

VOLUME I
SUPPLEMENT
TO
U. S. ARMY CORPS OF ENGINEERS
DESIGN MEMORANDUM NO. 13
GENERAL DESIGN
FOR THE
PONTCHARTRAIN BEACH FLOODWALL/LEVEE
PROJECT

SUBMITTED TO:

THE BOARD OF LEVEE COMMISSIONERS ·
OF THE
ORLEANS LEVEE DISTRICT
NEW ORLEANS, LOUISIANA

SUBMITTED BY:

DESIGN ENGINEERING, INC.
3330 WEST ESPLANADE AVENUE, SUITE 205
METAIRIE, LOUISIANA 70002

DEI PROJECT NO. 1008
OLB PROJECT NO. 2040-0350

NOVEMBER, 1987

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FOR

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This report has been prepared in two (2) volumes.
Volume I contains Chapters I through VII and
Appendices A through C. Volume II contains
Appendices D through G.

SUPPLEMENT TO
U.S. ARMY CORPS OF ENGINEERS
DESIGN MEMORANDUM NO. 13

General Design for the
Pontchartrain Beach Floodwall/Levee Project

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I. INTRODUCTION

A. Project Name

Pontchartrain Beach Floodwall, Orleans Levee Board
Project No. 2040-0317.

B. Project Location

The project is located along the western, northern and eastern perimeters of the former Pontchartrain Beach Amusement Park site at the intersection of Elysian Fields Avenue and Lakeshore Drive. The precise location is related to the U. S. Army Corps of Engineers levee baseline stationing and is located between baseline Sta. 200+00 and Sta. 236+48.59.

C. Project Description

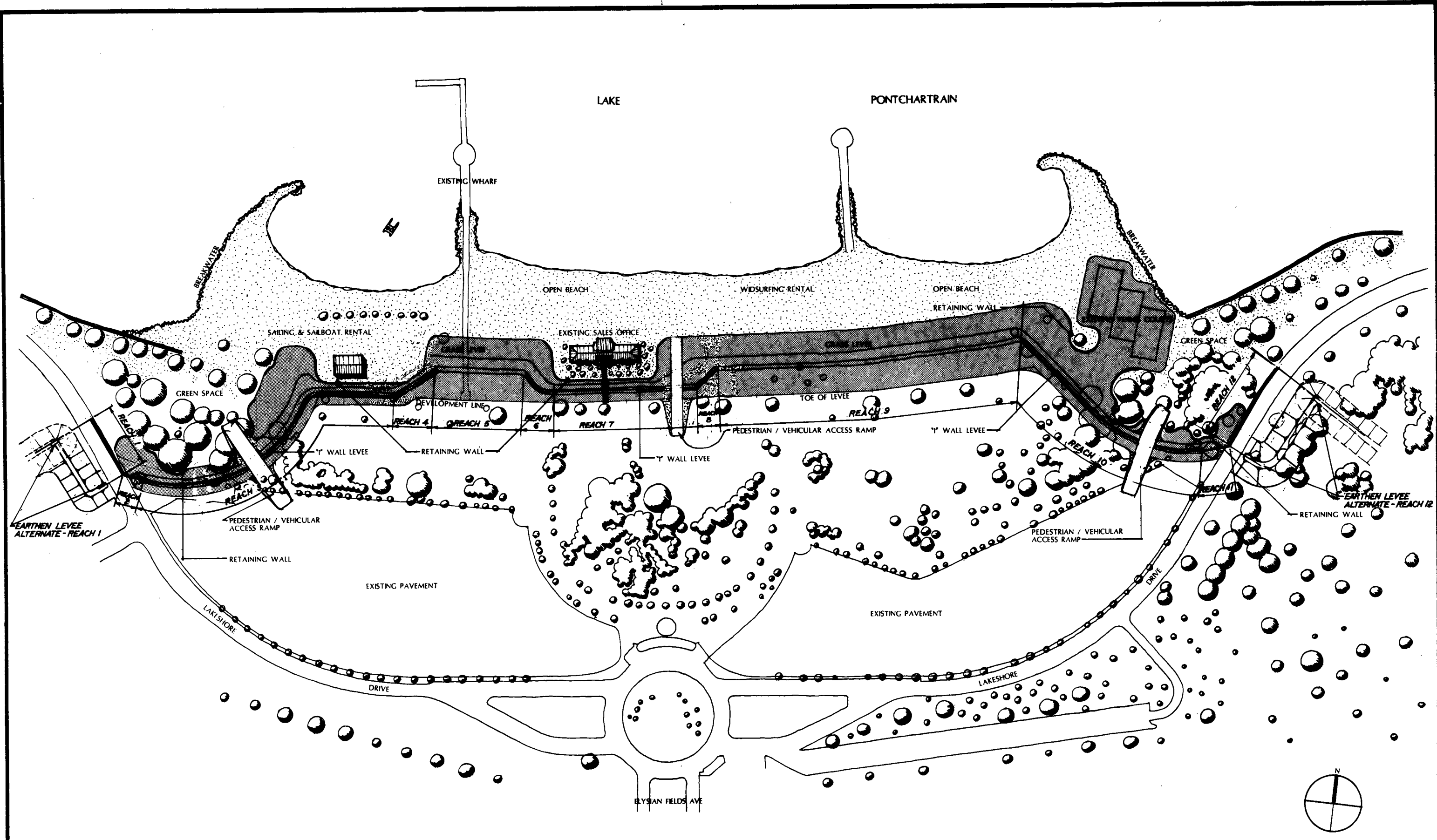
On November 30, 1987, the New Orleans District of the U.S. Army Corps of Engineers completed the Lake Pontchartrain, Louisiana and Vicinity Lake Pontchartrain High Level Plan, Design Memorandum 13 - General Design and submitted said memorandum to the Commander, Lower Mississippi Valley Division for review and approval. A copy of this report was also furnished to the Board of

Commissioners of the Orleans Levee District (OLB) for review and comment.

The initial Pontchartrain Beach flood protection system, as proposed by the U. S. Army Corps of Engineers in Design Memorandum 13 and by URS Engineers under separate contract, paralleled the alignment of Lakeshore Drive and located the property at the Pontchartrain Beach site on the floodside of the project. The URS Engineers report was completed and submitted to the Orleans Levee Board in September, 1984.

After reviewing both the U. S. Army Corps of Engineers and the URS reports, the Board of Commissioners elected to investigate alternatives to relocate the proposed flood protection north of the Lakeshore Drive alignment. The "new" alignment would generally follow the existing seawall alignment within the Pontchartrain Beach site. Implementation of this "new" alignment would include the existing Pontchartrain Beach site within the hurricane protection levee system. See next page for "new" levee/floodwall alignment.

On January 8, 1985, an Orleans Levee Board office memorandum was prepared comparing the cost between the



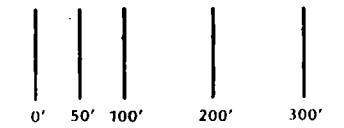
PONTCHARTRAIN BEACH • FLOODWALL RELOCATION STUDY

LEVEE ALIGNMENT PLAN

BOARD OF LEVEE COMMISSIONERS
 ORLEANS LEVEE DISTRICT
 ORLEANS PARISH, LOUISIANA

LANDESIGN
 LAND PLANNERS LANDSCAPE ARCHITECTS
 NEW ORLEANS, LOUISIANA

DESIGN ENGINEERING INC.
 CONSULTING ENGINEERS
 METAIRIE, LOUISIANA



USACE/URS alignment and the alternative seawall alignment. The cost to provide the seawall alignment was based on a reinforced concrete "T"-wall section and earthen levee section. The cost estimate for this construction, prepared by the OLB, was approximately \$1,500,000 higher than the estimated cost of the USACE/URS alignment. However, pursuant to the recommendation of Design Engineering, Inc., the OLB decided to investigate the feasibility of using earthen levees and "I"-walls instead of "T"-walls and to construct the project north of the USACE/URS alignment.

On May 21, 1985, the Orleans Levee Board authorized a study to investigate the feasibility of realigning the flood protection along the existing seawall within the Pontchartrain Beach site.

The realignment study included the development of alternative levee/floodwall alignments, typical levee and levee/I-wall sections and cost estimates developed for each of the alternative plans. The recommended alignment, adjacent to the northern development perimeter, was accepted by the U. S. Army Corps of Engineers by correspondence dated August 27, 1985. This acceptance and approval was based on hydraulic and alignment criteria only. Further structural design and foundation analysis was needed prior to final

approval of the project by the U. S. Army Corps of Engineers.

The construction cost for the "new" alignment was estimated to be \$4,476,729, compared to the original U. S. Army Corps of Engineers construction cost estimation of \$3,658,000 contained in Design Memorandum No. 13. Both construction costs were based on levee/floodwall construction and relocations. The "new" alignment was accepted by the Orleans Levee Board and the project was authorized to proceed. The alignment study is contained in Appendix "A" of this report.

In October, 1985, URS Engineers was authorized to begin the preliminary design phase of the project. The design was prepared based on the Corps of Engineers' structural, foundation and hydraulic design criteria (See Section II and Appendix D) for the new levee/floodwall alignment developed by Design Engineering, Inc.

The design and construction of the project was separated into two phases. Phase I included the placement of levee embankment and installation of steel sheet piling within the levee embankment; Lakeshore Drive ramp construction (at both the East and West ends of the

project); relocation of the University of New Orleans entrance roadway; and utility relocation work. Phase II included concrete capping of the sheet pile wall, completion of the access ramps and flood gates, and the remaining utility relocation work.

Final design for Phase I was approved by the Orleans Levee Board and the New Orleans District office of the Corps of Engineers in March, 1986. Johnny F. Smith Truck and Dragline Service, Inc. was awarded the Phase I construction contract for \$3,345,852.64 and was given a notice to proceed on April 7, 1986. Construction of the levee/sheet pile wall, roadway relocations and utility relocations for Phase I was completed in January, 1987 with a final total construction cost of \$3,375,618.25, including all change orders.

Final design of Phase II of the project was approved by the Orleans Levee Board and the New Orleans District of the Corps of Engineers in January, 1987. Phase II construction was awarded to Boh Brothers Construction Company and work began on March 25, 1987. The amount of the Phase II construction contract is \$843,884.35 including Change Order No. 1, No. 2 and No. 3. Completion date for Phase II construction is October 15, 1987.

II. HYDRAULIC DESIGN CRITERIA

The following hydraulic design criteria, obtained from the U.S. Army Corps of Engineers, was used in the development of this project.

A. Earthen Levee Section

1. Floodside Slope:
1 Vertical on 5 Horizontal
2. Landside Slope:
1 Vertical on 3 Horizontal
3. Required Top of Levee (Net):
Elevation 20.0 NGVD

B. Earthen Levee/"I"-Wall Section

1. Required top of concrete "I"-wall is EL. 20.0 NGVD (net).
2. Required top of concrete transitions to EL. 17.5 NGVD (net) at Lakeshore Drive ramps (East and West).
3. Required top of earthen levee section is EL. 13.0 NGVD (net).

4. Floodwall centerline shall be located three feet from the levee centerline.

C. Wave Berms

1. Ten-foot berms:

Side slopes on the floodside of the levee shall be 1 vertical on 3 horizontal and shall extend to EL. 9.00 NGVD (net). From EL. 9.0, a 10 foot wave berm is required on a zero slope. From the end of the 10 foot berm a 1 vertical on 3 horizontal slope is required to the existing ground.

2. 100-foot berms:

Side slopes on the floodside of the levee shall be 1 vertical on 3 horizontal and shall extend to EL. 9.0 NGVD (net). From EL. 9.0, a 100 foot wave berm on a 1 vertical on 100 horizontal slope is required to EL. 8.0 NGVD (net). From EL. 8.0 NGVD, a 1 vertical on 3 horizontal slope is required to existing ground.

3. The wave berm shall be constructed of an erosive-resistant material, such as clay.

III. FOUNDATION INVESTIGATION AND DESIGN

A. General

On December 13, 1985, Eustis Engineering submitted to the Orleans Levee Board the Draft geotechnical report for the Pontchartrain Beach Flood Protection Project. (See Appendix E.) Based on soil borings taken by Eustis at the project site, geotechnical design parameters were determined and included in the report. Recommendations based on these parameters are summarized in the section below. Subsequent to submittal of the "Draft" copy of the report numerous review comments have been addressed and incorporated into the geotechnical report. These comments and responses are attached as Appendix F.

B. Earthen Levee Section

1. Settlement

- a. Expected settlement of 11 to 13 inches using 12" overbuild (Net El. 20.0).

b. Settlement plates were installed and monitored to completion of consolidation/settlement.

2. Stability

a. Stability of the levees was determined by the Method of Planes and the minimum factor of safety of 1.3 against failure of the earth mass was established. Calculated factors of safety for earthen levee sections ranged from 1.47 to 2.2 for each slip surface, which is above the minimum factor of safety established for the project.

3. Underseepage

Seepage analysis was performed for the all earthen levee section using Bligh's Method of Analysis. A computed creep ratio value of 27.3 was obtained and was above the minimum value of 18.5 for very fine or silty sand.

Piezometers were installed at the project site and read periodically. Analysis of the recorded data was

used to verify geotechnical assumptions previously made and to project piezometric levels during hurricane conditions or high tide conditions.

c. "I"-Wall/Levee Section

1. Settlement

- a. Expected settlement of levee of 5 to 7 inches using 6" overbuild (Net El. 13.0 NGVD).
- b. Settlement plates were installed and monitored to completion of consolidation before concrete capping of the sheet pile could take place.

2. Stability

Stability analyses performed on levee section show calculated factors of safety greater than the minimum required for design.

3. Underseepage

Seepage analysis was performed on the levee/"I"-wall section using Lane's Weighted Creep Ratio Method of Analysis. Calculated weighted creep ratios between 10.2 and 12.3 were obtained. These ratios are greater than the minimum of 8.5 required for very fine or silty sand.

D. Gates

1. Deep Seated Stability Analysis

Results of a deep seated stability analysis performed on the soil at the gate structures show that active driving forces do not exceed the summation of the resisting forces and the passive driving forces. Therefore, there is no potential for a deep seated stability failure beneath the gate structures.

2. Underseepage

To prevent seepage under the gate structures, the sheetpile cutoff beneath the gate structure extends to

El. -12.0 NGVD at gates 1 and 3 and El. -14.0 NGVD at Gate No. 2.

3. Piles

Piles used beneath the gate structures are 14" square precast prestressed concrete. Piles are to be driven using a hammer delivering approximately 19,500 ft.lb. of energy per blow.

Gates 1 and 3 have a pile group consisting of 4 vertical piles driven to El. -64.75 NGVD and 8 batter piles on a 1 horizontal to 2 vertical batter driven to tip El. -60.0 NGVD. Pile lengths for the vertical and batter piles are 76' and 80', respectively.

Gate 2 has a pile group consisting of 4 vertical pile driven to El. -50.75 NGVD and 10 batter piles on a 1 horizontal to 2 vertical batter driven to tip El. -54.00 NGVD. Pile lengths for the vertical and batter pile are 62' and 73', respectively.

4. Settlement

Estimated settlement due to structural loads on the piles is expected to be from 0.5 to 0.75 inches.

E. Access Ramps

1. Settlement

a. Expected settlement for ramps 1 and 3 is approximately ~~4 to 6 inches~~ with a 6" overbuild.

b. Expected settlement for Ramp 2 is approximately 10 to 12 inches with a 12 inch overbuild.

F. Lakeshore Drive Ramps

1. Settlement

Expected settlement for each ramp to be between 4 and 6 inches. Overbuild ramps to El. 15.0 NGVD. The net grade is El. 14.5 NGVD.

2. Stability

Stability analyses were performed at the interface of the Lakeshore Drive ramp and levee section at both ends of the project. These analyses indicate factors of safety greater than the 1.3 factor of safety established for design of this project.

3. Seepage

Seepage analyses performed on the Lakeshore Drive ramp sections show seepage ratios of 21.8 which is greater than the minimum safe value of 18.5 for very fine sand of silty sand.

G. Existing Seawall and Swimming Pool

Portions of an existing pile supported seawall that was beneath the alignment of the "new" levee/floodwall section was removed. Piles supporting the seawall were not removed.

Sections of the seawall that were removed included:

Sta. 42+40 to Sta. 44+10 B/L "D" - 170 feet

Sta. 45+55 to Sta. 47+20 B/L "D" - 165 feet

Sta. 49+30 to Sta. 50+95 B/L "D" - 165 feet

Sta. 57+85 to Sta. 59+35 B/L "D" - 150 feet

Note: All stations refer to stationing shown on URS Company design plans except as noted.

The existing swimming pool structure also extended into the levee/floodwall section. The entire structure was removed except for the supporting piles. Compacted sand was used to backfill the excavated area to existing ground elevation per instruction from Corps of Engineers foundation bench.

IV. STRUCTURAL DESIGN CRITERIA

A. Design Loads

1. The design static water level (SWL) is El. 11.5 NGVD.
2. For "I"-walls with a top of wall El. of +20.0 NGVD and levee crown El. of +13.0 NGVD, the computed dynamic wave load was 5,362 pounds/foot. See Exhibit No. 22 of Eustis Engineering Company's report dated December 6, 1985.

B. Levee/Floodwall Sections

1. Slope Stability

Levees and levee/"I"-wall combinations were designed for a factor of safety of 1.3, using the Lower Mississippi Valley District Method of Planes Analysis.

2. Cantilever Analysis

- a. Cantilever analysis was used with a factor of safety of 1.5 factored into soil shear strength parameters for static water level loading.

- b. Cantilever analysis was used with a factor of safety of 1.25 factored into the soil shear strength parameters for dynamic wave loading.
- c. Factor of safety of 1.0 for case b. was used to determine maximum anticipated bending moment. This resulted in a required tip elevation of -14.0 NGVD.
- d. Maximum desirable deflection of the wall was 1.5 inches.

C. Gate Structures

1. Allowable Pile Load Capacities

Recommended allowable pile load capacities for 14" square precast, prestressed concrete for various lengths were computed and included in the geotechnical report. The tension and compression pile load capacities that were used to design the project were based on a factor of safety of 3, since no load test was performed.

2. Pile Loads

The Hrenicoff Method of analysis was used to analyze the distribution of loads to the piles. The coefficient of horizontal subgrade reaction (k_h), used in the Hrenicoff Analysis, was computed using in-situ field tests and laboratory test data. Its general variation with depth was plotted and was included in the geotechnical report.

V. DESCRIPTION OF STRUCTURE AND IMPROVEMENTS

A. General

Flood protection for Pontchartrain Beach when completed will consist of earthen levee sections and levee "I"-wall sections. Floodgates and access ramps are provided at three locations along the levee/floodwall. Protection across Lakeshore Drive consists of roadway ramps at the east and west crossings. The entrance at the University of New Orleans has been relocated south of the west Lakeshore Drive ramp. See Appendix B for the plan-profile sheets of the project.

B. Earthen Levee

Earthen levee sections have been constructed from Sta. 18+73.81 W/L to Sta. 20+95.50 W/L and from Sta. 26+85.79 W/L to Sta. 33+98.27 W/L. The top of levee elevation for these reaches is El. 20.0 NGVD (net). Side slopes for these reaches is 1 vertical on 5 horizontal for the flood side and 1 vertical to 3 horizontal for the protected side. The levee crown width is 10 feet.

Earthen levees were also constructed adjacent to the Lakeshore Drive ramps. These levees connect to the existing Corps of Engineers' levees on the west and east ends of the project. The top of levee transitions from El. 17.0 NGVD

(net) at the east Corps levee tie-in to El. 16.5 NGVD (net) at the Lakeshore Drive crossing on the east levee and transitions from El. 17.5 NGVD (net) at the west Corps levee tie-in to El. 16.5 NGVD (net) at the Lakeshore Drive crossing on the west levee. Both levees have a side slope of 1 vertical on 3 horizontal (flood and protected sides) and a crown width of 10 feet. The tie-in of the Lakeshore Drive east levee to the existing Corps of Engineers' levee is located at USACE Sta. 200+00 W/L = URS Sta. 200+00 B/L "F" and the west levee tie-in is located at USACE Sta. 236+48.59 W/L = URS Sta. 100+00 baseline "A".

C. Earthen Levee/"I"-Wall Combinations

1. Location

Combination levee/"I"-wall sections have been constructed from Sta 10+03.45 W/L to Sta. 18+73.81 W/L, Sta. 20+95.50 W/L to Sta. 26+85.79 W/L and from Sta. 33+98.27 W/L to Sta. 39+78.39 W/L.

2. Earthen Levee

The levee portion of the levee/I-wall has been constructed to El. 13.0 NGVD (net). The side slopes on

the flood and protected sides will be 1 vertical on 3 horizontal. Crown width for the levee is 10 feet.

3. Wave Berms

Ten foot and 100 foot wave berms were constructed along portions of the floodside of the levee/floodwall.

The 10-foot berm is located from approximate Sta. 15+20 W/L to Sta. 18+60 W/L and from Sta. 21+00 W/L to Sta. 24+80 W/L. It begins at El. 9.0 NGVD on the floodside slope of the levee, extends 10 feet on a zero slope, then slopes down on a 1 vertical to 5 horizontal to the existing ground.

The 100-foot berm is located from approximate Sta. 24+80 W/L to Sta. 26+75 W/L. It begins at El. 9.0 NGVD on the floodside slope of the levee, extends 100 feet on a 1 vertical to 100 horizontal slope, then on a 1 vertical to 3 horizontal slope to the existing ground.

D. "I"-Wall

1. Description

The "I"-wall portion of the levee/floodwall consists of steel sheet piling capped with a concrete wall. The "I"-wall runs from Sta. 10+03.45 W/L to Sta. 18+73.81 W/L, Sta. 20+85.50 W/L to Sta. 26+85.79 W/L and from Sta. 33+98.27 W/L to Sta. 39+78.39 W/L. The wall centerline is located approximately three (3) feet from the centerline of the levee.

Sheet pile size varies between PZ-27, PZ-35 and PZ-40. "I"-wall thicknesses vary from 2'-2" to 2'-5" to 2'-6" for the corresponding sheet pile sizes. Elevation of the bottom of the concrete wall for all locations is El. 11.0 NGVD. Top of sheet pile for all locations is 16.0 NGVD. Top of the "I"-wall varies from El. 20.0 NGVD (net) to El. 17.5 NGVD (net) near the Lakeshore Drive ramps.

Floodgate structures will be provided for vehicular and pedestrian access across the levee at three locations. Gate 1 centerline is located at Sta. 12+88.51 W/L, Gate 2 centerline is located at Sta.

25+10.42 W/L and Gate 3 is located at Sta. 37+62.67 W/L. All gates will be swing gates with a 41' monolith width and a 30' gate opening.

E. Ramps

Access ramps will be provided at the previously mentioned gate locations. The surface of the ramps is asphalt with a 6" sand/shell base. Each ramp has a 20' section width. Ramp elevation at each gate is El. 13.0 NGVD.

Ramps were constructed at the levee crossings of Lakeshore Drive at the east and west ends of the project. Both ramps are asphalt with a one foot sand/shell base. The roadway has a 38' pavement width and 1'-6" concrete curb and gutter on each side of the roadway.

VI. RELOCATIONS

A. General

Relocations required to existing facilities include Lakeshore Drive roadway ramps (east and west), shifting the entrance to the University of New Orleans southward and various drainage and utility improvements.

B. Roadway Relocations

1. Lakeshore Drive Ramps

Two Lakeshore Drive ramps are located where the flood protection crosses Lakeshore Drive on the east and west ends of the project. Minimum grade at the flood protection crossing is 14.5 NGVD.

2. UNO Entrance

The University of New Orleans entrance from Lakeshore Drive was moved to the south end of the west Lakeshore Drive ramp. The prior entrance was removed and abandoned. The roadway is asphalt

with a sand/shell base. Sufficient signing and striping has been provided to maintain safe traffic flow.

C. Drainage and Utility Relocations

1. Drainage

Existing drainage structures and pipe at the Lakeshore Drive ramp locations were removed or adjusted and new structures and pipe were installed. Prior drainage on the Pontchartrain Beach property in the levee sections were plugged and abandoned. New pipe and drainage structures were installed to replace abandoned lines at various locations.

2. Water, Sewer, Electrical, Gas, Telephone

Two locations were provided for sheet pile wall penetration for the above utilities. At these locations additional water line penetrations through the sheet pile wall were provided. Other existing utilities located in the levee cross section were plugged or removed.

VII. PROJECT COST

The total estimated project cost for the Pontchartrain Beach Floodwall Project is \$5,012,796.09. This amount includes construction of Phase I and Phase II (including change orders), engineering, soil analysis, testing, surveying, resident inspection, bid advertisement and coordination. See Appendix C for bid tabulations and change orders for Phases I and II and December 10, 1987 letter from the Orleans Levee District summarizing project expenditures.

APPENDICES

Appendix A

**Design Engineering, Inc.
Alignment Study**

Appendix A

**Design Engineering, Inc.
Alignment Study**

April 30, 1986

Mr. C. E. Bailey, Chief Engineer
Board of Levee Commissioners
Orleans Levee District
Suite 202, Administration Building
New Orleans Lakefront Airport
New Orleans, Louisiana 70126

Re: Levee Alignment Report for the
Pontchartrain Beach Flood Protection System
OLB Contract No. 2040-0204
DEI Project No. 1008

Dear Mr. Bailey:

In accordance with the terms of our agreement with the Orleans Levee Board, we are pleased to submit herewith fifteen (15) copies of the above referenced Final Report for your use.

A presentation of the findings and recommendations resulting from this study effort was made to the Orleans Levee Board on August 6, 1985. Following the meeting a copy of the presented material was submitted to the U.S. Army Corps of Engineers and the Pontchartrain Beach Corporation for review and comment.

On August 27, 1985, Design Engineering, Inc. received a letter from the U.S. Army Corps of Engineers stating their review comments on the submitted material. Basically, the Corps was in agreement with the proposed alignment and with the recommended levee/floodwall heights. The letter also emphasized that final approval of the project for credit would require modification of the U.S. Corps of Engineers General Design Memorandum No. 13 and complete structural and foundation design.

We have coordinated the efforts of the design team, the U.S. Army Corps of Engineers, the developer and the Orleans Levee Board with respect to the design criteria. The attached report and exhibits were used as a guide to develop the flood protection concept and alignment.

Mr. C. E. Bailey
Page 2

We are enclosing the Final Report for your use.

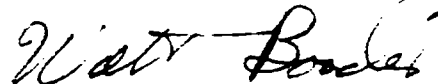
It has been our pleasure to be of assistance to you in this matter and we look forward to successful completion of the project.

Thank you for your assistance on this project and should you have any questions please call us.

With best regards, I am

Very truly yours,

DESIGN ENGINEERING, INC.

A handwritten signature in cursive script, appearing to read "Walter Baudier".

Walter Baudier
President

WB/mnh

LEVEE ALIGNMENT REPORT
FOR THE
PONTCHARTRAIN BEACH FLOOD PROTECTION SYSTEM
ORLEANS PARISH, LOUISIANA

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INTRODUCTION

1.0 Introduction

1.1 Project Name

Relocation Study of the Pontchartrain Beach Floodwall, Orleans Levee Board Project 2040-0317.

1.2 Project Location

The project is located on the site of the former Pontchartrain Beach Amusement Park at the intersection of Elysian Fields Avenue and Lakeshore Drive.

1.3 General

On November 30, 1984 the New Orleans Section of the U.S. Army Corps of Engineers (USCE) completed the Lake Pontchartrain, Louisiana and Vicinity Lake Pontchartrain High Level Plan, Design Memorandum 13 - General Design and submitted said memorandum to the Commander, Lower Mississippi Valley Division for review and approval. A copy of this report was also furnished to the Orleans Levee Board (OLB) for review and comment.

In the area of Pontchartrain Beach the flood protection alignment, as proposed by the U.S. Army Corps of Engineers, parallels the alignment of Lakeshore Drive. The floodwall is located north of Lakeshore Drive and the entire Pontchartrain Beach site is outside of the proposed flood protection. The original alignment was also reviewed by URS Engineers under contract to the Orleans Levee Board. The URS report was completed in September, 1984.

After reviewing both the U.S. Army Corps of Engineers and the URS reports, the Board of Commissioners elected to investigate alternatives to relocate the proposed flood protection from the Lakeshore Drive alignment to an alignment north of the original proposed alignment. Implementation of this alignment would permit the existing Pontchartrain Beach site to be included within flood protection.

On January 8, 1985, an Orleans Levee Board office memorandum was prepared and compared the cost between the U.S.A.C.E./URS alignment and the alternative seawall alignment. The cost to provide the seawall alignment was based on a

reinforced concrete "T"-wall section and earthen levee section. The estimate for this construction was approximately \$1,500,000 higher than the estimated cost of the USCE/URS alignment. The T-wall cost estimate was prepared by the U.S. Army Corps of Engineers. However, pursuant to the recommendation of Design Engineering, Inc., the Orleans Levee Board decided to investigate the cost of using earthen levees and I-walls, instead of T-walls and constructing the project adjacent to the northern development perimeter.

On May 21, 1985, the Orleans Levee Board authorized a study to investigate the feasibility of realigning the flood protection along the existing seawall within the Pontchartrain Beach site.

1.4 Scope of Work

To accomplish the intent and purpose of the study, the Orleans Levee Board accepted the following scope of work:

- Prepare various levee/floodwall alignments;

- Develop alternative levee/floodwall sections;
- Based on the alternative plans, develop quantity estimates and opinions of probable project cost;
- Prepare and review a draft report with Orleans Levee District personnel;
- Present a preliminary report to the Orleans Levee District Commissioners;
- Use the final report for Design Memorandum supplemental purposes.

1.5 General Requirements

The Orleans Levee Board provided Design Engineering, Inc. with the following general requirements pertaining to the alignment study.

- Limit scope of services to floodwall realignment only;

- Base the proposed floodwall and typical levee sections on hydraulic design considerations only;
- Coordinate the levee location with developers of Pontchartrain Beach;
- Minimize the right-of-way required for levee construction;
- Review and coordinate the conceptual design with U.S. Army Corps of Engineers and previously developed requirements; and,
- Develop a project that is functional and acceptable to the Orleans Levee District and has minimal effect on the development of the site.

1.6 Methodology

Accomplishing the scope of work approved by the Orleans Levee Board required a study of four (4) basic floodwall/levee system alignments. Details were developed for the most feasible of the basic alignments. Primary consideration for

each levee alternative was the alignment of the levee along the "lease line" (See Appendix "A"). For more than half of the project, the "lease line" or "development line" is parallel to the seawall.

Variations in the alignment of the proposed flood protection alternatives that were considered included placing the levee entirely north (lake side) of the lease line with the land side levee toe near the development line; placing the levee centerline at the lease line; or placing the levee entirely south (land side) of the lease line with the lake side toe of the levee near the lease line. In addition, retaining walls, I-walls, and floodgates were considered in combination with the earthen levee section. Each of the alignments incorporated the U.S. Army Corps of Engineers levee overtopping requirements into the height of levee. The earthen levee height required by the U.S. Army Corps of Engineers is El. 22.5 NGVD for the selected levee system and El. 20.0 NGVD for the floodwalls. (See Design Criteria section.) The grades shown are "net" grades.

The selected alignment was then divided into twelve (12) reaches. Several protection alternatives within each reach were investigated and from these investigations a selected alignment was determined.

Finally, cost estimates for various combinations of flood protection were developed and the preferred alignment was selected and recommended to the OLB.

DESIGN CRITERIA

2.0 Design Criteria

The following design criteria, obtained from the U.S.A.C.E., were used in the development of this project.

1. Earthen Levee Section (Adjacent to existing seawall):

<u>Floodside Slope</u>	<u>Required Top of Levee Elev. (Net)</u>
1 Vert. on 3 Hor.	EL 26.5 NGVD
1 Vert. on 4 Hor.	EL 22.5 NGVD
1 Vert. on 5 Hor.	EL 20.0 NGVD

2. Combination "I" Wall/Earthen Levee Section:

- a. Required top of concrete "I" wall is EL. 20.0 NGVD (net).
- b. Required top of earthen levee section is EL. 13.0 NGVD (net).
- c. Sheetpile wall shall be centered in ten (10) foot levee crown.

- d. Side slopes on the floodside of the levee shall be 1 V. on 3 H. and shall extend to El. 9.0 NGVD. From El. 9.0, a 100-foot wave berm on a 1 V. on 3 H. slope is required to El. 8.0 NGVD. From El. 8.0 NGVD, a 1 V. on 3 H. slope is required to meet existing ground.
- e. The wave berm shall be constructed of an erosive-resistant material, such as clay.
- f. A toe retaining wall set to El. 9.0 NGVD can be used in restricted areas in lieu of the wave berm.

3. Floodwall Section:

A. East End

- 1. Intersect U.S.A.C.E. floodwall at wall line Sta. 200+62.41.
- 2. Transition from EL 20.0 NGVD to EL 17.5 NGVD at Lakeshore Drive near existing levee.

B. West End

1. Intersect U.S.A.C.E. floodwall at wall line Sta. 233+35.
2. Transition from EL 20.0 NGVD to EL 17.5 NGVD at Lakeshore Drive.

The letter from the U.S.A.C.E. establishing the design criteria and the memoranda of phone conversations with the U.S.A.C.E. are contained in Appendix "B".

EXISTING CONDITIONS

3.0 Existing Conditions

The existing elevations of the site vary from El. +2.0 NGVD near the Lake to El. +4.00 NGVD at Lakeshore Drive. The ground slopes upward from the Lake to elevation +7.00' NGVD at the top of the existing seawall and then slopes downward toward Lakeshore Drive.

The site is bounded on the north by a pile-supported seawall, sand beach and rock breakwater. Constructed during the 1930's, the site was developed as an amusement park and sand was placed along the north side of the seawall, creating a beach. The beach should be considered in the analysis of waves since the extended beach will act as a wave-suppressant mechanism.

Between the existing concrete seawall and Lakeshore Drive, buildings have been constructed to house the various amusement park facilities.

Some areas of the site have been improved, in particular the beach areas, and are open for public use during the summer months.

The abandoned Rajun Cajun building and the Sales/Administration office, both of which are north of the seawall, have been considered in the plan development. Also the concerns of the Lake Area Civic Council have been addressed and are supportive of the revised flood protection.

PROPOSED IMPROVEMENTS

4.0 Proposed Improvements

The proposed flood protection improvements include earthen levees, combination I-walls and levees, and floodgates. Pedestrian ramps and roadways are also proposed to be included in the project. Small retaining walls are proposed for areas that do not have sufficient land available to construct full levee sections with required wave berms.

Four (4) basic levee alignments were investigated. Each alignment was located on the site with respect to the existing seawall and/or the "development line". The "development Line" was previously established by legislative act and ensures that certain areas of the Pontchartrain Beach site will remain open and accessible to the general public.

The four alignments considered were:

Alternative "A"

This alternative connects to the U.S. Army Corps of Engineers I-wall along Lakeshore Drive at the west end of the project. Then the flood protection, while paralleling the development lines, changes from the

I-wall section to a full levee section. The full levee section is centered on the development line for the full length of protection. Near the east end of the project, a short section of I-wall is used to achieve the transition between the full levee section and the U.S. Army Corps of Engineers I-wall along Lakeshore Drive.

This alignment requires removal and replacement of the former "Rajun Cajun" building, all of the oak trees along the former amusement park "midway", and reduces the available public green area at the east and west ends of the project. The sales office is not affected by this alignment.

Alternative "B"

This alternative connects to the U.S. Army Corps of Engineers I-wall along Lakeshore Drive at the west end of the project. Then the flood protection, while paralleling the development line, changes from the I-wall section to a full levee section. The center of the full levee section is located thirty (30) feet north of and parallel to the development line for the full length of the flood protection. A short section of I-wall is used to effect transition between the full

levee section and the U.S. Army Corps of Engineers I-wall along Lakeshore Drive at the east end of the project.

This alignment requires the removal and replacement of the former "Rajun Cajun" building and the sales office building. The oak trees along the "midway" can be preserved in their present location. There is a substantial reduction in the available public green space at the east and west ends of the project.

Alternative "C"

This alternative connects to the U.S. Army Corps of Engineers I-wall along Lakeshore Drive at the west end of the project. Then the flood protection while paralleling the development line, changes from the I-wall section to a full levee section. The center of the full levee section is located approximately thirty (30) feet south of and parallel to the development line for the full length of the flood protection. A short section of I-wall is used to effect transition between the full levee section and the U.S. Army Corps of Engineers I-wall along Lakeshore Drive at the east end of the project.

This alignment saves both buildings and minimizes the loss of public green areas at the east and west end of the project. This alignment requires removal of all the oak trees along the "midway". There is a reduction in the development area if this alignment is selected.

Alternative "D"

This alternative was developed as a refinement to basic Alignment "B" and incorporates a combination I-wall/levee section into some areas of the project in lieu of a full levee section.

This alignment connects to the U.S. Army Corps of Engineers I-wall along Lakeshore Drive at the west end of the project. Then a short section of I-wall is used to effect transition into a combination I-wall/levee section. The combination I-wall/levee section is used between the U.S. Army Corps of Engineers I-wall and approximately 100 feet past the former "Rajun Cajun" building, at which location the flood protection changes to a full levee section. The full levee section is used between the "Rajun Cajun" and sales office buildings. At the sales office building an I-wall/levee section is used for the flood protection.

From just east of the sales office building to a point 100 feet west of the point where the development line changes from the seawall alignment, a full earthen levee section is used. From the full earthen levee section an I-wall/levee section is used to connect to the U.S. Army Corps of Engineers I-wall along Lakeshore Drive at the east end of the project. The center of the levee is located approximately 30 feet north of the development line.

This alignment saves both buildings and all of the oak trees along the midway. This alignment minimizes the loss of public green area and development area.

The plan of these alternative alignments can be found in Appendix "C".

Each alignment was developed using the design criteria furnished by the U.S. Army Corps of Engineers (USCE). However, it should be pointed out that the USCE criteria that was used addressed hydrologic considerations only. Before final acceptance of this alignment by the USCE, a complete soils analysis and levee stability analysis must be performed. Structural design requirements of the proposed floodwalls and floodgates must be addressed. Neither an analysis of

the stability of the levees nor a structural analysis were included in the scope of this report.

Of the four basic alternatives proposed in the initial stages of the study, Alternative "D" was selected for further study. This alignment was selected over the other three alternatives for the following reasons.

1. To minimize conflicts with the proposed development of the former Pontchartrain Beach site;
2. to preserve green areas for public use;
3. to provide public access to recreational areas;
4. to reduce conflict with existing site utilities;
and,
5. to avoid demolition of the "Rajun Cajun" building and the sales office building.

Once the basic levee location was established a more detailed study was conducted to develop final alignment characteristics and estimated costs.

Four (4) different levee section schemes along the selected alignment were investigated and each analysis was separated into twelve (12) reaches. The reaches were developed based on existing physical constraints, topographical features, public use and development concerns. Some of the reach lengths varied slightly for each of the alternatives.

The first alternative requires installation of an I-wall along Lakeshore Drive and modification to the University of New Orleans entrance roadway. A sixty (60) foot section of I-wall was proposed for transition between the Lakeshore Drive I-wall and I-wall/levee section. The combination I-wall/levee section was used to a point just east of the former "Rajun Cajun" building, where the flood protection then changes to a full levee section. The full levee section is maintained between the former "Rajun Cajun" building and the sales office building. Just west of the sales office building the flood protection changes to an I-wall/levee section and continues to just east of the sales office. Beyond the sales office building a full levee section is used and the levee parallels the seawall alignment until the development line departs from the seawall. From the seawall to the U.S. Army Corps of Engineers I-wall along Lakeshore Drive an

I-wall/levee section is used for the flood protection. A sixty (60) foot length of T-wall is used to tie into the U.S. Army Corps of Engineers I-wall. This alignment saves both the former "Rajun Cajun" building and the sales office building. Loss of green area reserved for public use is also minimized.

Alternative 2 is the same as Alternative B with the following exceptions:

1. The sixty (60) foot length of T-wall is eliminated and a combination I-wall/levee section is used to effect transition from the U.S. Army Corps of Engineers flood protection at the east and west ends of the project; and,
2. Instead of an I-wall along Lakeshore Drive at the east end of the project an earthen levee section has been used along the east side of Lakeshore Drive to tie into the U.S. Army Corps of Engineers flood protection.

This alternative saves the "Rajun Cajun" building and the sales office building and minimizes the loss of public green area.

Alternative No. 3 requires installation of an I-wall along Lakeshore Drive. From Lakeshore Drive an I-wall/levee section is used to a point just east of the former "Rajun Cajun" building. From this point a full earthen section is used along the seawall alignment. From the seawall to Lakeshore Drive an I-wall/levee section is used.

This alternative saves the former "Rajun Cajun" building and minimizes the loss of public green space. However, this alternative requires removal of the sales office.

Alternative No. 4 requires installation of an earthen levee along Lakeshore Drive and relocation of the University of New Orleans' entrance roadway. From Lakeshore Drive an I-wall/levee section is used until just east of the former "Rajun Cajun" building. Between the "Rajun Cajun" building and the sales office building a full levee section is used. At the sales office building an I-wall/levee section is used. From just east of the sales office building a full levee section is used and follows the seawall alignment until the development line departs from the seawall alignment. From the seawall to Lakeshore Drive an

I-wall/levee section is used. Along Lakeshore Drive an earthen levee section is used.

This alternative saves the former "Rajun Cajun" building and the sales office building, and also minimizes the loss of public green space.

Since the Orleans Levee Board's lease agreements with the Pontchartrain Beach site developer require the Orleans Levee Board to provide a building for a sailing club and the sales office, Alternatives 1, 2 and 4 are the most feasible on this basis. Alternative 3 requires removal of the sales office building and is therefore not a viable alternative.

Of the three alternatives that "save" the buildings, Alternative No. 2 is the preferred scheme. It provides the necessary protection while causing the least disruption and maintains a park-like atmosphere at each end of the project. If Alternate No. 4 were selected the University of New Orleans entrance from Lakeshore Drive would have to be completely revised. At this time, the University of New Orleans is unable to commit to participation in the relocation of the entrance roadway. Based upon the foregoing, it was evident that Alternative No. 2 met the goals of the

Orleans Levee Board, the community groups and the developer. Therefore, we recommend Alternative No. 2. A plan of the recommended alternative is contained in Appendix "D".

PROJECT COST

5.0 Project Cost

A complete detailed cost estimate of each of the alternative schemes is contained in Appendix "D". The estimated project cost of each alternative scheme is as follows:

Alternative No. 1	-	\$5,983,076
Alternative No. 2	-	4,962,163
Alternative No. 3	-	4,699,423
Alternative No. 4	-	4,976,673

The cost of replacing the sales office building is not included in the cost of Alternative No. 3. When the relocation costs are added to this alternative, the expense of this alternative is greatly increased. Therefore, from a cost perspective, Alternative No. 2 is the recommended alignment.

CONCLUSIONS

6.0 Conclusions and Recommendations

On August 6, 1985 this report was presented to the Engineering Committee of the Orleans Levee Board. The presentation included the description of the four (4) basic alignments and a detailed presentation of the recommended alignment. The Orleans Levee Board accepted the recommendations made in this report and recommended that the proposed alignment be submitted to the U.S. Army Corps of Engineers for review and approval. It was explained to the OLB that the plans and levee sections as shown were furnished by the U.S. Army Corps of Engineers and were developed based on hydrologic and hydraulic considerations only.

The recommended alternative used the various flood protection combinations such as the I-wall/levee section, the full earthen levee sections, the retaining walls and the floodgates to achieve the following:

1. High-level hurricane and flood protection at the Pontchartrain Beach site as approved by the U.S. Army Corps of Engineers; and,

2. Incorporation of the proposed development property in existing hurricane and flood protection plans; and,
3. Minimization of the effect on the existing land area and maximization of the green space available for public use; and,
4. Preservation of as many oak and palm trees as possible; and,
5. Incorporation of aesthetic and public considerations into the budget available for this project.

The proposed alternative has been reviewed with the site developer and the alternative is acceptable to the developer. We have assured the developer that his concern regarding the proposed location for vehicular and pedestrian ramps will be coordinated with the developer as much as possible during the design and construction phase of the project. The revised locations, if any, will have to be reviewed and approved by the Orleans Levee Board.

The USCE is satisfied that the proposed protection will meet the hydrologic design requirements. However, as previously stated, the structural analysis of the proposed floodwall and levee stability analysis are still required. Therefore the USCE will not approve this location or design as a creditable project until these analyses have been performed.

Since the proposed alignment is acceptable at this stage of the project to the OLB, the site developer, and the USCE, we recommend that the OLB proceed with the design of the flood protection as proposed by this relocation study. The recommended plan is contained in Appendix "D".

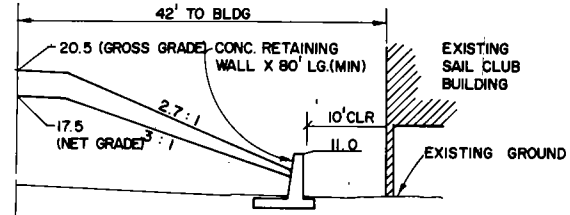
Furthermore, Design Engineering, Inc. recommends that the OLB proceed with preparing the necessary design and plan preparation to supplement the USCE Design Memorandum 13. This is necessary to include the proposed floodwall realignment within the U.S. Army Corps of Engineers high-level protection plan.

Appendix A

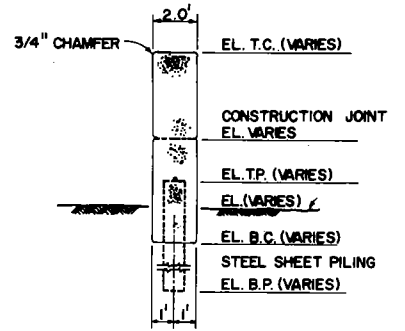
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ALTERNATIVE LEVEE ALIGNMENTS

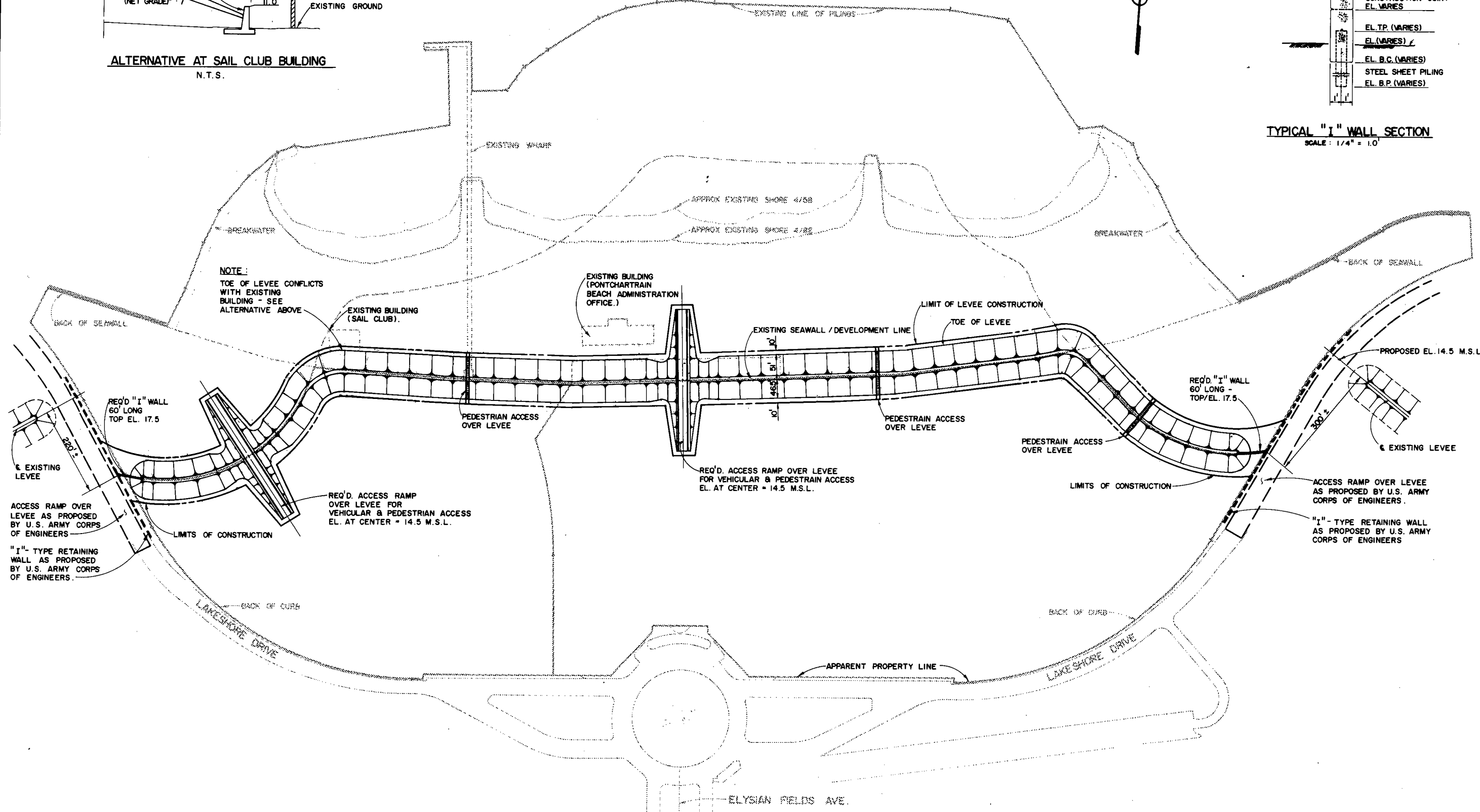
LAKE PONTCHARTRAIN



ALTERNATIVE AT SAIL CLUB BUILDING
N.T.S.



TYPICAL "I" WALL SECTION
SCALE: 1/4" = 1.0'



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Consulting Engineers
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Suite 205
Metairie, LA 70002
(504) 836-2156

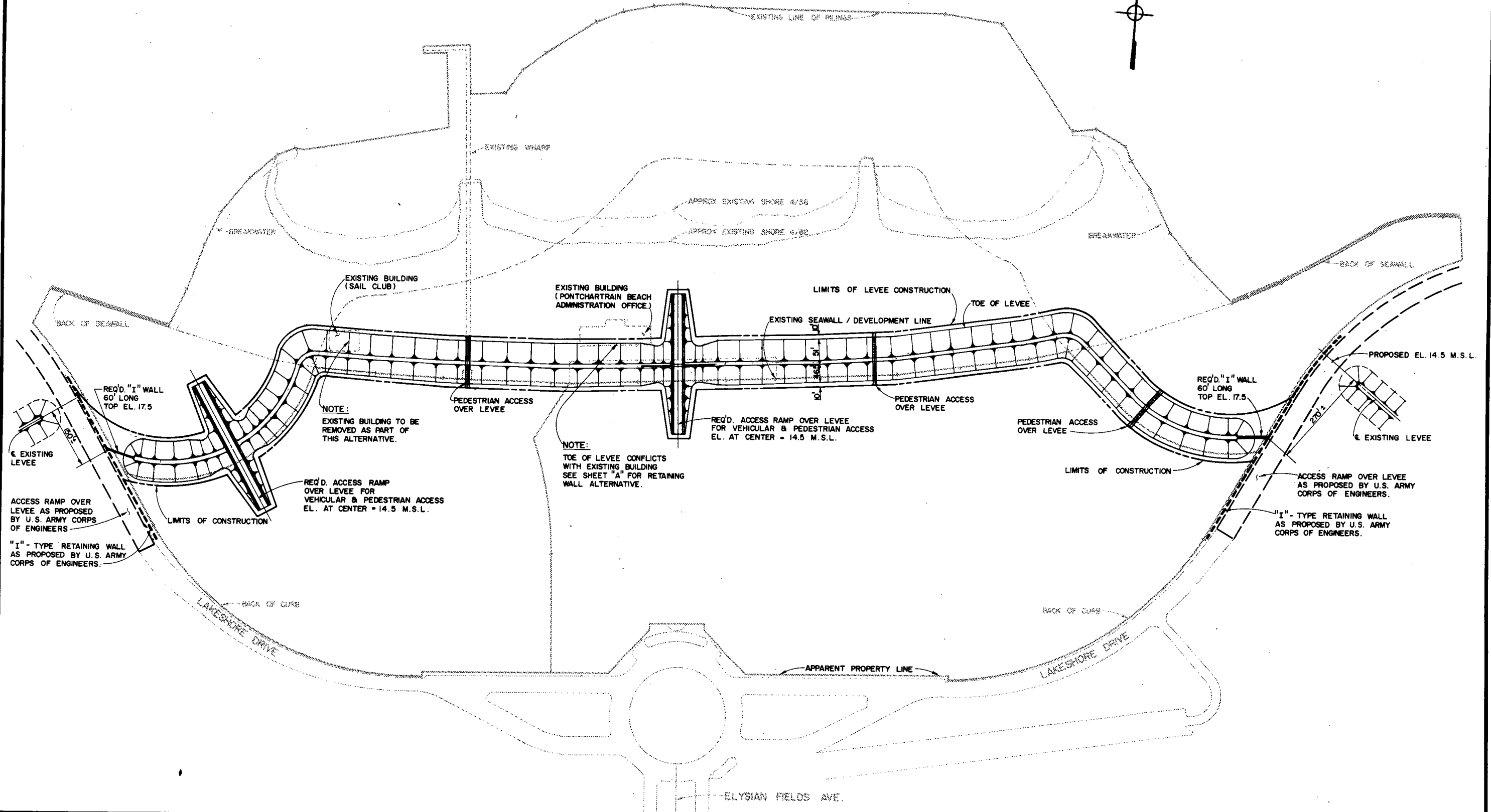
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**PONTCHARTRAIN BEACH
FLOODWALL RELOCATION STUDY**
ORLEANS PARISH, LOUISIANA

LEVEE CENTERED ON SEAWALL

JOB No. 1008	SCALE 1" = 100'
SHEET NUMBER A OF	

LAKE PONTCHARTRAIN



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 Consulting Engineers
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 Suite 206
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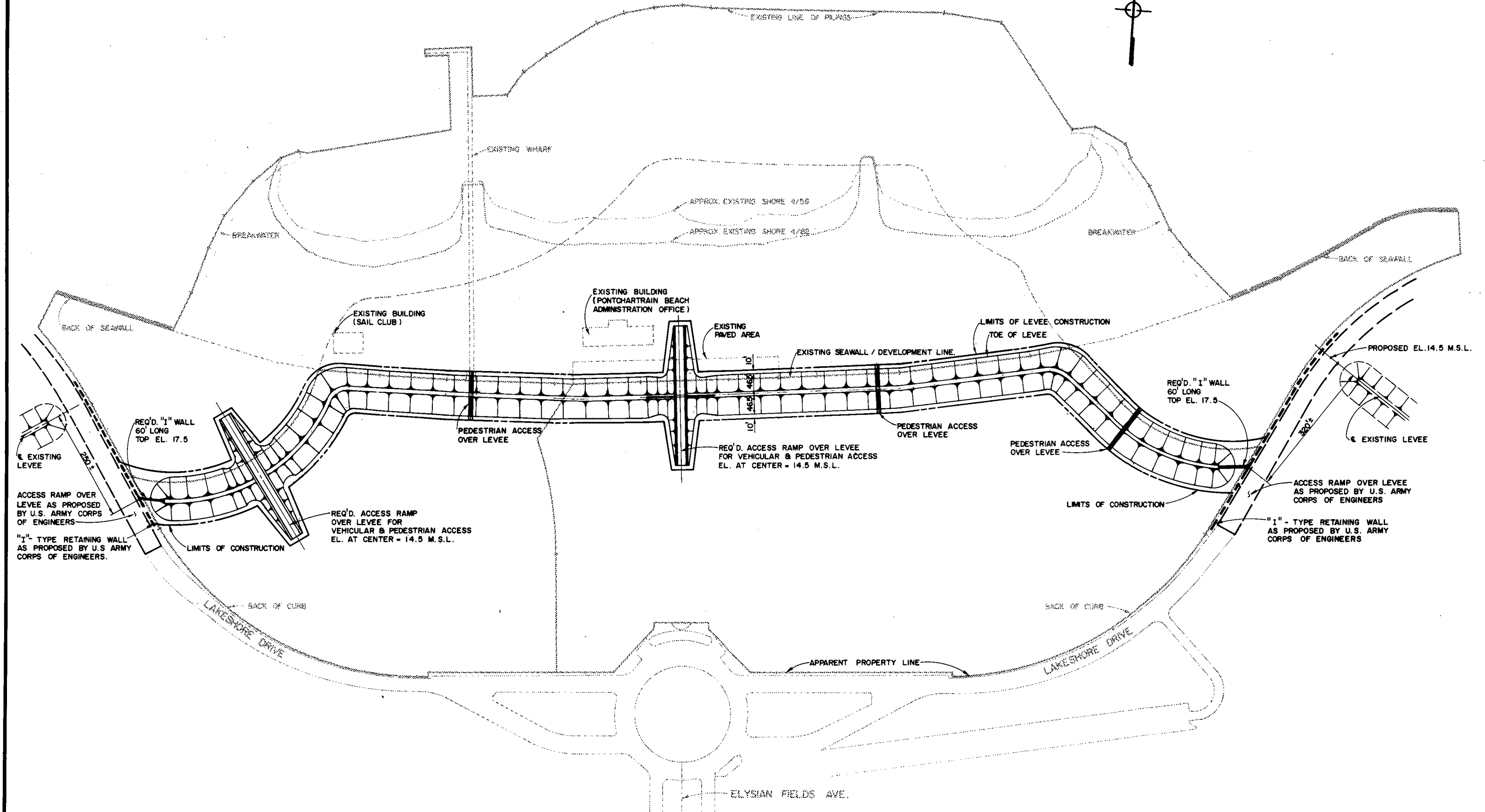
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**PONTCHARTRAIN BEACH
 FLOODWALL RELOCATION STUDY**
 ORLEANS PARISH, LOUISIANA

LEVEE NORTH OF SEAWALL

JOB No. 1008
 SCALE 1" = 100'
 SHEET NUMBER 8 OF

LAKE PONTCHARTRAIN



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 (504) 836-2155

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<p>PONTCHARTRAIN BEACH FLOODWALL RELOCATION STUDY ORLEANS PARISH, LOUISIANA</p>	<p>JOB No. 1008</p> <p>SCALE 1" = 100'</p>
<p>LEVEE SOUTH OF SEAWALL</p>	<p>SHEET NUMBER C OF</p>

The Board of Levee Commissioners

RECEIVED
JUL 8 1985

OF THE Orleans Levee District

SUITE 202 — ADMINISTRATION BUILDING
NEW ORLEANS LAKEFRONT AIRPORT

New Orleans, La.

70126

D. E. I.

ah

PROTECTING YOU
AND YOUR FAMILY



July 3, 1985

Mr. Walter Baudier
Design Engineering Inc.
3330 West Esplanade
Suite 205
Metairie, Louisiana 70002

Dear Mr. Baudier:

In accordance with our telephone conversation, enclosed is a copy of a letter from the Corps of Engineers and prints of a layout, and typical sections concerning recommended elevations and sections for use at Pontchartrain Beach.

Yours very truly,

Ed Bailey

Ed Bailey
Assistant Chief Engineer

EB:dab

xc: Mr. H. B. Lansden
Mr. Earl J. Magnier, Jr.

Enclosures

FILE 1008
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WB
JH ✓
DS



DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT CORPS OF ENG. :ERS
P O BOX 60267
NEW ORLEANS LOUISIANA 70160-0267

REPLY TO
ATTENTION OF

June 24, 1985

Engineering Division
Projects Engineering Section

JUN 28 1985

Mr. Earl J. Magner, Jr.
Chief Engineer
The Board of Levee Commissioners
Orleans Levee District
Suite 202 - Administration Building
New Orleans Lakefront Airport
New Orleans, Louisiana 70126

Dear Mr. Magner:

Reference is made to your May 21, 1985 letter concerning the Lake Pontchartrain Louisiana and Vicinity Hurricane and Flood Protection Project Pontchartrain Beach Floodwall.

Enclosed are "typical sections" which can be used for cost estimating purposes for the subject floodwall and levee alternative at Pontchartrain Beach. Please note that the sections are based on hydraulic design considerations only (stability analyses were not made). The sections should be applied to the reaches as shown on the enclosed plan. The enclosed plan is the same plan as furnished in your May 21, 1985 letter but shows in red a recommended modification for the floodwall alignment on the east side of the area where the wall joins B/L Station 102+23.16 instead of B/L Station 106+58.23 as shown in blue on your original plan. Floodwall elevations are also noted on the plan. For the easternmost floodwall, the net top of wall elevation should slope from elevation 20.0 feet N.G.V.D. at its lake end to elevation 17.5 at W/L Station 200+62.41. The westernmost floodwall similarly would slope from elevation 20.0 feet N.G.V.D. at its lake end to elevation 17.0 feet where it joins approximate W/L Station 233+35.

Three all-earthen levee sections are furnished for your consideration. Levees having floodside slopes of 1 on 3, 1 on 4, and 1 on 5 have respective crest elevations of 26.5, 22.5, and 20.0.

The combined levee and floodwall plan shown on Enclosure 1 has a top wall height of 20.0 ft. N.G.V.D. with the crown of the levee at elevation 13.0 ft. N.G.V.D. Please note that the large berm shown in red for this plan is required and should be constructed of an erosive, resisting material such as clay.

I trust that the foregoing is satisfactory for your needs. Should you require additional information or should the enclosed materials need clarification, please contact Mr. Vann Stutts, phone number 838-2614.

Sincerely,

A handwritten signature in black ink, appearing to read "Frederic M. Chatry", with a long horizontal line extending to the right.

Frederic M. Chatry
Chief, Engineering Division

Enclosure

58
50

70
105

2665 1 ON 3 LEVEL

22.5 1 ON 4 LEVEL

200 1 ON 5 LEVEL

FUN REQUIRED

5.81
2.4

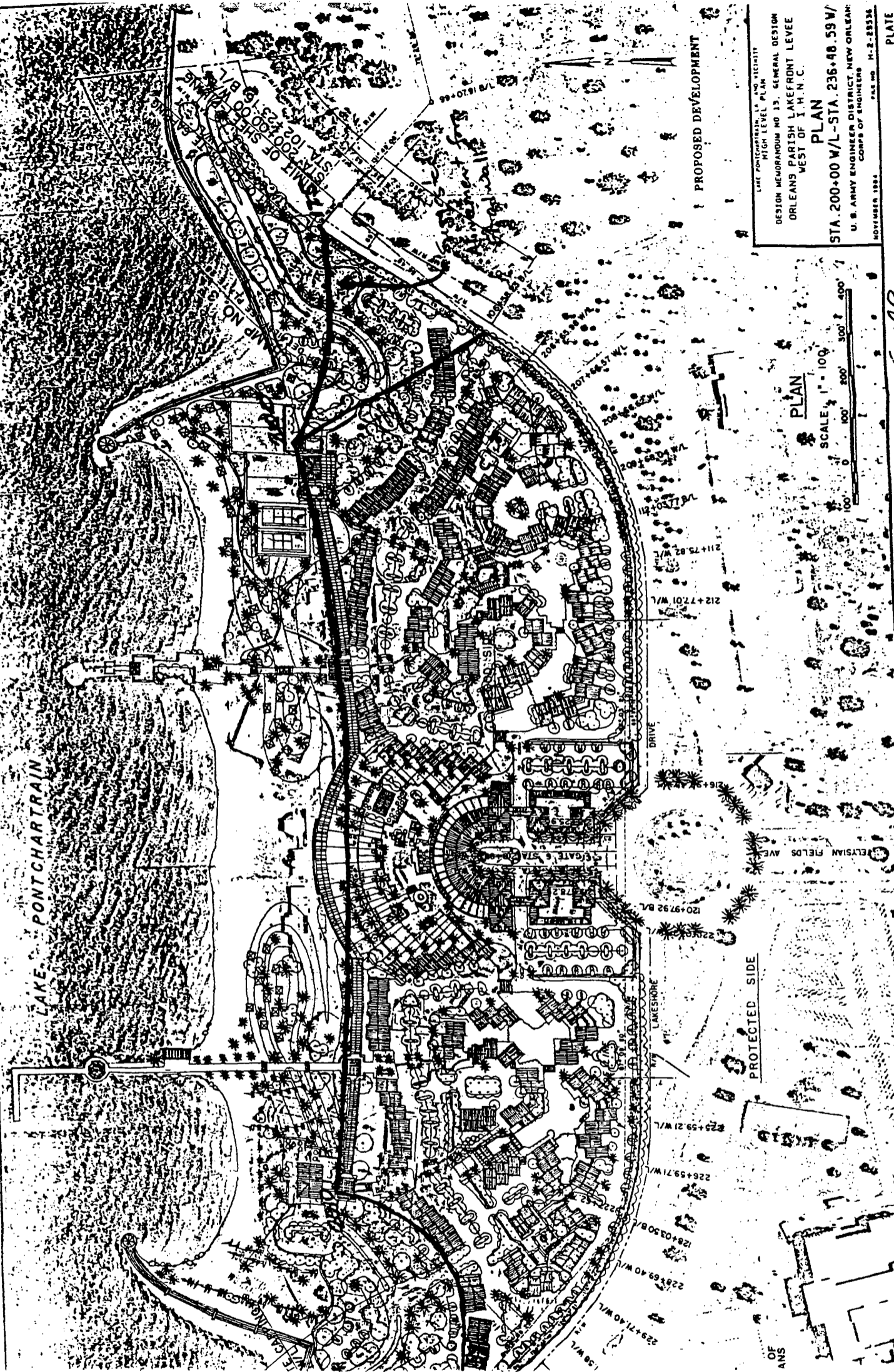
5.34
3.7

4.8
6.9

5.0
2.7

6.0
3.9

LAKE PONTCHARTRAIN



PROPOSED DEVELOPMENT

PROTECTED SIDE

PLAN

SCALE 1" = 100'

LAKE PONTCHARTRAIN, NEW ORLEANS, LOUISIANA
HIGH LEVEL PLAN
DESIGN MEMORANDUM NO. 13, GENERAL DESIGN
ORLEANS PARISH LAKEFRONT LEVEE
WEST OF I. H. N. C.
PLAN
STA. 200+00 W/L - STA. 236+48.59 W/L
U. S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
NOVEMBER 1964
SCALE NO. H-2-25534

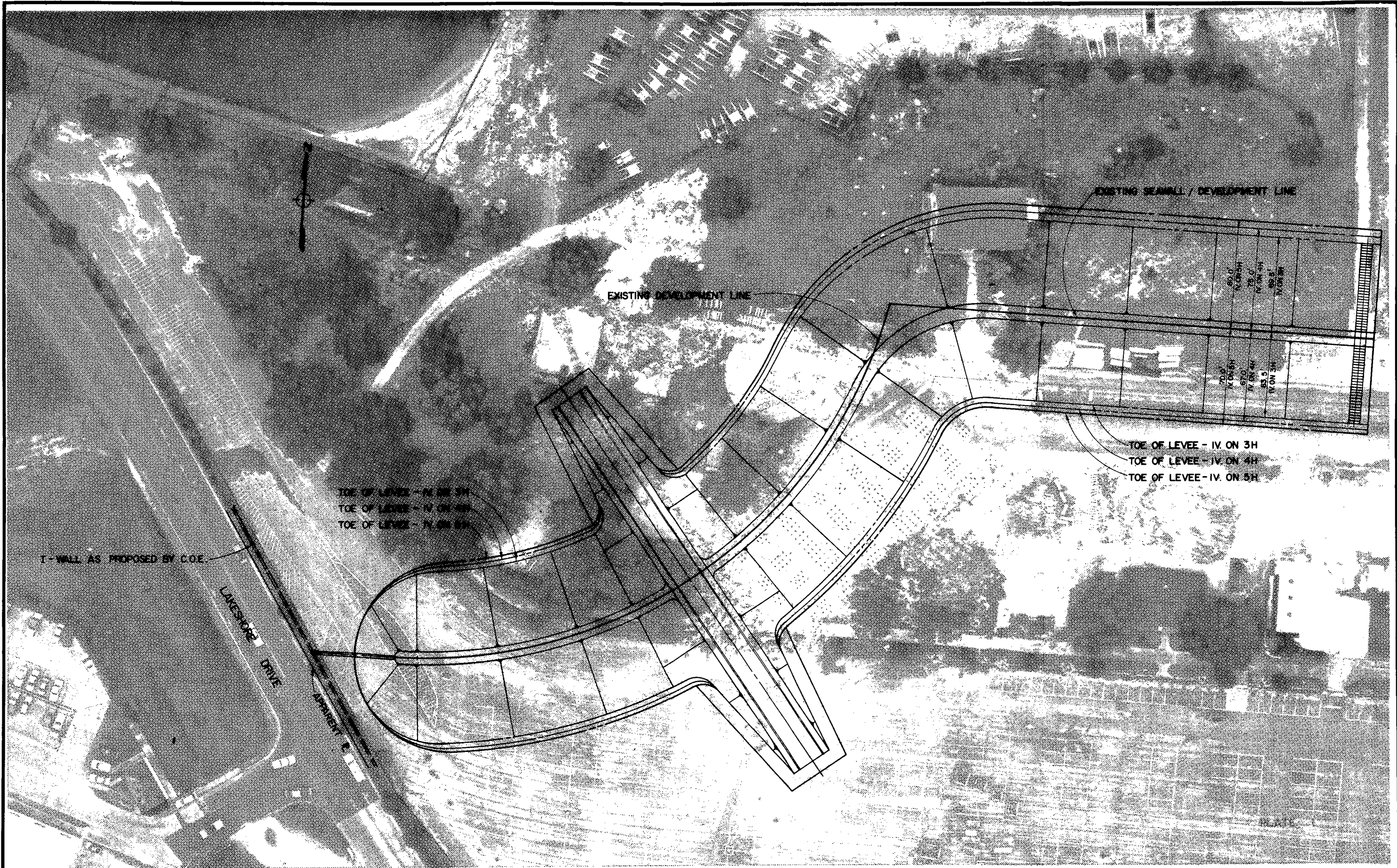
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PLATE

Appendix C

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ALTERNATIVE LEVEE ALIGNMENT PLAN SHEETS



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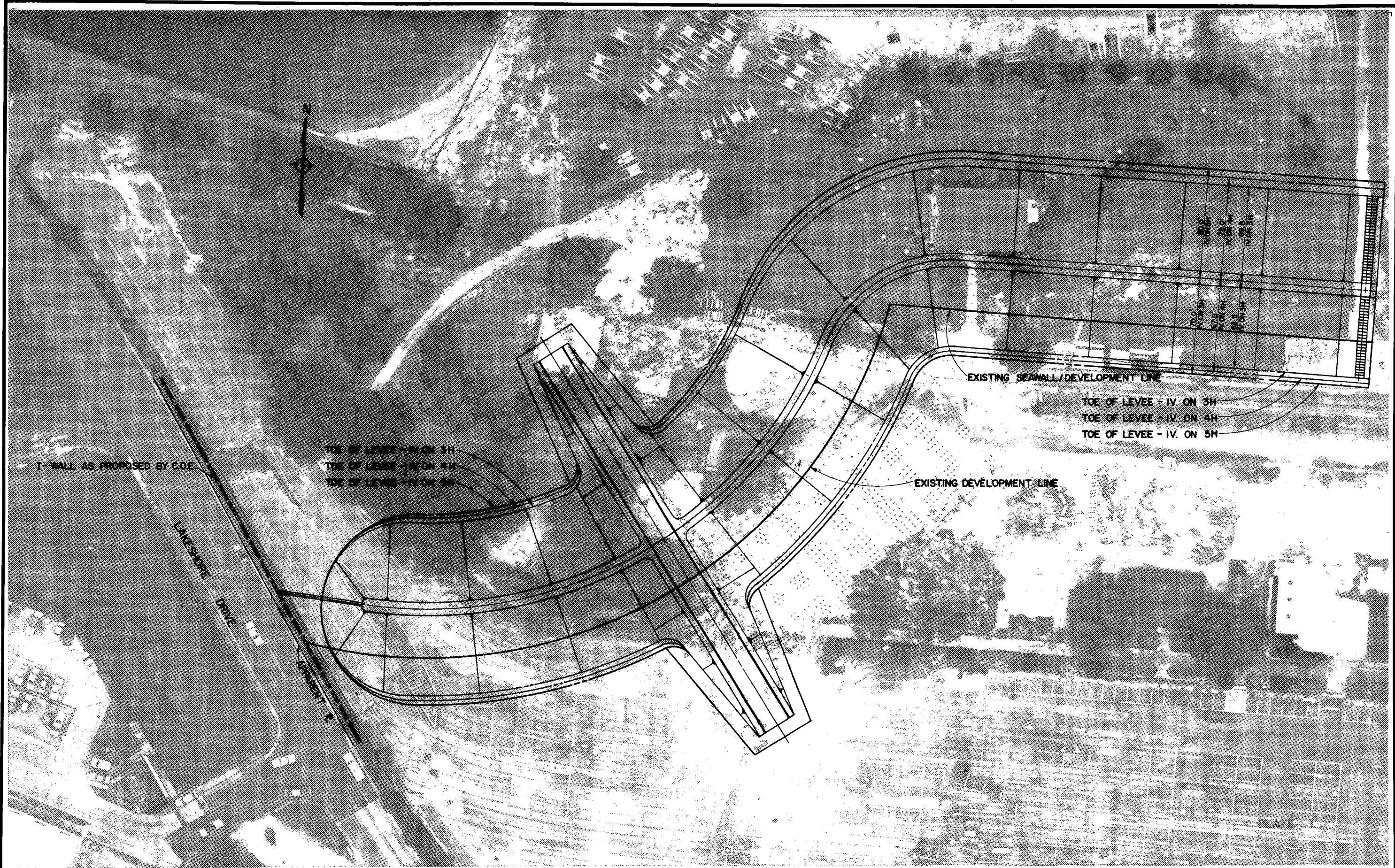
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 Consulting Engineers
 3330 West Esplanade Ave. S.
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 Metairie, LA 70002
 (504) 836-2155

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**PONTCHARTRAIN BEACH
 FLOODWALL RELOCATION STUDY**
 ORLEANS PARISH, LOUISIANA
 LEVEE CENTERED ON LEASE LINE

JOB No. 1008
 SCALE 1" = 30'
 SHEET NUMBER 1A OF



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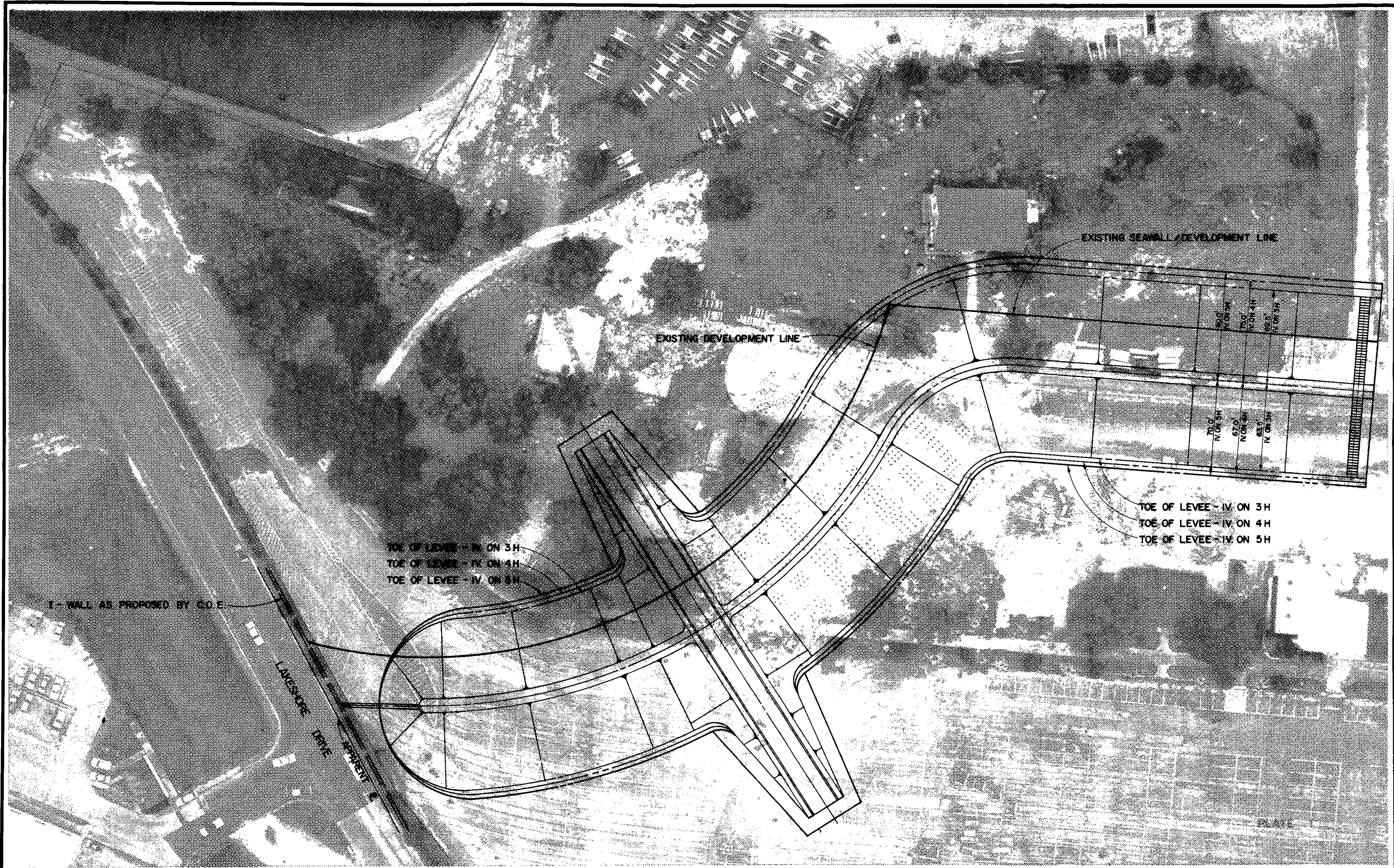
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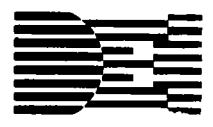
**PONTCHARTRAIN BEACH
 FLOODWALL RELOCATION STUDY**
 ORLEANS PARISH, LOUISIANA
 LEVEE NORTH OF LEASE LINE

JOB No. 1008
 SCALE 1" = 30'
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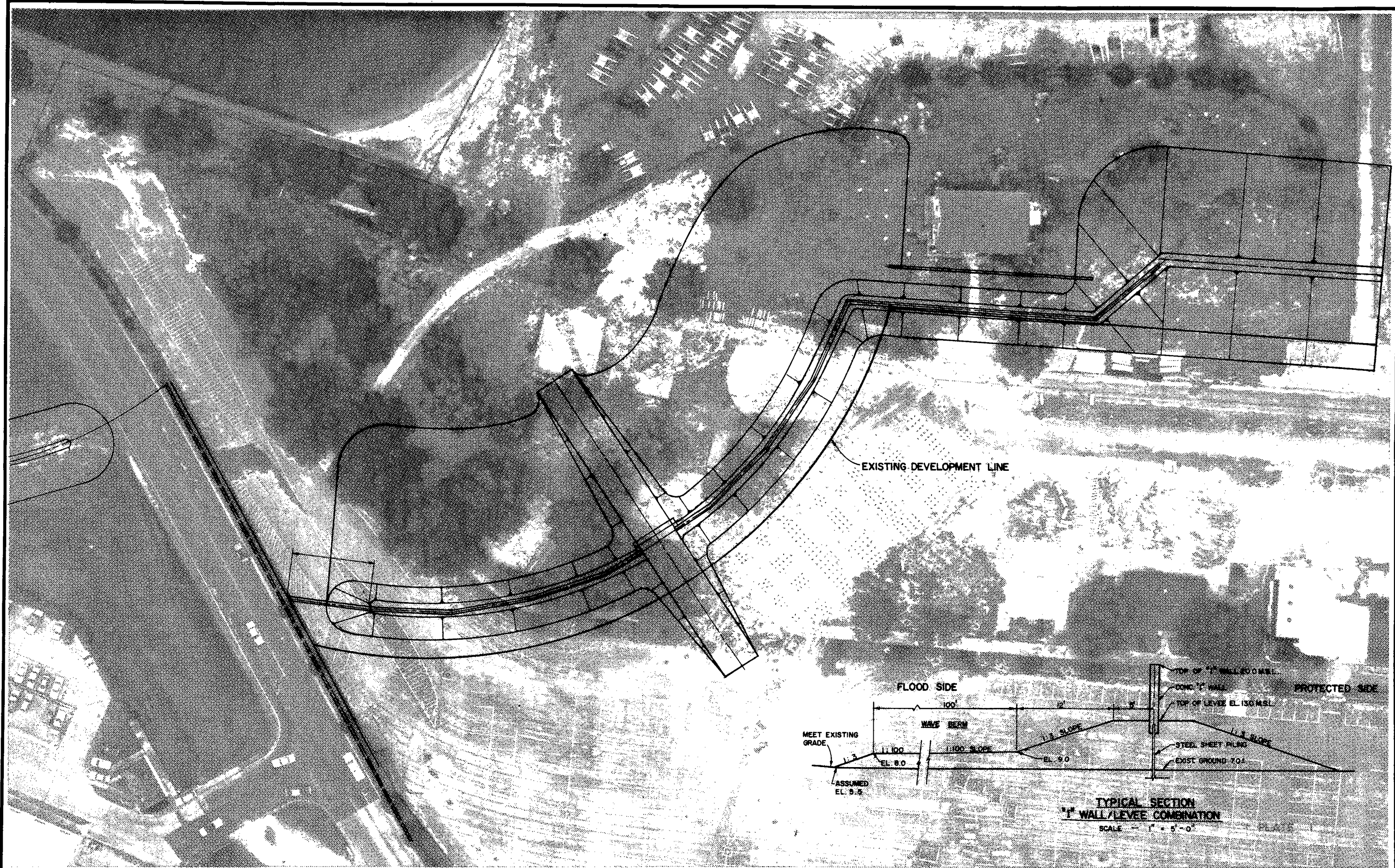
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**PONTCHARTRAIN BEACH
 FLOODWALL RELOCATION STUDY**
 ORLEANS PARISH, LOUISIANA
 LEVEE SOUTH OF LEASE LINE

JOB No. 1008
 SCALE 1" = 30'
 SHEET NUMBER 1C OF



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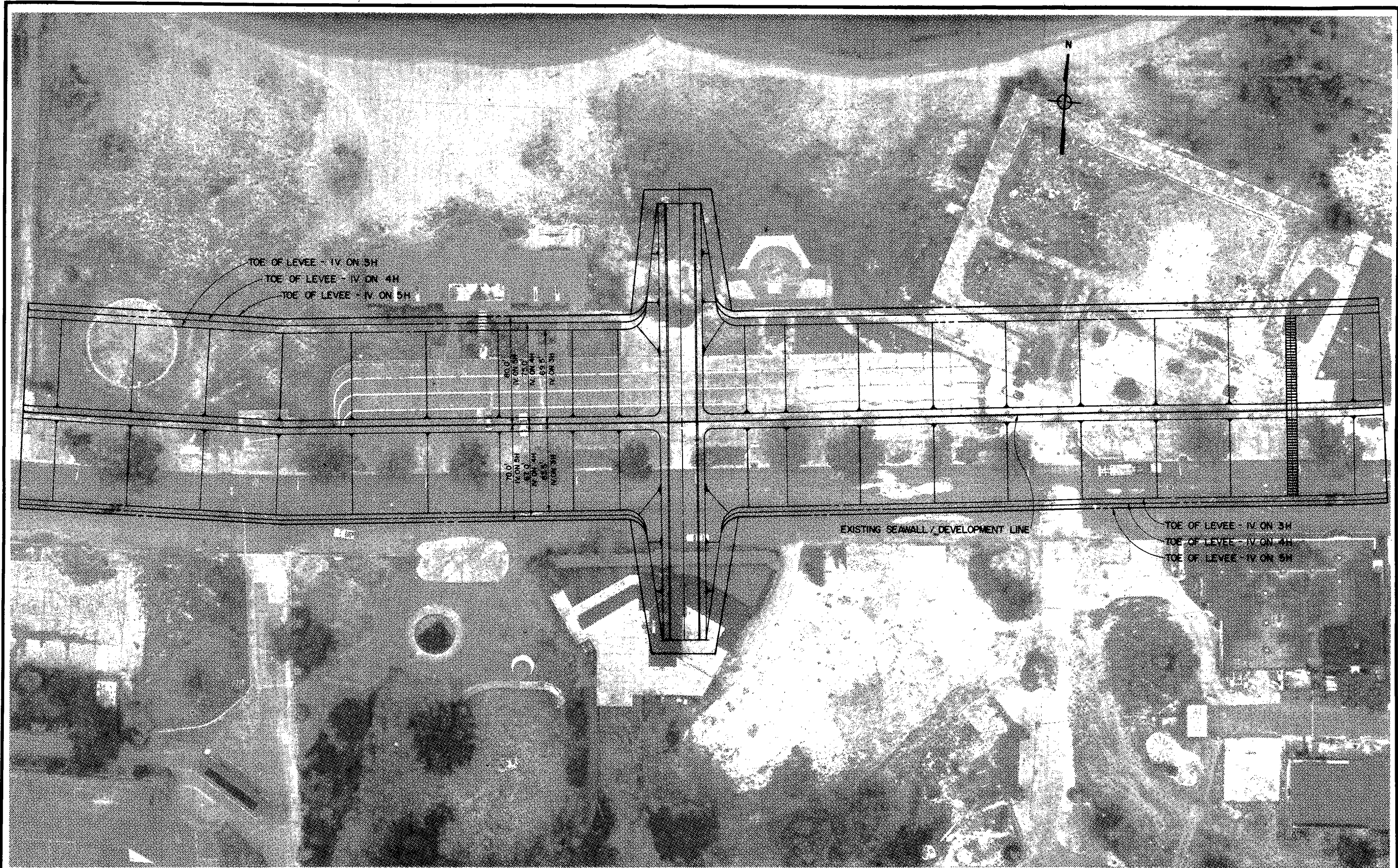
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**PONTCHARTRAIN BEACH
 FLOODWALL RELOCATION STUDY
 ORLEANS PARISH, LOUISIANA**

1st WALL/LEVEE COMBINATION-ALTERNATIVE

JOB No. **1008**
 SCALE AS NOTED
 SHEET NUMBER **10** OF



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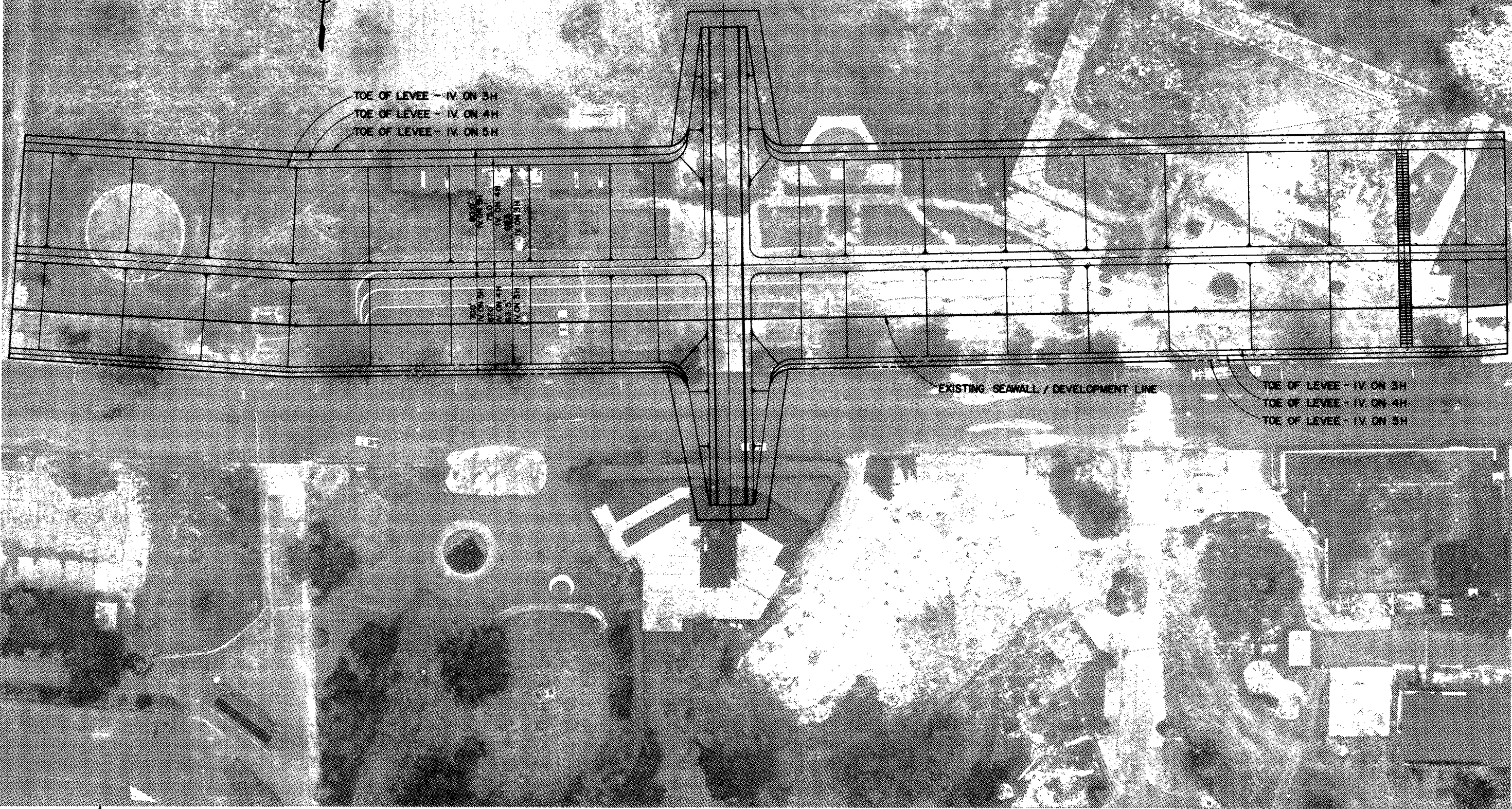
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**PONTCHARTRAIN BEACH
 FLOODWALL RELOCATION STUDY**
 ORLEANS PARISH, LOUISIANA
 LEVEE CENTERED ON SEAWALL

JOB No. 1008
 SCALE 1" = 30'
 SHEET NUMBER 2 A OF



TOE OF LEVEE - IV ON 3H
 TOE OF LEVEE - IV ON 4H
 TOE OF LEVEE - IV ON 5H



EXISTING SEAWALL / DEVELOPMENT LINE

TOE OF LEVEE - IV ON 3H
 TOE OF LEVEE - IV ON 4H
 TOE OF LEVEE - IV ON 5H

No.	DATE	REMARKS	No.	DATE	REMARKS



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 Consulting Engineers
 3330 West Esplanade Ave. S.
 Suite 205
 Metairie, LA 70002
 (504) 836-2156

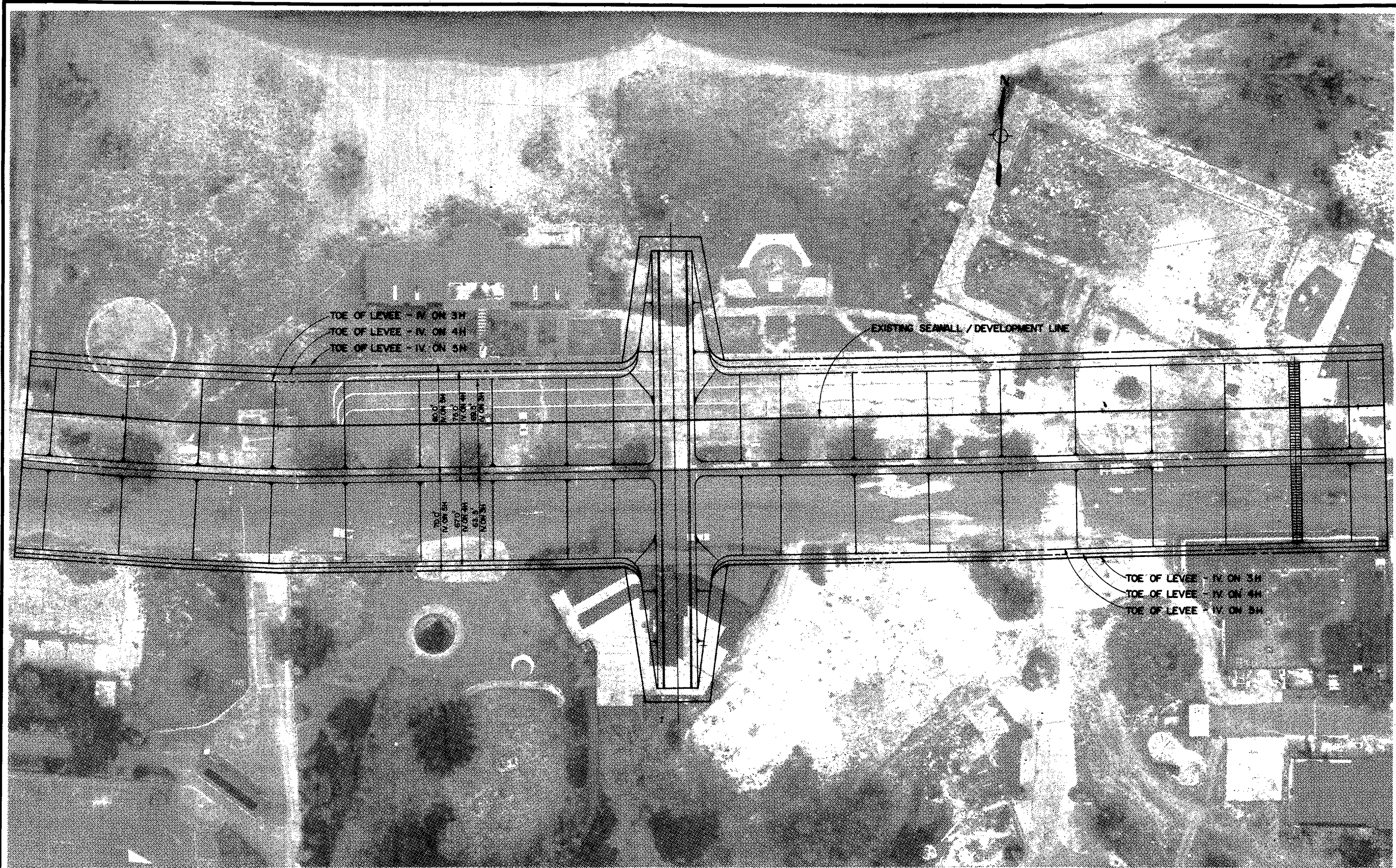
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**PONTCHARTRAIN BEACH
 FLOODWALL RELOCATION STUDY**
 ORLEANS PARISH, LOUISIANA

LEVEE NORTH OF SEAWALL

JOB No. 1008
 SCALE 1" = 30'
 SHEET NUMBER 2 B OF



TOE OF LEVEE - IV ON 3H
 TOE OF LEVEE - IV ON 4H
 TOE OF LEVEE - IV ON 5H

EXISTING SEAWALL / DEVELOPMENT LINE

TOE OF LEVEE - IV ON 3H
 TOE OF LEVEE - IV ON 4H
 TOE OF LEVEE - IV ON 5H

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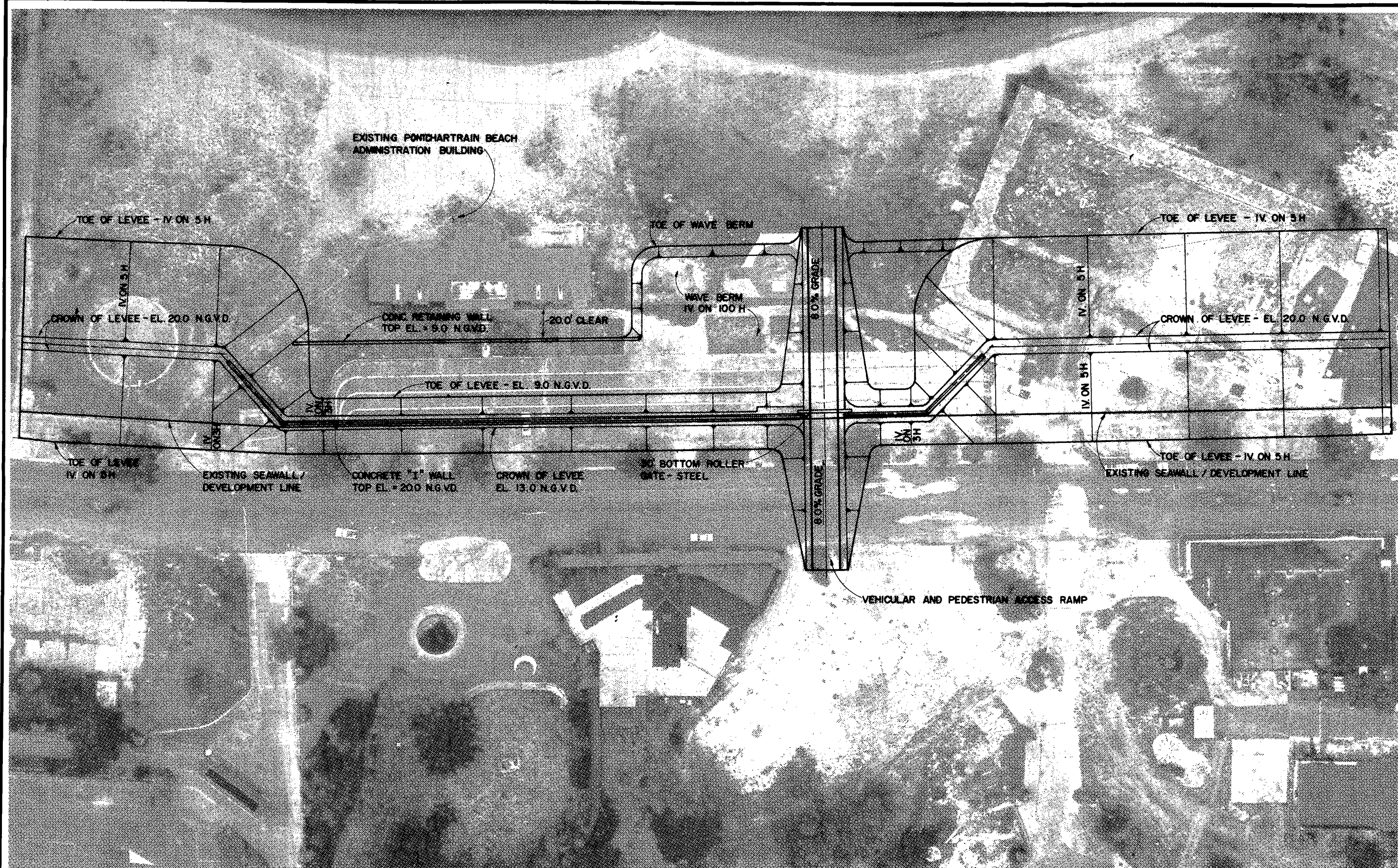
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**PONTCHARTRAIN BEACH
 FLOODWALL RELOCATION STUDY**
 ORLEANS PARISH, LOUISIANA
 LEVEE SOUTH OF SEAWALL

JOB No. 1008
 SCALE 1" = 30'
 SHEET NUMBER 2 C OF



EXISTING PONCHARTRAIN BEACH
ADMINISTRATION BUILDING

TOE OF LEVEL - IV ON 5 H

TOE OF WAVE BERM

TOE OF LEVEL - IV ON 5 H

CROWN OF LEVEE - EL. 20.0 N.G.V.D.

CONC. RETAINING WALL
TOP EL. + 9.0 N.G.V.D. 20.0 CLEAR

WAVE BERM
IV ON 100 H

CROWN OF LEVEE - EL. 20.0 N.G.V.D.

TOE OF LEVEL - EL. 9.0 N.G.V.D.

TOE OF LEVEL
IV ON 5 H

EXISTING SEAWALL /
DEVELOPMENT LINE

CONCRETE "I" WALL
TOP EL. + 20.0 N.G.V.D.

CROWN OF LEVEE
EL. 13.0 N.G.V.D.

30 BOTTOM ROLLER
GATE - STEEL

TOE OF LEVEL - IV ON 5 H
EXISTING SEAWALL / DEVELOPMENT LINE

VEHICULAR AND PEDESTRIAN ACCESS RAMP

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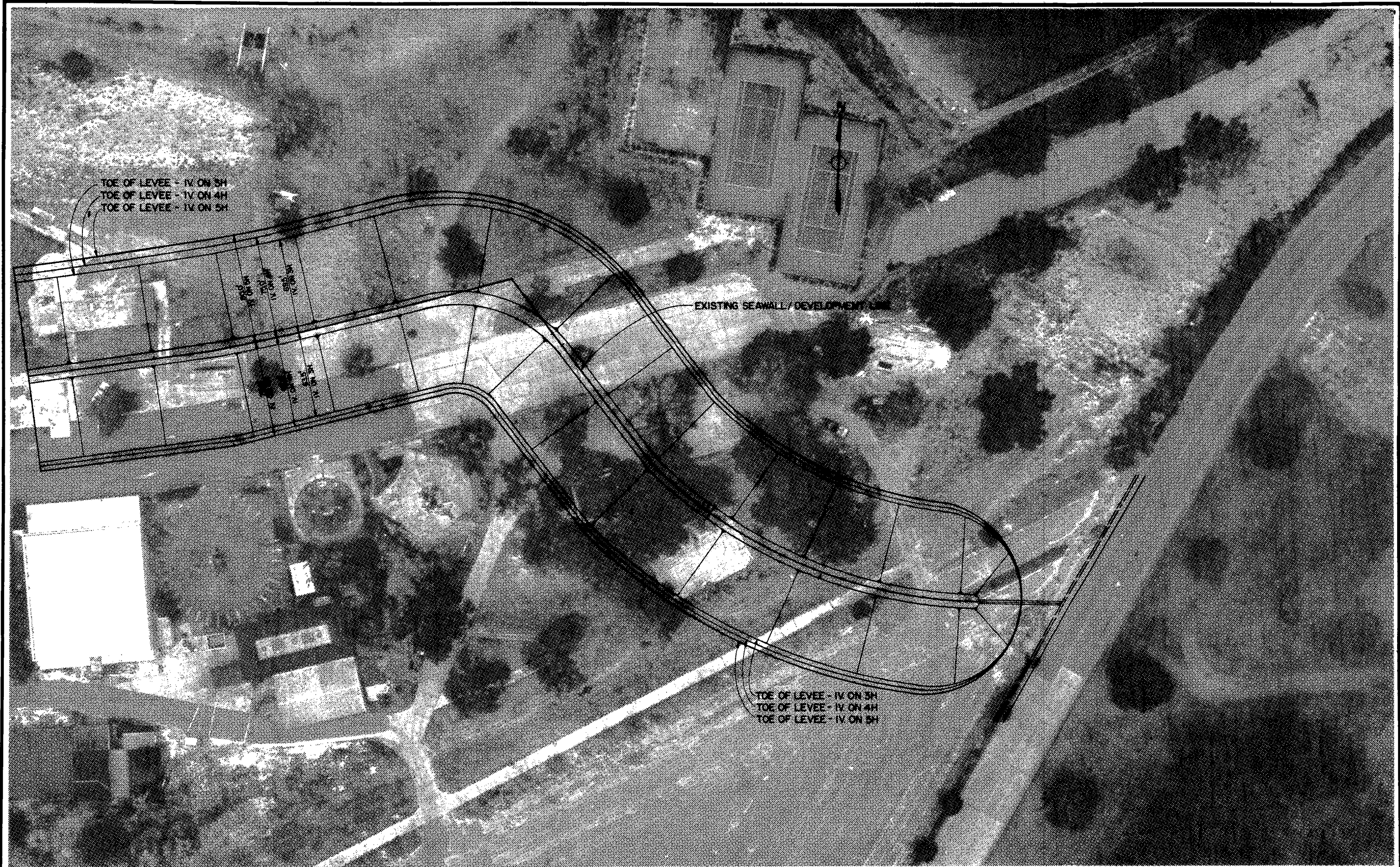
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"I" WALL/LEVEE COMBINATION-ALTERNATIVE

JOB No.
SCALE
SHEET NUMBER
20 OF



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		REVISIONS			REVISIONS

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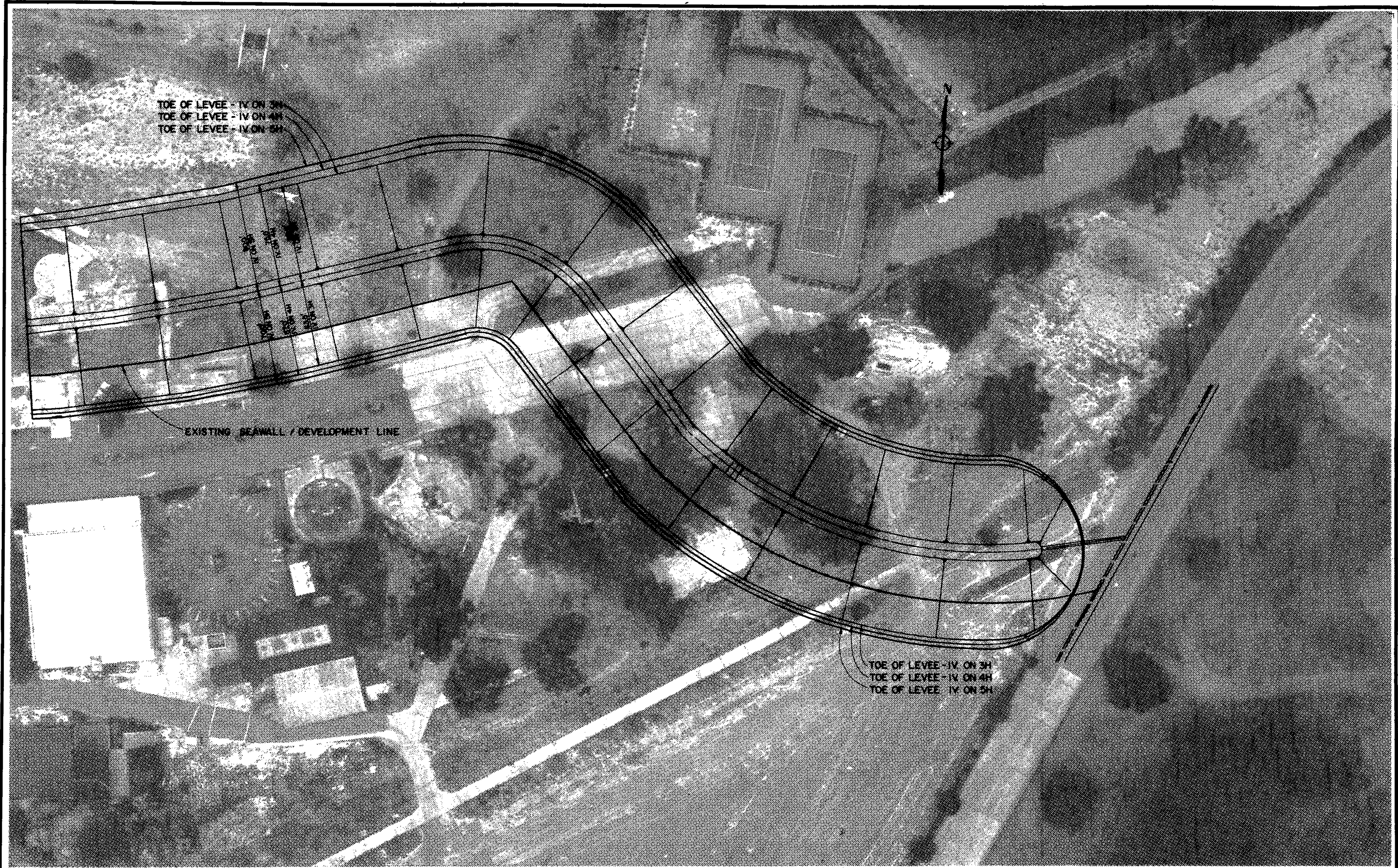
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**PONTCHARTRAIN BEACH
 FLOODWALL RELOCATION STUDY**
 ORLEANS PARISH, LOUISIANA

LEVEE CENTERED ON LEASE LINE

JOB No. 1008
 SCALE 1" = 30'
 SHEET NUMBER 3 A OF



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No.	DATE	REMARKS	
		REVISIONS	

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No.	DATE	REMARKS	
		REVISIONS	



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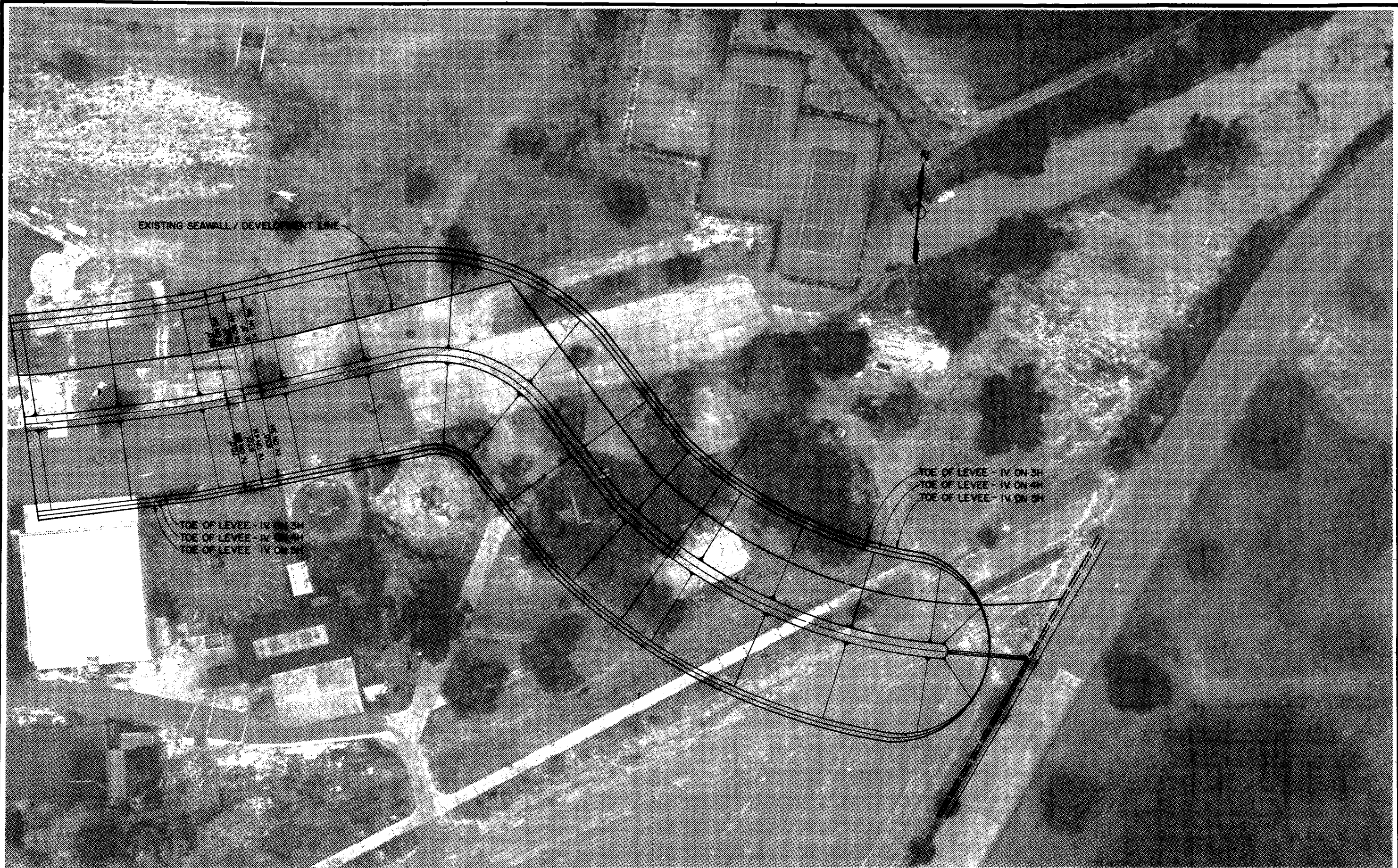
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**PONTCHARTRAIN BEACH
 FLOODWALL RELOCATION STUDY**
 ORLEANS PARISH, LOUISIANA

LEVEE NORTH OF LEASE LINE

JOB No. 1008
 SCALE 1" = 30'
 SHEET NUMBER 3 B OF



EXISTING SEAWALL / DEVELOPMENT LINE

TOE OF LEVEE - IV ON 3H
 TOE OF LEVEE - IV ON 4H
 TOE OF LEVEE - IV ON 5H

TOE OF LEVEE - IV ON 3H
 TOE OF LEVEE - IV ON 4H
 TOE OF LEVEE - IV ON 5H

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		REVISIONS			REVISIONS



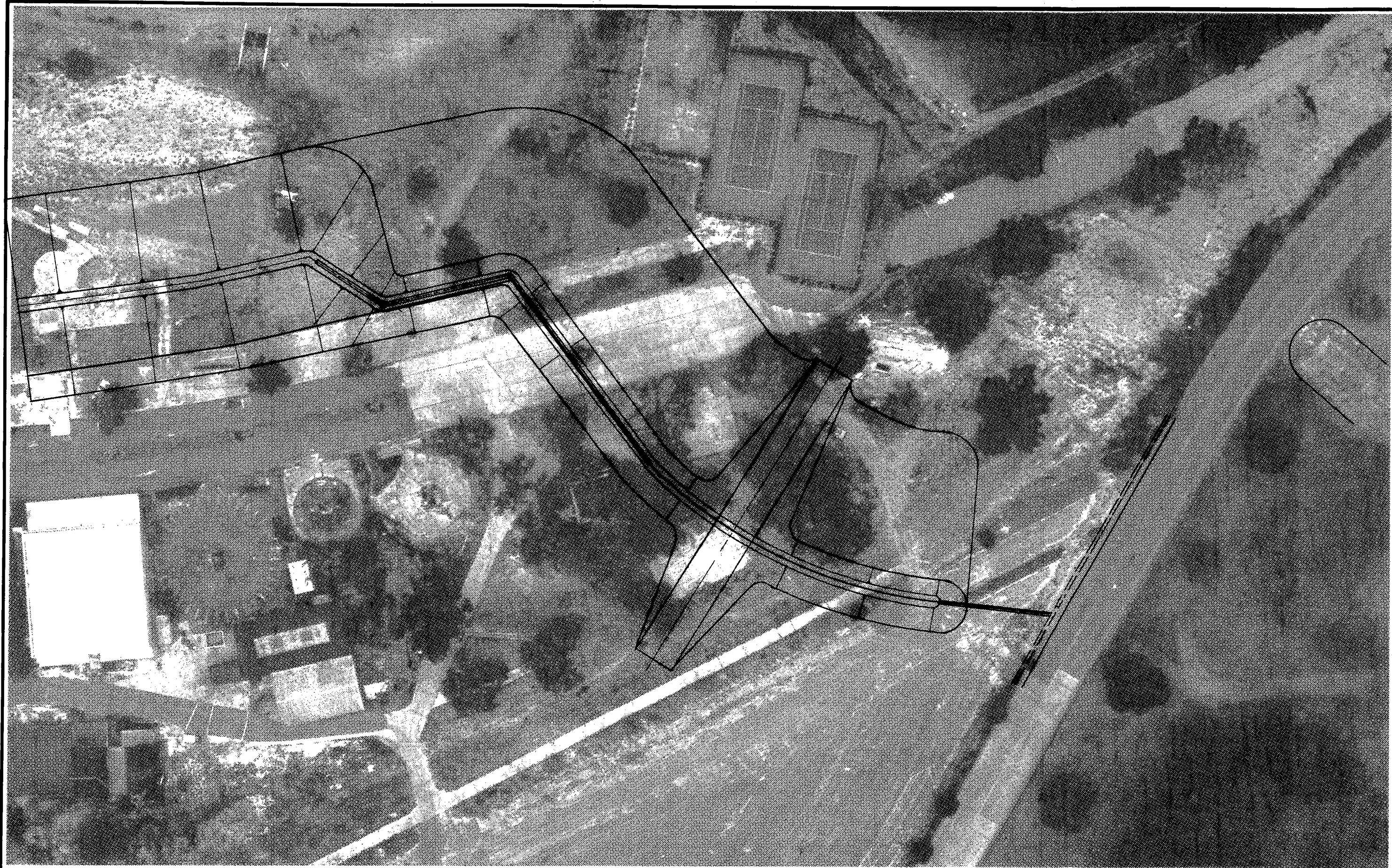
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 Consulting Engineers
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 Suite 205
 Metairie, LA 70002
 (504) 836-2155

DESIGNED BY:
 CHECKED BY:
 DRAWN BY:
 CHECKED BY:
 APPROVED BY:
 DATE:

STAMP

**PONTCHARTRAIN BEACH
 FLOODWALL RELOCATION STUDY**
 ORLEANS PARISH, LOUISIANA
 LEVEE SOUTH OF LEASE LINE

JOB No. 1008
 SCALE 1" = 30'
 SHEET NUMBER 3 C OF



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No.	DATE	REMARKS	No.	DATE	REMARKS
		REVISIONS			REVISIONS



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 Consulting Engineers
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 Suite 206
 Metairie, LA 70002
 (504) 836-2156

DESIGNED BY:
 CHECKED BY:
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 APPROVED BY:
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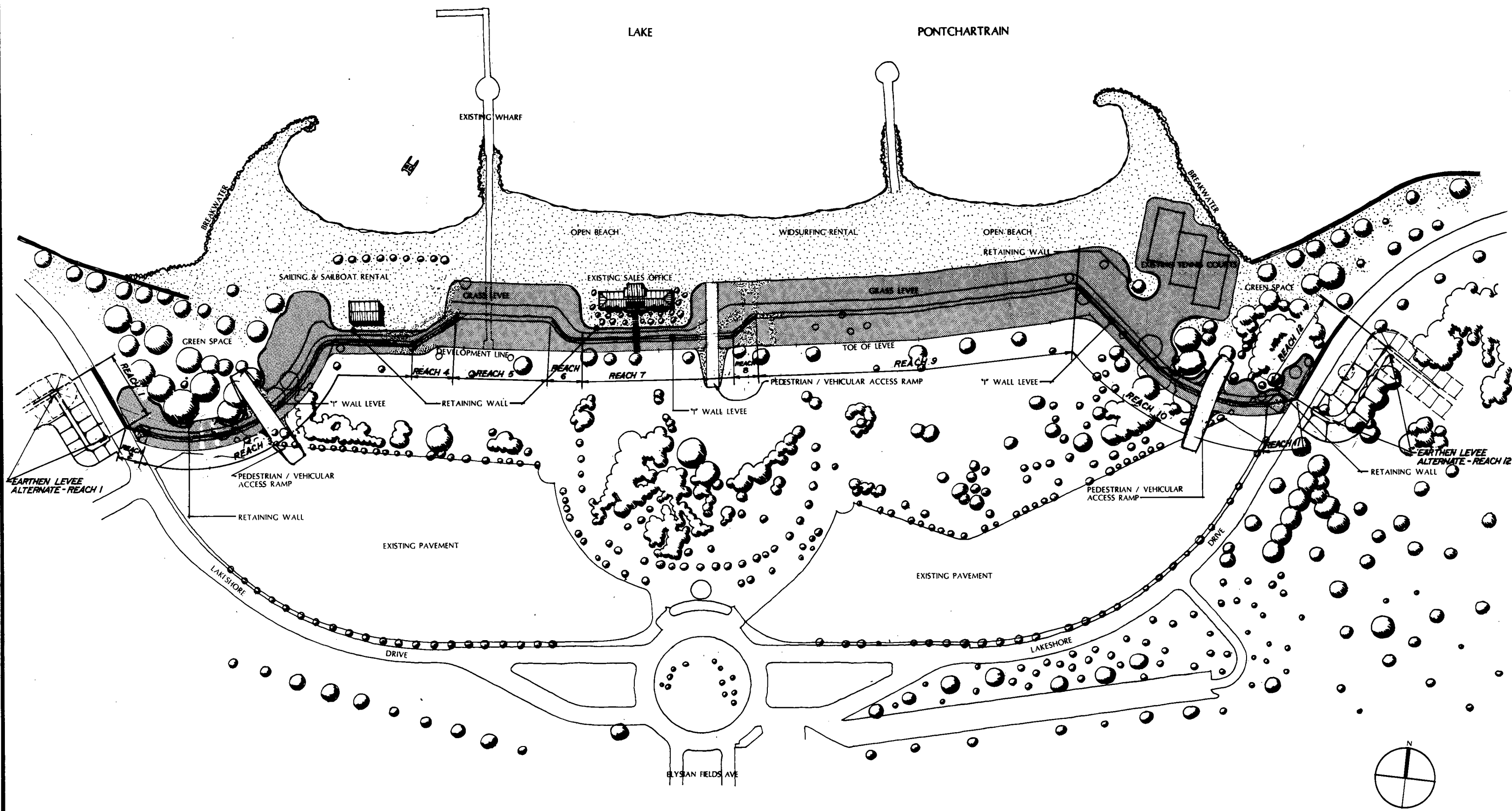
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JOB No.
 SCALE
 SHEET NUMBER
 30 OF

Appendix D

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PLAN OF RECOMMENDED ALTERNATIVE



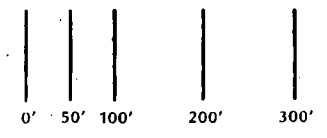
PONTCHARTRAIN BEACH • FLOODWALL RELOCATION STUDY

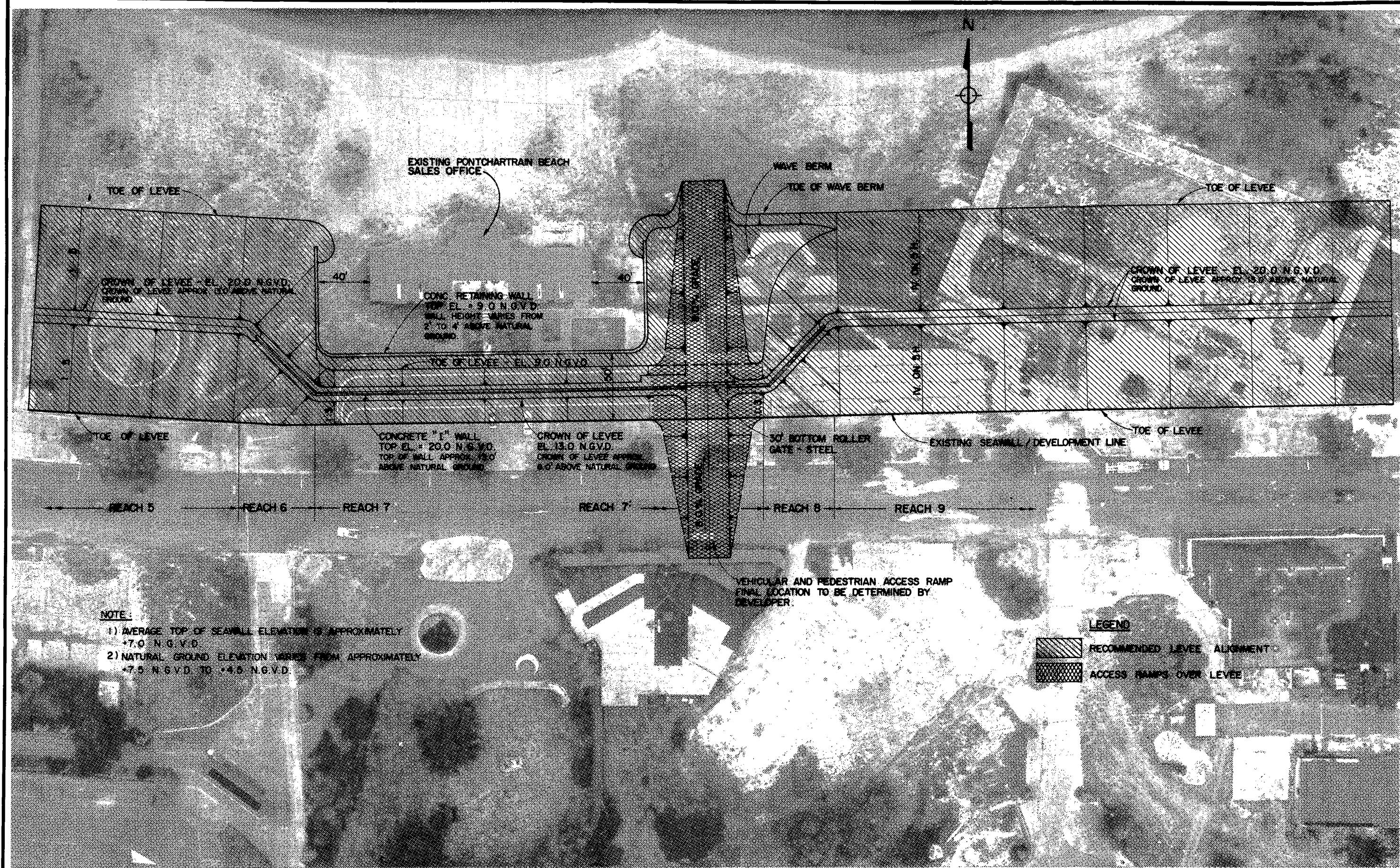
LEVEE ALIGNMENT PLAN

BOARD OF LEVEE COMMISSIONERS
ORLEANS LEVEE DISTRICT
ORLEANS PARISH, LOUISIANA

LANDESIGN
LAND PLANNERS LANDSCAPE ARCHITECTS
NEW ORLEANS, LOUISIANA

DESIGN ENGINEERING INC.
CONSULTING ENGINEERS
METAIRIE, LOUISIANA





NOTE:

- 1) AVERAGE TOP OF SEAWALL ELEVATION IS APPROXIMATELY +7.0 N.G.V.D.
- 2) NATURAL GROUND ELEVATION VARIES FROM APPROXIMATELY +7.5 N.G.V.D. TO +4.5 N.G.V.D.

LEGEND

- RECOMMENDED LEVEE ALIGNMENT
- ACCESS RAMPS OVER LEVEE

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No.	DATE	REMARKS	No.	DATE	REMARKS	No.	DATE
		REVISIONS			REVISIONS		

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 Consulting Engineers
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 Suite 205
 Metairie, LA 70002
 (504) 836-2155

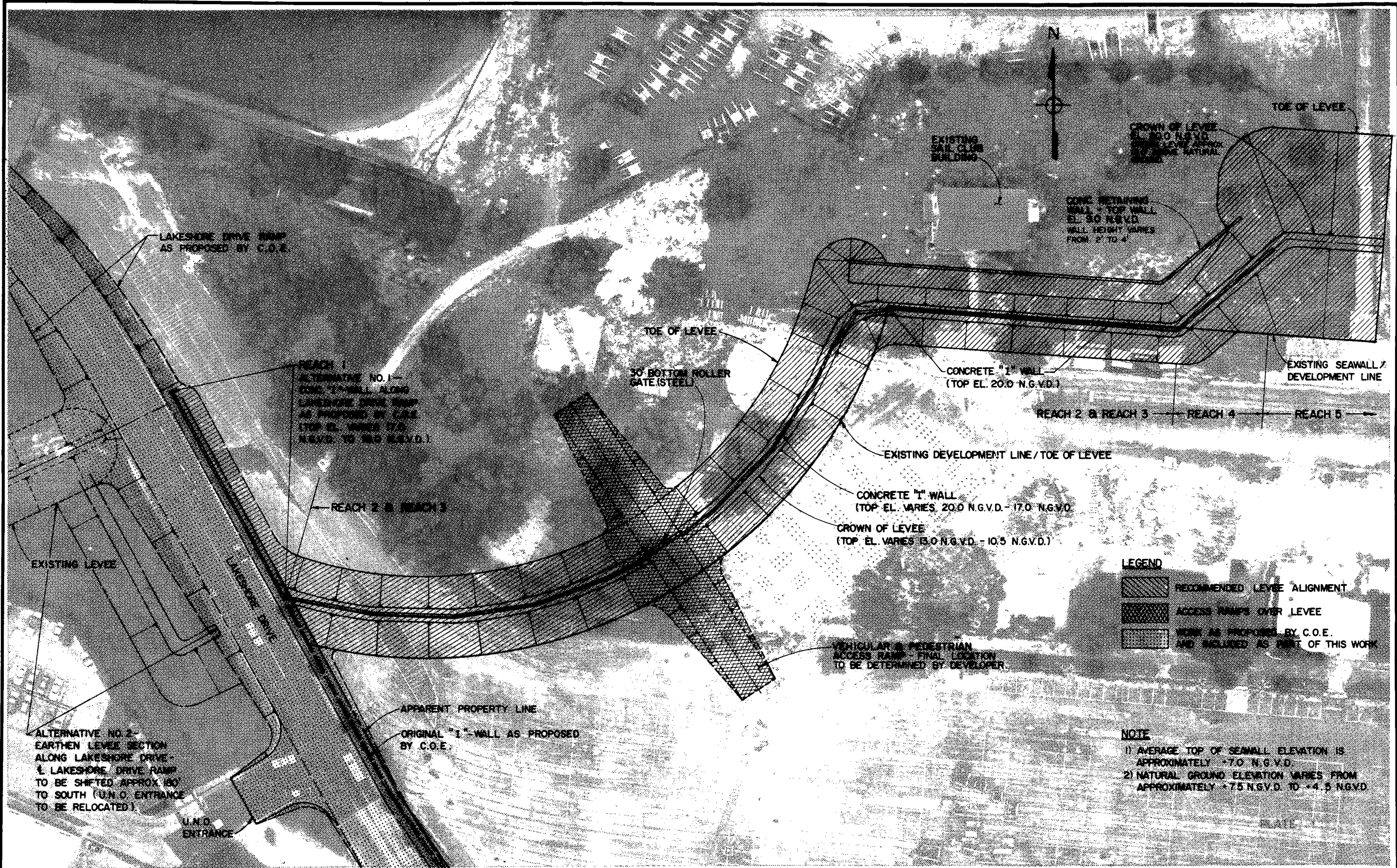
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STAMP

**PONTCHARTRAIN BEACH
 FLOODWALL RELOCATION
 ORLEANS PARISH, LOUISIANA**

RECOMMENDED LEVEE ALIGNMENT

JOB No. 1008
 SCALE 1" = 30'
 SHEET NUMBER 2 OF 3



CROWN OF LEVEE
 EL. 10.0 N.G.V.D.
 (TOP OF LEVEE APPROX.
 10' FROM NATURAL
 GROUND)

CONC. RETAINING
 WALL - TOP WALL
 EL. 30 N.G.V.D.
 WALL HEIGHT VARIES
 FROM 2' TO 4'

CONCRETE 12" WALL
 (TOP EL. 20.0 N.G.V.D.)

CONCRETE 12" WALL
 (TOP EL. VARIES 20.0 N.G.V.D. - 17.0 N.G.V.D.)

CROWN OF LEVEE
 (TOP EL. VARIES 13.0 N.G.V.D. - 10.5 N.G.V.D.)

- LEGEND**
- RECOMMENDED LEVEE ALIGNMENT
 - ACCESS RAMPS OVER LEVEE
 - WORK AS PROPOSED BY C.O.E. AND INCLUDED AS PART OF THIS WORK

- NOTE**
- 1) AVERAGE TOP OF SEAWALL ELEVATION IS APPROXIMATELY +7.0 N.G.V.D.
 - 2) NATURAL GROUND ELEVATION VARIES FROM APPROXIMATELY +7.5 N.G.V.D. TO +4.5 N.G.V.D.

No.	DATE	REMARKS	No.	DATE	REMARKS

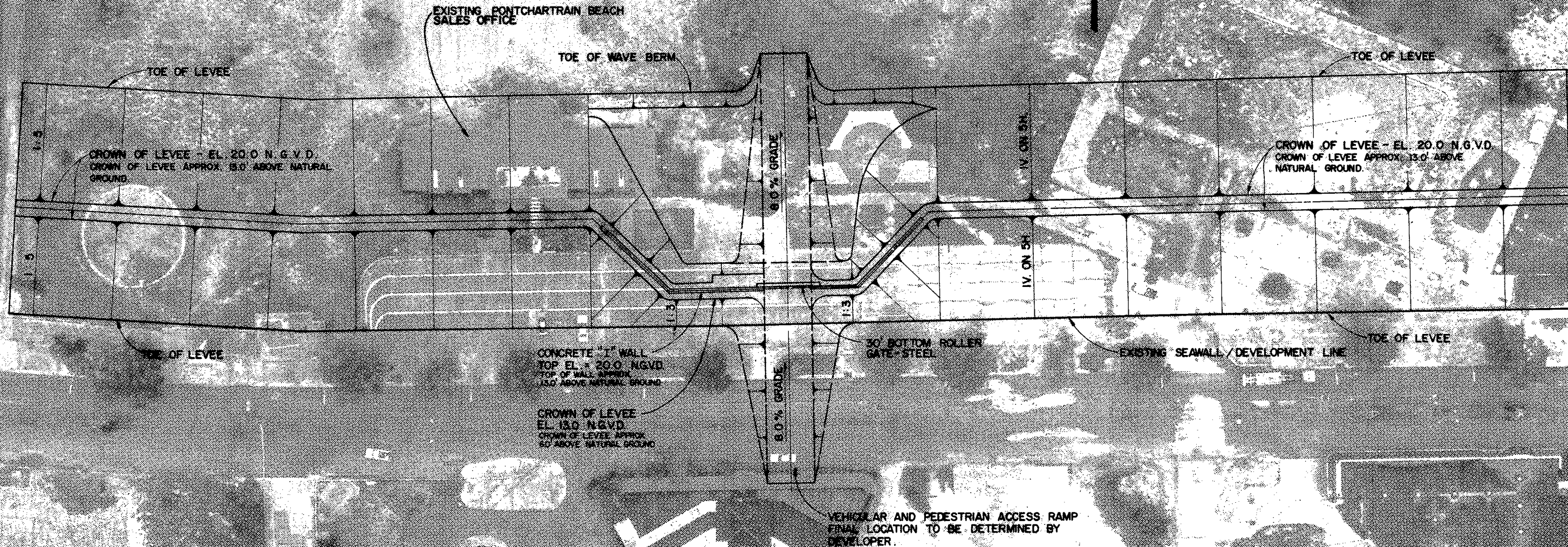
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 DRAWN BY: _____
 APPROVED BY: _____
 DATE: _____

PONTCHARTRAIN BEACH
 FLOODWALL RELOCATION
 ORLEANS PARISH, LOUISIANA

RECOMMENDED LEVEE ALIGNMENT

JOB No. 1008
 SCALE 1" = 30'
 SHEET NUMBER 1 OF 3



NOTE:

- 1) AVERAGE TOP OF SEAWALL ELEVATION IS APPROXIMATELY +7.0 N.G.V.D.
- 2) NATURAL GROUND ELEVATION VARIES FROM APPROXIMATELY +7.5 N.G.V.D. TO +4.5 N.G.V.D.

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No.	DATE	REMARKS	No.	DATE	REMARKS
		REVISIONS			REVISIONS



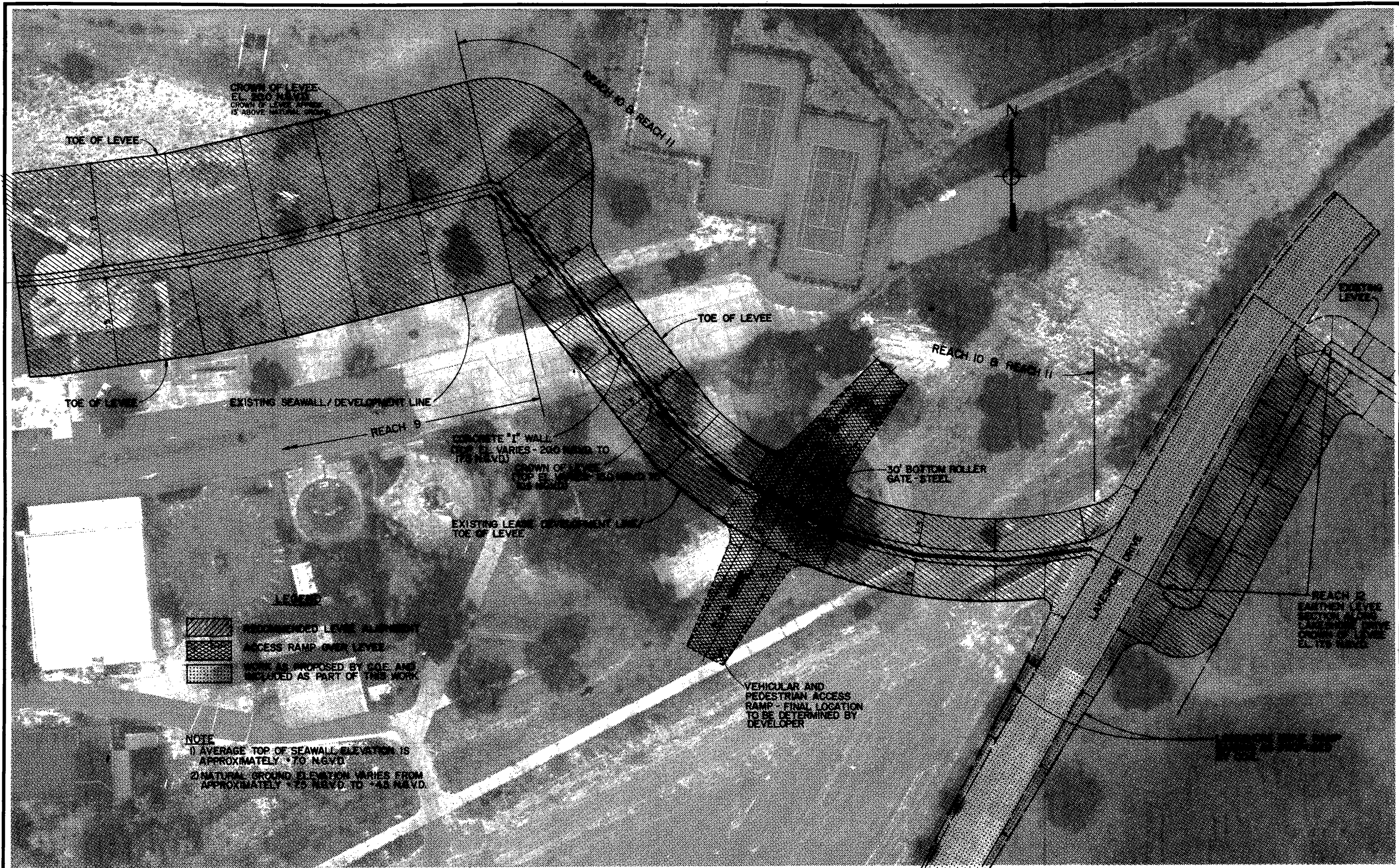
DESIGN ENGINEERING INC.
 Consulting Engineers
 3330 West Esplanade Ave. S.
 Suite 205
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 (504) 836-2155




DESIGNED BY:
CHECKED BY:
DRAWN BY:
APPROVED BY:
DATE:

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**PONTCHARTRAIN BEACH
 FLOODWALL RELOCATION**
 ORLEANS PARISH, LOUISIANA
 EARTHEN LEVEE ALTERNATIVE AT SALES OFFICE

JOB No. 1008
 SCALE 1" = 30'
 SHEET NUMBER 2A OF 3



- LEGEND**
-  RECOMMENDED LEVEE ALIGNMENT
 -  ACCESS RAMP OVER LEVEE
 -  WORK AS PROPOSED BY O&E AND INCLUDED AS PART OF THIS WORK

NOTE

- 1) AVERAGE TOP OF SEAWALL ELEVATION IS APPROXIMATELY +70' NGVD
- 2) NATURAL GROUND ELEVATION VARIES FROM APPROXIMATELY +75' NGVD TO +45' NGVD

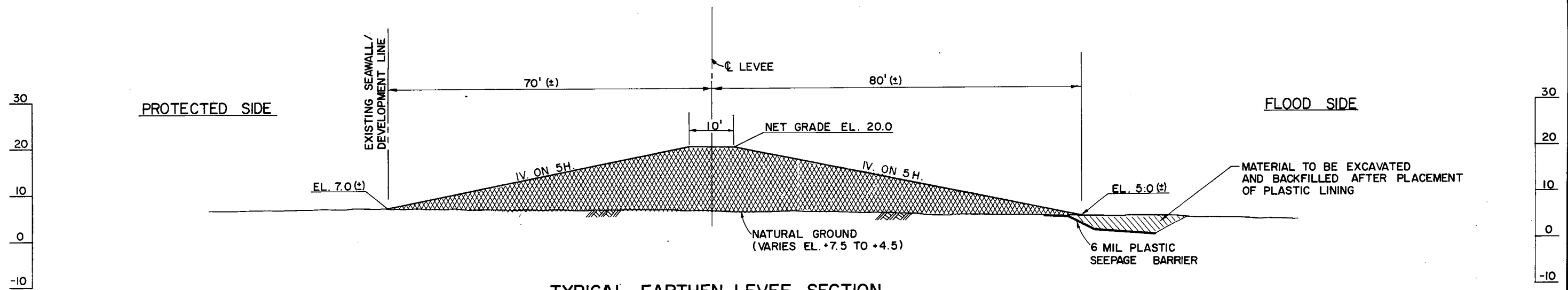
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 Consulting Engineers
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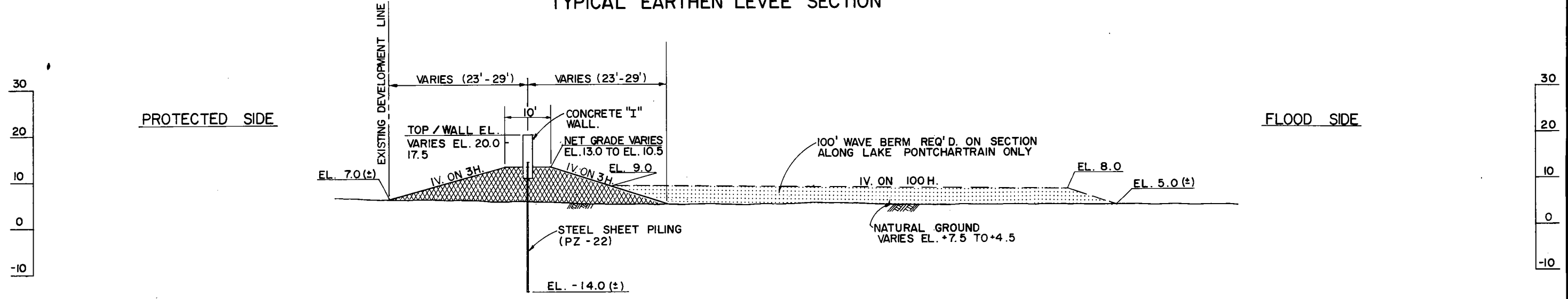
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**PONTCHARTRAIN BEACH
 FLOODWALL RELOCATION**
 ORLEANS PARISH, LOUISIANA
 RECOMMENDED LEVEE ALIGNMENT

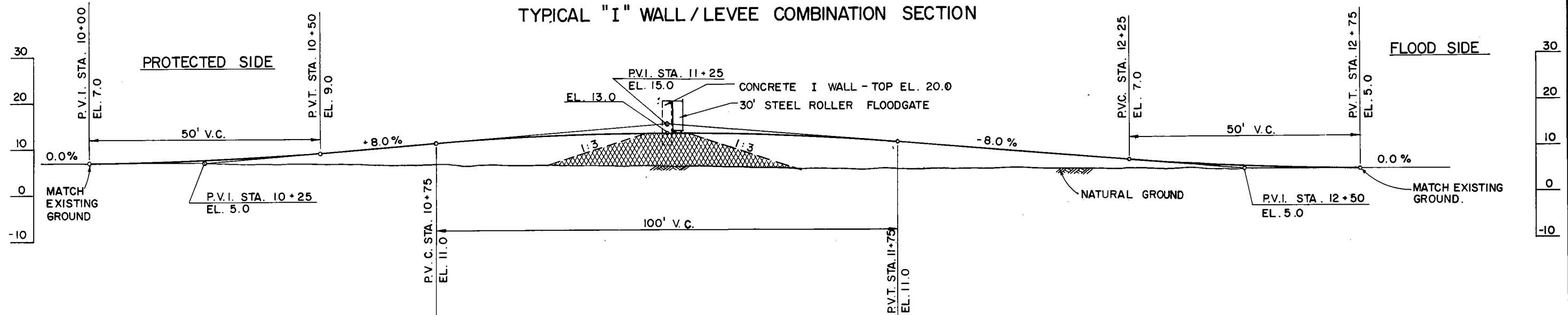
JOB No. 1008
 SCALE 1" = 30'
 SHEET NUMBER 3 OF 3



TYPICAL EARTHEN LEVEE SECTION



TYPICAL "I" WALL / LEVEE COMBINATION SECTION



TYPICAL ACCESS RAMP SECTION

No.	DATE	REMARKS	No.	DATE	REMARKS

DESIGN ENGINEERING INC.
 Consulting Engineers
 3330 West Esplanade Ave. S.
 Suite 205
 Metairie, LA 70002
 (504) 836-2155

DESIGNED BY:	
CHECKED BY:	
DRAWN BY:	
APPROVED BY:	
DATE:	

**PONTCHARTRAIN BEACH
 FLOODWALL RELOCATION**
 ORLEANS PARISH, LOUISIANA

TYPICAL SECTIONS

JOB No.	1008
SCALE	HORIZ - 1" = 10' VERT - 1" = 10'
SHEET NUMBER	1 OF 1

Appendix E

-

ALTERNATIVE PROJECT COST ESTIMATE

PONTCHARTRAIN BEACH
 ORLEANS PARISH, LOUISIANA
 ~~~~~  
 FLOODWALL RELOCATION STUDY  
 ~~~~~

SHEET 1 OF 8
 DATE: JULY 22, 1985
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM ~~~~~	DESCRIPTION ~~~~~	QUANTITY ~~~~~	UNIT ~~~~~	UNIT PRICE ~~~~~	TOTAL ~~~~~
1	REACH 1--225 L.F. CONCRETE "I"-WALL ALONG LAKESHORE DRIVE. ALIGNMENT AS PROPOSED BY C.O.E.:				
	A) CAST-IN-PLACE CONCRETE	175	C.Y.	\$325.00	\$56,875.00
	B) STEEL SHEET PILING (PZ-22)	6,075	S.F.	\$13.00	\$78,975.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$1,500.00	\$1,500.00
	D) EXPOSED AGGREGATE WALL FINISH	3,500	S.F.	\$4.00	\$14,000.00
	E) STRUCTURAL EXCAVATION	200	C.Y.	\$7.00	\$1,400.00
	F) STRUCTURAL BACKFILL	150	C.Y.	\$10.00	\$1,500.00
	G) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
	H) MISC. PAVING	1	L.S.	\$4,000.00	\$4,000.00

		SUBTOTAL---REACH 1			\$158,750.00
2	REACH 2--60 L.F. CONCRETE "T"-WALL, 30' NORTH OF WESTERMOST DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	150	C.Y.	\$325.00	\$48,750.00
	B) 14" PRESTRESSED CONC. PILING	600	L.F.	\$24.00	\$14,400.00
	C) STEEL SHEET PILING (PZ-22)	1,320	S.F.	\$13.00	\$17,160.00
	D) CONCRETE FOR STABILIZATION SLAB	12	C.Y.	\$100.00	\$1,200.00
	E) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$1,200.00	\$1,200.00
	F) EXPOSED AGGREGATE WALL FINISH	1,560	S.F.	\$4.00	\$6,240.00
	G) STRUCTURAL EXCAVATION	200	C.Y.	\$7.00	\$1,400.00
	H) STRUCTURAL BACKFILL	100	C.Y.	\$10.00	\$1,000.00
	I) GRADING & SEEDING	1	L.S.	\$300.00	\$300.00

		SUBTOTAL---REACH 2			\$91,650.00

PONTCHARTRAIN BEACH
 ORLEANS PARISH, LOUISIANA
 ~~~~~  
 FLOODWALL RELOCATION STUDY  
 ~~~~~

SHEET 2 OF 8
 DATE: JULY 22, 1985
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
3	REACH 3--650 L.F. CONCRETE "I"-WALL/LEVEE COMBINATION, NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	460	C.Y.	\$325.00	\$149,500.00
	B) STEEL SHEET PILING (PZ-22)	17,550	S.F.	\$13.00	\$228,150.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$2,800.00	\$2,800.00
	D) EXPOSED AGGREGATE WALL FINISH	9,100	S.F.	\$4.00	\$36,400.00
	E) EXCAVATION	1,000	C.Y.	\$7.00	\$7,000.00
	F) LEVEE EMBANKMENT (COMPACTED)	16,600	C.Y.	\$12.00	\$199,200.00
	G) CONCRETE RETAINING WALL	675	C.Y.	\$325.00	\$219,375.00
	H) GRADING & SEEDING	1	L.S.	\$2,000.00	\$2,000.00

			SUBTOTAL---REACH 3		\$844,425.00
4	REACH 4--100 L.F. CONCRETE "I"-WALL/LEVEE COMBINATION TRANSITION TO EARTHEN LEVEE SECTION:				
	A) CAST-IN-PLACE CONCRETE	70	C.Y.	\$325.00	\$22,750.00
	B) STEEL SHEET PILING (PZ-22)	2,700	S.F.	\$13.00	\$35,100.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$500.00	\$500.00
	D) EXPOSED AGGREGATE WALL FINISH	700	S.F.	\$4.00	\$2,800.00
	E) EXCAVATION	100	C.Y.	\$7.00	\$700.00
	F) LEVEE EMBANKMENT (COMPACTED)	4,750	C.Y.	\$12.00	\$57,000.00
	G) CONCRETE RETAINING WALL	135	C.Y.	\$325.00	\$43,875.00
	H) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00

			SUBTOTAL---REACH 4		\$163,225.00

PONTCHARTRAIN BEACH
 ORLEANS PARISH, LOUISIANA
 ~~~~~  
 FLOODWALL RELOCATION STUDY  
 ~~~~~

SHEET 3 OF 8
 DATE: JULY 22, 1985
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
5	REACH 5--200 L.F. EARTHEN LEVEE SECTION NORTH OF DEVELOPMENT LINE:				
	A) EXCAVATION	600	C.Y.	\$7.00	\$4,200.00
	B) LEVEE EMBANKMENT (COMPACTED)	14,000	C.Y.	\$12.00	\$168,000.00
	C) GRADING & SEEDING	1	L.S.	\$1,000.00	\$1,000.00

					SUBTOTAL---REACH 5
					\$173,200.00
6	REACH 6--100 L.F. TRANSITION FROM EARTHEN LEVEE SECTION TO CONCRETE I-WALL/LEVEE COMBINATION NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	70	C.Y.	\$325.00	\$22,750.00
	B) STEEL SHEET PILING (PZ-22)	2,700	S.F.	\$13.00	\$35,100.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$500.00	\$500.00
	D) EXPOSED AGGREGATE WALL FINISH	700	S.F.	\$4.00	\$2,800.00
	E) EXCAVATION	100	C.Y.	\$7.00	\$700.00
	F) LEVEE EMBANKMENT (COMPACTED)	5,475	C.Y.	\$12.00	\$65,700.00
	G) CONCRETE RETAINING WALL	90	C.Y.	\$325.00	\$29,250.00
	H) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00

					SUBTOTAL---REACH 6
					\$157,300.00
7	REACH 7--275 L.F. CONCRETE "I"-WALL/LEVEE COMBINATION, NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	195	C.Y.	\$325.00	\$63,375.00
	B) STEEL SHEET PILING (PZ-22)	7,425	S.F.	\$13.00	\$96,525.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$1,000.00	\$1,000.00

PONTCHARTRAIN BEACH
 ORLEANS PARISH, LOUISIANA
 ~~~~~  
 FLOODWALL RELOCATION STUDY  
 ~~~~~

SHEET 4 OF 8
 DATE: JULY 22, 1985
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
	D) EXPOSED AGGREGATE WALL FINISH	3,850	S.F.	\$4.00	\$15,400.00
	E) EXCAVATION	400	C.Y.	\$7.00	\$2,800.00
	F) LEVEE EMBANKMENT (COMPACTED)	7,030	C.Y.	\$12.00	\$84,360.00
	G) CONCRETE RETAINING WALL	250	C.Y.	\$325.00	\$81,250.00
	H) GRADING & SEEDING	1	L.S.	\$1,000.00	\$1,000.00

					SUBTOTAL---REACH 7
					\$345,710.00
8	REACH 8--180 L.F. TRANSITION FROM EARTHEN LEVEE SECTION TO CONCRETE I-WALL/LEVEE COMBINATION NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	105	C.Y.	\$325.00	\$34,125.00
	B) STEEL SHEET PILING (PZ-22)	4,050	S.F.	\$13.00	\$52,650.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$750.00	\$750.00
	D) EXPOSED AGGREGATE WALL FINISH	2,100	S.F.	\$4.00	\$8,400.00
	E) EXCAVATION	200	C.Y.	\$7.00	\$1,400.00
	F) LEVEE EMBANKMENT (COMPACTED)	7,300	C.Y.	\$12.00	\$87,600.00
	G) CONCRETE RETAINING WALL	90	C.Y.	\$325.00	\$29,250.00
	H) GRADING & SEEDING	1	L.S.	\$1,000.00	\$1,000.00

					SUBTOTAL---REACH 8
					\$215,175.00
9	REACH 9--700 L.F. EARTHEN LEVEE SECTION NORTH OF DEVELOPMENT LINE:				
	A) EXCAVATION	1,000	C.Y.	\$7.00	\$7,000.00
	B) LEVEE EMBANKMENT (COMPACTED)	48,500	C.Y.	\$12.00	\$582,000.00
	C) GRADING & SEEDING	1	L.S.	\$2,000.00	\$2,000.00

					SUBTOTAL---REACH 9
					\$591,000.00

PONTCHARTRAIN BEACH
 ORLEANS PARISH, LOUISIANA
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 FLOODWALL RELOCATION STUDY  
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SHEET 5 OF 8
 DATE: JULY 22, 1985
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
10	REACH 10--500 L.F. CONCRETE "I"-WALL/LEVEE COMBINATION, NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	350	C.Y.	\$325.00	\$113,750.00
	B) STEEL SHEET PILING (PZ-22)	13,500	S.F.	\$13.00	\$175,500.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$2,000.00	\$2,000.00
	D) EXPOSED AGGREGATE WALL FINISH	7,000	S.F.	\$4.00	\$28,000.00
	E) EXCAVATION	500	C.Y.	\$7.00	\$3,500.00
	F) LEVEE EMBANKMENT (COMPACTED)	12,800	C.Y.	\$12.00	\$153,600.00
	G) CONCRETE RETAINING WALL	675	C.Y.	\$325.00	\$219,375.00
	H) GRADING & SEEDING	1	L.S.	\$1,500.00	\$1,500.00

					SUBTOTAL---REACH 10
					\$697,225.00
11	REACH 11--60 L.F. CONCRETE "T"-WALL, 30' NORTH OF EASTERMOST DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	150	C.Y.	\$325.00	\$48,750.00
	B) 14" PRESTRESSED CONC. PILING	600	L.F.	\$24.00	\$14,400.00
	C) STEEL SHEET PILING (PZ-22)	1,320	S.F.	\$13.00	\$17,160.00
	D) CONCRETE FOR STABILIZATION SLAB	12	C.Y.	\$100.00	\$1,200.00
	E) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$1,200.00	\$1,200.00
	F) EXPOSED AGGREGATE WALL FINISH	1,560	S.F.	\$4.00	\$6,240.00
	G) STRUCTURAL EXCAVATION	200	C.Y.	\$7.00	\$1,400.00
	H) STRUCTURAL BACKFILL	100	C.Y.	\$10.00	\$1,000.00
	I) GRADING & SEEDING	1	L.S.	\$300.00	\$300.00

					SUBTOTAL---REACH 11
					\$91,650.00

PONTCHARTRAIN BEACH
 ORLEANS PARISH, LOUISIANA
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 FLOODWALL RELOCATION STUDY  
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SHEET 6 OF 8
 DATE: JULY 22, 1985
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
12	REACH 12--225 L.F. CONCRETE "I"-WALL ALONG LAKESHORE DRIVE. ALIGNMENT AS PROPOSED BY C.O.E.:				
	A) CAST-IN-PLACE CONCRETE	175	C.Y.	\$325.00	\$56,875.00
	B) STEEL SHEET PILING (PZ-22)	6,075	S.F.	\$13.00	\$78,975.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$1,500.00	\$1,500.00
	D) EXPOSED AGGREGATE WALL FINISH	3,500	S.F.	\$4.00	\$14,000.00
	E) STRUCTURAL EXCAVATION	200	C.Y.	\$7.00	\$1,400.00
	F) STRUCTURAL BACKFILL	150	C.Y.	\$10.00	\$1,500.00
	G) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
	H) MISC. PAVING	1	L.S.	\$4,000.00	\$4,000.00

					SUBTOTAL---REACH 12
					\$158,750.00
					SUBTOTAL--ITEMS 1-12
					\$3,688,060.00
13	MISC. CONSTRUCTION ~~~~~				
	A) VEHICULAR ACCESS RAMPS	3	EACH	\$20,000.00	\$60,000.00
	B) PEDESTRIAN ACCESS (STEPS)	1	EACH	\$10,000.00	\$10,000.00
	C) ROLLER GATES	3	EACH	\$50,000.00	\$150,000.00
	D) ROADWAY RAMPS AT LAKESHORE DRIVE LEVEES AS PROPOSED BY C.O.E.	1	L.S.	\$810,280.00	\$810,280.00
	E) UTILITY RELOCATIONS AND LEVEE CROSSINGS	1	L.S.	\$200,000.00	\$200,000.00

					SUBTOTAL--MISC. CONSTRUCTION
					\$1,230,280.00

PONTCHARTRAIN BEACH
 ORLEANS PARISH, LOUISIANA
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 FLOODWALL RELOCATION STUDY  
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SHEET 7 OF 8
 DATE: JULY 22, 1985
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM ~~~~~	DESCRIPTION ~~~~~	QUANTITY ~~~~~	UNIT ~~~~~	UNIT PRICE ~~~~~	TOTAL ~~~~~
		SUBTOTAL--ITEMS 1-13			\$4,918,340.00
		CONTINGENCY (10%)			\$491,834.00
		TOTAL CONSTRUCTION COSTS			\$5,410,174.00
		OTHER COSTS:			
		A) ENGINEERING (6.35%)			\$343,546.05
		B) TESTING (1%)			\$54,101.74
		C) INSPECTION (2.5%)			\$135,254.35
		D) GEOTECHNICAL INVESTIGATIONS			\$25,000.00
		E) SURVEYING			\$15,000.00
		SUBTOTAL			\$572,902.14
		TOTAL PROJECT COSTS			\$5,983,076.14

PONTCHARTRAIN BEACH
 ORLEANS PARISH, LOUISIANA
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 FLOODWALL RELOCATION STUDY  
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SHEET 8 OF 8
 DATE: JULY 22, 1985
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM ~~~~~	DESCRIPTION ~~~~~	QUANTITY ~~~~~	UNIT ~~~~~	UNIT PRICE ~~~~~	TOTAL ~~~~~
ADJUSTMENT TO PROJECT COST (DELETING C.O.E. WORK) ~~~~~					
	SUBTOTAL--CONSTRUCTION COSTS (ITEMS 1-13)			\$4,918,340.00	
	LESS:				
	ITEM 1 (REACH 1)			(\$158,750.00)	
	ITEM 12 (REACH 12)			(\$158,750.00)	
	ITEM 13-D (RAMPS)			(\$810,280.00)	
	SUBTOTAL			----- (\$1,127,780.00)	
	ADJUSTED CONSTRUCTION COSTS			\$3,790,560.00	
	CONTINGENCY (10%)			\$379,056.00	
	TOTAL ADJUSTED CONSTRUCTION COSTS			----- \$4,169,616.00	
	OTHER COSTS:				
	A) ENGINEERING (6.45%)			\$268,940.23	
	B) TESTING (1%)			\$41,696.16	
	C) INSPECTION (2.5%)			\$104,240.40	
	D) GEOTECHNICAL INVESTIGATIONS			\$25,000.00	
	E) SURVEYING			\$15,000.00	
	SUBTOTAL			----- \$454,876.79	
	TOTAL ADJUSTED PROJECT COST			----- \$4,624,492.79	
	~~~~~			-----	

ALTERNATIVE 2

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 FLOODWALL RELOCATION STUDY

SHEET 1 OF 7  
 DATE: JULY 25, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	REACH 1--200 L.F. ----- ALTERNATIVE NO. 1:  CONCRETE "I"-WALL ALONG LAKESHORE DRIVE. ALIGNMENT AS PROPOSED BY C.O.E.:				
	A) CAST-IN-PLACE CONCRETE	127	C.Y.	\$325.00	\$41,275.00
	B) STEEL SHEET PILING (PZ-22)	5,040	S.F.	\$13.00	\$65,520.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$1,000.00	\$1,000.00
	D) EXPOSED AGGREGATE WALL FINISH	2,520	S.F.	\$4.00	\$10,080.00
	E) STRUCTURAL EXCAVATION	200	C.Y.	\$7.00	\$1,400.00
	F) STRUCTURAL BACKFILL	150	C.Y.	\$10.00	\$1,500.00
	G) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
	H) PAVING--U.N.O. ENTR. & SIDEWALKS	1	L.S.	\$24,500.00	\$24,500.00
	SUBTOTAL---REACH 1 (ALTERNATIVE NO. 1)				\$145,775.00
	ALTERNATIVE NO. 2:  EARTHEN LEVEE SECTION ALONG LAKESHORE DRIVE. ALIGNMENT AS PROPOSED BY C.O.E.:				
	A) EXCAVATION, CLEARING & GRUBBING	600	C.Y.	\$7.00	\$4,200.00
	B) LEVEE EMBANKMENT (COMPACTED)	7,000	C.Y.	\$12.00	\$84,000.00
	C) 6 MIL PLASTIC LINING	3,600	S.F.	\$0.60	\$2,160.00
	D) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
	E) ADD'L. WORK--U.N.O. ENTR. & ADDL. EMBANKMENT (LAKESHORE DR.)	1	L.S.	\$50,715.00	\$50,715.00
	SUBTOTAL---REACH 1 (ALTERNATIVE NO. 2)				\$141,575.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 FLOODWALL RELOCATION STUDY

SHEET 2 OF 7  
 DATE: JULY 25, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
2	REACH 2 & REACH 3--750 L.F. CONCRETE "I"-WALL/LEVEE COMBINATION, NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	504	C.Y.	\$325.00	\$163,800.00
	B) STEEL SHEET PILING (PZ-22)	19,440	S.F.	\$13.00	\$252,720.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$3,000.00	\$3,000.00
	D) EXPOSED AGGREGATE WALL FINISH	10,080	S.F.	\$4.00	\$40,320.00
	E) EXCAVATION	1,000	C.Y.	\$7.00	\$7,000.00
	F) LEVEE EMBANKMENT (COMPACTED)	8,600	C.Y.	\$12.00	\$103,200.00
	G) CONCRETE RETAINING WALL	240	C.Y.	\$325.00	\$78,000.00
	H) GRADING & SEEDING	1	L.S.	\$1,000.00	\$1,000.00
					-----
		SUBTOTAL---REACH 2 & REACH 3			\$649,040.00
3	REACH 4--75 L.F. TRANSITION FROM CONCRETE I-WALL/LEVEE COMBINATION TO EARTHEN LEVEE SECTION:				
	A) CAST-IN-PLACE CONCRETE	63	C.Y.	\$325.00	\$20,475.00
	B) STEEL SHEET PILING (PZ-22)	2,520	S.F.	\$13.00	\$32,760.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$500.00	\$500.00
	D) EXPOSED AGGREGATE WALL FINISH	630	S.F.	\$4.00	\$2,520.00
	E) EXCAVATION	200	C.Y.	\$7.00	\$1,400.00
	F) LEVEE EMBANKMENT (COMPACTED)	3,250	C.Y.	\$12.00	\$39,000.00
	G) CONCRETE RETAINING WALL	60	C.Y.	\$325.00	\$19,500.00
	H) REMOVE EXIST. SEAWALL (25 L.F.)	1	L.S.	\$2,500.00	\$2,500.00
	I) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
					-----
		SUBTOTAL---REACH 4			\$119,155.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 FLOODWALL RELOCATION STUDY

SHEET 3 OF 7  
 DATE: JULY 25, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
4	REACH 5--225 L.F. EARTHEN LEVEE SECTION NORTH OF DEVELOPMENT LINE:				
	A) EXCAVATION	1,100	C.Y.	\$7.00	\$7,700.00
	B) LEVEE EMBANKMENT (COMPACTED)	16,070	C.Y.	\$12.00	\$192,840.00
	C) 6 MIL PLASTIC LINING	5,400	S.F.	\$0.60	\$3,240.00
	D) GRADING & SEEDING	1	L.S.	\$800.00	\$800.00
					-----
					SUBTOTAL---REACH 5
					\$204,580.00
5	REACH 6--50 L.F. TRANSITION FROM EARTHEN LEVEE SECTION TO CONCRETE I-WALL/LEVEE COMBINATION NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	42	C.Y.	\$325.00	\$13,650.00
	B) STEEL SHEET PILING (PZ-22)	1,680	S.F.	\$13.00	\$21,840.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$250.00	\$250.00
	D) EXPOSED AGGREGATE WALL FINISH	420	S.F.	\$4.00	\$1,680.00
	E) EXCAVATION	100	C.Y.	\$7.00	\$700.00
	F) LEVEE EMBANKMENT (COMPACTED)	2,200	C.Y.	\$12.00	\$26,400.00
	G) CONCRETE RETAINING WALL	70	C.Y.	\$325.00	\$22,750.00
	H) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
					-----
					SUBTOTAL---REACH 6
					\$87,770.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 FLOODWALL RELOCATION STUDY

SHEET 4 OF 7  
 DATE: JULY 25, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
6	REACH 7--330 L.F. CONCRETE "I"-WALL/LEVEE COMBINATION, NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	211	C.Y.	\$325.00	\$68,575.00
	B) STEEL SHEET PILING (PZ-22)	9,240	S.F.	\$13.00	\$120,120.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$1,350.00	\$1,350.00
	D) EXPOSED AGGREGATE WALL FINISH	4,200	S.F.	\$4.00	\$16,800.00
	E) EXCAVATION	600	C.Y.	\$7.00	\$4,200.00
	F) LEVEE EMBANKMENT (COMPACTED)	4,970	C.Y.	\$12.00	\$59,640.00
	G) CONCRETE RETAINING WALL	310	C.Y.	\$325.00	\$100,750.00
	H) GRADING & SEEDING	1	L.S.	\$1,000.00	\$1,000.00
					-----
					SUBTOTAL---REACH 7
					\$372,435.00
7	REACH 8--50 L.F. TRANSITION FROM EARTHEN LEVEE SECTION TO CONCRETE I-WALL/LEVEE COMBINATION NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	42	C.Y.	\$325.00	\$13,650.00
	B) STEEL SHEET PILING (PZ-22)	1,680	S.F.	\$13.00	\$21,840.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$250.00	\$250.00
	D) EXPOSED AGGREGATE WALL FINISH	420	S.F.	\$4.00	\$1,680.00
	E) EXCAVATION	100	C.Y.	\$7.00	\$700.00
	F) LEVEE EMBANKMENT (COMPACTED)	2,450	C.Y.	\$12.00	\$29,400.00
	G) GRADING & SEEDING	1	L.S.	\$250.00	\$250.00
					-----
					SUBTOTAL---REACH 8
					\$67,770.00



PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 FLOODWALL RELOCATION STUDY

SHEET 5 OF 7  
 DATE: JULY 25, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
8	REACH 9--760 L.F. EARTHEN LEVEE SECTION NORTH OF DEVELOPMENT LINE:				
	A) EXCAVATION	3,000	C.Y.	\$7.00	\$21,000.00
	B) LEVEE EMBANKMENT (COMPACTED)	54,270	C.Y.	\$12.00	\$651,240.00
	C) 6 MIL PLASTIC LINING	18,240	S.F.	\$0.60	\$10,944.00
	D) GRADING & SEEDING	1	L.S.	\$2,000.00	\$2,000.00
					-----
				SUBTOTAL---REACH 9	\$685,184.00
9	REACH 10 & REACH 11--540 L.F. CONCRETE "I"-WALL/LEVEE COMBINATION, NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	350	C.Y.	\$325.00	\$113,750.00
	B) STEEL SHEET PILING (PZ-22)	13,515	S.F.	\$13.00	\$175,695.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$2,500.00	\$2,500.00
	D) EXPOSED AGGREGATE WALL FINISH	6,510	S.F.	\$4.00	\$26,040.00
	E) EXCAVATION (CLEARING & GRUBBING)	600	C.Y.	\$7.00	\$4,200.00
	F) LEVEE EMBANKMENT (COMPACTED)	8,800	C.Y.	\$12.00	\$105,600.00
	G) REMOVE EXIST. SEAWALL (20 L.F.)	1	L.S.	\$2,000.00	\$2,000.00
	H) GRADING & SEEDING	1	L.S.	\$1,000.00	\$1,000.00
					-----
				SUBTOTAL---REACH 10 & 11	\$430,785.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 FLOODWALL RELOCATION STUDY

SHEET 6 OF 7  
 DATE: JULY 25, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
10	REACH 12--225 L.F. EARTHEN LEVEE SECTION ALONG LAKESHORE DRIVE. ALIGNMENT AS PROPOSED BY C.O.E.:				
	A) EXCAVATION, CLEARING & GRUBBING	800	C.Y.	\$7.00	\$5,600.00
	B) LEVEE EMBANKMENT (COMPACTED)	5,800	C.Y.	\$12.00	\$69,600.00
	C) 6 MIL PLASTIC LINING	4,800	S.F.	\$0.60	\$2,880.00
	D) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
	E) ADD'L. EMBANKMENT ALONG LAKESHORE DRIVE	700	C.Y.	\$12.00	\$8,400.00
					-----
					SUBTOTAL---REACH 12
					\$86,980.00
					SUBTOTAL--ITEMS 1-10 (USING ALTERNATIVE NO. 1 OF ITEM NO.1)
					\$2,849,474.00
11	MISC. CONSTRUCTION				
	A) VEHICULAR ACCESS RAMPS	3	EACH	\$30,000.00	\$90,000.00
	B) PEDESTRIAN ACCESS (STEPS)	1	EACH	\$10,000.00	\$10,000.00
	C) ROLLER GATES	3	EACH	\$50,000.00	\$150,000.00
	D) ROADWAY RAMPS AT LAKESHORE DRIVE LEVEES AS PROPOSED BY C.O.E.	1	L.S.	\$810,280.00	\$810,280.00
	E) UTILITY RELOCATIONS AND LEVEE CROSSINGS	1	L.S.	\$160,000.00	\$160,000.00
					-----
					SUBTOTAL--MISC. CONSTRUCTION
					\$1,220,280.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
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 FLOODWALL RELOCATION STUDY
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SHEET 7 OF 7  
 DATE: JULY 25, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
					\$4,069,754.00
					\$406,975.40
TOTAL CONSTRUCTION COSTS					\$4,476,729.40
OTHER COSTS:					
					\$288,749.05
					\$44,767.29
					\$111,918.24
					\$25,000.00
					\$15,000.00
SUBTOTAL					\$485,434.58
TOTAL PROJECT COSTS					\$4,962,163.98

ALTERNATIVE 3

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
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 FLOODWALL RELOCATION STUDY
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SHEET 1 OF 6  
 DATE: JULY 29, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	REACH 1--200 L.F. CONCRETE "I"-WALL ALONG LAKESHORE DRIVE. ALIGNMENT AS PROPOSED BY C.O.E.:				
	A) CAST-IN-PLACE CONCRETE	127	C.Y.	\$325.00	\$41,275.00
	B) STEEL SHEET PILING (PZ-22)	5,040	S.F.	\$13.00	\$65,520.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$1,000.00	\$1,000.00
	D) EXPOSED AGGREGATE WALL FINISH	2,520	S.F.	\$4.00	\$10,080.00
	E) STRUCTURAL EXCAVATION	200	C.Y.	\$7.00	\$1,400.00
	F) STRUCTURAL BACKFILL	150	C.Y.	\$10.00	\$1,500.00
	G) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
	H) PAVING--UNO ENTR. & SIDEWALKS	1	L.S.	\$24,500.00	\$24,500.00
					-----
					SUBTOTAL---REACH 1
					\$145,775.00
2	REACH 2 & REACH 3--750 L.F. CONCRETE "I"-WALL/LEVEE COMBINATION, NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	504	C.Y.	\$325.00	\$163,800.00
	B) STEEL SHEET PILING (PZ-22)	19,440	S.F.	\$13.00	\$252,720.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$3,000.00	\$3,000.00
	D) EXPOSED AGGREGATE WALL FINISH	10,080	S.F.	\$4.00	\$40,320.00
	E) EXCAVATION	1,000	C.Y.	\$7.00	\$7,000.00
	F) LEVEE EMBANKMENT (COMPACTED)	8,600	C.Y.	\$12.00	\$103,200.00
	G) CONCRETE RETAINING WALL	240	C.Y.	\$325.00	\$78,000.00
	H) GRADING & SEEDING	1	L.S.	\$1,000.00	\$1,000.00
					-----
					SUBTOTAL---REACH 2 & REACH 3
					\$649,040.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 FLOODWALL RELOCATION STUDY

SHEET 2 OF 6  
 DATE: JULY 29, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
3	REACH 4--75 L.F. TRANSITION FROM CONCRETE I-WALL/LEVEE COMBINATION TO EARTHEN LEVEE SECTION:				
	A) CAST-IN-PLACE CONCRETE	63	C.Y.	\$325.00	\$20,475.00
	B) STEEL SHEET PILING (PZ-22)	2,520	S.F.	\$13.00	\$32,760.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$500.00	\$500.00
	D) EXPOSED AGGREGATE WALL FINISH	630	S.F.	\$4.00	\$2,520.00
	E) EXCAVATION	200	C.Y.	\$7.00	\$1,400.00
	F) LEVEE EMBANKMENT (COMPACTED)	3,250	C.Y.	\$12.00	\$39,000.00
	G) CONCRETE RETAINING WALL	60	C.Y.	\$325.00	\$19,500.00
	H) REMOVE EXIST. SEAWALL (25 L.F.)	1	L.S.	\$2,500.00	\$2,500.00
	I) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
					-----
		SUBTOTAL---REACH 4			\$119,155.00
4	REACH 5--445 L.F. EARTHEN LEVEE SECTION NORTH OF DEVELOPMENT LINE:				
	A) EXCAVATION	2,200	C.Y.	\$7.00	\$15,400.00
	B) LEVEE EMBANKMENT (COMPACTED)	32,850	C.Y.	\$12.00	\$394,200.00
	C) 6 MIL PLASTIC LINING	11,040	S.F.	\$0.60	\$6,624.00
	D) GRADING & SEEDING	1	L.S.	\$1,500.00	\$1,500.00
					-----
		SUBTOTAL---REACH 5			\$417,724.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 FLOODWALL RELOCATION STUDY

SHEET 3 OF 6  
 DATE: JULY 29, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
5	REACH 6--50 L.F. TRANSITION FROM EARTHEN LEVEE SECTION TO CONCRETE I-WALL/LEVEE COMBINATION NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	42	C.Y.	\$325.00	\$13,650.00
	B) STEEL SHEET PILING (PZ-22)	1,680	S.F.	\$13.00	\$21,840.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$250.00	\$250.00
	D) EXPOSED AGGREGATE WALL FINISH	420	S.F.	\$4.00	\$1,680.00
	E) EXCAVATION	100	C.Y.	\$7.00	\$700.00
	F) LEVEE EMBANKMENT (COMPACTED)	2,200	C.Y.	\$12.00	\$26,400.00
	G) DEMOLITION OF EXIST. SALES BLDG.	1	L.S.	\$15,000.00	\$15,000.00
	H) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
					-----
					SUBTOTAL---REACH 6
					\$80,020.00
6	REACH 7--120 L.F. CONCRETE "I"-WALL/LEVEE COMBINATION, NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	64	C.Y.	\$325.00	\$20,800.00
	B) STEEL SHEET PILING (PZ-22)	2,520	S.F.	\$13.00	\$32,760.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$500.00	\$500.00
	D) EXPOSED AGGREGATE WALL FINISH	1,260	S.F.	\$4.00	\$5,040.00
	E) EXCAVATION	400	C.Y.	\$7.00	\$2,800.00
	F) LEVEE EMBANKMENT (COMPACTED)	3,100	C.Y.	\$12.00	\$37,200.00
	G) CONCRETE RETAINING WALL	0	C.Y.	\$325.00	\$0.00
	H) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
					-----
					SUBTOTAL---REACH 7
					\$99,600.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 FLOODWALL RELOCATION STUDY

SHEET 4 OF 6  
 DATE: JULY 29, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
7	REACH 8--50 L.F. TRANSITION FROM CONCRETE I-WALL/LEVEE COMBINATION TO EARTHEN LEVEE SECTION NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	42	C.Y.	\$325.00	\$13,650.00
	B) STEEL SHEET PILING (PZ-22)	1,680	S.F.	\$13.00	\$21,840.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$250.00	\$250.00
	D) EXPOSED AGGREGATE WALL FINISH	420	S.F.	\$4.00	\$1,680.00
	E) EXCAVATION	100	C.Y.	\$7.00	\$700.00
	F) LEVEE EMBANKMENT (COMPACTED)	2,450	C.Y.	\$12.00	\$29,400.00
	G) GRADING & SEEDING	1	L.S.	\$250.00	\$250.00
					-----
					SUBTOTAL---REACH 8
					\$67,770.00
8	REACH 9--750 L.F. EARTHEN LEVEE SECTION NORTH OF DEVELOPMENT LINE:				
	A) EXCAVATION	3,600	C.Y.	\$7.00	\$25,200.00
	B) LEVEE EMBANKMENT (COMPACTED)	53,555	C.Y.	\$12.00	\$642,660.00
	C) 6 MIL PLASTIC LINING	18,000	S.F.	\$0.60	\$10,800.00
	D) GRADING & SEEDING	1	L.S.	\$2,500.00	\$2,000.00
					-----
					SUBTOTAL---REACH 9
					\$680,660.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 FLOODWALL RELOCATION STUDY

SHEET 5 OF 6  
 DATE: JULY 29, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
9	REACH 10 & REACH 11--540 L.F. CONCRETE "I"-WALL/LEVEE COMBINATION, NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	350	C.Y.	\$325.00	\$113,750.00
	B) STEEL SHEET PILING (PZ-22)	13,515	S.F.	\$13.00	\$175,695.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$2,500.00	\$2,500.00
	D) EXPOSED AGGREGATE WALL FINISH	6,510	S.F.	\$4.00	\$26,040.00
	E) EXCAVATION (CLEARING & GRUBBING)	600	C.Y.	\$7.00	\$4,200.00
	F) LEVEE EMBANKMENT (COMPACTED)	8,800	C.Y.	\$12.00	\$105,600.00
	G) REMOVE EXIST. SEAWALL (20 L.F.)	1	L.S.	\$2,000.00	\$2,000.00
	H) GRADING & SEEDING	1	L.S.	\$1,000.00	\$1,000.00
					-----
		SUBTOTAL---REACH 10 & 11			\$430,785.00
10	REACH 12--225 L.F. EARTHEN LEVEE SECTION ALONG LAKESHORE DRIVE. ALIGNMENT AS PROPOSED BY C.O.E.:				
	A) EXCAVATION, CLEARING & GRUBBING	800	C.Y.	\$7.00	\$5,600.00
	B) LEVEE EMBANKMENT (COMPACTED)	5,800	C.Y.	\$12.00	\$69,600.00
	C) 6 MIL PLASTIC LINING	4,800	S.F.	\$0.60	\$2,880.00
	D) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
	E) ADD'L. EMBANKMENT ALONG LAKESHORE DRIVE	700	C.Y.	\$12.00	\$8,400.00
					-----
		SUBTOTAL---REACH 12			\$86,980.00
		SUBTOTAL--ITEMS 1-10			\$2,632,234.00



PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 FLOODWALL RELOCATION STUDY

SHEET 6 OF 6  
 DATE: JULY 29, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
11	MISC. CONSTRUCTION				
	A) VEHICULAR ACCESS RAMPS	3	EACH	\$30,000.00	\$90,000.00
	B) PEDESTRIAN ACCESS (STEPS)	1	EACH	\$10,000.00	\$10,000.00
	C) ROLLER GATES	3	EACH	\$50,000.00	\$150,000.00
	D) ROADWAY RAMPS AT LAKESHORE DRIVE LEVEES AS PROPOSED BY C.O.E.	1	L.S.	\$810,280.00	\$810,280.00
	E) UTILITY RELOCATIONS AND LEVEE CROSSINGS	1	L.S.	\$160,000.00	\$160,000.00
					-----
				SUBTOTAL--MISC. CONSTRUCTION	\$1,220,280.00
				SUBTOTAL--ITEMS 1-11	\$3,852,514.00
				CONTINGENCY (10%)	\$385,251.40
				TOTAL CONSTRUCTION COSTS	----- \$4,237,765.40
				OTHER COSTS:	
				A) ENGINEERING (6.45%)	\$273,335.87
				B) TESTING (1%)	\$42,377.65
				C) INSPECTION (2.5%)	\$105,944.14
				D) GEOTECHNICAL INVESTIGATIONS	\$25,000.00
				E) SURVEYING	\$15,000.00
					-----
				SUBTOTAL	\$461,657.66
					-----
				TOTAL PROJECT COSTS	----- \$4,699,423.06
					-----

ALTERNATIVE 4

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
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 FLOODWALL RELOCATION STUDY
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SHEET 1 OF 8  
 DATE: JULY 25, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	REACH 1--200 L.F. EARTHEN LEVEE SECTION ALONG LAKESHORE DRIVE. ALIGNMENT AS PROPOSED BY C.O.E.:				
	A) EXCAVATION, CLEARING & GRUBBING	600	C.Y.	\$7.00	\$4,200.00
	B) LEVEE EMBANKMENT (COMPACTED)	7,000	C.Y.	\$12.00	\$84,000.00
	C) 6 MIL PLASTIC LINING	3,600	S.F.	\$0.60	\$2,160.00
	D) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
	E) ADD'L. EMBANKMENT ALONG LAKESHORE DRIVE	700	C.Y.	\$12.00	\$8,400.00
					-----
					SUBTOTAL---REACH 1
					\$99,260.00
2	REACH 2 & REACH 3--750 L.F. CONCRETE "I"-WALL/LEVEE COMBINATION, NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	504	C.Y.	\$325.00	\$163,800.00
	B) STEEL SHEET PILING (PZ-22)	19,440	S.F.	\$13.00	\$252,720.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$3,000.00	\$3,000.00
	D) EXPOSED AGGREGATE WALL FINISH	10,080	S.F.	\$4.00	\$40,320.00
	E) EXCAVATION	1,000	C.Y.	\$7.00	\$7,000.00
	F) LEVEE EMBANKMENT (COMPACTED)	8,600	C.Y.	\$12.00	\$103,200.00
	G) CONCRETE RETAINING WALL	240	C.Y.	\$325.00	\$78,000.00
	H) GRADING & SEEDING	1	L.S.	\$1,000.00	\$1,000.00
					-----
					SUBTOTAL---REACH 2 & REACH 3
					\$649,040.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 FLOODWALL RELOCATION STUDY

SHEET 2 OF 8  
 DATE: JULY 25, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
3	REACH 4--75 L.F. TRANSITION FROM CONCRETE I-WALL/LEVEE COMBINATION TO EARTHEN LEVEE SECTION:				
	A) CAST-IN-PLACE CONCRETE	63	C.Y.	\$325.00	\$20,475.00
	B) STEEL SHEET PILING (PZ-22)	2,520	S.F.	\$13.00	\$32,760.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$500.00	\$500.00
	D) EXPOSED AGGREGATE WALL FINISH	630	S.F.	\$4.00	\$2,520.00
	E) EXCAVATION	200	C.Y.	\$7.00	\$1,400.00
	F) LEVEE EMBANKMENT (COMPACTED)	3,250	C.Y.	\$12.00	\$39,000.00
	G) CONCRETE RETAINING WALL	110	C.Y.	\$325.00	\$35,750.00
	H) REMOVE EXIST. SEAWALL (25 L.F.)	1	L.S.	\$2,500.00	\$2,500.00
	I) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
					-----
				SUBTOTAL---REACH 4	\$135,405.00
4	REACH 5--240 L.F. EARTHEN LEVEE SECTION NORTH OF DEVELOPMENT LINE:				
	A) EXCAVATION	1,150	C.Y.	\$7.00	\$8,050.00
	B) LEVEE EMBANKMENT (COMPACTED)	17,270	C.Y.	\$12.00	\$207,240.00
	C) 6 MIL PLASTIC LINING	5,760	S.F.	\$0.60	\$3,456.00
	D) GRADING & SEEDING	1	L.S.	\$1,000.00	\$1,000.00
					-----
				SUBTOTAL---REACH 5	\$219,746.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
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 FLOODWALL RELOCATION STUDY
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SHEET 3 OF 8  
 DATE: JULY 25, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
5	REACH 6--50 L.F. TRANSITION FROM EARTHEN LEVEE SECTION TO CONCRETE I-WALL/LEVEE COMBINATION NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	42	C.Y.	\$325.00	\$13,650.00
	B) STEEL SHEET PILING (PZ-22)	1,680	S.F.	\$13.00	\$21,840.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$250.00	\$250.00
	D) EXPOSED AGGREGATE WALL FINISH	420	S.F.	\$4.00	\$1,680.00
	E) EXCAVATION	100	C.Y.	\$7.00	\$700.00
	F) LEVEE EMBANKMENT (COMPACTED)	2,200	C.Y.	\$12.00	\$26,400.00
	G) CONCRETE RETAINING WALL	70	C.Y.	\$325.00	\$22,750.00
	H) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
					-----
					SUBTOTAL---REACH 6
					\$87,770.00
6	REACH 7--450 L.F. CONCRETE "I"-WALL/LEVEE COMBINATION, NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	295	C.Y.	\$325.00	\$95,875.00
	B) STEEL SHEET PILING (PZ-22)	12,600	S.F.	\$13.00	\$163,800.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$2,000.00	\$2,000.00
	D) EXPOSED AGGREGATE WALL FINISH	5,880	S.F.	\$4.00	\$23,520.00
	E) EXCAVATION	1,000	C.Y.	\$7.00	\$7,000.00
	F) LEVEE EMBANKMENT (COMPACTED)	9,032	C.Y.	\$12.00	\$108,384.00
	G) CONCRETE RETAINING WALL	300	C.Y.	\$325.00	\$97,500.00
	H) GRADING & SEEDING	1	L.S.	\$1,250.00	\$1,250.00
					-----
					SUBTOTAL---REACH 7
					\$499,329.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
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 FLOODWALL RELOCATION STUDY
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SHEET 4 OF 8  
 DATE: JULY 25, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
7	REACH 8--50 L.F. TRANSITION FROM EARTHEN LEVEE SECTION TO CONCRETE I-WALL/LEVEE COMBINATION NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	42	C.Y.	\$325.00	\$13,650.00
	B) STEEL SHEET PILING (PZ-22)	1,680	S.F.	\$13.00	\$21,840.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$250.00	\$250.00
	D) EXPOSED AGGREGATE WALL FINISH	420	S.F.	\$4.00	\$1,680.00
	E) EXCAVATION	100	C.Y.	\$7.00	\$700.00
	F) LEVEE EMBANKMENT (COMPACTED)	2,450	C.Y.	\$12.00	\$29,400.00
	G) GRADING & SEEDING	1	L.S.	\$250.00	\$250.00
					-----
				SUBTOTAL---REACH 8	\$67,770.00
8	REACH 9--640 L.F. EARTHEN LEVEE SECTION NORTH OF DEVELOPMENT LINE:				
	A) EXCAVATION	3,000	C.Y.	\$7.00	\$21,000.00
	B) LEVEE EMBANKMENT (COMPACTED)	46,000	C.Y.	\$12.00	\$552,000.00
	C) 6 MIL PLASTIC LINING	15,360	S.F.	\$0.60	\$9,216.00
	D) GRADING & SEEDING	1	L.S.	\$2,000.00	\$2,000.00
					-----
				SUBTOTAL---REACH 9	\$584,216.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 FLOODWALL RELOCATION STUDY

SHEET 5 OF 8  
 DATE: JULY 25, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
9	REACH 10 & REACH 11--540 L.F. CONCRETE "I"-WALL/LEVEE COMBINATION, NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	350	C.Y.	\$325.00	\$113,750.00
	B) STEEL SHEET PILING (PZ-22)	13,515	S.F.	\$13.00	\$175,695.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$2,500.00	\$2,500.00
	D) EXPOSED AGGREGATE WALL FINISH	6,510	S.F.	\$4.00	\$26,040.00
	E) EXCAVATION (CLEARING & GRUBBING)	600	C.Y.	\$7.00	\$4,200.00
	F) LEVEE EMBANKMENT (COMPACTED)	8,800	C.Y.	\$12.00	\$105,600.00
	G) REMOVE EXIST. SEAWALL (20 L.F.)	1	L.S.	\$2,000.00	\$2,000.00
	H) GRADING & SEEDING	1	L.S.	\$1,000.00	\$1,000.00
					-----
				SUBTOTAL---REACH 10 & 11	\$430,785.00
10	REACH 12--225 L.F. EARTHEN LEVEE SECTION ALONG LAKESHORE DRIVE. ALIGNMENT AS PROPOSED BY C.O.E.:				
	A) EXCAVATION, CLEARING & GRUBBING	950	C.Y.	\$7.00	\$6,650.00
	B) LEVEE EMBANKMENT (COMPACTED)	5,800	C.Y.	\$12.00	\$69,600.00
	C) 6 MIL PLASTIC LINING	5,000	S.F.	\$0.60	\$3,000.00
	D) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
	E) ADD'L. EMBANKMENT ALONG LAKESHORE DRIVE	700	C.Y.	\$12.00	\$8,400.00
					-----
				SUBTOTAL---REACH 12	\$88,150.00
				SUBTOTAL--ITEMS 1-10	\$2,861,471.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
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 FLOODWALL RELOCATION STUDY
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SHEET 6 OF 8  
 DATE: JULY 25, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
11	MISC. CONSTRUCTION				
	A) VEHICULAR ACCESS RAMPS	3	EACH	\$30,000.00	\$90,000.00
	B) PEDESTRIAN ACCESS (STEPS)	1	EACH	\$10,000.00	\$10,000.00
	C) ROLLER GATES	3	EACH	\$50,000.00	\$150,000.00
	D) ROADWAY RAMPS AT LAKESHORE DRIVE LEVEES AS PROPOSED BY C.O.E.	1	L.S.	\$810,280.00	\$810,280.00
	E) UTILITY RELOCATIONS AND LEVEE CROSSINGS	1	L.S.	\$150,000.00	\$160,000.00
SUBTOTAL--MISC. CONSTRUCTION					\$1,220,280.00
SUBTOTAL--ITEMS 1-11					\$4,081,751.00
CONTINGENCY (10%)					\$408,175.10
TOTAL CONSTRUCTION COSTS					\$4,489,926.10
OTHER COSTS:					
A) ENGINEERING (6.45%)					\$289,600.23
B) TESTING (1%)					\$44,899.26
C) INSPECTION (2.5%)					\$112,248.15
D) GEOTECHNICAL INVESTIGATIONS					\$25,000.00
E) SURVEYING					\$15,000.00
SUBTOTAL					\$486,747.65
TOTAL PROJECT COSTS					\$4,976,673.75

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 FLOODWALL RELOCATION STUDY

SHEET 7 OF 8  
 DATE: JULY 25, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
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COST TO CONSTRUCT CONCRETE RETAINING WALLS

ITEM	DESCRIPTION	COST OF WALLS TO PROTECT EXIST. BLDGS.
1	REACH 1	\$0.00
2	REACH 2	\$0.00
3	REACH 3 (240 L.F. REQ'D. AT SAIL CLUB BLDG.)	\$78,000.00
4	REACH 4 (110 L.F. REQ'D. AT SAIL CLUB BLDG.)	\$35,750.00
5	REACH 5	\$0.00
6	REACH 6 (70 L.F. REQ'D. AT SALES OFFICE)	\$22,750.00
7	REACH 7 (300 L.F. REQ'D. AT SALES OFFICE)	\$97,500.00
8	REACH 8	\$0.00
9	REACH 9	\$0.00
10	REACH 10	\$0.00
11	REACH 11	\$0.00
12	REACH 12	\$0.00
COST TO CONSTRUCT RETAINING WALLS		\$234,000.00



PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 FLOODWALL RELOCATION STUDY

SHEET 8 OF 8  
 DATE: JULY 25, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
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ADJUSTMENT TO PROJECT COST (DELETING C.O.E. WORK)

SUBTOTAL--CONSTRUCTION COSTS (ITEMS 1-11) \$4,081,751.00

LESS:

ITEM 1 (REACH 1) (\$99,260.00)  
 ITEM 10 (REACH 12) (\$88,150.00)  
 ITEM 11-D (RAMPS) (\$810,280.00)

SUBTOTAL (\$997,690.00)

ADJUSTED CONSTRUCTION COSTS \$3,084,061.00

CONTINGENCY (10%) \$308,406.10

TOTAL ADJUSTED CONSTRUCTION COSTS \$3,392,467.10

OTHER COSTS:

A) ENGINEERING (6.55%) \$222,206.60  
 B) TESTING (1%) \$33,924.67  
 C) INSPECTION (2.5%) \$84,811.68  
 D) GEOTECHNICAL INVESTIGATIONS \$25,000.00  
 E) SURVEYING \$15,000.00

SUBTOTAL \$380,942.94

TOTAL ADJUSTED PROJECT COST \$3,773,410.04

Appendix F

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PROJECT CORRESPONDENCE

# The Board of Levee Commissioners

**RECEIVED**

JUL 8 1985

## OF THE Orleans Levee District

SUITE 202 — ADMINISTRATION BUILDING  
NEW ORLEANS LAKEFRONT AIRPORT

**New Orleans, La.**

70126

**D. E. I.**

*ah*

PROTECTING YOU  
AND YOUR FAMILY



July 3, 1985

Mr. Walter Baudier  
Design Engineering Inc.  
3330 West Esplanade  
Suite 205  
Metairie, Louisiana 70002

Dear Mr. Baudier:

In accordance with our telephone conversation, enclosed is a copy of a letter from the Corps of Engineers and prints of a layout, and typical sections concerning recommended elevations and sections for use at Pontchartrain Beach.

Yours very truly,

*Ed Bailey*

Ed Bailey  
Assistant Chief Engineer

EB:dab

xc: Mr. H. B. Lansden  
Mr. Earl J. Magner, Jr.

Enclosures

FILE 1008  
DISTRIBUTION  
WB ✓  
JH ✓  
DS ✓



DEPARTMENT OF THE ARMY  
NEW ORLEANS DISTRICT CORPS OF ENGINEERS  
P O BOX 50287  
NEW ORLEANS LOUISIANA 70180-0287

REPLY TO  
ATTENTION OF

June 24, 1985

Engineering Division  
Projects Engineering Section

JUN 28 1985

Mr. Earl J. Magner, Jr.  
Chief Engineer  
The Board of Levee Commissioners  
Orleans Levee District  
Suite 202 - Administration Building  
New Orleans Lakefront Airport  
New Orleans, Louisiana 70126

Dear Mr. Magner:

Reference is made to your May 21, 1985 letter concerning the Lake Pontchartrain Louisiana and Vicinity Hurricane and Flood Protection Project Pontchartrain Beach Floodwall.

Enclosed are "typical sections" which can be used for cost estimating purposes for the subject floodwall and levee alternative at Pontchartrain Beach. Please note that the sections are based on hydraulic design considerations only (stability analyses were not made). The sections should be applied to the reaches as shown on the enclosed plan. The enclosed plan is the same plan as furnished in your May 21, 1985 letter but shows in red a recommended modification for the floodwall alignment on the east side of the area where the wall joins B/L Station 102+23.16 instead of B/L Station 106+58.23 as shown in blue on your original plan. Floodwall elevations are also noted on the plan. For the easternmost floodwall, the net top of wall elevation should slope from elevation 20.0 feet N.G.V.D. at its lake end to elevation 17.5 at W/L Station 200+62.41. The westernmost floodwall similarly would slope from elevation 20.0 feet N.G.V.D. at its lake end to elevation 17.0 feet where it joins approximate W/L Station 233+35.

Three all-earthen levee sections are furnished for your consideration. Levees having floodside slopes of 1 on 3, 1 on 4, and 1 on 5 have respective crest elevations of 26.5, 22.5, and 20.0.

The combined levee and floodwall plan shown on Enclosure 1 has a top wall height of 20.0 ft. N.G.V.D. with the crown of the levee at elevation 13.0 ft. N.G.V.D. Please note that the large berm shown in red for this plan is required and should be constructed of an erosive, resisting material such as clay.

I trust that the foregoing is satisfactory for your needs. Should you require additional information or should the enclosed materials need clarification, please contact Mr. Vann Stutts, phone number 838-2614.

Sincerely,

A handwritten signature in black ink, appearing to read 'Frederic M. Chatry', with a long horizontal line extending to the right.

Frederic M. Chatry  
Chief, Engineering Division

Enclosure

753  
TOP OF  
SEAWALL  
654

53

79  
105

JUST EAST OF  
WEST GROUINE  
C.C.

2615 LOW 3 LEVEL

22.5' ON 4' WIDE

200' LOW 5 LEVEL

WALL ON  
VFE

PLK 202

696

634

201

539

48

50

50

60

TOP OF  
SEAWALL

13

24

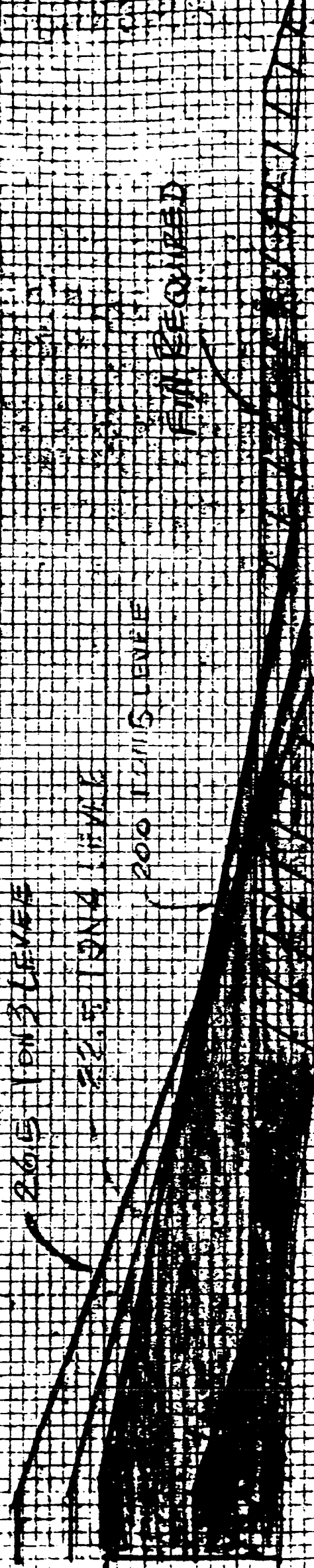
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65

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LAKE PONTCHARTRAIN

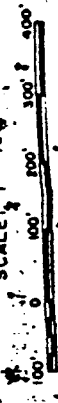


PROPOSED DEVELOPMENT

LAKE PONTCHARTRAIN AND ADJACENT HIGH LEVEL PLAN  
 DESIGN NO. 100-000-00-15 GENERAL DES  
 ORLEANS PARISH LAKEFRONT LEV  
 WEST OF I H N C  
**PLAN**  
 STA. 200+00 V/L - STA. 236+48.5  
 U S ARMY ENGINEER DISTRICT NEW OR  
 COPS OF ENGINEERS  
 NOVEMBER 1962

PLAN

SCALE 1" = 100'



212+7701 W/L

214+7582 W/L

20+9792 BL

222+5500 B

225+5921 W/L

226+5971 W/L

228+0300 B

228+6940 W/L

229+7140 W/L

PROTECTED SIDE

OF ANS

Encl 2

PL

1008  
L E N = N

MEMORANDUM

TO: File 1008

FROM: Walter Baudier

RE: Pontchartrain Beach Floodwall Relocation

DATE: July 29, 1985

A meeting was held in our office on July 29, 1985. The following were in attendance: Stephen Caplinger, Frank Key, Dennis Snyder, and Walter Baudier.

A telephone conversation with Van Stutts this date confirms elimination of wave berm on east and west side. This is subsequent to providing the Corps with elevations of the existing condition and meetings with the Corps regarding the subject. The contact person through the Corps has been Mr. Van Stutts and Mr. Jay Combe.

Show two sketches of this plan:

- a. with ramp on west side
- b. without ramp on west side

WB/drb

WB 7/29/85



August 6, 1985

Mr. Earl J. Wagner, Jr.  
Chief Engineer  
Board of Levee Commissioners  
Orleans Levee District  
Suite 202, Administration Building  
New Orleans Lakefront Airport  
New Orleans, Louisiana 70126

RE: Pontchartrain Beach Floodwall  
Protection Realignment  
DEI File: 1008

Dear Mr. Wagner:

Pursuant to our supplemental agreement, we are providing several renderings of a proposed flood protection alignment. The plan incorporates the use of levees, I-wall levee combinations, floodgates and roadway crossings.

The plan as proposed entailed the study of three separate earthen levee components, I-wall components and T-wall components using various combinations to achieve the following:

1. Provide high level hurricane and flood protection at the Pontchartrain Beach site as approved by the U. S. Army Corps of Engineers.
2. Incorporate the proposed development property within hurricane and flood protection.
3. The necessary protection should minimize the effect on the land areas. Particular attention should be directed to the east and west extremities and the proposed development line.
4. Consideration to saving as many trees as possible.
5. In development of the proposed plan, consideration was to be given to the budget for the project as balanced against aesthetic and public consideration.
6. Review of the proposal with the U. S. Army Corps of Engineers and other interested entities.

Mr. Earl J. Magner, Jr.  
Page 2

This date we are transmitting for your review renderings and plans for the Pontchartrain Beach realignment and an estimated cost of the project. Upon completion of review and comment by public interest and the private development group, we will forward a final recommendation and report on the project.

We were pleased to have been of service to the Board in this manner and look forward to a successful completion of this important public project.

With best regards, I am

Yours very truly,

DESIGN ENGINEERING, INC.

*Walter Baudier*  
Walter Baudier

WB:drb

Enclosures

**COST ESTIMATE FOR EARTHEN LEVEE ALTERNATIVE AT SALES OFFICE**

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 -----  
 FLOODWALL RELOCATION STUDY  
 -----

SHEET 1 OF 6  
 DATE: JULY 29, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>TOTAL</u>
1	REACH 1--200 L.F. CONCRETE "I"-WALL ALONG LAKESHORE DRIVE. ALIGNMENT AS PROPOSED BY C.O.E.:				
	A) CAST-IN-PLACE CONCRETE	127	C.Y.	\$325.00	\$41,275.00
	B) STEEL SHEET PILING (PZ-22)	5,040	S.F.	\$13.00	\$65,520.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$1,000.00	\$1,000.00
	D) EXPOSED AGGREGATE WALL FINISH	2,520	S.F.	\$4.00	\$10,080.00
	E) STRUCTURAL EXCAVATION	200	C.Y.	\$7.00	\$1,400.00
	F) STRUCTURAL BACKFILL	150	C.Y.	\$10.00	\$1,500.00
	G) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
	H) PAVING--UNO ENTR. & SIDEWALKS	1	L.S.	\$24,500.00	\$24,500.00
					-----
					SUBTOTAL---REACH 1
					\$145,775.00
2	REACH 2 & REACH 3--750 L.F. CONCRETE "I"-WALL/LEVEE COMBINATION, NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	504	C.Y.	\$325.00	\$163,800.00
	B) STEEL SHEET PILING (PZ-22)	19,440	S.F.	\$13.00	\$252,720.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$3,000.00	\$3,000.00
	D) EXPOSED AGGREGATE WALL FINISH	10,080	S.F.	\$4.00	\$40,320.00
	E) EXCAVATION	1,000	C.Y.	\$7.00	\$7,000.00
	F) LEVEE EMBANKMENT (COMPACTED)	8,600	C.Y.	\$12.00	\$103,200.00
	G) CONCRETE RETAINING WALL	240	C.Y.	\$325.00	\$78,000.00
	H) GRADING & SEEDING	1	L.S.	\$1,000.00	\$1,000.00
					-----
					SUBTOTAL---REACH 2 & REACH 3
					\$649,040.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 FLOODWALL RELOCATION STUDY

SHEET 2 OF 6  
 DATE: JULY 29, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
3	REACH 4--75 L.F. TRANSITION FROM CONCRETE I-WALL/LEVEE COMBINATION TO EARTHEN LEVEE SECTION:				
	A) CAST-IN-PLACE CONCRETE	63	C.Y.	\$325.00	\$20,475.00
	B) STEEL SHEET PILING (PZ-22)	2,520	S.F.	\$13.00	\$32,760.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$500.00	\$500.00
	D) EXPOSED AGGREGATE WALL FINISH	630	S.F.	\$4.00	\$2,520.00
	E) EXCAVATION	200	C.Y.	\$7.00	\$1,400.00
	F) LEVEE EMBANKMENT (COMPACTED)	3,250	C.Y.	\$12.00	\$39,000.00
	G) CONCRETE RETAINING WALL	60	C.Y.	\$325.00	\$19,500.00
	H) REMOVE EXIST. SEAWALL (25 L.F.)	1	L.S.	\$2,500.00	\$2,500.00
	I) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
					-----
					SUBTOTAL---REACH 4
					\$119,155.00
4	REACH 5--445 L.F. EARTHEN LEVEE SECTION NORTH OF DEVELOPMENT LINE:				
	A) EXCAVATION	2,200	C.Y.	\$7.00	\$15,400.00
	B) LEVEE EMBANKMENT (COMPACTED)	32,850	C.Y.	\$12.00	\$394,200.00
	C) 6 MIL PLASTIC LINING	11,040	S.F.	\$0.60	\$6,624.00
	D) GRADING & SEEDING	1	L.S.	\$1,500.00	\$1,500.00
					-----
					SUBTOTAL---REACH 5
					\$417,724.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 -----  
 FLOODWALL RELOCATION STUDY  
 -----

SHEET 3 OF 6  
 DATE: JULY 29, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
5	REACH 6--50 L.F. TRANSITION FROM EARTHEN LEVEE SECTION TO CONCRETE I-WALL/LEVEE COMBINATION NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	42	C.Y.	\$325.00	\$13,650.00
	B) STEEL SHEET PILING (PZ-22)	1,680	S.F.	\$13.00	\$21,840.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$250.00	\$250.00
	D) EXPOSED AGGREGATE WALL FINISH	420	S.F.	\$4.00	\$1,680.00
	E) EXCAVATION	100	C.Y.	\$7.00	\$700.00
	F) LEVEE EMBANKMENT (COMPACTED)	2,200	C.Y.	\$12.00	\$26,400.00
	G) DEMOLITION OF EXIST. SALES BLDG.	1	L.S.	\$15,000.00	\$15,000.00
	H) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
					-----
		SUBTOTAL---REACH 6			\$80,020.00
6	REACH 7--120 L.F. CONCRETE "I"-WALL/LEVEE COMBINATION, NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	64	C.Y.	\$325.00	\$20,800.00
	B) STEEL SHEET PILING (PZ-22)	2,520	S.F.	\$13.00	\$32,760.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$500.00	\$500.00
	D) EXPOSED AGGREGATE WALL FINISH	1,260	S.F.	\$4.00	\$5,040.00
	E) EXCAVATION	400	C.Y.	\$7.00	\$2,800.00
	F) LEVEE EMBANKMENT (COMPACTED)	3,100	C.Y.	\$12.00	\$37,200.00
	G) CONCRETE RETAINING WALL	0	C.Y.	\$325.00	\$0.00
	H) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
					-----
		SUBTOTAL---REACH 7			\$99,600.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 FLOODWALL RELOCATION STUDY

SHEET 4 OF 6  
 DATE: JULY 29, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
7	REACH 8--50 L.F. TRANSITION FROM CONCRETE I-WALL/LEVEE COMBINATION TO EARTHEN LEVEE SECTION NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	42	C.Y.	\$325.00	\$13,650.00
	B) STEEL SHEET PILING (PZ-22)	1,680	S.F.	\$13.00	\$21,840.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$250.00	\$250.00
	D) EXPOSED AGGREGATE WALL FINISH	420	S.F.	\$4.00	\$1,680.00
	E) EXCAVATION	100	C.Y.	\$7.00	\$700.00
	F) LEVEE EMBANKMENT (COMPACTED)	2,450	C.Y.	\$12.00	\$29,400.00
	G) GRADING & SEEDING	1	L.S.	\$250.00	\$250.00
					-----
					SUBTOTAL---REACH 8
					\$67,770.00
8	REACH 9--750 L.F. EARTHEN LEVEE SECTION NORTH OF DEVELOPMENT LINE:				
	A) EXCAVATION	3,600	C.Y.	\$7.00	\$25,200.00
	B) LEVEE EMBANKMENT (COMPACTED)	53,555	C.Y.	\$12.00	\$642,660.00
	C) 6 MIL PLASTIC LINING	18,000	S.F.	\$0.60	\$10,800.00
	D) GRADING & SEEDING	1	L.S.	\$2,500.00	\$2,000.00
					-----
					SUBTOTAL---REACH 9
					\$680,660.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 FLOODWALL RELOCATION STUDY

SHEET 5 OF 6  
 DATE: JULY 29, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
9	REACH 10 & REACH 11--540 L.F. CONCRETE "I"-WALL/LEVEE COMBINATION, NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	350	C.Y.	\$325.00	\$113,750.00
	B) STEEL SHEET PILING (PZ-22)	13,515	S.F.	\$13.00	\$175,695.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$2,500.00	\$2,500.00
	D) EXPOSED AGGREGATE WALL FINISH	6,510	S.F.	\$4.00	\$26,040.00
	E) EXCAVATION (CLEARING & GRUBBING)	600	C.Y.	\$7.00	\$4,200.00
	F) LEVEE EMBANKMENT (COMPACTED)	8,800	C.Y.	\$12.00	\$105,600.00
	G) REMOVE EXIST. SEAWALL (20 L.F.)	1	L.S.	\$2,000.00	\$2,000.00
	H) GRADING & SEEDING	1	L.S.	\$1,000.00	\$1,000.00
					<hr/>
					SUBTOTAL---REACH 10 & 11
					\$430,785.00
10	REACH 12--225 L.F. EARTHEN LEVEE SECTION ALONG LAKESHORE DRIVE. ALIGNMENT AS PROPOSED BY C.O.E.:				
	A) EXCAVATION, CLEARING & GRUBBING	800	C.Y.	\$7.00	\$5,600.00
	B) LEVEE EMBANKMENT (COMPACTED)	5,800	C.Y.	\$12.00	\$69,600.00
	C) 6 MIL PLASTIC LINING	4,800	S.F.	\$0.60	\$2,880.00
	D) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
	E) ADD'L. EMBANKMENT ALONG LAKESHORE DRIVE	700	C.Y.	\$12.00	\$8,400.00
					<hr/>
					SUBTOTAL---REACH 12
					\$86,980.00
					<hr/>
					SUBTOTAL--ITEMS 1-10
					\$2,632,234.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 FLOODWALL RELOCATION STUDY

SHEET 6 OF 6  
 DATE: JULY 29, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
11	MISC. CONSTRUCTION				
	A) VEHICULAR ACCESS RAMPS	3	EACH	\$30,000.00	\$90,000.00
	B) PEDESTRIAN ACCESS (STEPS)	1	EACH	\$10,000.00	\$10,000.00
	C) ROLLER GATES	3	EACH	\$50,000.00	\$150,000.00
	D) ROADWAY RAMPS AT LAKESHORE DRIVE LEVEES AS PROPOSED BY C.O.E.	1	L.S.	\$810,280.00	\$810,280.00
	E) UTILITY RELOCATIONS AND LEVEE CROSSINGS	1	L.S.	\$160,000.00	\$160,000.00
					-----
					SUBTOTAL--MISC. CONSTRUCTION \$1,220,280.00
					SUBTOTAL--ITEMS 1-11 \$3,852,514.00
					CONTINGENCY (10%) \$385,251.40
					-----
					TOTAL CONSTRUCTION COSTS \$4,237,765.40
					OTHER COSTS:
					A) ENGINEERING (6.45%) \$273,335.87
					B) TESTING (1%) \$42,377.65
					C) INSPECTION (2.5%) \$105,944.14
					D) GEOTECHNICAL INVESTIGATIONS \$25,000.00
					E) SURVEYING \$15,000.00
					-----
					SUBTOTAL \$461,657.66
					-----
					TOTAL PROJECT COSTS \$4,699,423.06
					-----



COST ESTIMATE FOR RECOMMENDED LEVEL ALIGNMENT

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 -----  
 FLOODWALL RELOCATION STUDY  
 -----

SHEET 1 OF 7  
 DATE: JULY 25, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	REACH 1--200 L.F. ----- ALTERNATIVE NO. 1:  CONCRETE "I"-WALL ALONG LAKESHORE DRIVE. ALIGNMENT AS PROPOSED BY C.O.E.:				
	A) CAST-IN-PLACE CONCRETE	127	C.Y.	\$325.00	\$41,275.00
	B) STEEL SHEET PILING (PZ-22)	5,040	S.F.	\$13.00	\$65,520.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$1,000.00	\$1,000.00
	D) EXPOSED AGGREGATE WALL FINISH	2,520	S.F.	\$4.00	\$10,080.00
	E) STRUCTURAL EXCAVATION	200	C.Y.	\$7.00	\$1,400.00
	F) STRUCTURAL BACKFILL	150	C.Y.	\$10.00	\$1,500.00
	G) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
	H) PAVING--U.N.O. ENTR. & SIDEWALKS	1	L.S.	\$24,500.00	\$24,500.00
	SUBTOTAL---REACH 1 (ALTERNATIVE NO. 1)				----- \$145,775.00
	ALTERNATIVE NO. 2:  EARTHEN LEVEE SECTION ALONG LAKESHORE DRIVE. ALIGNMENT AS PROPOSED BY C.O.E.:				
	A) EXCAVATION, CLEARING & GRUBBING	600	C.Y.	\$7.00	\$4,200.00
	B) LEVEE EMBANKMENT (COMPACTED)	7,000	C.Y.	\$12.00	\$84,000.00
	C) 6 MIL PLASTIC LINING	3,600	S.F.	\$0.60	\$2,160.00
	D) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
	E) ADD'L. WORK--U.N.O. ENTR. & ADDL. EMBANKMENT (LAKESHORE DR.)	1	L.S.	\$50,715.00	\$50,715.00
	SUBTOTAL---REACH 1 (ALTERNATIVE NO. 2)				----- \$141,575.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 FLOODWALL RELOCATION STUDY

SHEET 2 OF 7  
 DATE: JULY 25, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
2	REACH 2 & REACH 3--750 L.F. CONCRETE "I"-WALL/LEVEE COMBINATION, NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	504	C.Y.	\$325.00	\$163,800.00
	B) STEEL SHEET PILING (PZ-22)	19,440	S.F.	\$13.00	\$252,720.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$3,000.00	\$3,000.00
	D) EXPOSED AGGREGATE WALL FINISH	10,080	S.F.	\$4.00	\$40,320.00
	E) EXCAVATION	1,000	C.Y.	\$7.00	\$7,000.00
	F) LEVEE EMBANKMENT (COMPACTED)	8,600	C.Y.	\$12.00	\$103,200.00
	G) CONCRETE RETAINING WALL	240	C.Y.	\$325.00	\$78,000.00
	H) GRADING & SEEDING	1	L.S.	\$1,000.00	\$1,000.00
	SUBTOTAL---REACH 2 & REACH 3				\$649,040.00
3	REACH 4--75 L.F. TRANSITION FROM CONCRETE I-WALL/LEVEE COMBINATION TO EARTHEN LEVEE SECTION:				
	A) CAST-IN-PLACE CONCRETE	63	C.Y.	\$325.00	\$20,475.00
	B) STEEL SHEET PILING (PZ-22)	2,520	S.F.	\$13.00	\$32,760.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$500.00	\$500.00
	D) EXPOSED AGGREGATE WALL FINISH	630	S.F.	\$4.00	\$2,520.00
	E) EXCAVATION	200	C.Y.	\$7.00	\$1,400.00
	F) LEVEE EMBANKMENT (COMPACTED)	3,250	C.Y.	\$12.00	\$39,000.00
	G) CONCRETE RETAINING WALL	60	C.Y.	\$325.00	\$19,500.00
	H) REMOVE EXIST. SEAWALL (25 L.F.)	1	L.S.	\$2,500.00	\$2,500.00
	I) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
	SUBTOTAL---REACH 4				\$119,155.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 -----  
 FLOODWALL RELOCATION STUDY  
 -----

SHEET 3 OF 7  
 DATE: JULY 25, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
4	REACH 5--225 L.F. EARTHEN LEVEE SECTION NORTH OF DEVELOPMENT LINE:				
	A) EXCAVATION	1,100	C.Y.	\$7.00	\$7,700.00
	B) LEVEE EMBANKMENT (COMPACTED)	16,070	C.Y.	\$12.00	\$192,840.00
	C) 6 MIL PLASTIC LINING	5,400	S.F.	\$0.60	\$3,240.00
	D) GRADING & SEEDING	1	L.S.	\$800.00	\$800.00
					-----
				SUBTOTAL---REACH 5	\$204,580.00
5	REACH 6--50 L.F. TRANSITION FROM EARTHEN LEVEE SECTION TO CONCRETE I-WALL/LEVEE COMBINATION NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	42	C.Y.	\$325.00	\$13,650.00
	B) STEEL SHEET PILING (PZ-22)	1,680	S.F.	\$13.00	\$21,840.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$250.00	\$250.00
	D) EXPOSED AGGREGATE WALL FINISH	420	S.F.	\$4.00	\$1,680.00
	E) EXCAVATION	100	C.Y.	\$7.00	\$700.00
	F) LEVEE EMBANKMENT (COMPACTED)	2,200	C.Y.	\$12.00	\$26,400.00
	G) CONCRETE RETAINING WALL	70	C.Y.	\$325.00	\$22,750.00
	H) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
					-----
				SUBTOTAL---REACH 6	\$87,770.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 -----  
 FLOODWALL RELOCATION STUDY  
 -----

SHEET 4 OF 7  
 DATE: JULY 25, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
6	REACH 7--330 L.F. CONCRETE "I"-WALL/LEVEE COMBINATION, NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	211	C.Y.	\$325.00	\$68,575.00
	B) STEEL SHEET PILING (PZ-22)	9,240	S.F.	\$13.00	\$120,120.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$1,350.00	\$1,350.00
	D) EXPOSED AGGREGATE WALL FINISH	4,200	S.F.	\$4.00	\$16,800.00
	E) EXCAVATION	600	C.Y.	\$7.00	\$4,200.00
	F) LEVEE EMBANKMENT (COMPACTED)	4,970	C.Y.	\$12.00	\$59,640.00
	G) CONCRETE RETAINING WALL	310	C.Y.	\$325.00	\$100,750.00
	H) GRADING & SEEDING	1	L.S.	\$1,000.00	\$1,000.00
					-----
					SUBTOTAL---REACH 7
					\$372,435.00
7	REACH 8--50 L.F. TRANSITION FROM EARTHEN LEVEE SECTION TO CONCRETE I-WALL/LEVEE COMBINATION NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	42	C.Y.	\$325.00	\$13,650.00
	B) STEEL SHEET PILING (PZ-22)	1,680	S.F.	\$13.00	\$21,840.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$250.00	\$250.00
	D) EXPOSED AGGREGATE WALL FINISH	420	S.F.	\$4.00	\$1,680.00
	E) EXCAVATION	100	C.Y.	\$7.00	\$700.00
	F) LEVEE EMBANKMENT (COMPACTED)	2,450	C.Y.	\$12.00	\$29,400.00
	G) GRADING & SEEDING	1	L.S.	\$250.00	\$250.00
					-----
					SUBTOTAL---REACH 8
					\$67,770.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 FLOODWALL RELOCATION STUDY

SHEET 5 OF 7  
 DATE: JULY 25, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
8	REACH 9--760 L.F. EARTHEN LEVEE SECTION NORTH OF DEVELOPMENT LINE:				
	A) EXCAVATION	3,000	C.Y.	\$7.00	\$21,000.00
	B) LEVEE EMBANKMENT (COMPACTED)	54,270	C.Y.	\$12.00	\$651,240.00
	C) 6 MIL PLASTIC LINING	18,240	S.F.	\$0.60	\$10,944.00
	D) GRADING & SEEDING	1	L.S.	\$2,000.00	\$2,000.00
					-----
					SUBTOTAL---REACH 9
					\$685,184.00
9	REACH 10 & REACH 11--540 L.F. CONCRETE "I"-WALL/LEVEE COMBINATION, NORTH OF DEVELOPMENT LINE:				
	A) CAST-IN-PLACE CONCRETE	350	C.Y.	\$325.00	\$113,750.00
	B) STEEL SHEET PILING (PZ-22)	13,515	S.F.	\$13.00	\$175,695.00
	C) WATERSTOPS & EXPANSION MATERIAL	1	L.S.	\$2,500.00	\$2,500.00
	D) EXPOSED AGGREGATE WALL FINISH	6,510	S.F.	\$4.00	\$26,040.00
	E) EXCAVATION (CLEARING & GRUBBING)	600	C.Y.	\$7.00	\$4,200.00
	F) LEVEE EMBANKMENT (COMPACTED)	8,800	C.Y.	\$12.00	\$105,600.00
	G) REMOVE EXIST. SEAWALL (20 L.F.)	1	L.S.	\$2,000.00	\$2,000.00
	H) GRADING & SEEDING	1	L.S.	\$1,000.00	\$1,000.00
					-----
					SUBTOTAL---REACH 10 & 11
					\$430,785.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 -----  
 FLOODWALL RELOCATION STUDY  
 -----

SHEET 6 OF 7  
 DATE: JULY 25, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
10	REACH 12--225 L.F. EARTHEN LEVEE SECTION ALONG LAKESHORE DRIVE. ALIGNMENT AS PROPOSED BY C.O.E.:				
	A) EXCAVATION, CLEARING & GRUBBING	800	C.Y.	\$7.00	\$5,600.00
	B) LEVEE EMBANKMENT (COMPACTED)	5,800	C.Y.	\$12.00	\$69,600.00
	C) 6 MIL PLASTIC LINING	4,800	S.F.	\$0.60	\$2,880.00
	D) GRADING & SEEDING	1	L.S.	\$500.00	\$500.00
	E) ADD'L. EMBANKMENT ALONG LAKESHORE DRIVE	700	C.Y.	\$12.00	\$8,400.00
					-----
					SUBTOTAL---REACH 12
					\$86,980.00
					SUBTOTAL--ITEMS 1-10 (USING ALTERNATIVE NO. 1 OF ITEM NO.1)
					\$2,849,474.00
11	MISC. CONSTRUCTION				
	A) VEHICULAR ACCESS RAMPS	3	EACH	\$30,000.00	\$90,000.00
	B) PEDESTRIAN ACCESS (STEPS)	1	EACH	\$10,000.00	\$10,000.00
	C) ROLLER GATES	3	EACH	\$50,000.00	\$150,000.00
	D) ROADWAY RAMPS AT LAKESHORE DRIVE LEVEES AS PROPOSED BY C.O.E.	1	L.S.	\$810,280.00	\$810,280.00
	E) UTILITY RELOCATIONS AND LEVEE CROSSINGS	1	L.S.	\$160,000.00	\$160,000.00
					-----
					SUBTOTAL--MISC. CONSTRUCTION
					\$1,220,280.00

PONTCHARTRAIN BEACH  
 ORLEANS PARISH, LOUISIANA  
 FLOODWALL RELOCATION STUDY

SHEET 7 OF 7  
 DATE: JULY 25, 1985  
 PREPARED BY: DESIGN ENGINEERING, INC.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
					SUBTOTAL--ITEMS 1-11 \$4,069,754.00
					CONTINGENCY (10%) \$406,975.40
					TOTAL CONSTRUCTION COSTS \$4,476,729.40
					OTHER COSTS:
					A) ENGINEERING (6.45%) \$288,749.05
					B) TESTING (1%) \$44,767.29
					C) INSPECTION (2.5%) \$111,918.24
					D) GEOTECHNICAL INVESTIGATIONS \$25,000.00
					E) SURVEYING \$15,000.00
					SUBTOTAL \$485,434.58
					TOTAL PROJECT COSTS \$4,962,163.98

August 20, 1985

Honorable Wayne C. Ducote  
Commissioner, Orleans Levee Board  
Real Estate Committee  
1755 Tchoupitoulas Street  
New Orleans, Louisiana 70130

Re: Correspondence from Mrs. Nancy O'Donnell Simoneaux  
Received August 12, 1985  
Relative to Pontchartrain Beach  
DEI Project No. 1008

Dear Mr. Ducote:

On August 6, 1985, our firm presented to your committee a proposal to realign the Pontchartrain Beach Floodwall. As a result of that proposal, correspondence has been received by our firm though addressed to you.

We contacted Mrs. Simoneaux by telephone on August 13, 1985 and answered questions addressed in the correspondence as follows:

1. The proposed realignment of the levee and/or floodwall addresses both the cost of relocation of the existing structure and the uses of earthen levees in some sections and a combination I-wall/levee structure where applicable. It was explained that while an earthen levee may be less expensive to construct when consideration is given to land value, existing trees, relocation of existing structure, and the aesthetic value, we are of the opinion that this represents a balance between cost and the other factors which in this case we felt merit consideration.
2. The public parking as originally proposed in the approved Pontchartrain Beach development plan would not be impacted by this proposal.
3. The openings as proposed provides ingress and egress to the public areas both by vehicles for maintenance and for parking. They are standard 26' wide openings that employ the use of approved floodgates. The engineering design will be consistent with accepted U. S. Army Corps of Engineers and professional engineering practice.
4. The cost is based on a design for a levee and/or levee floodwall combination located approximately 750'



closer to the lake than the previous design. Hurricane flood conditions and wave run-up analyzed by the U. S. Army Corps of Engineers resulted in recommendations for three different levee elevations and/or floodwall levee combinations ranging from +26' N.G.V.D. to +20' N.G.V.D. This differs substantially from the prior design, which required levees ranging from +18.0 N.G.V.D. to an average of +15 N.G.V.D. when the floodwall was to be located at Lakeshore Drive. The changed height criteria resulted in increased cost as did the increased linear footage of flood protection.

5. No funds were allocated in the estimated construction cost for right of ways. The cost estimate was based entirely on the actual value of labor and materials and professional service cost.

6. The original project in the bond issue referenced was funded as \$4.237 million and included raising of Lakeshore Drive, utility relocation, floodgates, resurfacing of Lakeshore Drive where the levee raising occurred and, of course, the cost of the I-wall. The \$2.7 million was re-evaluated prior to the sale and found to include only the cost of the I-wall. The U. S. Army Corps of Engineers' proposal, excluding land for the Lakeshore Drive alignment as presented in its General Design Memorandum is \$4,462,000 million. When the original land cost was included, the project cost climbed to \$5,384,000 as per the November 30, 1984 General Design Memorandum.

Considering that the proposed alignment is higher, longer, encompasses approximately 33 acres of property (not previously included), and minimizes the impact on the existing property both public and private, we are of the opinion that the added cost of approximately \$700,000 may be warranted. However, we remind interested parties that this is still a proposal and requires review and design inputs by all parties and, therefore, the cost estimate is subject to change.

Finally, during the course of our study we reviewed and analyzed numerous combinations of flood protection systems for this project. We have endeavored to balance the need for flood protection with the need for open space, public use and private developer concerns.

Additional information will be provided upon your request.

We hope this matter will be successfully concluded shortly.

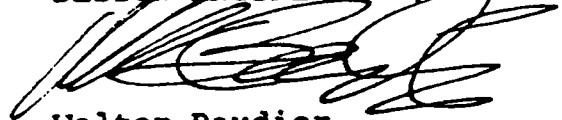
Mr. Wayne C. Ducote  
Page 3

Thank you for giving us an opportunity to work on this most important project.

With best regards, I am

Yours very truly,

DESIGN ENGINEERING, INC.




Walter Baudier

WB:drb

cc: Honorable Emile W. Schneider, President  
Honorable Frank J. Uddo  
Honorable John Hammond  
Mr. H. Baylor Lansden  
Mr. Earl J. Magner, Chief Engineer

MEMORANDUM

TO: Walter Baudier  
John Holtgreve

FROM: Dennis A. Snyder 

DATE June 21, 1985

RE: Pontchartrain Beach Floodwall Relocation  
C.O.E. Levee Elevations  
DEI Project No. 1008

I called Mr. Van Stutz of the C.O.E. today to determine the C.O.E. requirements for the levee and floodwall relocation. The following data was given by Mr. Stutz:

- 1) No stability analysis was performed and is not reflected in this data.
- 2) Earthen Levee Section (along existing seawall):

<u>Slope</u>	<u>Top Elevation (Net)</u>
1:3	26.5 N.G.V.D.
1:4	22.5 N.G.V.D.
1:5	20.0 N.G.V.D.

See attached sketch of typical earthen sections.

- 3) Combination "I" Wall/Levee Section:

Top of Concrete "I" Wall = El. 20.0 N.G.V.D.  
Top of Earthen Levee = El. 13.0 N.G.V.D.

Wall to be centered in ten foot crown. Side slopes to be 1:3 down to elevation 9.0. Then extend a 100 ft. wave berm (slope 1:100) to Elevation 8.0. Then continue on a 1:3 slope to existing ground. Wave berm to be constructed of an erosive-resistant material (clay).

See attached sketch for this section.

- 4) Floodwall Section:

East End

Suggests relocation of wall to C.O.E. Wall Line Sta. 200+62.41 which is at the point where the

existing levee intersects Lakeshore Drive. Then continue along an arc in the direction of the seawall. Elevation shall be 20.0 N.G.V.D. and then slope down to El. 17.5 at Lakeshore Drive near the existing levee.

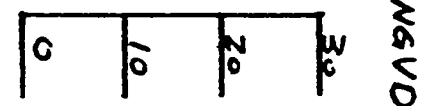
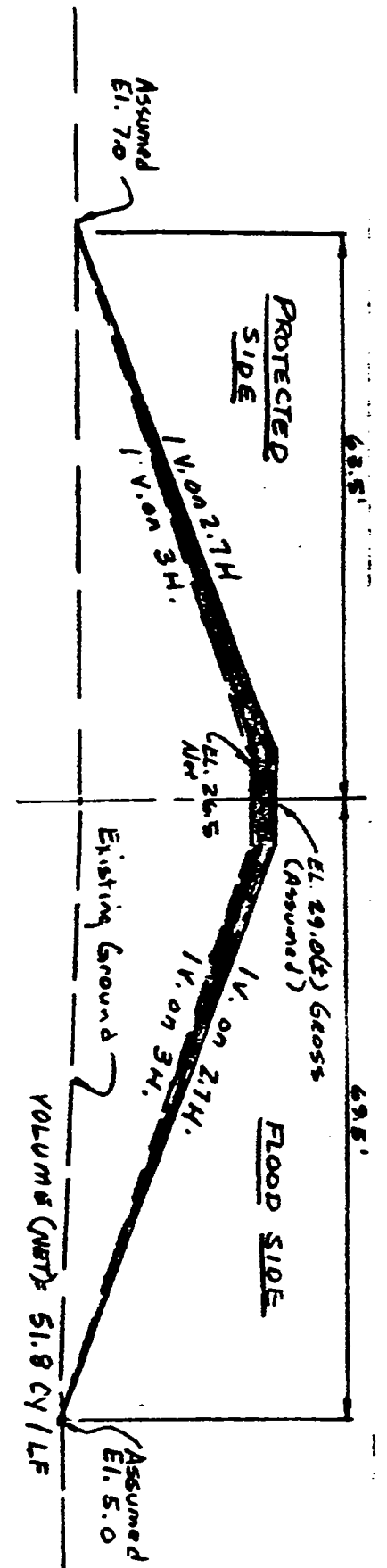
West End

Wall to remain as we indicated on plan at C.O.E. W/L Sta. 233+35(+). Top El. to be 20.0 at floodgate to El. 17.5 at Lakeshore Drive. This wall will more than likely have to be a "T" wall in some areas as the C.O.E. maximum height for "I" walls is approx. 8' stem height. Mr. Jorge Romero (838-2645) will provide additional information. Mr. Stutz will follow this up with a letter and details next week.

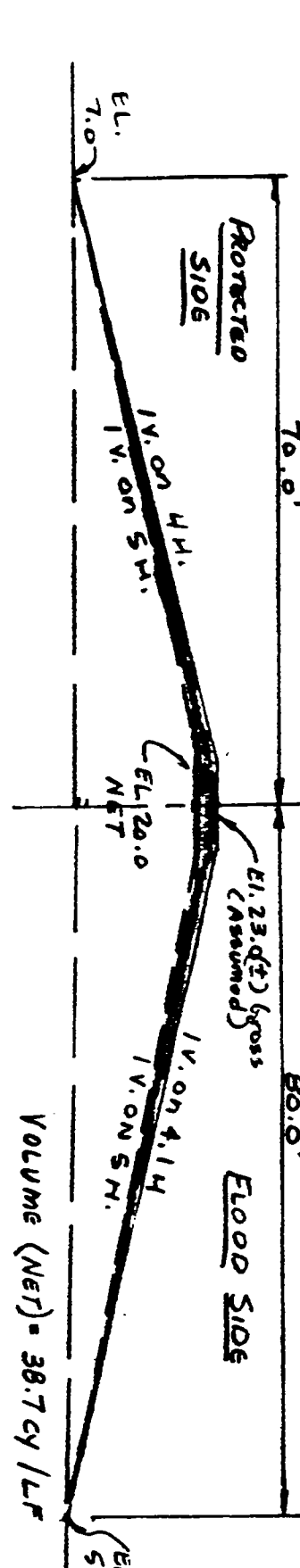
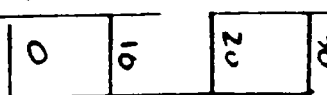
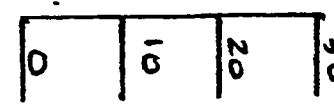
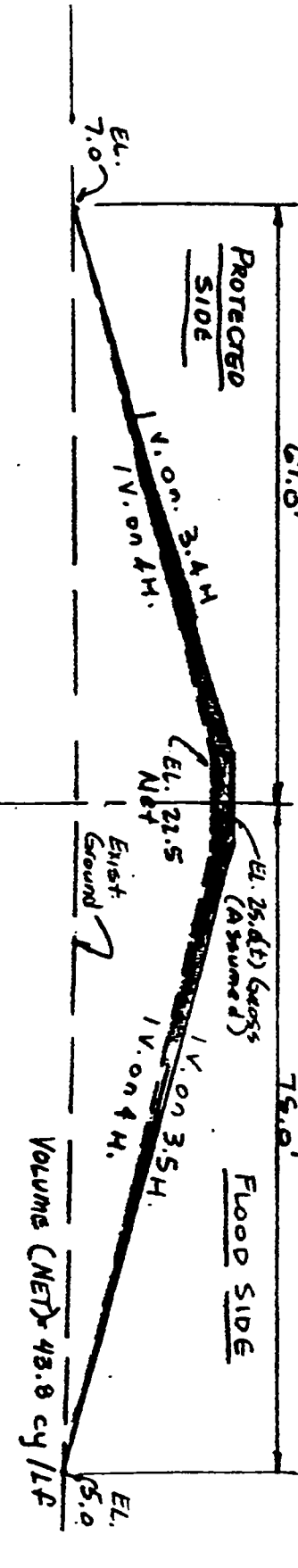
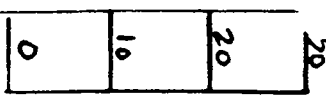
DAS/drb

Attachments

NGVD



NGVD

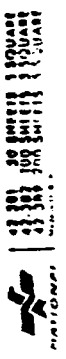


**EARTHEN LEVEE SECTIONS**

Scale 1" = 20'

**Note:**

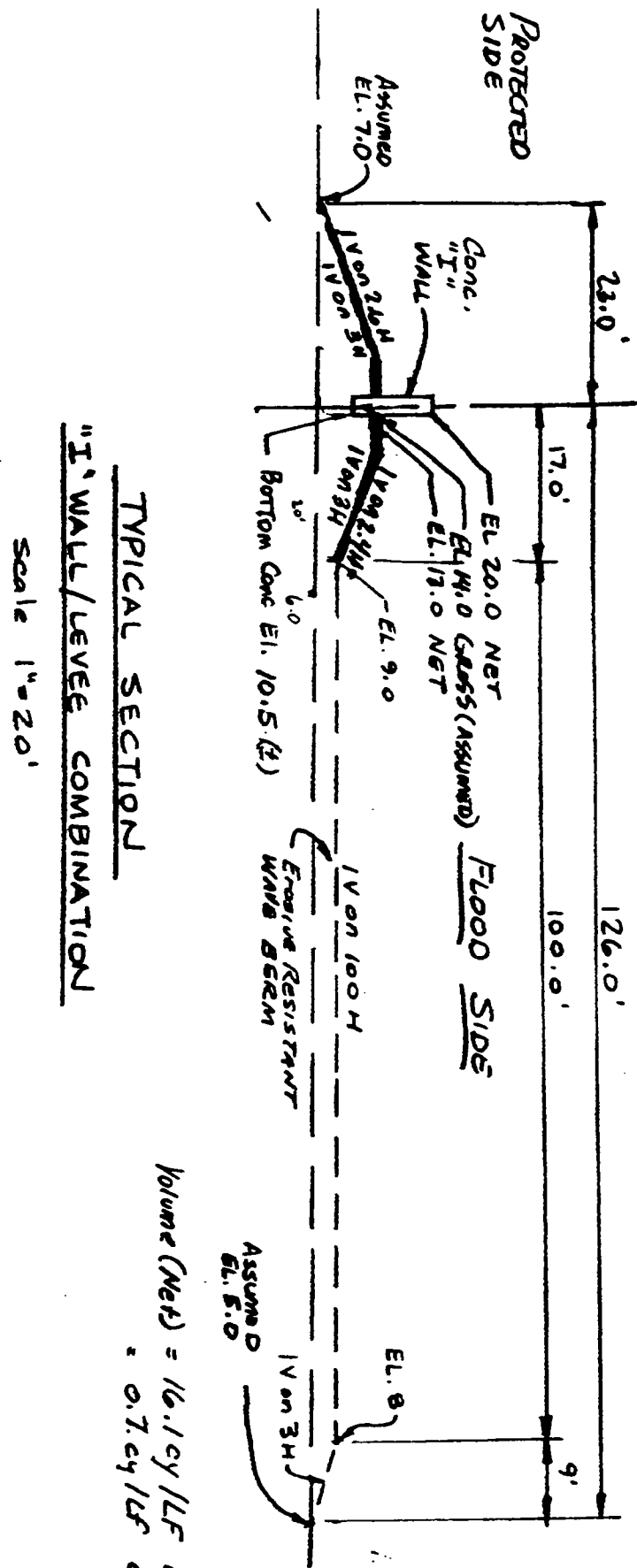
Sections Based on Data  
Per Mr. Van Stutz (C.O.E.)  
6/21/85



Ranchman Branch Floodwall Section 11

NGVD	30
	20
	0

NGVD	30
	20
	10
	0

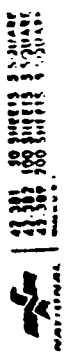


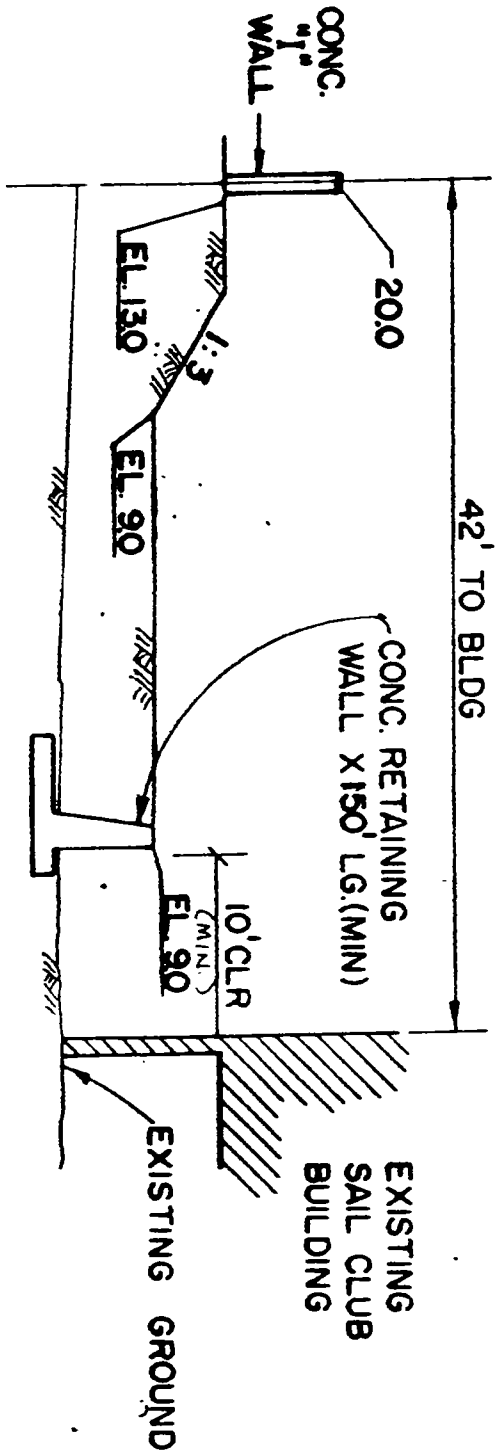
TYPICAL SECTION  
"I" WALL/LEVEE COMBINATION

Scale 1" = 20'

Volume (Net) = 16.1 cy / LF earth  
= 0.7 cy / LF conc.

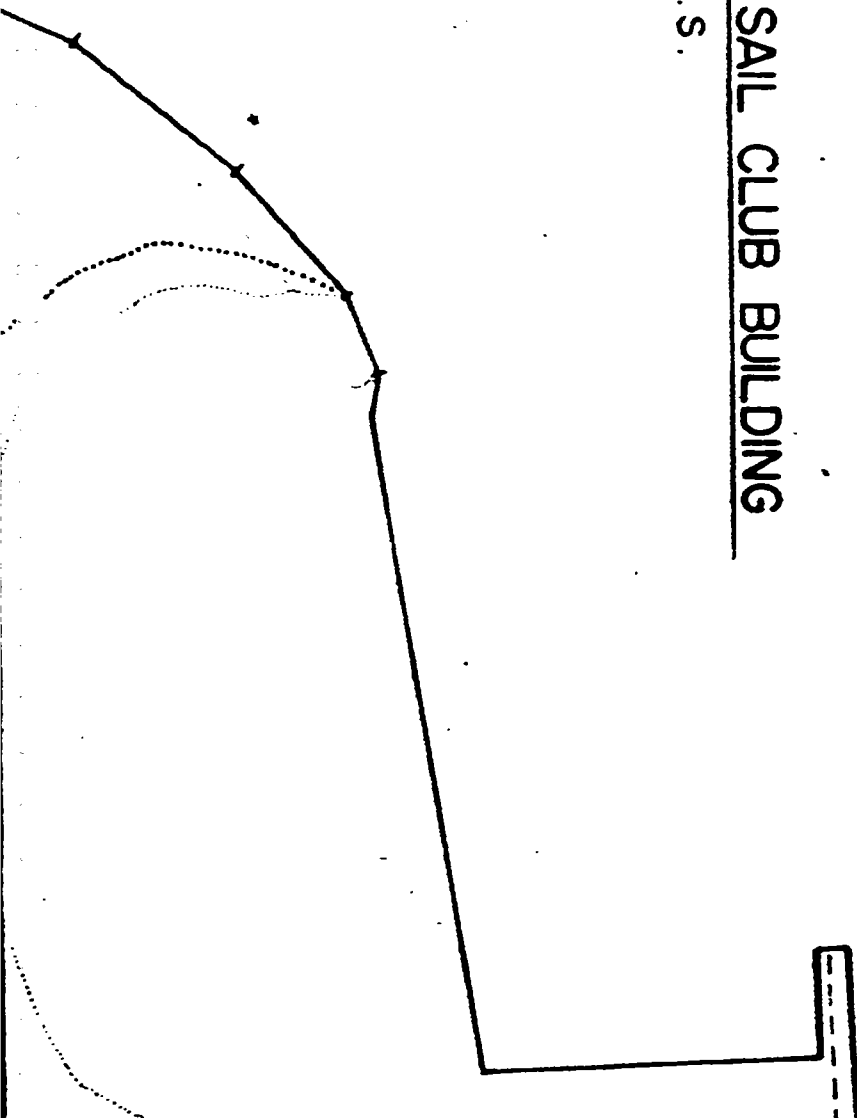
NOTE:  
SECTION BASED ON DATA  
PROVIDED BY MR. VAN STURTS  
(L.O.E.) 6/21/85





ALTERNATIVE AT SAIL CLUB BUILDING

N.T.S.



ESTIMATED AREAS REQUIRED FOR VARIOUS PLANS

Current Approval Alignment:

- I. Area for Floodwall as proposed by the Corps of Engineers in the General Design Memorandum Page 49 - 1.98 acres.

Proposed Alternative Alignment:

- I. Area required for the new proposed alignment:

At the Sailing Club      7,364 s.f. or 0.17 acres

At the east and west extremities access ramp  
3,975 s.f. each x 3 ramps = 11,925 s.f. = 0.27 acres.

Total Acres Required = 0.44 acres

- II. Area required paralleling development line:

- a. With retaining wall at sales office = 6.54 acres
- b. With complete levee and removal of sales office  
7.27 acres



August 7, 1985

Pontchartrain Beach Corporation  
c/o Ms. Jackie McPherson  
Shushan, Meyer, Jackson, McPherson & Herzog  
1010 Common Street, Suite 1500  
New Orleans, Louisiana 70112

RE: Realignment of the Proposed Flood Protection  
System at Pontchartrain Beach  
DEI Project No. 1008

Dear Ms. McPherson:

Pursuant to the directive of the Orleans Levee Board, we are transmitting for your review a proposed realignment of the flood protection system at Pontchartrain Beach.

We will be available to discuss technical questions regarding the proposed construction methods and time schedules. Please direct any other questions you may have to the Real Estate Committee for appropriate action.

With best regards, I am

Yours very truly,

DESIGN ENGINEERING, INC.



Walter Baudier

WB:drb

Enclosure

cc: Honorable Emile W. Schneider  
Honorable Wayne C. Ducote  
Honorable Frank J. Uddo  
Honorable John R. Ross  
Honorable Sidney J. Barthelemy  
Honorable George Talbot, Jr.  
Honorable John Hammond  
Mr. Earl J. Magner  
Mr. H. Baylor Lansden

August 7, 1985

Mr. Earl J. Magner, Jr.  
Chief Engineer  
Board of Levee Commissioners  
Orleans Levee District  
Suite 202, Administration Building  
New Orleans Lakefront Airport  
New Orleans, Louisiana 70126

RE: Pontchartrain Beach Floodwall  
DEI Project No. 1008

Dear Mr. Magner:


We are enclosing herewith for your review prints of the proposed Pontchartrain Beach Floodwall realignment.

We have also transmitted a copy to Mr. Van Stutts of the U. S. Army Corps of Engineers for his review and comments.

With best regards, I am

Yours very truly,

DESIGN ENGINEERING, INC.



Walter Baudier

WB:drb

Enclosure

August 7, 1985

The Honorable John Hammond  
Commissioner, Orleans Levee Board  
1300 Perdido Street  
Room 2E10  
New Orleans, Louisiana 70112

RE: Pontchartrain Beach Levee/Floodwall Realignment  
DEI Project No. 1008

Dear Mr. Hammond:

We are enclosing herewith one (1) set of plans of the proposed realignment of the Pontchartrain Beach Levee/Floodwall for your review and comment. Also enclosed are copies of correspondence to Ms. Jackie McPherson of Shushan, Meyer, Jackson, McPherson & Herzog and Mr. Van Stutts of the U. S. Army Corps of Engineers pertaining to this project.

Should you have any questions concerning these plans, we will be happy to meet with you at any time to discuss this project.

With best regards, I remain

Yours very truly,

DESIGN ENGINEERING, INC.

  
John Holtgreve

JH/drb

Enclosures

August 7, 1985

Honorable Wayne C. Ducote  
Commissioner, Orleans Levee Board  
1755 Tchoupitoulas Street  
New Orleans, Louisiana 70130

RE: Pontchartrain Beach Floodwall Relocation Study  
DEI Project No. 1008

Dear Mr. Ducote:

Pursuant to the directive of the Board, we met with representatives this date to review the proposed alignment along the north extremity of the project.

They have requested the following information to aid in their decision-making process:

1. Copies of the colored renderings.
2. Copies of the proposed engineering details of the alignment.
3. Copies of all of our alternative alignments we used to decide on the recommended proposal.

Please advise as to the disposition of the above request.

During the course of the presentation the question of the added cost of the project and the alignment of the levees adjacent to the two existing structures was discussed. These items were not resolved, nor could they be resolved during this meeting.

This matter will undoubtedly require further consideration by the Board.

With best regards, I am

Yours very truly,

DESIGN ENGINEERING, INC.

  
John Holtgreve

JH:drb

August 7, 1985

Mr. Van Stutts  
U. S. Army Corps of Engineers  
P.O. Box 60267  
New Orleans, Louisiana 70160-0267

Re: Pontchartrain Beach Floodwall Realignment  
DEI Project No. 1008

Dear Van:

We are enclosing herewith plans of the captioned matter for your review and comments on the proposed Pontchartrain Beach Floodwall realignment.

Please provide us with an indication of the following:

1. Acceptability with respect to the Lake Pontchartrain, Louisiana and Vicinity Hurricane and Flood Protection plan as it relates to design and construction.
2. Consideration as to the revenue sharing for this proposed alignment.
3. Any other matter relative to this project you may deem necessary for acceptance of the proposal.

We will be available to discuss this matter with you at any time.

With best regards, I am

Yours very truly,

DESIGN ENGINEERING, INC.



Walter Baudier

WB:drb

Enclosure: Cost Estimate and Plans of Alignment

cc: Honorable Emile W. Schneider  
Honorable John R. Ross  
Honorable Wayne C. Ducote  
Honorable George Talbot, Jr.  
Honorable Frank J. Uddo  
Honorable John Hammond  
Honorable Sidney J. Barthelemy  
Mr. Earl J. Magner  
Mr. H. Baylor Lansden



1208

NANCY O'DONNELL SIMONEAUX

P. O. Box 1127  
Metairie, Louisiana 70004  
(504) 831-9968

Mr. Bardin

Was sorry to miss your  
presentation but my fiscal  
had appointment.

Hummie &  
Robert Prigent  
Penthouse  
Beach

#6  
6091

#62  
Spain, Ind.  
Blud  
282-6975  
Area Land  
Tulsa  
965-5555

M.S.

Copy for  
Walter Baudier

MRS. NANCY O'DONNELL SIMONEAUX  
6078 MEMPHIS STREET  
NEW ORLEANS, LOUISIANA 70124

RECEIVED

AUG 12 1985

8/8/85

D. E. I.

Wayne Ducote, Chairman  
Real Estate Committee  
Orleans Levee Board  
Lakefront Airport  
New Orleans, La. 70126

Dear Commissioner Ducote:

Re: Levee at Pontchartrain Beach

I was very sorry to have to miss Mr. Baudier's presentation of his levee/flood protection design for Pontchartrain Beach area at meeting 8/6/85. Before leaving the meeting, however, I did go look briefly at the design.

I would certainly appreciate the chance to see it again. Unfortunately, Anna Lundberg, President of Lake Area Civic Council is out of town. I know she would like to see it also.

As Commissioner Schneider will tell you, Anna and I have been fighting the planned floodwall following parking lot and therefore we are happy that any new development at that area will be protected plus protecting the city in that area.

But I do have a few thoughts from just my brief view of the new proposal By Walter Baudier and John Holtgreve of DESIGN ENGINEERING, INC. in Metairie.

I cannot understand why the wide mud levee in the center would have large U-shape cut out to protect the building already at the beach. It seems to me that it would be cheaper and safer to move the house (or if necessary destroy it) rather than cut the levee. If the house were moved the wide levee could continue with no opening at all; attractively designed stairs could lead over the levee on both sides. The smaller openings at curved sides could be used for handicapped persons access to beach and any necessary vehicular traffic for maintenance equipment, etc.

I did not have time to see----has public parking been provided for users of the public beach?

Do the openings (particularly as now designed wide front one) pose any flood hazard by being a "weak link" in the protection?  
After all, FLOOD PROTECTION FOR THE CITY is most important

FILE? 1008  
DISTRIBUTION  
WR  
988-6091



Why is the cost so high?

The Corps of Engineers, Mr. Guggenheim said costs for flood protection are approximately:

\$400-700 per linear foot for mud levee  
\$700-1000 per linear foot for floodwall  
\$1500-1600 per linear ft. for floodwall nearer the water  
since stronger foundation is needed.

It is true that mud levees can be more expensive depending on costs of "rights of way", but in this case since this levee will protect the developer's own property I hope we are not paying First Financial for right of way. Mr. Baudier said the developer "gave up" some land. I hope this is true, but want to know officially.

The original bond issue was for approximately 2.7 million to construct the flood protection from UNO to American Standard. Mr. Baudier's estimate for this new design is 4.9 million. Have you seen cost breakdown of expenses?

I am delighted that the flood protection design has been changed and will now afford protection to the new development and the city along Elysian Fields corridor, but I feel some of these questions have validity. Since Mr. Schneider did not feel a public meeting was necessary, I do want to raise them and would appreciate an answer so I can report to Lake Area Civic Council on this plan.

As you can see, I will be sending copies of this letter to those persons I think would be particularly interested in the design.

Thank you for doing a good job on the Real Estate Committee meetings. I do wish, however, that the public could SEE designs shown to the committee members. The public attends to have input, and then cannot see designs shown and many times cannot HEAR members. There should be mikes before each member. I hope you will see that whoever is designing the new administration building will be sure there is larger meeting room, good sound system and up-to-date audio/visual presentation equipment. Most elementary school libraries have more equipment than I have seen at Board meetings.

Thanks again for your patience with all my questions/requests.

Sincerely,  
  
Nancy Simoneaux

cc: Emile Schneider  
Walter Baudier; Design Engineering, Inc.  
Anna Lundberg, Lake Area Civic Assn.  
Janet Philpott, Lakeview Civic Improv. Assn.  
Frank Uddo  
Ed Anderson, Yimes-Picayune



DEPARTMENT OF THE ARMY  
NEW ORLEANS DISTRICT CORPS OF ENGINEERS  
P.O. BOX 60267

NEW ORLEANS, LOUISIANA 70160

August 27, 1985

RECEIVED  
AUG 29 1985

D. E. I.

REPLY TO  
ATTENTION OF:

Engineering Division  
Projects Engineering Section

Mr. Walter Baudier  
Design Engineering, Inc.  
3330 West Esplanade, Suite 205  
Metairie, Louisiana 70002

Dear Mr. Baudier:

Reference is made to your August 7, 1985, letter concerning the Pontchartrain Beach Floodwall Realignment (DEI Project No. 1008).

As requested, we have reviewed the plans furnished in the above referenced letter and have several general-type comments to offer.

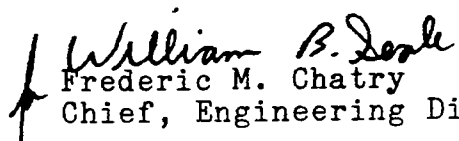
From a conceptual standpoint, the proposed plan is acceptable under the authorized Lake Pontchartrain, Louisiana & Vicinity Hurricane Protection project. In fact, while preparing designs for the New Orleans Lakefront Levee Reach West of IHNC, this office considered, among others, an alinement which, for the most part, follows the one proposed by DEI. Detailed studies for the alinement were dropped because of the higher first cost and because the Orleans Levee Board, at that time, expressed a preference for the Lakeshore Drive alinement. Therefore, the Lakeshore Drive floodwall alinement was advanced to the final design stage and recommended for construction in Design Memorandum No. 13, Orleans Parish Lakefront Levee West of IHNC. Design Memorandum No. 13 has been approved by our higher authorities and the Lakeshore Drive floodwall alinement at Pontchartrain Beach is now the approved alinement. Any departure from this alinement will necessitate preparation of a supplement to Design Memorandum No. 13. The supplement must display pertinent design details and cost estimates. At this time, the plan on which cost sharing would be based is that described in DM No. 13. Should your plan emerge from the supplement as the overall best plan, cost sharing would be on a 70/30 basis. However, if the DM 13 plan is determined to be the least cost plan for meeting project objectives, an additional cost for the new plan would be the responsibility, in full, 1008

FILE  
DISTRIBUTION  
WB  
JH

As you know, the plan, as proposed by DEI, has been reviewed for compliance with hydrologic design criteria by this office. Other design considerations (i.e., stability, seepage, settlement, etc.) were not considered. In order for this office to fully respond about the acceptability of the plan, we would, of course, have to review these other design considerations. These design considerations and cost studies would be fully developed in the aforementioned supplemental design memorandum. We intend to prepare a supplemental design memorandum on remaining features for the Orleans Parish Lakefront Reach in October 1988. Remaining features include the Orleans Marina floodwall, Bayou St. John protective feature, the New Orleans airport floodwall, and Lincoln Beach floodwall.

I trust that the foregoing is responsive to your needs. If we can be of further assistance in this matter, please let me know.

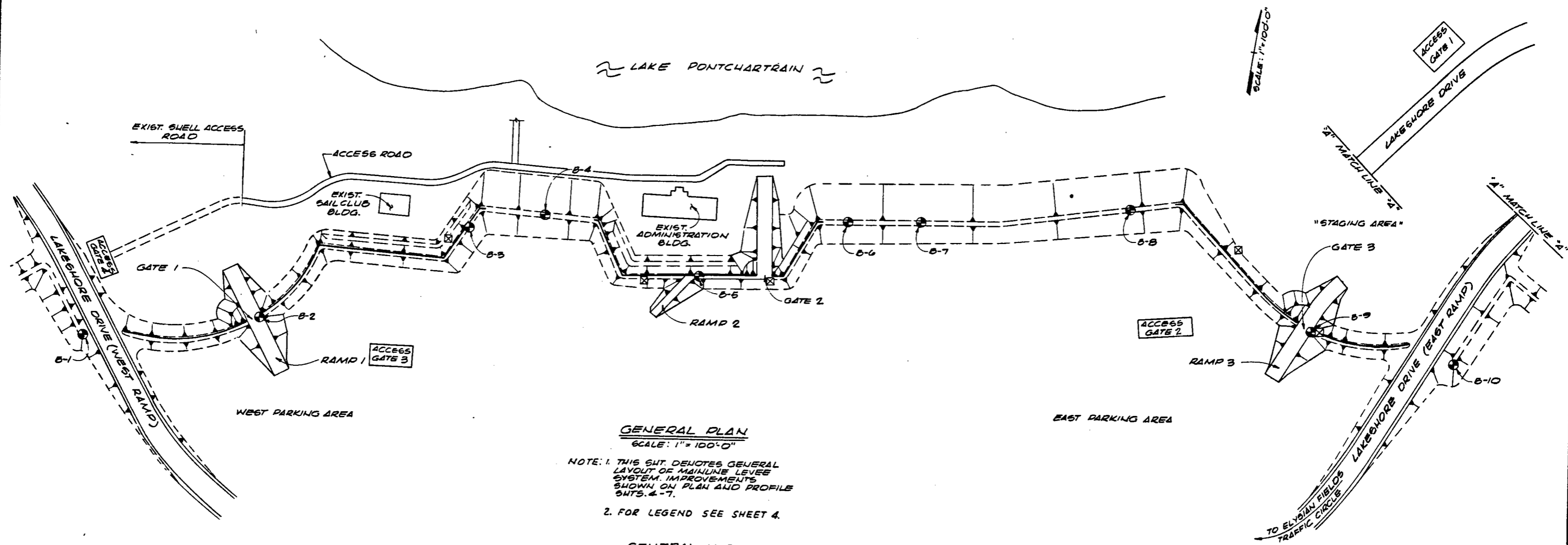
Sincerely,

  
Frederic M. Chatry  
Chief, Engineering Division

## **Appendix B**

**Design Plans and  
Right-of-Way Drawings**

Pontchartrain Beach  
General Site Plan



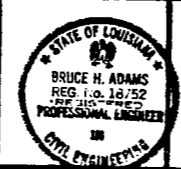
**GENERAL PLAN**  
SCALE: 1" = 100'-0"

NOTE: 1. THIS SH. DENOTES GENERAL LAYOUT OF MAINLINE LEVEE SYSTEM. IMPROVEMENTS SHOWN ON PLAN AND PROFILE SHTS. 4-7.  
2. FOR LEGEND SEE SHEET 4.

**GENERAL NOTES**

- 1.) CONTRACTOR TO PERFORM ALL LAYOUT SURVEY, VERIFY LAYOUT AND IMMEDIATELY NOTIFY ENGINEER OF ANY DISCREPANCIES.
- 2.) ALL ELEVATIONS SHOWN ON PLANS REFER TO MEAN SEA LEVEL (M.S.L. = U.G.V.D.).
- 3.) ALL EXIST. UTILITIES AND FACILITIES TO BE VERIFIED IN FIELD BY CONTRACTOR.
- 4.) CONTRACTOR TO VERIFY EXACT LOCATION OF THE EXIST. WALL SLEEVE FOR THE WATER LINE CROSSING AND COORDINATE THE EXACT LOCATION OF THE PROPOSED WATER LINE CONNECTION WITH THE OWNER AND UTILITY COMPANY.
- 5.) CONTRACTOR'S STAGING AREA TO BE LOCATED AT EAST END OF PROJECT SITE, SOUTH OF TENNIS COURTS, AS DIRECTED BY OWNER.
- 6.) TREES TO BE RELOCATED ADJACENT TO PROJECT SITE AS DIRECTED BY OWNER.
- 7.) EXIST. LIGHT BASE AND FENCE TO BE REMOVED SHALL BE STORED AT LOCATION DESIGNATED BY OWNER AND PAID FOR UNDER "REMOVAL OF STRUCTURES AND OBSTRUCTIONS". ANY WOOD FENCE REMOVED SHALL BE USED FOR WOOD FENCING TO BE INSTALLED UNDER THIS CONTRACT. WOOD FENCE PRESENTLY STORED AT SITE SHALL ALSO BE INSTALLED AS REQUIRED. ONLY UPON EXHAUSTING SUPPLY OF EXIST. WOOD FENCE EITHER STORED AT THE SITE OR REMOVED UNDER THIS CONTRACT SHALL NEW WOOD FENCE BE INSTALLED.
- 8.) A GENERAL LOCATION OF THE ACCESS ROAD IS SHOWN ON THIS SHEET. CONTRACTOR SHALL USE UNIMPROVED ACCESS ROAD UNLESS CONTRACTOR ELECTS TO IMPROVE THE ACCESS FOR HIS CONVENIENCE. CONTRACTOR SHALL CONSTRUCT SHELL SURFACE ALONG ACCESS ROAD UPON ENGINEER'S APPROVAL OF CONTRACTOR'S REQUEST. IMPROVEMENTS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS. CONSTRUCTION AND MAINTENANCE OF SHELL ACCESS ROAD WILL BE AT NO DIRECT PAY.
- 9.) IN THE EVENT THAT AN IMPROVED ACCESS ROAD IS ALLOWED BY THE ENGINEER, THE IMPROVED SHELL ACCESS ROAD SHALL BE REMOVED AT END OF CONTRACT AND REPLACED WITH WHITE BEACH SAND. NO DIRECT PAY.
- 10.) A GENERAL LOCATION OF THE EXIST. SHELL ACCESS ROAD IS SHOWN ON THIS SHEET. SHELL ROAD SHALL BE MAINTAINED UNDER THIS CONTRACT AT NO ADDITIONAL PAY.
- 11.) ACCESS TO ALL PARKING AREAS WILL BE ALLOWED FROM LAKESHORE DRIVE.
- 12.) CONTRACTOR SHALL RECONSTRUCT JOB SITE TO ORIGINAL CONDITION PRIOR TO COMPLETION OF CONTRACT INCLUDING CLEANING SAND BEACH AREA AND REPLACING WHITE BEACH SAND AS DIRECTED BY OWNER. NO DIRECT PAY.
- 13.) FOR DESCRIPTION OF USE OF ACCESS GATES SEE GC-29 IN THE SPECIFICATIONS.
- 14.) SOIL BORINGS SHOWN WERE MADE PRIOR TO LEVEE CONSTRUCTION. SEE SPECIFICATIONS FOR FURTHER COMMENTS.

DESIGNED BY:	C.A.T.
DRAWN BY:	J.D.B.
CHECKED BY:	B.H.A.
REVIEWED BY:	G.M.K.
DATE	DECEMBER 31, 1984

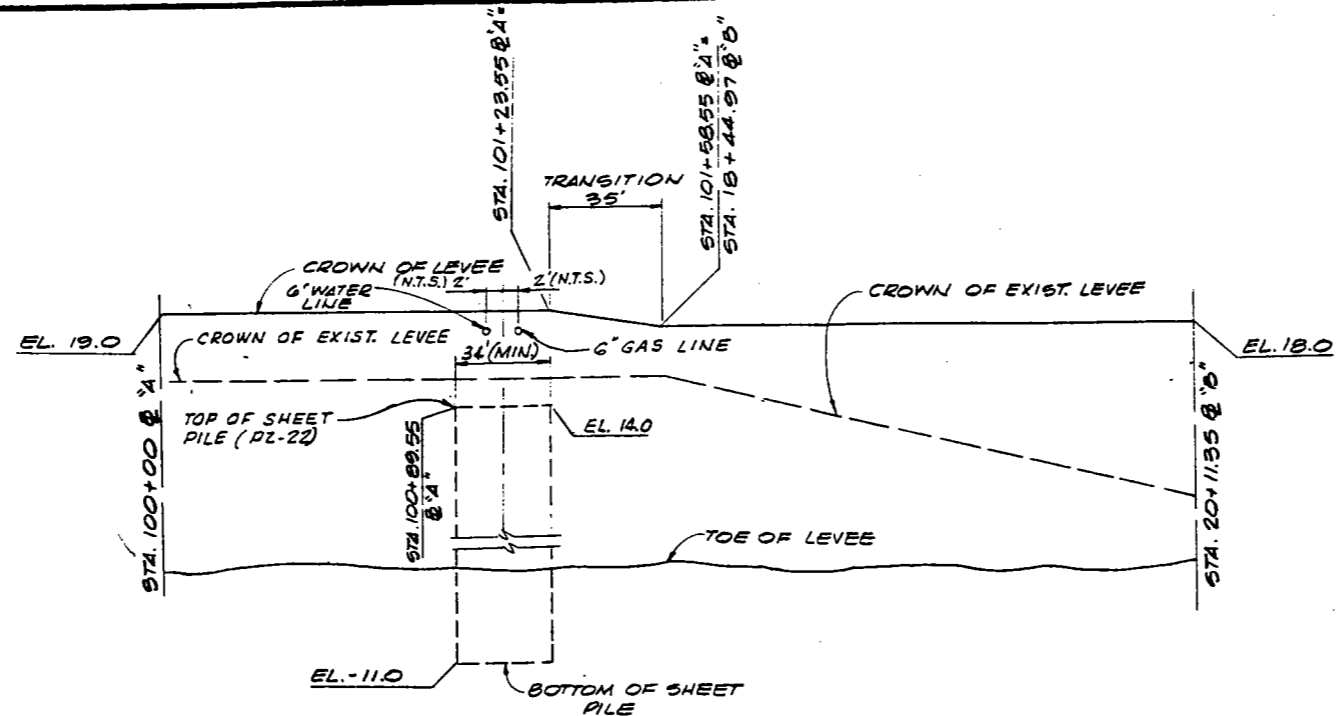
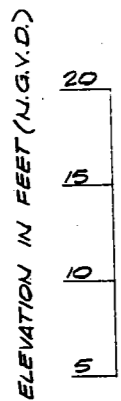


**PONTCHARTRAIN BEACH**  
FLOOD PROTECTION IMPROVEMENT PROJECT  
ORLEANS PARISH PHASE II  
LOUISIANA

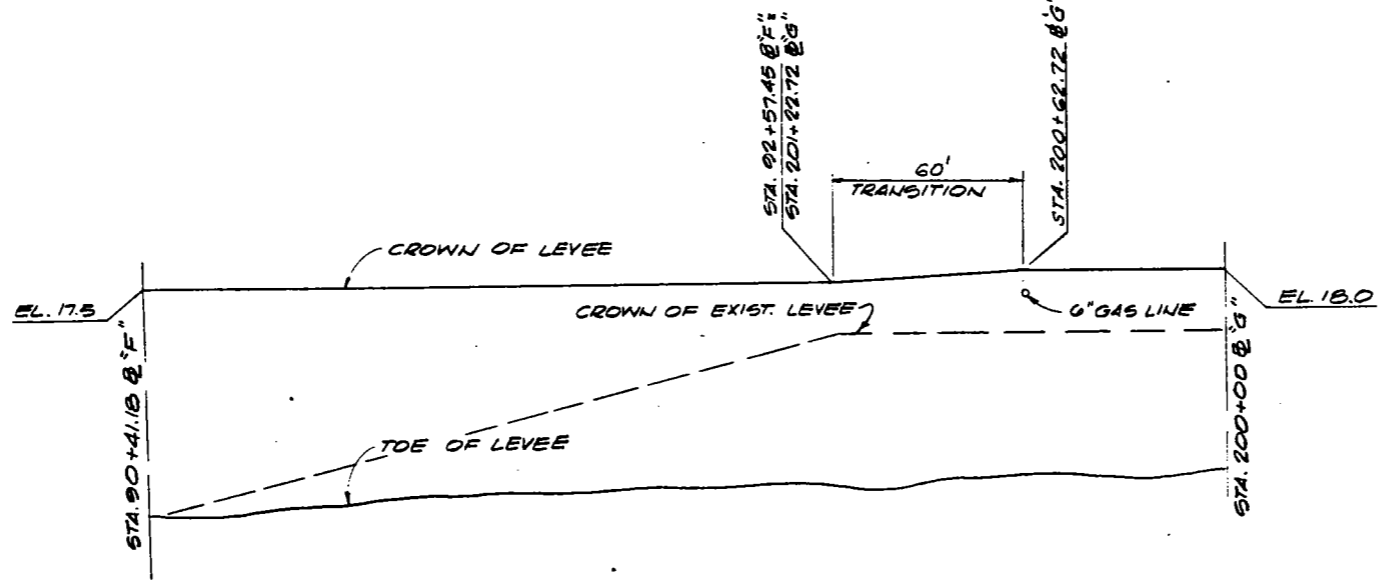
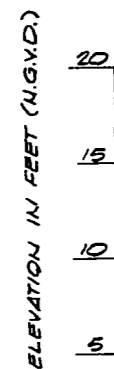
**GENERAL PLAN**

SHEET NO. 2  
OF 24 SHEETS  
FILE NO. 46021.00  
565-04-73

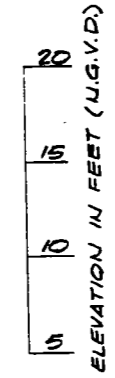
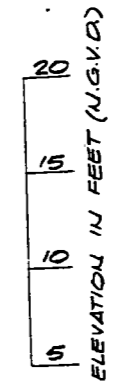
Pontchartrain Beach -  
Phase I: Typical Levee  
Sections and  
Miscellaneous Details



**LAKESHORE DRIVE (WEST) LEVEE PROFILE**  
SCALE: 1" = 30' (HORIZ.)



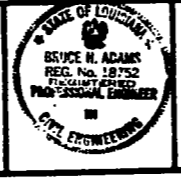
**LAKESHORE DRIVE (EAST) LEVEE PROFILE**  
SCALE: 1" = 30' (HORIZ.)



**AS BUILT**  
BY *C. Thompson* DATE 1/29/87

NO.	DATE	REVISION	BY

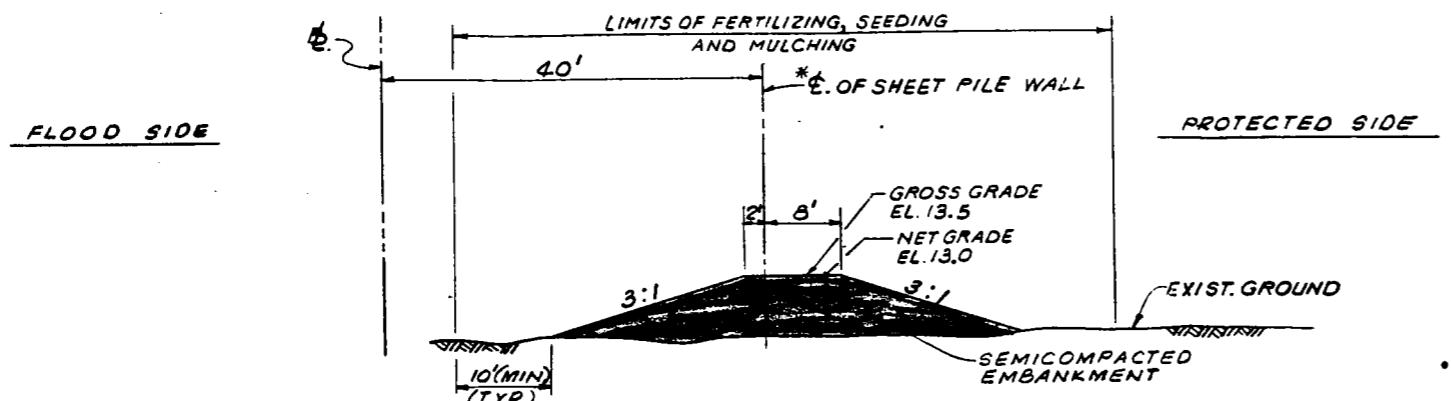
DESIGNED BY: *R.J.T.*  
 DRAWN BY: *J.O.B.*  
 CHECKED BY: *C.A.T.*  
 REVIEWED BY: *B.H.A.*  
 DATE: *MARCH 10, 1986*



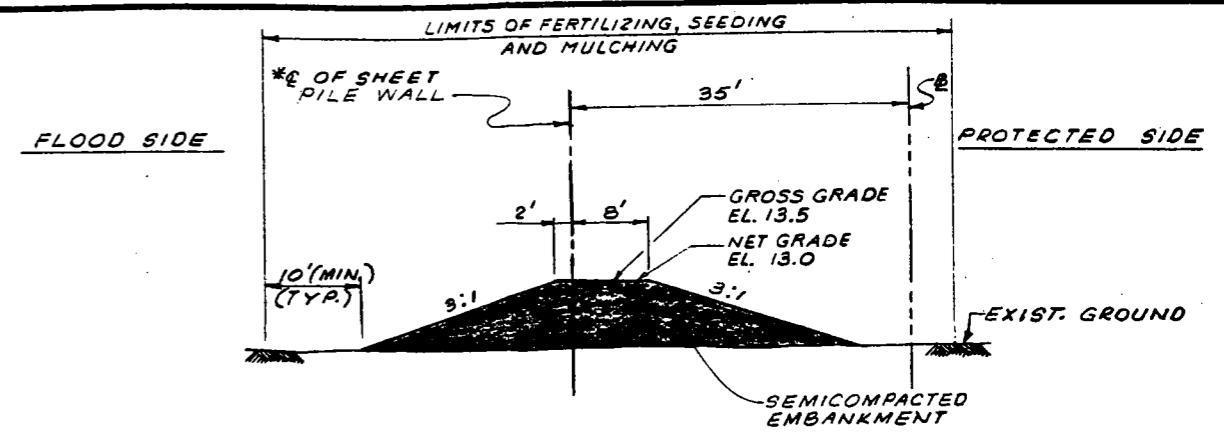
**PONTCHARTRAIN BEACH**  
**FLOOD PROTECTION IMPROVEMENT PROJECT**  
 ORLEANS PARISH PHASE I LOUISIANA  
**LAKESHORE DRIVE LEVEE PROFILES**

SHEET NO. *12*  
 OF *40* SHEETS  
 FILE NO. 46021.00  
 565-04-73

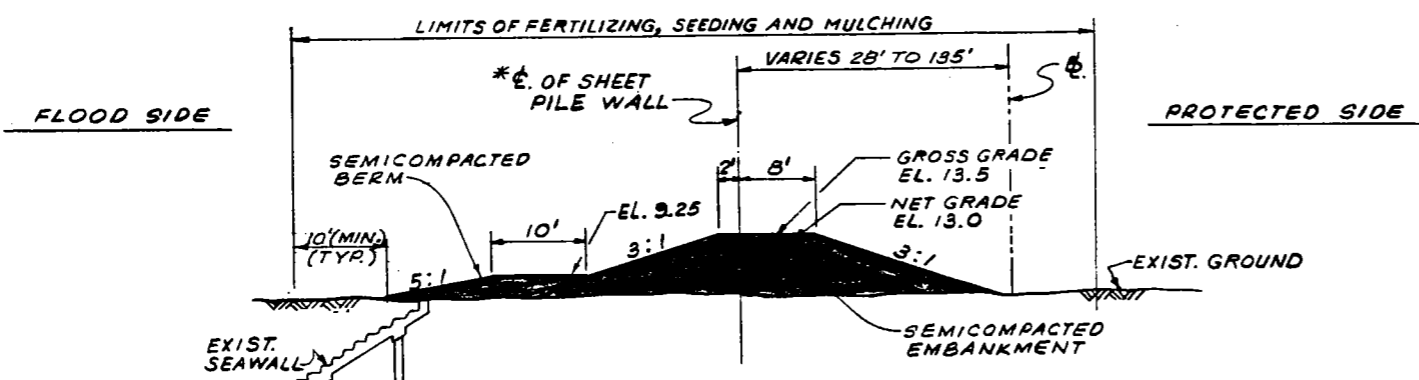




**TYPICAL LEVEE SECTION**  
 STA. 20+15.40 (B'D") TO STA. 40+42.92 (B'D") - REACH 3  
 SCALE: 1" = 10'

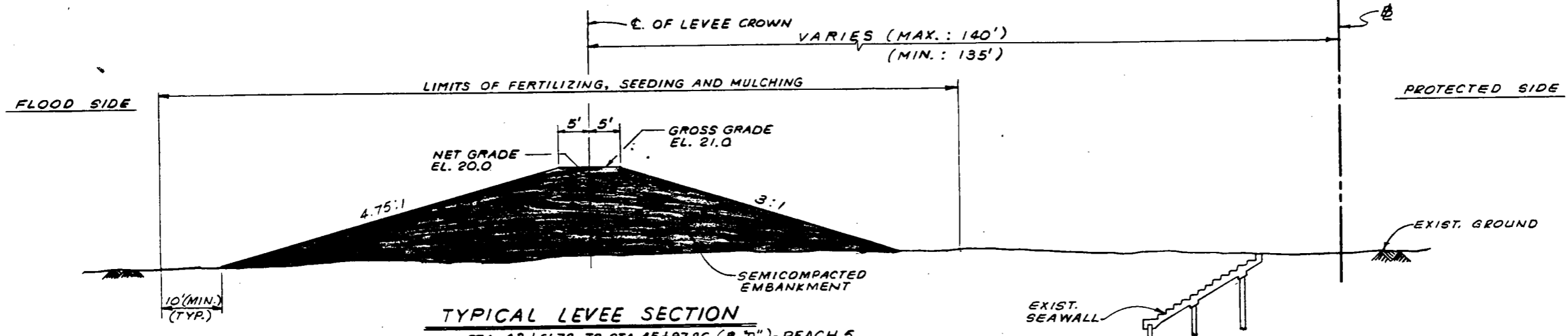


**TYPICAL LEVEE SECTION**  
 STA. 58+08.05 (B'D") TO STA. 90+37.40 (B"F") - REACH 8  
 SCALE: 1" = 10'-0"



**TYPICAL LEVEE SECTION**  
 STA. 40+42.92 TO STA. 43+61.78 (B'D") - REACH 4  
 SCALE: 1" = 10'-0"

NOTE:  
 * FOR TOP AND TIP ELEVATIONS  
 SEE SHEETS 4-11.

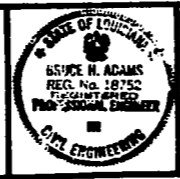


**TYPICAL LEVEE SECTION**  
 STA. 43+61.78 TO STA. 45+97.86 (B'D") - REACH 5  
 STA. 50+54.35 TO STA. 58+08.05 (B'D") - REACH 7  
 SCALE: 1" = 10'-0"

**AS BUILT**  
 BY C. Thompson DATE 4/22/87

NO	DATE	REVISION	BY

DESIGNED BY: C.A.T.  
 DRAWN BY: T.R.E.  
 CHECKED BY: C.A.T.  
 REVIEWED BY: B.H.A.  
 DATE: MARCH 10, 1986



**URS** Dallas  
 Austin  
 Houston  
 New Orleans

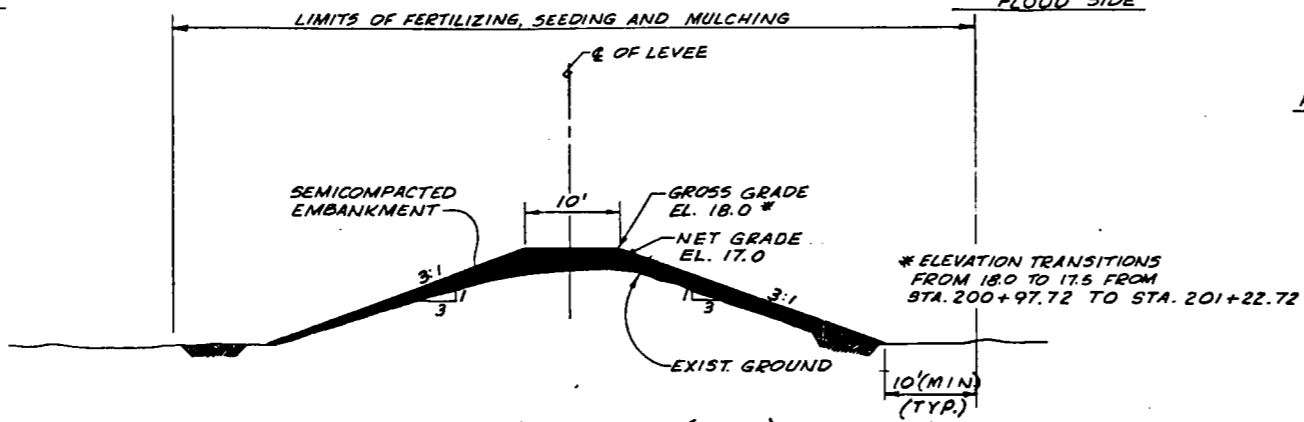
**PONTCHARTRAIN BEACH**  
**FLOOD PROTECTION IMPROVEMENT PROJECT**  
 ORLEANS PARISH PHASE I LOUISIANA

TYPICAL LEVEE SECTIONS

SHEET NO. 13  
 OF 40 SHEETS  
 FILE NO. 46021.00  
565-04-73

PROTECTED SIDE

FLOOD SIDE

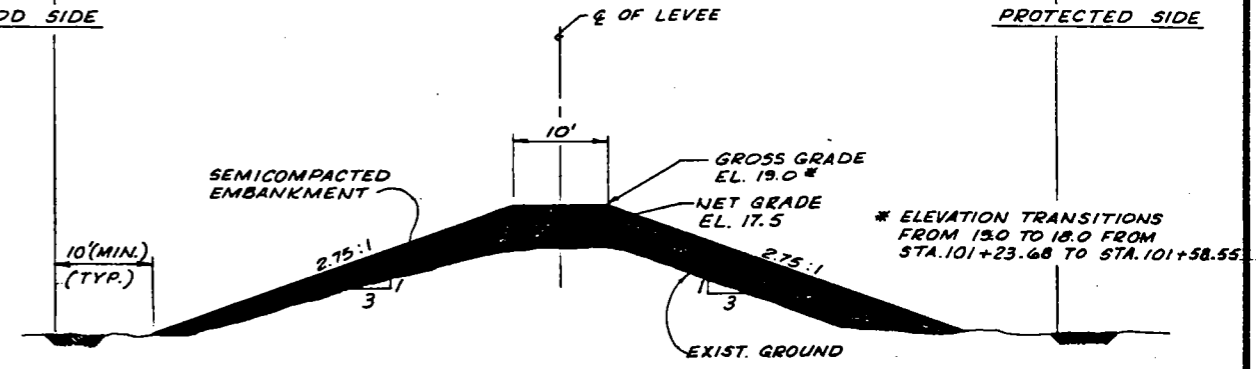


**TYPICAL LEVEE SECTION (EAST)**  
 STA. 200+00 TO STA. 201+22.72 (B "B") - REACH 10  
 SCALE: 1"=10'

FLOOD SIDE

LIMITS OF FERTILIZING, SEEDING AND MULCHING

PROTECTED SIDE

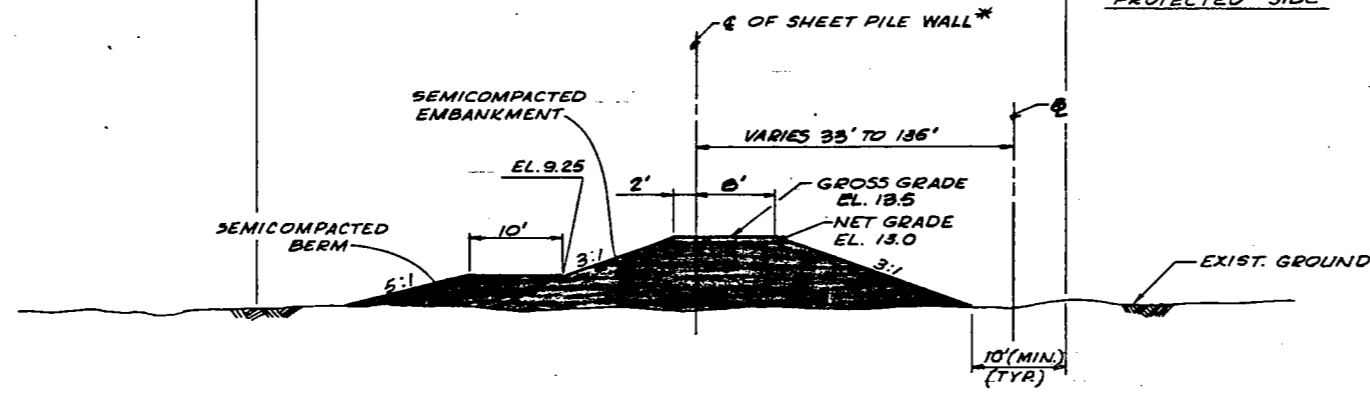


**TYPICAL LEVEE SECTION (WEST)**  
 STA. 100+00 TO STA. 101+58.55 (A "A") - REACH 1  
 SCALE: 1"=10'

FLOOD SIDE

LIMITS OF FERTILIZING, SEEDING & MULCHING

PROTECTED SIDE

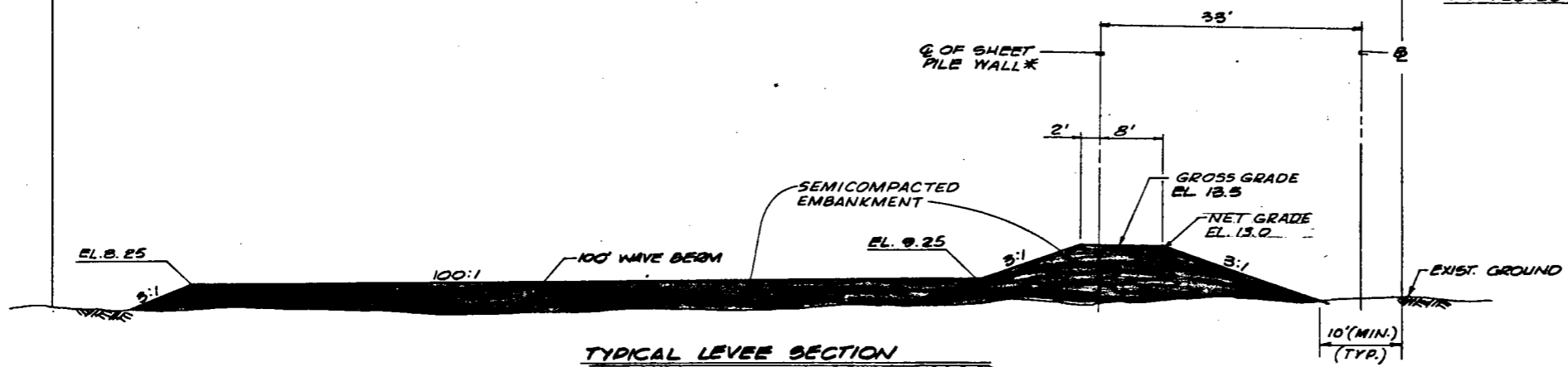


**TYPICAL LEVEE SECTION**  
 STA. 45+97.86 TO STA. 49+30.67 (D "D") - REACH 6  
 SCALE: 1"=10'-0"

FLOOD SIDE

LIMITS OF FERTILIZING, SEEDING AND MULCHING

PROTECTED SIDE



**TYPICAL LEVEE SECTION**  
 STA. 49+30.67 TO STA. 50+50.84 (D "D") - REACH 6  
 SCALE: 1"=10'-0"

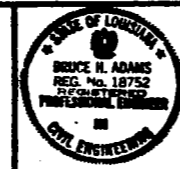
NOTE:  
 * FOR TOP AND TIP ELEVATIONS  
 SEE SHEETS 4-11.

**AS BUILT**

BY C. Thompson DATE 1/29/87

NO.	DATE	REVISION	BY

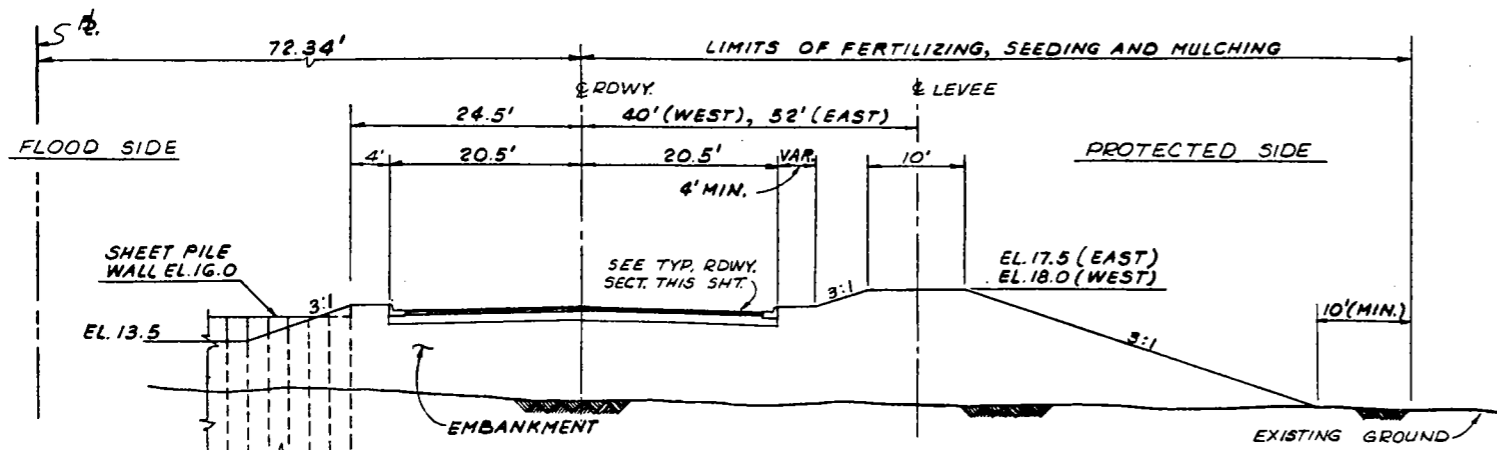
DESIGNED BY: C.A.T.  
 DRAWN BY: J.D.B.  
 CHECKED BY: C.A.T.  
 REVIEWED BY: B.H.A.  
 DATE: MARCH 10, 1986



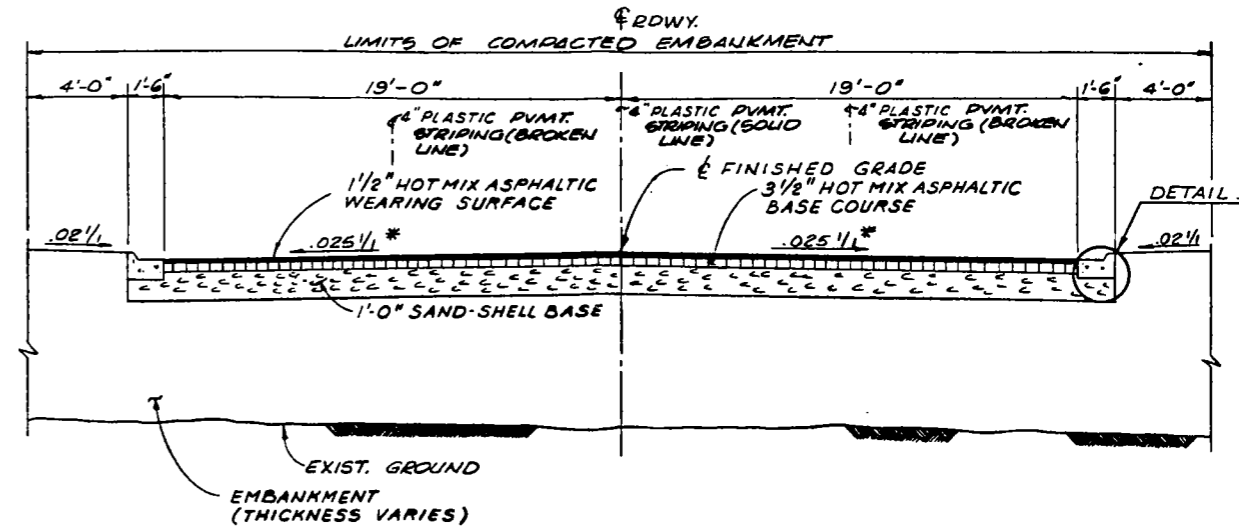
PONTCHARTRAIN BEACH  
 FLOOD PROTECTION IMPROVEMENT PROJECT  
 ORLEANS PARISH PHASE I LOUISIANA

TYPICAL LEVEE SECTIONS

SHEET NO. 14  
 OF 40 SHEETS  
 FILE NO. 46021.00  
565-04-73

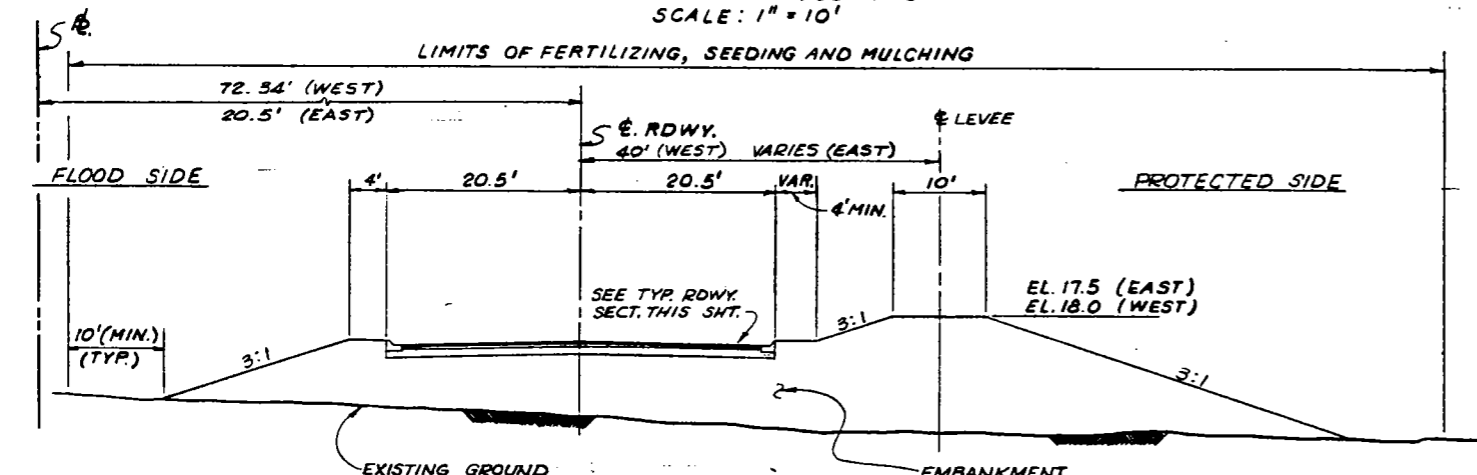


**TYPICAL SECTION  
LAKESHORE DRIVE @ LEVEE AND "1" WALL**  
STA. 20+11.35 AND STA. 90+41.18  
SCALE: 1" = 10'

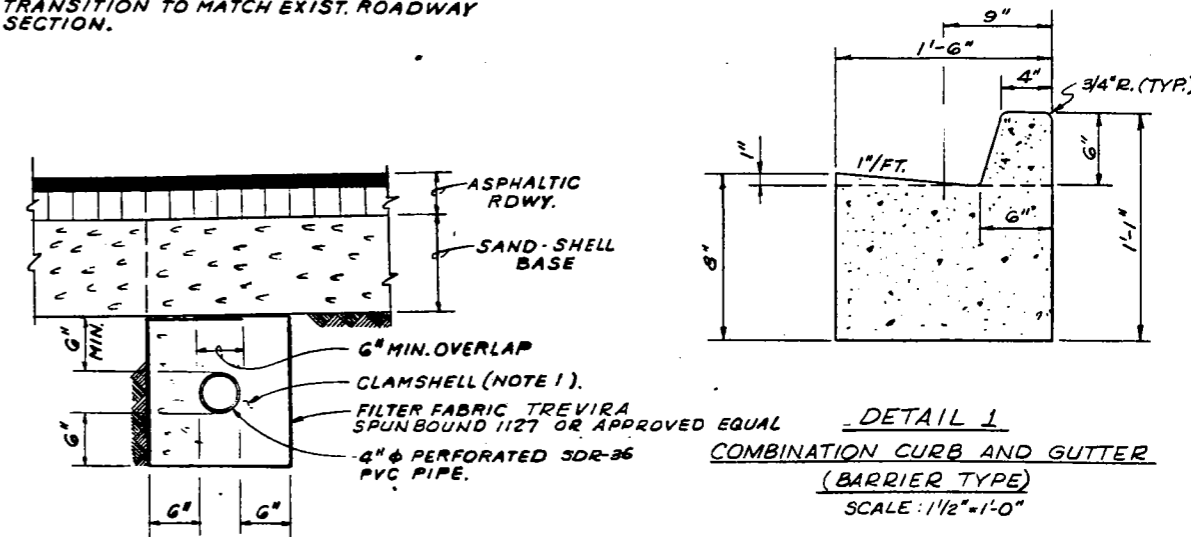


**TYPICAL ROADWAY SECTION  
LAKESHORE DRIVE**  
SCALE: 1/4" = 1'-0"

**NOTE:**  
* FROM STA. 93+09.30 TO STA. 94+09.30  
TRANSITION TO MATCH EXIST. ROADWAY  
SECTION.

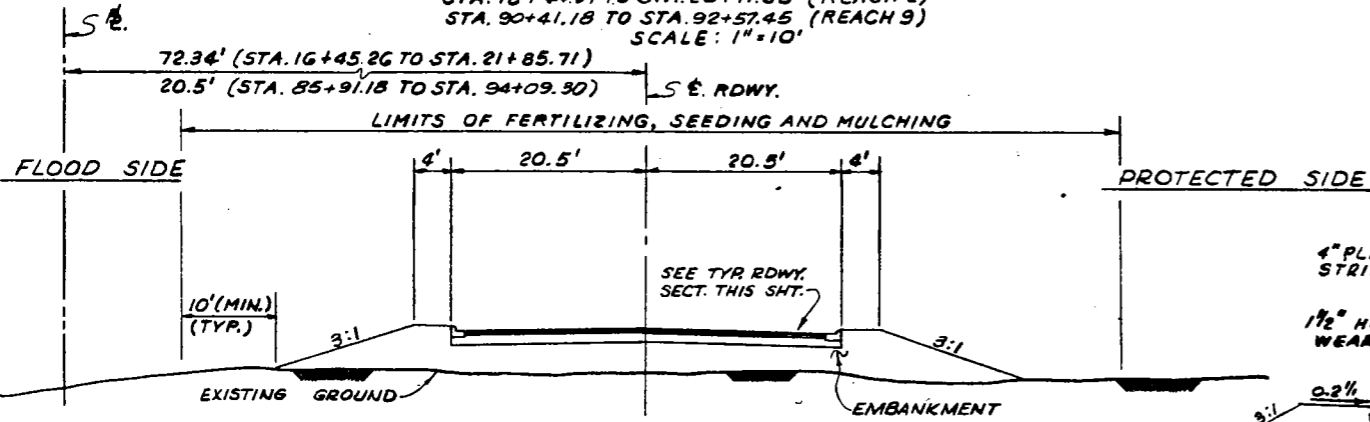


**TYPICAL SECTION  
LAKESHORE DRIVE @ LEVEE**  
STA. 18+44.97 TO STA. 20+11.35 (REACH 2)  
STA. 90+41.18 TO STA. 92+57.45 (REACH 9)  
SCALE: 1" = 10'

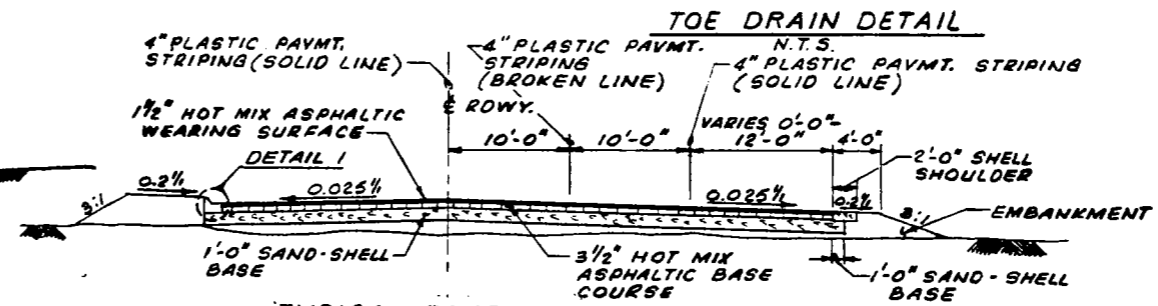


**DETAIL 1  
COMBINATION CURB AND GUTTER  
(BARRIER TYPE)**  
SCALE: 1/2" = 1'-0"

- NOTES:**
1. SEE PLAN AND PROFILE SHEETS FOR LOCATION OF TOE DRAINS.
  2. SLOPE TOE DRAINS AT 0.01 FT./FT. AND TIE INTO DRAIN LINES AS SHOWN ON PLAN AND PROFILE SHEETS.



**TYPICAL SECTION  
LAKESHORE DRIVE @ LEVEE**  
STA. 16+45.26 TO STA. 18+44.97 AND STA. 20+11.35 TO STA. 22+00.82 (REACH 2)  
STA. 85+91.18 TO STA. 90+41.18 AND STA. 92+57.45 TO STA. 94+09.30 (REACH 9)  
SCALE: 1" = 10'



**TYPICAL ROADWAY SECTION  
LAKESHORE DRIVE**  
STA. 22+00.82 TO STA. 24+97.50 (REACH 2)  
N.T.S.

**AS BUILT**

BY Thompson DATE 1/29/87

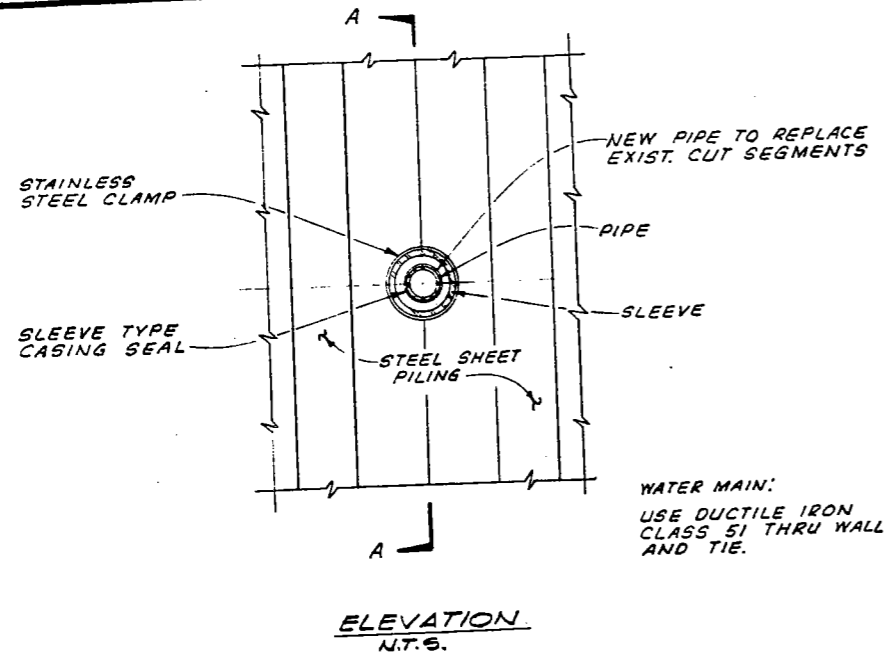
NO.	DATE	REVISION	BY

DESIGNED BY: C.A.T.  
DRAWN BY: A.D.  
CHECKED BY: C.A.T.  
REVIEWED BY: B.H.A.  
DATE: MARCH 10, 1986

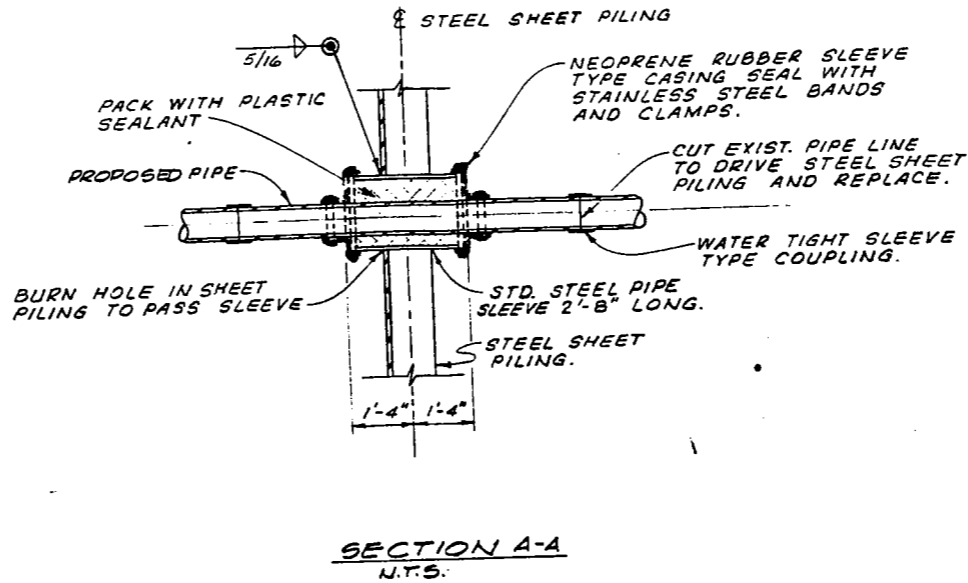


**PONTCHARTRAIN BEACH  
FLOOD PROTECTION IMPROVEMENT PROJECT**  
ORLEANS PARISH PHASE I LOUISIANA  
**LAKESHORE DRIVE & ACCESS ROAD  
TYPICAL SECTIONS**

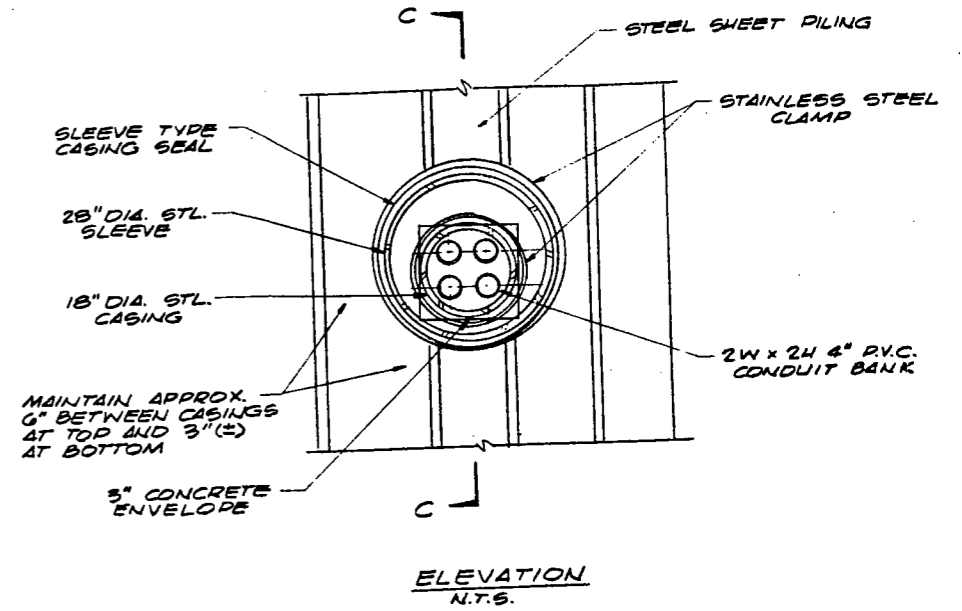
SHEET NO. 15  
OF 40 SHEETS  
FILE NO. 46021.00  
565-04-73



ELEVATION  
N.T.S.

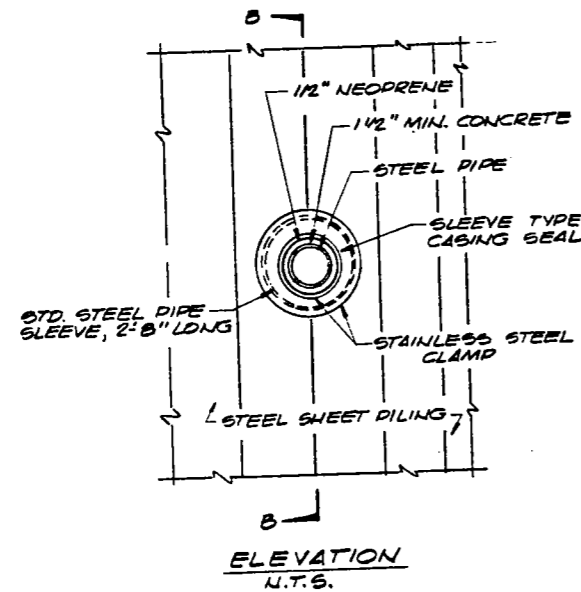


SECTION A-A  
N.T.S.

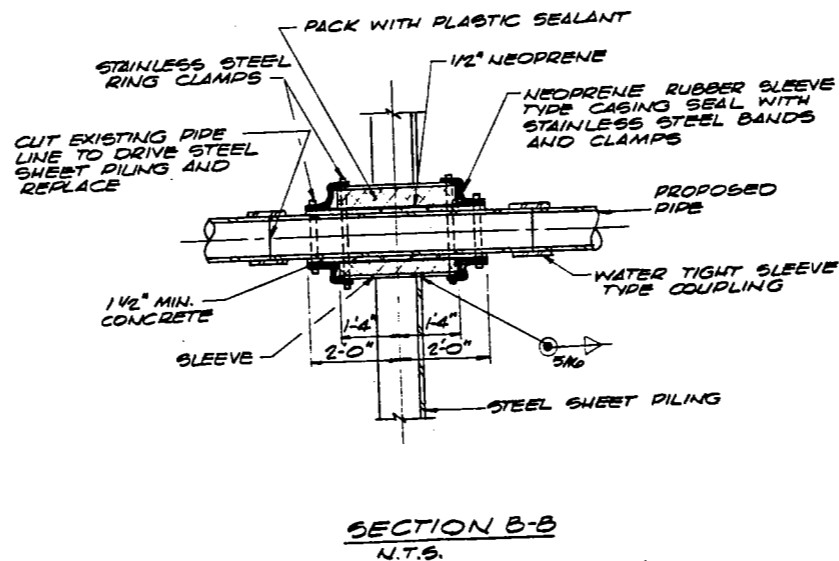


ELEVATION  
N.T.S.

TYPICAL PIPE THROUGH STEEL SHEET PILING

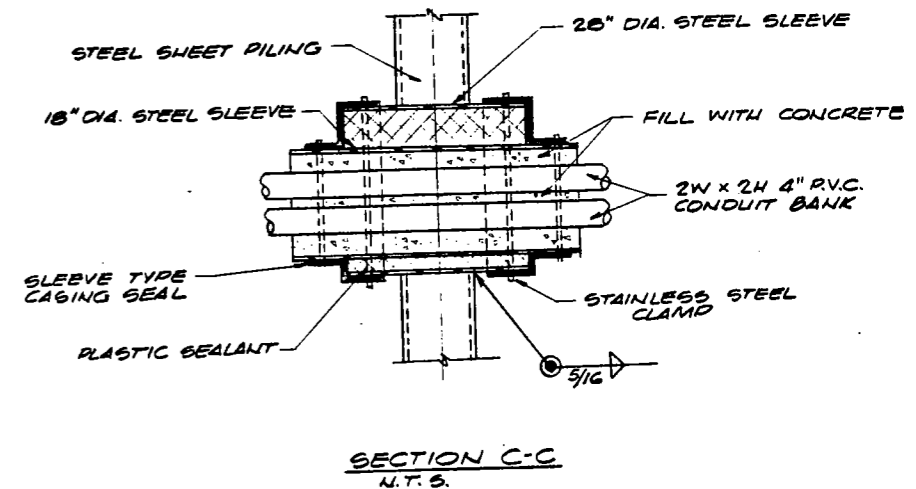


ELEVATION  
N.T.S.



SECTION B-B  
N.T.S.

TYPICAL GAS PIPE THROUGH STEEL SHEET PILING



SECTION C-C  
N.T.S.

TYPICAL UNDERGROUND ELECTRIC CONDUIT CONSTRUCTION THROUGH FLOODWALL  
STA. 20+50 (APPROX.)

NOTE:

EXPOSED PORTIONS OF STEEL SHEET PILE WALL PENETRATIONS SHALL BE COATED WITH A COAL TAR EPOXY COATING SYSTEM IN ACCORDANCE WITH CORPS OF ENGINEERS' STANDARD PAINTING SYSTEM NO. 6 FOR HYDRAULIC STRUCTURES. (NO DIRECT PAY)

**AS BUILT**

BY Thompson DATE 1/29/87

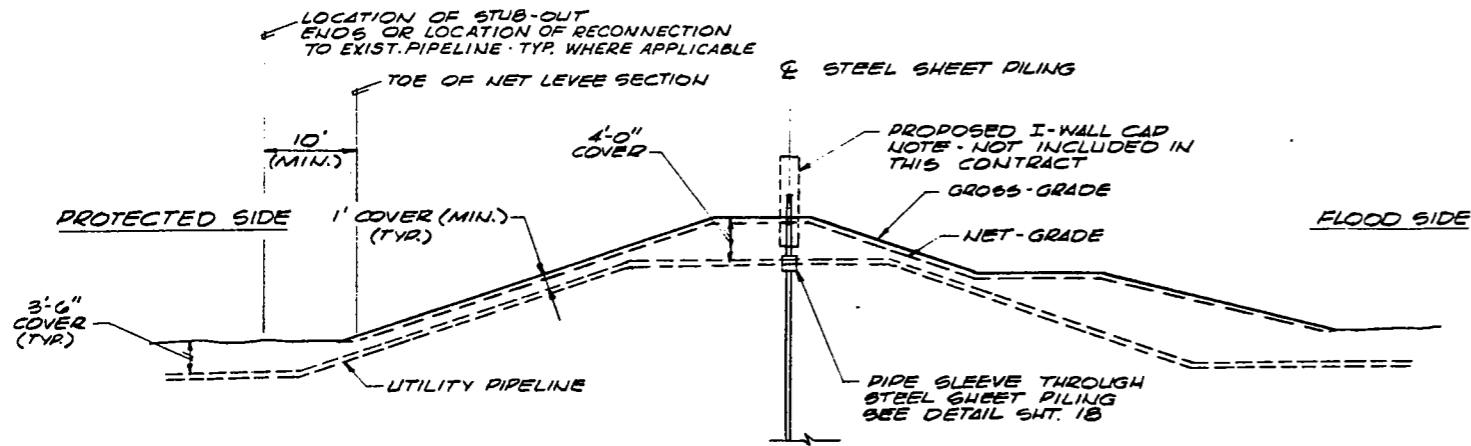
DESIGNED BY:	D.B.A.		
DRAWN BY:	J.D.B.		
CHECKED BY:	C.A.T.		
REVIEWED BY:	B.H.A.		
DATE:	MARCH 10, 1986		
NO.	DATE	REVISION	BY



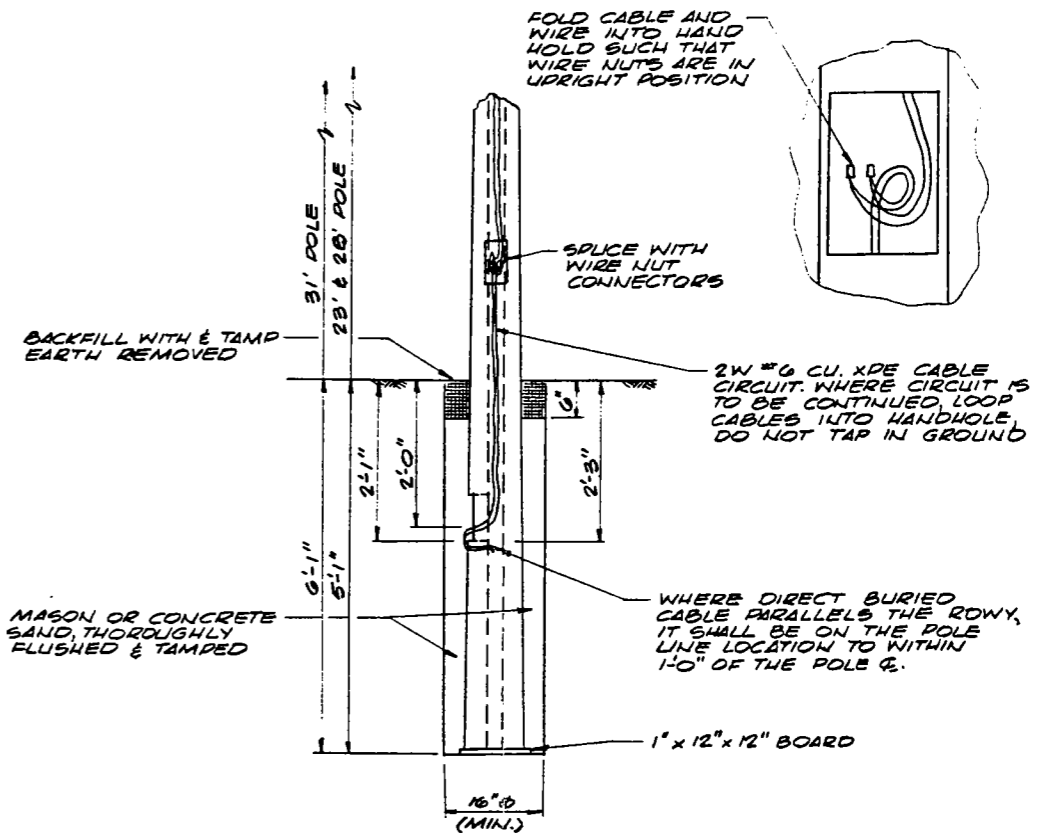
PONTCHARTRAIN BEACH  
FLOOD PROTECTION IMPROVEMENT PROJECT  
ORLEANS PARISH PHASE I LOUISIANA

SHEET NO 18  
OF 40 SH  
FILE NO 46021.00  
565-04-73

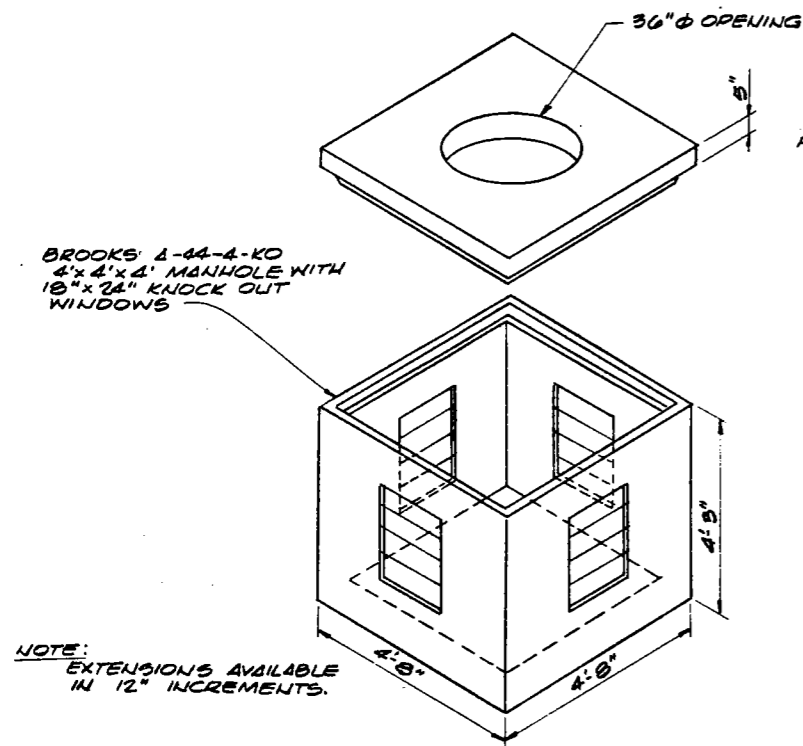
WALL PENETRATION DETAILS



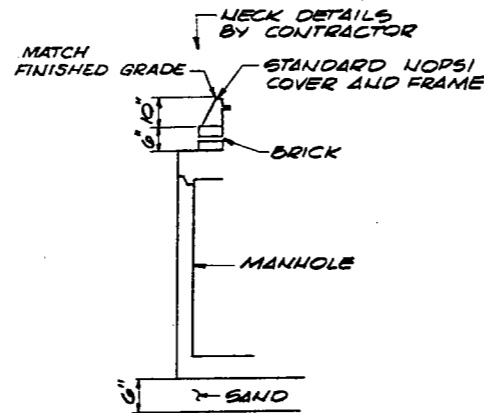
TYPICAL PIPELINE CROSSING AT COMBINATION  
I-WALL / EARTHEN LEVEE SECTION  
N.T.S.



STREET LIGHTING  
TYPICAL CONCRETE BUTT BASE POLE  
SETTING AND CABLE TERMINATION DETAILS  
N.T.S.



TYPICAL NPSI POWER MANHOLE  
N.T.S.



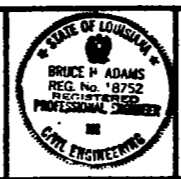
DETAIL NPSI POWER MANHOLE  
N.T.S.

- NOTES:
1. PROVIDE PULLING EYES.
  2. LOCATION AND NUMBER OF 5" TERMINATOR HOLES WILL VARY FOR EACH MANHOLE DEPENDING ON SERVICE CONNECTIONS. CONTRACTOR SHALL FIELD VERIFY BEFORE ORDERING.

AS BUILT

BY *Chompson* DATE 1/29/87

DESIGNED BY:	D.B.A.		
DRAWN BY:	J.D.B.		
CHECKED BY:	C.A.T.		
REVIEWED BY:	B.H.A.		
DATE:	MARCH 10, 1986		
NO.	DATE	REVISION	BY

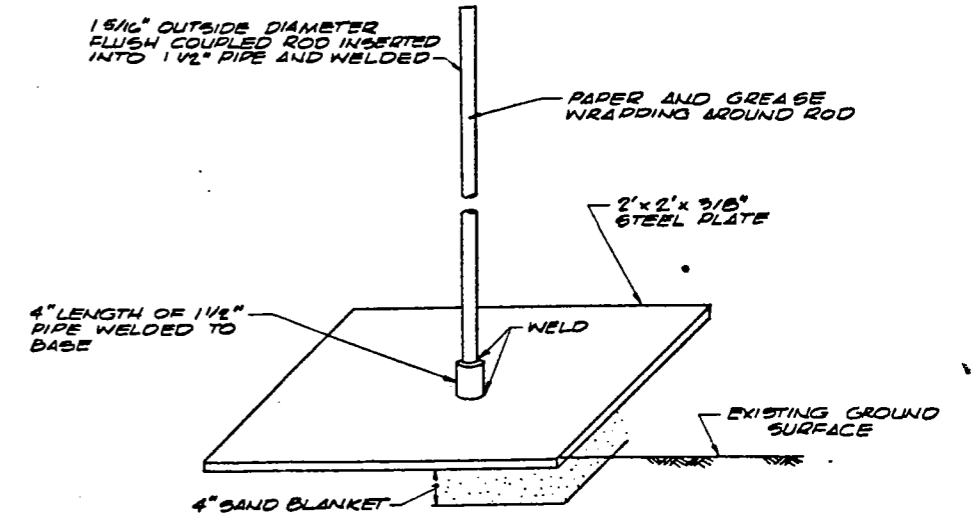


**URS** Dallas  
Austin  
Houston  
New Orleans

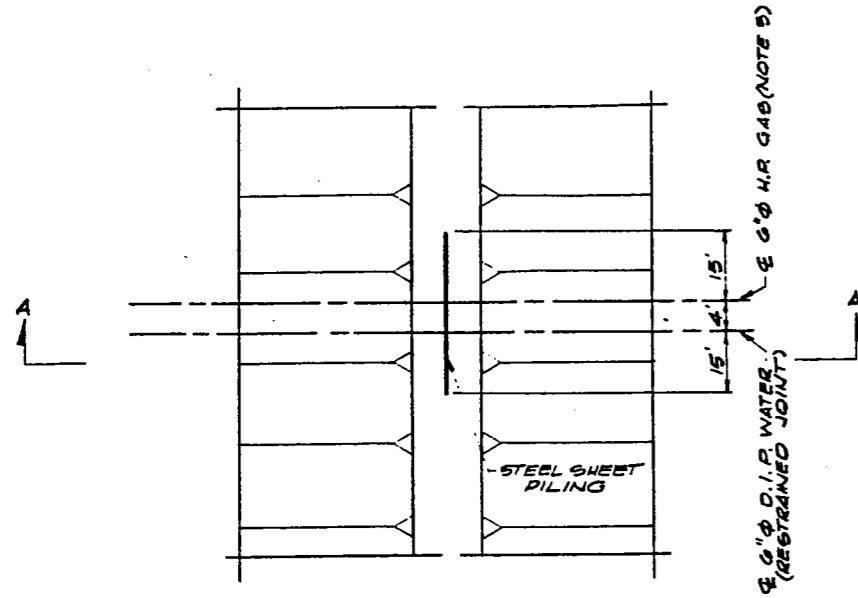
PONTCHARTRAIN BEACH  
FLOOD PROTECTION IMPROVEMENT PROJECT  
ORLEANS PARISH PHASE I LOUISIANA.  
ELECTRICAL & LEVEE CROSSING DETAILS

SHEET NO.	19
OF	40 SHEETS
FILE NO.	46021.00
	565-04-73

- SETTLEMENT PLATE INSTALLATION NOTES:**
1. SET STEEL PLATE ON FIRM COMPACTED SOIL
  2. CLEARLY MARK RISER TO PREVENT DAMAGE BY EARTHWORKING EQUIPMENT

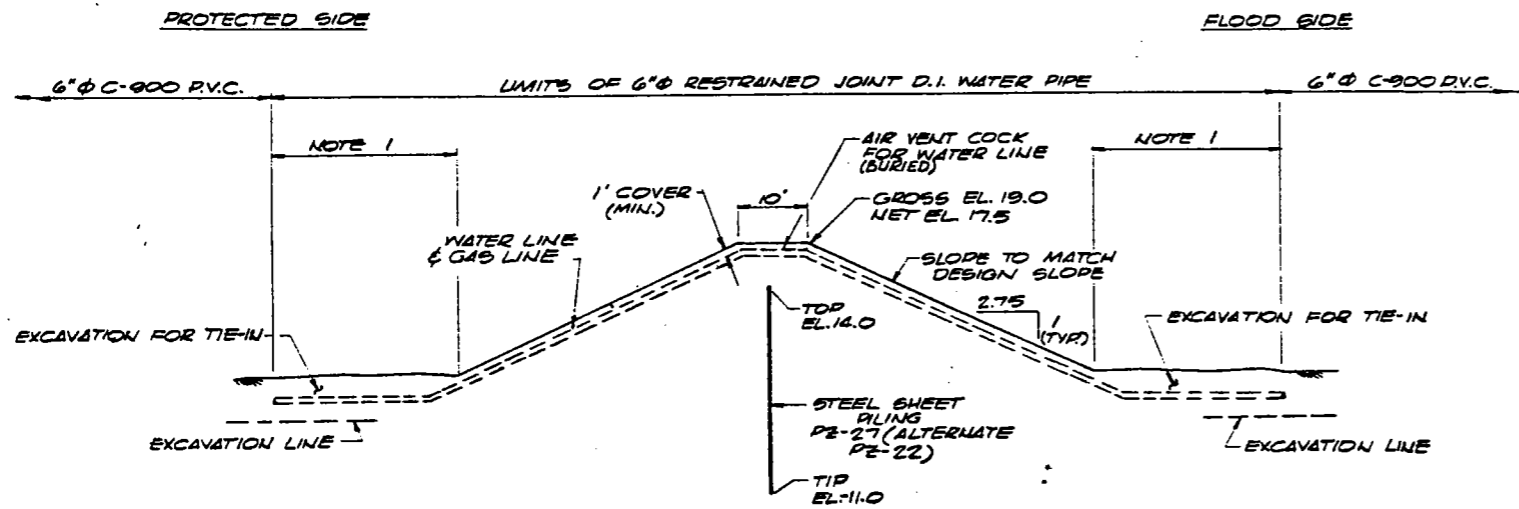


**TYPICAL SETTLEMENT PLATE**  
N.T.S.

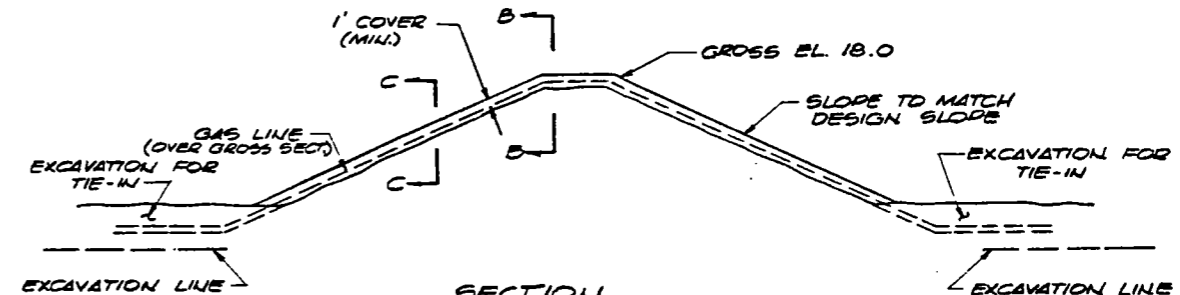


**PLAN**  
N.T.S.

**WATER AND GAS LINE LEEVE CROSSING AT LAKESHORE DR.**  
(WEST) APPROX. STA. 18+20

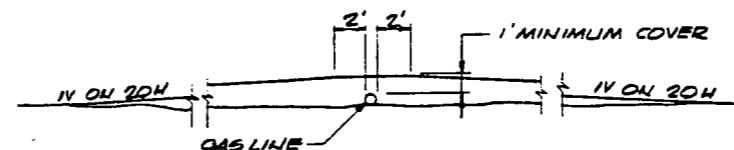


**SECTION A-A**  
N.T.S.

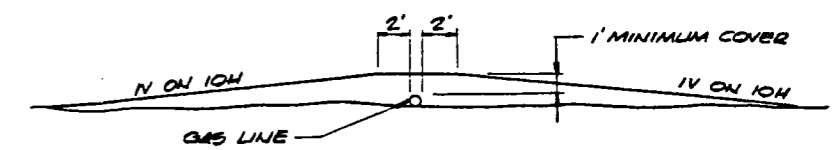


**SECTION B-B**  
N.T.S.

**GAS LINE LEEVE CROSSING AT LAKESHORE DR. (EAST)**  
APPROX. STA. 92+40



**SECTION B-B**  
N.T.S.



**SECTION C-C**  
N.T.S.

**NOTES:**

1. LIMITS OF RESTRAINED JOINT D.I.P. FOR WATER LINE RELOCATION SHALL EXTEND 4 MIN. OF TWO (2) PIPE LENGTHS BEYOND THE TDE OF THE DESIGN LEEVE SECTION.

**AS BUILT**

BY Johnson DATE 1/29/87

NO	DATE	REVISION	BY

DESIGNED BY:	D.P.A.
DRAWN BY:	J.D.B.
CHECKED BY:	C.A.T.
REVIEWED BY:	B.H.A.
DATE:	MARCH 10, 1986



**URS**  
Dallas  
Austin  
Houston  
New Orleans

**PONTCHARTRAIN BEACH**  
**FLOOD PROTECTION IMPROVEMENT PROJECT**  
ORLEANS PARISH PHASE I LOUISIANA

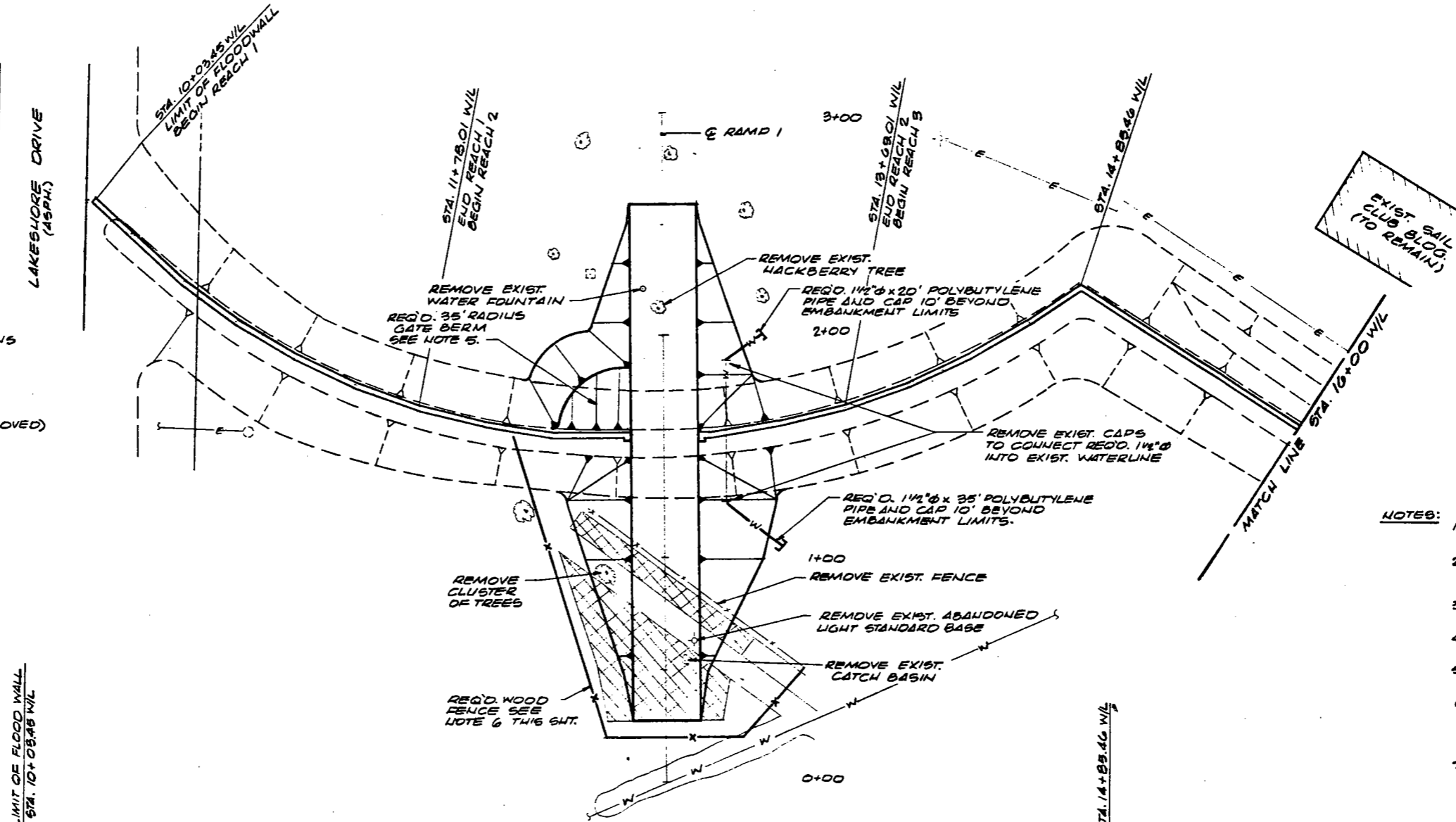
MISCELLANEOUS DETAILS

SHEET NO. 20  
OF 40 SHEETS  
FILE NO. 46021.00  
565-04-73

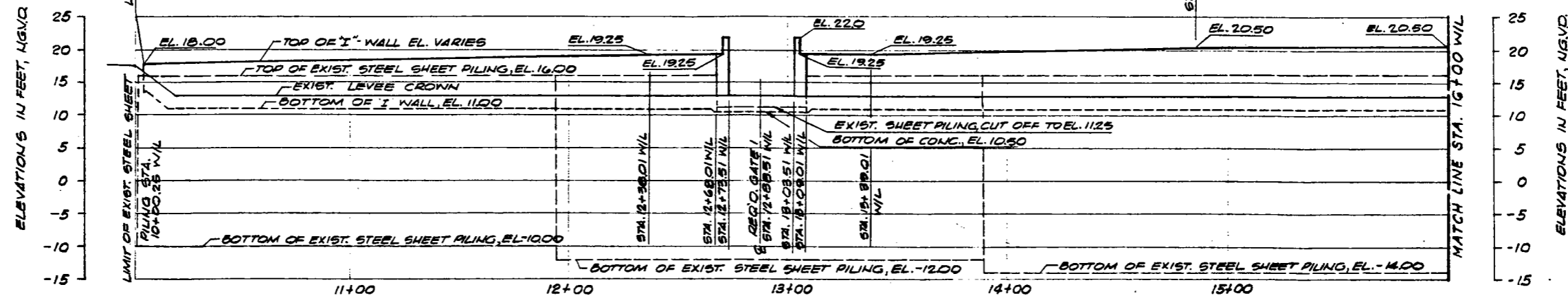
Pontchartrain Beach -  
Phase II: Design Plans

**LEGEND**

- W--- REMOVE EXIST. WATER LINE
- W--- EXIST. WATER LINE
- D--- EXIST. DRAIN LINE
- E--- EXIST. ELECTRIC LINE
- T--- EXIST. TELEPHONE LINE
- S--- EXIST. SEWER LINE
- X--- EXIST. FENCE
- EXIST. MANHOLE
- EXIST. DROP INLET
- EXIST. FIRE HYDRANT
- EXIST. LIGHT POLE
- EXIST. WATER FOUNTAIN
- EXIST. SOIL BORING LOCATIONS (GENERAL PLAN SHT. 2)
- EXIST. LEVEL
- EXIST. TREE
- EXIST. CAP
- ▨ EXIST. PAVEMENT (TO BE REMOVED)
- W--- REQ'D. WATER LINE
- C--- REQ'D. CAP
- X--- REQ'D. FENCE
- ▨ REQ'D. FLOODWALL
- ▨ REQ'D. EMBANKMENT
- W/L WALL LINE
- C CENTER LINE
- B BASE LINE
- ▣ SETTLEMENT PLATES



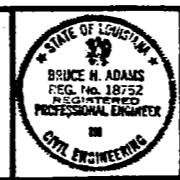
- NOTES:**
- 1.) FOR GEOMETRIC LAYOUT SEE SHT. 3.
  - 2.) FOR RAMP 1 PROFILE AND TYPICAL SECTION SEE SHT. 9.
  - 3.) FOR TYPICAL SECTIONS SEE SHT. 8.
  - 4.) FOR "I" WALL END SEE SHT. 2A.
  - 5.) TOP OF GATE BERM TO MATCH TOP OF RAMP.
  - 6.) RE-USE EXIST. WOOD FENCE MATERIAL AS AVAILABLE. REQ'D. NEW WOOD FENCE SHALL MATCH EXIST. FENCE MATERIAL.
  - 7.) SWING GATE NOT SHOWN FOR DETAIL SEE SHT. 14.



SCALE: HOR. 1" = 30'-0"  
VERT. 1" = 10'-0"

NO.	DATE	REVISION	BY

DESIGNED BY: CAT  
 DRAWN BY: J.D.B.  
 CHECKED BY: B.H.A.  
 REVIEWED BY: G.M.K.  
 DATE: DECEMBER 3, 1984

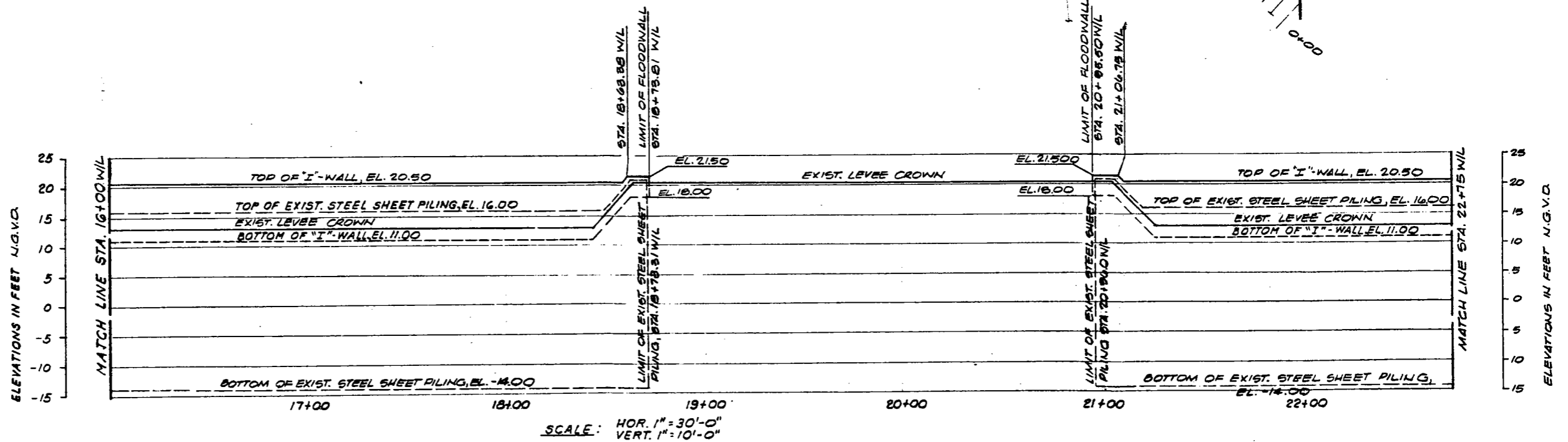
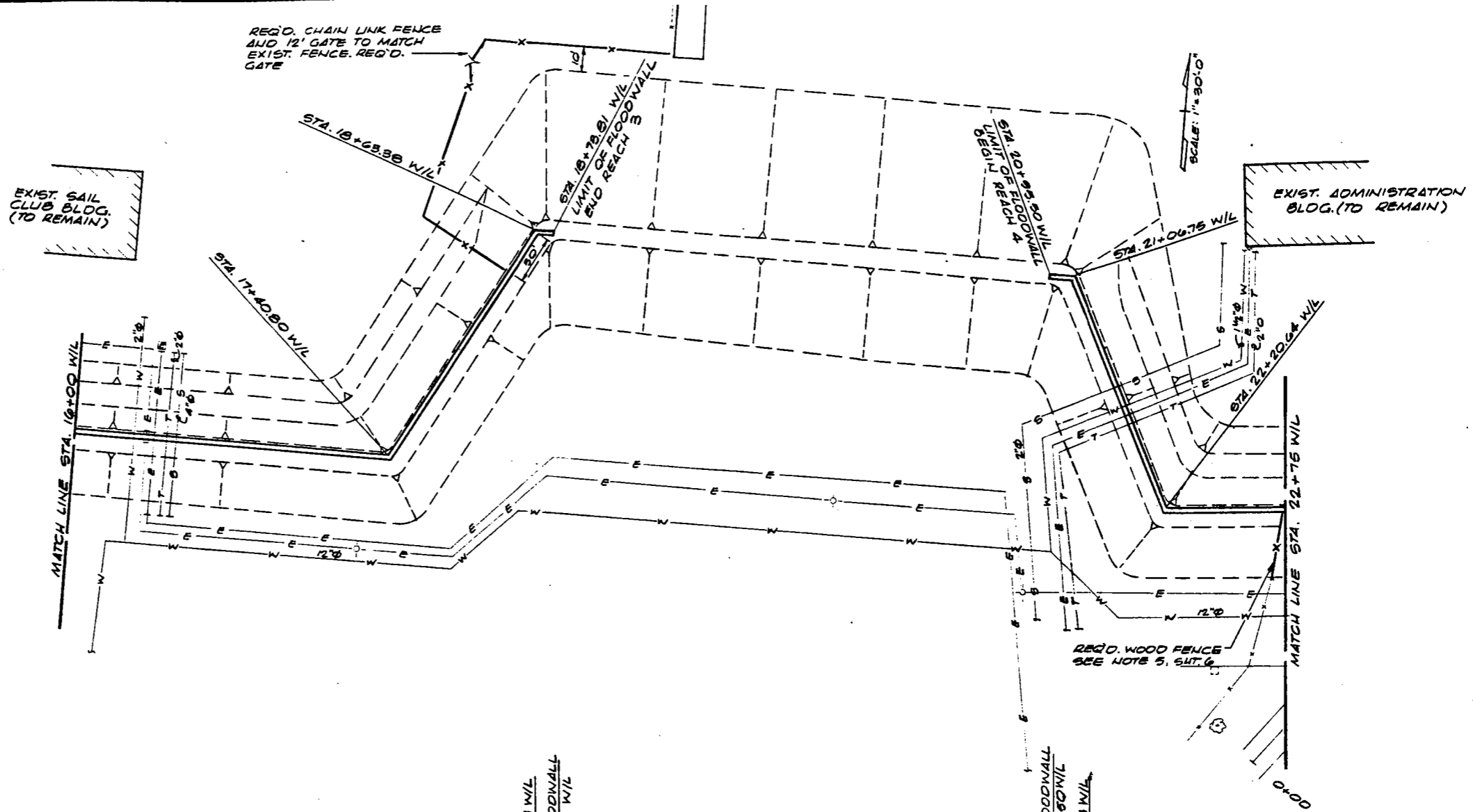


**PONTCHARTRAIN BEACH**  
**FLOOD PROTECTION IMPROVEMENT PROJECT**  
 ORLEANS PARISH PHASE II LOUISIANA  
**PLAN AND PROFILE**

SHEET NO. 4  
 OF 24 SHEETS  
 FILE NO. 46021.00  
 565-04-73

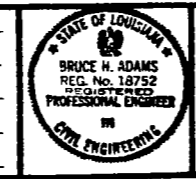


- NOTE:
- 1) FOR GEOMETRIC LAYOUT SEE SHT. 3.
  - 2) FOR TYPICAL SECTIONS SEE SHT. 6.
  - 3) FOR "I"-WALL TRANSITIONS SEE SHT. 2A.



NO	DATE	REVISION	BY

DESIGNED BY: C.A.T.  
 DRAWN BY: J.O.B.  
 CHECKED BY: B.H.A.  
 REVIEWED BY: G.M.K.  
 DATE: DECEMBER 31, 1986

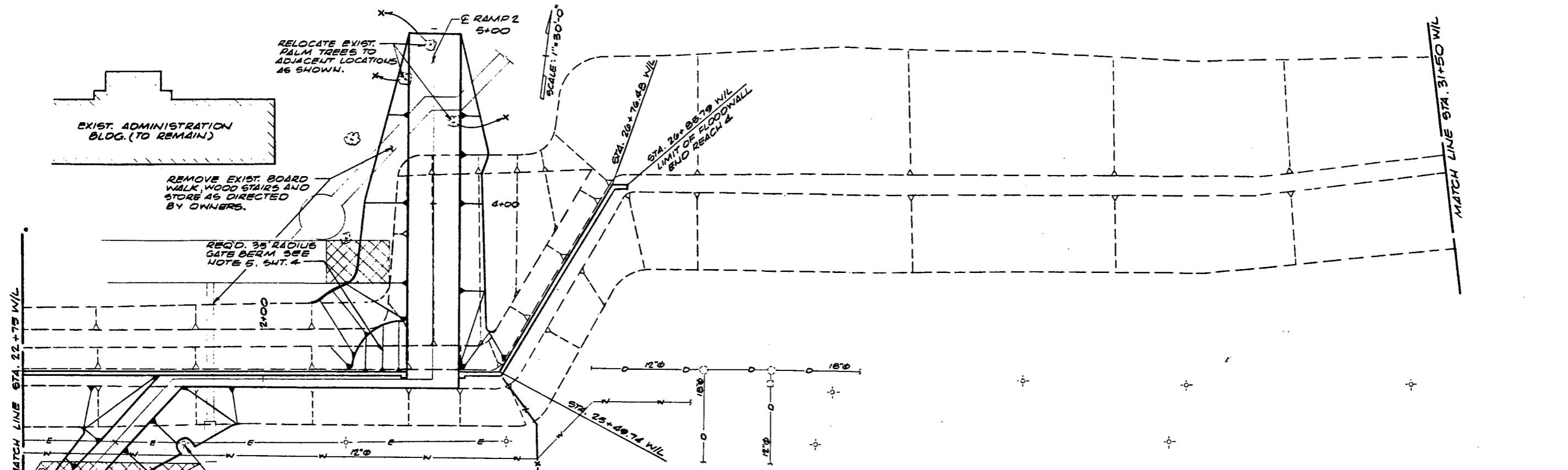


**URS** New Orleans

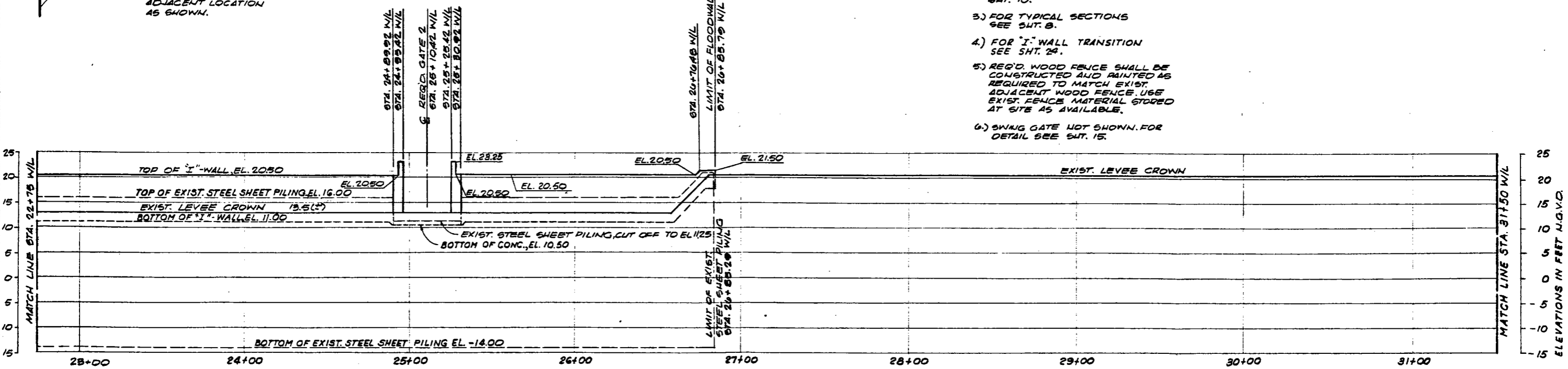
**PONTCHARTRAIN BEACH**  
**FLOOD PROTECTION IMPROVEMENT PROJECT**  
 ORLEANS PARISH PHASE II LOUISIANA

PLAN AND PROFILE

SHEET NO. 5  
 OF 24 SHEETS  
 FILE NO. 46021.00  
 565-04-73



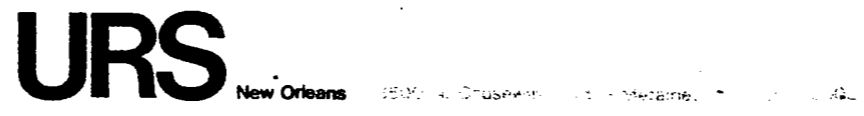
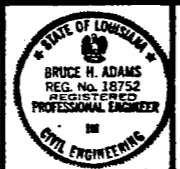
- NOTES:**
- 1) FOR GEOMETRIC LAYOUT SEE SHT. 3.
  - 2) FOR RAMP 2 PROFILE AND TYPICAL SECTIONS SEE SHT. 10.
  - 3) FOR TYPICAL SECTIONS SEE SHT. 8.
  - 4) FOR "I" WALL TRANSITION SEE SHT. 24.
  - 5) REQ'D. WOOD FENCE SHALL BE CONSTRUCTED AND PAINTED AS REQUIRED TO MATCH EXIST. ADJACENT WOOD FENCE. USE EXIST. FENCE MATERIAL STORED AT SITE AS AVAILABLE.
  - 6) SWING GATE NOT SHOWN. FOR DETAIL SEE SHT. 15.



SCALE: HOR. 1" = 30'-0"  
 VERT. 1" = 10'-0"

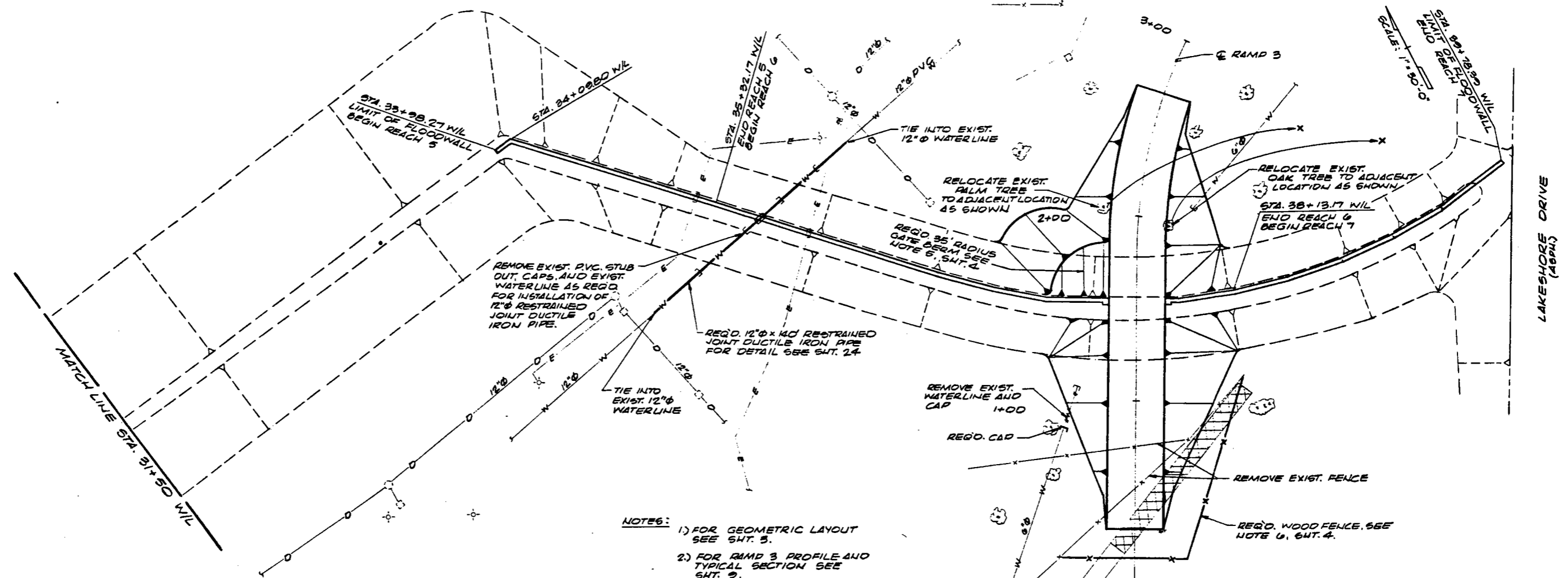
NO	DATE	REVISION	BY

DESIGNED BY: C.A.T.  
 DRAWN BY: J.D.B.  
 CHECKED BY: B.H.A.  
 REVIEWED BY: G.M.K.  
 DATE: DECEMBER 31, 1984

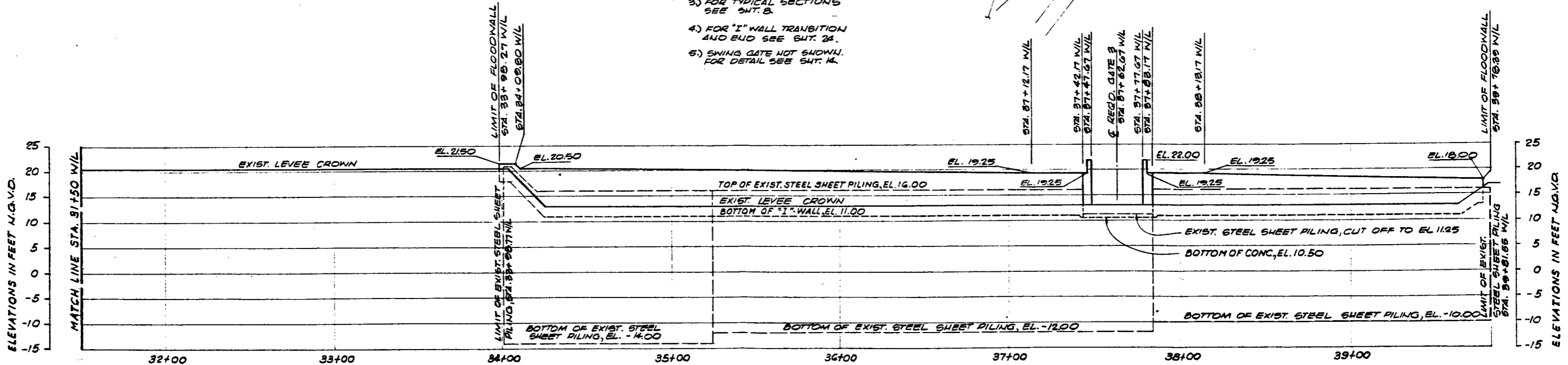


**PONTCHARTRAIN BEACH**  
**FLOOD PROTECTION IMPROVEMENT PROJECT**  
 ORLEANS PARISH PHASE II LOUISIANA  
**PLAN AND PROFILE**

SHEET NO. 6  
 OF 24 SHEETS  
 FILE NO. 46021.00  
 565-04-73



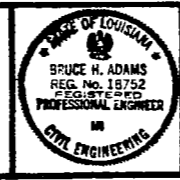
- NOTE 6:**
- 1) FOR GEOMETRIC LAYOUT SEE SHT. 5.
  - 2) FOR RAMP 3 PROFILE AND TYPICAL SECTION SEE SHT. 9.
  - 3) FOR TYPICAL SECTIONS SEE SHT. 8.
  - 4) FOR "I" WALL TRANSITION AND END SEE SHT. 2A.
  - 5) SWING GATE NOT SHOWN. FOR DETAIL SEE SHT. 14.



SCALE: HOR. 1" = 30'-0"  
 VERT. 1" = 10'-0"

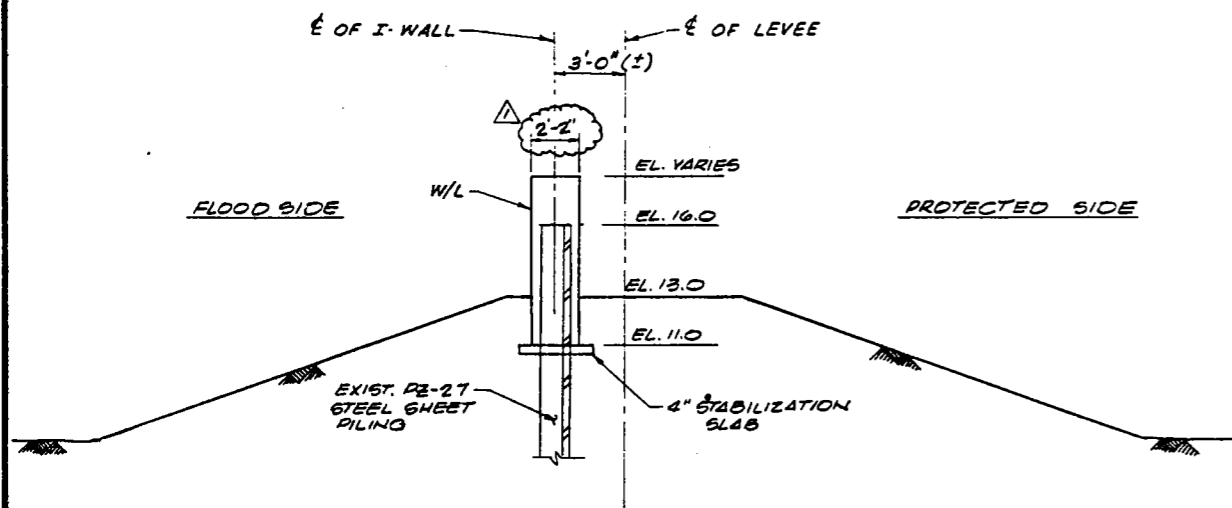
NO.	DATE	REVISION	BY

DESIGNED BY: C.A.T.  
 DRAWN BY: J.D.B.  
 CHECKED BY: G.H.A.  
 REVIEWED BY: G.M.K.  
 DATE: DECEMBER 31, 1984

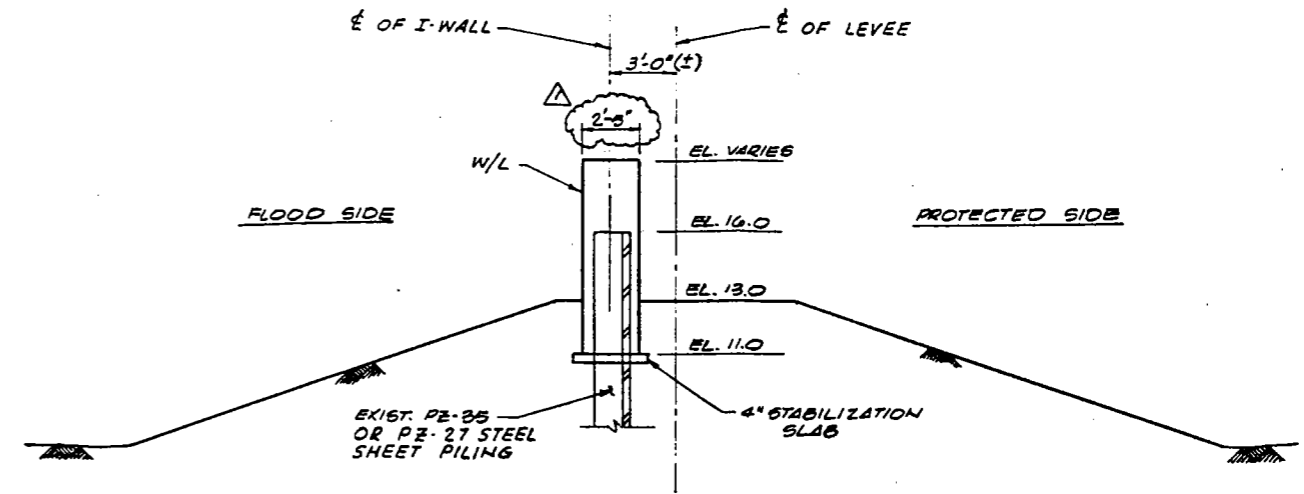


**PONTCHARTRAIN BEACH**  
**FLOOD PROTECTION IMPROVEMENT PROJECT**  
 ORLEANS PARISH PHASE II LOUISIANA  
**PLAN AND PROFILE**

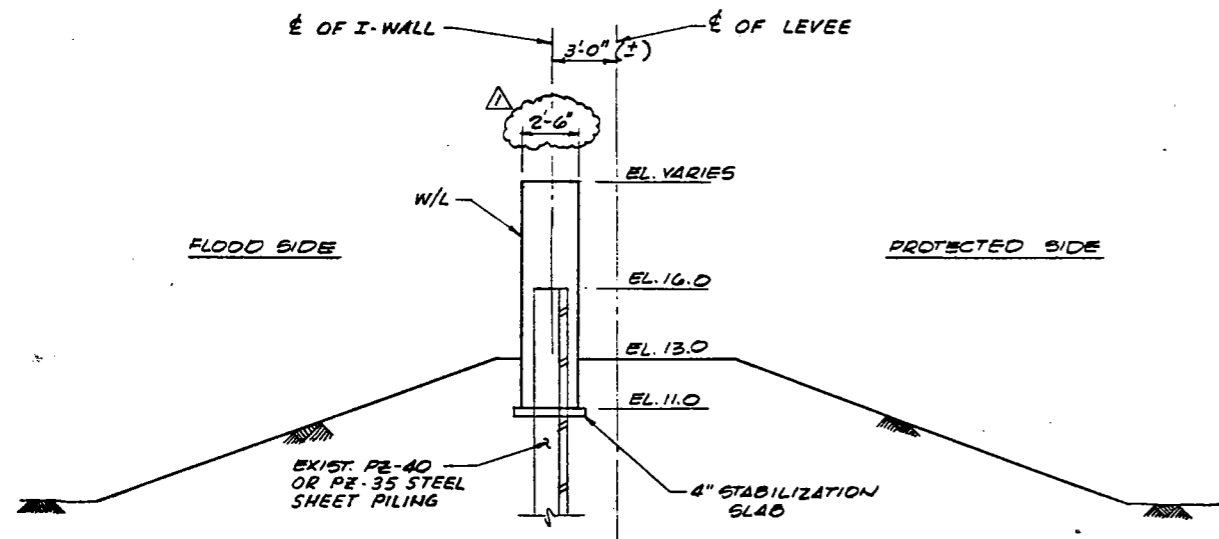
SHEET NO. **7**  
 OF **24** SHEETS  
 FILE NO. 46021.00  
 565-04-73



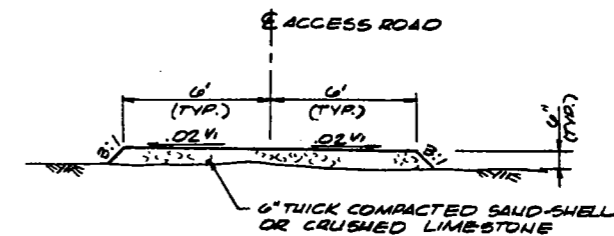
**TYPICAL SECTION**  
 REACH 1 STA. 10+03.45 W/L - STA. 11+78.01 W/L  
 REACH 7 STA. 38+13.17 W/L - STA. 39+78.39 W/L  
 SCALE: 1/4" = 1'-0"



**TYPICAL SECTION**  
 REACH 2 STA. 11+78.01 W/L - STA. 13+69.01 W/L  
 REACH 6 STA. 35+32.17 W/L - STA. 38+13.17 W/L  
 SCALE: 1/4" = 1'-0"



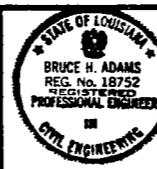
**TYPICAL SECTION**  
 REACH 3 STA. 13+69.01 W/L - STA. 18+73.81 W/L  
 REACH 4 STA. 20+85.50 W/L - STA. 24+85.79 W/L  
 REACH 5 STA. 33+98.27 W/L - STA. 35+32.17 W/L  
 SCALE: 1/4" = 1'-0"



**ACCESS ROAD TYPICAL SECTION**  
 N.T.S.

NO.	DATE	REVISION	BY
4-2-87		CHANGED I-WALL WIDTHS	

DESIGNED BY: C.A.T.  
 DRAWN BY: J.D.B.  
 CHECKED BY: B.H.A.  
 REVIEWED BY: G.M.K.  
 DATE: DECEMBER 31, 1986

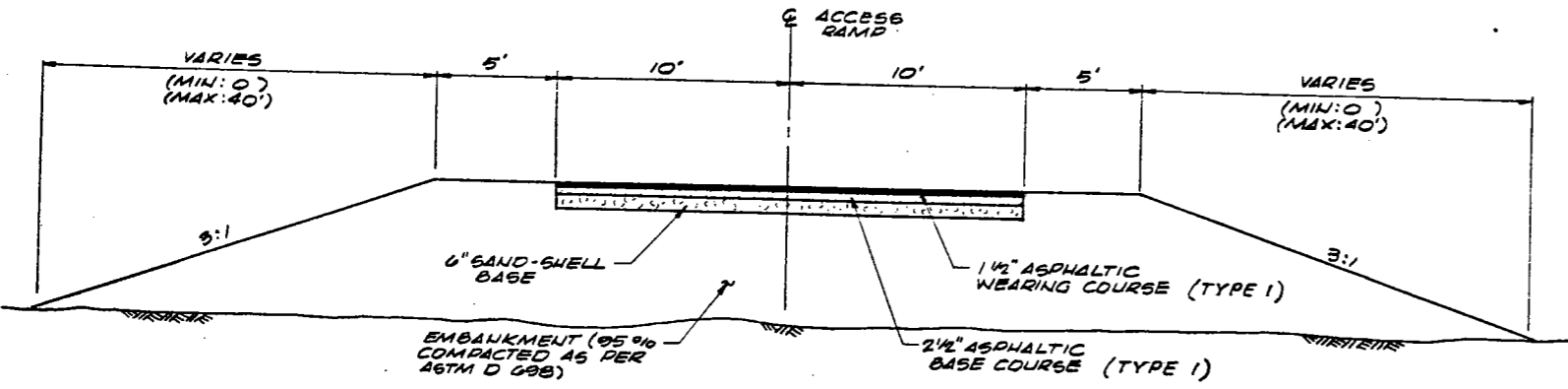
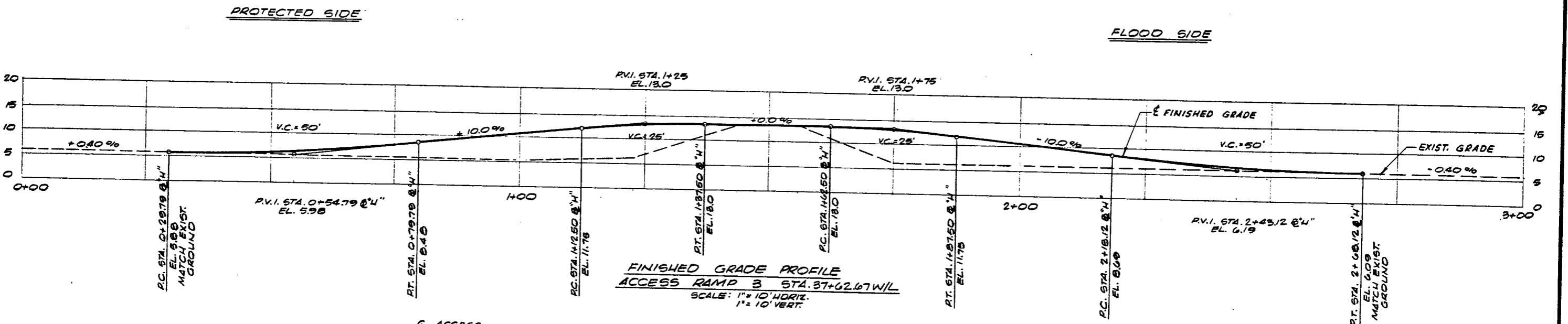
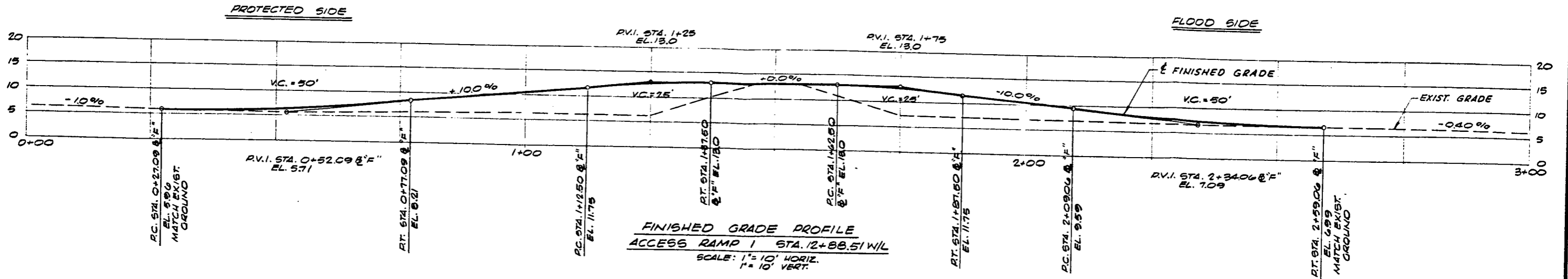


**URS** New Orleans

**PONTCHARTRAIN BEACH**  
**FLOOD PROTECTION IMPROVEMENT PROJECT**  
 ORLEANS PARISH PHASE II LOUISIANA

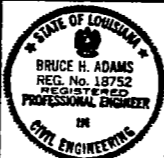
SHEET NO. 8  
 OF 24 SHEETS  
 FILE NO. 48021.00  
 565-04-73

TYPICAL SECTIONS



NO	DATE	REVISION	BY

DESIGNED BY: **C.A.T.**  
 DRAWN BY: **J.D.B.**  
 CHECKED BY: **B.H.A.**  
 REVIEWED BY: **G.M.K.**  
 DATE: **DECEMBER 31, 1984**

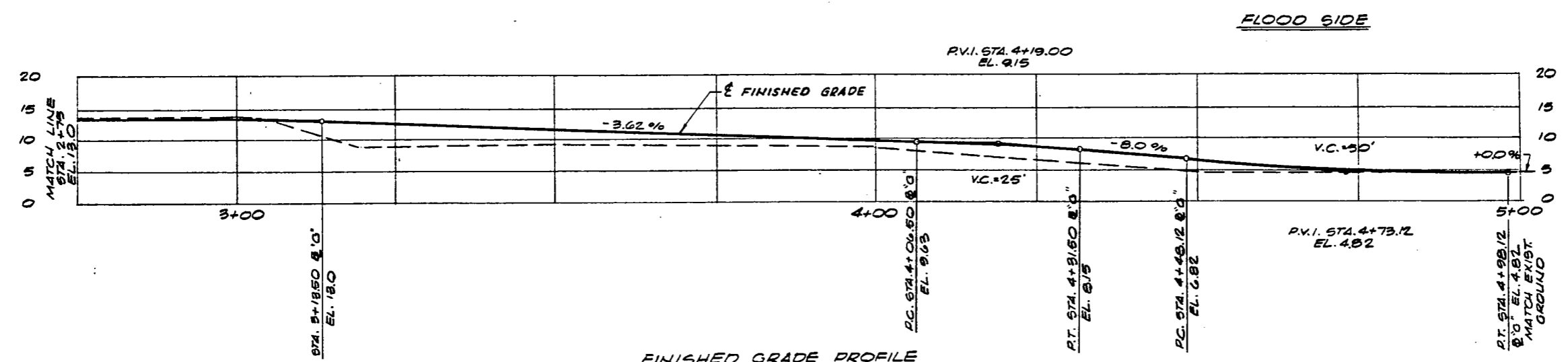
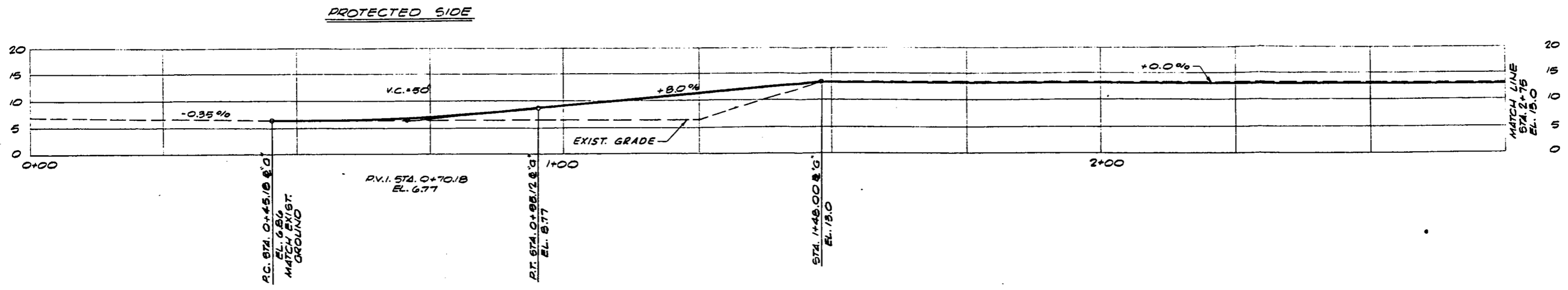


**URS**  
 New Orleans

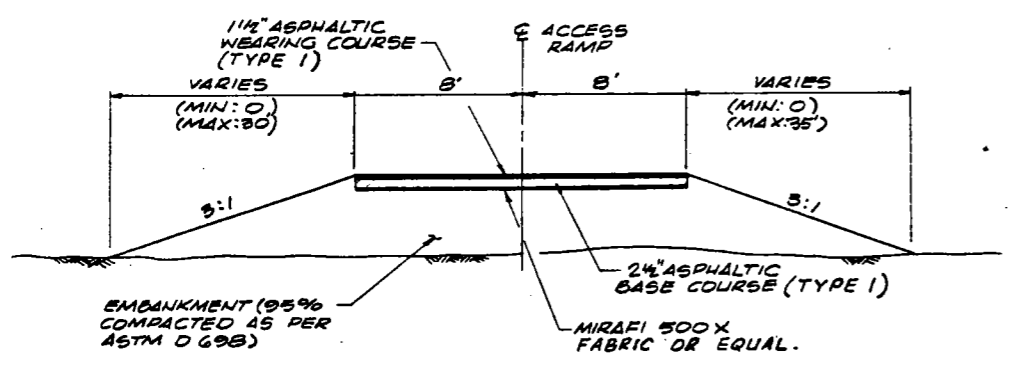
**PONTCHARTRAIN BEACH**  
**FLOOD PROTECTION IMPROVEMENT PROJECT**  
 ORLEANS PARISH  
**PHASE II**  
 LOUISIANA

**ACCESS RAMP PROFILES AND SECTIONS**

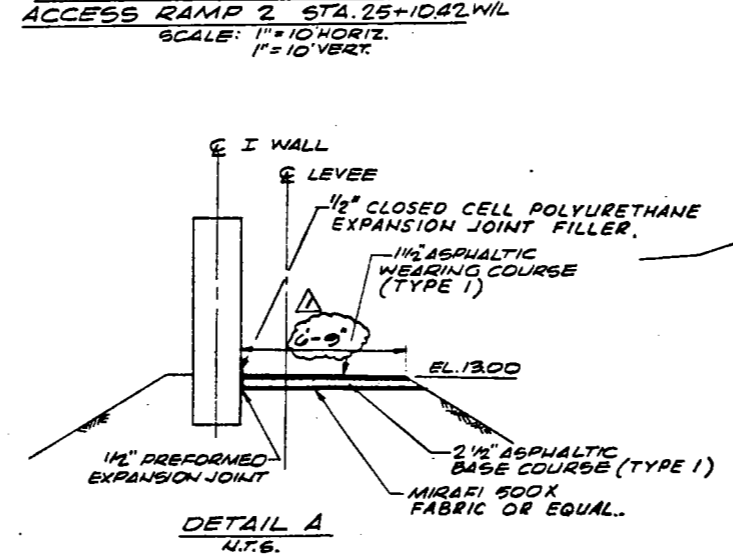
SHEET NO. **9**  
 OF **24** SHEETS  
 FILE NO. **48021.00**  
**585-04-73**



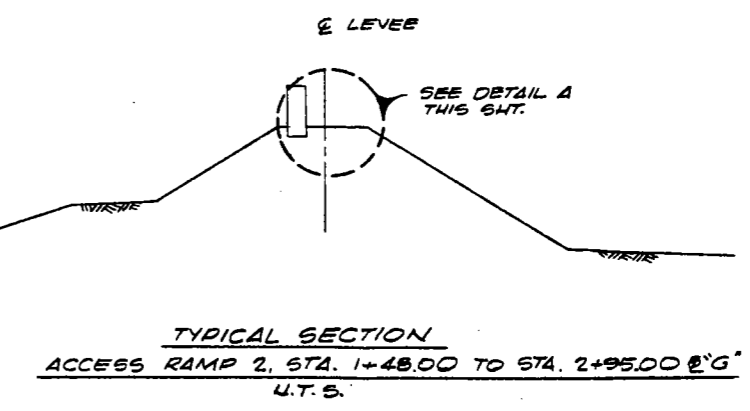
FINISHED GRADE PROFILE  
ACCESS RAMP 2 STA. 25+1042 W/L  
SCALE: 1" = 10' HORIZ.  
1" = 10' VERT.



TYPICAL SECTION  
ACCESS RAMP 2, STA. 0+45.18 TO STA. 1+48.00 @ "G"  
N.T.S.



DETAIL A  
N.T.S.

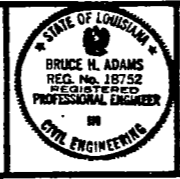


TYPICAL SECTION  
ACCESS RAMP 2, STA. 1+48.00 TO STA. 2+95.00 @ "G"  
N.T.S.

NOTE: FOR TYPICAL SECTION, ACCESS RAMP 2, STA. 3+05 TO STA. 4+98.12 @ "G" SEE SHT. 9.

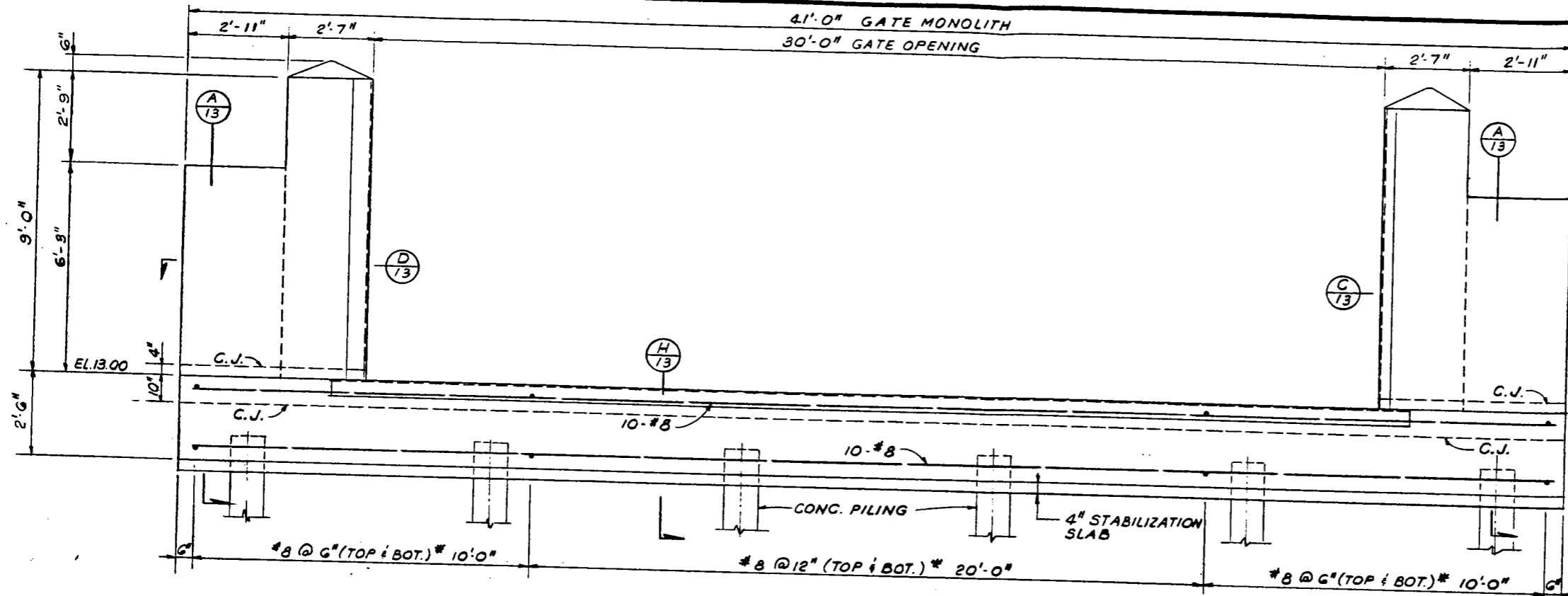
NO.	DATE	REVISION	BY
1	4-2-87	DIMENSION CHANGE ON ASPH. DETAIL A	

DESIGNED BY:	C.A.T.
DRAWN BY:	J.O.B.
CHECKED BY:	D.H.A.
REVIEWED BY:	G.M.K.
DATE:	DECEMBER 31, 1986

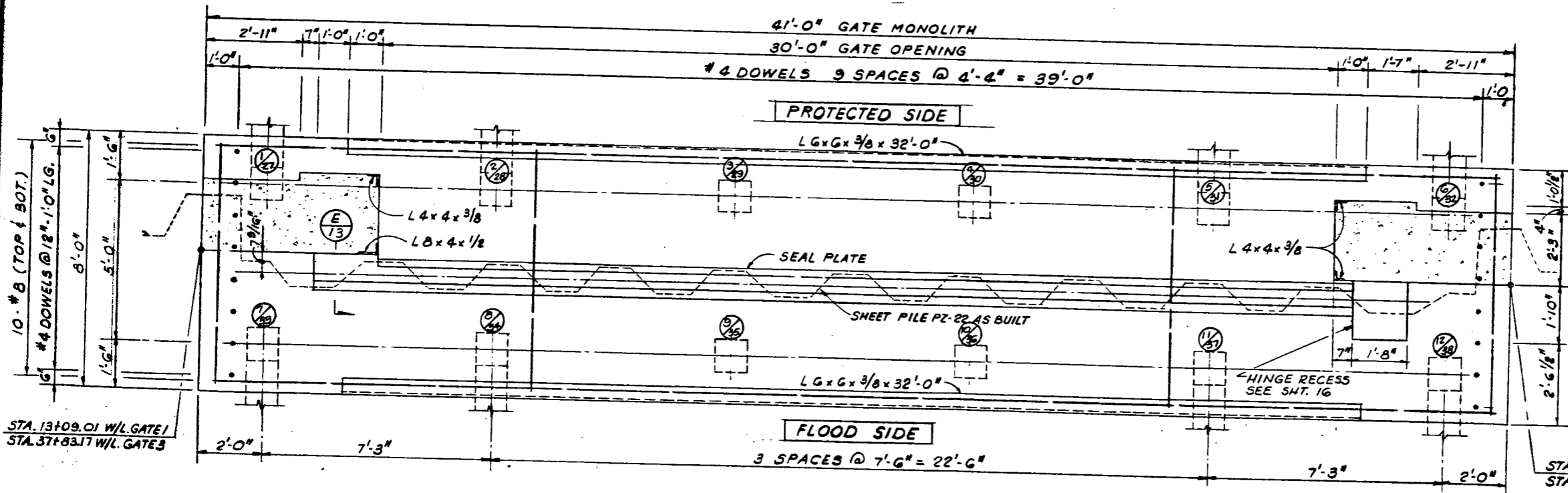


PONTCHARTRAIN BEACH  
FLOOD PROTECTION IMPROVEMENT PROJECT  
ORLEANS PARISH PHASE II LOUISIANA  
ACCESS RAMP PROFILES AND SECTIONS

SHEET NO. 10  
OF 24 SHEETS  
FILE NO. 48021.00  
585-04-73



FLOOD SIDE ELEVATION  
SCALE: 1/2" = 1'-0"



PLAN AT ELEV. 13.00  
SCALE: 1/2" = 1'-0"

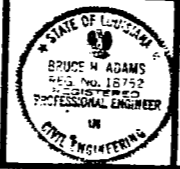
**LEGEND:**

- INDICATES DIRECTION OF BATTER
- 12"x12" PRESTRESSED CONCRETE BATTER PILES: 2 VERT. TO 1 HORIZ.
- 12"x12" PRESTRESSED CONCRETE VERTICAL PILES.
- * SPACED TO MISS CONCRETE PILES AND SHEET PILING INTERLOCKS.
- GATE 1 DENOTES PILE NUMBERING SYSTEM GATE 3

- CONCRETE NOTES**
1. F_c=3000 PSI, F_y=40,000 PSI
  2. All unformed surfaces shall be given a float finish, unless otherwise specified.
  3. All exterior formed surfaces not covered by backfill shall be class "A" finish and surfaces covered by backfill shall be class "D" finish, unless otherwise noted. See specifications.
  4. Reinforcing tie spacing in columns shall be reduced where necessary to miss recesses for gate latches.
  5. Construction joints shall be provided only where shown. Roughen all construction joints to minimum of 1/4" roughness.
  6. Unless otherwise noted, provide 3/8" chamfer of all exposed joints, edges, external corners, vertical expansion joints and horizontal construction joints.
  7. All primary reinforcement shall have a minimum cover of 3", unless otherwise noted. The cover for secondary reinforcement may be reduced from the above by the diameter of the bar.
  8. All bends of reinforcement and all bar splices and supports shall be in accordance with the American Concrete Institute. Details and Detailing of Concrete Reinforced Structures (ACI 315R-80) or Manual of Engineering and Pricing Drawings for Detailing Reinforced Concrete Structures (ACI 315R-80).
  9. Reinforcing bar designation numbers conform to the current numbering system of the Concrete Reinforcing Steel Institute, 1978 Edition.
  10. All reinforcing shall be lapped or embedded according to the tables on this drawing, unless otherwise noted.
  11. Expansion joints shall be provided between I-Well sections and T-Wells, and in between I-Well sections.

Bar Size No.	MINIMUM LAP LENGTH INCHES		MINIMUM EMBEDMENT LENGTH INCHES	
	Top Bars	Other Bars	Top Bars	Other Bars
3	12	12	12	12
4	15	12	12	12
5	19	13	14	12
6	24	17	18	13
7	32	23	25	18
8	42	30	33	24
9	54	38	41	30
10	68	49	52	38
11	83	60	64	48

DESIGNED BY:	T.T.C.
DRAWN BY:	T.R.E.
CHECKED BY:	B.H.A.
REVIEWED BY:	G.M.K.
DATE:	DECEMBER 31, 1966

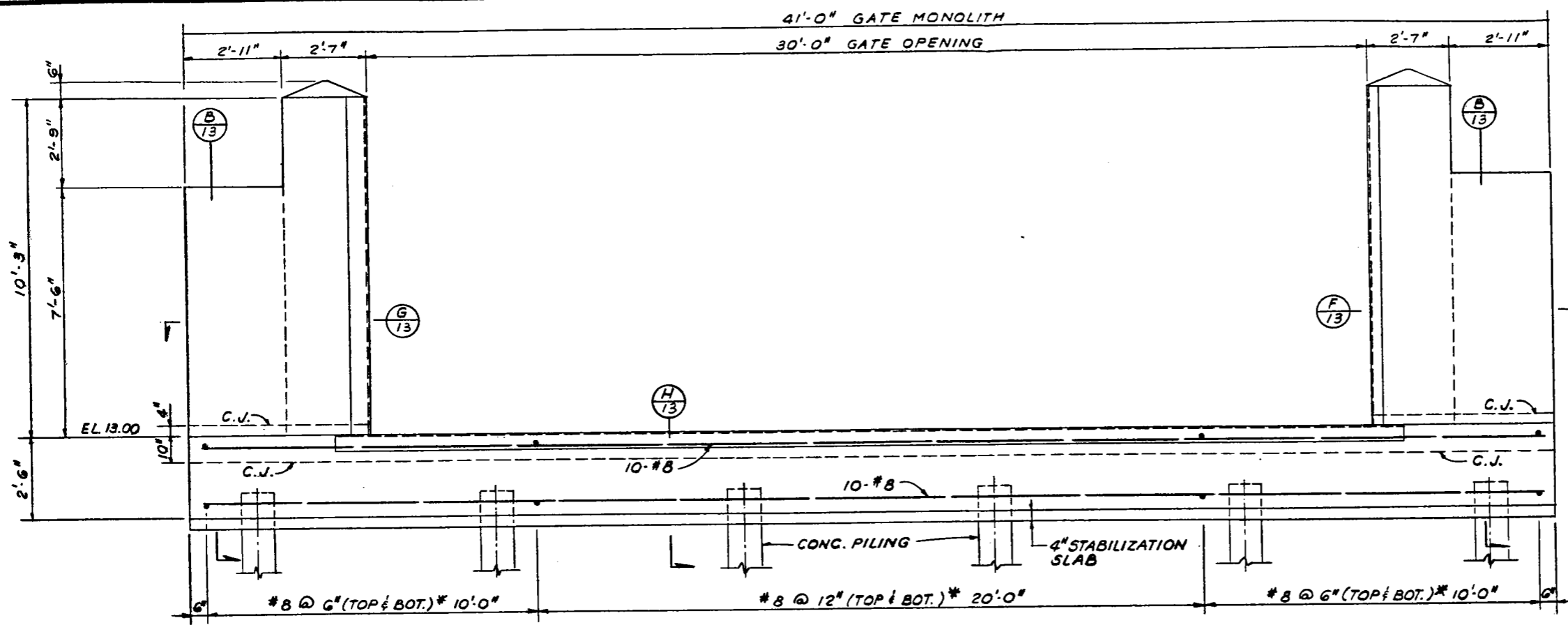


**URS**  
New Orleans

**PONTCHARTRAIN BEACH  
FLOOD PROTECTION IMPROVEMENT PROJECT**  
ORLEANS PARISH PHASE II LOUISIANA

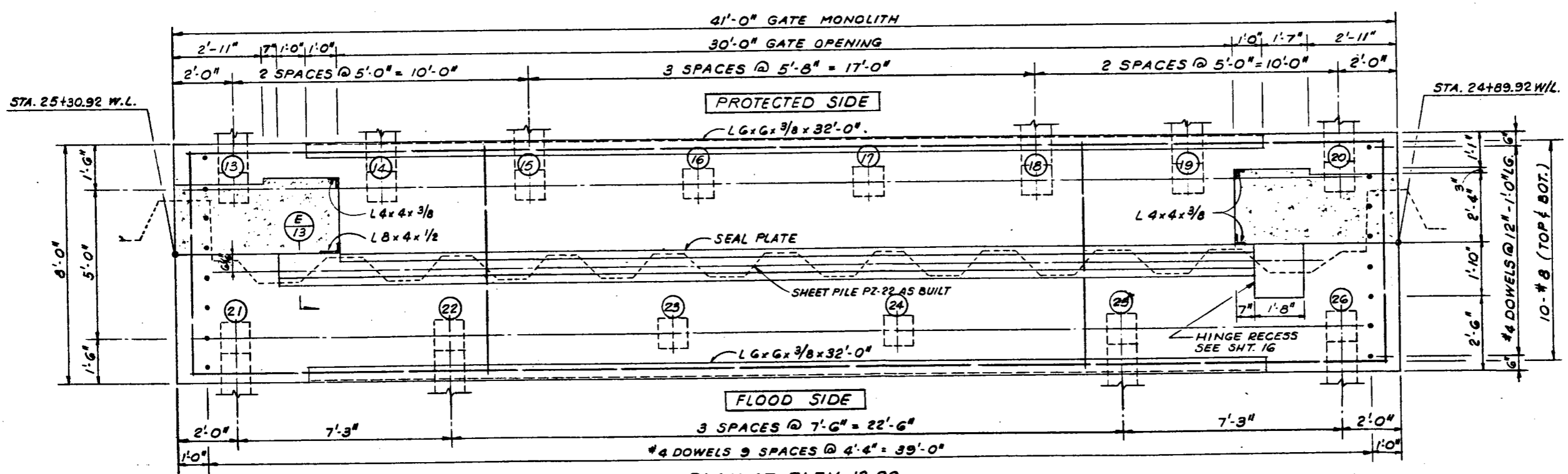
GATE MONOLITHS-GATES 1 & 3

SHEET NO. 11  
OF 24 SHEETS  
FILE NO. 4602100  
565-04-73

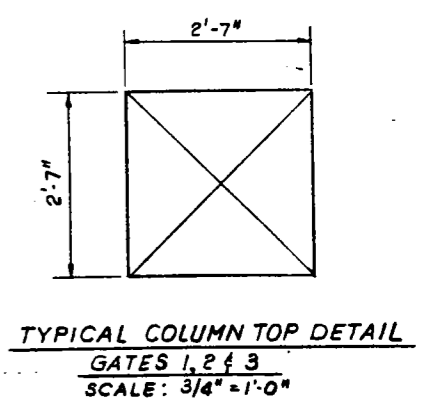


FLOOD SIDE ELEVATION  
SCALE: 1/2" = 1'-0"

**LEGEND:**  
 - INDICATES DIRECTION OF BATTER  
 12"x12" PRESTRESSED CONCRETE BATTER PILES: 2 VERT. TO 1 HORIZ.  
 12"x12" PRESTRESSED CONCRETE VERTICAL PILES.  
 * SPACED TO MISS CONCRETE PILES AND SHEET PILING INTERLOCKS.  
 O DENOTES PILE NUMBERING SYSTEM



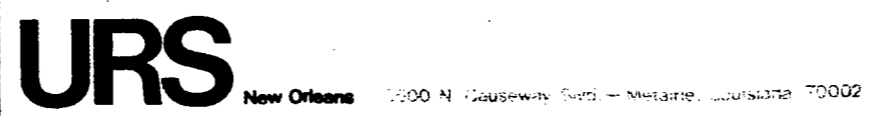
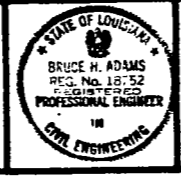
PLAN AT ELEV. 13.00  
SCALE: 1/2" = 1'-0"



TYPICAL COLUMN TOP DETAIL  
GATES 1, 2 & 3  
SCALE: 3/4" = 1'-0"

NO	DATE	REVISION	BY

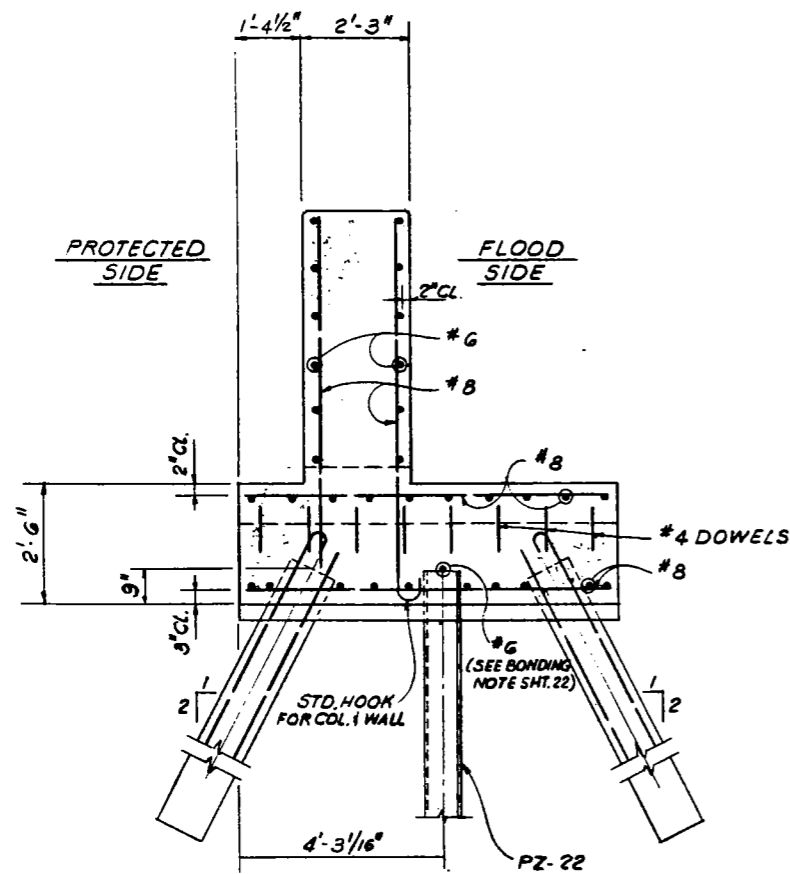
DESIGNED BY: T.T.C.  
 DRAWN BY: T.R.E.  
 CHECKED BY: B.H.A.  
 REVIEWED BY: G.M.K.  
 DATE: DECEMBER 31, 1980



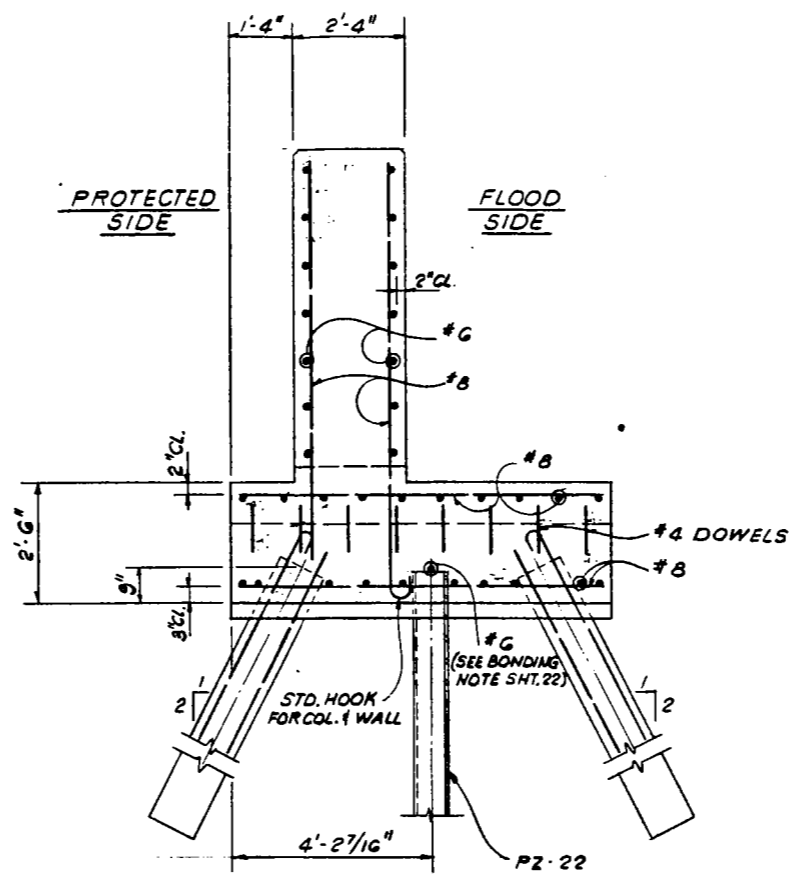
PONTCHARTRAIN BEACH  
 FLOOD PROTECTION IMPROVEMENT PROJECT  
 ORLEANS PARISH PHASE II LOUISIANA  
 GATE MONOLITH - GATE 2

SHEET NO. 12  
 OF 24 SHEETS  
 FILE NO. 46021.00  
 565-04-73

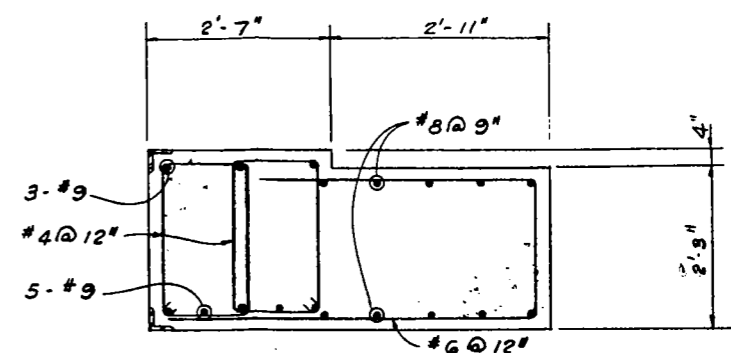




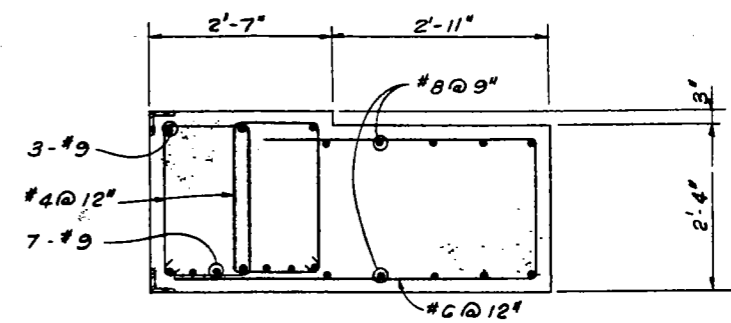
SECTION A  
SCALE: 1/2" = 1'-0"



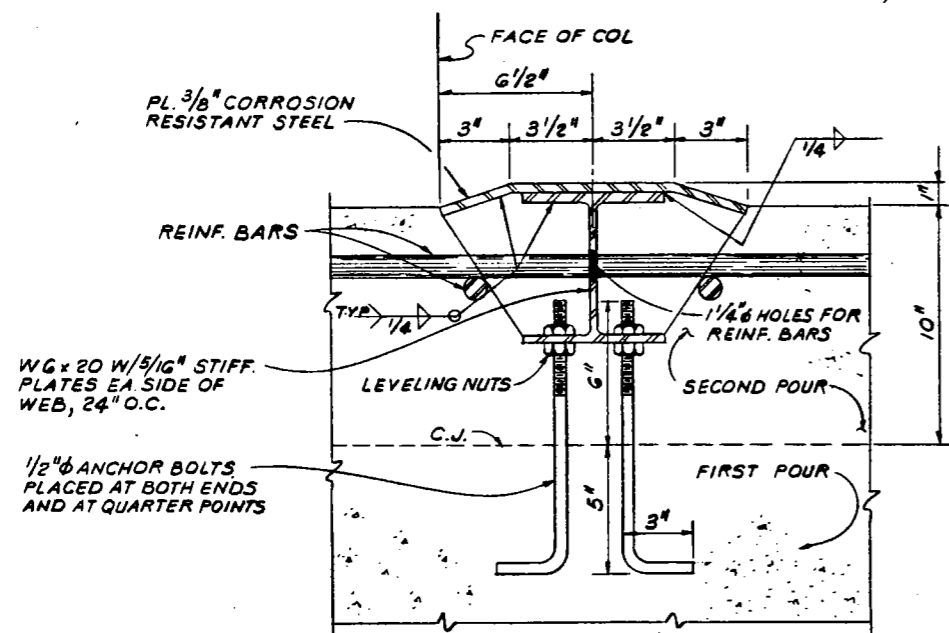
SECTION B  
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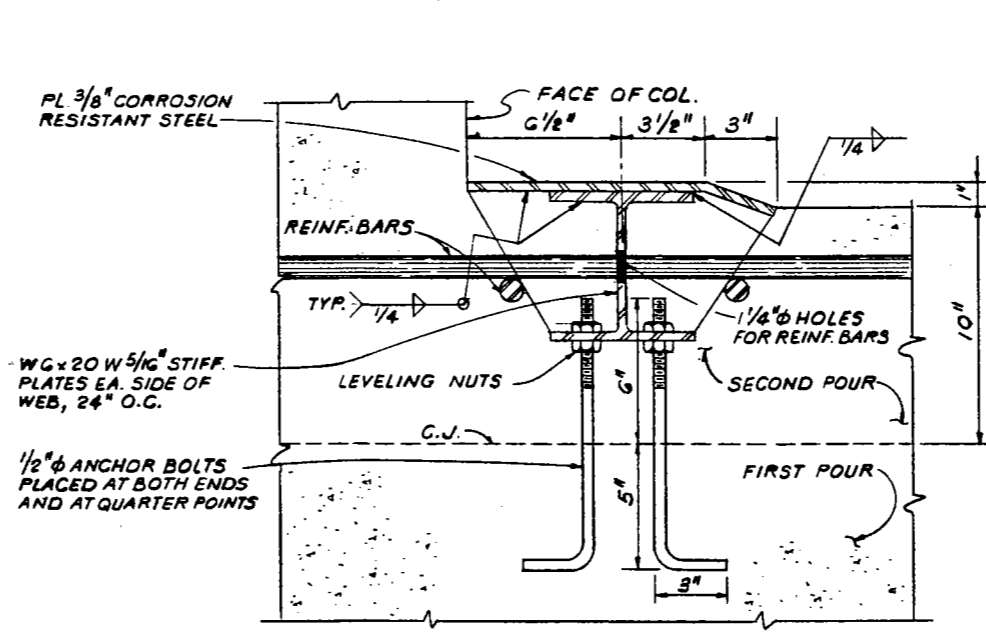
SECTION C SHOWN  
SCALE: 3/4" = 1'-0"  
SECTION D OPPOSITE HAND



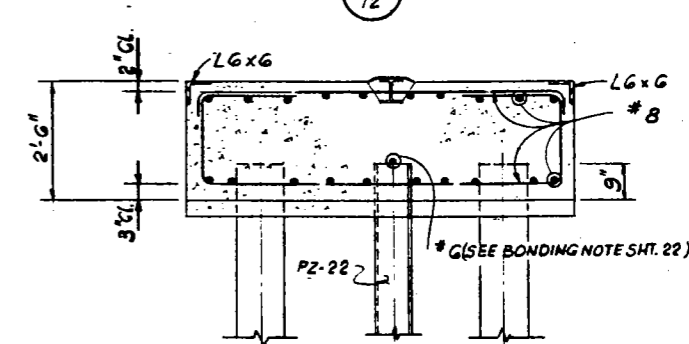
SECTION F SHOWN  
SCALE: 3/4" = 1'-0"  
SECTION G OPPOSITE HAND



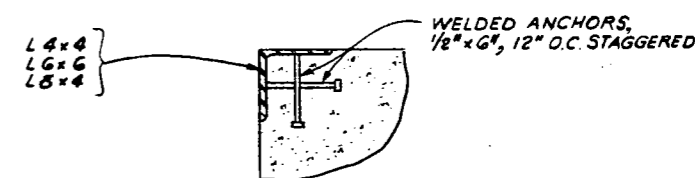
TYPICAL SEAL PLATE DETAIL  
SCALE: 3" = 1'-0"



SECTION E  
SCALE: 3" = 1'-0"



SECTION H  
SCALE: 1/2" = 1'-0"



NOTE:  
ENTIRE ANGLE ASSEMBLY TO BE  
HOT-DIP GALVANIZED AFTER FABRICATION.

TYPICAL ANGLE DETAIL  
N.T.S.

DESIGNED BY: T.J.C.  
DRAWN BY: T.R.E.  
CHECKED BY: B.H.A.  
REVIEWED BY: G.M.K.  
DATE: DECEMBER 31, 1986

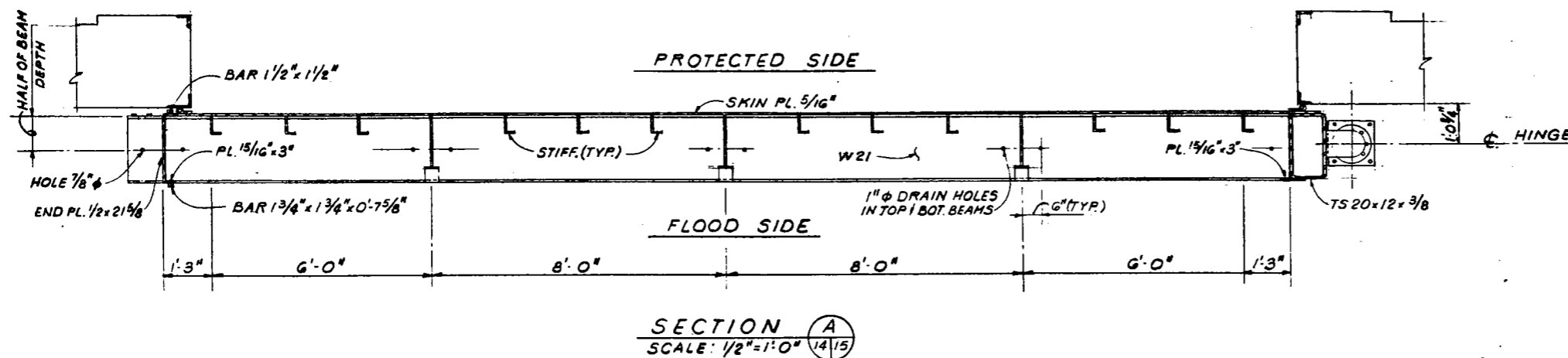
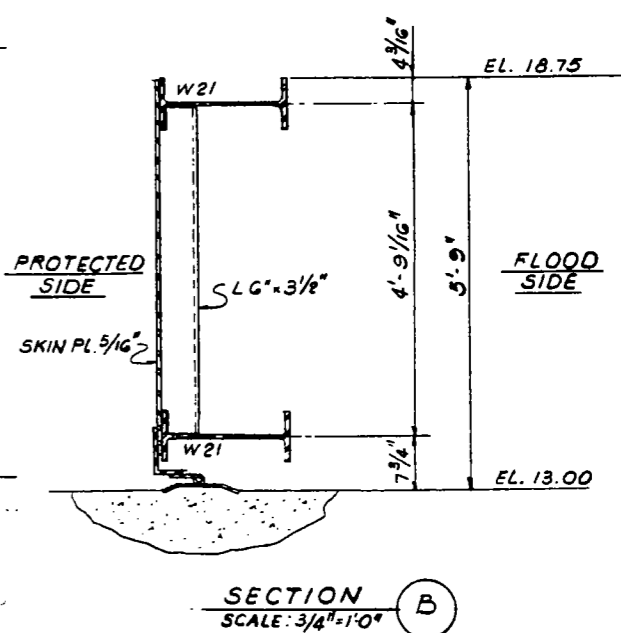
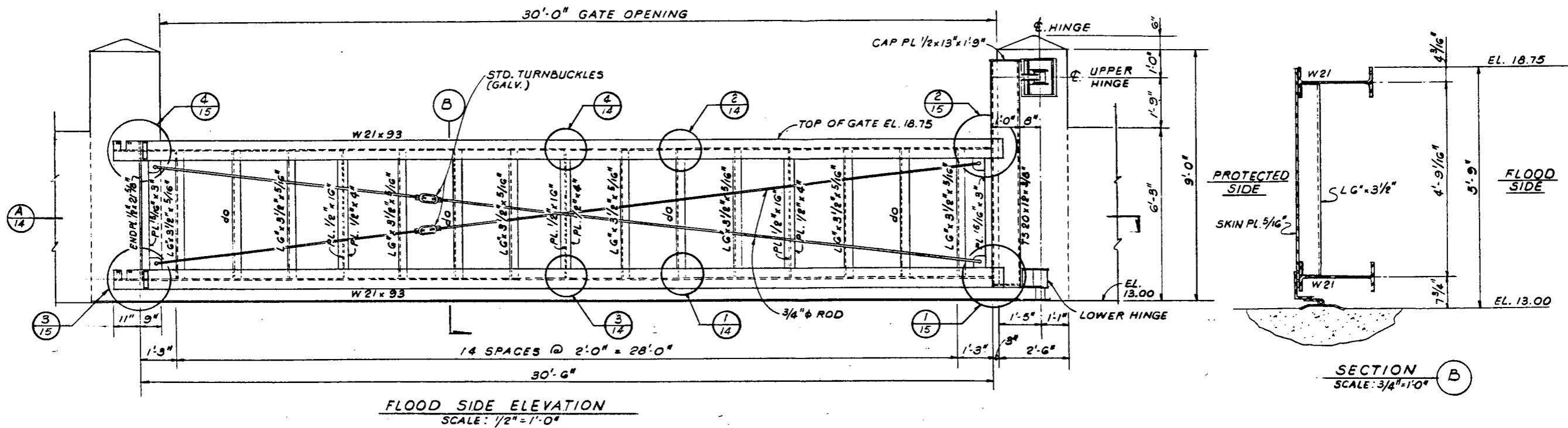


**URS**  
New Orleans

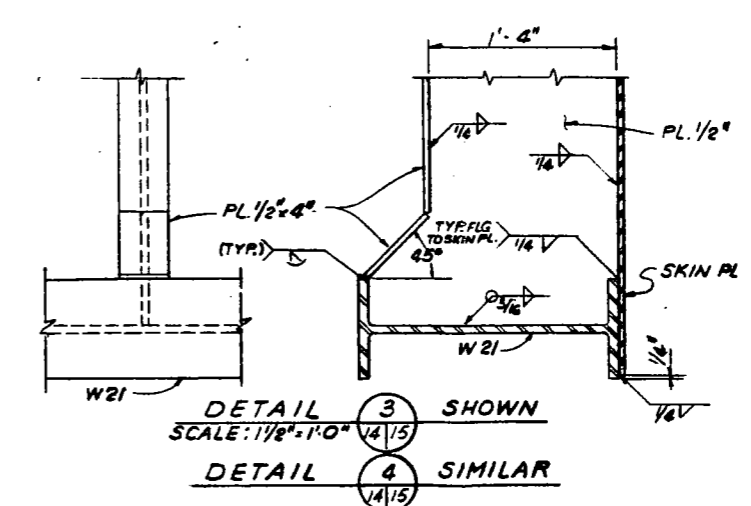
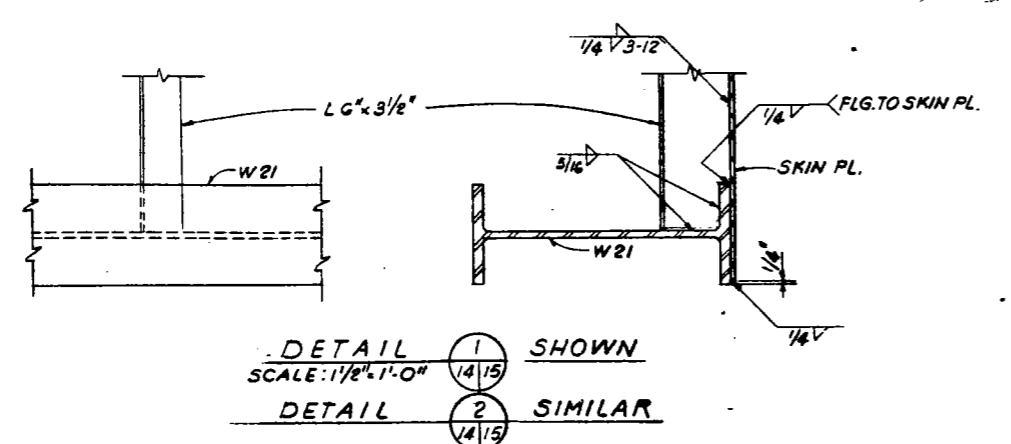
1000 N. Causeway Blvd - Metairie, Louisiana 70002

**PONTCHARTRAIN BEACH  
FLOOD PROTECTION IMPROVEMENT PROJECT**  
ORLEANS PARISH PHASE II LOUISIANA  
**GATE MONOLITH-SECTION & DETAILS**

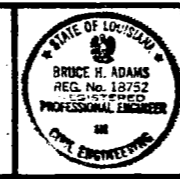
SHEET NO. 13  
OF 24 SHEETS  
FILE NO. 46021.00  
565-04-73



- STEEL NOTES**
- All structural steel shall be ASTM A36, unless otherwise noted.
  - To prevent corrosion by moisture between steel surfaces in contact, all such contacts shall be sealed watertight by running a continuous 1/8" fillet weld along all edges of the contact, unless otherwise noted.
  - All welding shall be electric welding. Workmanship and technique where applicable shall conform to the American Welding Society specifications AWC D1-83 Structural Welding Code.
  - Welding symbols shown are those adopted by the American Welding Society and indicate only size and type of welds required. Detailed information shall be shown on the shop drawings and submitted by the contractor for approval.
  - Items marked C.R.S. shall be corrosion resistant steel (Stainless Steel). See specifications.



DESIGNED BY: T.T.C.	DATE: DECEMBER 31, 1984		
DRAWN BY: T.R.E.			
CHECKED BY: B.H.A.			
REVIEWED BY: G.M.K.			
NO.	DATE	REVISION	BY

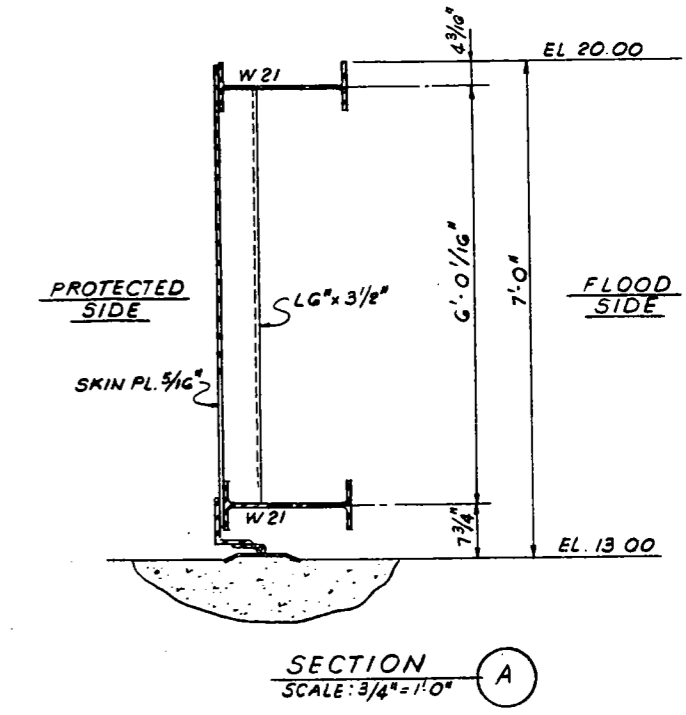
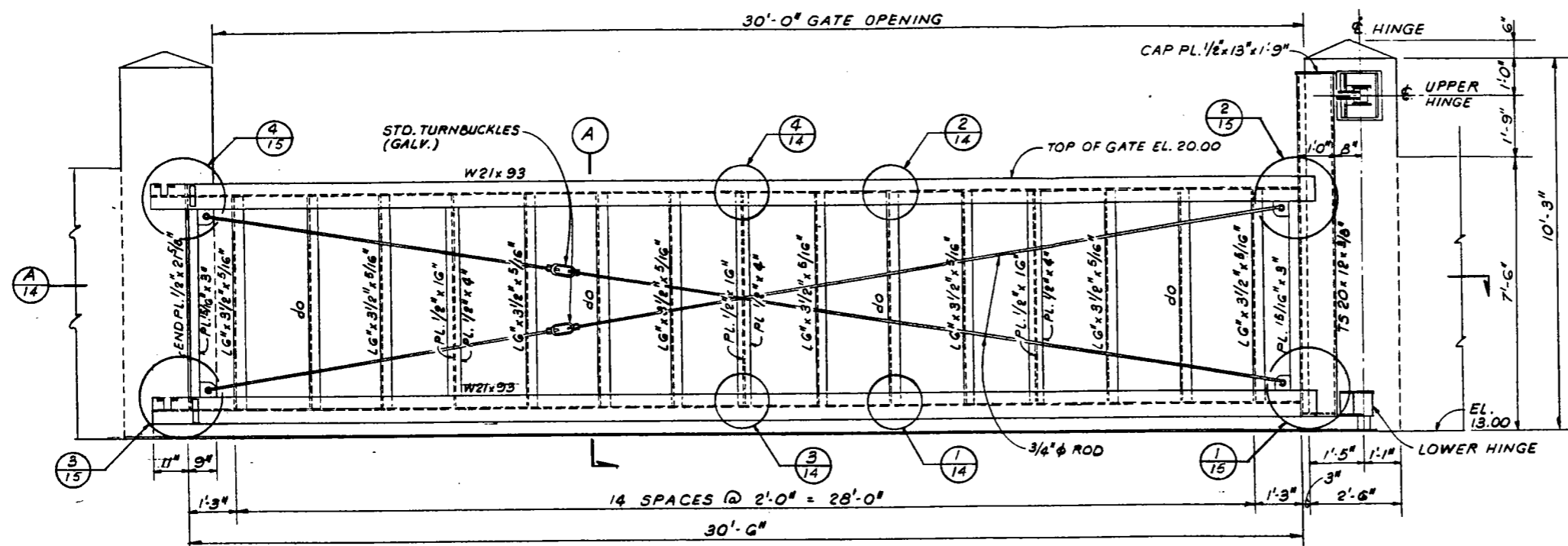


**URS** New Orleans

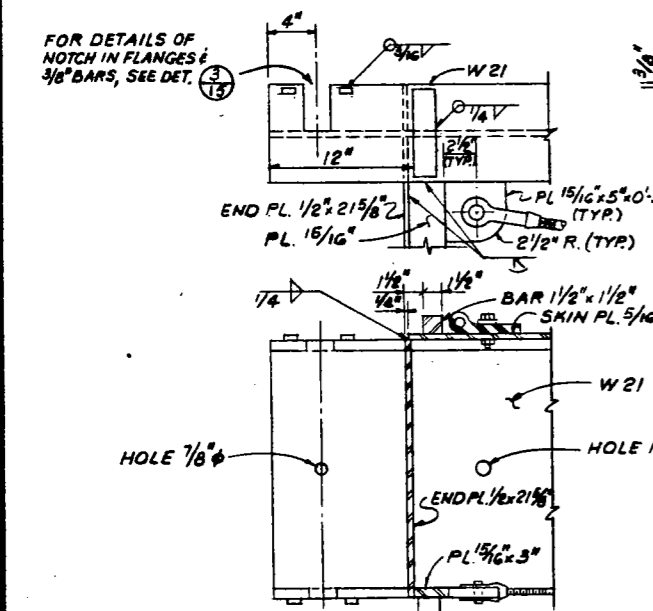
**PONTCHARTRAIN BEACH  
FLOOD PROTECTION IMPROVEMENT PROJECT**  
ORLEANS PARISH PHASE II LOUISIANA

**SWING GATES 1 AND 3-DETAILS**

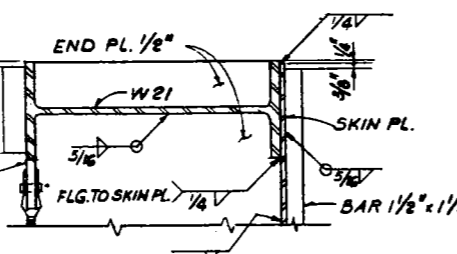
SHEET NO. 14  
OF 24 SHEETS  
FILE NO. 46021.00  
565-04-73



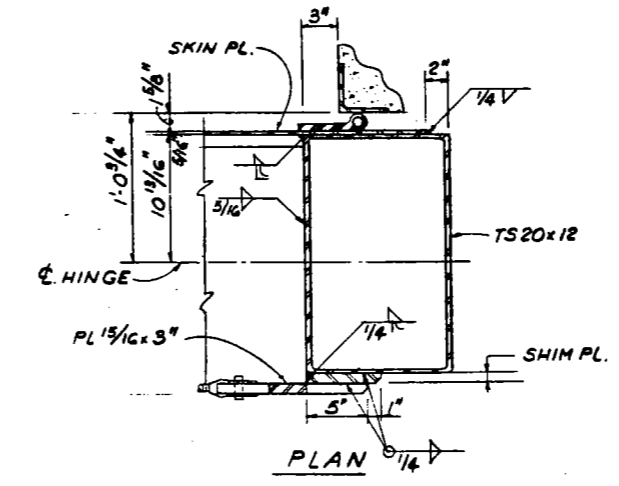
FLOOD SIDE ELEVATION  
SCALE: 1/2" = 1'-0"



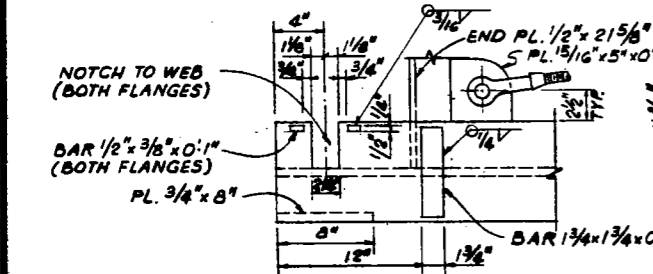
DETAIL 3  
SCALE: 1/2" = 1'-0"



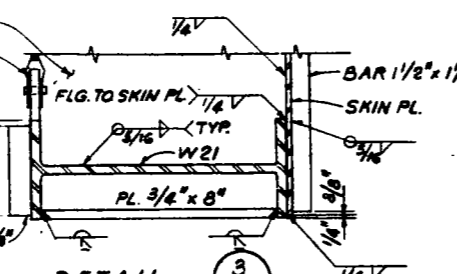
DETAIL 4  
SCALE: 1/2" = 1'-0"



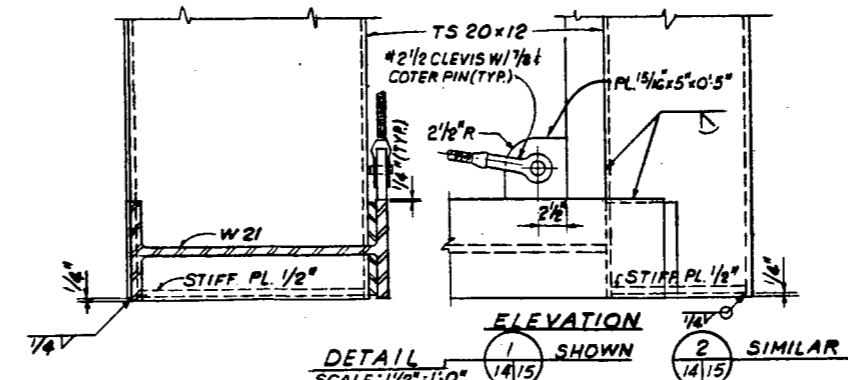
PLAN



DETAIL 1  
SCALE: 1/2" = 1'-0"



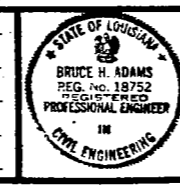
DETAIL 2  
SCALE: 1/2" = 1'-0"



DETAIL 2 SIMILAR  
SCALE: 1/2" = 1'-0"

NO.	DATE	REVISION	BY

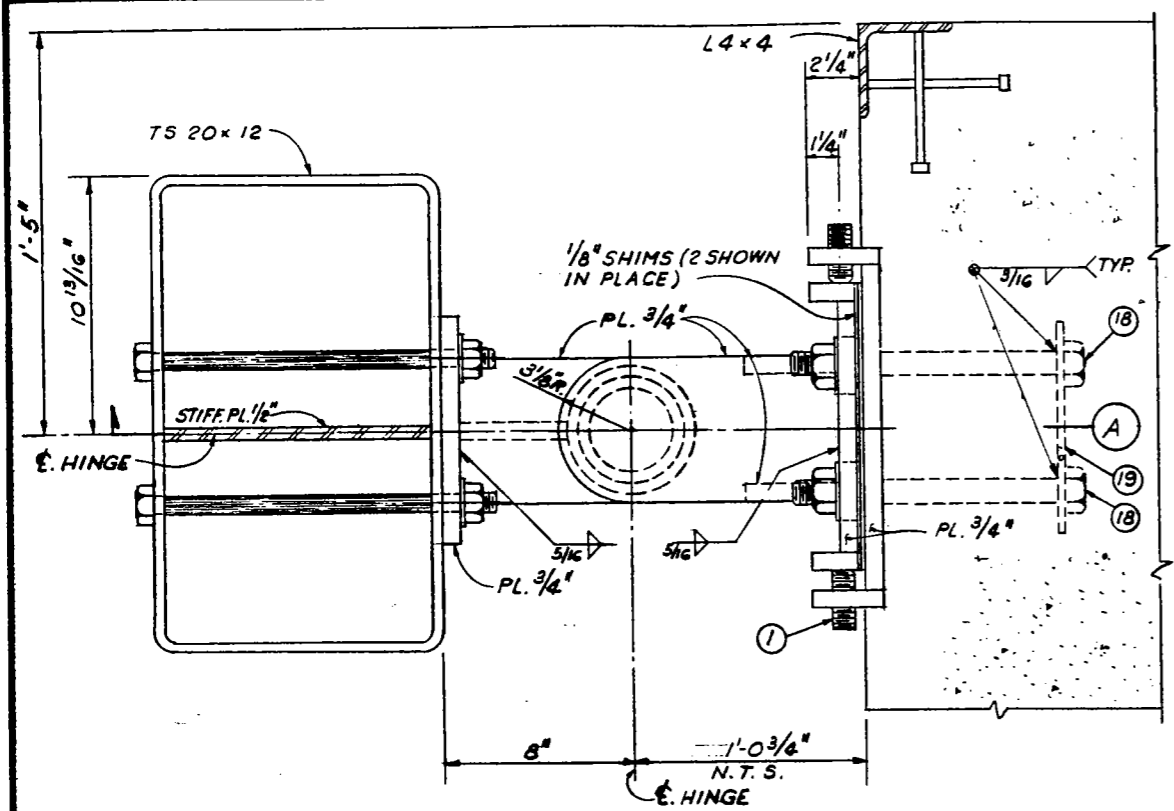
DESIGNED BY: T.T.C.  
 DRAWN BY: T.R.E.  
 CHECKED BY: B.H.A.  
 REVIEWED BY: G.M.K.  
 DATE: DECEMBER 31, 1986



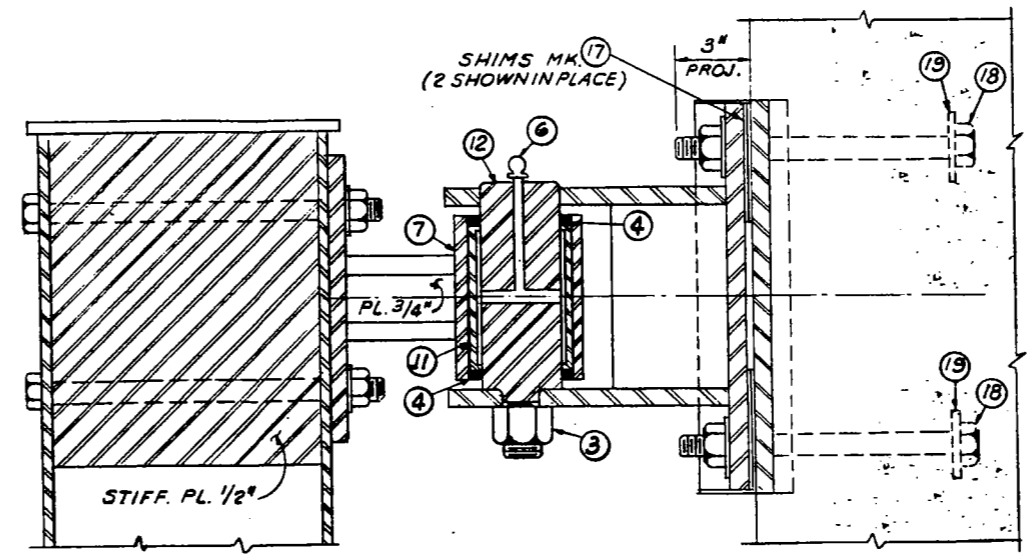
**URS** New Orleans  
 1500 N. Causeway Blvd. - Metairie, Louisiana 70002

**PONTCHARTRAIN BEACH  
 FLOOD PROTECTION IMPROVEMENT PROJECT**  
 ORLEANS PARISH PHASE II LOUISIANA  
**SWING GATE 2 - DETAILS**

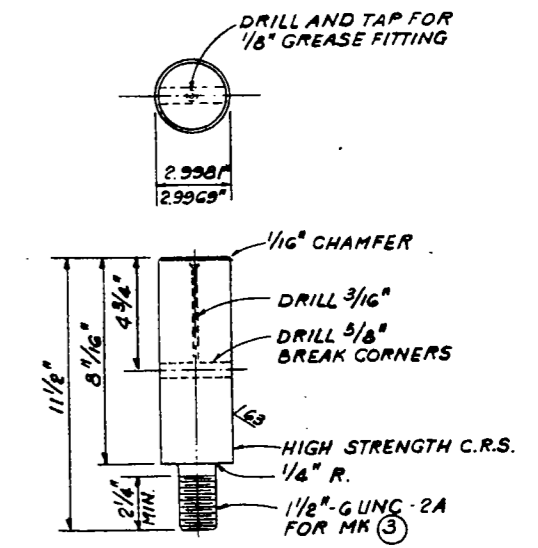
SHEET NO. 15  
 OF 24 SHEETS  
 FILE NO. 46021.00  
 565-04-73



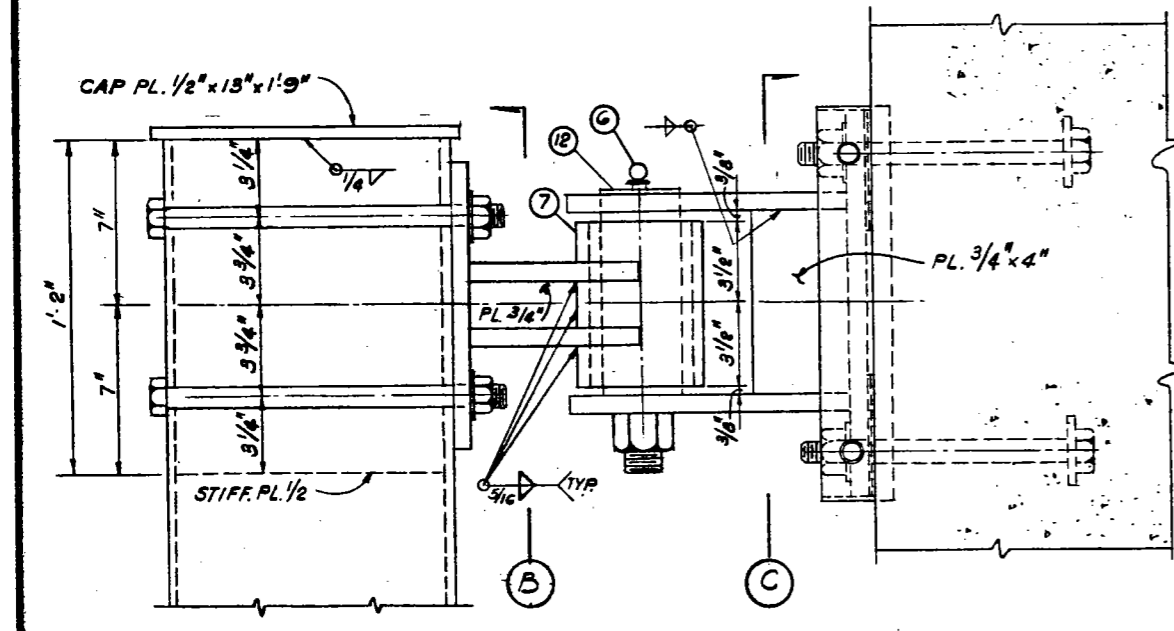
**PLAN**  
SCALE: 3" = 1'-0"



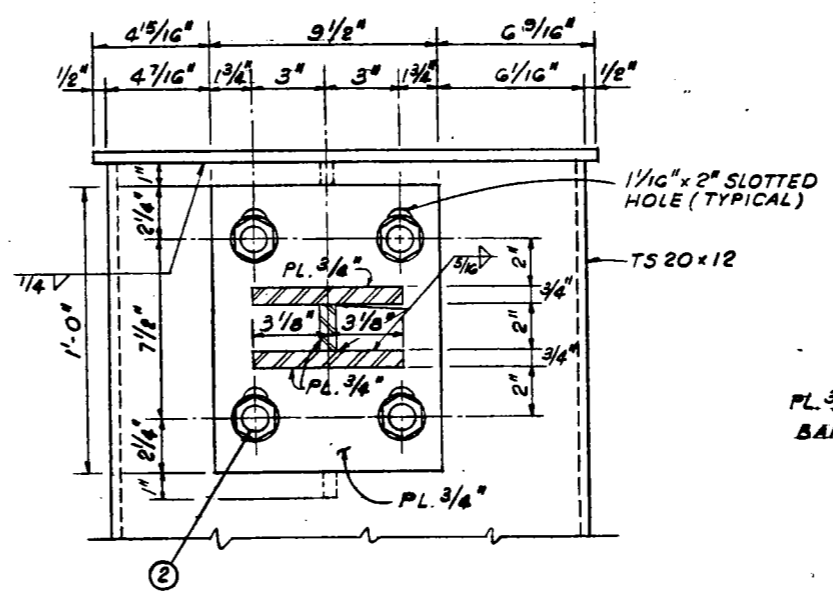
**SECTION A**  
SCALE: 3" = 1'-0"



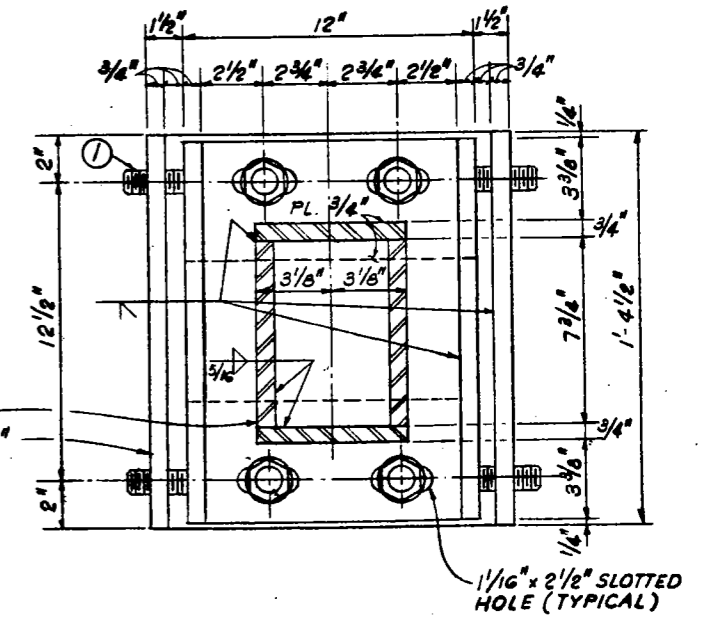
**MK-12**  
**UPPER HINGE SHAFT**  
SCALE: 3" = 1'-0"



**ELEVATION**  
SCALE: 3" = 1'-0"



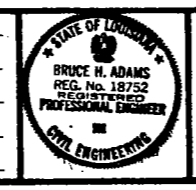
**SECTION B**  
SCALE: 3" = 1'-0"



**SECTION C**  
SCALE: 3" = 1'-0"

NO.	DATE	REVISION	BY

DESIGNED BY: T.T.C.  
 DRAWN BY: T.R.E.  
 CHECKED BY: B.H.A.  
 REVIEWED BY: G.M.K.  
 DATE: DECEMBER 31, 1984

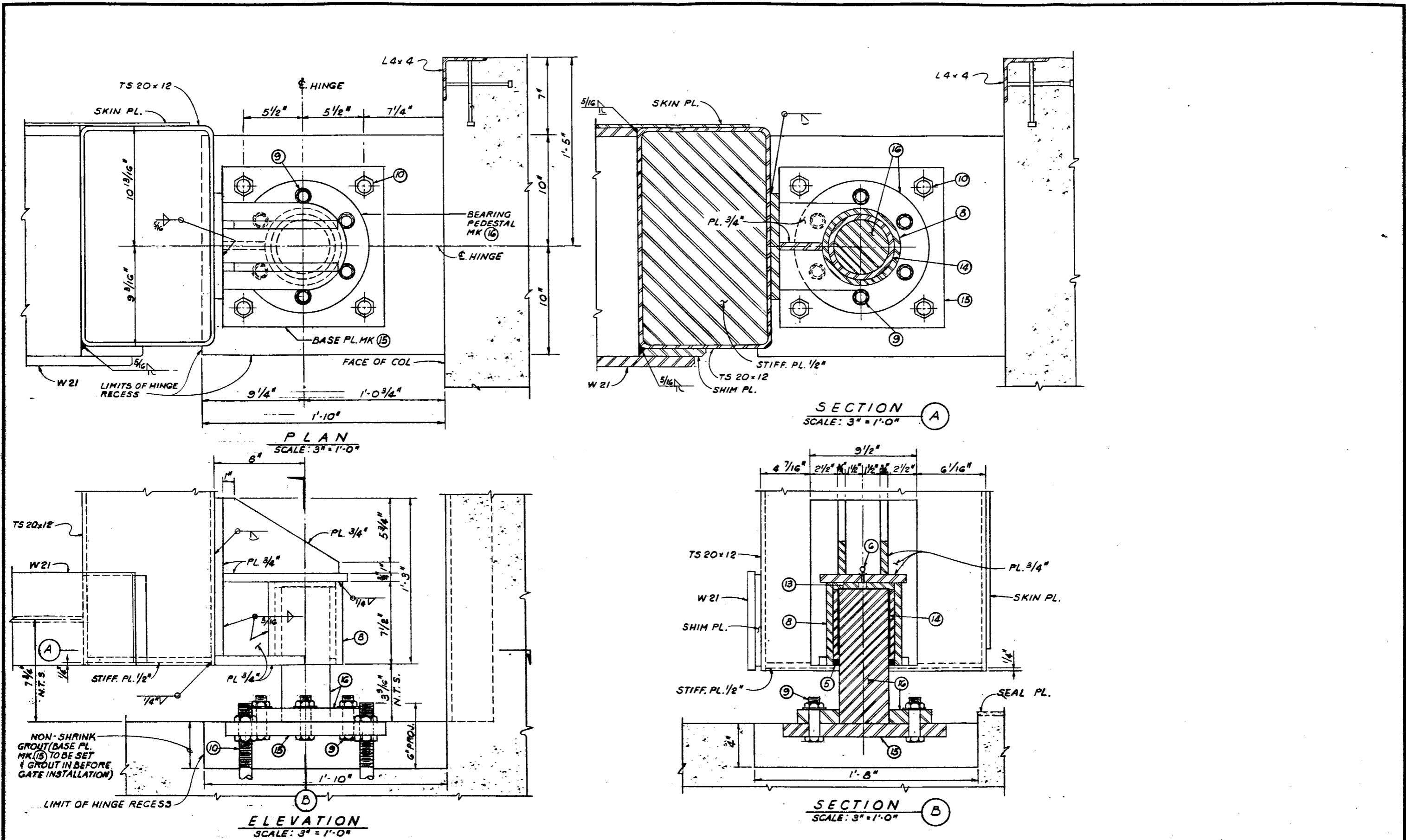


1500 W. Causeway Blvd - Metairie, Louisiana 70002

**PONTCHARTRAIN BEACH**  
**FLOOD PROTECTION IMPROVEMENT PROJECT**  
 ORLEANS PARISH PHASE II LOUISIANA

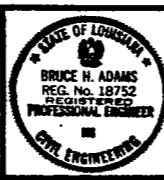
**UPPER HINGE**

SHEET NO. 16  
 OF 24 SHEETS  
 FILE NO. 46021.00  
965-04-73



NO	DATE	REVISION	BY

DESIGNED BY: T.T.C.  
 DRAWN BY: T.R.E.  
 CHECKED BY: B.H.A.  
 REVIEWED BY: G.M.K.  
 DATE: DECEMBER 31, 1994

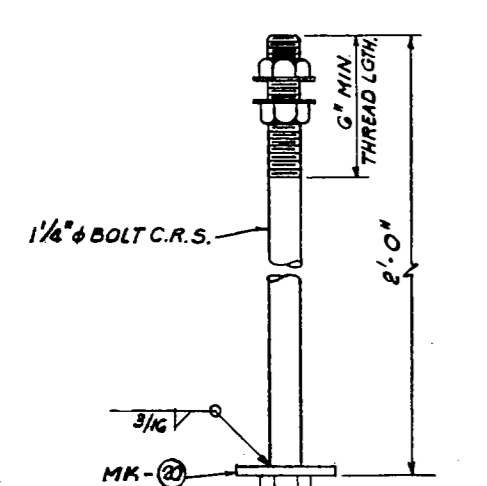


**URS** New Orleans 300 N. Causeway Blvd. - Metairie, Louisiana 70002

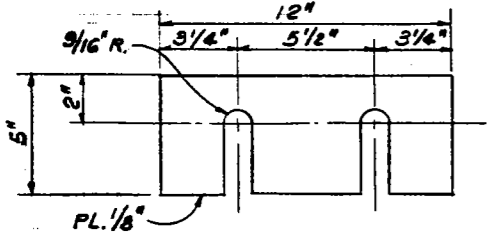
**PONTCHARTRAIN BEACH**  
**FLOOD PROTECTION IMPROVEMENT PROJECT**  
 ORLEANS PARISH PHASE II LOUISIANA

**LOWER HINGE**

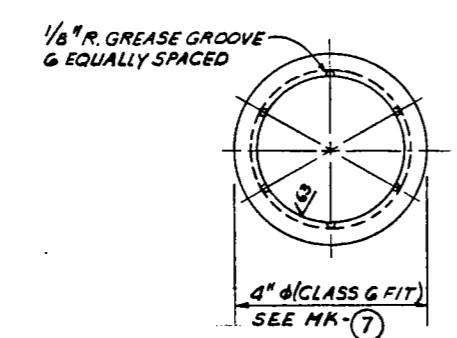
SHEET NO. 17  
 OF 24 SHEETS  
 FILE NO. 46021.00  
 565-04-73



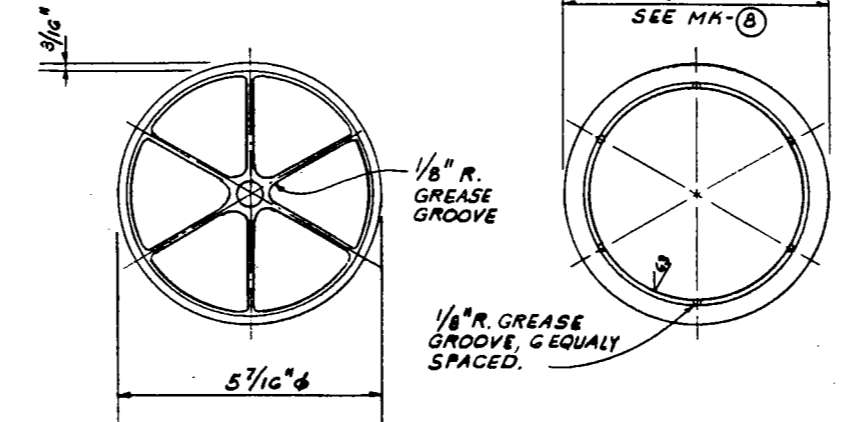
**M-10 ANCHOR BOLT**  
SCALE: 3" = 1'-0"



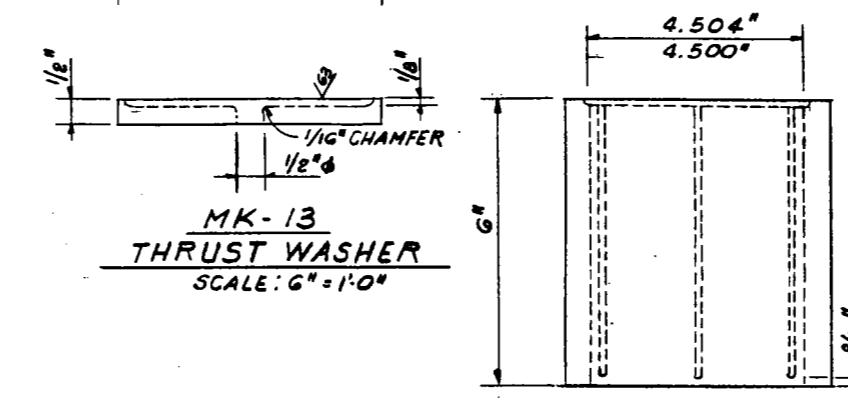
**MK-17 SHIM**  
SCALE: 3" = 1'-0"



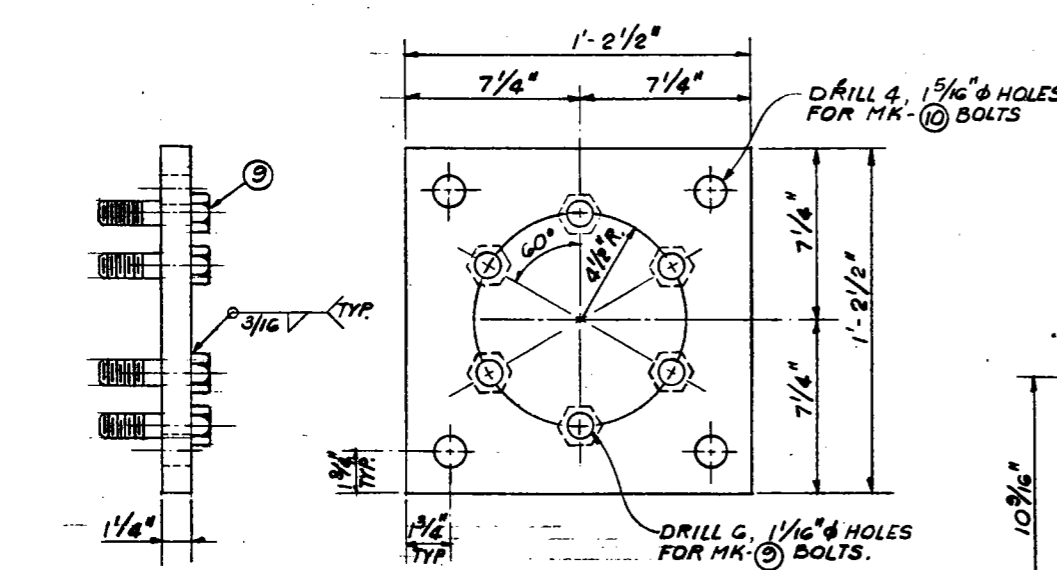
**MK-11 BUSHING**  
SCALE: 6" = 1'-0"



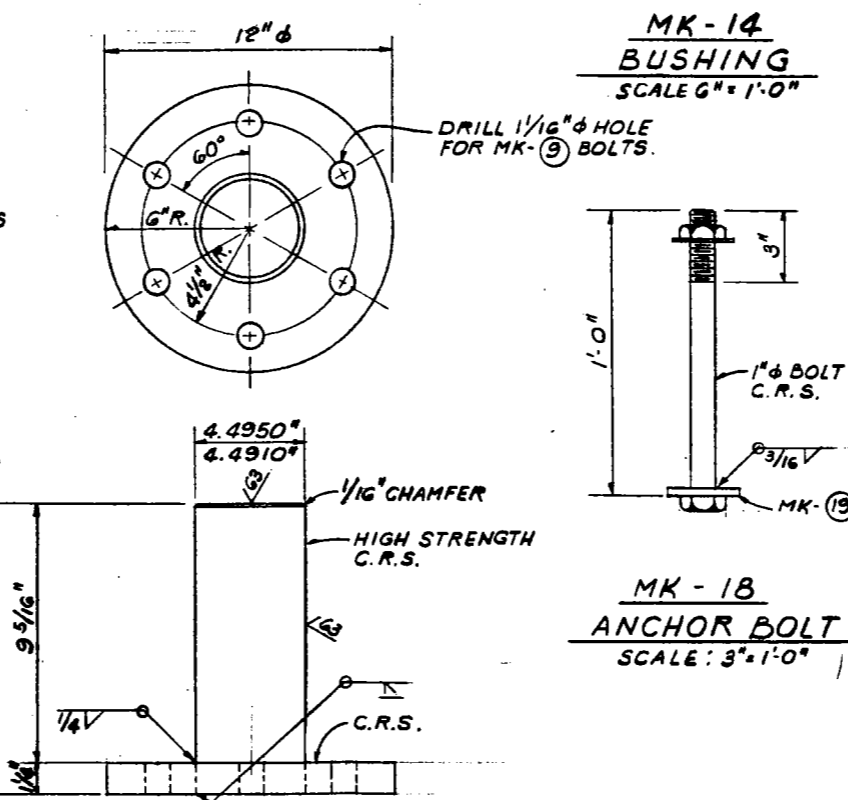
**MK-13 THRUST WASHER**  
SCALE: 6" = 1'-0"



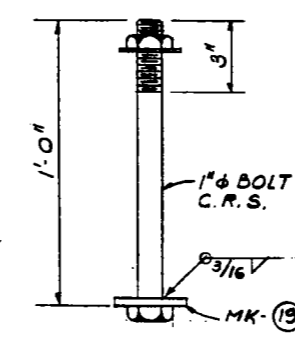
**MK-14 BUSHING**  
SCALE: 6" = 1'-0"



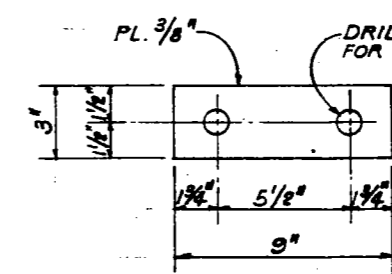
**MK-15 BASE PLATE**  
SCALE: 3" = 1'-0"



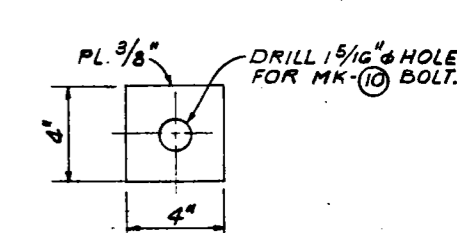
**MK-16 BEARING PEDESTAL**  
SCALE: 3" = 1'-0"



**MK-18 ANCHOR BOLT**  
SCALE: 3" = 1'-0"



**MK-19 PLATE**  
SCALE: 3" = 1'-0"

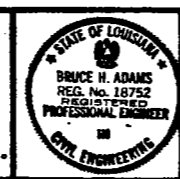


**MK-20 PLATE**  
SCALE: 3" = 1'-0"

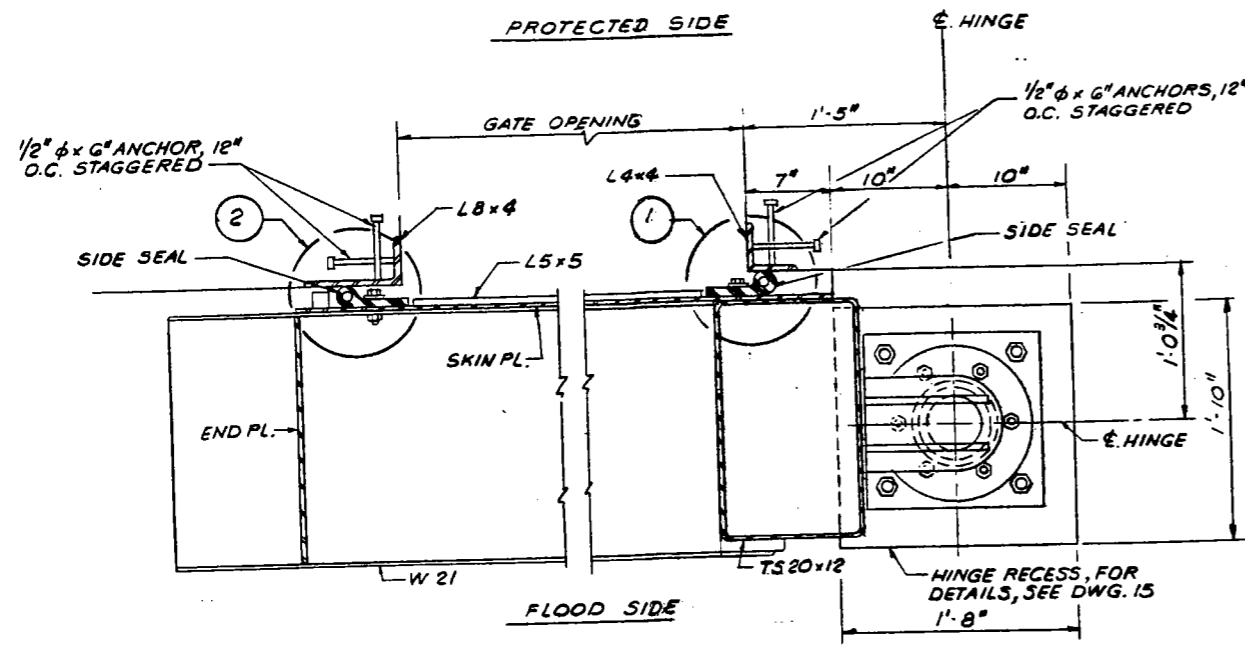
MK. NO.	QUANTITY	DESCRIPTION	MATERIAL
①	4	SET SCREW-HEX SOCKET, 1" x 2 1/2" CLASS 3A FLAT POINT.	C.R.S.
②	4	1" x 1" LONG BOLT WITH HEX NUT AND FLAT WASHER.	ASTM F593, GROUP 2 CONDITION CW, 316 ALLOY
③	1	NUT, HEX HEAD 1 1/2" - UNC - 2B TYPE 2 STYLE 7 WITH FLAT WASHER.	SAME AS MK-2
④	2	GREASE SEAL, GARLOCK KLOZURE NO. G3-217G OR EQUAL.	COMMERCIAL GRADE
⑤	1	GREASE SEAL, GARLOCK KLOZURE NO. 53-2753 OR EQUAL.	COMMERCIAL GRADE
⑥	2	GREASE FITTING, 1/8" N.P.T. TYPE	COMMERCIAL GRADE
⑦	1	MECHANICAL TUBING, 5 1/4" O.D. x 4" I.D. x 7" LG. MACHINED FOR CLASS G FIT BETWEEN I.D. OF TUBING AND O.D. OF MK-11 BUSHING.	A-513, TYPE G
⑧	1	MECHANICAL TUBING, 6 3/4" O.D. x 5 1/2" I.D. x 7 1/2" LG. MACHINED FOR CLASS G FIT BETWEEN I.D. OF TUBING AND O.D. OF MK-14 BUSHING.	A-513, TYPE G
⑨	6	1" x 4" LG. BOLT WITH HEX NUT AND FLAT WASHER.	SAME AS MK-2
⑩	4	1 1/4" x 2'-0" LG. BOLT WITH HEX NUTS AND FLAT WASHERS.	SAME AS MK-2
⑪	1	BUSHING, 4" O.D. x 3" I.D. x 6" LG.	B-22, NO. 937
⑫	1	UPPER HINGE SHAFT, 2.99" O.D. x 11 1/2" LG.	A-276, TYPE 431
⑬	1	THRUST WASHER, 5 1/16" x 1/2" x 1/2" HOLE	B-22, NO. 937
⑭	1	BUSHING, 5 1/2" O.D. x 4 1/2" I.D. x 6" LG.	B-22, NO. 937
⑮	1	BASE PL. 1 1/4" x 14 1/2" x 1-2 1/2"	STEEL A-36
⑯	1	BEARING PEDESTAL	PL. 1 1/4" x 12" x 4 1/2" x SHAFT x 10 3/16" LG
⑰	AS REQ.	SHIM PL. 1/8" x 5" x 1'-0"	STEEL A-36
⑱	4	1" x 1'-0" LG. BOLT W/HEX NUT & WASHER	SAME AS MK-2
⑲	2	PL. 3/8" x 3" x 0'-9"	STEEL A-36
⑳	4	PL. 3/8" x 4" x 0'-4"	STEEL A-36

NOTE: QUANTITIES SHOWN ARE FOR ONE COMPLETE SWING GATE

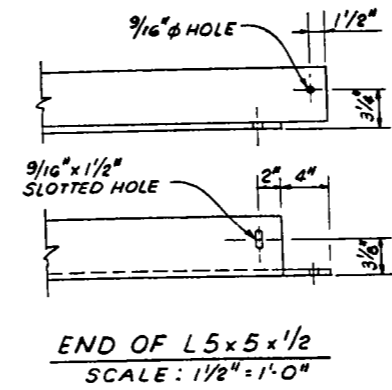
DESIGNED BY:	T.T.C.
DRAWN BY:	T.R.E.
CHECKED BY:	B.H.A.
REVIEWED BY:	G.M.K.
DATE:	DECEMBER 31, 1980



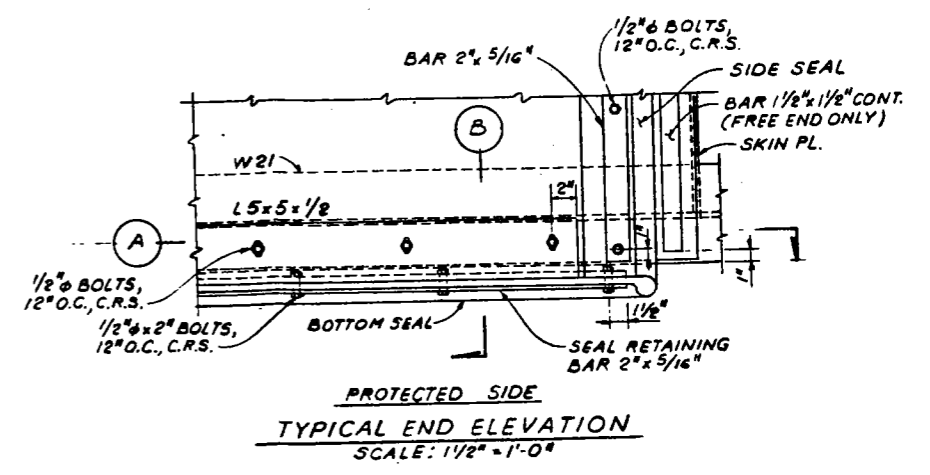
<b>PONTCHARTRAIN BEACH</b> <b>FLOOD PROTECTION IMPROVEMENT PROJECT</b> ORLEANS PARISH PHASE II LOUISIANA		SHEET NO. 18 OF 24 SHEETS FILE NO. 46021.00 565-04-73
<b>HINGE DETAILS</b>		



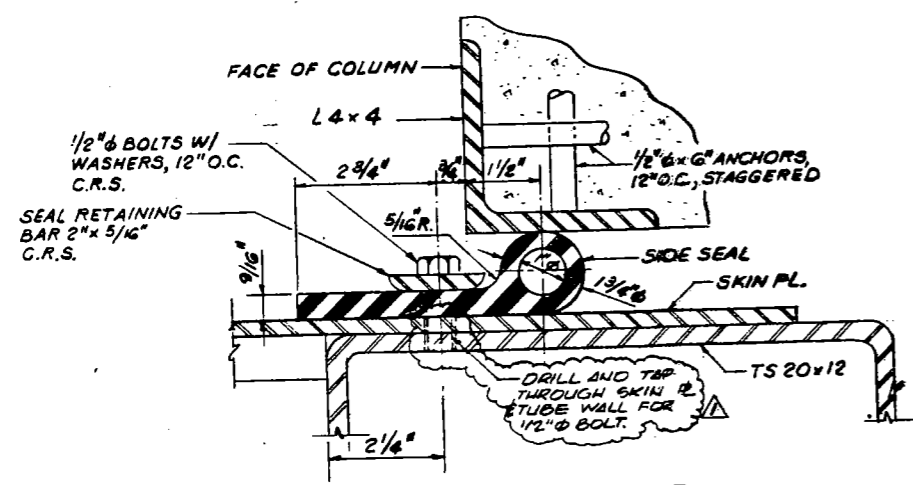
TYPICAL SECTION THRU SWING GATE  
SCALE: 1 1/2" = 1'-0"



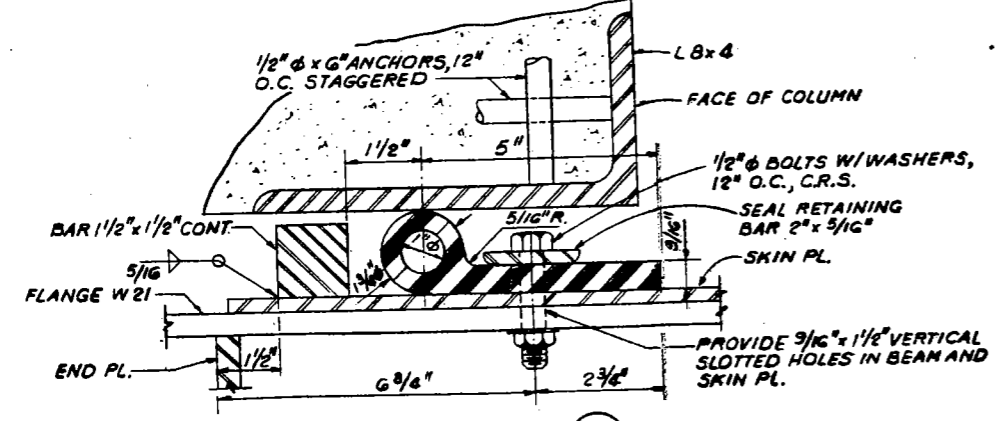
END OF L5x5x1/2  
SCALE: 1 1/2" = 1'-0"



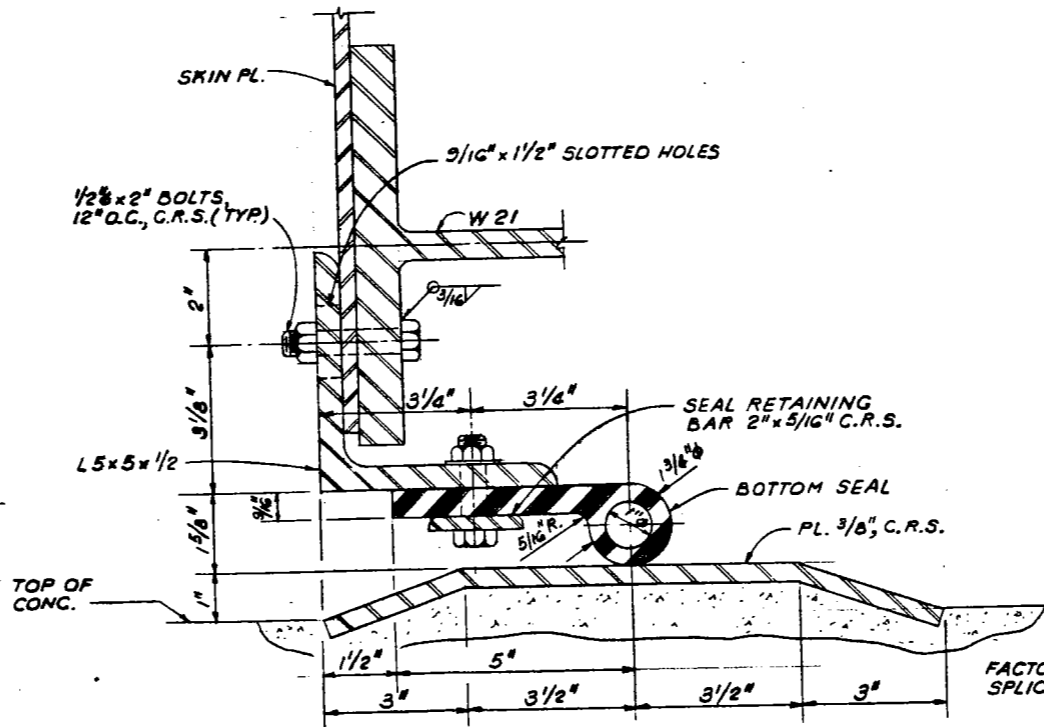
TYPICAL END ELEVATION  
SCALE: 1 1/2" = 1'-0"



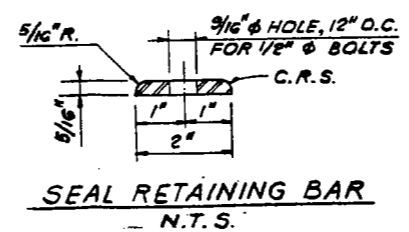
DETAIL 1  
SCALE: HALF SCALE



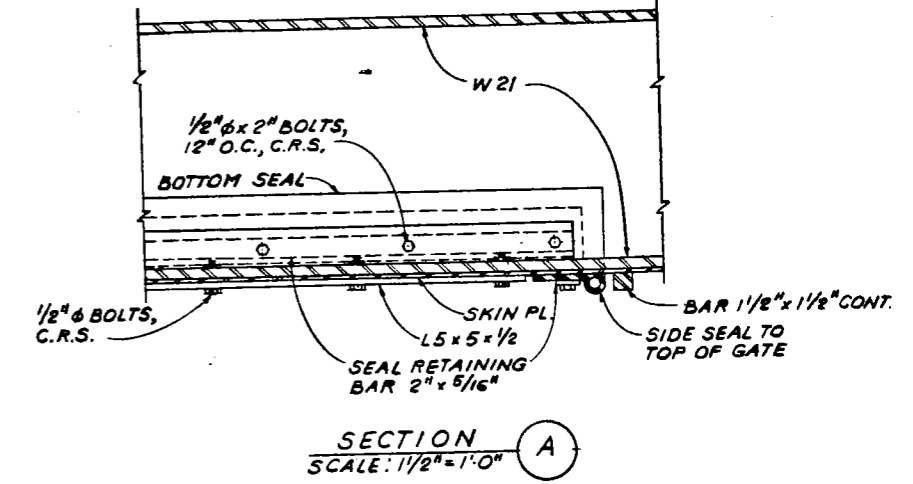
DETAIL 2  
SCALE: HALF SCALE



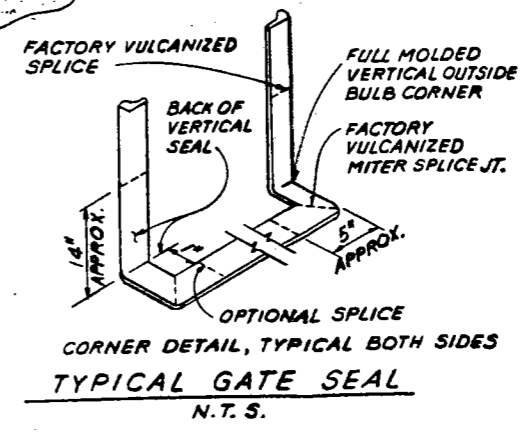
SECTION B  
SCALE: HALF SCALE



SEAL RETAINING BAR  
N.T.S.



SECTION A  
SCALE: 1 1/2" = 1'-0"



TYPICAL GATE SEAL  
N.T.S.

- NOTES:**
1. ALL SPLICES WILL BE FACTORY MADE IN HEAVY STEEL PRESS TYPE MOLDS UNDER PRESSURE AND HEAT.
  2. ALL SPLICE JOINTS MUST DEVELOP STRENGTH OF AT LEAST 50% OF THE MINIMUM TENSILE STRENGTH REQUIRED OF THE RUBBER.
  3. SEAL CLAMP ANGLES AND CLAMP BARS SHALL BE PAINTED ON ALL SIDES PRIOR TO ASSEMBLY.

DESIGNED BY: F.T.C.	DRAWN BY: T.R.E.	CHECKED BY: B.H.A.	REVIEWED BY: G.M.K.
DATE: DECEMBER 31, 1986			

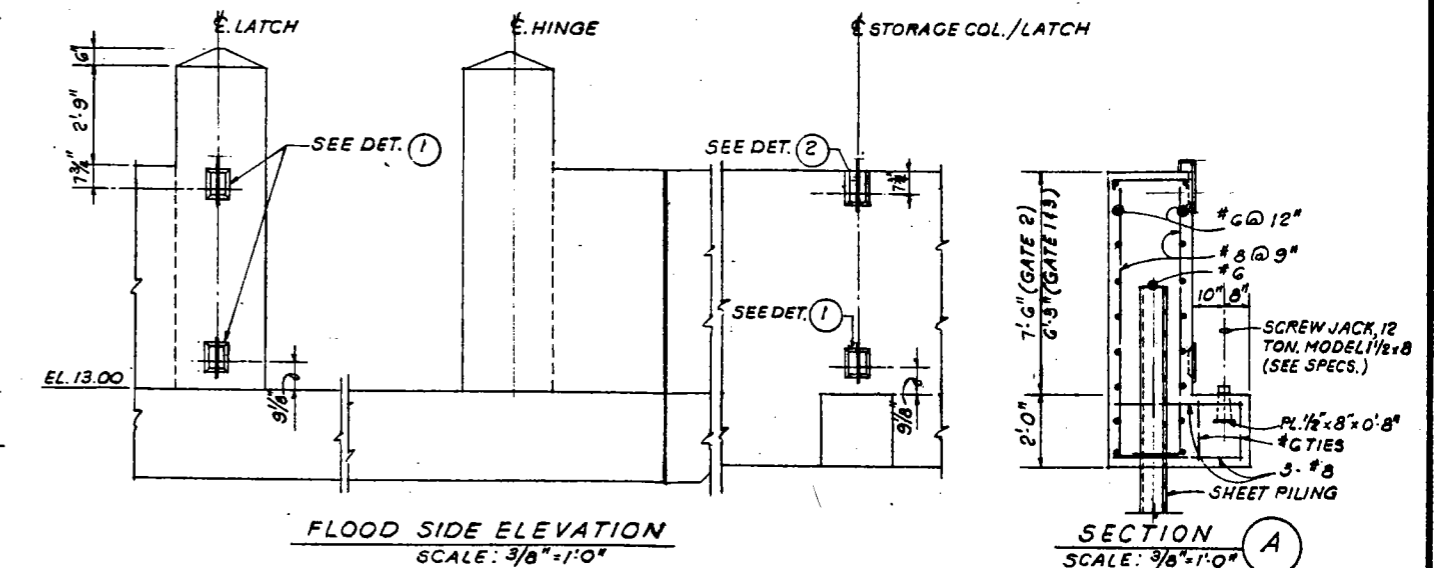
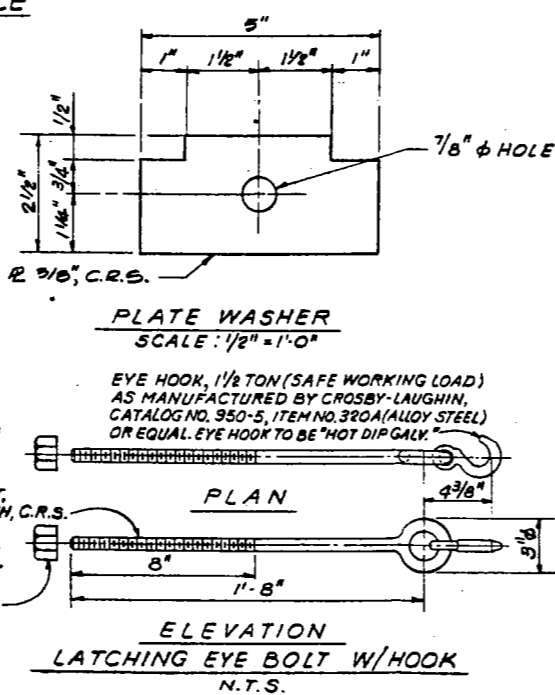
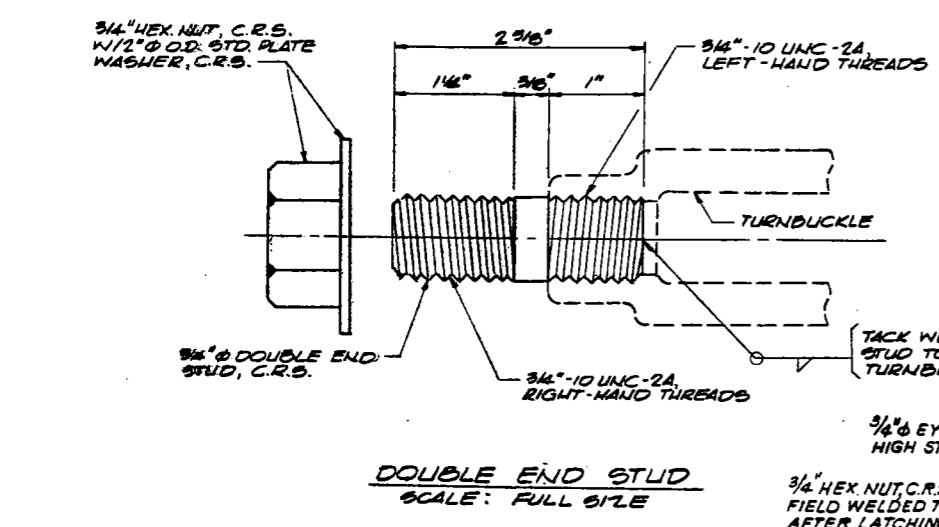
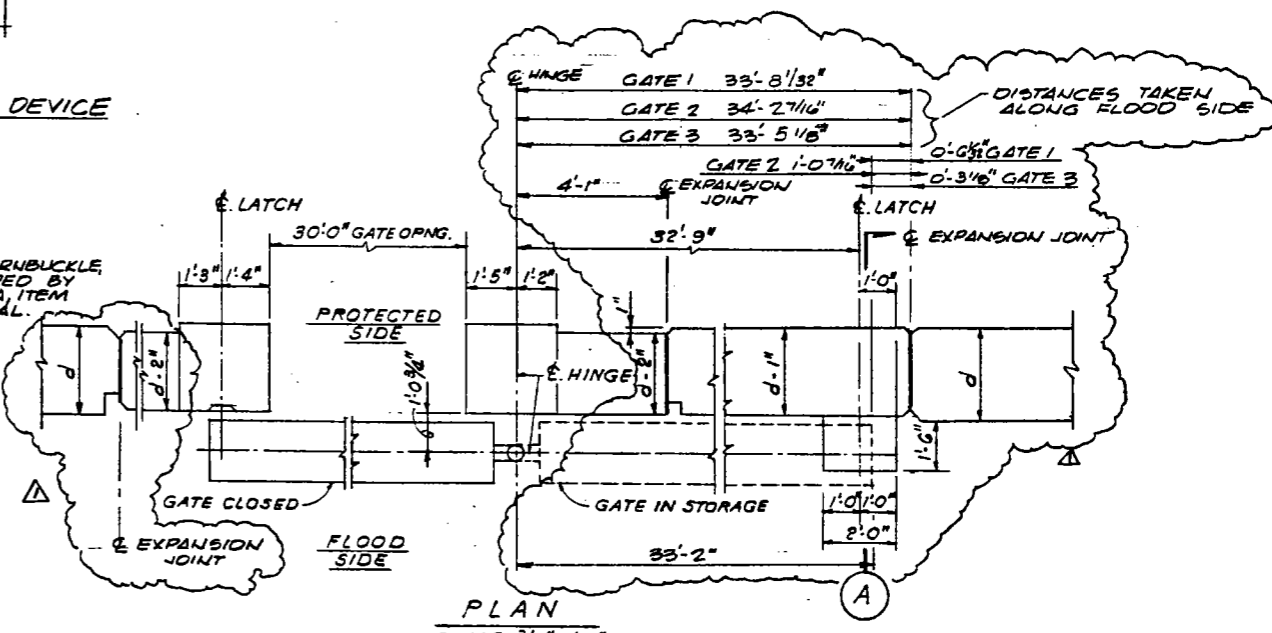
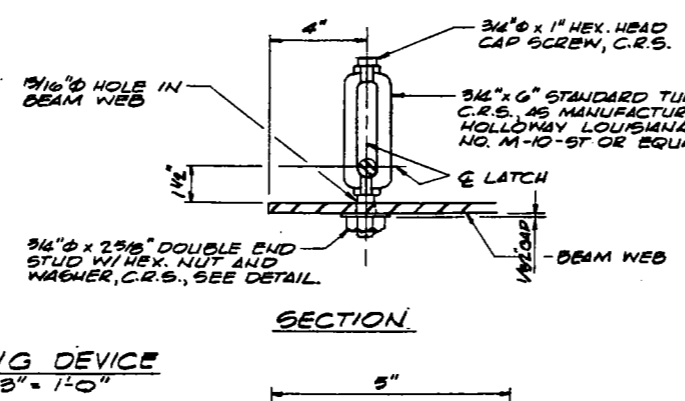
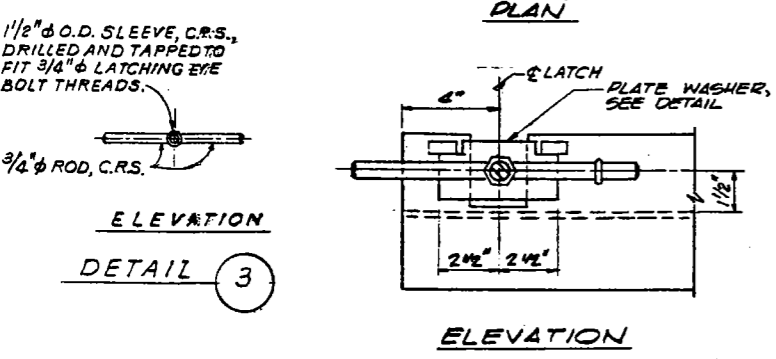
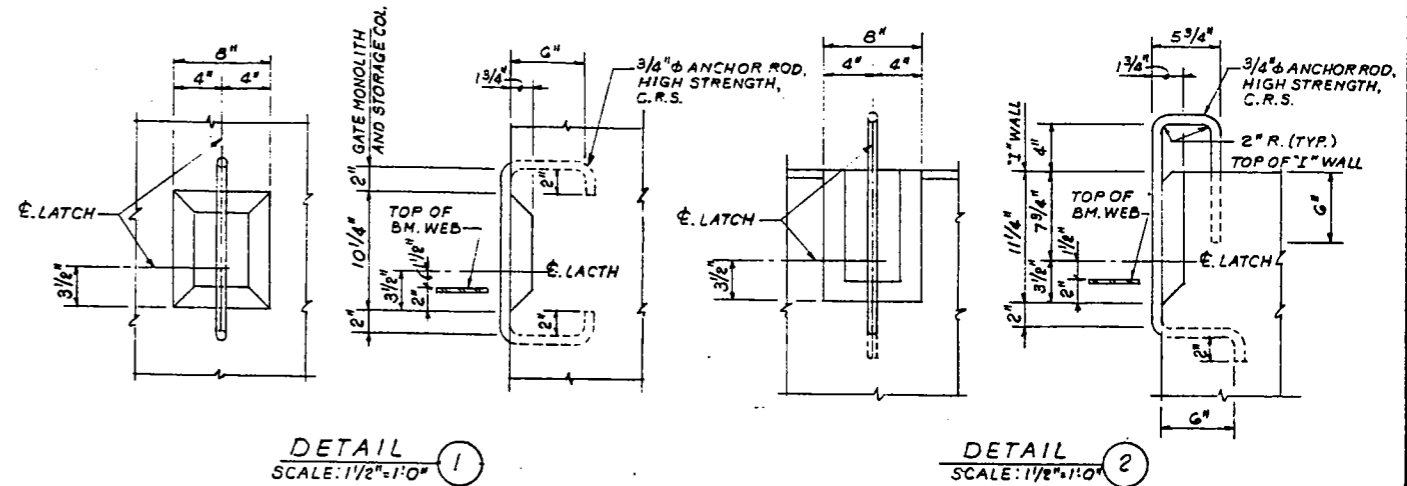
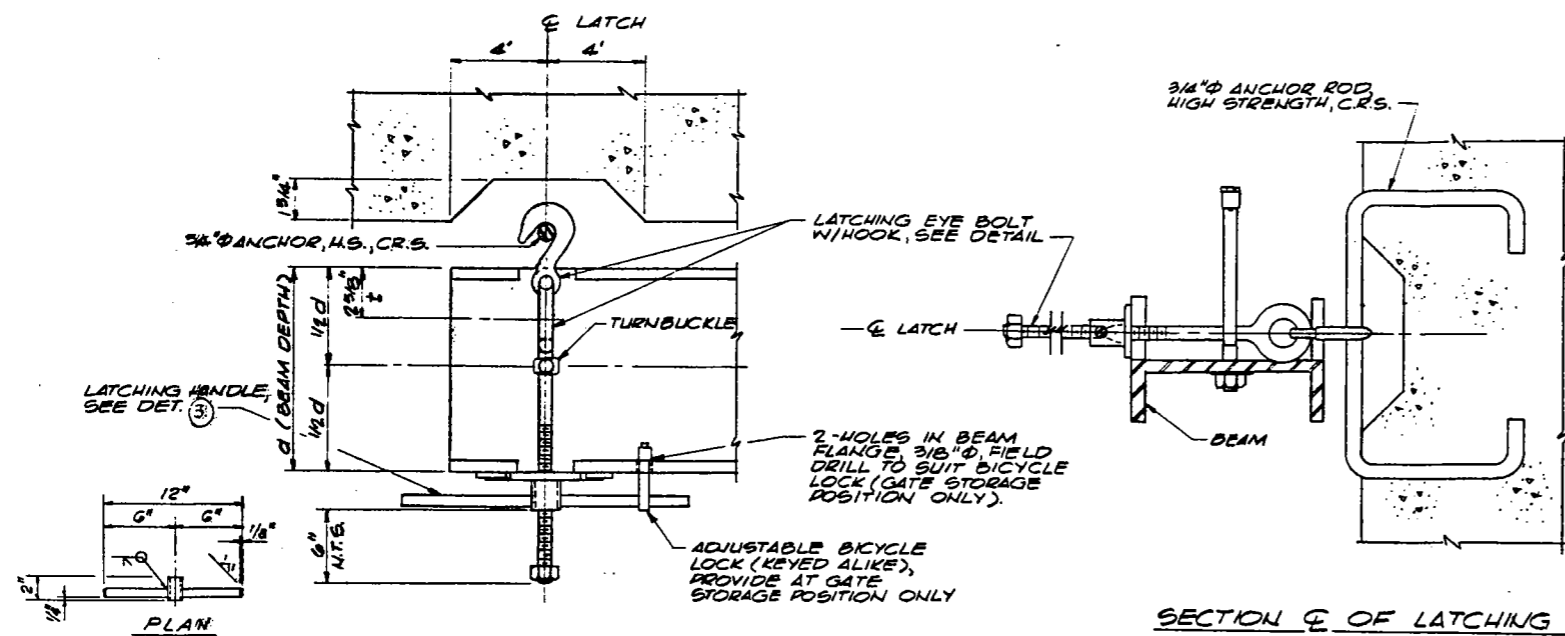
DESIGNED BY: F.T.C.	DRAWN BY: T.R.E.	CHECKED BY: B.H.A.	REVIEWED BY: G.M.K.
DATE: DECEMBER 31, 1986			



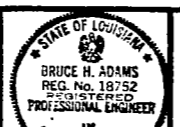
**PONTCHARTRAIN BEACH  
FLOOD PROTECTION IMPROVEMENT PROJECT  
ORLEANS PARISH PHASE II LOUISIANA**

SHEET NO. 19  
OF 24 SHEETS  
FILE NO. 46021.00  
565-04-73

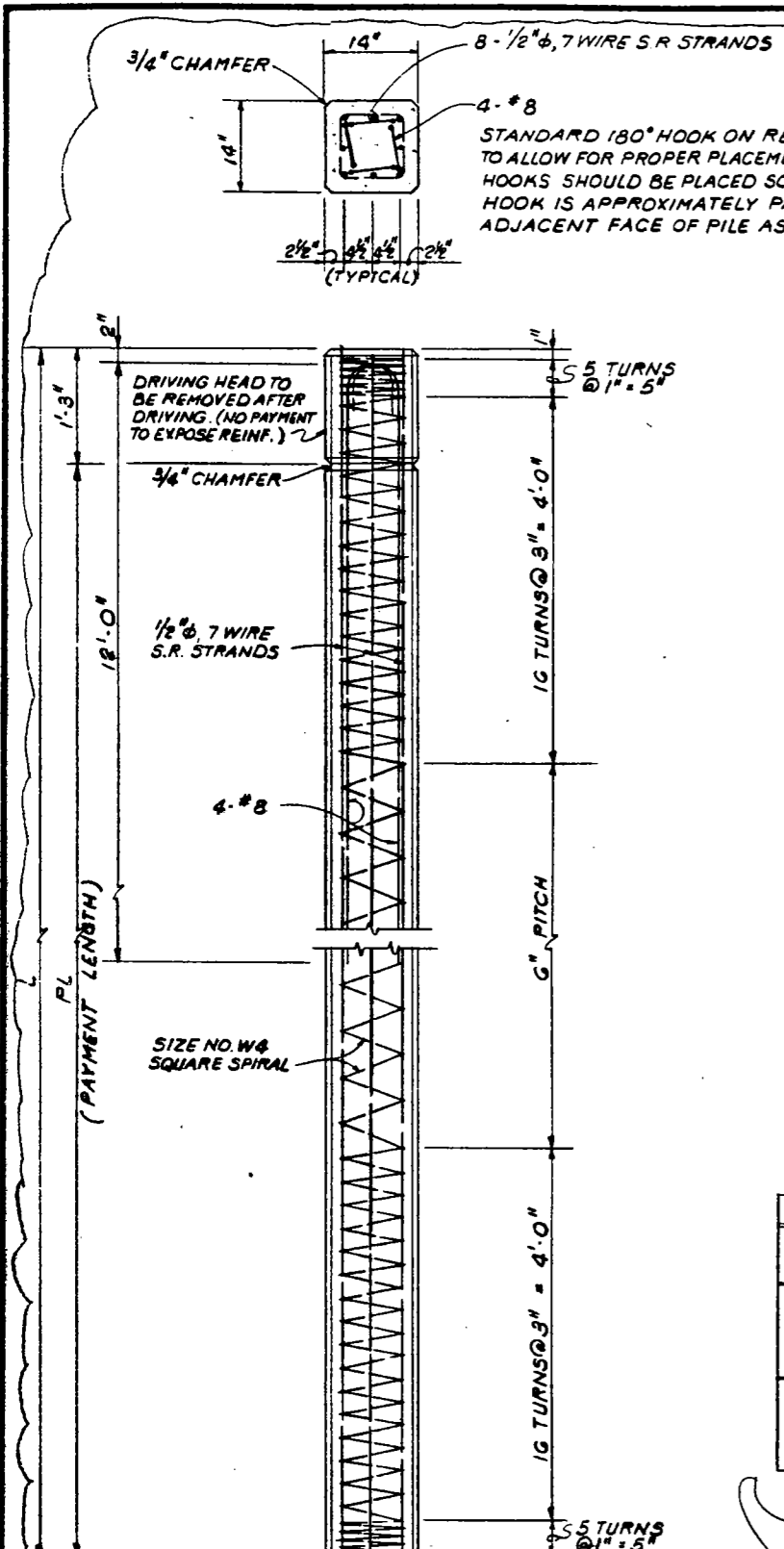
SWING GATE SEALS



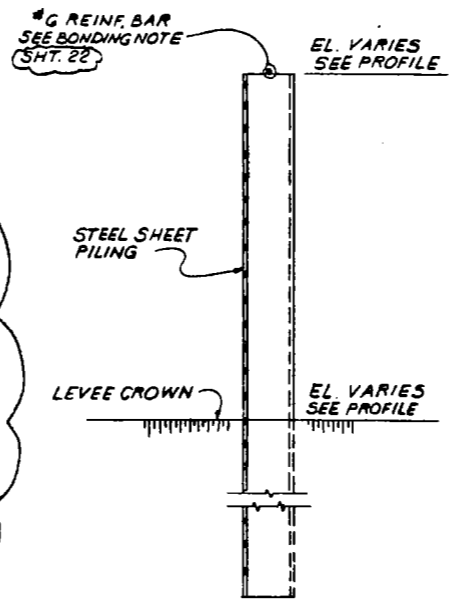
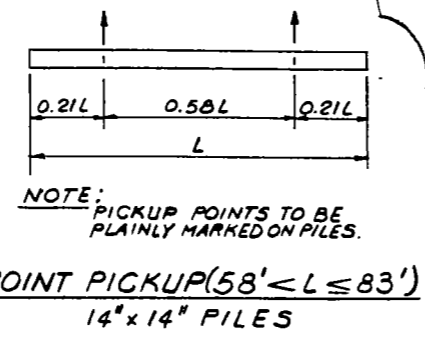
DESIGNED BY: T.T.C.  
 DRAWN BY: J.D.B.  
 CHECKED BY: B.H.A.  
 REVIEWED BY: G.M.K.



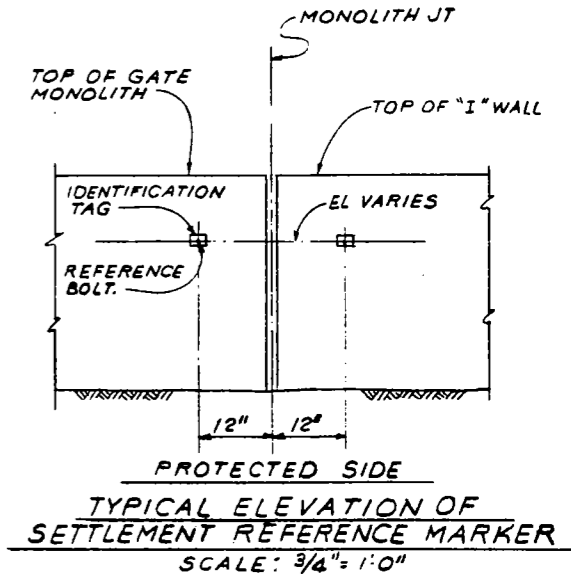
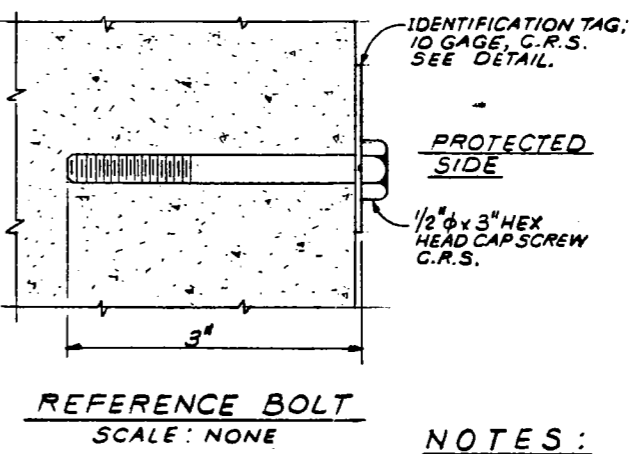
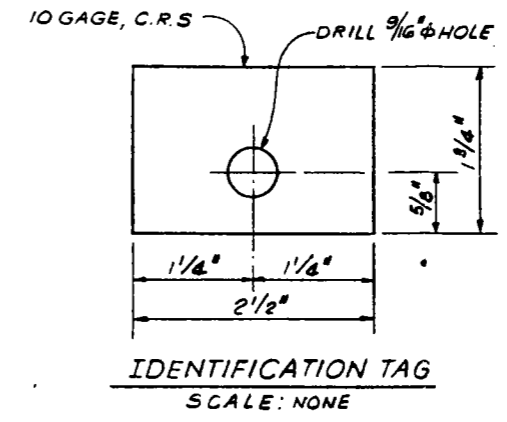




3/4" CHAMFER  
14"  
8 - 1/2"  $\phi$ , 7 WIRE S.R. STRANDS  
4 - #8  
STANDARD 180° HOOK ON REINFORCING (4 - #8) TO ALLOW FOR PROPER PLACEMENT OF CONCRETE, HOOKS SHOULD BE PLACED SO THAT BEND OF HOOK IS APPROXIMATELY PARALLEL TO ADJACENT FACE OF PILE AS SHOWN.



**CORROSION PROTECTION DETAIL**  
**STEEL SHEET PILING**  
SCALE: NONE



GATE NO.	NUMBER OF PILES	PILE BATTER	TIP ELEVATION	PAYMENT LENGTH		PILE NUMBER
				FLOOD SIDE	PROTECTED SIDE	
1 & 3	4	1H. ON 2V.	- 50.34	69'		(7) (8) (11) (12) (33) (34) (37) (38)
	2	VERTICAL	- 59.75	71'		(9) (10) (23) (24)
	4	1H. ON 2V.	- 50.34		69'	(1) (2) (5) (6) (27) (28) (31) (32)
	2	VERTICAL	- 59.75		71'	(3) (4) (23) (24)
2	4	1H. ON 2V.	- 46.76	65'		(21) (22) (25) (26)
	2	VERTICAL	- 51.75	63'		(23) (24)
	6	1H. ON 2V.	- 46.76		65'	(13) (14) (15) (16) (19) (20)
	2	VERTICAL	- 51.75		63'	(16) (17)

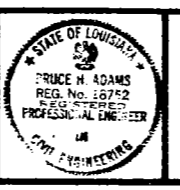
TOTAL PILES REQ'D. = 58

NOTE: GRIND PRESTRESSED STRANDS FLUSH WITH PILE HEAD AND PILE TIP.  
**PRESTRESSED PRECAST CONCRETE PILE 14" x 14"**  
SCALE: 1" = 1'-0"

- NOTES:**
1. THE CONTRACTOR SHALL TAKE FINAL ELEVATIONS OF ALL SETTLEMENT REFERENCE MARKERS AND SHALL SUBMIT THIS DATA TO THE CONTRACTING OFFICER REPRESENTATIVE.
  2. THE CONTRACTOR SHALL PREDRILL PILE PILOT HOLES ONLY TO THE ELEVATIONS REQUIRED BY THE SPECIFICATIONS. ANY ADDITIONAL PREDRILLING BEYOND THAT REQUIRED BY THE SPECIFICATIONS SHALL ONLY BE PERFORMED UPON THE ENGINEER'S APPROVAL.

REVISED BY ADDENDUM NO. 4 JANUARY 28, 1987  
REVISED BY ADDENDUM NO. 1 JANUARY 22, 1987

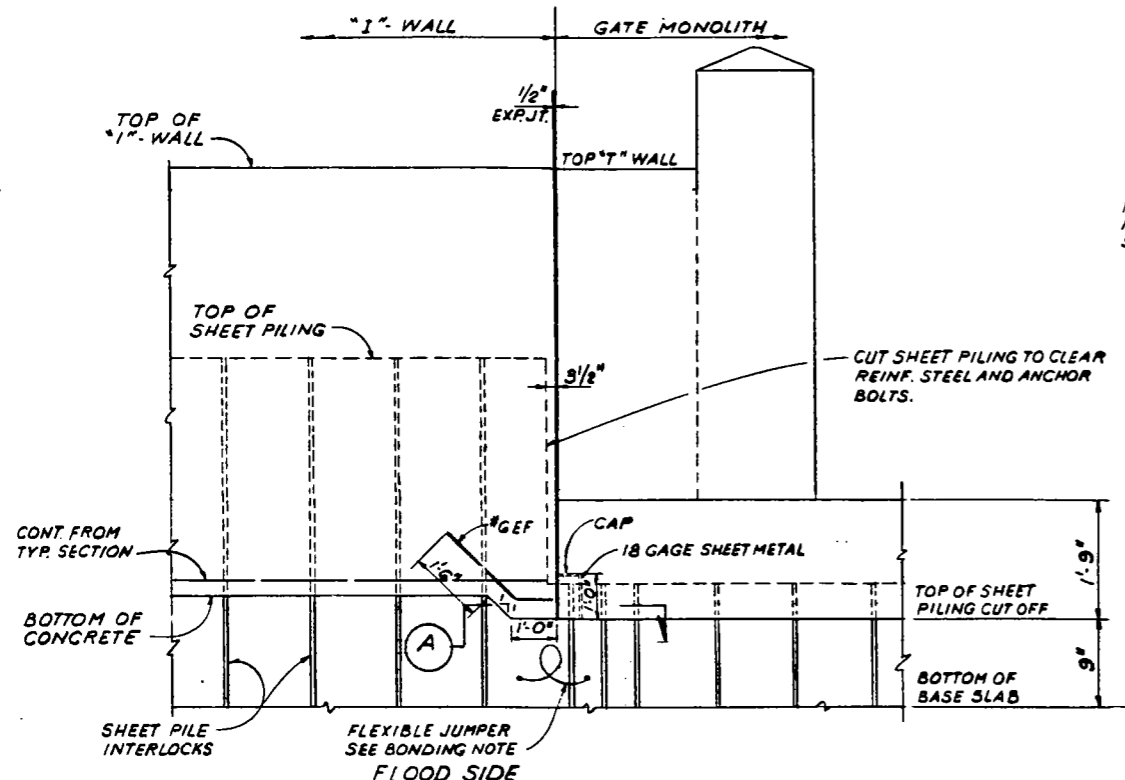
DESIGNED BY: T.T.C.	DATE: DECEMBER 31, 1986
DRAWN BY: T.R.E.	
CHECKED BY: B.H.A.	
REVIEWED BY: G.M.K.	



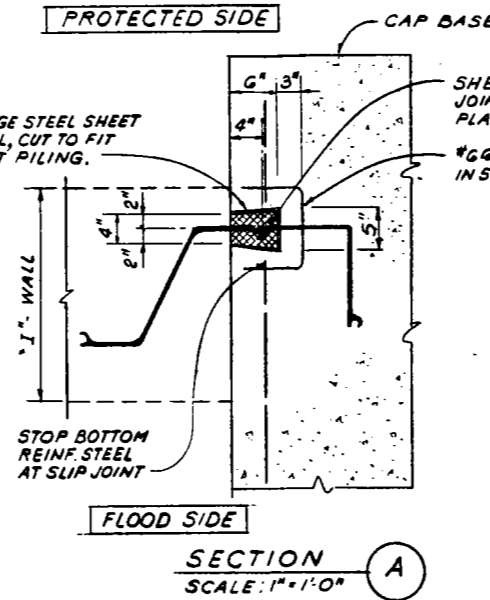
**URS** New Orleans  
1500 N. Causeway Blvd. Metairie, Louisiana 70002

**PONTCHARTRAIN BEACH**  
**FLOOD PROTECTION IMPROVEMENT PROJECT**  
ORLEANS PARISH PHASE II LOUISIANA  
**PRESTRESSED CONCRETE PILES**  
**AND MISCELLANEOUS DETAILS**

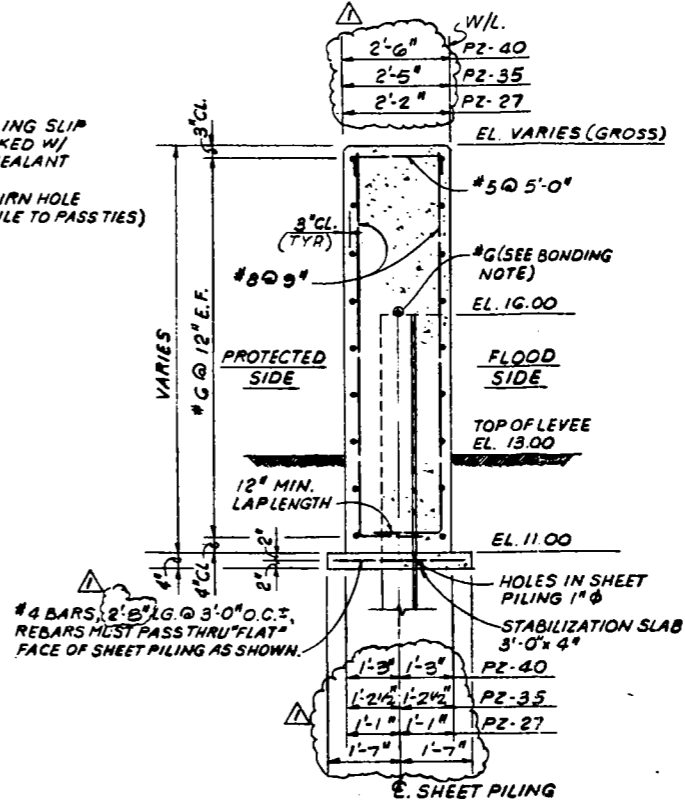
SHEET NO 21  
OF 24 SHEETS  
FILE NO: 46021.00  
565-04-73



TYPICAL JOINT BETWEEN 1" WALL AND GATE MONOLITH  
SCALE: 1/2" = 1'-0"



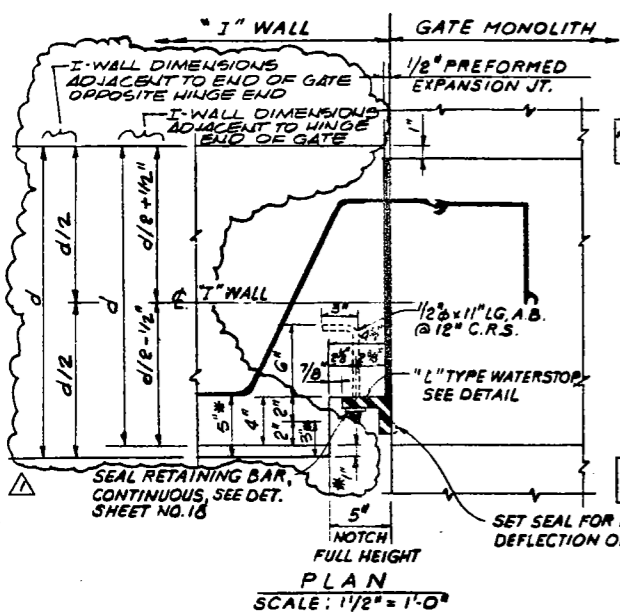
SECTION A  
SCALE: 1" = 1'-0"



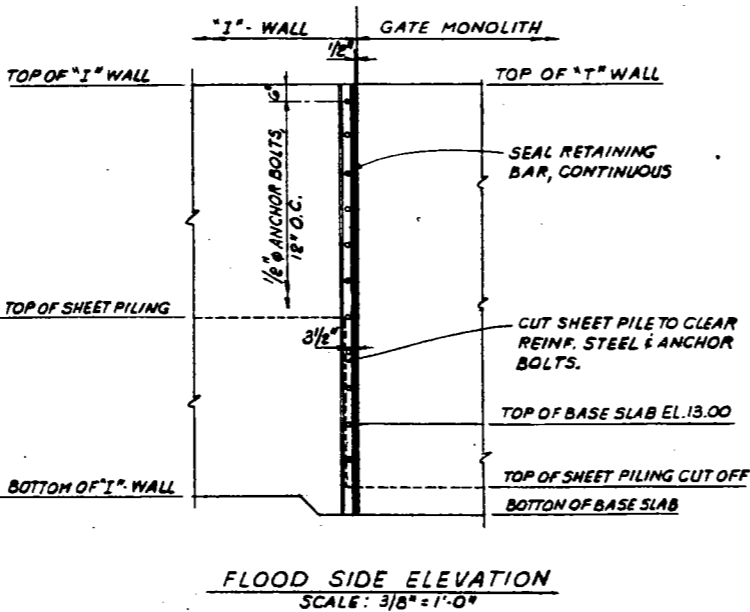
TYPICAL 1" WALL SECTION  
SCALE: 1/2" = 1'-0"

**BONDING NOTE:**  
#G REINFORCING BAR TO BE WELDED TO THE TOP OF EACH STEEL SHEET PILE. #G REINFORCING BAR SHALL NOT EXTEND ACROSS THE MONOLITH JOINT. INSTALL FLEXIBLE JUMPER AT ALL TRANSITIONS FROM GATE MONOLITH TO 1" WALL. JUMPERS SHALL BE INSULATED NO. 10 AWG COPPER, TYPE USE, INSULATED WITH A MINIMUM OF 95 MILS OF CROSS LINKED POLYETHYLENE IN AN 8" Ø LOOP. JUMPER SHALL BE WELDED AS SPECIFIED TO ADJACENT STEEL PILES THREE INCHES BELOW THE BOTTOM OF CONCRETE AT ALL TRANSITIONS. WELDED CONNECTIONS SHALL BE COATED WITH SPLICING EPOXY TO OBTAIN A MOISTURE PROOF JOINT.

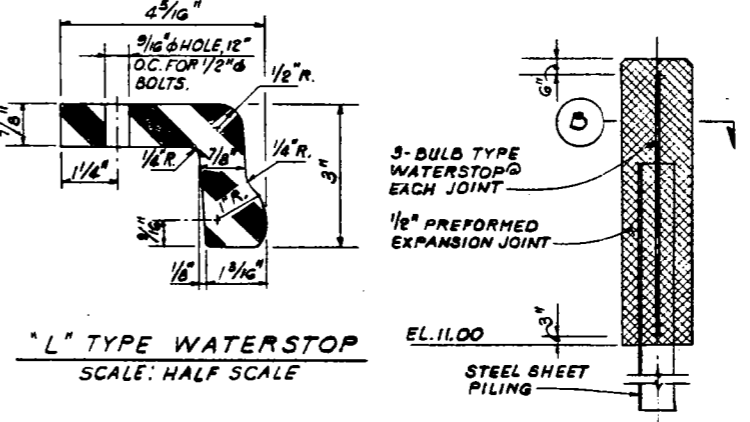
**VOID**  
# CONCRETE FACES WITH ARCHITECTURAL ARCHES SHALL HAVE AN ADDITIONAL 1/4" CLEAR COVER AT ALL ARCH LOCATIONS. SEE DWGS. 23 & 24. ADDITIONAL COVER SHALL BE PROVIDED BY PUSHING THE STEEL REINFORCING INWARD THE MINIMUM DISTANCE NECESSARY TO PROVIDE THIS COVER AND SECURELY TYING THE REINFORCING IN PLACE.



TYPICAL CONNECTION BETWEEN 1" WALL AND GATE MONOLITH  
(STABILIZATION SLAB NOT SHOWN FOR CLARITY)

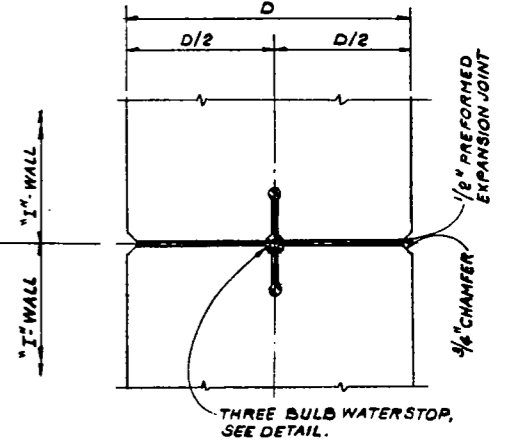


FLOOD SIDE ELEVATION  
SCALE: 3/8" = 1'-0"

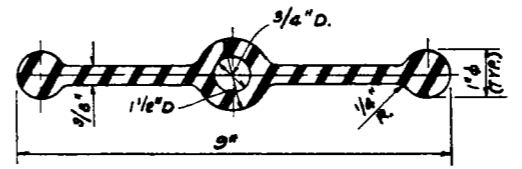


L TYPE WATERSTOP  
SCALE: HALF SCALE

TYPICAL 1" WALL JOINT  
SCALE: 3/8" = 1'-0"



SECTION B  
SCALE: 1 1/2" = 1'-0"

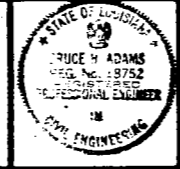


WATERSTOP DETAIL  
SCALE: 1/2" = 1"

* THESE DIMENSIONS ONLY APPLY TO FLOODSIDE OF 1" WALL ADJACENT TO END OF GATE OPPOSITE HINGE END.

NO.	DATE	REVISION	BY
42-07		CHANGED I-WALL WIDTHS AND STABILIZATION SLAB, DELETED NOTE	JDB

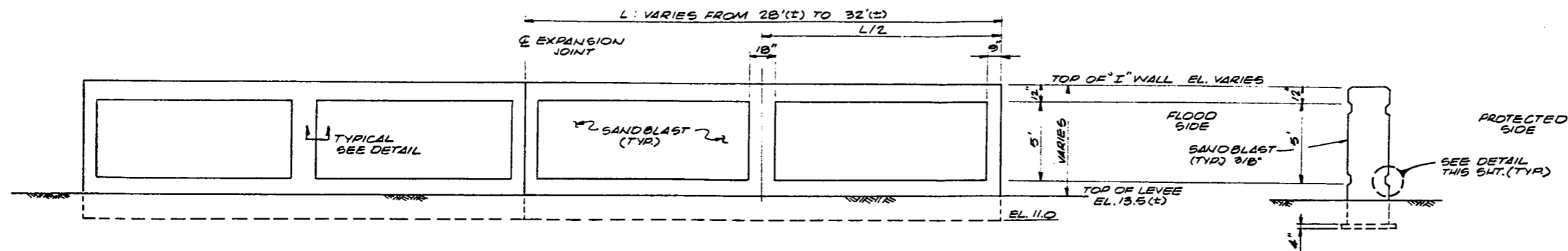
DESIGNED BY:	T.T.C.
DRAWN BY:	T.R.E.
CHECKED BY:	B.H.A.
REVIEWED BY:	G.M.K.
DATE:	DECEMBER 31, 1984



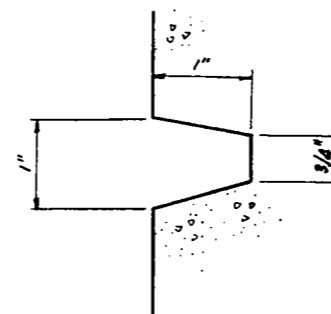
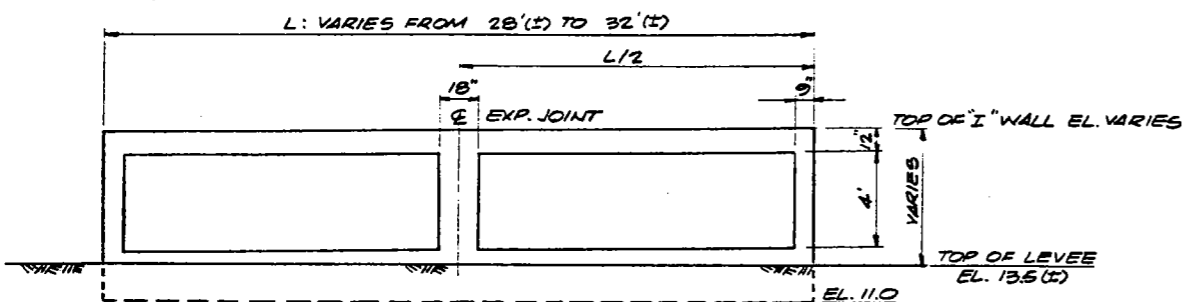
**URS** New Orleans

**PONTCHARTRAIN BEACH**  
FLOOD PROTECTION IMPROVEMENT PROJECT  
ORLEANS PARISH PHASE II LOUISIANA  
TYPICAL WALL JOINTS AND 1" WALL DETAILS

SHEET NO.	22
OF	24 SHEETS
FILE NO.	46021.00
	565-04-73



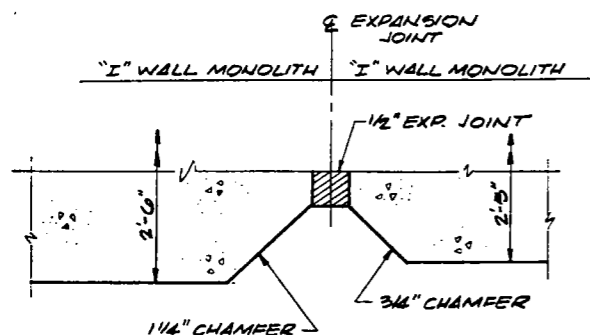
**TYPICAL "I" WALL FINISH**  
 SCALE: 1/2" = 1'-0"  
 STA. 13+09.01 TO STA. 18+03.38  
 STA. 21+00.75 TO STA. 26+76.48  
 STA. 34+09.80 TO STA. 37+42.17



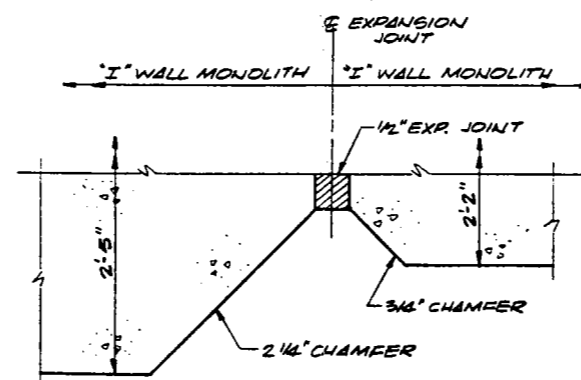
**DETAIL**  
 SCALE: 1" = 1'-0"

- NOTES:**
- 1) CONTRACTOR SHALL SUBMIT FOR PRIOR APPROVAL DRAWINGS SHOWING THE LOCATION OF ALL JOINTS IN ALL FORMS USED FOR CONSTRUCTION.
  - 2) NO BLASTED WALL FINISH NOR ADDITIONAL WALL THICKNESS SHALL BE PROVIDED ON THE FLOOD SIDE OF THE "I" WALL MONOLITH SECTION ADJACENT TO THE GATE MONOLITH AT THE HINGE END ONLY, TYPICAL ALL GATE LOCATIONS.
  - 3) THORO SEAL REQUIRED ON ALL NON-BLASTED SURFACES INCLUDING RUSTICATION SURFACES.

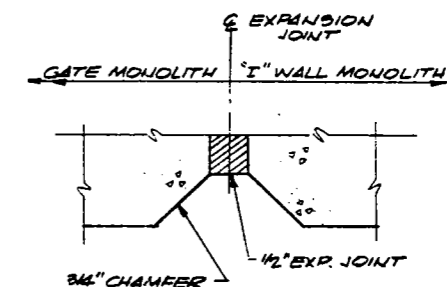
**TYPICAL "I" WALL FINISH**  
 SCALE: 1/2" = 1'-0"  
 STA. 10+03.45 TO STA. 12+38.01  
 STA. 37+83.17 TO STA. 39+78.39



**TYPICAL CHAMFER AT EXPANSION JOINTS OF WALLS OF UNEVEN THICKNESSES**  
 SCALE: 3/4" = 1'-0"



**TYPICAL CHAMFER AT EXPANSION JOINTS OF WALLS OF UNEVEN THICKNESSES**  
 SCALE: 3/4" = 1'-0"



**TYPICAL CHAMFER AT EXPANSION JOINTS**  
 SCALE: 3/4" = 1'-0"

**NOTE:** ALL CHAMFERS SHALL BEGIN AT THE SAME POINT AT THE EXPANSION JOINT AND EXTEND OUT A DISTANCE PROPORTIONAL TO WALL THICKNESS, WITH A MINIMUM CHAMFER OF 3/4".

NO.	DATE	REVISION	BY
1	4-2-07	REPLACED SHEET 23 DATED 12-31-06	JDB

DESIGNED BY: C.A.T.  
 DRAWN BY: J.O.B.  
 CHECKED BY: B.H.A.  
 REVIEWED BY: G.M.K.  
 DATE:



**URS**

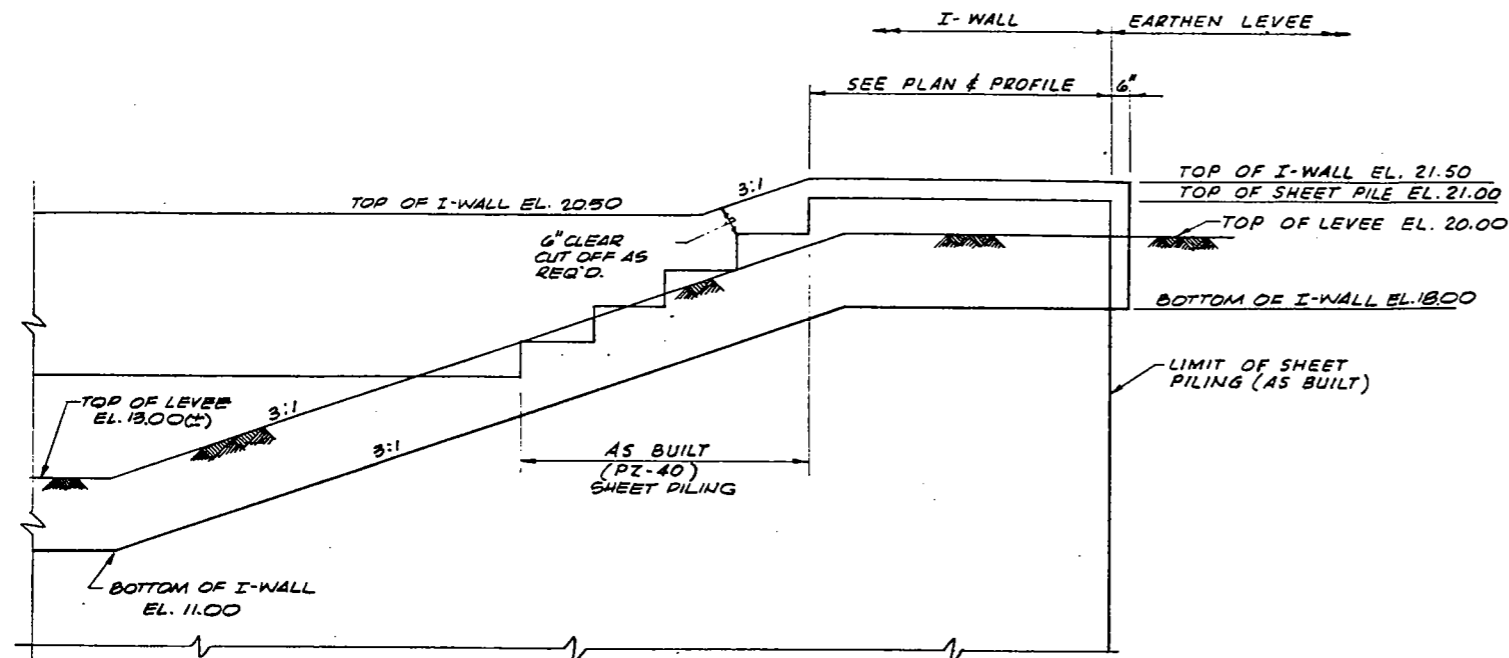
New Orleans 3500 N. Causeway Blvd. - Metairie, Louisiana 70002

**PONTCHARTRAIN BEACH**  
 FLOOD PROTECTION IMPROVEMENT PROJECT  
 ORLEANS PARISH PHASE II LOUISIANA

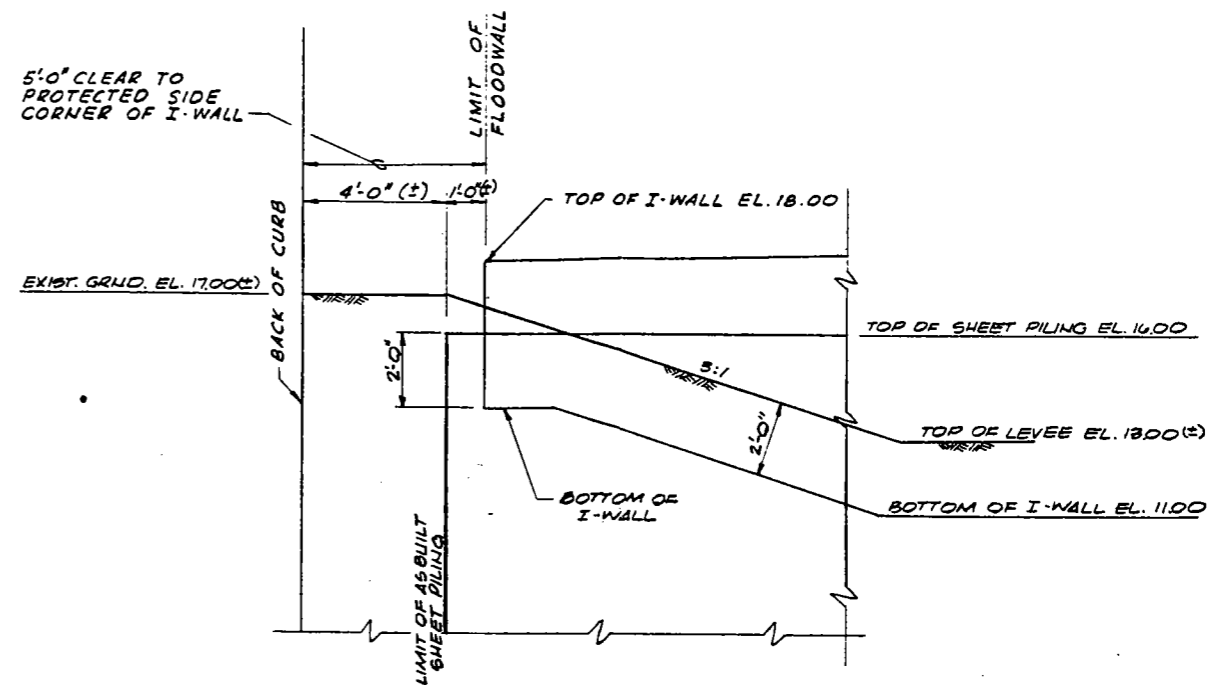
DRAWING 23  
 OF 24

ARCHITECTURAL DETAILS

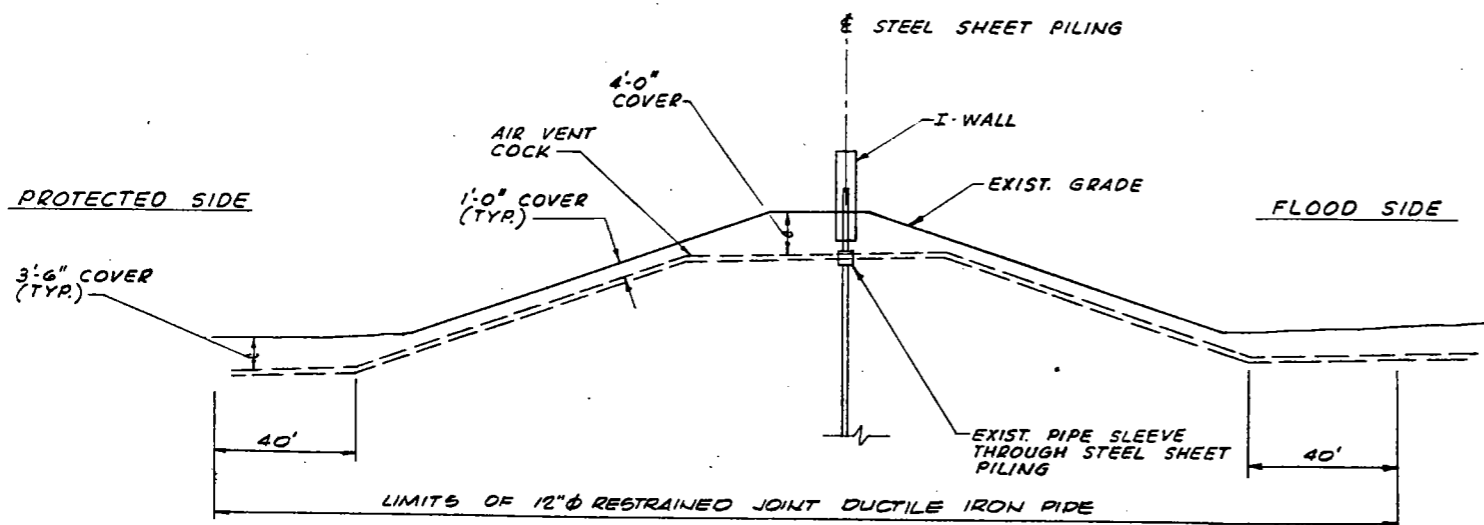
FILE NO. 46021.00  
 565-04-73



TYPICAL I-WALL TRANSITION  
SCALE: 3/8" = 1'-0"  
(4 REQUIRED)



TYPICAL I-WALL END  
SCALE: 3/8" = 1'-0"  
(2 REQUIRED)



WATER LINE CROSSING  
N.T.S.  
FOR LOCATION SEE SHT. 7

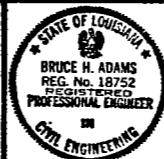
SECTION SCHEDULE

SECTION	FROM W/L STATION	TO W/L STATION	DESCRIPTION	ARCH DATA
1	10+08.45	10+08.01	NO ARCH DETAIL	△
2	10+08.01	10+28.01	2-10' PANELS	△△
3-10	10+28.01	12+68.01	8-30' SECTIONS	△△
11-15	13+09.01	14+59.01	5-30' SECTIONS	△△
16	14+59.01	14+85.46	1-10' PANEL 2-8.82' PANELS (FLOOD SIDE) 1-10' PANEL 2-7.93' PANELS (PROTECTED SIDE)	△ = 52°46'52" R = 6.67' T = 3.97' L = 7.16'
17	14+85.46	15+00.80	2-7.67' PANELS (FLOOD SIDE) 2-7.54' PANELS (PROTECTED SIDE)	△ = 73°17'17" R = 4.75' T = 3.53' L = 6.08'
18-25	15+00.80	17+40.80	8-30' SECTIONS	△△
26-29	17+40.80	18+60.80	4-30' SECTIONS	△△
30	18+60.80	18+63.38	NO ARCH DETAIL	△
31	18+63.38	18+73.81	NO ARCH DETAIL WALL TRANSITION	△
32	20+95.50	21+06.75	NO ARCH DETAIL WALL TRANSITION	△
33	21+06.75	21+30.64	3-7.96' PANELS (FLOOD SIDE) 3-8.05' PANELS (PROTECTED SIDE)	△ = 69°55'48" R = 5.20' T = 3.64' L = 6.35'
34-38	21+30.64	22+20.64	5-30' SECTIONS	△△
37-44	22+20.64	24+60.64	8-30' SECTIONS	△△
45	24+60.64	24+89.92	2-10' PANELS 1-9.28' PANEL (FLOOD SIDE) 2-10' PANELS 1-10.88' PANEL (PROTECTED SIDE)	△ = 57°46'55" R = 5.20' T = 4.16' L = 7.60'
46	25+30.92	25+49.74	2-9.41' PANELS (FLOOD SIDE) 2-10.07' PANELS (PROTECTED SIDE)	△ = 56°47'53" R = 7.75' T = 4.21' L = 7.72'
47-50	25+49.74	26+69.74	4-30' SECTIONS	△△
51	26+69.74	26+76.88	1-6.74' PANEL	△ = 86°28'00" R = 3.46' T = 3.25' L = 5.22'
52	26+76.88	26+85.79	NO ARCH DETAIL WALL TRANSITION	△
53	33+98.27	34+09.80	NO ARCH DETAIL WALL TRANSITION	△
54	34+09.80	34+12.17	NO ARCH DETAIL	△
55-65	34+12.17	37+42.17	11-30' SECTIONS	△△
66-71	37+42.17	39+63.17	6-30' SECTIONS	△△
72	39+63.17	39+73.17	1-10' PANEL	△△
73	39+73.17	39+78.39	NO ARCH DETAIL	△

VOID

NOTE:  
△ FOR ARCH DATA ON 10' PANELS AND 30' SECTIONS SEE SHT. 23.  
△ ARCH DATA 7.93' PANEL △ = 69°55'48" R = 5.20' T = 3.64' L = 6.35'  
△ USE ARCH DATA FOR 10' PANEL SEE SHT. 23.  
△ ARCH DATA SAME FOR FLOOD AND PROTECTED SIDES.

DESIGNED BY:	T.T.C.
DRAWN BY:	B.M.M.
CHECKED BY:	B.H.A.
REVIEWED BY:	G.M.K.
DATE:	DECEMBER 31, 1986



PONTCHARTRAIN BEACH  
FLOOD PROTECTION IMPROVEMENT PROJECT  
ORLEANS PARISH PHASE II LOUISIANA

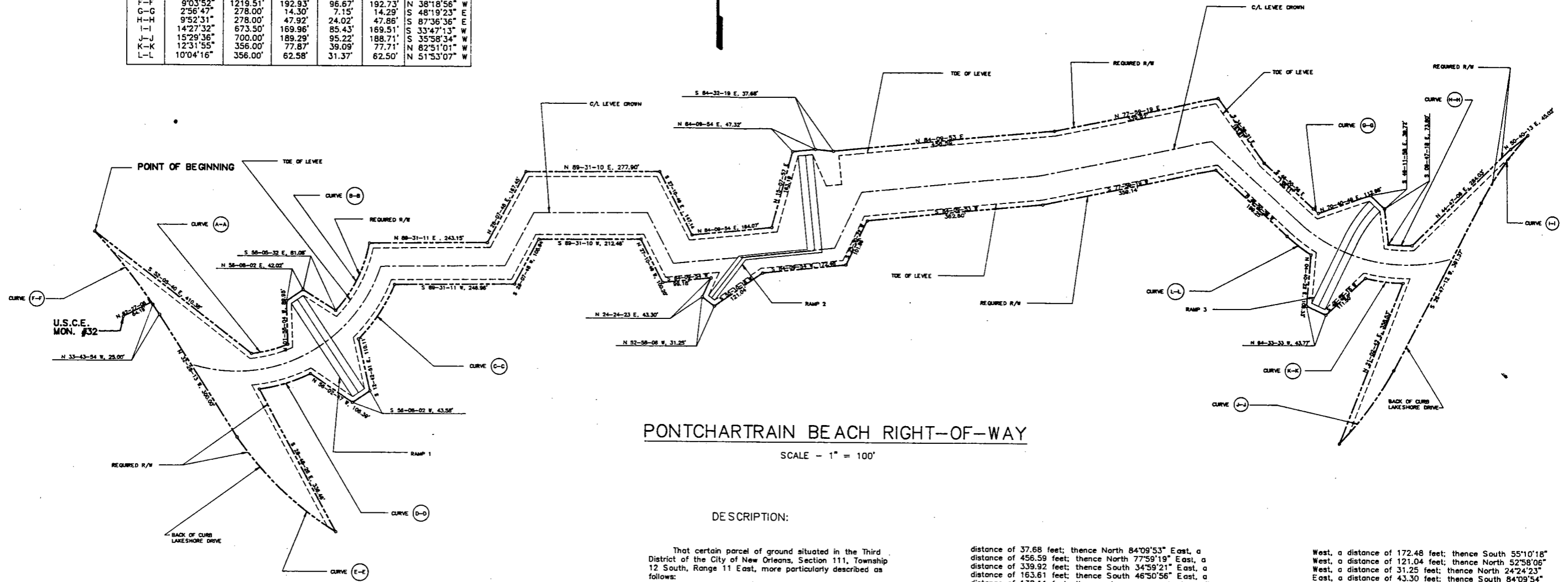
SHEET NO 24  
OF 24 SHEETS  
FILE NO. 46021.00  
565-04-73

MISCELLANEOUS DETAILS

NO.	DATE	VOID SCHEDULE	REVISION
1	4-2-87	VOID SCHEDULE	

Pontchartrain Beach  
Right-of-Way Plans

CURVE TABLE						
CURVE	Δ	R	L	T	CHORD	CHORD BEARING
A-A	16°01'10"	283.00'	79.12'	39.82'	78.87'	N 75°34'20" E
B-B	32°03'14"	283.00'	158.32'	81.29'	156.27'	N 26°27'08" E
C-C	21°48'00"	358.00'	136.21'	68.94'	135.39'	S 33°21'38" W
D-D	18°02'32"	358.00'	112.73'	56.84'	112.27'	S 73°09'12" W
E-E	23°35'12"	699.03'	287.77'	145.95'	285.74'	N 46°53'26" W
F-F	9°03'52"	1219.51'	192.93'	96.67'	192.73'	N 38°18'56" W
G-G	2°56'47"	278.00'	14.30'	7.15'	14.29'	S 48°19'23" E
H-H	9°52'31"	278.00'	47.92'	24.02'	47.66'	S 87°36'36" E
I-I	14°27'32"	673.50'	169.96'	85.43'	169.51'	S 33°47'13" W
J-J	15°29'36"	700.00'	189.29'	95.22'	188.71'	S 35°58'34" W
K-K	12°31'55"	356.00'	77.87'	39.09'	77.71'	N 82°51'01" W
L-L	10°04'16"	356.00'	62.58'	31.37'	62.50'	N 51°53'07" W



**PONTCHARTRAIN BEACH RIGHT-OF-WAY**

SCALE - 1" = 100'

**DESCRIPTION:**

That certain parcel of ground situated in the Third District of the City of New Orleans, Section 111, Township 12 South, Range 11 East, more particularly described as follows:

Commencing at the United States Army Corps of Engineers Monument #32, thence North 62°27'06" East, a distance of 84.19 feet to a point on the back of curb of the North side of Lakeshore Drive; thence along a curve to the left having a radius of 1219.51 feet, a distance of 187.31 feet to the Point of Beginning, said point being the intersection of the back of curb of the north side of Lakeshore Drive and the Pontchartrain Beach Levee Right-Of-Way; thence South 52°05'40" East, along said Right-Of-Way a distance of 410.38 feet; thence along a curve to the left having a radius of 283.00 feet for a distance of 79.12 feet; thence North 1°55'04" West, a distance of 89.95 feet; thence North 56°08'02" East, a distance of 42.02 feet; thence South 58°05'32" East, a distance of 81.08 feet; thence along a curve to the left having a radius of 283.00 feet a distance of 158.32 feet; thence North 89°31'11" East, a distance of 243.15 feet; thence North 28°07'48" East, a distance of 167.45 feet; thence North 89°31'10" East, a distance of 277.90 feet; thence South 27°10'49" East, a distance of 147.14 feet; thence North 84°09'54" East, a distance of 164.07 feet; thence North 15°07'57" East, a distance of 183.19 feet; thence North 84°09'54" East, a distance of 47.32 feet; thence South 84°32'19" East, a

distance of 37.68 feet; thence North 84°09'53" East, a distance of 456.59 feet; thence North 77°59'19" East, a distance of 339.92 feet; thence South 34°59'21" East, a distance of 183.61 feet; thence South 46°50'56" East, a distance of 138.11 feet; thence along a curve to the left having a radius of 278.00 feet, a distance of 14.30 feet; thence North 70°40'49" East, a distance of 112.96 feet; thence South 46°11'58" East, a distance of 39.72 feet; thence South 6°47'18" East, a distance of 73.80 feet; thence along a curve to the left having a radius of 278.00 feet, a distance of 47.92 feet; thence North 44°47'06" East, a distance of 284.03 feet; thence North 50°40'13" East, a distance of 45.02 feet to the intersection of the Right-Of-Way and the north side of the Lakeshore Drive back of curb; thence along a curve to the left having a radius of 673.50 feet, a distance of 391.37 feet; thence South 26°47'12" West, a distance of 169.96 feet; thence along a curve to the right having a radius of 700.00 feet, a distance of 189.29 feet; thence North 21°02'42" East, a distance of 358.53 feet; thence along a curve to the right having a radius of 356.00 feet, a distance of 77.87 feet; thence South 46°28'15" West, a distance of 111.50 feet; thence North 64°33'33" West, a distance of 43.77 feet; thence North 4°40'22" East a distance of 106.33 feet; thence along a curve to the right having a radius of 356.00 feet, a distance of 62.58 feet; thence North 46°50'56" West, a distance of 193.25 feet; thence South 77°58'19" West, a distance of 359.14 feet; thence South 84°09'53" West, a distance of 359.14 feet; thence South 25°30'22" West, a distance of 362.60 feet; thence South 84°09'54" West, a distance of 101.86 feet; thence South 84°09'54"

West, a distance of 172.48 feet; thence South 55°10'18" West, a distance of 121.04 feet; thence North 52°58'06" West, a distance of 31.25 feet; thence North 24°24'23" East, a distance of 43.30 feet; thence South 84°09'54" West, a distance of 99.18 feet; thence North 27°10'49" West, a distance of 100.20 feet; thence South 89°31'10" West, a distance of 212.46 feet; thence South 28°07'48" West, a distance of 105.94 feet; thence South 89°31'11" West, a distance of 246.96 feet; thence along a curve to the right having a radius of 358.00 feet, a distance of 136.21 feet; thence South 12°42'51" East, a distance of 110.11 feet; thence South 56°08'02" West, a distance of 43.58 feet; thence North 56°02'47" West, a distance of 106.39 feet; thence along a curve to the right having a radius of 358.00 feet, a distance of 112.73 feet; thence South 28°48'26" East, a distance of 336.46 feet to a point along the back of curb of the north side of Lakeshore Drive; thence along a curve to the right having a radius of 699.03 feet a distance of 287.77 feet; thence North 32°28'13" West, a distance of 300 feet; thence North 33°43'54" West, a distance of 25.00 feet; thence along a curve to the left having a radius of 1219.51 feet, a distance of 192.93 feet to the Point of Beginning.

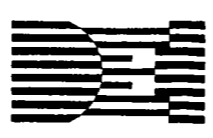
Containing 9.8665 Acres, more or less.

**CERTIFICATION**

THIS MAP IS CERTIFIED TO BE CORRECT AND IN ACCORDANCE WITH A PHYSICAL SURVEY MADE ON THE GROUND UNDER THE SUPERVISION OF THE UNDERSIGNED.

ROY P. ANSLER REGISTERED LAND SURVEYOR DATE

No.	DATE	REMARKS	No.	DATE	REMARKS



**DESIGN ENGINEERING INC.**  
 Consulting Engineers  
 3330 West Esplanade Ave. S.  
 Suite 205  
 Metairie, LA 70002  
 (504) 836-2155

DESIGNED BY: R.A./P.R.  
 CHECKED BY: R.A./D.A.S.  
 DRAWN BY: P.M.K./P.R.  
 CHECKED BY: D.A.S.  
 APPROVED BY: R.A./J.W.H.  
 DATE: MAY, 1987

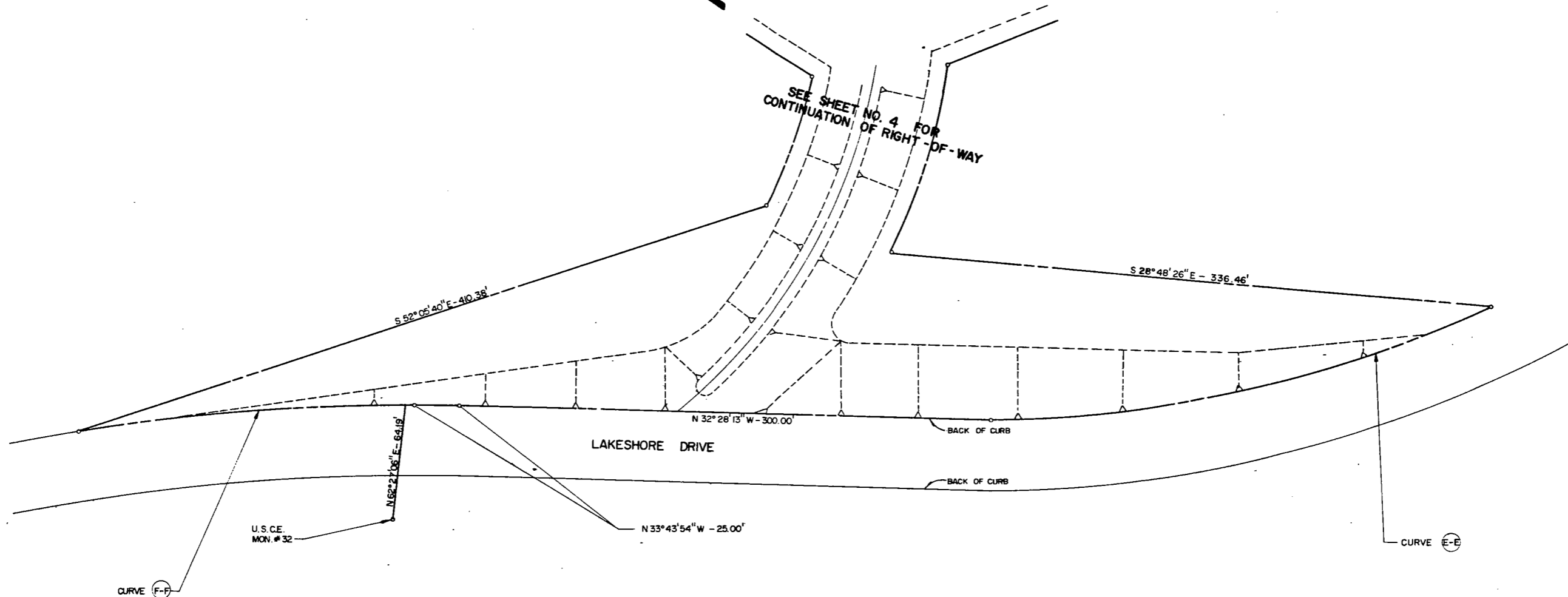
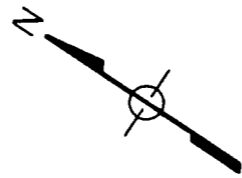
STAMP

**BOARD OF COMMISSIONERS**  
**ORLEANS LEVEE DISTRICT**  
**ORLEANS PARISH, LOUISIANA**  
 PONTCHARTRAIN BEACH FLOOD PROTECTION IMPROVEMENT PROJECT  
**RIGHT-OF-WAY PLAN**

JOB No. 1008  
 SCALE 1" = 100'  
 SHEET NUMBER 2 OF 8

**SYMBOL LEGEND**

- REQUIRED O.L.B. R-O-W
- - - - - APPROXIMATE TOE OF LEVEE
- LEVEE CROWN



**CURVE (F-F) DATA**

Δ	=	9° 03' 52"
R	=	1219.51'
L	=	192.88'
T	=	96.67'
CHORD	=	192.73'
CHORD BEARING	=	N 38° 18' 56" W

**CURVE (E-E) DATA**

Δ	=	23° 35' 12"
R	=	699.03'
L	=	287.77'
T	=	145.95'
CHORD	=	285.74'
CHORD BEARING	=	N 46° 53' 26" W

**CERTIFICATION**  
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ROY P. ANSLER  
 REGISTERED LAND SURVEYOR

No.	DATE	REMARKS	No.	DATE	REMARKS

**DESIGN ENGINEERING INC.**  
 Consulting Engineers  
 3330 West Esplanade Ave. S.  
 Suite 205  
 Metairie, LA 70002  
 (504) 836-2155

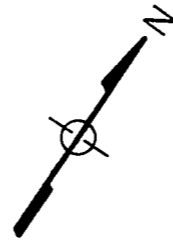
DESIGNED BY: R.A./P.R.
CHECKED BY: R.A./D.A.S.
DRAWN BY: C.V.N.
CHECKED BY: D.A.S.
APPROVED BY: R.A./J.W.H.
DATE: MAY, 1987

**BOARD OF COMMISSIONERS**  
**ORLEANS LEVEE DISTRICT**  
**ORLEANS PARISH, LOUISIANA**  
 PONTCHARTRAIN BEACH FLOOD PROTECTION IMPROVEMENT PROJECT  
**RIGHT - OF - WAY PLAN SHEET**

JOB No.	1008
SCALE	1" = 30'
SHEET NUMBER	3 OF 8

**SYMBOL LEGEND**

- REQUIRED Q.L.B. R-O-W
- - - APPROXIMATE TOE OF LEVEE
- ⊕ LEVEE CROWN
- ▬ CONCRETE FLOODWALL

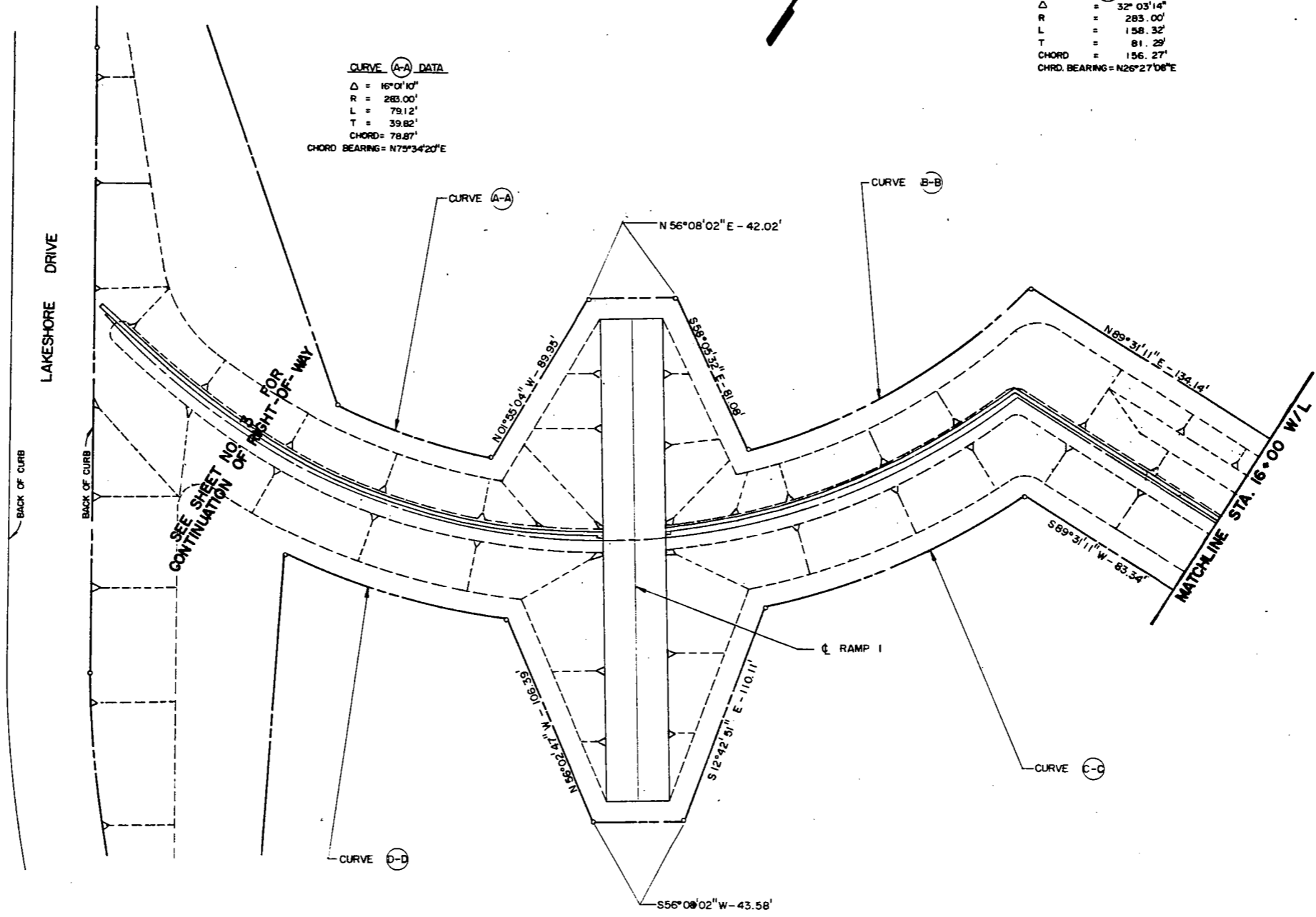


**CURVE (B-B) DATA**  
 $\Delta$  = 32° 03' 14"  
 R = 283.00'  
 L = 158.32'  
 T = 81.29'  
 CHORD = 156.27'  
 CHRD. BEARING = N26° 27' 06" E

**CURVE (A-A) DATA**  
 $\Delta$  = 16° 01' 10"  
 R = 283.00'  
 L = 79.12'  
 T = 39.82'  
 CHORD = 78.87'  
 CHRD. BEARING = N73° 34' 20" E

**CURVE (D-D) DATA**  
 $\Delta$  = 18° 02' 32"  
 R = 358.00'  
 L = 112.73'  
 T = 56.84'  
 CHORD = 112.27'  
 CHRD. BEARING = S73° 09' 12" W

**CURVE (C-C) DATA**  
 $\Delta$  = 2° 48' 00"  
 R = 358.00'  
 L = 136.21'  
 T = 68.94'  
 CHORD = 135.39'  
 CHRD. BEARING = S53° 21' 38" W



**CERTIFICATION**  
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ROY P. ANSLEY  
 REGISTERED LAND SURVEYOR

No.	DATE	REMARKS	No.	DATE	REMARKS



**DESIGN ENGINEERING INC.**  
 Consulting Engineers  
 3330 West Esplanade Ave. S.  
 Suite 205  
 Metairie, LA 70002  
 (504) 836-2155

DESIGNED BY: R.A./P.R.  
 CHECKED BY: R.A./D.A.S.  
 DRAWN BY: C.V.N.  
 CHECKED BY: D.A.S.  
 APPROVED BY: R.A./J.W.H.  
 DATE: MAY, 1987

STAMP

**BOARD OF COMMISSIONERS**  
**ORLEANS LEVEE DISTRICT**  
**ORLEANS PARISH, LOUISIANA**  
 PONTCHARTRAIN BEACH FLOOD PROTECTION IMPROVEMENT PROJECT

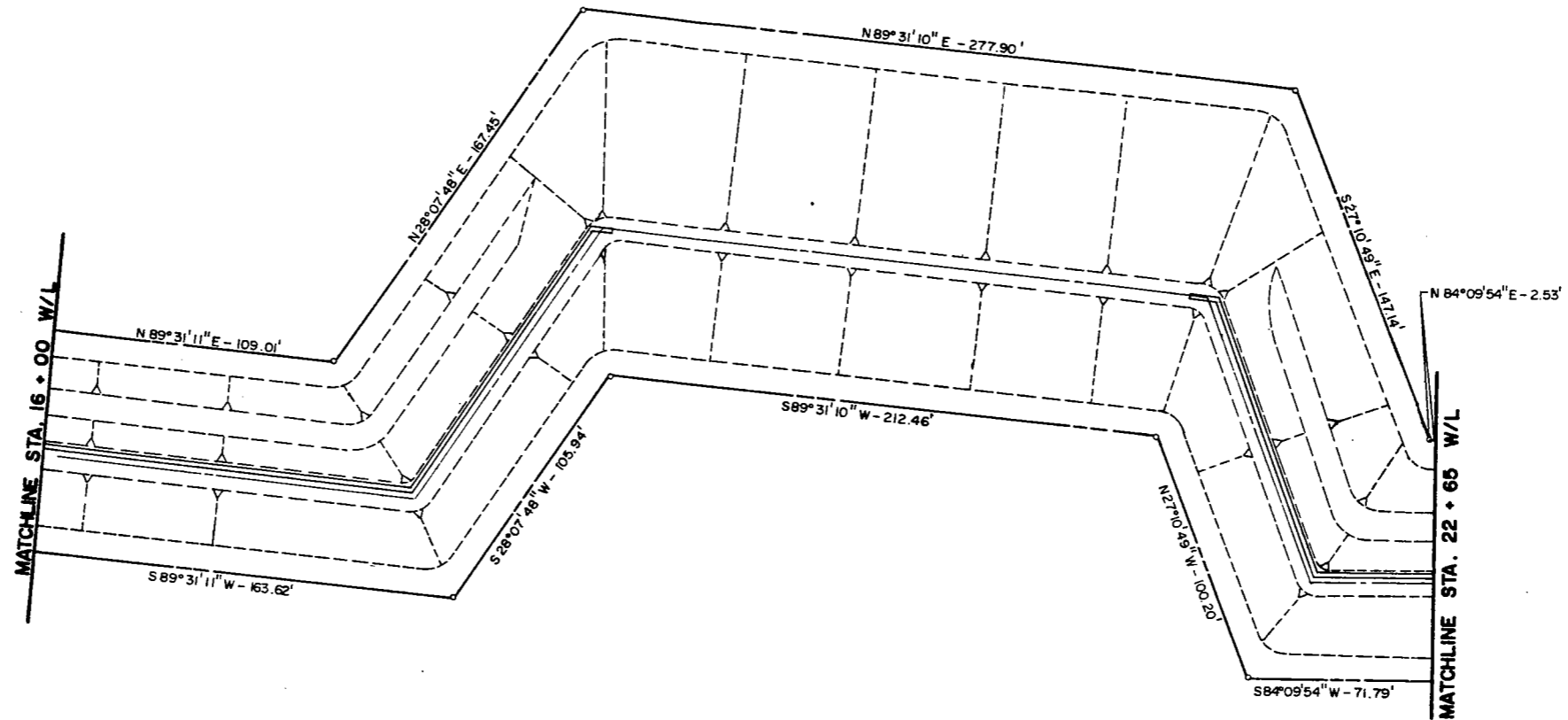
JOB No. 1008  
 SCALE 1" = 30'  
 SHEET NUMBER 4 of 8

**RIGHT - OF - WAY PLAN SHEET**



**SYMBOL LEGEND**

- REQUIRED O.L.B. R-O-W.
- - - - - APPROXIMATE TOE OF LEVEE
- ⊕ LEVEE CROWN
- ==== CONCRETE FLOODWALL



**CERTIFICATION**

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ROY P. ANSLEY  
REGISTERED LAND SURVEYOR

DATE

No.	DATE	REMARKS	No.	DATE	REMARKS



**DESIGN ENGINEERING INC.**  
Consulting Engineers  
3330 West Esplanade Ave. S.  
Suite 205  
Metairie, LA 70002  
(504) 836-2155

DESIGNED BY: R.A./P.R.  
CHECKED BY: R.A./D.A.S.  
DRAWN BY: C.V.N.  
CHECKED BY: D.A.S.  
APPROVED BY: R.A./J.W.H.  
DATE: MAY, 1987

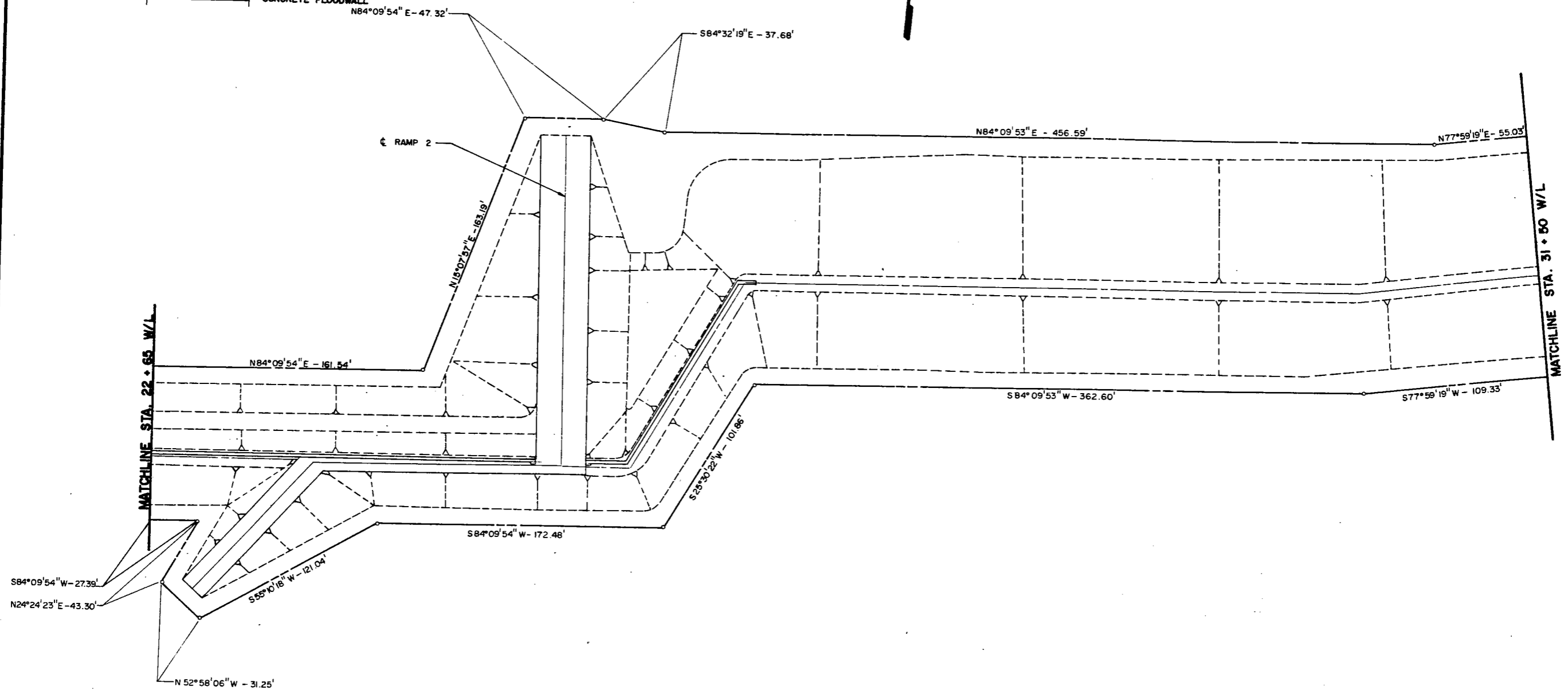
STAMP

**BOARD OF COMMISSIONERS**  
**ORLEANS LEVEE DISTRICT**  
**ORLEANS PARISH, LOUISIANA**  
PONTCHARTRAIN BEACH FLOOD PROTECTION IMPROVEMENT PROJECT  
**RIGHT - OF - WAY PLAN SHEET**

JOB No. **1008**  
SCALE **1" = 30'**  
SHEET NUMBER **5 OF 8**

**SYMBOL LEGEND**

- REQUIRED O.L.B. R-O-W
- - - APPROXIMATE TOE OF LEVEE
- ⊕ LEVEE CROWN
- ▬▬▬ CONCRETE FLOODWALL



MATCHLINE STA. 22 + 65 W/L

MATCHLINE STA. 31 + 50 W/L

**CERTIFICATION**  
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ROY P. ANGLEW  
 REGISTERED LAND SURVEYOR

No.	DATE	REMARKS	No.	DATE	REMARKS



**DESIGN ENGINEERING INC.**  
 Consulting Engineers  
 3330 West Esplanade Ave. S.  
 Suite 205  
 Metairie, LA 70002  
 (504) 836-2155


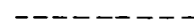
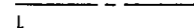

DESIGNED BY: R.A./P.R.  
 CHECKED BY: R.A./D.A.S.  
 DRAWN BY: C.V.N.  
 CHECKED BY: D.A.S.  
 APPROVED BY: R.A./J.W.H.

STAMP

**BOARD OF COMMISSIONERS**  
**ORLEANS LEVEE DISTRICT**  
**ORLEANS PARISH, LOUISIANA**  
 PONTCHARTRAIN BEACH FLOOD PROTECTION IMPROVEMENT PROJECT

JOB No.  
**1008**  
 SCALE  
 1" = 30'

**SYMBOL LEGEND**

-  REQUIRED O.L.B. R-O-W
-  APPROXIMATE TOE OF LEVEE
-  LEVEE CROWN
-  CONCRETE FLOODWALL

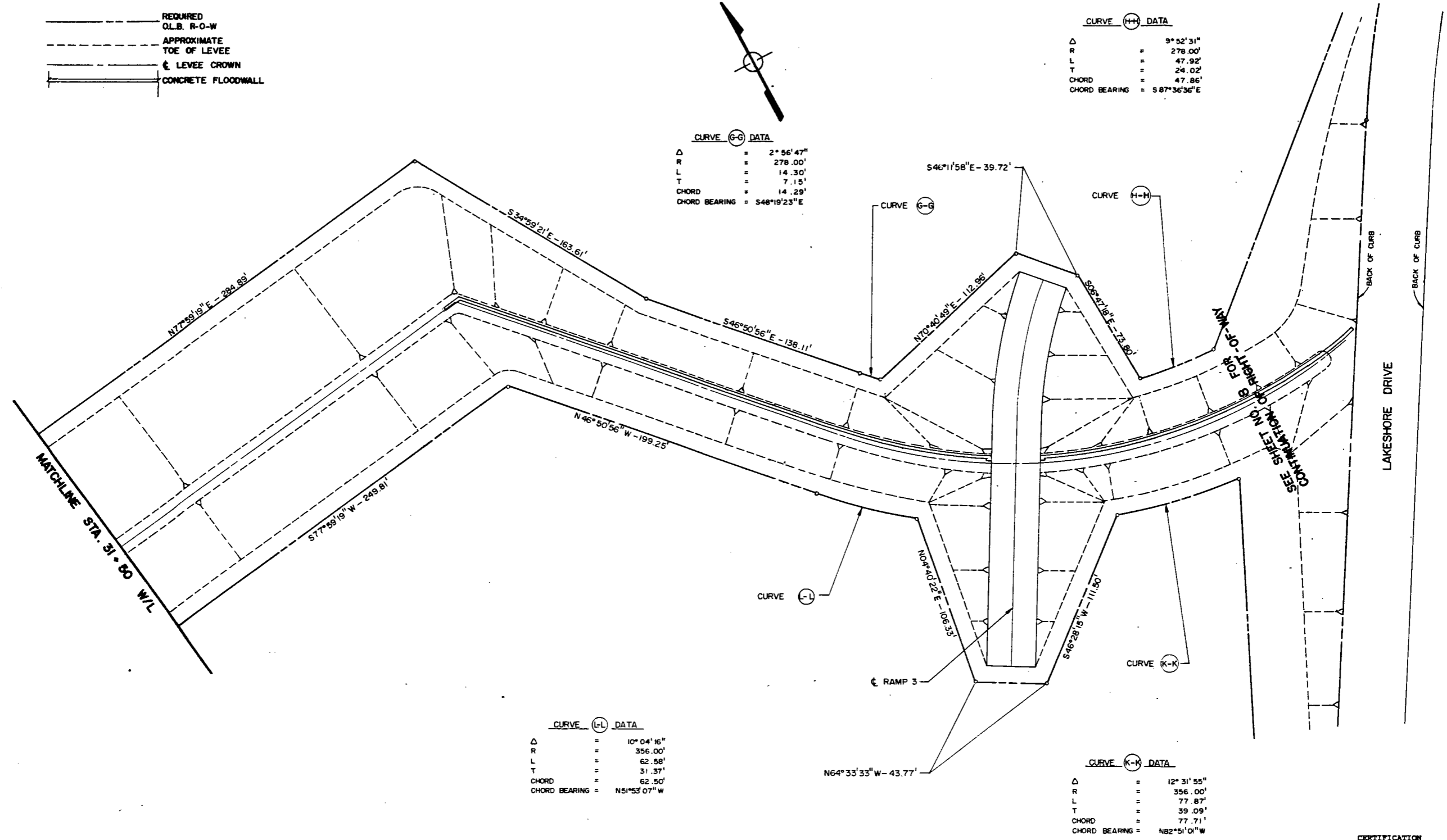


**CURVE (G-G) DATA**

Δ	=	2° 56' 47"
R	=	278.00'
L	=	14.30'
T	=	7.15'
CHORD	=	14.29'
CHORD BEARING	=	S48°19'23"E

**CURVE (H-H) DATA**

Δ	=	9° 52' 31"
R	=	278.00'
L	=	47.92'
T	=	24.02'
CHORD	=	47.86'
CHORD BEARING	=	S87°36'36"E



**CURVE (I-I) DATA**

Δ	=	10° 04' 16"
R	=	356.00'
L	=	62.58'
T	=	31.37'
CHORD	=	62.50'
CHORD BEARING	=	N51°53'07"W

**CURVE (K-K) DATA**

Δ	=	12° 31' 55"
R	=	356.00'
L	=	77.87'
T	=	39.09'
CHORD	=	77.71'
CHORD BEARING	=	N82°51'01"W

**CERTIFICATION**  
 THIS MAP IS CERTIFIED TO BE CORRECT AND IN ACCORDANCE WITH A PHYSICAL SURVEY MADE ON THE GROUND UNDER THE SUPERVISION OF THE UNDERSIGNED.

ROY P. ANSLER  
 REGISTERED LAND SURVEYOR

No.	DATE	REMARKS	No.	DATE	REMARKS
		REVISIONS			REVISIONS



**DESIGN ENGINEERING INC.**  
 Consulting Engineers  
 3330 West Esplanade Ave. S.  
 Suite 205  
 Metairie, LA 70002  
 (504) 836-2155

DESIGNED BY: R.A./P.R.  
 CHECKED BY: R.A./D.A.S.  
 DRAWN BY: C.V.N.  
 CHECKED BY: D.A.S.  
 APPROVED BY: R.A./J.W.H.  
 DATE: MAY, 1987

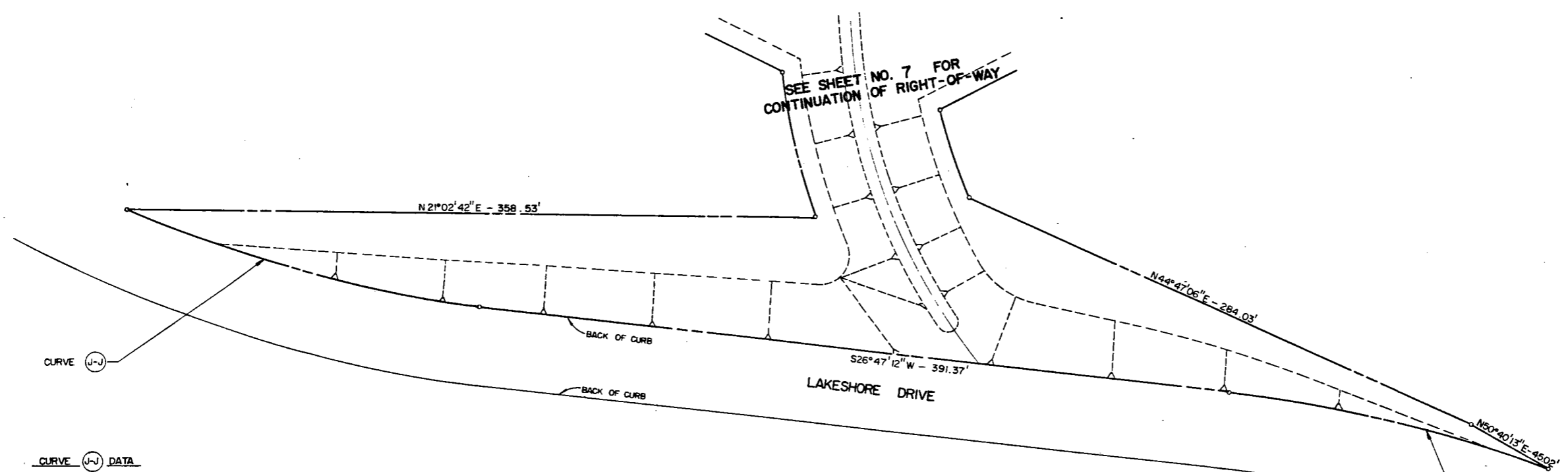
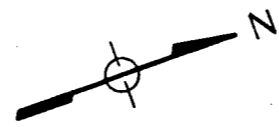
STAMP

**BOARD OF COMMISSIONERS**  
**ORLEANS LEVEE DISTRICT**  
**ORLEANS PARISH, LOUISIANA**  
 PONTCHARTRAIN BEACH FLOOD PROTECTION IMPROVEMENT PROJECT  
**RIGHT-OF-WAY PLAN SHEET**

JOB No. **1008**  
 SCALE 1" = 30'  
 SHEET NUMBER **7 of 8**

**SYMBOL LEGEND**

- REQUIRED O.L.B. R-O-W
- - - - - APPROXIMATE TOE OF LEVEE
- LEVEE CROWN



**CURVE (J-J) DATA**

- Δ = 15° 29' 36"
- R = 700.00'
- L = 189.29'
- T = 95.22'
- CHORD = 188.71'
- CHORD BEARING = S 33° 56' 34" W

**CURVE (I-I) DATA**

- Δ = 14° 27' 32"
- R = 673.50'
- L = 169.96'
- T = 85.43'
- CHORD = 169.51'
- CHORD BEARING = S 33° 47' 13" W

**CERTIFICATION**

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ROY P. ANSLEM  
REGISTERED LAND SURVEYOR

DATE

No.	DATE	REMARKS	No.	DATE	REMARKS



**DESIGN ENGINEERING INC.**  
Consulting Engineers  
3330 West Esplanade Ave. S.  
Suite 205  
Metairie, LA 70002  
(504) 836-2155

DESIGNED BY: R.A./P.R.  
CHECKED BY: R.A./D.A.S.  
DRAWN BY: C.V.N.  
CHECKED BY: D.A.S.  
APPROVED BY: R.A./J.W.H.  
DATE: MAY, 1987

STAMP

BOARD OF COMMISSIONERS  
ORLEANS LEVEE DISTRICT  
ORLEANS PARISH, LOUISIANA  
PONTCHARTRAIN BEACH FLOOD PROTECTION IMPROVEMENT PROJECT  
**RIGHT - OF - WAY PLAN SHEET**

JOB No. 1008  
SCALE 1" = 30'  
SHEET NUMBER 8 OF 8

# The Board of Levee Commissioners

OF THE

## Orleans Levee District

SUITE 202 — ADMINISTRATION BUILDING  
NEW ORLEANS LAKEFRONT AIRPORT

New Orleans, La.

70126

PROTECTING YOU  
AND YOUR FAMILY



December 10, 1987

Mr. Frederic Chatry  
Chief, Engineering Division  
U. S. Corps of Engineers  
P. O. Box 60267  
New Orleans, LA 70160

RE: Pontchartrain Beach Flood Protection Phase I  
OLB Contract No. 2040 - Preliminary Submittal

Dear Mr. Chatry:

In connection with completion of Phase I of the above mentioned project, the Orleans Levee Board hereby requests that this work be included as part of the Lake Pontchartrain and Vicinity Hurricane Protection Project and that credit be applied to our contributions.

Enclosed are copies of the following contractor's documents:

1. Tabulation of bids dated March 26, 1986.
2. Notice of award dated April 1, 1986.
3. Copy of contract dated April 3, 1986, and amendment dated March 10, 1987.
4. Two copies of Change Order No. 1 thru No. 10 dated January 9, 1986, thru December 19, 1986.
5. Final payment certificate dated February 18, 1987.
6. Acceptance of contract as of March 10, 1987.

The contract specifications and plans were previously furnished to your office on March 10, 1986.

The total cost of this construction contract amounted to \$3,368,179.65 (\$3,375,588.60 less change order no. 1 \$7,408.95 which was reimbursed by Pontchartrain Beach Corporation).

Additional cost and prorated cost associated with this phase included the following:

1005-1  
WB ✓  
JH ✓  
PR

**Board of Levee Commissioners  
Orleans Levee District**

Page 2  
Mr. Frederic Chatry  
RE: OLB Contract No. 2040  
December 10, 1987

	TOTAL COST	PHASE I COST	PHASE II COST
URS - 1st Design Memo Abandoned	\$ 26,646.00	*\$ 21,316.80	*\$ 5,329.20
URS Engineering	288,749.00	188,164.81	100,584.19
URS Amendment Additional Work	18,255.00	18,255.00	---
URS Additional Asphalt Paving	2,160.00	2,160.00	---
	<u>309,164.00</u>	<u>208,579.81</u>	<u>100,584.19</u>
URS - Engineers - Inspection	101,295.00	77,786.34	23,508.66
Land Design Rendering	6,450.00	* 5,160.00	* 1,290.00
NOPSI Relocate Electrical	12,226.69	* 9,781.35	* 2,445.34
NOPSI Relocate Gas Lines	76,132.39	* 60,905.91	* 15,226.48
	<u>88,359.08</u>	<u>70,687.26</u>	<u>17,671.82</u>
Delta Testing - Testing Services	11,217.00	11,217.00	---
Eustis Engineering - Soil Analysis	29,939.29	* 23,951.43	* 5,987.86
DEI - Alignment Study	23,098.25	* 18,478.60	* 4,619.65
DEI - Design Memo Construction	68,772.15	* 55,017.72	* 13,754.43
DEI - Gulf Coast Aerial/Addt'l Sheet	153.00	153.00	---
DEI - Pro Ratio Coordination	75,352.50	* 60,282.00	* 15,070.50
Berkley Traugher-Geotechnical	19,365.14	19,050.14	315.00
Roy Anslem - Topo Survey	10,650.00	* 8,520.00	* 2,130.00
DEI/R. Anslem - A/S Built Survey	18,126.76	* 14,501.41	* 3,625.35
PSI - Testing Service	11,582.27	---	11,582.27
T.P. & D.J. Advertising	<u>562.46</u>	<u>258.31</u>	<u>304.15</u>
SUBTOTAL	800,732.90	594,959.82	205,773.08
J. F. Smith - Contractor	3,368,179.65	3,368,179.65	---
Boh Bros. Const. - Phase II	<u>843,884.35</u>	<u>---</u>	<u>843,884.35</u>
TOTALS	\$5,012,796.90	\$3,963,139.47	\$1,049,657.43
TOTAL - PHASE I	\$3,963,139.47		
TOTAL - PHASE II	\$1,049,657.43		

* The prorated cost is based on construction cost for Phase I of \$3,375,588 and \$843,884 expended on Phase II, for a total construction cost of \$4,219,472; therefore, 80% attributable to Phase I and 20% to Phase II.

**Board of Levee Commissioners**  
**Orleans Levee District**

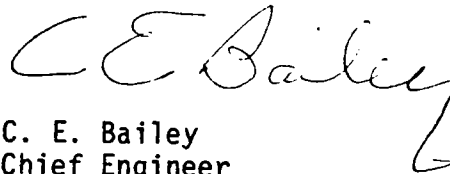
Page 3  
Mr. Frederic Chatry  
RE: OLB Contract No. 2040  
December 10, 1987

Please note, at this time we are only enclosing copies of the contractor's documents for Phase I. In the near future, documents will be forwarded on Phase II of this project, and our request for credit toward our contribution for Phase II.

Please advise if copies of all the invoices and cancelled checks will be required to substantiate the \$594,959.82 expenditures or if only the final payment for invoices reflecting a total cost to date will be needed.

If any additional information for the contractor's documents is required, please advise.

Very truly yours,



C. E. Bailey  
Chief Engineer

CEB:LC:lao

Enclosures

xc: Mr. H. B. Lansden  
Mr. Alan Francingues  
Ms. Linda Chaisson  
— Design Engineering Inc.  
Mr. Donal F. Gannauch, USCE, Auditor in Charge

BID TABULATION

CONTRACTORS

3/15/05

Main bid tabulation table with columns for Item, Description, Approx. Quantity, Unit, and Contractor (BCH Bros. Construction, Professional Const Service, GirLOT Company, Johnny B. Smith T.&D. Service, Atlas Construction).

TOTAL BID 3,573,092.16 3,667,770.00 3,688,961.31 3,345,852.64 3,772,002.44

** ERROR IN EXTENDED PRICE ON TWO BID ITEMS (100 & 108)
** ERROR IN EXTENSION OF LUMP SUM AND EXTENDED UNIT PRICE.

*(8,000.00)
OR 2 TOTAL: 3,671,961.31
*(6,670,855.00)
ORIGINAL 100 = 97,000.00
ORIGINAL 108 = 20,855.00
CRIG. TOTAL: 34,289.00

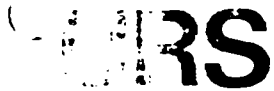
DESIGNED BY: J.D.B.
CHECKED BY:
REVIEWED BY:
DATE:



PONTCHARTRAIN BELCH
FLOOD PROTECTION IMPROVEMENT PROJECT
BID TABULATION
ORLEANS LEVEE BOARD PROPOSAL NO 2040-0850

SHEET NO:
OF SHEETS:
FILE NO:





**URS ENGINEERS**

1501 PCH BOULEVARD NEW ORLEANS, LA 70112  
PONTCHARTRAIN BEACH, LA 70112  
TEL: (504) 835-1100

CHANGE ORDER NO. 1

Board of Levee Commissioners  
Orleans Levee District  
Suite 202, Administration Building  
New Orleans Lakefront Airport  
New Orleans, LA 70126

Subject: Pontchartrain Beach Flood Protection Phase I  
OLB Construction Project No. 2040-0350

The purpose of this change order is to complete the loop in the 12" water line along the beach midway for the above project. The original contract included 875' of C-900 PVC pipe, and the existing 12" water line was to have been in a loop. The additional work covered by this Change Order is the extension of the 12" water line from the beach midway in front of the Sail Club building, southward into the parking lot to connect to the existing 12" water line. This section of line had apparently been removed when the pile foundation on the west side of the site was installed and then not reinstalled. The total amount of new work included in this Change Order No. 1 is as follows:

1.	310 lin. ft C-900 PVC @ \$18.00/ft.*	\$ 5,580.00
2.	Remove and replace 20 lin. ft. of cedar fence @ \$5.00/ lin. ft.	100.00
3.	Remove 10' x 10' sidewalk (11.1 sq. yds) @ \$2.50/sq. yd.	27.75
4.	Stand pipe (galvanized) lump sum	500.00
5.	3 - 45° bend fittings 705 lbs. @ \$1.65/lb.	1,163.25
6.	Remove 76' x 3' asphalt (25.3 sq. yds.) @ \$1.50/sq. yd. (Replace with exist. material except asphalt)	37.95

Total Change Order No. 1**	7,408.95
Original Contract Cost =	<u>\$3,345,852.64</u>
New Contract Cost =	\$3,353,261.59

* Differs from proposal estimate of 300 lin. ft.

** To be reimbursed by Pontchartrain Beach Corporation

Offered By:

Johnny F. Smith Truck &  
Dragline Service, Inc.

Will A. Palmer

Recommended By:

Bruce N Adams  
URS Engineers  
Bruce Adams, P.E.

Accepted By:

Board of Commissioners of the  
Orleans Levee District

Emile W. Schneider, President

C. E. Bailey  
C. E. Bailey, Chief Engineer

CHANGE ORDER NO. 2



AN INTERNATIONAL PROFESSIONAL SERVICES ORGANIZATION

URS ENGINEERS

3500 NORTH CAUSEWAY BOULEVARD  
METAIRIE, LOUISIANA 70002  
TEL: (504) 837-6326

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Board of Levee Commissioners  
Orleans Levee District  
Suite 202, Administration Building  
New Orleans Lakefront Airport  
New Orleans, LA 70126

Subject: Pontchartrain Beach Flood Protection Phase I  
OLB Construction Project No. 2040-0350

The purpose of this change order is to cover work done for the completion of the above project. The additional work covered by this Change Order includes buried miscellaneous items uncovered during construction, plugging the existing water well, and relocation of sewer manhole to provide service to the administration building. The total amount of new work covered in this Change Order No. 2 is as follows:

1. Removal of 276 lin. ft. of chain wall @ \$15/lin.ft.	\$ 4,140.00
2. Removal of buried debris in area of chain wall	1,000.00
3. Removal of footings near Sail Club buildings	18,975.00
4. Removal of 190 lin. ft. of 30" concrete pipe @ \$3.50/lin. ft.	665.00
5. Removal of extra concrete boxes and footings near Sail Club building	300.00
6. Removal of second pool structure beneath that in contract	6,419.87
7. Plug and abandon water well in accordance with LADOTD regulations, revised November, 1985	4,000.00
8. Sewer Service for administration building	180.80

Total Change Order No. 2 =	<u>35,680.67</u>
Change Order No. 1 =	7,408.95
Original Contract Cost =	<u>3,345,852.64</u>
 New Contract Cost =	 \$3,388,942.26

Offered By:

Johnny F. Smith Truck & Dragline Service, Inc.

Willie A. Adams

Recommended By:

Bruce A. Adams  
URS Engineers  
Bruce Adams, P.E.

Accepted By:

Board of Commissioners of the Orleans Levee District

Emile W. Schneider  
Emile W. Schneider, President

C. E. Bailey  
C. E. Bailey, Chief Engineer

## URS ENGINEERS

3500 NORTH CAUSEWAY BOULEVARD  
METAIRIE, LOUISIANA 70002  
TEL. (504) 837-6326

Dallas  
Denver  
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### CHANGE ORDER NO. 3

Board of Levee Commissioners  
Orleans Levee District  
Suite 202, Administration Building  
New Orleans Lakefront Airport  
New Orleans, LA 70126

**Subject: Pontchartrain Beach Flood Protection Phase I  
OLB Construction Project No. 2040-0350**

The purpose of this change order is to provide fence security for the above project. The additional work covered by this Change Order is the placement of 700 lin. ft. of fence along the ease side of the project site. The total amount of new work included in this Change Order No. 5 is as follows:

- |                                                                                                             |             |
|-------------------------------------------------------------------------------------------------------------|-------------|
| 1. Install 700 lin.ft. of 12 Ga.<br>chain link fence, 6' height with<br>1 - 5/8" line post @ \$3.50/lin.ft. | \$ 2,450.00 |
| 2. Install one 20 foot gate with<br>2 - 3/8" post                                                           | 300.00      |

---

Total Change Order No. 3	\$ 2,750.00
Change Order Nos. 1 & 2 =	43,089.62
Original Contract Cost =	<u>3,345,852.64</u>
New Contract Cost =	\$3,391,692.26

#### Offered By:

Johnny F. Smith Truck &  
Dragline Service, Inc.

William A. Palm

#### Accepted By:

Board of Commissioners of the  
Orleans Levee District

  
Emile W. Schneider, President

#### Recommended By:

Bruce S. Adams  
URS Engineers  
Bruce Adams, P.E.

  
C. E. Bailey, Chief Engineer

## URS ENGINEERS

3500 NORTH CAUSEWAY BOULEVARD  
METAIRIE, LOUISIANA 70002  
TEL: (504) 837-6326

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### CHANGE ORDER NO. 4

Board of Levee Commissioners  
Orleans Levee District  
Suite 202, Administration Building  
New Orleans Lakefront Airport  
New Orleans, LA 70126

Subject: Pontchartrain Beach Flood Protection Phase I  
OLB Construction Project No. 2040-0350

The purpose of this change order is to provide a credit for Item 52 - "Power Line Relocation", for the above project. The credit covered by this Change Order is for the revised electrical feeder along the west crossing of Lakeshore Drive and is in the amount of \$2,467.40.

Total Change Order No. 4 =	\$ (-2,467.40)
Change Order Nos. 1 - 3 =	45,839.62
Original Contract Cost =	<u>3,345,852.64</u>
New Contract Cost =	\$3,389,224.86

Offered By:

Johnny F. Smith Truck &  
Dragline Service, Inc.

Willie A. Palmer

Accepted By:

Board of Commissioners of the  
Orleans Levee District

Emile W. Schneider, President

Recommended By:

Bruce N. Adams

URS Engineers  
Bruce Adams, P.E.

C. E. Bailey  
C. E. Bailey, Chief Engineer

Board of Levee Commissioners  
 Orleans Levee District  
 Suite 202, Administration Building  
 New Orleans Lakefront Airport  
 New Orleans, LA 70126

**URS ENGINEERS**

3500 NORTH CAUSEWAY BOULEVARD  
 METAIRIE, LOUISIANA 70002  
 TEL: (504) 837-6326

Dallas  
 Denver  
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 New York  
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Subject: Pontchartrain Beach Flood Protection Phase I  
 OLB Construction Project No. 2040-0350

The purpose of this change order is for extra electrical work not included in the original contract for the above project. The additional work covered by this Change Order includes removal of light standards not shown on plans, labor, equipment and material to make 5 high-voltage splices in manhole for vault feeder, electrical extras for service to the administration building, and electrical lighting system along east crossing of Lakeshore Drive. The total new work covered by Change Order No. 6 is as follows:

1.	Removal of 2 light standards by Sail Club building.	\$	423.76
2.	5 high-voltage electrical splices		1,354.67
3.	Light standard adjustment at Sta 86 + 50		405.90
4.	Light standard adjustment at Sta 89 + 00		405.90
5.	Install new lighting feeder Sta 86 + 50 to Sta 89 + 00		1,232.00
6.	Electrical extras for service to the administration building.		
	a. Additional duct bank and cables to administration building		7,836.40
	b. Overhead quadruplex cable		2,875.40
	c. Reroute existing quadruplex cable		2,007.50
	d. Reconnect PVC conduit at administration building to east air condenser		193.60
	e. Reconstruct electrical service at rear of administration building as per code.		5,242.60
			<hr/>
Total Change Order No. 5 =			21,977.73
Change Order Nos. 1 - 4 =			43,372.22
Original Contract Cost =			3,345,852.64
New Contract Cost =			<u>\$3,411,202.59</u>

Offered By:

Johnny F. Smith Truck & Dragline Service, Inc.

Willie G. Pilon

Recommended By:

Bruce A. Adams  
 URS Engineers  
 Bruce Adams, P.E.

Accepted By:

Board of Commissioners of the Orleans Levee District

Emile W. Schneider, President

C. E. Bailey  
 C. E. Bailey, Chief Engineer

## URS ENGINEERS

### CHANGE ORDER NO. 6

8/29/86

Board of Levee Commissioners  
Orleans Levee District  
Suite 202, Administration Building  
New Orleans Lakefront Airport  
New Orleans, LA 70126

Subject: Pontchartrain Beach Flood Protection Phase I  
OLB Construction Project No. 2040-0350

The purpose of this change order is to incorporate a visual barrier for the abandoned UNO driveway from Lakeshore Drive and to raise the bottom of a catch basin on the east end levee crossing of Lakeshore Drive. The total amount of new work covered in this Change Order No. 6 is as follows:

- |       |                                                                                    |    |        |
|-------|------------------------------------------------------------------------------------|----|--------|
| 1.    | 11 - 7" x 24" object markers installed<br>at abandoned UNO driveway @ \$42.00 each | \$ | 462.00 |
| 2.    | Raise invert on existing catch basin,<br>Sta. 93 + 72, and plug 10" $\phi$ pipe    |    | 150.00 |
| <hr/> |                                                                                    |    |        |

Total Change Order No. 6 =	612.00
Change Order Nos. 1 - 5 =	65,349.95
Original Contract Cost =	<u>3,345,852.64</u>
New Contract Cost =	\$3,411,814.59

#### Offered By:

Johnny F. Smith Truck &  
Dragline Service, Inc.

Willis A. Palm

#### Accepted By:

Board of Commissioners of the  
Orleans Levee District

Emile W. Schneider, President

#### Recommended By:

Bruce H. Adams

URS Engineers  
Bruce Adams, P.E.

C. E. Bailey  
C. E. Bailey, Chief Engineer

## URS ENGINEERS

3500 NORTH CAUSEWAY BOULEVARD  
METAIRIE, LOUISIANA 70002  
TEL (504) 837-6326

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### CHANGE ORDER NO. 7

9/16/86

Board of Levee Commissioners  
Orleans Levee District  
Suite 202, Administration Building  
New Orleans Lakefront Airport  
New Orleans, LA 70126

Subject: Pontchartrain Beach Flood Protection Phase I  
OLB Construction Project No. 2040-0350

The purpose of this change order is to drain the far east midway for the above project in accordance with the attached URS recommendation and JFS proposal dated August 5, 1986. The additional work covered by this Change Order is the lowering of one existing manhole and replacing the cover with an open-grate top for the lump sum of \$400.00.

Total Change Order No. 7 =	\$ 400.00
Change Order Nos. 1 - 6 =	65,961.95
Original Contract Cost =	<u>3,345,852.64</u>
New Contract Cost =	\$3,412,214.59

Offered By:

Johnny F. Smith Truck &  
Dragline Service, Inc.

William A. Palm

Accepted By:

Board of Commissioners of the  
Orleans Levee District

Emile W. Schneider, President

Recommended By:

Bruce H. Adams

URS Engineers  
Bruce Adams, P.E.

C. E. Bailey  
C. E. Bailey, Chief Engineer



## URS ENGINEERS

3500 NORTH CAUSEWAY BOULEVARD  
METAIRIE, LOUISIANA 70002  
TEL. (504) 837-6326

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### CHANGE ORDER NO. 8

9/16/86

Board of Levee Commissioners  
Orleans Levee District  
Suite 202, Administration Building  
New Orleans Lakefront Airport  
New Orleans, LA 70126

Subject: Pontchartrain Beach Flood Protection Phase I  
OLB Construction Project No. 2040-0350

The purpose of this change order is to provide electrical improvements for the above project. The additional work covered by this change order includes lighting along the midway and new service to the tennis courts in accordance with the attached URS recommendation and JFS proposal dated August 5, 1986. The total amount of new work included in Change Order No. 8 is as follows:

1.	Disconnect unused feeders in east electrical vault.	\$ 836.00
2.	Install new feeder through levee to tennis courts at goose neck light pole and cut feeder to east at same goose neck light pole.	3,172.50
3.	Install 200A, 3 phase (4 wire & ground) circuit in conduit through levee (w/wall sleeve) to new junction box by the tennis courts.	12,867.00
4.	Disconnect and tape existing lighting feeders west of midway light pole north of warehouse - game building.	378.40
5.	Install new feeder from existing junction box on the west electrical vault to westernmost existing midway light pole.	11,077.40
6.	Install goose neck pole and fixture atop new base.	1,195.70

---

Total Change Order No. 8 =	\$ 29,527.00
Change Order Nos. 1 - 7 =	66,361.95
Original Contract Cost =	<u>3,345,852.64</u>
New Contract Cost =	\$3,441,741.59

Offered By:

Johnny F. Smith Truck &  
Dragline Service, Inc.

William Palm

Recommended By:

Bruce N Adams

URS Engineers  
Bruce Adams, P.E.

Accepted By:

Board of Commissioners of the  
Orleans Levee District

Emile W. Schneider

Emile W. Schneider, President

C. E. Bailey

C. E. Bailey, Chief Engineer

## URS ENGINEERS

3500 NORTH CAUSEWAY BOULEVARD  
METAIRIE, LOUISIANA 70002  
TEL (504) 837-6326

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September 15, 1986

CHANGE ORDER NO. 9

9/15/86

Board of Levee Commissioners  
Orleans Levee District  
Suite 202, Administration Building  
New Orleans Lakefront Airport  
New Orleans, LA 70126

Subject: Pontchartrain Beach Flood Protection Phase I  
OLB Construction Project No. 2040-0350

This change order is to grant a time extension of 22 days to substantial completion for the above project. Time extensions were granted for the following reasons:

1. Tree Relocation	7 days	
2. Lakeshore Drive Second Roadway and Base Course	15 days	
<hr/>		
Additional Contract Days	22 days	
Original Substantial Completion	90 days	July 5, 1986
<hr/>		
New Substantial Completion	112 days	July 27, 1986
Additional Contract Days	22 days	
Original Final Completion	120 days	August 4, 1986
<hr/>		
New Final Completion	142 days	August 26, 1986

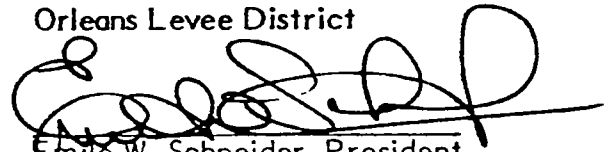
Offered By:

Johnny F. Smith Truck &  
Dragline Services, Inc.

Willie A. Palm

Accepted By:

Board of Commissioners of the  
Orleans Levee District

  
Emile W. Schneider, President

Recommended By:

Bruce A. Adams  
URS Engineers  
Bruce Adams, P.E.

C.E. Bailey  
C.E. Bailey, Chief Engineer

**URS COMPANY**3500 NORTH CAUSEWAY BOULEVARD  
METAIRIE, LOUISIANA 70002  
TEL: (504) 837-6326Dallas  
Denver  
Kansas City  
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Jordan

December 19, 1986

Change Order No. 10Board of Levee Commissioners  
Orleans Levee District  
Suite 202, Administration Building  
New Orleans Lakefront Airport  
New Orleans, LA 70126Subject: Pontchartrain Beach Flood Protection Phase I  
OLB Construction Project No. 2040-0350

The purpose of this change order is to cover final quantity adjustments, miscellaneous additional work in accordance with the attached JFS' proposals, time extension and liquidated damages.

## I. Final Quantities

Final quantity adjustments to the contract bid items are as shown in the attached quantity tabulation.

Net deduction in contract amount: \$(-)93,058.39

## II. Miscellaneous Additional Work

The following are in accordance with the approved attached proposals.

- |                                                                                                   |           |
|---------------------------------------------------------------------------------------------------|-----------|
| 1. Excavation UNO entrance, 1140 cu. yds.<br>at \$3.75/cu. yd.                                    | 4,275.00  |
| 2. 1802 sq. yds. 9" sand-shell base<br>at \$9.50/sq. yd.                                          | 17,119.00 |
| 3. 5 additional reflectorized posts<br>UNO entrance at \$28.50 each                               | 142.50    |
| 4. Lower drop inlet and grade to drain<br>east of UNO's entrance (L.S.)                           | 200.00    |
| 5. Remove 4 existing drop inlets and grade<br>area to drain in Sail Club area at<br>\$250.00 each | 1,000.00  |

6.	Sail Club Drainage		
	a.	Brick and mortar collar (L.S.) = \$	200.00
	b.	30 cu. yds. shell bedding @ \$30.00/cu. yd.	= 900.00
	c.	144 lin. ft. 18" dia. RCP @ \$27.00/lin. ft.	= 3,888.00
	d.	Field verification (L.S.)	= <u>400.00</u>
		Subtotal	\$5,388.00      5,388.00
7.	Furnish and install additional pipe near Sail Club		
	a.	16 lin. ft. of 18" dia. RCP @ \$27.00/lin. ft.	= \$ 432.00
	b.	Mobilization (L.S.)	= <u>200.00</u>
		Subtotal	\$ 632.00      632.00
8.	Furnish and install 150 lin. ft. of chain link fence with barbed wire @ \$9.25/lin. ft.		1,387.50
9.	Reinstall 700 lin. ft. of wood fence @ \$6.00/lin. ft.		<u>4,200.00</u>
		TOTAL	\$34,344.00

### III. Time Extension

1.	Substantial Completion		
	a.	Revisions to UNO entrance	11 days
	b.	S&WB delays	<u>5 days</u>
		Total	16 days
		Original Contract =	90 days      July 5, 1986
		Change Order No. 9 =	22 days      July 27, 1986
		Change Order No. 10 =	16 days
		New Contract =	128 days      August 12, 1986
2.	Final Completion		
	a.	Revisions to UNO entrance	11 days
	b.	SW&B delays	5 days
	c.	Sail Club drainage	7 days
	d.	Catch basin on Lakeshore Drive	<u>3 days</u>
		Total	26 days

Original Contract =	120 days	August 4, 1986
Change Order No. 9 =	22 days	August 26, 1986
<hr/>		
New Contract =	168 days	September 21, 1986

IV. Liquidated Damages

A breakdown of liquidated damages accessed JFS are as follows:

1. Additional resident inspection costs (8/13/86 - 9/21/86) due to delays in substantial completion.	\$4,331.25
2. Beeper charges (8/13/86 - 9/21/86)	32.00
3. Additional resident inspection costs due to delays in final completion	275.35
4. Resident inspection costs due to repairing of the west end of Lakeshore Drive and the UNO entrance	640.00
5. Supplemental engineering services for repairing asphalt on the west end of Lakeshore Drive and the UNO entrance	<u>2,160.00</u>
	TOTAL \$7,438.60
Total Change Order No. 10 =	\$(-)66,152.99
Change Order Nos. 1-9 =	95,888.95
Original Contract Cost =	<u>3,345,852.64</u>
New Contract Cost	\$3,375,588.60

Offered By:

Johnny F. Smith Truck &  
Dragline Service, Inc.

Willis A. Pelton

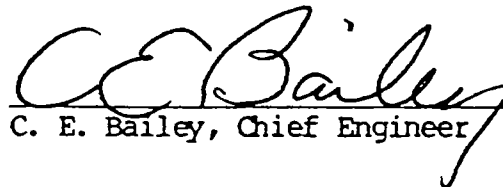
Accepted by:

Board of Commissioners of the  
Orleans Levee District

  
Emile W. Schneider, President

Recommended By:

Bruce A. Adams  
URS Company  
Bruce Adams, P.E.

  
C. E. Bailey, Chief Engineer

# Johnny F. Smith

Truck and Dragline Service, Inc.

(504) 641-7330

P.O. Box 1115  
Slidell, Louisiana 70459

November 11, 1986

Board of Levee Commissioners  
Orleans Levee District  
202 Administration Building  
New Orleans Lakefront Airport  
New Orleans, Louisiana 70126

Re: Pontchartrain Beach Flood Protection Project, Phase I  
OLB Project No. 2040-0204  
DEI Project No. 1008  
URS Project No. 46021.00

## Quantity Adjustments to Original Contract

<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>ADDITION</u>	<u>DELETION</u>
1.				
2.				
3.				
4. Removal of drain pipe	+1025 lf	3.00	3,075.00	
5. Removal of seawall	- 10 lf	20.00		200.00
6. Removal of pavement	-2417 lf	2.50		6,042.50
7.				
8. Removal of roadway pavement	+2442 sy	2.75	6,715.50	
9. Removal of concrete curb	+ 222 lf	2.00	444.00	
10. A. Compact sand backfill	+ 514 cy	9.75	5,011.50	
B. Compact clay backfill	-10,246 cy	11.50		117,829.00
11. Emb. semicompacted	-9320 cy	11.25		104,850.00
12. Emb. compacted	+8567 cy	11.50	98,520.50	
13. Fert. & seeding	+ 1.5 ac	1300.00	1,950.00	
14.				
15.				
16.				
17.				
18. Hot mix wearing surface	+ 175 tn	39.00	6,825.00	
19. Hot mix base course	+ 131 tn	36.00	4,716.00	
20. Sand-shell base (1'-0")	+ 92 sy	12.00	1,104.00	
21. Sand-shell base (6")	-1307 sy	6.25		8,168.75
22. Shell shoulder	+ 42 sy	7.00	294.00	
23. Shell access road	- 339 sy	7.20		2,440.80
24. Comb. curb & gutter	- 194 lf	12.00		2,328.00
26.				
25. Standard drainage C.B. (Type 1)	+ 1 ea	1300.00	1,300.00	
27. Standard drainage C.B. Type 1	+ 2 ea	1250.00	2,500.00	
28. 12" R.C.P. Class III	+ 377 lf	16.25	6,126.25	
29.				
30.				

JOHNNY F. SMITH TRUCK AND DRAGLINE SERVICE, INC.

Page 2

<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>ADDITION</u>	<u>DELETION</u>
31. Toe drain	+ 40 lf	9.00	360.00	-
32. Plastic pavement striping	-1618 lf	.45		728.10
33. Plastic pavement striping (solid)	+3348 lf	.42	1,406.16	
34.				
35.				
36. 12" C-900 water pipe	+ 12 lf	18.00	216.00	
37. 8" C-900 water pipe	- 17 lf	14.50		246.50
38. 6" C-900 water pipe	+ 12 lf	12.50	150.00	
39. 6" R.J.D.I. pipe	+ 31 lf	18.00	558.00	
40. Fittings (cast iron)	+4149 lbs	1.65	6,845.85	
41.				
42.				
43.				
44.				
45.				
46.				
47. 6" SDR-6 PVC sewer pipe	+ 26 lf	7.25	188.50	
48. 2" polybutylene sewer force main	+ 60 lf	3.65	219.00	
49.				
50.				
51.				
52.				
53.				
54. Concrete seawall seal	+ 1 cy	350.00	350.00	
55. Plastic Pavement symbols	+ 6 ea	300.00	900.00	
	TOTAL		149,775.26	\$242,833.65
	NET ADJUSTMENTS			\$(-)93,058.39



JOHNNY F. SMITH, Truck and Dragline Service, Inc.

P.O. BOX 1115 - 310 HOWZE BEACH ROAD  
SLIDELL, LOUISIANA 70459  
(504) 841-7330

PROPOSAL SUBMITTED TO:		PHONE:	DATE: <u>Sept 24 1986</u>
<u>H.R.S. Engineers</u>		JOB NAME: <u>Pontchartrain Beach Flood Protection</u>	
<u>2500 North Causeway Blvd.</u>		JOB LOCATION: <u>New Orleans La</u>	
<u>metairie</u>		CITY: <u>New Orleans</u>	STATE:
<u>La 70002</u>	ARCHITECT:	DATE OF PLANS:	JOB PHONE:

We hereby submit specifications and estimates for:

- ① Lower Inlet & Grade area to drain LS. - \$200.00
- ② Remove & Drop Inlet, Fill & Grade area to drain - \$1000.00  
(Southeast of soil club) @ 250.00
- ③ To furnish & install Approx 700 LF of 9 Gage 6 ft High chain link fence w/ 6 strand of Barbed wire Sch. 40 Post @ 9.25 6,475.00
- AH. ④ To furnish & install Approx 700 LF of 6 ft High Treated Pine fence w/ 4x4 post & 3-2x4 Nailer @ 9.50 6,650.00

We hereby propose to furnish labor and materials - complete in accordance with the above specifications, for the sum of _____ dollars (\$ _____) with payment to be made as follows.

All material is guaranteed to be as specified. All work to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from above specifications involving extra costs, will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance. Our workers are fully covered by Workmen's Compensation Insurance.

Authorized Signature Willie A. Palom

NOTE: This proposal may be withdrawn by us if not accepted within _____ days.

Acceptance of Proposal

The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above.

Accepted: _____ Signature _____

**JOHNNY F. SMITH, Truck and Dragline Service, Inc.**  
P.O. BOX 1115 — 310 HOWZE BEACH ROAD  
SLIDELL, LOUISIANA 70459  
(504) 641-7330

PROPOSAL SUBMITTED TO:		PHONE:	DATE: August 5, 1986
NAME: URS Engineers	JOB NAME:		
STREET: 3500 North Causeway Boulevard	JOB LOCATION:		
CITY: Metairie,	CITY:	STATE:	
STATE: LA 70002	ARCHITECT:	DATE OF PLANS:	JOB PHONE:

We hereby submit specifications and estimates for:

(1) Uncut 1140 c.y. of U.N.O. Entrance @ \$3.75 \$ 4,275.00

We hereby propose to furnish labor and materials — complete in accordance with the above specifications, for the sum of.

Four Thousand two hundred seventy five Dollars (\$ 4,275.00 ) with payment to be made as follows:

All material is guaranteed to be as specified. All work to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from above specifications involving extra costs, will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance. Our workers are fully covered by Workmen's Compensation Insurance.

Authorized Signature *Willie A. Palm*

NOTE: This proposal may be withdrawn by us if not accepted within _____ days.

**Acceptance of Proposal**

The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above.

Accepted: _____ Signature _____

**JOHNNY F. SMITH, Truck and Dragline Service, Inc.**  
P.O. BOX 1115 — 310 HOWZE BEACH ROAD  
SLIDELL, LOUISIANA 70469  
(504) 641-7330

PROPOSAL SUBMITTED TO:		PHONE:	DATE:
H.R.S. Engineers		JOB NAME: Pontchartrain Beach Flood Protection Phase 1	
3500 North Causeway Blvd.		JOB LOCATION: New Orleans La.	
metairie		CITY:	STATE:
LA 70002	ARCHITECT:	DATE OF PLANS:	JOB PHONE:

we hereby submit specifications and estimates for:

- (1) To Furnish and Install 23 Flex-o-Post 4" wide x 6'6" Long w/ yellow Ref. 3" x 12" on top. @ \$28⁵⁰ Ea.

We hereby propose to furnish labor and materials — complete in accordance with the above specifications, for the sum of _____ dollars (\$ _____) with payment to be made as follows:

All material is guaranteed to be as specified. All work to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from above specifications involving extra costs, will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance. Our workers are fully covered by Workmen's Compensation Insurance.

Authorized Signature Willis A. Palmer

NOTE This proposal may be withdrawn by us if not accepted within _____ days

**Acceptance of Proposal**

The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified and payment will be made as outlined above.

Accepted: _____ Signature _____

## URS ENGINEERS

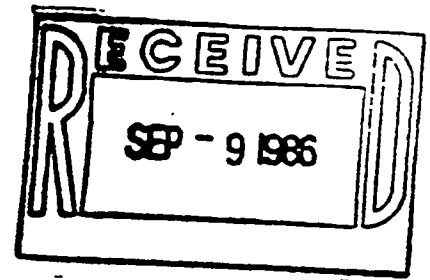
3500 NORTH CAUSEWAY BOULEVARD  
 METAIRIE, LOUISIANA 70002  
 TEL: (504) 837-6328

Dallas  
 Denver  
 Kansas City  
 New York  
 San Francisco  
 Seattle  
 Anchorage  
 Austin  
 Berkeley

Boston  
 Buffalo  
 Houston  
 Las Vegas  
 Montreal  
 New Orleans  
 Philadelphia  
 Washington, D.C.  
 Puerto Rico  
 Jordan

September 4, 1986

Mr. Willis Palmer  
 Johnny F. Smith Enterprises  
 P. O. Box 1115  
 Slidell, LA 70459



Dear Mr. Palmer:

Subject: Pontchartrain Beach Flood Protection Phase I  
 OLB Project No. 2040-0204  
 DEI Project No. 1005  
 URS Project No. 46021.00

Enclosed herewith are the revised Sail Club area drainage improvements for the west end of the above project. All costs involved with these improvements are contract bid items with the following exceptions:

1. Shell Bedding
2. 18" dia. RCP.
3. Field Verification

URS estimates 7 days for completion of this work. Please submit a cost proposal for the following items; all complete-in-place in accordance with the project plans:

1. 4 Drop inlets
2. 2 Manholes
3. 320 lin. ft. of 12" dia RCP
4. 115 lin. ft. of 18" dia. RCP
5. 20 cu. yds. of Shell Bedding (for breakwater embedment)
6. Field Verification

An immediate verbal response to URS would help expedite OLB's approval of your proposal.

Sincerely,

URS ENGINEERS

Bruce H. Adams

DHA/kam

cc: [unclear]

OLB w/enclosures  
 DEI w/enclosures

# JOHNNY F. SMITH, Truck and Dragline Service, Inc.

P.O. BOX 1115 — 310 HOWZE BEACH ROAD  
SLIDELL, LOUISIANA 70459  
(504) 641-7330

PROPOSAL SUBMITTED TO:		PHONE:	DATE: <u>Sept 10 1986</u>
<u>K.R.S. Engineers</u>		JOB NAME: <u>Bayou Bienvenue Beach Flood Protection</u>	
<u>3500 North Causeway Blvd.</u>		JOB LOCATION: <u>New Orleans La.</u>	
<u>metairie</u>		CITY: <u>New Orleans</u>	STATE:
<u>La 70002</u>	ARCHITECT:	DATE OF PLANS:	JOB PHONE:

We hereby submit specifications and estimates for:

Additional Drainage per your Sept 4 1986 Letter.

(1)	4 Drop inlets	@ 1300 ⁰⁰	\$ 5200 ⁰⁰
(2)	2 manholes	@ 1250 ⁰⁰	2500 ⁰⁰
(3)	320' - 12" RCP	@ 16 ²⁵	5200 ⁰⁰
(4)	115' - 18" RCP	@ 27 ⁰⁰	3105 ⁰⁰
(5)	20 cu yds shall Bedding	30 ⁰⁰	600 ⁰⁰
(6)	Field Verification	@ L.S.	400 ⁰⁰
(7)	Remove 10' Seawall	@ 20 ⁰⁰	200 ⁰⁰
(8)	Brick & mortar Collar	L.S.	200 ⁰⁰
			<u>\$ 17,405⁰⁰</u>

Additional 7 Day

We hereby propose to furnish labor and materials — complete in accordance with the above specifications, for the sum of _____ dollars (\$ _____) with payment to be made as follows

All material is guaranteed to be as specified. All work to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from above specifications involving extra costs, will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance. Our workers are fully covered by Workmen's Compensation Insurance.

Authorized Signature Willie A. Palmer

NOTE: This proposal may be withdrawn by us if not accepted within _____ days.

### Acceptance of Proposal

The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above.

Accepted: _____ Signature _____

# Proposal

Page No. _____  
of _____ Pages

## JOHNNY F. SMITH, Truck and Dragline Service, Inc.

P.O. BOX 1115 — 310 HOWZE BEACH ROAD  
SLIDELL, LOUISIANA 70459  
(504) 641-7330

PROPOSAL SUBMITTED TO:		PHONE:	DATE: <u>Oct 30 1986</u>
FIRM: <u>U.R.S. Engineers</u>		JOB NAME: <u>Pontchartraine Flood Protection Phase 1</u>	
STREET: <u>3500 North Causeway Blvd</u>		JOB LOCATION: <u>New Orleans La</u>	
CITY: <u>metairie</u>	CITY: <u>New Orleans</u>	STATE:	
STATE: <u>La 70002</u>	ARCHITECT:	DATE OF PLANS:	JOB PHONE:

We hereby submit specifications and estimates for:

- (1) Install approx 700 LF. of Beard fence that was removed during construction @ 6⁰⁰ per ft \$4200⁰⁰
- (2) Furnish & Install approx 150 LF of chain link fence w/ Top Rail & Barbed wire @ 9²⁵ \$1387⁵⁰
- (3) Furnish & Install addition pipe near the sailing club
 

mob & Demob	200 ⁰⁰	
16 LF of 18 RCP @ 27 ⁰⁰	432 ⁰⁰	
Install Jetty on lake side	200 ⁰⁰	
	832 ⁰⁰	\$832 ⁰⁰

We hereby propose to furnish labor and materials — complete in accordance with the above specifications, for the sum of

dollars (\$ 6419⁵⁰ ) with payment to be made as follows:

All material is guaranteed to be as specified. All work to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from above specifications involving extra costs, will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance. Our workers are fully covered by Workmen's Compensation Insurance.

Authorized Signature: Willie A. Palm

NOTE: This proposal may be withdrawn by us if not accepted within _____ days

### Acceptance of Proposal

The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above.

Accepted:

Signature

# JOHNNY F. SMITH, Truck and Dragline Service, Inc.

P.O. BOX 1115 — 310 HOWZE BEACH ROAD  
 SLIDELL, LOUISIANA 70459  
 (504) 641-7330

PROPOSAL SUBMITTED TO:		PHONE:	DATE: <u>Sept 24 1986</u>
FIRM NAME: <u>H.R.S. Engineers</u>		JOB NAME: <u>Pontchartrain Beach Flood Protection</u>	
STREET: <u>2500 North Causeway Blvd.</u>		JOB LOCATION: <u>New Orleans La</u>	
CITY: <u>Metairie</u>		CITY: <u>New Orleans</u>	STATE:
STATE: <u>La 70002</u>	ARCHITECT:	DATE OF PLANS:	JOB PHONE:

We hereby submit specifications and estimates for:

- ① Lower Inlet & Grade area to drain L.S. - 4200⁰⁰
- ② Remove & Drop Inlet, Fill & Grade area to drain - 1000⁰⁰  
 (Southeast of sail club) @ 250⁰⁰
- ③ To furnish & install Approx 700 LF of 9 Gage 6ft High Chain link fence w/ 6 strand of Barbed wire Sch. 40 Post @ 9.25 6,475⁰⁰
- Alt. ④ To Furnish & install Approx 700 LF of 6ft High Treated Pine fence w/ 4x4 post & 3-2x4 Nailer @ 9.50 6,650⁰⁰

We hereby propose to furnish labor and materials — complete in accordance with the above specifications, for the sum of _____ dollars (\$ _____) with payment to be made as follows:

All material is guaranteed to be as specified. All work to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from above specifications involving extra costs, will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance. Our workers are fully covered by Workmen's Compensation Insurance.

Authorized Signature Willie A. Palom

NOTE This proposal may be withdrawn by us if not accepted within _____ days

### Acceptance of Proposal

The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above.

Accepted: _____ Signature _____

# URS

## URS ENGINEERS

3500 NORTH CAUSEWAY BOULEVARD  
METairie, LOUISIANA 70002  
TELEPHONE 833-1100

September 16, 1986

Mr. Willis Palmer  
JFS Enterprises, Inc.  
Post Office Box 1115  
Slidell, LA 70459

Dear Mr. Palmer:

Subject: Pontchartrain Beach Flood Protection Project  
OLB Project No. 2040-0204  
DEI Project No. 1008  
URS Project No. 46021.00

URS is in receipt of your September 12, 1986 correspondence (copy attached) concerning additional time extensions for the above project. Our response to each item is as follows:

1. Sail Club Footings - JFS' May 9, 1986 was approved for the monetary addition only. The time extension requested then and, again, in your current correspondence was not and cannot now be agreed to. The reasons are as stated in our September 5 response to your August 25 correspondence. In addition to not utilizing any equipment working on other portions of the project and thereby not delaying ongoing work, this extra work was in an area where no embankment could be constructed until the seawall removal was completed and backfilled. At the time of the footing removal, the seawall work was not near completion.
2. Inclement Weather - While General Specification 1.40 does not itself provide for inclement weather days, other portions of JFS' contract with OLB does. In particular, the Advertisement for Bids and the Proposal Form (offered by JFS to OLB) both contain the inclement weather allowance and are part of JFS' contract with OLB. The allowance days will have to be fulfilled by properly-substantiated inclement weather days (or other qualifying days) prior to any additional inclement weather days being considered by URS for recommendation to OLB for an extension.
3. UNO Entrance - JFS did not request any additional time for this item in your prior time extension request and, therefore, URS did not respond to it. However, since you now have done so, we have considered this request and agree with it as your dates are correct and you were delayed during the process of properly determining necessary revisions to the UNO entrance because of unforeseen subgrade stability problem. Therefore, URS recommends to OLB that these eleven days be added to JFS' contract.



4. McDonald Construction's Delays - Again, JFS made no official request for a time extension to this in your August 25 correspondence so URS did not respond to it. However, as we now have a definite request to review, we have done so and agree that JFS was delayed by the actions of Mr. Wingerter. As inspector for the N.O.S. & W.B. he continually stopped the work with actions contrary to what information the S. & W.B. had provided URS during the project's design. As this information was the basis of what is included in the contract documents, we recommend to OLB that these 5 days be added to JFS' contract.

Summarizing these extensions, URS is recommending a total of 16 days be added to both the substantial and final completion dates already in JFS' contract. Also, as agreed as part of the Sail Club drainage and Lakeshore Drive drainage catch basin additions, 10 more days will be added to JFS' contract, but only to the final completion. This is because the work has been added to the end of the project following the expiration of substantial completion. Therefore, subsequent to the previous 22 day extension, the revised contract dates (if approved by OLB) would be:

Substantial Completion:

Original Contract Date =	July 5, 1986
Previous Extension =	22 Days
<u>Current Pending Extension =</u>	<u>16 Days</u>

Proposed Substantial Completion  
Contract Date = August 12, 1986

Final Completion:

Original Contract Date =	August 4, 1986
Previous Extension =	22 Days
Current Pending Extension =	16 Days
Drainage Improvements <u>Extension =</u>	<u>10 Days</u>

Proposed Final Completion  
Contract Date = Sept. 21, 1986

By copy of this letter, URS is notifying OLB of our recommendation that the contract dates be extended by 16 more days in response to JFS' September 12, 1986 request and we ask that OLB advise URS as to their concurrence with this request prior to our processing a time extension for this request.

Sincerely,

URS ENGINEERS

*Bruce H. Adams*

Bruce H. Adams, P.E.

cc: Mr. C.E. Bailey, OLB  
DEI

Johnny F. Smith

Truck and Dragline Service, Inc.

(504) 641-7330

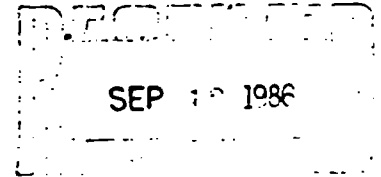
P.O. Box 1115  
Slidell, Louisiana 70459

September 12, 1986

URS Engineers  
3500 North Causeway Blvd  
Metairie, LA 70002

Attn: Bruce Adams

Re: Pontchartrain Beach Flood Protection Project Phase 1  
Time Extension  
OLB Project No. 2040-0204  
DEI Project No. 1008  
URS Project No. 46021.00



URS COMPANY

Dear Mr. Adams:

In your letter of September 5, 1986, you did not recommend any time extension for the removal of the footings near the Sail Club. I have enclosed a copy of our proposal dated May 9, 1986, (which URS received May 13th) and approved by phone May 9th, that requested 5 days be added to our contract. I believe this proposal was approved in full. We request you check your file as we have no correspondence that denied the time extension.

Time extension for inclement weather, General specifications 1.40 does not have 15 or 20 days for inclement weather provided for in the contract. It states, "any day that less than 4 years of work is performed, contractor shall be granted an extension of time." We asked for 3 days, June 5th and 10th and July 7th, as per your letter. We also asked for 2 more days July 1st and August 7th, with pictures enclosed, showing the amount of water on the west end and the U.N.O. entrance.

Also, you did not respond to the U.N.O. entrance, where a meeting was held at the job site in July 25th to discuss the subgrade stability. We did not receive the answer until August 4th, which was 11 days later. We asked for 11 days for this delay.

We also asked that you consider the report from McDonald Construction, as he was delayed by Marvin Wingerter. We believe he cost us 15 days, plus several dollars. He shut us down on August 3rd until the U.N.O. property line was staked. Another delay was caused when he moved the opening in the meter box top after we had it formed according to the drawing. (He has been discussed from the first meeting on the job site.) For these delays we ask for 5 days.

Yours truly,

Willis A. Palmer

WAP/dh (Attachments)

cc: OLB

PONTCHARTRAIN BEACH FLOOD PROTECTION IMPROVEMENT PROJECT

PHASE II  
 BID TABULATION  
 PROPOSAL NO. 2040-0375

NO.	ITEM	UNIT	QUANTITY	RIVER ROAD CONSTR.		CIRCLE, INC.		ATLAS CONSTR.	
				PRICE	AMOUNT	PRICE	AMOUNT	PRICE	AMOUNT
1	Mobilization	L.S.	1	16,000.00	16,000.00	25,000.00	25,000.00	20,000.00	20,000.00
2	Clearing and Grubbing	L.S.	1	4,350.00	4,350.00	20,000.00	20,000.00	5,479.00	5,479.00
3	Removal of Structures and Obstructions	L.S.	1	1,700.00	1,700.00	25,000.00	25,000.00	12,000.00	12,000.00
4	Removal of Pavement (Non Roadway)	S.Y.	888	5.50	4,884.00	5.00	4,440.00	11.00	9,768.00
5	Compacted Clay Backfill Piling, Concrete, Precast, Prestressed, 14" Sq.	C.Y.	200	12.00	2,400.00	20.00	4,000.00	20.00	4,000.00
6	a) Vertical Piling b) Batter Piling	L.F. L.F.	820 1,754	31.20 23.50	25,584.00 41,219.00	30.00 33.00	24,600.00 57,882.00	29.00 37.00	23,780.00 64,898.00
7	Concrete Structural Steel Gates, Miscellaneous Metals and Specialty Items	C.Y.	1,688	306.50	517,372.00	305.00	514,840.00	294.00	496,272.00
8	Excavation	L.S.	1	94,800.00	94,800.00	75,000.00	75,000.00	113,243.00	113,243.00
9	Embankment - Compacted Asphaltic Concrete	C.Y.	100	4.25	425.00	10.00	1,000.00	18.00	1,800.00
10	Asphaltic Concrete Wearing Course (Type 1)	C.Y.	2,045	18.60	38,037.00	13.00	26,585.00	16.00	32,720.00
11	Asphaltic Concrete Wearing Course (Type 1)	Ton	142	75.50	10,721.00	44.00	6,248.00	40.00	5,680.00
12	Rate Course (Type 1)	Ton	236	75.50	17,818.00	44.00	10,384.00	40.00	9,440.00
13	Sand-Shell Base (6")	S.Y.	1,711	9.00	15,399.00	7.00	11,977.00	7.00	11,977.00
14	Geotextile Fabric	S.Y.	295	3.00	885.00	2.00	590.00	2.00	590.00
15	Fertilizing, Seeding and Mulching	Acres	2	1,150.00	2,300.00	1,150.00	2,300.00	5,130.00	10,260.00
16	Tree Relocation	L.S.	1	7,100.00	7,100.00	30,000.00	30,000.00	21,200.00	21,200.00
17	12" dia. Restrained Joint Ductile Iron Pipe, (Class 52)	L.F.	140	72.00	10,080.00	50.00	7,000.00	78.00	10,920.00
18	Fittings (Cast Iron) 1-1/2" dia.	Lbs.	1,215	2.40	2,916.00	3.00	3,645.00	2.00	2,430.00
19	Polybutylene Water Service	L.F.	55	16.00	880.00	3.00	165.00	20.00	1,100.00
20	Delays Due to Unexpected Embankment Settlement	Day/Ea.	9	1,900.00	17,100.00	10.00	90.00	1,000.00	9,000.00
21	Reinstall Existing Wood Fence and Gate	L.F.	420	16.00	6,720.00	3.50	1,470.00	7.30	3,066.00
22	Chain Link Fence	L.F.	215	11.00	2,365.00	6.00	1,290.00	13.00	2,795.00
23	Wood Fence	L.F.	200	26.50	5,300.00	8.00	1,600.00	19.00	3,800.00
24	Chain Link Gate (12')	Each	1	440.00	440.00	450.00	450.00	500.00	500.00
25	Wood Gate (12')	Each	1	475.00	475.00	600.00	600.00	550.00	550.00
TOTAL BID					\$847,270.00		\$856,156.00		\$877,268.00

PONTCHARTRAIN BEACH FLOOD PROTECTION IMPROVEMENT PROJECT  
 PHASE II  
 BID TABULATION  
 PROPOSAL NO. 2040-0375

NO.	ITEM	UNIT	QUANTITY	SOLVATION SERVICES		AUDUBON CONSTR.		BAYOU LAND & MARINE	
				PRICE	AMOUNT	PRICE	AMOUNT	PRICE	AMOUNT
1	Mobilization	L.S.	1	47,400.00	47,400.00	27,000.00	27,000.00	35,000.00	35,000.00
2	Clearing and Grubbing	L.S.	1	2,750.00	2,750.00	13,280.00	13,280.00	23,600.00	23,600.00
3	Removal of Structures and Obstructions	L.S.	1	2,850.00	2,850.00	26,100.00	26,100.00	28,000.00	28,000.00
4	Removal of Pavement (Non Roadway)	S.Y.	888	5.50	4,884.00	4.50	3,996.00	6.00	5,328.00
5	Compacted Clay Backfill Piling, Concrete, Precast, Prestressed, 14" Sq.	C.Y.	200	17.50	3,500.00	12.00	2,400.00	27.00	5,400.00
6	a) Vertical Piling b) Batter Piling	L.F.	820	22.00	18,040.00	30.50	25,010.00	34.80	28,536.00
7	Concrete Structural Steel Gates, Miscellaneous Metals and Specialty Items	L.F.	1,754	22.50	39,465.00	31.50	55,251.00	36.00	63,144.00
8	Excavation - Compacted Asphaltic Concrete	C.Y.	1,688	315.00	531,720.00	292.00	492,896.00	399.34	674,085.92
9	Wearing Course (Type 1) Asphaltic Concrete	L.S.	1	96,800.00	96,800.00	146,346.00	146,346.00	87,600.00	87,600.00
10	Embankment - Compacted Asphaltic Concrete	C.Y.	100	11.50	1,150.00	9.00	900.00	12.00	1,200.00
11	Basic Course (Type 1) Sand-Shell Base (6")	C.Y.	2,045	16.00	32,720.00	13.00	26,585.00	27.00	55,215.00
12	Geotextile Fabric Fertilizing, Seeding and Mulching	Ton	142	63.00	8,946.00	49.00	6,958.00	72.00	10,224.00
13	Tree Relocation	Ton	236	63.00	14,868.00	49.00	11,564.00	72.00	16,992.00
14	12" dia. Restrained Joint Nucle Iron Pipe, (Class 52) Fittings (Cast Iron) 1-1/2" dia.	S.Y.	1,711	12.00	20,532.00	11.00	18,821.00	8.00	13,688.00
15	Polybutylene Water Service	S.Y.	295	3.00	885.00	1.00	295.00	1.00	295.00
16	Delays Due to Unexpected Embankment Settlement	Acres	2	3,600.00	7,200.00	4,735.00	9,470.00	2,000.00	4,000.00
17	Reinstalls Existing Wood Fence and Gate	L.S.	1	21,000.00	21,000.00	16,840.00	16,840.00	30,000.00	30,000.00
18	Chain Link Fence	L.F.	140	75.00	10,500.00	70.00	9,800.00	85.71	11,999.40
19	Wood Gate (12')	Lbs.	1,215	2.60	3,159.00	3.80	4,617.00	5.93	7,204.95
20	Delays Due to Unexpected Embankment Settlement	L.F.	55	13.00	715.00	10.00	550.00	15.00	825.00
21	Chain Link Fence	Day/Ea.	9	500.00	4,500.00	475.00	4,275.00	1,000.00	9,000.00
22	Wood Fence and Gate	L.F.	420	7.25	3,045.00	4.95	2,079.00	6.00	2,520.00
23	Chain Link Gate (12')	L.F.	215	13.00	2,795.00	9.00	1,935.00	10.80	2,332.00
24	Wood Gate (12')	L.F.	200	18.00	3,600.00	12.95	2,590.00	16.00	3,200.00
25	Chain Link Gate (12')	Each	1	500.00	500.00	550.00	550.00	420.00	420.00
	TOTAL BID	Each	1	540.00	540.00	575.00	575.00	450.00	450.00
					\$884,064.00		\$910,695.00		\$1,120,249.27

PONTCHARTRAIN BEACH FLOOD PROTECTION IMPROVEMENT PROJECT  
 PHASE II  
 BID TABULATION  
 PROPOSAL NO. 2040-0375

NO.	ITEM	UNIT	QUANTITY	BOH BROS.		HARRIS - ROUSTON		DONALD CLEMENT CTR.	
				PRICE	AMOUNT	PRICE	AMOUNT	PRICE	AMOUNT
1	Mobilization	L.S.	1	18,000.00	18,000.00	19,000.00	19,000.00	24,000.00	24,000.00
2	Clearing and Grubbing	L.S.	1	16,000.00	16,000.00	10,000.00	10,000.00	25,000.00	25,000.00
3	Removal of Structures and Obstructions	L.S.	1	3,000.00	3,000.00	2,000.00	2,000.00	10,000.00	10,000.00
4	Removal of Pavement (Non Roadway)	S.Y.	888	6.00	5,328.00	4.50	3,996.00	6.00	5,328.00
5	Compacted Clay Backfill Pilling, Concrete, Precast, Prestressed, 14" sq.	C.Y.	200	15.00	3,000.00	14.00	2,800.00	14.00	2,800.00
6	a) Vertical Pilling b) Batter Pilling	L.F.	820	16.00	13,120.00	25.00	20,500.00	32.50	26,650.00
7	Concrete Structural Steel Gates, Miscellaneous Metals and Specialty Items	L.F.	1,754	26.00	45,604.00	25.00	43,850.00	34.00	59,636.00
8	Excavation - Compacted Asphaltic Concrete	C.Y.	1,688	268.75	453,650.00	300.00	506,400.00	301.00	508,088.00
9	Wearing Course (Type I) Asphaltic Concrete	L.S.	1	94,000.00	94,000.00	90,000.00	90,000.00	83,000.00	83,000.00
10	Excavation - Compacted Asphaltic Concrete	C.Y.	100	7.00	700.00	10.00	1,000.00	11.00	1,100.00
11	Asphaltic Concrete	C.Y.	2,045	12.00	24,540.00	12.25	25,051.25	12.00	24,540.00
12	Base Course (Type I) Sand-Shell Base (6")	Ton	142	60.00	8,520.00	45.00	6,390.00	47.00	6,674.00
13	Geotextile Fabric	S.Y.	236	60.00	14,160.00	45.00	10,620.00	48.00	11,328.00
14	Fertilizing, Seeding and Mulching	S.Y.	1,711	6.50	11,121.50	7.00	11,977.00	10.00	17,110.00
15	Tree Relocation	S.Y.	295	1.50	442.50	1.25	368.75	1.60	472.00
16	12" dia. Restrained Joint Ductile Iron Pipe, (Class 52)	Acres	2	3,000.00	6,000.00	1,800.00	3,600.00	2,300.00	4,600.00
17	Fittings (Cast Iron) 1-1/2" dia.	L.S.	1	6,200.00	6,200.00	5,000.00	5,000.00	2,900.00	2,900.00
18	Polybutylene Water Service	L.F.	140	75.00	10,500.00	61.00	8,540.00	76.00	10,640.00
19	Delays Due to Unexpected Embankment Settlement	Lbs.	1,215	3.30	4,009.50	2.00	2,430.00	3.20	3,888.00
20	Reinsteel Existing Wood Fence and Gate	L.F.	55	27.30	1,501.50	10.00	550.00	40.00	2,200.00
21	Chain Link Fence	Day/Ea.	9	200.00	1,800.00	700.00	6,300.00	750.00	6,750.00
22	Wood Fence	L.F.	420	5.00	2,100.00	3.00	1,260.00	5.50	2,310.00
23	Chain Link Gate (12')	L.F.	215	10.00	2,150.00	14.00	3,010.00	10.00	2,150.00
24	Wood Gate (12')	L.F.	200	13.00	2,600.00	7.00	1,400.00	14.00	2,800.00
25	Each	Each	1	350.00	350.00	500.00	500.00	375.00	375.00
	TOTAL BID				\$748,772.00		\$786,843.00		\$844,739.00

April 22, 1987

## URS ENGINEERS

3500 NORTH CAUSEWAY BOULEVARD  
METAIRIE, LOUISIANA 70002  
TEL: (504) 837-6326

Office: Metairie, LA  
Phone: (504) 837-6326  
Telefax: (504) 837-6326  
Cable: URS ENGINEERS  
Branches: Houston, TX  
New Orleans, LA  
Portland, ME  
San Francisco, CA  
Seattle, WA  
Tampa, FL  
Wilmington, DE

Director: J. E. Hines  
President: R. L. Hines  
Vice President: J. E. Hines  
Senior Vice President: J. E. Hines  
Regional Vice Presidents:  
Houston, TX: J. E. Hines  
New Orleans, LA: J. E. Hines  
Portland, ME: J. E. Hines  
San Francisco, CA: J. E. Hines  
Seattle, WA: J. E. Hines  
Tampa, FL: J. E. Hines  
Wilmington, DE: J. E. Hines

### Change Order No. 1

Board of Levee Commissioners  
Orleans Levee District  
Suite 202, Administration Building  
New Orleans Lakefront Airport  
New Orleans, LA 70126

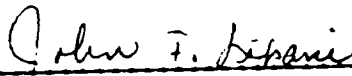
Subject: Pontchartrain Beach Flood Protection - Phase II  
OLB Construction Project No. 2040-0375

The purpose of this change order is to revise the I-wall architectural details in accordance with the attached drawing no. 23 and to relocate one oak tree located within Ramp No. 1 on the flood side all in accordance with the also attached April 6 and 15 proposals from Boh and the April 22, 1987 URS correspondence. The total amount of work included in Change Order No. 1 is as follows:

1. Revise the I-wall finish in accordance with the attached drawing no. 23 for \$46,000 lump sum.	\$ 46,000.00
2. Additional concrete due to increase of 2" thickness in I-wall, 112 cu. yds. at \$87.00/cu. yd.	9,744.00
3. Relocate one oak tree located within Ramp No. 1 for \$1,150.00 lump sum	<u>1,150.00</u>
Total Change Order No. 1	\$ 56,894.00
Original Contract Amount	<u>748,772.00</u>
New Contract Amount	\$805,666.00

### Offered By:

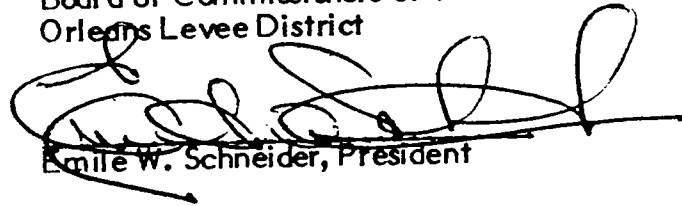
Boh Bros. Construction Co., Inc.



John F. Lipani

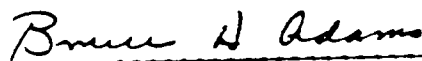
### Accepted By:

Board of Commissioners of the  
Orleans Levee District

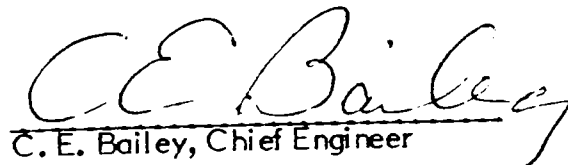


Emile W. Schneider, President

### Recommended By:



URS Company  
Bruce H. Adams, P.E.  
Attachment



C. E. Bailey, Chief Engineer

# BOH BROS. CONSTRUCTION CO., INC.

GENERAL CONTRACTORS  
AUTHORIZED DEALER - ARMCO METAL BUILDINGS

SINCE 1909

LA. LICENSE NO 2179



April 6, 1987

730 S. TONTI STREET  
P. O. DRAWER 53266  
NEW ORLEANS, LA. 70153  
PHONE 504/821-2400

URS Engineers  
3500 N. Causeway Blvd.  
Metairie, Louisiana 70002

Attention: Mr. Bruce H. Adams

Subject: Pontchartrain Beach Flood Protection  
Phase II OLB - Project No. 2040-0375  
DEI Project No. 1008  
URS Project No. 46021.00

Gentlemen:

Per your request we propose to furnish additional labor, material and equipment necessary to revise the subject project "I" wall architectural finish, in accordance with your drawing which was agreed to at the meeting between Boh, URS and DEI, on March 30, 1987, for the lump sum price of FORTY-SIX THOUSAND DOLLARS AND NO/100 (\$46,000.00).

The above proposal is based on:

1. Excluding all waterproofing and treatment of the sandblasted area.
2. Any addition to or reduction in concrete quantities, due to this revision, will be at the unit price of \$87.00/per cu. yd.

Due to the above revision, the procurement of the needed material for the above "I" wall, which is in the critical path of this project, has been delayed. We, therefore, we are requesting extension of contract time, the amount of which can only be determined at a later date.

Hoping that this will meet with your approval, we are

Very truly yours,

BOH BROS. CONSTRUCTION CO., INC.  
La. Contractor's License No. 2179

  
Wayne H. Wooley

# BOH BROS. CONSTRUCTION CO., INC.

APR 15 1987

GENERAL CONTRACTORS  
AUTHORIZED DEALER - ARMCO METAL BUILDINGS

SINCE 1909

LA. LICENSE NO 2179



730 S. TONTI STREET  
P. O. DRAWER 53266  
NEW ORLEANS, LA. 70153  
PHONE 504/821-2400

April 15, 1987

URS Company  
3500 North Causeway Blvd  
Metairie, LA 70002

Attention: Mr. Bruce H. Adams

Subject: Pontchartrain Beach Flood  
Protection Project, Phase 2  
Orleans Levee Board Project  
No. 2040-0375

Gentlemen:

As per your request we propose to furnish all necessary labor, material and equipment to relocate an existing oak tree in the vicinity of Ramp 1 flood side for the lump sum price of ONE THOUSAND ONE HUNDRED FIFTY AND NO/100 DOLLARS (\$1,150.00).

Please advise as soon as possible so that this work can be performed during other tree relocation work.

Yours truly,

BOH BROS CONSTRUCTION CO., INC.  
La. Contractor's License No. 2179

*Wayne H. Wooley*  
Wayne H. Wooley  
Project Manager

lbl