A0007137

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE	OF PAGES
	1	2

2. AMENDMENT/ MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/ PURCHASE REQ. NO.	5. PROJECT NO. *(If applicable)*
A00003	10/24/95		CIN-07

6. ISSUED BY CODE
U. S. Army Engineer District, New Orleans
Corps of Engineers
P.O. Box 60267
New Orleans, LA 70160-0267

7. ADMINISTERED BY *(If other than Item 6)* CODE

8. NAME AND ADDRESS OF CONTRACTOR *(No., street, county, State and ZIP Code)*

B & K Construction
1905 Highway 59
Mandeville, LA 70448

CODE OGTN3 FACILITY CODE

(X) 9A. AMENDMENT OF SOLICITATION NO.

9B. DATED (See Item 11)

X 10A. MODIFICATION OF CONTRACT/ ORDER NO.
DACW29-94-C-0079

10B. DATED (See Item 13)
07/11/94

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended, ☐ is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:
(a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*
Funds have been decreased by $10,800.00.

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ ORDERS, IT MODIFIES THE CONTRACT/ ORDER NO. AS DESCRIBED IN ITEM 14.

(X) X	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A. CC I.91, "VALUE ENGINEERING"
	B. THE ABOVE NUMBERED CONTRACT/ ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103 (b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER (specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not, ☒ is required to sign this document and return original ~~copies~~ to the issuing office.

14. DESCRIPTION OF AMENDMENT/ MODIFICATION (Organized by UCF section headings, including solicitation/ contract subject matter where feasible.)

The following change is made to the above numbered contract for Lake Pontchartrain, LA & Vicinity, HLP, London Avenue Outfall Canal, Parallel Protection, Mirabeau Avenue to Leon C. Simon Boulevard Floodwall, Orleans Parish, LA, to revise the alignment of the floodwall from WB/L Station 70+47 to WB/L Station 84+54.77 and WB/L Station 85+90 to WB/L Station 99+83.67 to a position 4 feet to the flood side of the original alignment as requested by a Contractor Value Engineering Change Proposal. A savings in cost of $24,000.00 will be realized. The Government will share 45% ($10,800.00) and the contractor will share 55% ($13,200.00).

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
H.B. KENYON, PRES.	Chester Ashley, Administrative Contracting Officer
15B. CONTRACTOR/ OFFEROR	15C. DATE SIGNED
(Signature of person authorized to sign)	16B. UNITED STATES OF AMERICA
	BY Chester Ashley (Signature of Contracting Officer)
	16C. DATE SIGNED 11/6/95

14. Description of Amendment/ Modification (Cont.)

CHANGES TO THE BIDDING SCHEDULE: The schedule of Contract Items, Descriptions, Estimated Quantities, Units, Unit Prices, and estimated Amounts is modified as follows:

Item No.	Description	Estimated Quantity	Unit	Unit Price	Estimated Amount	Amount of Change
0023	VECP Wall Realignment	LS	---	LS	-$24,000.00	-$24,000.00
0024	VECP Payment Wall Realignment	LS	---	LS	$13,200.00	$13,200.00

CHANGES TO THE CONTRACT SPECIFICATIONS: Add paragraphs C3D-16.1 and C3D-16.2 as follows:

"C3D-16.1. The deletion of the temporary cofferdams, the additional feeder line splices, and the additional structural backfill from WB/L Station 70+47 to WB/L Station 84+54.77 and from WB/L Station 85+90 to WB/L Station 99+83.67 shall be included in the lump sum price for "VECP Wall Realignment"."

"C3C-16.2. VECP PAYMENT. Payment for bid item 0023, VECP Payment Wall Realignment, will be made by a lump sum payment."

CHANGES TO THE CONTRACT DRAWINGS: Revise contract drawing 17 of 73, FILE NO. H-4-40295, dated March 1994, to include a detail of the revised alignment as shown on attached sketch SK-94-0079-01.

CHANGES TO THE CONTRACT PRICE: The contract price is decreased by $10,800.00.

CHANGES TO THE CONTRACT TIME: The contract time remains unchanged.

It is further understood and agreed that this adjustment constitutes compensation in full on behalf of the contractor, its subcontractors and suppliers for all costs and markups directly or indirectly attributable to the changes ordered, for all delays, impacts and extended overhead related thereto, and for performance of the change within the time frame stated.

CELMN-CD-NO 8 Nov 95

MEMORANDUM THRU C/Const Div, ATTN: Contr Admin Br

FOR C/Contr Div

SUBJECT: Contract No. DACW29-94-C-0079, Lake Pontchartrain, LA & Vicinity, HLP, London Avenue Outfall Canal, Parallel Protection, Mirabeau Avenue to Leon C. Simon Boulevard Floodwall, Orleans Parish, Louisiana

Modification A00003, CIN-07 to the subject contract is forwarded for the contract file.

Enclosure

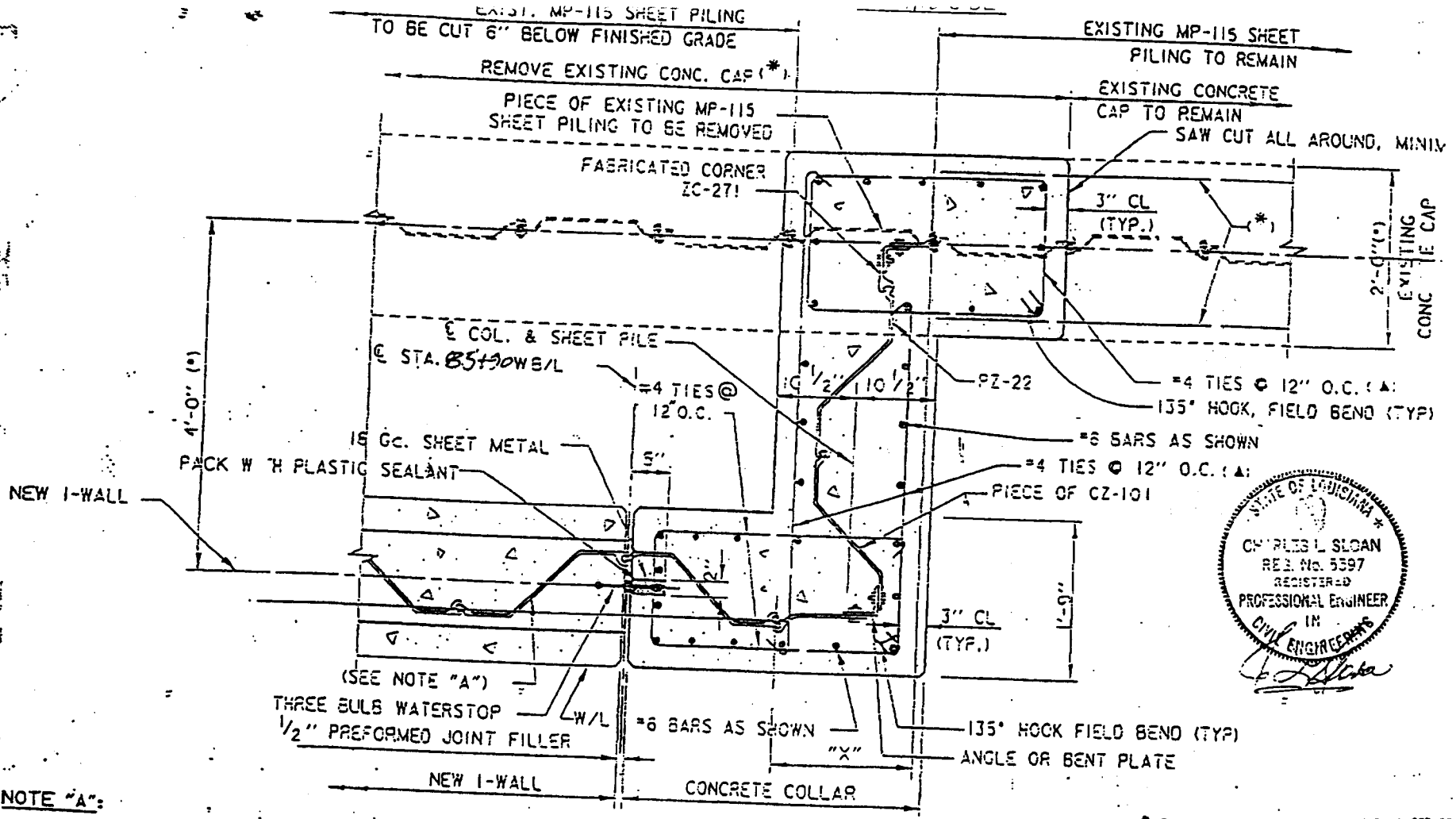
CHESTER ASHLEY
Area Engineer
New Orleans Area Office

NOTE:

A copy of the finalized mod was forwarded to the Value Engineering Office on 11/7/95.

NOV 14 1995

95009769



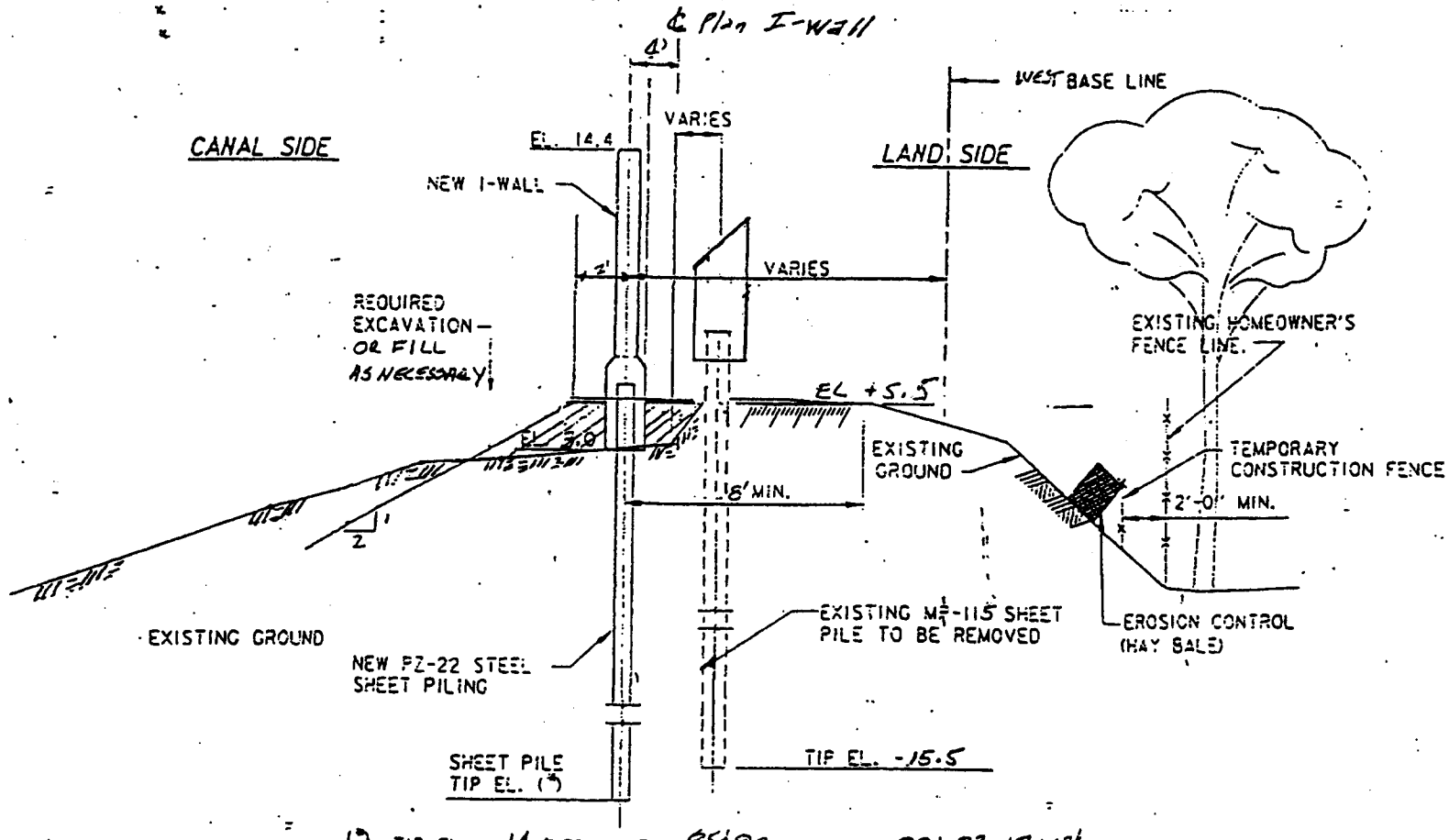
NOTE "A":

COLLAR TO INCLUDE AT LEAST ONE CZ 101 SO THAT WHEN COLLAR IS REMOVED FOR FUTURE I-WALL THERE IS A SHEET PILE TO INTERLOCK FUTURE SHEET PILING TO EXISTING SHEET PILING.

(*) EXPOSE AND CLEAN EXISTING LONGITUDINAL REBARS AND EXTEND THESE REBARS 1'-6" INTO THE NEW CONCRETE COLLAR.

(A) ALL TIES ARE TO BE FIELD BENT.

(B) #6 L-BARS TO LAP #6 BARS AS SHOWN IN PLAN AT EL. 5.00



(*) TIP EL. - 14.0 FROM STA. 85+90 TO STA. 99+83.67 W℄

STA 70+47 TO STA 85+54.77 W B/L

STA 85+90 TO STA 99+83.67 W ℄

SK-94-0079-01

Letter of Transmittal

B & K CONSTRUCTION, INC.
1905 Highway 59
Mandeville, LA 70448
(504) 626-1866

B & K JOB NO. 9402

TO: U.S. ARMY CORPS OF ENGINEERS
NEW ORLEANS DISTRICT
P.O. BOX 60267
NEW ORLEANS, LA 70160-0267

ATTN: MR. JOHN MORTON

DATE: November 6, 1995

RE: CONTRACT NO. DACW29-94-C-0079
LAKE PONTCHARTRAIN & VICINITY
HIGH LEVEL PLAN, LONDON AVENUE
OUTFALL CANAL, PARALLEL
PROTECTION, MIRABEAU AVE TO
LEON C. SIMON BLVD. FLOODWALL
ORLEANS PARISH, LOUISIANA

WE ARE SENDING YOU (xx) Attached VIA _____
( ) Under separate cover VIA _____ the following items:

( ) Shop Drawings ( ) Prints ( ) Plans ( ) Samples
( ) Specifications ( ) Copy of Letter ( ) Change Order
(XX) Other - Specify:

COPIES	DATE	NO.	DESCRIPTION
1	11/6/95	A0003 CIN-07	MODIFICATION TO REVISE ALIGNMENT OF FLOODWALL STA 70+47 TO 84+54.77 WB/L AND STA 85+90 TO 99+83.67 WB/L VALUE ENGINEERING CHANGE PROPOSAL - EXECUTED AS REQUESTED -

THESE ARE TRANSMITTED as checked below:

( ) For approval ( ) Approved as submitted ( ) Resubmit ___ copies for approval
( ) For your use ( ) Approved as noted see drawings ( ) Submit _____Copies for distribution
(XX) AS REQUESTED ( ) Return for corrections ( ) Return _____ corrected prints
( ) For review and signature ( ) _____
( ) FOR BIDS DUE _____19_____ ( ) Plans to be returned

REMARKS: PLEASE RETURN ONE FULLY EXECUTED COPY FOR OUR FILES

COPIES TO: (with enclosures)

Field Office (XX)
Mike Tassin, Project Manager

Thank you,
B & K CONSTRUCTION, INC.

SIGNED: Blake Andrews, P.E.
Blake Andrews,
Project Manager

B & K

NOV -3 1995

CONSTRUCTION CO., INC.

DEPARTMENT OF THE ARMY

NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
P.O. BOX 60267
NEW ORLEANS, LOUISIANA 70160-0267

REPLY TO
ATTENTION OF:

October 27, 1995

New Orleans Area Office

SUBJECT: Contract DACW29-94-C-0079, Lake Pontchartrain, LA & Vicinity, HLP, London Avenue Outfall Canal, Parallel Protection, Mirabeau Avenue to Leon C. Simon Boulevard Floodwall, Orleans Parish, Louisiana, Modification A00003, CIN-07

B & K Construction
1905 Highway 59
Mandeville, LA 70448

Gentlemen:

Enclosed is proposed Modification No. A00003, CIN 07 to the subject contract to revise the alignment of the floodwall from WB/L Station 70+47 to WB/L Station 84+54.77 and WB/L Station 85+90 to WB/L Station 99+83.67 as requested by your Value Engineering Change Proposal.

If you agree with this modification as written, please sign and date the modification and return to this office, Attn. Mr. John Morton, by 9 November 1995. When executed by the Contracting officer, the duplicate original of the modification will be sent to you for your file.

Sincerely,

Chester Ashley
Administrative Contracting
Officer

Enclosure

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT	1. CONTRACT ID CODE	PAGE 1 OF PAGES 2

2. AMENDMENT/ MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/ PURCHASE REQ. NO.	5. PROJECT NO. *(If applicable)*
A00003	10/24/95		CIN-07

6. ISSUED BY CODE	7. ADMINISTERED BY *(If other than Item 6)* CODE
U. S. Army Engineer District, New Orleans Corps of Engineers P.O. Box 60267 New Orleans, LA 70160-0267	

8. NAME AND ADDRESS OF CONTRACTOR *(No., street, county, State and ZIP Code)*	(X)	9A. AMENDMENT OF SOLICITATION NO.
B & K Construction 1905 Highway 59 Mandeville, LA 70448		9B. DATED (See Item 11)
	X	10A. MODIFICATION OF CONTRACT/ ORDER NO. DACW29-94-C-0079
CODE OGTN3 FACILITY CODE		10B. DATED (See Item 13) 07/11/94

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended, ☐ is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:
(a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*
Funds have been decreased by $10,800.00.

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ ORDERS, IT MODIFIES THE CONTRACT/ ORDER NO. AS DESCRIBED IN ITEM 14.

(X) X	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A. CC I.91, "VALUE ENGINEERING"
	B. THE ABOVE NUMBERED CONTRACT/ ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103 (b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER (specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not, ☒ is required to sign this document and return original ~~copies~~ to the issuing office.

14. DESCRIPTION OF AMENDMENT/ MODIFICATION (Organized by UCF section headings, including solicitation/ contract subject matter where feasible.)

The following change is made to the above numbered contract for Lake Pontchartrain, LA & Vicinity, HLP, London Avenue Outfall Canal, Parallel Protection, Mirabeau Avenue to Leon C. Simon Boulevard Floodwall, Orleans Parish, LA, to revise the alignment of the floodwall from WB/L Station 70+47 to WB/L Station 84+54.77 and WB/L Station 85+90 to WB/L Station 99+83.67 to a position 4 feet to the flood side of the original alignment as requested by a Contractor Value Engineering Change Proposal. A savings in cost of $24,000.00 will be realized. The Government will share 45% ($10,800.00) and the contractor will share 55% ($13,200.00).

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Chester Ashley, Administrative Contracting Officer	
15B. CONTRACTOR/ OFFEROR _____ (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY _____ (Signature of Contracting Officer)	16C. DATE SIGNED

14. Description of Amendment/ Modification (Cont.)

CHANGES TO THE BIDDING SCHEDULE: The schedule of Contract Items, Descriptions, Estimated Quantities, Units, Unit Prices, and estimated Amounts is modified as follows:

Item No.	Description	Estimated Quantity	Unit	Unit Price	Estimated Amount	Amount of Change
0023	VECP Wall Realignment	LS	---	LS	-$24,000.00	-$24,000.00
0024	VECP Payment Wall Realignment	LS	---	LS	$13,200.00	$13,200.00

CHANGES TO THE CONTRACT SPECIFICATIONS: Add paragraphs C3D-16.1 and C3D-16.2 as follows:

"C3D-16.1. The deletion of the temporary cofferdams, the additional feeder line splices, and the additional structural backfill from WB/L Station 70+47 to WB/L Station 84+54.77 and from WB/L Station 85+90 to WB/L Station 99+83.67 shall be included in the lump sum price for "VECP Wall Realignment"."

"C3C-16.2. VECP PAYMENT. Payment for bid item 0023, VECP Payment Wall Realignment, will be made by a lump sum payment."

CHANGES TO THE CONTRACT DRAWINGS: Revise contract drawing 17 of 73, FILE NO. H-4-40295, dated March 1994, to include a detail of the revised alignment as shown on attached sketch SK-94-0079-01.

CHANGES TO THE CONTRACT PRICE: The contract price is decreased by $10,800.00.

CHANGES TO THE CONTRACT TIME: The contract time remains unchanged.

It is further understood and agreed that this adjustment constitutes compensation in full on behalf of the contractor, its subcontractors and suppliers for all costs and markups directly or indirectly attributable to the changes ordered, for all delays, impacts and extended overhead related thereto, and for performance of the change within the time frame stated.

PRICE NEGOTIATION MEMORANDUM

Lake Pontchartrain, Louisiana and Vicinity,
High Level Plan,
London Avenue Outfall Canal, Parallel Protection,
Mirabeau Avenue to Leon C. Simon Boulevard Floodwall,
Orleans Parish, Louisiana,
DACW29-94-C-0079, CIN 07,
B & K Construction Company, Incorporated

1. CONTRACT DESCRIPTION: Work under this contract consists of clearing, selective demolition, cutting existing steel sheet piling, pulling, cleaning and delivering existing steel sheet piling, driving new steel sheet piling, constructing reinforced concrete I-type flood walls on existing and new steel piling, concrete slope pavement, driving steel sheet piling under South Central Bell telephone cables, relocating New Orleans Sewerage and Water Board 10-foot feeder cables, modifying existing utilities, degrading existing levees, placing embankment, fertilizing, seeding and mulching. The contract was awarded to B & K Construction Company, Incorporated, on 11 July 1994, in the amount of $4,554,500.00.

2. DESCRIPTION OF MODIFICATION:

a. SUMMARY AND NECESSITY FOR CHANGE: The Contractor submitted a Value Engineering Change Proposal to realign the new I-Wall approximately 4 feet to the flood side of the existing wall from W/L Sta. 70+47 to 84+54.77 and from W/L Sta. 85+90 to 99+83.67. It was determined that the new alignment would provide the required effect and results in a savings to the Government.

b. REASON FOR OMISSION FROM PLANS AND SPECIFICATIONS: It was realized subsequent to award.

c. AUTHORITY FOR MODIFICATION: This change is issued under the authority provided by CONTRACT CLAUSE I.91, "VALUE ENGINEERING".

3. PRICE AND TIME JUSTIFICATION:

a. SUMMARY:

Contractor Proposal	Government Estimate	Negotiated Settlement
-$11,088.00	-$19,236.17	-$24,000.00

b. PRICING STRATEGY. A price analysis was used to evaluate the contractor's proposal using an independent Government Estimate which was prepared based on site specific resources and standard industry practices.

c. Participants. The negotiator for the contractor was Mr. Boone Kenyon and the negotiators for the Government were Messrs. John Morton and Thomas Smiley.

d. NEGOTIATION SUMMARY: The contractor submitted two Value Engineering Change Proposals on 7 September 1995 and 10 October 1995 which showed a cost savings in the amount of $11,088.00. By letter dated 16 October 1995 the VECP was accepted. An independent Government Estimate was prepared on 12 October 1995 which showed a cost savings in the amount of $19,236.17.

During telephone negotiations on 18 October 1995 between Mr. Thomas Smiley and Mr. Boone Kenyon, the production rate of driving and pulling the sheet piling for the cofferdam was discussed. Mr. Kenyon was informed that the production rate that was used in his proposal was not acceptable and that according to the inspector's daily logs, the production rate should be 130 lf per day to drive and 200 lf per day to pull the sheet piles. Mr. Kenyon stated that he would have to check his own logs. The quantity of the additional backfill was also discussed and 1037 cy was agreed to. The cost of cutting off the old concrete cap was discussed. Mr. Kenyon stated that it was an additional cost because it would not have to be cut off using the original design.

On 24 October 1995, Mr. Kenyon telephoned Mr. Smiley and stated that he agreed with the production rates and that he revised his proposal to a total savings of $20,000.00. Mr. Smiley stated that he and Mr. Morton were still discussing the impacts of the old concrete cap. Mr. Kenyon stated that he would split the difference on the cost of cutting the cap which changed his proposal to a total savings of $24,000.00 and no time extension. Since the contractor's revised proposal compared favorably to the Government estimate, it was considered fair and reasonable and was accepted. The contractor also agreed that this modification addresses all impacts to the contract because of this change.

4. APPROPRIATION DATA: No additional funds required.

SUBMITTED FOR APPROVAL

Date: October 27, 1995

J. J. Morton

JOHN J. MORTON
Lead Government Negotiator

CHANGE REQUEST

CIN: 07

CONTRACT NUMBER: 94-C-0079 DATE: 25 OCT 95

TITLE/LOCATION: London Ave CANAL Floodwall

TO: CELMN-PP FROM (Construction Manager): Guillot X-2938

1. DESCRIPTION OF CHANGE (Include Plans, Specifications & References): VECP

Relocate the New I-WALL 4-feet to the flood side of the existing WALL Between Stations 70+47 to 84+54.77 and Stations 85+90 to 99+83.67 W/B/L

2. REASON FOR CHANGE: VECP (24,000) x (.45) = (10,800)

3. AUTHORITY FOR CHANGE: Value Engineering I.91

4. DATE CHANGE DISCOVERED:

5. DESIGN ASSISTANCE REQUIRED:

6. ESTIMATED COST: (-10,800) ESTIMATED TIME:

7. COMMENTS, REMARKS AND/OR FUNDING LIMITATIONS:

8. CONST MGR/DATE: Robert Guillot X-2938 CHG. CAT.:

FUNDING REQUEST

1. Please Program ~~and Commit~~ $ <10,800.00> for 1st QTR, FY 96
2. Estimated Total Contract Amount is: $ 4,645,807.92 Org. Code: VD
3. Accounting Data: 96X3122 BEC2111000NOLML Acctg. Elem.: 284

DISTRIBUTION	APPROVAL	DATE	FUNDING STAMP
PROJECT MANAGER (Program Funds)	[C. Ritter]	10.26.95	
PP-P (Certify Funds)	A. Hum	10/26/95	
F&A (Commit Funds)			

Judy Um X 2944
Program Analyst, POC

for Timothy J. Reed 10/25/95
Chief, Construction Division / Date

CF: CELMN-CD-~~LA~~/NO CELMN-PP-P CELMN-PP/~~OD/ED~~ CELMN-CD-~~CV~~/CS (Guillot)

PRICE NEGOTIATION MEMORANDUM

Lake Pontchartrain, Louisiana and Vicinity,
High Level Plan,
London Avenue Outfall Canal, Parallel Protection,
Mirabeau Avenue to Leon C. Simon Boulevard Floodwall,
Orleans Parish, Louisiana,
DACW29-94-C-0079, CIN 07,
B & K Construction Company, Incorporated

1. CONTRACT DESCRIPTION: Work under this contract consists of clearing, selective demolition, cutting existing steel sheet piling, pulling, cleaning and delivering existing steel sheet piling, driving new steel sheet piling, constructing reinforced concrete I-type flood walls on existing and new steel piling, concrete slope pavement, driving steel sheet piling under South Central Bell telephone cables, relocating New Orleans Sewerage and Water Board 10-foot feeder cables, modifying existing utilities, degrading existing levees, placing embankment, fertilizing, seeding and mulching. The contract was awarded to B & K Construction Company, Incorporated, on 11 July 1994, in the amount of $4,554,500.00.

2. DESCRIPTION OF MODIFICATION:

a. SUMMARY AND NECESSITY FOR CHANGE: The Contractor submitted a Value Engineering Change Proposal to realign the new I-Wall approximately 4 feet to the flood side of the existing wall from W/L Sta. 70+47 to 84+54.77 and from W/L Sta. 85+90 to 99+83.67. It was determined that the new alignment would provide the required effect and results in a savings to the Government.

b. REASON FOR OMISSION FROM PLANS AND SPECIFICATIONS: It was realized subsequent to award.

c. AUTHORITY FOR MODIFICATION: This change is issued under the authority provided by CONTRACT CLAUSE I.91, "VALUE ENGINEERING".

3. PRICE AND TIME JUSTIFICATION:

a. SUMMARY:

Contractor Proposal	Government Estimate	Negotiated Settlement
-$11,088.00	-$23,046.10	-$24,000.00

b. PRICING STRATEGY. A price analysis was used to evaluate the contractor's proposal using an independent Government Estimate which was prepared based on site specific resources and standard industry practices.

c. Participants. The negotiator for the contractor was Mr. Boone Kenyon and the negotiators for the Government were Messrs. John Morton and Thomas Smiley.

d. NEGOTIATION SUMMARY: The contractor submitted two Value Engineering Change Proposals on 7 September 1995 and 10 October 1995 which showed a cost savings in the amount of $11,088.00. By letter dated 16 October 1995 the VECP was accepted. An independent Government Estimate was prepared on 10 October 1995 which showed a cost savings in the amount of $23,046.10.

During telephone negotiations on 18 October 1995 between Mr. Thomas Smiley and Mr. Boone Kenyon, the production rate of driving and pulling the sheet piling for the cofferdam was discussed. Mr. Kenyon was informed that the production rate that was used in his proposal was not acceptable and that according to the Construction reports , the production rate should be 130 lf per day to drive and 200 lf per day to pull the sheet piles. Mr. Kenyon stated that he would check the production rates and call back. The quantity of the additional backfill was also discussed and 1037 cy was agreed to. The cost of cutting off the old concrete cap was discussed. Mr. Kenyon stated that it was an additional cost because it would not have to be cut off using the original design.

On 24 October 1995, Mr. Kenyon telephoned Mr. Smiley and stated that he agreed with the production rates and that he revised his proposal to a total savings of $20,000.00. Mr. Smiley stated that he and Mr. Morton were still discussing the impacts of the old concrete cap. Mr. Kenyon stated that he would include the cost of cutting the cap and changed his proposal to a total savings of $24,000.00 and no time extension. Since the contractor's revised proposal compared favorably to the Government estimate, it was considered fair and reasonable and was accepted. The contractor also agreed that this modification addresses all impacts to the contract because of this change.

4. APPROPRIATION DATA: Funds have been decreased by $10,800.00.

SUBMITTED FOR APPROVAL

Date: October 27, 1995

JOHN J. MORTON
Lead Government Negotiator

PRE NEGOTIATION OBJECTIVES

Lake Pontchartrain, Louisiana and Vicinity,
High Level Plan,
London Avenue Outfall Canal, Parallel Protection,
Mirabeau Avenue to Leon C. Simon Boulevard Floodwall,
Orleans Parish, Louisiana,
DACW29-94-C-0079, CIN 07,
B & K Construction Company, Incorporated

1. CONTRACT DESCRIPTION: Work under this contract consists of clearing, selective demolition, cutting existing steel sheet piling, pulling, cleaning and delivering existing steel sheet piling, driving new steel sheet piling, constructing reinforced concrete I-type flood walls on existing and new steel piling, concrete slope pavement, driving steel sheet piling under South Central Bell telephone cables, relocating New Orleans Sewerage and Water Board 10-foot feeder cables, modifying existing utilities, degrading existing levees, placing embankment, fertilizing, seeding and mulching. The contract was awarded to B & K Construction Company, Incorporated, on 11 July 1994, in the amount of $4,554,500.00.

2. PROPOSED MODIFICATION DESCRIPTION: To provide for the realignment of the new I-Wall approximately 4 feet to the flood side of the existing wall from W/L Sta. 70+47 to 84+54.77 and from W/L Sta. 85+90 to 99+83.67 as requested by a Contractor Value Engineering Change Proposal.

3. CONTRACTOR PROPOSAL: The contractor submitted a Value Engineering Change Proposal Package on 4 August 1995 for the first reach for a savings in the amount of $5,522.50. The contractor submitted a second Value Engineering Change Proposal Package on 15 September 1995 for the second reach for a savings in the amount of $5,565.50. The total savings proposed is $11,088.00 and no change to the contract time.

4. GOVERNMENT POSITION: In a letter dated 16 October 1995 the VECP was accepted. A Government Estimate was prepared on 10 October 1995 in the amount of -$23,046.10 with no change to the contract time.

Contractor Proposal	Government Estimate	Cost Difference
-$11,088.00	-$23,046.10	$11,958.10

5. COST DIFFERENCE: The major differences between the Government estimate and the contractor's proposal are in the production rates used to calculate the number of hours needed to drive and pull the sheet piles and in the cost of the additional fill needed.

6. OBJECTIVE: The production rates and the cost of the additional fill will be addressed during negotiations with the objective being to reach a fair and reasonable adjustment.

DATE: 10/23/95

John J. Morton
Lead Negotiator

DATE: _____

Chester Ashley
Administrative Contracting Officer

Reasonable Contract Estimate

Project: DACW29-94-C-0079 CIN 07
Description: VECP Change - ~~Levee~~ F/W Realignment

Worksheet no.	Description	Estimated Quantity	Unit	Unit Price	Estimated Amount
1	Drive Sheets	1	LS	($34,919.43)	($34,919.43)
2	Pull Sheets	1	LS	($17,417.12)	($17,417.12)
3	Transport and Unload Sheets	1	LS	($2,329.33)	($2,329.33)
4	Clean and Return Sheets	1	LS	($2,757.06)	($2,757.06)
5	Additional Costs	1	LS	$34,376.84	$34,376.84
				Total:	($23,046.10)

Estimator: TGS Date:

Checker: JJM Date:

ENG FORM 1738
APR 67

Reasonable Contract Estimate - Detail Summary Sheet:

Prime Contractor

Project:
DACW29-94-C-0079 CIN 07
VECP Change - Levee Realignment

Bid Item Designation	Qty	Unit	Equip	Mob & Demob	Labor	Mat'ls	Supply	Sub Total	Dist 14.55%	Total Cost	Unit Cost	Amount
Drive Sheets	1	LS	($16,909.15)		($13,573.74)			($30,482.89)	($4,436.54)	($34,919.43)	($34,919.43)	($34,919.43)
Pull Sheets	1	LS	($7,085.10)		($8,119.16)			($15,204.26)	($2,212.86)	($17,417.12)	($17,417.12)	($17,417.12)
Transport and Unload Sheets	1	LS	($1,449.60)		($583.79)			($2,033.39)	($295.94)	($2,329.33)	($2,329.33)	($2,329.33)
Clean and Return Sheets	1	LS	($1,239.19)		($1,167.58)			($2,406.77)	($350.29)	($2,757.06)	($2,757.06)	($2,757.06)
Additional Costs	1	LS	$29,017.24		$992.00			$30,009.24	$4,367.60	$34,376.84	$34,376.84	$34,376.84
Overhead	13.42%											
PROFIT (VECP)												
Bond	1.00%											
Total:	14.55%											
Totals			$2,334.19		($22,452.27)			($20,118.08)	($2,928.03)	($23,046.11)		($23,046.10)

ENG FORM 1739

REASONABLE CONTRACT ESTIMATE WORKSHEET

PROJECT: Contract No. DACW29-94-C-0079, Lake Pontchartrain, Louisiana and Vicinity, High Level Plan, London Ave. Outfall Canal, Parallel Protection, Mirabeau Avenue to Leon C. Simon Blvd. Floodwall, Orleans Parish, LA

SUBJECT: VECP - Wall Realignment 4 feet floodside from WB/L Sta. 70+47 to 84+54.77 and from WB/L Sta. 85+90 to 99+83.67.

Plan of Operations

This is an estimate of the savings of the wall realignment and is broken down into the following:

- Drive Sheets:

Assume 130 LF per day,
2800 lf ÷ 130 lf/day = 21 days,
21 days × 8 hr/day = 168 hours

- Pull Sheets:

Assume 200 LF per day
2800 lf ÷ 200 lf/day = 14 days,
14 days × 8 hr/day = 112 hours

- Transport and Unload Sheets:

Assume sheets have to be transported a short distance from another area of the job site using 2 backhoes and 2 lowboys.

- Clean Sheets:

Assume 2 days with 2 backhoes and a pressure washer.

- Additional Costs:

Additional embankment - 4 ft × 2.5 ft × 2800 ft = 28,000 cf/27 = 1037 cy
1037 cy ÷ 8cy/cycle = 130 cycles
Assume 1.25 hours cycle time = approximately 160 hours = 16 trucks × 10 hours

Feederline Splices - 4 @ 3750 ea. (verbal quote from Hazard Construction)

Reasonable Contract Estimate Worksheet - Equipment and Labor

Project:
DACW29-94-C-0079 CIN 07
Transport and Unload Sheets

Unit of Equipment	No.	Hours	Rate	Amount
200 Komatsu Backhoe	2	-8	34.87	-557.92
Tractor Trailor (Owner Operated)	2	-8	55.00	-880.00
Subtotal:				-1437.92
Mobilization and Demobilization:				
Small Tools: 2.00% **of labor:**				-11.68
Total Equipment Cost:				-1449.60

Labor	No.	Hours	Rate	Amount
Operator	2	-8	24.80	-396.80
Laborer	2	-8	11.69	-186.99
Total Labor Cost:				-583.79
Total equipment and labor:				-2033.39

Remarks: **Date:** **Estimator:** TGS **Checker:** JJM

ENG FORM 1741
APR 87

Reasonable Contract Estimate Worksheet - Equipment and Labor

Project:
DACW29-94-C-0079 CIN 07
Drive Sheets

Unit of Equipment	No.	Hours	Rate	Amount
200 Komatsu Backhoe	1	-168	34.87	-5858.16
V5 Vibrohammer	1	-168	26.94	-4525.92
Welding Machine	1	-40	9.34	-373.60
Sheet Rental per ton	196	-3	10.00	-5880.00
Subtotal:				-16637.68
Mobilization and Demobilization:				
Small Tools: **2.00%** **of labor:**				-271.47
Total Equipment Cost:				-16909.15

Labor	No.	Hours	Rate	Amount
FOREMAN	1	-84	26.10	-2192.40
Operator	1	-168	24.80	-4166.40
Laborer	1	-168	11.69	-1963.42
Piledriver	1	-168	22.96	-3856.52
WELDER	1	-40	34.88	-1395.00
Total Labor Cost:				-13573.74
Total equipment and labor:				-30482.89

Remarks: **Date:**

Estimator: TGS
Checker: JJM

ENG FORM 1741

Reasonable Contract Estimate Worksheet - Equipment and Labor

Project:
DACW29-94-C-0079 CIN 07 Subcontractor
Pull Sheets

Unit of Equipment	No.	Hours	Rate	Amount
200 Komatsu Backhoe	1	-112	34.87	(3,905.44)
V5 Vibrohammer	1	-112	26.94	-3017.28
Subtotal:				-6922.72
Mobilization and Demobilization:				
Small Tools: **2.00%** **of labor:**				-162.38
Total Equipment Cost:				-7085.10

Labor	No.	Hours	Rate	Amount
FOREMAN	1	-56	26.10	-1461.60
Operator	1	-112	24.80	-2777.60
Laborer	1	-112	11.69	-1308.94
Piledriver	1	-112	22.96	-2571.02
Total Labor Cost:				-8119.16
Total equipment and labor:				-15204.26

Remarks: **Date:** **Estimator:** TGS
Checker: JJM

ENG FORM 1741
APR 67

Reasonable Contract Estimate Worksheet - Equipment and Labor

Project:
DACW29-94-C-0079 CIN 07
Clean and Return Sheets

Subcontractor

Unit of Equipment	No.	Hours	Rate	Amount
200 Komatsu Backhoe	2	-16	34.87	-1115.84
Pressure Washer (rental/day)	1	-2	50.00	-100.00
Subtotal:				-1215.84
Mobilization and Demobilization:				
Small Tools: 2.00% of labor:				-23.35
Total Equipment Cost:				-1239.19

Labor	No.	Hours	Rate	Amount
Operator	2	-16	24.80	-793.60
Laborer	4	-8	11.69	-373.98
Total Labor Cost:				-1167.58
Total equipment and labor:				-2406.77

Remarks: **Date:**

Estimator: TGS
Checker: JJM

ENG FORM 1741
APR 67

Reasonable Contract Estimate Worksheet - Equipment and Labor

Project:
DACW29-94-C-0079 CIN 07
Additional Costs

Subcontractor

Unit of Equipment	No.	Hours	Rate	Amount
200 Komatsu Backhoe	1	20	34.87	697.40
DOZER D-6	1	20	35.00	700.00
Truck	16	10	35.00	5600.00
Feederline Splices	4	1	3750.00	15000.00
Cut off Sheet Pile	2800	1	2.50	7000.00
Subtotal:				28997.40
Mobilization and Demobilization:				
Small Tools: 2.00% of labor:				19.84
Total Equipment Cost:				29017.24

Labor	No.	Hours	Rate	Amount
Operator	2	20	24.80	992.00
Total Labor Cost:				992.00
Total equipment and labor:				30009.24

Remarks: **Date:** **Estimator:** TGS

Checker: JJM

ENG FORM 1741

B&K CONSTRUCTION COMPANY, INC.

FAX COVER MEMO

TO: NAME: MR. CHRIS WAGNER

COMPANY: US ARMY CORPS OF ENGINEERS

PHONE: _____ FAX: 862-1226

FROM: NAME: D. SMITH

DATE: 9-15-95

REFERENCE: SUBMITTAL NO. 9402-39

PROPOSED RELOCATION OF NEW I-WALL

NUMBER OF PAGES INCLUDING THIS SHEET: 25

ORIGINAL TO FOLLOW BY MAIL:

YES X NO _____ UPON REQUEST _____

1905 HIGHWAY 59 • MANDEVILLE, LA 70448 • (504) 626-1866 • FAX (504) 626-9710

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE

(Read instructions on the reverse side prior to initiating this form)

DATE: 9-/14/95

TRANSMITTAL NO.: 9402- 039

SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS *(This section will be initiated by the contractor)*

TO: Mr. Chester Ashley
U.S.ARMY CORPS OF ENGINEERS
P. O. Box 60267
NEW ORLEANS, LA 70160

FROM:
B & K CONSTRUCTION CO., INC.
1905 HWY. 59
MANDEVILLE, LA 70448

CONTRACT NO.: DACW29-94-C-0079

CHECK ONE:
- [x] THIS IS A NEW TRANSMITTAL
- [ ] THIS IS A RESUBMITTAL OF TRANSMITTAL _____

SPECIFICATION SEC. NO. (Cover only one section with each transmittal): C2H

PROJECT TITLE AND LOCATION: LONDON AVENUE CANAL - MIRABEAU TO LEON C. SIMON BLVD.

ITEM NO. a.	DESCRIPTION OF ITEM SUBMITTED (Type size, model number/etc.) b.	MFG OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. (See instruction no. 8) c.	NO. OF COPIES d.	CONTRACT REFERENCE DOCUMENT: SPEC. PARA. NO. e.	CONTRACT REFERENCE DOCUMENT: DRAWING SHEET NO. f.	FOR CONTRACTOR USE CODE g.	VARIATION (See Instruction No. 6) h.	FOR CE USE CODE i.
020	Temporary Cofferdam Design Calculations		4	C2H 4.1				
	Proposed Relocation of New I-Wall 4'0" to the Floodside of the Existing Wall Station 85+90 to Station 99+83.67 WB/L							

REMARKS

I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as otherwise stated.

B & K CONSTRUCTION CO., INC.

Deborah W. Smith, Project Coord.

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED (List by Item No.)	NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY	DATE

ENG FORM 4025, May 91 (ER 415-1-10) EDITION OF AUG 89 IS OBSOLETE. SHEET _____ OF _____ (Proponent: CEMP-CE)

PROPOSED RELOCATION OF NEW I-WALL 4'- 0" TO THE FLOODSIDE OF THE EXISTING WALL
FROM STA 85+90 TO STA 99+83.67 WB/L

We propose to move the new I-Wall approximately 4'-0" to the floodside of the existing wall. This places the new wall 4' to the floodside of it's location on the original drawinge. By moving the new I-Wall we can avoid the installation of temporary flood protection sheeting to elevation 6.75. We are prepared to offer the USCE a credit of 1/2 of $5,565.50 or $2,782.75 to allow us to make this plan change. Our costs break down as follows:

1. Cost of labor and equipment to drive and pull 16,716 sf of temporary sheeting from Station 85+90 to 99+83.67 is $0.807 per square foot or $13,491.00 to drive and $.2139 per square foot or $3,576.00 to pull.

Cost of delivering and hauling off of 1393 Lf or 196 tons of B & K owned 12'-0" long CZ-114 sheets is $3,920.00 or $20.00 per ton. Cost to clean sheets and load out is $1,764.00 or $9.00 per ton.

TOTAL COST TO DRIVE AND PULL 1393 LF SHEETS $22,751.00

2. Cost of electrical relocations and additional splicing at Stations 85+90 and 101+32 is $ 7,500.00 for two splices.

Cost of cutting off concrete cap, which would not have had to have been cut off as originally planned, is $3,482.50 or $2.50 per lineal foot.

Cost of extra 520 CY of embankment (4'wide x 2.52'deep x 1393'long / 27) @ $9.50/ CY is $4,940.00.

Cost to re-survey, re-design and layout of new I-Wall is $1,262.50.

TOTAL COST TO RE-LOCATE I-WALL $ 17,185.50

TOTAL SAVINGS $ 5,565.50

DETAIL ESTIMATED COST

I. DRIVE SHEETS:

Assume to drive 120 LF per day for 1393 LF =
1393 / 120 = 12 days

Assume 1 operator @ 10.35 = 10.35			
2 laborers @ 7.54 = 15.08			
Cost/Hour 25.43			
8 hrs/day X 12 days =	2,441.28		
PR Tax & Insurance @ 55%	1,342.70		
Total Labor Cost	3,783.98	$	3,783.98
Assume 1 200 Komatsu Backhoe @ 27.64 = 27.64			
Vibratory Hammer V5 @ 22.55 = 21.87			
Cost/Hour 49.51			
8 hrs/day X 12 days =			4,752.96
Assume 1393 LF of 12' Company owned CZ-114 Sheets @ 23.4# / SF = 391,154# / 2000# = 196 Tons			
Sheet Rental 196 tons @ 10.00/ton for 1.15 months =			2,254.00
Small tools & Supplies at 6% of labor			227.04
TOTAL COST			11,017.98
General & Administrative @ 13.9%			1,531.50
SUB TOTAL			12,549.48
Profit @ 7.5%			941.21
TOTAL ESTIMATED COST + PROFIT		$	13,490.69

II. PULL SHEETS

Assume to pull 350 LF per day for 1407 LF =
1393 / 326 = 4.0 days

Assume 1 operator @ 10.35 = 10.35			
2 laborers @ 7.54 = 15.08			
Cost/Hour 25.43			
8 hrs/day X 4 days =	813.76		
PR Tax & Insurance @ 55%	447.57		
Total Labor Cost	1,261.33	$	1,261.33
Assume 1 200 Komatsu Backhoe @ 27.64 = 27.64			
Vibratory Hammer V5 @ 22.55 = 21.87			
Cost/Hour 49.51			
8 hrs/day X 4 days =			1,584.32
Small tools & Supplies at 6% of labor			75.68

	TOTAL COST	2,921.33
General & Administrative @ 13.9%		406.06
	SUB TOTAL	3,327.39
Profit @ 7.5%		249.55
	TOTAL ESTIMATED COST + PROFIT	$ 3,576.00

III. DELIVERING AND UNLOADING SHEETS

Assume $20.00 per ton to deliver and unload sheets

TOTAL COST + PROFIT	20.00 X 196 =	$	3,920.00

IV. CLEANING AND LOADING OUT SHEETS

Assume $9.00 per ton to clean and load out sheets

TOTAL COST + PROFIT	9.00 X 196 =	$	1,764.00

TOTAL COST + PROFIT TO DRIVE & PULL SHEETS	$	22,751.00

DETAILED ESTIMATED COST

Cut off existing wall at elevation 6.75

Assume 1 man can cut a 2' wide MP115 sheet in 10 minutes
8hrs X 60min = 480 minutes X 85% efficiency = 408 minutes
408 / 10 min per sheet = 41 sheets or 82 lf per day.

Welder with oxygen & acetylene rig @ 26.00/hour
8 hrs/day X 26= $208.00/day

$ 208.00 / 82 = 2.53 or 2.50 per lf

W. CONNER ELLIS, JR., PRESIDENT DONALD G. ELLIS, VICE-PRES. NORBERT E. SCHMIDT, VICE-PRES. WILLIAM C. ELLIS, SEC'Y./TREAS.

WALTER J. BARNES ELECTRIC CO., INC.

CONSTRUCTION AND ENGINEERING

432 DAKIN STREET. P.O. BOX 10458, JEFFERSON, LA 70181

PHONE (504) 835-1756 • FAX (504) 834-2611

September 14, 1995

B & K Construction Co., Inc.
1905 Highway 59
Mandeville, LA 70448

Attn: Deborah W. Smith

Re: London Avenue Outfall Canal
B & K Job #9402

Dear ~~Ms. Smith:~~ Boone Kenyon

This will confirm our price to you in the amount of

THREE THOUSAND SEVEN HUNDRED FIFTY DOLLARS $3,750.00

to furnish labor and materials necessary to install one additional 15KV splice on the existing armored cable on the referenced job.

Two of the splices will be needed in order to relocate the existing cable on the west side of the canal north of Mirabeau Ave. an additional distance then what was originally required on the contract documents. Therefore, our price to perform this additional work at this location is

SEVEN THOUSAND FIVE HUNDRED DOLLARS $7,500.00.

A breakdown of this price is as follows:

MATERIAL:

1 MAC Splice Kit		$700.00
1 Protective Frame		$530.00
2 End Plates - Armor Cable		$695.00
LOT Miscellaneous Riging, etc.		$100.00
	TOTAL MATERIAL	$2,025.00
	LABOR	$1,100.00
	TOTAL COST	$3,125.00
	20% OH/P	$ 625.00
	TOTAL	$3,750.00

Please advise if there are any questions concerning the above.

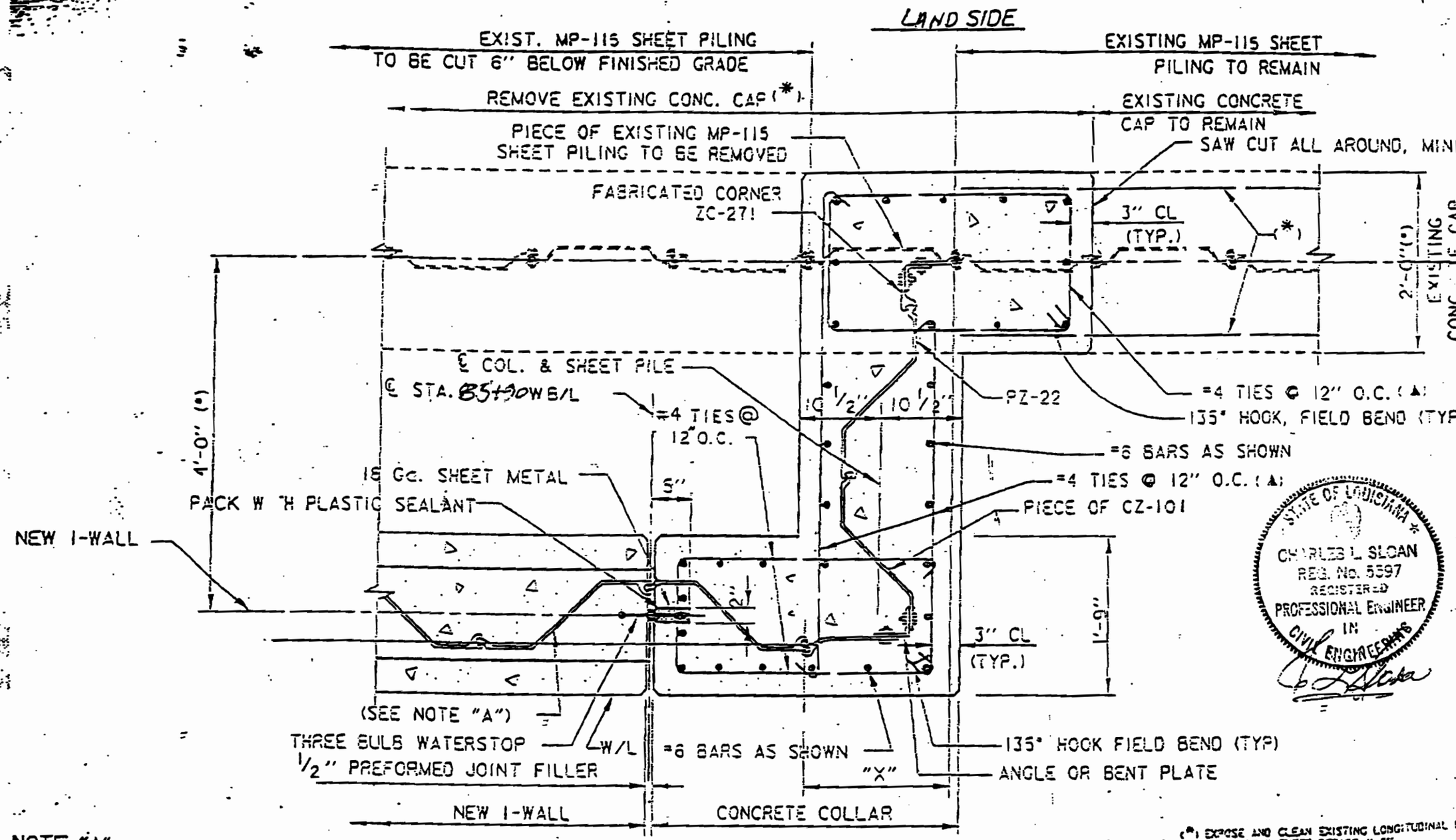
Very truly yours,

WALTER J. BARNES ELECTRIC CO., INC.

W. Conner Ellis

W. Conner Ellis, Jr.

WCE,JR/ah



STATE OF LOUISIANA
CHARLES L. SLOAN
REG. No. 5597
REGISTERED
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING

NOTE "A":

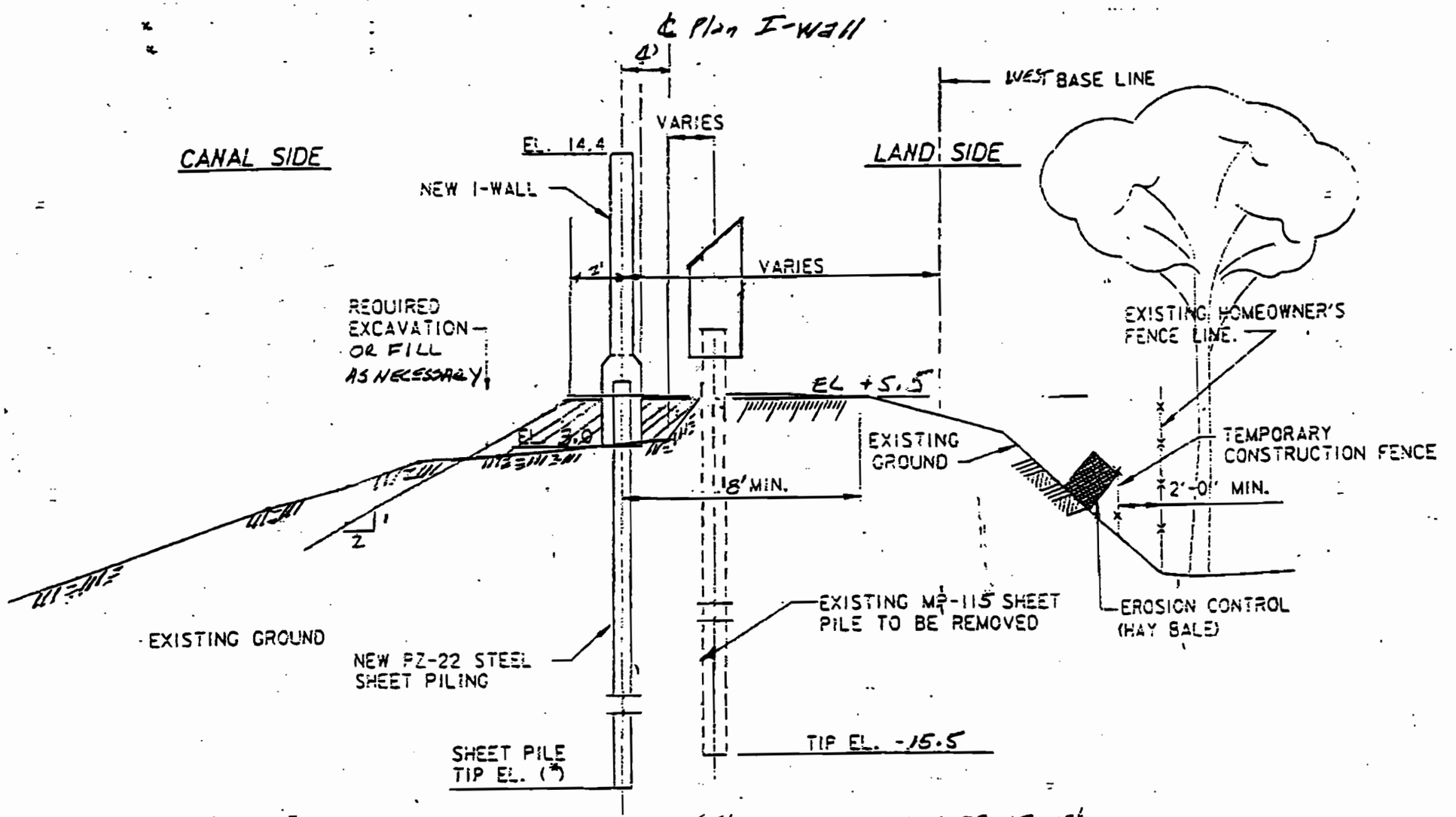
COLLAR TO INCLUDE AT LEAST ONE CZ 101 SO THAT WHEN COLLAR IS REMOVED FOR FUTURE I-WALL THERE IS A SHEET PILE TO INTERLOCK FUTURE SHEET PILING TO EXISTING SHEET PILING

(*) EXPOSE AND CLEAN EXISTING LONGITUDINAL REBARS AND EXTEND THESE REBARS 1'-6" INTO THE NEW CONCRETE COLLAR.

(A) ALL TIES ARE TO BE FIELD BENT.

(B) #6 L-BARS TO LAP #6 BARS AS SHOWN IN PLAN AT

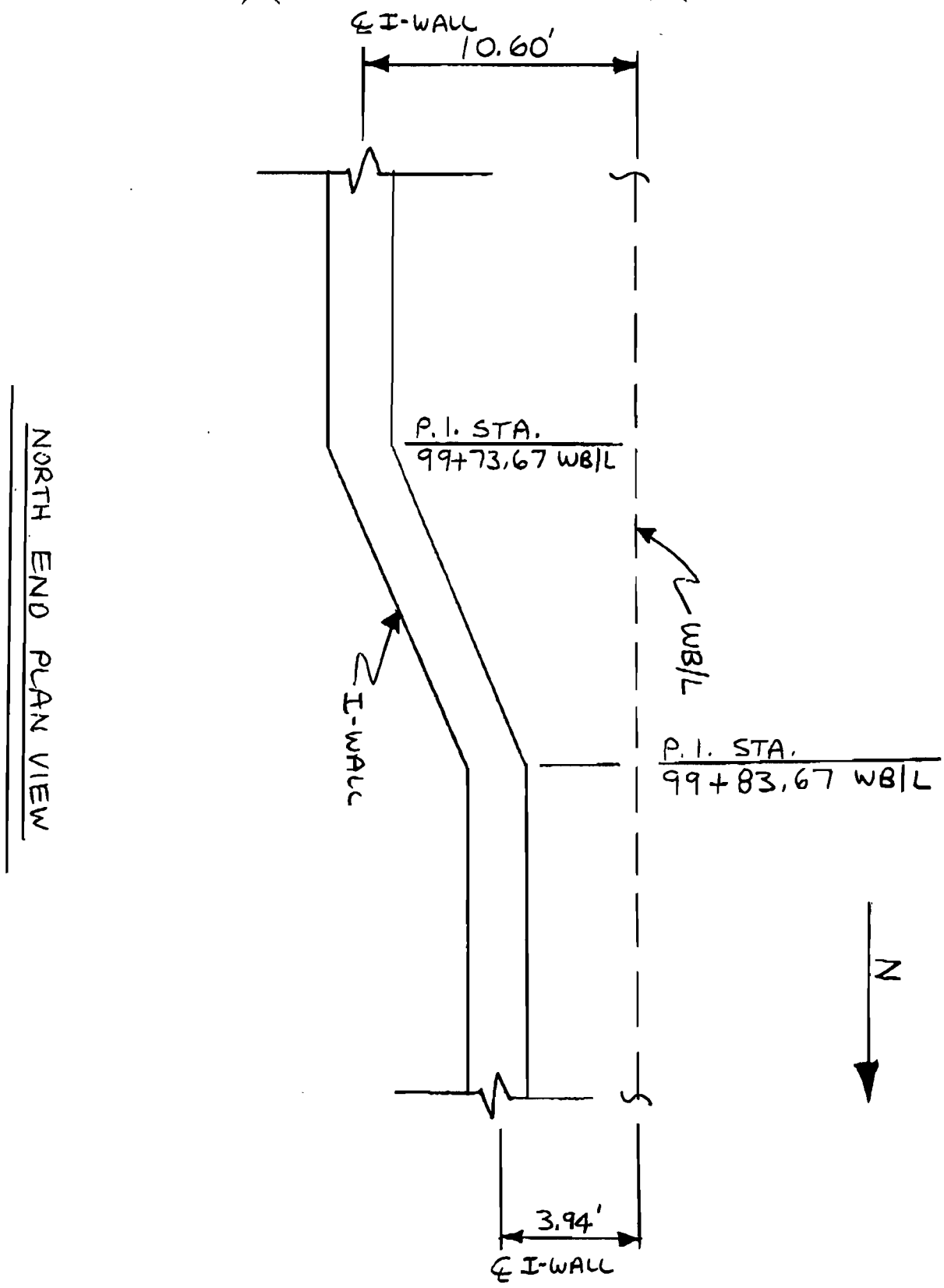
PLAN AT EL. [illegible]



(*) TIP EL. - 14.0 FROM STA. 85+90 TO STA. 99+83.67 W&L

STA 70+47 TO STA 85+54.77 W B/L

STA 85+90 TO STA 99+83.67 W B/L



NORTH END PLAN VIEW

B&K CONSTRUCTION COMPANY, INC.

WE HAVE MET THE FOLLOWING CRITERIA (SEE ATTACHED DETAIL):

1. Design Criteria Slope Stability. Slope stability performed by LMVD Method of Planes Analysis (Wedge Analysis) for a minimum factor of safety of 1.3 with respect to the design shear strength. Floodside analysis low water elevation -5.0. Protected side analysis high water elevation 11.9. Piezometric headline at elevation -3.0. The wedge stability computer program used by Corps is Stability with Uplift (FS004).

2. Design Criteria for I-Walls. A factor of safety is applied to the design sheer strength as follows:

the cohesion developed = cohesion/factor of safety;
developed = arctan (tan available/factor of safety).

Using the resulting shear strengths, net lateral water and earth pressure diagrams are determined for movement toward each side of the sheet pile. Using these distributions of pressure, the summation of horizontal forces is equated to zero for various tip penetrations. At these penetrations summations of overturning moments about the sheet pile are determined. The required depths of penetration to satisfy the stability criteria are determined as those where summation of moments is equal to zero. The sheet pile wall design criteria is:

Tip Penetrations

F.S. = 1.5 with water to Ele. 11.9
F.S. = 1.0 with water to Ele. 13.9

BENDING MOMENTS

Governing Tip Penetration Case

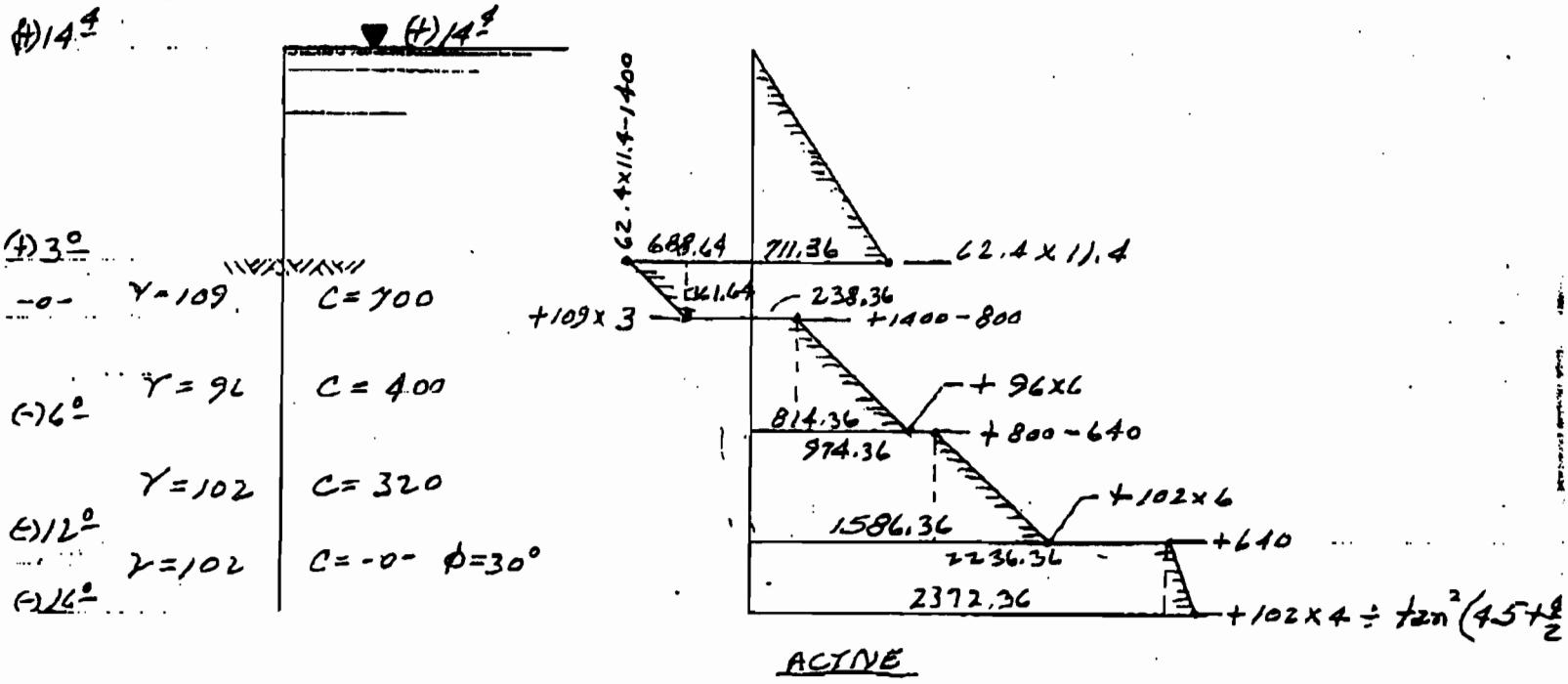
Groundwater elevation 0.0 or natural ground surface.

C.L. SLOAN ENGINEERING MANDEVILLE, LOUISIANA

BY _____ DATE 6-26-95 SUBJECT _____ SHEET NO. 1 OF _____

CHKD. BY _____ DATE _____ CLIENT B & K JOB NO. _____

STA. 85+30 TO 99+83.67 WB/L
4' OFFSET TO FLOOD SIDE OF EXISTING WALL.



ACTIVE

Ozo Bruning, Inc. 80252 Form 8965

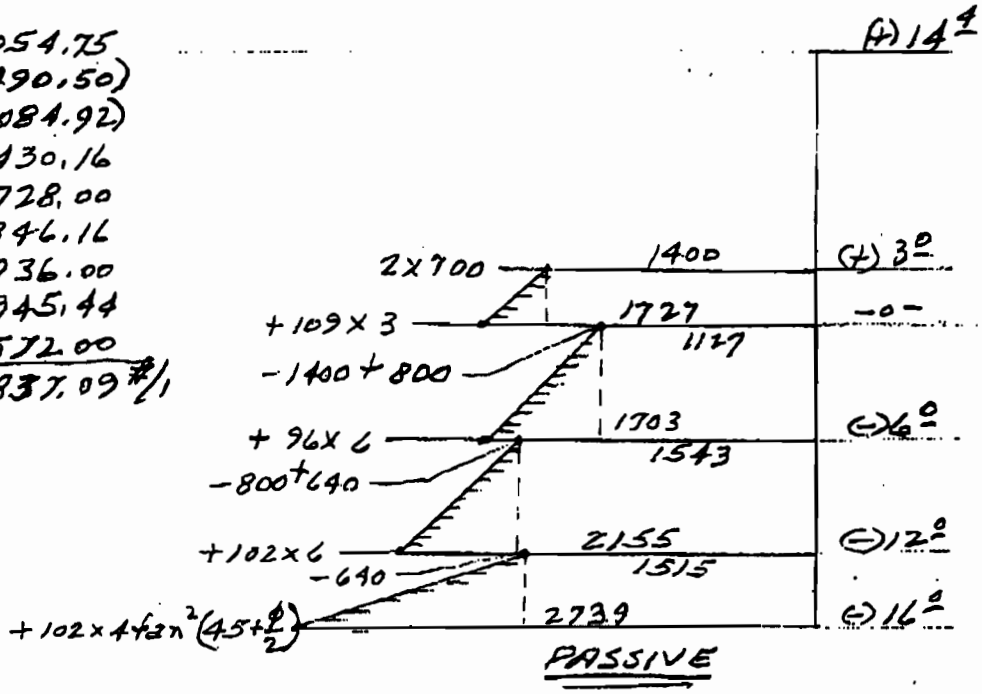
C.L. SLOAN ENGINEERING **MANDEVILLE, LOUISIANA**

BY _____ DATE 5-17-95 SUBJECT _____ SHEET NO. 2 OF _____

CHKD. BY _____ DATE _____ CLIENT B & K JOB NO. _____

ΣV_{ACTIVE}

$\frac{1}{2} \times 711.36 \times 11.4 = 4054.75$
$\ominus \frac{1}{2} \times 327 \times 3 = (490.50)$
$\ominus 361.64 \times 3 = (1084.92)$
$238.36 \times 6 = 1430.16$
$\frac{1}{2} \times 576 \times 6 = 1728.00$
$974.36 \times 6 = 5846.16$
$\frac{1}{2} \times 612 \times 6 = 1836.00$
$2236.36 \times 4 = 8945.44$
$\frac{1}{2} \times 786 \times 4 = 1572.00$
$V_{ACTIVE} = 23,837.09$ #/'



PASSIVE

$\Sigma V_{PASSIVE}$

$1400 \times 3 = 4200$
$\frac{1}{2} \times 327 \times 3 = 490.5$
$1127 \times 6 = 6762$
$\frac{1}{2} \times 576 \times 6 = 1728$
$1543 \times 6 = 9258$
$\frac{1}{2} \times 612 \times 6 = 1836$
$1515 \times 4 = 6060$
$\frac{1}{2} \times 1224 \times 4 = 2448$
$32,782.5$

$F/S_V = \frac{32782.5}{23837.09} = 1.38 > 1.3$ ok

ΣM_{ACTIVE}

$4054.75 \times 22.8 = 92,448.3$
$(490.5) \times 18 = (8,829)$
$(1084.92) \times 17.5 = (18,986.1)$
$1430.16 \times 13 = 18,592.08$
$1728 \times 12 = 20,736$
$5846.16 \times 7 = 40,923.12$
$1836 \times 6 = 11,016$
$8945.44 \times 2 = 17,890.88$
$1572 \times 1.33 = 2,095.95$

$M_{ACT.} = 175,887.23$

$\Sigma M_{PASSIVE}$

$4200 \times 17.5 = 73,500$
$490.5 \times 17 = 8,338.5$
$6762 \times 13 = 87,906$
$1728 \times 12 = 20,736$
$9258 \times 7 = 64,806$
$1836 \times 6 = 11,016$
$6060 \times 2 = 12,120$
$2448 \times 1.33 = 3,263.92$

$M_{PASS.} = 281,686.42$

$F/S_M = \frac{281646}{175887} = 1.6 > 1.0$ ok

C.L. SLOAN ENGINEERING **MANDEVILLE, LOUISIANA**

BY _____ DATE 5/17/95 SUBJECT _____ SHEET NO. 3 OF _____

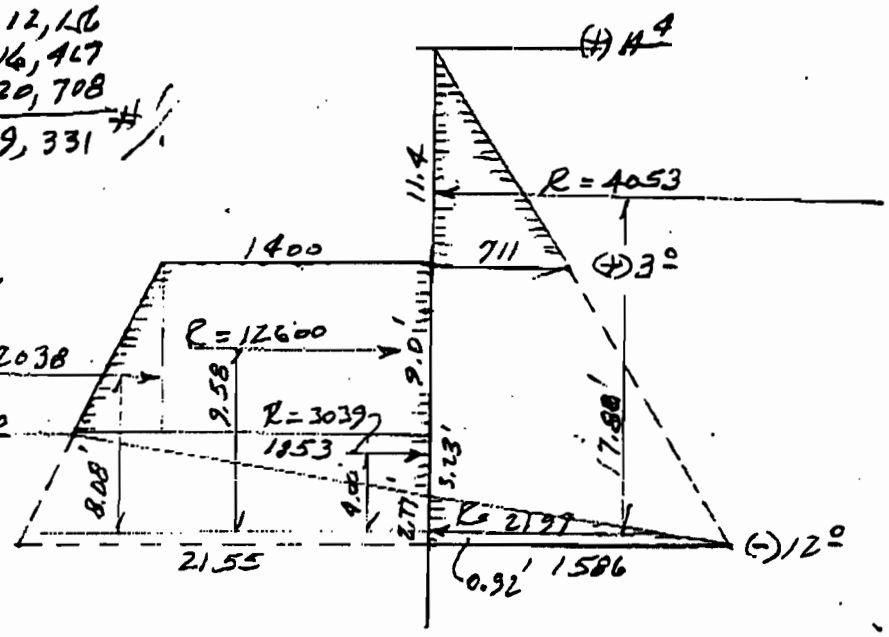
CHKD. BY _____ DATE _____ CLIENT B&K JOB NO. _____

Moverturn ↻ : 4053 × 17.88 = 72,468 #'/'

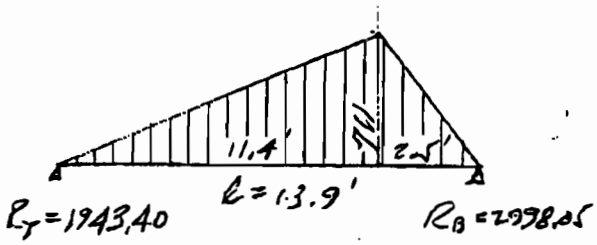
R RESIST. ↺ : 3039 × 4 = 12,156
2038 × 8.08 = 16,467
12,600 × 9.58 = 120,708
M_R = 149,331 #'/'

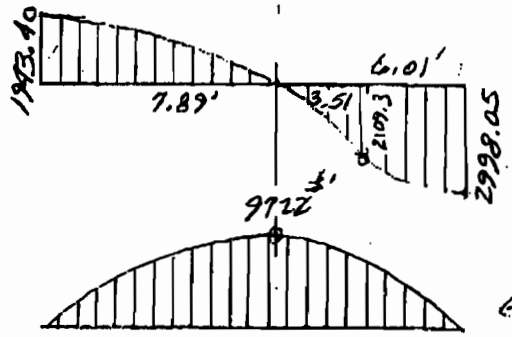
$F/S = \frac{149\,331}{72\,468} = 2.06$ OK

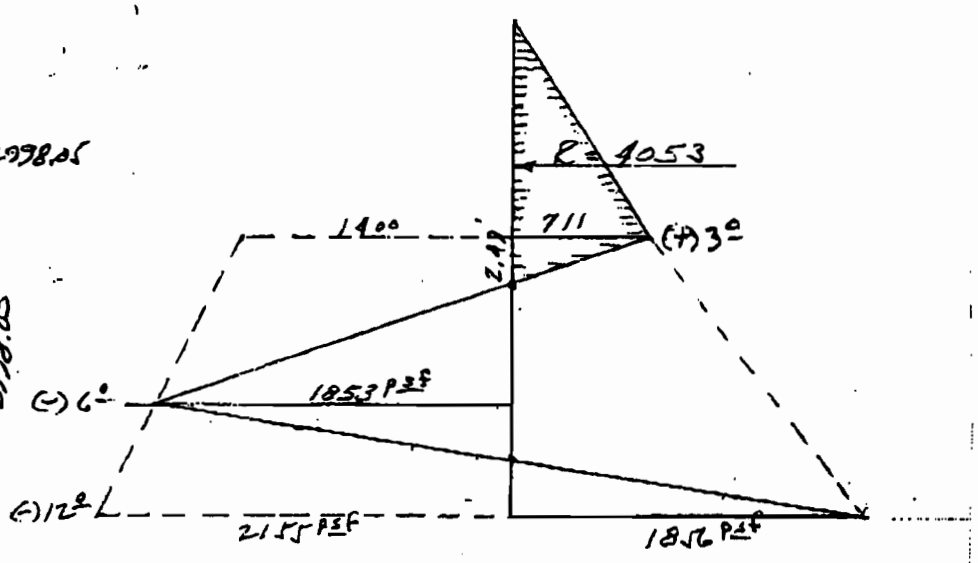
SINCE THE STRATUM FROM (-)12° TO (-)16° IS GOOD SAND, WE ONLY CONSIDERED DOWN TO (-)12° FOR THIS CALCULATION. (-)12° TO (-)16° CAN BE CONSIDERED ANCHORAGE.



SIMPLIFIED LOADING DIAGRAM







EQUIV. BEAM DIAG.

f_b = 21 000 PSI

$Z_{req'd} = \frac{9722 \times 12}{21000} = 5.56$ IN.^{3}

C Z 101 : Z = 16.50 IN.^{3}

$f = \frac{9722 \times 12}{16.50} = 7071$ PSI OK

File London Ave Mod I-wall File

EUSTIS ENGINEERING COMPANY, INC.
GEOTECHNICAL ENGINEERS
CONSTRUCTION QUALITY CONTROL AND MATERIALS TESTING
3011 29th Street - Metairie, Louisiana 70002 - 504-834-0157

20 April 1995

Burk-Kleinpeter, Inc.
Engineers, Architects, Planners, Environmental Scientists
4176 Canal Street
New Orleans, Louisiana 70119

Post-it® Fax Note 7671	Date 5-22-95	# of pages ▶
To Cathy	From Gayle	
Co./Dept. B+K	Co. BKE	
Phone # 626-1866	Phone # 486-5901	
Fax # 626-9710	Fax # 488-1714	

Attention Mr. Mike Jackson

Gentlemen:

Geotechnical Engineering Analyses
London Avenue Canal Flood Protection Levee
West Bank, Stations 70+25 to 84+90
New Orleans, Louisiana

Transmitted are the results of our revised analyses for the proposed relocation of the I-wall on the west bank of the London Avenue Canal Flood Protection Levee. The procedure for these analyses conforms to alternate criteria recently provided by Mr. Frank Vojkovich of the U.S. Army Corps of Engineers. This information should replace our letter dated 17 April 1995.

Furnished Information

Burk-Kleinpeter, Inc., indicated that approximately 1,465 linear feet of the west bank I-wall will be moved 4 feet toward the canal between Stations 70+25 and 84+90. Levee cross-sections between these stations were provided for the analyses.

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MAY 22 1995
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Burk-Kleinpeter, Inc. 20 April 1995

I-Wall Analyses

The levee cross-section at Station 76+95 was considered the critical cross-section and was used in our analyses. The static water level (SWL) of el 11.9 MSL and soil properties from Reach I of our geotechnical report dated 19 May 1993 were used in our analyses.

Per our conversation with Mr. Vojkovich, only the "Q" case soil conditions should be used to analyze a hurricane protection cantilever I-wall without waveloads. These analyses assume a factor of safety of 1.0 applied to the soil shear strength and 2 feet of freeboard above the SWL to determine the required penetration of the sheetpile and the maximum bending moment. However, the U.S. Army Corps of Engineers recommends a minimum 3:1 penetration to head ratio using the SWL elevation.

Based on these analyses and the penetration to head ratio, a sheetpile tip elevation of -16 MSL is required. A sheetpile embedded to this depth will have a maximum bending moment of 10,799 ft-lbs at el 2.3. The complete results of the "Q" case analysis are provided in Enclosure 1.

Underseepage

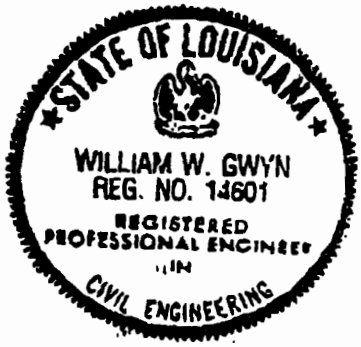
Underseepage of the recommended sheetpile wall sections was evaluated based on Harr's Method of Analysis. Based on this analysis, a factor of safety of 5.2 for seepage was calculated when using the SWL and tailwater el 0.0 MSL on the protected side of the levee. This factor of safety is greater than 4 which is recommended by the U.S. Army Corps of Engineers for sheetpiles embedded into SP and SM type soils. Therefore, the recommended sheetpile penetration does not have to be increased for seepage.

Slope Stability

Relocation of the I-wall will not have a negative impact on the overall stability of the levee. Therefore, slope stability of the levee and I-wall was not part of our evaluation.

Burk-Kleinpeter, Inc. 20 April 1995

Thank you for asking us to perform these services.



Yours very truly,

EUSTIS ENGINEERING COMPANY, INC.

WILLIAM W. GWYN, P.E.

Gregg A. Putnam:ejg

Enclosure 1 (7 sheets)

EE 13446

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS BY CLASSICAL METHODS

DATE: 20-APR-1995 TIME: 9.28.57

INPUT DATA

I.--HEADING:
'LONDON AVENUE CANAL FLOOD PROTECTION (STATION 76+95)'
'I-WALL ANALYSIS FOR 4' MOVEMENT FROM 70+25 TO 84+90'
'Q-CASE ANALYSIS, F.O. - 1.0, SHL + 2' = 15.9'

II.--CONTROL CANTILEVER WALL DESIGN

LEVEL 1 FACTOR OF SAFETY FOR ACTIVE PRESSURES = 1.00
LEVEL 1 FACTOR OF SAFETY FOR PASSIVE PRESSURES = 1.00

III.--WALL DATA ELEVATION AT TOP OF WALL = 15.00 (FT)

IV.--SURFACE POINT DATA

IV.A--RIGHTSIDE

DIST. FROM WALL (FT)	ELEVATION (FT)
.00	5.00
2.00	3.00
7.00	2.80
10.00	.50
19.00	-2.10
28.00	-7.60
49.00	-8.70
69.00	-9.10
100.00	-9.10
300.00	-9.10

IV.B-- LEFTSIDE

DIST. FROM WALL (FT)	ELEVATION (FT)
.00	5.00
2.00	5.00
13.50	5.00
17.50	3.30
24.00	.40
39.00	-6.00
300.00	-6.00

V.--SOIL LAYER DATA

V.A.--RIGHTSIDE LAYER DATA
LEVEL 2 FACTOR OF SAFETY FOR ACTIVE PRESSURES = DEFAULT
LEVEL 2 FACTOR OF SAFETY FOR PASSIVE PRESSURES = DEFAULT

SAT. WGHT. (PCF)	MOIST WGHT. (PCF)	ANGLE OF INTERNAL FRICTION (DEG)	COH-ESION (PSF)	ANGLE OF WALL FRICTION (DEG)	ADH-ESION (PSF)	<--BOTTOM--> ELEV. (FT)	SLOPE (FT/FT)	<-SAFETY-: <-FACTOR-: ACT.	PASS
109.00	109.00	.00	700.0	.00	.0	.00	.00	DEF	DEF
96.00	96.00	.00	400.0	.00	.0	-6.00	.00	DEF	DEF
102.00	102.00	.00	320.0	.00	.0	-12.00	.00	DEF	DEF
122.00	122.00	30.00	.0	.00	.0			DEF	DEF

V.B.-- LEFTSIDE LAYER DATA
LEVEL 2 FACTOR OF SAFETY FOR ACTIVE PRESSURES = DEFAULT
LEVEL 2 FACTOR OF SAFETY FOR PASSIVE PRESSURES = DEFAULT

SAT. WGHT. (PCF)	MOIST WGHT. (PCF)	ANGLE OF INTERNAL FRICTION (DEG)	COH-ESION (PSF)	ANGLE OF WALL FRICTION (DEG)	ADH-ESION (PSF)	<--BOTTOM--> ELEV. (FT)	SLOPE (FT/FT)	<-SAFETY-> <-FACTOR-> ACT.	PASS.
109.00	109.00	.00	700.0	.00	.0	.00	.00	DEF	DEF
96.00	96.00	.00	400.0	.00	.0	-6.00	.00	DEF	DEF
102.00	102.00	.00	320.0	.00	.0	-12.00	.00	DEF	DEF
122.00	122.00	30.00	.0	.00	.0			DEF	DEF

VI.--WATER DATA

UNIT WEIGHT = 62.50 (PCF)
RIGHTSIDE ELEVATION = 13.90 (FT)
LEFTSIDE ELEVATION = .00 (FT)
NO SEEPAGE

VII.--SURFACE LOADS
NONE

VIII.--HORIZONTAL LOADS
NONE

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS BY CLASSICAL METHODS

DATE: 20-APR-1995 TIME: 9.29.0[illegible]

SOIL PRESSURES FOR CANTILEVER WALL DESIGN

I.--HEADING

'LONDON AVENUE CANAL FLOOD PROTECTION (STATION 76+95)'
'I-WALL ANALYSIS FOR 4' MOVEMENT FROM 70+25 TO 84+90'
'Q-CASE ANALYSIS, F.S. = 1.0, SWL + 2' = 13.9'

II.--SOIL PRESSURES

RIGHTSIDE SOIL PRESSURES DETERMINED BY FIXED SURFACE WEDGE METHOD.

LEFTSIDE SOIL PRESSURES DETERMINED BY FIXED SURFACE WEDGE METHOD.

	<-LEFTSIDE PRESSURES->		<---NET PRESSURES----> (SOIL PLUS WATER)		<RIGHTSIDE PRESSURES->	
ELEV. (FT)	PASSIVE (PSF)	ACTIVE (PSF)	ACTIVE (PSF)	PASSIVE (PSF)	ACTIVE (PSF)	PASSIVE (PSF)
15.00	.00	.00	.000	.000	.00	.00
14.00	.00	.00	.000	.000	.00	.00
13.90	.00	.00	.000	.000	.00	.00
13.00	.00	.00	56.250	56.250	.00	.00
12.00	.00	.00	118.750	118.750	.00	.00
11.00	.00	.00	181.250	181.250	.00	.00
10.00	.00	.00	243.750	243.750	.00	.00
9.00	.00	.00	306.250	306.250	.00	.00
8.00	.00	.00	368.750	368.750	.00	.00
7.00	.00	.00	431.250	431.250	.00	.00
6.00	.00	.00	493.750	493.750	.00	.00
5.00+	.00	.00	556.250	556.250	.00	.00
5.00-	1400.00	.00	-843.750	1956.250	.00	1400.00
4.50	1454.50	.00	-867.000	1649.125	.00	1061.63
4.00	1509.00	.00	-890.250	1342.000	.00	723.25
3.00	1618.00	.00	-936.750	1417.570	.00	736.32
2.00	1736.67	.00	-992.920	1583.503	.00	839.75
1.00	1779.75	.00	-973.500	1871.610	.00	1065.36
.00	1625.54	.00	-756.785	1988.687	.00	1119.94
-1.00	1434.75	.00	-566.000	1850.589	.00	981.84
-2.00	1402.92	.00	-534.170	1811.931	.00	943.18
-3.00	1445.50	.00	-576.750	1823.778	.00	955.03
-4.00	1481.48	.00	-612.727	1664.270	.00	795.52
-5.00	1497.50	9.94	-628.750	1396.980	.00	538.17

-6.00	1467.55	61.37	-598.797	1240.877	.00	433.50
-7.00	1454.06	135.56	-585.306	1206.188	.00	473.00
-8.00	1368.60	186.50	-499.849	1194.748	.00	512.50
-9.00	1159.50	224.50	-290.750	1196.250	.00	552.00
-10.00	1050.22	264.32	-181.472	1234.618	.00	630.18
-11.00	1172.71	302.06	-283.010	1366.932	20.95	800.24
-12.00	1578.67	330.26	-598.901	1592.233	111.02	1053.75
-13.00	2012.70	348.94	-930.520	1845.819	213.43	1326.01
-14.00	2181.58	367.17	-1064.251	1995.938	248.58	1494.36
-15.00	2240.37	387.17	-1114.729	2120.055	256.89	1638.47
-16.00	2318.56	407.00	-1177.563	2226.530	272.25	1764.78
-17.00	2395.27	426.83	-1235.531	2233.603	290.99	1791.69
-18.00	2470.13	446.67	-1290.791	2195.635	310.59	1773.55
-19.00	2644.69	466.50	-1445.874	2242.579	330.07	1840.33
-20.00	2903.56	486.33	-1685.268	2346.032	349.54	1963.62
-21.00	3038.49	506.17	-1800.721	2444.591	369.02	2082.01
-22.00	3074.25	526.00	-1816.990	2549.676	388.51	2206.93
-23.00	3117.28	545.90	-1840.499	2677.686	408.03	2354.83
-24.00	3158.97	565.65	-1864.074	2793.168	426.14	2490.07
-25.00	3199.46	581.44	-1889.573	2964.352	441.14	2677.05
-26.00	3251.15	589.76	-1928.163	3249.697	454.24	2970.70

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS
BY CLASSICAL METHODS

DATE: 20-APR-1995 TIME: 9.29.1

SUMMARY OF RESULTS FOR CANTILEVER WALL DESIGN

I.--HEADING

'LONDON AVENUE CANAL FLOOD PROTECTION (STATION 76+95)'
'I-WALL ANALYSIS FOR 4' MOVEMENT FROM 70+25 TO 84+90'
'Q-CASE ANALYSIS, F.S. = 1.0, SWL + 2' = 13.9'

II.--SUMMARY

RIGHTSIDE SOIL PRESSURES DETERMINED BY FIXED SURFACE WEDGE METHOD.

LEFTSIDE SOIL PRESSURES DETERMINED BY FIXED SURFACE WEDGE METHOD.

WALL BOTTOM ELEV. (FT)	:	-4.51
PENETRATION (FT)	:	9.51
MAX. BEND. MOMENT (LB-FT)	:	10799.
AT ELEVATION (FT)	:	2.27
MAX. SCALED DEFL. (LB-IN3)	:	1.7189E+09
AT ELEVATION (FT)	:	15.00

(NOTE: DIVIDE SCALED DEFLECTION BY MODULUS OF ELASTICITY IN PSI TIMES PILE MOMENT OF INERTIA IN IN**4 TO OBTAIN DEFLECTION IN INCHES.)

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS BY CLASSICAL METHODS

DATE: 20-APR-1995

TIME: 9.29.19

COMPLETE RESULTS FOR CANTILEVER WALL DESIGN

I.--HEADING

'LONDON AVENUE CANAL FLOOD PROTECTION (STATION 76+95)'
'I-WALL ANALYSIS FOR 4' MOVEMENT FROM 70+25 TO 84+90'
'Q-CASE ANALYSIS, F.S. = 1.0, SWL + 2' = 13.9'

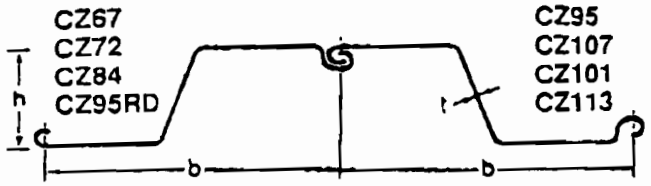
II.--RESULTS

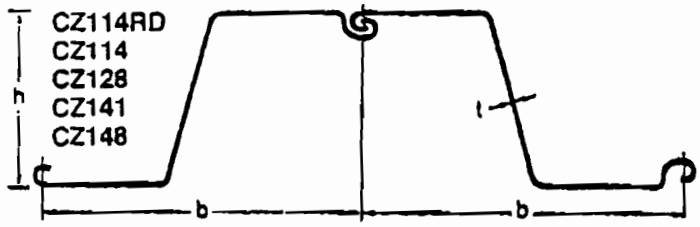
ELEVATION (FT)	BENDING MOMENT (LB-FT)	SHEAR (LB)	SCALED DEFLECTION (LB-IN3)	NET PRESSURE (PSF)
15.00	0.	0.	1.7189E+09	.00
14.00	0.	0.	1.5799E+09	.00
13.90	0.	0.	1.5660E+09	.00
13.00	8.	25.	1.4409E+09	56.25
12.00	71.	113.	1.3019E+09	118.75
11.00	254.	263.	1.1630E+09	181.25
10.00	618.	475.	1.0247E+09	243.75
9.00	1226.	750.	8.8737E+08	306.25
8.00	2139.	1088.	7.5225E+08	368.75
7.00	3422.	1488.	6.2088E+08	431.25
6.00	5136.	1950.	4.9549E+08	493.75
5.00	7343.	2475.	3.7904E+08	556.25
5.00	7343.	2475.	3.7904E+08	-843.75
4.50	8475.	2048.	3.2533E+08	-867.00
4.00	9389.	1608.	2.7526E+08	-890.25
3.00	10545.	695.	1.8758E+08	-936.75
2.00	10762.	-270.	1.1798E+08	-992.92
1.00	9998.	-1253.	6.6835E+07	-973.50
.58	9391.	-1642.	5.0649E+07	-882.79
.00	8303.	-2075.	3.2830E+07	-607.65
-1.00	6003.	-2446.	1.3086E+07	-134.43
-2.00	3569.	-2344.	3.6956E+06	338.79
-3.00	1473.	-1768.	5.2038E+05	812.01
-4.00	189.	-720.	7.2661E+03	1285.23
-4.51	0.	0.	0.0000E+00	1527.45

(NOTE: DIVIDE SCALED DEFLECTION BY MODULUS OF ELASTICITY IN PSI TIMES PILE MOMENT OF INERTIA IN IN**4 TO OBTAIN DEFLECTION IN INCHES.)

III.--SOIL PRESSURES

ELEVATION (FT)	< LEFTSIDE PRESSURE (PSF) > PASSIVE	ACTIVE	<RIGHTSIDE PRESSURE (PSF) > ACTIVE	PASSIVE
15.00	0.	0.	0.	0.
14.00	0.	0.	0.	0.
13.90	0.	0.	0.	0.
13.00	0.	0.	0.	0.
12.00	0.	0.	0.	0.
11.00	0.	0.	0.	0.
10.00	0.	0.	0.	0.
9.00	0.	0.	0.	0.
8.00	0.	0.	0.	0.
7.00	0.	0.	0.	0.
6.00	0.	0.	0.	0.
5.00+	0.	0.	0.	0.
5.00-	1400.	0.	0.	1400.
4.50	1455.	0.	0.	1062.
4.00	1509.	0.	0.	723.
3.00	1618.	0.	0.	736.
2.00	1737.	0.	0.	840.
1.00	1780.	0.	0.	1065.
.58	1715.	0.	0.	1088.
.00	1626.	0.	0.	1120.
-1.00	1435.	0.	0.	982.
-2.00	1403.	0.	0.	943.
-3.00	1446.	0.	0.	955.
-4.00	1481.	0.	0.	796.
-4.51	1498.	10.	0.	538.
-6.00	1468.	61.	0.	434.





Casteel Sheet Piling Specifications

Sections	Width b	Height h	Thickness t (1)	Coating Area (2)	Sectional Area	Mass of pile	Mass of wall	Section Modulus	Moment of Inertia	Radius of Gyration	Sections
	in.	in.	in.	sq. ft./ lin. ft. of pile	in.²/lin.ft.	lb./lin.ft.	lb./ft.²	in.³/lin.ft.	in.⁴/lin.ft.	in.	
CZ67	21.65	7.88	0.217	4.78	4.03	24.76	13.72	10.69	42.11	3.23	CZ67
CZ72	21.65	7.88	0.236	4.78	4.36	26.70	14.83	11.68	46.00	3.27	CZ72
CZ84	21.65	7.88	0.276	4.78	5.05	31.05	17.21	13.62	53.63	3.27	CZ84
CZ95RD	21.65	7.88	0.308	4.78	5.58	34.28	19.00	15.16	59.73	3.27	CZ95RD
CZ95	21.65	7.88	0.315	4.78	5.72	35.15	19.46	15.53	61.15	3.27	CZ95
CZ101	21.65	7.88	0.335	4.78	6.08	37.37	20.70	16.50	65.01	3.27	CZ101
CZ107	21.65	7.88	0.354	4.78	6.44	39.58	21.91	17.48	68.84	3.27	CZ107
CZ113	21.65	7.88	0.375	4.78	6.80	41.70	23.10	18.40	72.70	3.27	CZ113
CZ114RD	24.02	13.39	0.315	5.90	6.43	43.80	21.88	29.76	199.24	5.55	CZ114RD
CZ114	24.02	13.39	0.335	5.90	6.88	46.83	23.40	31.62	211.60	5.55	CZ114
CZ128	24.02	13.39	0.375	5.90	7.68	52.28	26.22	35.34	236.50	5.55	CZ128
CZ141	24.02	13.39	0.413	5.90	8.48	57.92	28.88	39.06	261.40	5.55	CZ141
CZ148	24.02	13.39	0.433	5.90	8.88	60.68	30.31	40.92	273.90	5.55	CZ148

(1) Flanges and webs of the steel piles have the same thickness.
(2) Factor for estimating sq. ft. of sheet piling surface area to be coated per lin. ft. of pile; excludes interior surface of interlocks.
NOTE: Drawings, specifications and data have been taken from manufacturers' specifications.
- All piling sections can be produced in the following steel quality: ASTM A 328, ASTM A 572 Grade 50, ASTM A 690.
- Piling corners and special connectors supplied on request.
- For special built-up sections, box piles, etc. contact your CASTEEL USA, Inc. representative.
- All Casteel sheet piling is manufactured in the USA and meets or exceeds all "Buy American" specifications for steel sheet piling.

Steel Qualities

	Minimum Ultimate Stress		Minimum Yield Stress		Minimum Elongation in 8 ins.
	PSI	MPa	PSI	MPa	%
ASTM 328	70000	485	38400	270	17
ASTM A572 Grade 50	65000	450	50000	345	18
ASTM A690	70000	485	50000	345	18

VE CP

1. CUT CAP off Sheet pile by Cutting Sheetpile @ elevation 6.75

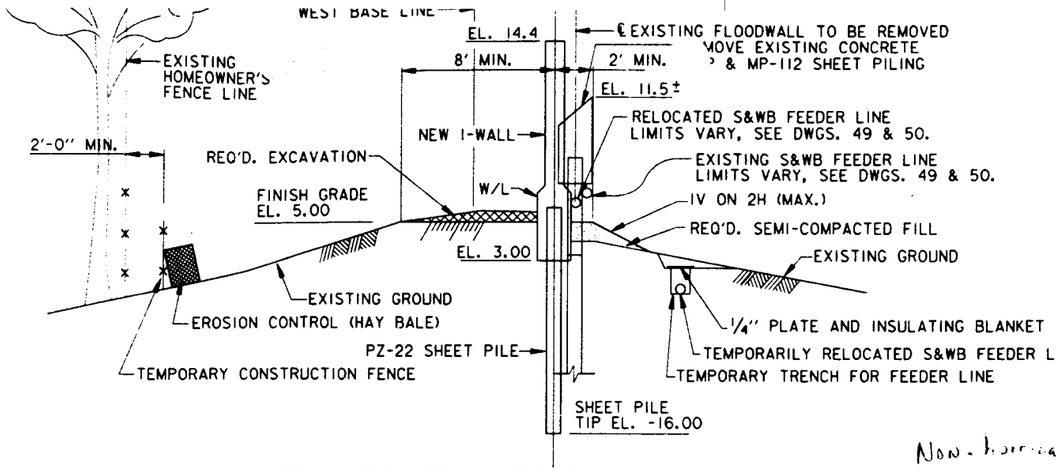
2. Sheetpile & concrete cap is hauled away to PMC where the concrete is removed from the metal.

3. Pull Sheets as originally planned or cut-off 6" below final grade

---

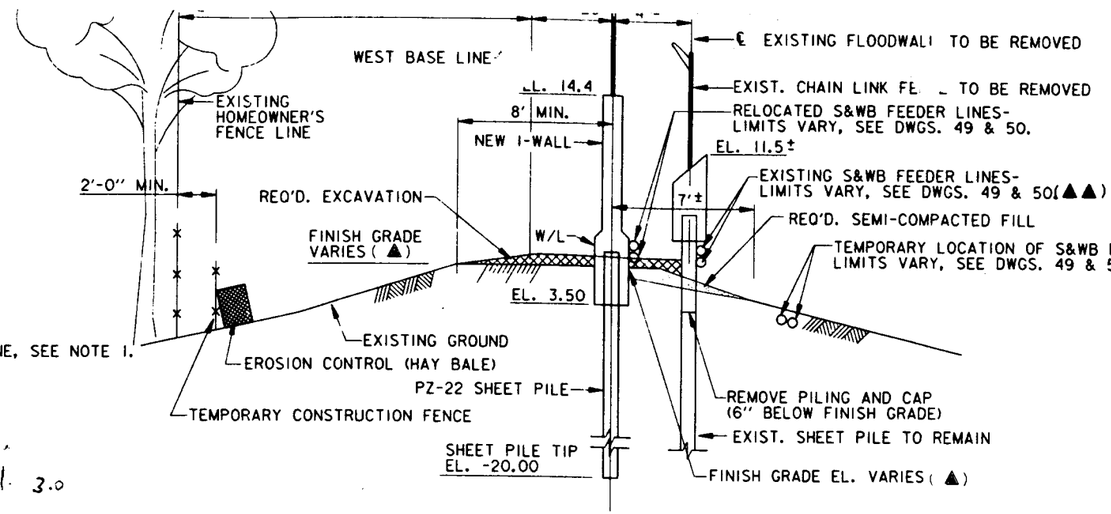
ORiginal contract.

1) Cut off cap by cutting Sheetpile below the cap.
2) HAUL off concrete cap & Sheetpile embedded
3) pull Sheets as required.



STA. 70+47.00 TO STA. 84+54.72 WB/L

Non-hurricane degrade to el. 3.0



STA. 100+29.00 TO STA. 100+39.00 WB/L

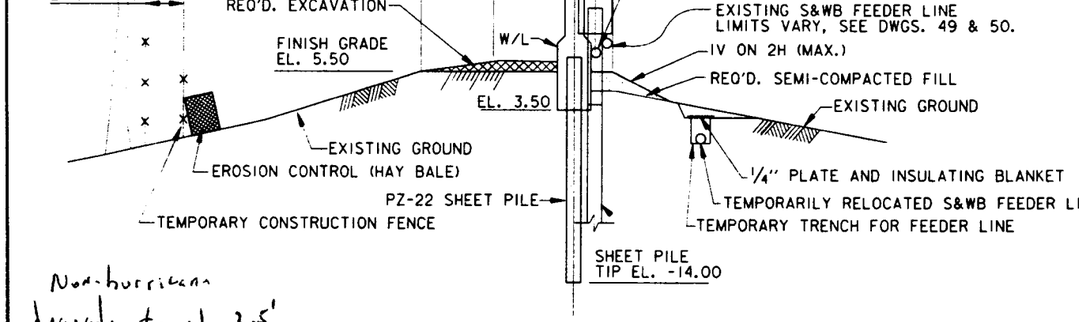
TYP

NOTES:

1. TEMPORARILY RE… COVERING W… A… CONCRETE CAP … 422 SHALL BE PE… ATTACHED TO …
2. EXISTING FEEDER … STEEL ARMORED … LEAD COVER 5…
3. FOR FEEDERS 400…
4. FOR PLAN, SEE D…
5. FOR PROFILES, SE…
6. FOR GENERAL NOT…
7. THE CONTRACTOR … THE CONSTRUCT… MINIMUM CLEARAN…
8. EXISTING FEEDER … STEEL ARMORED … LEAD COVER 5…
9. FOR FRACTURED F…

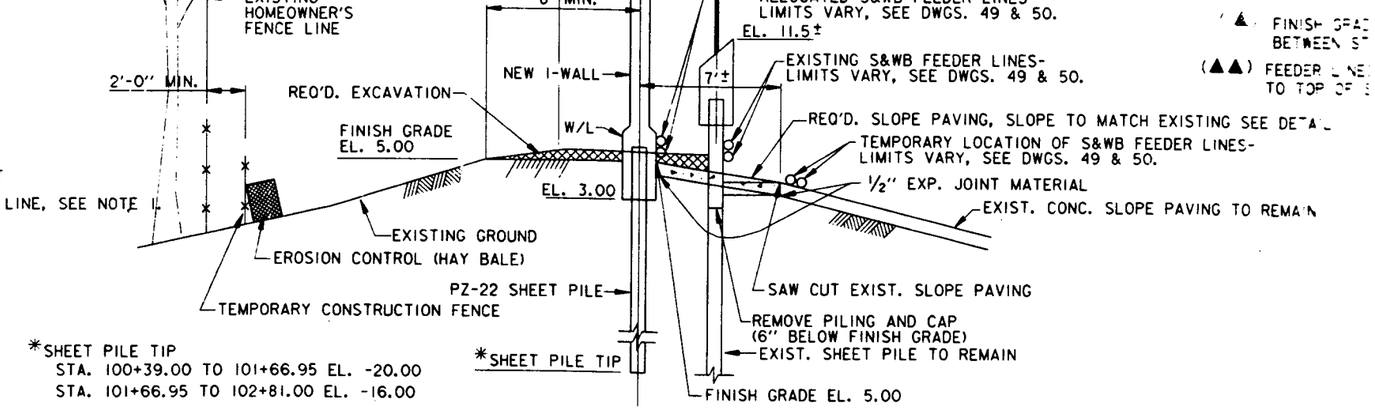
▲ FINISH GRAD… BETWEEN ST…

(▲▲) FEEDER LINE … TO TOP OF …



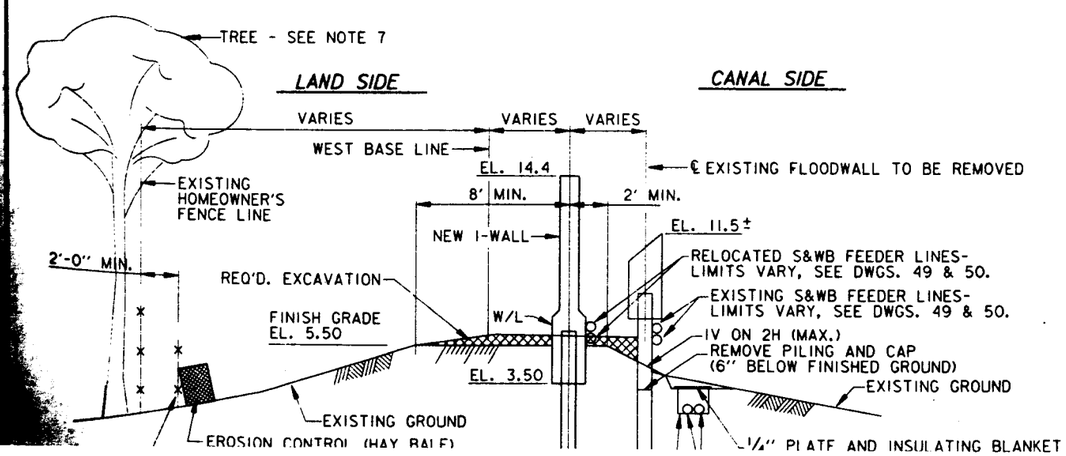
Non-hurricane degrade to el. 3.5'

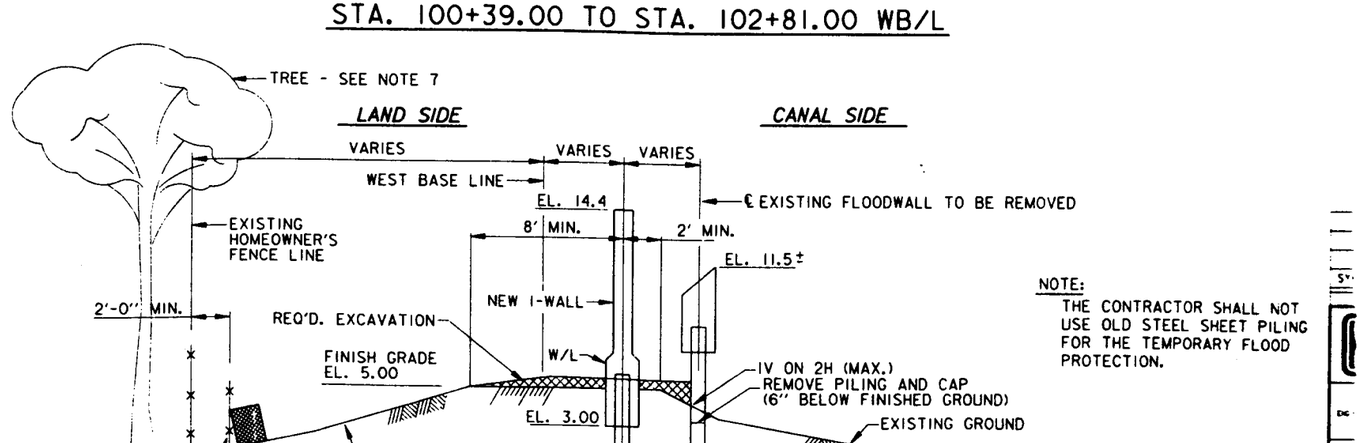
STA. 85+90.00 TO STA. 99+83.67 WB/L



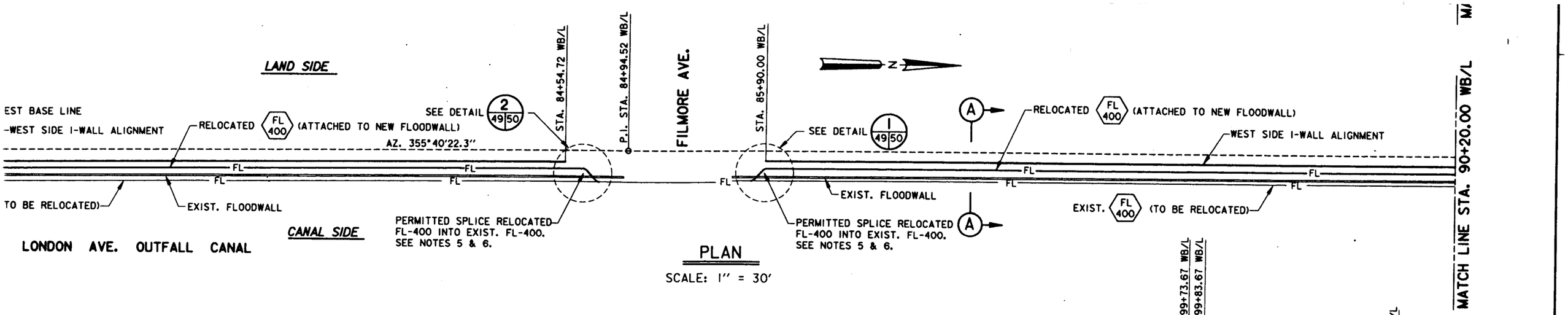
*SHEET PILE TIP
STA. 100+39.00 TO 101+66.95 EL. -20.00
STA. 101+66.95 TO 102+81.00 EL. -16.00

STA. 100+39.00 TO STA. 102+81.00 WB/L



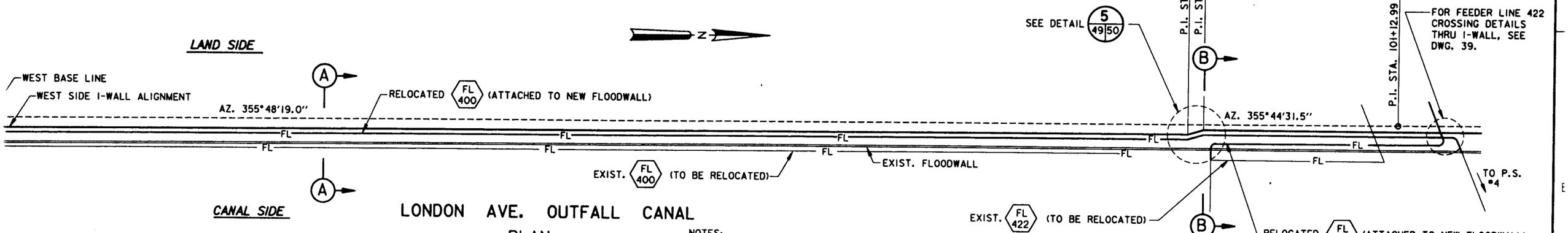


NOTE:
THE CONTRACTOR SHALL NOT USE OLD STEEL SHEET PILING FOR THE TEMPORARY FLOOD PROTECTION.



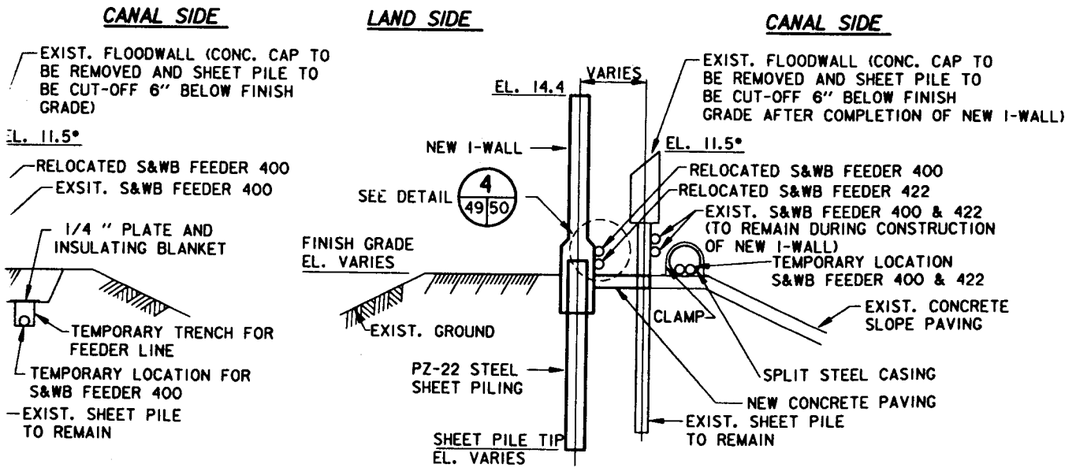
PLAN

SCALE: 1" = 30'



PLAN

SCALE: 1" = 30'



SECTION (B)

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

NOTES:

1. TEMPORARILY RELOCATE FL-400 BETWEEN STATIONS 70+37.50 WB/L AND 84+64.22 WB/L, AND BETWEEN STATIONS 85+80.50 WB/L AND 101+47.29 WB/L (APPROXIMATE) TO A TRENCH, OR ON EXISTING CONCRETE SLOPE PAVEMENT AS SHOWN, PRIOR TO DEMOLITION OF THE EXISTING FLOODWALL. A SPLICE WILL BE PERMITTED AT STATIONS 70+37.50 WB/L, 70+49.00 WB/L, 84+51.72 WB/L, 84+64.22 WB/L, 85+80.50 WB/L, 85+92.00 WB/L, 101+32.00 WB/L AND 101+45.00 WB/L
2. PERMANENTLY RELOCATE FL-400 BETWEEN STATIONS 70+37.50 WB/L AND 84+64.22 WB/L, AND BETWEEN STATIONS 85+80.50 WB/L AND 101+47.29 WB/L (APPROXIMATE) TO THE NEW FLOODWALL AS SHOWN IN SECTIONS ~~CLEAR~~ "AA" AND ~~CLOSE~~ "BB"
3. TEMPORARILY RELOCATE FL-422 BETWEEN STATIONS 99+99.23 WB/L AND 101+38.90 WB/L ON EXISTING CONCRETE PAVEMENT AS SHOWN, PRIOR TO DEMOLITION OF EXISTING FLOODWALL. THE CONTRACTOR SHALL PROVIDE SPLIT STEEL CASING WITH CLAMPS TO PROTECT THE TEMPORARILY RELOCATED FEEDER LINES ON EXISTING SLOPE PAVEMENT. A SPLICE WILL BE PERMITTED AT STATION 99+99.23 W/BL ON THE CANAL SIDE AND AT STATION 101+38.90 WB/L ON THE LAND SIDE OF THE FLOODWALL.
4. PERMENANTLY RELOCATE FL-422 BETWEEN STATIONS 99+99.23 WB/L AND 101+38.90 WB/L TO THE NEW FLOODWALL AS SHOWN IN SECTION ~~CLOSE~~ "BB"
5. IN ORDER TO RELOCATE FL-400 AND FL-422 (BOTH TEMPORARY AND PERMANENT LOCATIONS), CONTRACTOR MAY PROVIDE SHORT LENGTHS OF NEW CABLE WITH SPLICES TO EXISTING CABLE, IF THERE IS INSUFFICIENT SLACK IN THE EXISTING CABLE TO ALLOW FOR THE RELOCATION. ANY REQUIRED ADDITIONAL LENGTHS OF CABLE AND RESULTING SPLICES, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE GOVERNMENT.
6. ANY REQUIRED NEW CABLE FOR FL-400 SHALL BE 3/C #500 MCM LEAD COVERED 15 KV CABLE WITH PVC JACKET INSTALLED IN 5" RIGID GALVANIZED CONDUIT. "EXISTING FEEDER 422 CONSIST OF A THREE (3) CONDUCTOR STEEL ARMORED SUBMARINE NO.4 AWG COPPER, RUBBER INSULATED, LEAD COVERED, 15 KV POWER CABLE.

NOTES:

1. FOR GENERAL NOTES, SEE DWG. 2.
2. FOR TYPICAL SECTIONS, SEE DWG. 17.
3. FOR PLAN, SEE DWGS. 4 THRU 7.
4. FOR PROFILES, SEE DWGS. 12 THRU 14.
5. FOR EXISTING FLOODWALL TO NEW I-WALL CONNECTION, SEE DWGS. 29 THRU 30.

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

12"0 5' 10' 15' 20'

SCALE: 1" = 30'

30' 0 30' 60' 90' 120'

Safety is a Part of Your Contract

SYMBOL	DESCRIPTION	DATE	APPROVED
	REVISIONS		

U. S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
NEW ORLEANS, LOUISIANA

BURK - KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
NEW ORLEANS, LOUISIANA

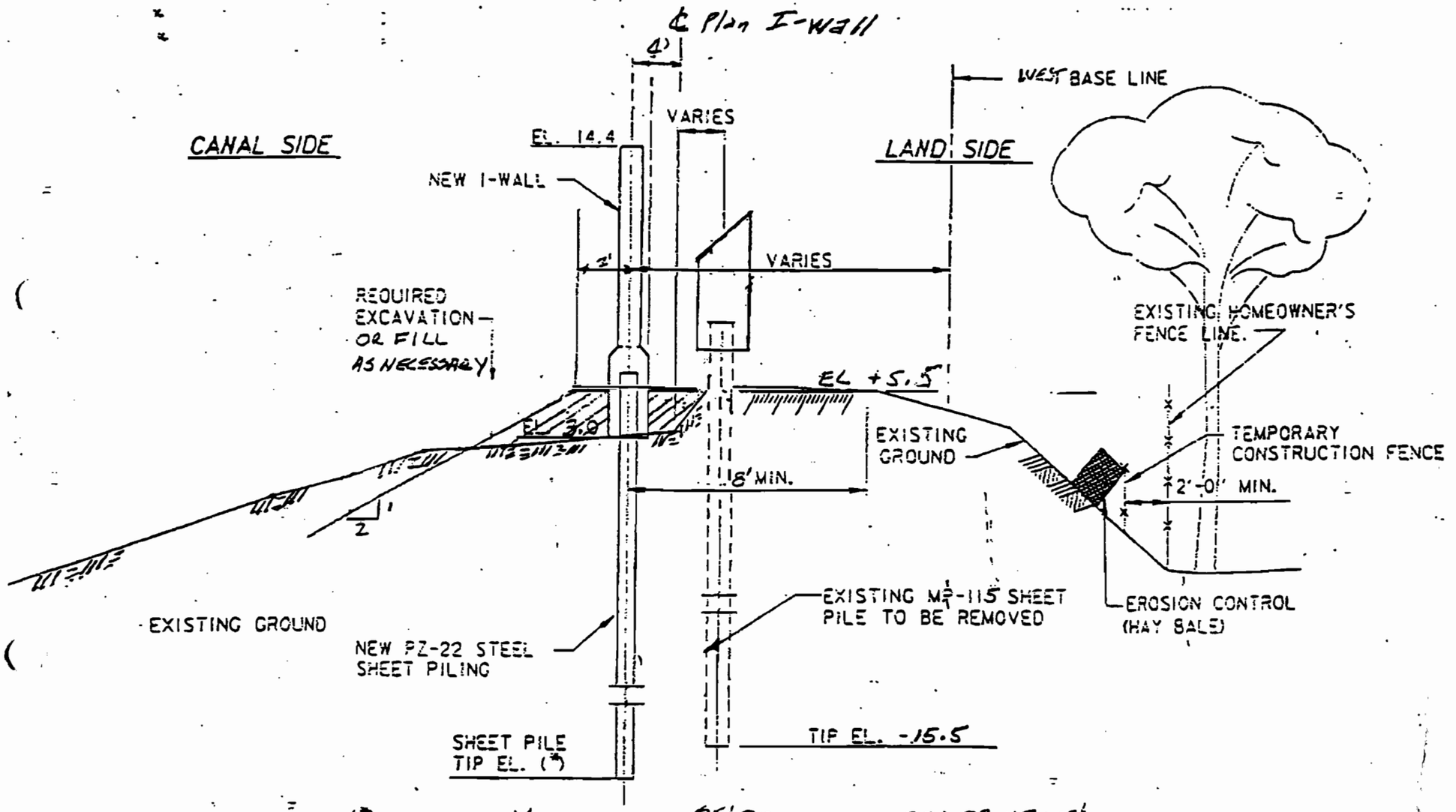
GOTECH, INC.
CONSULTING ENGINEERS
BATON ROUGE, LOUISIANA

LAKE PONTCHARTRAIN, LA. AND VICINITY
HIGH LEVEL PLAN
LONDON AVE. OUTFALL CANAL, PARALLEL PROTECTION
MIRABEAU AVE. TO ROBERT E. LEE BLVD., WEST BANK
MIRABEAU AVE. TO LEON C. SIMON BLVD., EAST BANK
ORLEANS PARISH, LOUISIANA

ELECTRIC FEEDER RELOCATION
WEST SIDE

DESIGNED BY: B.D.	DATE: 2/94	PLOT SCALE: 360	PLOT DATE: 2/07/94
DRAWN BY: D.H.	CADD FILE: 4029549.DGN		FILE NO. H-4-40295
CHECKED BY: B.D.			
SUBMITTED BY: MICHAEL G. JACKSON, P.E. DESIGN ENGINEER	SOLICITATION NO. DACW29-94-B-0047		DWG. 49 OF 73

4 3 2 1



(*) TIP EL. - 14.0 FROM STA. 85+90 TO STA. 99+83.67 W℄L

STA 85+90 TO STA 99+83.67 W℄L

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS BY CLASSICAL METHODS

DATE: 20-APR-1995 TIME: 9.29.19

SUMMARY OF RESULTS FOR CANTILEVER WALL DESIGN

I.--HEADING

'LONDON AVENUE CANAL FLOOD PROTECTION (STATION 76+95)'
'I-WALL ANALYSIS FOR 4' MOVEMENT FROM 70+25 TO 84+90'
'Q-CASE ANALYSIS, F.S. = 1.0, SWL + 2' = 13.9'

II.--SUMMARY

RIGHTSIDE SOIL PRESSURES DETERMINED BY FIXED SURFACE WEDGE METHOD.

LEFTSIDE SOIL PRESSURES DETERMINED BY FIXED SURFACE WEDGE METHOD.

WALL BOTTOM ELEV. (FT)	:	-4.51
PENETRATION (FT)	:	9.51
MAX. BEND. MOMENT (LB-FT)	:	10799.
AT ELEVATION (FT)	:	2.27
MAX. SCALED DEFL. (LB-IN3)	:	1.7189E+09
AT ELEVATION (FT)	:	15.00

(NOTE: DIVIDE SCALED DEFLECTION BY MODULUS OF ELASTICITY IN PSI TIMES PILE MOMENT OF INERTIA IN IN**4 TO OBTAIN DEFLECTION IN INCHES.)

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS BY CLASSICAL METHODS

DATE: 20-APR-1995 TIME: 9.29.19

COMPLETE RESULTS FOR CANTILEVER WALL DESIGN

I.--HEADING

'LONDON AVENUE CANAL FLOOD PROTECTION (STATION 76+95)'
'I-WALL ANALYSIS FOR 4' MOVEMENT FROM 70+25 TO 84+90'
'Q-CASE ANALYSIS, F.S. = 1.0, SWL + 2' = 13.9'

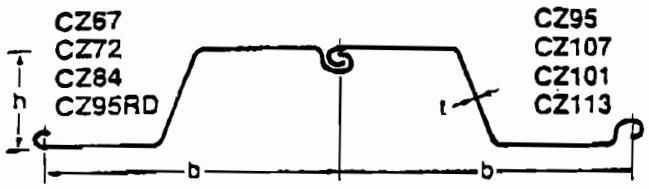
II.--RESULTS

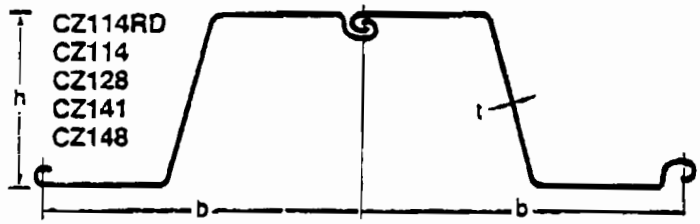
ELEVATION (FT)	BENDING MOMENT (LB-FT)	SHEAR (LB)	SCALED DEFLECTION (LB-IN3)	NET PRESSURE (PSF)
15.00	0.	0.	1.7189E+09	.00
14.00	0.	0.	1.5799E+09	.00
13.90	0.	0.	1.5660E+09	.00
13.00	8.	25.	1.4409E+09	56.25
12.00	71.	113.	1.3019E+09	118.75
11.00	254.	263.	1.1630E+09	181.25
10.00	618.	475.	1.0247E+09	243.75
9.00	1226.	750.	8.8737E+08	306.25
8.00	2139.	1088.	7.5225E+08	368.75
7.00	3422.	1488.	6.2088E+08	431.25
6.00	5136.	1950.	4.9549E+08	493.75
5.00	7343.	2475.	3.7904E+08	556.25
5.00	7343.	2475.	3.7904E+08	-843.75
4.50	8475.	2048.	3.2533E+08	-867.00
4.00	9389.	1608.	2.7526E+08	-890.25
3.00	10545.	695.	1.8758E+08	-936.75
2.00	10762.	-270.	1.1798E+08	-992.92
1.00	9998.	-1253.	6.6835E+07	-973.50
.58	9391.	-1642.	5.0649E+07	-882.79
.00	8303.	-2075.	3.2830E+07	-607.65
-1.00	6003.	-2446.	1.3086E+07	-134.43
-2.00	3569.	-2344.	3.6956E+06	338.79
-3.00	1473.	-1768.	5.2038E+05	812.01
-4.00	189.	-720.	7.2661E+03	1285.23
-4.51	0.	0.	0.0000E+00	1527.45

(NOTE: DIVIDE SCALED DEFLECTION BY MODULUS OF ELASTICITY IN PSI TIMES PILE MOMENT OF INERTIA IN IN**4 TO OBTAIN DEFLECTION IN INCHES.)

III.--SOIL PRESSURES

ELEVATION (FT)	< LEFTSIDE PRESSURE (PSF) > PASSIVE	ACTIVE	<RIGHTSIDE PRESSURE (PSF) > ACTIVE	PASSIVE
15.00	0.	0.	0.	0.
14.00	0.	0.	0.	0.
13.90	0.	0.	0.	0.
13.00	0.	0.	0.	0.
12.00	0.	0.	0.	0.
11.00	0.	0.	0.	0.
10.00	0.	0.	0.	0.
9.00	0.	0.	0.	0.
8.00	0.	0.	0.	0.
7.00	0.	0.	0.	0.
6.00	0.	0.	0.	0.
5.00+	0.	0.	0.	0.
5.00-	1400.	0.	0.	1400.
4.50	1455.	0.	0.	1062.
4.00	1509.	0.	0.	723.
3.00	1618.	0.	0.	736.
2.00	1737.	0.	0.	840.
1.00	1780.	0.	0.	1065.
.58	1715.	0.	0.	1088.
.00	1626.	0.	0.	1120.
-1.00	1435.	0.	0.	982.
-2.00	1403.	0.	0.	943.
-3.00	1446.	0.	0.	955.
-4.00	1481.	0.	0.	796.
-4.51	1498.	10.	0.	538.
-6.00	1468.	61.	0.	434.





Casteel Sheet Piling Specifications

Sections	Width b	Height h	Thickness t (1)	Coating Area (2)	Sectional Area	Mass of pile	Mass of wall	Section Modulus	Moment of Inertia	Radius of Gyration	Sections
	in.	in.	in.	sq. ft./ lin. ft. of pile	in.²/lin.ft.	lb./lin.ft.	lb./ft.²	in.³/lin.ft.	in.⁴/lin.ft.	in.	
CZ67	21.65	7.88	0.217	4.78	4.03	24.76	13.72	10.69	42.11	3.23	CZ67
CZ72	21.65	7.88	0.236	4.78	4.36	26.70	14.83	11.68	46.00	3.27	CZ72
CZ84	21.65	7.88	0.276	4.78	5.05	31.05	17.21	13.62	53.63	3.27	CZ84
CZ95RD	21.65	7.88	0.308	4.78	5.58	34.28	19.00	15.16	59.73	3.27	CZ95RD
CZ95	21.65	7.88	0.315	4.78	5.72	35.15	19.46	15.53	61.15	3.27	CZ95
CZ101	21.65	7.88	0.335	4.78	6.08	37.37	20.70	16.50	65.01	3.27	CZ101
CZ107	21.65	7.88	0.354	4.78	6.44	39.58	21.91	17.48	68.84	3.27	CZ107
CZ113	21.65	7.88	0.375	4.78	6.80	41.70	23.10	18.40	72.70	3.27	CZ113
CZ114RD	24.02	13.39	0.315	5.90	6.43	43.80	21.88	29.76	199.24	5.55	CZ114RD
CZ114	24.02	13.39	0.335	5.90	6.88	46.83	23.40	31.62	211.60	5.55	CZ114
CZ128	24.02	13.39	0.375	5.90	7.68	52.28	26.22	35.34	236.50	5.55	CZ128
CZ141	24.02	13.39	0.413	5.90	8.48	57.92	28.88	39.06	261.40	5.55	CZ141
CZ148	24.02	13.39	0.433	5.90	8.88	60.68	30.31	40.92	273.90	5.55	CZ148

(1) Flanges and webs of the steel piles have the same thickness.
(2) Factor for estimating sq. ft. of sheet piling surface area to be coated per lin. ft. of pile; excludes interior surface of interlocks.
NOTE: Drawings, specifications and data have been taken from manufacturers' specifications.
- All piling sections can be produced in the following steel quality: ASTM A 328, ASTM A 572 Grade 50, ASTM A 690.
- Piling corners and special connectors supplied on request.
- For special built-up sections, box piles, etc. contact your CASTEEL USA, Inc. representative.
- All Casteel sheet piling is manufactured in the USA and meets or exceeds all "Buy American" specifications for steel sheet piling.

Steel Qualities

	Minimum Ultimate Stress		Minimum Yield Stress		Minimum Elongation in 8 ins.
	PSI	MPa	PSI	MPa	%
ASTM 328	70000	485	38400	270	17
ASTM A572 Grade 50	65000	450	50000	345	18
ASTM A690	70000	485	50000	345	18

CELMN-CD-CS(CELMN-N0-Q/8 Aug95)2nd End Berry/x1240
SUBJECT: Contract DACW29-94-C-0079, Lake Pontchartrain, LA and Vicinity, High Level Plan, London Ave., East Bank, Orleans Parish, LA, CIN 06, Modify pipe sleeves at pipe crossings.

CD 4 Sep 95

FOR Area Engineer, New Orleans Area Office

1. The contractor's proposal for changing the wall alignment between Sta. 70+47 and Sta. 84+54.77 WB/L is technically acceptable. This VECP has been assigned CIN 06, and any further correspondence regarding this change should reference this number.

2. Request you take the necessary actions for completion of modification. Furnish a copy of the finalized modification to the Value Engineering Officer.

3. POC is Jim Berry at ext 1240.

Marsalis

Atch WILLIAM R. MARSALIS
nc Chief, Contract Administration Branch

CF
Value Engineering Officer

CELMN-ED-TM (CELMN-NO-Q/8Aug 95) 1st End DeSoto/x2733
SUBJECT: Lake Pontchartrain, LA and Vicinity, High level Plab, London Ave. Outfall Canal, Mirabeau Ave. to Leon C. Simon Ave., East Side, Mirabeau Ave. to Robert E. Lee Blvd., West Side, Orleans Parish, LA

ED 25 Aug 95

FOR C/ Construction ~~Div~~ WHH/30Aug95.

1. We have reviewed the Contractor's proposal for changing the wall alignment between Sta. 70+47 and Sta. 84+54.77 WB/L and have no comments.

2. Point of contact is Angela DeSoto, x2733.

W. EUGENE TICKNER
Chief, Engineering Division

Atch
nc

AUG 30

AUG 30 1995

CELMN-CD-NO-Q 8 Aug 95

MEMORANDUM THRU C/Const Div WPM Jr

FOR C/Engr Div ATTN: ED-DD and ED-FS

SUBJECT: Contract No. DACW29-94-C-0079, Lake Pontchartrain and Vicinity, High Level Plan, London Avenue Outfall Canal, Parallel Protection, Mirabeau Avenue to Leon C. Simon Boulevard Floodwall, Orleans Parish, Louisiana

1. Forwarded herewith is B & K Construction Company, Inc., proposal to relocate the new I-wall four (4) ft. to the floodside of the existing wall between Station 70+47 to 84+54.77 W B/L on the subject contract.

2. Request your comments regarding the technical adequacy of their proposal.

3. POC for this matter is Chris Wagner, X1222.

Chester Ashley

Atch

CHESTER ASHLEY
Area Engineer
New Orleans Area Office

CF:
Supv Civ Engr (Duhon)
Proj Engr (Wagner)
Proj Insp (Bryant)
VE officer

PROPOSED RELOCATION OF NEW I-WALL 4'- 0" TO THE FLOODSIDE OF THE EXISTING WALL
FROM STA 70+47 TO STA 84+54.77 WB/L

We propose to move the new I-Wall approximately 4'-0" to the floodside of the existing wall. This places the new wall 4' to the floodside of it's location on the original drawings. By moving the new I-Wall we can avoid the installation of temporary flood protection sheeting to elevation 6.75. We are prepared to offer the USCE a credit of 1/2 of $5,522.50 or $2,761.25 to allow us to make this plan change. Our costs break down as follows:

1. Cost of labor and equipment to drive and pull 16,880 sf of temporary sheeting from Station 70+47 to 84+54.77 is $0.80 per square foot or $13,504.00 to drive and $.2118 per square foot or $3,576.00 to pull.

Cost of delivering and hauling off of 1400 Lf or 197 tons of B & K owned 12'-0" long CZ-114 sheets is $3,940.00 or $20.00 per ton. Cost to clean sheets and load out is $1,770.00 or $9.00 per ton.

TOTAL COST TO DRIVE AND PULL 1400 LF SHEETS $22,790.00

2. Cost of electrical relocations and additional splicing at Station 70+47 and 84+54.72 is $ 7,500.00 for two splices.

Cost of cutting off concrete cap, which would not have had to have been cut off as originally planned, is $3,517.50 or $2.50 per lineal foot.

Cost of extra 525 CY of embankment (4'wide x 2.52'deep x 1407'long / 27) @ $9.50/ CY is $4,987.50.

Cost to re-survey, re-design and layout of new I-Wall is $1,262.50.

TOTAL COST TO RE-LOCATE I-WALL $ 17,267.50

TOTAL SAVINGS $ 5,522.50

DETAIL ESTIMATED COST

I. DRIVE SHEETS:

Assume to drive 120 LF per day for 1407 LF =
1407 / 120 = 12 days

Assume 1 operator @ 10.35 = 10.35			
2 laborers @ 7.54 = 15.08			
Cost/Hour 25.43			
8 hrs/day X 12 days =	2,441.28		
PR Tax & Insurance @ 55%	1,342.70		
Total Labor Cost	3,783.98	$	3,783.98
Assume 1 200 Komatsu Backhoe @ 27.64 = 27.64			
Vibratory Hammer V5 @ 22.55 = 21.87			
Cost/Hour 49.51			
8 hrs/day X 12 days =			4,752.96
Assume 1407 LF of 12' Company owned CZ-114 Sheets			
@ 23.4# / SF = 395,086# / 2000# = 197 Tons			
Sheet Rental 197 tons @ 10.00/ton			
for 1.15 months =			2,265.50
Small tools & Supplies at 6% of labor			227.04
TOTAL COST			11,029.48
General & Administrative @ 13.9%			1,533.10
SUB TOTAL			12,636.93
Profit @ 7.5%			942.19
TOTAL ESTIMATED COST + PROFIT		$	13,504.00

II. PULL SHEETS

Assume to pull 350 LF per day for 1407 LF =
1407 / 326 = 4.0 days

Assume 1 operator @ 10.35 = 10.35			
2 laborers @ 7.54 = 15.08			
Cost/Hour 25.43			
8 hrs/day X 4 days =	813.76		
PR Tax & Insurance @ 55%	447.57		
Total Labor Cost	1,261.33	$	1,261.33
Assume 1 200 Komatsu Backhoe @ 27.64 = 27.64			
Vibratory Hammer V5 @ 22.55 = 21.87			
Cost/Hour 49.51			
8 hrs/day X 4 days =			1,584.32
Small tools & Supplies at 6% of labor			75.68

TOTAL COST		2,921.33
General & Administrative @ 13.9%		406.06
SUB TOTAL		3,327.39
Profit @ 7.5%		249.55
TOTAL ESTIMATED COST + PROFIT	$	3,576.00

III. DELIVERING AND UNLOADING SHEETS

Assume $20.00 per ton to deliver and unload sheets

TOTAL COST + PROFIT	20.00 X 197 =	$	3,940.00

IV. CLEANING AND LOADING OUT SHEETS

Assume $9.00 per ton to clean and load out sheets

TOTAL COST + PROFIT	9.00 X 197 =	$	1,770.00

TOTAL COST + PROFIT TO DRIVE & PULL SHEETS	$	22,790.00

B&K CONSTRUCTION COMPANY, INC.

WE HAVE MET THE FOLLOWING CRITERIA (SEE ATTACHED DETAIL):

1. Design Criteria Slope Stability. Slope stability performed by LMVD Method of Planes Analysis (Wedge Analysis) for a minimum factor of safety of 1.3 with respect to the design shear strength. Floodside analysis low water elevation -5.0. Protected side analysis high water elevation 11.9. Piezometric headline at elevation -3.0. The wedge stability computer program used by Corps is Stability with Uplift (FS004).

2. Design Criteria for I-Walls. A factor of safety is applied to the design sheer strength as follows:

the cohesion developed = cohesion/factor of safety;
developed = arctan (tan available/factor of safety).

Using the resulting shear strengths, net lateral water and earth pressure diagrams are determined for movement toward each side of the sheet pile. Using these distributions of pressure, the summation of horizontal forces is equated to zero for various tip penetrations. At these penetrations summations of overturning moments about the sheet pile are determined. The required depths of penetration to satisfy the stability criteria are determined as those where summation of moments is equal to zero. The sheet pile wall design criteria is:

Tip Penetrations

F.S. = 1.5 with water to Ele. 11.9
F.S. = 1.0 with water to Ele. 13.9

BENDING MOMENTS

Governing Tip Penetration Case

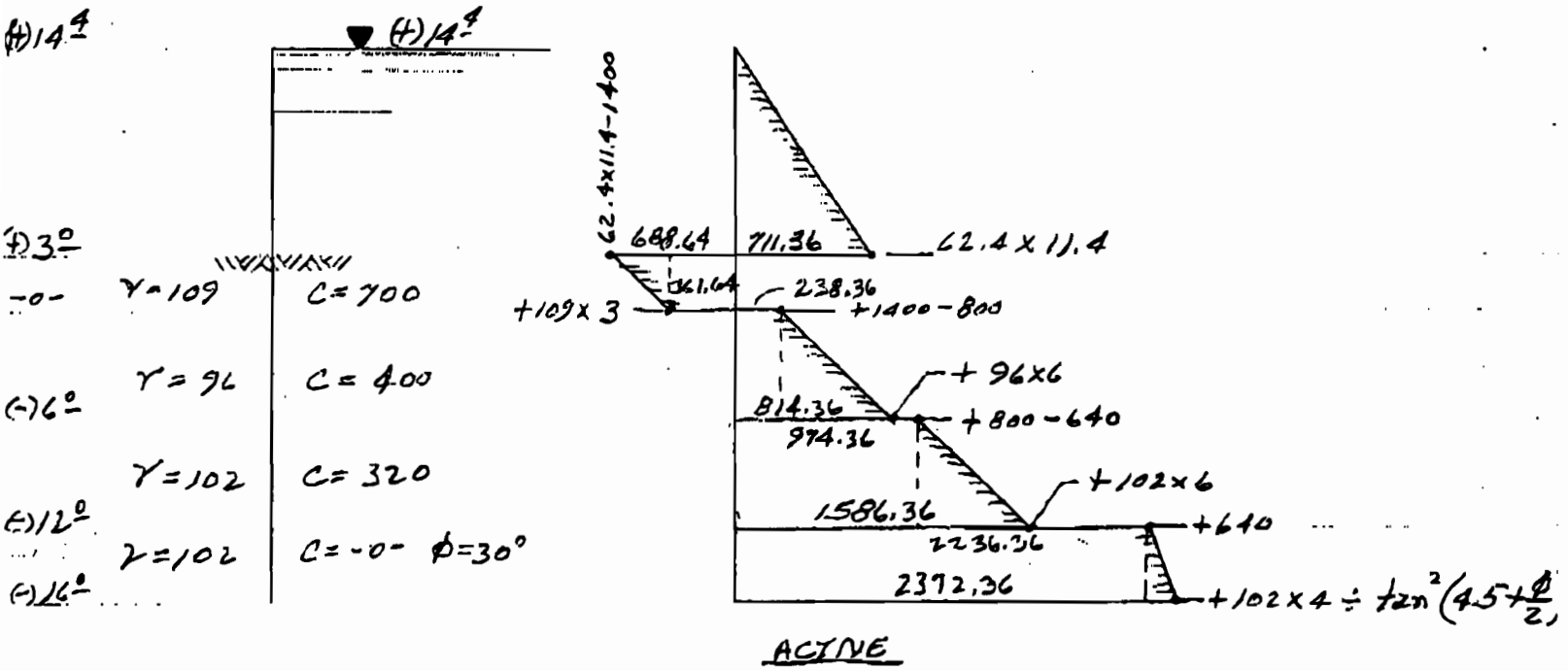
Groundwater elevation 0.0 or natural ground surface.

C.L. SLOAN ENGINEERING **MANDEVILLE, LOUISIANA**

BY _____ DATE 6-26-95 SUBJECT _____ SHEET NO. 1 OF _____

CHKD. BY _____ DATE _____ CLIENT B & K JOB NO. _____

STA. 70+47 TO 84+54.77 WB/L
4' OFFSET TO FLOOD SIDE OF EXISTING WALL.



ACTIVE

STATE OF LOUISIANA
CHARLES L. SLOAN
REG. No. 5597
REGISTERED
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING

Océ Bruning, Inc. 80232 Form 8985

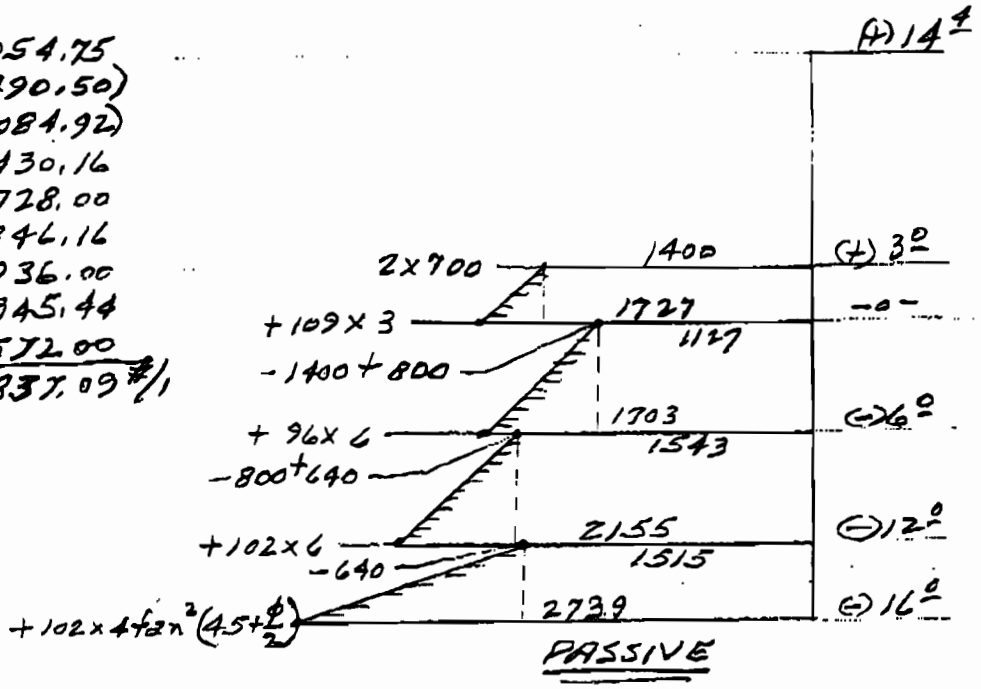
C.L. SLOAN ENGINEERING **MANDEVILLE, LOUISIANA**

BY _____ DATE 5-17-95 SUBJECT _____ SHEET NO. 2 OF _____

CHKD. BY _____ DATE _____ CLIENT B & K JOB NO. _____

ΣV_{ACTIVE}

$\frac{1}{2} \times 711.36 \times 11.4 = 4054.75$
$\ominus \frac{1}{2} \times 327 \times 3 = (490.50)$
$\ominus 361.64 \times 3 = (1084.92)$
$238.36 \times 6 = 1430.16$
$\frac{1}{2} \times 576 \times 6 = 1728.00$
$974.36 \times 6 = 5846.16$
$\frac{1}{2} \times 612 \times 6 = 1836.00$
$2236.36 \times 4 = 8945.44$
$\frac{1}{2} \times 786 \times 4 = 1572.00$
$V_{ACTIVE} = 23,837.09$ #/'



$\Sigma V_{PASSIVE}$

$1400 \times 3 = 4200$
$\frac{1}{2} \times 327 \times 3 = 490.5$
$1127 \times 6 = 6762$
$\frac{1}{2} \times 576 \times 6 = 1728$
$1543 \times 6 = 9258$
$\frac{1}{2} \times 612 \times 6 = 1836$
$1515 \times 4 = 6060$
$\frac{1}{2} \times 1224 \times 4 = 2448$
$32,782.5$

$F/S_V = \frac{32782.5}{23837.09} = 1.38 > 1.3$ ok

ΣM_{ACTIVE}

$4054.75 \times 22.8 = 92,448.3$
$(490.5) \times 18 = (8,829)$
$(1084.92) \times 17.5 = (18,986.1)$
$1430.16 \times 13 = 18,592.08$
$1728 \times 12 = 20,736$
$5846.16 \times 7 = 40,923.12$
$1836 \times 6 = 11,016$
$8945.44 \times 2 = 17,890.88$
$1572 \times 1.33 = 2,095.95$
$M_{ACT.} = 175,887.23$

$\Sigma M_{PASSIVE}$

$4200 \times 17.5 = 73,500$
$490.5 \times 17 = 8,338.5$
$6762 \times 13 = 87,906$
$1728 \times 12 = 20,736$
$9258 \times 7 = 64,806$
$1836 \times 6 = 11,016$
$6060 \times 2 = 12,120$
$2448 \times 1.33 = 3,263.92$
$M_{PASS.} = 281,686.42$

$F/S_M = \frac{281646}{175887} = 1.6 > 1.0$ ok

C.L. SLOAN ENGINEERING **MANDEVILLE, LOUISIANA**

BY _____ DATE 5/17/95 SUBJECT _____ SHEET NO. 3 OF _____

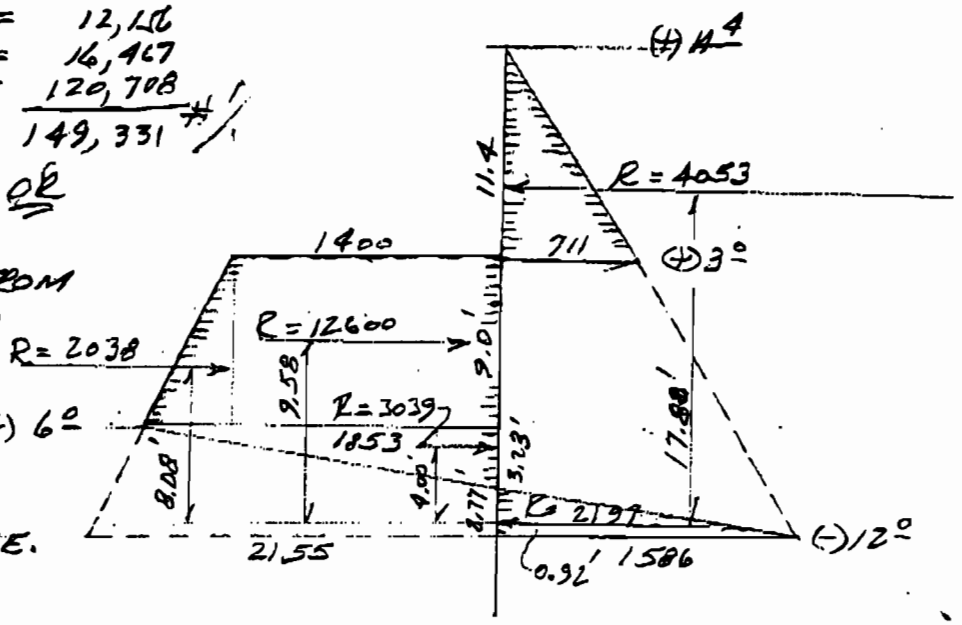
CHKD. BY _____ DATE _____ CLIENT B&K JOB NO. _____

Moverturn ↻ : 4053 × 17.88 = 72,468 #'/'

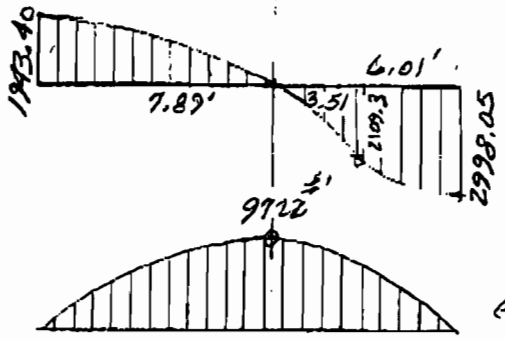
R RESIST. ↺ : 3039 × 4 = 12,156
2038 × 8.08 = 16,467
12,600 × 9.58 = 120,708
M↺ = 149,331 #'/'

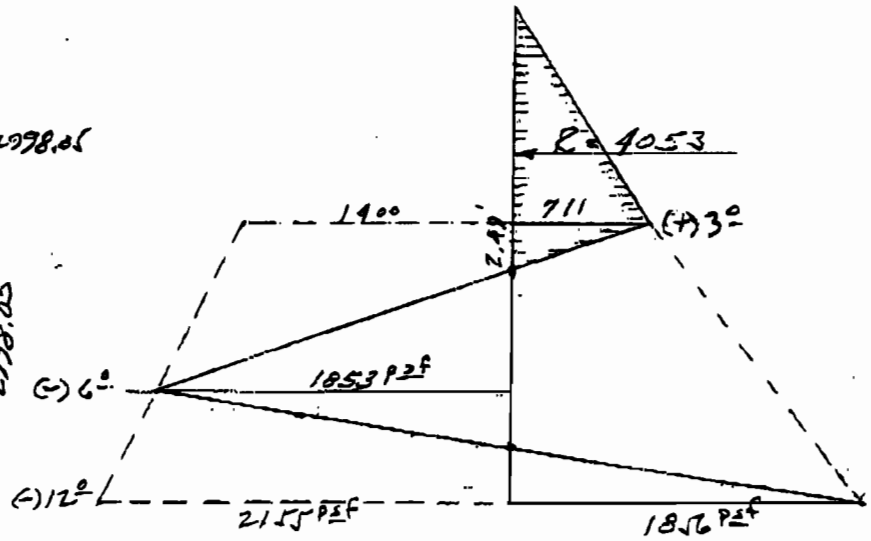
$F/S = \frac{149\,331}{72\,468} = 2.06$ OK

SINCE THE STRATUM FROM (-)12° TO (-)16° IS GOOD SAND, WE ONLY CONSIDERED DOWN TO (-)12° FOR THIS CALCULATION. (-)12° TO (-)16° CAN BE CONSIDERED ANCHORAGE.



SIMPLIFIED LOADING DIAGRAM





EQUIV. BEAM DIAG.

$f_b = 21\,000$ PSI

$Z_{req'd} = \frac{9722 \times 12}{21\,000} = 5.56$ IN.³

C Z 101 : $Z = 16.50$ IN.³

$f = \frac{9722 \times 12}{16.50} = 7071$ PSI OK

F/L London Ave
Moor I-wall F/L
JB

EUSTIS ENGINEERING COMPANY, INC.
GEOTECHNICAL ENGINEERS
CONSTRUCTION QUALITY CONTROL AND MATERIALS TESTING
3011 28th Street • Metairie, Louisiana 70002 • 504-834-0157

20 April 1995

Burk-Kleinpeter, Inc.
Engineers, Architects, Planners, Environmental Scientists
4176 Canal Street
New Orleans, Louisiana 70119

Post-it® Fax Note 7671	Date 5-22-95	# of pages ▶
To Cathy	From Gayle	
Co./Dept. B+K	Co. BKI	
Phone # 626-1866	Phone # 486-5901	
Fax # 626-9710	Fax # 488-1714	

Attention Mr. Mike Jackson

Gentlemen:

Geotechnical Engineering Analyses
London Avenue Canal Flood Protection Levee
West Bank, Stations 70+25 to 84+90
New Orleans, Louisiana

Transmitted are the results of our revised analyses for the proposed relocation of the I-wall on the west bank of the London Avenue Canal Flood Protection Levee. The procedure for these analyses conforms to alternate criteria recently provided by Mr. Frank Vojkovich of the U.S. Army Corps of Engineers. This information should replace our letter dated 17 April 1995.

Furnished Information

Burk-Kleinpeter, Inc., indicated that approximately 1,465 linear feet of the west bank I-wall will be moved 4 feet toward the canal between Stations 70+25 and 84+90. Levee cross-sections between these stations were provided for the analyses.

Burk-Kleinpeter, Inc. 20 April 1995

I-Wall Analyses

The levee cross-section at Station 76+95 was considered the critical cross-section and was used in our analyses. The static water level (SWL) of el 11.9 MSL and soil properties from Reach I of our geotechnical report dated 19 May 1993 were used in our analyses.

Per our conversation with Mr. Vojkovich, only the "Q" case soil conditions should be used to analyze a hurricane protection cantilever I-wall without waveloads. These analyses assume a factor of safety of 1.0 applied to the soil shear strength and 2 feet of freeboard above the SWL to determine the required penetration of the sheetpile and the maximum bending moment. However, the U.S. Army Corps of Engineers recommends a minimum 3:1 penetration to head ratio using the SWL elevation.

Based on these analyses and the penetration to head ratio, a sheetpile tip elevation of -16 MSL is required. A sheetpile embedded to this depth will have a maximum bending moment of 10,799 ft-lbs at el 2.3. The complete results of the "Q" case analysis are provided in Enclosure 1.

Underseepage

Underseepage of the recommended sheetpile wall sections was evaluated based on Harr's Method of Analysis. Based on this analysis, a factor of safety of 5.2 for seepage was calculated when using the SWL and tailwater el 0.0 MSL on the protected side of the levee. This factor of safety is greater than 4 which is recommended by the U.S. Army Corps of Engineers for sheetpiles embedded into SP and SM type soils. Therefore, the recommended sheetpile penetration does not have to be increased for seepage.

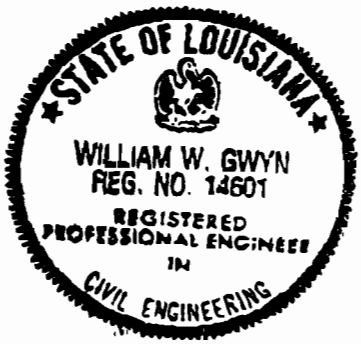
Slope Stability

Relocation of the I-wall will not have a negative impact on the overall stability of the levee. Therefore, slope stability of the levee and I-wall was not part of our evaluation.

Burk-Kleinpeter, Inc.

20 April 1995

Thank you for asking us to perform these services.



Yours very truly,

EUSTIS ENGINEERING COMPANY, INC.

WILLIAM W. GWYN, P.E.

Gregg A. Putnam:ejg

Enclosure 1 (7 sheets)

EE 13446

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS BY CLASSICAL METHODS

DATE: 20-APR-1995 TIME: 9.28.57

INPUT DATA

I.--HEADING:
'LONDON AVENUE CANAL FLOOD PROTECTION (STATION 76+95)'
'I-WALL ANALYSIS FOR 4' MOVEMENT FROM 70+25 TO 84+90'
'Q-CASE ANALYSIS, F.O. - 1.0, SWL + 2' = 15.9'

II.--CONTROL CANTILEVER WALL DESIGN

LEVEL 1 FACTOR OF SAFETY FOR ACTIVE PRESSURES = 1.00
LEVEL 1 FACTOR OF SAFETY FOR PASSIVE PRESSURES = 1.00

III.--WALL DATA ELEVATION AT TOP OF WALL = 15.00 (FT)

IV.--SURFACE POINT DATA

IV.A--RIGHTSIDE

DIST. FROM WALL (FT)	ELEVATION (FT)
.00	5.00
2.00	3.00
7.00	2.80
10.00	.50
19.00	-2.10
28.00	-7.60
49.00	-8.70
69.00	-9.10
100.00	-9.10
300.00	-9.10

IV.B-- LEFTSIDE

DIST. FROM WALL (FT)	ELEVATION (FT)
.00	5.00
2.00	5.00
13.50	5.00
17.50	3.30
24.00	.40
39.00	-6.00
300.00	-6.00

V.--SOIL LAYER DATA

V.A.--RIGHTSIDE LAYER DATA
LEVEL 2 FACTOR OF SAFETY FOR ACTIVE PRESSURES = DEFAULT
LEVEL 2 FACTOR OF SAFETY FOR PASSIVE PRESSURES = DEFAULT

SAT. WGHT. (PCF)	MOIST WGHT. (PCF)	ANGLE OF INTERNAL FRICTION (DEG)	COH-ESION (PSF)	ANGLE OF WALL FRICTION (DEG)	ADH-ESION (PSF)	<--BOTTOM--> ELEV. (FT)	SLOPE (FT/FT)	<-SAFETY-> <-FACTOR-> ACT.	PASS.
109.00	109.00	.00	700.0	.00	.0	.00	.00	DEF	DEF
96.00	96.00	.00	400.0	.00	.0	-6.00	.00	DEF	DEF
102.00	102.00	.00	320.0	.00	.0	-12.00	.00	DEF	DEF
122.00	122.00	30.00	.0	.00	.0			DEF	DEF

V.B.-- LEFTSIDE LAYER DATA
LEVEL 2 FACTOR OF SAFETY FOR ACTIVE PRESSURES = DEFAULT
LEVEL 2 FACTOR OF SAFETY FOR PASSIVE PRESSURES = DEFAULT

SAT. WGHT. (PCF)	MOIST WGHT. (PCF)	ANGLE OF INTERNAL FRICTION (DEG)	COH-ESION (PSF)	ANGLE OF WALL FRICTION (DEG)	ADH-ESION (PSF)	<--BOTTOM--> ELEV. (FT)	SLOPE (FT/FT)	<-SAFETY-> <-FACTOR-> ACT.	PASS.
109.00	109.00	.00	700.0	.00	.0	.00	.00	DEF	DEF
96.00	96.00	.00	400.0	.00	.0	-6.00	.00	DEF	DEF
102.00	102.00	.00	320.0	.00	.0	-12.00	.00	DEF	DEF
122.00	122.00	30.00	.0	.00	.0			DEF	DEF

VI.--WATER DATA

UNIT WEIGHT = 62.50 (PCF)
RIGHTSIDE ELEVATION = 13.90 (FT)
LEFTSIDE ELEVATION = .00 (FT)
NO SEEPAGE

VII.--SURFACE LOADS
NONE

VIII.--HORIZONTAL LOADS
NONE

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS BY CLASSICAL METHODS

DATE: 20-APR-1995 TIME: 9.29.06

SOIL PRESSURES FOR CANTILEVER WALL DESIGN

I.--HEADING

'LONDON AVENUE CANAL FLOOD PROTECTION (STATION 76+95)'
'I-WALL ANALYSIS FOR 4' MOVEMENT FROM 70+25 TO 84+90'
'Q-CASE ANALYSIS, F.S. = 1.0, SWL + 2' = 13.9'

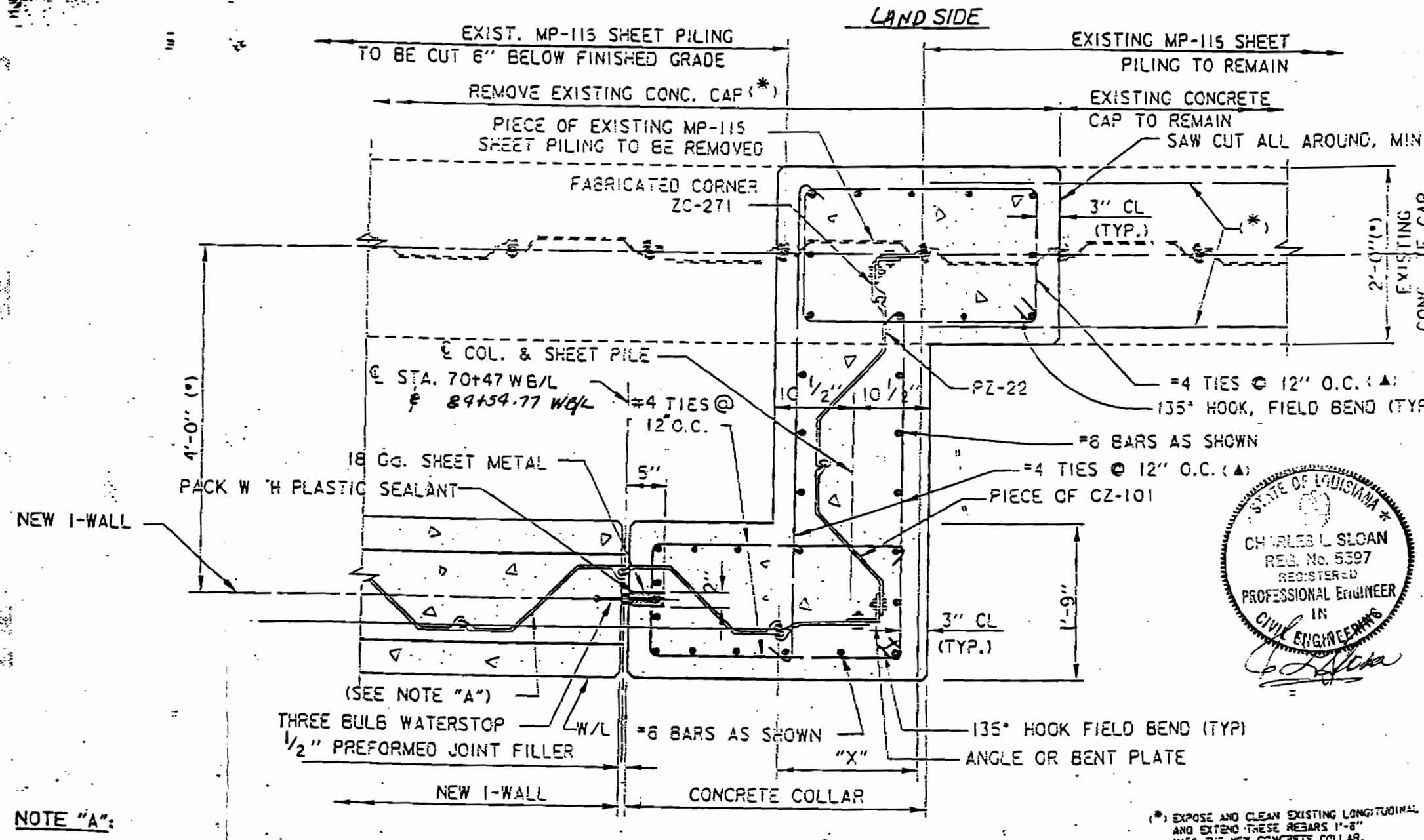
II.--SOIL PRESSURES

RIGHTSIDE SOIL PRESSURES DETERMINED BY FIXED SURFACE WEDGE METHOD.

LEFTSIDE SOIL PRESSURES DETERMINED BY FIXED SURFACE WEDGE METHOD.

	<-LEFTSIDE PRESSURES->		<---NET PRESSURES----> (SOIL PLUS WATER)		<RIGHTSIDE PRESSURES->	
ELEV. (FT)	PASSIVE (PSF)	ACTIVE (PSF)	ACTIVE (PSF)	PASSIVE (PSF)	ACTIVE (PSF)	PASSIVE (PSF)
15.00	.00	.00	.000	.000	.00	.00
14.00	.00	.00	.000	.000	.00	.00
13.90	.00	.00	.000	.000	.00	.00
13.00	.00	.00	56.250	56.250	.00	.00
12.00	.00	.00	118.750	118.750	.00	.00
11.00	.00	.00	181.250	181.250	.00	.00
10.00	.00	.00	243.750	243.750	.00	.00
9.00	.00	.00	306.250	306.250	.00	.00
8.00	.00	.00	368.750	368.750	.00	.00
7.00	.00	.00	431.250	431.250	.00	.00
6.00	.00	.00	493.750	493.750	.00	.00
5.00+	.00	.00	556.250	556.250	.00	.00
5.00-	1400.00	.00	-843.750	1956.250	.00	1400.00
4.50	1454.50	.00	-867.000	1649.125	.00	1061.63
4.00	1509.00	.00	-890.250	1342.000	.00	723.25
3.00	1618.00	.00	-936.750	1417.570	.00	736.32
2.00	1736.67	.00	-992.920	1583.503	.00	839.75
1.00	1779.75	.00	-973.500	1871.610	.00	1065.36
.00	1625.54	.00	-756.785	1988.687	.00	1119.94
-1.00	1434.75	.00	-566.000	1850.589	.00	981.84
-2.00	1402.92	.00	-534.170	1811.931	.00	943.18
-3.00	1445.50	.00	-576.750	1823.778	.00	955.03
-4.00	1481.48	.00	-612.727	1664.270	.00	795.52
-5.00	1497.50	9.94	-628.750	1396.980	.00	538.17

-6.00	1467.55	61.37	-598.797	1240.877	.00	433.50
-7.00	1454.06	135.56	-585.306	1206.188	.00	473.00
-8.00	1368.60	186.50	-499.849	1194.748	.00	512.50
-9.00	1159.50	224.50	-290.750	1196.250	.00	552.00
-10.00	1050.22	264.32	-181.472	1234.618	.00	630.18
-11.00	1172.71	302.06	-283.010	1366.932	20.95	800.24
-12.00	1578.67	330.26	-598.901	1592.233	111.02	1053.75
-13.00	2012.70	348.94	-930.520	1845.819	213.43	1326.01
-14.00	2181.58	367.17	-1064.251	1995.938	248.58	1494.36
-15.00	2240.37	387.17	-1114.729	2120.055	256.89	1638.47
-16.00	2318.56	407.00	-1177.563	2226.530	272.25	1764.78
-17.00	2395.27	426.83	-1235.531	2233.603	290.99	1791.69
-18.00	2470.13	446.67	-1290.791	2195.635	310.59	1773.55
-19.00	2644.69	466.50	-1445.874	2242.579	330.07	1840.33
-20.00	2903.56	486.33	-1685.268	2346.032	349.54	1963.62
-21.00	3038.49	506.17	-1800.721	2444.591	369.02	2082.01
-22.00	3074.25	526.00	-1816.990	2549.676	388.51	2206.93
-23.00	3117.28	545.90	-1840.499	2677.686	408.03	2354.83
-24.00	3158.97	565.65	-1864.074	2793.168	426.14	2490.07
-25.00	3199.46	581.44	-1889.573	2964.352	441.14	2677.05
-26.00	3251.15	589.76	-1928.163	3249.697	454.24	2970.70



STATE OF LOUISIANA
CHARLES L SLOAN
REG. No. 5597
REGISTERED
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING

NOTE "A":

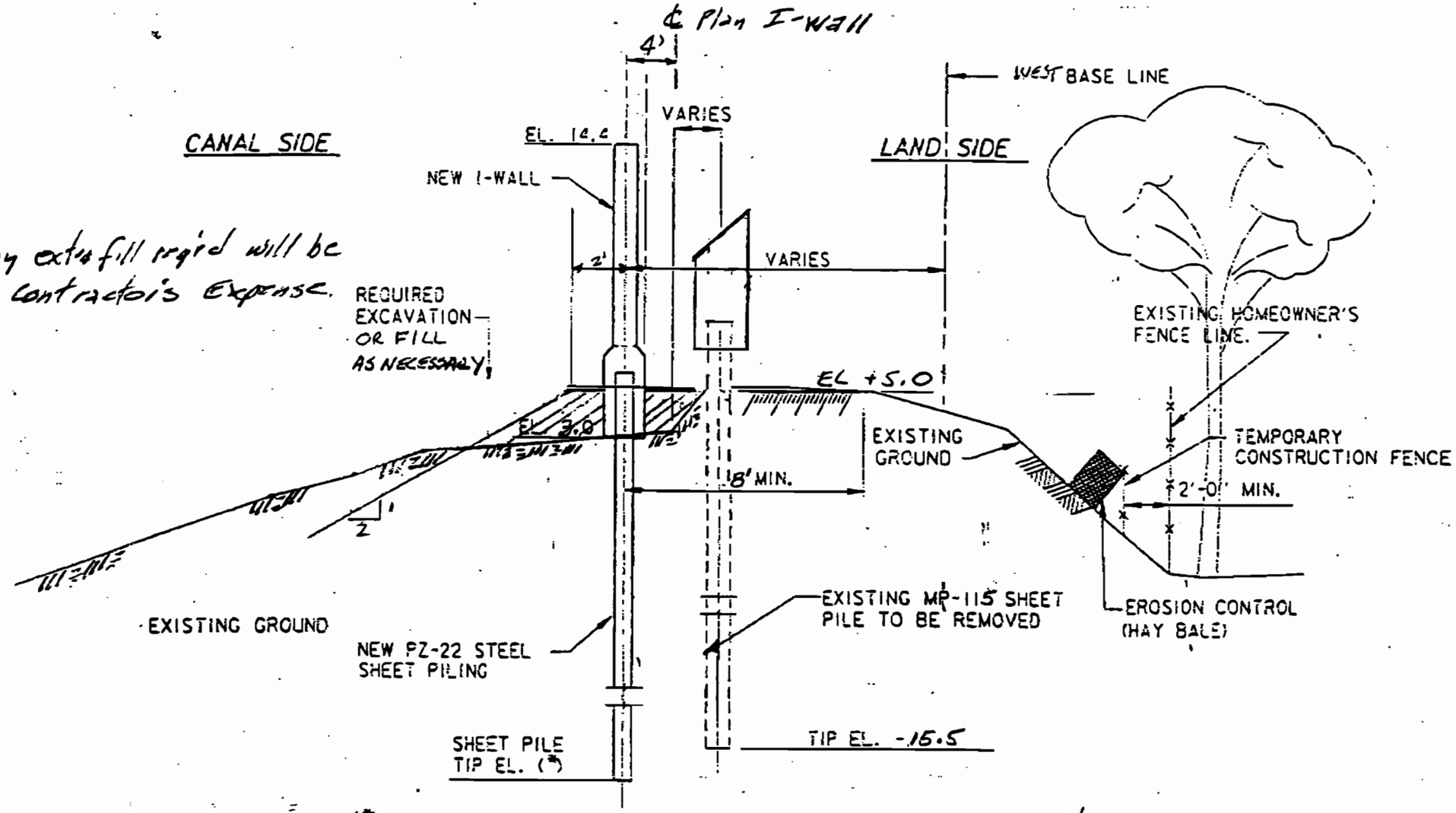
COLLAR TO INCLUDE AT LEAST ONE CZ 101 SO THAT WHEN COLLAR IS REMOVED FOR FUTURE I-WALL THERE IS A SHEET PILE TO INTERLOCK FUTURE SHEET PILING TO EXISTING SHEET PILING.

(*) EXPOSE AND CLEAN EXISTING LONGITUDINAL REBARS AND EXTEND THESE REBARS 1'-6" INTO THE NEW CONCRETE COLLAR.

(▲) ALL TIES ARE TO BE FIELD BENT.

(•) #6 L-BARS TO LAP #6 BARS AS SHOWN IN PLAN AT EL. 5.00

PLAN AT EL. 11.0



NOTE: Any extra fill regid will be at Contractor's Expense.

(*) TIP EL. - 16.0 FROM STA. 70+47 TO STA. 84+54.72 W℄

RELOCATED I-WALL STA 70+47 TO 84+54.72

CELMN-CD-CS(CELMN-N0-Q/8 Aug95)2nd End Guillot/x2938
SUBJECT: Contract DACW29-94-C-0079, Lake Pontchartrain, LA and Vicinity, High Level Plan, London Ave., East Bank, Orleans Parish, LA,

CD 6 Oct 95

FOR Area Engineer, New Orleans Area Office

1. The contractor's proposal for changing the wall alignment between Sta. 85+90 and Sta. 99+83.67 WB/L is technically acceptable.

2. Request you take the necessary actions for completion of modification. Furnish a copy of the finalized modification to the Value Engineering Officer.

3. POC is Robert Guillot at ext 2938.

Marsalis

Atch WILLIAM R. MARSALIS
nc Chief, Contract Administration Branch

CF
Value Engineering Officer

CELMN-ED-TM (CELMN-NO-Q/18 Sep 95) 1st End DeSoto/x2733
SUBJECT: Lake Pontchartrain, LA and Vicinity, High level Plab, London Ave. Outfall Canal, Mirabeau Ave. to Leon C. Simon Ave., East Side, Mirabeau Ave. to Robert E. Lee Blvd., West Side, Orleans Parish, LA

ED 29 Sep 95

FOR C/ Construction Div WFM/04Oct 95

1. We have reviewed the Contractor's proposal for changing the wall alignment between Sta. 85+90 and Sta. 99+83.67 WB/L and have no comments.

2. Point of contact is Angela DeSoto, x2733.

W. EUGENE TICKNER 10.2
Chief, Engineering Division

Atch
nc

OCT 4 1995

CELMN-CD-NO-Q 18 Sep 95

MEMORANDUM THRU C/Const Div

FOR C/Engr Div ATTN: ED-DD and ED-F's

SUBJECT: Contract No. DACW29-94-C-0079, Lake Pontchartrain and Vicinity, High Level Plan, London Avenue Outfall Canal, Parallel Protection, Mirabeau Avenue to Leon C. Simon Boulevard Floodwall, Orleans Parish, Louisiana

1. Forwarded herewith is B & K Construction Company, Inc., proposal to relocate the new I-wall four (4) ft. to the floodside of the existing wall between Station 85+90 to 99+83.67 W B/L on the subject contract.

2. Request your comments regarding the technical adequacy of their proposal be furnished to NOAO by COB 29 Sep 95.

3. POC for this matter is Chris Wagner, X1222.

Chester Ashley

Atch

CHESTER ASHLEY
Area Engineer
New Orleans Area Office

CF:
Supv Civ Engr (Duhon)
Proj Engr (Wagner)
Proj Insp (Bryant)

SEP 20

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE

(Read instructions on the reverse side prior to initiating this form)

DATE: 9-/14/95

TRANSMITTAL NO.: 9402-039

SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS *(This section will be initiated by the contractor)*

TO: Mr. Chester Ashley
U.S.ARMY CORPS OF ENGINEERS
P. O. Box 60267
NEW ORLEANS, LA 70160

FROM:
B & K CONSTRUCTION CO., INC.
1905 HWY. 59
MANDEVILLE, LA 70448

CONTRACT NO.: DACW29-94-C-0079

CHECK ONE:
☑ THIS IS A NEW TRANSMITTAL
☐ THIS IS A RESUBMITTAL OF TRANSMITTAL _____

SPECIFICATION SEC. NO. (Cover only one section with each transmittal): C2H

PROJECT TITLE AND LOCATION: LONDON AVENUE CANAL - MIRABEAU TO LEON C. SIMON BLVD.

ITEM NO. a.	DESCRIPTION OF ITEM SUBMITTED (Type size, model number/etc.) b.	MFG OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. (See instruction no. 8) c.	NO. OF COPIES d.	CONTRACT REFERENCE DOCUMENT: SPEC. PARA. NO. e.	CONTRACT REFERENCE DOCUMENT: DRAWING SHEET NO. f.	FOR CONTRACTOR USE CODE g.	VARIATION (See instruction No. 6) h.	FOR CE USE CODE i.
020	Temporary Cofferdam Design Calculations		4	C2H 4.1				
	Proposed Relocation of New I-Wall 4'0" to the Floodside of the Existing Wall Station 85+90 to Station 99+83.67 WB/L							

REMARKS

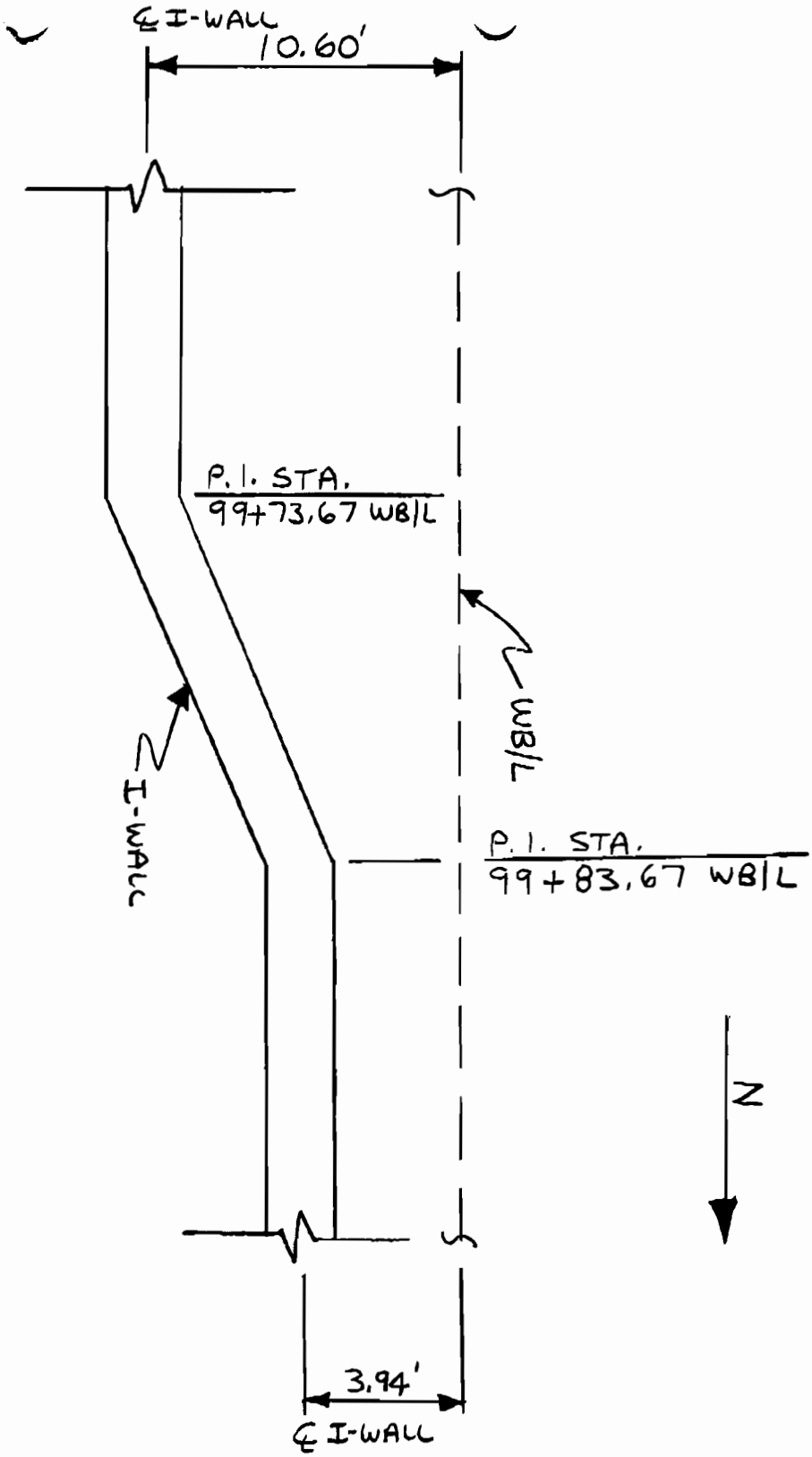
I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as otherwise stated.

B & K CONSTRUCTION CO., INC.

Deborah W. Smith, Project Coord.

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED (List by Item No.)	NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY	DATE



NORTH END PLAN VIEW

B&K CONSTRUCTION COMPANY, INC.

WE HAVE MET THE FOLLOWING CRITERIA (SEE ATTACHED DETAIL):

1. Design Criteria Slope Stability. Slope stability performed by LMVD Method of Planes Analysis (Wedge Analysis) for a minimum factor of safety of 1.3 with respect to the design shear strength. Floodside analysis low water elevation -5.0. Protected side analysis high water elevation 11.9. Piezometric headline at elevation -3.0. The wedge stability computer program used by Corps is Stability with Uplift (FS004).

2. Design Criteria for I-Walls. A factor of safety is applied to the design sheer strength as follows:

the cohesion developed = cohesion/factor of safety;
developed = arctan (tan available/factor of safety).

Using the resulting shear strengths, net lateral water and earth pressure diagrams are determined for movement toward each side of the sheet pile. Using these distributions of pressure, the summation of horizontal forces is equated to zero for various tip penetrations. At these penetrations summations of overturning moments about the sheet pile are determined. The required depths of penetration to satisfy the stability criteria are determined as those where summation of moments is equal to zero. The sheet pile wall design criteria is:

Tip Penetrations

F.S. = 1.5 with water to Ele. 11.9
F.S. = 1.0 with water to Ele. 13.9

BENDING MOMENTS

Governing Tip Penetration Case

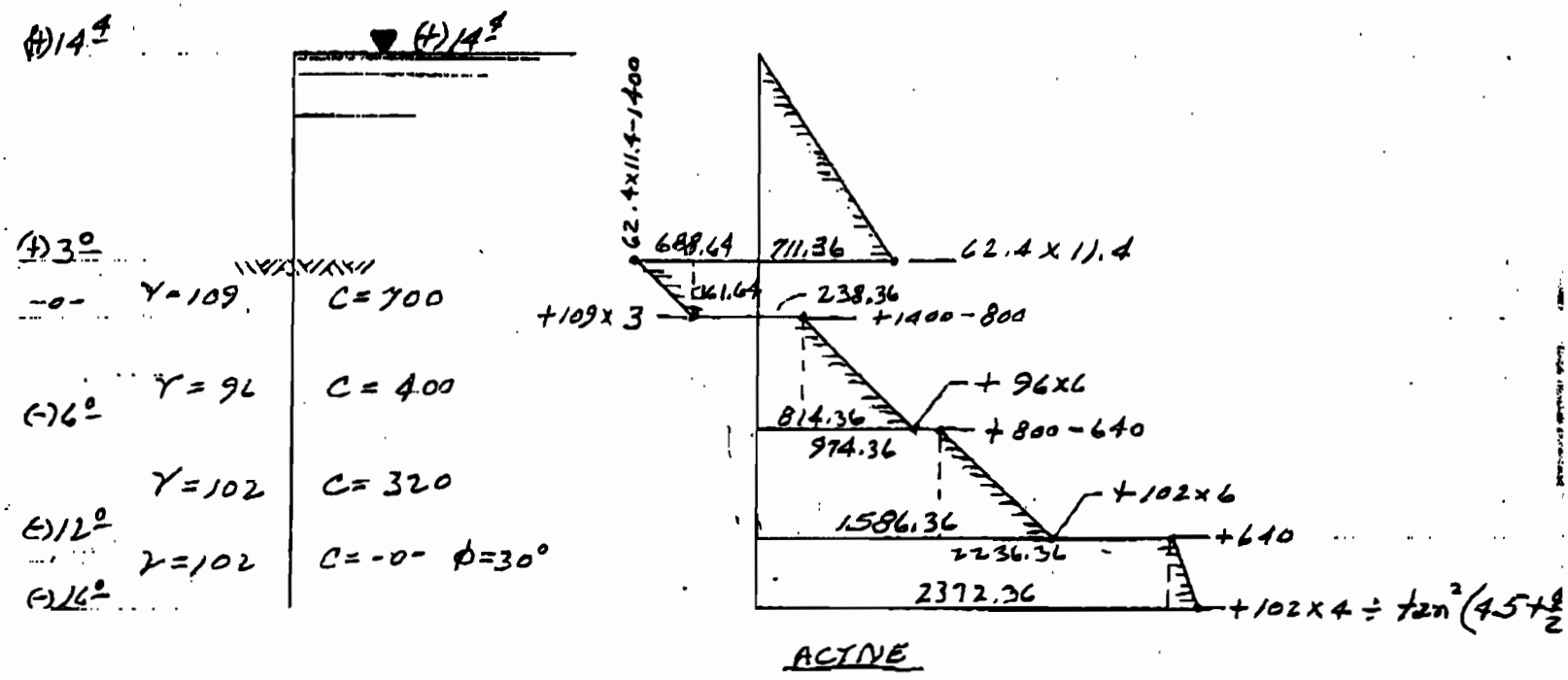
Groundwater elevation 0.0 or natural ground surface.

C.L. SLOAN ENGINEERING **MANDEVILLE, LOUISIANA**

BY _____ DATE 6-26-95 SUBJECT _____ SHEET NO. 1 OF _____

CHKD. BY _____ DATE _____ CLIENT B & K JOB NO. _____

STA 85+30 TO 99+63.67 WB/L
4' OFFSET TO FLOOD SIDE OF EXISTING WALL.



ACTIVE

Ozd Bruning, Inc. 80252 Form 8965

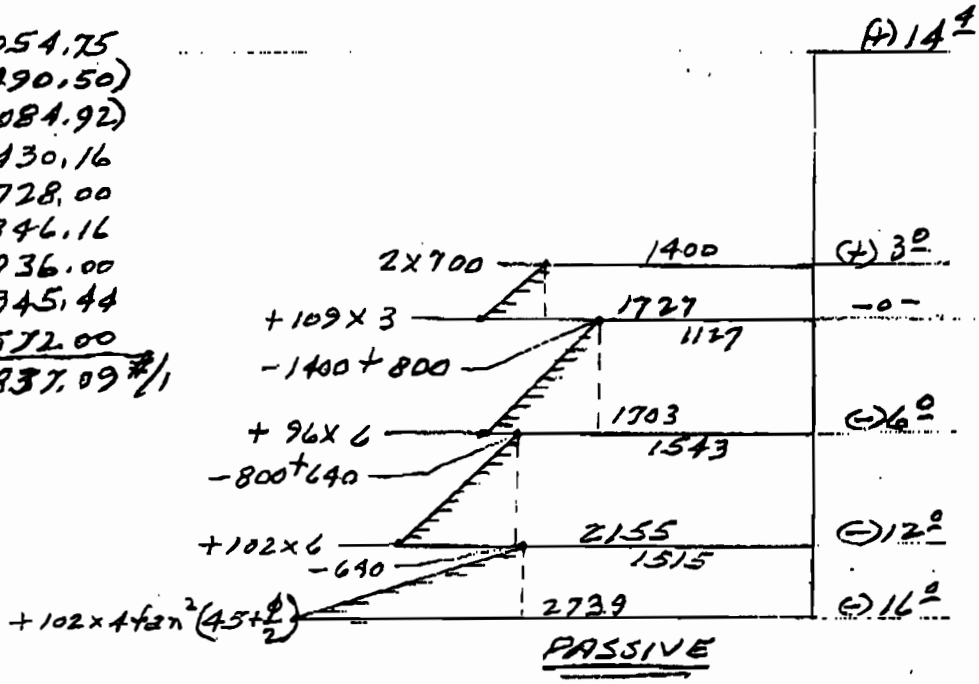
C.L. SLOAN ENGINEERING **MANDEVILLE, LOUISIANA**

BY _____ DATE 5-17-95 SUBJECT _____ SHEET NO. 2 OF _____

CHKD. BY _____ DATE _____ CLIENT B & K JOB NO. _____

ΣV_{ACTIVE}

$\frac{1}{2} \times 711.36 \times 11.4 = 4054.75$
$(-)\frac{1}{2} \times 327 \times 3 = (490.50)$
$(-) 361.64 \times 3 = (1084.92)$
$238.36 \times 6 = 1430.16$
$\frac{1}{2} \times 576 \times 6 = 1728.00$
$974.36 \times 6 = 5846.16$
$\frac{1}{2} \times 612 \times 6 = 1836.00$
$2236.36 \times 4 = 8945.44$
$\frac{1}{2} \times 786 \times 4 = 15720.00$
$V_{ACTIVE} = 23,837.09$ #/'



PASSIVE

$\Sigma V_{PASSIVE}$

$1400 \times 3 = 4200$
$\frac{1}{2} \times 327 \times 3 = 490.5$
$1127 \times 6 = 6762$
$\frac{1}{2} \times 576 \times 6 = 1728$
$1543 \times 6 = 9258$
$\frac{1}{2} \times 612 \times 6 = 1836$
$1515 \times 4 = 6060$
$\frac{1}{2} \times 1224 \times 4 = 2448$
$32,782.5$

$F/S_V = \frac{32782.5}{23837.09} = 1.38 > 1.3$ ok

ΣM_{ACTIVE}

$4054.75 \times 22.8 = 92,448.3$
$(490.5) \times 18 = (8,829)$
$(1084.92) \times 17.5 = (18,986.1)$
$1430.16 \times 13 = 18,592.08$
$1728 \times 12 = 20,736$
$5846.16 \times 7 = 40,923.12$
$1836 \times 6 = 11,016$
$8945.44 \times 2 = 17,890.88$
$1572 \times 1.33 = 2,095.95$
$M_{ACT.} = 175,887.23$

$\Sigma M_{PASSIVE}$

$4200 \times 17.5 = 73,500$
$490.5 \times 17 = 8,338.5$
$6762 \times 13 = 87,906$
$1728 \times 12 = 20,736$
$9258 \times 7 = 64,806$
$1836 \times 6 = 11,016$
$6060 \times 2 = 12,120$
$2448 \times 1.33 = 3,263.92$
$M_{pass.} = 281,686.42$

$F/S_M = \frac{281646}{175887} = 1.6 > 1.0$ ok

C.L. SLOAN ENGINEERING **MANDEVILLE, LOUISIANA**

BY _____ DATE 5/17/95 SUBJECT _____ SHEET NO. 3 OF _____

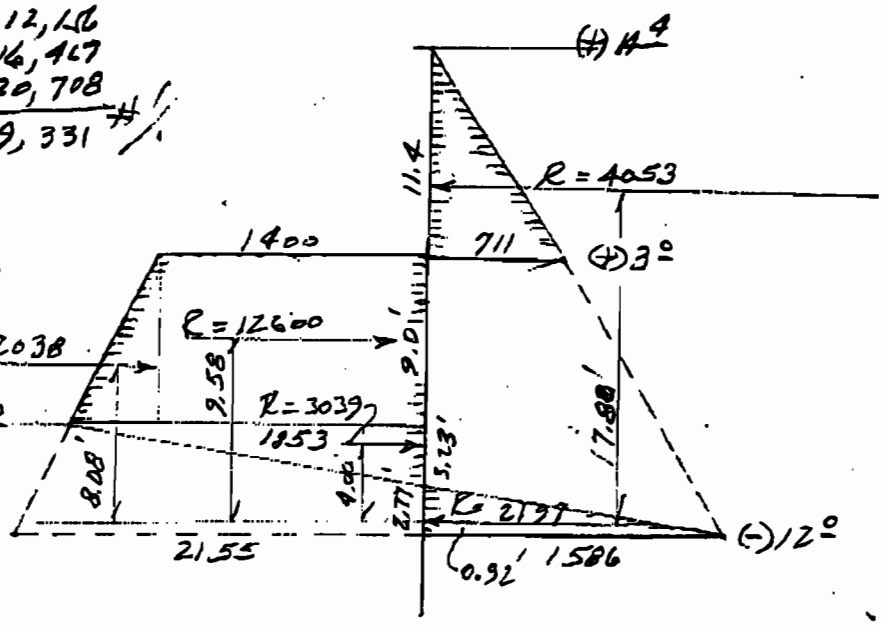
CHKD. BY _____ DATE _____ CLIENT B&K JOB NO. _____

$M_{overturn}$ ↻ : 4053 × 17.88 = 72,468 #'/'

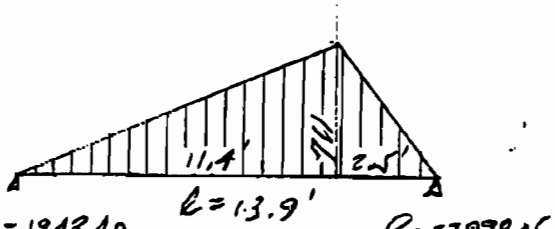
$R_{RESIST.}$ ↓ : 3039 × 4 = 12,156
2038 × 8.08 = 16,467
12,600 × 9.58 = 120,708
M_R = 149,331 #'/'

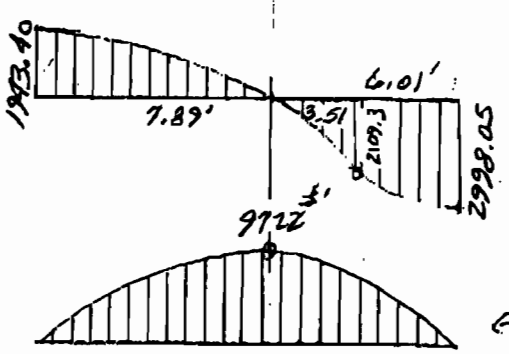
$F/S = \frac{149\,331}{72\,468} = 2.06$ OK

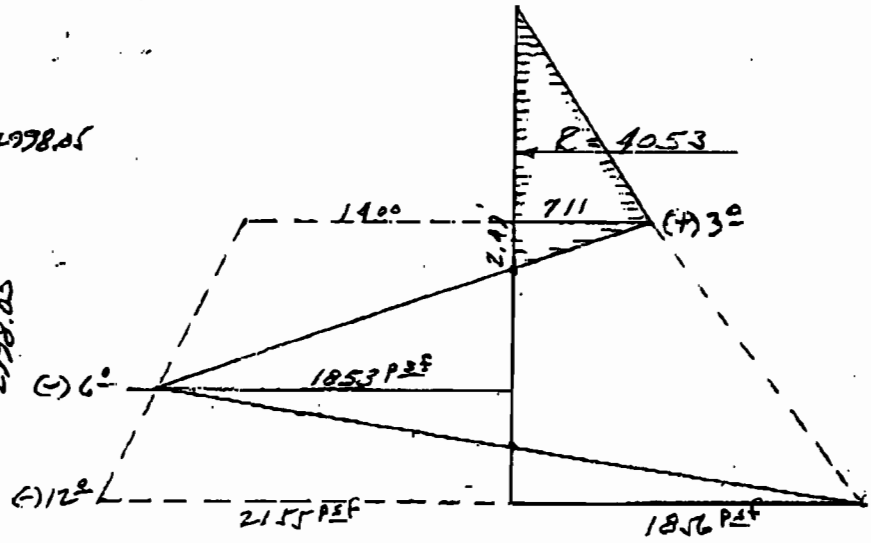
SINCE THE STRATUM FROM (-)12° TO (-)16° IS GOOD SAND, WE ONLY CONSIDERED DOWN TO (-)12° FOR THIS CALCULATION. (-)12° TO (-)16° CAN BE CONSIDERED ANCHORAGE.



SIMPLIFIED LOADING DIAGRAM







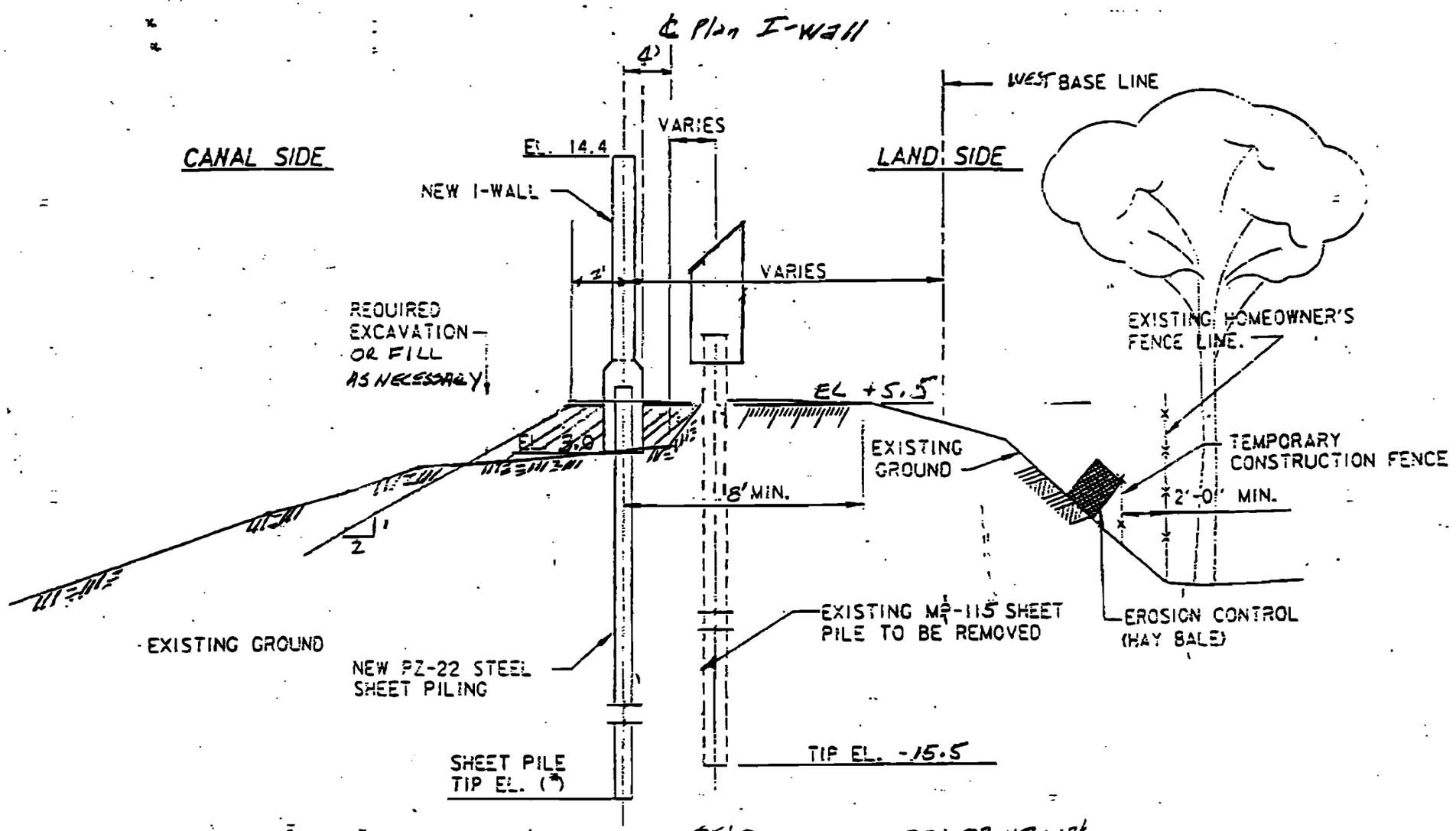
EQUIV. BEAM DIAG.

f_b = 21 000 PSI

$Z_{req'd} = \frac{9722 \times 12}{21000} = 5.56$ IN.^{3}

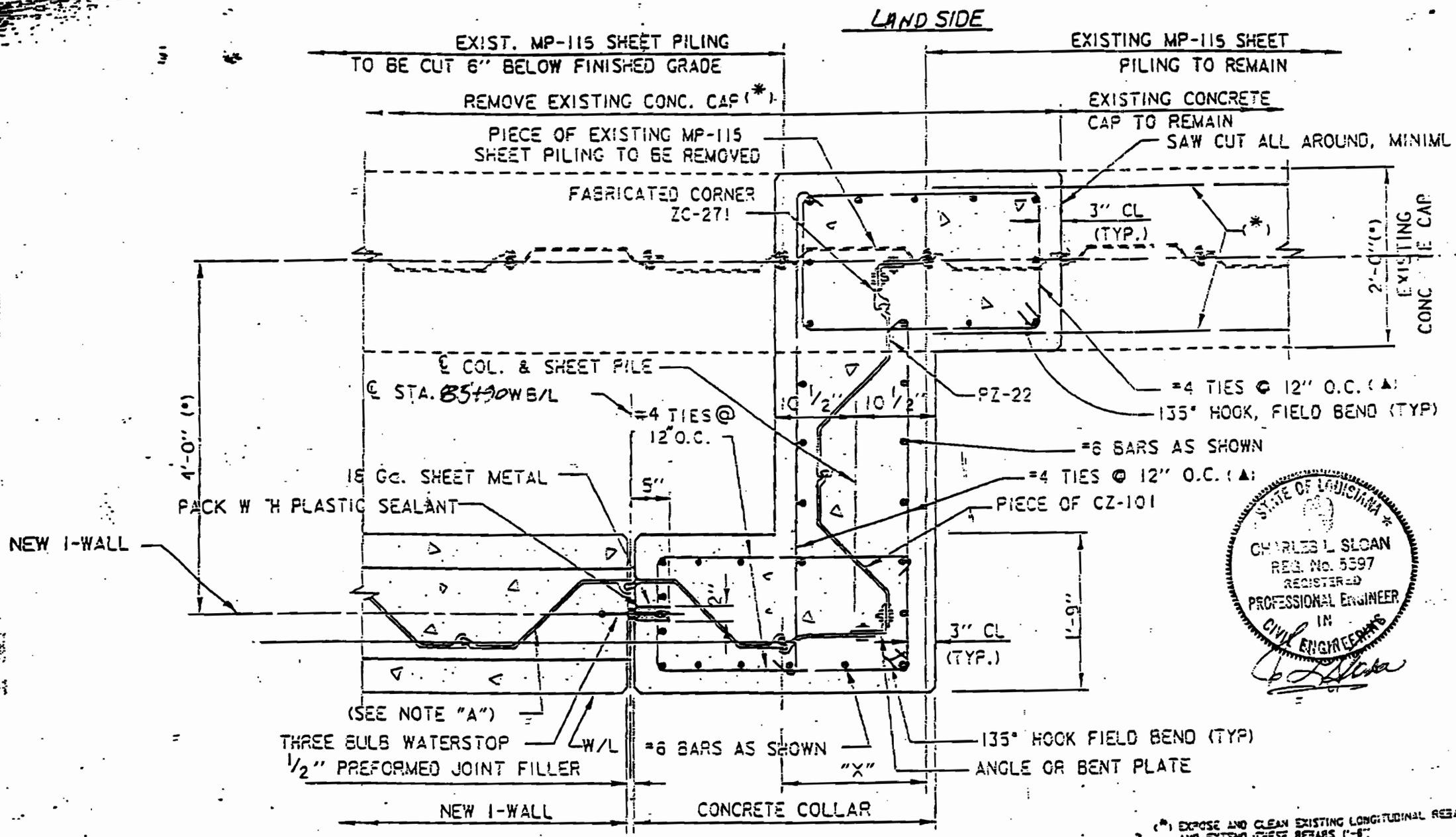
C Z 101 : Z = 16.50 IN.^{3}

$f = \frac{9722 \times 12}{16.50} = 7071$ PSI OK



(*) TIP EL. - 14.0 FROM STA. 85+90 TO STA. 99+83.67 W℄

STA 85+90 TO STA 99+83.67 W℄



STATE OF LOUISIANA
CHARLES L. SLOAN
REG. No. 5597
REGISTERED
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING

NOTE "A":

COLLAR TO INCLUDE AT LEAST ONE CZ 101 SO THAT WHEN COLLAR IS REMOVED FOR FUTURE I-WALL THERE IS A SHEET PILE TO INTERLOCK FUTURE SHEET PILING TO EXISTING SHEET PILING

(*) EXPOSE AND CLEAN EXISTING LONGITUDINAL REBARS AND EXTEND THESE REBARS (1'-6") INTO THE NEW CONCRETE COLLAR.

(▲) ALL TIES ARE TO BE FIELD BENT.

(■) #6 L-BARS TO LAP #6 BARS AS SHOWN IN PLAN AT EL. 5.00

Drive Sheets for Coffer Dam 94-79

Sept 1	hrs	SF	
Sept. 7	6	30	9975 - 9955, 7300 - 7280
8	6	100	9955 - 9905 7280 - 7240
11	4	50	9880 - 9905 7240 - 7165
12	7	135	9880 - 9835, 7165 - 7075
13	3	40	9835 - 9820, 7075 - 7050
	26	355	

13.65

109

14	8	125	70+50 - 70+15 98+20 - 97+45
15	7	35	97+30 - 96+95
16	—		
17	—		
18	8	60	96+95 - 96+35
19	6	60	~~70+20~~ 96+35 - 95+75 also corner pieces
20	6	30	drove tie-ins 95+75 - 95+45 ~~98+62 - 99+70~~
21	5	~~685~~	alignment 99+75 - 97+00
29	2		tie ins
	68	665	

9.78 lf/hr = 78.2 lf/day