.00	262.24	49.67	5318.00	1814.32
*	11.910	254.00	32.30	1.25	26.90	35.10	28.81	35.20	254.00	100.00	74.00	46.54
*	11.910	341.00	32.72	1.53	26.90	35.10	28.81	35.20	341.00	100.00	74.00	46.61
*	11.910	528.00	33.10	2.20	26.90	35.10	28.81	35.20	528.00	100.00	74.00	46.67
	11.920	254.00	32.30	1.28	26.90	35.08	34.96	35.10	254.00	100.00	24.00	50.00
	11.920	341.00	32.72	1.55	26.90	35.08	34.96	35.10	341.00	100.00	24.00	50.00
	11.920	528.00	33.10	2.21	26.90	35.08	34.96	35.10	528.00	100.00	24.00	50.00
	11.960	254.00	32.36	1.16	25.73	34.00	34.54	35.00	254.00	100.00	224.00	55.53
	11.960	341.00	32.80	1.40	25.73	34.00	34.54	35.00	341.00	100.00	224.00	57.97
	11.960	528.00	33.25	1.95	25.73	34.00	34.54	35.00	528.00	100.00	224.00	60.50
	-2.880	1922.00	14.65	2.95	1.00	15.00	20.80	18.10	1867.72	97.18	.00	457.99
	-2.880	2331.00	14.82	3.45	1.00	15.00	20.80	18.10	2229.69	95.65	.00	531.81
	-2.880	3203.00	15.54	3.65	1.00	15.00	20.80	18.10	2658.97	83.02	.00	854.46
	.020	1022.00	14.79	1.50	1.00	15.00	20.80	18.10	966.85	94.60	100.00	521.02
	.020	1174.00	15.01	1.61	1.00	15.00	20.80	18.10	1071.96	91.31	100.00	620.13
	.020	1684.00	15.75	1.65	1.00	15.00	20.80	18.10	1245.68	73.97	100.00	936.66
	.120	1022.00	15.28	1.58	3.20	16.90	19.10	20.60	1022.00	100.00	2493.00	125.74
	.120	1174.00	15.58	1.71	3.20	16.90	19.10	20.60	1174.00	100.00	2493.00	130.50
	.120	1684.00	16.55	2.04	3.20	16.90	19.10	20.60	1680.84	99.81	2493.00	307.37
	.940	1022.00	15.98	1.82	5.37	18.71	17.39	23.00	1022.00	100.00	2493.00	96.85
	.940	1174.00	16.40	1.94	5.37	18.71	17.39	23.00	1174.00	100.00	2493.00	109.21
	.940	1684.00	17.75	2.05	5.37	18.71	17.39	23.00	1660.22	98.59	2493.00	711.07
	.960	1022.00	16.01	1.81	5.37	18.71	17.39	23.00	1022.00	100.00	100.00	97.68
	.960	1174.00	16.44	1.93	5.37	18.71	17.39	23.00	1174.00	100.00	100.00	110.18
	.960	1684.00	17.80	2.03	5.37	18.71	17.39	23.00	1652.42	98.12	100.00	775.14
*	.970	1022.00	16.02	3.14	6.70	19.50	19.50	23.00	1022.00	100.00	28.00	65.49
*	.970	1174.00	16.44	3.31	6.70	19.50	19.50	23.00	1174.00	100.00	28.00	70.19
*	.970	1684.00	17.81	3.69	6.70	19.50	19.50	23.00	1684.00	100.00	28.00	77.43
*	.980	1022.00	16.18	1.76	5.37	18.71	17.39	23.00	1022.00	100.00	100.00	102.75
*	.980	1174.00	16.63	1.86	5.37	18.71	17.39	23.00	1174.00	100.00	100.00	121.71
*	.980	1684.00	18.05	1.83	5.37	18.71	17.39	23.00	1579.84	93.81	100.00	1157.01

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	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
*	1.480	1022.00	17.53	3.22	9.04	20.05	22.42	23.00	1022.00	100.00	2810.00	58.55
*	1.480	1174.00	18.18	3.28	9.04	20.05	22.42	23.00	1174.00	100.00	2810.00	63.41
*	1.480	1684.00	19.77	3.59	9.04	20.05	22.42	23.00	1684.00	100.00	2810.00	77.35
	1.500	1022.00	17.64	3.15	9.04	20.05	22.42	23.00	1022.00	100.00	100.00	59.13
	1.500	1174.00	18.30	3.22	9.04	20.05	22.42	23.00	1174.00	100.00	100.00	64.38
	1.500	1684.00	19.89	3.52	9.04	20.05	22.42	23.00	1684.00	100.00	100.00	78.42
*	1.510	1022.00	17.65	6.60	9.60	21.50	21.50	23.00	1022.00	100.00	21.00	23.00
*	1.510	1174.00	18.31	6.90	9.60	21.50	21.50	23.00	1174.00	100.00	21.00	23.00
*	1.510	1684.00	19.91	8.14	9.60	21.50	21.50	23.00	1684.00	100.00	21.00	23.00
*	1.520	1022.00	18.42	2.74	9.04	20.05	22.42	23.00	1022.00	100.00	100.00	65.48
*	1.520	1174.00	19.14	2.78	9.04	20.05	22.42	23.00	1174.00	100.00	100.00	71.83
*	1.520	1684.00	21.07	2.38	9.04	20.05	22.42	23.00	1363.72	80.98	100.00	947.90
	2.000	1022.00	20.00	2.78	11.00	22.60	23.30	23.50	1022.00	100.00	2110.00	66.87
	2.000	1174.00	20.69	2.82	11.00	22.60	23.30	23.50	1174.00	100.00	2110.00	72.47
*	2.000	1684.00	22.23	3.10	11.00	22.60	23.30	23.50	1684.00	100.00	2110.00	90.92
	2.370	1022.00	21.64	2.74	12.86	25.11	24.12	24.00	1022.00	100.00	2110.00	69.42
	2.370	1174.00	22.27	2.81	12.86	25.11	24.12	24.00	1174.00	100.00	2110.00	73.29
	2.370	1684.00	23.95	2.88	12.86	25.11	24.12	24.00	1597.71	94.88	2110.00	846.56
	2.390	845.00	21.75	2.22	12.86	25.11	24.12	24.00	845.00	100.00	100.00	70.12
	2.390	1036.00	22.38	2.43	12.86	25.11	24.12	24.00	1036.00	100.00	100.00	73.92
	2.390	1618.00	24.02	2.87	12.86	25.11	24.12	24.00	1618.00	100.00	100.00	95.09
	2.400	845.00	22.84	1.84	12.86	25.11	24.12	25.20	845.00	100.00	44.00	76.89
	2.400	1036.00	24.04	1.84	12.86	25.11	24.12	25.20	1036.00	100.00	44.00	95.24
*	2.400	1618.00	26.10	1.81	12.86	25.11	24.12	25.20	1411.54	87.24	44.00	1874.49
	2.420	845.00	22.87	1.82	12.86	25.11	24.12	24.00	845.00	100.00	100.00	77.50
	2.420	1036.00	24.08	1.66	12.86	25.11	24.12	24.00	944.21	91.14	100.00	915.80
*	2.420	1618.00	26.15	.70	12.86	25.11	24.12	24.00	548.54	33.90	100.00	3496.81
	3.000	845.00	23.91	2.04	13.50	24.70	24.50	24.50	845.00	100.00	2708.00	90.37
	3.000	1036.00	24.87	1.64	13.50	24.70	24.50	24.50	838.96	80.98	2708.00	1439.66
	3.000	1618.00	26.25	.72	13.50	24.70	24.50	24.50	478.79	29.59	2708.00	2750.00
	3.400	845.00	25.09	1.49	14.09	24.32	24.89	25.00	674.34	79.80	2708.00	2000.00
*	3.400	1036.00	25.52	1.12	14.09	24.32	24.89	25.00	558.97	53.95	2708.00	2000.00
	3.400	1618.00	26.40	.80	14.09	24.32	24.89	25.00	483.08	29.86	2708.00	2000.00
	3.420	782.00	25.13	1.31	14.09	24.32	24.89	25.00	599.85	76.71	100.00	2000.00
	3.420	983.00	25.53	1.03	14.09	24.32	24.89	25.00	518.51	52.75	100.00	2000.00
	3.420	1435.00	26.41	.71	14.09	24.32	24.89	25.00	427.22	29.77	100.00	2000.00
	3.430	782.00	25.13	1.96	15.00	25.30	25.30	25.00	782.00	100.00	16.00	58.00
	3.430	983.00	25.66	1.81	15.00	25.30	25.30	25.00	780.41	79.39	16.00	1098.26
*	3.430	1435.00	26.43	1.57	15.00	25.30	25.30	25.00	746.87	52.05	16.00	1107.30

	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
	3.440	782.00	25.20	1.21	14.09	24.32	24.89	25.00	562.23	71.90	100.00	2000.00
*	3.440	983.00	25.71	.86	14.09	24.32	24.89	25.00	450.35	45.81	100.00	2000.00
*	3.440	1435.00	26.46	.69	14.09	24.32	24.89	25.00	418.05	29.13	100.00	2000.00
	5.000	782.00	25.60	1.82	14.70	25.10	24.90	26.50	773.05	98.86	1531.00	320.04
*	5.000	983.00	25.94	2.01	14.70	25.10	24.90	26.50	910.14	92.59	1531.00	1354.28
*	5.000	1435.00	26.58	1.59	14.70	25.10	24.90	26.50	807.38	56.26	1531.00	3500.00
	-9.210	661.00	23.87	2.98	15.97	25.90	24.90	28.00	661.00	100.00	1531.00	44.33
	-9.210	1055.00	24.43	4.25	15.97	25.90	24.90	28.00	1055.00	100.00	1531.00	46.70
	-9.210	2059.00	26.13	6.16	15.97	25.90	24.90	28.00	2044.60	99.30	1531.00	86.36
	4.320	661.00	25.01	3.58	17.43	27.03	28.26	28.00	661.00	100.00	832.00	46.84
	4.320	1055.00	26.37	4.12	17.43	27.03	28.26	28.00	1055.00	100.00	832.00	65.22
*	4.320	2059.00	27.74	1.79	17.43	27.03	28.26	28.00	716.62	34.80	832.00	4069.65
	4.340	661.00	25.22	3.39	17.43	27.03	28.26	28.00	661.00	100.00	100.00	48.08
	4.340	1055.00	26.71	3.73	17.43	27.03	28.26	28.00	1055.00	100.00	100.00	91.68
*	4.340	2059.00	27.74	4.47	17.43	27.03	28.26	28.00	1789.81	86.93	100.00	855.95
*	4.350	661.00	25.22	1.29	17.90	27.80	27.80	28.00	661.00	100.00	28.00	88.00
*	4.350	1055.00	26.71	1.64	17.90	27.80	27.80	28.00	1055.00	100.00	28.00	88.00
*	4.350	2059.00	28.12	2.65	17.90	27.80	27.80	28.00	2031.04	98.64	28.00	3976.89
*	4.360	661.00	25.31	3.31	17.43	27.03	28.26	28.00	661.00	100.00	100.00	48.69
*	4.360	1055.00	26.86	3.17	17.43	27.03	28.26	28.00	945.76	89.65	100.00	1112.12
*	4.360	2059.00	28.25	.86	17.43	27.03	28.26	28.00	398.17	19.34	100.00	4999.77
	4.000	661.00	29.05	2.28	20.30	29.70	30.40	31.00	661.00	100.00	2886.00	87.58
*	4.000	1055.00	30.18	1.98	20.30	29.70	30.40	31.00	803.49	76.16	2886.00	2670.63
*	4.000	2059.00	28.75	7.77	20.30	29.70	30.40	31.00	2059.00	100.00	2886.00	77.61
*	5.410	1293.00	32.73	3.19	23.15	32.45	32.62	34.00	1255.85	97.13	2886.00	864.64
	5.410	1696.00	33.05	3.26	23.15	32.45	32.62	34.00	1385.79	81.71	2886.00	2567.50
*	5.410	2615.00	33.62	2.27	23.15	32.45	32.62	34.00	1090.09	41.69	2886.00	5821.88
*	5.000	1293.00	34.23	1.46	24.40	33.30	33.50	34.20	625.64	48.39	2665.00	6439.46
*	5.000	1696.00	34.39	1.39	24.40	33.30	33.50	34.20	617.49	36.41	2665.00	6670.00
*	5.000	2615.00	34.59	1.50	24.40	33.30	33.50	34.20	690.70	26.41	2665.00	6670.00
	6.000	1293.00	34.90	1.44	25.60	34.20	34.40	34.40	552.37	42.72	2665.00	5400.00
	6.000	1696.00	35.02	1.48	25.60	34.20	34.40	34.40	584.66	34.47	2665.00	5400.00
	6.000	2615.00	35.26	1.55	25.60	34.20	34.40	34.40	639.41	24.45	2665.00	5400.00
	7.000	1293.00	35.59	1.49	26.80	35.00	35.30	34.70	508.37	39.32	2665.00	3652.31
	7.000	1696.00	35.74	1.56	26.80	35.00	35.30	34.70	550.16	32.44	2665.00	3970.18
	7.000	2615.00	36.00	1.65	26.80	35.00	35.30	34.70	612.91	23.44	2665.00	4100.00
	8.000	1293.00	36.31	1.46	28.00	35.90	36.20	34.90	440.99	34.11	2665.00	2368.23
	8.000	1696.00	36.50	1.54	28.00	35.90	36.20	34.90	482.94	28.48	2665.00	2534.79
	8.000	2615.00	36.83	1.71	28.00	35.90	36.20	34.90	571.24	21.84	2665.00	2800.00

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
9.000	1293.00	37.12	1.66	29.20	36.80	37.00	35.10	441.11	34.11	2665.00	1279.27
9.000	1696.00	37.36	1.78	29.20	36.80	37.00	35.10	496.73	29.29	2665.00	1369.93
9.000	2615.00	37.79	1.99	29.20	36.80	37.00	35.10	602.26	23.03	2665.00	1500.00
*	8.440	176.00	37.79	.62	30.45	37.62	37.91	136.92	77.79	2664.00	168.41
*	8.440	237.00	38.10	.74	30.45	37.62	37.91	174.26	73.53	2664.00	178.42
*	8.440	367.00	38.65	.93	30.45	37.62	37.91	246.18	67.08	2664.00	198.55



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## SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	1.030	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	1.030	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	1.030	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.030	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.030	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.030	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.060	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.060	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.060	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.100	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.100	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.100	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	2.880	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	2.890	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	3.850	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	3.850	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	3.850	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.030	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	5.050	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.050	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.050	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	5.110	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.630	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.630	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	5.630	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	6.230	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	6.230	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

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WARNING SECNO=	6.770	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	7.380	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	7.380	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	7.460	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	9.210	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	9.240	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	9.450	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	9.500	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	10.180	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	10.180	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

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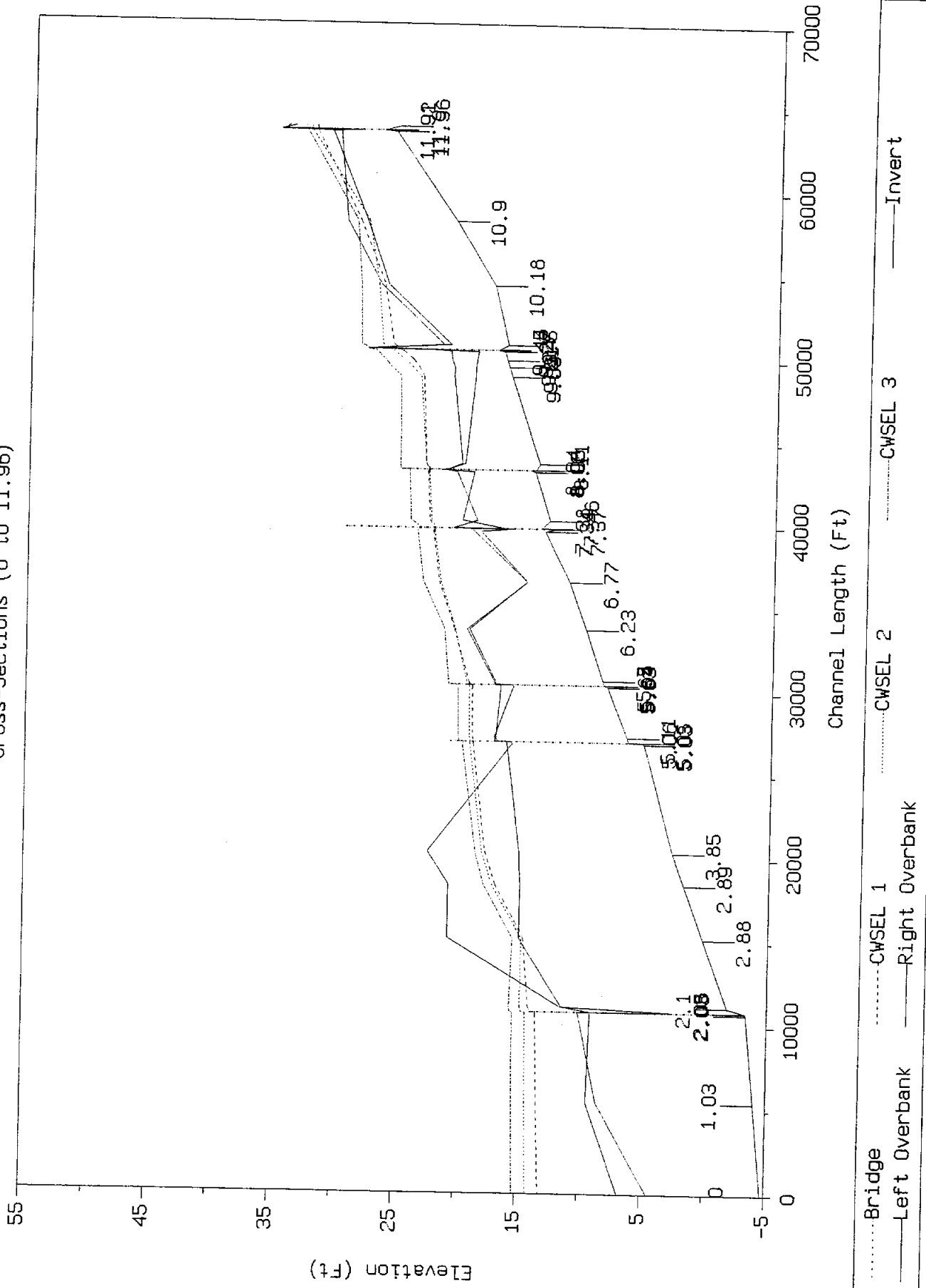
PAGE 27

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CAUTION SECNO=	10.900	PROFILE=	2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	10.900	PROFILE=	2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=	10.900	PROFILE=	3	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	10.900	PROFILE=	3	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	10.900	PROFILE=	3	20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=	11.900	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	11.900	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	11.900	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=	11.910	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=	.970	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=	.980	PROFILE=	3	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.480	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=	4.340	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	4.350	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	4.350	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	4.360	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	4.360	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	4.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	5.410	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	8.440	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

DRFLORES REVISED BY B&L,  
 Cross-Sections (0 to 11.96)



Flores Bayou Split Flow Model Copy of FB\_BL\_SF.IH2

```
*****  
* HEC-2 WATER SURFACE PROFILES *  
* *  
* version 4.6.2; May 1991 *  
* *  
* RUN DATE 23AUG02 TIME 10:52:17 *  
*****
```

```
*****  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET, SUITE D *  
* DAVIS, CALIFORNIA 95616-4687 *  
* (916) 756-1104 *  
*****
```

```
      X   X  XXXXXXXX  XXXXX          XXXXX  
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      XXXXXXXX XXXX   X           XXXXX  
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      X   X X          X   X          X  
      X   X  XXXXXXXX  XXXXX          XXXXXXXX
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THIS RUN EXECUTED 23AUG02 10:52:17

\*\*\*\*\*  
HEC-2 WATER SURFACE PROFILES  
Version 4.6.2; May 1991  
\*\*\*\*\*

SPLIT FLOW BEING PERFORMED

SF SPLIT FLOW ANALYSIS OF FLORES BAYOU/ICD SYSTEM

USES NORMAL DEPTH TO COMPUTE FLOW SPLIT

TN	IOWA COLONY DITCH (ICD)	XSECTION AT FLOW SPLIT							
NS	9	51707	52707	15207	.045	.0005			
NG	10000	26.6	10036	26.7	10055	17.7	10059	16.4	10075 16.8
NG	10089	25.6	10114	27.2	11000	27.3			

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T1 FLORES BAYOU..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 T2 REVISED EXISTING..... CONDITION MODEL 1973 DATUM ADJUSTMENT  
 T3 SPLIT FLOW MODEL BY B&L, INC

NOTES \*\*\*\*\*  
 REVISED MODEL INCLUDES BAKER & LAWSON SURVEY SECTIONS AND REVISED  
 BRIDGE SECTIONS  
 MODEL KEYED IN FROM 21 JULY 1988 FEMA MODEL  
 ORIGINAL INPUT DATA PROVIDED BY BRAZORIA COUNTY FLOOD PLAIN ADMINISTRATOR  
 STARTING WATER SURFACE ELEVATION IS BACKWATER EFFECT FROM AUSTIN BAYOU  
 SPLIT FLOW ANALYSIS AT FB AND ICD

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2			.0001					
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1							
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38	43	1	26	42	23	24	63	14	60
	39	4								
J5	LPRNT	NUMSEC	*****REQUESTED SECTION NUMBERS*****							
	-10	-10								
NC	.045	.045	0.050	.1	.3					
4 FLOWS: PROF1 = FEMA 100 YR, PROF2 = DR10YR, PROF3 = DR25YR, PROF4 = DR100YR										
QT	5	528	1055	3002	3694	5277				
SURVEYED CROSS-SECTION UPSTREAM OF CONFLUENCE WITH AUSTIN BAYOU										
X1	0	11	10000	10112						
GR	13	9000	10	9970	6.77	10000	6.38	10018	1.59	10021
GR	-4.70	10048	1.22	10070	3.91	10072	4.40	10112	10	10412
GR	13	11412								
X-SECTION F-14 FROM FEMA, HALF WAY BETWEEN CR 210 AND CONFLUENCE										
1.03										
X1	5411	37	10000	10115	4000	4000	5411			
X3	10			8543	18	11849	15.0			
GR	12.	4707	12.	5198	12.4	5971	15.	6010	13.2	6072
GR	13.	6399	13.6	6631	13.8	7007	14.	7235	13.8	7611
GR	15.2	8490	18.	8543	15.	8593	15.	8837	14.2	9366
GR	12.4	9792	11.	9935	9.4	10000	6.2	10017	3.2	10032
GR	-3	10039	-3.1	10050	-3.1	10062	-4.	10074	-1.5	10085
GR	3.2	10096	8.6	10115	9.2	10242	12.6	10524	14.2	11021
GR	14.6	11357	15.0	11635	15.0	11849	14.4	12530	13.6	13043
GR	14.2	13776	14.6	14667						

BRIDGE DATA INPUT FOR CR 210 BRIDGE  
 SURVEYED SECTION AT 116 FEET DOWNSTREAM OF CR 210 IS FOR THE 4 SB SECTIONS  
 SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1996



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SPECIAL BRIDGES SECTION 1  
2.03

X1	10725	10	10000	10095	4000	4000	5314				
GR	16.5	3000	9.21	10000	8.37	10025	5.68	10034	2.51	10051	
GR	-3.31	10063	2.46	10081	10.14	10095	10.87	10135	16.5	15135	
QT	5	506	1012	2894	3554	5057					
NC	0.035	0.035	0.050	0.3	0.5						

SPECIAL BRIDGE SECTION 2  
2.05

X1	10822				97	97	97				
X3	10									0.1	
								13.0		13.0	
SB	1.05	1.6	2.6	0	8	2.3	711	3	-3.02	-3.32	

SPECIAL BRIDGE SECTION 3  
2.06

X1	10850	10	10000	10081	28	28	28				
X2			1	12.0	14.0						
X3	10										
X4	6	14.47	9740	14.3	9826	14.16	9914	14.0	14.0		
X4	10258	13.79	10343					13.98	10167	13.9	
BT	-9	9740	14.47								
BT		10000	14.09		9826	14.3		9914	14.16		
BT		10167	13.98		10040	13.99		10081	14.05		
GR	16.5	3000	9.31	10000	10258	13.90		10343	13.79		
GR	-3.21	10063	2.56	10081	8.47	10025	5.78	10034	2.61	10051	
					10.24	10095	10.97	10135	16.5	15135	

SPECIAL BRIDGE SECTION 4  
2.10

X1	11127	10	10000	10081	277	277	277				
GR	16.5	3000	9.31	10000	8.47	10025	5.78	10034	0.1		
GR	-3.21	10063	2.56	10081	10.24	10095	10.97	10135	16.5	10051	15135
NC	0.06	0.045	0.045	0.1	0.3						

X-SECTION F-12 FROM FEMA, LEVEE FOR LAKE ON RIGHT OVERBANK FOR F-12 AND F-11  
F-12 IS DOWNSTREAM OF CONFLUENCE OF IOWA COLONY DITCH AND FLORES

2.88

X1	15207	25	10000	10160	3700.	4100.	4080.				
GR	18.1	5527	18.1	5528	18.1	5529	18.1	5530	16.1	5546	
GR	16.9	6092	17.5	6475	17.5	6822	19.9	6860	17.9	6889	
GR	17.2	7118	17.2	7393	17.2	8087	17.2	8648	16.8	8809	
GR	13.8	9918	15.	10000	6.4	10024	1.	10036	1.	10048	
GR	6.4	10060	15.	10088	15.2	10129	20.8	10160	20.8	10217	

INSERTED X-SECTION AT NODE 4 OF HEC-1 MODEL  
2.89

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X1	18434	25	10000	10160	3127	3127	3227			
GR	18.1	5527	18.1	5528	18.1	5529	18.1	5530	16.1	5546
GR	16.9	6092	17.5	6475	17.5	6822	19.9	6860	17.9	6889
GR	17.2	7118	17.2	7393	17.2	8087	17.2	8648	16.8	8809
GR	13.8	9918	15.	10000	6.4	10024	2.6	10036	2.6	10048
GR	6.4	10060	15.	10088	15.2	10129	20.8	10160	20.8	10217

X-SECTION F-11 FROM FEMA, F-12 AND F11 ARE BETWEEN CR 210 AND CR 171  
 F-11 IS UPSTRAEM OF CONFLUENCE BETWEEN IOWA COLONY DITCH AND FLORES  
 3.85

X1	20367	23	10000	10086	1873	1873	1933			
GR	22.1	5272	22.1	5273	21.9	5601	21.9	6073	20.9	6448
GR	20.7	6739	20.7	6969	20.1	7414	18.1	7713	17.1	7867
GR	16.9	7921	18.3	8277	18.5	8736	18.9	9511	21.1	9566
GR	18.9	9612	18.9	9759	15.1	10000	7.3	10018	3.6	10036
GR	7.3	10053	22.5	10086	22.5	10118				

BRIDGE DATA INPUT FOR CR 171 BRIDGE  
 SURVEYED SECTION AT 80 FEET DOWNSTREAM OF CR 171 FOR 1ST & 2ND SB SECTIONS  
 SURVEYED SECTION AT 66 FEET UPSTREAM OF CR 171 FOR 3RD & 4TH SB SECTIONS  
 SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1996  
 SPECIAL BRIDGES SECTION 1  
 5.03

X1	26879	11	10000	10070	4800	4800	6512			
GR	23	7400	20	8400	16.22	10000	11.25	10010	7.97	10025
GR	5.22	10034	8.79	10044	15.80	10070	17	11770	20	14000
GR	23	15000								

NC 0.3 0.5

SPECIAL BRIDGE SECTION 2

QT	5	370	740	2329	2814	3701				
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5.05

X1	26990				111	111	111		0.1	
X3	10							19.9	19.9	

SB	1.05	1.6	2.6	0	10	2.3	618	3	6.49	5.22
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SPECIAL BRIDGE SECTION 3  
 5.06

X1	27014	13	10000	10163	24	24	24			
X2			1	19.6	20.8					
X3	10									
BT	-9	9730	20.82		9818	20.66		20.8	20.8	
BT		10000	20.88		10040	20.89		9908	20.67	
BT		10172	20.60		10263	20.46		10081	20.82	
GR	23	7400	20	8400	17.04	10000		10350	20.37	
GR	6.49	10085	7.61	10094	10.84	10115	15.37	10043	8.06	10080
GR	17	11863	20	14000	23	15000	15.01	10130	17.16	10163

SPECIAL BRIDGE SECTION 4  
 5.11

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X1	27291				277	277	277			0.1
NC	0.55	0.55	0.040	0.1	0.3					

RAILROAD BRIDGE NOT MODELLED - NO IMPACT ON WSEL

BRIDGE DATA INPUT FOR CR 207 BRIDGE (6TH STREET)  
 SURVEYED SECTION AT 125 FEET DOWNSTREAM OF CR 207 FOR 1ST & 2ND SB SECTIONS  
 SURVEYED SECTION AT 115 FEET UPSTREAM OF CR 207 FOR 3RD & 4TH SB SECTIONS  
 SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1996  
 SPECIAL BRIDGES SECTION 1

5.63

X1	30324	11	10000	10085	2800	3000	3033			
GR	23	7000	20	9577	18.11	9977	16.79	10000	10.68	10021
GR	8.23	10031	10.23	10043	12.65	10053	15.78	10085	20	10235
GR	23	12000								

NC				0.3	0.5					
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SPECIAL BRIDGE SECTION 2

5.64

X1	30412				88	88	88			0.1
X3	10							19.8		19.8

SB	1.05	1.6	2.6	0	12	0.1	394	3	8.64	8.23
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SPECIAL BRIDGE SECTION 3

5.65

X1	30440	16	10000	10097	28	28	28			
X2			1	18.8	20.8					
X3	10									
BT	-5	9896	19.62		10000	20.82		20.8	20.8	
BT		10060	20.89		10138	20.03		10030	20.79	
GR	24.5	6000	20	9600	17.30	10000	16.10	10017	9.30	10039
GR	8.54	10053	10.88	10062	15.11	10072	17.19	10097	16.45	10112
GR	12.10	10116	16.92	10125	19.17	10148	19.31	10160	20	13160
GR	24.5	16000								

SPECIAL BRIDGE SECTION 4

5.70

X1	30708				268	268	268			0.1
			0.1	0.3						

NC				.1	.3					
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X-SECTION F-8 FROM FEMA, 1/3 DIST BETWEEN CR 207 AND SH 35  
 "J" IN MARGIN

6.23

X1	33768	17	10000	10080	2750.	2850.	3060.			
GR	24.5	7000	23.6	8380	23.6	9102				
GR	19.6	10000	17.2	10032	12.6	10055	21.6	9554	21.4	9798
GR	11.	10068	12.6	10072	19.4	10080	21.	10060	10.	10064
GR	22.8	10145	24.5	13000				10093	22.8	10131

X-SECTION F-7 FROM FEMA, 2/3 DIST BETWEEN CR 207 AND SH 35

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"K" IN MARGIN  
6.77

X1	36628	21	10000	10036	2860.	2860.	2860.				
GR	26.5	9120	26.	9121	26.	9124	24.6	9185	23.	9569	
GR	22.	9783	22.2	9953	14.8	10000	11.4	10012	11.4	10024	
GR	14.8	10036	21.4	10078	21.	10146	21.4	10436	22.2	10767	
GR	22.4	10997	22.4	11173	22.8	11316	23.6	12245	26.0	12320	
GR	26.5	12340									

BRIDGE DATA INPUT FOR SH 35 BRIDGE  
 SURVEYED SECTION AT 123 FEET DOWNSTREAM OF SH 35 FOR 1ST SB SECTIONS  
 SURVEYED SECTION AT 34 FEET DOWNSTREAM OF SH 35 FOR 2ND SB SECTIONS  
 SURVEYED SECTION AT 14 FEET UPSTREAM OF SH 35 FOR 3RD SB SECTIONS  
 SURVEYED SECTION AT 88 FEET UPSTREAM OF SH 35 FOR 4TH SB SECTIONS  
 SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1997  
 SPECIAL BRIDGES SECTION 1  
 7.34

X1	39656	7	10000	10061	2940	3000	3028				
GR	27.3	9300	18.61	10000	15.52	10022	13.43	10031	15.21	10042	
GR	19.17	10061	27	12061							

NC 0.065 0.065 0.050 0.3 0.5  
 SPECIAL BRIDGE SECTION 2  
 7.37

X1	39803	6	10000	10048	147	147	147				
X3	10							28.5	28.5		
GR	27.83	9964	15.96	10000	12.51	10014	15.02	10028	19.47	10048	
GR	28.51	10073									

SB 1.05 1.6 2.6 0 25 3 688 3 13.77 12.51  
 SPECIAL BRIDGE SECTION 3  
 7.38

X1	39847	6	10000	10077	44	44	44				
X2			1	26.3	29.5						
X3	10										
BT	-9	9720	29.19		9810	29.27		29.5	29.5		
BT		10000	29.52		10052	29.75		9905	29.55		
BT		10198	29.66		10290	29.23		10103	29.66		
GR	27.92	9974	20.80	10000	14.80	10025	13.77	10379	28.81		
GR	28.23	10109						10063	16.77	10077	

SPECIAL BRIDGE SECTION 4  
 7.46

X1	40305	9	10000	10073	458	458	458				
GR	28	5000	25	9300	18.94	10000	16.19	10026	13.07	10036	
GR	15.61	10044	20.13	10073	27	12073	28	15000			

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NC 0.045 0.045 0.045 0.1 0.3  
 QT 5 367 734 2260 2720 3665

BRIDGE DATA INPUT FOR CR 46 BRIDGE  
 SURVEYED SECTION AT 93 FEET DOWNSTREAM OF CR 46 FOR 1ST SB SECTIONS  
 SURVEYED SECTION AT 14 FEET DOWNSTREAM OF CR 46 FOR 2ND SB SECTIONS  
 SURVEYED SECTION AT 14 FEET UPSTREAM OF CR 46 FOR 3RD SB SECTIONS  
 SURVEYED SECTION AT 58 FEET UPSTREAM OF CR 46 FOR 4TH SB SECTIONS  
 SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1994

SPECIAL BRIDGES SECTION 1

8.02

X1	43241	9	10000	10048	2600	2750	2936			
GR	27.7	5000	25	7500	20.64	10000	15.83	10008	14.29	10011
GR	15.98	10020	19.26	10048	25	11448	27.7	15000		

NC 0.3 0.5

SPECIAL BRIDGE SECTION 2

8.04

X1	43350	9	10000	10066	109	109	109			
X3	10							24.3	24.3	
GR	27.7	5000	25	7500	21.65	10000	17.73	10016	14.65	10047
GR	16.32	10053	21.94	10066	25	11466	27.7	15000		

SB	1.05	1.6	2.6	0	10	1.2	440	4	14.29	13.97
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SPECIAL BRIDGE SECTION 3

8.05

X1	43378	9	10000	10076	28	28	28			
X2			1	23.9	25.1					
X3	10							25.1	25.1	
BT	-8	8752	25.3		9211	25.1		9698	25.1	
BT		9752	25.1		10000	25.1		10287	25.4	
BT		11053	25.2		11462	26				
GR	27.7	4500	25	7500	21.34	10000	15.72	10021	14.26	10029
GR	16.23	10036	21.37	10076	25	11476	27.8	15000		

SPECIAL BRIDGE SECTION 4

8.11

X1	43728	9	10000	10050	350	350	350			
GR	28.2	2000	25	7500	20.00	10000	16.46	10018	13.97	10023
GR	16.77	10042	20.21	10050	25	11450	28.2	16000		

NC 0.1 0.3  
 QT 5 510 1020 2526 3289 5104

9.09

X1	51707	13	10000	10035	4646	5227	5227			
GR	28.1	7963	26.1	9363	24.9	9830	19.3	10000	17.2	10007
GR	16.3	10009	17.7	10024	18.6	10028	21	10035	24.8	10048
GR	25.5	10068	26.7	11074	28.1	14451				

9.21

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X1	52294	13	10000	10035	522	587	587			
GR	28.1	7963	26.1	9363	24.9	9830	19.3	10000	17.2	10007
GR	16.3	10009	17.7	10024	18.6	10028	21	10035	24.8	10048
GR	25.5	10068	26.7	11074	28.1	14451				

9.24

X1	52707	13	10000	10032	367	413	413			
GR	28	9103	26.3	9720	25.5	9925	19.2	10000	17.3	10005
GR	16.7	10006	18	10021	18.9	10025	21.2	10032	25.7	10044
GR	26.5	10063	27.1	11002	28	14155				

BRIDGE DATA INPUT FOR CR 45 BRIDGE  
 SURVEYED SECTION AT 57 FEET DOWNSTREAM OF CR 45 FOR 1ST SB SECTIONS  
 SURVEYED SECTION AT 15 FEET DOWNSTREAM OF CR 45 FOR 2ND SB SECTIONS  
 SURVEYED SECTION AT 14 FEET UPSTREAM OF CR 45 FOR 3RD SB SECTIONS  
 SURVEYED SECTION AT 66 FEET UPSTREAM OF CR 45 FOR 4TH SB SECTIONS  
 SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1994  
 SPECIAL BRIDGES SECTION 1

9.27

X1	53230	9	10000	10031	465	523	523			
GR	28	9700	25.88	9975	19.09	10000	16.95	10005	18.16	10020
GR	21.28	10031	26.16	10042	27.00	10060	28	14000		

NC 0.3 0.5  
 SPECIAL BRIDGE SECTION 2

QT	5	246	492	1193	1589	2463				
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9.44

X1	53318	8	10000	10053	88	88	88			
X3	10							26.95	26.95	
GR	28	9700	23.02	10000	18.91	10008	17.46	10021	19.17	10030
GR	22.75	10053	26	11053	28	15000				

SB	1.05	1.6	2.6	0	30	3	516	3	17.5	16.9
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SPECIAL BRIDGE SECTION 3  
 9.45

X1	53346	7	10000	10083	28	28	28			
X2			1	26.35	27.98					
X3	10							27.98	27.98	
X4	4	27.89	9755	27.68	9763	27.82	10172	27.62	10268	
BT	-7	9755	27.89		9763	27.68		10000	27.98	
BT		10044	27.98		10083	27.88		10172	27.82	
BT		10268	27.62							
GR	30	7500	27.98	10000	18.91	10008	17.46	10021	19.17	10030
GR	27.88	10083	28	10553						

SPECIAL BRIDGE SECTION 4  
 9.50

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X1	53614	10	10000	10067	268	268	268			
GR	30	7500	24.31	9975	21.87	10000	17.84	10017	16.66	10022
GR	18.32	10032	21.28	10067	24.56	10112	28	10512	29	15000

QT	5	105	210	504	676	1049				
NC				0.1	0.3					

X-SECTION F-2 FROM FEMA, 1/3 DIST BETWEEN CR 45 AND CR 49  
10.18

X1	57164	18	10000	10062	3200	2900	3550			
GR	32.	7654	31.	8091	29.6	8733	28.	9249	27.6	9865
GR	27.	10000	21.	10014	19.2	10019	17.8	10027	19.2	10035
GR	21.	10040	26.4	10062	26.4	10274	26.2	10866	26.4	11610
GR	26.4	12016	26.4	12129	30.	15000				

X-SECTION F-1 FROM FEMA, 2/3 DIST BETWEEN CR 45 AND CR 49  
10.90

X1	60964	15	10000	10070	3600	3600	3800			
GR	32.6	8995	31.	9509	30.8	9884	29.8	10000	25.8	10030
GR	23.	10031	22.	10033	21.	10035	22.	10037	23.	10038
GR	25.8	10040	28.2	10070	29.6	10235	29.8	10478	30.6	11115

QT	5	45	90	217	291	453				
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BRIDGE DATA INPUT FOR CR 49 BRIDGE  
 SURVEYED SECTION AT 75 FEET DOWNSTREAM OF CR 49 FOR 1ST SB SECTIONS  
 SURVEYED SECTION AT 13 FEET DOWNSTREAM OF CR 49 FOR 2ND SB SECTIONS  
 SURVEYED SECTION AT 11 FEET UPSTREAM OF CR 49 FOR 3RD SB SECTIONS  
 SURVEYED SECTION AT 93 FEET UPSTREAM OF CR 49 FOR 4TH SB SECTIONS  
 SB DATA UPDATED USING TXDOT BRINSAP FILE DATED 1994

SPECIAL BRIDGES SECTION 1

11.90

X1	66282	11	10000	10059	5200	5200	5318			
GR	35	7200	31.99	9987	30.45	10000	28.18	10008	26.02	10026
GR	28.55	10050	31.11	10059	31.54	10069	35	11569	35.2	12069
GR	37	12089								

NC	0.045	0.075	0.045	0.3	0.5					
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SPECIAL BRIDGE SECTION 2

11.91

X1	66356	9	10000	10047	74	74	74			
X3	10							34	34	
GR	35.2	7000	35.10	10000	28.98	10001	26.90	10028	28.81	10047
GR	34	10052	35	11552	35.2	12052	37	12072		

SB	1.05	1.6	2.6	0	45	2	400	.1	26.9	26.74
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SPECIAL BRIDGE SECTION 3

11.92

X1	66380	9	10000	10050	24	24	24			
X2			1	34.0	35.2					
X3	10							34.6	34.6	
X4	7	33.18	9728	32.95	9822	33.23	9911	34.96	10050	33.7
X4	10141	33.41	10236	33.59	10330					

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BT	-9	9728	33.18		9822	32.95		9911	33.23	
BT		10000	35.08		10022	35.19		10050	34.96	
BT		10141	33.70		10236	33.41		10330	33.59	
GR	35.1	7200	35.08	10000	29.6	10000	28.9	10017	26.9	10033
GR	28.7	10050	34.96	10050	35.2	11237	37	11257		
SPECIAL BRIDGE SECTION 4										
11.96										
X1	66604	10	10000	10066	224	224	224			
GR	35	7200	34.15	9993	34.00	10000	28.14	10019	25.73	10029
GR	28.60	10052	34.54	10066	35.13	10079	35.2	11279	37	11299



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T1FLORES BAYOU..... 2000 BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2REVISED EXISTING..... CONDITION MODEL 1973 DATUM ADJUSTMENT  
T3MODEL REVISED BY B&L, INC. AND KLOTZ ASSOCIATES..... REV 08/00

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3			.0001					
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							

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T1 FLORES BAYOU..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
 T2 REVISED EXISTING..... CONDITION MODEL 1973 DATUM ADJUSTMENT  
 T3 MODEL REVISED BY B&L, INC.

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		4							12.12	
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3		-1							

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T1FLORES BAYOU..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2REVISED EXISTING..... CONDITION MODEL 1973 DATUM ADJUSTMENT  
T3MODEL REVISED BY B&L, INC.

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		5							13.19	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	4		-1							

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T1 FLORES BAYOU..... BRAZORIA COUNTY MASTER DRAINAGE PLAN  
T2 REVISED EXISTING..... CONDITION MODEL 1973 DATUM ADJUSTMENT  
T3 MODEL REVISED BY B&L, INC.

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		6							15.27	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1							

THIS RUN EXECUTED 23AUG02 10:52:20

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FLOW MODEL BY B&L, INC

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
.000	528.00	6.92	.84	-4.70	6.77	4.40	13.00	462.58	87.61	.00	248.23
.000	1055.00	8.70	1.03	-4.70	6.77	4.40	13.00	775.44	73.50	.00	360.51
.000	3002.00	12.12	1.14	-4.70	6.77	4.40	13.00	1300.37	43.32	.00	1834.13
.000	3694.00	13.19	.98	-4.70	6.77	4.40	13.00	1224.67	33.15	.00	2412.00
.000	5277.00	15.27	.72	-4.70	6.77	4.40	13.00	1075.60	20.38	.00	2412.00
5411.000	528.00	7.34	.81	-4.00	9.40	8.60	14.60	528.00	100.00	5411.00	99.59
5411.000	1055.00	9.27	1.22	-4.00	9.40	8.60	14.60	1046.40	99.18	5411.00	246.84
5411.000	3002.00	12.58	1.72	-4.00	9.40	8.60	14.60	2131.10	70.99	5411.00	773.59
* 5411.000	3694.00	13.50	1.65	-4.00	9.40	8.60	14.60	2226.01	60.26	5411.00	1273.17
* 5411.000	5277.00	15.40	1.26	-4.00	9.40	8.60	14.60	1966.67	37.27	5411.00	6080.74
* 10725.000	528.00	7.94	1.50	-3.31	9.21	10.14	16.50	528.00	100.00	5314.00	64.57
* 10725.000	1055.00	10.21	1.62	-3.31	9.21	10.14	16.50	879.11	83.33	5314.00	1056.98
* 10725.000	3002.00	12.92	.73	-3.31	9.21	10.14	16.50	580.04	19.32	5314.00	5508.59
* 10725.000	3694.00	13.72	.57	-3.31	9.21	10.14	16.50	496.83	13.45	5314.00	6978.05
* 10725.000	5277.00	15.48	.37	-3.31	9.21	10.14	16.50	381.76	7.23	5314.00	10244.94
10822.000	506.00	7.97	1.46	-3.21	9.31	10.24	16.60	506.00	100.00	97.00	64.21
10822.000	1012.00	10.23	1.90	-3.21	9.31	10.24	16.60	1012.00	100.00	97.00	94.98
* 10822.000	2894.00	12.82	3.71	-3.21	9.31	10.24	16.60	2894.00	100.00	97.00	95.00
10822.000	3554.00	13.72	.46	-3.21	9.31	10.24	16.60	398.97	11.23	97.00	6807.41
10822.000	5057.00	15.48	.29	-3.21	9.31	10.24	16.60	297.79	5.89	97.00	10065.30
10850.000	506.00	7.98	1.58	-3.21	9.31	2.56	16.50	506.00	100.00	28.00	54.35
10850.000	1012.00	10.23	2.11	-3.21	9.31	2.56	16.50	1012.00	100.00	28.00	81.00
10850.000	2894.00	12.97	4.12	-3.21	9.31	2.56	16.50	2894.00	100.00	28.00	81.00
* 10850.000	3554.00	14.17	2.98	-3.21	9.31	2.56	16.50	2380.57	66.98	28.00	1099.23
* 10850.000	5057.00	15.66	1.62	-3.21	9.31	2.56	16.50	1488.32	29.43	28.00	7910.53

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
11127.000	506.00	8.06	1.48	-3.11	9.41	2.66	16.60	474.29	93.73	277.00	64.17
11127.000	1012.00	10.38	1.52	-3.11	9.41	2.66	16.60	738.21	72.95	277.00	1040.24
* 11127.000	2894.00	13.33	.51	-3.11	9.41	2.66	16.60	365.70	12.64	277.00	5990.59
* 11127.000	3554.00	14.31	.36	-3.11	9.41	2.66	16.60	289.63	8.15	277.00	7837.63
* 11127.000	5057.00	15.68	.28	-3.11	9.41	2.66	16.60	255.97	5.06	277.00	10415.11
15207.000	506.00	9.37	1.92	1.00	15.00	20.80	18.10	506.00	100.00	4080.00	53.95
* 15207.000	1012.00	11.79	2.46	1.00	15.00	20.80	18.10	1012.00	100.00	4080.00	68.59
* 15207.000	2894.00	13.21	5.62	1.00	15.00	20.80	18.10	2894.00	100.00	4080.00	77.15
* 15207.000	3554.00	14.01	6.14	1.00	15.00	20.80	18.10	3551.43	99.93	4080.00	171.10
* 15207.000	5057.00	15.39	6.09	1.00	15.00	20.80	18.10	4324.24	85.51	4080.00	800.99
18434.000	269.35	10.24	.98	2.60	15.00	20.80	18.10	269.35	100.00	3227.00	59.18
18434.000	625.09	12.90	1.38	2.60	15.00	20.80	18.10	625.09	100.00	3227.00	75.29
* 18434.000	2198.51	16.28	1.90	2.60	15.00	20.80	18.10	1499.80	68.22	3227.00	1265.70
* 18434.000	2775.27	16.90	1.81	2.60	15.00	20.80	18.10	1583.80	57.07	3227.00	1925.61
* 18434.000	4068.66	17.75	1.61	2.60	15.00	20.80	18.10	1603.34	39.41	3227.00	4501.22
* 20367.000	269.35	10.56	1.33	3.60	15.10	22.50	22.10	269.35	100.00	1933.00	49.61
20367.000	625.09	13.31	1.76	3.60	15.10	22.50	22.10	625.09	100.00	1933.00	61.92
* 20367.000	2198.51	17.07	3.44	3.60	15.10	22.50	22.10	2117.48	96.31	1933.00	290.33
* 20367.000	2775.27	17.61	3.90	3.60	15.10	22.50	22.10	2561.24	92.29	1933.00	548.91
* 20367.000	4068.66	18.29	4.78	3.60	15.10	22.50	22.10	3384.77	83.19	1933.00	872.05
26879.000	269.35	12.60	1.47	5.22	16.22	15.80	23.00	269.35	100.00	6512.00	50.81
26879.000	625.09	15.39	1.80	5.22	16.22	15.80	23.00	625.09	100.00	6512.00	66.82
* 26879.000	2198.51	18.24	1.08	5.22	16.22	15.80	23.00	586.55	26.68	6512.00	3535.44
* 26879.000	2775.27	18.68	.99	5.22	16.22	15.80	23.00	572.44	20.63	6512.00	4064.51
* 26879.000	4068.66	19.38	.97	5.22	16.22	15.80	23.00	604.24	14.85	6512.00	4871.76
26990.000	133.35	12.65	.74	5.32	16.32	15.90	23.10	133.35	100.00	111.00	50.57
26990.000	353.09	15.46	1.02	5.32	16.32	15.90	23.10	353.09	100.00	111.00	66.65
* 26990.000	1633.51	18.18	3.05	5.32	16.32	15.90	23.10	1633.51	100.00	111.00	70.00
* 26990.000	2035.27	18.60	3.61	5.32	16.32	15.90	23.10	2035.27	100.00	111.00	70.00
* 26990.000	2712.66	19.23	4.46	5.32	16.32	15.90	23.10	2712.66	100.00	111.00	70.00
27014.000	133.35	12.65	.64	6.49	17.04	17.16	23.00	133.35	100.00	24.00	64.76
27014.000	353.09	15.46	.83	6.49	17.04	17.16	23.00	353.09	100.00	24.00	96.36
27014.000	1633.51	18.18	2.00	6.49	17.04	17.16	23.00	1633.51	100.00	24.00	163.00
27014.000	2035.27	18.60	2.30	6.49	17.04	17.16	23.00	2035.27	100.00	24.00	163.00
27014.000	2712.66	19.23	2.74	6.49	17.04	17.16	23.00	2712.66	100.00	24.00	163.00
27291.000	133.35	12.68	.65	6.59	17.14	17.26	23.10	133.35	100.00	277.00	64.11
27291.000	353.09	15.49	.84	6.59	17.14	17.26	23.10	353.09	100.00	277.00	93.45
* 27291.000	1633.51	18.38	.89	6.59	17.14	17.26	23.10	736.23	45.07	277.00	3449.81
* 27291.000	2035.27	18.85	.76	6.59	17.14	17.26	23.10	687.76	33.79	277.00	4038.24
* 27291.000	2712.66	19.60	.62	6.59	17.14	17.26	23.10	636.70	23.47	277.00	4969.99

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
* 30324.000	133.35	13.12	1.20	8.23	16.79	15.78	23.00	133.35	100.00	3033.00	45.13
* 30324.000	353.09	15.88	1.22	8.23	16.79	15.78	23.00	353.09	100.00	3033.00	85.50
* 30324.000	1633.51	18.82	3.01	8.23	16.79	15.78	23.00	1615.15	98.88	3033.00	366.30
* 30324.000	2035.27	19.13	3.56	8.23	16.79	15.78	23.00	2004.98	98.51	3033.00	443.51
* 30324.000	2712.66	19.67	4.35	8.23	16.79	15.78	23.00	2649.93	97.69	3033.00	577.56
30412.000	133.35	13.15	1.23	8.33	16.89	15.88	23.10	133.35	100.00	88.00	44.23
30412.000	353.09	15.90	1.25	8.33	16.89	15.88	23.10	353.09	100.00	88.00	81.60
30412.000	1633.51	18.87	3.07	8.33	16.89	15.88	23.10	1633.51	100.00	88.00	85.00
30412.000	2035.27	19.19	3.64	8.33	16.89	15.88	23.10	2035.27	100.00	88.00	85.00
30412.000	2712.66	19.75	4.46	8.33	16.89	15.88	23.10	2712.66	100.00	88.00	85.00
30440.000	133.35	13.15	1.11	8.54	17.30	17.19	24.50	133.35	100.00	28.00	40.82
30440.000	353.09	15.90	1.38	8.54	17.30	17.19	24.50	353.09	100.00	28.00	63.85
30440.000	1633.51	19.16	2.98	8.54	17.30	17.19	24.50	1633.51	100.00	28.00	97.00
30440.000	2035.27	19.67	3.40	8.54	17.30	17.19	24.50	2035.27	100.00	28.00	97.00
30440.000	2712.66	20.55	3.96	8.54	17.30	17.19	24.50	2712.66	100.00	28.00	97.00
30708.000	133.35	13.21	1.12	8.64	17.40	17.29	24.60	133.32	99.98	268.00	43.44
30708.000	353.09	15.96	1.38	8.64	17.40	17.29	24.60	352.03	99.70	268.00	73.72
30708.000	1633.51	19.34	2.87	8.64	17.40	17.29	24.60	1598.82	97.88	268.00	441.55
30708.000	2035.27	19.90	3.21	8.64	17.40	17.29	24.60	1960.46	96.32	268.00	2643.39
30708.000	2712.66	20.87	3.31	8.64	17.40	17.29	24.60	2337.25	86.16	268.00	4660.98
* 33768.000	133.35	14.47	2.00	10.00	19.60	19.40	24.50	133.35	100.00	3060.00	28.54
* 33768.000	353.09	17.05	2.20	10.00	19.60	19.40	24.50	353.09	100.00	3060.00	44.45
33768.000	1633.51	21.49	3.45	10.00	19.60	19.40	24.50	1616.33	98.95	3060.00	401.18
33768.000	2035.27	22.19	3.77	10.00	19.60	19.40	24.50	1980.62	97.31	3060.00	695.26
33768.000	2712.66	23.05	4.31	10.00	19.60	19.40	24.50	2560.88	94.40	3060.00	1326.02
* 36628.000	133.35	15.69	1.17	11.40	14.80	14.80	26.50	133.23	99.91	2860.00	47.34
* 36628.000	353.09	18.13	1.73	11.40	14.80	14.80	26.50	349.10	98.87	2860.00	78.31
* 36628.000	1633.51	23.20	3.71	11.40	14.80	14.80	26.50	1424.59	87.21	2860.00	2260.34
* 36628.000	2035.27	23.97	3.91	11.40	14.80	14.80	26.50	1610.54	79.13	2860.00	2919.60
* 36628.000	2712.66	24.97	4.13	11.40	14.80	14.80	26.50	1850.79	68.23	2860.00	3118.91
* 39656.000	133.35	17.03	1.95	13.43	18.61	19.17	27.00	133.35	100.00	3028.00	39.37
* 39656.000	353.09	19.21	1.94	13.43	18.61	19.17	27.00	352.65	99.87	3028.00	118.74
39656.000	1633.51	24.36	2.46	13.43	18.61	19.17	27.00	1221.85	74.80	3028.00	1850.60
39656.000	2035.27	25.15	2.65	13.43	18.61	19.17	27.00	1437.94	70.65	3028.00	2110.88
39656.000	2712.66	26.16	2.94	13.43	18.61	19.17	27.00	1780.82	65.65	3028.00	2453.81
* 39803.000	133.35	17.19	1.34	12.51	15.96	19.47	27.83	133.35	100.00	147.00	37.75
39803.000	353.09	19.31	1.86	12.51	15.96	19.47	27.83	353.09	100.00	147.00	47.25
* 39803.000	1633.51	24.35	3.78	12.51	15.96	19.47	27.83	1633.51	100.00	147.00	48.00
* 39803.000	2035.27	25.11	4.34	12.51	15.96	19.47	27.83	2035.27	100.00	147.00	48.00
* 39803.000	2712.66	26.07	5.27	12.51	15.96	19.47	27.83	2712.66	100.00	147.00	48.00

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
* 39847.000	133.35	17.19	.89	13.77	20.80	16.77	27.92	133.35	100.00	44.00	61.97
* 39847.000	353.09	19.31	1.22	13.77	20.80	16.77	27.92	353.09	100.00	44.00	70.80
* 39847.000	1633.51	24.35	2.42	13.77	20.80	16.77	27.92	1633.51	100.00	44.00	77.00
* 39847.000	2035.27	25.11	2.78	13.77	20.80	16.77	27.92	2035.27	100.00	44.00	77.00
* 39847.000	2712.66	26.07	3.35	13.77	20.80	16.77	27.92	2712.66	100.00	44.00	77.00
* 40305.000	133.35	17.46	1.86	13.07	18.94	20.13	28.00	133.35	100.00	458.00	41.83
* 40305.000	353.09	19.53	1.81	13.07	18.94	20.13	28.00	346.41	98.11	458.00	138.67
* 40305.000	1633.51	24.64	.70	13.07	18.94	20.13	28.00	394.94	24.18	458.00	2041.69
* 40305.000	2035.27	25.47	.64	13.07	18.94	20.13	28.00	400.08	19.66	458.00	2990.03
* 40305.000	2712.66	26.58	.57	13.07	18.94	20.13	28.00	400.75	14.77	458.00	4907.08
* 43241.000	130.35	19.51	1.11	14.29	20.64	19.26	27.70	129.19	99.11	2936.00	107.04
* 43241.000	347.09	20.83	1.20	14.29	20.64	19.26	27.70	215.17	61.99	2936.00	537.97
* 43241.000	1564.51	24.69	.37	14.29	20.64	19.26	27.70	135.23	8.64	2936.00	3686.54
* 43241.000	1941.27	25.50	.31	14.29	20.64	19.26	27.70	124.83	6.43	2936.00	5056.36
* 43241.000	2676.66	26.60	.26	14.29	20.64	19.26	27.70	120.13	4.49	2936.00	7529.13
43350.000	130.35	19.54	.89	14.65	21.65	21.94	27.70	130.35	100.00	109.00	51.87
43350.000	347.09	20.85	1.58	14.65	21.65	21.94	27.70	347.09	100.00	109.00	60.21
* 43350.000	1564.51	24.69	.68	14.65	21.65	21.94	27.70	318.97	20.39	109.00	3588.72
* 43350.000	1941.27	25.50	.48	14.65	21.65	21.94	27.70	250.99	12.93	109.00	5081.02
43350.000	2676.66	26.60	.35	14.65	21.65	21.94	27.70	209.67	7.83	109.00	7541.46
43378.000	130.35	19.55	.95	14.26	21.34	21.37	27.70	130.35	100.00	28.00	55.09
43378.000	347.09	20.85	1.59	14.26	21.34	21.37	27.70	347.09	100.00	28.00	70.13
* 43378.000	1564.51	24.86	3.00	14.26	21.34	21.37	27.70	1564.51	100.00	28.00	76.00
43378.000	1941.27	25.56	.39	14.26	21.34	21.37	27.70	224.48	11.56	28.00	5293.36
43378.000	2676.66	26.60	.31	14.26	21.34	21.37	27.70	203.07	7.59	28.00	7778.06
43728.000	130.35	19.63	.95	13.97	20.00	20.21	28.20	130.35	100.00	350.00	46.73
* 43728.000	347.09	20.99	1.21	13.97	20.00	20.21	28.20	249.15	71.78	350.00	775.06
* 43728.000	1564.51	25.05	.31	13.97	20.00	20.21	28.20	128.29	8.20	350.00	4101.79
* 43728.000	1941.27	25.56	.30	13.97	20.00	20.21	28.20	130.40	6.72	350.00	5702.25
43728.000	2676.66	26.61	.26	13.97	20.00	20.21	28.20	125.54	4.69	350.00	8992.54
51707.000	273.35	21.49	1.72	16.30	19.30	21.00	28.10	214.76	78.57	5227.00	103.34
51707.000	633.09	22.91	2.27	16.30	19.30	21.00	28.10	396.01	62.55	5227.00	151.00
* 51707.000	1830.51	25.08	3.31	16.30	19.30	21.00	28.10	829.80	45.33	5227.00	298.21
* 51707.000	2510.27	25.57	3.85	16.30	19.30	21.00	28.10	1028.88	40.99	5227.00	560.01
* 51707.000	4115.66	26.62	3.81	16.30	19.30	21.00	28.10	1158.59	28.15	5227.00	2013.24
52294.000	273.35	21.75	1.54	16.30	19.30	21.00	28.10	206.08	75.39	587.00	111.90
52294.000	633.09	23.20	2.05	16.30	19.30	21.00	28.10	378.29	59.75	587.00	161.00
52294.000	1830.51	25.47	2.91	16.30	19.30	21.00	28.10	767.60	41.93	587.00	458.52
52294.000	2510.27	26.03	3.19	16.30	19.30	21.00	28.10	905.01	36.05	587.00	1130.18
52294.000	4115.66	26.99	2.99	16.30	19.30	21.00	28.10	948.63	23.05	587.00	3037.96



SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
52707.000	510.00	22.03	3.45	16.70	19.20	21.20	28.00	422.66	82.87	413.00	67.93
52707.000	1020.00	23.45	4.43	16.70	19.20	21.20	28.00	743.34	72.88	413.00	88.63
* 52707.000	2526.00	25.66	6.36	16.70	19.20	21.20	28.00	1515.42	59.99	413.00	159.81
* 52707.000	3289.00	26.21	7.11	16.70	19.20	21.20	28.00	1821.89	55.39	413.00	313.88
* 52707.000	5104.00	27.08	7.79	16.70	19.20	21.20	28.00	2210.45	43.31	413.00	1534.97
53230.000	510.00	22.88	3.31	16.95	19.09	21.28	28.00	458.36	89.88	523.00	48.50
53230.000	1020.00	24.42	4.62	16.95	19.09	21.28	28.00	860.72	84.38	523.00	57.67
53230.000	2526.00	26.91	6.93	16.95	19.09	21.28	28.00	1829.98	72.45	523.00	216.81
53230.000	3289.00	27.61	6.37	16.95	19.09	21.28	28.00	1819.14	55.31	523.00	2702.27
* 53230.000	5104.00	28.29	4.48	16.95	19.09	21.28	28.00	1375.03	26.94	523.00	4300.00
53318.000	246.00	23.12	1.41	17.46	23.02	22.75	28.00	246.00	100.00	88.00	53.00
53318.000	492.00	24.82	1.86	17.46	23.02	22.75	28.00	492.00	100.00	88.00	53.00
* 53318.000	1193.00	27.67	.37	17.46	23.02	22.75	28.00	153.39	12.86	88.00	4637.88
* 53318.000	1589.00	28.11	.38	17.46	23.02	22.75	28.00	165.11	10.39	88.00	5300.00
* 53318.000	2463.00	28.43	.48	17.46	23.02	22.75	28.00	218.99	8.89	88.00	5300.00
53346.000	246.00	23.12	1.51	17.46	27.98	27.88	28.00	246.00	100.00	28.00	49.75
53346.000	492.00	24.82	1.91	17.46	27.98	27.88	28.00	492.00	100.00	28.00	61.59
* 53346.000	1193.00	27.70	2.57	17.46	27.98	27.88	28.00	1193.00	100.00	28.00	81.69
* 53346.000	1589.00	28.12	2.99	17.46	27.98	27.88	28.00	1487.96	93.64	28.00	1040.28
* 53346.000	2463.00	28.47	3.73	17.46	27.98	27.88	28.00	1967.56	79.88	28.00	1418.21
* 53614.000	246.00	23.21	.89	16.66	21.87	21.28	29.00	234.57	95.35	268.00	107.05
* 53614.000	492.00	24.93	1.07	16.66	21.87	21.28	29.00	405.82	82.48	268.00	448.57
* 53614.000	1193.00	27.85	.60	16.66	21.87	21.28	29.00	346.11	29.01	268.00	2058.02
* 53614.000	1589.00	28.30	.65	16.66	21.87	21.28	29.00	391.27	24.62	268.00	3597.68
* 53614.000	2463.00	28.71	.81	16.66	21.87	21.28	29.00	509.58	20.69	268.00	5631.53
* 57164.000	105.00	23.63	.75	17.80	27.00	26.40	30.00	105.00	100.00	3550.00	42.83
* 57164.000	210.00	25.33	.95	17.80	27.00	26.40	30.00	210.00	100.00	3550.00	53.73
57164.000	504.00	27.89	.26	17.80	27.00	26.40	30.00	96.62	19.17	3550.00	3888.29
57164.000	676.00	28.34	.24	17.80	27.00	26.40	30.00	94.51	13.98	3550.00	4527.50
57164.000	1049.00	28.76	.27	17.80	27.00	26.40	30.00	114.11	10.88	3550.00	5004.13
* 60964.000	105.00	24.79	4.83	21.00	29.80	28.20	30.60	105.00	100.00	3800.00	8.92
* 60964.000	210.00	26.75	4.21	21.00	29.80	28.20	30.60	210.00	100.00	3800.00	29.01
* 60964.000	504.00	27.54	6.36	21.00	29.80	28.20	30.60	504.00	100.00	3800.00	44.92
* 60964.000	676.00	27.82	7.31	21.00	29.80	28.20	30.60	676.00	100.00	3800.00	50.46
* 60964.000	1049.00	28.60	7.55	21.00	29.80	28.20	30.60	1033.70	98.54	3800.00	108.58
* 66282.000	45.00	29.24	.51	26.02	30.45	31.11	35.00	45.00	100.00	5318.00	48.24
* 66282.000	90.00	30.47	.59	26.02	30.45	31.11	35.00	90.00	100.00	5318.00	56.94
* 66282.000	217.00	32.11	.80	26.02	30.45	31.11	35.00	200.94	92.60	5318.00	458.83
* 66282.000	291.00	32.52	.83	26.02	30.45	31.11	35.00	226.19	77.73	5318.00	994.11
* 66282.000	453.00	32.97	.85	26.02	30.45	31.11	35.00	253.74	56.01	5318.00	1610.75

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
* 66356.000	45.00	29.25	.73	26.90	35.10	28.81	35.20	45.00	100.00	74.00	46.04
66356.000	90.00	30.48	.76	26.90	35.10	28.81	35.20	90.00	100.00	74.00	46.25
* 66356.000	217.00	32.12	1.12	26.90	35.10	28.81	35.20	217.00	100.00	74.00	46.51
* 66356.000	291.00	32.52	1.36	26.90	35.10	28.81	35.20	291.00	100.00	74.00	46.58
* 66356.000	453.00	32.96	1.94	26.90	35.10	28.81	35.20	453.00	100.00	74.00	46.65
* 66380.000	45.00	29.25	.94	26.90	35.08	34.96	35.10	45.00	100.00	24.00	41.59
66380.000	90.00	30.48	.84	26.90	35.08	34.96	35.10	90.00	100.00	24.00	50.00
66380.000	217.00	32.12	1.14	26.90	35.08	34.96	35.10	217.00	100.00	24.00	50.00
66380.000	291.00	32.52	1.39	26.90	35.08	34.96	35.10	291.00	100.00	24.00	50.00
66380.000	453.00	32.96	1.96	26.90	35.08	34.96	35.10	453.00	100.00	24.00	50.00
* 66604.000	45.00	29.32	.59	25.73	34.00	34.54	35.00	45.00	100.00	224.00	38.53
* 66604.000	90.00	30.52	.71	25.73	34.00	34.54	35.00	90.00	100.00	224.00	45.20
66604.000	217.00	32.17	1.04	25.73	34.00	34.54	35.00	217.00	100.00	224.00	54.45
66604.000	291.00	32.59	1.26	25.73	34.00	34.54	35.00	291.00	100.00	224.00	56.78
66604.000	453.00	33.08	1.74	25.73	34.00	34.54	35.00	453.00	100.00	224.00	59.58

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PAGE 21

## SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING	SECNO=	5411.000	PROFILE=	4	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	5411.000	PROFILE=	5	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	10725.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	10725.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	10725.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	10725.000	PROFILE=	4	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING	SECNO=	18434.000	PROFILE=	5	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING	SECNO=	20367.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING	SECNO=	26990.000	PROFILE=	4	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	26990.000	PROFILE=	5	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	27291.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING	SECNO=	30324.000	PROFILE=	4	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	30324.000	PROFILE=	5	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING	SECNO=	33768.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

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WARNING SECNO= 33768.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 36628.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 36628.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 36628.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 36628.000 PROFILE= 4 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 36628.000 PROFILE= 5 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 39656.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 39656.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 39803.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
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 WARNING SECNO= 39803.000 PROFILE= 4 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 39803.000 PROFILE= 5 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 39847.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 39847.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 39847.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 39847.000 PROFILE= 4 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 39847.000 PROFILE= 5 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 40305.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 40305.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 40305.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 40305.000 PROFILE= 4 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 40305.000 PROFILE= 5 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 43241.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 43241.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 43241.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 43241.000 PROFILE= 4 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 43241.000 PROFILE= 5 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 43350.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 43350.000 PROFILE= 4 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 43378.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 43728.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 43728.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 43728.000 PROFILE= 4 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 51707.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 51707.000 PROFILE= 4 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 51707.000 PROFILE= 5 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 52707.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 WARNING SECNO= 52707.000 PROFILE= 4 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
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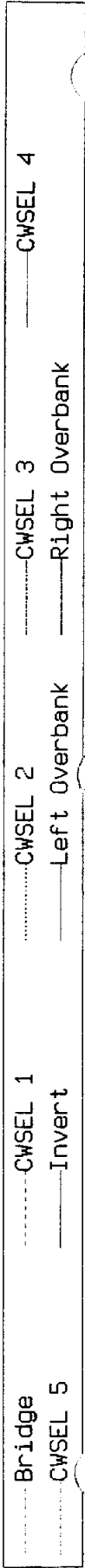
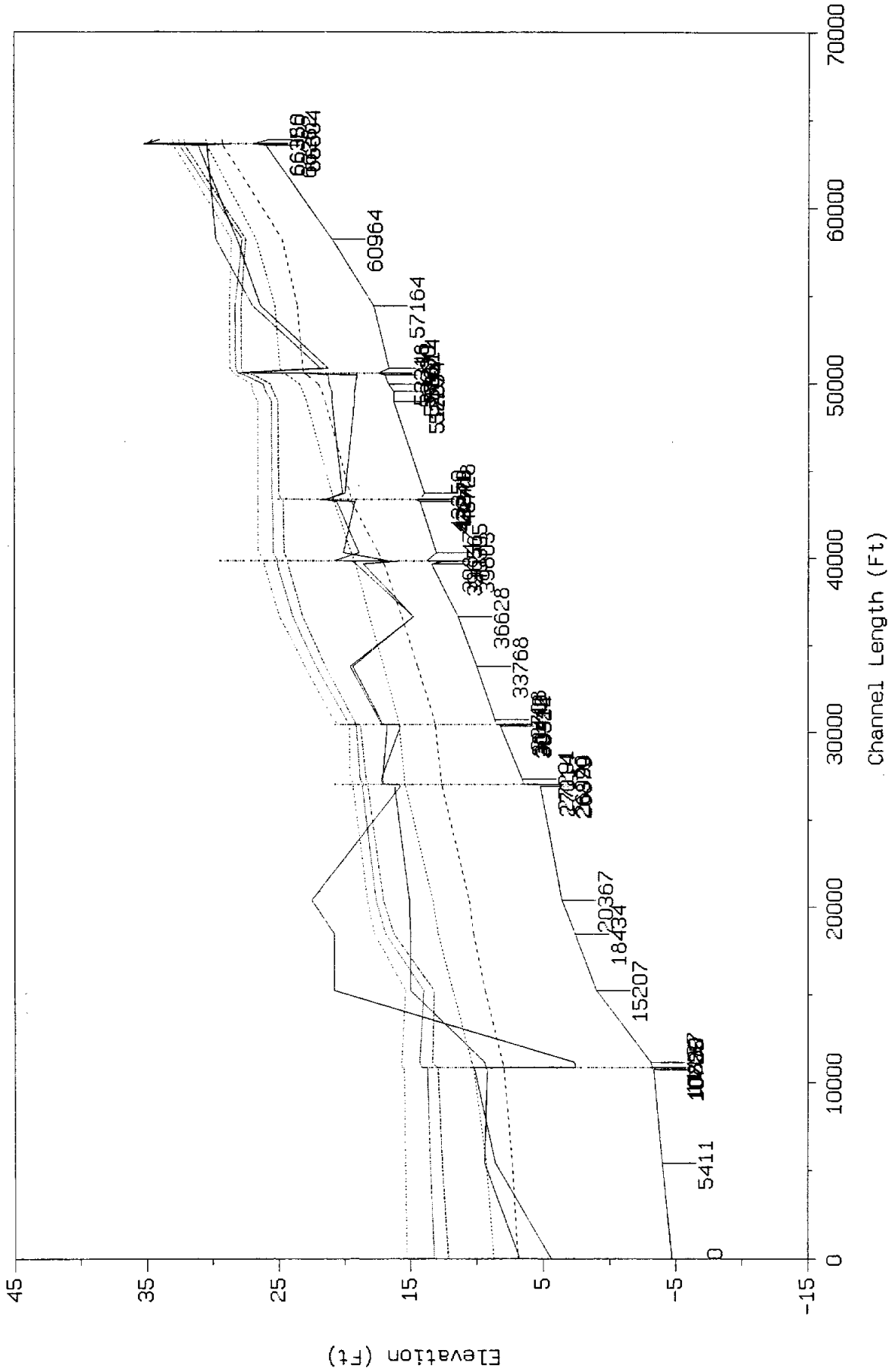
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WARNING SECNO= 53318.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

23AUG02 10:52:17

WARNING SECNO=	53318.000	PROFILE=	4	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	53346.000	PROFILE=	4	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	53614.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	53614.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	53614.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	53614.000	PROFILE=	4	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	53614.000	PROFILE=	5	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	57164.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	57164.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	60964.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	60964.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	60964.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	60964.000	PROFILE=	4	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
CAUTION SECNO=	60964.000	PROFILE=	5	CRITICAL DEPTH ASSUMED				
CAUTION SECNO=	60964.000	PROFILE=	5	PROBABLE MINIMUM SPECIFIC ENERGY				
CAUTION SECNO=	60964.000	PROFILE=	5	20 TRIALS ATTEMPTED TO BALANCE WSEL				
WARNING SECNO=	66282.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	66282.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	66282.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	66282.000	PROFILE=	4	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	66282.000	PROFILE=	5	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
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WARNING SECNO=	66604.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE

FLOW MODEL BY B&L, INC  
 Cross-Sections (0 to 66604)



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*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JUN 1998
*   VERSION 4.1
*
* RUN DATE 23AUG02 TIME 13:48:22
*
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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****

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X   X XXXXXXX XXXXX      X
X   X X      X   X      XX
X   X X      X           X
XXXXXXX XXXX   X       XXXXX X
X   X X      X           X
X   X X      X   X      X
X   X XXXXXXX XXXXX      XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION

NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY, DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION

KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

Halls Bayou 10 year flows HB\_BL10.IH1

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
1	ID	FILE: HB_BL10.IH1									
2	ID	HALLS BAYOU, 10-YEAR									
3	ID	BRAZORIA CO DRAINAGE MASTER PLAN									
4	ID	BAKER & LAWSON, MGG									
5	IT	10	21JUN02	1200	1000						
6	IO	5									
7	KK	HB01									
8	KM	RUNOFF ABOVE BRA WATER CANAL									
	*	21									
9	BA	5.67									
	* 2 YEAR STORM	5 MIN	15 MIN	60 MIN	2 HR	3 HR	6 HR	12 HR	24 HR		
	*	50	0	0.56	1.22	2.38	2.90	3.20	3.70	4.50	5.10
	* 5 YEAR STORM										
	*	20	0	0.63	1.38	2.82	3.70	4.10	5.00	6.00	7.00
	* 10 YEAR STORM										
10	PH	10	0	0.70	1.54	3.27	4.40	4.90	5.90	7.40	8.70
	* 25 YEAR STORM										
	*	4	0	0.77	1.71	3.71	5.00	5.60	7.00	8.20	10.00
	* 50 YEAR STORM										
	*	2	0	0.84	1.87	4.16	5.60	6.40	7.90	9.90	11.70
	* 100 YEAR STORM										
	*	1	0	0.91	2.03	4.60	6.20	7.10	8.90	10.90	13.00
11	LU	.75	.1	1							
12	UC	1.09	21.65								
13	KK	RCH10									
14	KM	REACH EXTENDS FROM X-SECT.				3.000 TO X-SECT.			2.280		
15	RS	2	STOR	0							
16	SV	0	7	12	21	68	222	299	389		
17	SQ	0	258	516	1033	1300	2066	2582	3098		
18	KK	RCH 9									
19	KM	REACH EXTENDS FROM X-SECT.				3.500 TO X-SECT.			3.000		
20	RS	3	STOR	0							
21	SV	0	9	14	24	30	309	348	415		
22	SQ	0	258	516	1033	1300	2066	2582	3098		
23	KK	HB02									
24	BA	4.61									
25	LU	.75	.1	2.3							
26	UC	2.21	18.05								
27	KK	C1									
28	HC	2									
29	KK	N2R3									
30	KM	REACH EXTENDS FROM X-SECT.				4.000 TO X-SECT.			3.500		
31	RS	2	STOR	0							
32	SV	0	6	11	20	38	79	147	268		
33	SQ	0	659	1318	2635	3953	5270	6588	7906		



Halls Bayou 10 year flows HB\_BL10.IH1

HEC-1 INPUT

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

34	KK	RCH 8							
35	KM	REACH EXTENDS FROM X-SECT.			5.000	TO X-SECT.		4.000	
36	RS	4	STOR	0					
37	SV	0	29	54	98	150	241	422	728
38	SQ	0	659	1318	2635	3953	5270	6588	7906
39	KK	HB04							
40	BA	3.19							
41	LU	.75	.1	0					
42	UC	2.83	23.58						
43	KK	C2							
44	HC	2							
45	KK	HB03							
46	BA	7.5							
47	LU	.75	.1	3.9					
48	UC	5.59	14.86						
49	KK	C3							
50	HC	2							
51	KK	N4R4							
52	KM	REACH EXTENDS FROM X-SECT.			6.000	TO X-SECT.		5.000	
53	RS	3	STOR	0					
54	SV	0	45	77	133	192	314	453	600
55	SQ	0	812	1625	3250	4874	6499	8124	9749
56	KK	RCH 7							
57	KM	REACH EXTENDS FROM X-SECT.			6.060	TO X-SECT.		6.000	
58	RS	2	STOR	0					
59	SV	0	33	54	90	145	281	402	512
60	SQ	0	812	1625	3250	4874	6499	8124	9749
61	KK	RCH 6							
62	KM	REACH EXTENDS FROM X-SECT.			7.000	TO X-SECT.		6.080	
63	RS	2	STOR	0					
64	SV	0	19	32	49	81	167	297	396
65	SQ	0	812	1625	3250	4874	6499	8124	9749
66	KK	HB06							
67	BA	3.82							
68	LU	.75	.1	0					
69	UC	3.27	33.52						
70	KK	C4							
71	HC	2							
72	KK	HB05							
73	BA	4.87							
74	LU	.75	.1	0					
75	UC	3.91	31.48						









Halls Bayou 10 year flows HB\_BL10.IH1

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*****  
*  
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *  
* JUN 1998 *  
* VERSION 4.1 *  
*  
* RUN DATE 23AUG02 TIME 13:48:22 *  
*  
*****
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*****  
*  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET *  
* DAVIS, CALIFORNIA 95616 *  
* (916) 756-1104 *  
*  
*****
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FILE: HB\_BL10.IH1  
HALLS BAYOU, 10-YEAR  
BRAZORIA CO DRAINAGE MASTER PLAN  
BAKER & LAWSON, MGG

6 IO OUTPUT CONTROL VARIABLES

IFRNT 5 PRINT CONTROL  
IPLOT 0 PLOT CONTROL  
QSCAL 0. HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA

NMIN 10 MINUTES IN COMPUTATION INTERVAL  
IDATE 21JUN 2 STARTING DATE  
ITIME 1200 STARTING TIME  
NQ 1000 NUMBER OF HYDROGRAPH ORDINATES  
NDDATE 28JUN 2 ENDING DATE  
NDTIME 1030 ENDING TIME  
ICENT 19 CENTURY MARK

COMPUTATION INTERVAL .17 HOURS  
TOTAL TIME BASE 166.50 HOURS

ENGLISH UNITS

DRAINAGE AREA SQUARE MILES  
PRECIPITATION DEPTH INCHES  
LENGTH, ELEVATION FEET  
FLOW CUBIC FEET PER SECOND  
STORAGE VOLUME ACRE-FEET  
SURFACE AREA ACRES  
TEMPERATURE DEGREES FAHRENHEIT

## Halls Bayou 10 year flows HB\_BL10.IH1

RUNOFF SUMMARY  
FLOW IN CUBIC FEET PER SECOND  
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	HB01	813.	14.83	795.	597.	278.	5.67		
ROUTED TO	RCH10	813.	15.17	795.	596.	278.	5.67		
ROUTED TO	RCH 9	813.	15.33	795.	596.	278.	5.67		
HYDROGRAPH AT	HB02	777.	15.33	750.	534.	237.	4.61		
2 COMBINED AT	C1	1590.	15.33	1544.	1130.	515.	10.28		
ROUTED TO	N2R3	1590.	15.33	1544.	1130.	515.	10.28		
ROUTED TO	RCH 8	1589.	15.83	1542.	1128.	515.	10.28		
HYDROGRAPH AT	HB04	425.	16.33	416.	319.	152.	3.19		
2 COMBINED AT	C2	2014.	15.83	1958.	1447.	667.	13.47		
HYDROGRAPH AT	HB03	1447.	17.83	1363.	934.	396.	7.50		
2 COMBINED AT	C3	3431.	17.67	3285.	2382.	1063.	20.97		
ROUTED TO	N4R4	3425.	18.00	3283.	2380.	1063.	20.97		
ROUTED TO	RCH 7	3419.	18.50	3281.	2378.	1063.	20.97		
ROUTED TO	RCH 6	3417.	18.67	3281.	2378.	1063.	20.97		
HYDROGRAPH AT	HB06	374.	18.00	369.	306.	159.	3.82		
2 COMBINED AT	C4	3791.	18.67	3649.	2683.	1222.	24.79		
HYDROGRAPH AT	HB05	502.	18.00	494.	405.	208.	4.87		
2 COMBINED AT	C5	4292.	18.67	4142.	3087.	1430.	29.66		
ROUTED TO	N6R6	4290.	19.00	4141.	3086.	1430.	29.66		
ROUTED TO	RCH 5	4288.	19.33	4139.	3082.	1430.	29.66		
ROUTED TO	RCH 4	4285.	19.83	4136.	3069.	1430.	29.66		
ROUTED TO	RCH 3	4272.	20.67	4125.	3053.	1430.	29.66		
HYDROGRAPH AT	HB07	1109.	14.50	913.	421.	146.	2.61		
ROUTED TO	N7N8	1063.	17.17	898.	420.	146.	2.61		
HYDROGRAPH AT	HB08	605.	15.67	593.	455.	217.	4.54		
2 COMBINED AT	C6	1664.	17.17	1479.	874.	363.	7.15		
2 COMBINED AT	C7	5641.	19.67	5420.	3824.	1792.	36.81		
HYDROGRAPH AT	HB09	406.	15.17	397.	299.	140.	2.86		
2 COMBINED AT	C8	6017.	19.50	5782.	4096.	1932.	39.67		
ROUTED TO	RCH 2	6007.	20.17	5760.	4092.	1932.	39.67		
ROUTED TO	RCH 1	5993.	21.00	5738.	4088.	1932.	39.67		
HYDROGRAPH AT	HB10	333.	14.67	322.	230.	102.	2.00		
2 COMBINED AT	C9	6270.	21.00	6001.	4280.	2034.	41.67		
ROUTED TO	N10N1	6256.	22.17	5984.	4276.	2034.	41.67		
HYDROGRAPH AT	HB11	342.	15.50	334.	253.	119.	2.45		

Halls Bayou 10 year flows HB\_BL10.IH1

2 COMBINED AT	C10	6545.	22.00	6261.	4490.	2153.	44.12
ROUTED TO	N11N1	6538.	22.67	6253.	4489.	2153.	44.12
HYDROGRAPH AT	HB12	573.	15.33	547.	376.	162.	3.07
ROUTED TO	N12N1	571.	16.33	545.	376.	162.	3.07
HYDROGRAPH AT	HB13	356.	16.67	348.	270.	130.	2.77
2 COMBINED AT	C11	927.	16.50	894.	646.	292.	5.84
ROUTED TO	N13N1	922.	19.00	888.	644.	292.	5.84
HYDROGRAPH AT	HB14	463.	15.50	453.	342.	161.	3.31
2 COMBINED AT	C12	1368.	18.67	1311.	969.	453.	9.15
2 COMBINED AT	C13	7777.	22.33	7437.	5397.	2606.	53.27
ROUTED TO	N14N1	7746.	24.17	7408.	5394.	2606.	53.27
HYDROGRAPH AT	HB15	678.	17.00	660.	506.	241.	5.08
2 COMBINED AT	C14	8304.	24.17	7946.	5837.	2847.	58.35
ROUTED TO	N15N1	8280.	25.50	7926.	5834.	2847.	58.35
HYDROGRAPH AT	HB16	332.	15.00	320.	226.	100.	1.94
2 COMBINED AT	C15	8497.	25.50	8134.	6002.	2946.	60.29
ROUTED TO	N16N1	8444.	28.33	8091.	5996.	2946.	60.29
HYDROGRAPH AT	HB17	210.	18.00	207.	184.	106.	3.13
2 COMBINED AT	C17	8618.	28.33	8263.	6154.	3052.	63.42
ROUTED TO	N17N1	8595.	29.67	8244.	6151.	3052.	63.42
HYDROGRAPH AT	HB 18	114.	18.33	113.	105.	64.	2.61
2 COMBINED AT	C18	8696.	29.67	8344.	6246.	3116.	66.03

\*\*\* NORMAL END OF HEC-1 \*\*\*



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*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   JUN 1998                       *
*   VERSION 4.1                     *
*
* RUN DATE 23AUG02 TIME 13:50:42 *
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*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET           *
* DAVIS, CALIFORNIA 95616    *
* (916) 756-1104             *
*
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X   X XXXXXXXX  XXXXX      X
X   X X        X   X      XX
X   X X        X           X
XXXXXXXX XXXX   X           XXXXX X
X   X X        X           X
X   X X        X   X      X
X   X XXXXXXXX  XXXXX      XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

Halls Bayou 25 year flows HB\_BL25.IH1

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
1	ID	FILE: HB_BL25.IH1									
2	ID	HALLS BAYOU, 25-YEAR									
3	ID	BRAZORIA CO DRAINAGE MASTER PLAN									
4	ID	BAKER & LAWSON, MGG									
5	IT	10	21JUN02	1200	1000						
6	IO	5									
7	KK	HB01									
8	KM	RUNOFF ABOVE BRA WATER CANAL									
	*					21					
9	BA	5.67									
	* 2 YEAR STORM		5 MIN	15 MIN	60 MIN	2 HR	3 HR	6 HR	12 HR	24 HR	
	*	50	0	0.56	1.22	2.38	2.90	3.20	3.70	4.50	5.10
	* 5 YEAR STORM										
	*	20	0	0.63	1.38	2.82	3.70	4.10	5.00	6.00	7.00
	* 10 YEAR STORM										
	*	10	0	0.70	1.54	3.27	4.40	4.90	5.90	7.40	8.70
	* 25 YEAR STORM										
10	PH	4	0	0.77	1.71	3.71	5.00	5.60	7.00	8.20	10.00
	* 50 YEAR STORM										
	*	2	0	0.84	1.87	4.16	5.60	6.40	7.90	9.90	11.70
	* 100 YEAR STORM										
	*	1	0	0.91	2.03	4.60	6.20	7.10	8.90	10.90	13.00
11	LU	.75	.1	1							
12	UC	1.09	18.95								
13	KK	RCH10									
14	KM	REACH EXTENDS FROM X-SECT. 3.000 TO X-SECT. 2.280									
15	RS	2	STOR	0							
16	SV	0	7	12	21	68	222	299	389		
17	SQ	0	258	516	1033	1300	2066	2582	3098		
18	KK	RCH 9									
19	KM	REACH EXTENDS FROM X-SECT. 3.500 TO X-SECT. 3.000									
20	RS	3	STOR	0							
21	SV	0	9	14	24	30	309	348	415		
22	SQ	0	258	516	1033	1300	2066	2582	3098		
23	KK	HB02									
24	BA	4.61									
25	LU	.75	.1	2.3							
26	UC	2.21	15.80								
27	KK	C1									
28	HC	2									
29	KK	N2R3									
30	KM	REACH EXTENDS FROM X-SECT. 4.000 TO X-SECT. 3.500									
31	RS	2	STOR	0							
32	SV	0	6	11	20	38	79	147	268		
33	SQ	0	659	1318	2635	3953	5270	6588	7906		

HEC-1 INPUT

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

34	KK	RCH 8							
35	KM		REACH EXTENDS FROM X-SECT.		5.000	TO X-SECT.		4.000	
36	RS	4	STOR	0					
37	SV	0	29	54	98	150	241	422	728
38	SQ	0	659	1318	2635	3953	5270	6588	7906
39	KK	HB04							
40	BA	3.19							
41	LU	.75	.1	0					
42	UC	2.83	20.64						
43	KK	C2							
44	HC	2							
45	KK	HB03							
46	BA	7.5							
47	LU	.75	.1	3.9					
48	UC	5.59	13.00						
49	KK	C3							
50	HC	2							
51	KK	N4R4							
52	KM		REACH EXTENDS FROM X-SECT.		6.000	TO X-SECT.		5.000	
53	RS	3	STOR	0					
54	SV	0	45	77	133	192	314	453	600
55	SQ	0	812	1625	3250	4874	6499	8124	9749
56	KK	RCH 7							
57	KM		REACH EXTENDS FROM X-SECT.		6.060	TO X-SECT.		6.000	
58	RS	2	STOR	0					
59	SV	0	33	54	90	145	281	402	512
60	SQ	0	812	1625	3250	4874	6499	8124	9749
61	KK	RCH 6							
62	KM		REACH EXTENDS FROM X-SECT.		7.000	TO X-SECT.		6.080	
63	RS	2	STOR	0					
64	SV	0	19	32	49	81	167	297	396
65	SQ	0	812	1625	3250	4874	6499	8124	9749
66	KK	HB06							
67	BA	3.82							
68	LU	.75	.1	0					
69	UC	3.27	29.34						
70	KK	C4							
71	HC	2							
72	KK	HB05							
73	BA	4.87							
74	LU	.75	.1	0					
75	UC	3.91	27.55						









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*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   JUN 1998 *
*   VERSION 4.1 *
* RUN DATE 23AUG02 TIME 13:50:42 *
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* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
*   609 SECOND STREET *
*   DAVIS, CALIFORNIA 95616 *
*   (916) 756-1104 *
*
*****

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FILE: HB\_BL25.IH1  
HALLS BAYOU, 25-YEAR  
BRAZORIA CO DRAINAGE MASTER PLAN  
BAKER & LAWSON, MGG

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6 IO      OUTPUT CONTROL VARIABLES
          IPRNT      5  PRINT CONTROL
          IPLOT      0  PLOT CONTROL
          QSCAL      0.  HYDROGRAPH PLOT SCALE

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IT        HYDROGRAPH TIME DATA
          NMIN      10  MINUTES IN COMPUTATION INTERVAL
          IDATE     21JUN 2  STARTING DATE
          ITIME     1200  STARTING TIME
          NQ        1000  NUMBER OF HYDROGRAPH ORDINATES
          NDDATE    28JUN 2  ENDING DATE
          NDTIME    1030  ENDING TIME
          ICENT     19  CENTURY MARK

```

COMPUTATION INTERVAL .17 HOURS  
TOTAL TIME BASE 166.50 HOURS

ENGLISH UNITS

DRAINAGE AREA	SQUARE MILES
PRECIPITATION DEPTH	INCHES
LENGTH, ELEVATION	FEET
FLOW	CUBIC FEET PER SECOND
STORAGE VOLUME	ACRE-FEET
SURFACE AREA	ACRES
TEMPERATURE	DEGREES FAHRENHEIT



Halls Bayou 25 year flows HB\_BL25.IH1

RUNOFF SUMMARY  
 FLOW IN CUBIC FEET PER SECOND  
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	HB01	1092.	15.17	1046.	764.	345.	5.67		
ROUTED TO	RCH10	1071.	16.83	1045.	763.	345.	5.67		
ROUTED TO	RCH 9	1071.	17.17	1045.	763.	345.	5.67		
HYDROGRAPH AT	HB02	1036.	15.50	980.	677.	291.	4.61		
2 COMBINED AT	C1	2092.	16.00	2024.	1440.	635.	10.28		
ROUTED TO	N2R3	2092.	16.00	2024.	1440.	635.	10.28		
ROUTED TO	RCH 8	2091.	16.50	2022.	1439.	635.	10.28		
HYDROGRAPH AT	HB04	570.	16.17	547.	410.	190.	3.19		
2 COMBINED AT	C2	2660.	16.33	2568.	1849.	825.	13.47		
HYDROGRAPH AT	HB03	1903.	17.67	1765.	1175.	483.	7.50		
2 COMBINED AT	C3	4530.	17.50	4285.	3024.	1308.	20.97		
ROUTED TO	N4R4	4521.	18.00	4280.	3022.	1308.	20.97		
ROUTED TO	RCH 7	4512.	18.33	4275.	3020.	1308.	20.97		
ROUTED TO	RCH 6	4508.	18.67	4273.	3019.	1308.	20.97		
HYDROGRAPH AT	HB06	501.	17.00	488.	399.	202.	3.82		
2 COMBINED AT	C4	5000.	18.50	4757.	3418.	1510.	24.79		
HYDROGRAPH AT	HB05	671.	17.33	652.	527.	263.	4.87		
2 COMBINED AT	C5	5663.	18.50	5406.	3944.	1773.	29.66		
ROUTED TO	N6R6	5658.	18.83	5403.	3942.	1773.	29.66		
ROUTED TO	RCH 5	5656.	19.17	5402.	3938.	1773.	29.66		
ROUTED TO	RCH 4	5650.	19.67	5398.	3921.	1773.	29.66		
ROUTED TO	RCH 3	5627.	20.50	5382.	3900.	1773.	29.66		
HYDROGRAPH AT	HB07	1410.	14.50	1137.	507.	175.	2.61		
ROUTED TO	N7N8	1352.	17.17	1118.	507.	175.	2.61		
HYDROGRAPH AT	HB08	812.	15.67	780.	584.	270.	4.54		
2 COMBINED AT	C6	2144.	17.17	1879.	1090.	445.	7.15		
2 COMBINED AT	C7	7342.	19.67	7009.	4875.	2218.	36.81		
HYDROGRAPH AT	HB09	545.	15.50	522.	383.	173.	2.86		
2 COMBINED AT	C8	7823.	19.50	7478.	5225.	2391.	39.67		
ROUTED TO	RCH 2	7803.	20.33	7453.	5222.	2391.	39.67		
ROUTED TO	RCH 1	7777.	21.00	7425.	5218.	2391.	39.67		
HYDROGRAPH AT	HB10	445.	15.00	422.	292.	125.	2.00		
2 COMBINED AT	C9	8128.	21.00	7762.	5463.	2517.	41.67		
ROUTED TO	N10N1	8109.	22.17	7742.	5459.	2517.	41.67		
HYDROGRAPH AT	HB11	459.	15.67	439.	324.	148.	2.45		

Halls Bayou 25 year flows HB\_BL25.IH1

2 COMBINED AT	C10	8479.	22.17	8102.	5735.	2664.	44.12
ROUTED TO	N11N1	8470.	22.67	8093.	5733.	2664.	44.12
HYDROGRAPH AT	HB12	762.	15.33	713.	474.	197.	3.07
ROUTED TO	N12N1	759.	16.50	710.	474.	197.	3.07
HYDROGRAPH AT	HB13	477.	16.50	458.	348.	163.	2.77
2 COMBINED AT	C11	1236.	16.50	1168.	822.	360.	5.84
ROUTED TO	N13N1	1227.	18.83	1160.	820.	360.	5.84
HYDROGRAPH AT	HB14	622.	15.67	596.	439.	200.	3.31
2 COMBINED AT	C12	1800.	18.50	1707.	1238.	560.	9.15
2 COMBINED AT	C13	10049.	22.33	9620.	6904.	3224.	53.27
ROUTED TO	N14N1	10013.	24.17	9584.	6899.	3224.	53.27
HYDROGRAPH AT	HB15	905.	16.83	867.	651.	301.	5.08
2 COMBINED AT	C14	10735.	24.00	10283.	7467.	3525.	58.35
ROUTED TO	N15N1	10706.	25.33	10258.	7464.	3525.	58.35
HYDROGRAPH AT	HB16	443.	15.33	418.	286.	122.	1.94
2 COMBINED AT	C15	10983.	25.33	10521.	7674.	3647.	60.29
ROUTED TO	N16N1	10920.	28.17	10468.	7666.	3647.	60.29
HYDROGRAPH AT	HB 17	279.	15.67	275.	244.	137.	3.13
2 COMBINED AT	C17	11151.	28.17	10696.	7874.	3783.	63.42
ROUTED TO	N17N1	11122.	29.50	10672.	7871.	3783.	63.42
HYDROGRAPH AT	HB18	151.	17.00	150.	140.	85.	2.61
2 COMBINED AT	C18	11257.	29.50	10806.	7997.	3868.	66.03

\*\*\* NORMAL END OF HEC-1 \*\*\*

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*  
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *  
* JUN 1998 *  
* VERSION 4.1 *  
*  
* RUN DATE 23AUG02 TIME 13:49:30 *  
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*  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET *  
* DAVIS, CALIFORNIA 95616 *  
* (916) 756-1104 *  
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X X XXXXXXX XXXXX XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

Halls Bayou 100 year flows HB\_BL100.IH1

HEC-1 INPUT

PAGE 1

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
1	ID FILE: HB_BL.IH1
2	ID HALLS BAYOU, 100-YR
3	ID BRAZORIA CO DRAINAGE MASTER PLAN
4	ID BAKER & LAWSON, MGG
5	IT 10 21JUN02 1200 1000
6	IO 5
7	KK HB01
8	KM RUNOFF ABOVE BRA WATER CANAL
	* 21
9	BA 5.67
	* 2 YEAR STORM 5 MIN 15 MIN 60 MIN 2 HR 3 HR 6 HR 12 HR 24 HR
	* 50 0 0.56 1.22 2.38 2.90 3.20 3.70 4.50 5.10
	* 5 YEAR STORM
	* 20 0 0.63 1.38 2.82 3.70 4.10 5.00 6.00 7.00
	* 10 YEAR STORM
	* 10 0 0.70 1.54 3.27 4.40 4.90 5.90 7.40 8.70
	* 25 YEAR STORM
	* 4 0 0.77 1.71 3.71 5.00 5.60 7.00 8.20 10.00
	* 50 YEAR STORM
	* 2 0 0.84 1.87 4.16 5.60 6.40 7.90 9.90 11.70
	* 100 YEAR STORM
10	PH 1 0 0.91 2.03 4.60 6.20 7.10 8.90 10.90 13.00
11	LU .75 .1 1
12	UC 1.09 15.75
13	KK RCH10
14	KM REACH EXTENDS FROM X-SECT. 3.000 TO X-SECT. 2.280
15	RS 2 STOR 0
16	SV 0 7 12 21 68 222 299 389
17	SQ 0 258 516 1033 1300 2066 2582 3098
18	KK RCH 9
19	KM REACH EXTENDS FROM X-SECT. 3.500 TO X-SECT. 3.000
20	RS 3 STOR 0
21	SV 0 9 14 24 30 309 348 415
22	SQ 0 258 516 1033 1300 2066 2582 3098
23	KK HB02
24	BA 4.61
25	LU .75 .1 2.3
26	UC 2.21 13.13
27	KK C1
28	HC 2
29	KK N2R3
30	KM REACH EXTENDS FROM X-SECT. 4.000 TO X-SECT. 3.500
31	RS 2 STOR 0
32	SV 0 6 11 20 38 79 147 268
33	SQ 0 659 1318 2635 3953 5270 6588 7906











Halls Bayou 100 year flows HB\_BL100.IH1

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
190	KK	N17N18									
191	RM	8	1.3	.1							
192	KK	HB 18									
193	BA	2.61									
194	LU	.75	.1	0							
195	UC	0.61	60.33								
196	KK	C18									
197	HC	2									
198	ZZ										

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*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   JUN 1998 *
*   VERSION 4.1 *
*
* RUN DATE 23AUG02 TIME 13:49:30 *
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* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 756-1104 *
*
*****

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FILE: HB\_BL.IH1  
HALLS BAYOU, 100-YR  
BRAZORIA CO DRAINAGE MASTER PLAN  
BAKER & LAWSON, MGG

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6 IO      OUTPUT CONTROL VARIABLES
          IPRNT      5  PRINT CONTROL
          IPLOT      0  PLOT CONTROL
          QSCAL      0. HYDROGRAPH PLOT SCALE

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IT        HYDROGRAPH TIME DATA
          NMIN      10  MINUTES IN COMPUTATION INTERVAL
          IDATE     21JUN 2  STARTING DATE
          ITIME     1200  STARTING TIME
          NQ        1000  NUMBER OF HYDROGRAPH ORDINATES
          NDDATE    28JUN 2  ENDING DATE
          NDTIME    1030  ENDING TIME
          ICENT     19  CENTURY MARK

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COMPUTATION INTERVAL .17 HOURS  
TOTAL TIME BASE 166.50 HOURS

ENGLISH UNITS

DRAINAGE AREA	SQUARE MILES
PRECIPITATION DEPTH	INCHES
LENGTH, ELEVATION	FEET
FLOW	CUBIC FEET PER SECOND
STORAGE VOLUME	ACRE-FEET
SURFACE AREA	ACRES
TEMPERATURE	DEGREES FAHRENHEIT

Halls Bayou 100 year flows HB\_BL100.IH1

RUNOFF SUMMARY  
 FLOW IN CUBIC FEET PER SECOND  
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR 6-HOUR	MAXIMUM PERIOD 24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	HB01	1706.	15.00	1640.	1149.	498.	5.67		
ROUTED TO	RCH10	1620.	18.33	1574.	1149.	498.	5.67		
ROUTED TO	RCH 9	1542.	22.67	1516.	1149.	498.	5.67		
HYDROGRAPH AT	HB02	1611.	15.33	1523.	1006.	415.	4.61		
2 COMBINED AT	C1	2912.	15.33	2867.	2154.	913.	10.28		
ROUTED TO	N2R3	2911.	15.50	2867.	2154.	913.	10.28		
ROUTED TO	RCH 8	2909.	16.17	2865.	2153.	913.	10.28		
HYDROGRAPH AT	HB04	894.	16.17	861.	622.	276.	3.19		
2 COMBINED AT	C2	3803.	16.17	3721.	2775.	1189.	13.47		
HYDROGRAPH AT	HB03	2927.	17.67	2708.	1727.	683.	7.50		
2 COMBINED AT	C3	6685.	17.50	6414.	4503.	1871.	20.97		
ROUTED TO	N4R4	6636.	18.67	6391.	4501.	1871.	20.97		
ROUTED TO	RCH 7	6586.	19.67	6353.	4499.	1871.	20.97		
ROUTED TO	RCH 6	6552.	20.50	6339.	4499.	1871.	20.97		
HYDROGRAPH AT	HB06	796.	17.17	779.	619.	302.	3.82		
2 COMBINED AT	C4	7308.	20.50	7082.	5118.	2174.	24.79		
HYDROGRAPH AT	HB05	1065.	17.33	1039.	814.	392.	4.87		
2 COMBINED AT	C5	8327.	20.33	8082.	5932.	2565.	29.66		
ROUTED TO	N6R6	8285.	21.67	8069.	5931.	2565.	29.66		
ROUTED TO	RCH 5	8274.	22.50	8067.	5929.	2565.	29.66		
ROUTED TO	RCH 4	8270.	22.83	8061.	5923.	2565.	29.66		
ROUTED TO	RCH 3	8257.	23.50	8040.	5906.	2565.	29.66		
HYDROGRAPH AT	HB07	2041.	14.50	1623.	711.	243.	2.61		
ROUTED TO	N7N8	1949.	17.17	1597.	711.	243.	2.61		
HYDROGRAPH AT	HB08	1274.	15.67	1229.	886.	393.	4.54		
2 COMBINED AT	C6	3197.	17.00	2797.	1590.	636.	7.15		
2 COMBINED AT	C7	10215.	21.67	9985.	7358.	3201.	36.81		
HYDROGRAPH AT	HB09	852.	15.33	819.	577.	251.	2.86		
2 COMBINED AT	C8	10898.	21.50	10672.	7892.	3452.	39.67		
ROUTED TO	RCH 2	10882.	22.17	10665.	7889.	3452.	39.67		
ROUTED TO	RCH 1	10869.	22.83	10657.	7885.	3452.	39.67		
HYDROGRAPH AT	HB10	693.	14.83	657.	434.	180.	2.00		
2 COMBINED AT	C9	11347.	22.67	11142.	8257.	3631.	41.67		
ROUTED TO	N10N1	11333.	23.83	11133.	8253.	3631.	41.67		
HYDROGRAPH AT	HB11	718.	15.50	691.	490.	214.	2.45		

Halls Bayou 100 year flows HB\_BL100.IH1

2 COMBINED AT	C10	11858.	23.67	11666.	8677.	3846.	44.12
ROUTED TO	N11N1	11852.	24.17	11661.	8674.	3845.	44.12
HYDROGRAPH AT	HB12	1179.	15.33	1101.	699.	280.	3.07
ROUTED TO	N12N1	1174.	16.33	1096.	698.	280.	3.07
HYDROGRAPH AT	HB13	750.	16.50	722.	529.	238.	2.77
2 COMBINED AT	C11	1924.	16.33	1818.	1228.	518.	5.84
ROUTED TO	N13N1	1909.	18.83	1805.	1225.	518.	5.84
HYDROGRAPH AT	HB14	974.	15.50	936.	663.	289.	3.31
2 COMBINED AT	C12	2814.	18.50	2662.	1865.	807.	9.15
2 COMBINED AT	C13	14129.	23.33	13972.	10456.	4652.	53.27
ROUTED TO	N14N1	14120.	24.83	13945.	10446.	4652.	53.27
HYDROGRAPH AT	HB15	1421.	16.83	1363.	988.	438.	5.08
2 COMBINED AT	C14	15212.	23.83	15007.	11314.	5090.	58.35
ROUTED TO	N15N1	15204.	25.33	14985.	11308.	5090.	58.35
HYDROGRAPH AT	HB16	689.	15.17	650.	426.	175.	1.94
2 COMBINED AT	C15	15611.	25.00	15367.	11618.	5264.	60.29
ROUTED TO	N16N1	15584.	28.00	15317.	11605.	5264.	60.29
HYDROGRAPH AT	HB 17	450.	16.67	445.	387.	211.	3.13
2 COMBINED AT	C17	15948.	28.00	15674.	11932.	5474.	63.42
ROUTED TO	N17N1	15934.	29.33	15652.	11926.	5474.	63.42
HYDROGRAPH AT	HB 18	248.	18.33	246.	226.	135.	2.61
2 COMBINED AT	C18	16151.	29.33	15866.	12129.	5608.	66.03

\*\*\* NORMAL END OF HEC-1 \*\*\*

\*\*\*\*\*  
\* HEC-2 WATER SURFACE PROFILES \*  
\* \*  
\* Version 4.6.2; May 1991 \*  
\* \*  
\* RUN DATE 23AUG02 TIME 11:00:27 \*  
\*\*\*\*\*

\*\*\*\*\*  
\* U.S. ARMY CORPS OF ENGINEERS \*  
\* HYDROLOGIC ENGINEERING CENTER \*  
\* 609 SECOND STREET, SUITE D \*  
\* DAVIS, CALIFORNIA 95616-4687 \*  
\* (916) 756-1104 \*  
\*\*\*\*\*

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X   X   XXXXXXXX   XXXXX           XXXXX
X   X   X           X   X           X   X
X   X   X           X               X
XXXXXXXX XXXX   X           XXXXX   XXXXX
X   X   X           X               X
X   X   X           X   X           X
X   X   XXXXXXXX   XXXXX           XXXXXXXX

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23AUG02 11:00:27

THIS RUN EXECUTED 23AUG02 11:00:27

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

\*\*\*\*\*

T1 HALLS BAYOU  
 T2 FIA STUDY BRAZORIA COUNTY  
 T3 10 YEAR FLOOD  
 T3 FLOWS MODIFIED BY BRA. CO. HEC-1 MODEL HB\_BLI0.OH1  
 T3 FILE: HB\_DS\_R.IH2

\*\*\*\*\*  
 This model keyed in from HALLS BAYOU; RUN EXECUTED 1 AUG 85

\*\*\*\*\*

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2							13	
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.		-1.							

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

38	43	1	26	42	23	24	63	14	60
39	4								

J5 LPRNT NUMSEC \*\*\*\*\*REQUESTED SECTION NUMBERS\*\*\*\*\*

-10. -10.

J6 IHLEQ ICOFY SUBDIV STRTDS RMILE

1.

NC .055 .055 .045 .1 .3

10-YR 25-YR 100-YR  
 QT 3 8696 11257 16151

X1	3.2	35.	20102.	20365.						
GR	2.	18900.	1.5	19700.	1.6	20000.	1.4	20050.	1.7	20100.
GR	2.26	20102.	-0.4	20110.	-0.6	20120.	-1.4	20130.	-3.2	20140.
GR	-3.5	20150.	-3.9	20160.	-4.1	20170.	-4.4	20180.	-4.7	20190.
GR	-4.9	20200.	-5.6	20210.	-5.3	20220.	-5.6	20230.	-5.8	20240.
GR	-5.9	20250.	-5.5	20260.	-5.	20270.	-4.	20280.	-2.9	20290.
GR	-0.9	20300.	-0.1	20310.	2.3	20314.	2.5	20365.	2.3	20415
GR	2.3	21550.	2.2	22500.	2.5	23500.	2.5	24500.	3.	26000.

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PAGE 2

X1	3.9	36.	20102.	20289.	2200.	2300.	3696.			
GR	2.5	19650.	2.1	20000.	2.6	20050.	1.3	20100.	2.38	20102.
GR	-0.9	20110.	-2.2	20120.	-3.4	20130.	-4.2	20140.	-4.7	20150.
GR	-5.5	20160.	-6.6	20170.	-7.3	20180.	-7.6	20190.	-7.7	20200.
GR	-7.9	20210.	-6.9	20220.	-6.3	20230.	-6.6	20240.	-5.4	20250.
GR	-5.2	20260.	-2.7	20270.	-0.3	20280.	2.38	20288.	3.3	20289.
GR	2.7	20340.	2.1	20390.	5.	21500.	5.	22700.	4.2	23000.
GR	5.	23550.	5.2	24800.	5.	26100.	4.2	26500.	4.	27300.
GR	5.	27900.								
QT	3	8595	11151	15948						
X1	4.6	35.	20101.	20313.	2800.	2500.	3696.			
GR	6.	18950.	5.	19550.	1.7	20000.	2.3	20050.	1.8	20100.
GR	2.46	20101.	-0.7	20110.	-5.2	20120.	-7.3	20130.	-7.9	20140.
GR	-8.8	20150.	-8.4	20160.	-7.7	20170.	-7.7	20180.	-7.7	20190.
GR	-7.6	20200.	-7.3	20210.	-6.9	20220.	-6.5	20230.	-5.1	20240.
GR	-4.3	20250.	-2.9	20260.	-0.8	20270.	0.4	20280.	2.46	20288.
GR	2.1	20289.	4.3	20313.	3.9	20365.	3.7	20415.	5.	21500.
GR	6.	21850.	7.	23400.	7.2	25050.	7.	26000.	7.2	27650.
X1	5.28	44.	20100.	20333.	3000.	2300.	3590.			
GR	7.	18700.	6.	19000.	5.	19450.	3.5	20000.	3.8	20050.
GR	4.1	20100.	2.5	20102.	2.2	20136.	0.97	20138.	-0.1	20140.
GR	-1.8	20150.	-4.7	20160.	-5.9	20170.	-6.5	20180.	-6.9	20190.
GR	-7.	20200.	-7.3	20210.	-7.5	20220.	-7.8	20230.	-8.2	20240.
GR	-8.8	20250.	-9.	20260.	-7.6	20270.	-5.1	20280.	-1.9	20290.
GR	-0.2	20300.	.3	20310.		20320.	0.97	20330.	1.4	20333.
GR	1.2	20385.	1.1	20435.	5.	20800.	5.	21200.	4.6	21450.
GR	5.	21750.	7.	22500.	5.	23350.	4.6	23500.	5.	23750.
GR	4.6	23950.	5.	24350.	7.	25300.	8.	26800.		
X1	5.99	38.	20050	20293.	3900.	2500.	3749.			
GR	8.	15800.	7.	17000.	5.	18350.	5.	18700.	5.	19400
GR	2.1	20000	2.5	20050	2.4	20100.	1.16	20103.	-1.1	20110.
GR	-6.6	20120.	-9.1	20130.	-8.4	20140.	-7.9	20150.	-7.9	20160.
GR	-8.	20170.	-8.	20180.	-7.9	20190.	-7.3	20200.	-7.3	20210.
GR	-6.7	20220.	-5.7	20230.	-4.6	20240.	-3.8	20250	-1.1	20260
GR	-0.3	20270	0.2	20280.	0.7	20290.	1.16	20291.	2.	20293.
GR	3.1	20345.	4.1	20395.	5.	20400.	9.	22000.	8.	23300.
GR	10.	23700.	10.	24700.	10.	25700.				
QT	3	8497	10983	15611						
X1	6.64	38.	20100.	20290.	2800.	1750.	3432.			
GR	8.	15150.	7.	16200.	5.	17200.	4.8	17700.	5.	18200.
GR	5.	19100.	2.2	20000.	2.1	20050.	2.	20100.	1.6	20102.
GR	1.19	20120.	.2	20130.	-0.9	20140.	-6.7	20150.	-9.2	20160.
GR	-9.7	20170.	-8.2	20180.	-7.5	20190.	-7.7	20200.	-7.4	20210.
GR	-7.6	20220.	-7.1	20230.	-6.6	20240.	-5.7	20250.	-2.1	20260.
GR	0.3	20270.	1.19	20272.	2.8	20273.	2.6	20282.	4.8	20290.
GR	5.9	20340.	5.2	20390.	9.	22000.	10.	23500.	10.	23900.

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GR	8.	24300.	9.	26000.	10.	27100.					
QT	3	8304	10735	15212							
X1	7.35	38.	20100.	20260.	3200.	2500.	3749.				
GR	8.	15150.	6.	16500.	5.	17250.	4.5	17700.	5.	18300.	
GR	5.	19100.	1.4	20000.	1.1	20050.	1.2	20100.	1.2	20106.	
GR	0.6	20110.	-0.1	20120.	-1.6	20130.	-4.5	20140.	-6.9	20150.	
GR	-9.	20160.	-8.6	20170.	-9.	20180.	-8.8	20190.	-7.7	20200.	
GR	-7.3	20210.	-6.8	20220.	-6.6	20230.	-5.1	20240.	-0.9	20250.	
GR	1.2	20259.	3.8	20260.	5.	20310.	4.7	20360.	5.	22000.	
GR	4.5	22700.	5.	23400.	6.	24000.	7.	25000.	10.	26500.	
GR	8.	27400.	10.	27700.	10.2	28100.					
X1	8.06	30.	20100.	20247.	2700.	3000.	3749.				
GR	9.	14100.	8.	15500.	7.	16500.	5.	17500.	5.	17900.	
GR	3.5	20000.	3.	20050.	4.	20100.	0.31	20104.	-5.7	20110.	
GR	-11.6	20120.	-10.8	20130.	-9.1	20140.	-8.	20150.	-8.4	20160.	
GR	-9.8	20170.	-8.6	20180.	-7.7	20190.	-6.9	20200.	-4.8	20210.	
GR	-0.5	20220.	0.31	20226.	2.4	20247.	4.3	20300.	4.2	20350.	
GR	7.	21500.	8.	22500.	9.	23500.	10.	24700.	10.2	27600.	
QT	3	7777	10049	14129							
X1	8.65	34.	20100.	20267.	2950.	2800.	3115.				
GR	10.	15600.	9.	17000.	9.	19100.	7.	19500.	6.8	20000.	
GR	5.6	20050.	3.8	20100.	1.9	20130.	0.39	20133.	-0.5	20140.	
GR	-3.4	20150.	-5.8	20160.	-6.5	20170.	-7.3	20180.	-8.4	20190.	
GR	-11.3	20200.	-11.8	20210.	-8.3	20220.	-7.1	20230.	-5.7	20240.	
GR	-2.6	20250.	0.3	20260.	0.39	20261.	3.	20267.	5.2	20315.	
GR	4.9	20365.	6.	21200.	7.	22000.	8.	22900.	9.	23500.	
GR	10.	24400.	10.2	26000.	10.3	28000.	10.4	29100.			
X1	9.34	30.	20050.	20221.	3150.	3400.	3643.				
GR	12.	16550.	13.	18100.	10.	19450.	7.3	20000.	6.5	20050.	
GR	5.6	20053.	3.8	20100.	0.45	20103.	-0.8	20110.	-5.	20120.	
GR	-6.5	20130.	-7.4	20140.	-8.1	20150.	-8.6	20160.	-10.7	20170.	
GR	-12.1	20180.	-8.7	20190.	-4.4	20200.	-0.4	20210.	0.45	20217.	
GR	2.3	20221.	1.8	20270.	1.7	20320.	5.	20350.	6.	21000.	
GR	7.	21500.	8.	22100.	9.	22700.	10.	23300.	10.5	26600.	
QT	3	6270	8128	11347							
NC	0.04	0.04	0.03	0.1	0.3						
X1	9.61	35.	6222.	6399.	1426.	1426.	1426.				
GR	13.6	1000.	12.2	1994.	11.	2578.	9.8	3390.	9.4	3864.	
GR	9.4	4064.	9.	4637.	8.8	5221.	8.8	5588.	8.6	5723.	
GR	7.6	6222.	5.3	6285.	2.	6303.	-1.	6305.	-6.5	6310.	
GR	-7.4	6326.	-8.6	6335.	-10.	6343.	-10.	6353.	-5.	6364.	
GR		6375.	6.6	6399.	4.4	6469.	7.4	6652.	8.6	7216.	
GR	9.4	7653.	9.4	7842.	9.8	8120.	10.4	8500.	10.8	8844.	
GR	11.	9120.	12.2	9517.	12.6	9891.	14.4	10271.	14.6	10583.	

BEGIN OVERLAP WITH UPPER HALLS BAYOU





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NC	0.1	0.1	.046							
QT	5.	2220.	3640.	4230.	5640.	4230.				
X1	12.31	37.	7175.	7321.	4020.	4150.	4914.			
GR	17.4	3803.	17.4	3804.	16.8	4172.	16.8	4591.	16.6	4831.
GR	16.2	5177.	15.8	5389.	15.2	5630.	15.6	5847.	15.	6085.
GR	15.1	6554.	15.5	6907.	15.1	7059.	10.	7175.	0.0	7191.
GR	-3.	7208.	-5.5	7227.	-5.5	7242.	-5.5	7257.	-3.	7276.
GR	0.0	7294.	7.1	7321.	12.1	7462.	14.5	7570.	14.9	7791.
GR	14.3	8104.	14.1	8389.	14.3	8692.	13.5	9072.	13.1	9121.
GR	11.9	9169.	12.1	9218.	14.5	9237.	14.3	9401.	13.5	9819.
GR	14.	10006.	15.	10451.						

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IHLQ = 1. THEREFORE FRICTION LOSS (HL) IS CALCULATED AS A FUNCTION OF PROFILE TYPE, WHICH CAN VARY FROM REACH TO REACH. SEE DOCUMENTATION FOR DETAILS.

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T1 HALLS BAYOU  
 T2 FIA STUDY BRAZORIA COUNTY  
 T3 25 YEAR FLOOD  
 T3 FLOWS MODIFIED BY BRA. CO. HEC-1 MODEL HB\_BL25.OH1

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3.							14	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
		2.	-1.							

IHLEQ = 1. THEREFORE FRICTION LOSS (HL) IS CALCULATED AS A FUNCTION OF PROFILE TYPE, WHICH CAN VARY FROM REACH TO REACH. SEE DOCUMENTATION FOR DETAILS.

23AUG02 11:00:27

T1 HALLS BAYOU  
T2 FIA STUDY BRAZORIA COUNTY  
T3 100 YEAR FLOOD  
T3 FLOWS MODIFIED BY BRA. CO. HEC-1 MODEL HB\_BL100.OH1

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		4.							15	
J2	NPROF	IPLT	PRPVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1.							

IHLEQ = 1. THEREFORE FRICTION LOSS (HL) IS CALCULATED AS A FUNCTION OF PROFILE TYPE, WHICH CAN VARY FROM REACH TO REACH. SEE DOCUMENTATION FOR DETAILS.

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FILE: HB\_DS\_R.IH2

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
3.200	8696.00	13.00	.17	-5.90	2.26	2.50	2.00	693.14	7.97	.00	7100.00
3.200	11257.00	14.00	.20	-5.90	2.26	2.50	2.00	861.39	7.65	.00	7100.00
3.200	16151.00	15.00	.26	-5.90	2.26	2.50	2.00	1192.97	7.39	.00	7100.00
3.900	8696.00	13.00	.23	-7.90	2.38	3.30	2.50	754.36	8.67	3696.00	8250.00
3.900	11257.00	14.00	.26	-7.90	2.38	3.30	2.50	897.32	7.97	3696.00	8250.00
3.900	16151.00	15.00	.32	-7.90	2.38	3.30	2.50	1197.00	7.41	3696.00	8250.00
4.600	8595.00	13.01	.29	-8.80	2.46	4.30	6.00	1058.28	12.31	3696.00	8700.00
4.600	11151.00	14.01	.31	-8.80	2.46	4.30	6.00	1224.38	10.98	3696.00	8700.00
4.600	15948.00	15.01	.39	-8.80	2.46	4.30	6.00	1588.55	9.96	3696.00	8700.00
5.280	8595.00	13.01	.27	-9.00	4.10	1.40	7.00	1043.35	12.14	3590.00	8100.00
5.280	11151.00	14.01	.30	-9.00	4.10	1.40	7.00	1226.52	11.00	3590.00	8100.00
5.280	15948.00	15.02	.37	-9.00	4.10	1.40	7.00	1612.35	10.11	3590.00	8100.00
5.990	8595.00	13.02	.31	-9.10	2.50	2.00	8.00	1253.90	14.59	3749.00	9900.00
5.990	11151.00	14.02	.33	-9.10	2.50	2.00	8.00	1422.49	12.76	3749.00	9900.00
5.990	15948.00	15.02	.40	-9.10	2.50	2.00	8.00	1814.89	11.38	3749.00	9900.00
6.640	8497.00	13.02	.26	-9.70	2.00	4.80	8.00	853.44	10.04	3432.00	11950.00
6.640	10983.00	14.02	.28	-9.70	2.00	4.80	8.00	958.34	8.73	3432.00	11950.00
6.640	15611.00	15.03	.33	-9.70	2.00	4.80	8.00	1208.74	7.74	3432.00	11950.00
7.350	8304.00	13.02	.19	-9.00	1.20	3.80	8.00	553.10	6.66	3749.00	12950.00
7.350	10735.00	14.03	.21	-9.00	1.20	3.80	8.00	635.60	5.92	3749.00	12950.00
7.350	15212.00	15.04	.25	-9.00	1.20	3.80	8.00	813.98	5.35	3749.00	12950.00
8.060	8304.00	13.03	.26	-11.60	4.00	2.40	9.00	711.58	8.57	3749.00	13500.00
8.060	10735.00	14.03	.27	-11.60	4.00	2.40	9.00	786.70	7.33	3749.00	13500.00
8.060	15212.00	15.04	.32	-11.60	4.00	2.40	9.00	975.39	6.41	3749.00	13500.00

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID	
*	8.650	7777.00	13.03	.35	-11.80	3.80	3.00	10.00	1001.68	12.88	3115.00	13500.00
*	8.650	10049.00	14.03	.35	-11.80	3.80	3.00	10.00	1046.61	10.42	3115.00	13500.00
	8.650	14129.00	15.05	.39	-11.80	3.80	3.00	10.00	1235.25	8.74	3115.00	13500.00
*	9.340	7777.00	13.04	.54	-12.10	6.50	2.30	10.50	1446.97	18.61	3643.00	10050.00
*	9.340	10049.00	14.05	.52	-12.10	6.50	2.30	10.50	1507.62	15.00	3643.00	10050.00
*	9.340	14129.00	15.06	.58	-12.10	6.50	2.30	10.50	1764.05	12.49	3643.00	10050.00
	9.610	6270.00	13.05	.55	-10.00	7.60	6.60	13.60	1231.46	19.64	1426.00	8597.09
	9.610	8128.00	14.05	.52	-10.00	7.60	6.60	13.60	1266.57	15.58	1426.00	9197.49
	9.610	11347.00	15.07	.56	-10.00	7.60	6.60	13.60	1454.38	12.82	1426.00	9583.00
	10.130	6270.00	13.06	.75	-9.30	5.20	4.00	12.60	1727.87	27.56	2746.00	7115.87
	10.130	8128.00	14.06	.73	-9.30	5.20	4.00	12.60	1779.51	21.89	2746.00	7322.98
	10.130	11347.00	15.08	.80	-9.30	5.20	4.00	12.60	2033.07	17.92	2746.00	7533.93
	10.640	6270.00	13.08	.59	-8.30	6.20	7.20	15.20	2379.95	37.96	2693.00	8225.71
	10.640	8128.00	14.08	.56	-8.30	6.20	7.20	15.20	2463.85	30.31	2693.00	10021.58
	10.640	11347.00	15.09	.59	-8.30	6.20	7.20	15.20	2793.69	24.62	2693.00	11404.50
*	10.650	6270.00	13.07	1.05	-8.30	19.90	19.90	11.40	4268.06	68.07	52.80	4283.98
*	10.650	8128.00	14.07	1.04	-8.30	19.90	19.90	11.40	4561.75	56.12	52.80	4383.71
*	10.650	11347.00	15.09	1.12	-8.30	19.90	19.90	11.40	5350.60	47.15	52.80	4474.26
*	10.660	6270.00	13.08	.59	-8.30	6.20	7.20	15.20	2378.95	37.94	52.80	8228.06
*	10.660	8128.00	14.08	.57	-8.30	6.20	7.20	15.20	2465.38	30.33	52.80	10010.17
*	10.660	11347.00	15.10	.59	-8.30	6.20	7.20	15.20	2795.43	24.64	52.80	11399.43
	11.380	6270.00	13.11	.83	-7.00	6.10	7.30	14.40	3566.34	56.88	3800.00	5405.61
	11.380	8128.00	14.10	.82	-7.00	6.10	7.30	14.40	3816.23	46.95	3800.00	6326.74
*	11.380	11347.00	15.12	.88	-7.00	6.10	7.30	14.40	4427.24	39.02	3800.00	6709.53
*	12.310	2220.00	13.19	.99	-5.50	10.00	7.10	15.00	2106.48	94.89	4914.00	525.67
*	12.310	3640.00	14.23	1.46	-5.50	10.00	7.10	15.00	3330.33	91.49	4914.00	2045.98
*	12.310	4230.00	15.24	1.44	-5.50	10.00	7.10	15.00	3487.09	82.44	4914.00	4159.59

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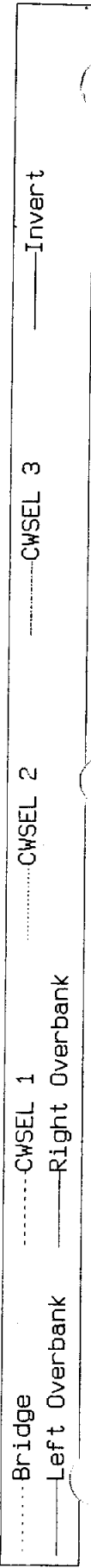
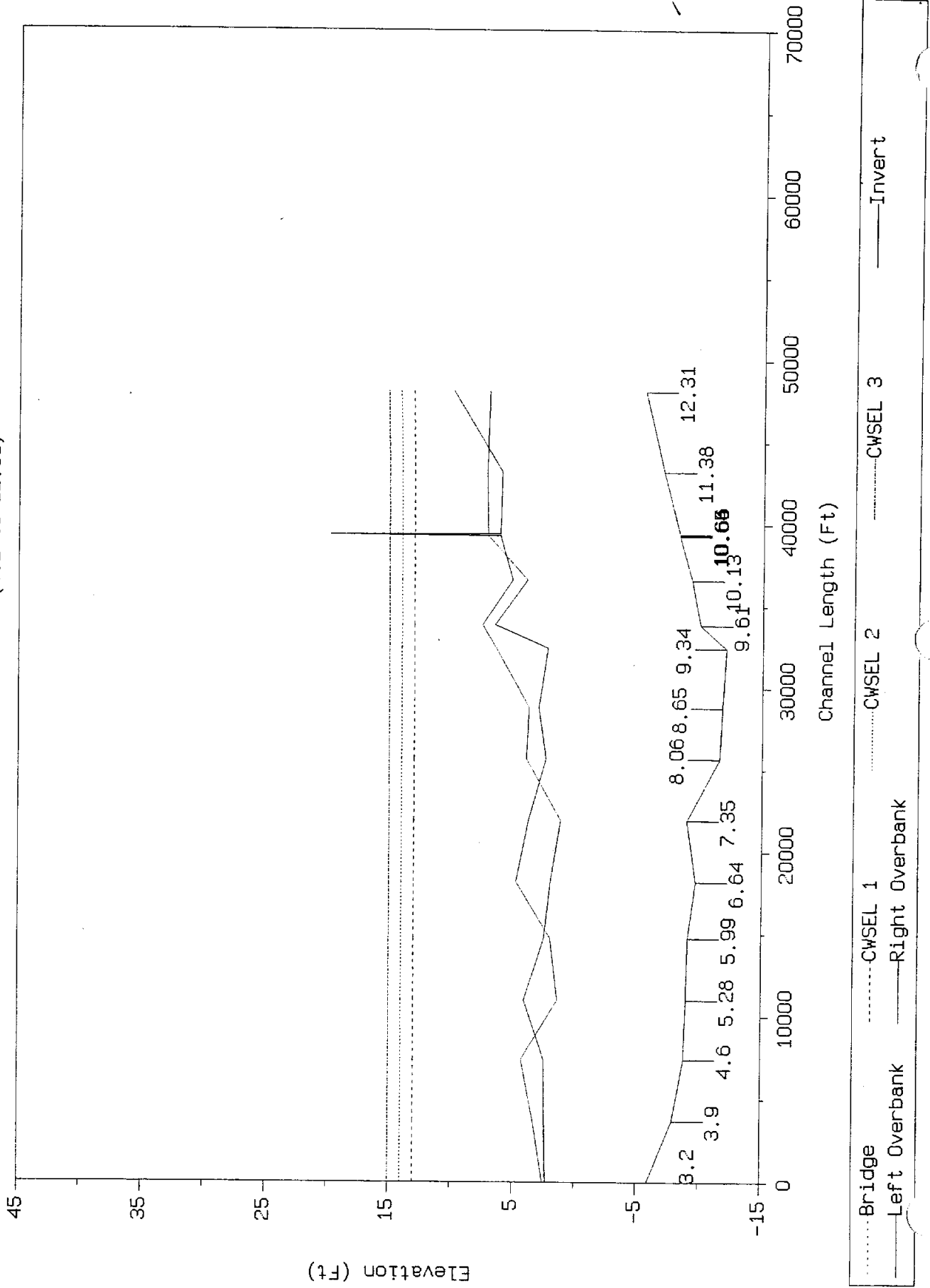
PAGE 11

## SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	8.650	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	8.650	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	9.340	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	9.340	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	9.340	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	10.650	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	10.650	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	10.650	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	10.660	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	10.660	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	10.660	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	11.380	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	12.310	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	12.310	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE
WARNING SECNO=	12.310	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE



FILE: HB\_DS\_R.IH2  
 Cross-Sections (3.2 to 12.31)



```
*****  
* HEC-2 WATER SURFACE PROFILES *  
* *  
* rsion 4.6.2; May 1991 *  
* *  
* RUN DATE 23AUG02 TIME 11:04:50 *  
*****
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*****  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET, SUITE D *  
* DAVIS, CALIFORNIA 95616-4687 *  
* (916) 756-1104 *  
*****
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      X  X  XXXXXXXX  XXXXX          XXXXX  
      X  X  X          X  X          X  X  
      X  X  X          X          X  
      XXXXXXXX  XXXX  X          XXXXX  XXXXX  
      X  X  X          X          X  
      X  X  X          X  X          X  
      X  X  XXXXXXXX  XXXXX          XXXXXXXX
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THIS RUN EXECUTED 23AUG02 11:04:50

\*\*\*\*\*  
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

\*\*\*\*\*

T1 BRAZORIA CO DRAINAGE MASTER PLAN  
T2 HALLS BAYOU, 10-YR  
T3 BAKER & LAWSON, MGG  
T3 FILE: HB\_UP\_R.IH2

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	2							13.19	
J2	NPROF	IPL0T	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1							

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

38	43	1	26	42	23	24	63	14	60
39	4								

J5 LPRNT NUMSEC \*\*\*\*\*REQUESTED SECTION NUMBERS\*\*\*\*\*

-10 -10

NC	.04	.04	.03	.1	.3
	10-YR	25-YR	100-YR		
QT	3	6270	8128	11347	

10.4

X-SECTION HL-13, AT OAK DITCH CONFLU

X1	13	35	6222	6399						
GR	13.6	1000	12.2	1994	11	2578	9.8	3390	9.4	3864
GR	9.6	4064	9	4637	8.8	5221	8.8	5588	8.6	5723
GR	7.8	6070	6.8	6118	7.6	6222	4.8	6271	4.4	6295
GR	0	6311	-5	6322	-10	6333	-10	6353	-5	6364
GR	0	6375	6.6	6399	4.4	6468	7.4	6652	8.6	7216
GR	9.4	7653	9.4	7842	9.8	8120	10.4	8500	10.8	8844
GR	11	9120	12.2	9517	12.6	9891	14.4	10271	14.6	10583

X-SECTION HL-12

X1	12	31	7712	7841	2800	2800	2850			
GR	12.6	5220	12.6	5221	11.4	5983	10.2	6801	9.4	7310
GR	9	7672	6	7688	5.2	7712	0	7725	-4.5	7743
GR	-7.5	7750	-9.3	7763	-9.3	7793	-7.5	7806	-4.5	7813
GR	0	7831	4	7841	2.6	7900	2	7959	4	8080
GR	6.2	8185	7.6	8288	9.2	8685	9.4	9124	9.6	9651



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NC			.1			.3				
X-SECTION HL-10, AT PUMP STATION, RT OB NON-EFF										
X1	10	36	5438	5790	3570	3150	3800			
	10						14			
X3	10									
GR	16.4	2995	15.6	3148	14.4	3177	14	3291	14.2	3469
GR	13	3807	13	4076	12.6	4232	12.2	4394	11.4	4609
GR	10.5	4892	10.3	5082	10.1	5268	8.1	5351	6.1	5438
GR	4.3	5519	.3	5563	.1	5622	-4	5635	-7	5657
GR	-7	5685	-4	5707	.1	5720	7.3	5790	8.7	5889
GR	10.1	6321	10.3	6425	9.5	6606	9.7	6832	10.3	7064
GR	10.2	7355	10.8	7732	11.6	8305	11.8	8747	13.4	9272
GR	14.4	9869								
NC	.1	.1	.046							
X-SECTION HL-9										
X1	9	37	7175	7321	4020	4150	4880			
GR	17.4	3803	17.4	3804	16.8	4172	16.8	4591	16.6	4831
GR	16.2	5177	15.8	5389	15.2	5630	15.6	5847	15	6085
GR	15.1	6554	15.5	6907	15.1	7059	10	7175	0	7191
GR	-3	7208	-5.5	7227	-5.5	7242	-5.5	7257	-3	7276
GR	0	7294	7.1	7321	12.1	7462	14.5	7570	14.9	7791
GR	14.3	8104	14.1	8389	14.3	8692	13.5	9072	13.1	9121
GR	11.9	9169	12.1	9218	14.5	9237	14.3	9401	13.5	9819
GR	14	10006	15	10451						
X-SECTION HL-8										
X1	8	45	8565	8688	4080	4420	4740			
GR	17.4	3262	17.4	3460	17.2	3799	17	4227	16.8	4553
GR	16.4	4828	16.6	4981	16.4	5269	16.2	5434	16.6	5500
GR	17.3	5794	16.5	6251	16.5	6615	16.3	6967	16.3	7146
GR	16.9	7237	16.3	7390	15.9	7400	15.5	7747	16.3	7921
GR	15.5	8091	7.3	8565	.1	8586	-4	8606	-4	8633
GR	.1	8653	12.3	8688	12.9	8707	15.7	9175	15.1	9264
GR	14.2	9554	14.6	9920	14.2	10184	14.6	10216	14.4	10357
GR	14.8	10562	14.2	10846	14.8	11111	15.2	11420	14.4	11836
GR	14.3	12695	15.3	13603	15.5	14062	16.9	14066	16.9	14087
QT	3	4292	5663	8327						
XSECTIONS EXTENDED DUE TO LARGER FLOWS BASED ON USGS TOPO VERTICAL WALL IS BRISCOE CANAL LEVEE BAKER & LAWSON BRAZORIA CO DRAINAGE MASTER PLAN										
X-SECTION HL-7, UNDERWATER SECTION SURVEYED, DREDGED SPOIL ON W BANK										
X1	7	29	23487	23587	3100	3200	3540			
GR	35	10000	20	10000	20	13304	16	19417	16	19874
GR	16	20330	15.6	20679	15.6	21169	15.4	21914	15.4	22367
GR	15.8	22817	12.2	23441	13.2	23446	10.3	23474	4.1	23487
GR	.7	23502	-2.8	23532	.7	23562	13	23587	13.8	23594
GR	14	23623	20	23656	15.8	23681	16.2	23831	16	24151
GR	15.6	24744	15.6	25283	16	25484	17.8	26438		

SECTION OVERBANK BASED ON X-SECTION HL-6

X1	6.09	30	22650	22760	1500	1650	1700			
GR	35	10000	20	10000	20	12338	17.6	20350	16.6	21451
GR	16	21894	16	22375	15	22525	12.4	22592	11.8	22650
GR	5.6	22667	1.2	22675	-2.1	22702	1.2	22735	6	22746
GR	12.1	22760	14	22813	14	22814	15.6	22833	22	22860
GR	13.8	22913	15.8	23419	17.6	23794	18	24228	18.8	24389
GR	18.6	24597	18.6	24842	18.6	24988	19	25475	19.6	26040

NC .3 .5  
28.41

STRUCTURE HL-6-1

X1	6.08	30	22667	22746	100	100	100			
X3	10							12.5	12.5	
GR	35	10000	20	10000	20	12338	17.6	20350	16.6	21451
GR	16	21894	16	22375	15	22525	12.4	22592	11.8	22650
GR	5.6	22667	1.2	22675	-2.1	22702	1.2	22735	6	22746
GR	12.1	22760	14	22813	14	22814	15.6	22833	22	22860
GR	13.8	22913	15.8	23419	17.6	23794	18	24228	18.8	24389
GR	18.6	24597	18.6	24842	18.6	24988	19	25475	19.6	26040

SB	1.05	1.56	2.6		46.6	5	785	1	-2.1	-2.1
X1	6.07	24	22667	22746	14.5	14.5	14.5			
X2			1	12	13					
X3	10						13	13		
BT	8	22208	16		22412	16		22551	15	
BT	22667	13		22746	13		22837	13		22976
BT	14.8		23206	15.8						
GR	20	12338	17.6	20350	16.6	21451	16	21894	16	22208
GR	16	22412	15	22551	13	22667	1.2	22675	-2.1	22702
GR	1.2	22735	13	22746	13	22837	14.8	22976	15.8	23206
GR	15.8	23419	17.6	23794	18	24228	18.8	24389	18.6	24597
GR	18.6	24842	18.6	24988	19	25475	19.6	26040		

28.4

X1	6.06	30	22650	22760	50	50	50			
GR	35	10000	20	10000	20	12338	17.6	20350	16.6	21451
GR	16	21894	16	22375	15	22525	12.4	22592	11.8	22650
GR	5.6	22667	1.2	22675	-2.1	22702	1.2	22735	6	22746
GR	12.1	22760	14	22813	14	22814	15.6	22833	22	22860
GR	13.8	22913	15.8	23419	17.6	23794	18	24228	18.8	24389
GR	18.6	24597	18.6	24842	18.6	24988	19	25475	19.6	26040

NC .1 .1 .04 .1 .3  
X-SECTION HL-6, DREDGED SPOIL PILED ON W OVERBANK

X1	6	30	23322	23544	2400	2230	2400			
GR	35	10000	20	10000	20	17951	17.6	21080	16.6	22181
GR	16	22624	16	23105	15	23255	12.4	23322	9.8	23377
GR	0	23393	-2	23420	-2	23433	0	23470	2	23490
GR	8.6	23511	10	23523	14	23544	15.6	23563	22	23590
GR	13.8	23643	15.8	24149	17.6	24524	18	24958	18.8	25119
GR	18.6	25327	18.6	25572	18.6	25718	19	26205	19.6	26770

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QT	3	3431	4530	6685						
X-SECTION HL-5, DREDGED SPOIL PILED ON W OVERBANK										
X1	5	28	21466	21575	3150	3120	3340			
GR	35	10000	20	10000	20	19321	18	19695	18	21015
GR	17.8	21152	17.6	21368	10.4	21412	7.8	21466	1.6	21494
GR	0	21519	-1	21524	-1.9	21529	-1	21534	0	21539
GR	16.2	21575	16.6	21594	22.4	21629	22.4	21647	18.8	21674
GR	18.2	22165	18.6	22714	19.8	23493	19.6	24205	20.6	24563
GR	20.6	25422	20.8	26408	21	26951				

X-SECTION HL-4, DREDGED SPOIL PILED ON W OVERBANK										
X1	4	41	17962	18039	3940	3810	4270			
GR	35	10000	20	10000	20	16582	19.8	16582	19.8	16585
GR	19.2	16827	19	17145	19.6	17210	19.4	17262	18.2	17367
GR	18.2	17473	18.2	17518	18.2	17581	17.4	17635	17.6	17693
GR	15	17962	3.4	17995	3.2	17999	3	18002	3	18005
GR	3.2	18008	3.4	18012	17	18039	17.4	18076	25.4	18095
GR	24.6	18115	17.2	18163	15.4	18220	17.2	18236	17.6	18333
GR	18	18418	18.7	18541	18.7	18641	18.9	18780	19.3	18940
GR	19.7	19072	19.7	19278	19.9	19481	20.3	19707	20.5	19920
GR	25	25153								

QT	3	1589	2091	2909						
INSERTED XSECTION 3.5 FOR STORAGE ROUTING COPIED GR RECORDS FROM XS 3 BAKER & LAWSON BRAZORIA CO DRAINAGE MASTER PLAN										
X1	3.5	17	7330	7384	2104	1964	2152			
GR	22.2	5825	21.8	6892	21.4	7239	33	7285	23.5	7330
GR	11.2	7350	5.4	7357	11.2	7364	23.2	7384	21.2	7475
GR	21.6	8012	23	8426	22.6	8997	24.6	9043	20.6	9055
GR	20.2	9084	25	9119						

X-SECTION HL-3, UNDERWATER SECTION SURVEYED, DREDGED SPOIL ON E BANK										
X1	3	21	7330	7384	3596	3356	3678			
X3	10									
GR	35	308	25	308	25	2570	23	3637	22.2	5825
GR	21.8	6892	21.4	7239	33	7285	23.5	7330	11.2	7350
GR	9.6	7357	11.2	7364	23.2	7384	21.2	7475	21.6	8012
GR	23	8426	22.6	8997	24.6	9043	20.6	9055	20.2	9084
GR	25	9119								

NC	.055	.045	.035							
SECTION OVERBANK BASED ON X-SECTION HL-2										
X1	2.29	13	16863	16913	2350	2350	2400			
GR	35	10000	24	10000	24	15922	22.8	16799	25.4	16833
GR	24.3	16863	19.1	16871	11.5	16883	10.3	16888	11.5	16893
GR	24.2	16913	24	16934	33.6	16957				

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NC				.3	.5					
				28.41						
	STRUCTURE HL-2-2									
X1	2.28					100	100	100		
X3	10									
SB	1.05	1.56	2.8			12	2	317	1	10.3 10.3
X1	2.27	18	16863	16913		14	14	14		
X2			1	23.8		25				
X3	10									
BT	11	16329	24			16665	23		16817	22.4
BT	16863	25		16913		25		16931	23.8	16975
BT	23.4		17011	20		17080		24.2		17126 23.2
BT		17329	23.4							
GR	35	10000	24	10000		24	15922	24	16329	23 16665
GR	22.4	16817	25	16863		19.1	16871	11.5	16883	10.3 16888
GR	11.5	16893	25	16913		23.8	16931	23.4	16975	20 17011
GR	24.2	17080	23.2	17126		23.4	17329			
				28.4						
X1	2.26	13	16863	16913		50	50	50		
X3	10									
GR	35	10000	24	10000		24	15922	22.8	16799	25.4 16833
GR	24.3	16863	19.1	16871		11.5	16883	10.3	16888	11.5 16893
GR	24.2	16913	24	16934		33.6	16957			
NC				.1	.3					
QT	3	813	1071	1542						
X1	2.05	14	5390	5514		850	850	850		
X3	10									
GR	26.8	1000	26.2	2170		25.4	2861	24.8	3468	24 4057
GR	24	4479	22.8	5356		25.4	5390	12.5	5425	11.8 5432
GR	12.5	5460	24	5475		24	5491	33.6	5514	
NC				.3	.5					
				28.41						
X1	2.04	38	5396	5470		100	100	100		
X3	10								26	26
GR	32.6	4379	33.4	5113		33.5	5390	15.6	5396	13.3 5397
GR	12.6	5399	13.3	5401		15.6	5402	15.6	5406	13.3 5407
GR	12.6	5409	13.3	5411		15.6	5412	15.6	5416	13.3 5417
GR	12.6	5419	13.3	5421		15.6	5422	14.8	5444	12.5 5445
GR	11.8	5447	12.5	5449		14.8	5450	14.8	5454	12.5 5455
GR	11.8	5457	12.5	5459		14.8	5460	14.8	5464	12.5 5465
GR	11.8	5467	12.5	5469		14.8	5470	33.5	5475	32.6 5973
GR	32	6470	32.2	7289		31.8	8005			
NC			.012							



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STRUCTURE HL-2-1, SIX 6-FT DIAM METAL CULVERTS  
UNDER BRISCO CANAL WHICH IS LEVEED

X1	2.03				10	10	10			
BT	32	5390	33.5	33.5	5396	33.5	15.6	5397	33.5	18
BT	5399	33.5	18.6	5401	33.5	18	5402	33.5	15.6	5406
BT	33.5	15.6	5407	33.5	18	5409	33.5	18.6	5411	33.5
BT	18	5412	33.5	15.6	5416	33.5	15.6	5417	33.5	18
BT	5419	33.5	18.6	5421	33.5	18	5422	33.5	15.6	5444
BT	33.5	14.8	5445	33.5	17.2	5447	33.5	17.8	5449	33.5
BT	17.2	5450	33.5	14.8	5454	33.5	14.8	5455	33.5	17.2
BT	5457	33.5	17.8	5459	33.5	17.2	5460	33.5	14.8	5464
BT	33.5	14.8	5465	33.5	17.2	5467	33.5	17.8	5469	33.5
BT	17.2	5470	33.5	14.8	5475	33.5	33.5			

28.4

X1	2.02				240	240	240			
X2							1			
NC			.035							
X1	2.01				10	10	10			
X3	10							33.5	33.5	

X-SECTION HL-2, DREDGED SPOIL PILED ON W OVERBANK  
SECTION IS JUST US OF BRISCO CANAL

X1	2	14	5390	5514	100	100	100			
X3	10							33.5	33.5	
GR	26.8	1000	26.2	2170	25.4	2861	24.8	3468	24	4057
GR	24	4479	22.8	5356	25.4	5390	12.5	5425	11.8	5432
GR	12.5	5460	24	5475	24	5491	33.6	5514		

NC			.1	.3						
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X1	1.03	28	3820	3880	4080	4080	4080			
X3	10									
GR	29.4	1000	29.4	1930	28	2934	25.4	3581	25.6	3718
GR	26.6	3758	25.8	3803	25	3820	22	3826	13.7	3845
GR	13.7	3854	19	3867	25.7	3880	25.4	3904	24.8	4079
GR	25.9	4137	26.3	4249	25.9	4317	25.9	4417	26.5	4529
GR	26.1	4850	25.9	4960	26.7	5001	27.1	5476	27.9	5721
GR	28.1	5950	27.7	6119	27.9	6200				

NC			.3	.5						
----	--	--	----	----	--	--	--	--	--	--

28.41

STRUCTURE HL-1-1

X1	1.02	28	3826	3867	100	100	100			
X3	10							26.1	26.1	
GR	29.4	1000	29.4	1930	28	2934	25.4	3581	25.6	3718
GR	26.6	3758	25.8	3803	25	3820	22	3826	13.7	3845
GR	13.7	3854	19	3867	25.7	3880	25.4	3904	24.8	4079
GR	25.9	4137	26.3	4249	25.9	4317	25.9	4417	26.5	4529
GR	26.1	4850	25.9	4960	26.7	5001	27.1	5476	27.9	5721
GR	28.1	5950	27.7	6119	27.9	6200				

Halls Bayou Upper Section Revised Multi.Freq. Copy of HB\_UP\_R.IH2

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SB	1.05	1.55	2.6		30	2	365	.25	13.7	13.7
X1	1.01				24	24	24			
X2			1	25.5	26.8					
X3	10							26.8	26.8	
BT	9	2730	28.4		3181	27.6		3590	26.8	
BT	3781	26.6		3826	26.8		3867	26.8		3957
BT	26.2		4329	26.8		4730	27			
				28.4						
X1	1	28	3820	3880	50	50	50			
X3	10									
GR	29.4	1000	29.4	1930	28	2934	25.4	3581	25.6	3718
GR	26.6	3758	25.8	3803	25	3820	22	3826	13.7	3845
GR	13.7	3854	19	3867	25.7	3880	25.4	3904	24.8	4079
GR	25.9	4137	26.3	4249	25.9	4317	25.9	4417	26.5	4529
GR	26.1	4850	25.9	4960	26.7	5001	27.1	5476	27.9	5721
GR	28.1	5950	27.7	6119	27.9	6200				

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T1 BRAZORIA CO DRAINAGE MASTER PLAN  
T2 HALLS BAYOU, 25-YR  
T3 BAKER & LAWSON, MGG

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10	3							14.23	
J2	NPROF	IPL0T	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							

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T1 BRAZORIA CO DRAINAGE MASTER PLAN  
T2 HALLS BAYOU, 100-YR  
T3 BAKER & LAWSON, MGG

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10	4			.00015				15.24	
J2	NPROF	IPLT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1							

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THIS RUN EXECUTED 23AUG02 11:04:52

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FILE: HB\_UP\_R.IH2

SUMMARY PRINTOUT

SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
13.000	6270.00	13.19	.52	-10.00	7.60	6.60	13.60	1162.82	18.55	.00	8724.46
13.000	8128.00	14.23	.50	-10.00	7.60	6.60	13.60	1195.04	14.70	.00	9235.11
13.000	11347.00	10.55	2.73	-10.00	7.60	6.60	13.60	4808.67	42.38	.00	5750.12
12.000	6270.00	13.20	.74	-9.30	5.20	4.00	12.60	1719.33	27.42	2850.00	7143.46
12.000	8128.00	14.24	.72	-9.30	5.20	4.00	12.60	1756.40	21.61	2850.00	7358.95
12.000	11347.00	10.86	2.81	-9.30	5.20	4.00	12.60	5639.95	49.70	2850.00	4175.95
11.200	6270.00	13.22	.57	-8.30	6.20	7.20	15.20	2305.68	36.77	2680.00	8419.74
11.200	8128.00	14.25	.54	-8.30	6.20	7.20	15.20	2372.71	29.19	2680.00	10536.23
11.200	11347.00	11.12	2.12	-8.30	6.20	7.20	15.20	7074.73	62.35	2680.00	5553.83
*	11.100	6270.00	13.20	1.53	-8.30	19.90	19.90	11.40	6270.00	100.00	350.63
*	11.100	8128.00	14.23	1.82	-8.30	19.90	19.90	11.40	8128.00	100.00	350.88
*	11.100	11347.00	11.06	3.39	-8.30	19.90	19.90	11.40	11347.00	100.00	350.09
	11.110	6270.00	13.20	1.53	-8.30	19.90	19.90	11.40	6270.00	100.00	350.62
	11.110	8128.00	14.23	1.82	-8.30	19.90	19.90	11.40	8128.00	100.00	350.88
	11.110	11347.00	11.07	3.38	-8.30	19.90	19.90	11.40	11347.00	100.00	350.09
*	11.000	6017.00	13.25	.54	-8.30	6.20	7.20	15.20	2196.13	36.50	8499.03
*	11.000	7823.00	14.29	.51	-8.30	6.20	7.20	15.20	2262.23	28.92	10550.91
*	11.000	10898.00	11.26	1.94	-8.30	6.20	7.20	15.20	6549.92	60.10	5682.69
	10.000	6017.00	13.26	.76	-7.00	6.10	7.30	14.40	3325.22	55.26	3800.00
	10.000	7823.00	14.31	.75	-7.00	6.10	7.30	14.40	3537.27	45.22	3800.00
	10.000	10898.00	11.54	2.24	-7.00	6.10	7.30	14.40	8429.25	77.35	3800.00
*	9.000	6017.00	13.30	2.66	-5.50	10.00	7.10	15.00	5693.86	94.63	4880.00
*	9.000	7823.00	14.31	3.10	-5.50	10.00	7.10	15.00	7117.02	90.98	4880.00
*	9.000	10898.00	12.25	5.30	-5.50	10.00	7.10	15.00	10556.47	96.87	4880.00

## Halls Bayou Upper Section Revised Multi.Freq. Copy of HB\_UP\_R.IH2

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SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
8.000	6017.00	14.40	3.07	-4.00	7.30	12.30	16.90	5099.30	84.75	4740.00	2298.42
8.000	7823.00	15.52	3.04	-4.00	7.30	12.30	16.90	5482.04	70.08	4740.00	5947.79
8.000	10898.00	15.52	4.25	-4.00	7.30	12.30	16.90	7652.93	70.22	4740.00	5935.08
7.000	4292.00	15.34	2.78	-2.80	4.10	13.00	17.80	3863.60	90.02	3540.00	733.43
7.000	5663.00	16.36	2.86	-2.80	4.10	13.00	17.80	4265.71	75.33	3540.00	6755.00
7.000	8327.00	16.93	3.31	-2.80	4.10	13.00	17.80	5123.35	61.53	3540.00	7940.43
6.090	4292.00	15.75	2.77	-2.10	11.80	12.10	19.60	3926.04	91.47	1700.00	929.77
6.090	5663.00	16.76	3.05	-2.10	11.80	12.10	19.60	4661.34	82.31	1700.00	2285.29
6.090	8327.00	17.45	3.81	-2.10	11.80	12.10	19.60	6114.72	73.43	1700.00	3203.55
6.080	4292.00	15.76	3.11	-2.10	5.60	6.00	19.60	3747.77	87.32	100.00	935.14
6.080	5663.00	16.78	3.42	-2.10	5.60	6.00	19.60	4398.56	77.67	100.00	2325.96
6.080	8327.00	17.48	4.26	-2.10	5.60	6.00	19.60	5719.55	68.69	100.00	3249.43
6.070	4292.00	15.72	3.46	-2.10	13.00	13.00	19.60	3928.87	91.54	14.50	738.48
6.070	5663.00	16.74	3.77	-2.10	13.00	13.00	19.60	4574.22	80.77	14.50	2322.65
6.070	8327.00	17.44	4.59	-2.10	13.00	13.00	19.60	5832.19	70.04	14.50	3240.98
6.060	4292.00	15.82	2.74	-2.10	11.80	12.10	19.60	3907.80	91.05	50.00	956.70
6.060	5663.00	16.84	2.99	-2.10	11.80	12.10	19.60	4602.43	81.27	50.00	2400.32
6.060	8327.00	17.57	3.70	-2.10	11.80	12.10	19.60	5984.93	71.87	50.00	3356.00
*	6.000	4292.00	16.21	1.64	-2.00	12.40	14.00	4108.46	95.72	2400.00	1701.27
*	6.000	5663.00	17.26	1.83	-2.00	12.40	14.00	5002.65	88.34	2400.00	2944.65
*	6.000	8327.00	18.14	2.25	-2.00	12.40	14.00	6604.53	79.31	2400.00	4569.72
*	5.000	3431.00	16.51	2.27	-1.90	7.80	16.20	3127.82	91.16	3340.00	215.16
*	5.000	4530.00	17.60	2.73	-1.90	7.80	16.20	4078.48	90.03	3340.00	232.01
*	5.000	6685.00	18.62	3.57	-1.90	7.80	16.20	5735.18	85.79	3340.00	2926.85
*	4.000	3431.00	17.51	4.50	3.00	15.00	17.00	3221.62	93.90	4270.00	567.80
*	4.000	4530.00	18.79	4.51	3.00	15.00	17.00	3670.91	81.04	4270.00	1323.49
*	4.000	6685.00	20.17	4.34	3.00	15.00	17.00	3995.16	59.76	4270.00	9568.73
*	3.500	1589.00	19.71	5.70	5.40	23.50	23.20	1589.00	100.00	2152.00	42.02
*	3.500	2091.00	20.62	6.56	5.40	23.50	23.20	2088.94	99.90	2152.00	77.14
*	3.500	2909.00	21.37	8.13	5.40	23.50	23.20	2874.19	98.80	2152.00	330.42
*	3.000	1589.00	23.20	2.40	9.60	23.50	23.20	999.98	62.93	3678.00	1739.06
*	3.000	2091.00	23.49	2.72	9.60	23.50	23.20	1176.14	56.25	3678.00	1749.01
*	3.000	2909.00	23.89	1.64	9.60	23.50	23.20	745.47	25.63	3678.00	5850.46
	2.290	1589.00	24.08	3.32	10.30	24.30	24.20	1262.64	79.46	2400.00	6873.42
	2.290	2091.00	24.36	2.84	10.30	24.30	24.20	1120.72	53.60	2400.00	6893.05
*	2.290	2909.00	24.40	3.71	10.30	24.30	24.20	1474.17	50.68	2400.00	6894.70
	2.280	1589.00	24.07	4.18	10.30	24.30	24.20	1589.00	100.00	100.00	49.44
	2.280	2091.00	24.41	2.68	10.30	24.30	24.20	1063.14	50.84	100.00	6894.60
	2.280	2909.00	24.51	3.15	10.30	24.30	24.20	1266.22	43.53	100.00	6899.30

	SECNO	Q	CWSEL	VCH	ELMIN	XLBEL	RBEL	TELMX	QCH	QCHP	XLCH	TOPWID
	2.270	1589.00	24.42	4.10	10.30	25.00	25.00	23.40	1589.00	100.00	14.00	48.35
*	2.270	2091.00	23.96	5.72	10.30	25.00	25.00	23.40	2091.00	100.00	14.00	47.05
*	2.270	2909.00	23.45	8.51	10.30	25.00	25.00	23.40	2909.00	100.00	14.00	45.61
	2.260	1589.00	24.75	1.21	10.30	24.30	24.20	33.60	500.97	31.53	50.00	6910.10
	2.260	2091.00	24.08	5.49	10.30	24.30	24.20	33.60	2091.00	100.00	50.00	49.47
	2.260	2909.00	23.80	7.92	10.30	24.30	24.20	33.60	2909.00	100.00	50.00	48.60
*	2.050	813.00	24.79	1.07	11.80	25.40	33.60	26.80	813.00	100.00	850.00	101.25
*	2.050	1071.00	24.83	1.40	11.80	25.40	33.60	26.80	1071.00	100.00	850.00	101.45
*	2.050	1542.00	25.30	1.90	11.80	25.40	33.60	26.80	1542.00	100.00	850.00	103.85
	2.040	813.00	24.80	1.03	11.80	15.60	14.80	31.80	813.00	100.00	100.00	74.00
	2.040	1071.00	24.84	1.35	11.80	15.60	14.80	31.80	1071.00	100.00	100.00	74.00
	2.040	1542.00	25.32	1.87	11.80	15.60	14.80	31.80	1542.00	100.00	100.00	74.00
*	2.030	813.00	24.60	5.19	11.80	15.60	14.80	31.80	813.00	100.00	10.00	79.64
*	2.030	1071.00	24.49	6.84	11.80	15.60	14.80	31.80	1071.00	100.00	10.00	79.57
*	2.030	1542.00	24.59	9.85	11.80	15.60	14.80	31.80	1542.00	100.00	10.00	79.63
	2.020	813.00	24.87	5.19	11.80	15.60	14.80	31.80	813.00	100.00	240.00	79.80
	2.020	1071.00	24.96	6.84	11.80	15.60	14.80	31.80	1071.00	100.00	240.00	79.86
	2.020	1542.00	25.56	9.85	11.80	15.60	14.80	31.80	1542.00	100.00	240.00	80.22
*	2.010	813.00	25.39	.98	11.80	15.60	14.80	31.80	813.00	100.00	10.00	74.00
*	2.010	1071.00	25.88	1.23	11.80	15.60	14.80	31.80	1071.00	100.00	10.00	74.00
*	2.010	1542.00	27.47	1.56	11.80	15.60	14.80	31.80	1542.00	100.00	10.00	74.00
	2.000	813.00	25.40	.99	11.80	25.40	33.60	26.80	813.00	100.00	100.00	104.34
	2.000	1071.00	25.88	1.23	11.80	25.40	33.60	26.80	1071.00	100.00	100.00	105.51
	2.000	1542.00	27.48	1.48	11.80	25.40	33.60	26.80	1542.00	100.00	100.00	109.35
*	1.030	813.00	25.65	1.87	13.70	25.00	25.70	27.90	809.81	99.61	4080.00	273.55
*	1.030	1071.00	26.21	1.94	13.70	25.00	25.70	27.90	903.69	84.38	4080.00	1232.28
	1.030	1542.00	27.71	1.09	13.70	25.00	25.70	27.90	608.83	39.48	4080.00	2666.08
	1.020	813.00	25.65	2.16	13.70	22.00	19.00	27.90	813.00	100.00	100.00	41.00
	1.020	1071.00	26.22	2.14	13.70	22.00	19.00	27.90	857.22	80.04	100.00	1250.40
	1.020	1542.00	27.71	1.24	13.70	22.00	19.00	27.90	570.83	37.02	100.00	2673.20
	1.010	813.00	25.70	2.15	13.70	22.00	19.00	27.90	813.00	100.00	24.00	41.00
	1.010	1071.00	26.32	2.65	13.70	22.00	19.00	27.90	1071.00	100.00	24.00	41.00
	1.010	1542.00	27.71	1.23	13.70	22.00	19.00	27.90	569.61	36.94	24.00	2678.77
	1.000	813.00	25.74	1.76	13.70	25.00	25.70	27.90	768.75	94.56	50.00	551.70
	1.000	1071.00	26.42	1.74	13.70	25.00	25.70	27.90	833.51	77.83	50.00	1562.76
	1.000	1542.00	27.72	1.09	13.70	25.00	25.70	27.90	607.30	39.38	50.00	2672.85

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## SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	11.100	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	11.100	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	11.100	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	11.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	11.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	11.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	9.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	9.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	9.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	6.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	6.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	6.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	5.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	5.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	5.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	4.000	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	4.000	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	3.500	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	3.500	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	3.500	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
CAUTION SECNO=	3.000	PROFILE=	1	WSEL	ASSUMED	BASED	ON	MIN	DIFF
CAUTION SECNO=	3.000	PROFILE=	1	20	TRIALS	ATTEMPTED	TO	BALANCE	WSEL
CAUTION SECNO=	3.000	PROFILE=	2	WSEL	ASSUMED	BASED	ON	MIN	DIFF
CAUTION SECNO=	3.000	PROFILE=	2	20	TRIALS	ATTEMPTED	TO	BALANCE	WSEL
WARNING SECNO=	3.000	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	2.290	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	2.270	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	2.270	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	2.260	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	2.050	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	2.050	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	2.050	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	2.030	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	2.030	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	2.030	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	2.010	PROFILE=	1	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	2.010	PROFILE=	2	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	
WARNING SECNO=	2.010	PROFILE=	3	CONVEYANCE	CHANGE	OUTSIDE	ACCEPTABLE	RANGE	

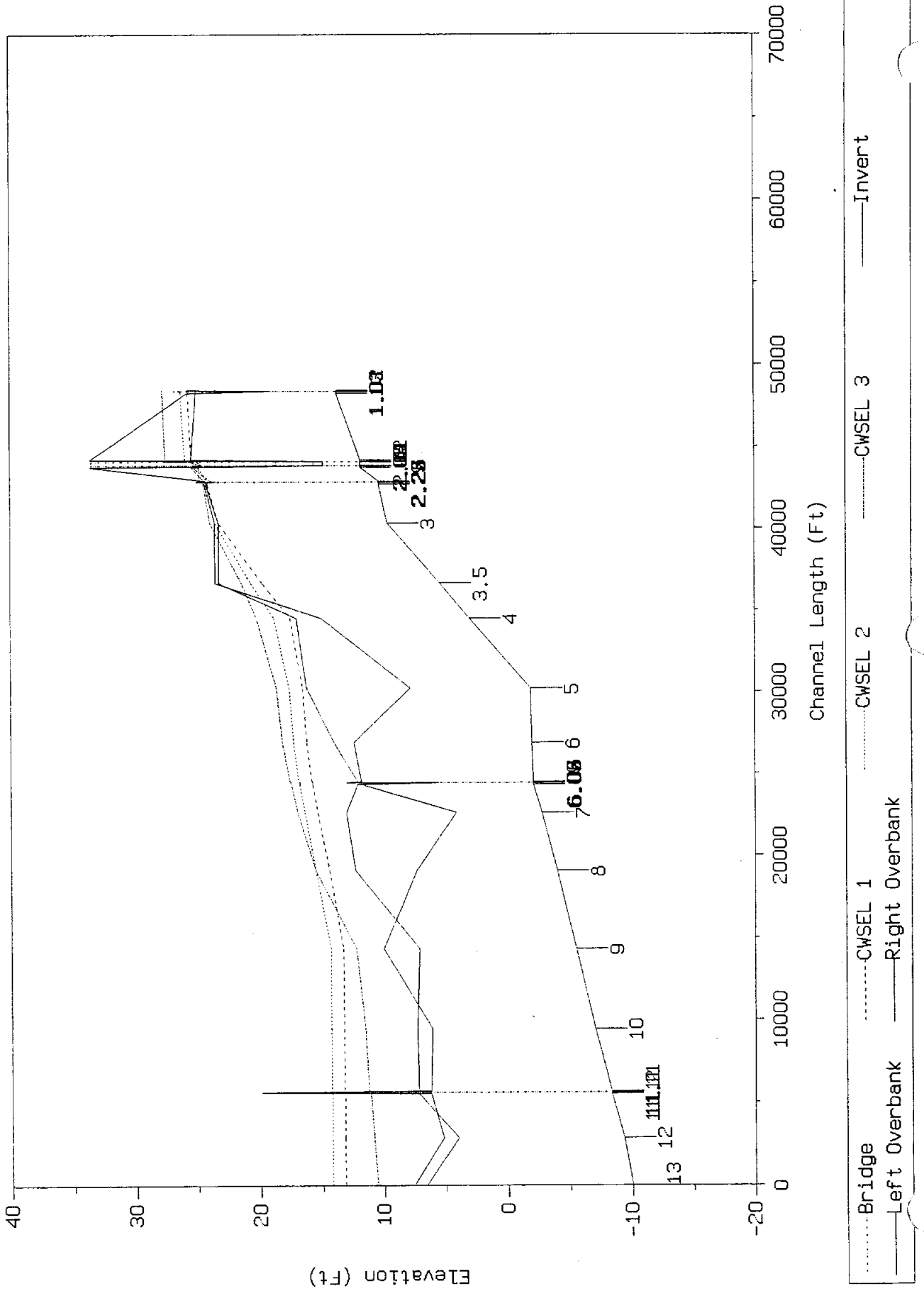


23AUG02 11:04:50

PAGE 15

WARNING SECNO= 1.030 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
WARNING SECNO= 1.030 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

FILE: HB\_UP\_R.IH2  
 Cross-Sections (13 to 1)



```
*****  
*  
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *  
* JUN 1998 *  
* VERSION 4.1 *  
*  
* RUN DATE 19AUG02 TIME 13:54:30 *  
*  
*****
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```
*****  
*  
* U.S. ARMY CORPS OF ENGINEERS *  
* HYDROLOGIC ENGINEERING CENTER *  
* 609 SECOND STREET *  
* DAVIS, CALIFORNIA 95616 *  
* (916) 756-1104 *  
*  
*****
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X X XXXXXXX XXXXX X  
X X X X X XX  
X X X X X  
XXXXXXXX XXXX X XXXXX X  
X X X X X  
X X X X X  
X X XXXXXXX XXXXX XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.  
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM



LINE	ID	1	2	3	4	5	6	7	8	9	10
39	KK	3TO4									
40	KM	ROUTE FLOWS FROM SUBAREA 3 TO SUBAREA 4									
41	RS	17	FLOW	-1							
42	SV	0	417	1219	1958	2923	3585	4167			
43	SQ	0	817	1634	2452	3269	4086	4903			
	*										
44	KK	M-04									
45	KM	RUNOFF FROM SUBAREA M-04									
46	BA	5.54									
47	LU	1	0.1	10							
48	UC	12.52	61.02								
	*										
49	KK	SUB4									
50	KM	COMBINE HYDROS AT 4									
51	HC	2									
	*										
52	KK	4TO5									
53	KM	ROUTE FLOWS FROM SUBAREA 4 TO SUBAREA 5									
54	RS	7	FLOW	-1							
55	SV	0	228	369	703	1174	1855	2461			
56	SQ	0	788	1576	2363	3151	3939	4727			
	*										
57	KK	M-05									
58	KM	RUNOFF FROM SUBAREA M-05									
59	BA	3.14									
60	LU	1	0.1	30							
61	UC	2.18	5.57								
	*										
62	KK	SUB5									
63	KM	COMBINE HYDROS AT 5									
64	HC	2									
	*										
65	KK	5TO9									
66	KM	ROUTE FLOWS FROM SUBAREA 5 TO SUBAREA 9									
67	RS	4	FLOW	-1							
68	SV	0	354	397	483	609	760	872			
69	SQ	0	1038	2077	3115	4154	5192	6230			
	*										
70	KK	M-09									
71	KM	RUNOFF FROM SUBAREA M-09									
72	BA	2.95									
73	LU	1	0.1	25							
74	UC	1.03	5.76								
	*										

## HEC-1 INPUT

PAGE 3

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

75	KK	SUB9							
76	KM	COMBINE HYDROS AT 9							
77	HC	2							
	*								
78	KK	9TO12							
79	KM	ROUTE FLOWS FROM SUBAREA 9 TO SUBAREA 12							
80	RS	15	FLOW	-1					
81	SV	0	196	328	629	1121	1720	2360	
82	SQ	0	931	1862	2793	3724	4655	5586	
	*								
83	KK	M-12							
84	KM	RUNOFF FROM SUBAREA M-12							
85	BA	2.29							
86	LU	1	0.1	7					
87	UC	2.85	10.11						
	*								
88	KK	SUB12							
89	KM	COMBINE HYDROS AT 12							
90	HC	2							
	*								
91	KK	12TO15							
92	KM	ROUTE FLOWS FROM SUBAREA 12 TO SUBAREA 15							
93	RS	1	FLOW	-1					
94	SV	0	8	14	19	24	29	33	
95	SQ	0	1158	2317	3475	4634	5792	6950	
	*								
	*	KK SUB15							
	*	KMDUMMY HYDROGRAPH AT 15							
	*	HC 1							
	*								
96	KK	M-06							
97	KM	RUNOFF FROM SUBAREA M-06							
98	BA	0.08							
99	LU	1	0.1	35					
100	UC	.08	.84						
	*								
101	KK	6TO7							
102	KM	ROUTE FLOWS FROM SUBAREA 6 TO SUBAREA 7							
103	RS	4	FLOW	-1					
104	SV	0	5	10	19	25	36	46	
105	SQ	0	38	76	114	152	190	228	
	*								







HEC-1 INPUT

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

176	KK	SUB14						
177	KM	COMBINE HYDROS AT 14						
178	HC	2						
	*							
179	KK	14TO15						
180	KM	ROUTE FLOWS FROM SUBAREA 14 TO SUBAREA 15						
181	RS	11	FLOW	-1				
182	SV	0	125	1208	3727	6104	8167	9978
183	SQ	0	700	1400	2100	2800	3500	4200
	*							
184	KK	M-15						
185	KM	RUNOFF FROM SUBAREA M-15						
186	BA	1.95						
187	LU	1	0.1	5				
188	UC	.93	17.68					
	*							
189	KK	SUB15						
190	KM	COMBINE HYDROS AT 15						
191	HC	2						
	*							
192	KK	SUB15						
193	KM	COMBINE HYDROS AT 15						
194	HC	2						
	*							
195	KK	15TO16						
196	KM	ROUTE FLOWS FROM SUBAREA 15 TO SUBAREA 16						
197	RS	6	FLOW	-1				
198	SV	0	329	499	649	997	1338	1672
199	SQ	0	1263	2525	3788	5050	6313	7576
	*							
200	KK	M-16						
201	KM	RUNOFF FROM SUBAREA M-16						
202	BA	3.96						
203	LU	1	0.1	2				
204	UC	4.4	26.71					
	*							
205	KK	SUB16						
206	KM	COMBINE HYDROS AT 16						
207	HC	2						
	*							
208	KK	16TO17						
209	KM	ROUTE FLOWS FROM SUBAREA 16 TO SUBAREA 17						
210	RS	11	FLOW	-1				
211	SV	0	393	855	1314	1844	2409	2997
212	SQ	0	1262	2524	3786	5048	6310	7572
	*							

LINE	ID	1	2	3	4	5	6	7	8	9	10
213	KK	M-17									
214	KM	RUNOFF FROM SUBAREA M-17									
215	BA	1.00									
216	LU	1	0.1	2							
217	UC	2.32	19.28								
	*										
218	KK	SUB17									
219	KM	COMBINE HYDROS AT 17									
220	HC	2									
	*										
221	KK	17TO18									
222	KM	ROUTE FLOWS FROM SUBAREA 17 TO SUBAREA 20 (45058 to 37958)									
223	RS	3	FLOW	-1							
224	SV	0	96	252	379	506	664	837	999		
225	SQ	0	1262	2524	3786	5048	6310	7572	8834		
	*										
226	KK	M-20									
227	KM	RUNOFF FROM SUBAREA M-20									
228	BA	3.23									
229	LU	1	0.1	2							
230	UC	1.76	11.13								
	*										
231	KK	SUB18									
232	KM	COMBINE HYDROSAT 18									
233	HC	2									
	*										
234	KK	18TO19									
235	KM	ROUTE FLOWS FROM SUBAREA 20 TO SUBAREA 21 (37958 to 31442)									
236	RS	3	FLOW	-1							
237	SV	0	106	260	384	504	712	964	1198		
238	SQ	0	1262	2524	3786	5048	6310	7572	8834		
	*										
239	KK	M-21									
240	KM	RUNOFF FROM SUBAREA M-21									
241	BA	1.58									
242	LU	1	0.1	2							
243	UC	3.67	10.17								
	*										
244	KK	SUB18									
245	KM	COMBINE HYDROSAT 19									
246	HC	2									
	*										

HEC-1 INPUT

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

247	KK	M-18																	
248	KM	RUNOFF FROM SUBAREA M-18																	
249	BA	0.89																	
250	LU	1	0.1	2															
251	UC	1.19	6.48																
	*																		
252	KK	A to B																	
253	KM	ROUTE FLOWS FROM SUBAREA 18 TO SUBAREA 19 (20000 ft)																	
254	RS	8	FLOW	-1															
255	SV	0	393	855	1314	1844	2409	2997											
256	SQ	0	1262	2524	3786	5048	6310	7572											
	*																		
257	KK	M-19																	
258	KM	RUNOFF FROM SUBAREA M- 19																	
259	BA	3.49																	
260	LU	1	0.1	2															
261	UC	3.36	13.43																
	*																		
262	KK	SUB19																	
263	KM	COMBINE HYDROSAT 20																	
264	HC	2																	
	*																		
265	KK	SUB18																	
266	KM	COMBINE HYDROSAT 20																	
267	HC	2																	
	*																		
268	KK	A to B																	
269	KM	ROUTE FLOWS FROM SUBAREA 21 TO SUBAREA 22																	
270	RS	12	FLOW	-1															
271	SV	0	1729	3762	5782	7376	10600	13187	15774										
272	SQ	0	1262	2524	3786	5048	6310	7572	8834										
	*																		
273	KK	M-22																	
274	KM	RUNOFF FROM SUBAREA M-22																	
275	BA	6.12																	
276	LU	1	0.1	2															
277	UC	5.56	22.49																
	*																		
278	KK	SUB21																	
279	KM	COMBINE HYDROSAT 22																	
280	HC	2																	
	*																		
281	ZZ																		

```

*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JUN 1998
*   VERSION 4.1
*
* RUN DATE 19AUG02 TIME 13:54:30
*
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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
*   609 SECOND STREET
*   DAVIS, CALIFORNIA 95616
*   (916) 756-1104
*
*****

```

KLOTZ ASSOCIATES INC.  
MUSTANG BAYOU WATERSHED, 100-YR. HYDROGRAPH FOR EXISTING CONDITION  
BRAZORIA COUNTY MASTER DRAINAGE PLAN  
FILENAME: MUS10R.IH1

```

6 IO      OUTPUT CONTROL VARIABLES
          IPRNT      5  PRINT CONTROL
          IPLOT      0  PLOT CONTROL
          QSCAL      0. HYDROGRAPH PLOT SCALE

```

```

IT        HYDROGRAPH TIME DATA
          NMIN       15  MINUTES IN COMPUTATION INTERVAL
          IDATE      1JAN92  STARTING DATE
          ITIME      0000  STARTING TIME
          NQ         300  NUMBER OF HYDROGRAPH ORDINATES
          NDDATE     4JAN92  ENDING DATE
          NDTIME     0245  ENDING TIME
          ICENT      19  CENTURY MARK

          COMPUTATION INTERVAL .25 HOURS
          TOTAL TIME BASE     74.75 HOURS

```

```

ENGLISH UNITS
DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH  INCHES
LENGTH, ELEVATION  FEET
FLOW               CUBIC FEET PER SECOND
STORAGE VOLUME     ACRE-FEET
SURFACE AREA       ACRES
TEMPERATURE        DEGREES FAHRENHEIT

```

RUNOFF SUMMARY  
 FLOW IN CUBIC FEET PER SECOND  
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW 6-HOUR	FOR MAXIMUM PERIOD 24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	M-01	995.	17.25	919.	583.	235.	4.44		
ROUTED TO	1TO2	763.	32.75	746.	570.	233.	4.44		
HYDROGRAPH AT	M-02	908.	19.50	862.	623.	287.	5.60		
2 COMBINED AT	SUB2	1266.	30.25	1252.	1144.	520.	10.04		
ROUTED TO	2TO3	1251.	35.00	1241.	1129.	518.	10.04		
HYDROGRAPH AT	M-03	856.	16.00	838.	650.	331.	6.55		
2 COMBINED AT	SUB3	1815.	26.00	1790.	1649.	849.	16.59		
ROUTED TO	3TO4	1763.	38.50	1753.	1620.	833.	16.59		
HYDROGRAPH AT	M-04	310.	25.25	306.	277.	183.	5.54		
2 COMBINED AT	SUB4	2024.	38.00	2011.	1866.	1016.	22.13		
ROUTED TO	4TO5	2005.	44.00	1994.	1858.	997.	22.13		
HYDROGRAPH AT	M-05	1416.	14.50	1158.	535.	187.	3.14		
2 COMBINED AT	SUB5	2010.	43.75	2001.	1874.	1184.	25.27		
ROUTED TO	5TO9	2009.	44.25	2001.	1873.	1158.	25.27		
HYDROGRAPH AT	M-09	1321.	13.50	1077.	493.	173.	2.95		
2 COMBINED AT	SUB9	2039.	17.50	2007.	1889.	1330.	28.22		
ROUTED TO	9TO12	2012.	47.50	2003.	1888.	1311.	28.22		
HYDROGRAPH AT	M-12	623.	15.25	562.	326.	124.	2.29		
2 COMBINED AT	SUB12	2382.	18.75	2275.	1968.	1436.	30.51		
ROUTED TO	12TO15	2383.	18.75	2275.	1968.	1435.	30.51		
HYDROGRAPH AT	M-06	132.	12.50	47.	15.	5.	.08		
ROUTED TO	6TO7	80.	14.50	46.	15.	5.	.08		
HYDROGRAPH AT	M-07	596.	13.25	451.	186.	64.	1.07		
2 COMBINED AT	SUB7	655.	13.50	497.	201.	69.	1.15		
ROUTED TO	7TO8	626.	15.00	491.	201.	69.	1.15		
HYDROGRAPH AT	M-08	441.	13.25	340.	142.	49.	.85		
2 COMBINED AT	SUB8	1005.	14.50	821.	343.	118.	2.00		
ROUTED TO	8TO10	859.	18.25	775.	343.	118.	2.00		
HYDROGRAPH AT	M-10	266.	16.50	263.	218.	122.	2.58		
2 COMBINED AT	SUB10	1122.	18.25	1035.	557.	240.	4.58		
ROUTED TO	10TO11	1094.	20.50	1024.	556.	239.	4.58		
HYDROGRAPH AT	M-11	101.	18.50	100.	91.	63.	1.89		
2 COMBINED AT	SUB11	1194.	20.50	1124.	648.	302.	6.47		
ROUTED TO	11TO13	1190.	20.75	1117.	647.	302.	6.47		
HYDROGRAPH AT	M-13	230.	13.50	206.	113.	42.	.78		

M-1

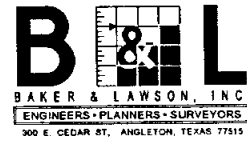
Mustang Bayou Rev. Exist. 10 yr. MUS10R.IH1

2 COMBINED AT	SUB13	1326.	20.50	1268.	753.	344.	7.25
ROUTED TO	13TO14	1312.	22.50	1243.	752.	342.	7.25
HYDROGRAPH AT	M-14	135.	13.50	121.	68.	26.	.48
2 COMBINED AT	SUB14	1382.	22.50	1318.	814.	368.	7.73
ROUTED TO	14TO15	1021.	37.75	983.	801.	365.	7.73
HYDROGRAPH AT	M-15	334.	14.50	321.	226.	102.	1.95
2 COMBINED AT	SUB15	1126.	37.50	1096.	989.	468.	9.68
2 COMBINED AT	SUB15	3383.	18.75	3238.	2950.	1903.	40.19
ROUTED TO	15TO16	3361.	20.50	3225.	2945.	1871.	40.19
HYDROGRAPH AT	M-16	462.	17.75	451.	357.	189.	3.96
2 COMBINED AT	SUB16	3808.	20.25	3664.	3280.	2059.	44.15
ROUTED TO	16TO17	3719.	25.25	3570.	3246.	2010.	44.15
HYDROGRAPH AT	M-17	157.	15.50	152.	110.	51.	1.00
2 COMBINED AT	SUB17	3829.	25.00	3676.	3321.	2061.	45.15
ROUTED TO	17TO18	3799.	26.50	3653.	3312.	2047.	45.15
HYDROGRAPH AT	M-20	812.	14.50	741.	440.	171.	3.23
2 COMBINED AT	SUB18	4149.	26.00	3988.	3506.	2219.	48.38
ROUTED TO	18TO19	4122.	27.25	3965.	3498.	2203.	48.38
HYDROGRAPH AT	M-21	418.	16.00	378.	221.	84.	1.58
2 COMBINED AT	SUB18	4290.	27.25	4125.	3590.	2287.	49.96
HYDROGRAPH AT	M-18	353.	13.75	293.	136.	47.	.89
ROUTED TO	A to B	302.	18.50	270.	136.	47.	.89
HYDROGRAPH AT	M-19	737.	15.75	687.	445.	184.	3.49
2 COMBINED AT	SUB19	991.	17.75	934.	581.	231.	4.38
2 COMBINED AT	SUB18	4787.	26.75	4602.	3881.	2518.	54.34
ROUTED TO	A to B	3955.	46.25	3915.	3663.	2002.	54.34
HYDROGRAPH AT	M-22	820.	18.25	791.	604.	302.	6.12
2 COMBINED AT	SUB21	4218.	46.00	4170.	3874.	2303.	60.46

M-1

\*\*\* NORMAL END OF HEC-1 \*\*\*

KLOTZ  
ASSOCIATES,  
INC.  
CONSULTING  
ENGINEERS



## Appendix G

## Report CD