

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>			1. CONTRACT ID CODE J	PAGE OF PAGES 1   9
2. AMENDMENT/MODIFICATION NO. 0002	3. EFFECTIVE DATE 18-Jan-2006	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) <b>See Item 6</b>		
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		X	9A. AMENDMENT OF SOLICITATION NO. W912P8-06-R-0090	
		X	9B. DATED (SEE ITEM 11) 13-Jan-2006	
			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 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, LA, & Vicinity, New Orleans Area Plan Emergency Restoration, London Avenue Canal Closure Structure, Orleans Parish, LA is hereby amended as follows:  The proposal due date and time is re-established to: 22 January 2006, 10:00 a.m., local time and place.  See additional pages for changes to specifications and drawings.				
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 _____ (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY _____ (Signature of Contracting Officer)	16C. DATE SIGNED 18-Jan-2006	

## SECTION SF 30 BLOCK 14 CONTINUATION PAGE

**SUMMARY OF CHANGES**(1). The Change.

- (a). Perform the following Pen and Ink Changes to the specifications:

(2). Specifications.**MAIN TABLE OF CONTENTS**

- (a). Section MAIN TABLE OF CONTENTS. Add Section 05093, "WELDING PIPING" to Division 5 - METALS. Also add the Division 15 -MECHANICAL. and add Section 15000, INSTALLATION OF GOVERNMENT FURNISHED EQUIPMENT and Section 15200, DISCHARGE PIPES.

**Section 00010, BIDDING SCHEDULE**

- (a). Section 00010, Bidding Schedule. Delete Section 00010, "BIDDING SCHEDULE" in its entirety and replace with new Section 00010, "BIDDING SCHEDULE".

**Section 00130, PROPOSAL EVALUATION CRITERIA**

- (a). Section 00130, delete Section 00130, "PROPOSAL EVALUATION CRITERIA" in its entirety and replace with new Section 00130, "PROPOSAL EVALUATION CRITERIA"

**Section 00700, CONTRACT CLAUSES**

- (a). Section 00700, Page 13, Clause 52.211-10, revise read, "

The Contractor shall be required to:

- (a) commence work under this contract within three (3) calendar days after the date the Contractor receives the notice to proceed,

- (b) prosecute the work diligently, and

- (c) complete the entire work ready for use not later than 130 calendar days after the date of receipt by him of notice to proceed. The time stated for completion shall not include final cleanup of the premises.

End of Clause

NOTE. The Contractor is hereby informed that time allowed for completion of work has been established as the shortest reasonable duration and that he shall make any and all provisions necessary (multiple crews, overtime, 24-hour operation, concurrent operations, etc.) to accomplish the work within the available time period.

- (b). Section 00700, page 78, clause 52.236-4, paragraph (c), revise to read, " The job site is accessible via public roads in the project vicinity, from within the canal and

from property owned by Orleans Parish. The Contractor is solely responsible for all requirements to access the site via Lake Pontchartrain including dredging and bridge removal and replacement at Lakeshore Drive.”

(c). Section 00700, page 114, clause 252.236-7001, paragraph (a), revise to read, “The Government will provide to the Contractor, without charge, five (5) sets of contract drawings and specifications, except publications incorporated into the technical provisions by reference, in electronic or paper media as chosen by the Contracting Office.”

(d). Section 00700, page 114, clause 252.236-7001, paragraph (e), revise the title to read, “LAKE PONTCHARTRAIN AND VICINITY, NEW ORLEANS, LOUISIANA HURRICANE PROTECTION PROJECT, PLANS FOR LONDON AVENUE CANAL INTERIM CLOSURE STRUCTURE.”. Revise the Drawing No. to, 1 THRU 20A AND S-1 THRU S-6”.

#### **Section 01100, GENERAL PROVISIONS**

(a). Section 01100, paragraph 3.b, add the phrase, “Notice of” before “Award of Contract” in the second sentence.

(b). Section 01100, paragraph 3.i, revise the height of the security fence to 8 foot.

(c). Section 01100, paragraph 17.d, add the phrase, “or adjacent to any existing flood protection” after the word “bridges”.

(d). Section 01100, paragraph 17, add the following paragraphs:

i. For access from Lake Pontchartrain plans for bridge removal and replacement and dredging plans. Bridge plans are available for Contractor’s use. Additional survey information of the canal is included at the end of this section.

j. The Contractor shall not be allowed to remove any flood protection other than what is required for construction of the project.

(e). Section 01100, paragraph 23, delete paragraph “c.” in its entirety.

(f). Section 01100, paragraph 24 paragraph a, revise to read, “Divers will be required to ensure proper placement of the sill cap and to confirm tremie concrete has been satisfactorily completed.”

(g). Section 01100, paragraph 24 paragraph b, revise to read, “If PZ 27 sheet piles cannot be driven evenly to receive the sill cap, the Contractor shall be required to evenly cut off the top of the sheet piles.”

(h). Section 01100, paragraph 24 paragraph c, delete this paragraph in its entirety.

#### **Section 01330, SUBMITTAL PROCEDURES**

(a). Section 01330, paragraph 3.2, delete paragraph in its entirety and replace with the following:

At the end of this Section is one set of ENG Form 4288 listing items of equipment and materials for which submittals are required by the specifications; this list may not be all inclusive and additional submittals may be required. Columns "c" thru "q" have been completed by the Government. The Contractor shall complete columns "a", "b", and "r" thru "w", and return four (4) completed copies to the Contracting Officer for approval within three (3) calendar days after Notice to Proceed for approval. The approved submittal register will become the scheduling document and will be used to control submittals throughout the life of the Contract. The submittal register and the progress schedules shall be coordinated. The Contractor shall maintain an effective submittal control system by reviewing and updating the register every three (3) days and submitting updated copies to the Resident Engineer.

(b). Section 01330, paragraph 3.3, delete paragraph in its entirety and replace with the following:

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of thirty-six (36) hours exclusive of mailing time) shall be allowed and shown on the register for review and approval, where applicable.

(c). Section 01330, paragraph 3.7, add the following sentences at the end of the paragraph:

In order to expedite review of submittals, an electronic copy of all submittals shall be sent to the Contracting Officer Representative along with the "hard copies". Electronic files shall be in adobe acrobat (pdf), Microstation (dgn), Autocad (dwg), MS Word, or other format acceptable to the Contracting Officer Representative.

(d). Section 01330, paragraph 3.8, add the following sentences at the end of the paragraph:

In order to expedite review of submittals, an electronic copy of all submittals shall be sent to the Contracting Officer Representative along with the "hard copies". Electronic files shall be in adobe acrobat (pdf), Microstation (dgn), Autocad (dwg), MS Word, or other format acceptable to the Contracting Officer Representative.

#### **Section 02075, SEPARATOR GEOTEXTILES**

(a). Section 02075, paragraph 3.1, delete the following sentences from the paragraph, "Any ruts that develop in the road..." and " No more than 300 feet of geotextile...".

#### **Section 02231, CLEARING AND GRUBBING**

- (a). Section 02231, paragraph 3.3.2.1, delete the last sentence of the paragraph.
- (b). Section 02231, paragraph 3.3.3, revise the reference an the end of the paragraph to “paragraph 02138-3.1.1” in lieu of “02318”.

#### **Section 02315, STEEL H-PILES AND SHEET PILING**

- (a). Section 02315, delete Section 02315, “STEEL H-PILES AND SHEET PILING” in its entirety and replace with new Section 02315, “STEEL H-PILES AND SHEET PILING”.

#### **Section 02318, EXCAVATION**

- (a). Section 02318, paragraph 1.1, add the phrase, “and cellular sheet pile structures” after the word, “embankments”.
- (b). Section 02318, paragraph 3.1, revise the second sentence to read, “All surfaces to receive non-granular backfill shall be cleared and proof-rolled”.
- (c). Section 02318, paragraph 3.1.1, add new paragraph 3.1.1 below.

##### **3.1.1 Suitable Excavated Materials**

Suitable excavated materials shall be transported to and placed in fill or embankment within the limits of the work. Unsuitable materials encountered within the limits of the work shall be excavated below grade and replaced with suitable materials as directed. Such excavated material and the suitable material ordered as replacement shall be included in excavation. Surplus suitable excavated material not required for fill shall be disposed of in areas approved for surplus material storage or designated waste areas. Unsuitable excavated material shall be hauled off site and legally disposed of. During construction, excavation and fill shall be performed in a manner and sequence that will provide proper drainage at all times. Material required for fill in excess of that produced by excavation within the grading limits shall be excavated from Contractor furnished borrow areas as specified herein.

- (d). Section 02318, paragraph 3.4.1, revise the first sentence to read, “The Contractor shall use borrow areas previously approved and permitted by the Government”.
- (e). Section 02318, paragraph 3.4.4, revise the second sentence to read, “The Contractor shall allow a minimum of ten (10) days, after the receipt of the package, for the Government’s review, processing and approval”.
- (f). Section 02318, paragraph 3.4.5.5, revise the first and second sentences to read, “Soil borings of the Contractor-furnished borrow area shall be provided by the Contractor to a depth of at least five (5) feet below the depth of planned excavation. The

borings shall be at a spacing that will adequately define the material in the pit but in no case spaced greater than 500 feet on centers”.

#### **Section 02383, STONE PROTECTION AND BEDDING**

(a). Section 02383, paragraph 1.3.3.1, revise the fifth sentence from the bottom to read, “The Contractor shall, during bid preparation, estimate the degree of salinity in the water and include any adjustments in the bid price for “Bedding Stone”.

(b). Section 02383, paragraph 1.3.3.2, revise the first sentence to read, “Payment for bedding material will be made at the contract unit price per ton for “Bedding Stone”.

(c). Section 02383, paragraph 2.1.2.1, delete this paragraph in its entirety.

(d). Section 02383, paragraph 3.4.2, revise the second and third sentences to read, “Maximum drop shall be limited to one (1) foot above ground or top of water. Movement of tracked equipment will not be permitted on stockpiled riprap.”

#### **Section 02413, CELLULAR SHEET PILE STRUCTURES**

(a). Section 02413, paragraph 1.2, add the following at the end of the paragraph, “Measurement for granular fill material will be made by the cubic yard, computed using the theoretical area of each cell times the average depth of each cell.

(b). Section 02413, paragraph 1.3, add the following at the end of the paragraph, “Payment for granular fill will be made at the contract unit price per cubic yard for “Granular Fill”.

(c). Section 02413, paragraph 1.5.1.1, revise the paragraph to read, “The Contractor shall submit complete descriptions and procedural information of pile driving and cell placement aids, such as walers, master pile, templates, local deflectors, wing deflectors, restraining devices or other guide or restraining structures (temporary or permanent) to the Contracting Officer for information only ten (10) days prior to commencement of cell construction.”

(d) Section 02413, paragraph 1.5.4, delete the phrase, “for approval” from the first sentence.

(e). Section 02413, Paragraph 2.1.1. Add, “Type 3” after “ASTM A 325” in the fourth sentence.

(f) Section 02413, paragraph 2.1.4, revise the second sentence to read, “The fill material shall be classified as SP or SW based on Unified Soil Classification System”.

(g) Section 02413, paragraph 3.1.2.1, delete the last sentence from the paragraph referencing Section 02315.

**Section 02462, STEEL PIPE PILES**

- (a) Section 02462, paragraph 1.3, revise all the submittals to be “Information Only” in lieu of “Government Approval”.
- (b) Section 02462, paragraph 2.1.2, add the sentence, “See drawings for details.” after the second sentence.
- (c) Section 02462, paragraph 3.1.1.1, delete the second, third and fourth sentences and replace with the following sentence, “The Contractor shall select the proposed pile driving equipment based on the WAVE equation analysis.”
- (d) Section 02462, paragraph 3.2.3, revise the fifth sentence to read,” A final lateral deviation from the correct location at the cutoff elevation of not more than one (1) inch for all piles.”
- (e) Section 02462, paragraph 3.2.3, revise the seventh sentence to read,” A vertical deviation of not more than plus zero (+0) to minus three (-3) from the correct cutoff elevation shown will be permitted.”
- (f) Section 02462, paragraph 3.2.5, revise the last sentence to read,” Any voids around piles or abandoned holes for pulled piles above water shall be backfilled and densified to the same density as the surrounding soil.”
- (g) Section 02462, paragraph 3.2.5.1, add the phrase, “and as shown on the drawings”.

**Section 02731, SURFACING**

- (a) Section 02731, revise the title of the section to , “SURFACING”.
- (b) Section 02731, paragraph 1.5.4.2, revise paragraph referenced in the second sentence to 2.1.1.

**Section 03308, CONCRETE FOR STRUCTURES**

- (a) Section 03308, paragraph 1.2.2, revise the paragraph to read, ”Payment for concrete used to construct the structures will be made at the applicable lump sum price for “Reinforced Concrete Cap”, “Tremie Concrete”, or “Grout”. Price and payment shall include the cost of all labor, materials, and the use of all equipment and tools required to complete the structure, reinforcing steel, formwork, preformed expansion joints, field-molded sealants, water stops and other components. The bid item for “Reinforced Concrete Cap” shall include any concrete place above water. The bid item for, “Tremie Concrete” shall include any concrete placed below water.

**Section 05093, WELDING PIPING**

- (a) Section 05093, add new Section 05093, “WELDING PIPING”.

**Section 05120, STRUCTURAL STEEL**

- (a). Section 05120, Table of Contents. Revise 1.1.1 to read, “Pipe Jackets”.

(b) Section 05120, paragraph 1.1.2, delete the word, “reinforcement” in the first sentence.

- (c) Section 05120, paragraph 1.1.3 and 1.1.4, add the following paragraphs:

1.1.3 Pipes for Pumping

All costs in connection with the pipes that will be used to discharge water from the pumping system, including flanges and local supports, shall be included in the contract lump sum price for, “Discharge Pipe”.

1.1.4 Pump Platforms

All costs in connection with the pump platforms as shown in the contract plans, including temporary supports, structural members, painting, and installation shall be included in the contract lump sum price for, “Pump Platforms”. Steel H-piles shall be measured and paid for as specified in Section 02315, “STEEL H-PILES AND SHEET PILING”.

(d) Section 05120, paragraph 1.4, revise all the submittals to be “Information Only” in lieu of “Government Approval”. Also delete the requirement for submitting the AISC Certificate.

(e) Section 05120, paragraph 2.3, revise first sentence to read, “Steel pipe for horizontal and diagonal frame members shall conform to API 5L, Grade X42 minimum.

(f) Section 05120, paragraph 2.4, revise title to, “SILL CAP COMPONENTS AND PUMP PLATFORMS”.

(g) Section 05120, paragraph 2.4, revise paragraph to read, “All steel for sill cap and pump platforms shall conform to ASTM A 572/A 572M or ASTM A 588/A 588M”.

(h) Section 05120, paragraph 3.1, delete the third sentence concerning the AISC Certificate.

- (i) Section 05120, paragraph 3.2.2, revise paragraph to read,

3.2.2 Pump Platform Painting

The pump platforms shall be painted in accordance with Section 09940, “PAINTING” with the exception of the piling and galvanized members.

**Section 09940, PAINTING**

(a) Section 09940, delete the Section 9940, "PAINTING" in its entirety and replace with new Section 9940, "PAINTING".

**Section 15000, INSTALLATION OF GOVERNMENT FURNISHED EQUIPMENT**

(a) Section 15000, add new Section 15000, "INSTALLATION OF GOVERNMENT FURNISHED EQUIPMENT".

**Section 15200, DISCHARGE PIPES**

(a) Section 15200, add new Section 15200, "DISCHARGE PIPES.

(4). Contract Drawings.

Delete drawings 1 through 20 in their entirety and replace with drawing 1 through 20A and S-1 thru S-6.

(End of Summary of Changes)

## SECTION 00010 - BIDDING SCHEDULE

## LONDON AVENUE CANAL INTERIM CLOSURE STRUCTURE

Item	Description	Estimated Quantity	Unit	Unit Price	Total
0001	Mobilization and Demobilization	01	LS		
0002	Clearing and Grubbing	01	LS		
0003	Separator Geotextile	17,000	SY		
0004	Excavation	01	LS		
0005	Bedding Stone	55	TON		
0006	Graded Stone (Rip-Rap)	25,000	TON		
0007	Embankment, Semicompacted Fill	2,450	CY		
0008	Surfacing	80	TON		
0009	Chain Link Fence	01	LS		
0010	Fertilizing, Seeding, and Mulching	01	AC		
0011	Reinforced Concrete Cap	01	LS		
0012	Tremie Concrete	01	LS		
0013	Grout	01	LS		
0014	Pile Frames	01	LS		
0015	Needle Gates	12	EA		
0016	Sill Cap	01	LS		
0017	Steel H-Piles	21,000	LF		
0018	Steel Pipe Piles	4,600	LF		
0019	Piling, Steel Sheet, Type PZ 27	55,200	SF		
0020	Piling, Steel Sheet, Type PS 27.5	98,000	SF		
0021	Piling, Steel Sheet, Type PZ 22	4,550	SF		
0022	Sheet Pile Cells	01	LS		
0023	Discharge Pipe	01	LS		
0024	Pump Platforms	01	LS		
0025	Installation of Government Furnished Equipment	01	LS		
0026	Granular Fill	4,800	CY		

## SECTION 00010 - BIDDING SCHEDULE

### LONDON AVENUE CANAL INTERIM CLOSURE STRUCTURE

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#### TOTAL

Award will be made as a whole to one bidder.

NOTE 1: Bidders shall furnish unit prices for each item 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 payment bonds. Within three (3) 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.

NOTE 3: Your response to this solicitation is limited to 15 pages, not including the Bid Schedule, Section 00600, Representations and Certifications, Bid Bond and Contracting Plan if required, with the font size no smaller than 10pt.

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SECTION 00130 – PROPOSAL EVALUATION CRITERIA

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## SECTION 00130 – PROPOSAL EVALUATION CRITERIA

### 1.1 SCOPE

This is a Request for Proposal (RFP). Proposals will be evaluated by a Source Selection Evaluation Board (SSEB) comprised of representatives of the Corps of Engineers. Award will be made to that offeror, determined by the Government, who can accomplish the requirements set forth in the RFP in a timely manner most advantageous to the Government considering both cost and non-cost factors. The Government reserves the right to award this contract to other than the lowest price offeror after consideration of all factors.

### 1.2 SOURCE SELECTION USING THE TRADE-OFF PROCESS

The Government will select the offer that represents the best value to the Government by using the trade-off process described in FAR Part 15. This process permits tradeoffs between price and technical merit/quality and allows the Government to accept other than the lowest priced offer. The award decision will be based on a comparative assessment of proposals against all source selection criteria in the solicitation.

### 1.3 RELATIVE IMPORTANCE OF PRICE TO THE TECHNICAL EVALUATION FACTORS

All non-cost (i.e., technical) evaluation factors, when combined are more important than cost or price. The Government is concerned with striking the most advantageous balance between Technical Merit (i.e., quality) and cost to the Government (i.e., price). Where competing technical proposals are determined to be substantially equal, price could become the tiebreaker.

### 1.4 TECHNICAL/QUALITY EVALUATION

The Government will evaluate each of the six non-cost factors and rate the proposals. Non-cost factors are not all equal in importance. The following terminology is used to describe the relative importance of each non-cost factor:

- (1) MORE SIGNIFICANT. This factor is of greater value than other factors. It is approximately twice as much as the next valued factor.
- (2) LESS SIGNIFICANT. This factor is approximately one-half (1/2) the value of the factor rated ahead of it.
- (3) COMPARATIVELY EQUAL. The value is nearly the same as another factor; any difference is slight and unimportant.

## 1.5 NON-COST FACTORS

The non-cost factors are listed in descending order of relative importance. Factors 1 and 2 are comparatively equal and are more significant when compared to factor 3. Factor 4 is less significant than 3.

(1) Past Performance. Offerors will be evaluated on the quality of similar work performed in the last TEN (10) YEARS using the evidence provided by the offeror and other sources for the prime and all subcontractors. Projects that are similar in scope, complexity and magnitude will provide better proof of the Offeror's capabilities. The Government reserves the right to check any or all cited references to verify supplied information and to assess owner satisfaction. The Government may also use other tools to gather information regarding an Offeror's qualifications and past performance. The offeror should provide information on any problems encountered on the identified contracts and the corrective actions taken. Offerors with no relevant performance history will receive a neutral rating in this factor.

(2) Technical Approach. The offeror shall provide plans and methodology in the form of a network analysis or critical path management tool used to demonstrate the construction of the flood protection system to show the relationship between material procurement, fabrication, site work, and completion on time. The network analysis should address the type, quantity, and location of equipment that will be used to construct the flood protection system. The offeror shall submit agreements that they have with other firms to subcontract with for labor, materials and equipment which demonstrates the offeror's ability to complete the job on time. The offeror's proposal shall identify the availability, and any agreements with suppliers of key materials or equipment. The proposal shall identify the location and anticipated arrival date of key materials and equipment to the job site. The proposal shall also address the sources and availability of construction personnel.

The offeror is requested to submit an additional network analysis prepared with regard to being exempt from the Buy American Act, in the event that the Buy American Act may be waived for this construction.

(3) Personnel Experience. The Contractor shall provide qualifications (to include resume, years of experience in position, list of similar projects, etc.) of key personnel for both prime and sub-contractors. The Contractor and its' subcontractors shall include to the maximum extent possible hiring of local workforce, to include names and local addresses of all such personnel.

(4) Project Management. The Offeror shall provide a detailed construction management plan to include how lost construction days will be made up to best meet the contract completion date in the face of unforeseen delays.

## (5) Small/Small Disadvantage Participation

### 1.6 RFP SUBMITTALS

Offeror's submitting proposals for this project should limit submissions to data essential for evaluation of proposals so that a minimum of time and monies will have been expended in preparing information required herein. However, in order to be effectively and equitably evaluated, the proposals must include information sufficiently detailed to clearly describe the Offeror's past performance, technical approach, personnel experience, and management capabilities to successfully complete the project. Your response to this solicitation is limited to fifteen (15) pages, not including the Bid Schedule, Section 00600, Representations and Certifications, Bid Bond and Subcontracting Plan if required, with the font size no smaller than 10pt.

### 1.7 ORAL PRESENTATIONS

The proposals will be ranked and a competitive range will be established. All offerors in the competitive range will be required to conduct an oral presentation that will include discussions. Oral presentations will be limited to thirty (30) minutes, with discussions to follow.



A  
B  
C  
D

1 2 3 4 5



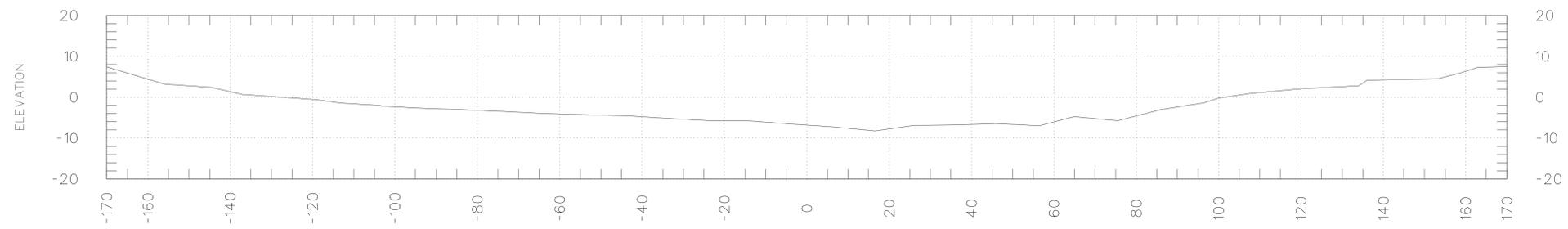
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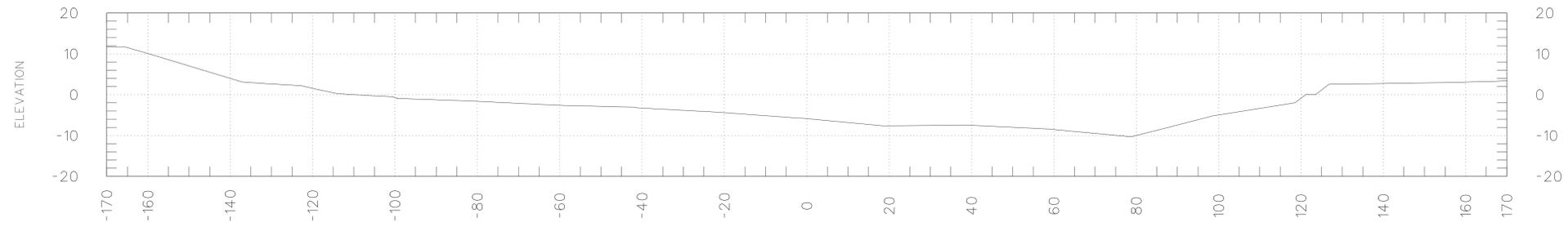
U. S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
MISSISSIPPI VALLEY DIVISION

LONDON AVE CANAL  
INTERIM CLOSURE STRUCTURE  
PLAN VIEW  
CROSS SECTION C/L

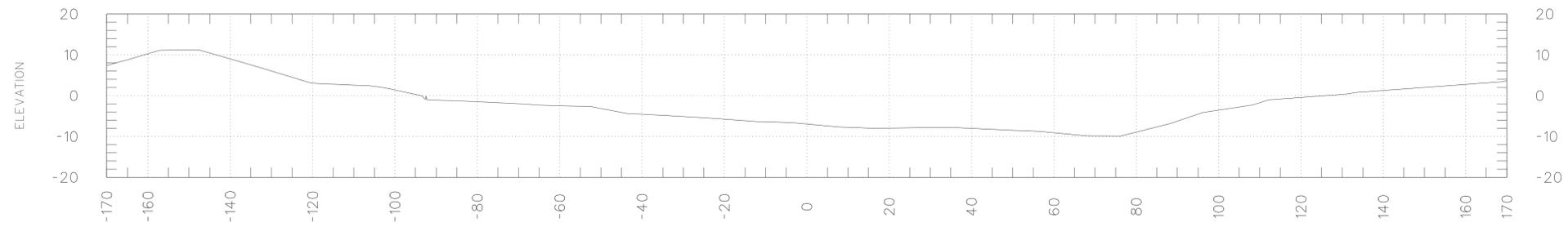
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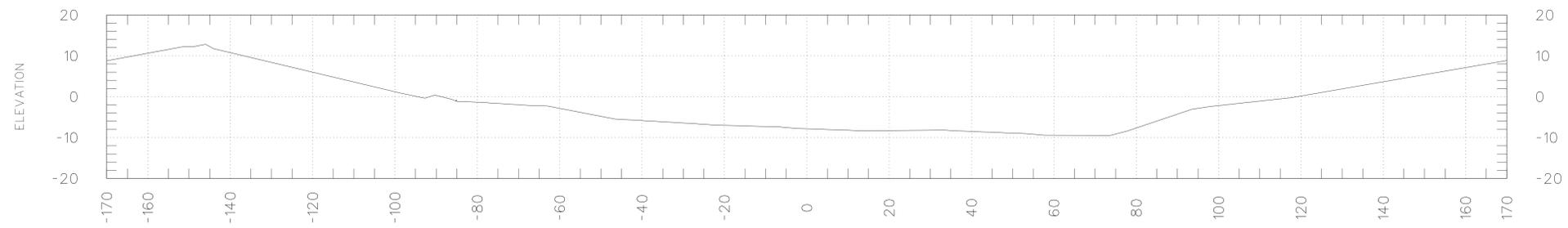
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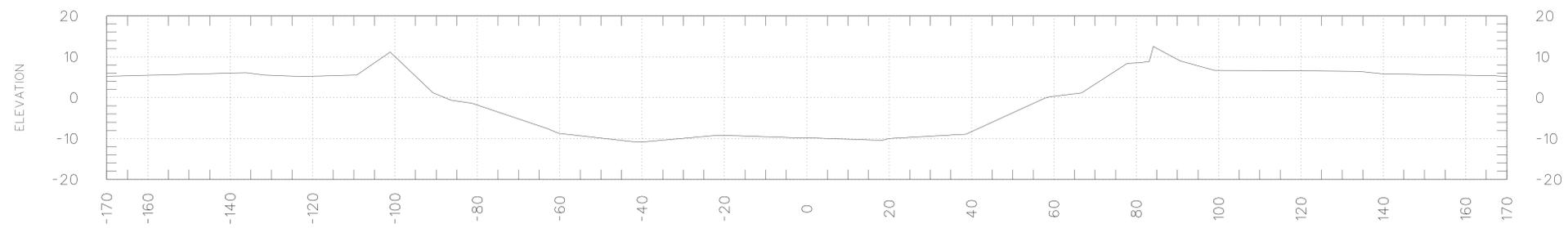
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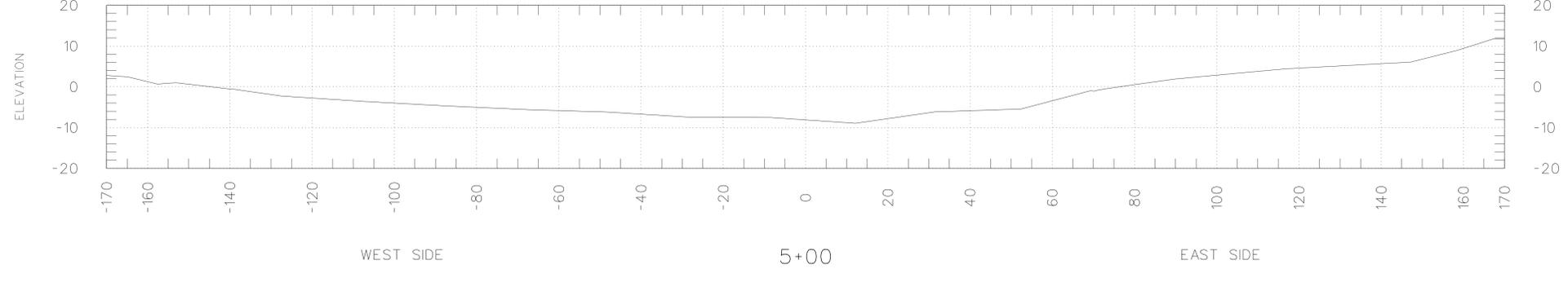
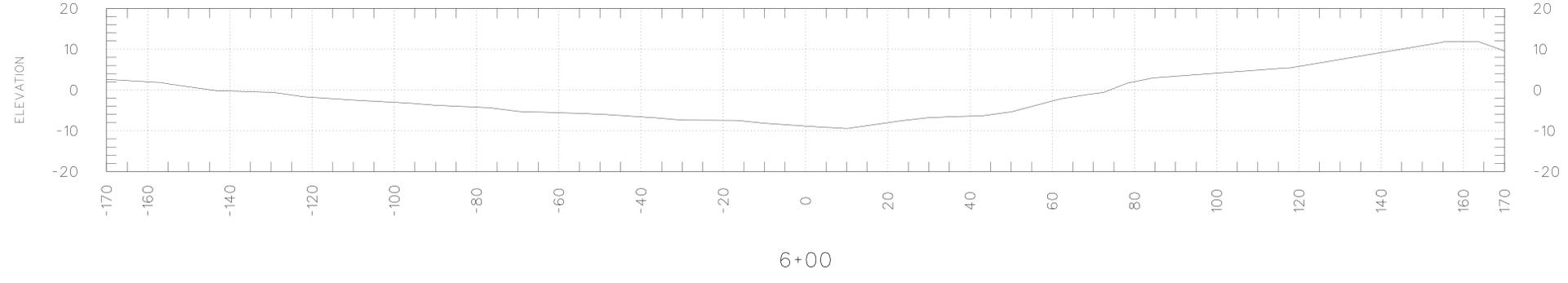
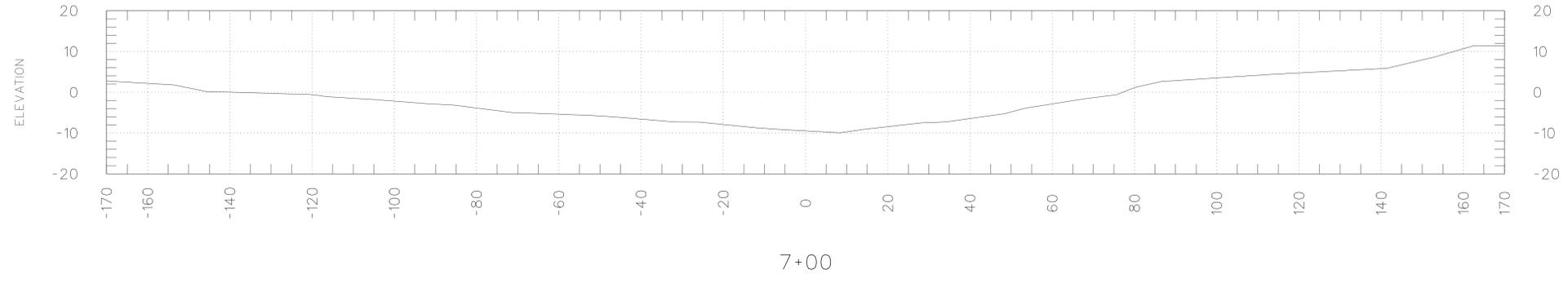
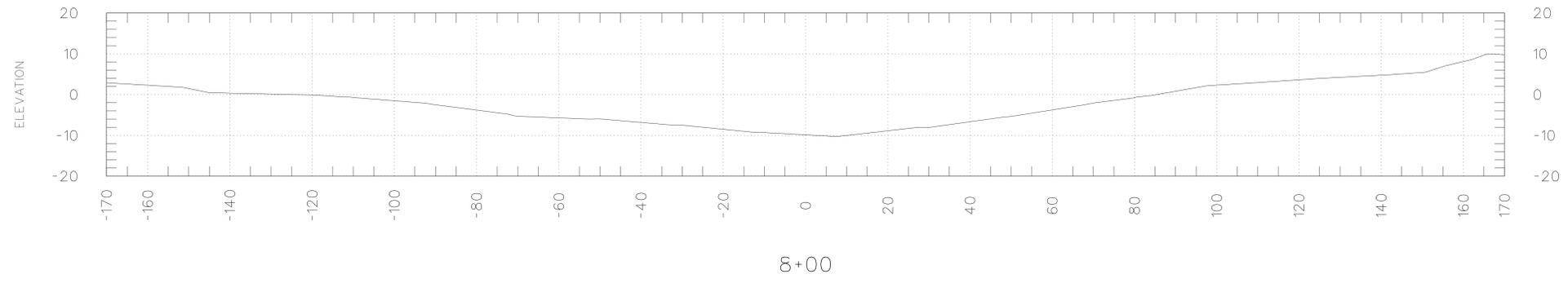
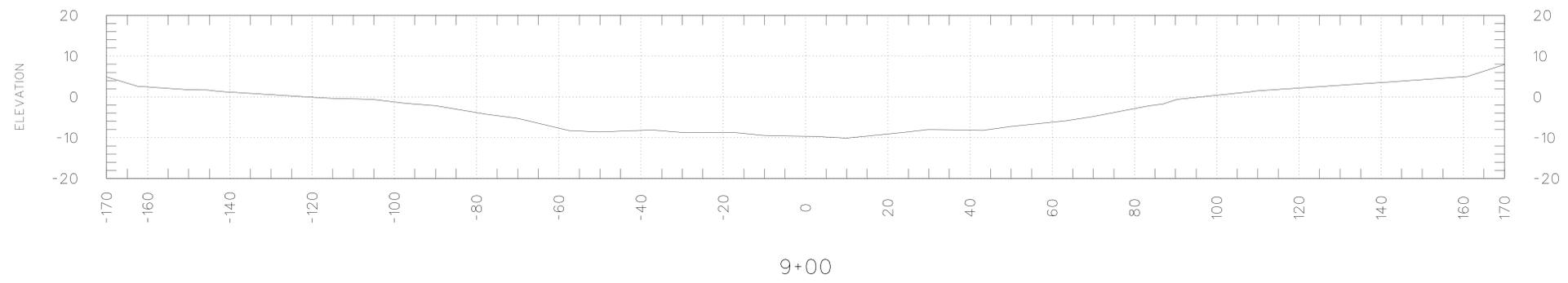
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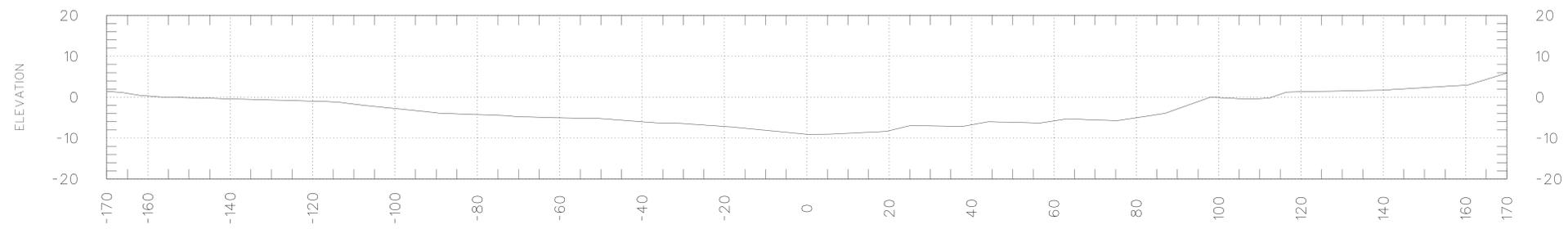


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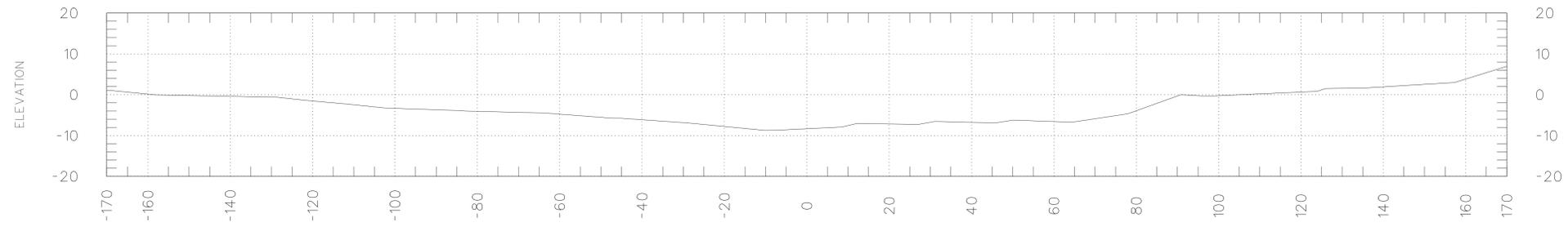
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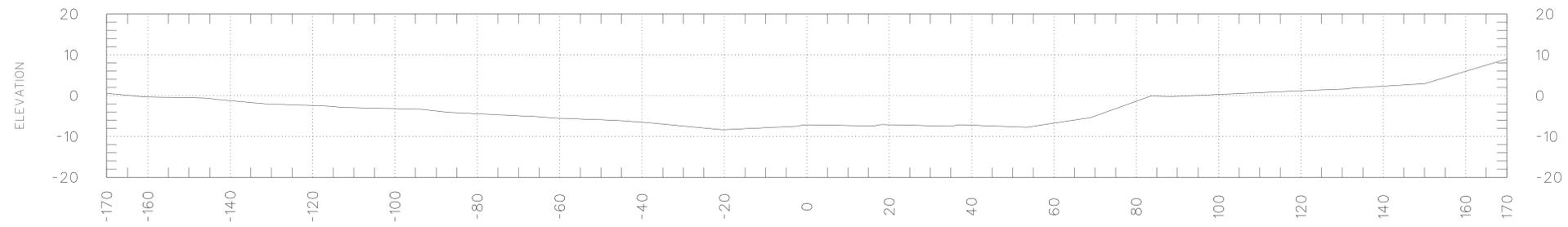




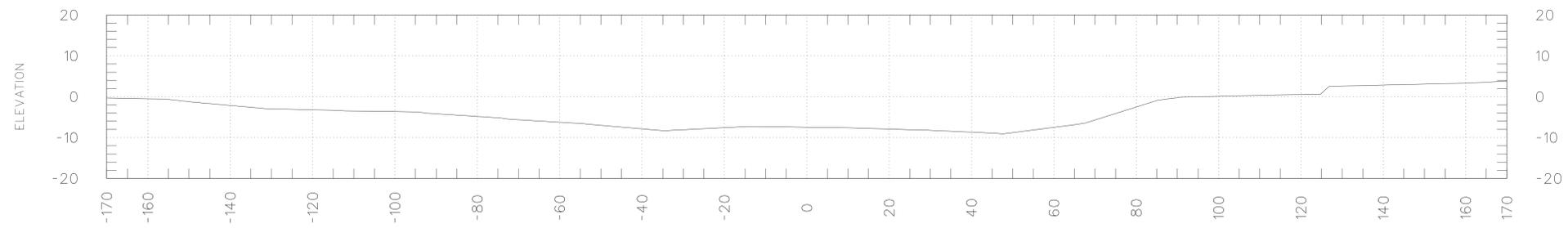
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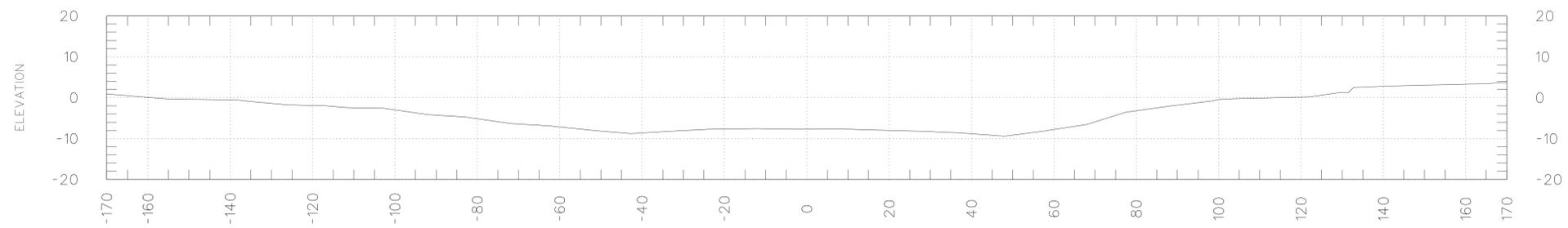
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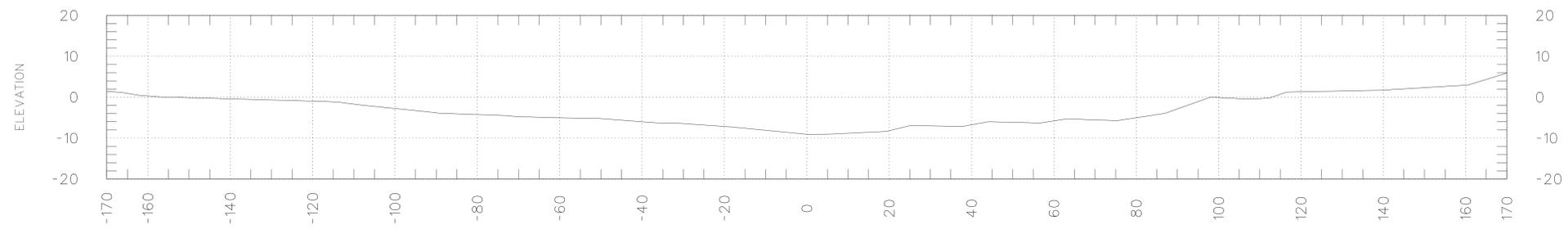
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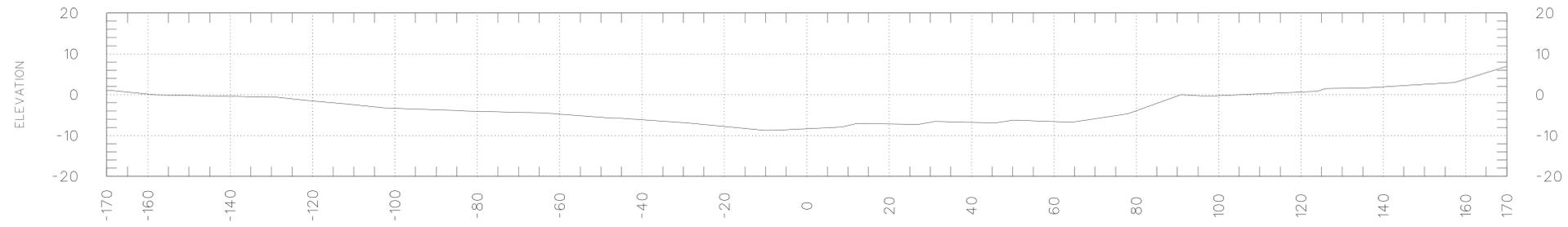
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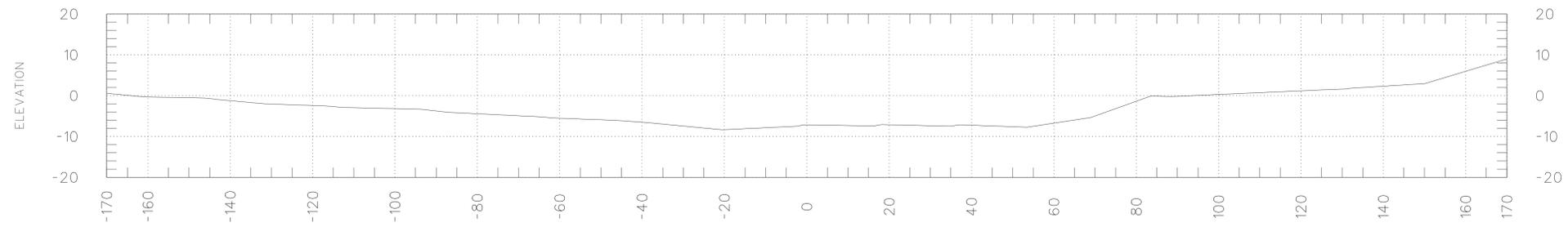
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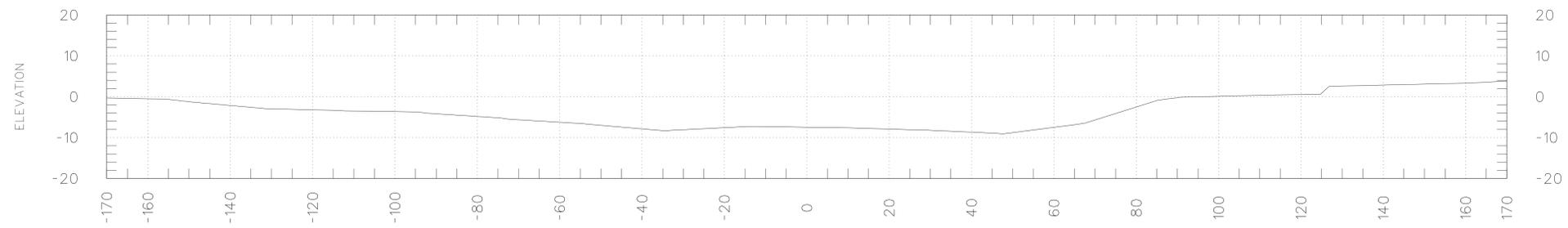
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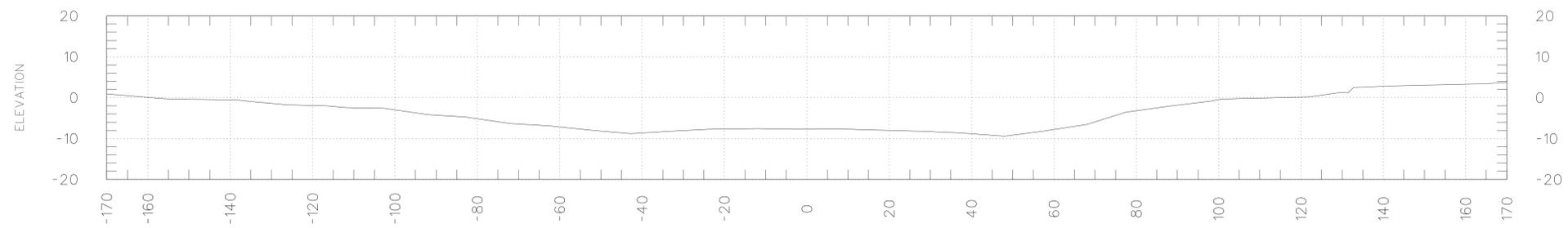
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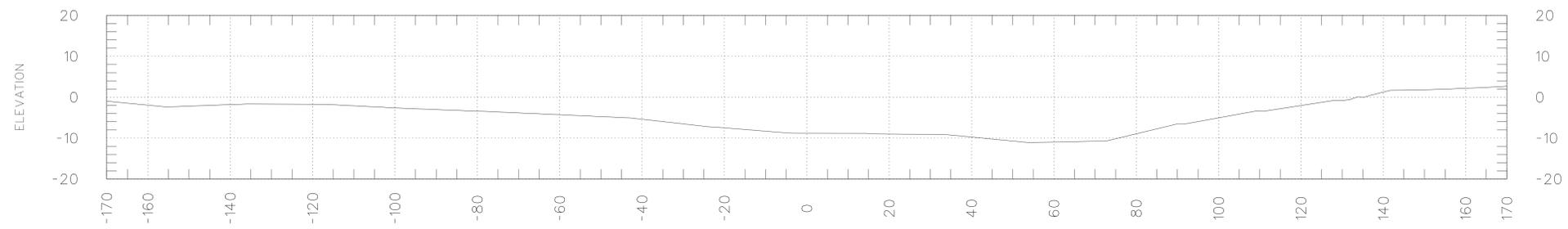
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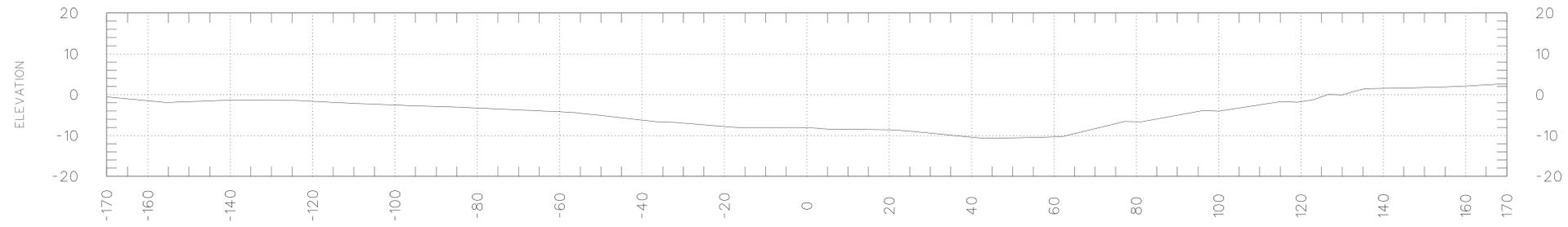
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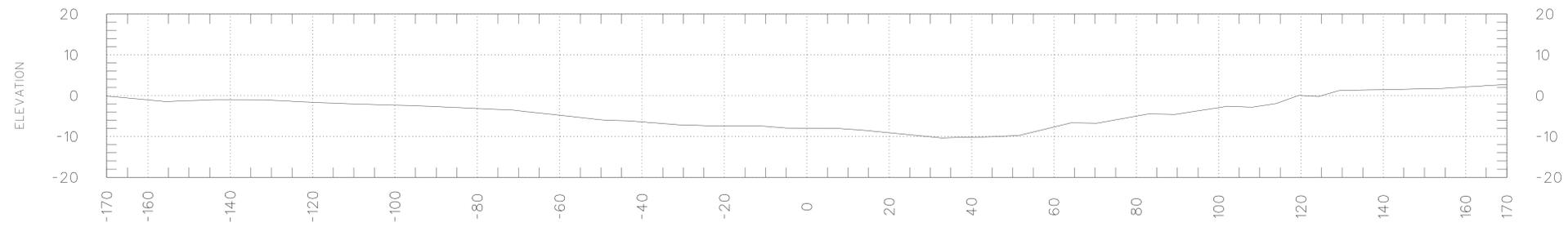
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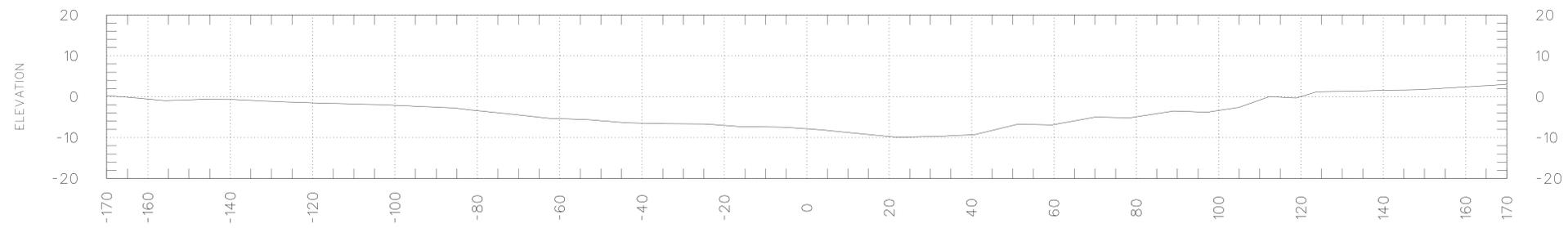
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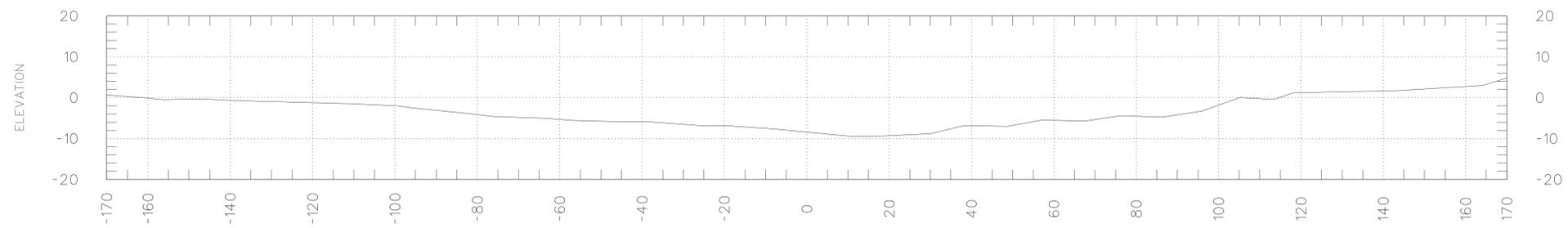
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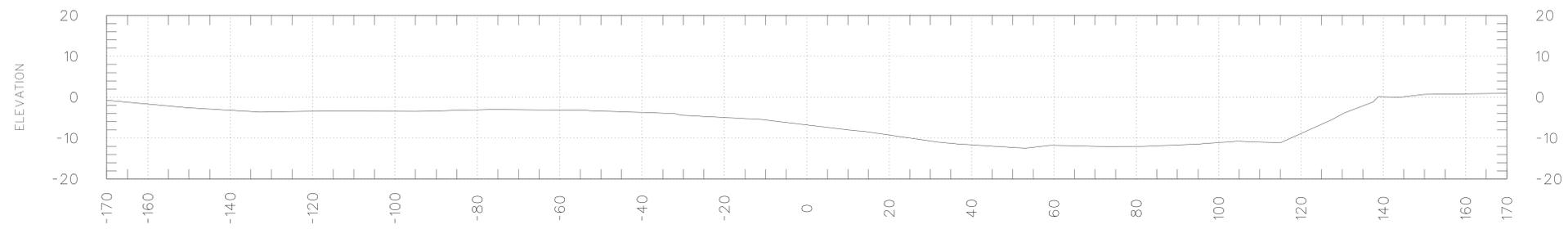
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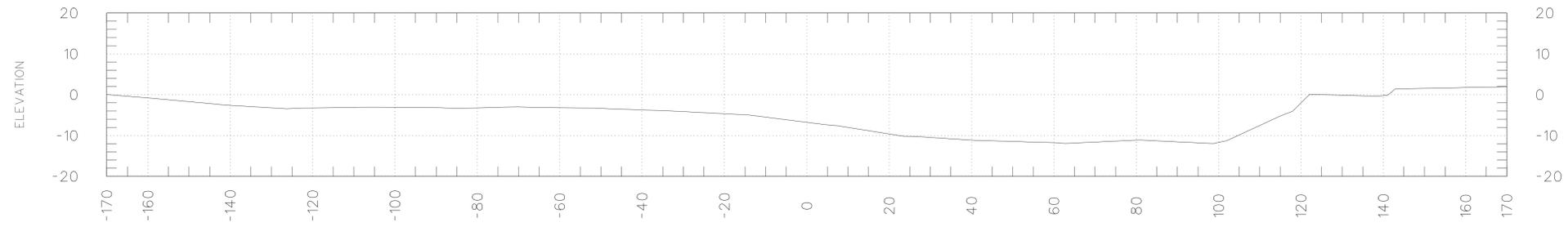
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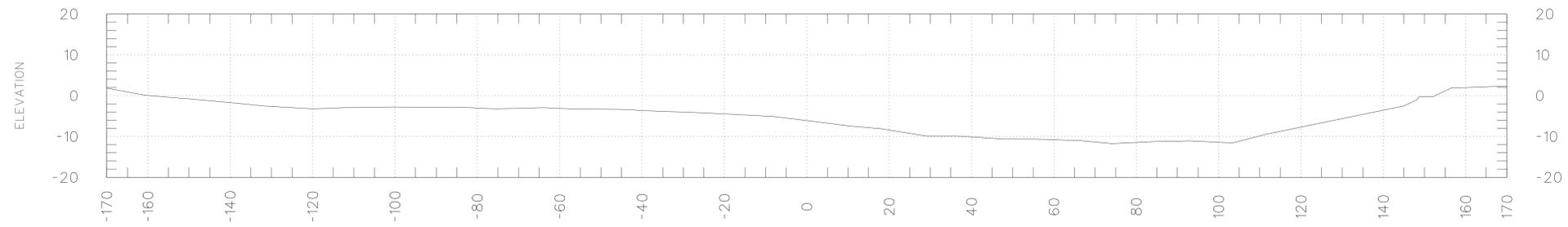
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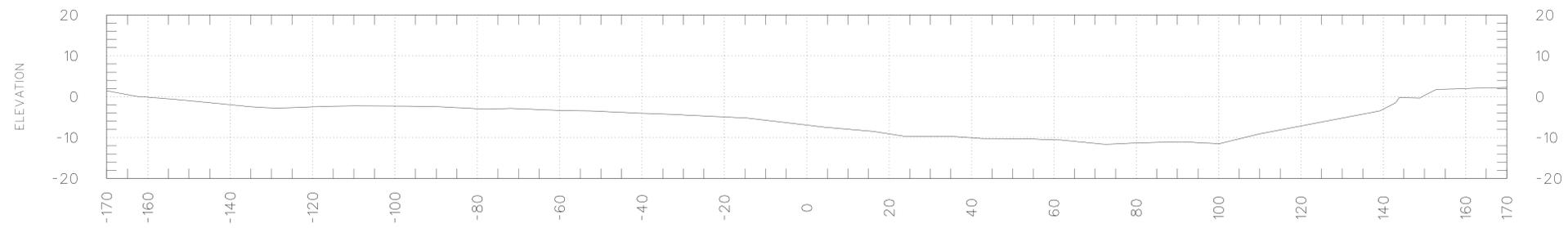
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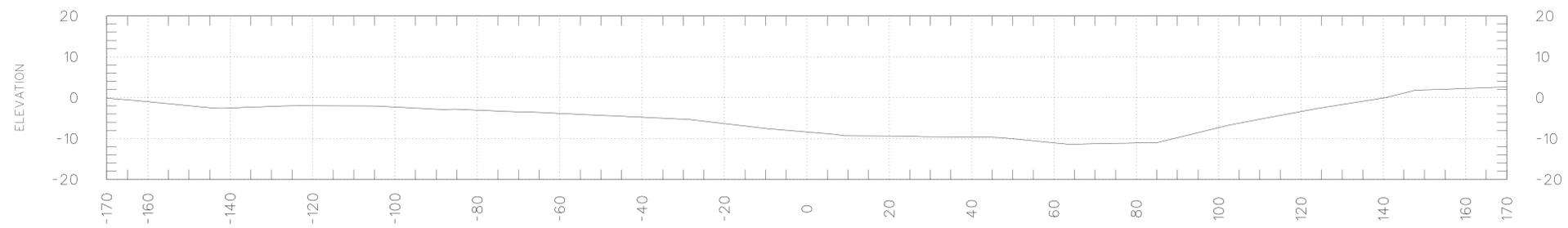
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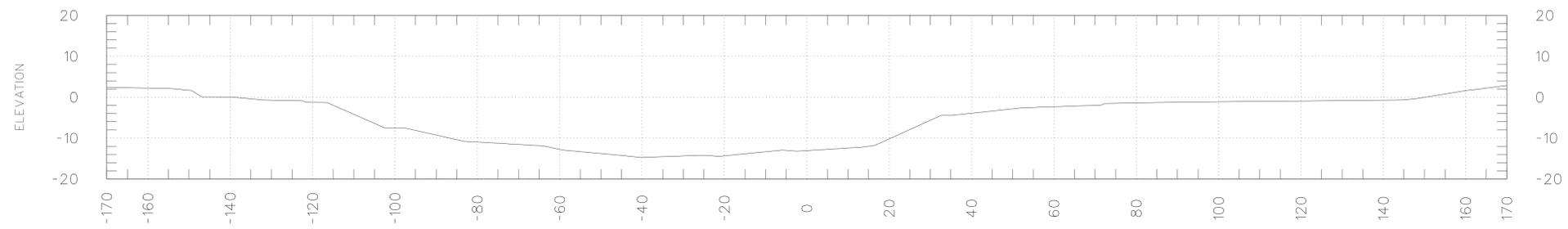
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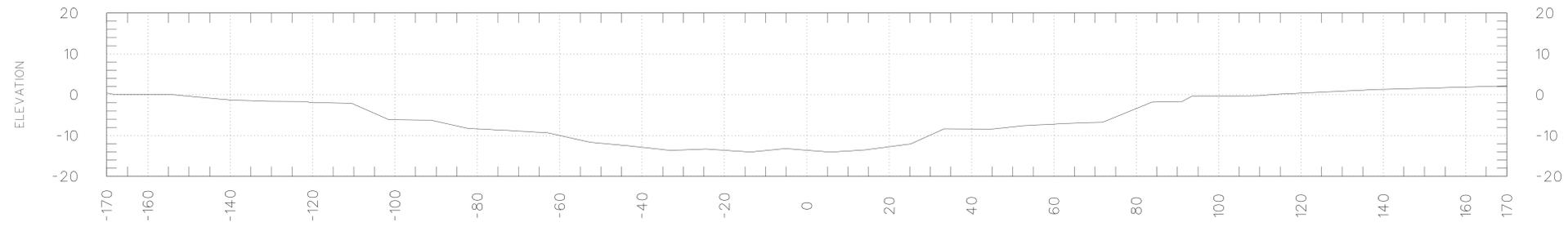
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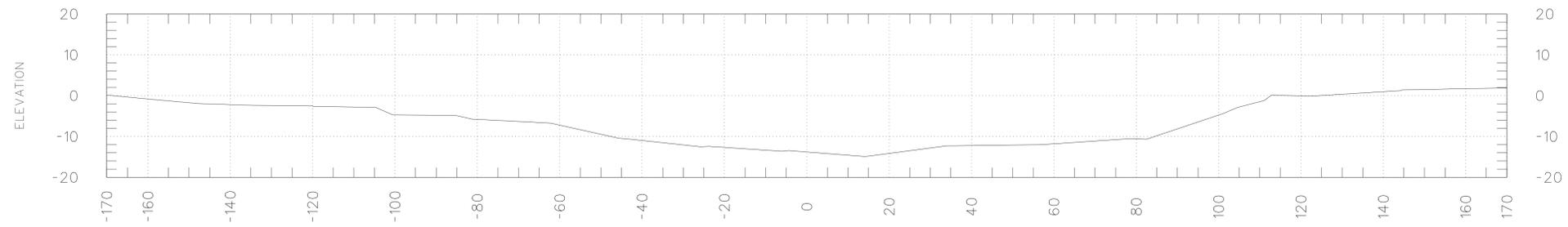
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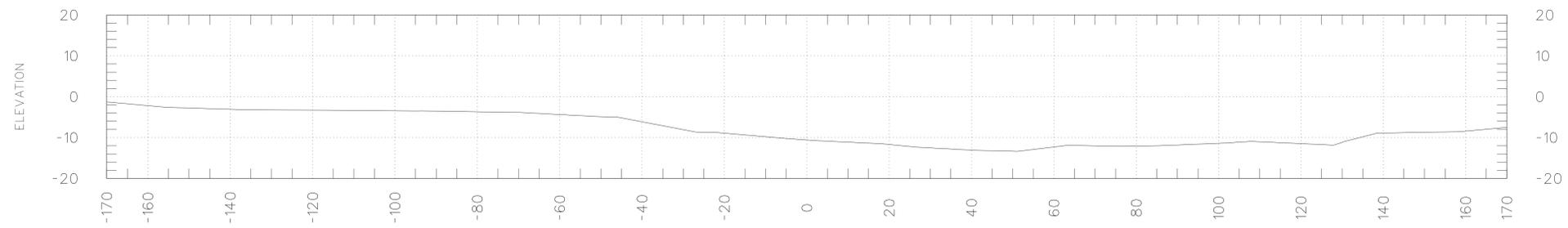
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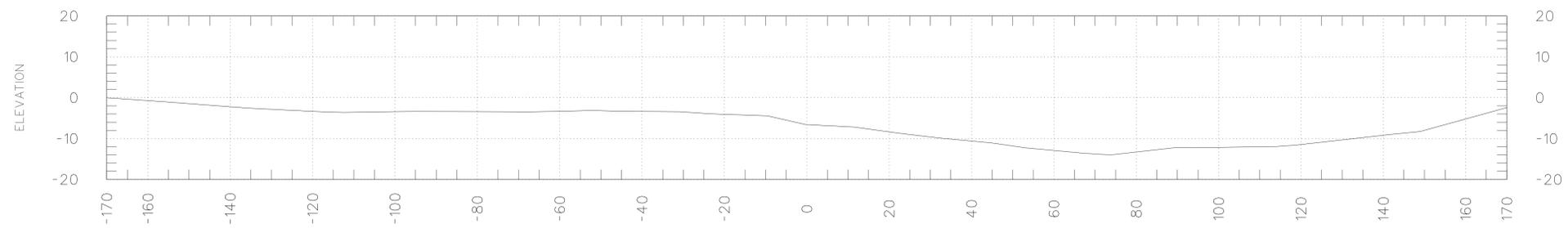
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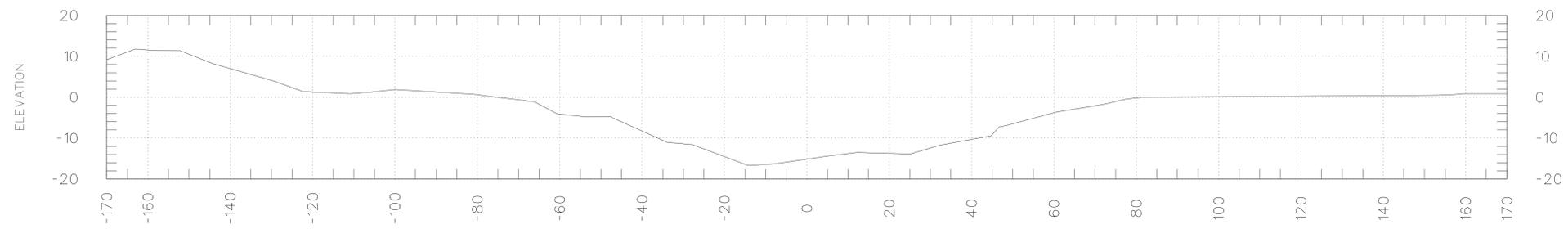
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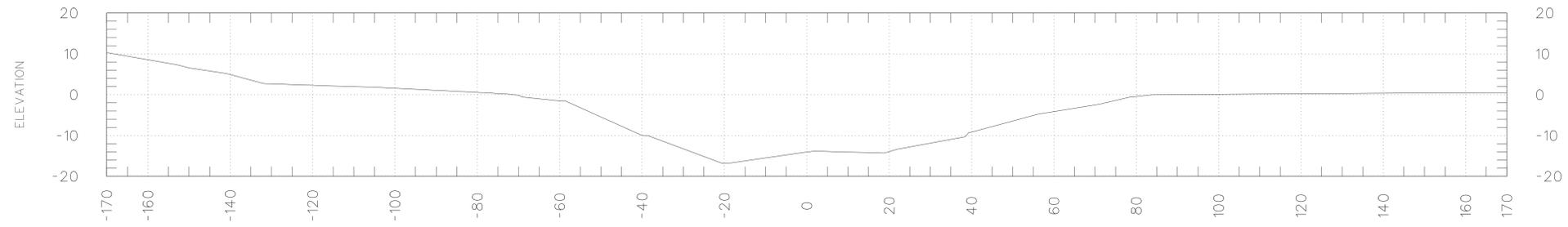
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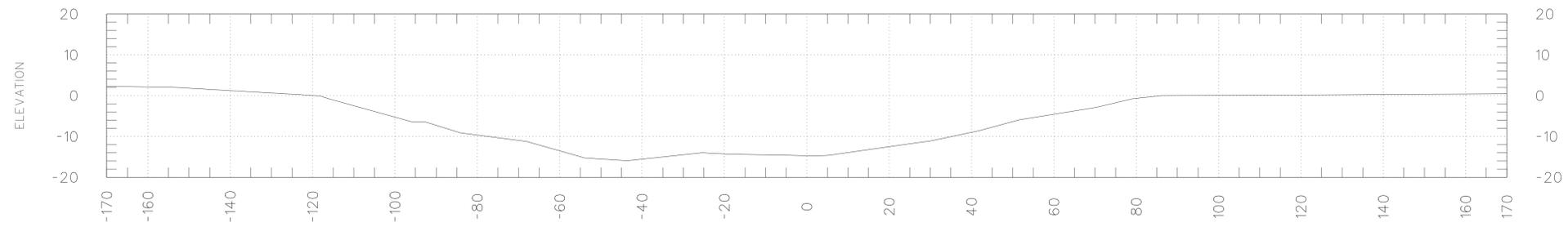
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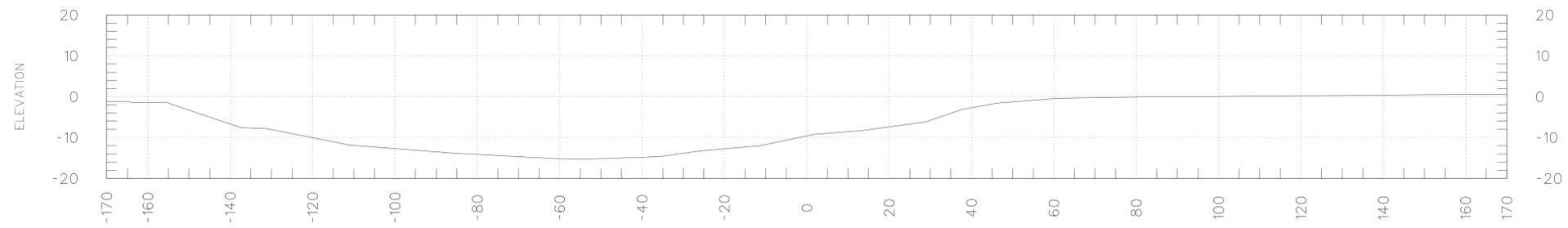
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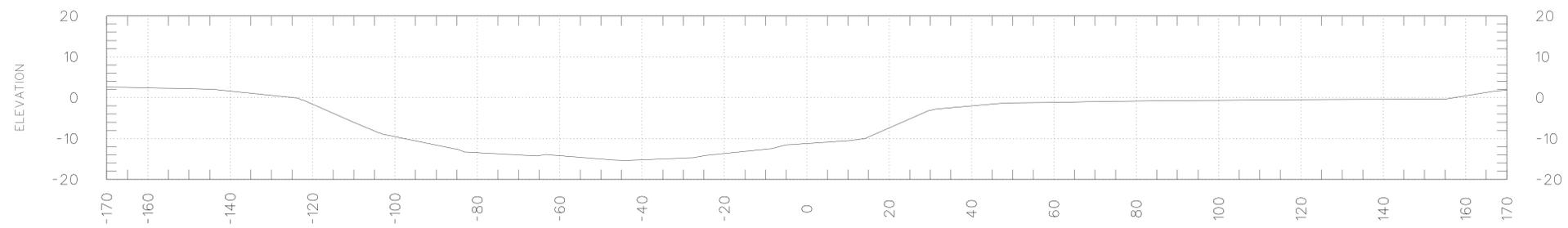
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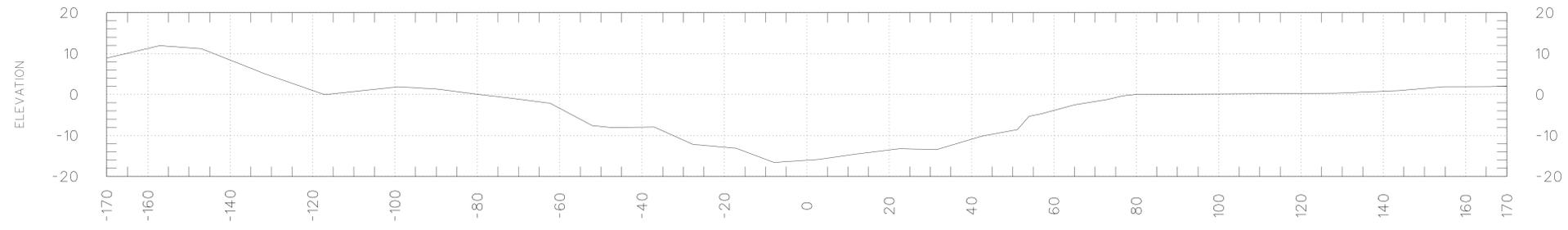
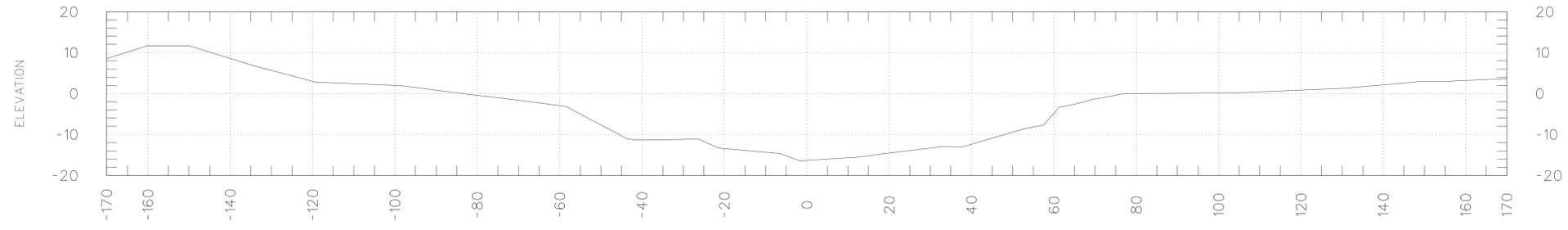
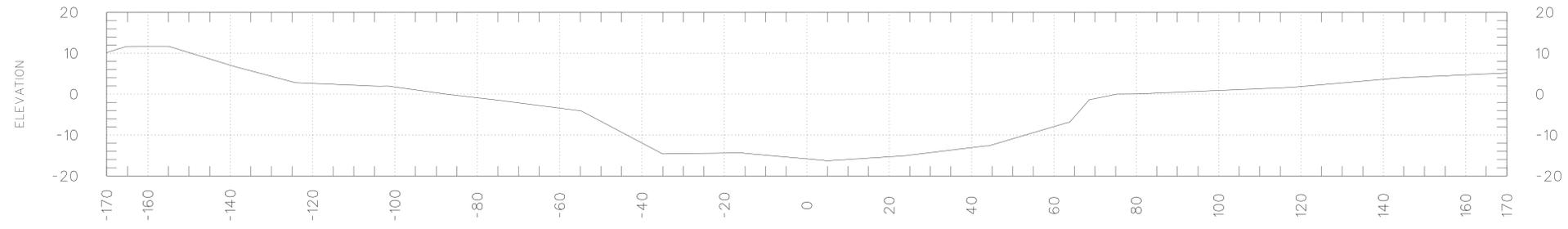
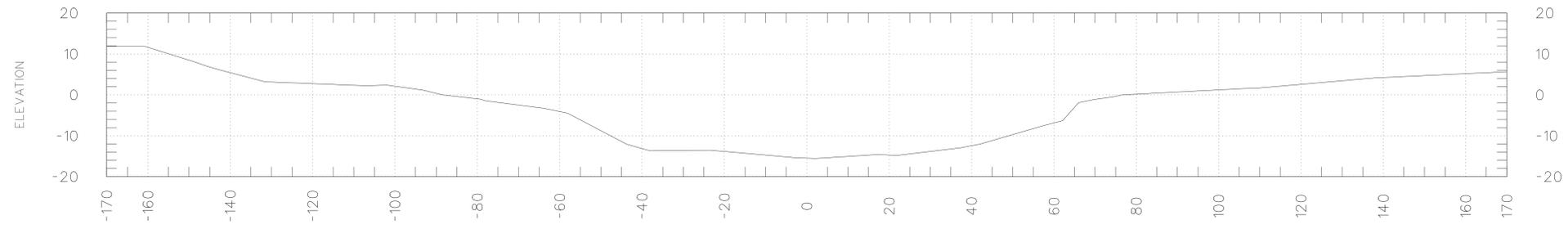
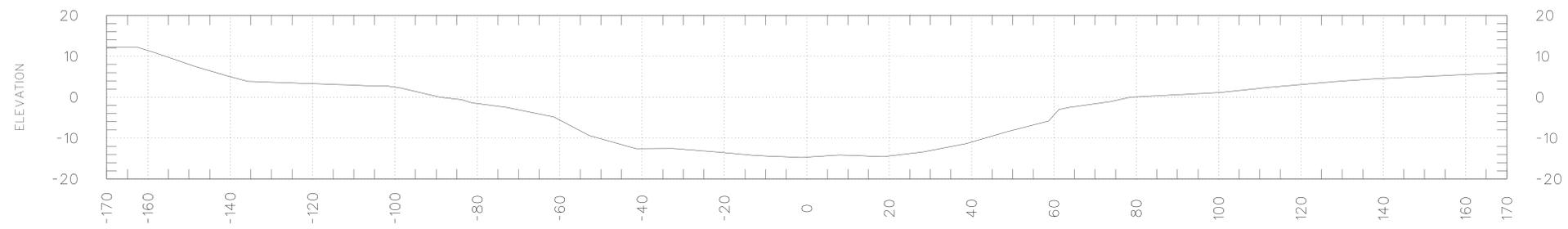
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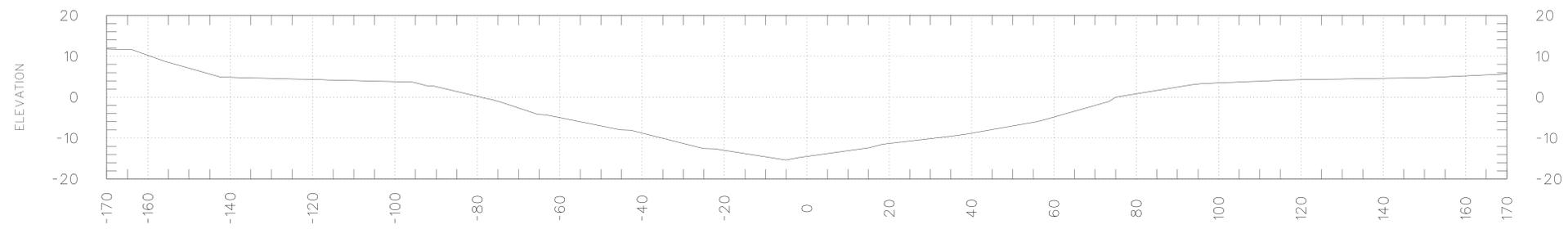
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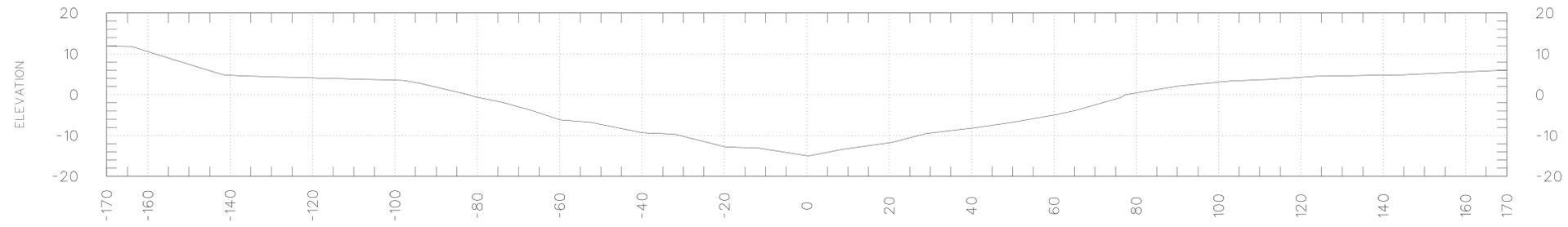
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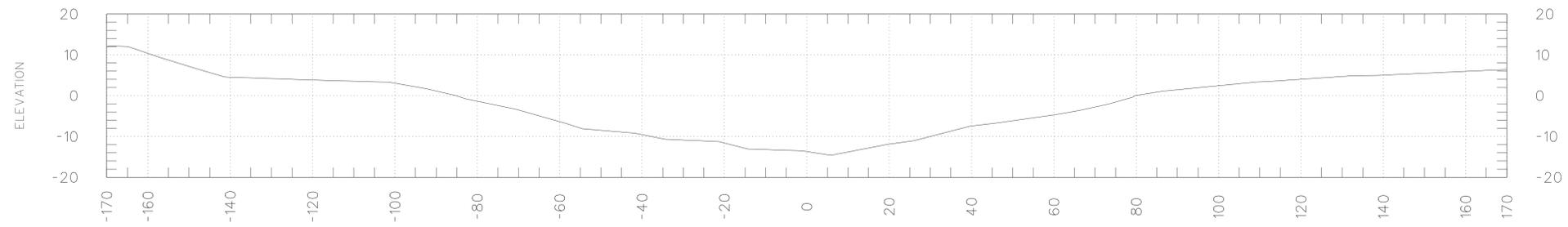
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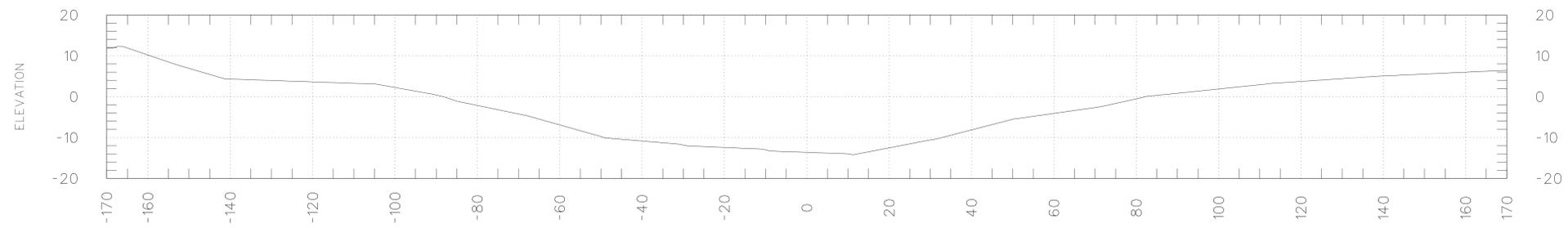
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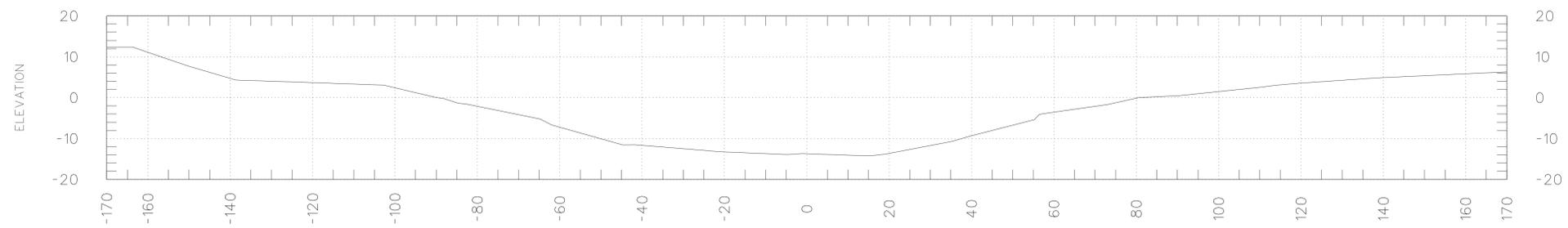
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## SECTION 02315 - STEEL H-PILES AND SHEET PILING

### 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 new steel H-piles and sheet piling in accordance with these specifications and applicable drawings. Sheet piling for the cellular sheet pile structures is covered in Section 02413, "CELLULAR SHEET PILE STRUCTURES".

#### 1.2 MEASUREMENT AND PAYMENT

##### 1.2.1 Measurement

##### 1.2.1.1 Steel H-Piles

Steel H-piles will be measured for payment on the basis of lengths, to the nearest tenth of a linear foot, along the axis of each pile complete in place below the specified elevation shown in the Contract Drawings.

##### 1.2.1.2 Steel Sheet Piling

##### 1.2.1.2.1 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 approved shop 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.

##### 1.2.1.2.2 Miscellaneous Items

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

#### 1.2.1.3 Pulled Piles

##### 1.2.1.3.1 Steel H-Piles

Pulled piles, when directed by the Contracting Officer, shall be measured for payment on the basis of lengths along the axis of the pile pulled. Redriving of pulled piles shall be measured for payment on the basis of lengths along the axis of the redriven pile.

##### 1.2.1.3.2 Steel Sheet Piling

Piling ordered pulled will be measured for payment by the square foot. Square footage will be determined by multiplying the theoretical driving width of the piling by the length pulled above the cut-off elevation shown on the drawings. Redriving of such piling, 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.

#### 1.2.2 Payment

##### 1.2.2.1 Steel H-Piles

###### 1.2.2.1.1 Furnishing and Driving Piles

Payment for furnishing, placing and driving the required lengths of steel piles will be made at the contract unit price per linear foot for "Steel H-Piles". Price and payment shall constitute full compensation for fabricating, adding cover plates, furnishing, handling, driving, cutting holes, backfilling voids, and all other work incidental to acceptably installing the steel H-piling.

###### 1.2.2.1.2 Pulled Piles

###### 1.2.2.1.2.1 Sound Piles

Each steel H-pile pulled at the direction of the Contracting Officer for inspection and found to be in good condition, will be paid for at the original contract price in its original driven position plus fifty percent (50%) of the contract unit price for the length pulled which shall constitute payment for pulling. Payment for a pulled pile shall include backfilling the pile hole if required. Undamaged pulled piles when redriven acceptably will be paid for at fifty percent (50%) of the contract unit price for furnishing and driving the measured length of piles redriven, which price and payment shall constitute payment for redriving only. Pulled piles which are damaged through no fault of the Contractor shall be replaced by a new pile which will be paid for at the contract unit price for the length acceptably driven.

1.2.2.1.2.2 Damaged Piles

When a pile is pulled for inspection and found to be damaged due to Contractor negligence, no payment will be made for originally furnishing and driving such pile nor for the operation of pulling and it shall be replaced by a new pile which will be paid for at the contract unit price for the length acceptably driven.

1.2.2.1.2.3 Misaligned or Misplaced Piles

When a pile is driven but not acceptably placed or driven out of alignment and pulled at the direction of the Contracting Officer, no payment will be made for either originally furnishing and driving such pile nor for the operation of pulling. If the pile is undamaged and it is acceptably redriven at the direction of the Contracting Officer, it will then be paid for at the contract unit price. If damaged, it shall be replaced by a new pile, which will then be paid for at the contract unit price.

1.2.2.2 Steel Sheet Piling

1.2.2.2.1 Sheet Pile Minimum Properties

Steel sheet piling shall be hot-rolled and minimum properties shall be:

<u>Sheet Pile</u>	<u>Unit Width</u>	<u>Area</u>	<u>Weight</u>	<u>Moment of Inertia</u>	<u>Section Modules</u>
PZ 27	18 in.	12.2 in <sup>2</sup> /unit	27.7 lbs/sq. ft.	281.0 in <sup>4</sup> /unit	31.0 in <sup>3</sup> /lin. ft.
PS 27.5	19.69 in.	13.27 in <sup>2</sup> /unit	27.5 lbs/sq. ft.	5.0 in <sup>4</sup> /unit	1.9 in <sup>3</sup> /lin. ft.
PZ 22	22 in.	12.2 in <sup>2</sup> /unit	22.6 lb/sq. ft.	156 in <sup>4</sup> /unit	18.4 in <sup>3</sup> /lin. ft.

1.2.2.2.2 Furnishing Driving Steel Sheet Piling

Payment for steel sheet piling will be made at the contract unit price per square foot for "Piling, Steel Sheet, Type PZ 27", one "Piling, Steel Sheet, Type PS 27.5", and "Piling, Steel Sheet, Type PZ 22". Price and payment shall constitute full compensation for fabricating, adding cover plates, furnishing, handling, driving, cutting holes, backfilling voids, and all other work incidental to acceptably installing the steel sheet piling.

1.2.2.2.3 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 price per square foot for each of the steel sheet piling payment items identified in paragraph 1.2.2.2.1.

#### 1.2.2.2.4 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 seventy-five percent (75%) of the applicable contract unit price for the amount measured in accordance with above paragraph 1.2.1.2.1.

#### 1.2.2.2.5 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 twenty-five percent (25%) of the contract unit price and when such piles are redriven, the cost of redriving will be paid for at twenty-five percent (25%) 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 through no fault of the Contractor 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 twenty-five percent (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.

### 1.3 REFERENCES

The publications listed below form a part of this specification to the extent specified herein. The publications are referred to in the text by the basic designation only.

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

A 325	(2002) Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
A 328/A 328M	(2000) Steel Sheet Piling
A 490	(2002) Structural Bolts, Alloy Steel, Heat-Treated, 150 ksi Minimum Tensile Strength

A 572/A 572M

(2001) High-Strength Low-Alloy Columbian-Vanadium  
Structural Steel

AMERICAN WELDING SOCIETY (AWS)

D1.1

(2002) Structural Welding Code - Steel

1.4 SUBMITTALS

The following shall be submitted for information only in accordance with Section 01330, "SUBMITTAL PROCEDURES".

1.4.1 Equipment Descriptions

Complete descriptions of pile driving equipment including hammers, extractors, protection caps and other installation appurtenances shall be submitted prior to commencement of work.

1.4.2 Shop Drawings

Shop drawings shall include pile placement plan, details and dimensions of templates and other temporary guide structures for installing the piling, and shall provide details of the method of handling piling to prevent permanent deflection. A shop drawing detailing any proposed supplies shall be submitted for review.

1.4.3 Mill Test Reports

Certified copies of mill test reports shall be submitted for each material shipment and be identified with specific lots. Test reports shall indicate all pertinent data on strength, ductility, notch toughness, chemical analysis, heat treatment, and NDT.

1.4.4 Materials Test Certificates

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

1.4.5 Driving Records

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

#### 1.4.6 WEAP Analysis

Analysis for the HP 14X73 piles shall be performed to demonstrate the proper pile driving equipment will drive the piles to the required elevations. A WAVE Equation Analysis shall be submitted.

### 1.5 QUALITY CONTROL

#### 1.5.1 General

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

- 1) The H-pile driving record shall include the pile number or identification, location, size, length, elevation of tip, cut-off and top of pile, the number of blows and ram drop (in inches) required for each foot of penetration throughout the entire length of the pile, and the number of blows per inch for the last eighteen (18) inches of penetration. The record shall include the type and size of the hammer, the rate of operation, the type and dimensions of driving helmet, the cap-block used. The location and elevation of any obstruction or unusual occurrence encountered during driving shall be recorded and immediately reported to the Contracting Officer. His directed action shall also be recorded.
- 2) The sheet pile driving record shall include identification, location, size, length, elevation of pile tip, cut-off and top of pile. The record shall also show the type, size and properties of the driving equipments.
- 3) Recording uplift and vertical tolerances after driving, pulled and redriven piles, and removal and disposal of damaged piles.
- 4) Plumbness of piling.
- 5) Penetration depth.
- 6) Rotation of piling along its centerline.
- 7) Stockpiling.
- 8) Materials;
- 9) Placing (location, alignment, etc.);
- 10) Cutting;

- 11) Record keeping;
- 12) Shop splices;
- 13) Welding;
- 14) Non-destructive testing; and
- 15) Removal and storage.

#### 1.5.2 Reporting

The original and two (2) copies of these records and tests, as well as the records of corrective action taken, shall be furnished to the Government daily. Format of the report shall be as prescribed in Section 01451, "CONTRACTOR QUALITY CONTROL".

#### 1.6 DELIVERY, STORAGE AND HANDLING

Materials delivered to the site shall be in a new and undamaged condition and shall be accompanied by certified test reports. The manufacturer's logo and mill identification mark shall be stamped on each unspliced piling at a minimum of two (2) locations. All piling shall be stored and handled in the manner recommended by the manufacturer to prevent permanent deflection, distortion or damage. Storage of piling should also facilitate required inspection activities. Piles shall be stacked during delivery and storage so that each pile is maintained in a straight position and is supported every ten (10) feet or less along its length (ends inclusive) to prevent exceeding the maximum permissible camber or sweep. Piles shall not be stacked more than five (5) feet high unless approved by the Contracting Officer.

### PART 2 PRODUCTS

#### 2.1 MATERIALS

##### 2.1.1 Steel H-Piles

Steel for H-piles shall conform to the requirements of ASTM A 572/A 572M, Grade 50. The H-piles shall be of the shape and sections shown on the drawings. Piles shall have standard square ends, unless otherwise specified or directed. All steel H-piles shall be furnished full length. No splicing shall be allowed.

##### 2.1.2 Steel Sheet Piling

###### 2.1.2.1 Hot Rolled Sheet Piling

Steel sheet piling shall meet the requirements of ASTM A 328/A 328M or ASTM A 572/A 572M, Grade 50. Sheet piling shall be hot rolled only. All steel sheet piling shall be furnished full length. No splicing shall be allowed.

#### 2.1.2.2 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. The sheet pile types shall be as required for the corners being manufactured and shall conform to the requirements of ASTM A 572/A 572M and all other requirements stated above for new piling.

#### 2.1.2.3 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. Metalwork fabrication for sheet piling sections shall conform to the requirements of Section 05501, "METALWORK FABRICATION, MACHINE WORK, AND MISCELLANEOUS PROVISIONS". Steel plates and angles used to fabricate the special sections shall conform to ASTM A 572/ A 572M. Longitudinal joints of fabricated sections shall not be welded.

#### 2.1.2.4 Bolted Connections

The bolted connections for fabricated sections specified above 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 six (6) inch centers for the length of the section except for two (2) feet at each end where they are spaced on three (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.

### 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 one (1) inch above or below the indicated cut-off elevation will be permitted for pilings above ground. A tolerance of zero (0) above or three (3) inches below the indicated cut-off elevation will be permitted for pilings below water. 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 sheet pile 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 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. Piles shall not be driven nor pulled within one hundred (100) feet of concrete less than seven (7) days old nor within thirty (30) feet of concrete less than twenty-eight (28) days old.

### 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 and Splicing

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. Should splicing of additional lengths be necessary, the splice shall consist of an approved butt joint with a weld that fully penetrates the web. Welded extensions shall be a minimum of six (6) inches in length. Piles adjoining spliced piles shall be full length unless otherwise approved. When piles are to be driven in sections and spliced together, they shall be delivered on site in full lengths and cut for splicing only after delivery. Only those portions of the originally uncut pile shall be spliced together to form the final in-place full-length pile. Splices for these piles shall conform to the details shown on the drawings. Welding of splices shall conform to the requirements of Section 05501, "METALWORK FABRICATION, MACHINE WORK, AND MISCELLANEOUS PROVISIONS". Ends of pilings to be spliced together shall be squared before splicing to eliminate dips or camber. Pilings shall be spliced together with concentric alignment of the interlocks so that there are no discontinuities, dips or camber at the abutting interlocks. Spliced pilings shall be free sliding and able to obtain the maximum swing with contiguous pilings. 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 (1) part cement, two (2) parts bentonite, and six (6) parts sand mixed with enough water to produce a slurry viscous enough to thoroughly fill the voids.

## 3.2 PLACING

### 3.2.1 Steel H-Piles

H-piles shall be driven as accurately as practicable in the correct locations, true to line both laterally and longitudinally and to the vertical lines, as indicated in the drawings. A lateral deviation from the correct location at the cut-off elevation of not more than one and one-half (1-1/2) inches will be permitted. A variation from plumb of not more than one-eighth (1/8) inch per foot of longitudinal axis will be permitted. A final variation in rotation of the pile about the centerline of the web of not more than 7.5 degrees will be permitted. The correct relative position of group piling shall be maintained by the use of templates or by other approved means. The vertical tolerance is plus or minus three (3) inches. Any pile driven out of correct location shall be pulled and redriven by the Contractor at no additional cost to the Government.

### 3.2.2 Steel Sheet Piling

Any excavation required within the area where sheet pilings are to be installed shall be completed prior to placing sheet pilings except within the sill structure. 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.

### 3.3 DRIVING

#### 3.3.1 Steel H-Piles

H-piles shall be driven by an approved steam, air or diesel drop, single-acting, double acting, or differential acting pile-driving hammer. The Contractor shall select the proposed driving equipment as specified and submit descriptions of proposed equipment. Equipment selection shall be based on the wave equation. No drilling or jetting will be allowed before or during driving operations. The use of vibratory hammers shall not be allowed to drive the H-piles. The hammer shall be operated at all times at the steam or air pressure and at the speed recommended by the manufacturer. Boiler or compressor capacity shall be sufficient to operate the hammer continuously at full rated speed. To determine ram drop, the Contractor shall attach a scale (in inches) to the pile hammer and an indicator on the pile ram. Installation of both devices shall be in such a manner that displacement of the ram will be indicated on the scale. Both the scale and the indicator shall be easily legible to observers on the ground during operations. Piling shall be protected during driving by a cushion and cap of approved design. Pile drivers shall have firmly supported leads extending to the lowest point the hammer must reach to maintain the hammer in proper alignment at all times. Each pile shall be driven continuously and without voluntary interruption until the required depth of penetration has been attained. Deviation from this procedure will be permitted only in case the driving is stopped by causes which could not reasonably have been anticipated. Any pile that cannot be driven to the required depth because of an obstruction shall, as directed by the Contracting Officer, be pulled and another pile driven adjacent thereto, be cut off and used, or be abandoned as directed by the Contracting Officer. The Contractor shall make observations to detect any uplift of piling already driven and uplifted piling shall be backdriven to the original penetration, at no additional cost to the Government. The Contractor shall provide every facility for the Contracting Officer to inspect and record data relative to pile driving operations. This data shall include final tip elevation, top elevation and cutoff elevation. For all other structures, piles shall not be driven within one hundred (100) feet of concrete less than seven (7) days old nor within thirty (30) feet of concrete less than twenty-eight (28) days old.

#### 3.3.2 Steel Sheet Piling

All piling shall be driven to the depths shown on the drawings and shall extend to the cut-off elevation indicated. Top of pile at elevation of cut-off shall be within one-half (1/2) inch horizontally of the location indicated and one and one-half (1-1/2) inches above the indicated cut-off elevation. Piling shall be driven 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 piling shall be driven without the aid of a water jet. Adequate precautions shall be taken to insure that piles are driven plumb. Sheet piling shall not be driven more than one-quarter (1/4) inch per foot out-of-plumb in the plane of the wall nor more than one-eighth (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 one-quarter (1/4) inch per foot in the plane of the wall or one-eighth (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 one-quarter (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 sheet pile 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 (2) 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 or similar debris may be encountered periodically on the sheet pile alignment and appropriate consideration should be given to hard driving conditions should they occur.

### 3.3.3 Emergency Locking System on Pile Driving Head

All sheet 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.

### 3.4 DRIVING RECORD

A complete and accurate driving record of the piles shall be compiled and submitted as required in this specificatin The driving record for impact hammers shall include pile dimensions and location, pile identification number, date driven, original pile

length, tip elevation, description of hammer used, rate of hammer operation, number of blows required for each foot of penetration throughout the entire length of each pile and for each inch of penetration in the last foot of penetration, total driving time in minutes and seconds for each pile, and other pertinent information as required or requested by the Contracting Officer. When driving long piles of high-slenderness ratio, special precautions shall be taken to ensure against overstressing and leading away from a plumb or true position. The hammers shall be operated at all times at the speed and under the conditions recommended by the manufacturer subject to the approval of the Contracting Officer. Once pile driving has begun, all conditions (such as alignment, batter, cushion, etc.) shall be kept constant. Each pile shall be driven continuously and without interruption until the required depth of penetration has been attained. Deviation from this procedure will be permitted only when driving is stopped by causes that reasonably could not have been anticipated. Jetting shall not be used to assist driving piles. A pile that cannot be driven to the required depth because of an obstruction shall be pulled and redriven as directed by the Contracting Officer. When driving piles in clusters or under conditions of relatively close spacing, observations shall be made to determine heave. Heaved piles shall be backdriven to the original depth of penetration without additional cost to the Government. Piles damaged or impaired for use during driving shall be pulled and replaced with new piles and new piles driven as directed by the Contracting Officer without additional cost to the Government. The Contracting Officer may require that any pile be pulled for inspection. Piles pulled at the direction of the Contracting Officer and found to be in suitable condition shall be redriven as directed by the Contracting Officer and payment therefore will be made in accordance with paragraph 1.2.2.1.2. Piles pulled at the request of the Contracting Officer and found to be damaged shall be replaced by new piles at the Contractor's expense. After setting and mooring piles are driven, they shall be cut off square at the indicated cut off elevation.

### 3.5 DAMAGED AND MISPLACED PILING

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. Any pile which is damaged because of internal defects or by improper handling or driving, or which is otherwise damaged by fault of the Contractor so as to impair it for its intended use, or any pile driven out of proper location, shall be removed and replaced. All work of removal and cost of replacement shall be borne by the Contractor at no additional expense to the Government. Piles pulled and found to be in satisfactory condition shall be redriven and payment will be made in accordance with the applicable paragraph above.

### 3.6 CUTTING OF PILES

Steel sheet piles and H-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. Should splicing of additional lengths be necessary, the splice shall consist of an approved butt joint with a weld that fully penetrates the web. Welded extensions shall be a minimum of six (6) inches in length. Piles adjoining spliced piles shall be full length unless otherwise approved. When piles are to be driven in sections and spliced together, they shall be delivered on site in full lengths and cut for splicing only after delivery. Welding of splices shall conform to the requirements of Section 05501, "METALWORK FABRICATION, MACHINE WORK, AND MISCELLANEOUS PROVISIONS". Ends of pilings to be spliced together shall be squared before splicing to eliminate dips or camber. Pilings shall be spliced together with concentric alignment of the interlocks so that there are no discontinuities, dips or camber at the abutting interlocks. Spliced pilings shall be free sliding and able to obtain the maximum swing with contiguous pilings. 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.

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## SECTION 05093 – WELDING PIPING

### 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 welding of the discharge pipe as specified herein and shown on the Contract Drawings.

#### 1.2 RELATED WORK SPECIFIED ELSEWHERE

SUBMITTAL PROCEDURES, Section 01330

CONTRACTOR QUALITY CONTROL, Section 01451

#### 1.3 MEASUREMENT AND PAYMENT

No measurement will be made for the welding of the discharge piping. Payment for the welding of the pressure pipeline will be included in the contract lump sum price for "Discharge Pipes". Price and payment shall constitute full compensation for all cost of materials, testing, labor and other associated costs for the welding of the discharge pipe.

#### 1.4 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

##### AMERICAN SOCIETY FOR NONDESTRUCTIVE TESTING (ASNT)

CP-189 (2001) Qualification and Certification of  
Nondestructive Testing Personnel

##### AMERICAN WELDING SOCIETY (AWS).

A2.4 (1998) Standard Symbols for Welding, Brazing,  
and Nondestructive Testing

A3.0 (2001) Standard Welding Terms and  
Definitions

D1.1 (2002) Structural Welding Code - Steel

- QC1 (1996) AWS Certification of Welding Inspectors
- Z49.1 (2005) Safety in Welding, Cutting and Allied Processes

#### ASME INTERNATIONAL (ASME)

- BPVC SEC IX (2001) Boiler and Pressure Vessel Code; Section IX, Welding and Brazing Qualifications

#### AMERICAN WATER WORKS ASSOCIATION (AWWA).

- C200 (1997) Steel Water Pipe – 6 in. (150mm) and Larger

### 1.5 SUBMITTALS

The following shall be submitted for information only in accordance with Section 01330 entitled "SUBMITTALS".

#### 1.5.1 Procedure Qualification Record (PQR)

Procedure Qualification Record shall be submitted to the Contracting Officer before fabrication is commenced. A CWI meeting the qualifications stated in paragraph 1.9.3.1 shall approve all PQR's.

#### 1.5.2 Welding Procedure Specifications (WPS)

A Welding Procedure Specification for each weld shall be submitted to the Contracting Officer before fabrication is commenced. A CWI meeting the qualifications stated in paragraph 1.9.3.1 shall approve all WPS's.

#### 1.5.3 Welder, Welding Operator and Tacker Qualification Certification

Welder, welding operator and tacker qualification certification for each welder, welding operator or tack welder shall be submitted to the Contracting Officer before fabrication is commenced. A CWI meeting the qualifications stated in paragraph 1.9.3.1 shall approve all welder qualifications.

### 1.6 DEFINITIONS

Definitions shall be in accordance with AWS A3.0.

### 1.7 GENERAL REQUIREMENTS

Welding shall be performed in accordance with the applicable sections of AWWA C200 and ASME BPVC SEC IX. Deviations from applicable codes, procedures, and detail drawings will not be permitted without prior written approval. Materials or components with welds made offsite will not be accepted if the welding does not conform to the requirements of this Section, unless otherwise specified.

## 1.8 PERFORMANCE

The Contractor shall be responsible for the quality of all joint preparation, welding, and examination. All materials used in the welding operations shall be clearly identified and recorded. The choice of welding process shall be the responsibility of the Contractor. The inspection and testing defined in this specification are minimum requirements. Additional inspection and testing shall be the responsibility of the Contractor when he deems it necessary to achieve the quality required.

## 1.9 QUALIFICATIONS

### 1.9.1 General

Procedures shall be developed by the Contractor for welding all metals included in the work. Welding shall not be started until welding procedures, welders, and welding operators have been qualified. Qualification testing shall be performed by an approved testing laboratory. Costs of such testing shall be borne by the Contractor. The Contracting Officer shall be notified at least twenty-four (24) hours in advance of the time and place of the tests. When practicable, the qualification tests shall be performed at or near the worksite. The Contractor shall maintain current records of the test results obtained in the welding procedure, welding operator, welder performance qualifications, and nondestructive examination (NDE) procedures readily available at the site for examination by the Contracting Officer.

### 1.9.2 Previously Qualified Welding Procedures and Welders

Welding procedures, welders, and welding operators previously qualified by test may be accepted for the work without requalification, provided that all of the following conditions are fulfilled:

- a. Copies of the welding procedures, the procedure qualification test records, and the welder and welding operator performance qualification test records are submitted in accordance with paragraph 1.5 above.
- b. Testing was performed by an approved testing laboratory.

c. The welding procedures, welders, and welding operators were qualified in accordance with AWWA C200; and base materials, filler materials, electrodes, equipment, and processes conformed to the applicable requirements of this specification.

d. The requirements of paragraph 1.9.4 below are met and records showing name of employer and period of employment using the process for which qualified are submitted as evidence of conformance.

### 1.9.3 Welding Procedure Qualification

The Contractor shall record in detail and shall qualify the Welding Procedure Specifications for every proposed welding procedure. Qualification for each welding procedure shall conform to the requirements of AWWA C200 and ASME BPVC Section IX, and to this Section. The welding procedures shall specify end preparation for butt welds including cleaning, alignment, and root openings. Preheat, interpass temperature control, and postheat treatment of welds shall be as required by welding procedures, unless otherwise indicated or specified. Backing rings or consumable inserts shall not be used. Copies of the welding procedure specifications and procedure qualification test results for each type of welding required shall be submitted in accordance with paragraph 1.5 above.

### 1.9.4 Welder and Welding Operator Performance

Each welder and welding operator assigned to work shall be qualified in accordance with AWWA C200 or ASME BPVC Section IX.

#### 1.9.4.1 Certification

Before assigning welders or welding operators to the work, the Contractor shall provide the Contracting Officer with their names together with certification that each individual is performance-qualified as specified. The certification shall state the type of welding and positions for which each is qualified, the code and procedure under which each is qualified, date qualified, and the firm and individual certifying the qualification tests.

#### 1.9.4.2 Identification

Each particular weld shall be identified with the personal number, letter, or symbol assigned to each welder or welding operator. To identify welds, written records indicating the location of welds made by each welder or welding operator shall be submitted, and each welder or welding operator shall apply the personal mark adjacent to the welds using a rubber stamp or felt-tipped marker with permanent, weatherproof ink or other methods approved by the Contracting Officer that do not deform the metal. For seam welds,

identification marks shall be placed adjacent to the welds at three (3) foot intervals. Identification by die stamps or electric etchers will not be allowed.

#### 1.9.4.3 Renewal of Qualification

Requalification of a welder or welding operator shall be required under any of the following conditions:

- a. When a welder or welding operator has not used the specific welding process for a period of three (3) months; the period may be extended to six (6) months if the welder or welding operator has been employed on some other welding process.
- b. When a welder or welding operator has not welded with any process during a period of three (3) months, all the personal qualifications shall be considered expired, including any extended by virtue of a., above.
- c. There is specific reason to question the person's ability to make welds that will meet the requirements of the specifications.
- d. The welder or welding operator was qualified by an employer, other than those firms performing work under this contract, and a qualification test has not been taken within the preceding twelve (12) months.
- e. Renewal of qualification for a specific welding process under conditions a., b., and d., above, needs to be made on only a single test joint or pipe of any thickness, position, or material to reestablish the welder's or welding operator's qualification for any thickness, position, or material covered under previous qualification.

#### 1.9.5 Certified Welding Inspectors and NDT Inspectors

##### 1.9.5.1 Inspector Certification

Certified Welding inspectors (CWI) shall be qualified in accordance with AWS QC1.

##### 1.9.5.2 NDT Inspectors

NDT Inspectors shall be qualified in accordance with ASNT CP-189. Only individuals qualified for NDT Level II or individuals qualified for Level I and working under the direct supervision of a Level II shall perform nondestructive testing. Level III NDT Inspectors shall possess a currently valid ASNT Level III certificate in each of the processes they are qualifying inspectors to. Copies of the certifications, including the Level III NDT Technician that certified the Level I and Level II Technicians shall be included in the submittals.

## 1.9.6 Inspection

### 1.9.6.1 General

Testing shall be performed in accordance with AWWA C200, with the exception that the acceptance criteria for non-destructive testing shall conform with the requirements of AWS D1.1, the WPS's, and provisions stated elsewhere in these specifications. The Contracting Officer will require nondestructive examination of designated welds, as stated in these specifications and may require supplemental examination of any joint or coupon cut from any location in any joint. The cost of such supplemental examination will be borne by the Government. Any defects will be cause for rejection and rejected parts shall be replaced and retested at the Contractor's expense. The Contractor shall maintain an inspection system and perform required inspections in accordance with the Contract Clause in Section 00700 entitled, "*Inspection of Construction (FAR 52.246-12)*".

### 1.9.6.2 Visual Examination

Prior to any welding, a CWI supplied by the Contractor shall visually inspect the preparation of material for welding to assure compliance with AWS D1.1 and WPS. The CWI shall also perform VT inspection throughout the welding process to assure compliance with AWS D1.1 and WPS. All completed welds shall be cleaned free of oxide, flux, scale, or other foreign matter before inspection. All welds shall be visually inspected by a CWI to insure compliance with the requirements of this Section.

### 1.9.6.3 Nondestructive Examination Procedures

Making, evaluating and reporting of welds shall conform to the requirements of AWS D1.1.

### 1.9.6.4 Acceptability of Welds

Welds shall be unacceptable if shown to have defects prohibited by AWS D1.1.

## 1.10 DELIVERY, STORAGE AND HANDLING.

All filler metals, electrodes, fluxes, and other welding materials shall be delivered to the site in manufacturers' original packages and stored in a dry space until used. Packages shall be properly labeled and designed to give maximum protection from moisture and to insure safe handling.

### 1.10.1 Moisture Control

Welding materials shall be stored in a controlled access and clean, dry area that is weathertight and is maintained at a temperature recommended by the manufacturer. The materials shall not be in contact with the ground and shall be stored on wooden pallets or cribbing.

#### 1.10.1.1 Damaged Containers

Low-hydrogen steel electrodes shall be stored in their sealed shipping container. If the seal is damaged during shipment or storage, and the damage is not immediately detected, the covered electrodes in that container shall be rebaked in accordance with the manufacturer's instructions prior to issuance or shall be discarded. If a container is damaged in storage and the damage is witnessed, the electrodes from that container shall be immediately placed in a storage oven. The storage oven temperature shall be as recommended by the manufacturer or the welding material specification.

#### 1.10.1.2 Partial Issues

When a container of covered electrodes is opened and only a portion of the content is issued, the remaining portion shall, within one-half (1/2) hour, be placed in a storage oven.

#### 1.10.2 Damaged Materials

Materials which are damaged shall be discarded. Covered electrodes which are oil or water-soaked, dirty, or on which the flux has separated from the wire shall be discarded.

### 1.11 SYMBOLS

Symbols shall be in accordance with AWS A2.4.

### 1.12 SAFETY

Safety precautions shall conform to AWS Z49.1.

## PART 2 PRODUCTS

### 2.1 WELDING MATERIALS

Welding materials shall comply with AWWA C200. Welding equipment, electrodes, welding wire, and fluxes shall be capable of producing satisfactory welds when used by a qualified welder or welding operator using qualified welding procedures.

## PART 3 EXECUTION

### 3.1 WELDING OPERATIONS

Welding shall be performed in accordance with qualified procedures using qualified welders and welding operators. Welding shall not be done when the quality of the completed weld could be impaired by the prevailing working or weather conditions. The Contracting Officer shall determine when weather or working conditions are unsuitable for welding.

#### 3.1.1 Weld Joint Fit-Up

Parts that are to be joined by welding shall be fitted, aligned, and retained in position during the welding operation by the use of bars, jacks, clamps, or other mechanical fixtures. Welded temporary attachments shall not be used except when it is impractical to use mechanical fixtures. When temporary attachments are used, they shall be the same material as the base metal, and shall be completely removed by grinding or thermal cutting after the welding operation is completed. If thermal cutting is used, the attachment shall be cut to not less than one-quarter (1/4) inch from the member and the balance removed by grinding. After the temporary attachment has been removed, the area shall be visually examined.

#### 3.1.2 Preheat and Interpass Temperatures

Preheat temperatures shall meet the requirements specified by AWS D1.1. However, in no case shall the preheat be below 50 degrees Fahrenheit for ferritic steel. The maximum interpass temperatures shall not exceed 500 degrees Fahrenheit for carbon steels. Preheat techniques shall be such as to ensure that the full thickness of the weld joint preparation and/or adjacent base material, at least three (3) inches in all directions, is at the specified temperature. Preheating by induction or resistance methods is preferred. When flame heating is used, only a neutral flame shall be employed. Interpass temperatures shall be checked on the surface of the component within one (1) inch of the weld groove and at the starting location of the next weld pass, and for a distance of about six (6) inches ahead of the weld, but not on the area to be welded.

#### 3.1.3 Production Welding Instructions

- a. Welding is not permitted on surfaces that are wet or covered with ice, when snow or rain is falling on the surfaces to be welded, or during periods of high winds, unless the welders and the work are properly protected.
- b. The purge on groove welds shall be maintained for at least three (3) layers or three-sixteenth (3/16) inch.

c. Removable purge dam materials shall be made of expandable or flexible plugs, such as plexiglass, plywood (which shall be dry when used), etc. Wood dams shall be kiln-dried quality. Nonremovable purge dams and purge dam adhesives shall be made of water soluble materials. Purge dams shall not be made of polyvinyl alcohol.

d. Any welding process which requires the use of external gas shielding shall not be done in a draft or wind unless the weld area is protected by a shelter. This shelter shall be of material and shape appropriate to reduce wind velocity in the vicinity of the weld to a maximum of five (5) miles per hour (440 fpm).

e. Welding of low-alloy and hardenable high-alloy steels may be interrupted provided a minimum of at least three-eighths (3/8) inch thickness of weld deposit or twenty-five percent (25%) of the weld groove is filled, whichever is greater, and the preheat temperature is maintained during the time that welding is interrupted. If the temperature falls below the minimum preheat temperature before all welding has been completed on a joint, or, where required, before post weld heat treatment, a liquid penetrant or magnetic particle examination shall be performed to insure sound deposited metal before reheating. Welding of other materials may be interrupted without restriction provided a visual inspection is performed before welding is resumed.

f. Tack welds to be incorporated in the final welds shall have their ends tapered by grinding or welding technique. Tack welds that are cracked or defective shall be removed and the groove shall be retacked prior to welding. Temporary tack welds shall be removed, the surface ground smooth, and visually inspected. For low-alloy and hardenable high-alloy steels, the area shall be magnetic particle examination inspected.

g. Grinding of completed welds is to be performed only to the extent required for NDE, including any inservice examination, and to provide weld reinforcement within the requirements of AWS D1.1. If the surface of the weld requires grinding, reducing the weld or base material below the minimum required thickness shall be avoided. Minimum weld external reinforcement shall be flush between external surfaces.

#### 3.1.4 Postweld Heat Treatment

a. Postweld heat treatment shall be performed in accordance with AWS D1.1. Temperatures for local postweld heat treatment shall be measured continuously by thermocouples in contact with the weldment.

b. Postweld heat treatment of low-alloy steels, when required, shall be performed immediately upon completion of welding and prior to the temperature of the weld falling below the preheat temperature. However, postweld heat treatment may be postponed after the completion of the weld, if, immediately after the weld is completed, it is maintained at a minimum temperature of 300 degrees Fahrenheit or the preheat temperature, whichever is greater, for two (2) hours per inch of weld thickness.

c. For low-alloy steels, the cooling rates shall be such that temper embrittlement is avoided.

### 3.2 EXAMINATIONS, INSPECTIONS, AND TESTS

Visual and NDE shall be performed by the Contractor to detect surface and internal discontinuities in completed welds. The services of a qualified commercial inspection or testing laboratory or technical consultant shall be employed by the Contractor. All tack welds, weld passes, and completed welds shall be visually inspected. In addition, magnetic particle examination shall be performed on root passes. Ultrasonic examination shall be performed on twenty-five percent (25%) of the welds as stated in paragraph 3.2.1, below. When inspection and testing indicates defects in a weld joint, the weld shall be repaired by a qualified welder in accordance with paragraph 3.4 below.

#### 3.2.1 Random NDE Testing

The Contractor shall ultrasonically test a minimum of twenty-five percent (25%) of the welds completed each day. The welds inspected shall be selected randomly, but the selection shall include an examination of welds made by each welding operator or welder. If the random testing reveals that any welds fail to meet minimum quality requirements, an additional twenty-five percent (25%) of the welds in that same group shall be inspected. If all of the additional welds inspected meet the quality requirements, the entire group of welds represented shall be accepted and the defective welds shall be repaired. If any of the additional welds inspected also fail to meet the quality requirements, that entire group of welds shall be one hundred percent (100%) radiographically inspected. The defective weld areas shall be removed and rewelded and repair area be retested.

#### 3.2.2 Visual Inspection

Weld joints shall be inspected visually as follows:

a. Before welding - for compliance with requirements for joint preparation, alignment and fit-up, and cleanliness.

b. During welding - for cracks and conformance to the qualified welding procedure.

c. After welding - for cracks, contour and finish, bead reinforcement, undercutting, overlap, and size of fillet welds.

### 3.2.3 NDE Testing

NDE shall be in accordance with written procedures. Procedures for radiographic tests and methods shall conform to AWS D1.1. In addition to the information required in AWS D1.1, the written procedures shall include the timing of the NDE in relation to the welding operations and safety precautions.

### 3.2.4 Inspection and Tests by the Government

The Government will perform inspection and supplemental nondestructive or destructive tests as deemed necessary. The cost of supplemental NDE will be borne by the Government. The correction and repair of defects and the reexamination of weld repairs shall be performed by the Contractor at no additional cost to the Government. Inspection and tests will be performed as required for visual inspection and NDE, except that destructive tests may be required also. When destructive tests are ordered by the Contracting Officer and performed by the Contractor and the specimens or other supplemental examinations indicate that the materials and workmanship do not conform to the contract requirements, the cost of the tests, corrections, and repairs shall be borne by the Contractor. When the specimens or other supplemental examinations of destructive tests indicate that materials or workmanship do conform to the specification requirements, the cost of the tests and repairs will be borne by the Government. When destructive tests are made, repairs shall be made by qualified welders or welding operators using welding procedures which will develop the full strength of the members cut. Welding shall be subject to inspection and tests in the mill, shop, and field. When materials or workmanship do not conform to the specification requirements, the work may be rejected at any time before final acceptance of the system containing the weldment.

## 3.3 ACCEPTANCE STANDARDS

The acceptance standards for the welds are as specified in AWS D1.1.

## 3.4 CORRECTIONS AND REPAIRS

Defects shall be removed and repaired as specified in AWS D1.1, unless otherwise specified. Disqualifying defects discovered between weld passes shall be repaired before additional weld material is deposited. Wherever a defect is removed, and repair by welding is not required, the affected area shall be blended into the surrounding surface eliminating sharp notches, crevices, or

corners. After defect removal is complete and before rewelding, the area shall be examined by the same test method which first revealed the defect to ensure that the defect has been eliminated. After rewelding, the repaired area shall be reexamined by the same test method originally used for that area. Any indication of a defect shall be regarded as a defect unless reevaluation by NDE or by surface conditioning shows that no disqualifying defects are present. The use of any foreign material to mask, fill in, seal, or disguise welding defects will not be permitted.

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## SECTION 09940 – PAINTING

### PART 1 GENERAL

#### 1.1 SCOPE

The work covered by this section of the specifications consists of furnishing all plant, labor, equipment, appliances, and materials and performing all operations in connection with preparation of surfaces and application of paint and other specified materials. This work shall be accomplished in complete and strict accordance with the specifications and the applicable drawings and shall be subject to the terms and conditions of the contract. All painting shall be performed in Contractor's fabrication yard. Only minor field touch-up painting is allowed.

#### 1.2 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for painting discharge pipe, needle gates, pump platforms and pipe jackets, including crane deck framing and all other steel connected to the pipe jackets. Payment for painting these items shall be included in the contract price for the items to which the work pertains. Price and payment shall constitute full compensation for furnishing all plant, labor, materials and equipment, as specified herein.

#### 1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

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

ASTM D 1186	(2001) Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to a Ferrous Base
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##### THE SOCIETY FOR PROTECTIVE COATINGS

SP 1	(1982, (2004)) Solvent Cleaning
SP 10/NACE No. 2	(2000, (2004)) Near-White Blast Cleaning

#### 1.4 SUBMITTALS

The following shall be submitted for information only in accordance with Section 01330, "SUBMITTAL PROCEDURES":

#### 1.4.1 Paint System

The paint system chosen by the Contractor shall be submitted before use in the project. Manufacturer data sheets shall contain information on the preparation of the surfaces, curing times, recommended thinners, and other data concerning the application of the paint.

#### 1.4.2 Records

The Contractor shall document and submit records of inspections and operations performed in accordance with paragraph 3.5. Inspection submittals shall be made on a daily basis.

### 1.5 QUALITY CONTROL

#### 1.5.1 General

The Contractor shall establish and maintain quality control for painting 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) Cleaning and preparation of surfaces.
- (2) Paint and formulations.
- (3) Number of coats and rates of applications.
- (4) Protection of painted surfaces.

#### 1.5.2 Reporting

The original and two (2) copies of these records and tests, as well as the records of corrective action taken, shall be furnished to the Government daily. Format of this report shall be as prescribed in Section 01451, "CONTRACTOR QUALITY CONTROL".

## PART 2 PRODUCTS

### 2.1 PAINT FORMULAS

The paint system to be used shall be one of those listed below or equal. Paint system shall have an estimated seven (7) year life in a brackish water environment. Only one (1) paint system shall be used for the project unless prior approval by the Contracting Officer.

**System 1** One coat of **Amercoat 78HB** Amine Cured Coal Tar Epoxy at 16.0 – 18.0 mils DFT. Use Amercoat 861 Accelerator to speed up curing time.

**System 2** One coat of **Amercoat 240** Universal Epoxy with Amercoat 880 Glassflake Additive at 16.0 – 20.0 mils DFT.

**System 3** One coat of **Amerlock 2** High Solids Epoxy with Amercoat 880 Glassflake Additive at 16.0 – 20.0 mils DFT.

## 2.2 THINNERS

Thinners shall be as recommended by the paint manufacturer for that particular paint.

## PART 3 EXECUTION

### 3.1 CLEANING AND PREPARATION OF SURFACES TO BE PAINTED

#### 3.1.1 General Requirements

Surfaces to be painted shall be cleaned before applying paint or surface treatments. Deposits of grease or oil shall be removed in accordance with SSPC SP 1, prior to mechanical cleaning. Solvent cleaning shall be accomplished with mineral spirits or other low toxicity solvents having a flashpoint above 100 degrees Fahrenheit. Clean cloths and clean fluids shall be used to avoid leaving a thin film of greasy residue on the surfaces being cleaned. Cleaning and painting shall be so programmed that dust or other contaminants from the cleaning process do not fall on wet, newly painted surfaces, and surfaces not intended to be painted shall be suitably protected from the effects of cleaning and painting operations. Welding of, or in the vicinity of, previously painted surfaces shall be conducted in a manner to prevent weld spatter from striking the paint and to otherwise reduce coating damage to a minimum; paint damaged by welding operations shall be restored to original condition. Surfaces to be painted that will be inaccessible after construction, erection, or installation operations are completed shall be painted before they become inaccessible.

#### 3.1.2 Surfaces to be Painted

Surfaces to be painted shall be dry blast-cleaned to SSPC SP 10. The blast profile shall be as specified by paint manufacturer. Within eight (8) hours after cleaning, prior to the deposition of any detectable moisture, contaminants, or corrosion, all ferrous surfaces blast cleaned to SSPC SP 10 shall be cleaned of dust and abrasive particles by brush, vacuum cleaner, and/or blown down with clean, dry, compressed air, and given the first coat of paint. All abrasives used in sandblasting operations shall contain less than one percent (1%) silica, unless approved in writing by the Contracting Officer. Upon written request by the Contractor, the Contracting Officer may authorize mill or shop cleaning of assembled or partially assembled components specified to receive the paint system. The surfaces, if shop blasted, shall be shop

coated with the first and second coats of the specified paint system. The shop coating shall be maintained in good condition by cleaning and touching up of areas damaged during the construction period. If pinpoint or general rusting appears, surfaces shall be reblasted and repainted at no added cost to the Government. Prior to the application of subsequent coats, soiled areas of the coating shall be thoroughly cleaned and all welds or other unpainted or damaged areas shall be cleaned and coated in a manner to make them equivalent to adjacent, undamaged paint surfaces.

## 3.2 PAINT APPLICATION

### 3.2.1 General

The finished coating shall be free from holidays, pinholes, bubbles, runs, drops, ridges, waves, laps, excessive or unsightly brush marks, and variations in color, texture, and gloss. Application of initial or subsequent coatings shall not commence until the Contracting Officer has verified that atmospheric conditions and the surfaces to be coated are satisfactory. Each paint coat shall be applied in a manner that will produce an even, continuous film of uniform thickness. Edges, corners, crevices, seams, joints, welds, rivets, corrosion pits, and other surface irregularities shall receive special attention to ensure that they receive an adequate thickness of paint. Spray equipment shall be equipped with traps and separators and where appropriate, mechanical agitators, pressure gauges, pressure regulators, and screens or filters. Air caps, nozzles, and needles shall be as recommended by the spray equipment manufacturer for the material being applied. Airless-type spray equipment may be used only on broad, flat, or otherwise simply configured surfaces, except that it may be employed for general painting if the spray gun is equipped with dual or adjustable tips of proper types and orifice sizes.

### 3.2.2 Mixing and Thinning

Paints shall be thoroughly mixed, strained where necessary, and kept at a uniform composition and consistency during application. Paste or dry-powder pigments specified to be added at the time of use shall, with the aid of powered stirrers, be incorporated into the vehicle or base paint in a manner that will produce a smooth, homogeneous mixture free of lumps and dry particles. Where necessary to suit conditions of the surface temperature, weather, and method of application, the paint may be thinned immediately prior to use. Thinning shall generally be limited to the addition of not more than one (1) pint per gallon of the proper thinner; this general limitation shall not apply when more specific thinning instructions are provided. Paint that has been stored at low temperature, shall be brought up to at least 70 degrees Fahrenheit before being mixed and thinned, and its temperature in the spray tank or other working container shall not fall below 60 degrees Fahrenheit during the application. Paint that has deteriorated in any manner to a degree that it cannot be restored to essentially its original condition by customary field-mixing methods shall not be used and shall be removed from the project site.

### 3.2.3 Atmospheric and Surface Conditions

Paint shall be applied only to surfaces that are above the dew point temperature and that are completely free of moisture as determined by sight and touch. Paint shall not be applied to surfaces upon which there is detectable frost or ice. Except as otherwise specified, the temperature of the surfaces to be painted and of air in contact therewith shall be not less than 45 degrees Fahrenheit during paint application nor shall paint be applied if the surfaces can be expected to drop to 32 degrees Fahrenheit or lower before the film has dried to a reasonably firm condition. During periods of inclement weather, painting may be continued by enclosing the surfaces and applying artificial heat, provided the minimum temperatures and surface dryness requirements prescribed previously are maintained. Paint shall not be applied to surfaces heated by direct sunlight or other sources to temperatures that will cause detrimental blistering, pinholing, or porosity of the film.

### 3.2.4 Time Between Surface Preparation and Painting

Surfaces that have been cleaned and/or otherwise prepared for painting shall be primed as soon as practicable after such preparation has been completed but, in any event, prior to any deterioration of the prepared surface.

### 3.2.5 Method of Paint Application

Unless otherwise specified, paint shall be applied by brush or spray to ferrous and nonferrous metal surfaces. Special attention shall be directed toward ensuring adequate coverage of edges, corners, crevices, pits, rivets, bolts, welds, and similar surface irregularities. Other methods of application to metal surfaces shall be subject to the specific approval of the Contracting Officer.

### 3.2.6 Measurement on Ferrous Metal

Film thickness or spreading rates shall be as specified hereinafter. Where no spreading rate is specified, the paint shall be applied at a rate normal for the type of material being used. In any event, the combined coats of a specified paint system shall completely hide base surface and the finish coats shall completely hide undercoats of dissimilar color. Where dry film thickness requirements are specified for coatings on ferrous surfaces, measurements shall be made with one of the thickness gages listed below. They shall be calibrated and used in accordance with ASTM D 1186. They shall be calibrated using plastic shims with metal practically identical in composition and surface preparation to that being coated, and of substantially the same thickness (except that for measurements on metal thicker than 1/4 inch, the instrument may be calibrated on metal with a minimum thickness of 1/4 inch). Frequency of measurements shall be as recommended for field measurements by ASTM D 1186 and reported as the mean for each spot determination. The instruments shall be calibrated or calibration verified prior to, during, and after each use. Authorized thickness gages:

- a. Mikrotest, Elektro-Physik, Inc.
- b. Inspector Gage, Elcometer Instruments, Ltd.
- c. Positest, Defelsko Corporation
- d. Minitector, Elcometer Instruments, Ltd.
- e. Positector 2000, Defelsko Corporation

### 3.2.7 Progress of Painting Work

Where painting on any type of surface has commenced, the complete painting operation, including priming and finishing coats, on that portion of the work shall be completed as soon as practicable, without prolonged delays. Sufficient time shall elapse between successive coats to permit them to dry properly for recoating, and this period shall be modified as necessary to suit adverse weather conditions. Paint shall be considered dry for recoating when it feels firm, does not deform or feel sticky under moderate pressure of the finger, and the application of another coat of paint does not cause film irregularities such as lifting or loss of adhesion of the undercoat. All coats of all painted surfaces shall be unscarred and completely integral at the time of application of succeeding coats. At the time of application of each successive coat, undercoats shall be cleaned of dust, grease, overspray, or foreign matter by means of airblast, solvent cleaning, or other suitable means. Cement and mortar deposits on painted steel surfaces, not satisfactorily removed by ordinary cleaning methods, shall be brushoff blast cleaned and completely repainted as required. Undercoats of high gloss shall, if necessary for establishment of good adhesion, be scuff sanded, solvent wiped, or otherwise treated prior to application of a succeeding coat.

### 3.2.8 Contacting Surfaces

When riveted or ordinary bolted contact is to exist between surfaces of ferrous or other metal parts of substantially similar chemical composition, such surfaces will not be required to be painted, but any resulting crevices shall subsequently be filled or sealed with paint. Contacting metal surfaces formed by high-strength bolts in friction-type connections shall not be painted. Where a nonmetal surface is to be in riveted or bolted contact with a metal surface, the contacting surfaces of the metal shall be cleaned and given three coats of the specified primer. Unless otherwise specified, corrosion-resisting metal surfaces, including cladding therewith, shall not be painted.

### 3.2.9 Drying Time Prior to Immersion

Minimum drying periods after final coat prior to immersion shall be as recommended by the paint manufacturer based on the ambient temperature.

### 3.2.10 Protection of Painted Surfaces

Where shelter and/or heat are provided for painted surfaces during inclement weather, such protective measures shall be maintained until the paint film has dried and discontinuance of the measures is authorized. Items that have been painted shall not be handled, worked on, or otherwise disturbed until the paint coat is fully dry and hard. All metalwork coated shall be stored out of contact with the ground in a manner and location that will minimize the formation of water-holding pockets; soiling, contamination, and deterioration of the paint film, and damaged areas of paint on such metalwork shall be cleaned and touched up without delay. The first field coat of paint shall be applied within a reasonable period of time after the shop coat and in any event before weathering of the shop coat becomes extensive.

### 3.2.11 Contractor Recommended Paint System

#### 3.2.11.1 Mixing

Paint shall be mixed in accordance with paint manufacturer's recommendations. The pot life of the mixed paint, extended by permissible thinning, may vary from two (2) hours in very warm weather to five (5) or more hours in cool weather. Pot life in warm weather may be extended by precooling the components prior to mixing; cooling the mixed material; and/or by slow, continuous stirring during the application period. The mixed material shall be applied before unreasonable increases in viscosity take place.

#### 3.2.11.2 Application

Spray guns shall be of the conventional type equipped with a fluid tip of approximately 0.09 inch in diameter and external atomization, seven-hole air cap. Material shall be supplied to the spray gun from a bottom withdrawal pot or by means of a fluid pump; hose shall be 1/2 inch in diameter. Atomization air pressure shall not be less than eighty (80) pounds per square inch. High-pressure airless spray equipment may be used only on broad, simply configured surfaces. Brush application shall be with a stiff-bristled tool heavily laden with material and wielded in a manner to spread the coating smoothly and quickly without excessive brushing. The paint shall flow together and provide a coherent, pinhole-free film. The direction of the spray passes (or finish strokes if brushed) of the second coat shall be at right angles to those of the first where practicable.

#### 3.2.11.3 Subsequent Coats

Except at the high temperatures discussed later in this paragraph, the drying time between coats shall not be more than that recommended by the paint manufacturer, and application of a subsequent coat as soon as the undercoat is reasonably firm is strongly encouraged. Where the temperature for substrate or coating surfaces during application or curing exceeds or can be expected to exceed 125 degrees Fahrenheit

as the result of direct exposure to sunlight, the surfaces shall be shaded by overhead cover or the interval between coats shall be reduced as may be found necessary to avoid poor intercoat adhesion.

#### 3.2.11.4 Ambient Temperature

Paint shall not be applied when the receiving surface or the ambient air is below the paint manufacturer's recommended temperature, less it can be reasonably anticipated that the average ambient temperature will be within the recommended temperature range for the five (5) day period subsequent to the application of any coat.

### 3.3 PAINT SYSTEMS APPLICATION

The required paint systems and the surfaces to which they shall be applied are shown in this paragraph, and/or in the drawings. Supplementary information follows.

#### 3.3.1 Fabricated and Assembled Items

Items that have been fabricated and/or assembled into essentially their final form and that are customarily cleaned and painted in accordance with the manufacturer's standard practice will be exempted from equivalent surface preparation and painting requirements described herein, provided that:

- a. Surfaces that have been primed and finish painted in accordance with the manufacturer's standard practice are of acceptable color and are capable of being satisfactorily touched up in the field.
- b. Items expressly designated herein to be cleaned and painted in a specified manner are not coated in accordance with the manufacturer's standard practice if different from that specified herein.

### 3.4 PAINTING SCHEDULES

Items or surfaces to be coated: Needle Gates, Pipe Jackets, Pump Platforms Discharge Pipe, including all attached framing and miscellaneous steel items.

### 3.5 INSPECTION

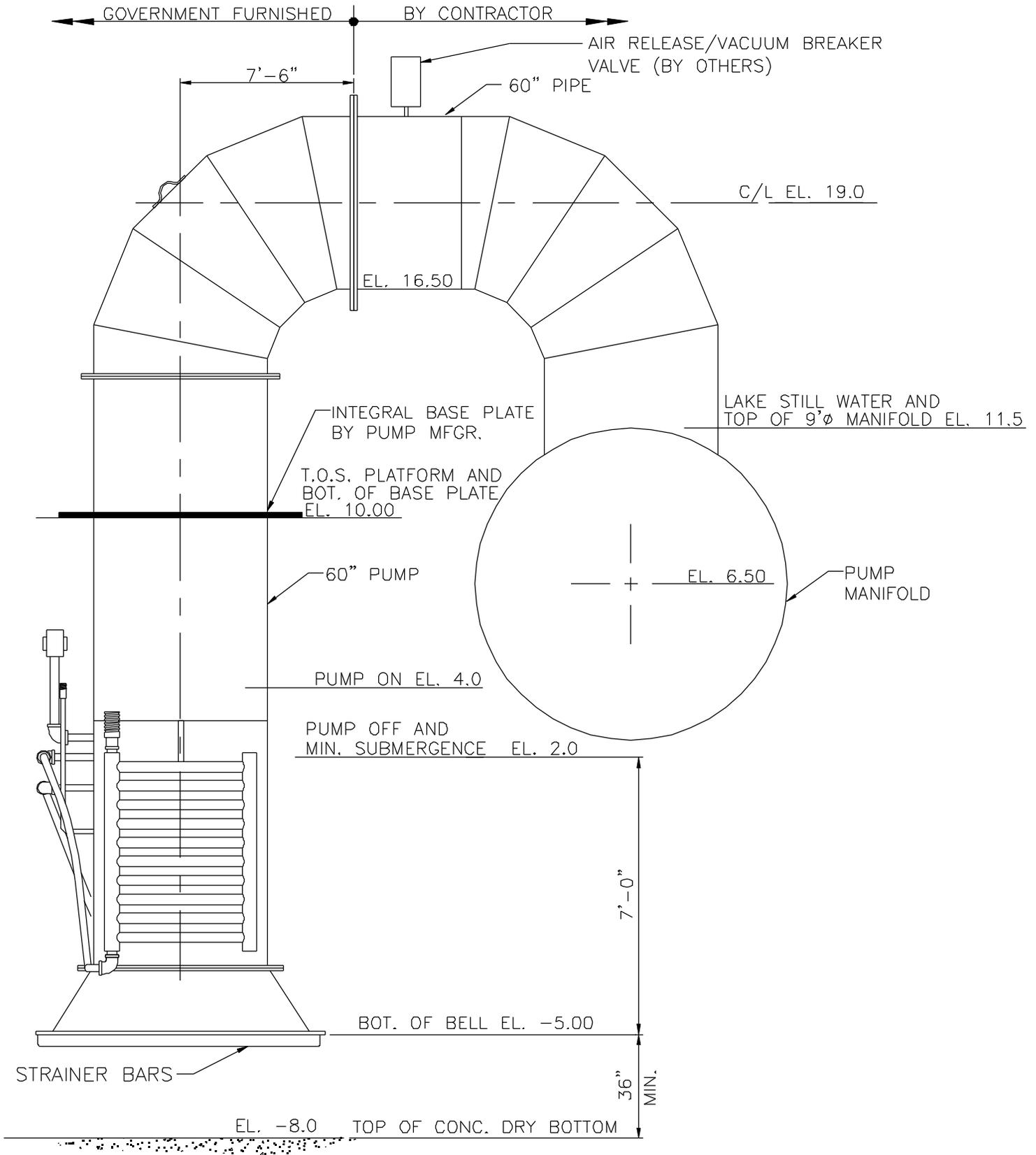
The Contractor shall inspect, document, and report all work phases and operations on a daily basis. As a minimum the daily report shall contain the following:

- a. Inspections performed, including the area of the structure involved and the results of the inspection.

b. Surface preparation operations performed, including the area of the structure involved, the mode of preparation, the kinds of solvent, abrasive, or power tools employed, and whether contract requirements were met.

c. Thinning operations performed, including thinners used, batch numbers, and thinner/paint volume ratios.

d. Application operations performed, including the area of the structure involved, mode of application employed, ambient temperature, substrate temperature, dew point, relative humidity, type of paint with batch numbers, elapsed time between surface preparation and application, elapsed time for recoat, condition of underlying coat, number of coats applied, and if specified, measured dry film thickness or spreading rate of each new coating.



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

LONDON AVE. CANAL TEMPORARY DRAINAGE PUMP STATION  
PROCUREMENT PACKAGE

60" HYDRAULIC AXIAL FLOW PUMP

DATE:  
JAN. 18, 2006

FIG.

1 of 1

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SECTION 15000  
INSTALLATION OF GOVERNMENT FURNISHED EQUIPMENT

PART 1            GENERAL

1.1    SCOPE

1.1.1    General

The work provided for herein consists of furnishing all plant, labor, materials, and equipment, except any materials and equipment specified hereinafter to be furnished by the Government, necessary to unload, store, assemble, install, adjust, service, and field test the Government furnished mechanical equipment listed in complete accordance with these specifications, the contract drawings, the manufacturer's shop drawings, and the installation and erection procedures. Additional info is provided by sketch at the end of this section.

1.1.2    Items furnished by Government

(a) Twelve (12) – 60-inch hydraulic, single stage, oil lubricated, axial flow pumps with a 60-inch discharge elbow with matched skid mounted diesel engine drive units.

(b) All bolts, assembly pins, keepers, nuts and washers.

1.1.3    Delivery of Government Furnished Equipment

The Government Furnished Equipment (GFE) will be delivered to the project site by the equipment supplier. The Contractor shall have the responsibility of unloading the equipment at the project storage site. It will be the responsibility of the Contractor to inspect the shipment upon each delivery in order to determine if the shipment is complete and that no damage to the equipment has occurred during the shipment or during the unloading procedure. The Government furnished equipment (GFE) will remain in storage located within the vicinity of the project, between Lakeshore Drive and the Robert E. Lee Blvd bridge, up until the time the Contractor requires the equipment. The Contractor shall be required to load the equipment from the storage site for delivery to the job site. Unloading at the job site shall also be the Contractor's responsibility. The Contractor shall also be responsible, for the removal and disposal of all packing material not retained by the Government. The installation of the complete pumping system shall be the responsibility of the Contractor.

1.1.4    Installation Personnel

Personnel will be furnished by the pump manufacturer to ensure and instruct in the correct installation of the Government Furnished Equipment (GFE), however, it is the

ultimate responsibility of the Contractor to properly install the equipment. The manufacturer's installation personnel will supervise in the checking of all alignments, the torque requirements on fasteners, the erection of connecting piping, the lubrication of various machine elements, and in general insure compliance with these specifications, and the intent of the machinery suppliers. The Contractor has the ultimate responsibility for correct and proper installation of the equipment in strict accordance with the pump manufactures instructions and recommendations as well as these specifications.

#### 1.1.5 Responsibility of Installation Personnel

The manufacturer's installation personnel will not supervise the work in the sense of being accountable for the "quantity" of the work output of the work force, nor of the number of workmen employed. Rather he will be concerned with the "quality" of the work effort. He shall establish periodic quality check points for the work effort and will cooperate in all ways to further the mutual efforts of all parties concerned. The Contractor shall coordinate his work effort with the manufacturer's personnel in order that they be available for the periodic quality check points.

#### 1.1.6 Equipment Description

Typical manufacturer drawings, instruction books, specifications, procurement contract and similar material describing the general nature of the machines to be installed under this contract will be made available by the Government.

### 1.2 MEASUREMENT AND PAYMENT

No measurement will be made for installation of Government furnished equipment. Payment will be made at the contract lump sum price for "Installation of Government Furnished Equipment". Price and payment shall constitute full compensation for furnishing all plant, labor, materials, and equipment to complete the work as specified herein and as shown on the drawings.

## PART 2 PRODUCTS

### 2.1 SHIMS

Any shims required for installation of the GFE will be furnished and installed by the Contractor.

### 2.2 MATING FLANGE

The Contractor shall insure that the contractor furnished flange will mate properly with the GFE flange.

## PART 3 EXECUTION

### 3.1 EQUIPMENT ERECTION AND TESTING

#### 3.1.1 Alignment and Tolerances of Final Pumps

The final positional adjustments shall be made to attain final tolerances. The Contractor shall check all alignments and secure approval. All tolerances and clearances shall be as specified by the manufacturer.

#### 3.1.2 Completion of Ancillary Piping and Power Systems

Upon completion of the pump installation, the Contractor shall finish all connecting piping and power systems as specified and as required by the drawings.

#### 3.1.3 Operational Tests

(a.) The Contractor shall be responsible for testing for proper operation of all equipment and for the correction of any malfunctions in the equipment installation prior to start-up.

(b.) After all connections and alignments have been completed, each pumping unit shall be tested in the wet conditions by the Contractor and in the presence of the Contracting Officer, representatives of the equipment manufacturer and representatives of the New Orleans Sewerage and Water Board. The tests shall verify that there are no leaks at any of the made-up joints and that all pump units and power units are aligned correctly and function properly in accordance with the manufacturer's recommendations and as stated below. Each pumping unit shall be operated for as long as recommended by the manufacturer. Any leaks or malfunctions discovered during the performance of these tests shall be corrected by the Contractor, and retests shall be conducted. Each pumping unit shall be checked visually and aurally for vibration, unusual noise, and general operation by the manufacturer's installation personnel and equipment representatives in accordance with ANSI/HI 9.6.4 (M121). The Contractor shall measure the discharge of six (6) pumps (three on each side of the outfall canal) in coordination with the pump manufacturer and the Government in a method satisfactory to the Government.

#### 3.1.4 Other Machinery and Equipment

The Contractor shall supply all plant, labor, materials, and equipment for the installation, hookup, testing, and operational start-up of all other miscellaneous machinery, equipment, instrumentation, and other mechanical items required for the completion of the project as shown on the drawings and outlined in this specification.

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## SECTION 15200 – DISCHARGE PIPE

### 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 fabrication, assembly and installation of the pipeline and appurtenant items as specified herein and shown on the Contract Drawings.

#### 1.2 RELATED WORK SPECIFIED ELSEWHERE

SUBMITTAL PROCEDURES, Section 01330

CONTRACTOR QUALITY CONTROL, Section 01451

WELDING PIPING, Section 05093

#### 1.3 MEASUREMENT

No measurement will be made for the discharge pipes.

#### 1.4 PAYMENT

Payment for discharge pipe will be made at the contract lump sum price for "Discharge Pipes". Price and payment shall constitute full compensation for all cost of furnishing, delivering, fabricating, assembling, painting, installing, and testing the discharge pipes, flanges and all appurtenances not covered elsewhere.

#### 1.5 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM).

F402 (2005) Standard Practice for Safe Handling of Solvent Cements, Primers, and Cleaners Used for Joining Thermoplastic Pipe and Fittings

AMERICAN WATER WORKS ASSOCIATION (AWWA).

- C200 (1997) Steel Water Pipe – 6 in. (150mm) and Larger
- C207 (2001) Steel Pipe Flanges for Waterworks Service – Sizes 4 in. Through 144 in. (100 mm. Through 3,600 mm)

#### NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

- NFPA 704 (2001) Identification of the Fire Hazards of Materials for Emergency Response

### 1.6 SUBMITTALS

The following shall be submitted for information only in accordance with Section 01330, "SUBMITTAL PROCEDURES".

#### 1.6.1 Certificates

Mill certificates shall be submitted for pipe materials used in the fabrication of the pipe and flanges. Certificates are not required for material for the blind flange.

#### 1.6.2 Test Reports

Certified copies of the any test required by AWWA C200 shall be submitted to the Government before delivery of the pipe. Hydrostatic testing of pipe is not required.

### 1.7 QUALIFICATIONS

#### 1.7.1 Welders

The welding of piping shall be in accordance with qualifying procedures using performance qualified welders and operators. Procedures and welders shall be qualified in accordance with Section 05093, "WELDING PIPING".

### 1.8 QUALITY CONTROL

#### 1.8.1 General

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

- 1) Verify the piping material used in the fabrication is in accordance with this Section.
- 2) Verify that the correct welding procedure and qualified welders are used.
- 3) Verify the fit-up is in accordance with welding procedures.
- 4) Verify the piping is properly supported during all stages of construction. Pipe or fitting deformations greater than the tolerances listed in the manufacturer's specification of the item is considered a rejectable defect.
- 5) Visually inspect all coating and painting for damage from the construction process and reinspect for proper repair before the lines are buried or the surface of the pipe otherwise made inaccessible for inspection by the next stage of construction.

#### 1.8.2 Reporting

The original and two (2) copies of these records and tests, as well as the corrective action taken, shall be furnished the Government daily. Format of the report shall be as prescribed in Section 01451, "CONTRACTOR QUALITY CONTROL".

#### 1.9 DELIVERY, STORAGE AND HANDLING.

Materials delivered and placed in storage shall be stored with protection from the weather, excessive humidity variation, excessive temperature variation, dirt, dust and/or other contaminants. Proper protection and care of material before, during and after installation is the Contractor's responsibility. Any material found to be damaged shall be replaced at the Contractor's expense. The Contractor shall minimize the possibility of critical stresses and fatigue cracks due to cold working of the adjacent pipe in transit. During storage, the Contractor shall not rest longitudinal seam welds on adjacent pipe or conveyor. The longitudinal welds shall be located about forty-five (45) degrees, plus or minus twenty ( $\pm 20$ ) degrees, from the horizontal. During installation, piping shall be capped to keep out dirt and other foreign matter. Handling shall be in accordance with ASTM F 402. Storage facilities shall be classified and marked in accordance with NFPA 704. Materials shall be stored with protection from puncture, dirt, grease, moisture, mechanical abrasions, excessive heat, ultraviolet (UV) radiation damage, or other damage. Pipe shall be handled and stored in accordance with the manufacturer's recommendation.

#### PART 2 PRODUCTS

## 2.1 PIPING MATERIALS

### 2.1.1 Steel Pipe

Steel pipe and elbows shall be fabricated in accordance with the requirements of AWWA C200, except hydrostatic testing is not required. Dimensions of elbows shall meet the requirements of AWWA C208. Steel used to fabricate pipe and elbows shall be any of the specifications listed in Table 1 of AWWA C200, except the minimum yield point shall be 35,000 pounds per square inch or greater. Pipe shall not be helical or spiral seamed. Pipe wall thickness shall be one (1) inch.

### 2.1.2 Flanged Fittings

Flanges shall be fabricated in accordance with the requirements of AWWA C207, Steel Hub Flanges, Class D, dimensions as shown in Table 3. Steel used to fabricate the flanges shall meet the requirements of ASTM A516, any grade.

### 2.1.3 Blind Flanges

Blind flanges shall be made from minimum one-fourth (1/4) inch steel plate, any grade. Lifting lug shall be welded to flange for easy removal.

### 2.1.4 Studs, bolts and Nuts for Flanged Fittings

Steel bolts or studs and nuts shall conform to the requirements of paragraph 05501-2.1.2.

## 2.2 PIPE FABRICATION

The Contractor shall fabricate pipe in accordance with AWWA C200 except the hydrostatic testing requirement is waived. Weld shall be performed and inspected as specified in accordance with Section 05093, "WELDING PIPING". Pipe shall be shipped to site in one piece with flanges attached. Field welding shall not be performed. Lifting lugs shall be attached for handling and installation. Lifting lugs may be left in place.

## PART 3 EXECUTION

### 3.1 PIPE HANDLING

The Contractor shall exercise care in all handling of pipe to avoid distortion, denting or any other damage to it or to the coating. The pipe shall not be unloaded by rolling from truck. When unloading coated pipe, the Contractor shall carefully follow unloading procedures to avoid damage to pipe coating.

After unloading, the coated pipe shall be supported on the site in such a manner that the coating will not be damaged. The coated pipe shall not be dragged or pulled position.

## 3.2 PIPE PLACEMENT

### 3.1.1 System Preparation

Pipe shall be inspected before installation. The Contractor shall clean the ends of pipes thoroughly, remove foreign matter and dirt from inside of pipes, and keep piping clean during and after placement.

### 3.1.2 Welding

Welding shall be performed in accordance with Section 05093, "WELDING PIPING".

### 3.1.3 Pipe Erection and Support

The Contractor shall provide temporary pipe supports during construction. These supports or braces shall not be welded to piping. Pipe shall not be heated or forced using mechanical equipment or levers to obtain proper fit-up. The use of internal or external line-up clamps shall be permitted to assist line up of pipe or fitting walls.

### 3.1.4 Blind Flange Installation

The Contractor shall install the blind flanges with bolts or studs in a minimum of one-fourth (1/4) of the flange bolt holes. If bolts are used, the bolt head shall be behind the raised face flange. After nuts are snug-tightened, the nut shall be tack welded to the bolt to prevent easy removal of the nut. If studs are used, both ends shall be double-nutted and the outside nuts tack welded to the stud.

### 3.1.5 Painting

The Contractor shall paint the last five (5) feet of each end of the pipe in accordance with Section 09940, "PAINTING". In lieu of Section 09940, "PAINTING", the Contractor may use any AWWA recommended paint system for exposed pipes.























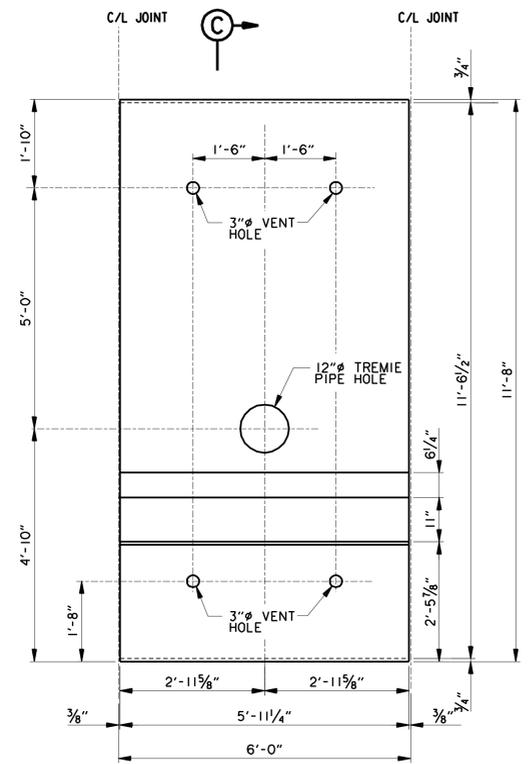


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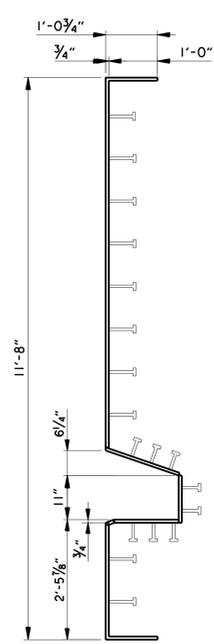


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CHECKED BY: BDF	DATE: 10/17/06	PROJECT: CORPS OF ENGINEERS
DRAWN BY: ROL	SCALE: 1/8" = 1'-0"	PROJECT: NEW ORLEANS, LOUISIANA
DATE: AUGUST 2005	DATE: 10/17/06	PROJECT: LONDON AVE. CANAL
	DATE: 10/17/06	PROJECT: INTERIM CLOSURE STRUCTURE
	DATE: 10/17/06	PROJECT: GATE SILL - DETAILS(2)

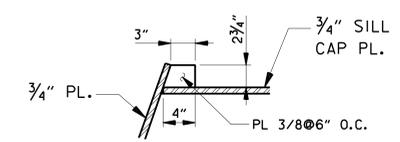
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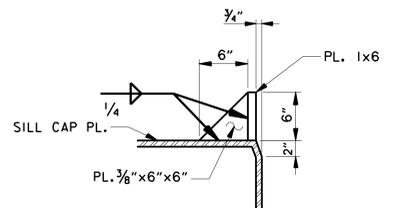
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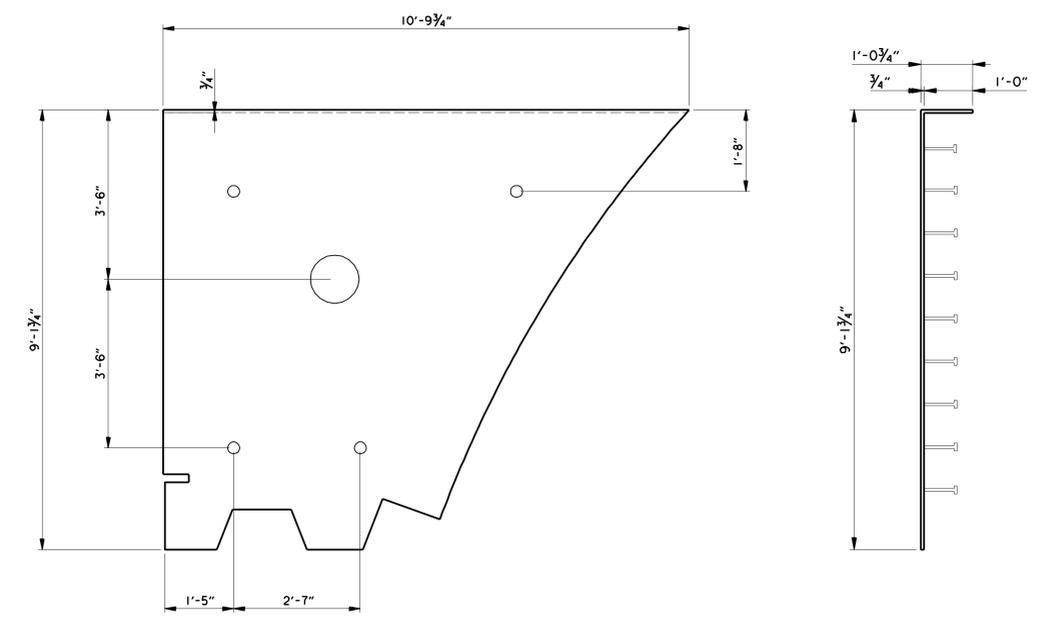
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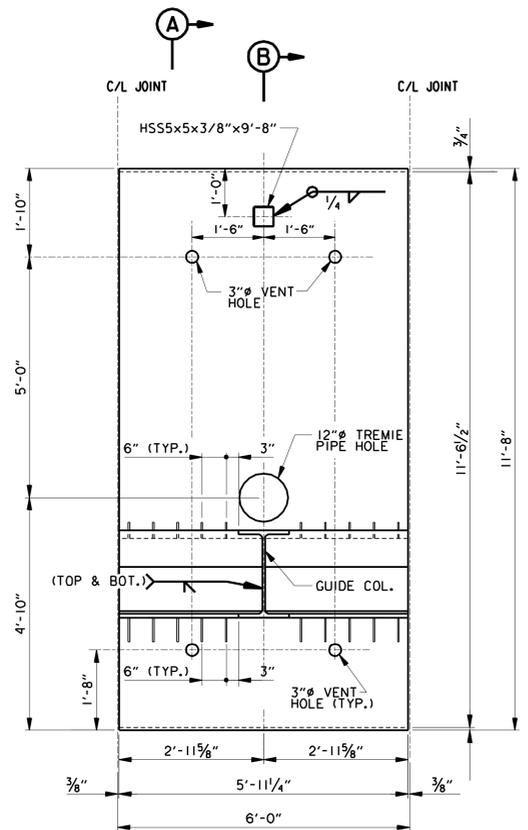
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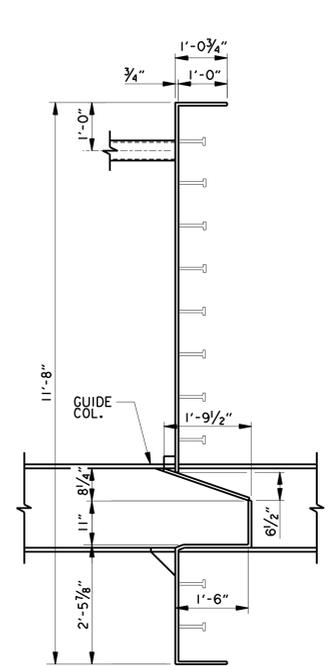
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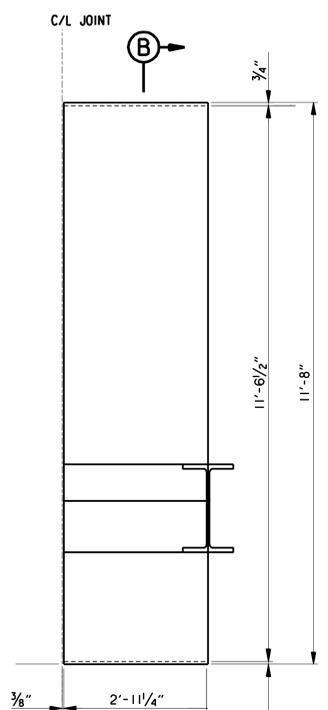
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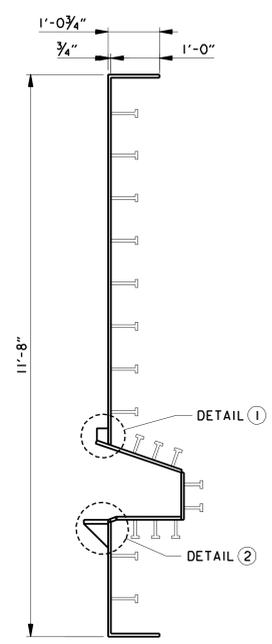
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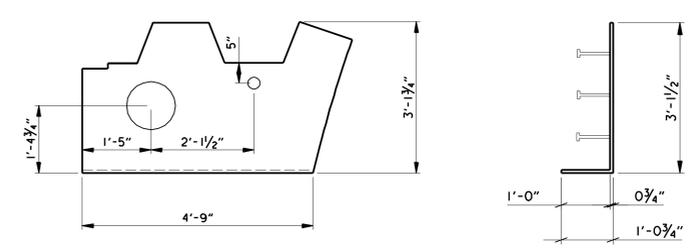
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**DETAIL 7**  
SCALE: 3/4" = 1'-0"

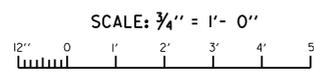


**SECTION A**  
SCALE: 3/4" = 1'-0"



**DETAIL 6**  
SCALE: 3/4" = 1'-0"

- NOTES:
- CONTRACTOR TO CUT SILL CAP PLATES AT TIE-IN TO MATCH FINAL CONFIGURATION OF THE SHEET PILE.
  - CONTRACTOR MUST PROVIDE SUPPORT AT CENTER SHEET PILE WALL FOR SILL CAPS AT TIE-IN.
  - SILL CAP AT TIE-IN IS SHOWN FOR EAST SIDE OF STRUCTURE. SILL CAP AT TIE-IN FOR WEST SIDE OF STRUCTURE WILL BE OPPOSITE HAND.
  - GUIDE COLUMN AND HSS5x3/8 SHOULD BE USED TO ESTABLISH FINAL ALIGNMENT OF SILL CAP SECTIONS. VERTICAL MEMBERS MAY BE ADDED TO SILL CAP SECTIONS WITHOUT GUIDE COLUMNS TO ESTABLISH FINAL ALIGNMENT.



3500 N. Causeway Blvd., Suite 900  
Metairie, Louisiana 70002  
(504) 837-6326  
PROJECT No. 10000586.00000

FILE NUMBER  
DWG. 12A OF 25



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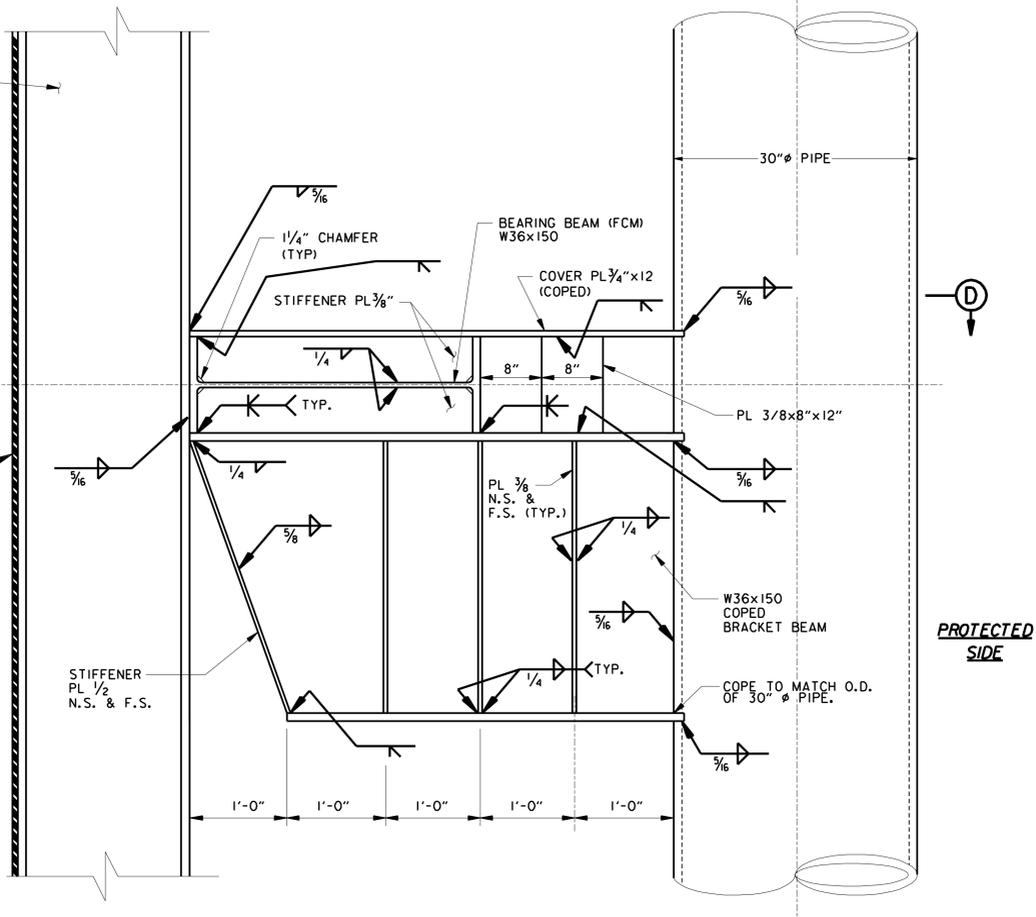
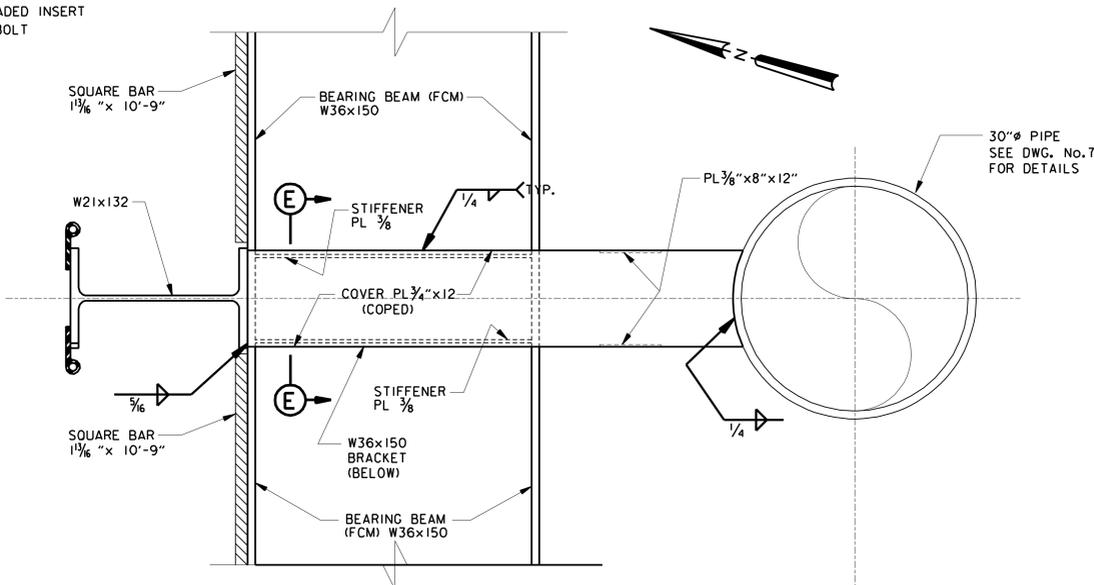
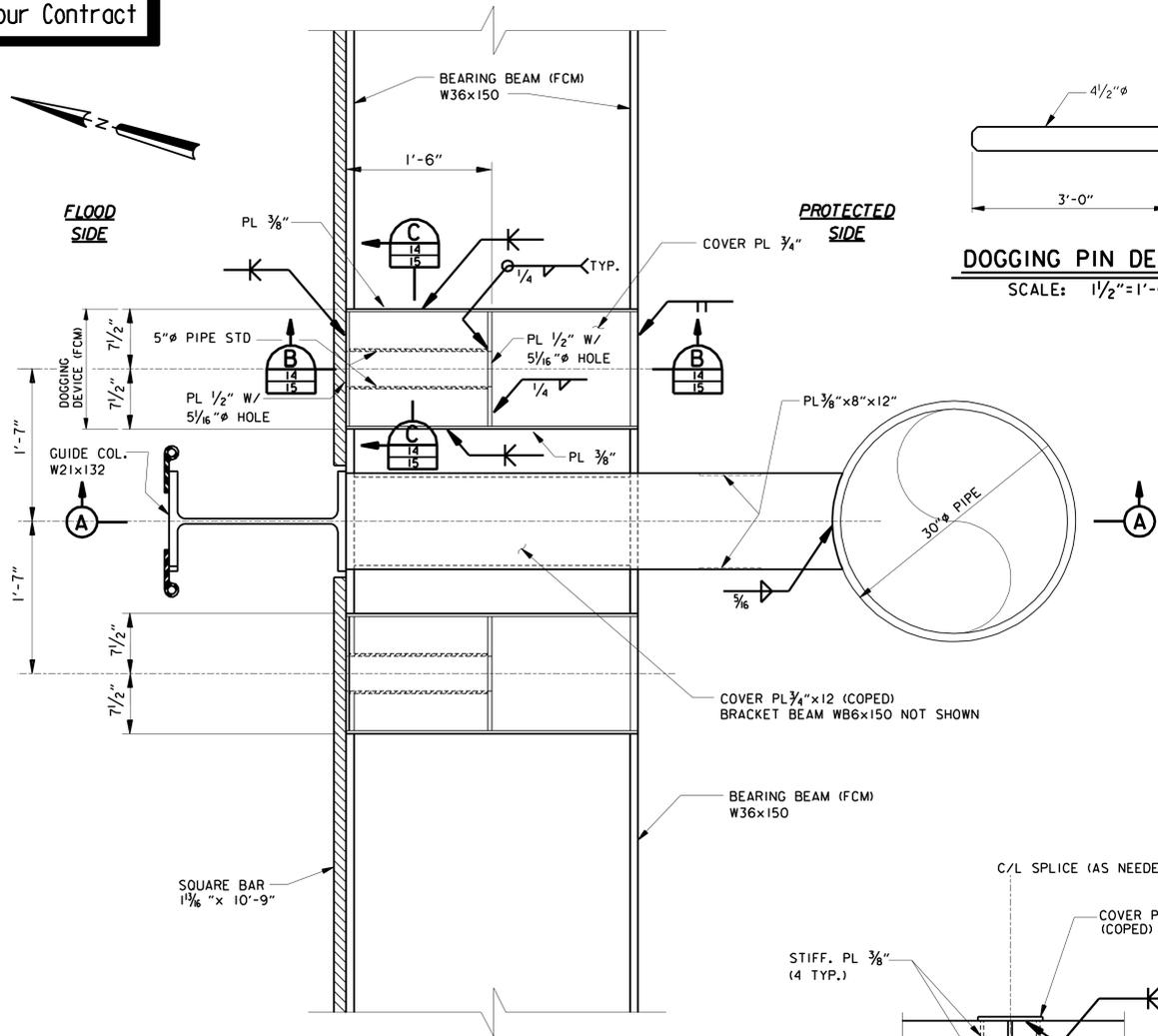
US Army Corps of Engineers  
New Orleans District

DESIGNED BY: BPH	DESIGN FILE NAME: Natchez Beam	SOLIDWORKS ID: 1912PB-06-R-0090
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DATE: AUGUST 2005	DESIGN ENGINEER: [Signature]	DESCRIPTION: [Blank]
GENERAL REVISIONS:	DATE:	APPROVAL MARK:

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

LAKE PONCHARTRAIN, LOUISIANA AND VICINITY  
NEW ORLEANS CANAL LOCK AND DAM  
ORLEANS PARISH, LOUISIANA  
INTERIM CLOSURE STRUCTURE  
BEARING BEAM & DOGGING PIN DETAILS (I)

FILE NUMBER  
DWG. 14 OF 25



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

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

SCALE: 3" = 1'-0"



NOTE: WELDS SHOWN ARE TYPICAL FOR SIMILAR JOINTS WHERE NOT SHOWN.



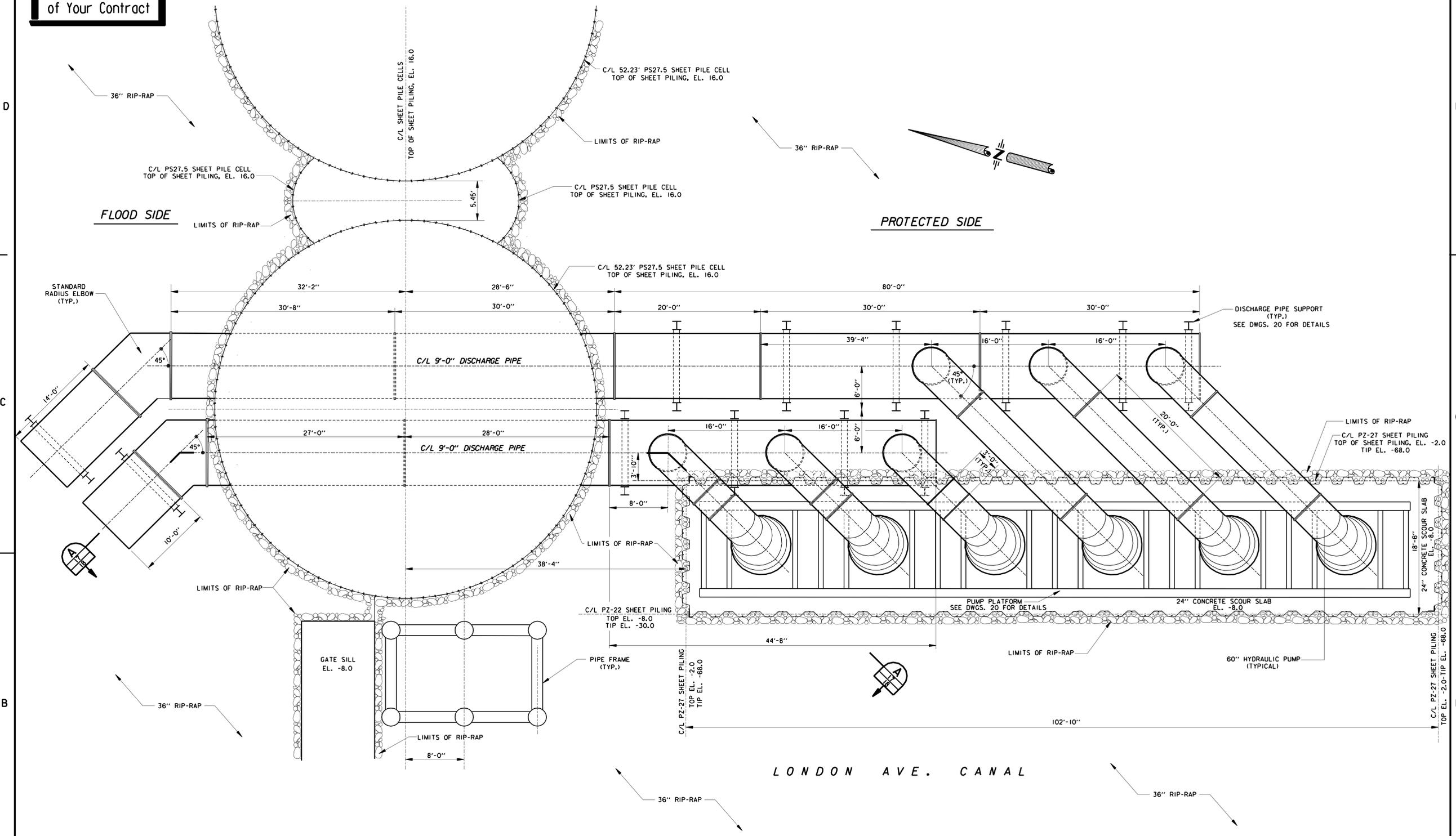
**URS**  
3500 N. Causeway Blvd., Suite 900  
Metairie, Louisiana 70002  
(504) 837-6326  
PROJECT No. 10000586.00000







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**PLAN**

SCALE: 1" = 5'



NOTE:  
ALL STRUCTURAL ELEMENTS  
SYMMETRICAL ABOUT CENTERLINE  
OF STRUCTURE

NOTE:  
ALL ELEVATIONS REFER TO  
NORTH AMERICAN VERTICAL DATUM.

NOTE:  
TWELVE (12) - 60" PUMPS ARE REQUIRED.  
SIX (6) PLACED ON EACH SIDE OF GATED STRUCTURE.  
THREE (3) PUMPS DISCHARGE IN ONE NINE (9) FT. MANIFOLD PIPE AND  
THREE (3) PUMPS DISCHARGE IN THE OTHER NINE (9) FT. MANIFOLD PIPE.  
PUMPS TO BE PROVIDED BY THE GOVERNMENT AND INSTALLED BY THE CONTRACTOR.

NO.	DATE	DESCRIPTION

U. S. ARMY ENGINEER DISTRICT, NEW ORLEANS	
CORPS OF ENGINEERS, LOUISIANA	
DESIGNED BY: B.A.M.	BLANK
CHECKED BY: B.A.M.	BLANK
DRAWN BY: B.A.M.	BLANK
DATE: JANUARY 2006	BLANK
PROJECT NO. 0912P8-06-R-0090	BLANK

NEW ORLEANS PLAN EMERGENCY RESTORATION  
LONDON AVE. CANAL  
INTERIM CLOSURE STRUCTURE  
PUMPING FACILITIES - PLAN

FILE NUMBER  
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DWG. 17 OF 20





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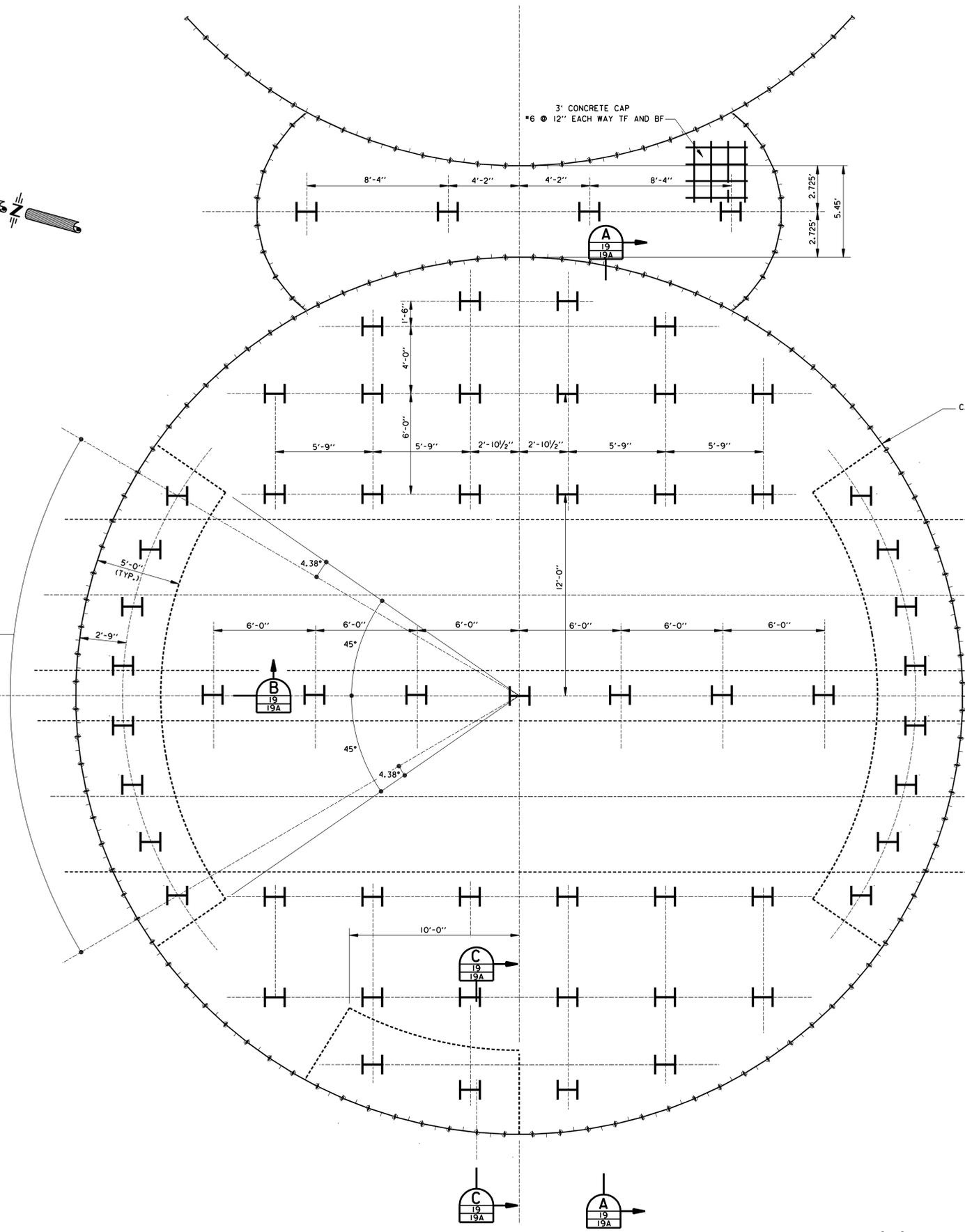
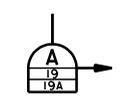
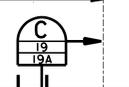
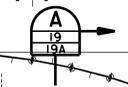
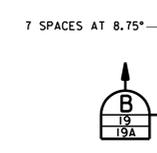


DATE	DESCRIPTION	BY	APPR.



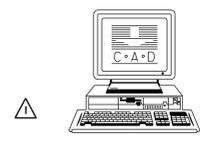
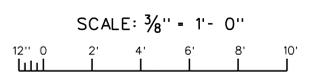
FLOOD SIDE

PROTECTED SIDE



ALL PILES ARE H 14X73 STEEL VERTICAL PILES  
TIP EL. -70.0

PILE LAYOUT PLAN



DESIGNED BY: B.A.M.	DATE: LONDON 2/2006	PROJECT: LONDON 2/2006	SOLICITATION NO. 1912P8-06-R-0090
CHECKED BY: R.M.Y.	DATE: JAN 2006	SCALE: 32	
DRAWN BY: B.H.D.	DATE: JANUARY 2006	SUBMITTED BY: DESIGN ENGINEER	

LAKE PONTCHARTRAIN, L.A. AND VICINITY  
NEW ORLEANS PLAN EMERGENCY RESTORATION  
NEW ORLEANS PARISH, LOUISIANA  
LONDON AVE. CANAL  
INTERIM CLOSURE STRUCTURE  
CIRCULAR CELL PILE LAYOUT PLAN

FILE NUMBER  
X  
DWG. 19 OF 20

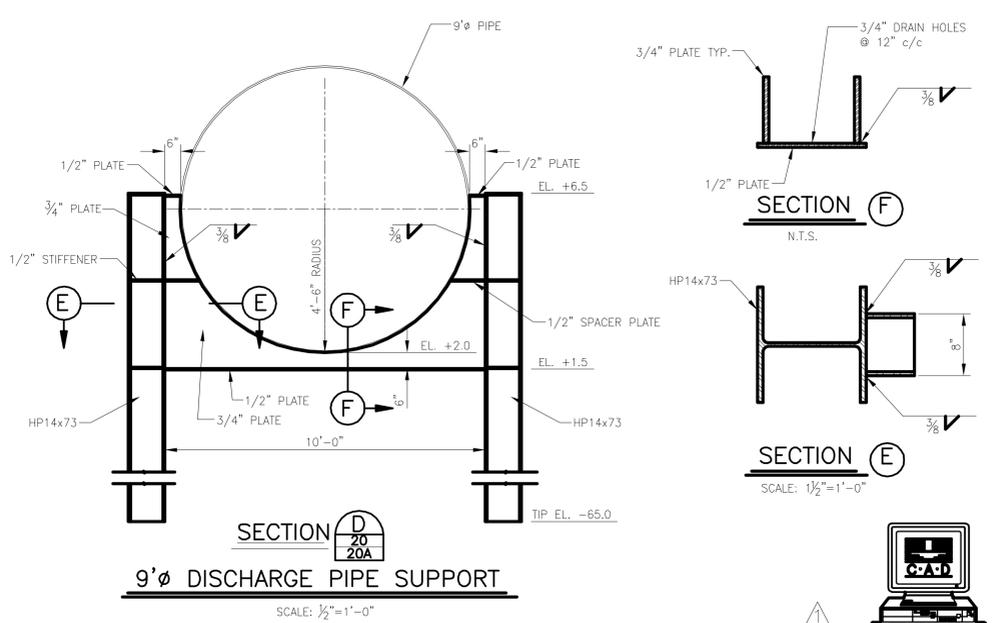
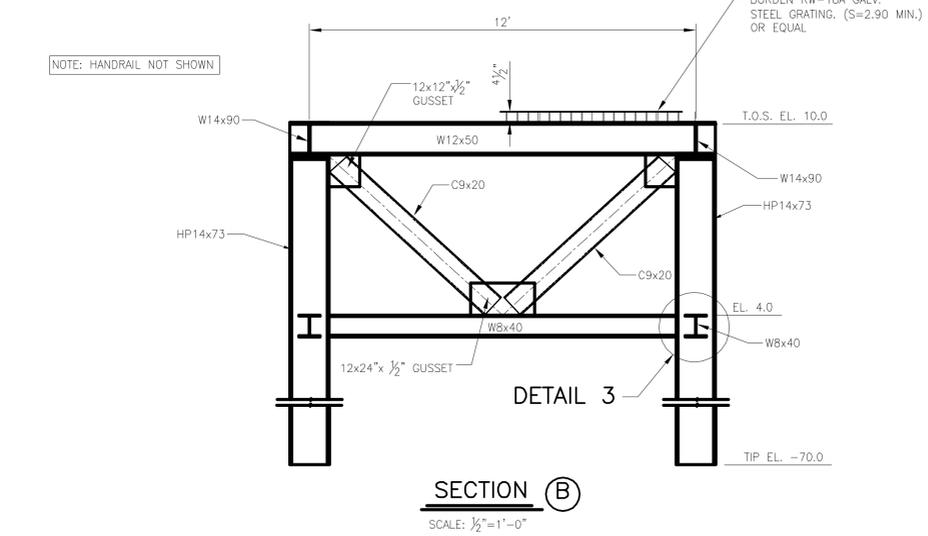
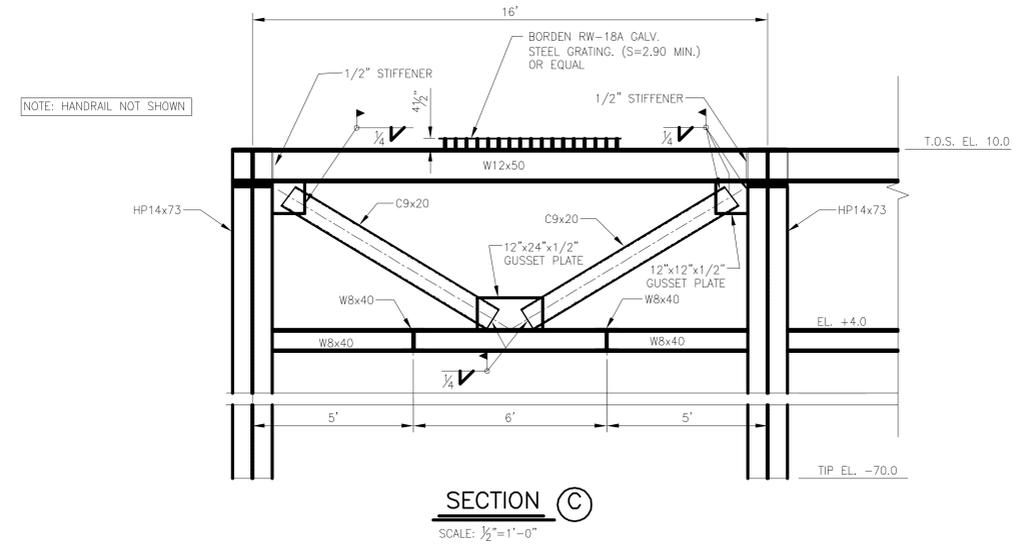
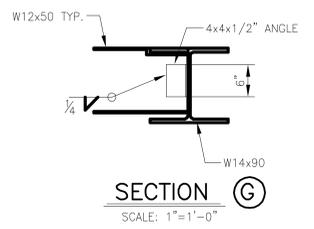
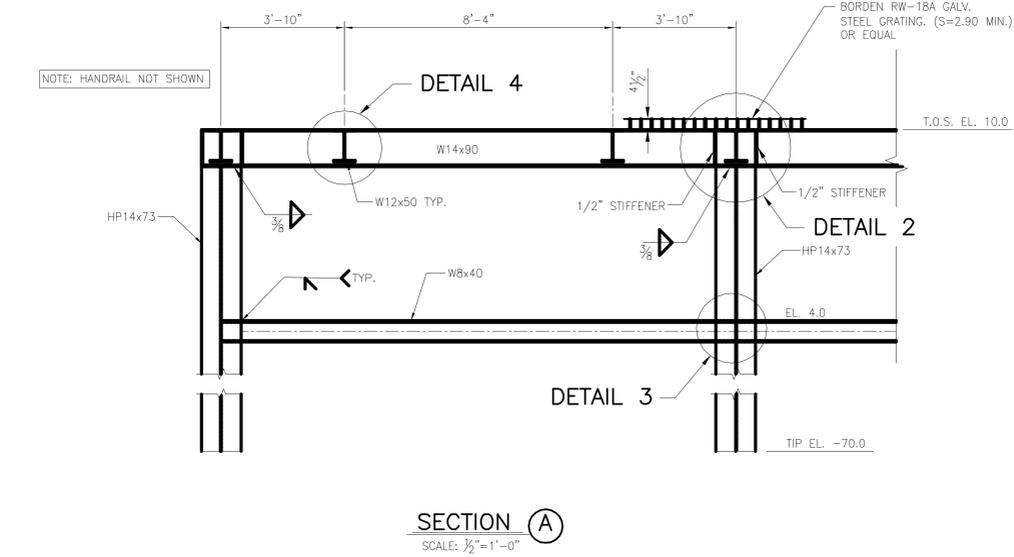
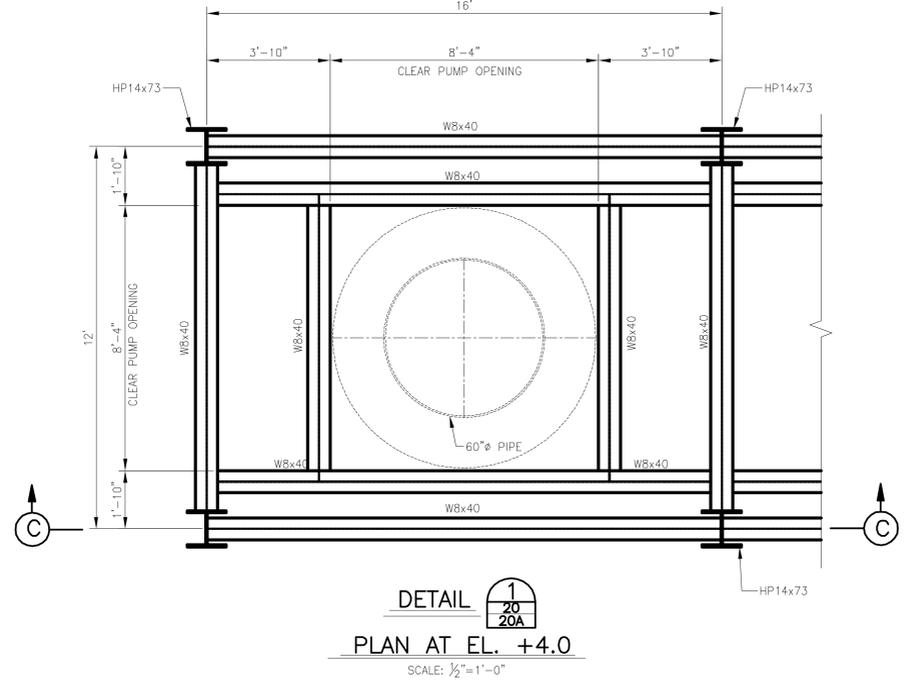
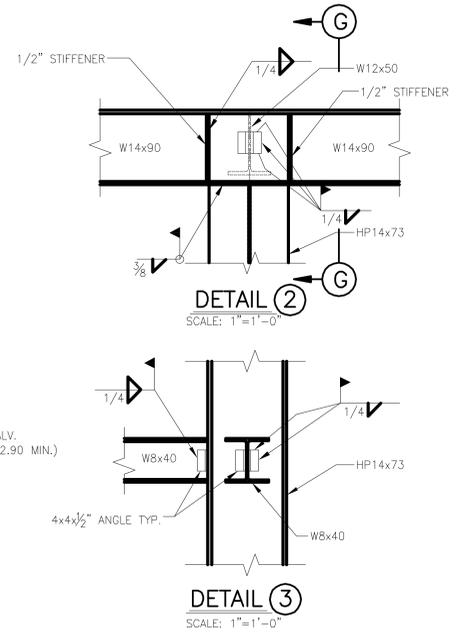
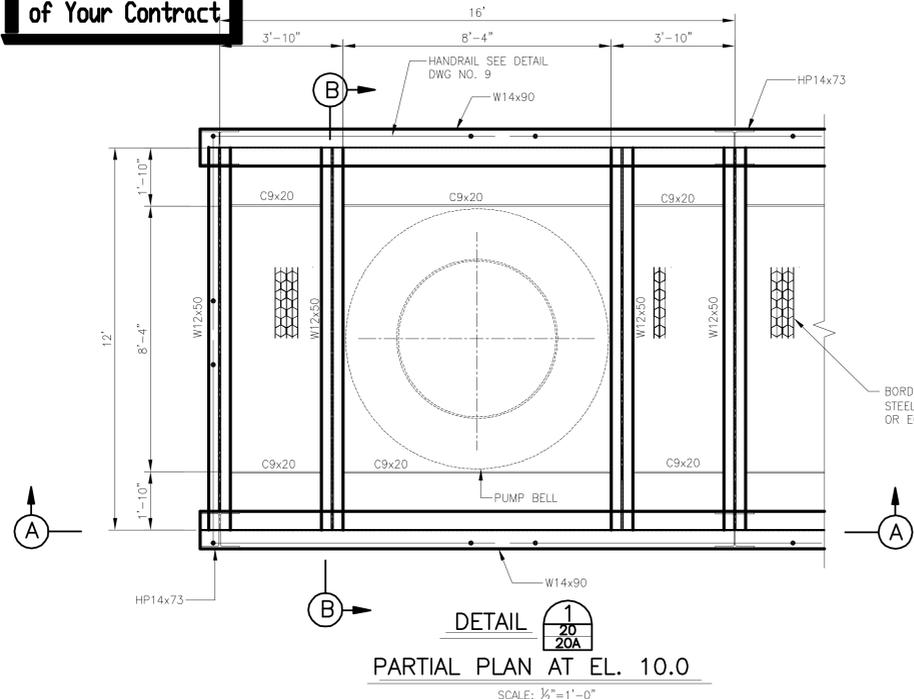
**Brown-Cunningham-Gannuch**  
ENGINEERS • ARCHITECTS • CONSULTANTS  
2701 KINGMAN ST. METAIRIE, LOUISIANA

**URS**  
3500 N. Causeway Blvd., Suite 900  
Metairie, Louisiana 70002  
504-837-6326  
PROJECT No. XXXXXXXX.XXXXX





**Safety is a Part of Your Contract**



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

DESIGNED BY: [ ]  
 CHECKED BY: [ ]  
 DRAWN BY: [ ]  
 DATE: 1/17/06

DESIGN FILE NAME: X  
 SCALE: 12  
 SUBMITTED BY: [ ]  
 DATE: 1/16/06

DESIGNATION NO.: **NO1298-06-R-090**

LAKE PORTCHARTRAIN, LOUISIANA AND VICINITY  
 NEW ORLEANS PLAN EMERGENCY RESTORATION  
 ORLEANS PARISH, LOUISIANA  
**LONDON AVE CANAL**  
**INTERIM CLOSURE STRUCTURE**  
**DETAILS-PUMP PLATFORM**

FILE NUMBER  
**X**  
 DWG 20A OF 20

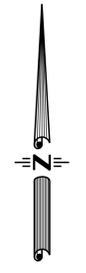


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LAKE PONTCHARTRAIN



PLAN VIEW - CROSS SECTION LOCATIONS  
SCALE: N.T.S.



MARK	NEW DRAWING	DESCRIPTION	DATE	APPR.	DATE	APPR.

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

DESIGNED BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
 DRAWN BY: \_\_\_\_\_  
 DATE: 09-02-05

PROJECT: \_\_\_\_\_  
 SCALE: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
 X

DESIGN FILE NAME: \_\_\_\_\_  
 SUBMITTED BY: \_\_\_\_\_  
 DESIGN ENGINEER: \_\_\_\_\_

COLLECTION NO.: **#912P8-06-R-0090**

LAKE PONTCHARTRAIN, LOUISIANA AND VICINITY  
 NEW ORLEANS PLAN EMERGENCY RESTORATION  
 ORLEANS PARISH, LOUISIANA  
**LONDON AVENUE CANAL**  
**INTERIM CLOSURE STRUCTURE**  
**SURVEY CROSS SECTION LOCATIONS**

FILE NUMBER  
 DWG. S-1

**URS** 3500 N. Causeway Blvd., Suite 900  
 Metairie, Louisiana 70002  
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 PROJECT No. 10000586.00000









