

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT				1. CONTRACT ID CODE	PAGE OF PAGES
2. AMENDMENT/MODIFICATION NO. 0002		3. EFFECTIVE DATE 17-Oct-2005	4. REQUISITION/PURCHASE REQ. NO.		5. PROJECT NO.(If applicable)
6. ISSUED BY USACE, CONTRACTING DIVISION ATTN: CEMVN-CT, ROOM 172 7400 LEAKE AVE. NEW ORLEANS LA 70118-3651		CODE W912P8	7. ADMINISTERED BY (If other than item 6)		CODE
			<b>See Item 6</b>		
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)				<input checked="" type="checkbox"/>	9A. AMENDMENT OF SOLICITATION NO. W912P8-06-R-0016
				<input checked="" type="checkbox"/>	9B. DATED (SEE ITEM 11) 14-Oct-2005
					10A. MOD. OF CONTRACT/ORDER NO.
					10B. DATED (SEE ITEM 13)
CODE		FACILITY CODE			
<b>11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS</b>					
<input checked="" type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer <input checked="" type="checkbox"/> is extended, <input type="checkbox"/> is not extended.					
Offer 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 <u>  1  </u> 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)					
<b>13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.</b>					
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.					
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 <input type="checkbox"/> is not, <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.					
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) The above numbered solicitation for Lake Pontchartrain and Vicinity, Sheet Pile Repair, London Avenue Canal Floodwall Breach, Mirabeau Avenue, New Orleans, LA, is hereby amended as shown on the attached pages:  PROPOSAL DUE DATE PROPOSAL DUE DATE OF 20 OCTOBER 2005, 10:00 A.M. LOCALTIME OF NEW ORLEANS, LA, IS HEREBY ESTABLISHED.					
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)		
			TEL: _____ EMAIL: _____		
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA		16C. DATE SIGNED	
_____ (Signature of person authorized to sign)		BY _____ (Signature of Contracting Officer)		17-Oct-2005	

**LAKE PONTCHARTRAIN AND VICINITY, NEW ORLEANS, LOUISIANA**  
**LONDON AVENUE CANAL FLOODWALL BREACH**

**MIRABEAU AVENUE**  
**SHEET PILE REPAIR**

**AMENDMENT 0002**

**SPECIFICATIONS**

SF1442

Block 11: “ 37” is changed to read “52” calendar days .

SECTION 00010

Delete page 00010-1, in its entirety and substitute the attached revised page 00010-1 therefore.

SECTION 0130

Paragraph 1.4., should read “five” non-cost factors instead of “four”.

SECTION 0700

Page 13, paragraph 52.211-10 Delete “(c) complete the entire work ready for use not later than 37 calendar days after the date of receipt of notice to proceed.” and replace with “(c) complete the entire work ready for use not later than **52** calendar days after the date of receipt of notice to proceed.”

SECTION 01100

Page 01100-6, paragraph 4.a.(4). At the end of the sentence, insert the following, “No separate payment will be made for police. The cost shall be distributed among the bid items for the work it is associated with.

Page 01100-17, paragraphs 24. a. Delete this paragraph in its entirety and insert the following new paragraph.

- a. The sheet pile closure at the Leon C. Simon Boulevard bridge shall remain closed during installation of the PZ-35 sheet pile wall. Opening and closing of the sheet pile closure will be performed and coordinated by the Government.

Page 01100-17, paragraph 24.c. Delete “PZ-27” and insert “PZ-35”.

Delete the “Soil Boring” data at the end of Section 01100 in its entirety and substitute the attached “Soil Boring” data therefore.

### SECTION 02231

Page 02231-1, paragraph 1.1 SCOPE. In the fourth line delete “..., for the removal and disposal of existing steel sheet piling that will interfere with the placement of the repair sheet pile wall, ...”

Page 02231-1, paragraph 1.2 MEASUREMENT AND PAYMENT. In the third line delete “...removal and disposal of existing steel sheet piling to be removed,...”

### SECTION 02411

Delete Section 02411 (Pages 02411-a thru 02411 –9) in its entirety and replace it with attached Section 02411 (Pages 02411-a thru 02411 –9).

### DRAWINGS

Make the following pen and ink changes:

1. Dwg. 3 of 5. In quadrant B-4, delete the text “PZ-27” and insert “PZ-35”.
2. Dwg. 4 of 5.
  - a. In quadrant C-2, delete the text “PZ-27” and insert “PZ-35”.
  - b. In quadrant C-4, Note 3., delete the text “2 FOOT THICK...” and insert “1.5 FOOT THICK...”.
3. Dwg. 5 of 5. In quadrants A-3 and C-3, delete the text “PZ-27” and insert “PZ-35”.

SECTION 00010 – BIDDING SCHEDULE  
W912P8-06-R-0016  
Lake Pontchartrain and Vicinity, Sheet Pile Repair  
London Ave. Canal Floodwall Breach, Mirabeau Avenue,  
New Orleans, LA

0001	Mobilization and Demobilization	01	LS		
0002	Selective Demolition	01	LS		
0003	Clearing and Grubbing	01	LS		
0004	Graded Stone(Rip Rap)	6,200	TON		
0005	Separator Geotextile	550	SY		
0006	Bedding Stone	11,000	CY		
0007	Reinforced Concrete	01	LS		
0008	Piling, Steel Sheet, Type PZ <b>35</b>	33,000	SF		
0009	Jet Grouting	01	LS		

TOTAL

Award will be made as a whole to one bidder.

NOTE 1: Bidders shall furnish unit prices for each items listed in the Schedule of bid items which require unit prices. If the bidder fails to insert a unit price in the appropriate blank for required item(s), but does furnish an extended total, or an estimated amount for such items), the Government shall deem the unit price to be the quotient obtained by dividing the extended amount for that line item by the quantity. **IF A BIDDER OMITTS BOTH THE UNIT PRICE AND THE EXTENDED TOTAL OR ESTIMATED AMOUNT FOR ANY ITEM, ITS BID SHALL BE DECLARED NON-RESPONSIVE AND THEREFORE INELIGIBLE FOR AWARD.**

NOTE 2: THE NOTICE TO PROCEED (NTP): The successful bidder is advised that performance and payment bonds shall be submitted in accordance with the time frame in block 12B of SF 1442 after Notice of Award. The NTP will be issued immediately after verification of acceptable performance and

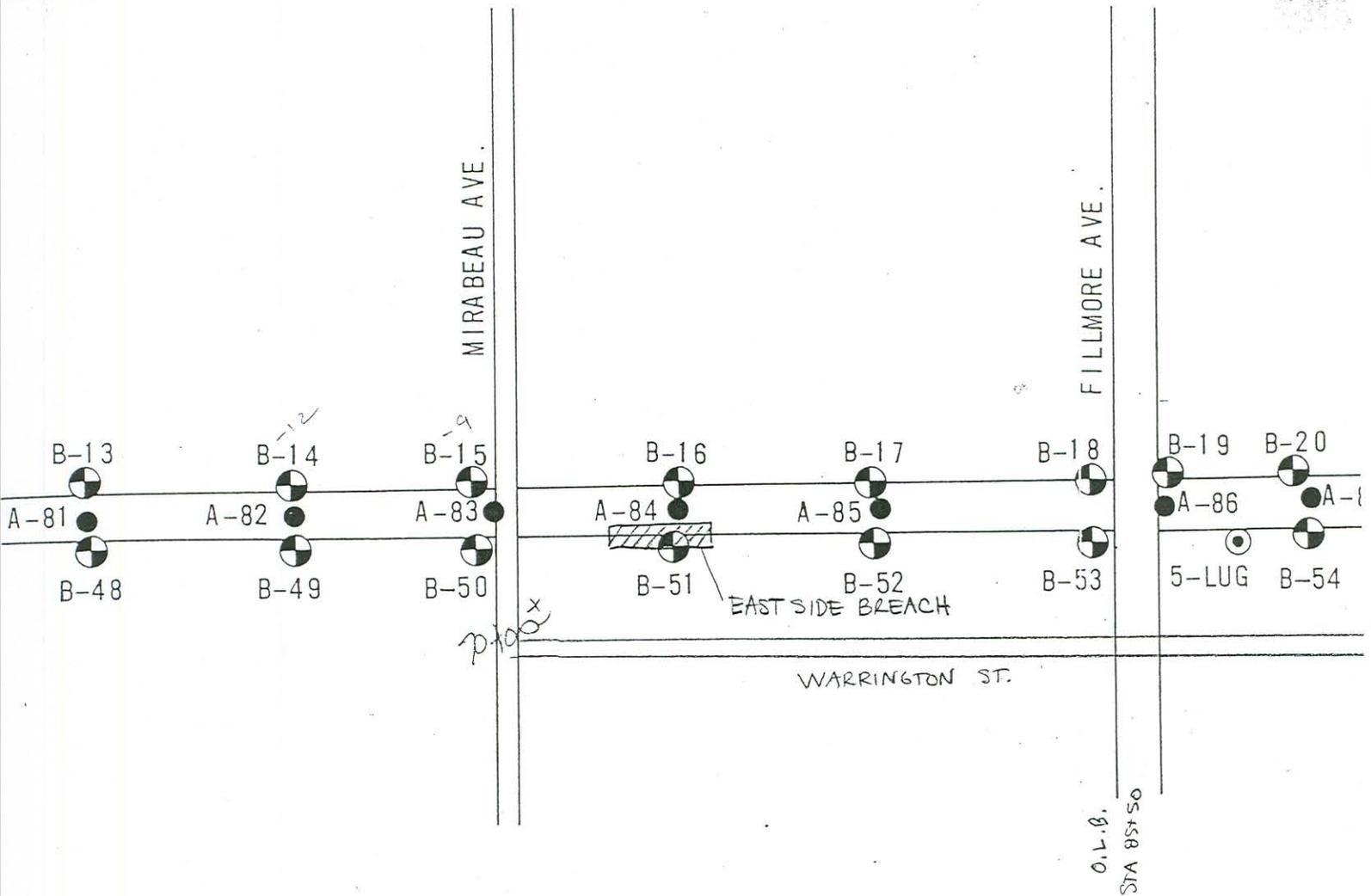
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Item	Description	Estimated Quantity	Unit	Unit Price	Estimated Amount
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payment bonds. Within seven (7) days after issuance of the NTP, the Contractor shall initiate a meeting to discuss the submittal process with the Area or Resident Engineer or his authorized representative. Physical work cannot start until the Accident Prevention Program, Contractor Quality Control Plan, and other submittals which may be required, have been submitted and approved and all preliminary meetings called for under the contract, have been conducted.

# LONDON AVENUE - MIRABEAU



## LOCATION OF BORINGS

SCALE:  $1'' = 40'$   $1'' = 400'$

- LEVEE BORINGS DRILLED 3 OCTOBER - 10 DECEMBER
- CANAL BORINGS DRILLED 13 NOVEMBER - 17 DECEMBER
- BORINGS NOT TAKEN DUE TO CONCRETE CANAL LINING
- BORINGS B-45, B-56 & B-65 ARE 5" DIA. UNDISTURBED BORINGS. ALL REMAINING UNDISTURBED BORINGS ARE 4" DIA.
- ⊙ USACE BORINGS TAKEN 23 OCTOBER THROUGH 25 OCTOBER

Geotechnical Investigation  
London Avenue Canal  
Levee and Floodwall Improvements  
Orleans Levee Board Project No. 2049-0269  
New Orleans, Louisiana

For: The Board of Levee Commissioners of the Orleans Levee District  
New Orleans, Louisiana

Burk & Associates, Inc., Engineers, Planners & Environmental Scientists  
New Orleans, Louisiana

LOCATION OF BORINGS

(Sheet 1 of 3)

<u>Boring Number</u>	<u>Station Number</u>	<u>Location</u>
B-1	0+85	Levee Crown
B-2	7+60	Levee Crown
B-3	11+60	Levee Crown
B-4	14+70	Levee Crown
B-5	19+60	Levee Crown
B-6	24+60	Levee Crown
B-7	29+60	Levee Crown
B-8	34+60	Levee Crown
B-9	39+60	Levee Crown
B-10	44+60	Levee Crown
B-11	50+35	Levee Crown
B-12	55+00	Levee Crown
B-13	60+00	Levee Crown
B-14	65+00	Levee Crown
B-15	69+85	Levee Crown
B-16	74+75	Levee Crown
B-17	79+75	Levee Crown
B-18	84+75	Levee Crown
B-19	86+35	Levee Crown
B-20	89+75	Levee Crown
B-21	94+75	Levee Crown
B-22	99+75	Levee Crown
B-23	101+20	Levee Crown
B-24	104+75	Levee Crown
B-25	109+75	Levee Crown
B-26	114+75	Levee Crown
B-27	121+35	Levee Toe
B-28	124+75	Levee Toe
B-29	127+50	Levee Toe
B-30	134+00	Levee Toe
B-31	139+00	Levee Toe
B-32	143+00	Levee Toe
B-33	149+00	Levee Toe

Geotechnical Investigation  
London Avenue Canal  
Levee and Floodwall Improvements  
Orleans Levee Board Project No. 2049-0269  
New Orleans, Louisiana

For: The Board of Levee Commissioners of the Orleans Levee District  
New Orleans, Louisiana

Burk & Associates, Inc., Engineers, Planners & Environmental Scientists  
New Orleans, Louisiana

LOCATION OF BORINGS  
(Cont'd)

(Sheet 2 of 3)

<u>Boring Number</u>	<u>Station Number</u>	<u>Location</u>
B-34	154+00	Levee Toe
B-35	159+00	Levee Toe
B-36	1+95	Levee Crown
B-37	7+10	Levee Crown
B-38	11+60	Levee Crown
B-39	13+70	Levee Crown
B-40	21+40	Levee Crown
B-41	24+60	Levee Crown
B-42	29+60	Levee Crown
B-43	34+60	Levee Crown
B-44	39+60	Levee Crown
B-45	44+60	Levee Crown
B-46	50+65	Levee Crown
B-47	55+00	Levee Crown
B-48	60+00	Levee Crown
B-49	65+00	Levee Crown
B-50	69+85	Levee Crown
B-51	74+75	Levee Crown
B-52	79+75	Levee Crown
B-53	84+75	Levee Crown
B-54	89+75	Levee Crown
B-55	94+75	Levee Crown
B-56	99+75	Levee Crown
B-57	102+95	Levee Crown
B-58	104+75	Levee Crown
B-59	109+75	Levee Crown
B-60	114+75	Levee Crown
B-61	119+75	Levee Crown
B-62	124+75	Levee Crown
B-63	128+60	Levee Crown
B-64	134+00	Levee Toe
B-65	139+00	Levee Toe
B-66	143+00	Levee Toe
B-67	149+00	Levee Toe
B-68	154+00	Levee Toe

Geotechnical Investigation  
 London Avenue Canal  
 Levee and Floodwall Improvements  
 Orleans Levee Board Project No. 2049-0269  
 New Orleans, Louisiana

For: The Board of Levee Commissioners of the Orleans Levee District  
 New Orleans, Louisiana

Burk & Associates, Inc., Engineers, Planners & Environmental Scientists  
 New Orleans, Louisiana

LOCATION OF BORINGS  
 (Cont'd)

(Sheet 3 of 3)

<u>Boring Number</u>	<u>Station Number</u>	<u>Location</u>
B-69	159+00	Levee Toe
B-70	Not Taken	Canal Centerline
B-71	Not Taken	Canal Centerline
B-72	Not Taken	Canal Centerline
B-73	19+60	Canal Centerline
B-74	24+60	Canal Centerline
B-75	29+60	Canal Centerline
B-76	34+60	Canal Centerline
B-77	39+60	Canal Centerline
B-78	44+60	Canal Centerline
B-79	50+35	Canal Centerline
B-80	55+00	Canal Centerline
B-81	60+00	Canal Centerline
B-82	65+00	Canal Centerline
B-83	69+85	Canal Centerline
B-84	74+75	Canal Centerline
B-85	79+75	Canal Centerline
B-86	86+35	Canal Centerline
B-87	89+75	Canal Centerline
B-88	94+75	Canal Centerline
B-89	99+75	Canal Centerline
B-90	104+75	Canal Centerline
B-91	109+75	Canal Centerline
B-92	114+75	Canal Centerline
B-93	121+35	Canal Centerline
B-94	124+75	Canal Centerline
B-95	128+60	Canal Centerline
B-96	134+00 (East)	Canal Centerline
B-97	139+00 (East)	Canal Centerline
B-98	145+00 (East)	Canal Centerline
B-99	147+00 (East)	Canal Centerline
B-100	153+00 (East)	Canal Centerline
B-101	159+00 (East)	Canal Centerline

NOTE: Locations of canal borings is approximate.

**LOG OF BORING**  
**EUSTIS ENGINEERING COMPANY**  
 SOIL AND FOUNDATION CONSULTANTS  
 METAIRIE, LA.

Sheet 1 of 2

Name of Project: London Avenue Canal, Levee and Floodwall Improvements

Orleans Levee Board Project No. 2049-0269, New Orleans, Louisiana

For: The Board of Levee Commissioners of the Orleans Levee District, New Orleans, La.

Burk & Associates, Inc., New Orleans, Louisiana

Boring No. 15 Soil Technician A. Croal, Jr. Date 17 October 1985

Ground Elev. \_\_\_\_\_ Datum \_\_\_\_\_ Gr. Water Depth See Text

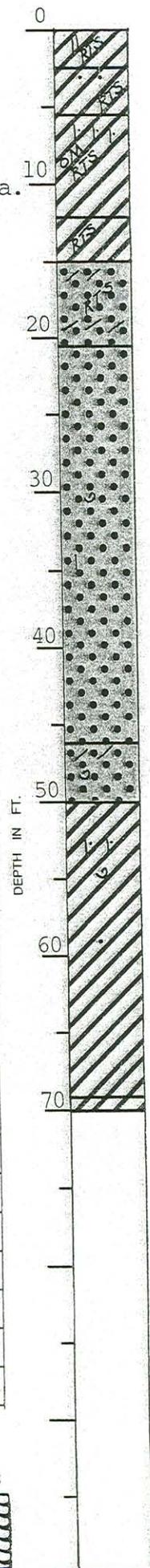
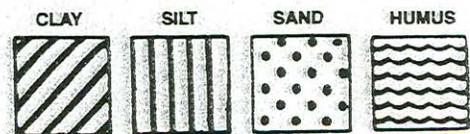
Sample No.	SAMPLE Depth - Feet		DEPTH STRATUM Feet		VISUAL CLASSIFICATION	*STANDARD PENETRATION TEST	
	From	To	From	To			
1	1.7	2.5	0.0	2.5	Medium stiff tan & gray clay w/silt pockets & grass roots		
2	4.7	5.5	2.5	5.5	Medium stiff tan & gray clay w/sand pockets & roots		
3	7.7	8.5	5.5		Soft dark gray clay w/silty sand layers, organic matter & roots		
4	10.7	11.5		12.0	Soft dark gray clay w/organic matter & roots		
5	13.7	14.5	12.0	15.0	Soft gray clay w/roots		
6	15.5	17.0	15.0		Medium dense gray fine sand w/clay pockets & roots	3	20
7	18.0	19.5		20.5	Medium dense gray fine sand w/clay layers	10	14
8	20.5	22.0	20.5		Very dense gray fine sand	50=6" (Seat)	
9	23.5	25.0			Ditto	25	50=8"
10	28.5	30.0			Ditto	20	50=6"
11	33.5	35.0			Very dense gray fine sand w/few shell fragments & trace of silt	18	50=8"
12	38.5	40.0			Very dense gray fine sand	23	50=6"
13	43.5	45.0		46.0	Very dense gray fine sand w/few shell fragments	2	50=10"
14	48.5	50.0	46.0	50.0	Medium dense gray fine sand w/clay pockets & shell fragments	3	12
15	53.2	54.0	50.0		Medium stiff gray clay w/silty sand pockets & few shell fragments		

(Continued)

\*Number in first column indicates number of blows of 140-lb. hammer dropped 30 in. required to seat 2-in. O. D. splitspoon sampler 6 in. Number in second column indicates number of blows of 140-lb. hammer dropped 30 in. required to drive 2-in. O. D. splitspoon sampler 1 ft. after seating 6 in.

WHILE THIS LOG OF BORING IS CONSIDERED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT ITS RESPECTIVE LOCATION ON THE DATE SHOWN, IT IS NOT WARRANTED THAT IT IS REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

Remarks: \_\_\_\_\_





**LOG OF BORING**  
**EUSTIS ENGINEERING COMPANY**  
 SOIL AND FOUNDATION CONSULTANTS  
 METAIRIE, LA.

Name of Project: London Avenue Canal, Levee and Floodwall Improvements  
Orleans Levee Board Project No. 2049-0269, New Orleans, Louisiana

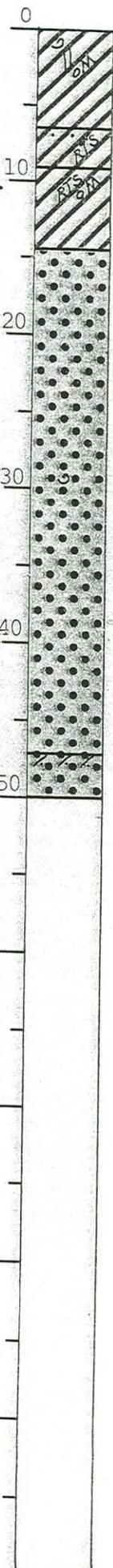
For: The Board of Levee Commissioners of the Orleans Levee District, New Orleans, La.  
Burk & Associates, Inc., New Orleans, Louisiana

Boring No. 16 Soil Technician George Hardee Date 25 October 1985

Ground Elev. \_\_\_\_\_ Datum \_\_\_\_\_ Gr. Water Depth See Text

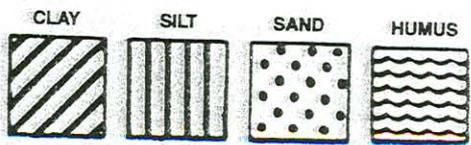
Sample No.	SAMPLE Depth - Feet		DEPTH STRATUM Feet		VISUAL CLASSIFICATION	*STANDARD PENETRATION TEST	
	From	To	From	To			
1	2.0	2.5	0.0		Very stiff gray clay w/shells & brick fragments		
2	4.5	5.5		6.5	Very stiff gray clay w/silt pockets & organic matter		
3	7.5	8.5	6.5	9.0	Very stiff gray & tan clay w/sand pockets & roots		
4	11.0	11.5	9.0	14.5	Soft dark gray clay w/roots & organic matter		
5	14.5	15.0	14.5		Very dense gray fine sand		
6	15.0	16.5			Ditto	16	50=9"
7	17.5	19.0			Ditto	15	50=10"
8	20.0	21.5			Ditto	16	50=10"
9	23.5	25.0			Ditto	23	50=8"
10	28.5	30.0			Very dense gray fine sand w/shells	30	50=5"
11	33.5	35.0			Very dense gray fine sand	32	50=5"
12	38.5	40.0			Very dense gray fine sand w/shells	22	50=7"
13	43.5	45.0		47.0	Very dense gray fine sand	20	50=9"
14	48.5	50.0	47.0	50.0	Medium dense gray fine sand w/clayey sand layers	2	13

DEPTH IN FT.



\*Number in first column indicates number of blows of 140-lb. hammer dropped 30 in. required to seat 2-in. O. D. splitspoon sampler 6 in. Number in second column indicates number of blows of 140-lb. hammer dropped 30 in. required to drive 2-in. O. D. splitspoon sampler 1 ft. after seating 6 in.

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Remarks: \_\_\_\_\_





**LOG OF BORING**  
**EUSTIS ENGINEERING COMPANY**      Sheet 1 of 2  
**SOIL AND FOUNDATION CONSULTANTS**  
 METAIRIE, LA.

**Name of Project:** London Avenue Canal, Levee and Floodwall Improvements  
Orleans Levee Board Project No. 2049-0269, New Orleans, Louisiana

**For:** The Board of Levee Commissioners of the Orleans Levee District, New Orleans, La.  
Burk & Associates, Inc., New Orleans, Louisiana

**Boring No.** 50    **Soil Technician** A. Croal, Jr.    **Date** 13 November 1985

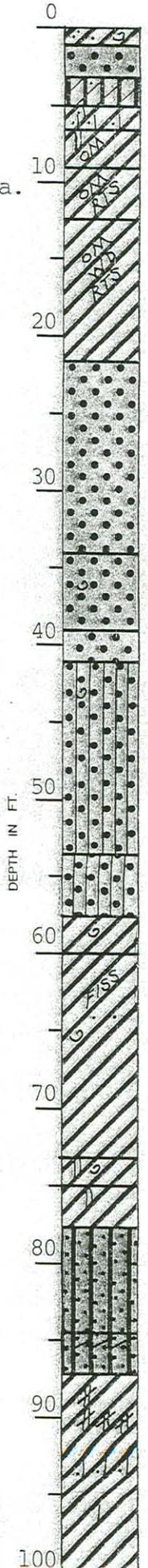
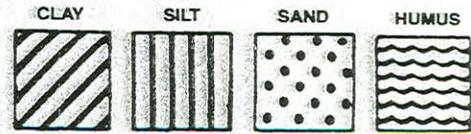
**Ground Elev.** \_\_\_\_\_ **Datum** \_\_\_\_\_ **Gr. Water Depth** See Text

Sample No.	SAMPLE Depth - Feet		DEPTH STRATUM Feet		VISUAL CLASSIFICATION	*STANDARD PENETRATION TEST	
	From	To	From	To			
1	0.0	0.5	0.0	1.0	Very stiff gray & brown clay w/fine sand lenses, pockets & shell fragments		
2	1.7	2.5	1.0	3.0	Loose tan fine sand		
3	2.5	4.0	3.0	5.0	Medium compact brown & gray clayey silt w/fine sand lenses	3	14
4	5.0	6.5	5.0	6.5	Medium stiff to stiff gray clay w/sandy silt lenses & layers	2	8
5	8.2	9.0	6.5	9.0	Soft dark gray clay w/silt pockets & trace of organic matter		
6	10.7	11.5	9.0	12.5	Soft dark gray clay w/organic matter & roots		
7	13.7	14.5	12.5		Very soft gray clay w/organic matter & wood		
8	18.2	19.0		21.8	Soft gray clay w/organic matter & roots		
9	21.7	22.5	21.8		Loose to medium dense gray fine sand		
10	22.5	24.0			Medium dense gray fine sand	4	26
11	25.0	26.5			Ditto	4	23
12	27.5	29.0			Ditto	3	19
13	30.0	31.5		34.0	Ditto	8	25
14	33.5	35.0	34.0	39.0	Dense gray fine sand w/shell fragments	9	32
15	38.5	40.0	39.0	41.0	Very dense gray fine sand	12	50=11"
16	43.5	45.0	41.0		Medium dense gray silty sand w/few shell fragments	6	26
17	48.5	50.0		53.5	Medium dense gray silty sand	5	27
18	53.5	55.0	53.5	57.5	Loose gray silty sand	3	10

\*Number in first column indicates number of blows of 140-lb. hammer dropped 30 in. required to seat 2-in. O.D. splitspoon sampler 6 in. Number in second column indicates number of blows of 140-lb. hammer dropped 30 in. required to drive 2-in. O.D. splitspoon sampler 1 ft. after seating 6 in.

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**Remarks:** \_\_\_\_\_



Dominant tone above here: \_\_\_\_\_ Modified tone above here: \_\_\_\_\_



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**EUSTIS ENGINEERING COMPANY**  
 SOIL AND FOUNDATION CONSULTANTS  
 METAIRIE, LA.

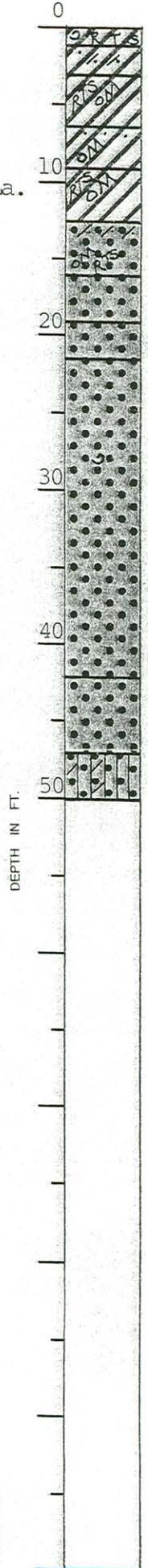
Name of Project: London Avenue Canal, Levee and Floodwall Improvements  
Orleans Levee Board Project No. 2049-0269, New Orleans, Louisiana

For: The Board of Levee Commissioners of the Orleans Levee District, New Orleans, La.  
Burk & Associates, Inc., New Orleans, Louisiana

Boring No. 51 Soil Technician A. Croal, Jr. Date 12 November 1985

Ground Elev. \_\_\_\_\_ Datum \_\_\_\_\_ Gr. Water Depth See Text

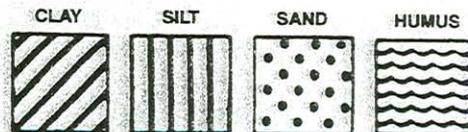
Sample No.	SAMPLE Depth—Feet		DEPTH STRATUM Feet		VISUAL CLASSIFICATION	*STANDARD PENETRATION TEST	
	From	To	From	To			
1	0.0	0.5	0.0	1.0	Stiff brown & gray clay w/shell fragments & grass roots		
2	1.7	2.5	1.0	3.0	Medium stiff tan & gray clay w/fine sand & clayey sand pockets		
3	4.7	5.5	3.0	6.5	Medium stiff black & gray clay w/roots & organic matter		
4	7.7	8.5	6.5	9.0	Medium stiff tan & gray clay w/sand layers & trace of organic matter		
5	10.7	11.5	9.0	12.5	Soft gray clay w/roots & organic matter		
6	13.7	14.5	12.5	16.0	Loose gray fine sand w/clayey sand layers, trace of organic matter & few roots		
7	16.0	17.5	16.0	19.0	Medium dense gray fine sand	2	28
8	18.5	20.0	19.0	21.5	Dense gray fine sand	4	36
9	21.0	22.5	21.5		Very dense gray fine sand	8	50=10"
10	23.5	25.0			Ditto	10	50=10"
11	26.0	27.5			Ditto	15	50=9"
12	28.5	30.0			Very dense gray fine sand w/few shell fragments	11	50=8"
13	33.5	35.0			Very dense gray fine sand	9	50=9"
14	38.5	40.0		42.0	Ditto	12	50=9"
15	43.5	45.0	42.0	47.0	Dense gray fine sand	14	41
16	48.5	50.0	47.0	50.0	Loose gray silty sand w/few clay pockets & trace of clay	2	10



\*Number in first column indicates number of blows of 140-lb. hammer dropped 30 in. required to seat 2-in. O. D. splitspoon sampler 6 in. Number in second column indicates number of blows of 140-lb. hammer dropped 30 in. required to drive 2-in. O. D. splitspoon sampler 1 ft. after seating 6 in.

**WHILE THIS LOG OF BORING IS CONSIDERED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT ITS RESPECTIVE LOCATION ON THE DATE SHOWN, IT IS NOT WARRANTED THAT IT IS REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.**

Remarks: \_\_\_\_\_



Dominant type shown heavy; Modifying type shown light

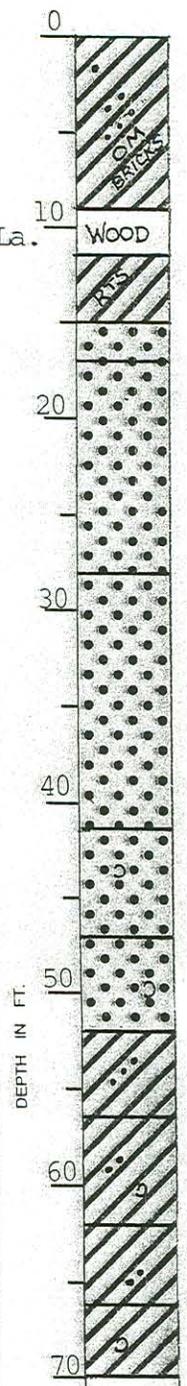


**LOG OF BORING**  
**EUSTIS ENGINEERING COMPANY**  
 SOIL AND FOUNDATION CONSULTANTS  
 METAIRIE, LA.

Name of Project: London Avenue Canal, Levee and Floodwall Improvements  
Orleans Levee Board Project No. 2049-0269, New Orleans, Louisiana  
 For: The Board of Levee Commissioners of the Orleans Levee District, New Orleans, La.  
Burk & Associates, Inc., New Orleans, Louisiana

Boring No. 53 Soil Technician A. J. Mayeux Date 4 December 1985  
 Ground Elev. \_\_\_\_\_ Datum \_\_\_\_\_ Gr. Water Depth See Text

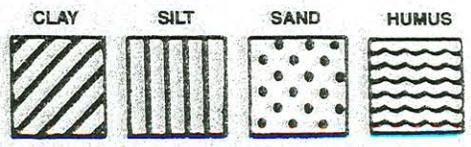
Sample No.	SAMPLE Depth - Feet		DEPTH STRATUM Feet		VISUAL CLASSIFICATION	*STANDARD PENETRATION TEST	
	From	To	From	To			
1	2.0	2.5	0.0		Medium stiff gray & tan clay w/sand lenses & pockets & trace of organic matter		
2	5.5	6.0			Medium stiff gray & tan clay w/sand pockets		
3	8.0	8.5		9.0	Medium stiff gray & tan clay w/vertical sand layers, organic matter & bricks		
	11.0	11.5	9.0	11.5	Wood w/organic matter & clay		
4	14.0	14.5	11.5	15.0	Soft gray & tan clay w/decayed roots		
5	15.0	16.5	15.0	17.0	Loose gray sand	1	5
6	17.5	19.0	17.0		Medium dense gray sand	2	13
7	20.0	21.5			Ditto	4	19
8	23.5	25.0		28.0	Ditto	2	15
9	28.5	30.0	28.0		Dense gray sand	5	35
10	33.5	35.0			Ditto	10	48
11	38.5	40.0		41.5	Ditto	7	32
12	43.5	45.0	41.5	47.0	Medium dense gray sand w/shell fragments	5	19
13	48.5	50.0	47.0	52.0	Loose gray sand w/shell fragments	2	8
14	53.5	55.0	52.0	56.5	Medium stiff gray clay w/sand layers	1	4
15	59.0	59.5	56.5	62.0	Stiff gray & tan clay w/sand pockets & shell fragments		
16	64.0	64.5	62.0	66.0	Stiff gray clay w/sand pockets		
17	69.0	69.5	66.0	70.0	Medium stiff gray clay w/shell fragments		



\*Number in first column indicates number of blows of 140-lb. hammer dropped 30 in. required to seat 2-in. O. D. splitspoon sampler 6 in. Number in second column indicates number of blows of 140-lb. hammer dropped 30 in. required to drive 2-in. O. D. splitspoon sampler 1 ft. after seating 6 in.

WHILE THIS LOG OF BORING IS CONSIDERED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT ITS RESPECTIVE LOCATION ON THE DATE SHOWN, IT IS NOT WARRANTED THAT IT IS REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

Remarks: \_\_\_\_\_



Geotechnical Investigation  
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 Orleans Levee Board Project No. 2049-0269  
 New Orleans, Louisiana

For: The Board of Levee Commissioners of the Orleans Levee District  
 New Orleans, Louisiana

Burk & Associates, Inc., Engineers, Planners & Environmental Scientists  
 New Orleans, Louisiana

SUMMARY OF LABORATORY TEST RESULTS

BORING 15

Sam- ple No.	Depth In Feet	Classification	Water Content Percent	Density PCF		Unconfined Compressive Strength PSF
				Dry	Wet	
1	1.7	Medium stiff gray & tan clay w/silt pockets & roots	43.7	73.9	106.2	1715
2	4.7	Medium stiff gray & tan clay w/sand pockets & roots	54.0	65.2	100.5	1935
3	7.7	Soft dark gray clay w/silty sand layers & roots	53.5	60.1	92.3	590*
4	10.7	Soft dark gray clay w/organic matter & roots	92.9	45.7	88.1	690
5	13.7	Soft gray clay w/roots	70.8	57.2	97.6	630
16	58.2	Medium stiff gray clay w/silty sand pockets & shell fragments	46.1	73.7	107.7	1755
18	68.2	Stiff gray clay w/trace of sand	47.8	73.3	108.3	2570

\*Unconsolidated Undrained Triaxial Compression Test - One Specimen;  
 Confined at the approximate overburden pressure.

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SUMMARY OF LABORATORY TEST RESULTS

BORING 16

Sam- ple No.	Depth In Feet	Classification	Water Content Percent	Density PCF		Unconfined Compressive Strength PSF	Atterberg Limits		
				Dry	Wet		LL	PL	PI
2	4.5	Very stiff gray clay w/silt pockets & roots	42.0	74.4	105.6	4570	134	29	105
3	7.5	Very stiff gray & tan clay w/sand pockets	40.6	75.4	106.0	4550			
4	11.0	Soft dark gray clay w/organic matter	89.1	45.7	86.4	845			

BORING 17

1	2.0	Stiff brownish-gray clay w/clayey silt pockets, roots & brick fragments	32.7	80.5	106.8	2835*			
2	4.5	Medium stiff gray clay w/silt pockets & organic matter	44.0	68.4	98.5	1885			
3	8.0	Medium stiff brownish-gray clay w/organic matter	59.4	52.3	83.4	1580*			
4	11.0	Soft black flocculated clay w/organic matter	50.7	64.1	96.6	830*	108	28	80
5	13.5	Soft gray clay w/roots	81.7	51.5	93.5	780			

\*Unconsolidated Undrained Triaxial Compression Test - One Specimen;  
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SUMMARY OF LABORATORY TEST RESULTS

BORING 18

Sam- ple No.	Depth In Feet	Classification	Water Content Percent	Density PCF		Unconfined Compressive Strength PSF	Atterberg Limits		
				Dry	Wet		LL	PL	PI
2	5.0	Stiff gray clay w/sand pockets & shells	26.6	90.2	114.1	3240			
3	8.0	Medium stiff brown & gray clay w/organic matter & roots	74.1	42.9	74.8	1710*			
4	10.5	Soft brown & gray clay w/organic matter & many roots	76.4	----	-----	----			
5	13.5	Soft gray clay w/roots	58.4	64.1	101.5	755			
6	16.5	Soft gray clay w/sand pockets & organic matter	47.0	72.6	106.8	900	72	23	49

\*Unconsolidated Undrained Triaxial Compression Test - One Specimen;  
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SUMMARY OF LABORATORY TEST RESULTS

BORING 50

Sam- ple No.	Depth in Feet	Classification	Water Content Percent	Density PCF		Unconfined Compressive Strength PSF	Atterberg Limits		
				Dry	Wet		LL	PL	PI
5	8.2	Soft dark gray clay w/silt pockets & organic matter	51.6	64.1	97.2	805			
6	10.7	Soft dark gray clay w/much organic matter & roots	104.2	41.7	85.2	700	161	45	116
7	13.7	Very soft gray clay w/organic matter & wood	80.7	----	-----	----			
8	18.2	Soft gray clay w/trace of organic matter	84.3	50.6	93.2	580			
20	63.2	Medium stiff gray fissured clay w/sand pockets & partings	44.6	72.7	105.2	1545			
21	68.2	Stiff gray clay w/shell fragments	44.5	75.3	108.8	2430	80	25	55
22	73.2	Stiff greenish-gray clay w/silt pockets & shell fragments	31.6	87.7	115.5	2300			
23	76.7	Stiff greenish-gray & tan clay w/silt pockets	28.8	89.3	115.1	2500	71	22	49
29	91.7	Medium stiff gray clay w/sandy silt layers	46.0	75.8	110.6	1625	74	23	51
30	96.7	Stiff gray clay w/silt lenses	37.9	83.6	115.3	2800			

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SUMMARY OF LABORATORY TEST RESULTS

BORING 51

Sam- ple No.	Depth in Feet	Classification	Water Content Percent	Density PCF		Unconfined Compressive Strength PSF
				Dry	Wet	
2	1.7	Medium stiff gray & tan clay w/many sand lenses & layers	22.6	90.4	110.8	1070*
3	4.7	Medium stiff black & gray clay w/roots & organic matter	42.6	72.4	103.2	1275
4	7.7	Medium stiff tan & gray clay w/sand lenses & layers	52.7	68.0	103.8	1210
5	10.7	Soft gray clay w/roots & organic matter	75.0	55.2	96.6	720

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SUMMARY OF LABORATORY TEST RESULTS

BORING 52

Sam- ple No.	Depth in Feet	Classification	Water Content Percent	Density PCF		Unconfined Compressive Strength PSF
				Dry	Wet	
1	2.0	Stiff gray & tan clay w/silt pockets & shell fragments	35.9	84.3	114.5	2255
2	5.0	Medium stiff gray & tan clay w/silt pockets & trace of organic matter	65.2	59.8	98.7	1020
3	8.0	Soft gray clay w/organic clay layers, sand pockets & roots (fill)	67.0	----	-----	----
4	11.0	Very soft gray clay w/much organic matter & roots	164.2	29.1	76.8	350
5	14.0	Soft gray clay w/organic matter & roots	91.2	48.2	92.2	550
6	19.0	Very loose dark gray & gray clayey sand w/vertical sandy clay layers & roots	48.1	68.6	101.6	345*

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SUMMARY OF LABORATORY TEST RESULTS

BORING 53

Sam- ple No.	Depth in Feet	Classification	Water Content Percent	Density PCF		Unconfined Compressive Strength PSF
				Dry	Wet	
1	2.0	Medium stiff gray & tan clay w/sand lenses, pockets & trace of organic matter	35.3	82.3	111.4	1545*
2	5.5	Medium stiff gray & tan clay w/sand pockets	42.2	74.0	105.3	1510
3	8.0	Medium stiff gray & tan clay w/vertical sand layers, organic matter & brick	44.4	----	-----	----
4	14.0	Soft gray & tan clay w/decayed roots	87.0	----	-----	----
15	59.0	Stiff gray & tan clay w/sand pockets & shell fragments	45.2	75.3	109.3	2055
16	64.0	Stiff gray clay w/sand pockets	54.3	68.2	105.2	2155
17	69.0	Medium stiff gray clay w/shell fragments	54.6	67.8	104.8	1705

\*Unconsolidated Undrained Triaxial Compression Test - One Specimen;  
 Confined at the approximate overburden pressure.

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## SECTION 02411 - STEEL SHEET PILING

### PART 1 GENERAL

#### 1.1 SCOPE

The work covered by this section consists of furnishing all plant, equipment, labor and materials and performing all operations in connection with the installation of Contractor furnished steel sheet piling in accordance with these specifications and applicable drawings.

#### 1.2 RELATED WORK SPECIFIED ELSEWHERE

Reserved

#### 1.3 QUANTITIES

The estimated quantities of sheet piling listed in the unit price schedule of the contract as to be furnished by the Contractor are given for bidding purposes only. Sheet piling quantities for payment shall consist of the square feet of piling acceptably installed. This quantity shall consist of the lengths of piles driven below the elevations indicated for the top of piles times the length along the wall alignment as shown on the drawings plus any additions thereto resulting from changes in design or alignment as provided in paragraph 3.1.1.2.

#### 1.4 MEASUREMENT AND PAYMENT

##### 1.4.1 Measurement

##### 1.4.1.1 Driven Steel Sheet Piling

Measurement of driven steel sheet piling, except for fabricated piles (special corners, transitions, tee sections, etc.) and rolled corners, will be by the square foot of piling acceptably installed. The length of each pile driven will be measured to the nearest tenth of a linear foot and converted to square feet for payment purposes. The square footage will be determined by multiplying the number of piles times the measured length acceptably driven below the cut-off elevation shown on the drawings times the theoretical driving width of the pile. The number of piles paid for shall not exceed the number of piles indicated on the drawings. When driven piles are directed to be cut off before reaching the penetration depth shown on the drawings, that portion cut off will be measured for payment on the basis of its total length, provided that the length is not greater than the difference between the total length of piles shown on the plans for that location and the length of piles driven below the cut-off elevation. No deduction will be

made for holes cut for drains and utilities in computing the area of steel sheet pile structures. The portion of any pile driven below the tip elevation shown on the drawings will not be measured for payment unless overdriving is directed by the Contracting Officer.

#### 1.4.1.2 Pulled Piles

Piles ordered pulled will be measured for payment by the square foot. Square footage will be determined by multiplying the theoretical driving width of the pile by the length pulled above the cut-off elevation shown on the drawings. Redriving of such piles, when required, shall be measured for payment by the square foot, which shall be determined by multiplying the theoretical driving width of the pile by the length redriven below the cut-off elevation shown on the drawings.

#### 1.4.1.3 Miscellaneous Items

No separate measurement will be made for the fabricated piles and rolled corners, sheet piling void backfill, or painting sheet piling.

### 1.5 PAYMENT

#### 1.5.1 Sheet Piling

Payment for steel sheet piling, acceptably installed and measured in accordance with above paragraph 1.4.1.1, will be made at the applicable contract unit price per square foot for "Piling, Steel Sheet, Type PZ 35. Price and payment shall constitute full compensation for fabricating, adding cover plates, painting, furnishing, handling, driving, cutting holes, backfilling voids, and all other work incidental to acceptably installing the steel sheet piling.

#### 1.5.2 Fabricated Piles and Rolled Corners

No separate payment will be made for the transition piles or the rolled corners and all costs associated with fabricating, furnishing, delivering, and installing them shall be included in the contract unit cost for "Piling, Steel Sheet, Type PZ 35".

#### 1.5.3 Cut-Offs and Splices

Cut-offs and/or splices which are not required under the original terms of this contract but become necessary to construct the sheet pile structures as shown on the drawings and as specified herein, and which are necessitated due to Contractor negligence in any procedure required to install such structures shall be provided at no additional cost to the Government. Cut-offs and/or splices of this type which are required through no fault of the Contractor shall be paid for by lump sum payments of \$10.00 per cut-off and \$25.00 per splice. Additionally, the portion of a Contractor furnished pile which is cut off when

the Contractor is deemed to be not at fault, shall be paid for at 75 percent of the applicable contract unit price for the amount measured in accordance with above paragraph 1.4.1.

#### 1.5.4 Pulled Piles

Piles, which are directed to be pulled and found to be in good condition, will be paid for at the contract price for furnishing and driving the pile in its original position. The cost of pulling will be paid for at 25 percent of the contract unit price and when such piles are redriven, the cost of redriving will be paid for at 25 percent of the contract unit price for that portion of the pile acceptably redriven below the cut-off elevation. When piles are pulled and found to be defective and/or damaged due to Contractor negligence, no payment will be made for originally furnishing and driving such piles, nor for the operation for pulling. Piles replacing defective or damaged piles will be paid for at the applicable contract unit price. Piles which are pulled and found to be damaged through no fault of the Contractor, will be paid for at the applicable contract unit price for originally installing the damaged pile plus 25% of the applicable contract unit price for the cost of pulling. Subsequently, when a new pile is furnished and driven, it shall be paid for at the applicable contract unit price.

#### 1.6 REFERENCES

The following standards of the issues listed below and referred to thereafter by basic designation only from a part of this specification to the extent indicated by the references thereto:

##### AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) STANDARDS

ASTM A 36	(2001) Carbon Structural Steel
ASTM A 572	(2001) High-Strength Low-Alloy Columbian-Vanadium of Structural Quality

#### 1.7 QUALITY ASSURANCE

Requirements for material tests, workmanship and other measures for quality assurance shall be as specified herein and in Section 05501, "METALWORK FABRICATION, MACHINE WORK, AND MISCELLANEOUS PROVISIONS".

##### 1.7.1 Materials Tests

Sheet piling and appurtenant materials shall be tested and certified by the manufacturer to meet the specified chemical, mechanical and section property requirements prior to delivery to the site.

## 1.8 SUBMITTALS

The Contractor shall submit descriptions of sheet piling driving equipment, shop drawings, test procedures, test reports and certificates, sheet piling driving records and other submittals to the Contracting Officer for approval as required. Submittals and associated work not satisfactory to the Contracting Officer will be rejected.

### 1.8.1 Equipment Descriptions

Complete descriptions of sheet piling driving equipment including hammers, extractors, protection caps and other installation appurtenances shall be submitted for approval prior to commencement of work. \*(The use of vibratory hammers is not allowed when the channel elevation at the London Avenue outfall gauge is at 1.8 NGVD or more.

### 1.8.2 Shop Drawings

Shop drawings for sheet piling, including fabricated sections, shall be submitted for approval and shall show complete piling dimensions and details, driving sequence and location of installed piling. Shop drawings shall include details and dimensions of templates and other temporary guide structures for installing piling, and shall provide details of the method of handling piling to prevent permanent deflection, distortion or damage to piling interlocks.

### 1.8.3 Materials Test Certificates

Materials test certificates shall be submitted for each shipment and identified with specific lots prior to installing piling. Identification data should include piling type, dimensions, section properties, heat analysis number, chemical composition, mechanical properties and mill identification mark.

### 1.8.4 Driving Records

Records of the sheet piling driving operations shall be submitted after driving is completed. These records shall provide a system of identification which shows the disposition of approved piling in the work, driving equipment performance data, piling penetration rate data, piling dimensions and top and bottom elevations of installed piling.

## 1.9 QUALITY CONTROL

### 1.9.1 General

The Contractor shall establish and maintain quality control for pile driving operations to assure compliance with contract specifications and maintain records of his quality control for all construction operations including, but not limited to, the following:

- (1) Accurate location, alinement and plumbness of piling.
- (2) Full and proper engagement of interlocks.
- (3) Driving (pile hammer and rate of operation).
- (4) Final position; depth of penetration; tip and cut- off elevations.
- (5) Uplift and vertical tolerances after driving.
- (6) Location and elevation of any obstruction encountered and action directed by Contracting Officer.
- (7) Pulled piles and re-driving.
- (8) Length of cover plate and weld size.
- (9) Manufacture and driving of fabricated sections.
- (10) Cutting and splicing (welding).
- (11) Stockpiling and storage.
- (12) Removal and disposal of damaged piles.

#### 1.9.2 Reporting

The original and two copies of these records and tests, as well as the records of corrective action taken, shall be furnished the Government daily. Format of the report shall be as prescribed in Section 01451, "CONTRACTOR QUALITY CONTROL".

#### 1.10 DELIVERY, STORAGE AND HANDLING

Materials delivered to the site shall be new and undamaged and shall be accompanied by certified test reports. The manufacturer's logo and mill identification mark shall be provided on the sheet piling as required by the referenced specifications. Sheet piling shall be stored and handled in the manner recommended by the manufacturer to prevent permanent deflection, distortion or damage to the interlocks. Storage of sheet piling should also facilitate required inspection activities.

## PART 2 MATERIALS

### 2.1 STEEL SHEET PILING

Steel for sheet piling shall conform to the requirements of ASTM A 572, Gr 50. Sheet piling, including special fabricated sections, shall be of the type and dimensions indicated on the drawings, and be of a design such that when in place they will be continuously interlocked throughout their entire length. All sheet piling shall be provided with standard pulling holes located approximately 4-inches below the top of the pile, unless otherwise shown or directed. Steel sheet piling shall be hot rolled and shall have the properties equivalent to those listed in the following table:

PROPERTIES OF SECTIONS

Type of section	Nominal web thickness (inches)	Section modulus (in <sup>3</sup> /ft of wall)	Moment of inertia (in <sup>4</sup> /ft of wall)	Nominal section depth (inches)	Minimum interlock strength (lbs/lin in)	theoretical driving width (inches)
PZ 35	0.50	48.5	361.2	15	N/A	22.64

#### 2.1.1 Substitute Sheet Pile Sections

At no additional cost to the Government, new Z-type hot rolled steel sheet piling conforming to ASTM A 572, Gr 50, with a minimum material thickness of 0.50 inches and a minimum section modulus of 48.5 in<sup>3</sup>/ft may be substituted in kind for the listed section.

#### 2.2 Sheet Piling Lengths

All new sheet piling shall be provided in full lengths.

#### 2.3 Rolled Corners

Rolled corners, formed with new sheet piling, shall be of the types and dimensions shown on the drawings. Any proposed variations from the details shown on the drawings shall be submitted for approval of the Contracting Officer's Representative (COR). The sheet pile types shall be as required for the corners being manufactured and shall conform to the requirements of ASTM A 572 and all other requirements stated above for new piling.

#### 2.4 Fabricated Sections

Fabricated sections, including special corners, transition piles and tee sections, shall conform to the requirements stated herein, the details shown on the drawings and the piling manufacturer's recommendations for fabricated sections. Steel plates and angles used to fabricate the special sections shall conform to ASTM A 36. All fabricated sections shall have bolted connections and shall conform to the following: Bolted connections for fabricated sections specified shall be made from 7/8 inch diameter high strength bolts meeting the requirements of ASTM A 325, Type 3, or ASTM A 490, Type 3. The bolts shall be spaced on 6 inch centers for the length of the section except for 2 feet at each end where they are spaced on 3 inch centers. Welding of the longitudinal joint will not be allowed. Shop drawings and details for the fabricated sections shall be submitted to the Contracting Officer for approval.

## PART 3 EXECUTION

### 3.1 INSTALLATION

#### 3.1.1 Placing and Driving

##### 3.1.1.1 Placing

Any excavation required within the area where sheet pilings are to be installed shall be completed prior to placing sheet pilings. Pilings shall be carefully located as shown on the drawings or directed by the Contracting Officer. Pilings shall be placed as true to line as possible. Suitable temporary wales, templates, or guide structures shall be provided to insure that the piles are placed and driven to the correct alignment. Piles shall be placed in a plumb position with each pile interlocked with adjoining piles for its entire length, so as to form a continuous diaphragm throughout the length of each run of piling wall. Interlocks shall be properly engaged. The Contractor's personnel shall not sit or place themselves on top of the sheet piling during the handling, installation, and removal of the piling.

##### 3.1.1.2 Driving

All piles shall be driven to the depths shown on the drawings and shall extend to the cut-off elevation indicated. A tolerance of 1 inch above \*(or below) the indicated cut-off elevation will be permitted. Pilings shall be driven by approved methods so as not to subject the pilings to damage and to insure proper interlocking throughout their lengths. Pile hammers shall be maintained in proper alignment during driving operations by use of leads or guides attached to the hammer. A protecting cap shall be employed in driving, when required, to prevent damage to the tops of pilings. Pilings damaged during driving or driven out of interlock shall be removed and replaced. All piles shall be driven without the aid of a water jet, unless otherwise authorized. Adequate precautions shall be taken to insure that piles are driven plumb. Sheet piling shall not be driven more than

1/8 - inch per foot out of plumb in the plane of the wall nor more than 1/8-inch per foot out of plumb perpendicular to the plane of the wall. If at any time the forward or leading edge of the piling wall is found to be out-of- plumb more than 1/8 - inch per foot in the plane of the wall or 1/8- inch per foot perpendicular to the plane of the wall, the assembled piling shall be driven to the required depth and tapered pilings shall be provided and driven to interlock with the out-of- plumb leading edge or other approved corrective measures shall be taken to insure the plumbness of succeeding pilings. The maximum permissible taper for any tapered piling shall be 1/4 -inch per foot of length. Unless specifically indicated otherwise, each run of piling wall shall be driven to grade progressively from the start and pilings in each run shall be driven alternately in increments of depth to the required depth or elevation. On each day of sheetpile driving, the Contractor shall stab only the number of piles that can be driven to grade by the end of the day, and all piling stabbed shall be driven to grade by the end of each working day except that the last two piles may remain tapered up to receive the next days piles. No pile shall be driven to a lower elevation than those behind it in the same run except when the piles behind it cannot be driven deeper or in areas where there will be wall penetrations or obstructions are encountered. In this case, piling will be allowed to remain above final grade until the obstruction is removed or the penetration is completed. Alternately, if it is determined that an obstruction cannot be removed, the Contractor shall make such changes in design alignment of the pile structure as may be deemed necessary by the Contracting Officer to insure the adequacy and stability of the structure. Payment for the additional labor and materials necessitated by such changes will be made at the applicable contract prices. If the piling next to the one being driven tends to follow below final grade, it may be pinned to the next adjacent piling. \*(The Contractor is advised that buried stumps, rock or similar debris may be encountered periodically on the sheet pile wall alignment and appropriate consideration should be given to hard driving conditions should they occur.)\*

### 3.1.2 Emergency Locking System on Pile Driving Head

All pile driving equipment shall be equipped so as to prevent piles from falling when a single or multiple power failure occurs after the pile driving head is attached to the pile. The jaws of vibratory hammers shall be equipped with devices such that upon loss of hydraulic pressure, the jaws will not release the pile.

### 3.1.3 Cutting Off

Piles extending above grade in excess of the specified tolerance, and which cannot be driven deeper, shall be cut off to the required grade. The Contractor shall also trim the tops of piles excessively battered during driving, when directed to do so, at no cost to the Government. Cut-offs shall become the property of the Contractor and shall be removed from the worksite. Piles driven below the elevations indicated for the top of piles and piles which, because of damaged heads, have been cut off to permit further driving and

are then too short to reach the required top elevation, shall be extended to the required top elevation by welding an additional length, when directed, without cost to the Government. The Contractor may cut holes in the piles for bolts, rods, drains or utilities at locations and of sizes shown on the drawings or as directed. All cutting shall be done in a neat and workmanlike manner. Bolt holes in steel piling shall be drilled or may be burned and reamed by approved methods, which will not damage the remaining metal. Holes, other than bolt holes, shall be reasonably smooth and of the proper size for rods and other items to be inserted.

#### 3.1.4 Inspection of Driven Piling

The Contractor shall inspect the interlocked joints of driven pilings extending above ground. Pilings found to be damaged or driven out of interlock shall be removed and replaced.

#### 3.1.5 Pulling and Redriving

The Contractor may be required to pull selected piles after driving, for test and inspection, to determine the condition of the piles. Any pile so pulled and found to be damaged to the extent that its usefulness in the structure is impaired shall be removed from the work and the Contractor shall furnish and drive a new pile to replace the damaged pile. Piles pulled and found to be in satisfactory condition shall be redriven.

#### 3.1.6 Void Backfill

Where voids adjacent to the steel sheet piling are induced by pile driving or pulling operations, the Contractor shall pump out all seepage and rain water and backfill with a tremie-placed slurry. The slurry shall consist of one part cement, two parts bentonite, and six parts sand mixed with enough water to produce a slurry viscous enough to thoroughly fill the voids.