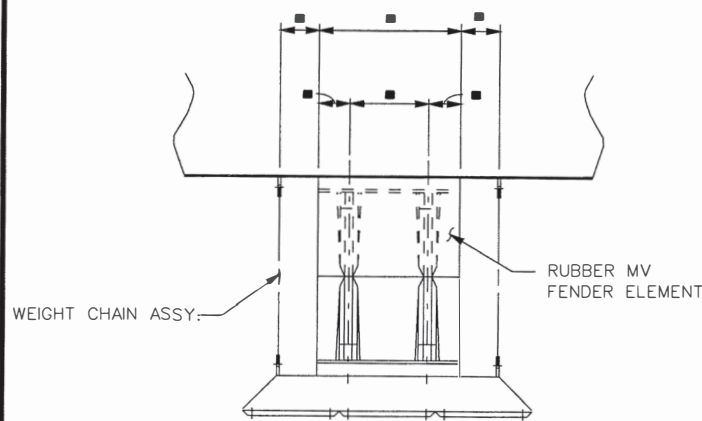
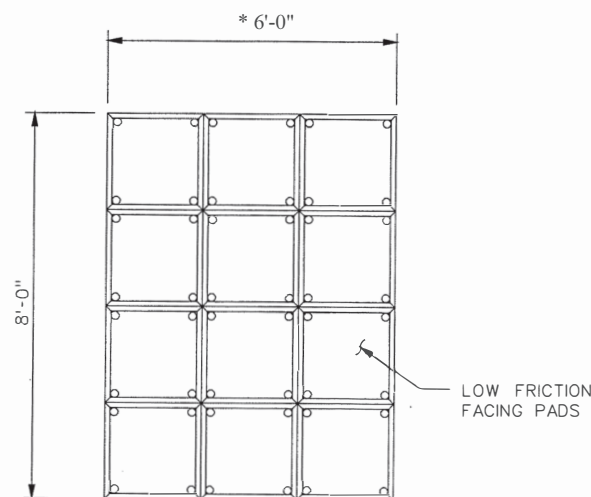


FENDER SYSTEM PERFORMANCE

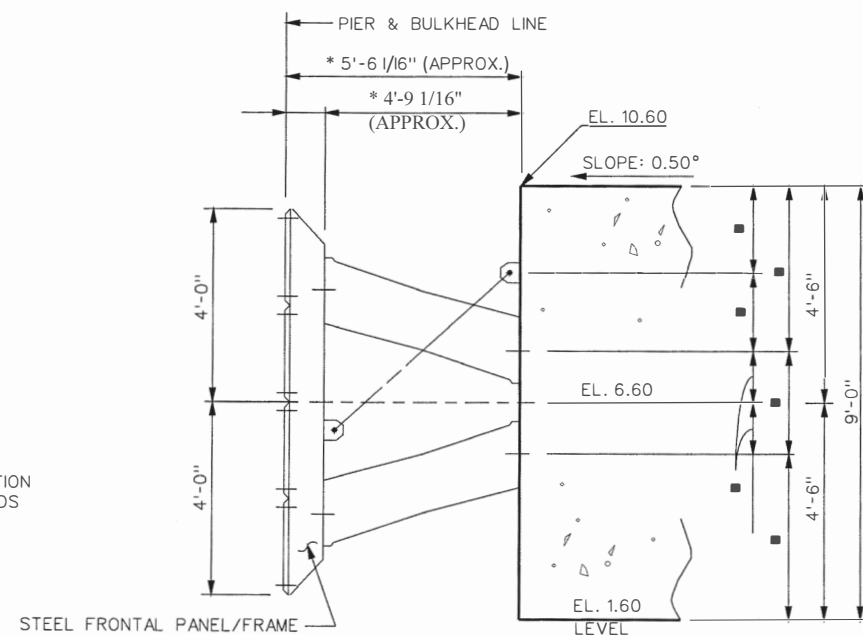
- A. MIN. ENERGY ABSORBED = 470 FT-KIPS @ 6° BERTHING ANGLE
- B. MAX NORMAL FORCE INTO DOOR = 260K
- C. MAX HORIZONTAL FORCE INTO DOCK = 78 KIPS
- D. MAX VERTICAL FORCE INTO DOCK = 40 KIPS
- E. MAX HULL PRESSURE = 6 KSF.



PLAN



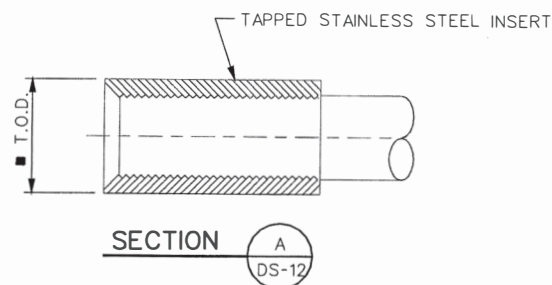
FRONT ELEVATION



TYPICAL SECTION

V-TYPE FENDER SYSTEM

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

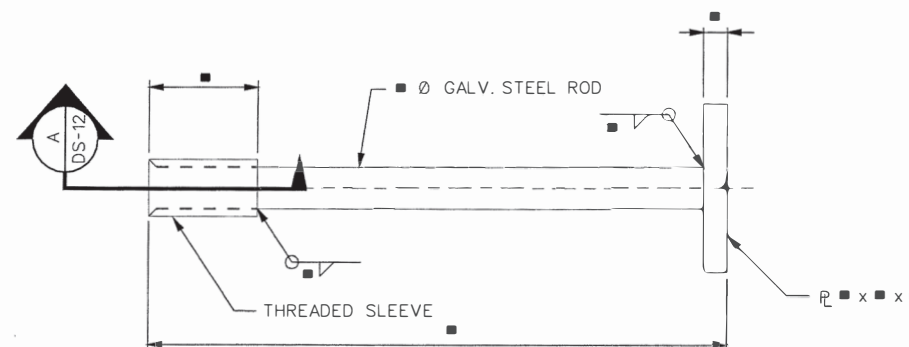


NOTES:

- 1. MATERIAL A276 TYPE 316 STAINLESS STEEL
- 2. TAPPED OVERSIZE FOR GALV. BOLT

ANCHOR SLEEVE

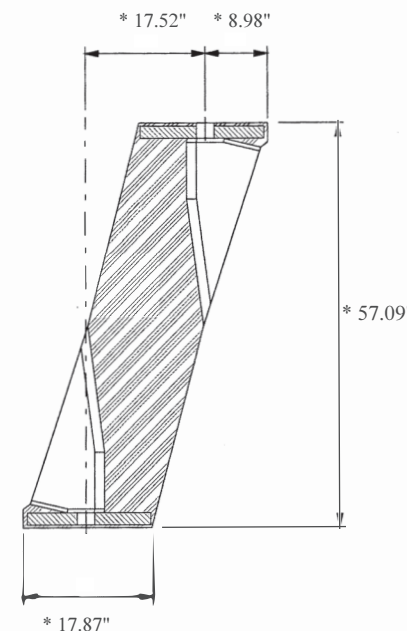
SCALE: AS NOTED



PLAN

SCALE: 3" = 1'-0"

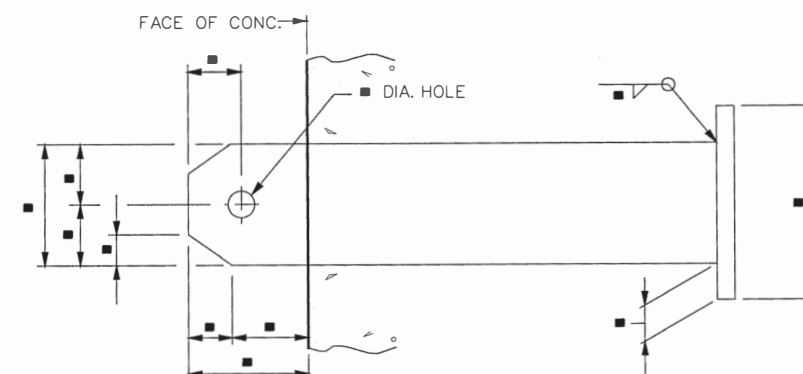
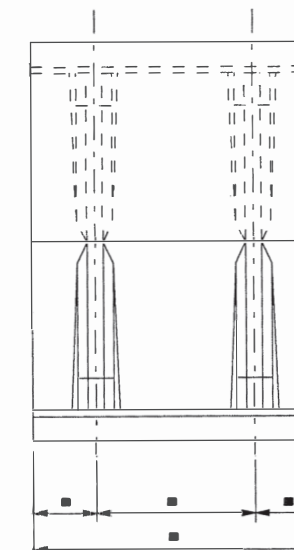
- VERIFY THESE DIMENSIONS & SIZES WITH THE MANUFACTURER.
- * FOR REFERENCE ONLY. ADDED BY M. THOMAS ON 6/27/22 CONTRACTOR RESPONSIBLE FOR VERIFYING.



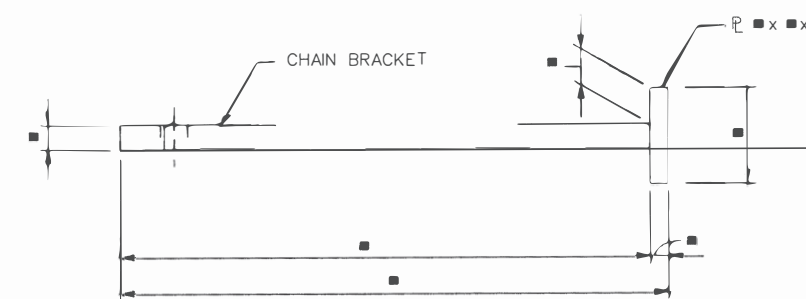
ELEVATION

FENDER ELEMENT

SCALE: 1" = 1'-0"



ELEVATION



PLAN

CHAIN ANCHOR BRACKET

SCALE: 3" = 1'-0"

NOTES:

- 1. FABRICATION SHALL CONFORM TO THE LATEST EDITIONS OF THE AISC MANUAL OF STEEL CONSTRUCTION AND AWS STRUCTURAL WELDING CODE D-1.1
- 2. ALL DIMENSIONS ARE TO BE + 0.06 UNLESS OTHERWISE NOTED.
- 3. INSTALLATION AS PER MANUFACTURE SPECIFICATIONS.

ALABAMA STATE PORT AUTHORITY

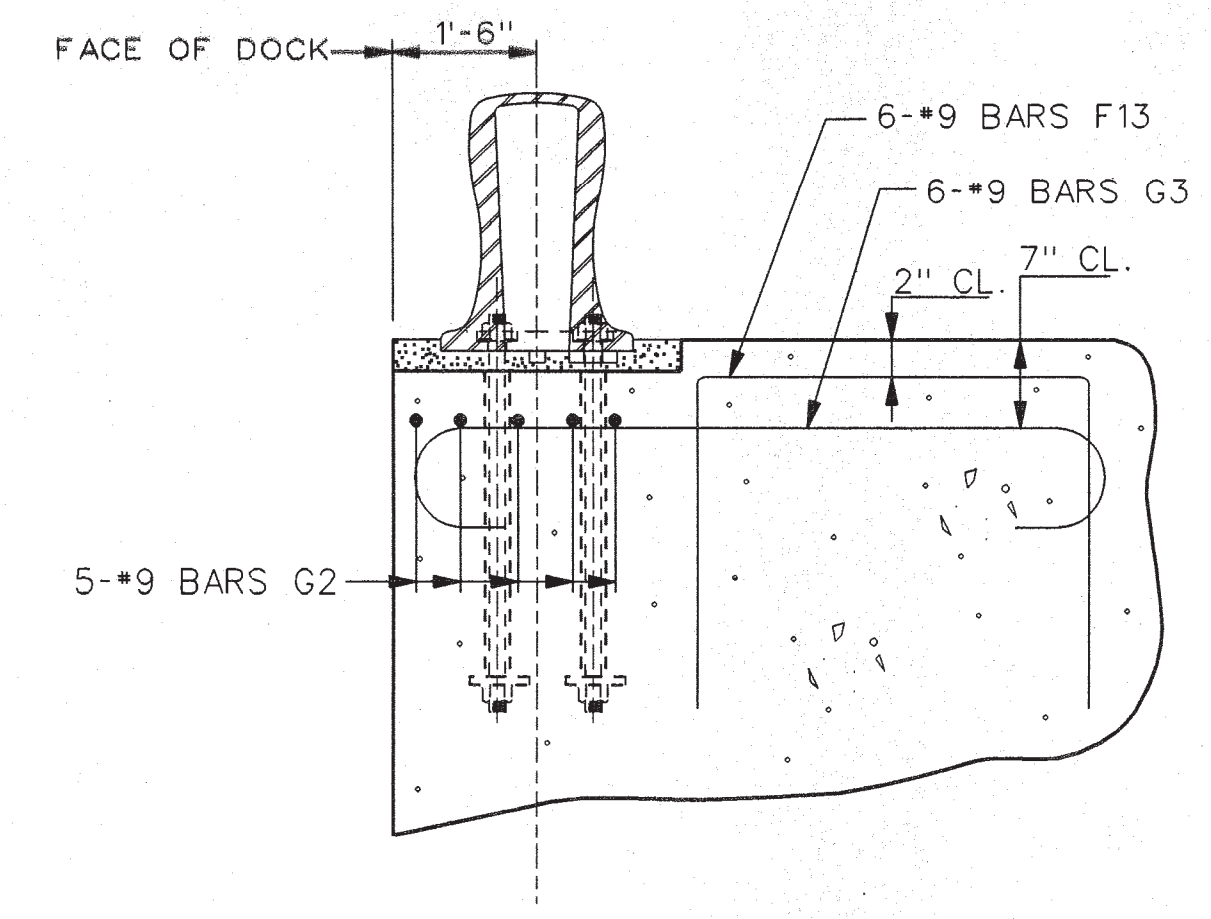
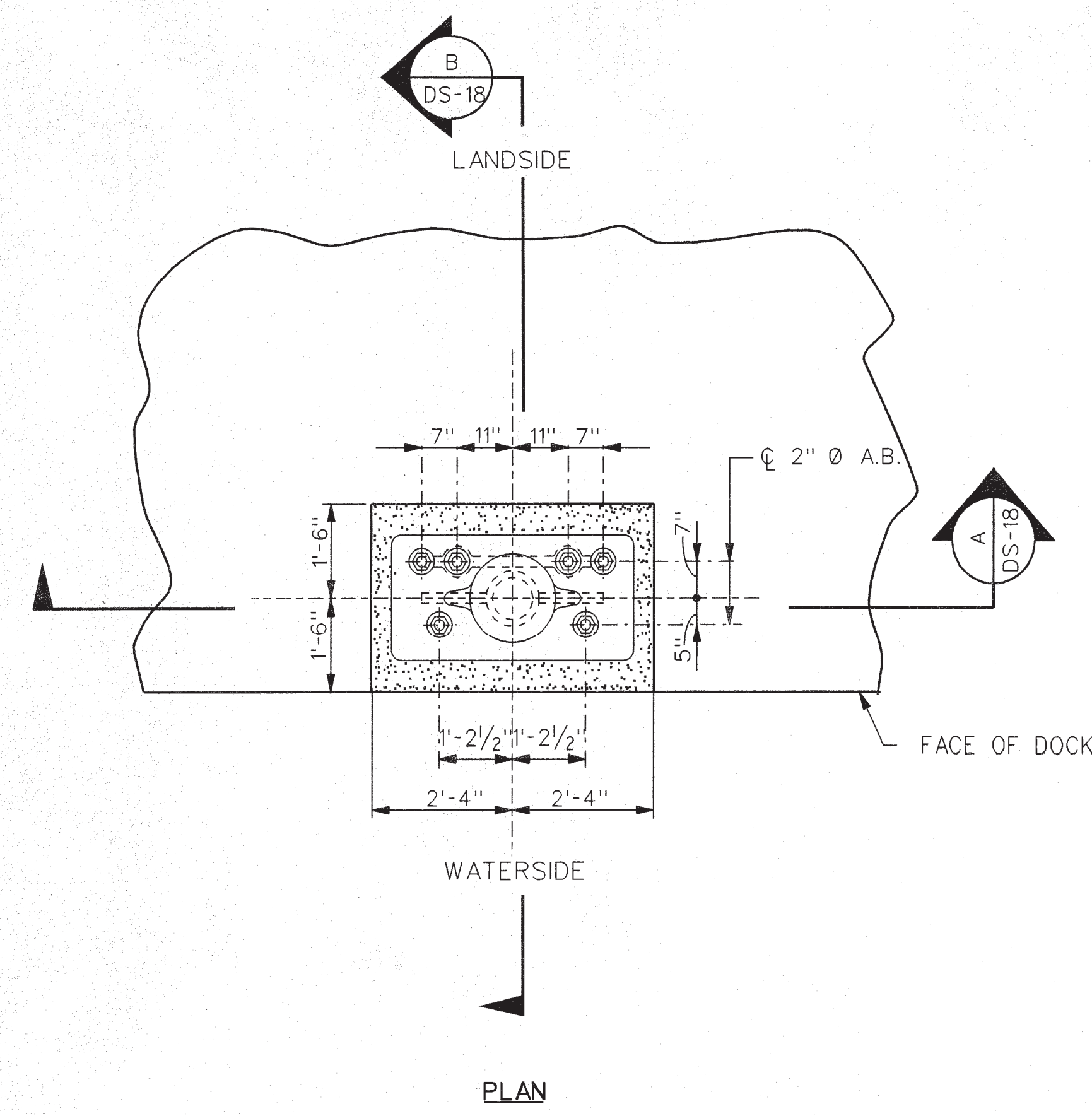
BERTH "E" RENOVATION, PHASE 2

MARINE FENDERS
V-FENDER DETAILS

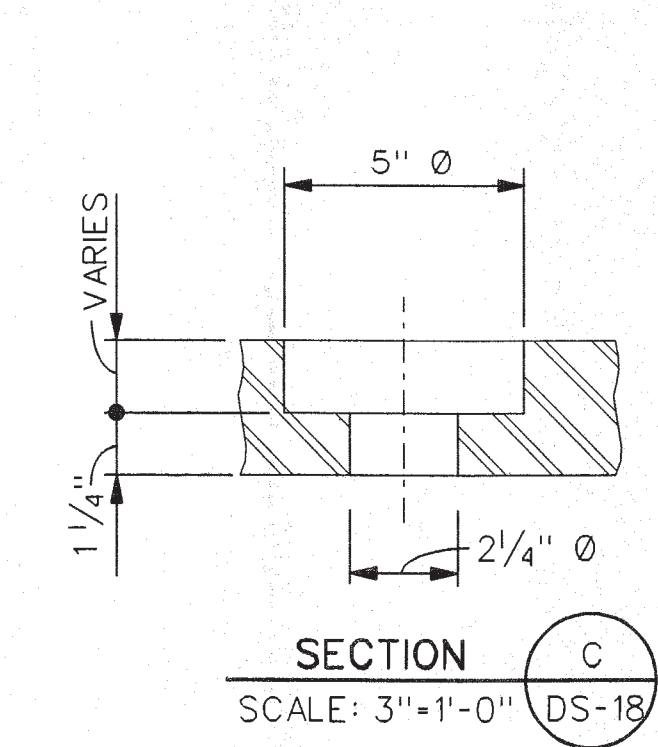
VOLKERT & ASSOCIATES, INC.
CONSULTING ENGINEERS

DESIGNED HSW	DETAILED JWC	TRACED
CHECKED KLJ	CHECKED LMO	CHECKED
DATE 07-07-04		SHEET NO. DS-12

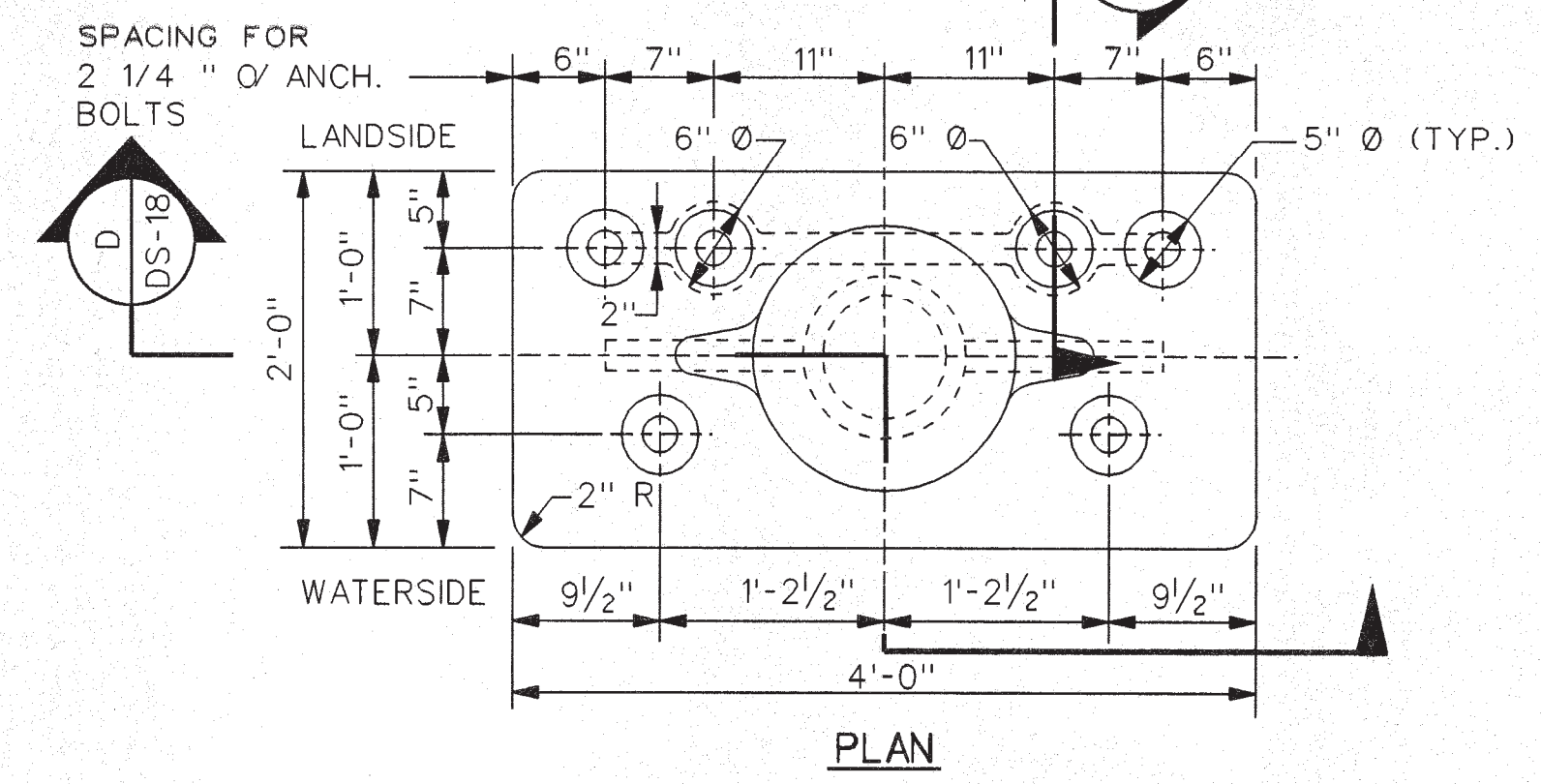
REVISIONS	
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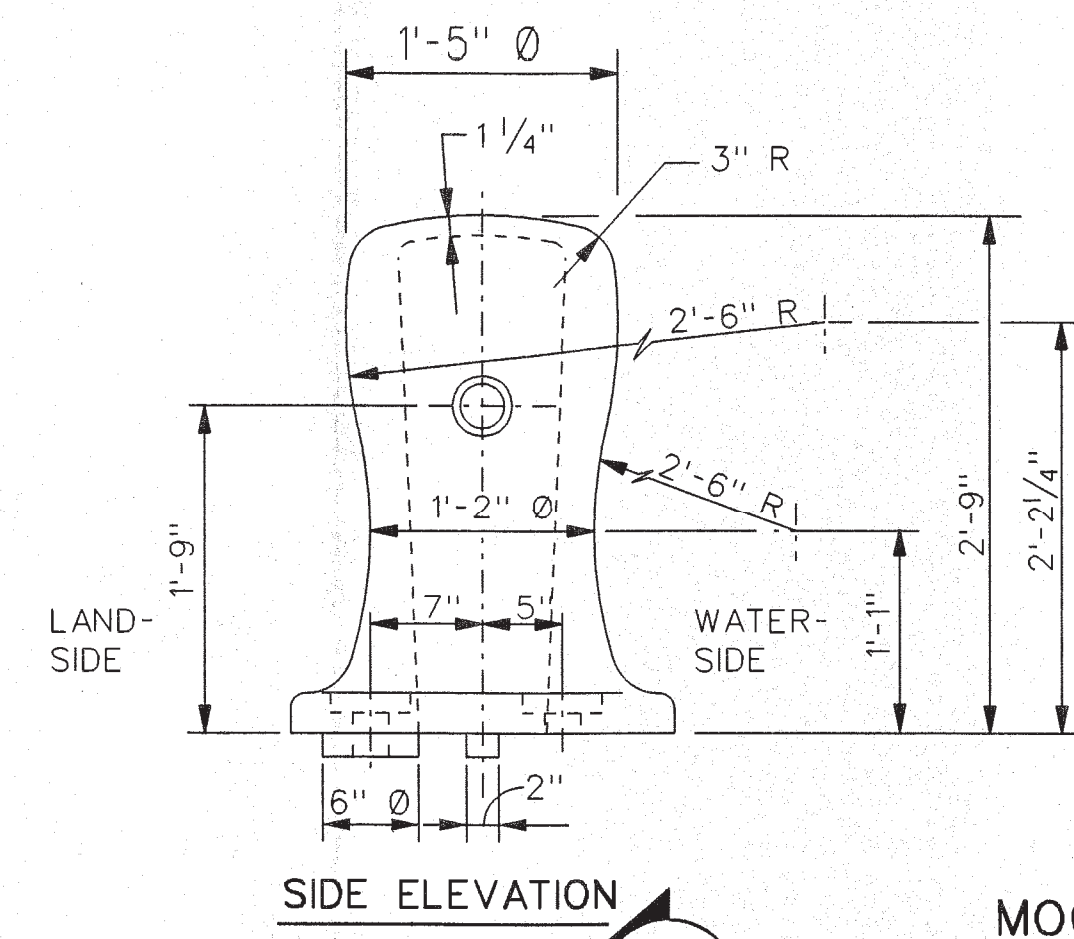
SECTION B
DS-18
SHOWING ADDITIONAL BOLLARD REINF.



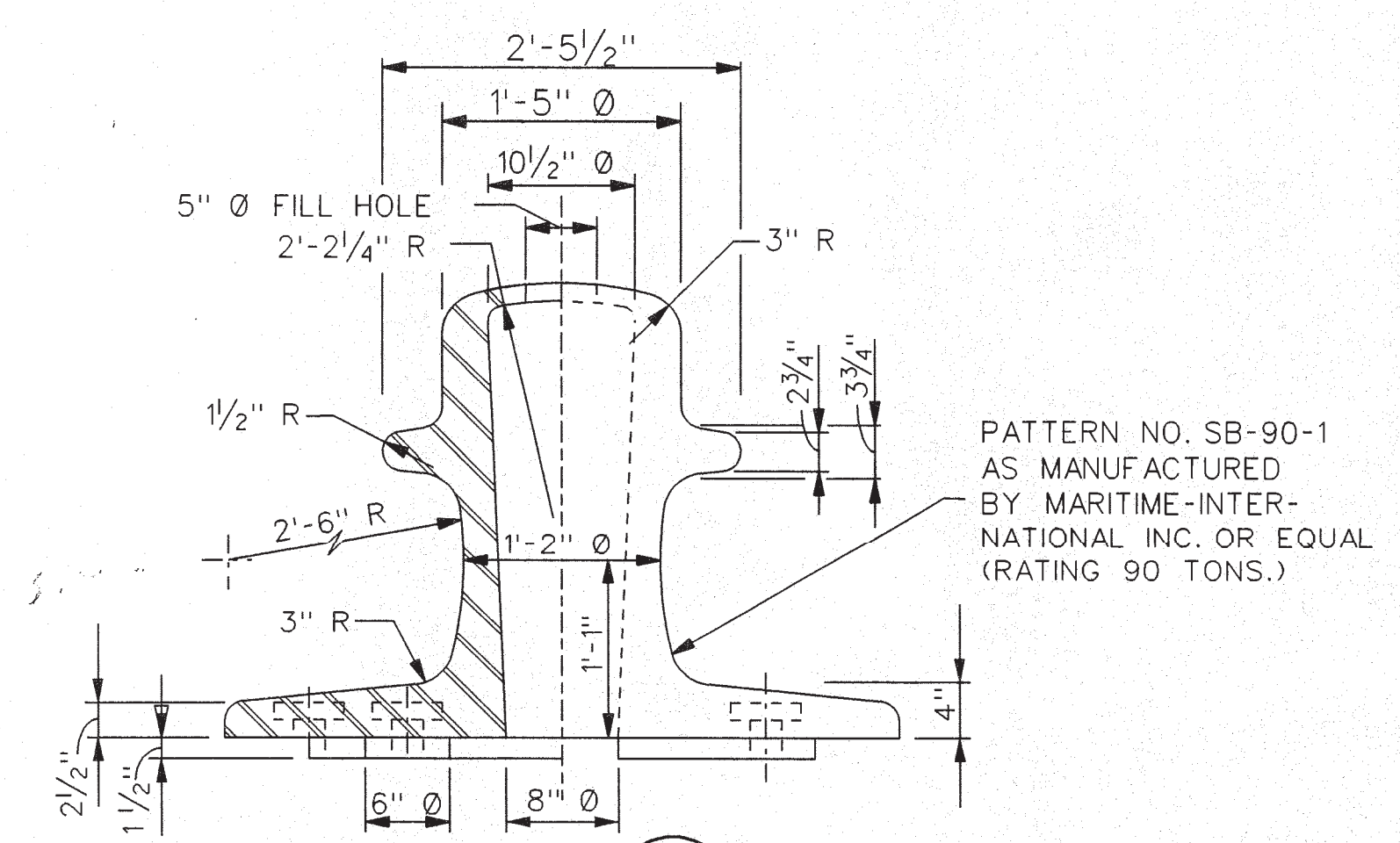
SECTION C
SCALE: 3/4" = 1'-0"
DS-18



PLAN



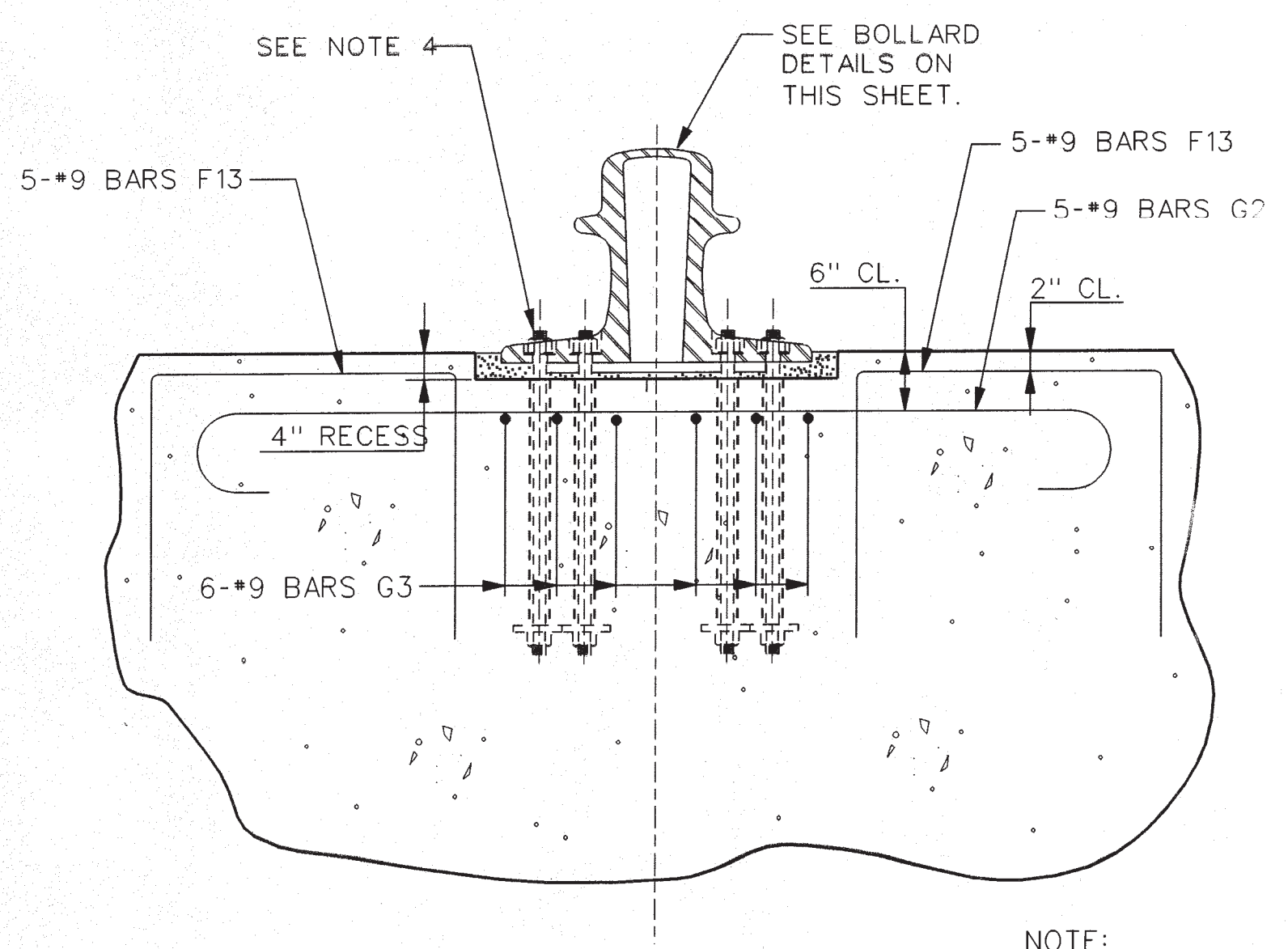
SIDE ELEVATION
DS-18



MOORING BOLLARD
SCALE: 1" = 1'-0"
SECTION D
DS-18

PATTERN NO. SB-90-1
AS MANUFACTURED
BY MARITIME-INTER-
NATIONAL INC. OR EQUAL
(RATING 90 TONS.)

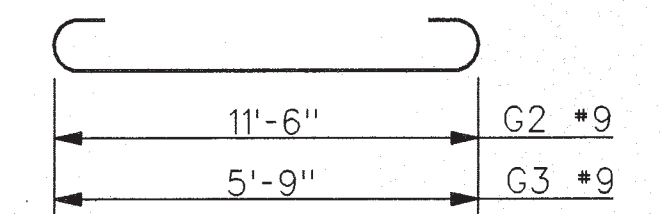
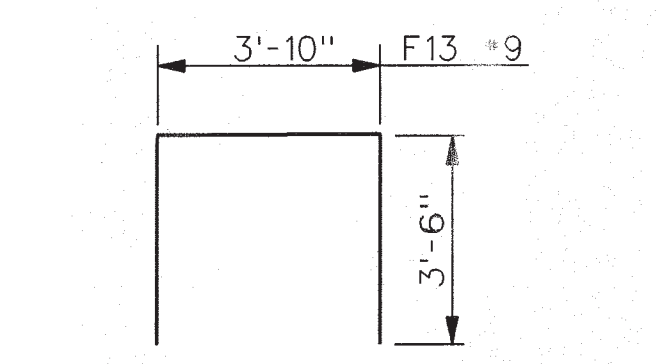
- NOTES:
- REFER TO NOTES 1 THRU 16 ON SHT. DS-2.
 - FILL BOLLARDS WITH CONCRETE AFTER INSTALLATION.
 - SANDBLAST & APPLY 3 COATS OF SAFETY YELLOW MARINE PAINT TO BOLLARD. PAINT TO BE APPROVED BY ENGINEER.
 - HEX NUTS THAT ARE RECESSED SHALL BE SEALED FLUSH TO PREVENT HOLDING WATER.



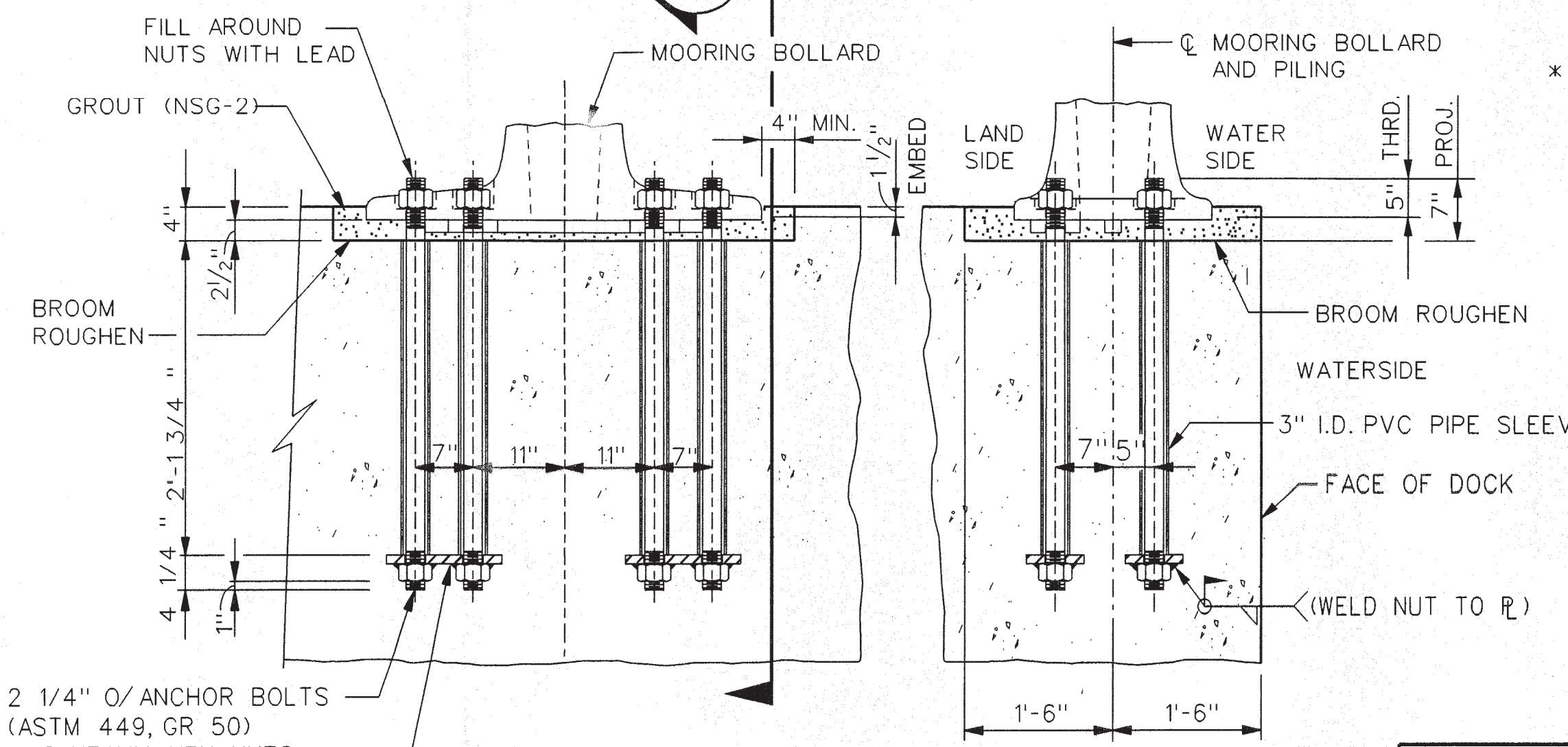
SECTION A
DS-18
SHOWING ADDITIONAL BOLLARD REINF.

ADDITIONAL REINFORCING AT BOLLARDS
SCALE: 1/2" = 1'-0"

- NOTE:
- #9 F13 AND G2 & G3 ARE TO BE SPLICED WITH MAIN CAP TOP REINF. THAT HAS TO BE BURNED OFF OR CUT TO CLEAR 4" BOLLARD RECESS.



BAR BENDING DETAILS
N.T.S.



BOLLARD MOUNTING DETAIL
(SHOWN FOR SHIPLOADING DOCK)
SCALE: 3/4" = 1'-0"

* THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS BEFORE FABRICATING & PLACING THE ANCHOR PLATES & BOLTS FOR THE MOORING BOLLARDS & MOORING BITTS.

PROJECT 11388: FOR REFERENCE ONLY.
FOR MIN EMBEDMENT OF 38", 2-1/4" DIA.
ALL THREAD ROD SHOULD BE CUT TO LENGTH
OF 43". CONTRACTOR TO VERIFY THIS DIMENSION.
note added by Matt Thomas on 5/20/24

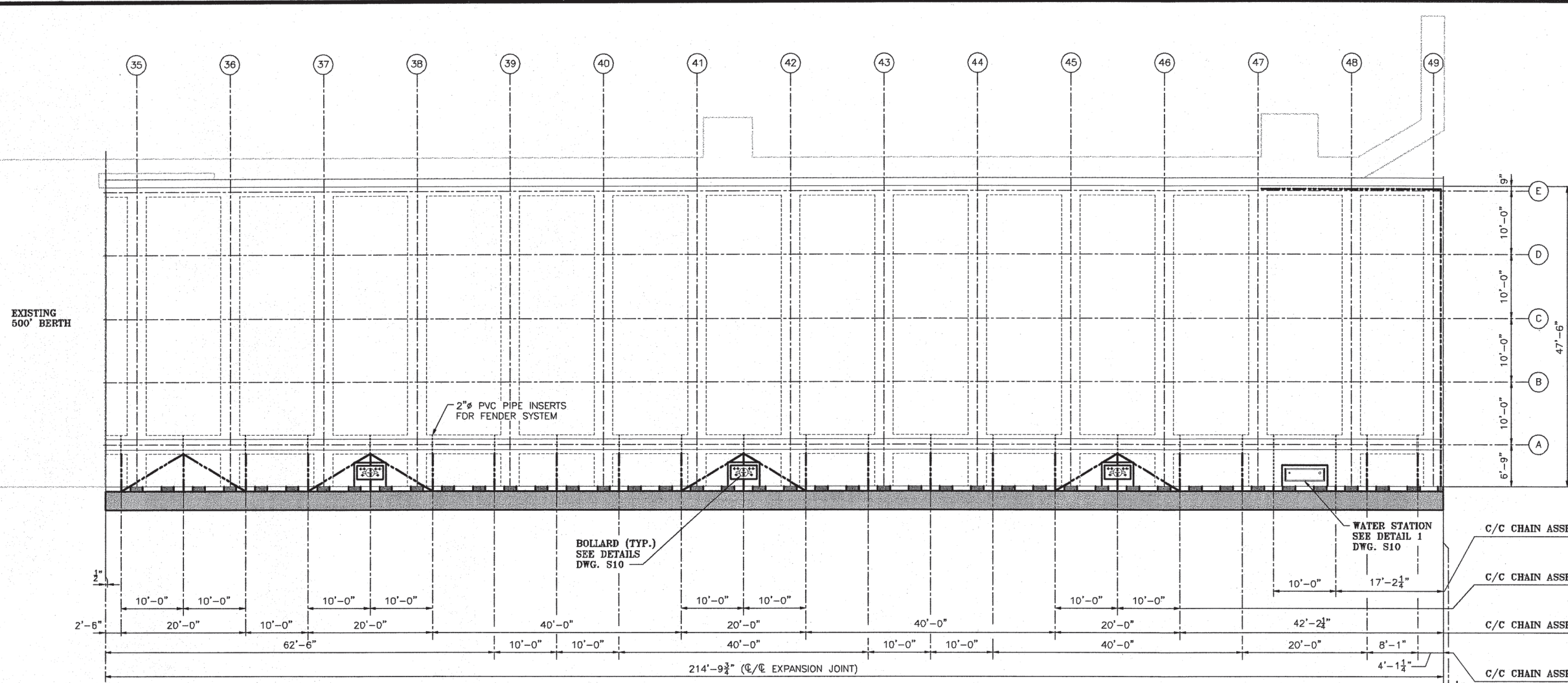
ALABAMA STATE PORT AUTHORITY		
BERTH "E" RENOVATION, PHASE 2		
BOLLARD DETAILS		
VOLKERT & ASSOCIATES, INC. CONSULTING ENGINEERS		
DESIGNED HSW	DETAILED JWC	TRACED
CHECKED KLJ	CHECKED LMO	CHECKED
DATE 07-07-04		SHEET NO. DS-11

User: jst...
 Plot Scale: 1/2" = 1'-0"
 11-JUL-2004 10:52

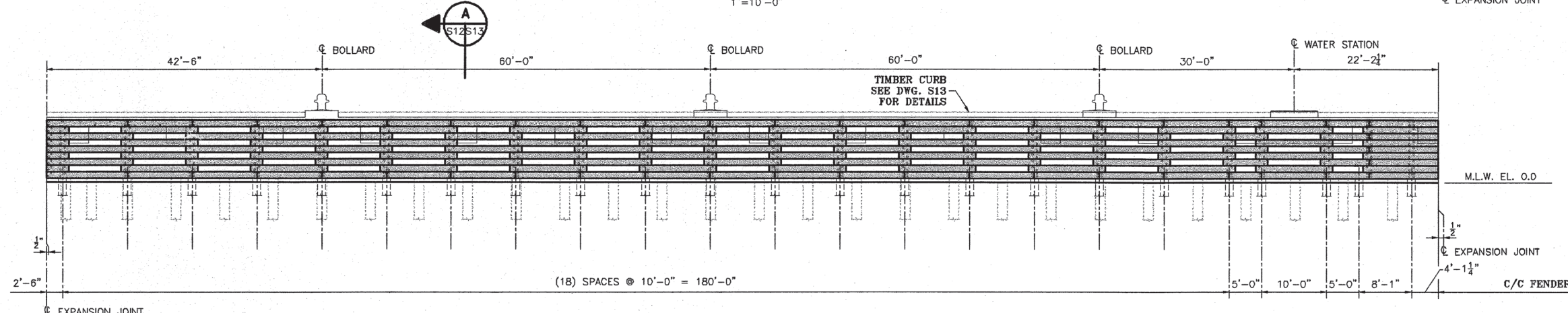


Pier E

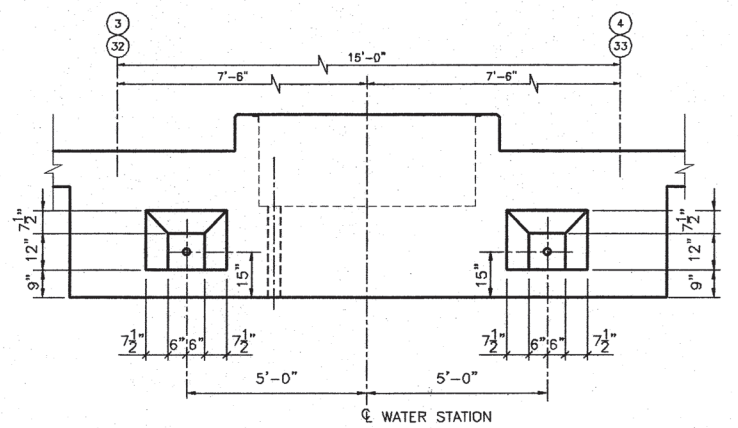
There are two damaged V Type Fenders, from Cap Log 1110 to 1111. As seen here, they are both just north of the latticed timber fender system. Or the fifth and sixth V Type Fenders from the north end of the pier. For both, replace both top and bottom rubber elements and all associated hardware and chains. Reuse the embedded chain anchor bracket and bolt anchor sleeves. Replace a total of 9 low friction pads.



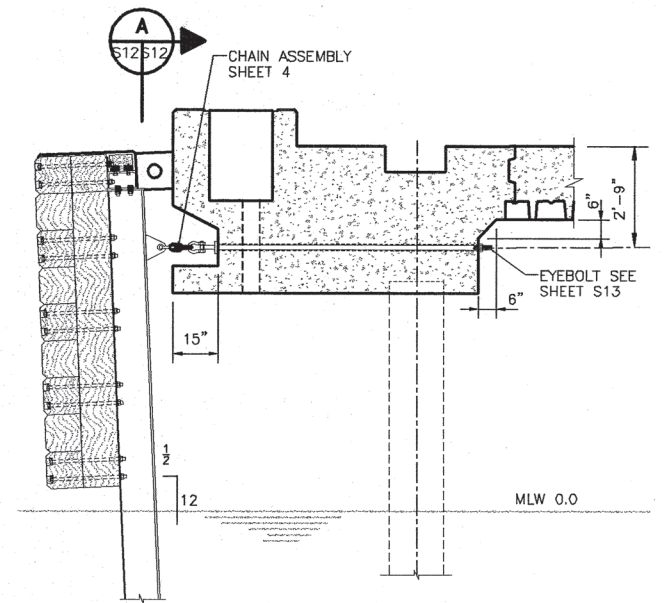
PLAN VIEW
1"=10'-0"



ELEVATION
1"=10'-0"



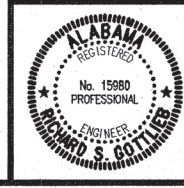
SECTION A-A
1"=1'-0"

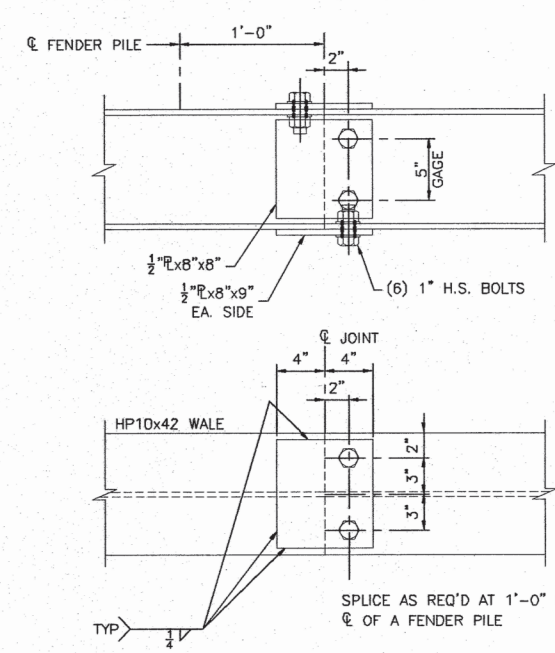


TYPICAL SECTION @ WATER STATION
1"=1'-0"

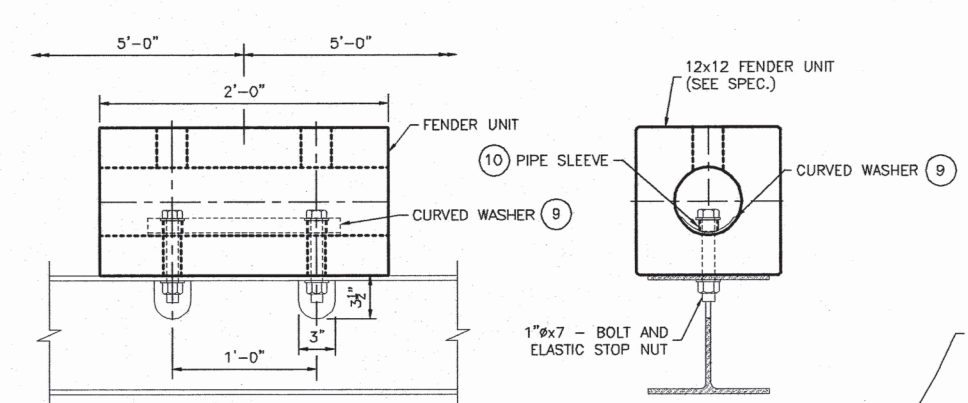
- C/C CHAIN ASSEMBLY (A) SEE DETAIL 2 (2 REQ'D)
- C/C CHAIN ASSEMBLY (B) SEE DETAIL 2 (12 REQ'D)
- C/C CHAIN ASSEMBLY (7) SEE DETAIL 2 (6 REQ'D)
- C/C CHAIN ASSEMBLY (8) SEE DETAIL 2 (9 REQ'D)

REV.	DATE	DESCRIPTION	BY
A	9/2000	ISSUED FOR BIDS	ELR
ALABAMA STATE DOCKS DEPARTMENT			
MOTHEL ALABAMA			
GBB Orridge, Barrett & Ridgway, LLC Consulting Engineers		RIVER END D2 PHASE II-NORTH END DOCK EXTENSION	
Drawn By: J.M.M. Date: SEPT. 2000		TIMBER FENDER SYSTEM PLAN	
Checked By: R.S.G. Date: SEPT. 2000		Drawing No. S12	
Scale: 1"=10'		Job No. 1248A	

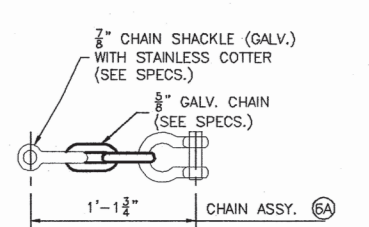




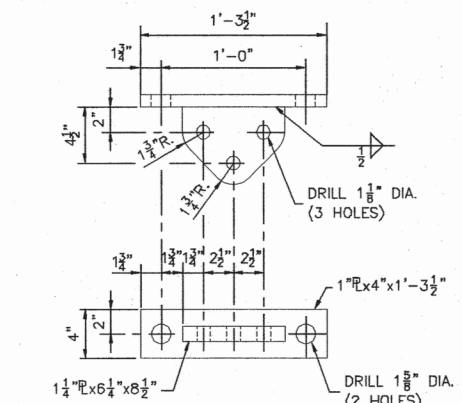
TYPICAL WALE SPLICE
1 1/2" = 1'-0"



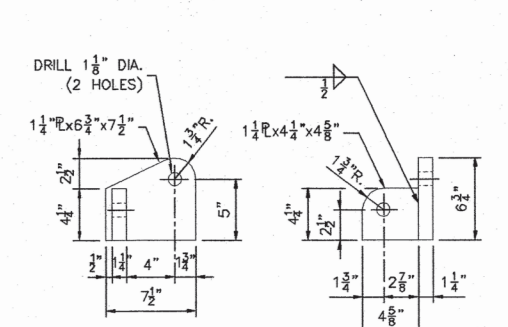
RUBBER FENDER UNIT
1 1/2" = 1'-0"



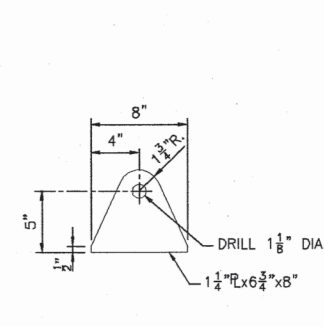
CHAIN ASSEMBLY 6A
1 1/2" = 1'-0" @ WATER STATION



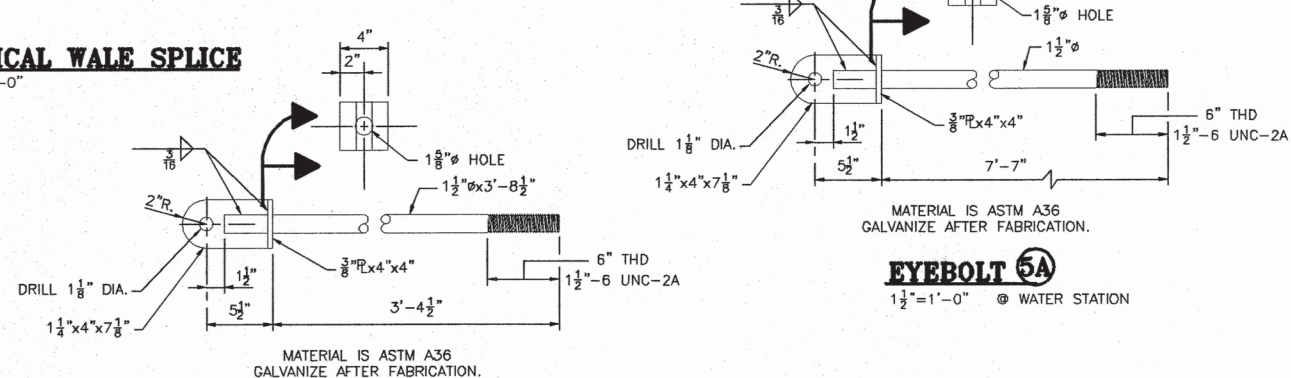
ANCHOR 1
1 1/2" = 1'-0"



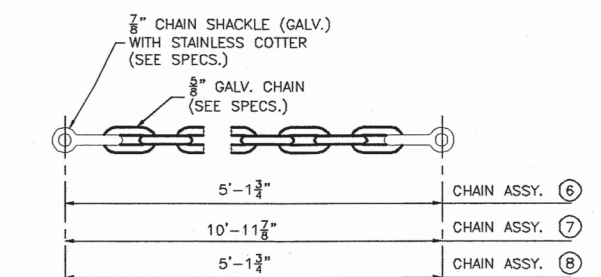
BRACKET 2 - SHOWN
BRACKET 3 - OPP. HAND
1 1/2" = 1'-0"



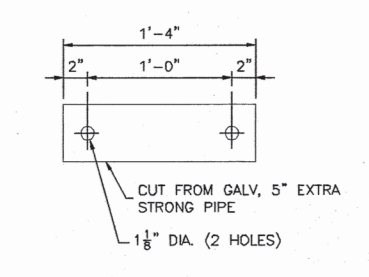
PAD EYE 4
1 1/2" = 1'-0"



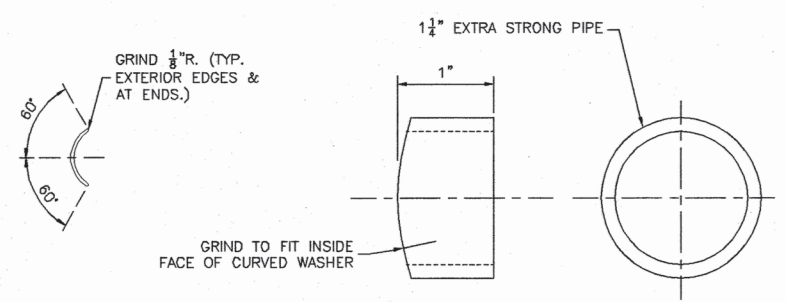
EYEBOLT 5
1 1/2" = 1'-0"



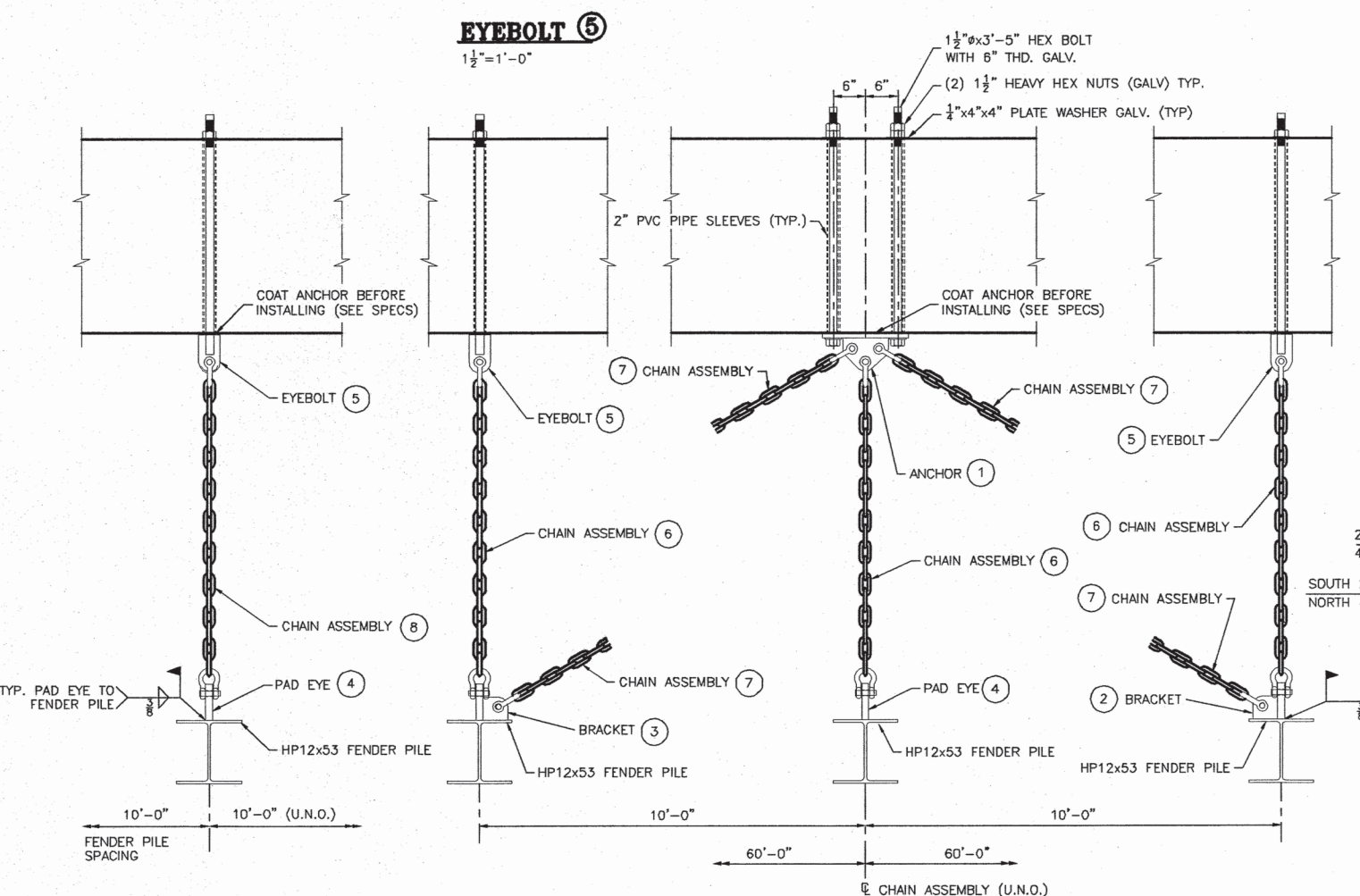
CHAIN ASSEMBLY 6
CHAIN ASSEMBLY 7
CHAIN ASSEMBLY 8
1 1/2" = 1'-0"



CURVED WASHER 9
1 1/2" = 1'-0"



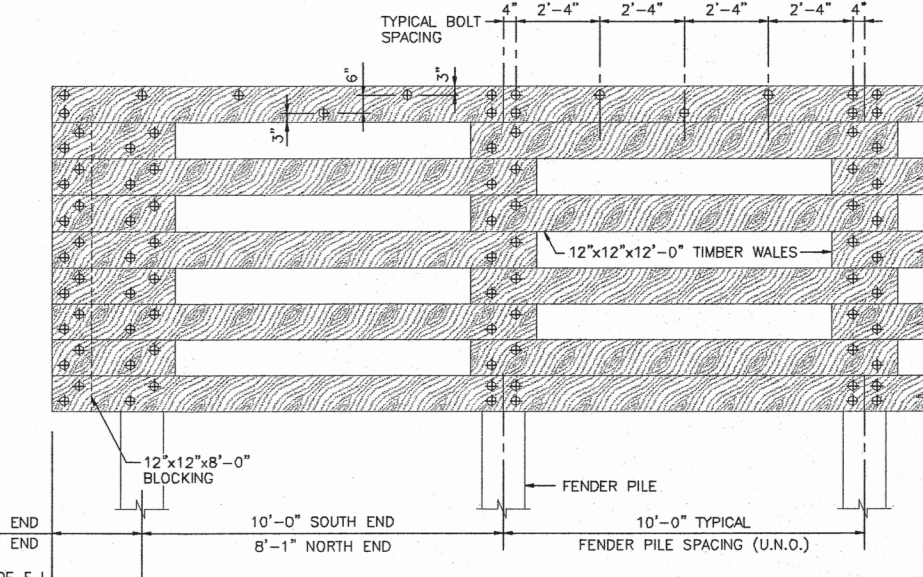
PIPE SLEEVE 10
FULL SCALE



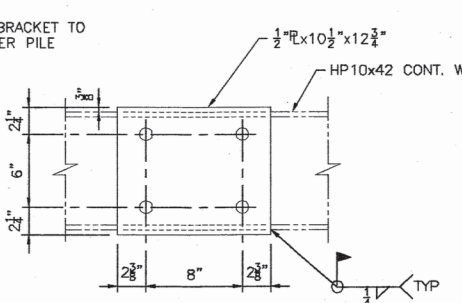
DETAIL 1
1 1/2" = 1'-0"

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

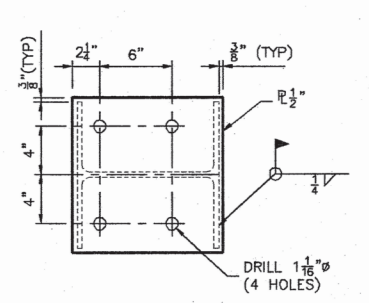
NOTE:
CHAIN LENGTHS MUST BE VERIFIED TO FIT AS-BUILT INSTALLATION CONDITIONS. DO NOT PRECUT LENGTHS.



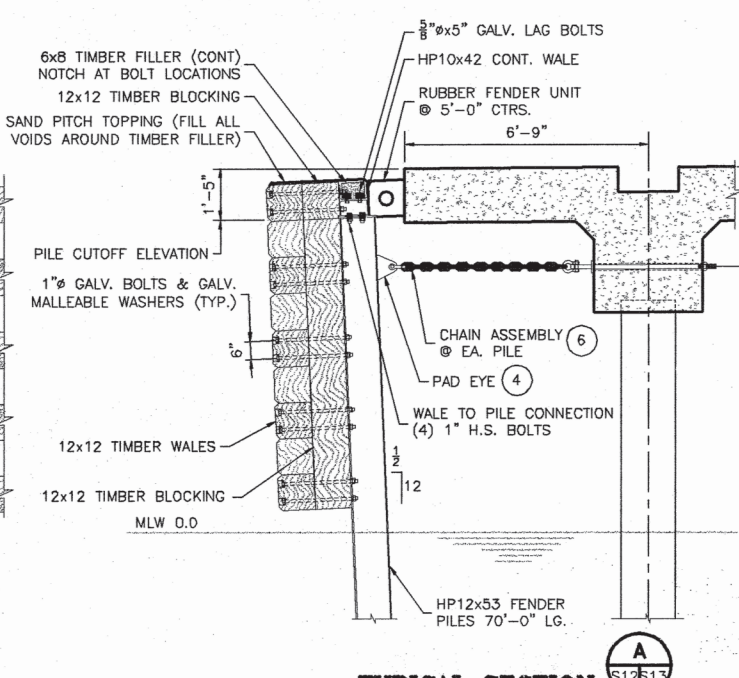
ELEVATION
1/8" = 1'-0"



WALE TO PILE PLATE DETAIL
1 1/2" = 1'-0"



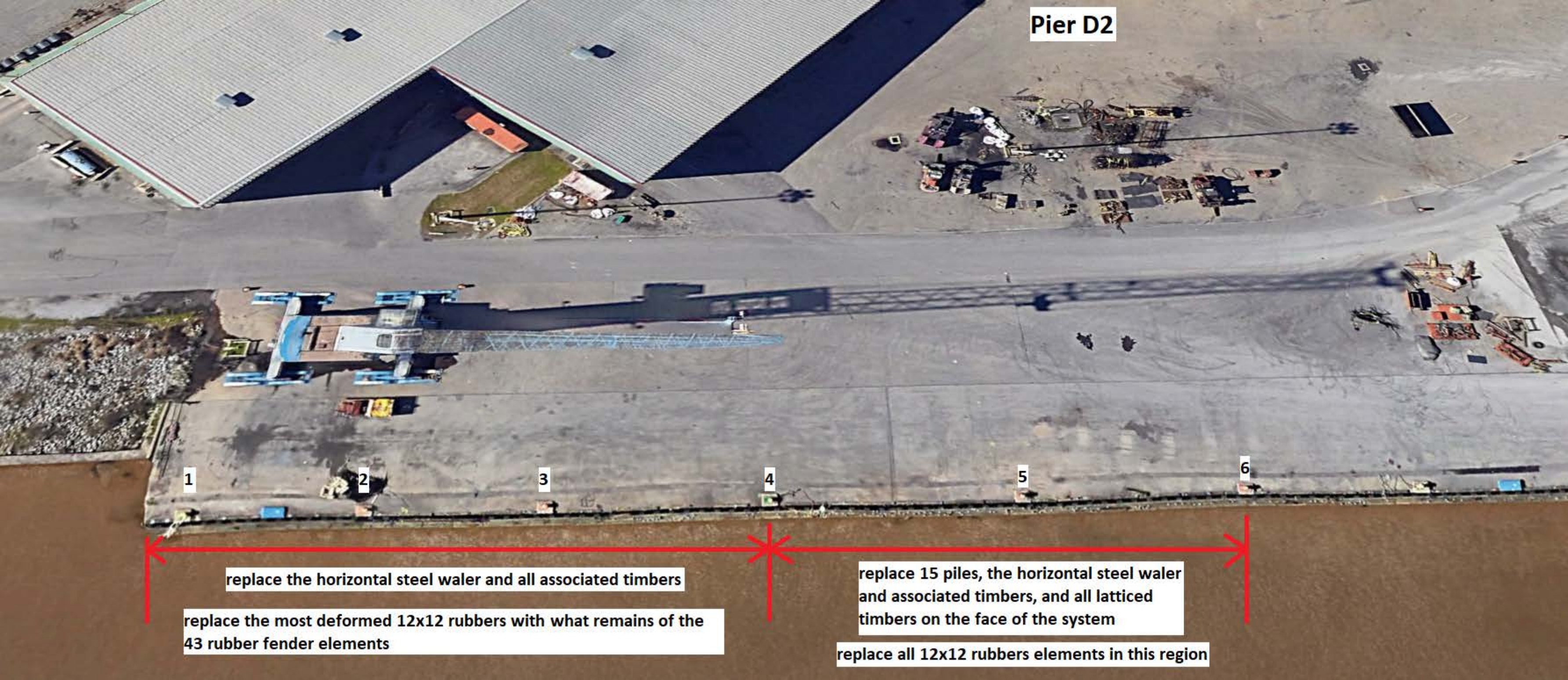
PILE PLATE DETAIL
1 1/2" = 1'-0"



TYPICAL SECTION
1/8" = 1'-0"

REV.	DATE	DESCRIPTION	BY
A	9/2000	ISSUED FOR BIDS	ELR
ALABAMA STATE DOCKS DEPARTMENT			
MOBILE		ALABAMA	
GBB Gentle, Bennett & Bridges, LLC Consulting Engineers			
Drawn By: J.M.M. (Date: SEPT. 2000)		Checked By: R.S.G. (Date: SEPT. 2000)	
Scale:		Job No. 1246A	Drawing No. S13
NOTED		A	

Pier D2



1

2

3

4

5

6

replace the horizontal steel waler and all associated timbers

replace the most deformed 12x12 rubbers with what remains of the 43 rubber fender elements

replace 15 piles, the horizontal steel waler and associated timbers, and all latticed timbers on the face of the system

replace all 12x12 rubbers elements in this region