

ATTACHMENT B

CONTRACT DRAWINGS

Entitled:

“ROCK HARBOR COMMERCIAL WHARF IMPROVEMENT PROJECT”
TOWN OF ORLEANS, MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

Issued for Bid: 03/08/2024
(57 total sheets, including cover sheet)

Prepared By:

Foth Infrastructure & Environment, LLC

Stamped By:

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Robert P. Coluccio, P.E. (Web Engineering Associates, Inc.)
David P. Columbo, P.E. (Power Engineers, LLC)

ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS

TOWN OF ORLEANS, MASSACHUSETTS

DEPARTMENT OF PUBLIC WORKS

ISSUED FOR BID

MARCH 8, 2024

Prepared by



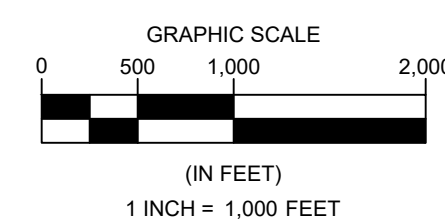
PROJECT NUMBER: 00190004.10



DEPARTMENT OF PUBLIC WORKS
TOWN OF ORLEANS, MASSACHUSETTS
ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS

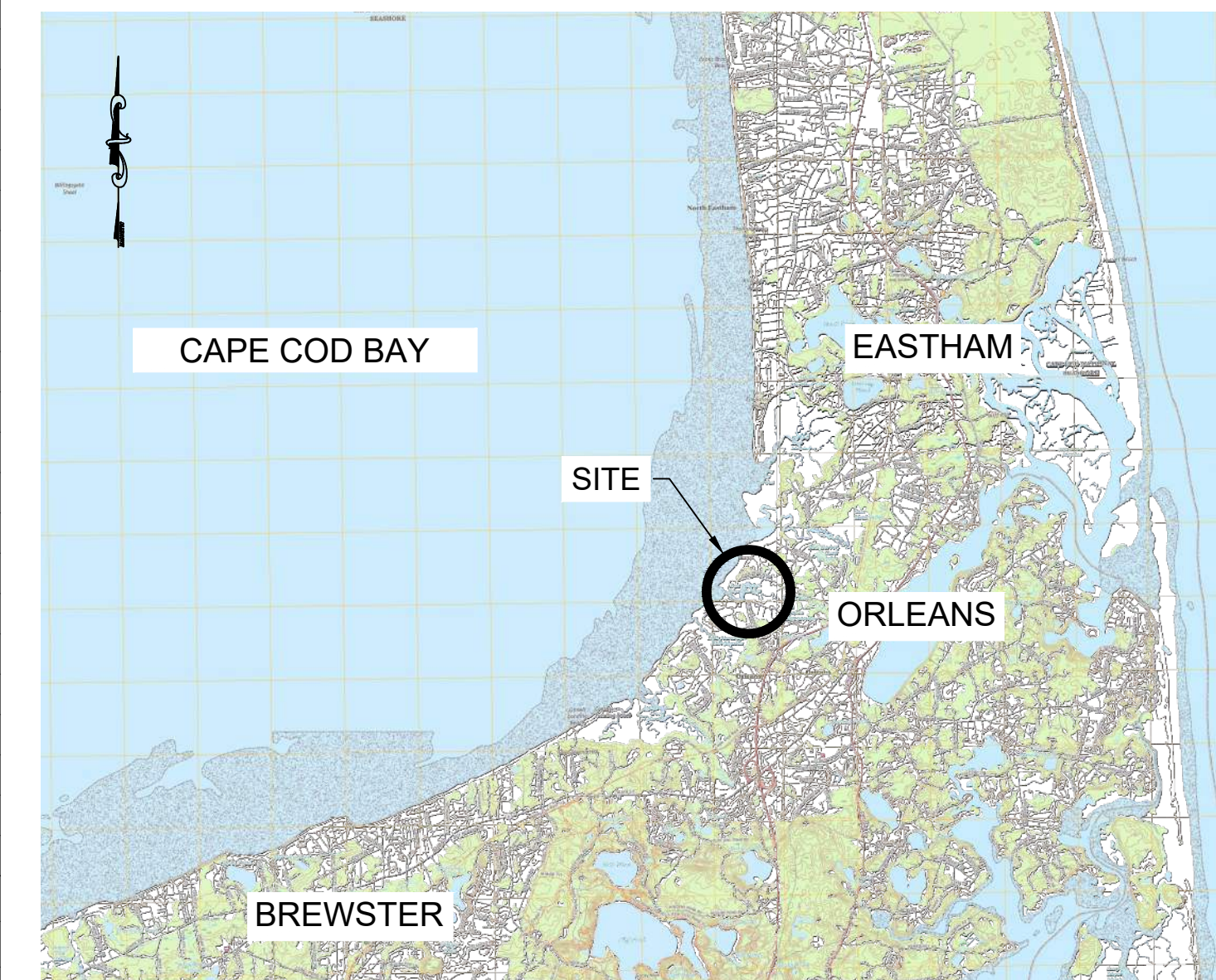


LOCATION MAP
SCALE: 1"=1000'



DRAWING LIST	
SHEET NUMBER	SHEET TITLE
G-001	COVER SHEET & INDEX
G-002	NOTES
G-003	NOTES, LEGEND AND ABBREVIATIONS
CIVIL	
SHEET NUMBER	SHEET TITLE
V-101	EXISTING CONDITIONS
V-102	EXISTING SECTIONS
C-101	KEY PLAN
C-102	DEMOLITION PLAN 1 OF 2
C-103	DEMOLITION PLAN 2 OF 2
C-104	DEMOLITION SECTIONS
C-201	SITE PLAN 1 OF 2
C-202	SITE PLAN 2 OF 2
C-203	LAYOUT PLAN 1 OF 2
C-204	LAYOUT PLAN 2 OF 2
C-205	UTILITY PLAN 1 OF 2
C-206	UTILITY PLAN 2 OF 2
C-207	GRADING AND DRAINAGE PLAN 1 OF 2
C-208	GRADING AND DRAINAGE PLAN 2 OF 2
C-701	STANDARD CIVIL DETAILS
C-702	DRAINAGE AND WATER SERVICE DETAILS 1 OF 2
C-703	DRAINAGE AND WATER SERVICE DETAILS 2 OF 2
C-704	DRAINAGE DETAILS
C-705	INFILTRATION SYSTEM DETAILS
C-706	WATERLINE VAULT UNIT
C-707	PUMPOUT STATION DETAILS

STRUCTURAL	
SHEET NUMBER	SHEET TITLE
S-101	COMMERCIAL WHARF STRUCTURAL SITE PLAN
S-201	COMMERCIAL WHARF PILE LAYOUT PLAN
S-202	COMMERCIAL WHARF PILE CAP LAYOUT PLAN
S-203	COMMERCIAL WHARF PRECAST PLANKS LAYOUT PLAN
S-204	COMMERCIAL WHARF CIP DECK LAYOUT PLAN
S-205	TOWN PIER PLAN, PROFILE, & SECTION
S-206	COMMERCIAL LANDING PIER PLAN, PROFILE, & SECTION
S-207	TIMBER PIER DETAILS
S-501	SECTION VIEWS 1 OF 4
S-502	SECTION VIEWS 2 OF 4
S-503	SECTION VIEWS 3 OF 4
S-504	SECTION VIEWS 4 OF 4
S-701	STRUCTURAL DETAILS 1 OF 8
S-702	STRUCTURAL DETAILS 2 OF 8
S-703	STRUCTURAL DETAILS 3 OF 8
S-704	STRUCTURAL DETAILS 4 OF 8
S-705	STRUCTURAL DETAILS 5 OF 8
S-706	STRUCTURAL DETAILS 6 OF 8
S-707	STRUCTURAL DETAILS 7 OF 8
S-708	STRUCTURAL DETAILS 8 OF 8
S-709	JIB CRANE DETAILS
S-710	LIGHT POLE BASE DETAILS
FUEL	
SHEET NUMBER	SHEET TITLE
A-1	SITE DETAIL - PROPOSED MODIFICATIONS
M-1	MECHANICAL
M-2	DETAILS
S-1	CONCRETE
E-1	ELECTRICAL SCHEMATIC- POWER, DATA, AND SIGNAL CONDUITS
ELECTRICAL	
SHEET NUMBER	SHEET TITLE
E-001	ELECTRICAL SITE PLAN
E-102	ELECTRICAL LEGEND
E-103	NOTES & SCHEDULES
E-104	ELECTRICAL DETAILS
E-105	ELECTRICAL DETAILS
E-106	ELECTRICAL DETAILS



VICINITY MAP

NO.	BY	DATE	DESCRIPTION

DATE OF PREPARATION		
SURVEYED	BY	DATE
MEC/JAH	MEC/JAH	10/24/19 & 3/2/21
DRAWN	BAM	12/05/2023
DESIGNED	SRS	06/28/2021
CHECKED	PSR	12/24/2023

SHEET TITLE:
COVER SHEET & INDEX

ISSUANCE:
ISSUED FOR BID

PROJECT NO: 00190004.10
SHEET NUMBER

G-001

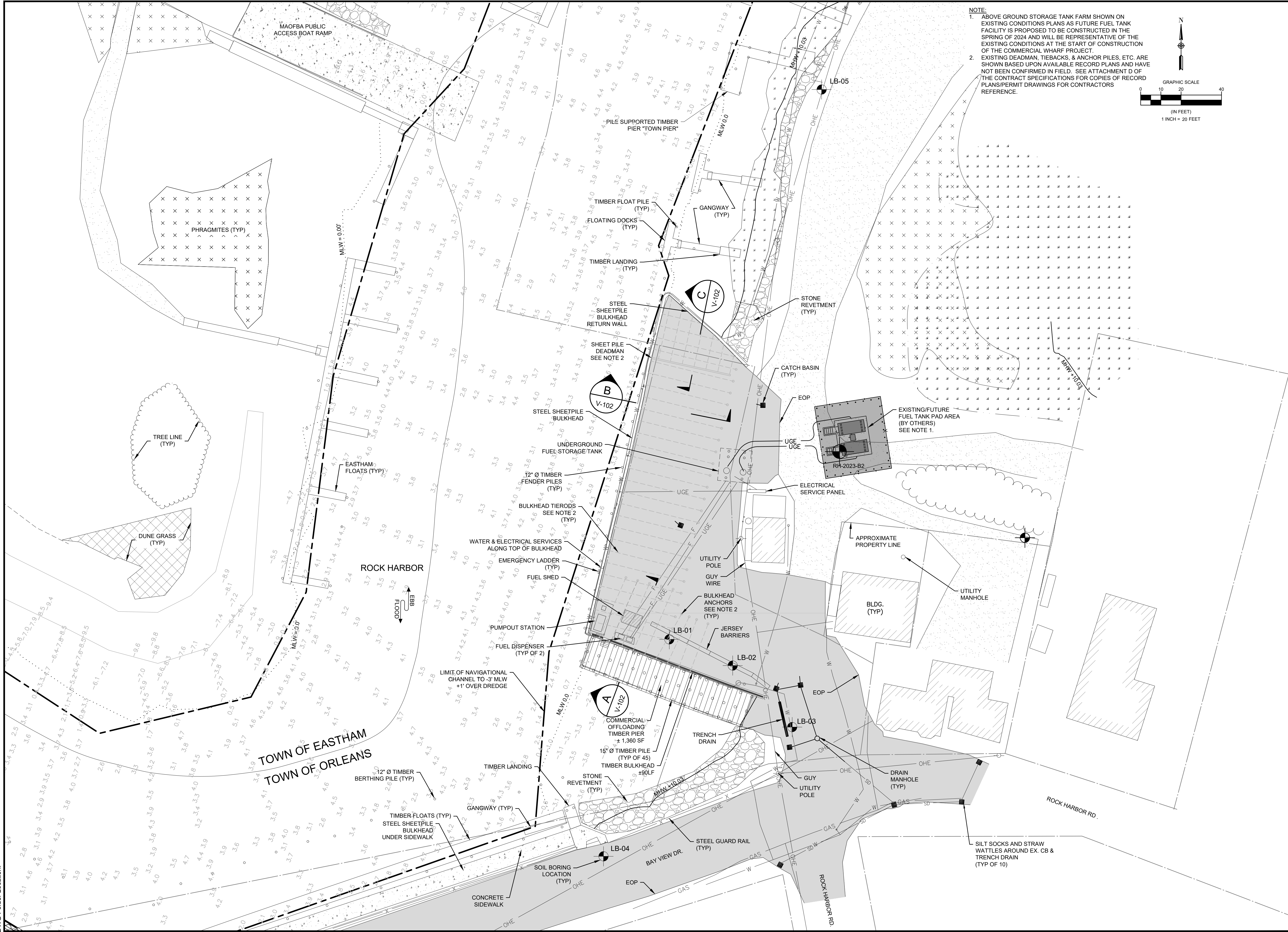
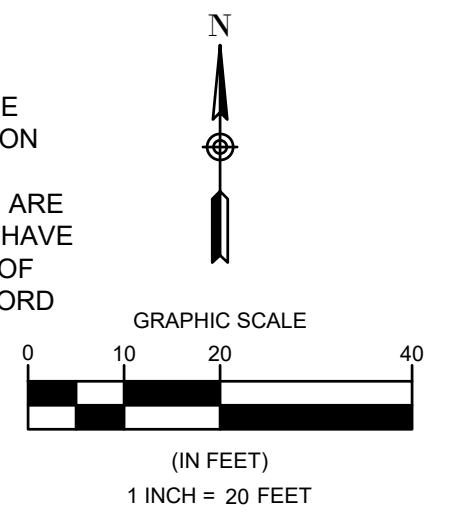


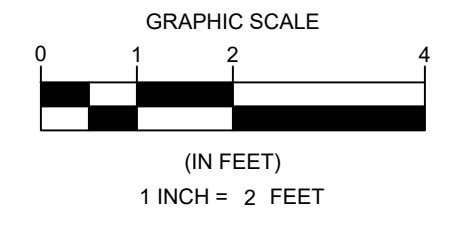
DEPARTMENT OF PUBLIC WORKS
 TOWN OF ORLEANS, MASSACHUSETTS
 ROCK HARBOR COMMERCIAL WHARF
 IMPROVEMENTS

REVISIONS		DATE OF PREPARATION	
NO.	DESCRIPTION	BY	DATE
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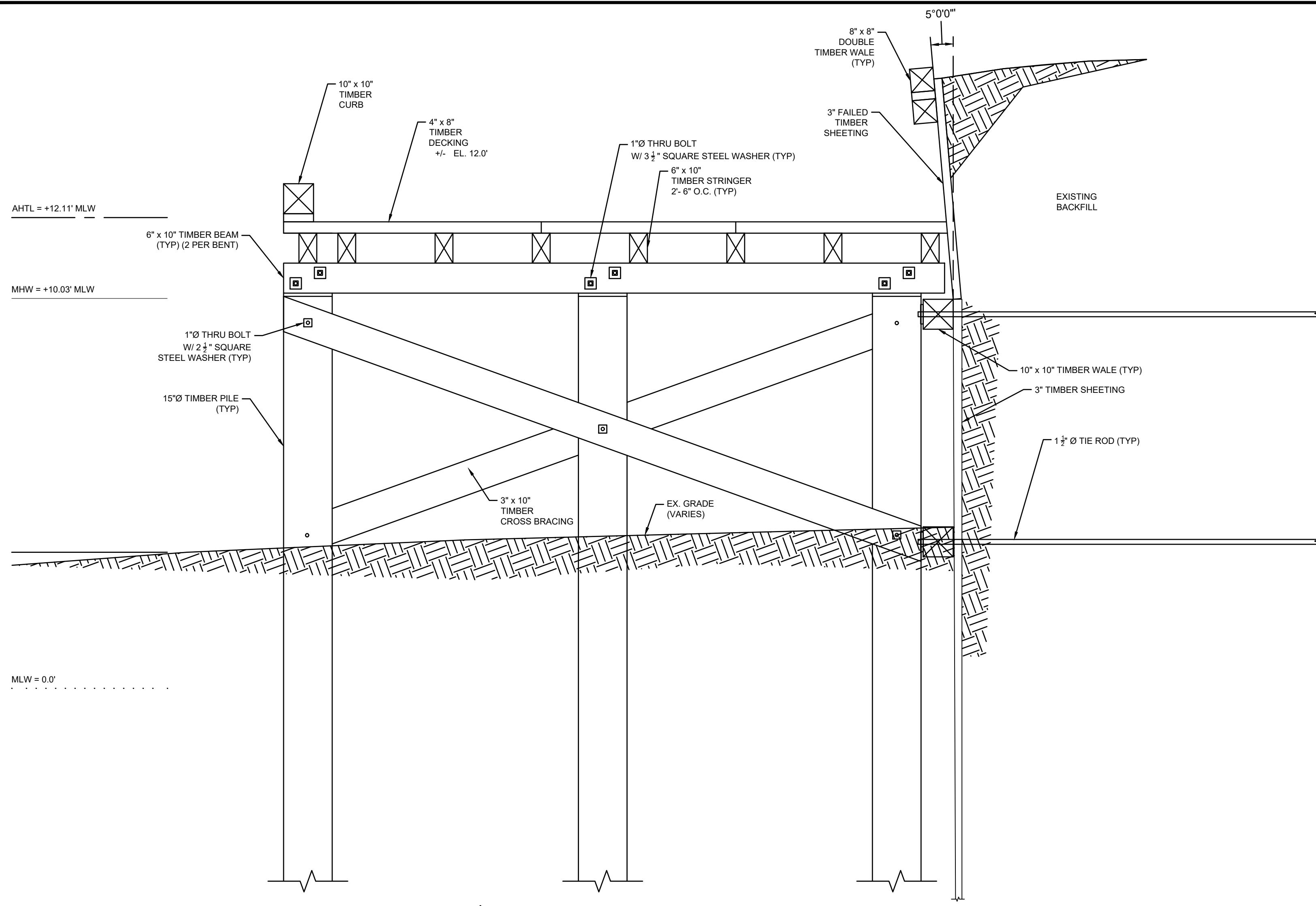
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ISSUANCE:	PROJECT NO:	DATE
ISSUED FOR BID	00190004.10	10/24/19 & 3/2/21
SHEET NUMBER		12/05/2023
		06/28/2021
		12/24/2023

NOTE:
 1. ABOVE GROUND STORAGE TANK FARM SHOWN ON EXISTING CONDITIONS PLANS AS FUTURE FUEL TANK FACILITY IS PROPOSED TO BE CONSTRUCTED IN THE SPRING OF 2024 AND WILL BE REPRESENTATIVE OF THE EXISTING CONDITIONS AT THE START OF CONSTRUCTION OF THE COMMERCIAL WHARF PROJECT.
 2. EXISTING DEADMAN, TIEBACKS, & ANCHOR PILES, ETC. ARE SHOWN BASED UPON AVAILABLE RECORD PLANS AND HAVE NOT BEEN CONFIRMED IN FIELD. SEE ATTACHMENT D OF THE CONTRACT SPECIFICATIONS FOR COPIES OF RECORD PLANS/PERMIT DRAWINGS FOR CONTRACTORS REFERENCE.

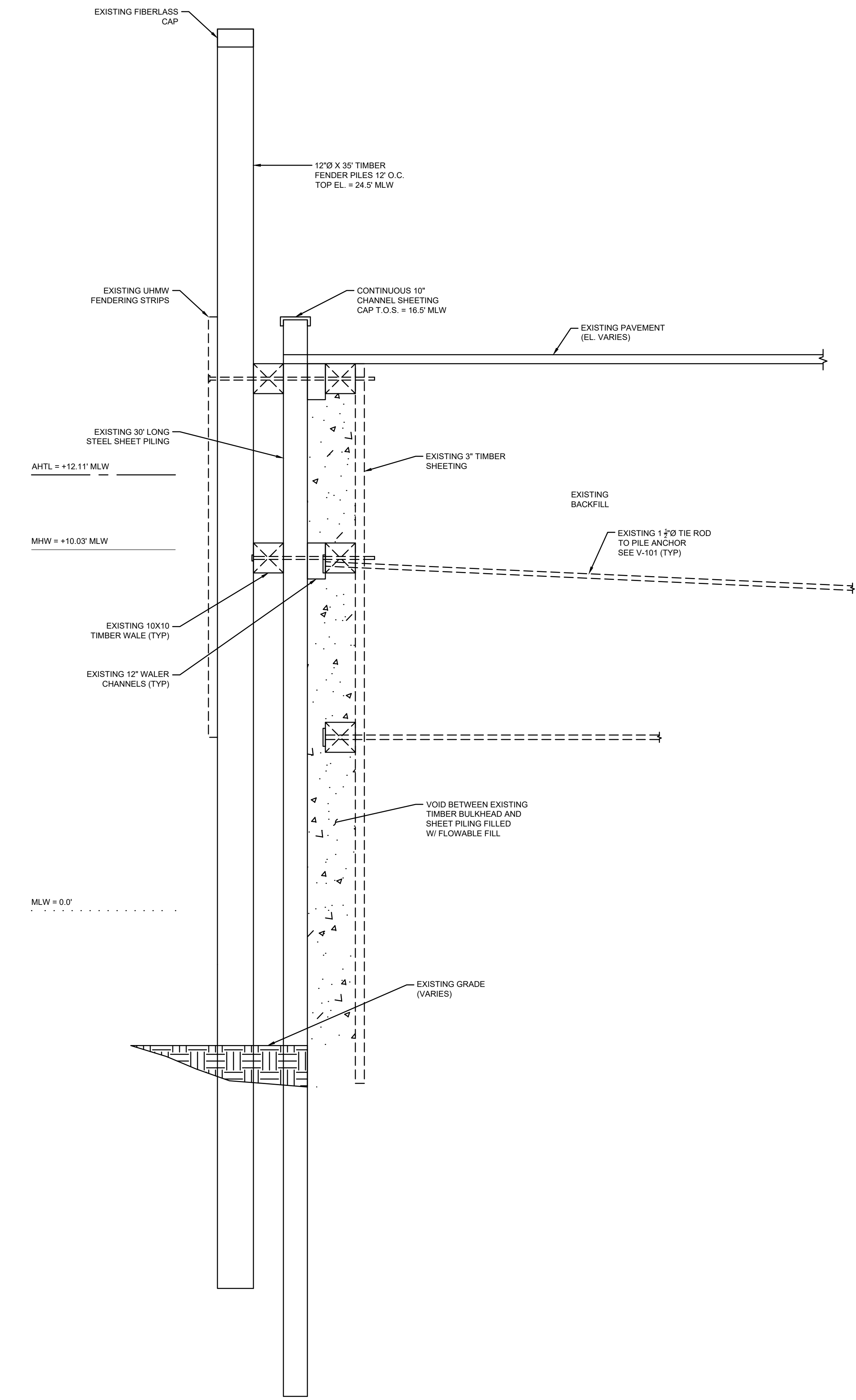




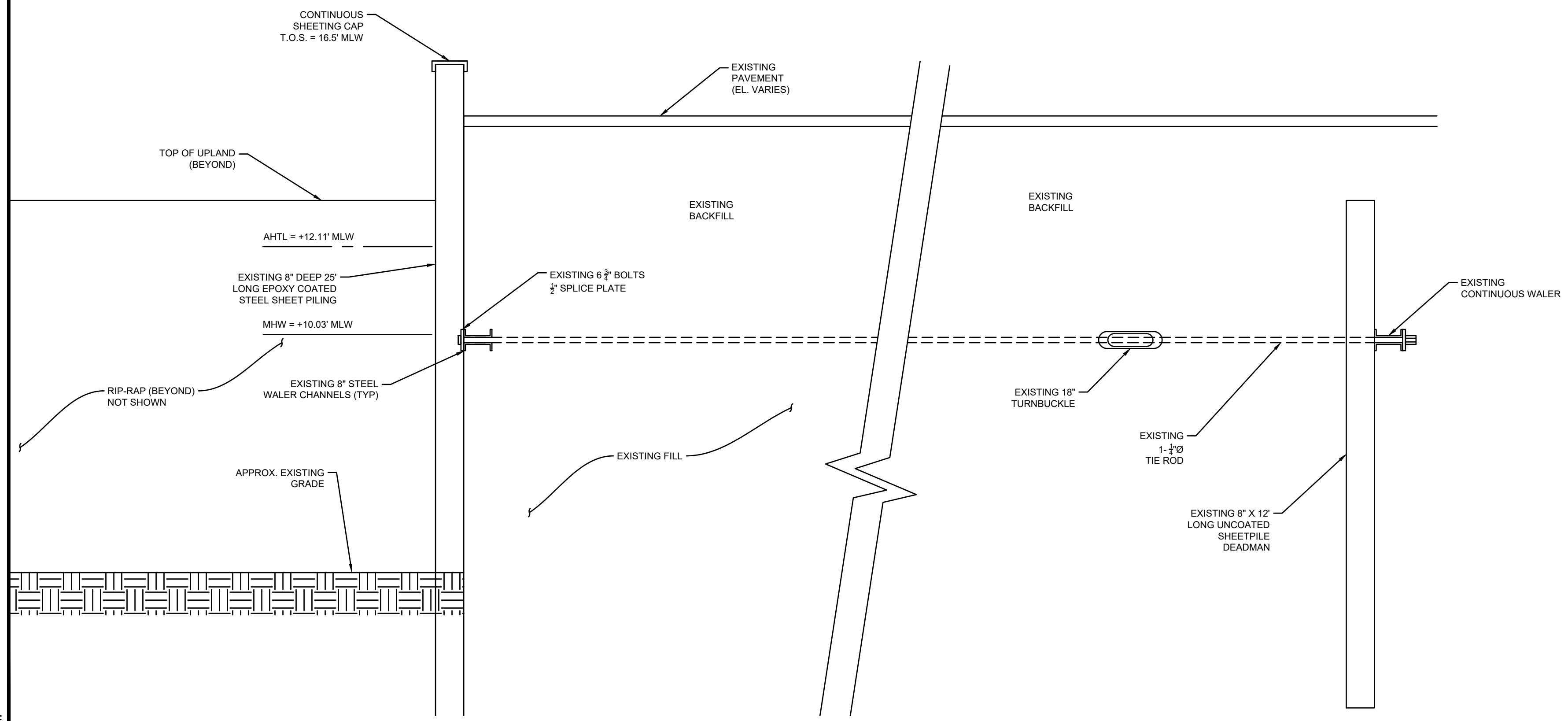
NOTE:
1. EXISTING DEADMAN, TIEBACKS, & ANCHOR PILES, ETC. ARE SHOWN BASED UPON AVAILABLE RECORD PLANS AND HAVE NOT BEEN CONFIRMED IN FIELD. SEE ATTACHMENT D OF THE CONTRACT SPECIFICATIONS FOR COPIES OF RECORD PLANS/PERMIT DRAWINGS FOR CONTRACTORS REFERENCE.



A TYPICAL SECTION AT COMMERCIAL OFFLOADING TIMBER PIER/TIMBER BULKHEAD
SCALE: 1" = 2'



B TYPICAL SECTION AT SHEET PILE BULKHEAD
SCALE: 1" = 2'



C TYPICAL SECTION AT SHEET PILE BULKHEAD RETURN WALL
SCALE: 1" = 2'

NO.	BY	DATE	REVISIONS	
			DESCRIPTION	

DATE OF PREPARATION

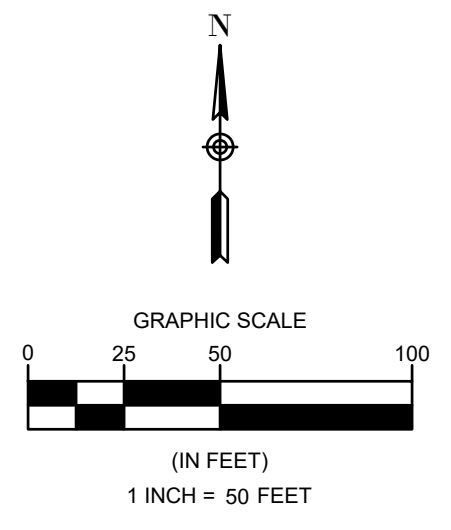
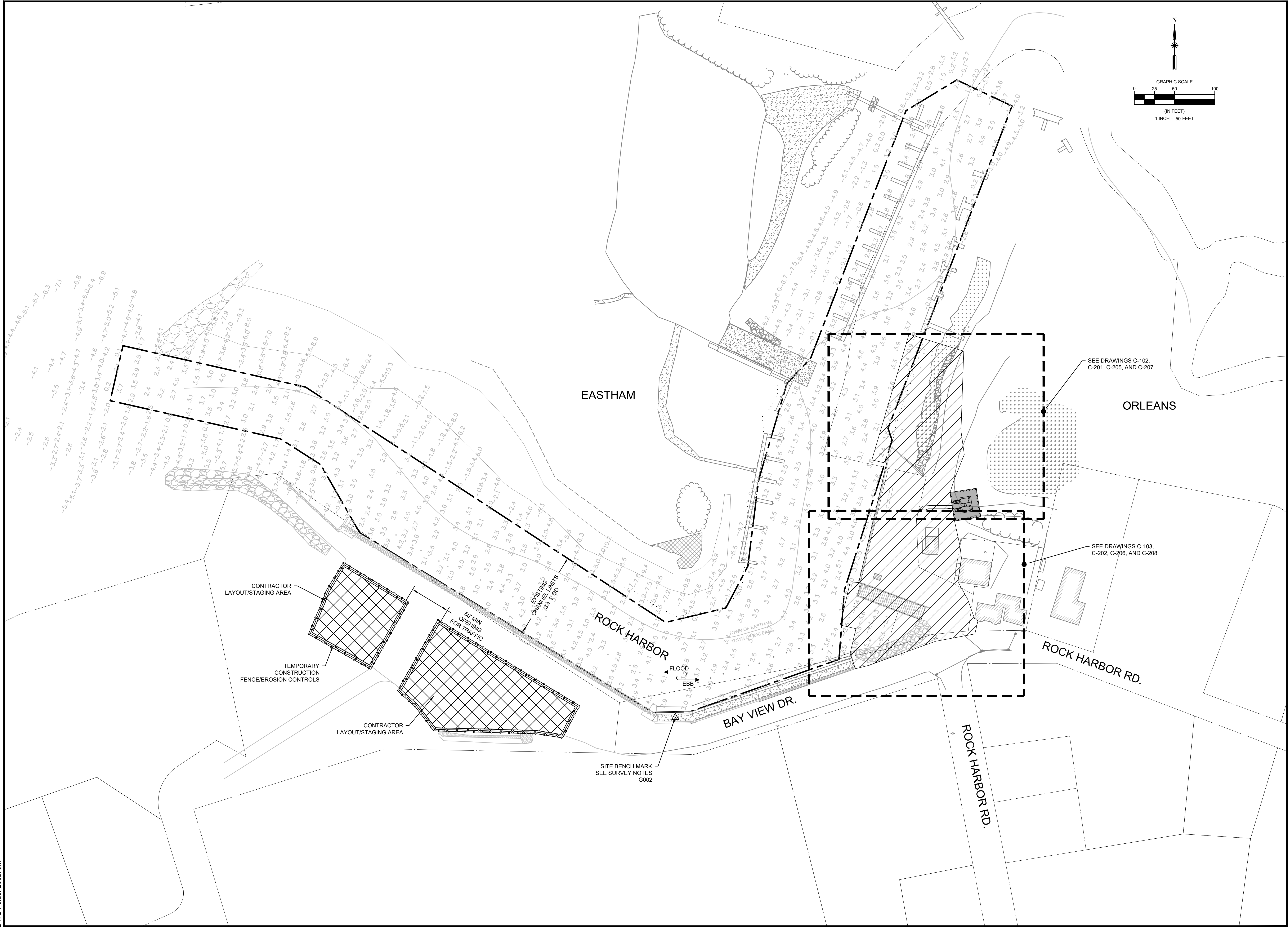
SURVEYED	BY	DATE
MEC/JAH		10/24/19 & 3/2/21
DRAWN	BY	DATE
BAM		12/05/2023
DESIGNED	BY	DATE
SRS		06/28/2021
CHECKED	BY	DATE
PSR		12/24/2023

SHEET TITLE:
EXISTING SECTIONS

ISSUANCE:
ISSUED FOR BID

PROJECT NO: 00190004.10
SHEET NUMBER

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DWG Filename: v-101 existing conditions.dwg
Layout: v-102 existing sections
DWG Folder Location:



DEPARTMENT OF PUBLIC WORKS
TOWN OF ORLEANS, MASSACHUSETTS
ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS

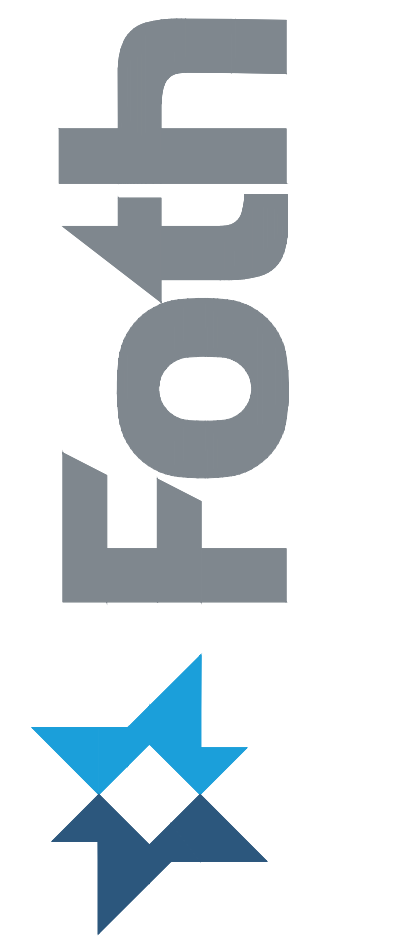
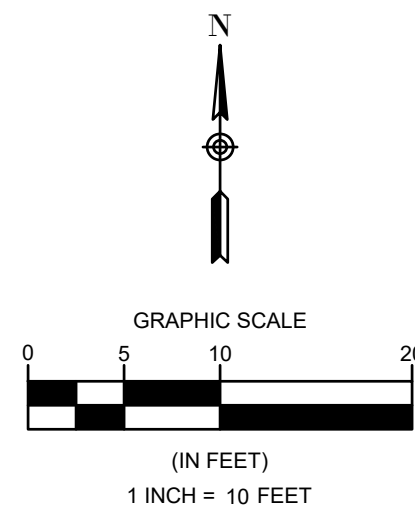
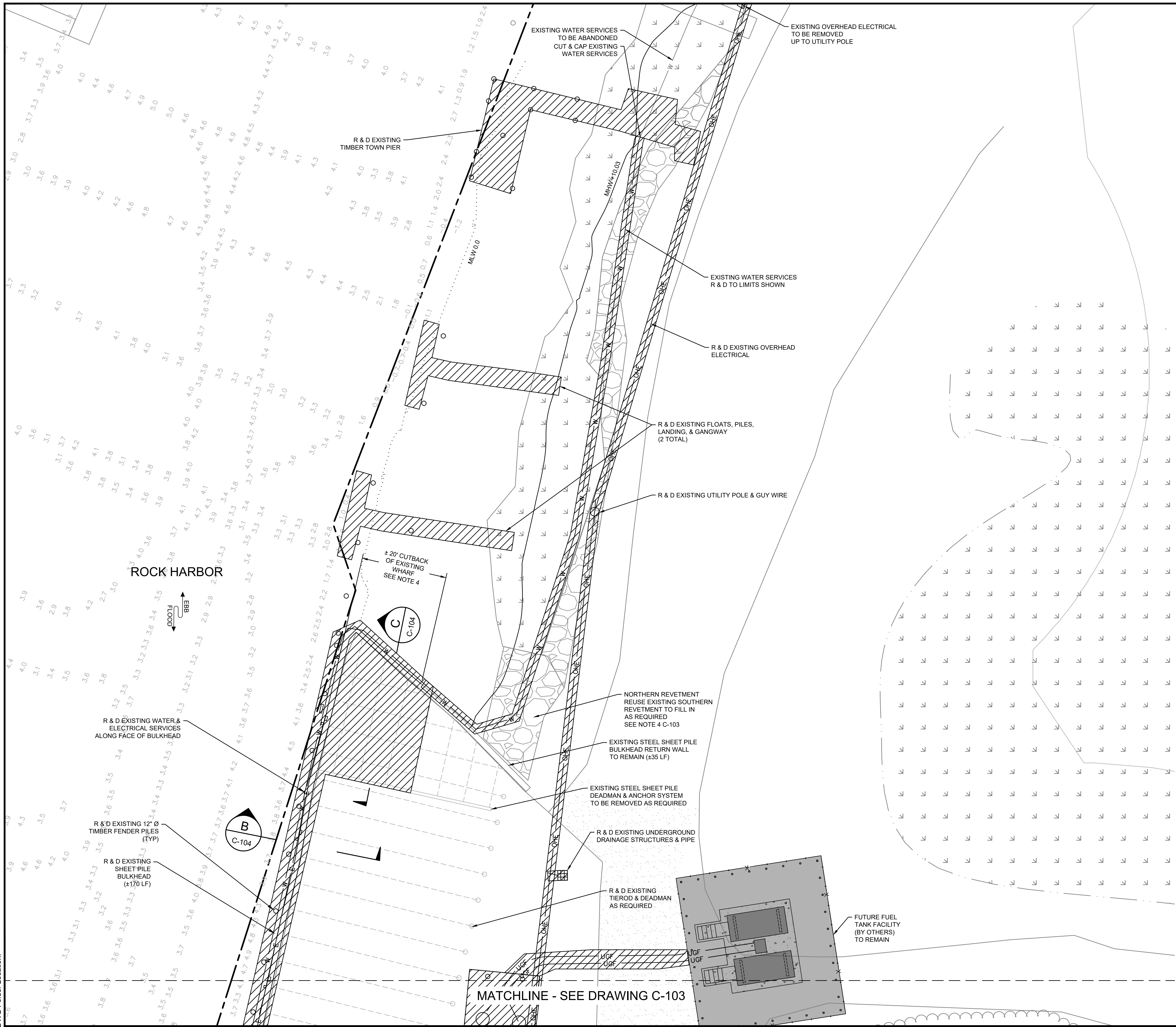
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NO.	DESCRIPTION	DATE	BY
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DATE OF PREPARATION	
BY	DATE
MEC/JAH	10/24/19 & 3/2/21
BAM	12/05/2023
SRS	06/28/2021
PSR	12/24/2023

KEY PLAN

ISSUANCE:
ISSUED FOR BID

PROJECT NO: 00190004.10
 SHEET NUMBER
C-101



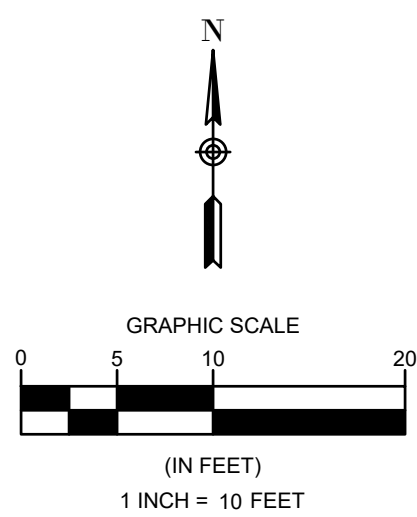
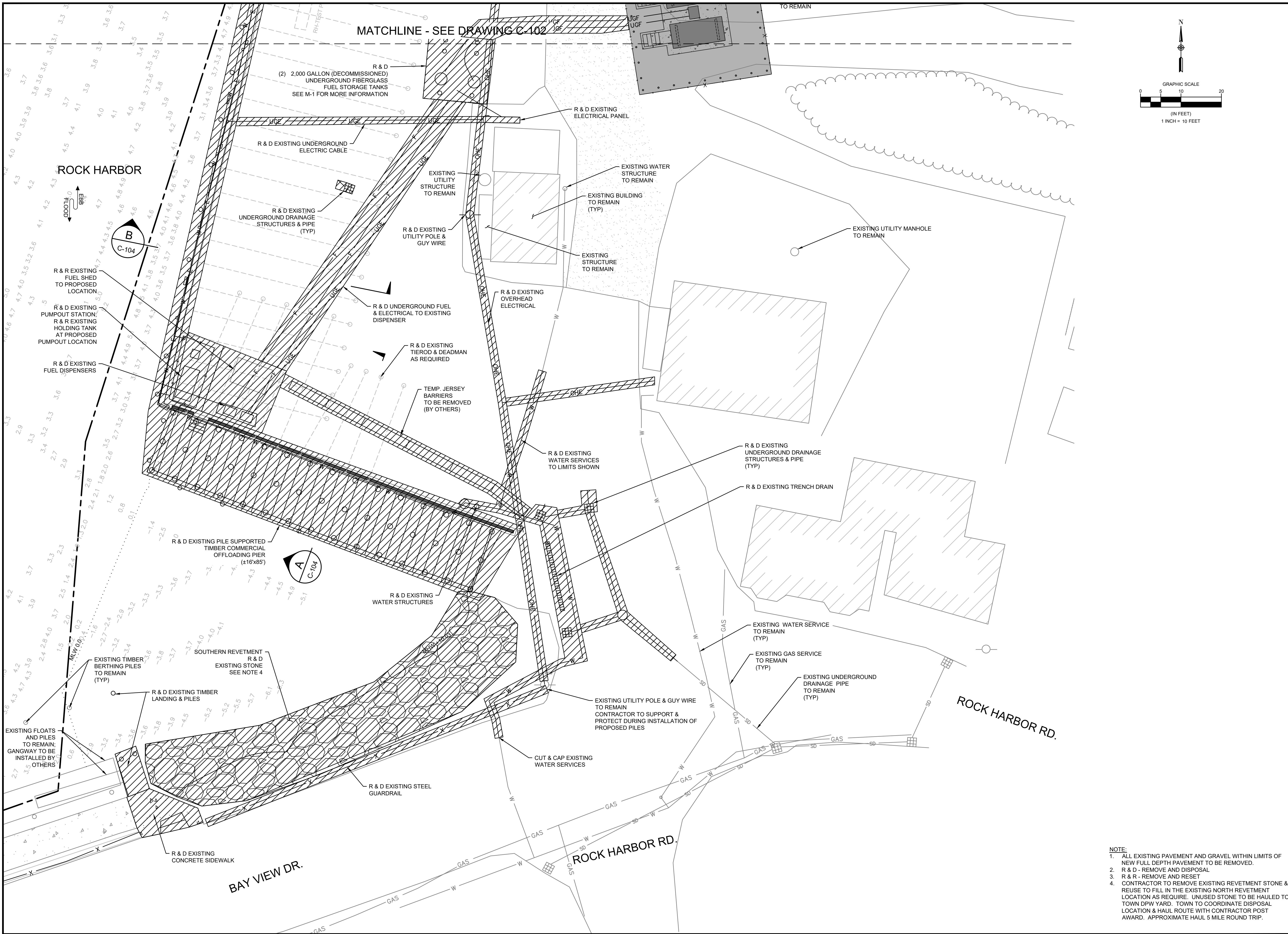
DEPARTMENT OF PUBLIC WORKS
TOWN OF ORLEANS, MASSACHUSETTS
ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS

REVISIONS		DATE OF PREPARATION	
NO.	DESCRIPTION	BY	DATE
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4			

SURVEYED		MEC/JAH	10/24/19 & 3/2/21
DRAWN		BAM	12/05/2023
DESIGNED		SRS	06/28/2021
CHECKED		PSR	12/24/2023
SHEET TITLE:			
DEMOLITION PLAN 1 OF 2			
ISSUANCE:			
ISSUED FOR BID			
PROJECT NO:		00190004.10	
SHEET NUMBER			
C-102			

- NOTE:**
1. ALL EXISTING PAVEMENT AND GRAVEL WITHIN LIMITS OF NEW FULL DEPTH PAVEMENT TO BE REMOVED.
 2. R & D - REMOVE AND DISPOSAL.
 3. R & R - REMOVE AND RESET.
 4. EXISTING BACKFILL TO BE REMOVED/DREDGED TO ELEVATION -3.0 MLW WITH 1' OF ALLOWABLE OVERDIG/OVERDREDGE TO -4 MLW (± 2,300 CY). SEE MADEP 401WQC 22-WW08-0018-AAP FOR REUSE/DISPOSAL REQUIREMENTS.

Thursday, March 7, 2024 11:35:36 AM
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Layout: c-103 demolition plan 2 of 2
DWG Folder Location:



DEPARTMENT OF PUBLIC WORKS
TOWN OF ORLEANS, MASSACHUSETTS
ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS

REVISIONS	
NO	DESCRIPTION

DATE OF PREPARATION	
BY	DATE
MEC/JAH	10/24/19 & 3/22/21
BAM	12/05/2023
SRS	06/28/2021
PSR	12/24/2023

DEMOLITION PLAN
2 OF 2

ISSUANCE:
ISSUED FOR BID

PROJECT NO: 00190004.10
SHEET NUMBER

- NOTE:**
- 1. ALL EXISTING PAVEMENT AND GRAVEL WITHIN LIMITS OF NEW FULL DEPTH PAVEMENT TO BE REMOVED.
 - 2. R & D - REMOVE AND DISPOSAL
 - 3. R & R - REMOVE AND RESET
 - 4. CONTRACTOR TO REMOVE EXISTING REVETMENT STONE & REUSE TO FILL IN THE EXISTING NORTH REVETMENT LOCATION AS REQUIRE. UNUSED STONE TO BE HAULED TO TOWN DPW YARD. TOWN TO COORDINATE DISPOSAL LOCATION & HAUL ROUTE WITH CONTRACTOR POST AWARD. APPROXIMATE HAUL 5 MILE ROUND TRIP.

REVISIONS		DESCRIPTION	
NO	DATE	BY	DATE
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5			

DATE OF PREPARATION

	BY	DATE
SURVEYED	MEC/JAH	10/24/19 & 3/2/21
DRAWN	BAM	12/05/2023
DESIGNED	SRS	06/28/2021
CHECKED	PSR	12/24/2023

SHEET TITLE:

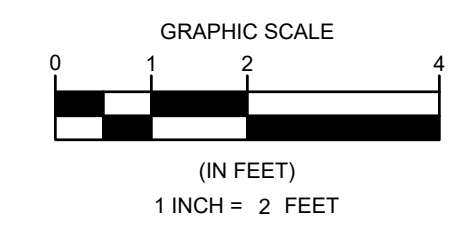
ISSUANCE:

ISSUED FOR BID

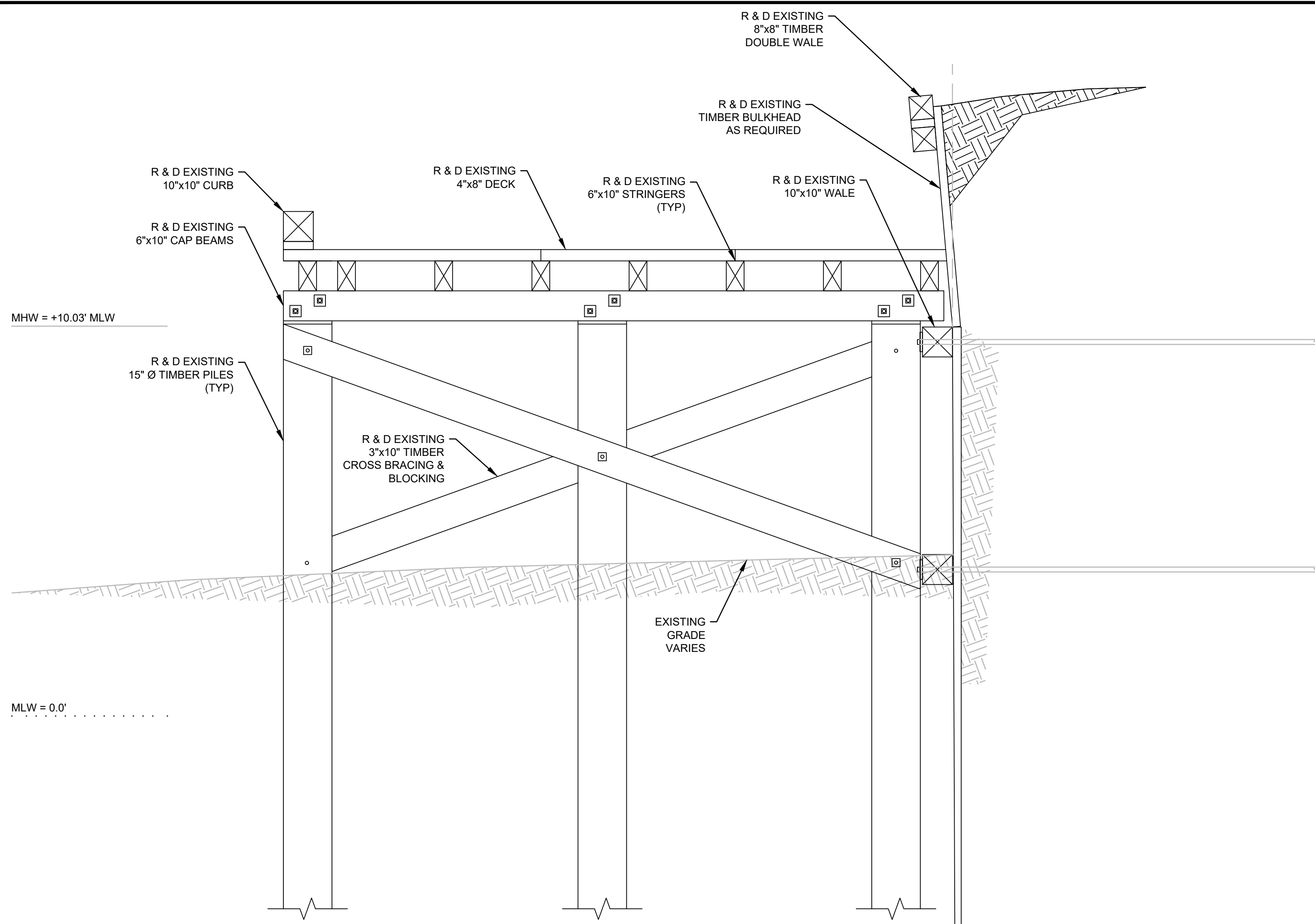
PROJECT NO: 00190004.10

SHEET NUMBER

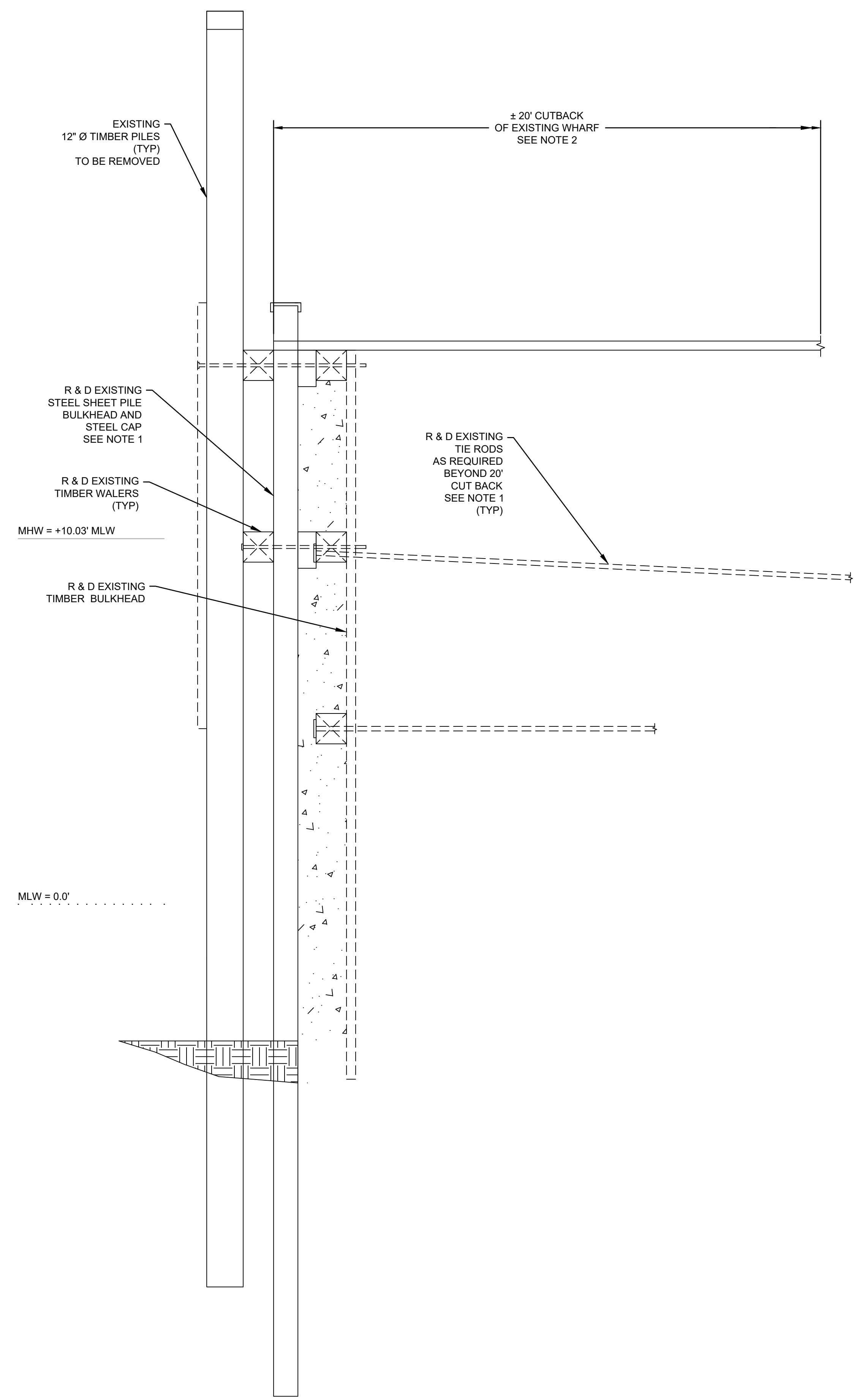
C-104



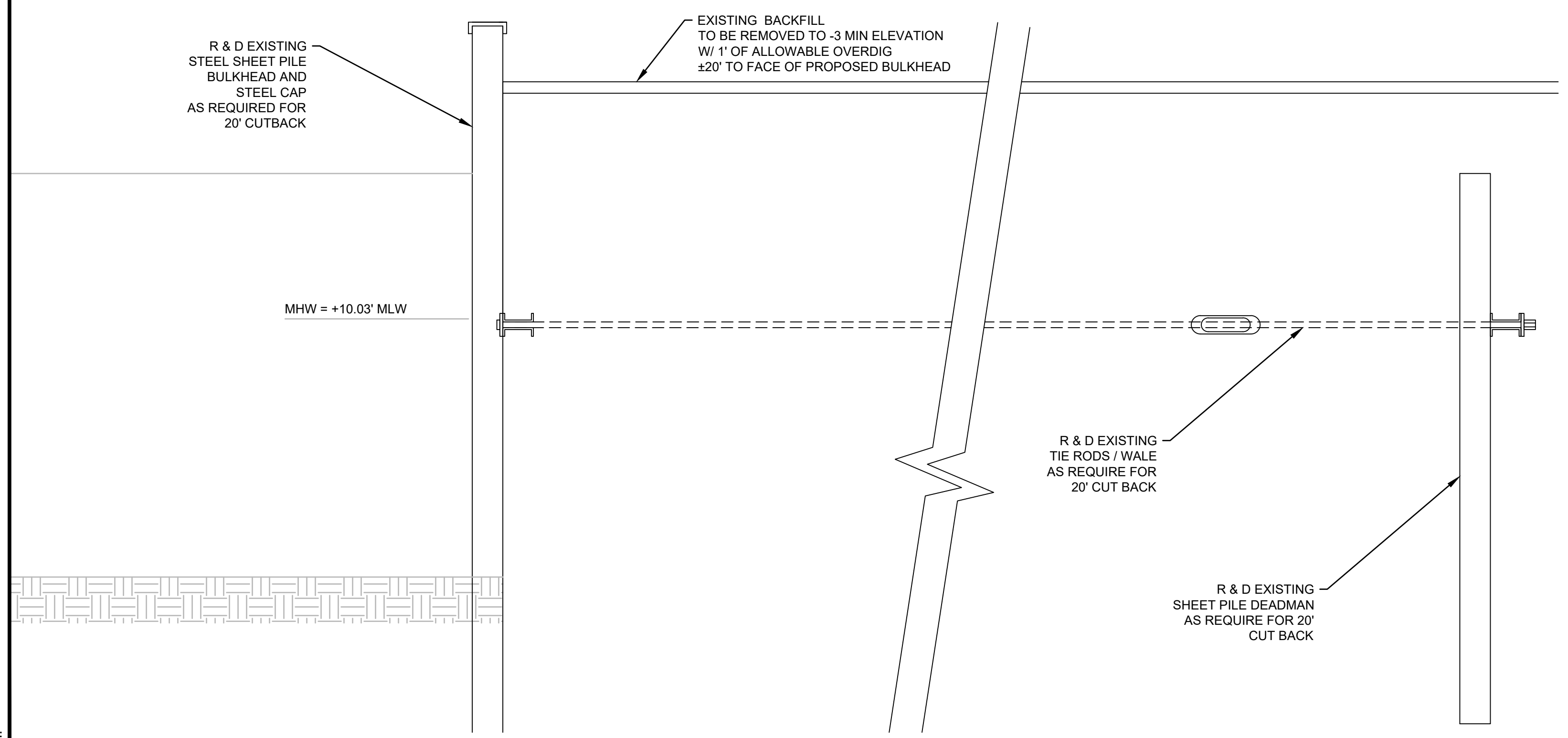
NOTE:
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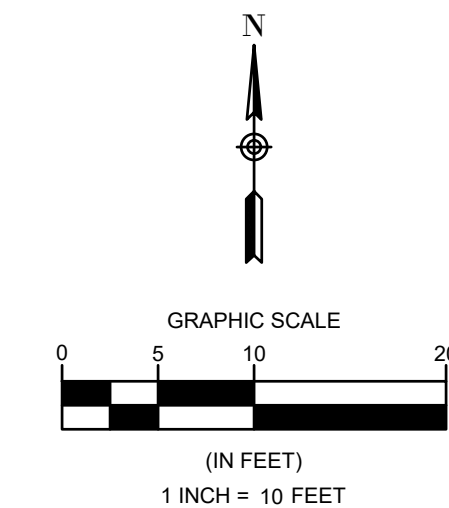
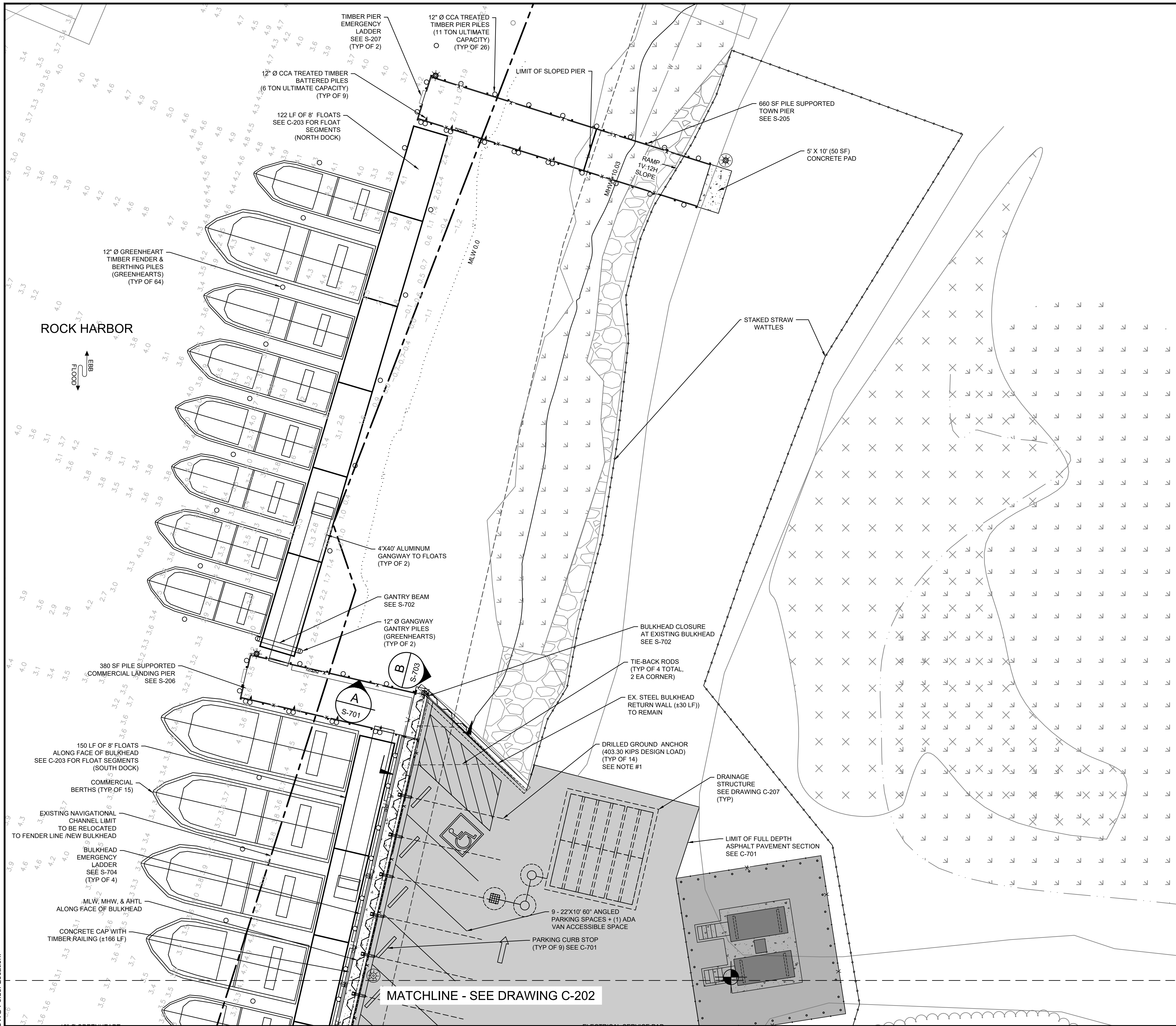
A TYPICAL DEMOLITION SECTION AT PILE SUPPORTED TIMBER PIER/TIMBER BULKHEAD
SCALE: 1" = 2'
C-102



B TYPICAL SECTION AT SHEET PILE BULKHEAD
SCALE: 1" = 2'
C-102



C TYPICAL SECTION AT SHEET PILE BULKHEAD RETURN WALL
SCALE: 1" = 2'
C-102



DEPARTMENT OF PUBLIC WORKS
TOWN OF ORLEANS, MASSACHUSETTS
ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS

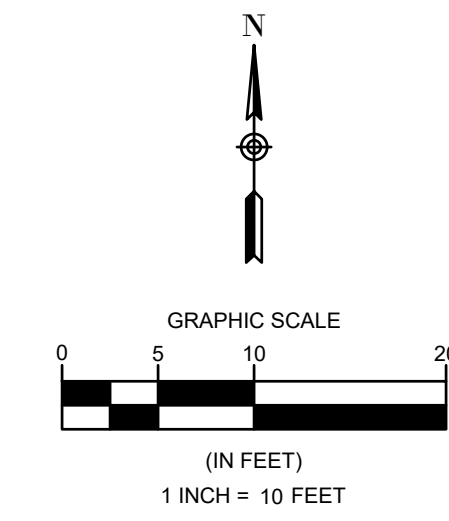
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NO.	DESCRIPTION	BY	DATE
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SURVEYED		MEC/JAH	10/24/19 & 3/2/21
DRAWN		BAM	12/05/2023
DESIGNED		SRS	06/28/2021
CHECKED		PSR	12/24/2023
SHEET TITLE:			
SITE PLAN 1 OF 2			
ISSUANCE:			
ISSUED FOR BID			
PROJECT NO:		00190004.10	
SHEET NUMBER			
C-201			

NOTE:
 1. CONTRACTOR TO DESIGN GROUND ANCHOR ASSEMBLY INCLUDING GROUND ANCHOR, STAND-OFF PLATES AND CAP PLATES. CONTRACTOR SHALL SUBMIT CALCULATIONS AND DRAWINGS FOR GROUND ANCHOR DESIGN, STAMPED BY AN ENGINEER REGISTERED IN THE STATE OF MA. FOR SOILS INFORMATION SEE ATTACHMENT "A" OF THE CONTRACT DOCUMENTS.

MATCHLINE - SEE DRAWING C-202

MATCHLINE - SEE DRAWING C-201



DEPARTMENT OF PUBLIC WORKS
TOWN OF ORLEANS, MASSACHUSETTS
ROCK HARBOR COMMERCIAL WHARF
IMPROVEMENTS

REVISIONS		DATE OF PREPARATION	
NO.	DESCRIPTION	BY	DATE
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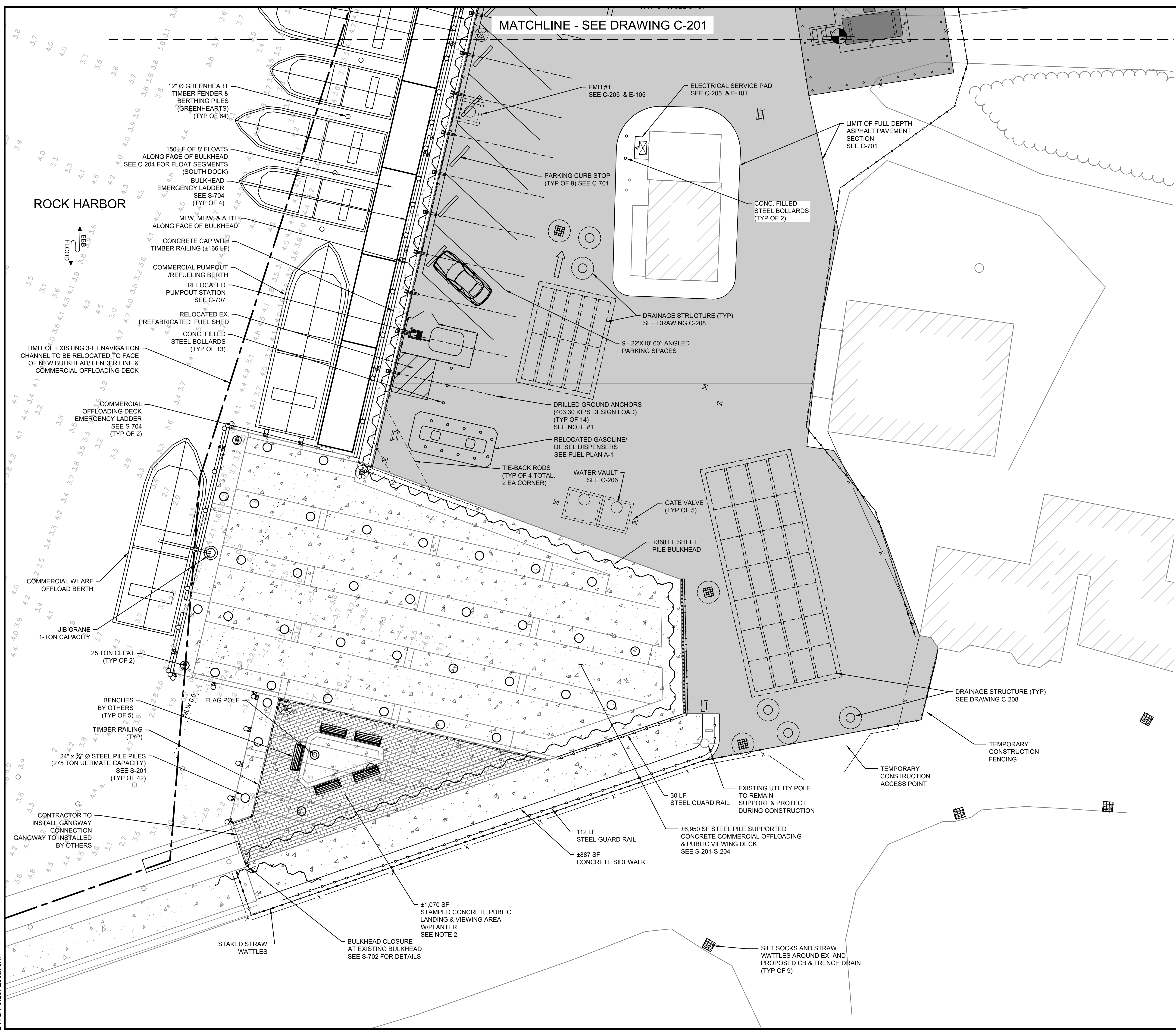
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DRAWN	BAM	12/05/2023
DESIGNED	SRS	06/28/2021
CHECKED	PSR	12/24/2023

SHEET TITLE:
**SITE PLAN
2 OF 2**

ISSUANCE:
ISSUED FOR BID

PROJECT NO: 00190004.10
SHEET NUMBER

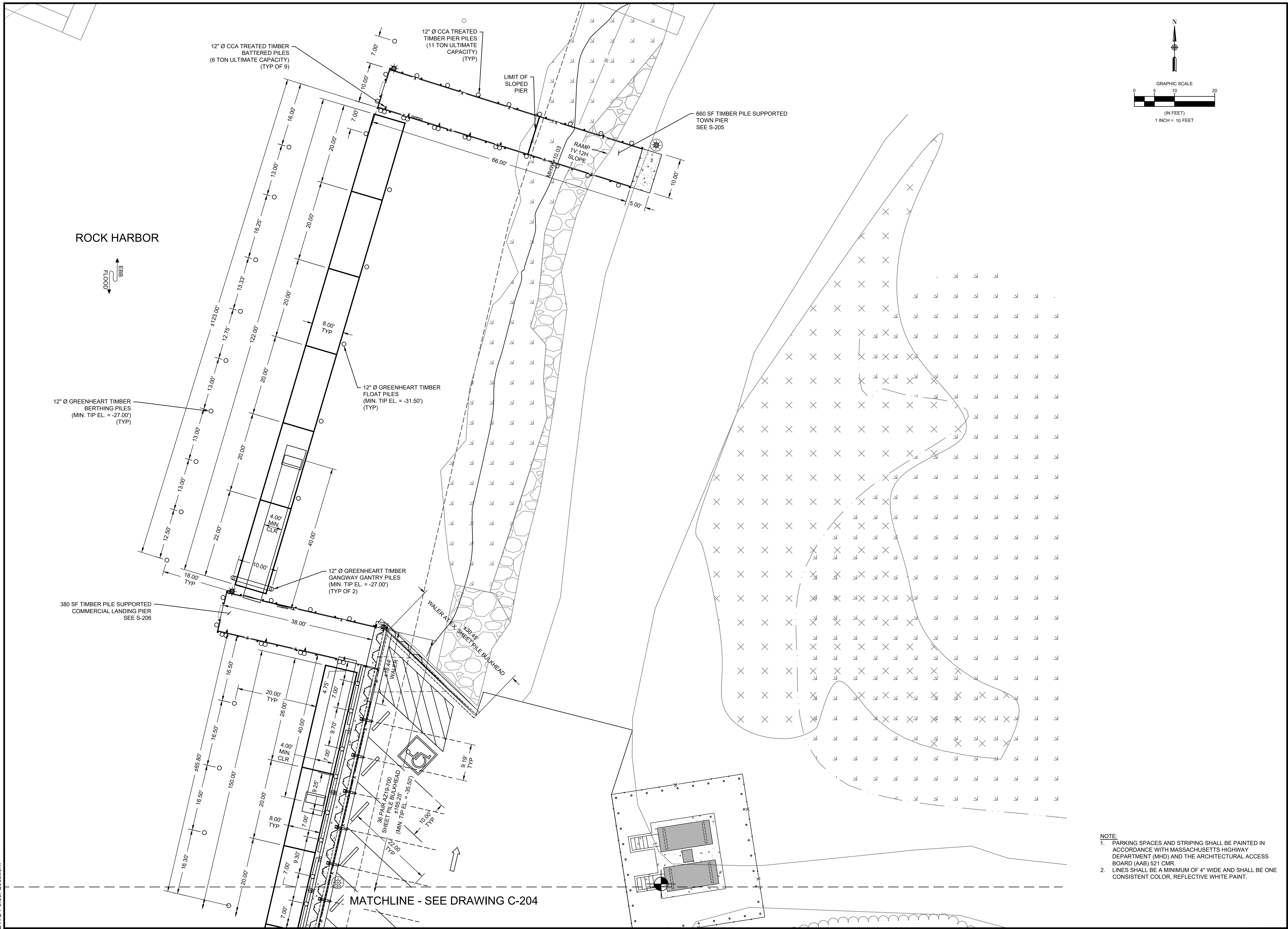
C-202



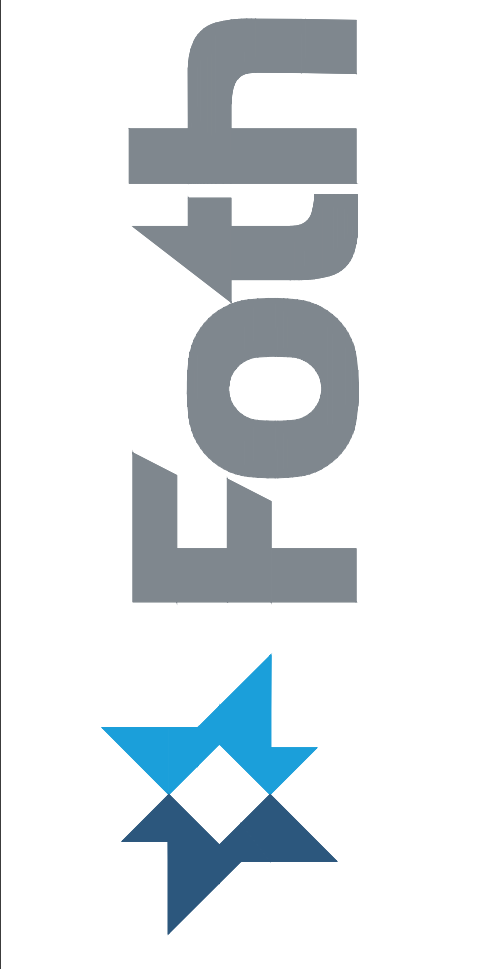
NOTE:

- CONTRACTOR TO DESIGN GROUND ANCHOR ASSEMBLY INCLUDING GROUND ANCHOR, STAND-OFF PLATES AND CAP PLATES. CONTRACTOR SHALL SUBMIT CALCULATIONS AND DRAWINGS FOR GROUND ANCHOR DESIGN, STAMPED BY AN ENGINEER REGISTERED IN THE STATE OF MA. FOR SOILS INFORMATION SEE ATTACHMENT "A" OF THE CONTRACT DOCUMENTS.
- SEE CAST-IN-PLACE CONCRETE SPECIFICATION FOR COLOR & PATTERN OF STAMPED CONCRETE DECK.

Thursday, March 7, 2024 11:35:55 AM
 DWG Filename: c-201 general site plan.dwg
 DWG Folder Location: Layout: c-202 site plan 2 of 2



NOTE:
 1. PARKING SPACES AND STRIPING SHALL BE PAINTED IN ACCORDANCE WITH MASSACHUSETTS HIGHWAY DEPARTMENT (MHD) AND THE ARCHITECTURAL ACCESS BOARD (AAB) 521 CMR.
 2. LINES SHALL BE A MINIMUM OF 4" WIDE AND SHALL BE ONE CONSISTENT COLOR, REFLECTIVE WHITE PAINT.



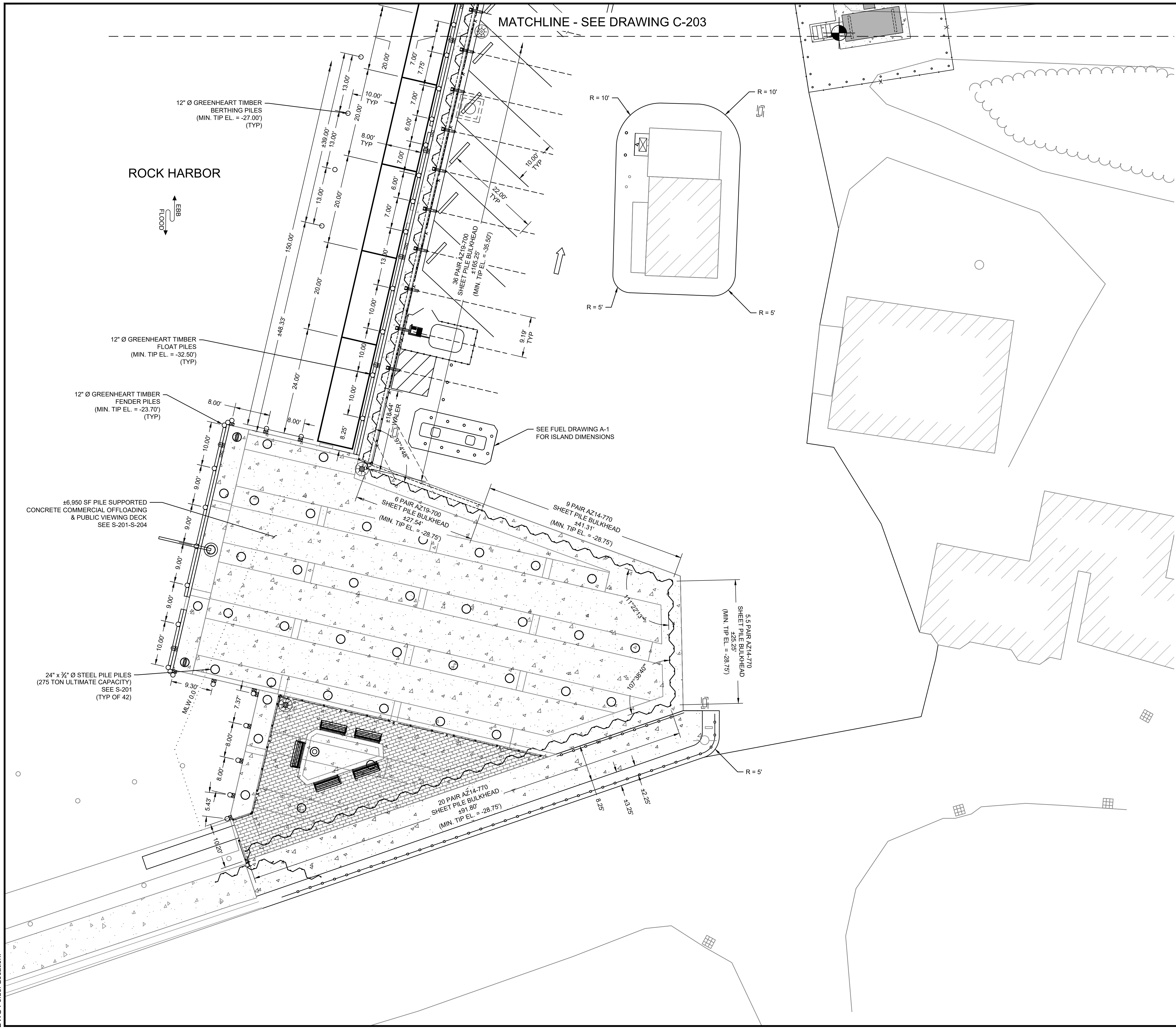
DEPARTMENT OF PUBLIC WORKS
 TOWN OF ORLEANS, MASSACHUSETTS
 ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS

REVISIONS		DATE OF PREPARATION	
NO.	DESCRIPTION	BY	DATE
1		MEC/JAH	10/24/19
2		BAM	12/05/2023
3		SRS	06/28/2021
4		PSR	12/24/2023

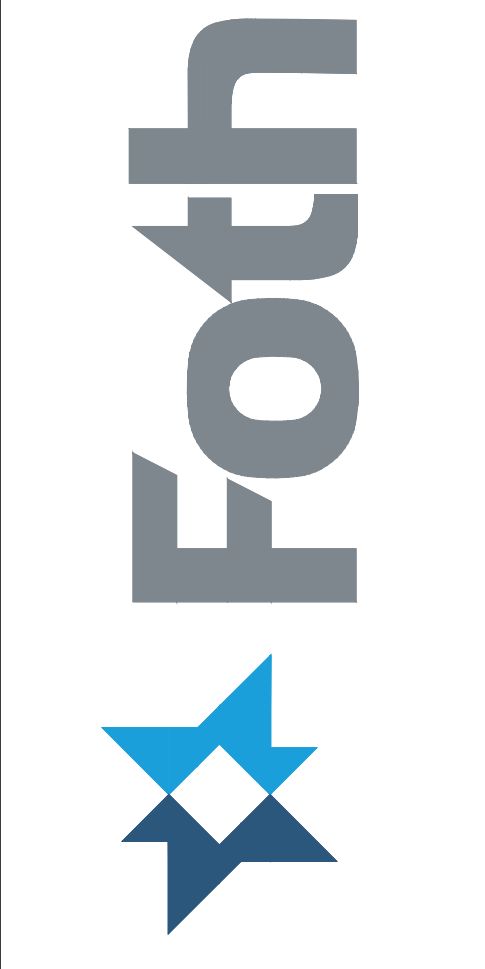
SHEET TITLE:
**LAYOUT PLAN
 1 OF 2**

ISSUANCE:
ISSUED FOR BID

PROJECT NO: 00190004.10
 SHEET NUMBER
C-203



NOTE:
 1. PARKING SPACES AND STRIPING SHALL BE PAINTED IN ACCORDANCE WITH MASSACHUSETTS HIGHWAY DEPARTMENT (MHD) AND THE ARCHITECTURAL ACCESS BOARD (AAB) 521 CMR.
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DEPARTMENT OF PUBLIC WORKS
TOWN OF ORLEANS, MASSACHUSETTS
ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS

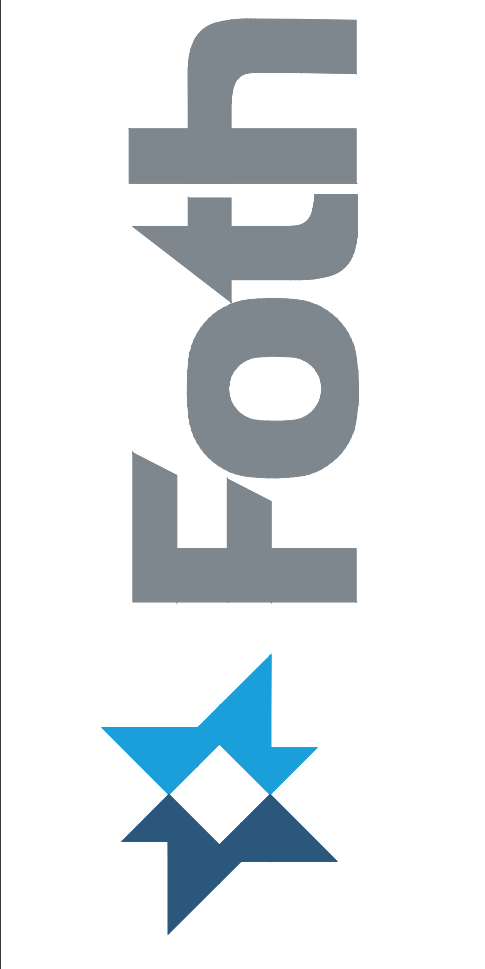
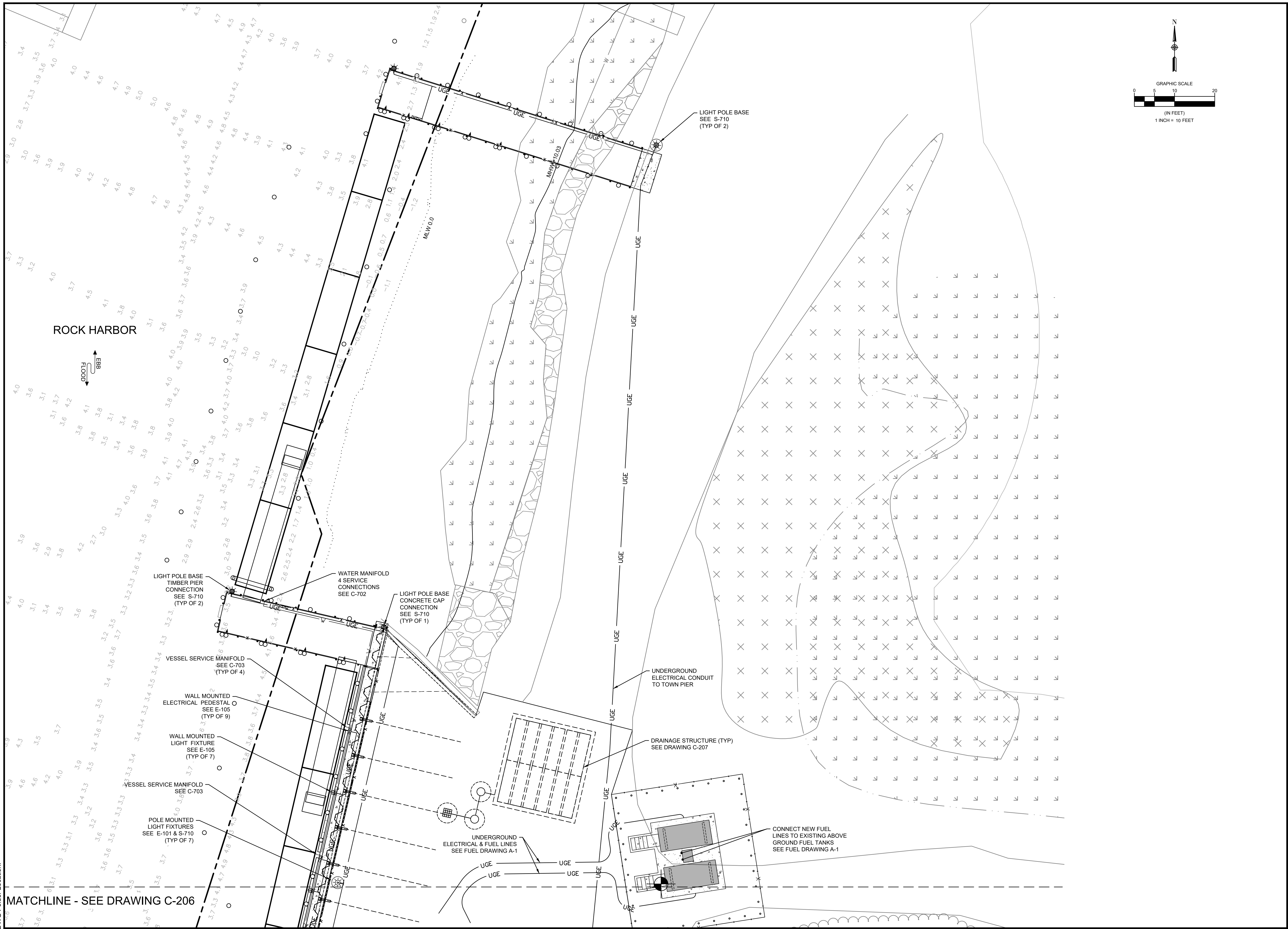
REVISIONS		DESCRIPTION	
NO.	DATE	BY	DATE
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DATE OF PREPARATION		
SURVEYED	BY	DATE
MEC/JAH		10/24/19 & 3/2/21
DRAWN	BAM	12/05/2023
DESIGNED	SRS	06/28/2021
CHECKED	PSR	12/24/2023

LAYOUT PLAN
2 OF 2

ISSUED FOR BID

PROJECT NO: 00190004.10
 SHEET NUMBER



DEPARTMENT OF PUBLIC WORKS
TOWN OF ORLEANS, MASSACHUSETTS
ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS

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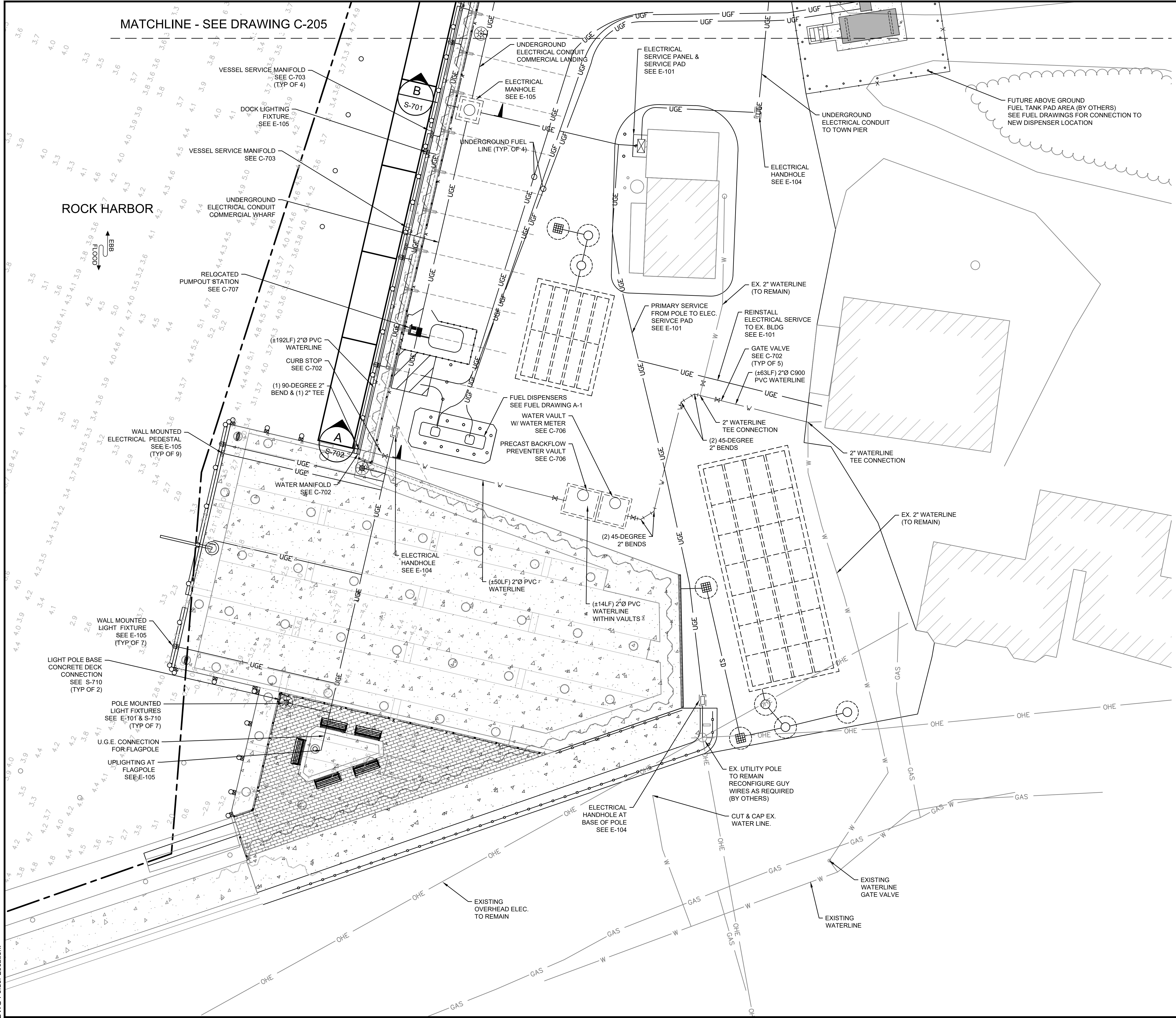
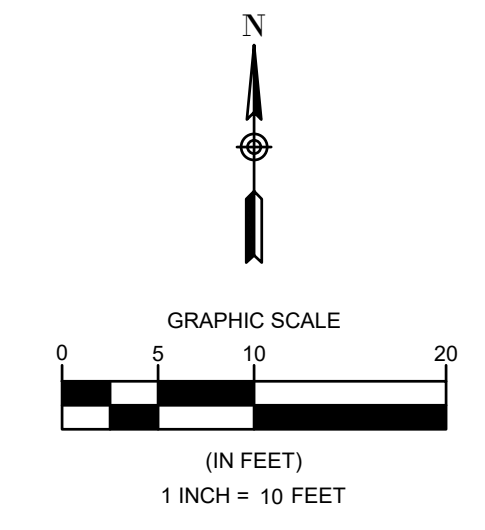
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DRAWN		BAM	12/05/2023
DESIGNED		SRS	06/28/2021
CHECKED		PSR	12/24/2023
SHEET TITLE:			
UTILITY PLAN 1 OF 2			
ISSUANCE:			
ISSUED FOR BID			
PROJECT NO: 00190004.10			
SHEET NUMBER			
C-205			



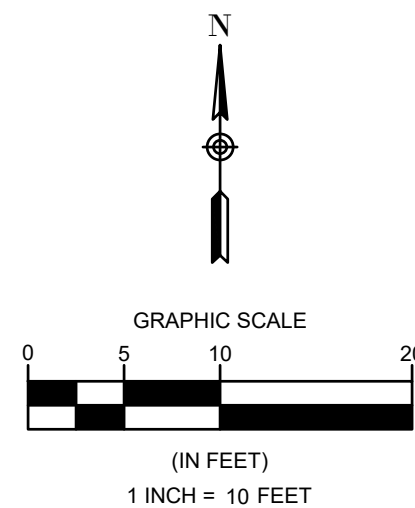
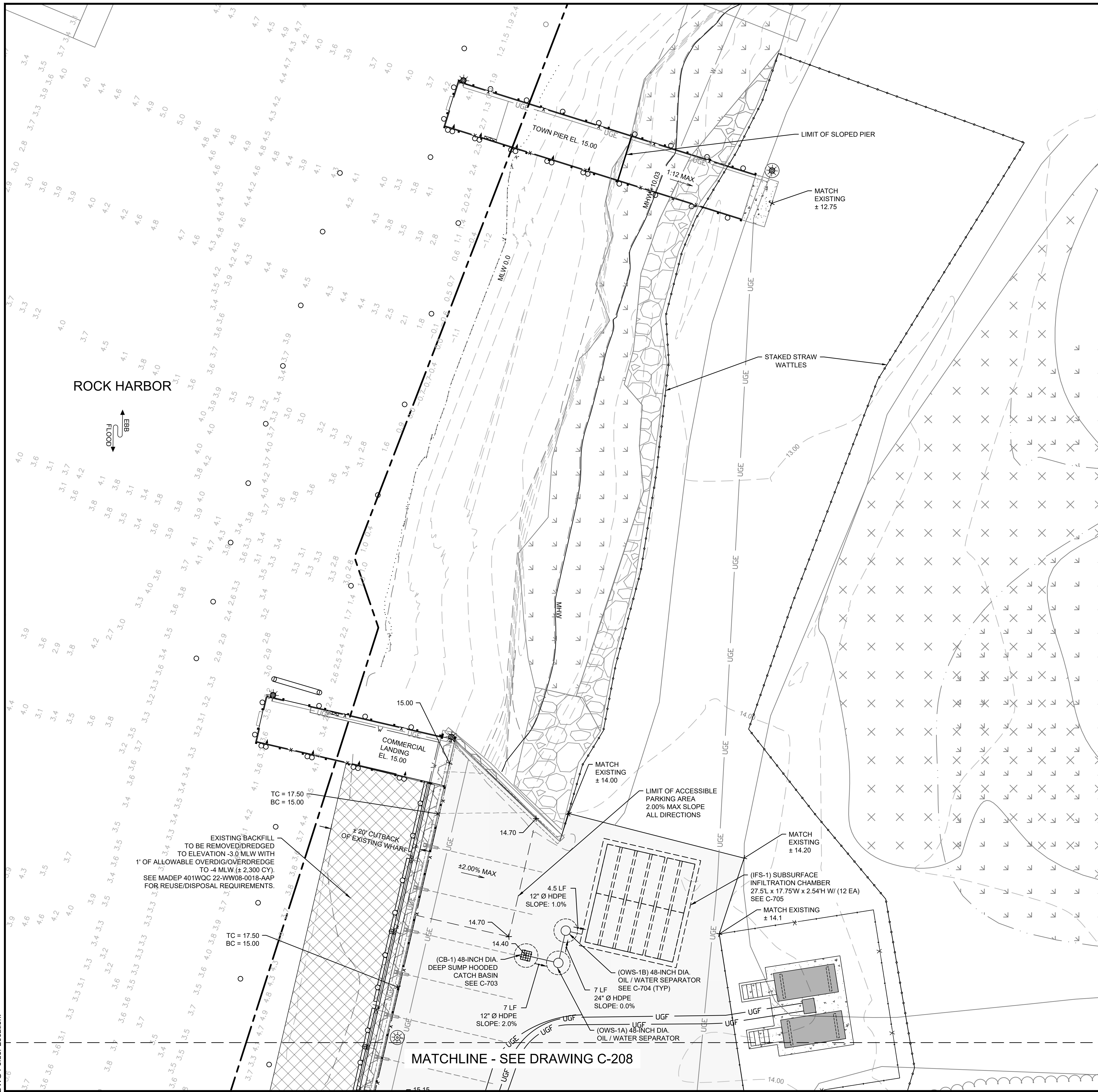
DEPARTMENT OF PUBLIC WORKS
 TOWN OF ORLEANS, MASSACHUSETTS
 ROCK HARBOR COMMERCIAL WHARF
 IMPROVEMENTS

REVISIONS		DATE OF PREPARATION	
NO.	DESCRIPTION	BY	DATE
1			
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SHEET TITLE:	
UTILITY PLAN 2 OF 2	
ISSUANCE: ISSUED FOR BID	
PROJECT NO:	00190004.10
SHEET NUMBER	
C-206	



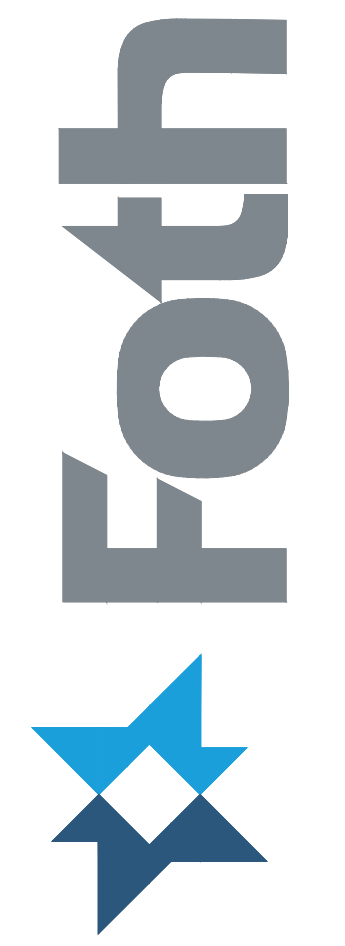

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 DWG Filename: c-205 utility plan.dwg
 DWG Folder Location: Layout: c-206 utility plan sheet 2 of 2



ROCK HARBOR DRAINAGE INVERT TABLE					
STRUCTURE ID	DESCRIPTION	RIM	INV. IN	INV. OUT	SUMP
CB-1	48" I.D. CATCH BASIN W/ SUMP & HOOD	14.40	-	11.20	3'-0"
OWS-1A	48" I.D. OIL / WATER SEPARATOR	14.40	11.04	5.98	-
OWS-1B	48" I.D. OIL / WATER SEPARATOR	14.40	5.98	11.00	-
IFS-1	12-UNIT INFILTRATION SYSTEM	-	10.96	-	-
IFS-1	INFILTRATION SYSTEM STONE	-	10.46	-	-

EXISTING BACKFILL TO BE REMOVED/DREDGED TO ELEVATION -3.0 MLW WITH 1' OF ALLOWABLE OVERDIG/OVERDREDGE TO -4 MLW (± 2,300 CY). SEE MADEP 401WQC 22-WW08-0018-AAP FOR REUSE/DISPOSAL REQUIREMENTS.

MATCHLINE - SEE DRAWING C-208

DEPARTMENT OF PUBLIC WORKS

TOWN OF ORLEANS, MASSACHUSETTS

ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS

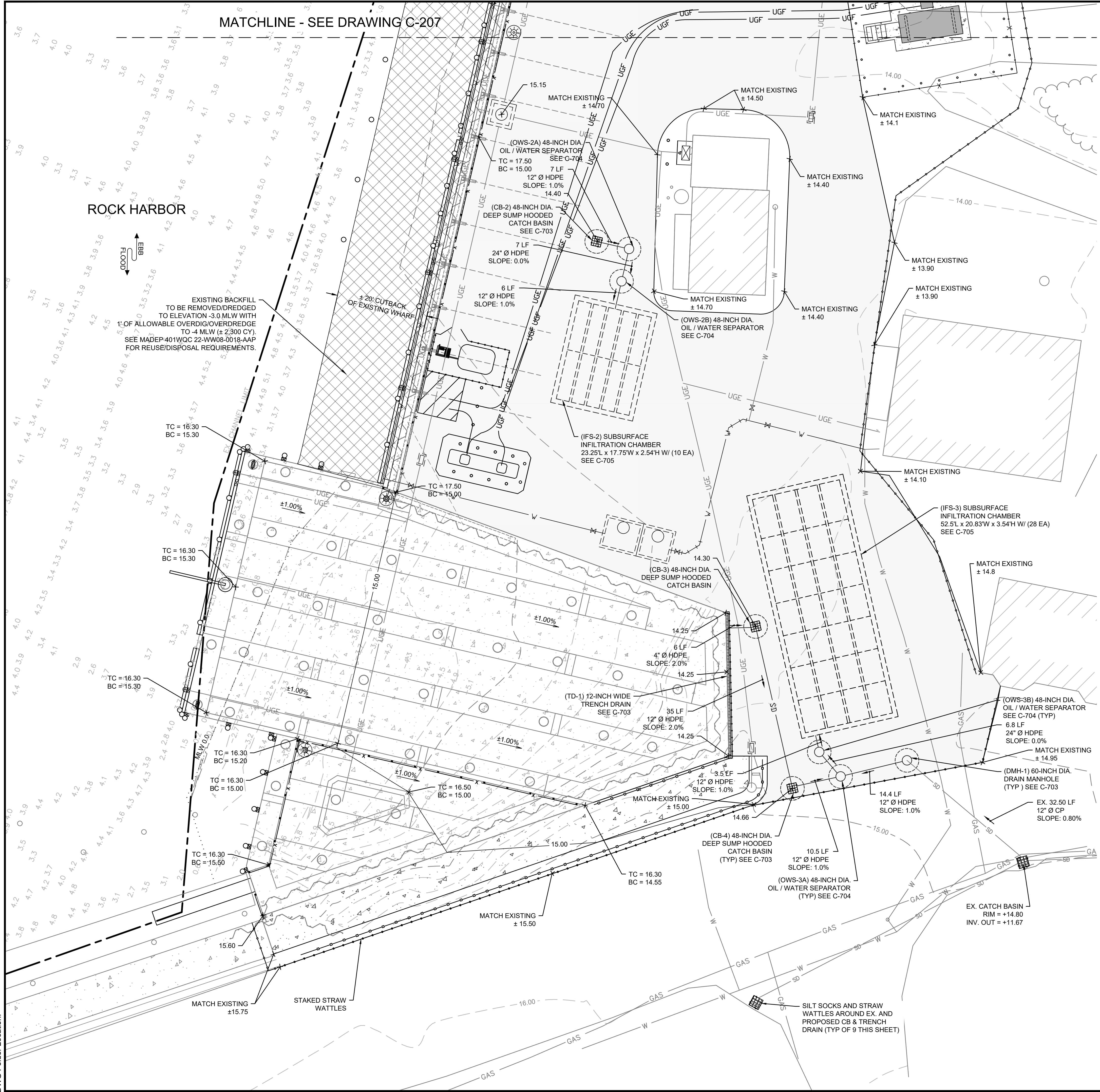
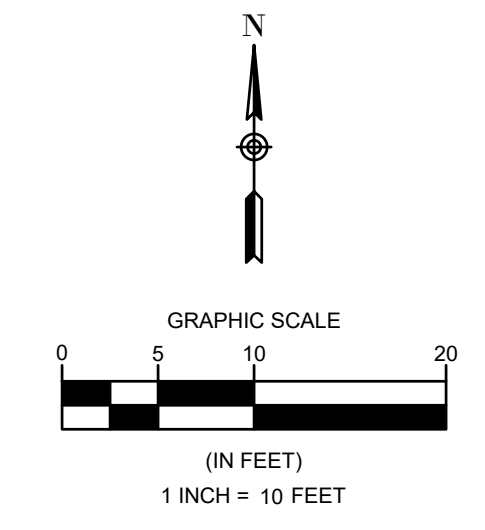
REVISIONS		DATE OF PREPARATION	
NO.	DESCRIPTION	BY	DATE

GRADING AND DRAINAGE PLAN
1 OF 2

ISSUED FOR BID

PROJECT NO: 00190004.10
 SHEET NUMBER
C-207

DEPARTMENT OF PUBLIC WORKS
TOWN OF ORLEANS, MASSACHUSETTS
ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS



STRUCTURE ID	DESCRIPTION	RIM	INV. IN	INV. OUT	SUMP
CB-2	48" I.D. CATCH BASIN W/ SUMP & HOOD	14.40	-	11.58	3'-0"
OWS-2A	48" I.D. OIL / WATER SEPARATOR	14.40	11.51	6.48	-
OWS-2B	48" I.D. OIL / WATER SEPARATOR	14.40	6.48	11.47	-
IFS-2	10-UNIT INFILTRATION SYSTEM	-	11.40	-	-
IFS-2	INFILTRATION SYSTEM STONE	-	10.90	-	-
TD-1	12-INCH WIDE TRENCH DRAIN	14.25	-	10.70	-
CB-3	48" I.D. CATCH BASIN W/ SUMP & HOOD	14.30	10.70	10.60	3'-0"
CB-4	48" I.D. CATCH BASIN W/ SUMP & HOOD	14.66	10.25	10.18	3'-0"
OWS-3A	48" I.D. OIL / WATER SEPARATOR	14.66	10.08 (CB-4) 10.11 (DMH-1)	5.04	-
OWS-3B	48" I.D. OIL / WATER SEPARATOR	14.66	5.04	10.04	-
IFS-3	28-UNIT INFILTRATION SYSTEM	-	10.00	-	-
IFS-3	INFILTRATION SYSTEM STONE	-	9.50	-	-
DMH-1	60" I.D. DRAIN MANHOLE	14.66	11.40	10.25	-
EX. CB	EXISTING CATCH BASIN	14.80	-	11.67	-

Thursday, March 7, 2024 11:36:36 AM
DWG Filename: c-207 grading and drainage plan.dwg
Layout: c-208 grading and drainage plan 2 of 2
DWG Folder Location:

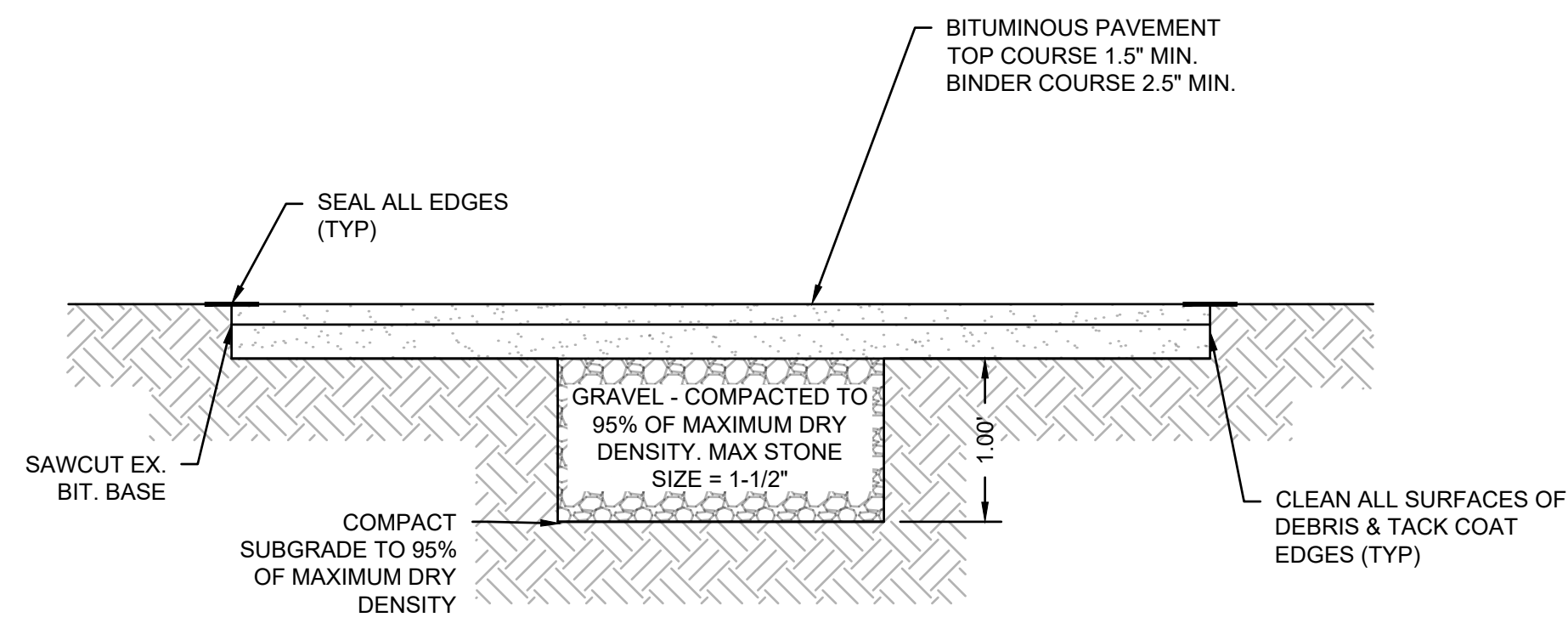
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NO.	DATE	BY	DATE

DATE OF PREPARATION		
BY	DATE	
SURVEYED	MEC/JAH	10/24/19 & 3/22/21
DRAWN	BAM	12/05/2023
DESIGNED	SRS	06/28/2021
CHECKED	PSR	12/24/2023

SHEET TITLE:
GRADING AND DRAINAGE PLAN 2 OF 2

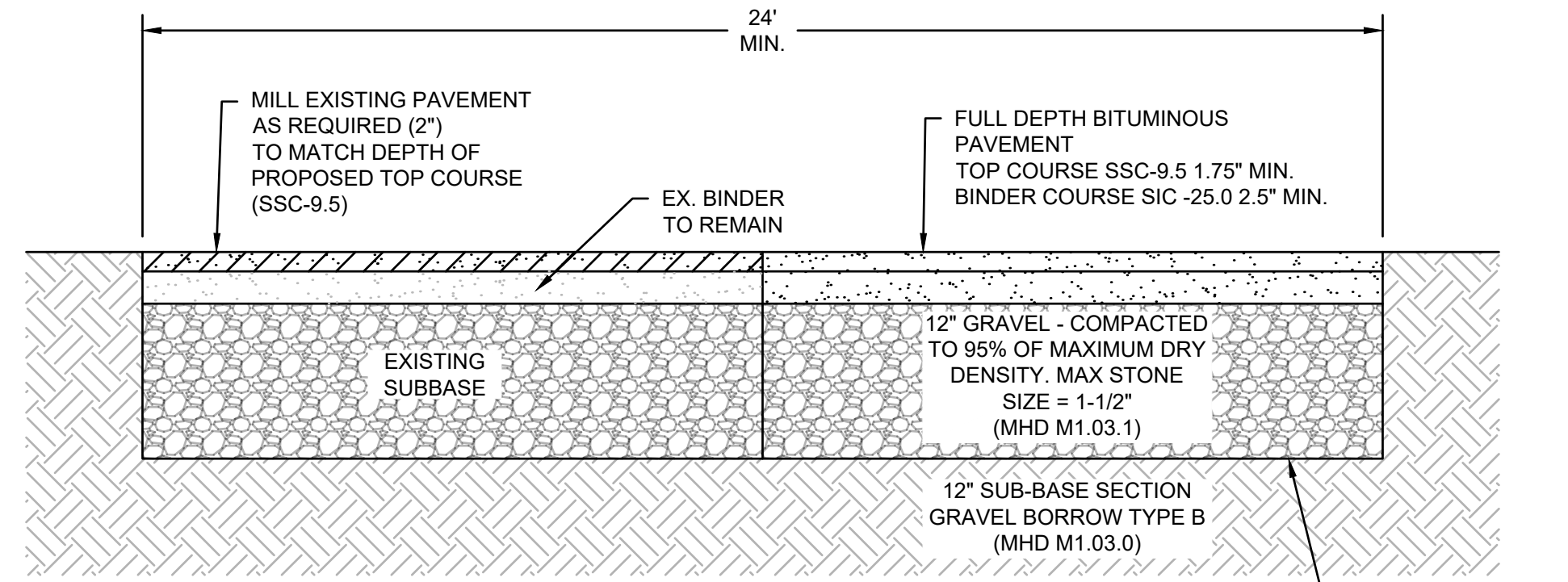
ISSUED FOR BID

PROJECT NO: 00190004.10
SHEET NUMBER



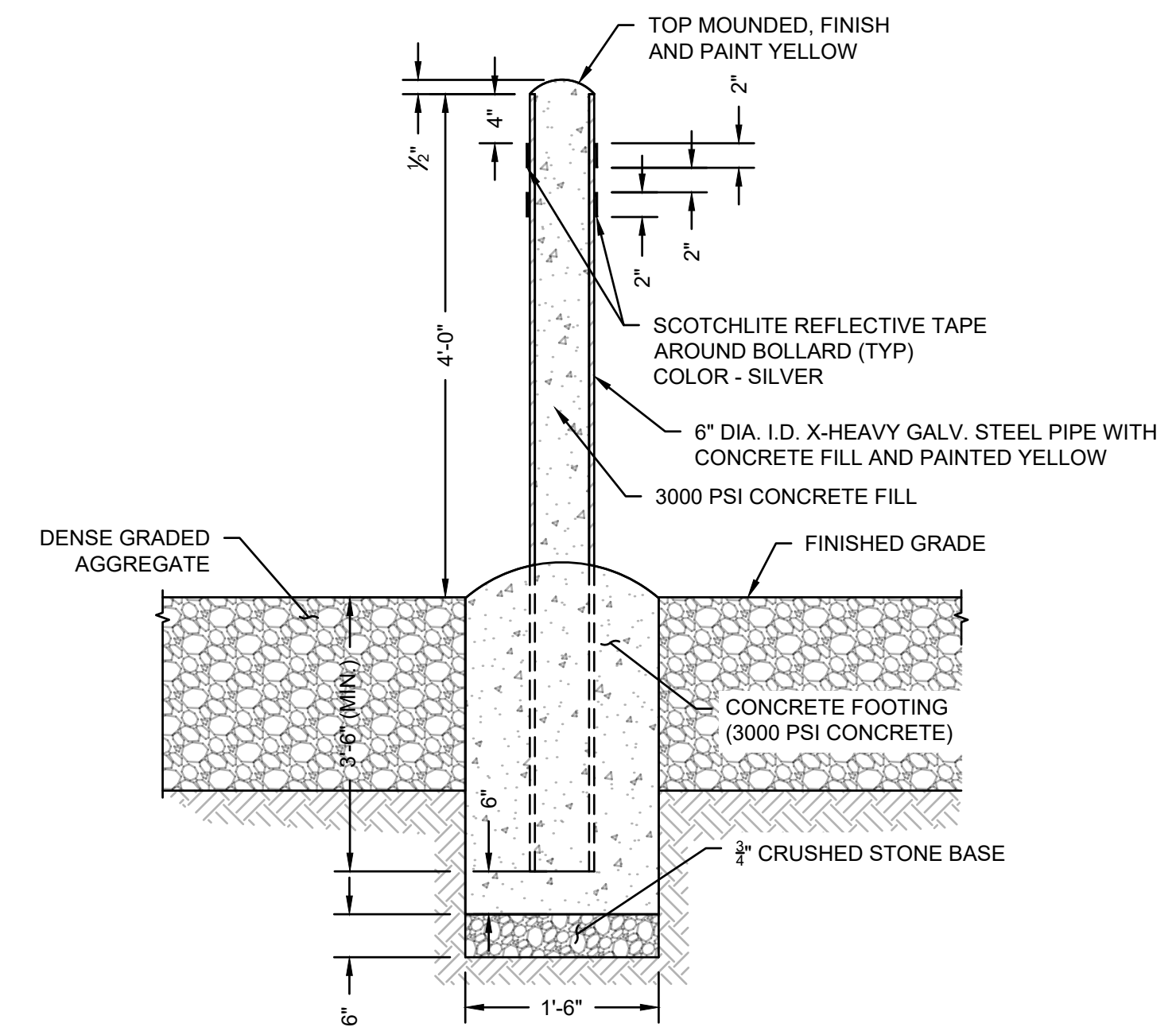
- NOTES:
1. NEW BASE COURSE - PROVIDE BASE COURSE MATERIAL IN LIFTS NOT EXCEEDING 8\"/>
 2. TACK COAT - PROVIDE FULL TACK COAT COVERAGE ON ALL VERTICAL SURFACES.
 3. NEW ASPHALT PAVEMENT - INSTALL 1.5\"/>

TYPICAL BITUMINOUS CONCRETE PAVEMENT RESTORATION DETAIL
SCALE: N.T.S.

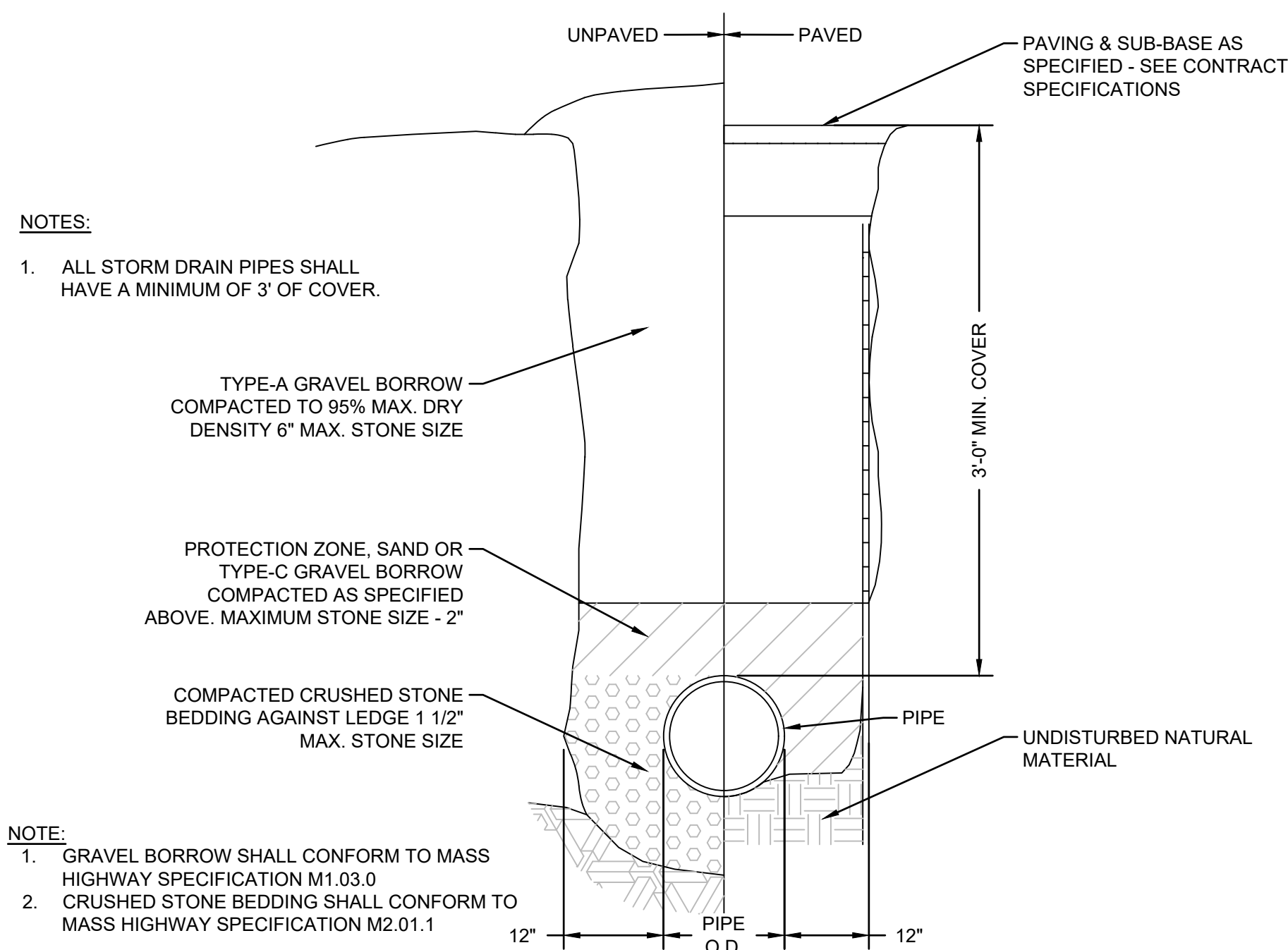


- NOTES:
1. NEW BASE COURSE - PROVIDE BASE COURSE MATERIAL IN LIFTS NOT EXCEEDING 8\"/>
 2. TACK COAT - PROVIDE FULL TACK COAT COVERAGE ON ALL VERTICAL SURFACES AT A RATE OF 0.06 TO 0.08 GALLONS PER SQUARE YARD PER MASSDOT STANDARD SPECIFICATIONS SECTION 450.3 (G).
 3. NEW ASPHALT PAVEMENT PAVEMENT PER MASSDOT STANDARD SPECIFICATION SECTION 460. COMPACT THE NEW PAVEMENT TO 95% OF LABORATORY DENSITY OR 94% OF MAXIMUM THEORETICAL DENSITY.

TYPICAL FULL DEPTH PAVEMENT DETAIL
SCALE: N.T.S.



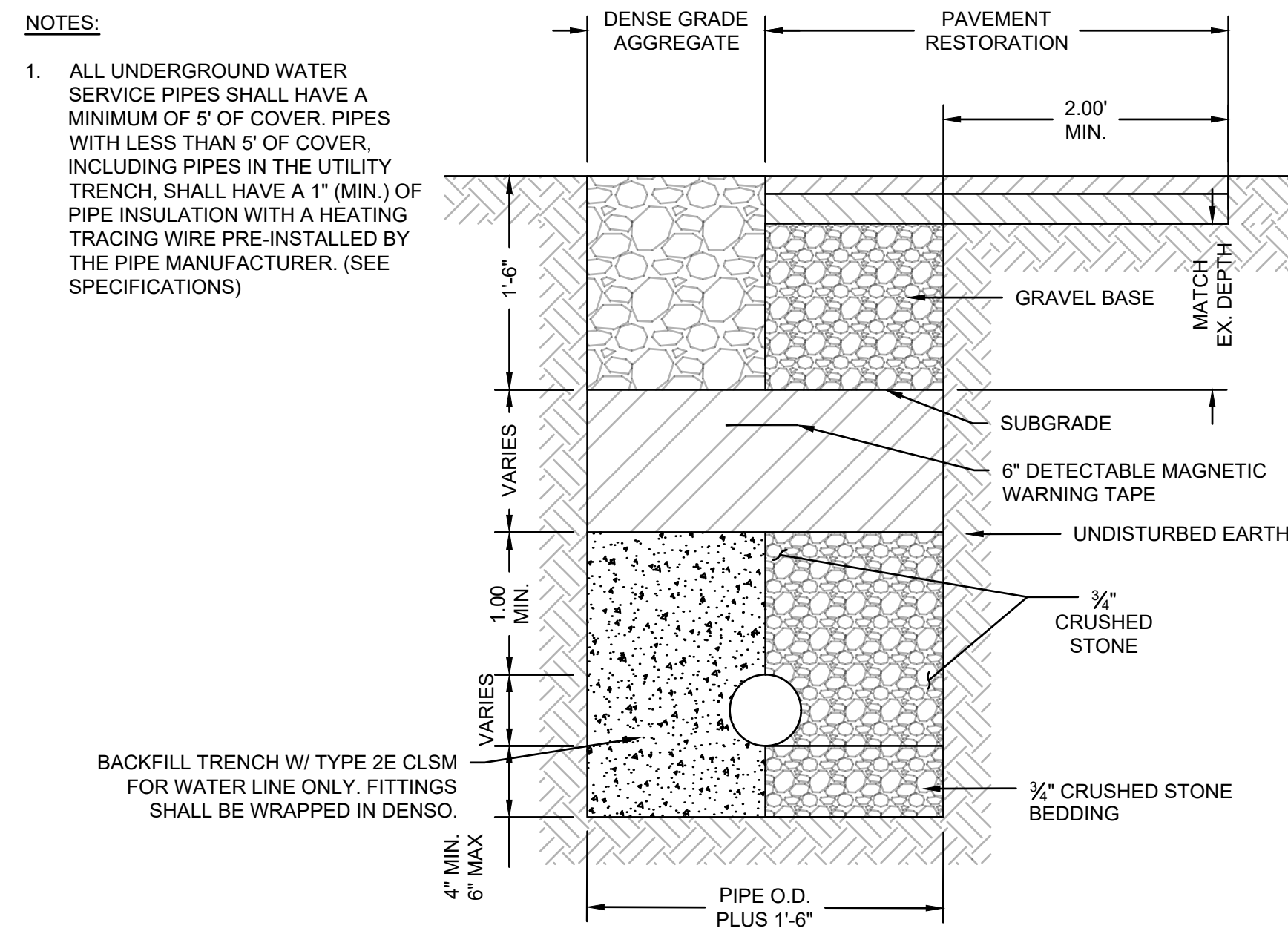
STEEL BOLLARD DETAIL
SCALE: N.T.S.



- NOTES:
1. ALL STORM DRAIN PIPES SHALL HAVE A MINIMUM OF 3\"/>

- NOTE:
1. GRAVEL BORROW SHALL CONFORM TO MASS HIGHWAY SPECIFICATION M1.03.0
 2. CRUSHED STONE BEDDING SHALL CONFORM TO MASS HIGHWAY SPECIFICATION M2.01.1

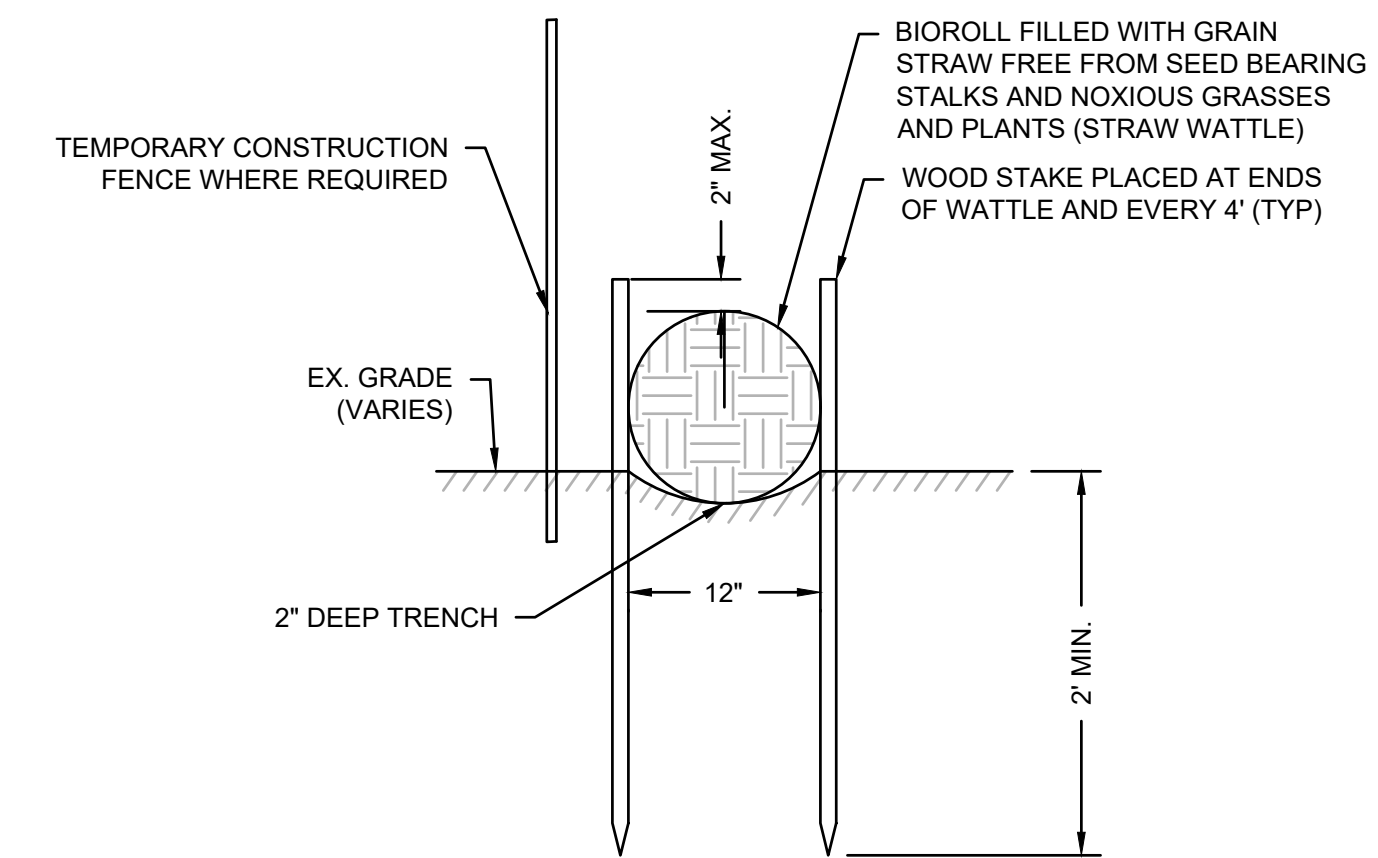
TYPICAL STORM DRAIN TRENCH DETAIL
SCALE: N.T.S.



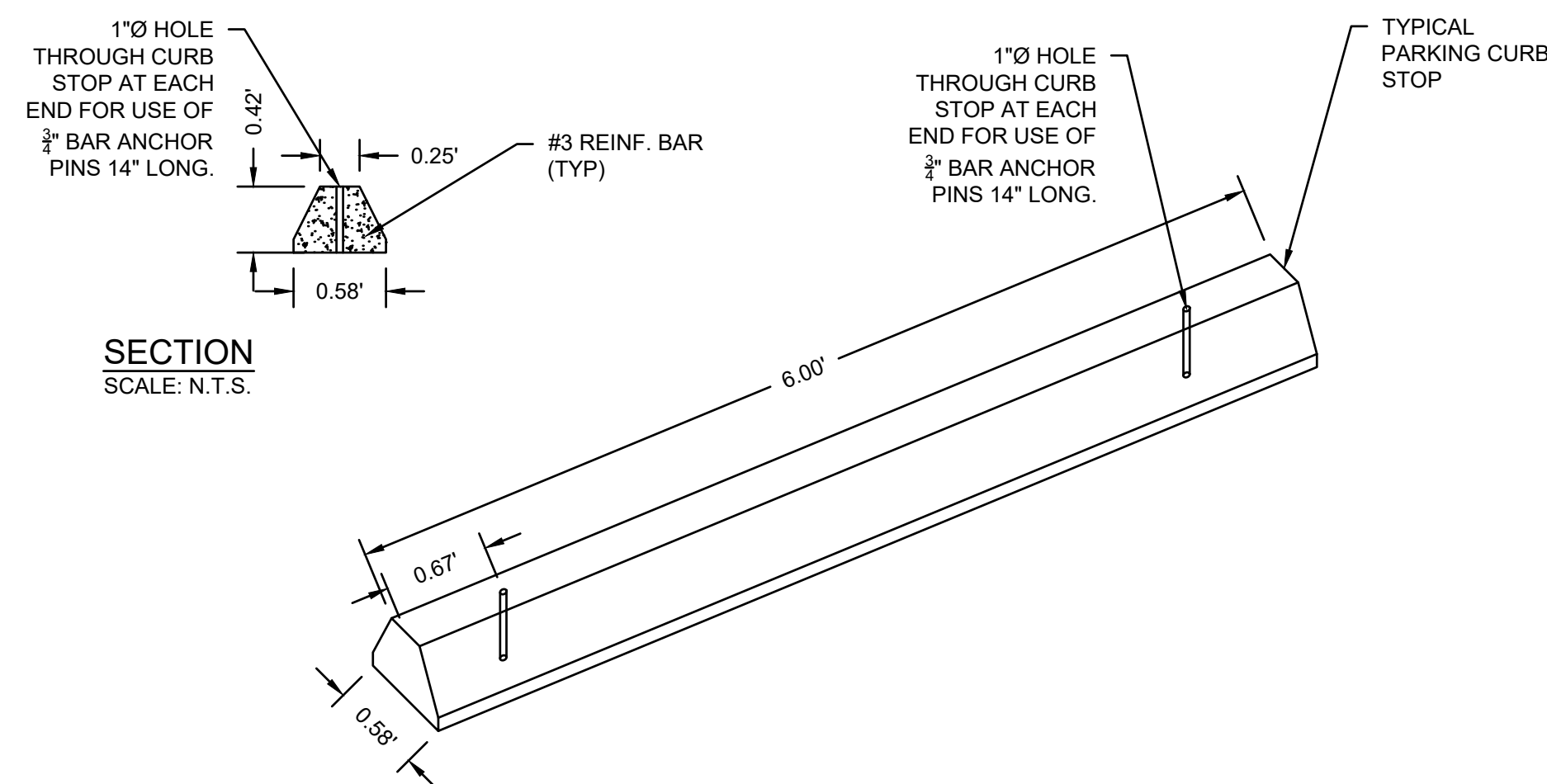
- NOTES:
1. ALL UNDERGROUND WATER SERVICE PIPES SHALL HAVE A MINIMUM OF 5\"/>

BACKFILL TRENCH W/ TYPE 2E CLSM FOR WATER LINE ONLY. FITTINGS SHALL BE WRAPPED IN DENSO.

TYPICAL WATER TRENCH DETAIL
SCALE: N.T.S.



STRAW WATTLE DETAIL
SCALE: N.T.S.



PARKING CURB STOP
SCALE: N.T.S.



DEPARTMENT OF PUBLIC WORKS
TOWN OF ORLEANS, MASSACHUSETTS
ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS

REVISIONS	
NO.	DESCRIPTION

DATE OF PREPARATION		
BY	DATE	
MEC/JAH	10/24/19 & 3/2/21	
BAM	12/05/2023	
SRS	06/28/2021	
PSR	12/24/2023	

SHEET TITLE:
STANDARD CIVIL DETAILS

ISSUANCE:
ISSUED FOR BID

PROJECT NO: 00190004.10
SHEET NUMBER

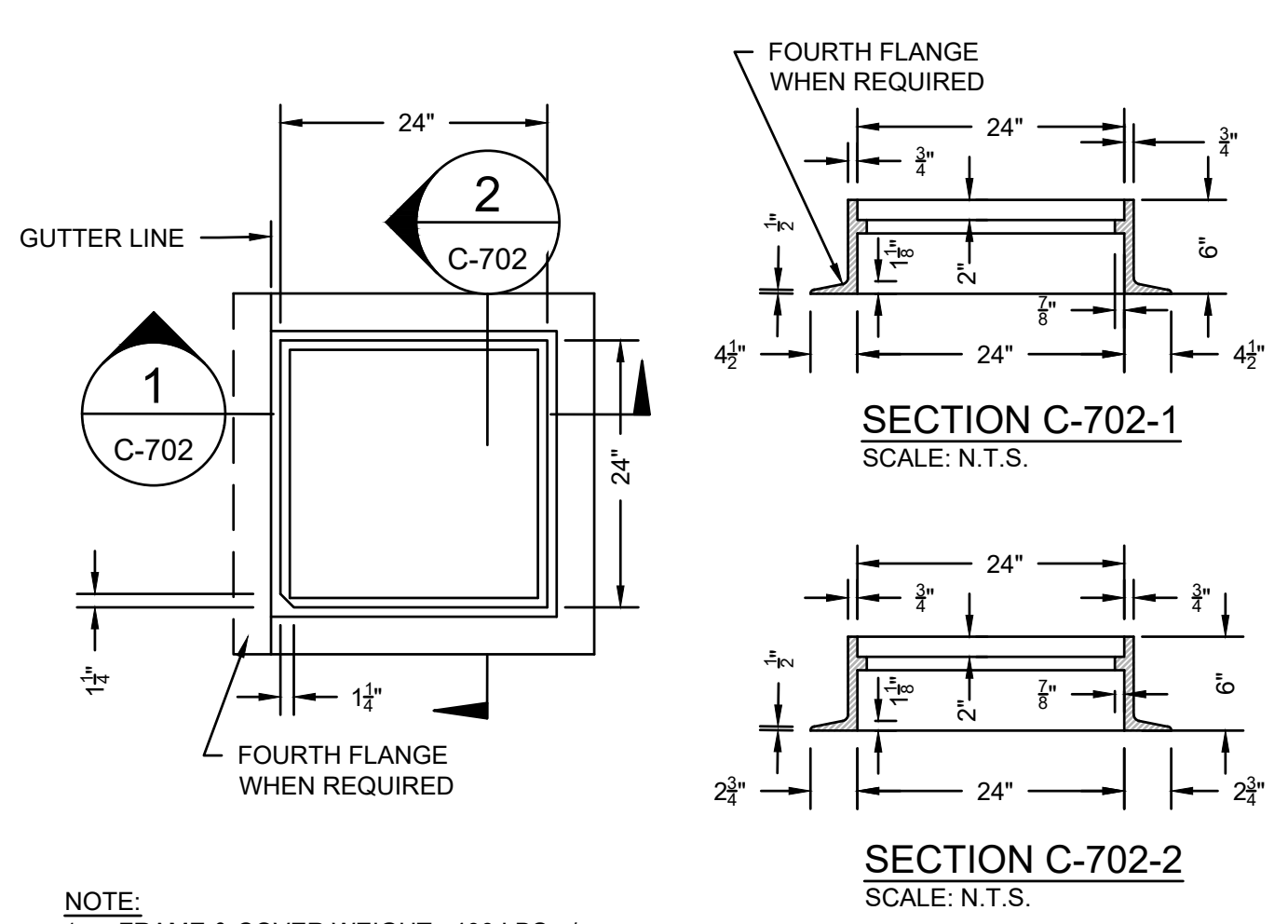
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DATE OF PREPARATION		
SURVEYED	BY	DATE
DRAWN	MEC/JAH	10/24/19 & 3/2/21
DESIGNED	BAM	12/05/2023
CHECKED	SRS	06/28/2021
	PSR	12/24/2023

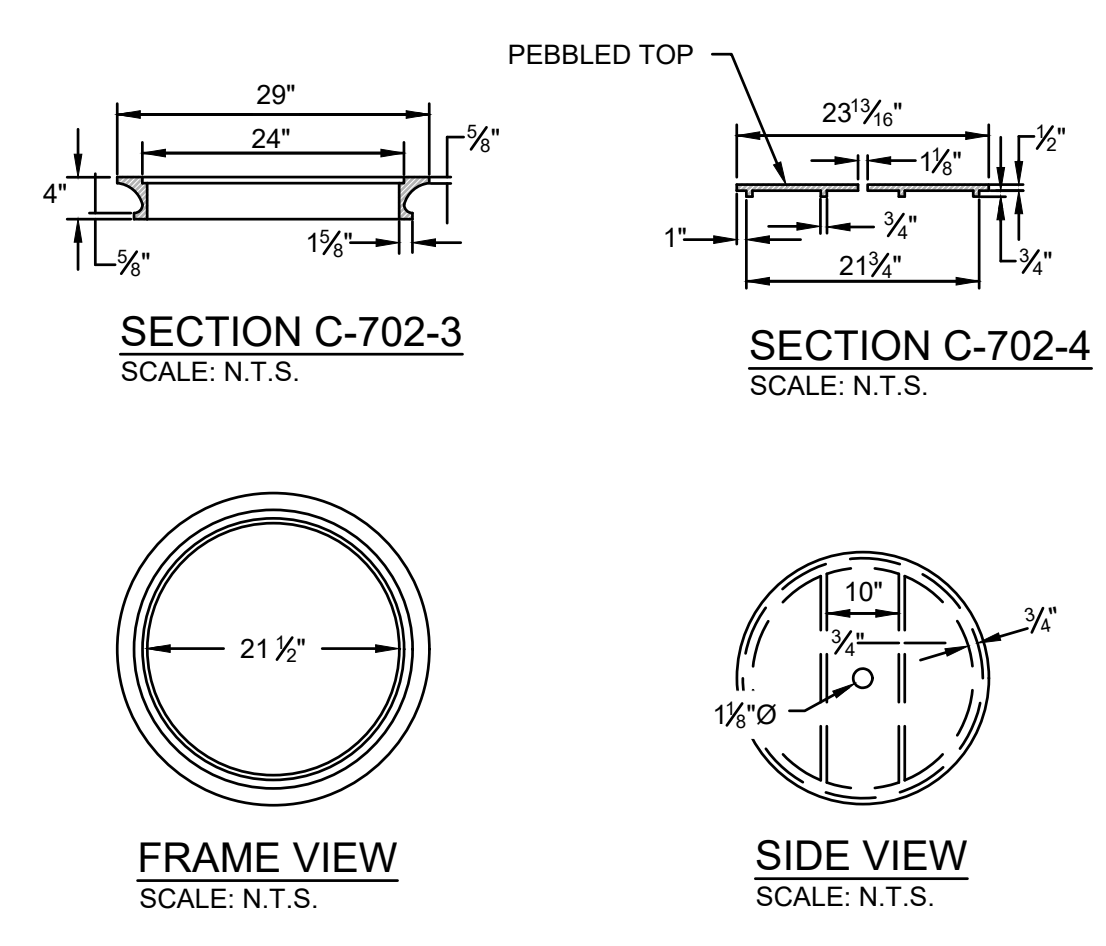
SHEET TITLE:
DRAINAGE AND WATER SERVICE DETAILS 1 OF 2

ISSUANCE:
ISSUED FOR BID

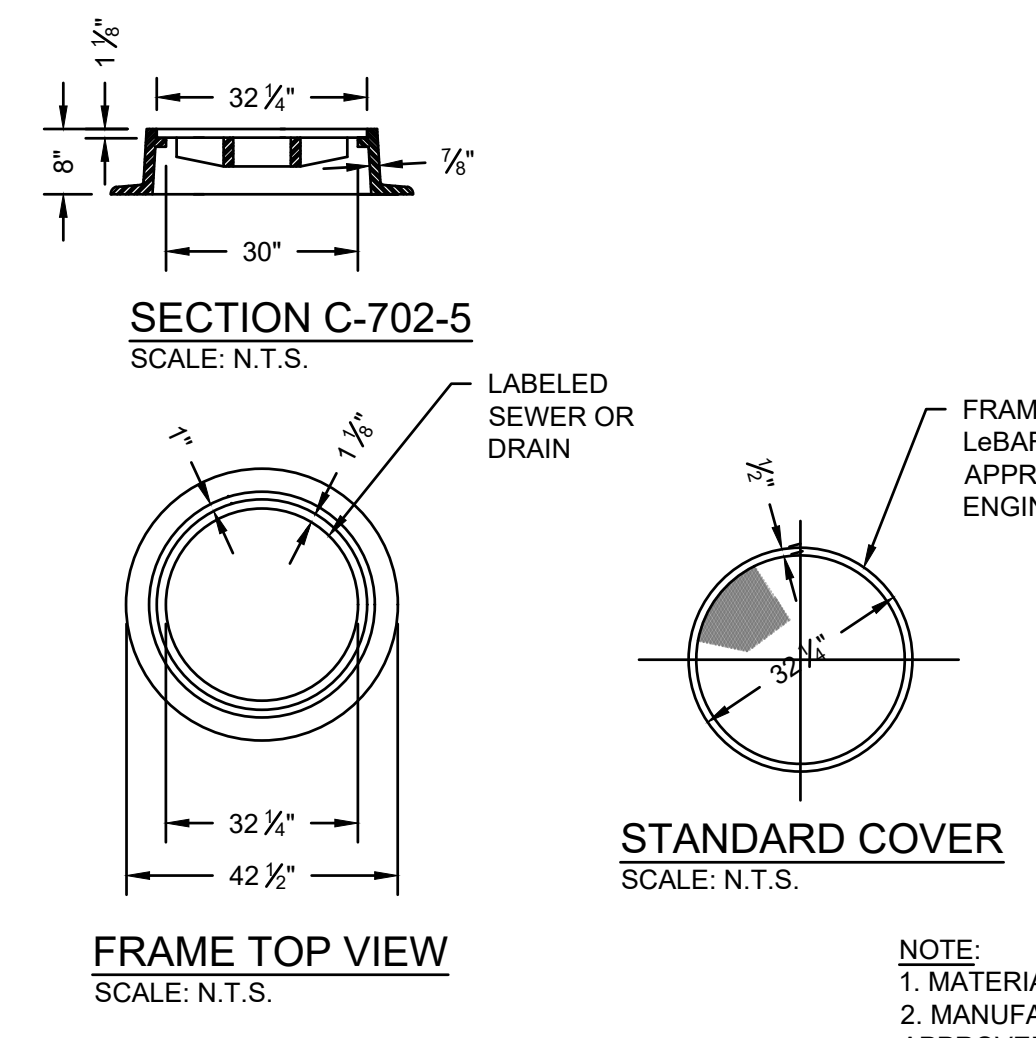
PROJECT NO: 00190004.10
 SHEET NUMBER



NOTE:
 1. FRAME & COVER WEIGHT : 400 LBS +/-
 2. MATERIAL - CAST IRON
 3. TO BE USED WITH SQUARE OPENING TYPE GRATE LeBARON MODEL# LF-246 OR APPROVED EQUAL



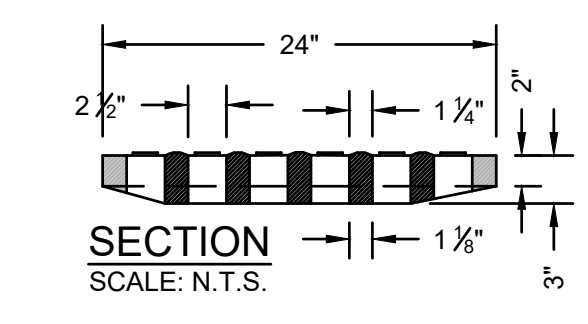
NOTE:
 1. MINIMUM COVER WEIGHT - 73 lbs
 2. MINIMUM FRAME WEIGHT - 113 lbs
 3. MATERIAL - CAST IRON
 4. SIDEWALK AREA USE ONLY



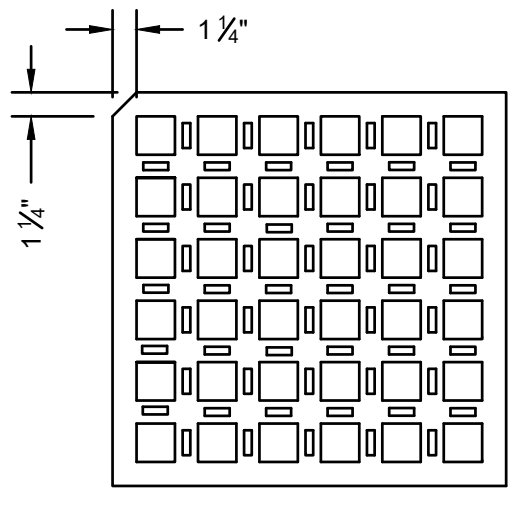
MANHOLE FRAME & COVER: TYPE "A"
SCALE: N.T.S.

NOTE:
 1. MATERIAL - CAST IRON
 2. MANUFACTURED BY LeBARON OR TOWN APPROVED EQUAL

CATCH BASIN SQUARE FRAME
SCALE: N.T.S.

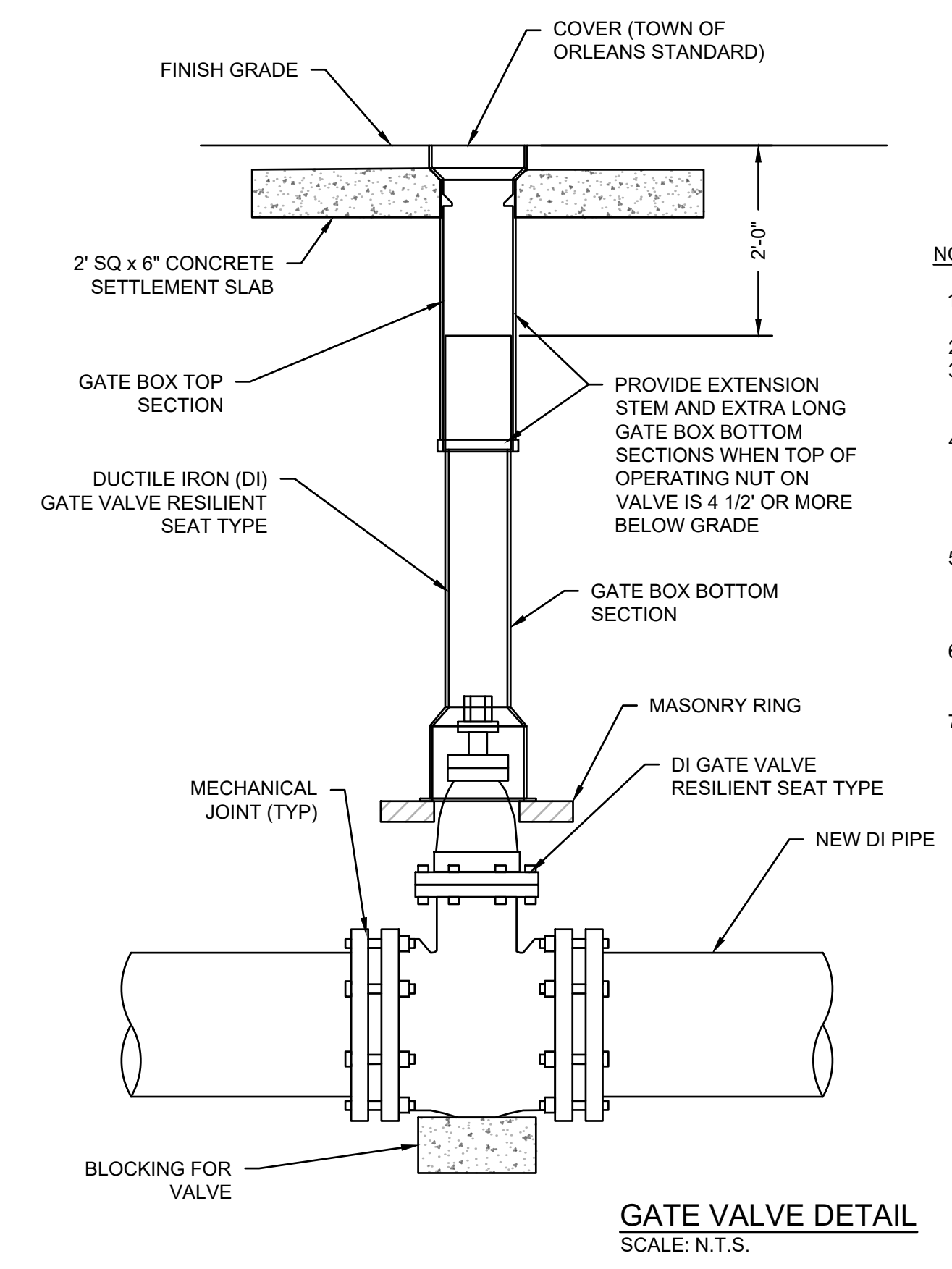
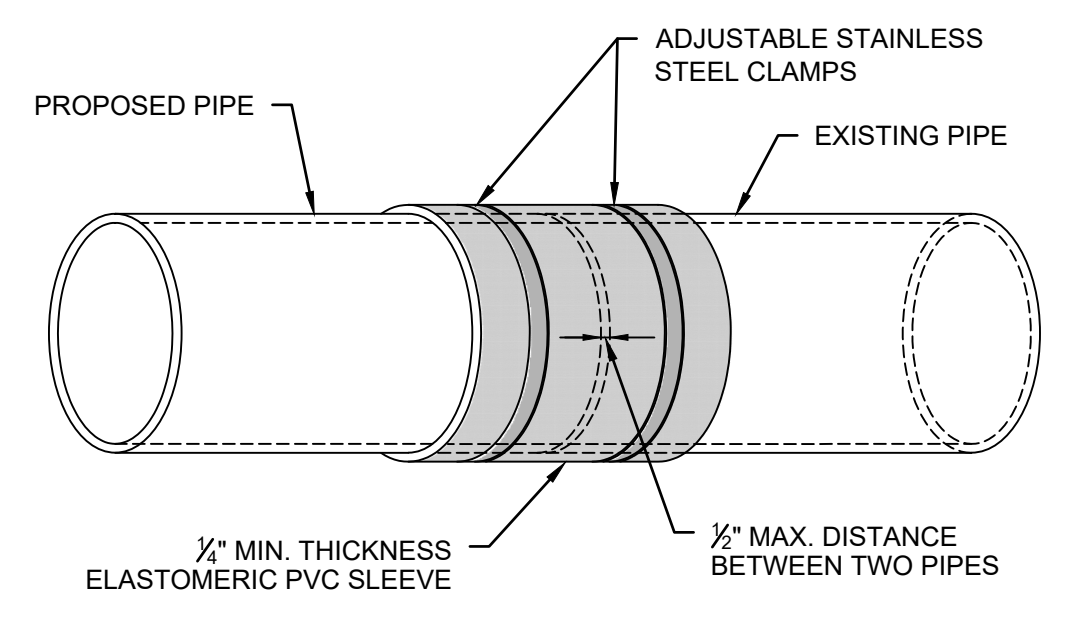


NOTES:
 1. MINIMUM GRATE WEIGHT - 220± lbs
 2. MATERIAL - CAST IRON
 3. TO BE USED WITH STANDARD CATCH BASIN FRAME LeBARON MOD# LF-246 OR TOWN APPROVED EQUAL

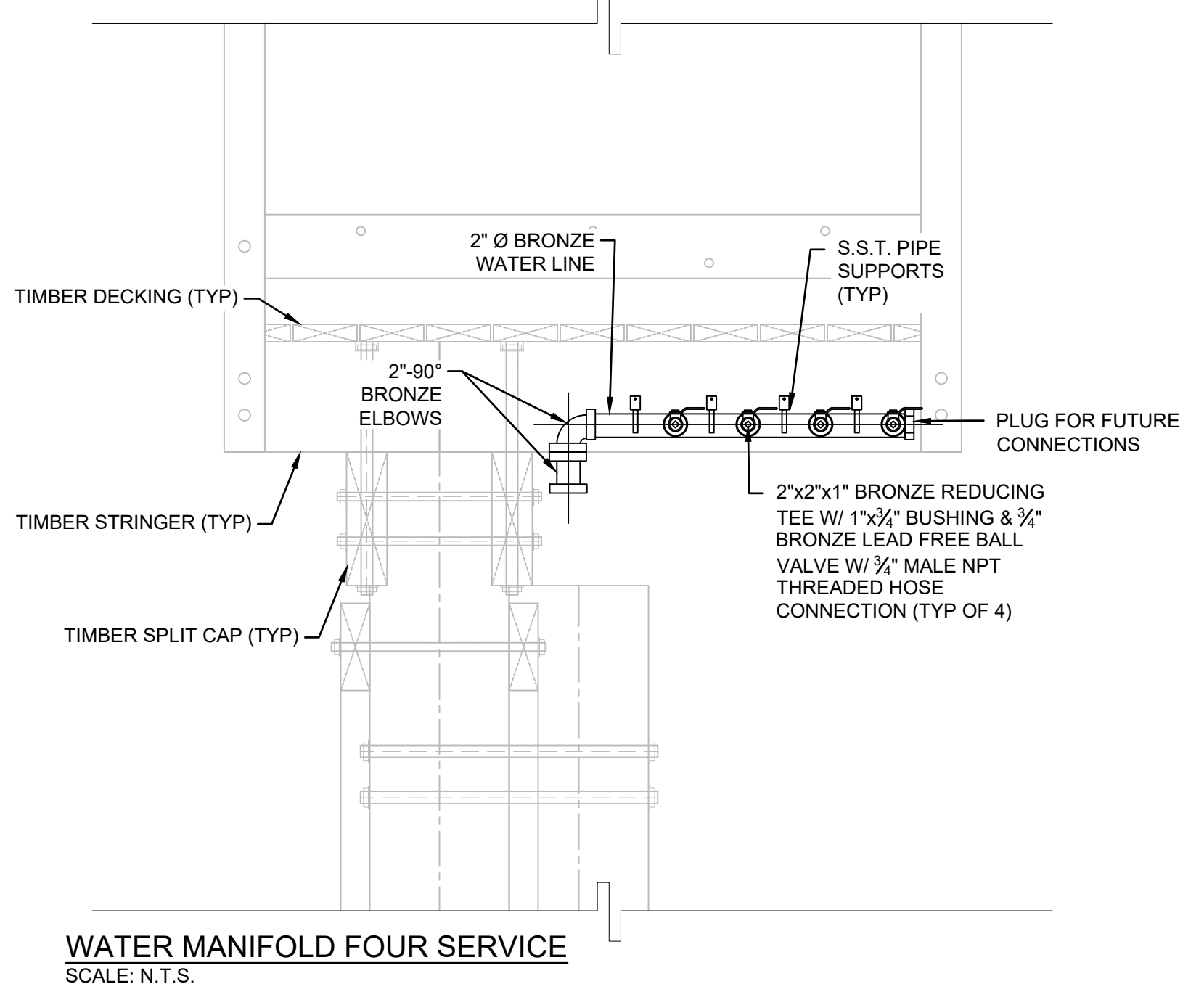
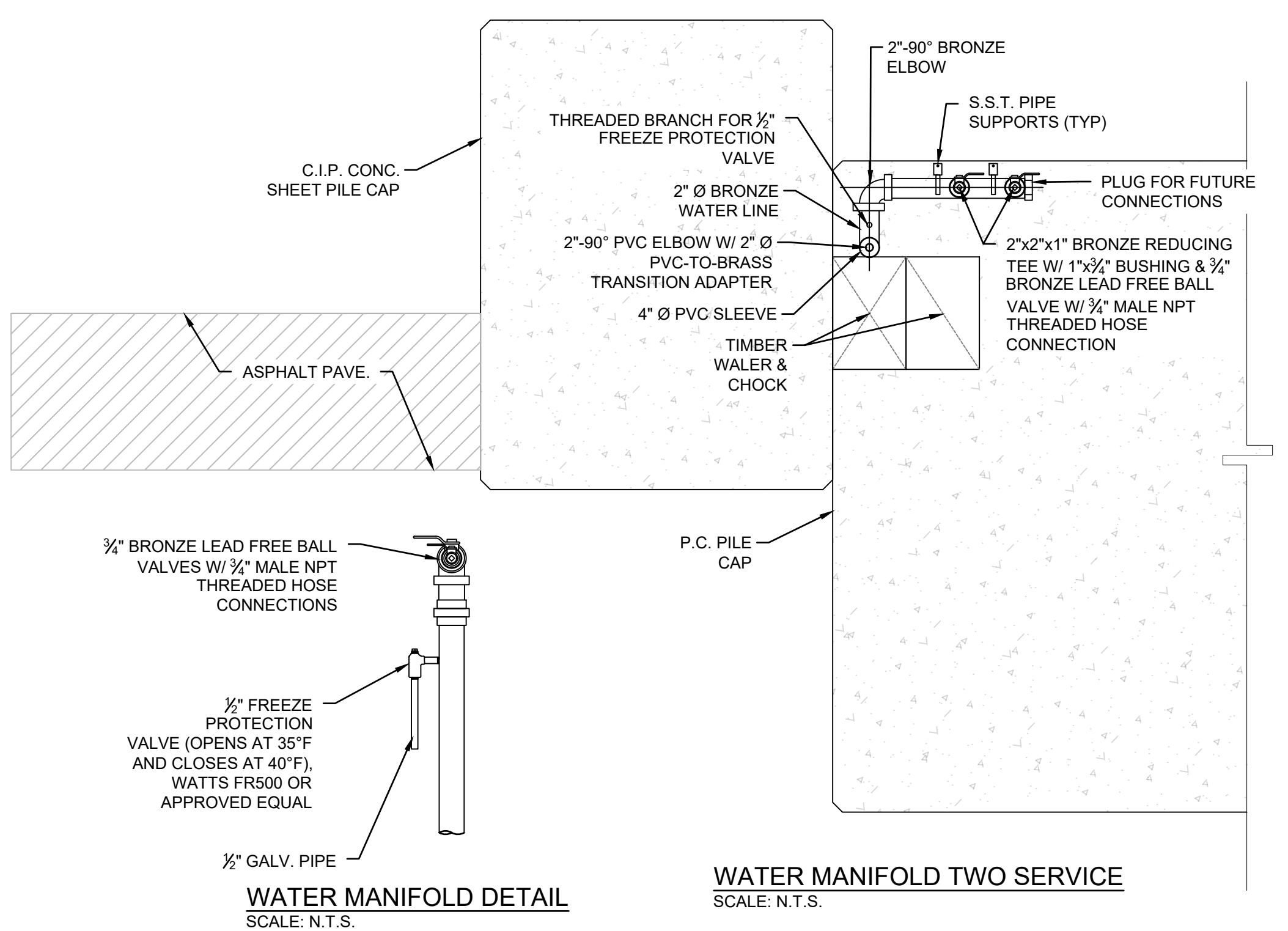


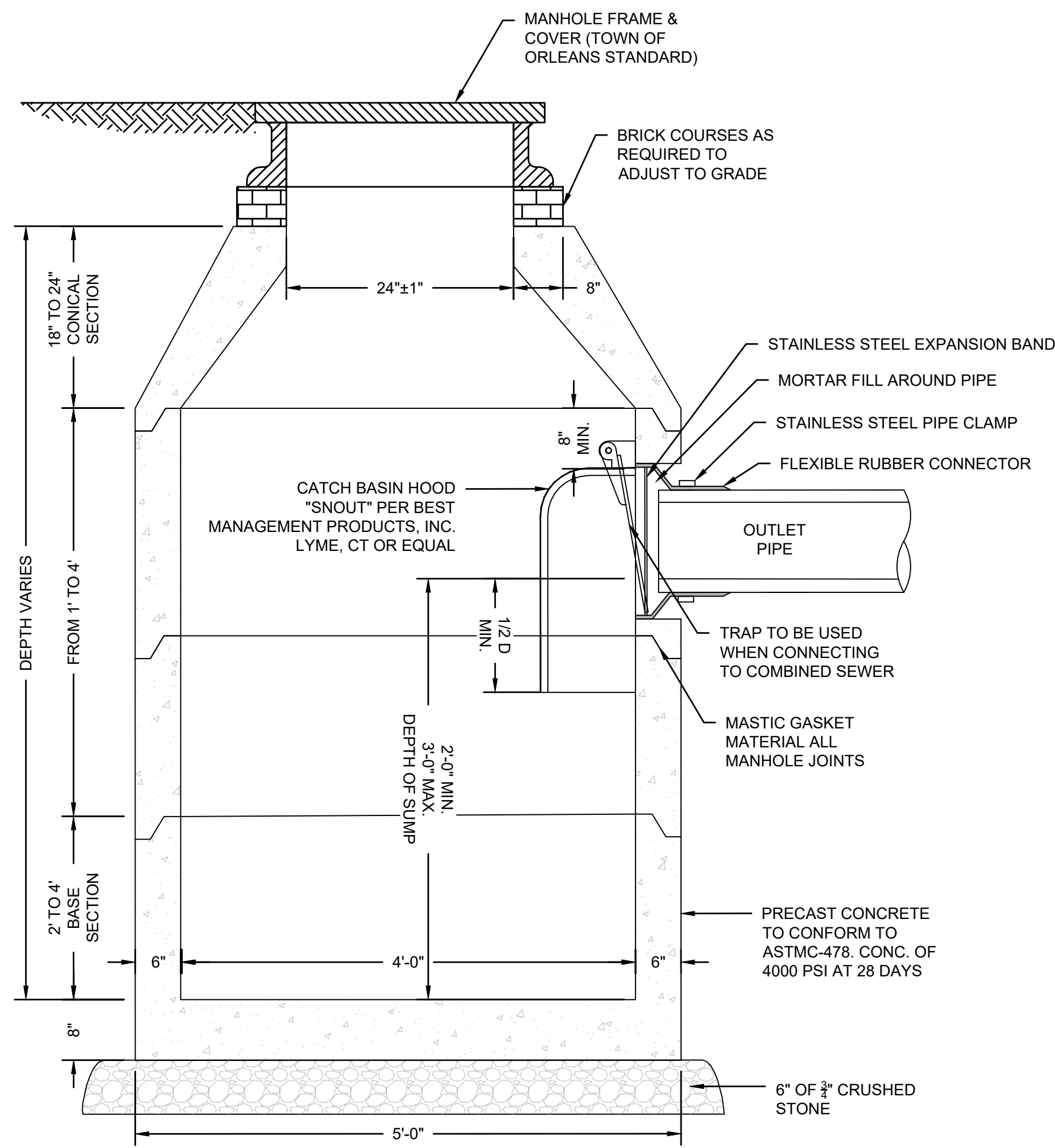
CATCH BASIN FRAME & COVER
SCALE: N.T.S.

NOTE:
 1. USE WHERE NEW PIPE MEETS EXISTING PIPE OR AS NEEDED.
 2. PROPOSED PIPE MAY HAVE AN OUTSIDE DIAMETER (O.D.) THAT IS DIFFERENT THAN THE O.D. OF THE EXISTING PIPE. THE CONTRACTOR SHALL VERIFY THE O.D. PRIOR TO ORDERING THE COUPLING.



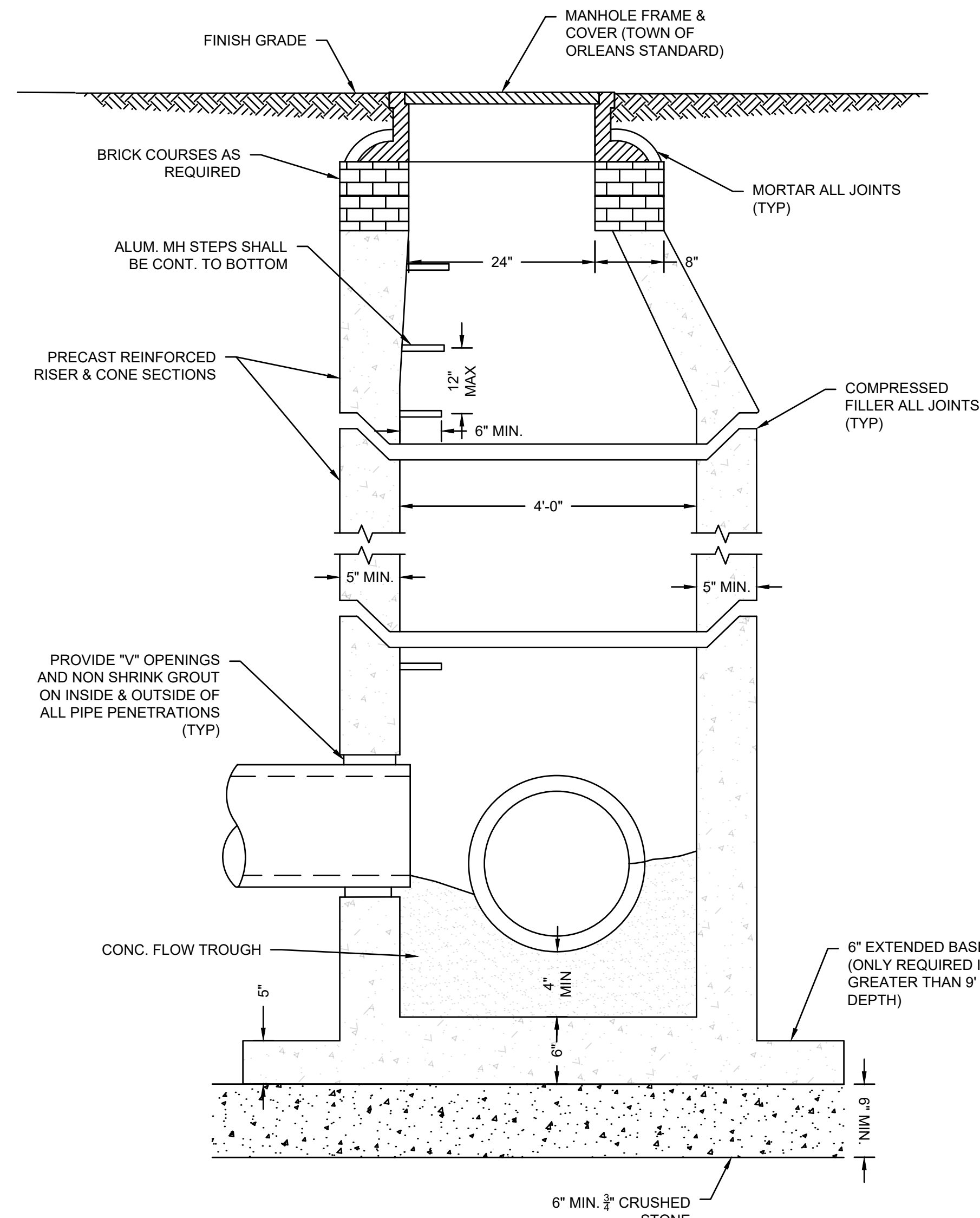
NOTES:
 1. WATER LINE PIPE SHALL BE WRAPPED IN V-BIO POLY.
 2. NITRIL GASKETS SHALL BE USED.
 3. ALL WORK MUST BE PERFORMED BY A DPI LICENSED AND BONDED CONTRACTOR.
 4. CONTRACTOR SHALL COORDINATE ANY SHUT DOWN OF THE MAIN LINE WITH THE TOWN OF ORLEANS DPW OPERATIONS DIVISION.
 5. WRITTEN NOTIFICATION OF ALL AFFECTED CUSTOMERS MUST BE PERFORMED BY THE CONTRACTOR.
 6. ALL WORK MUST BE PERMITTED BY DPW AND ALL OTHER APPROPRIATE AGENCIES.
 7. ALL WORK MUST BE INSPECTED BY DPW INSPECTOR OR DESIGNEE.



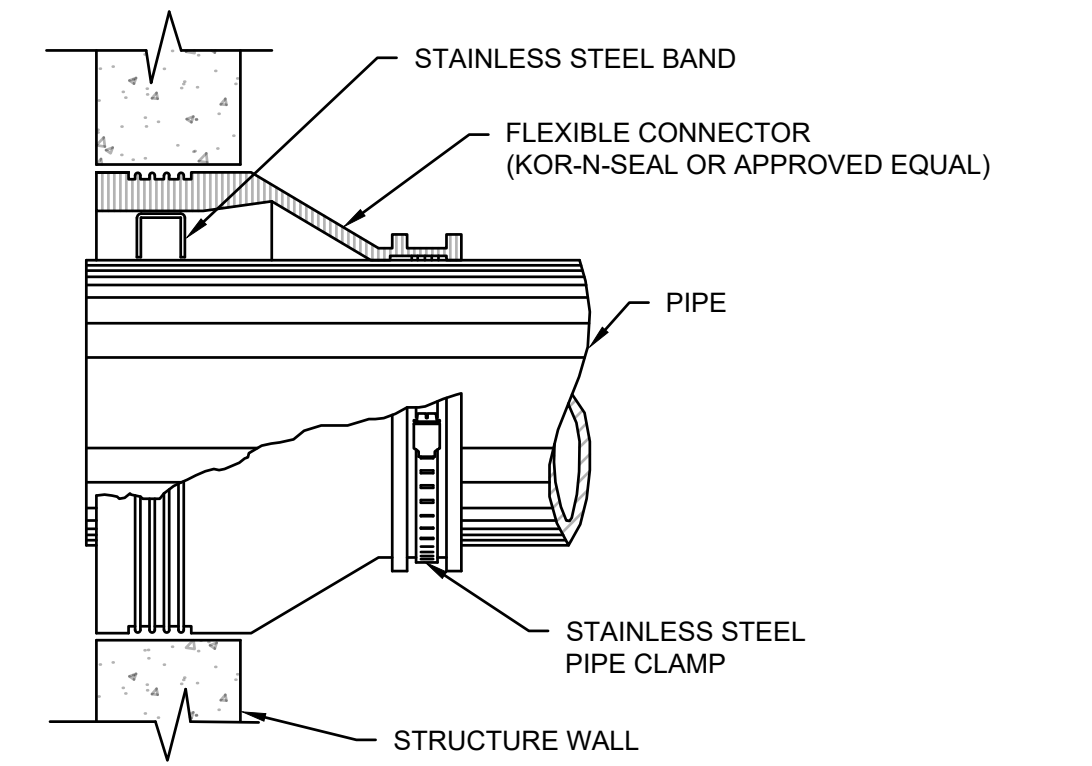


PRECAST CONCRETE CATCH BASIN
SCALE: N.T.S.

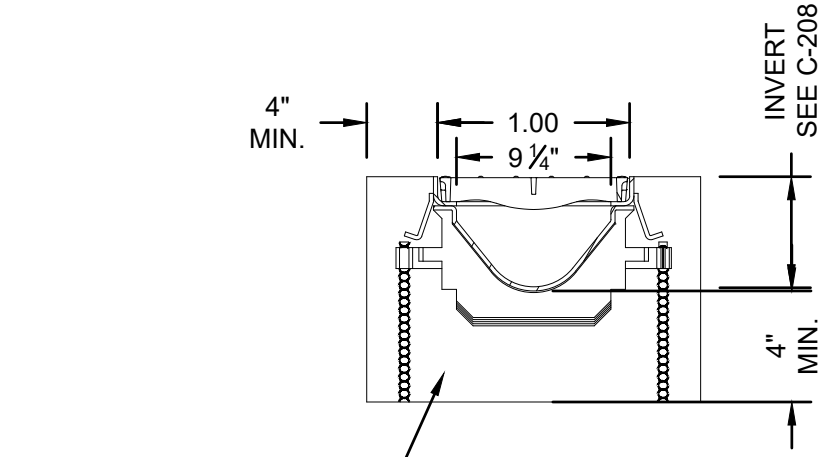
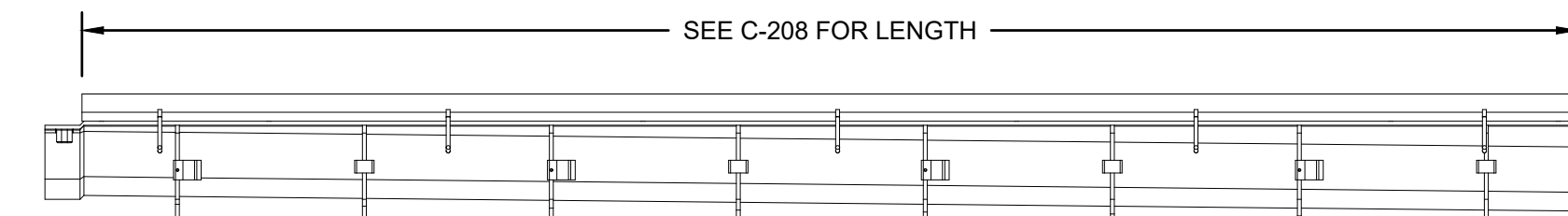
NOTE:
1. ALL CATCH BASINS SHALL MEET THE REQUIREMENTS OF THE TOWN OF ORLEANS DEPARTMENT OF PUBLIC WORKS. ANY CATCH BASINS INSTALLED ADJACENT TO GRANITE CURBING MUST RECEIVE GRANITE THROAT STONES.



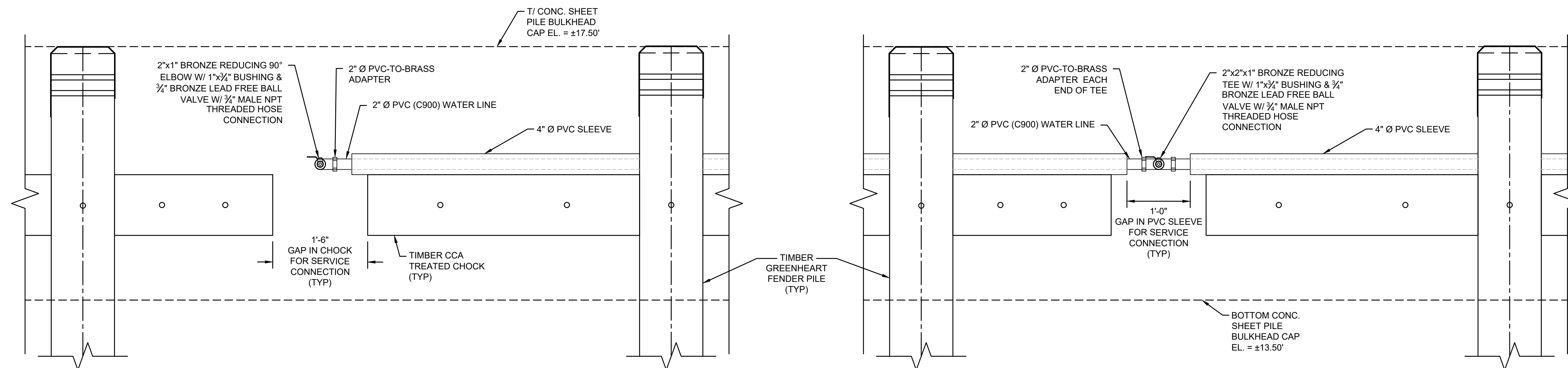
PRECAST CONCRETE DRAIN MANHOLE
SCALE: N.T.S.



DRAIN PIPE CONNECTION TO EXISTING PIPE OR MANHOLE
SCALE: N.T.S.



TRENCH DRAIN DETAIL
SCALE: N.T.S.



VESSEL SERVICE MANIFOLD DETAIL
SCALE: N.T.S.



DEPARTMENT OF PUBLIC WORKS
TOWN OF ORLEANS, MASSACHUSETTS
ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS

NO.	BY	DATE	DESCRIPTION
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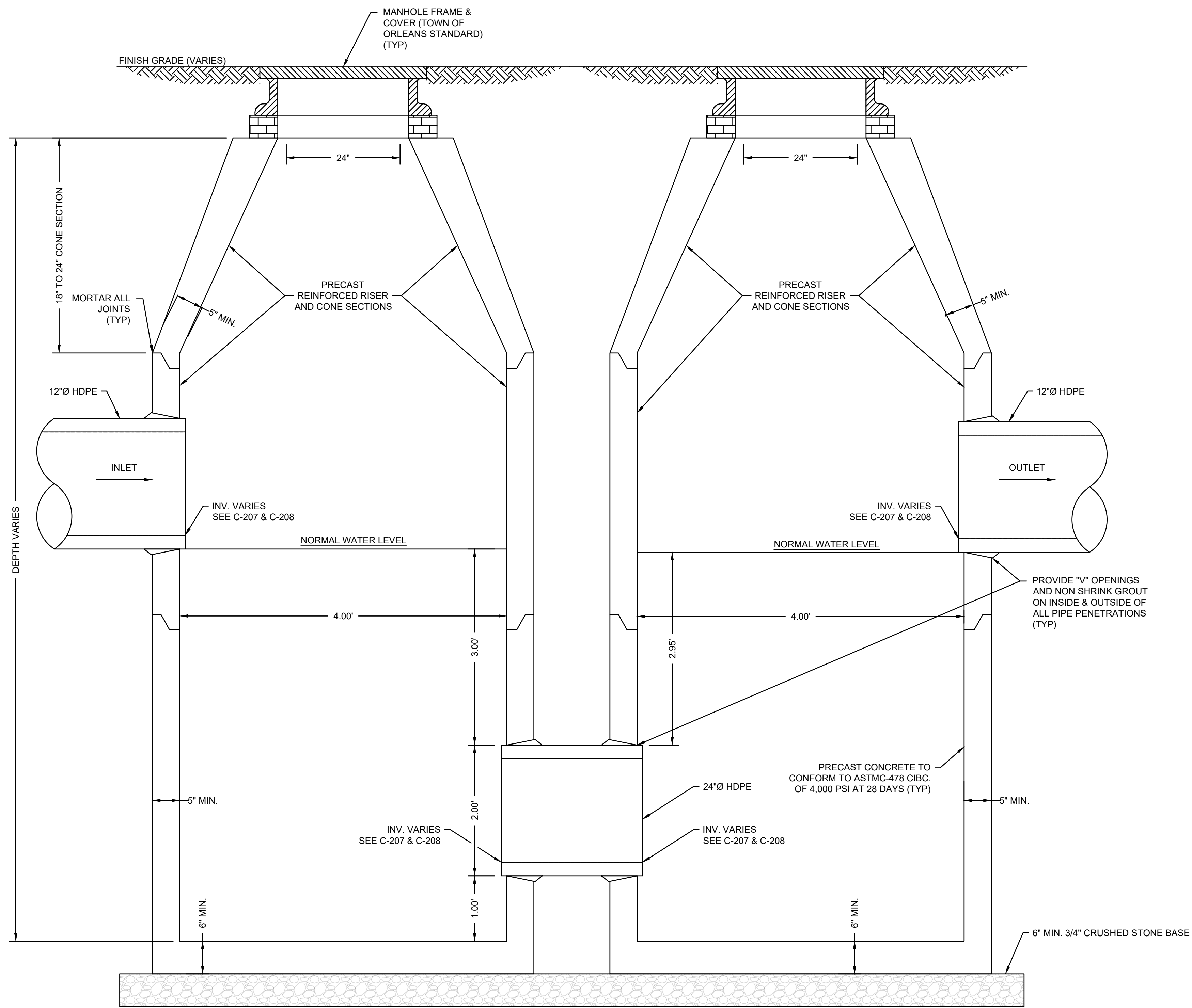
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SURVEYED	BY	DATE
MEC/JAH		10/24/19 & 3/2/21
DRAWN	BAM	12/05/2023
DESIGNED	SRS	06/28/2021
CHECKED	PSR	12/24/2023

SHEET TITLE:
DRAINAGE AND WATER SERVICE DETAILS 2 OF 2

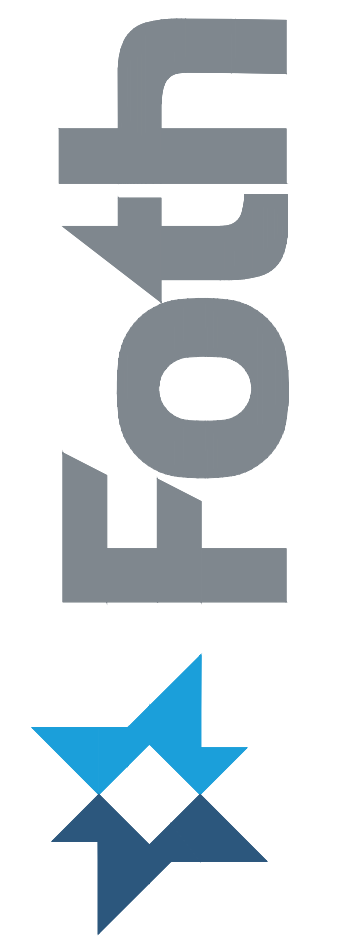
ISSUANCE:
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PROJECT NO: 00190004.10
SHEET NUMBER

C-703



PRECAST CONCRETE OIL / WATER SEPARATOR
SCALE: N.T.S.



DEPARTMENT OF PUBLIC WORKS
TOWN OF ORLEANS, MASSACHUSETTS
ROCK HARBOR COMMERCIAL WHARF
IMPROVEMENTS

NO.	BY	DATE	REVISIONS	
			DESCRIPTION	
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DATE OF PREPARATION		
	BY	DATE
SURVEYED	MEC/JAH	10/24/19 & 3/2/21
DRAWN	BAM	12/05/2023
DESIGNED	SRS	06/28/2021
CHECKED	PSR	12/24/2023

SHEET TITLE:
**DRAINAGE
DETAILS**

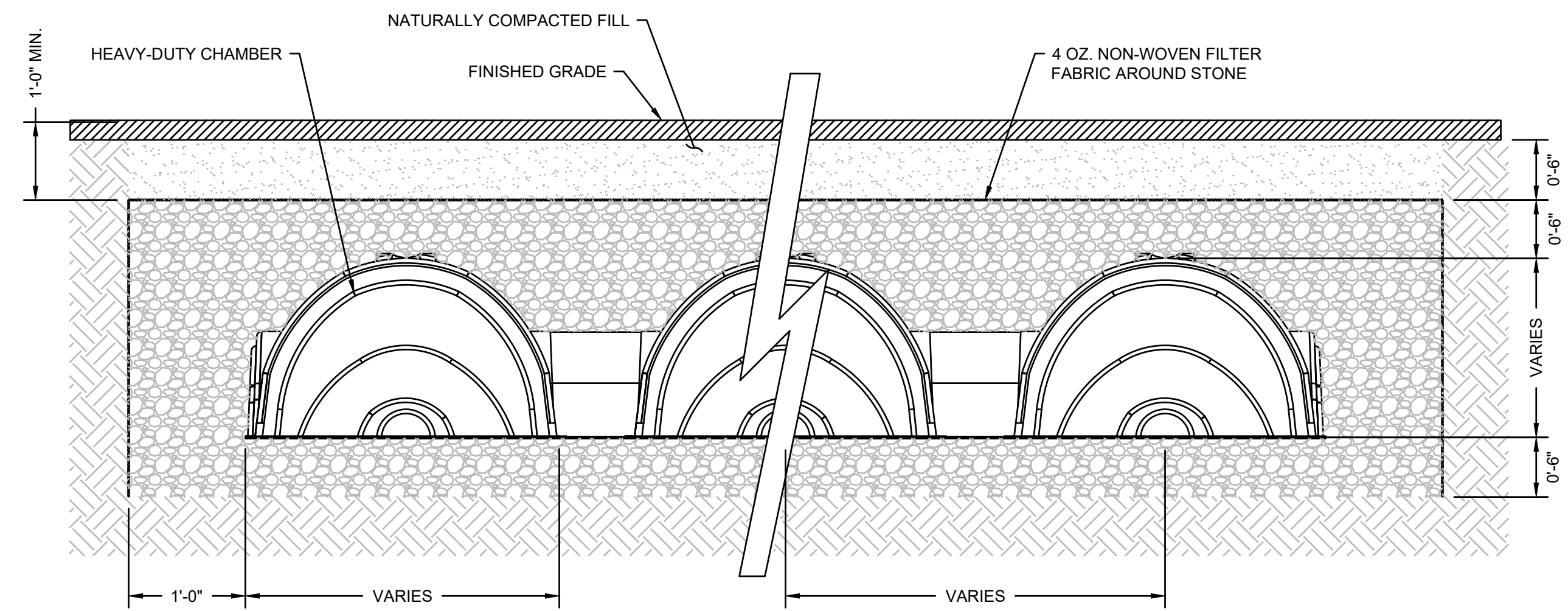
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ISSUED FOR BID

PROJECT NO: 00190004.10
SHEET NUMBER

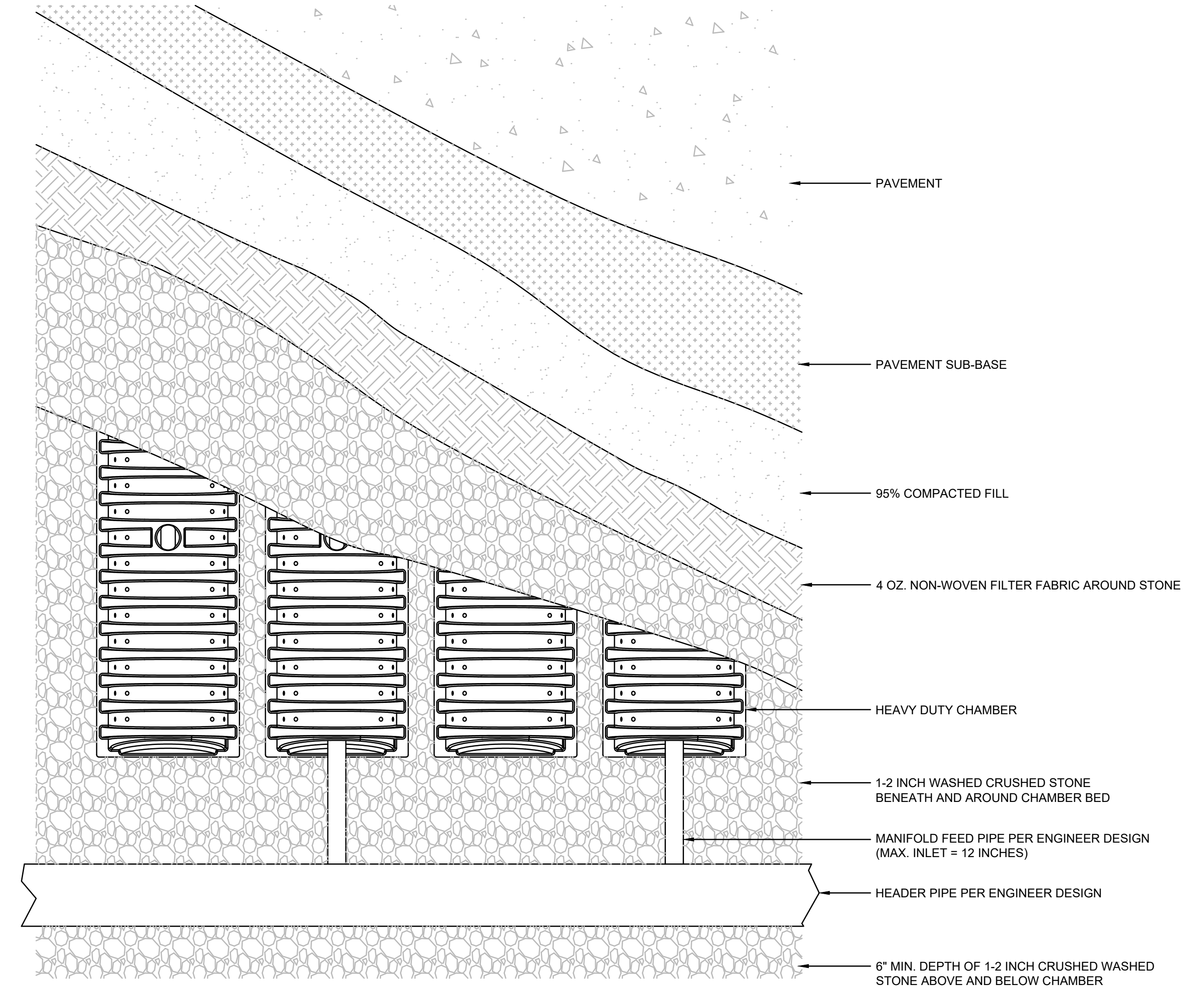
C-704

INFILTRATION CHAMBER SPECIFICATIONS

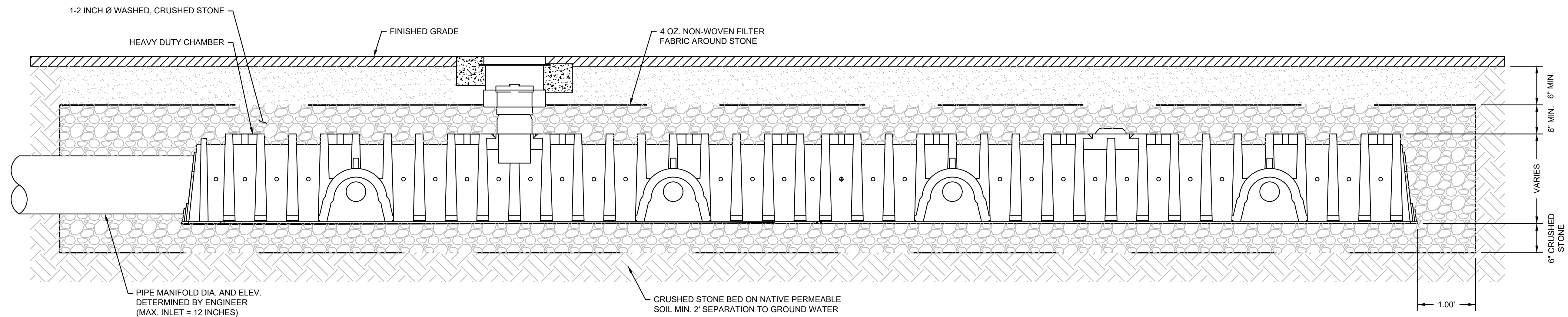
- GENERAL**
1. THE CHAMBER WILL HAVE 16 CORRUGATIONS.
 2. THE NOMINAL STORAGE VOLUME OF A JOINED CHAMBER SHALL BE 27.16 FT³ / UNIT - WITHOUT STONE FOR CHAMBERS #1 & #2 AND 42.5 FT³ / UNIT - WITHOUT STONE FOR CHAMBER #3.
 3. THE CHAMBERS SHALL BE VACUUM THERMOFORMED OF BLACK HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE) IN AN ISO-9001:2000 CERTIFIED FACILITY.
 4. CHAMBERS ARE TO BE MANUFACTURED WITH AN OPEN BOTTOM, INTEGRALLY FORMED END WALLS AND PERFORATED SIDEWALLS.
 5. ALL CHAMBERS SHALL BE ARCHED IN SHAPE AND HAVE SIXTY ¼ INCH ROUND DISCHARGE HOLES BORED INTO THE SIDEWALLS OF THE UNIT'S CORE TO PROMOTE INFILTRATION/EXFILTRATION.
 6. CHAMBERS SHALL BE DESIGNED TO WITHSTAND AASHTO H-20 LOAD RATING (32,000 LBS. /AXLE) WHEN INSTALLED ACCORDING TO THE MANUFACTURER INSTALLATION INSTRUCTIONS.
 7. THE UNITS MAY BE TRIMMED TO CUSTOM LENGTHS BY CUTTING BACK TO ANY CORRUGATION.
 8. REPEATING SUPPORT PANELS AND END WALLS OF THE ELONGATED CHAMBER SHALL BE SPACED EVERY 7.5 FEET.



UNDERGROUND STORMWATER INFILTRATION CHAMBER SECTION
SCALE: N.T.S.



UNDERGROUND STORMWATER INFILTRATION CHAMBER PLAN VIEW
SCALE: N.T.S.



UNDERGROUND STORMWATER INFILTRATION CHAMBER DETAIL
SCALE: N.T.S.



DEPARTMENT OF PUBLIC WORKS
TOWN OF ORLEANS, MASSACHUSETTS
ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS

NO.	DATE	DESCRIPTION

DATE OF PREPARATION		
BY	DATE	
MEC/JAH	10/24/19 & 3/2/21	
BAM	12/05/2023	
SRS	06/28/2021	
PSR	12/24/2023	

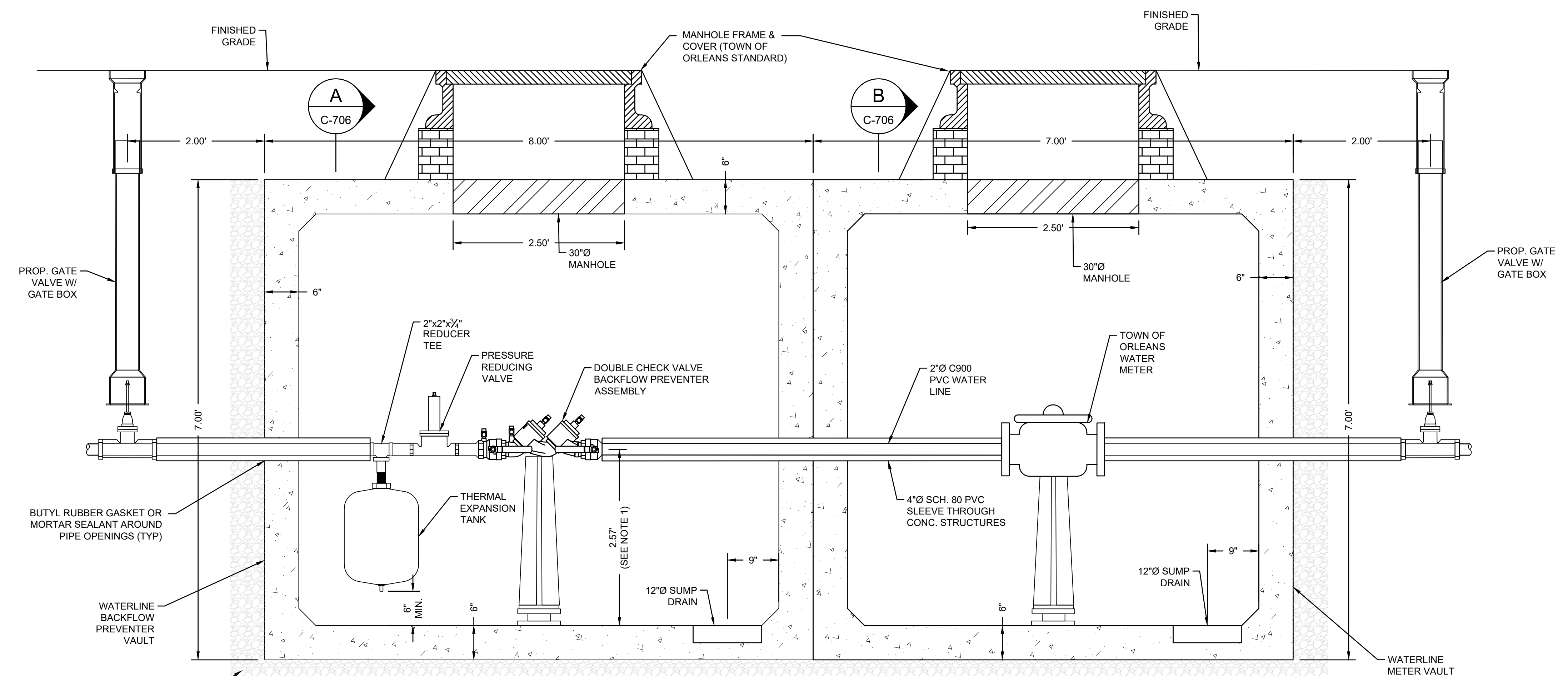
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INFILTRATION SYSTEM DETAILS

ISSUANCE:
ISSUED FOR BID

PROJECT NO: 00190004.10

SHEET NUMBER

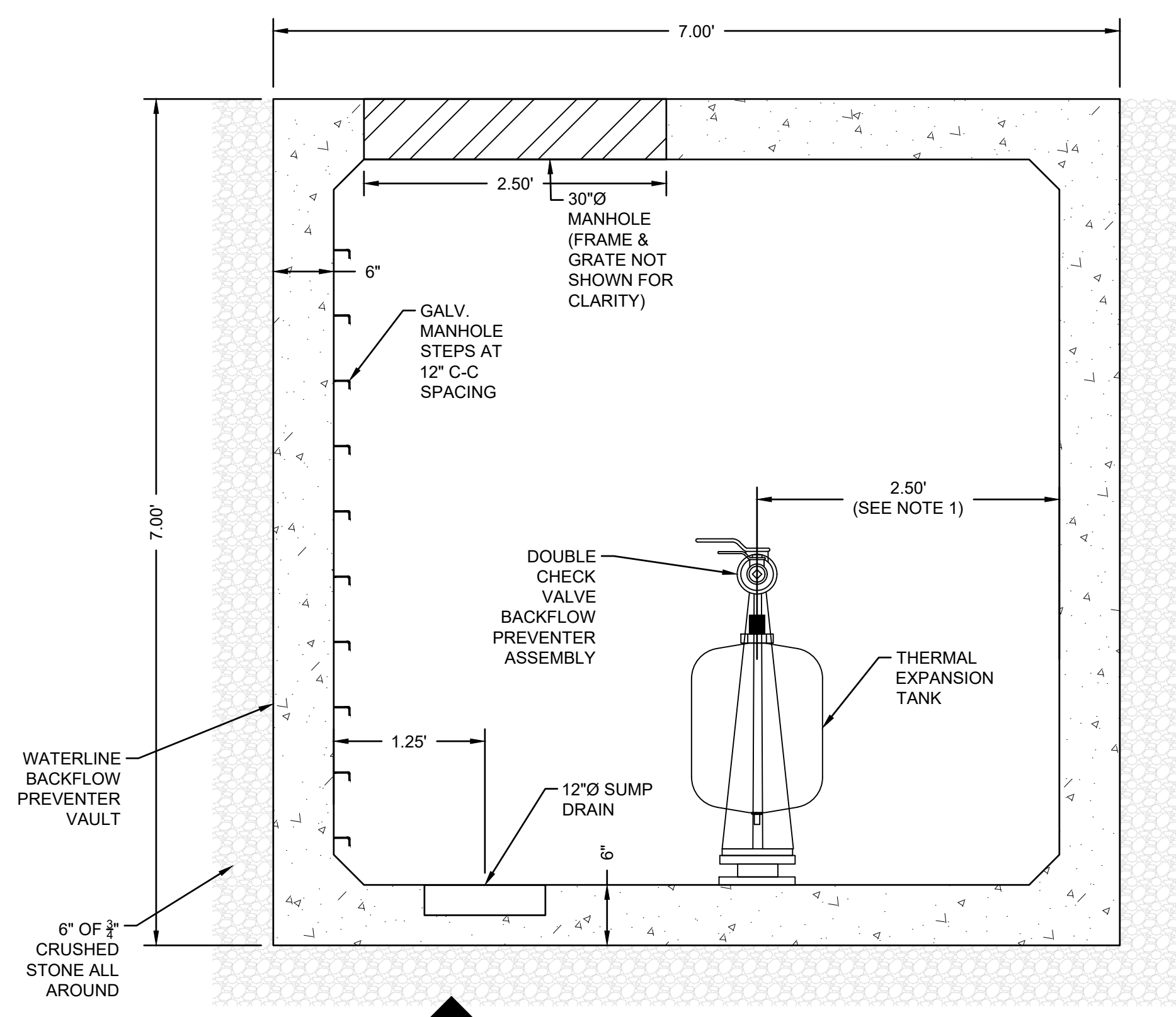
C-705



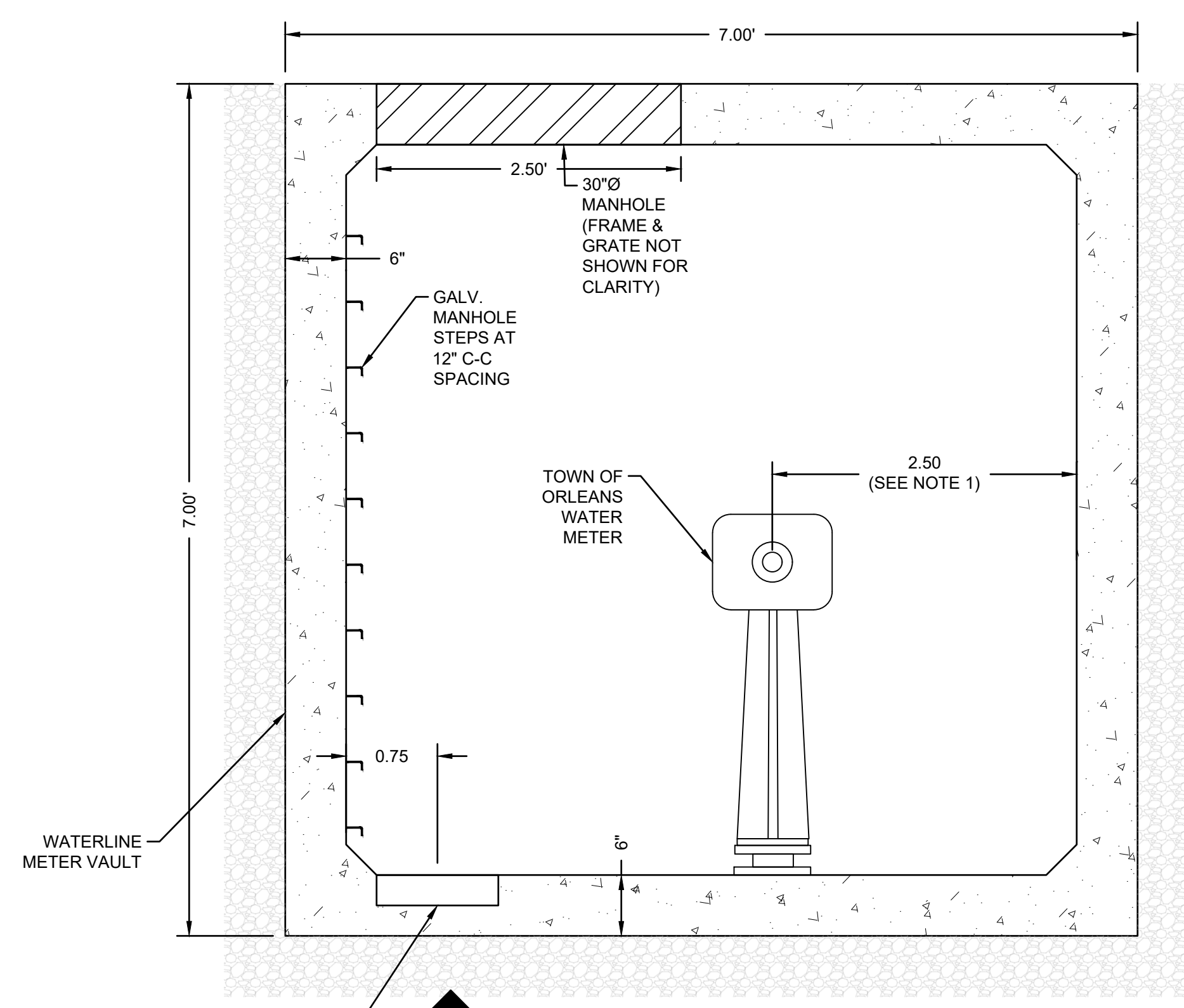
WATERLINE & BACKFLOW VAULT UNIT
SCALE: N.T.S.

NOTE:
1. CONTRACTOR TO VERIFY SIZE & REQUIREMENTS OF THE WATER METER & BACKFLOW PREVENTER AND ADJUST SPACING AS NEEDED.

6" OF 3/4" CRUSHED STONE ALL AROUND



A BACKFLOW VAULT SECTION C-706-1
SCALE: N.T.S.



B WATERLINE VAULT SECTION C-706-2
SCALE: N.T.S.

REVISIONS	
NO.	DESCRIPTION

NO.	BY	DATE

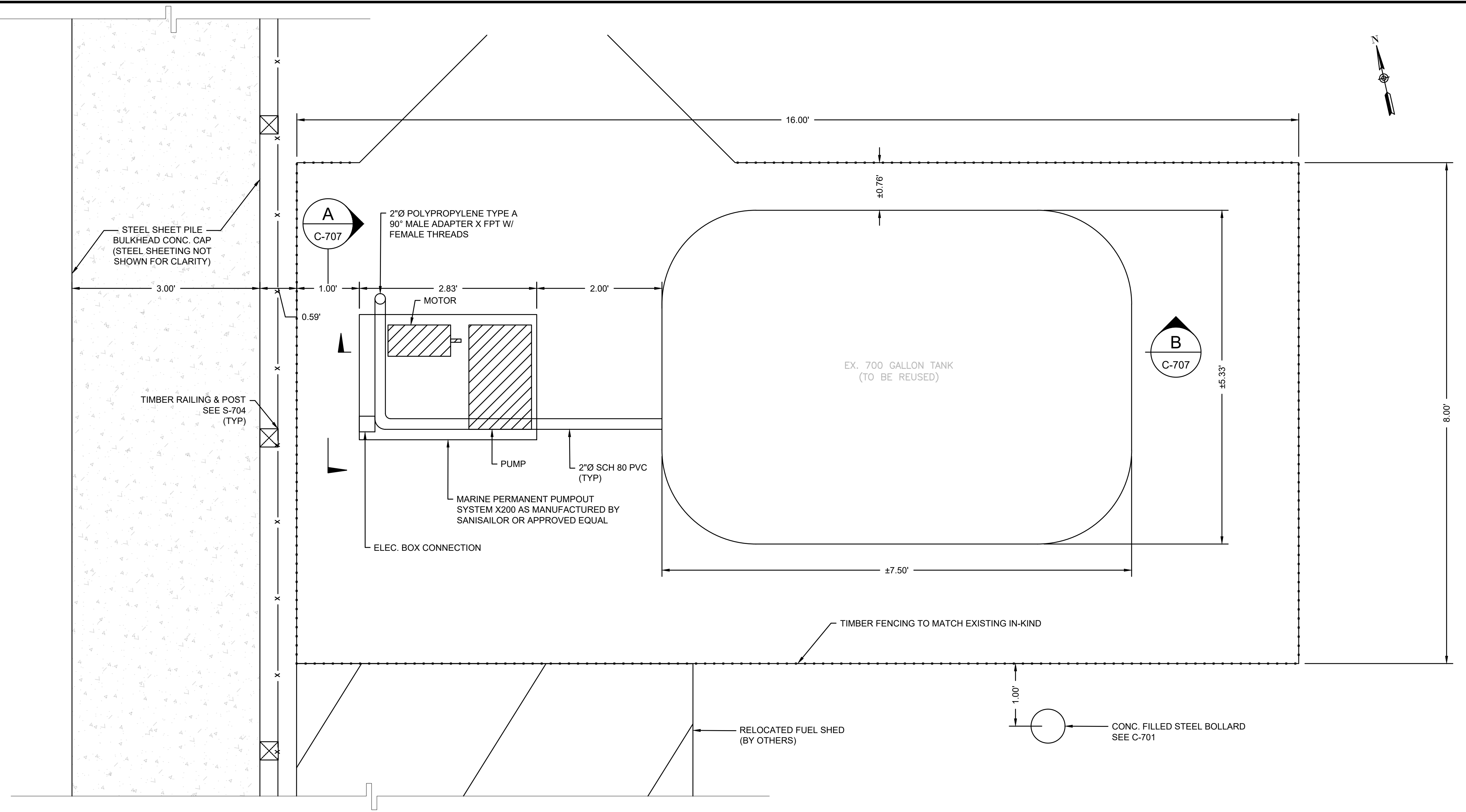
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DRAWN	BAM	12/05/2023
DESIGNED	SRS	06/28/2021
CHECKED	PSR	12/24/2023

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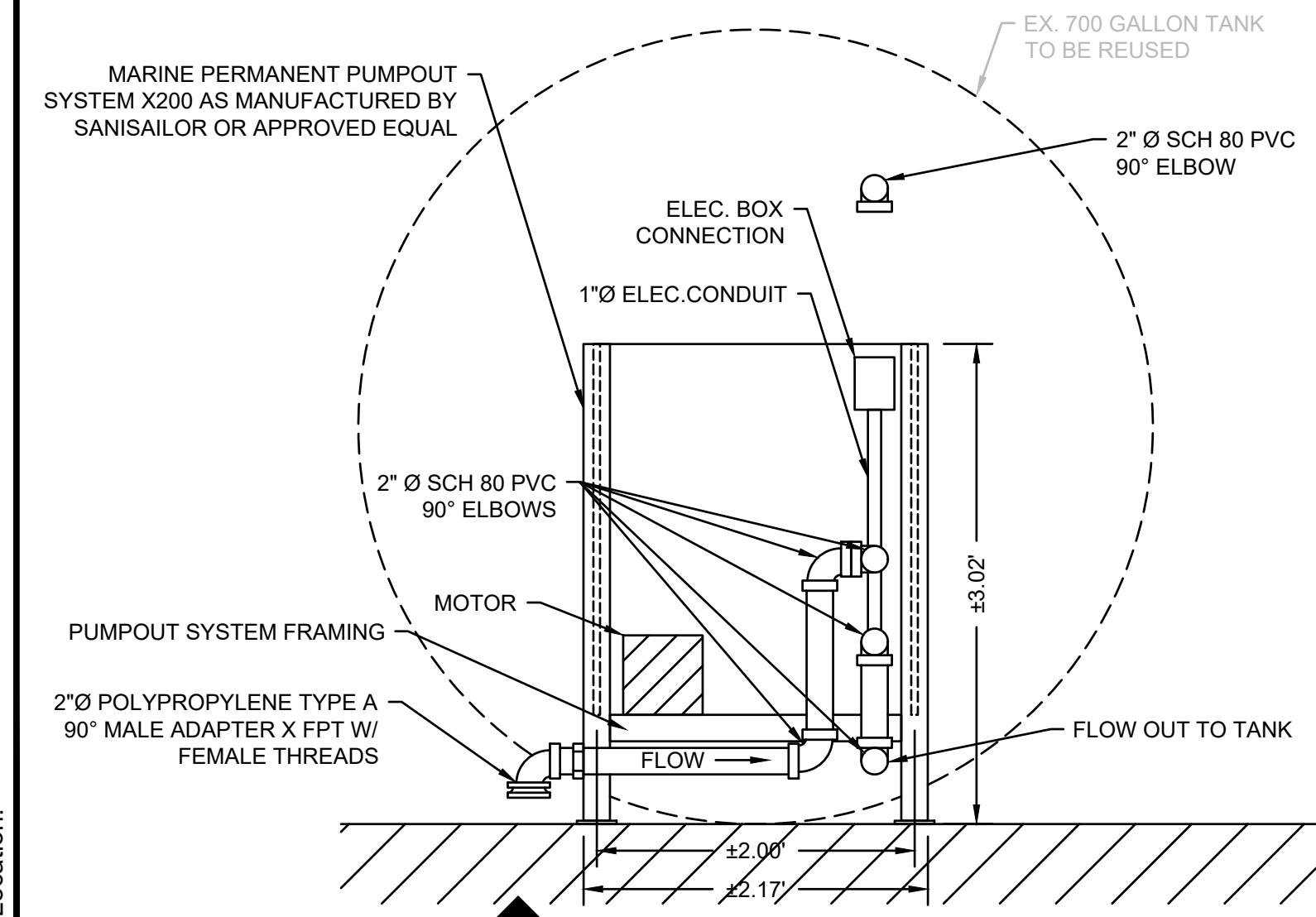
WATERLINE VAULT UNIT

ISSUANCE:
ISSUED FOR BID

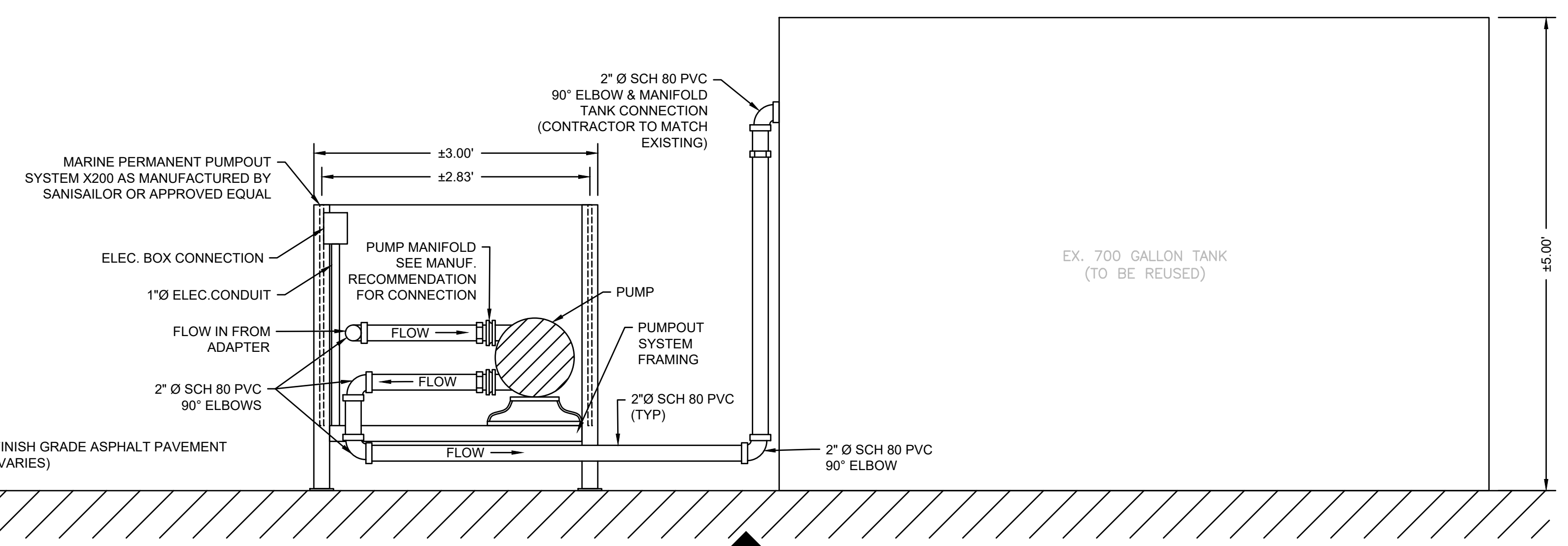
PROJECT NO: 00190004.10
SHEET NUMBER
C-706



PUMPOUT STATION PLAN VIEW
 SCALE: 1" = 1'



A PUMPOUT STATION DETAIL
 SCALE: 1" = 1'



B PUMPOUT STATION SECTION
 SCALE: 1" = 1'

NOTE:
 1. NEW PUMPOUT STATION CONFIGURATION TO MATCH EXISTING SETUP.
 2. PUMPOUT LINE TO BOATS APPROX. 50'-0" LONG.

NO.	BY	DATE	REVISIONS	
			DESCRIPTION	
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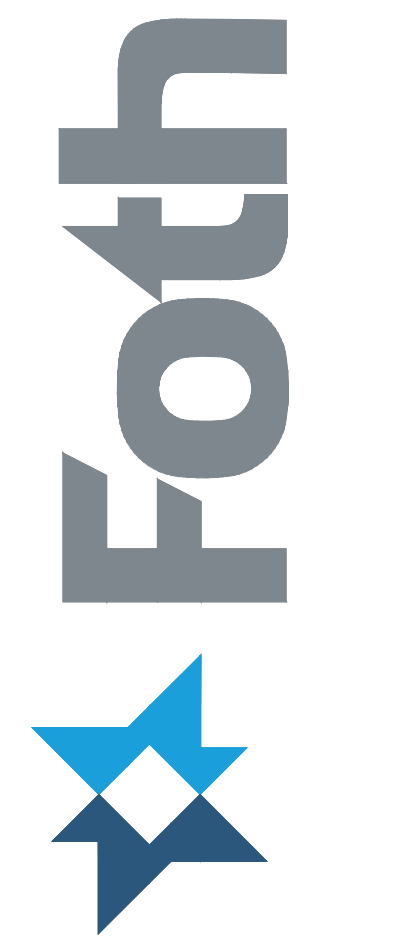
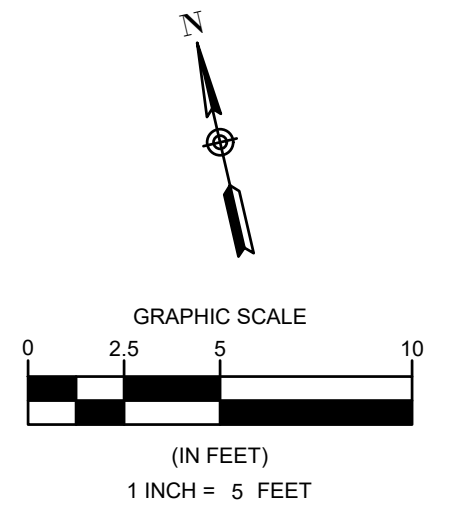
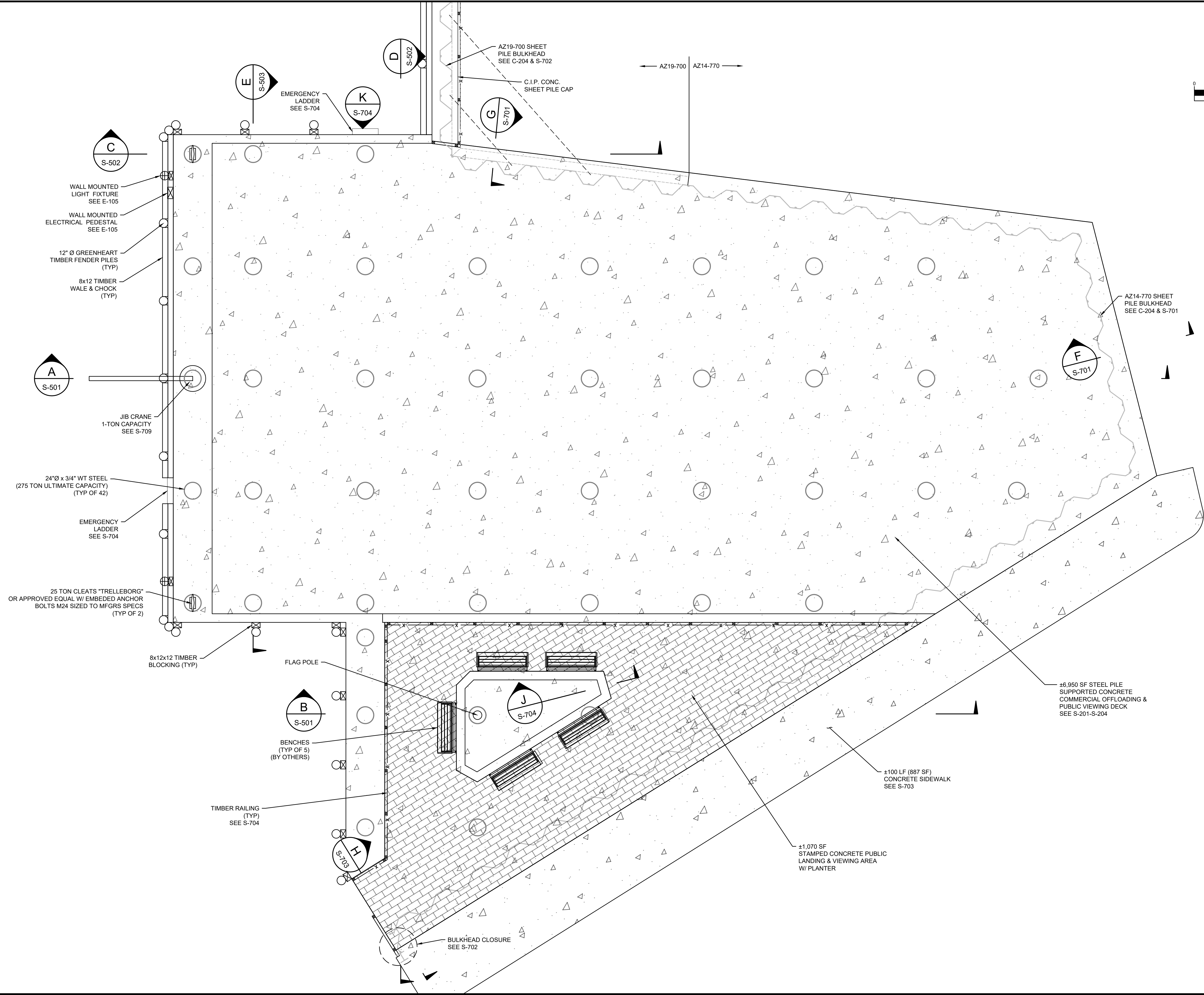
DATE OF PREPARATION		
SURVEYED	BY	DATE
MEC/JAH		10/24/19 & 3/2/21
DRAWN	BAM	12/05/2023
DESIGNED	SRS	06/28/2021
CHECKED	PSR	12/24/2023

SHEET TITLE:
PUMPOUT STATION DETAILS

ISSUANCE:
ISSUED FOR BID

PROJECT NO: 00190004.10
 SHEET NUMBER

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DEPARTMENT OF PUBLIC WORKS
TOWN OF ORLEANS, MASSACHUSETTS
ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS

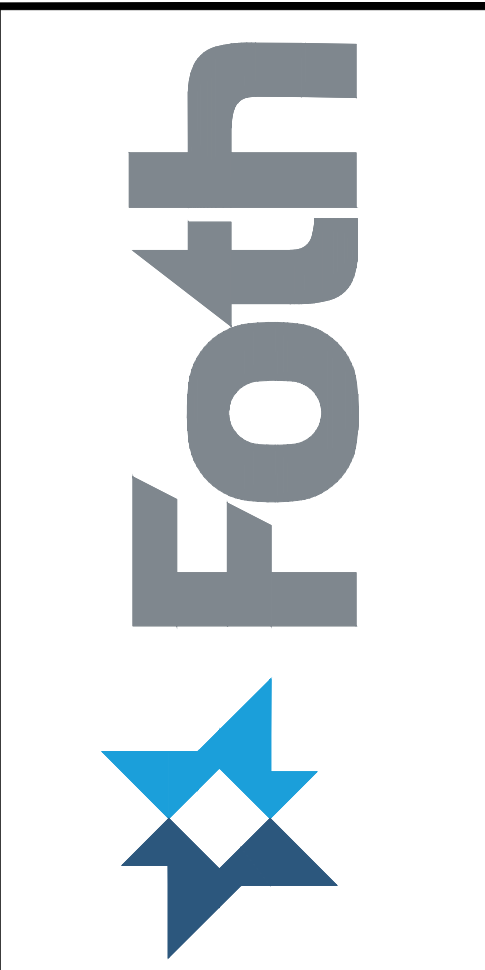
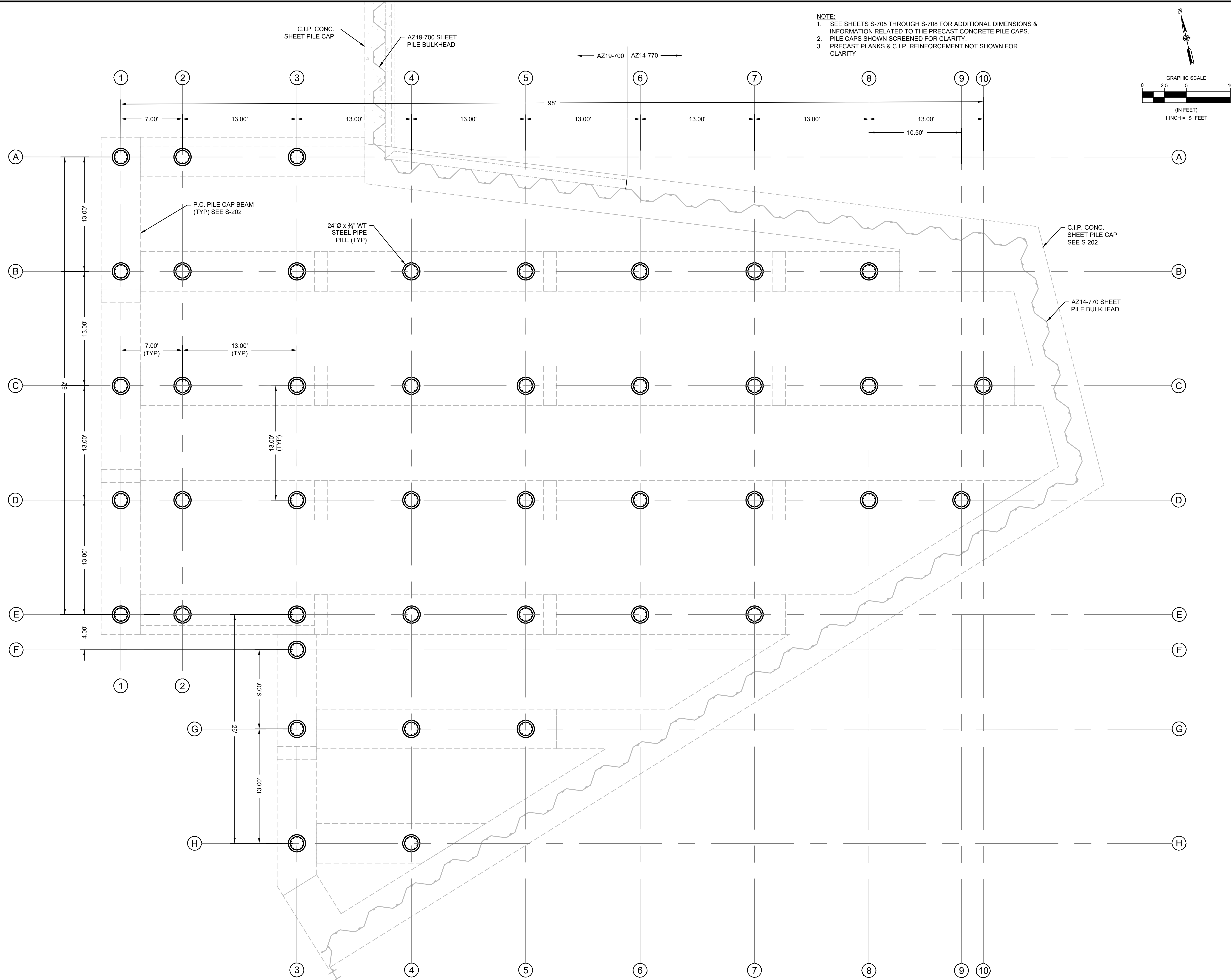
REVISIONS		DATE OF PREPARATION	
NO.	DESCRIPTION	BY	DATE
1			
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COMMERCIAL WHARF STRUCTURAL SITE PLAN

ISSUANCE:
ISSUED FOR BID

PROJECT NO: 00190004.10
 SHEET NUMBER
S-101

Thursday, March 7, 2024 11:37:53 AM
 DWG Filename: s-201 precast pile cap plan.dwg
 Layout: s-201 commercial wharf pile layout plan
 DWG Folder Location:



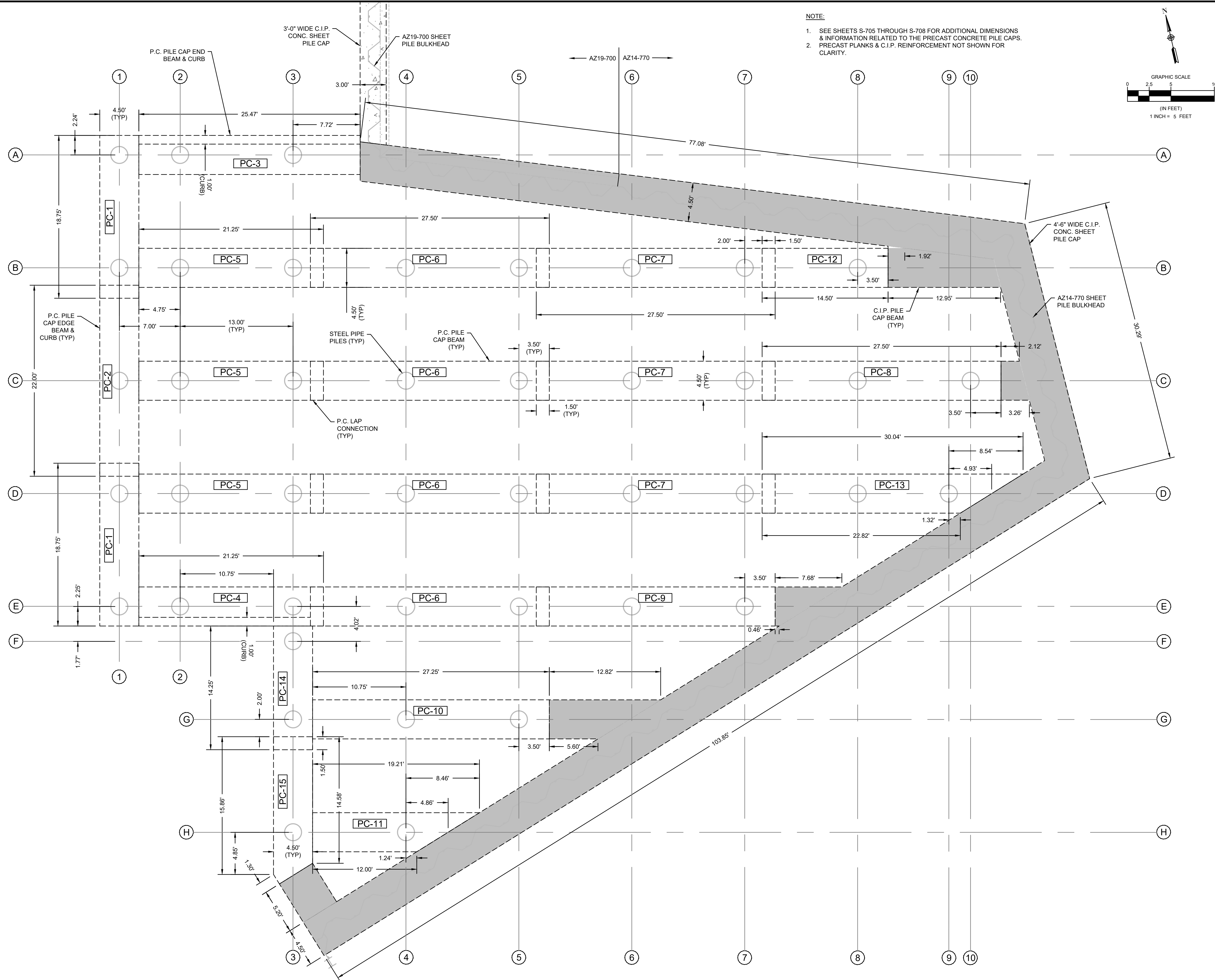
DEPARTMENT OF PUBLIC WORKS
TOWN OF ORLEANS, MASSACHUSETTS
ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS

REVISIONS		DATE OF PREPARATION	
NO.	DESCRIPTION	BY	DATE
1			
2			
3			
4			
5			

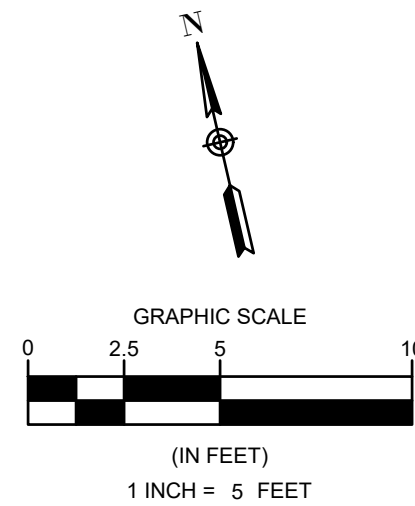
COMMERCIAL WHARF PILE LAYOUT PLAN

ISSUANCE:
ISSUED FOR BID

PROJECT NO: 00190004.10
 SHEET NUMBER
S-201



NOTE:
 1. SEE SHEETS S-705 THROUGH S-708 FOR ADDITIONAL DIMENSIONS & INFORMATION RELATED TO THE PRECAST CONCRETE PILE CAPS.
 2. PRECAST PLANKS & C.I.P. REINFORCEMENT NOT SHOWN FOR CLARITY.



Foth

REGISTERED PROFESSIONAL ENGINEER
 ALEXI MORAN
 CIVIL
 NO. 55509
 7 March 2024

**DEPARTMENT OF PUBLIC WORKS
 TOWN OF ORLEANS, MASSACHUSETTS
 ROCK HARBOR COMMERCIAL WHARF
 IMPROVEMENTS**

REVISIONS		DATE OF PREPARATION	
NO.	DESCRIPTION	BY	DATE
1			
2			
3			
4			
5			

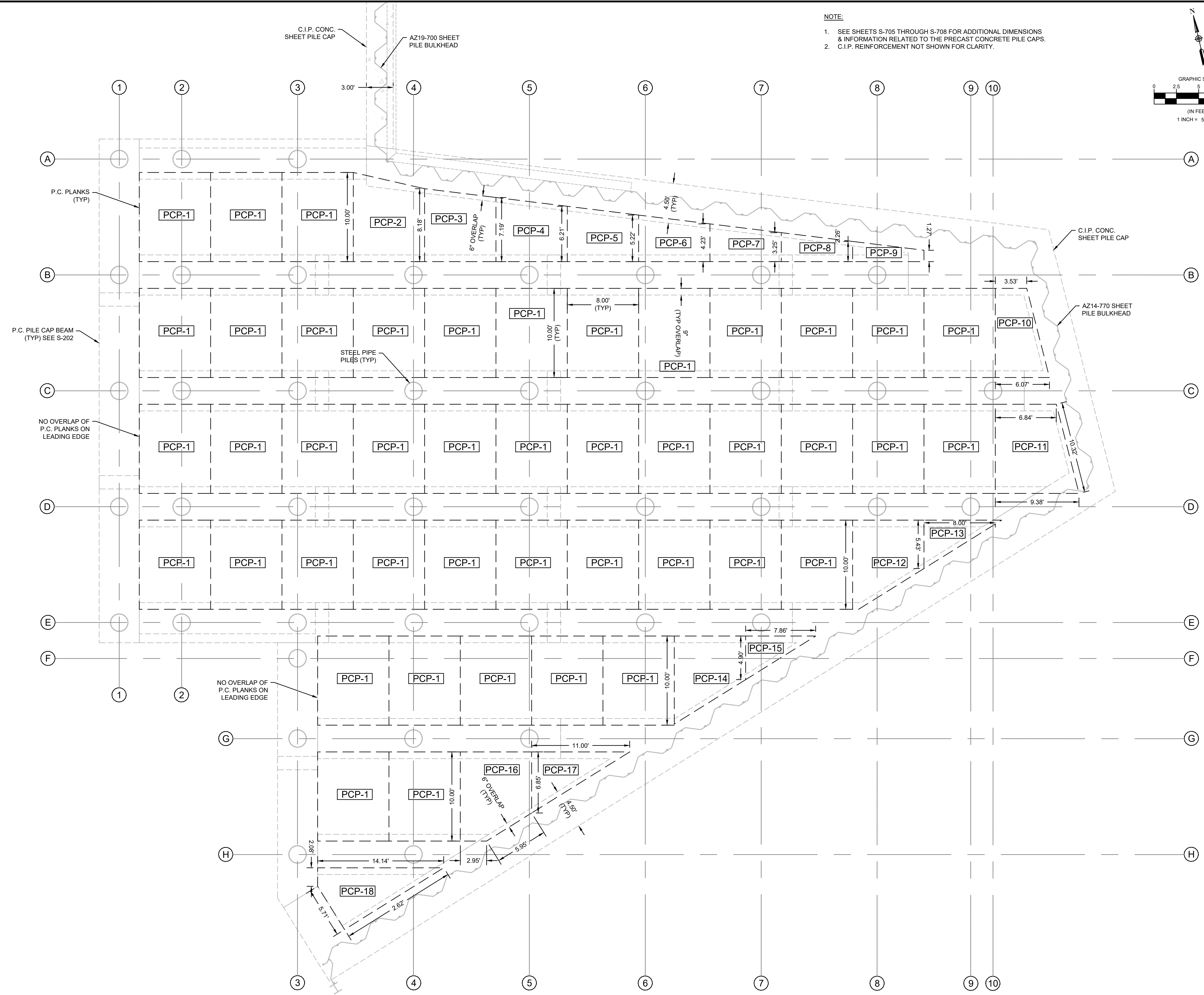
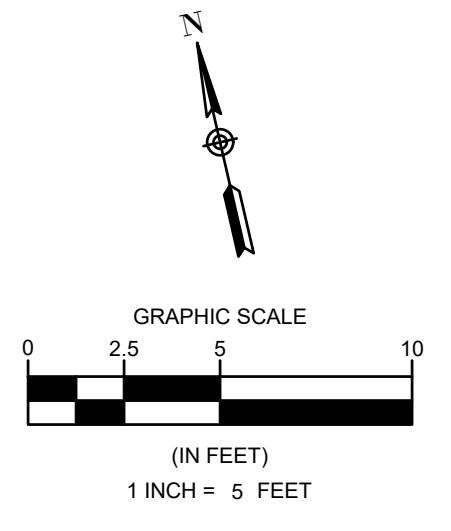
SHEET TITLE: COMMERCIAL WHARF PILE CAP LAYOUT PLAN		
ISSUANCE: ISSUED FOR BID		
PROJECT NO:	00190004.10	
SHEET NUMBER	S-202	

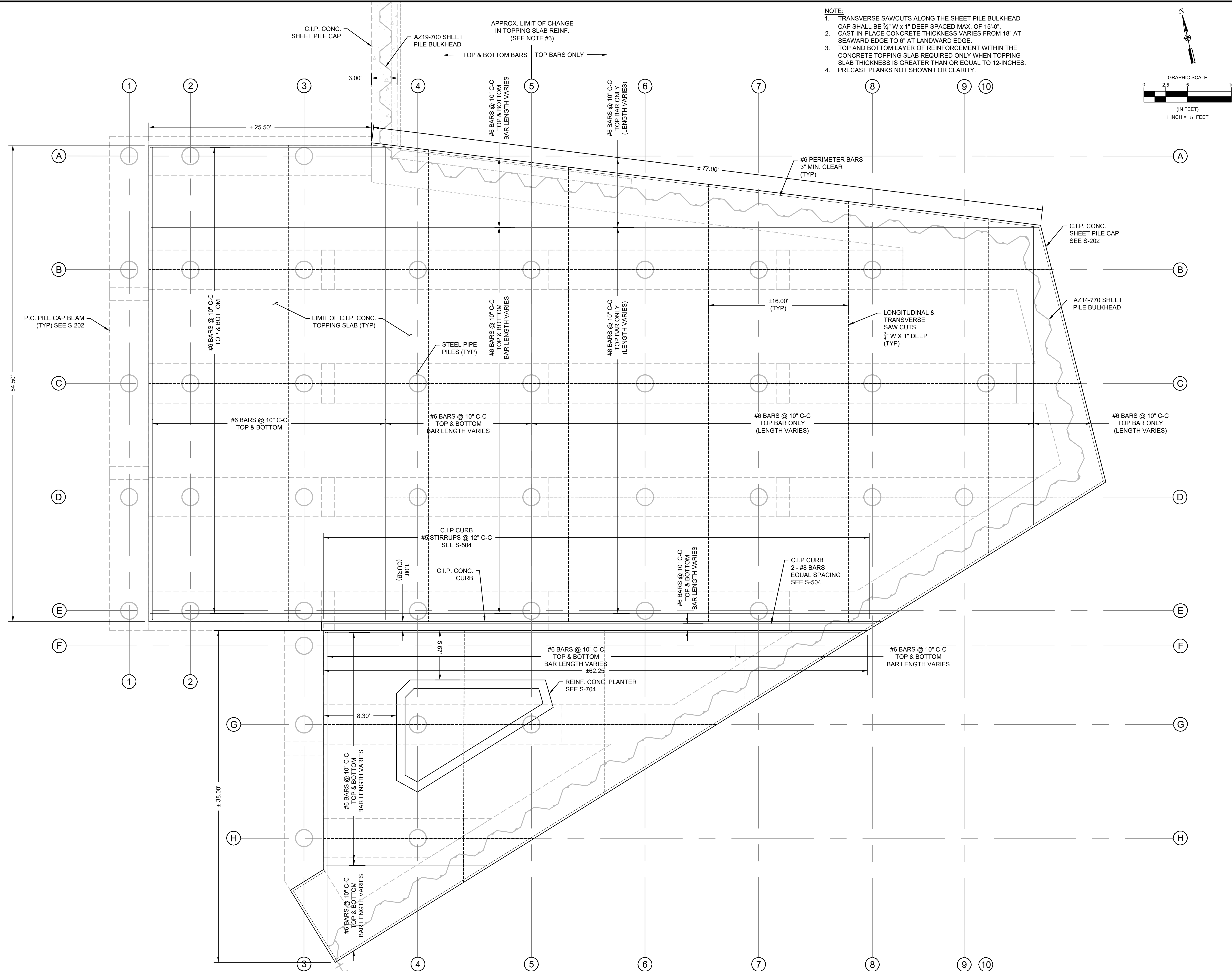
DEPARTMENT OF PUBLIC WORKS
 TOWN OF ORLEANS, MASSACHUSETTS
 ROCK HARBOR COMMERCIAL WHARF
 IMPROVEMENTS

REVISIONS		DATE OF PREPARATION	
NO.	DESCRIPTION	BY	DATE
1			
2			
3			
4			

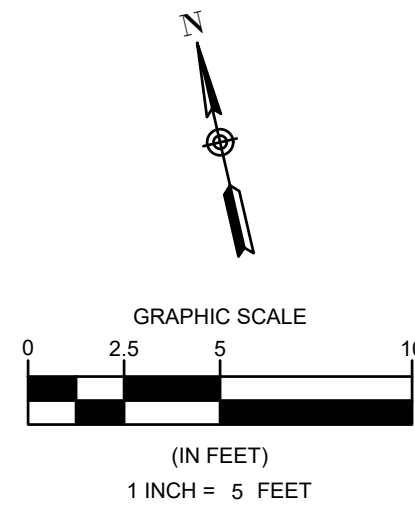
SHEET TITLE:	
COMMERCIAL WHARF PRECAST PLANKS LAYOUT PLAN	
ISSUANCE:	
ISSUED FOR BID	
PROJECT NO:	00190004.10
SHEET NUMBER	
S-203	

- NOTE:**
- SEE SHEETS S-705 THROUGH S-708 FOR ADDITIONAL DIMENSIONS & INFORMATION RELATED TO THE PRECAST CONCRETE PILE CAPS.
 - C.I.P. REINFORCEMENT NOT SHOWN FOR CLARITY.





- NOTE:
1. TRANSVERSE SAWCUTS ALONG THE SHEET PILE BULKHEAD CAP SHALL BE 3/4" W x 1" DEEP SPACED MAX. OF 15'-0".
 2. CAST-IN-PLACE CONCRETE THICKNESS VARIES FROM 18" AT SEAWARD EDGE TO 6" AT LANDWARD EDGE.
 3. TOP AND BOTTOM LAYER OF REINFORCEMENT WITHIN THE CONCRETE TOPPING SLAB REQUIRED ONLY WHEN TOPPING SLAB THICKNESS IS GREATER THAN OR EQUAL TO 12-INCHES. PRECAST PLANKS NOT SHOWN FOR CLARITY.
 - 4.



ALEX MORAN
 CIVIL ENGINEER
 NO. 55369
 REGISTERED PROFESSIONAL ENGINEER
 7 March 2024

DEPARTMENT OF PUBLIC WORKS
 TOWN OF ORLEANS, MASSACHUSETTS
 ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS

REVISIONS		DESCRIPTION	
NO.	BY	DATE	
1			
2			
3			
4			
5			

DATE OF PREPARATION

	BY	DATE
SURVEYED	MEC/JAH	10/24/19 & 3/2/21
DRAWN	BAM	12/05/2023
DESIGNED	SRS	06/28/2021
CHECKED	PSR	12/24/2023

SHEET TITLE:
COMMERCIAL WHARF CIP DECK LAYOUT PLAN

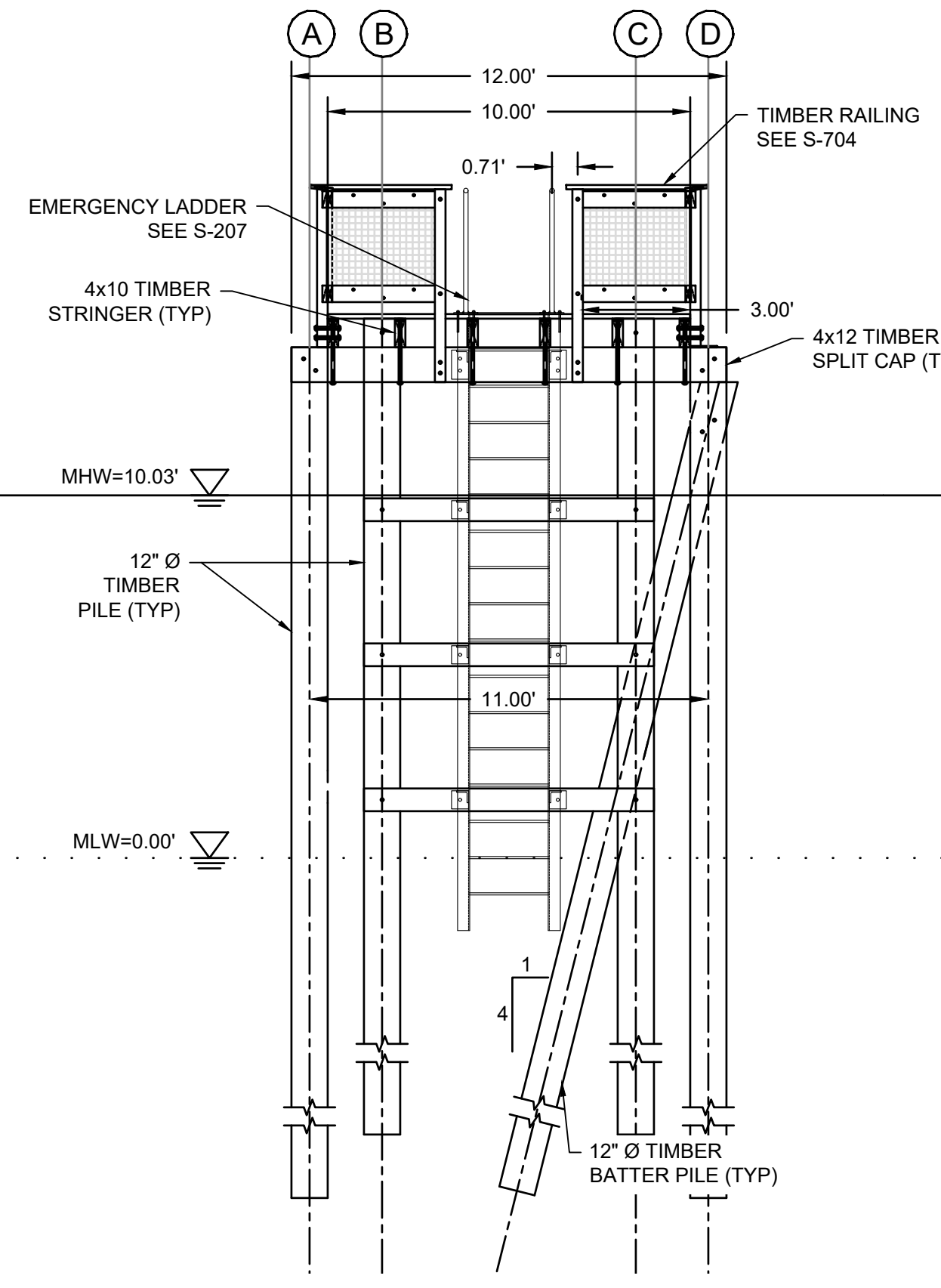
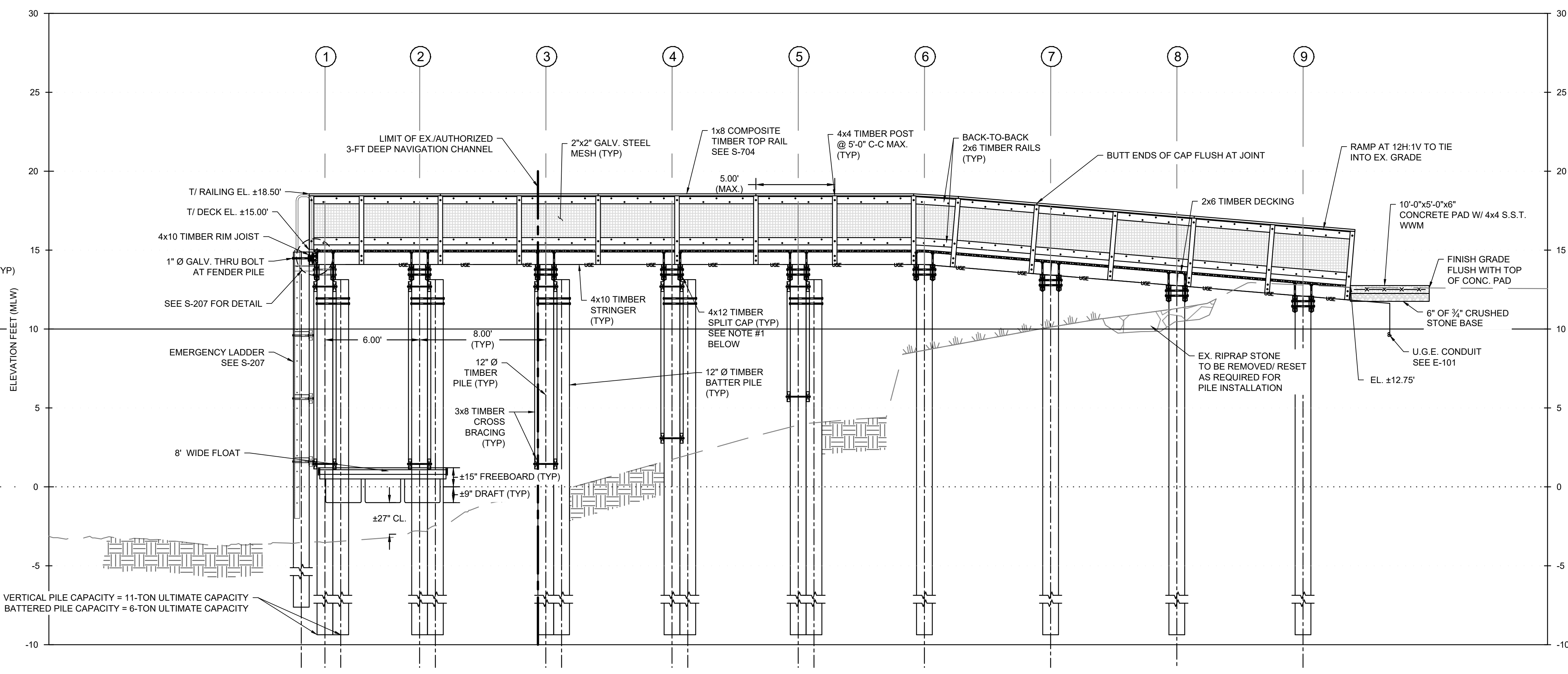
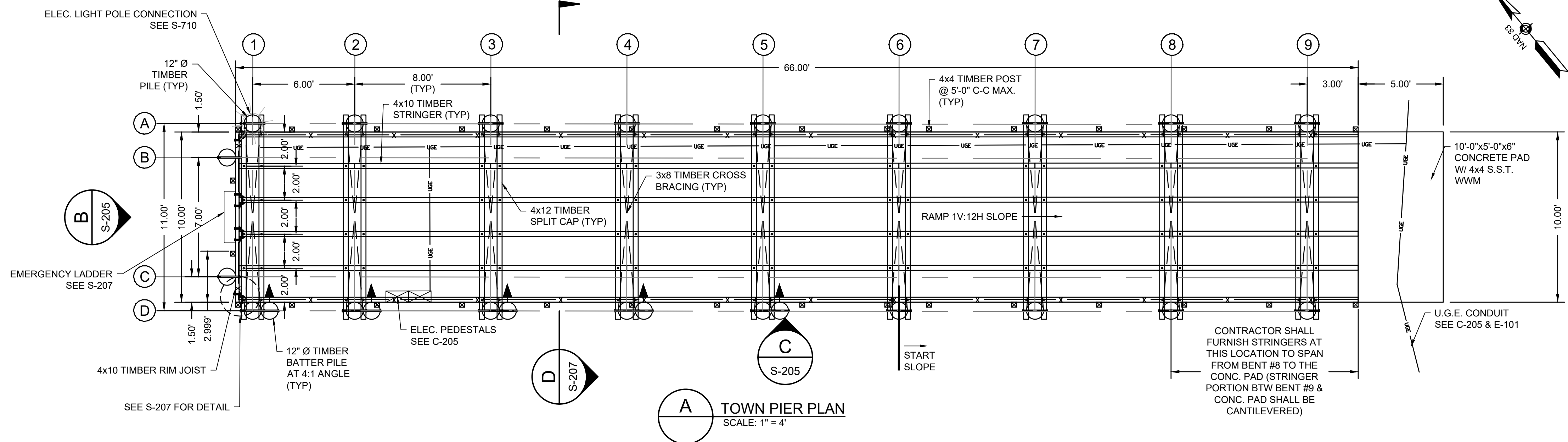
ISSUANCE:
ISSUED FOR BID

PROJECT NO: 00190004.10
 SHEET NUMBER
S-204

DEPARTMENT OF PUBLIC WORKS
 TOWN OF ORLEANS, MASSACHUSETTS
 ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS

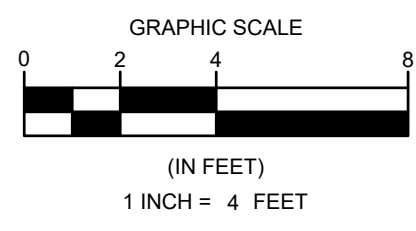
REVISIONS	
NO.	DESCRIPTION

DATE OF PREPARATION	
BY	DATE
SURVEYED	MEC/JAH 10/24/19 & 3/2/21
DRAWN	BAM 12/05/2023
DESIGNED	SRS 06/28/2021
CHECKED	PSR 12/24/2023
SHEET TITLE:	
TOWN PIER PLAN, PROFILE, & SECTION	
ISSUANCE:	
ISSUED FOR BID	
PROJECT NO:	00190004.10
SHEET NUMBER	S-205

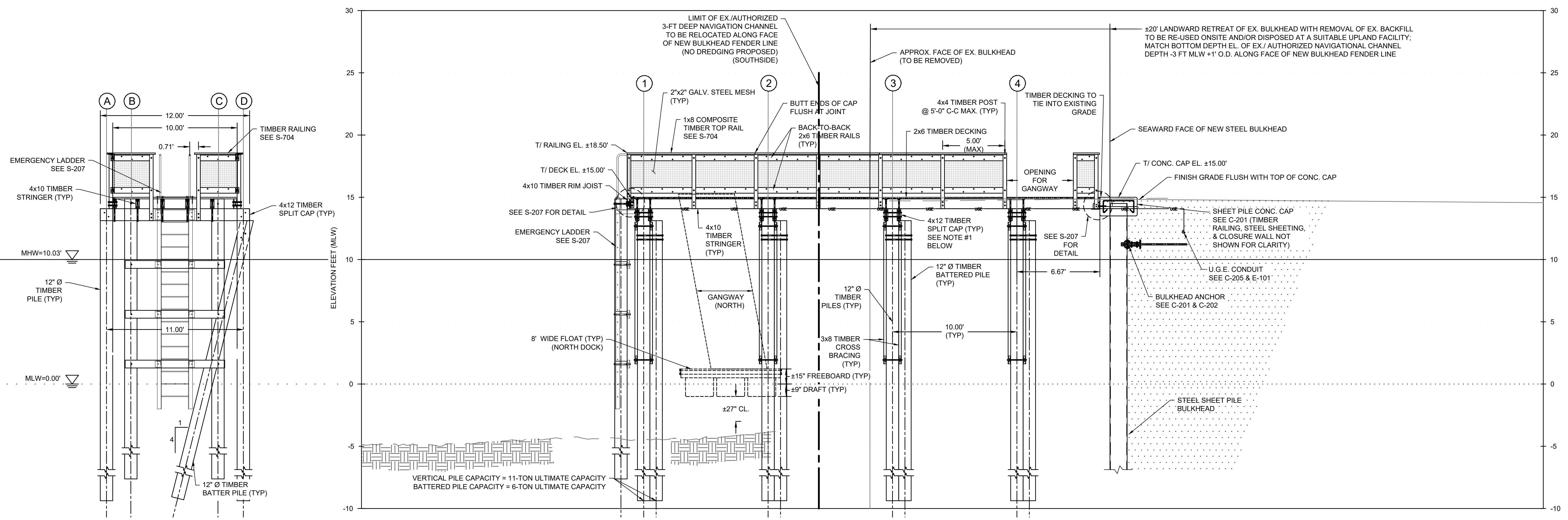
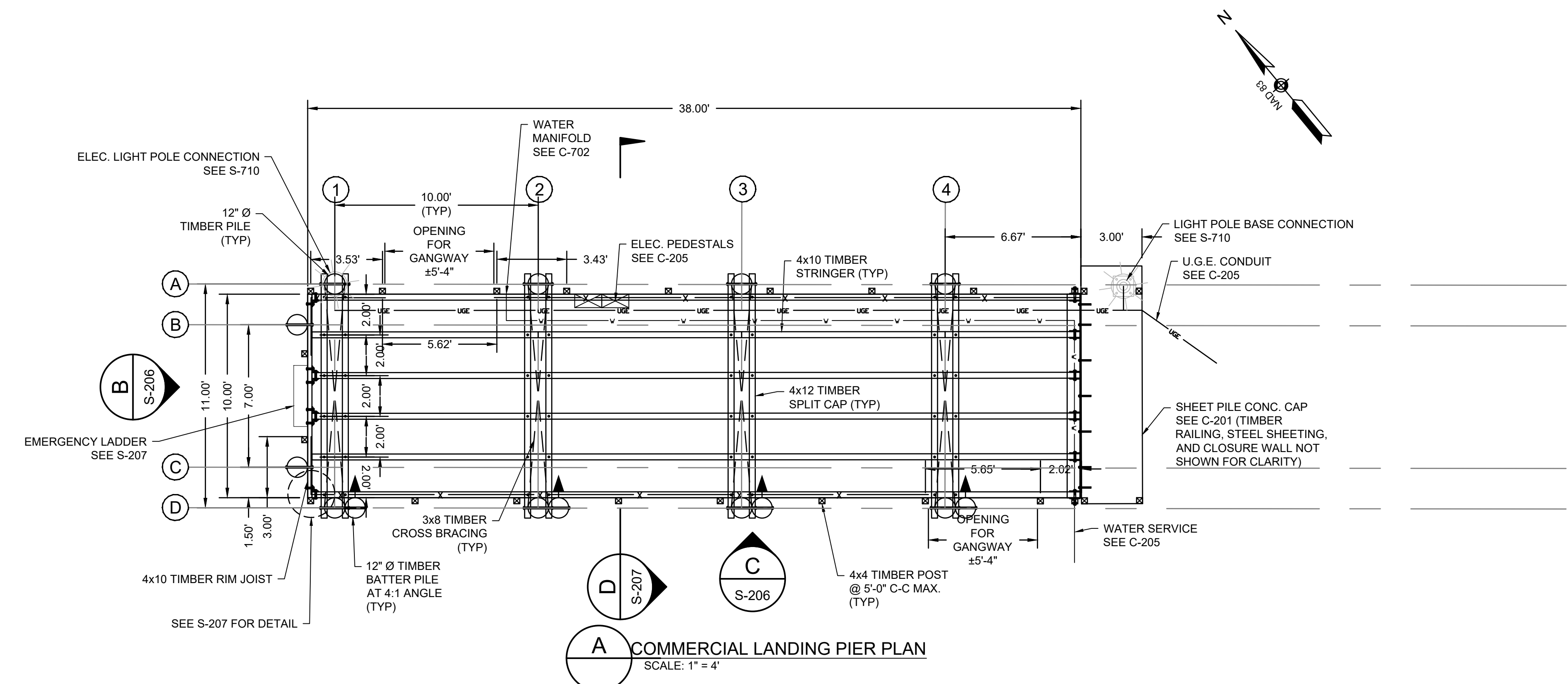


NOTE:
 1. CROSS BRACING NOT SHOWN FOR CLARITY.
 2. TIMBER RIM JOIST & CONNECTION NOT SHOWN FOR CLARITY.

NOTE:
 1. NOTCH PILE AS REQUIRED FOR TIMBER SPLIT CAP.

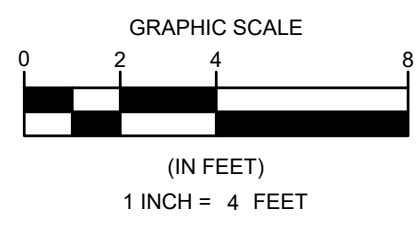


DEPARTMENT OF PUBLIC WORKS
TOWN OF ORLEANS, MASSACHUSETTS
ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS



NOTE:
1. CROSS BRACING NOT SHOWN FOR CLARITY.
2. TIMBER RIM JOIST & CONNECTION NOT SHOWN FOR CLARITY.

NOTE:
1. NOTCH PILE AS REQUIRED FOR TIMBER SPLIT CAP.



REVISIONS		DESCRIPTION	
NO.	DATE	BY	DATE

DATE OF PREPARATION

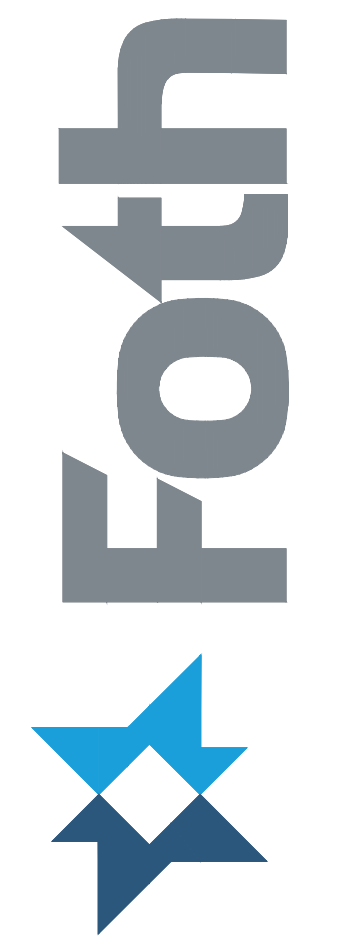
BY	DATE
MEC/JAH	10/24/19 & 3/2/21
BAM	12/05/2023
SRS	06/28/2021
PSR	12/24/2023

SHEET TITLE:
COMMERCIAL LANDING PIER PLAN, PROFILE, & SECTION

ISSUANCE:
ISSUED FOR BID

PROJECT NO: 00190004.10
SHEET NUMBER

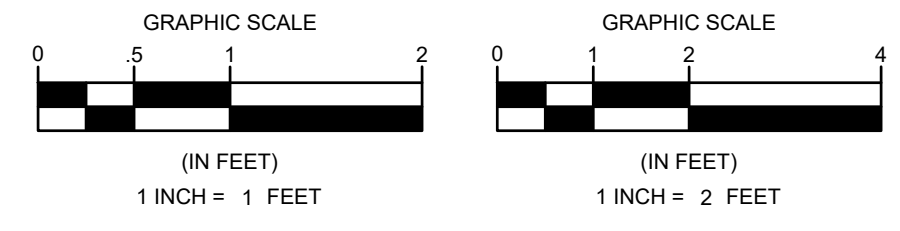
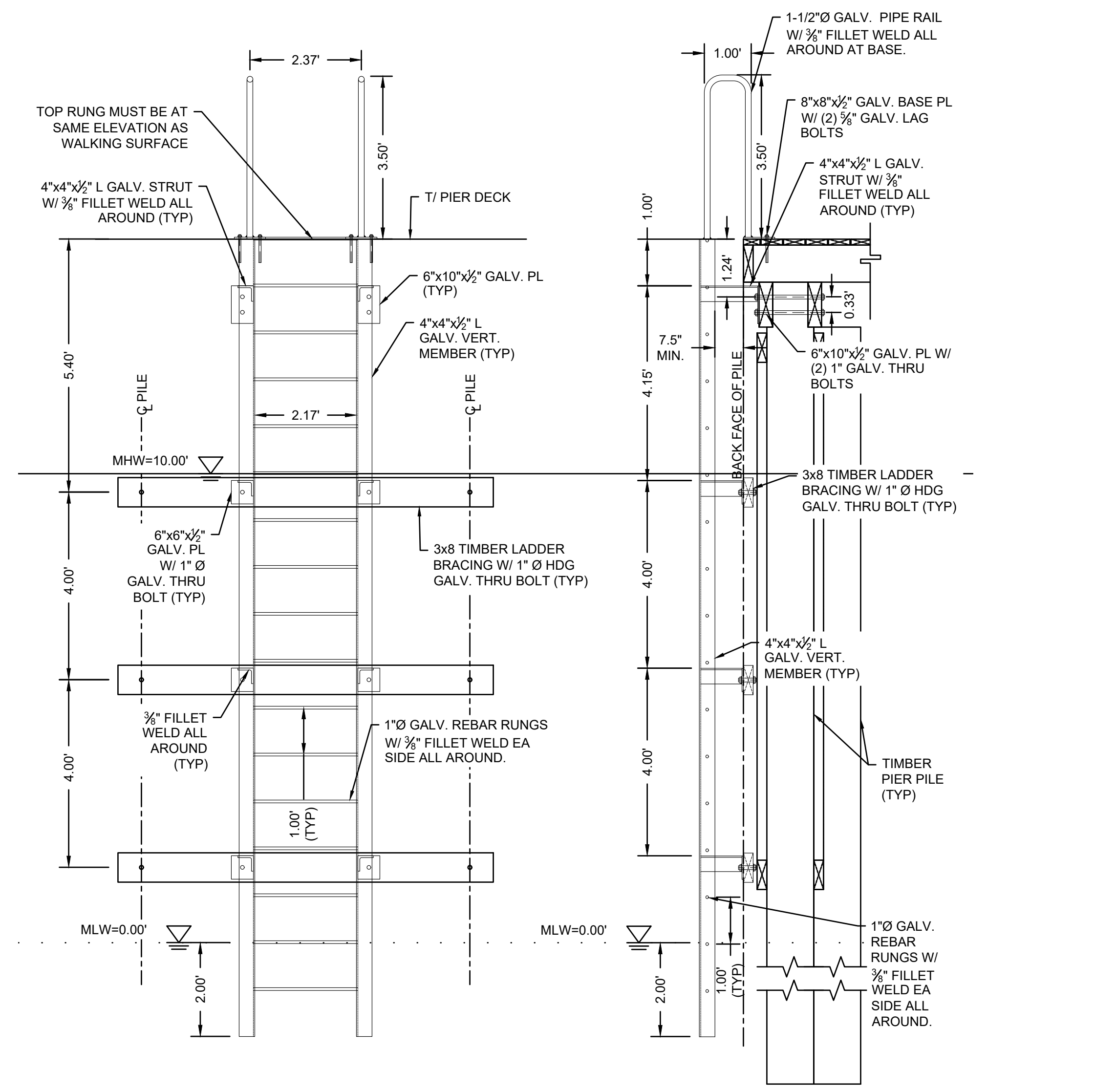
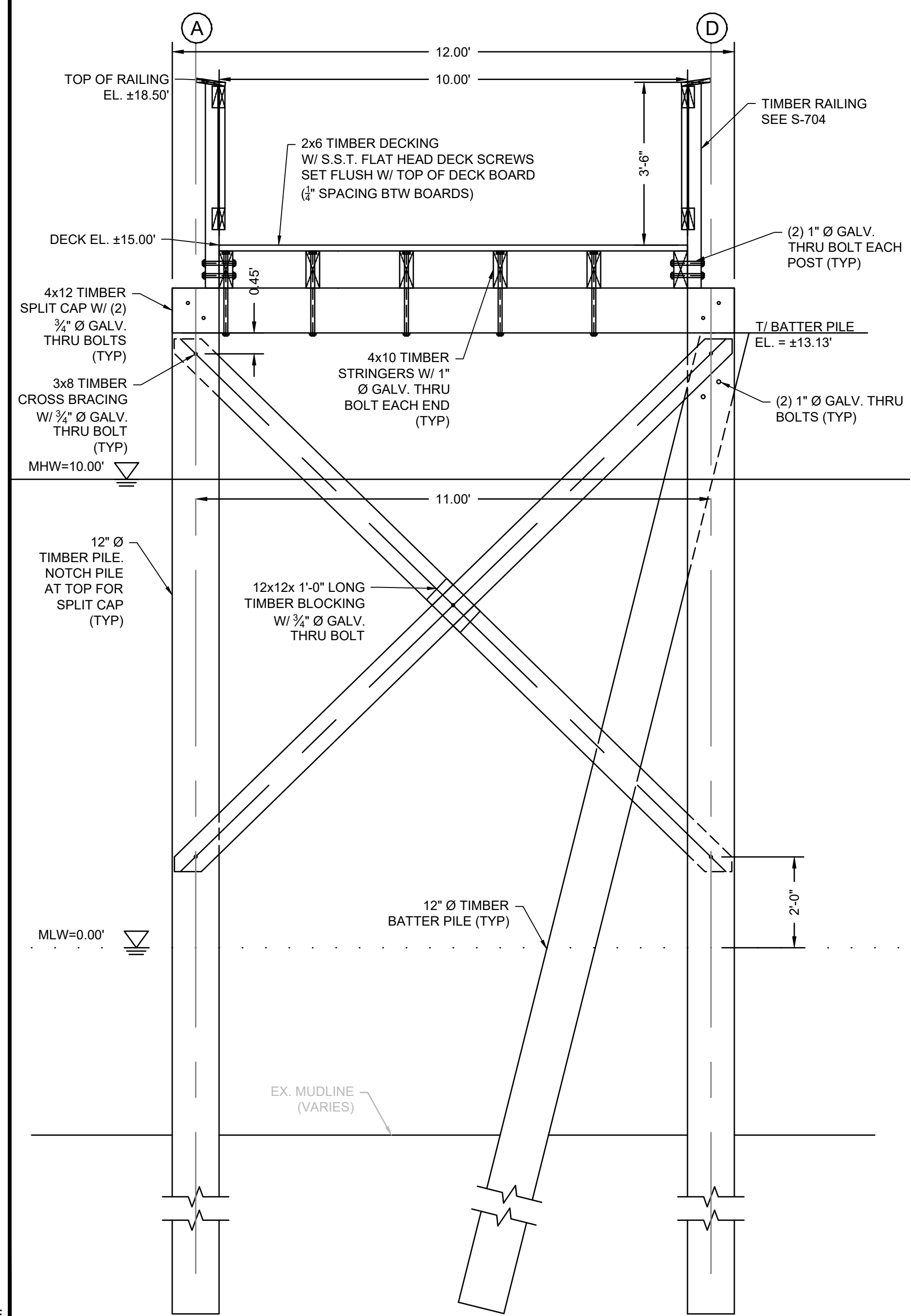
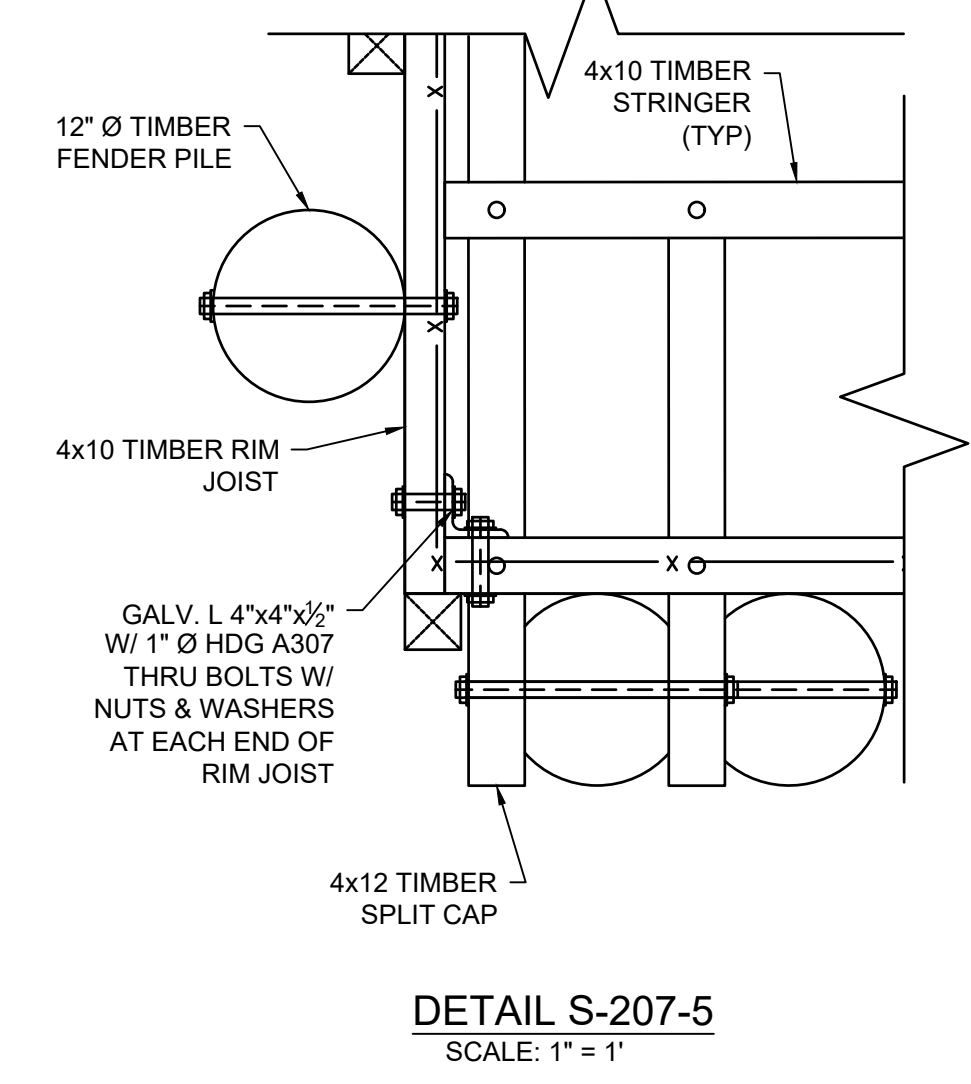
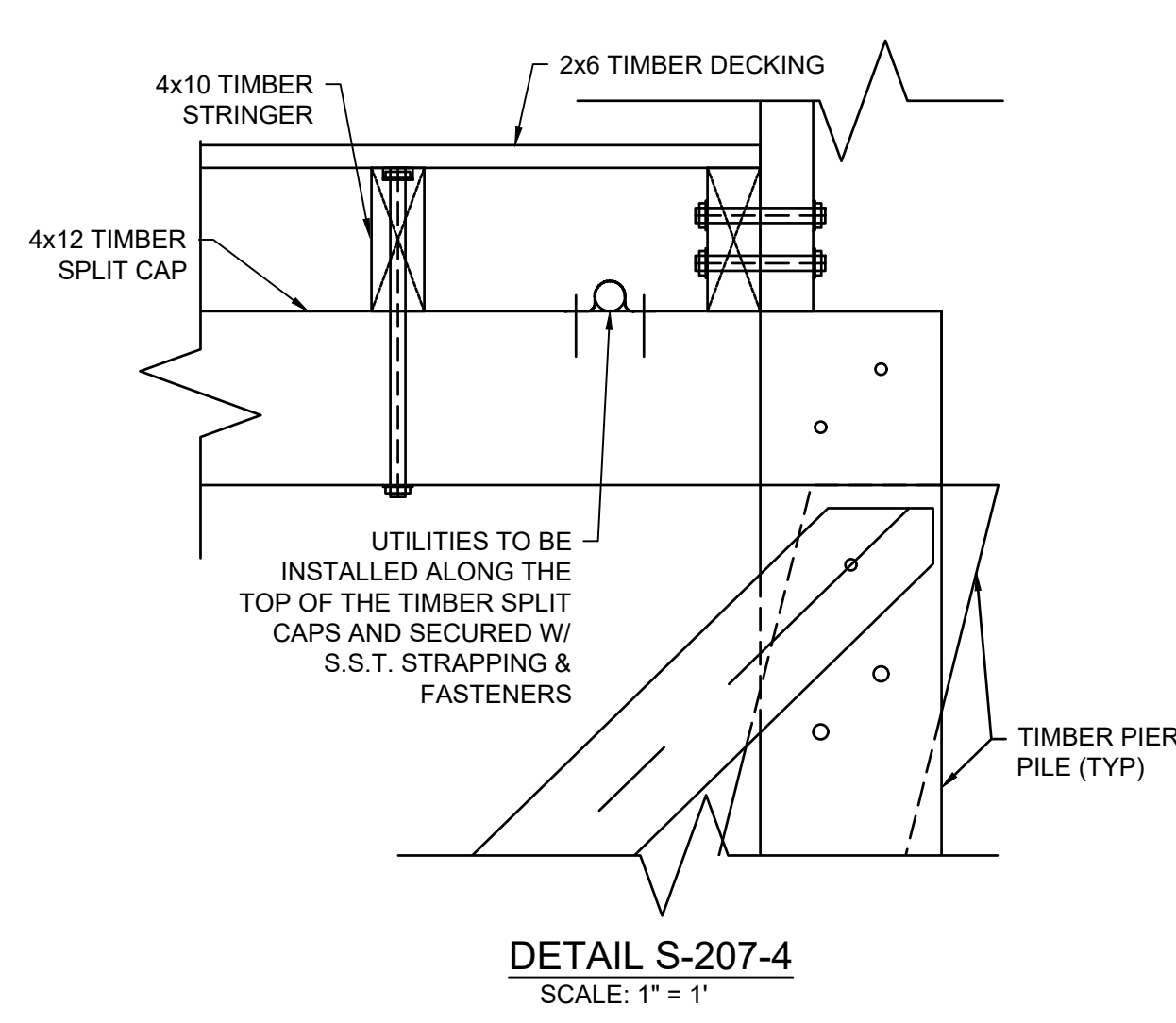
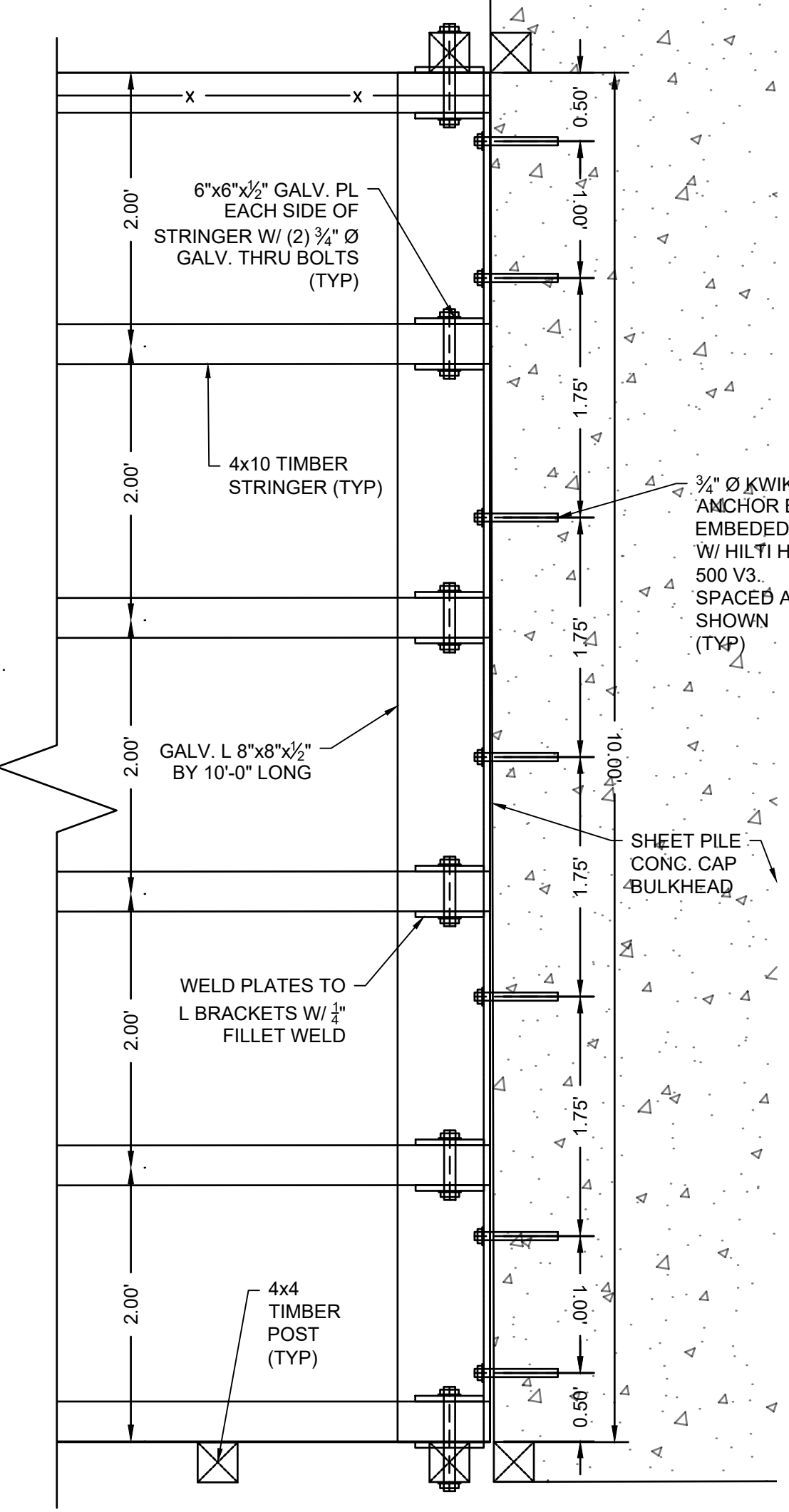
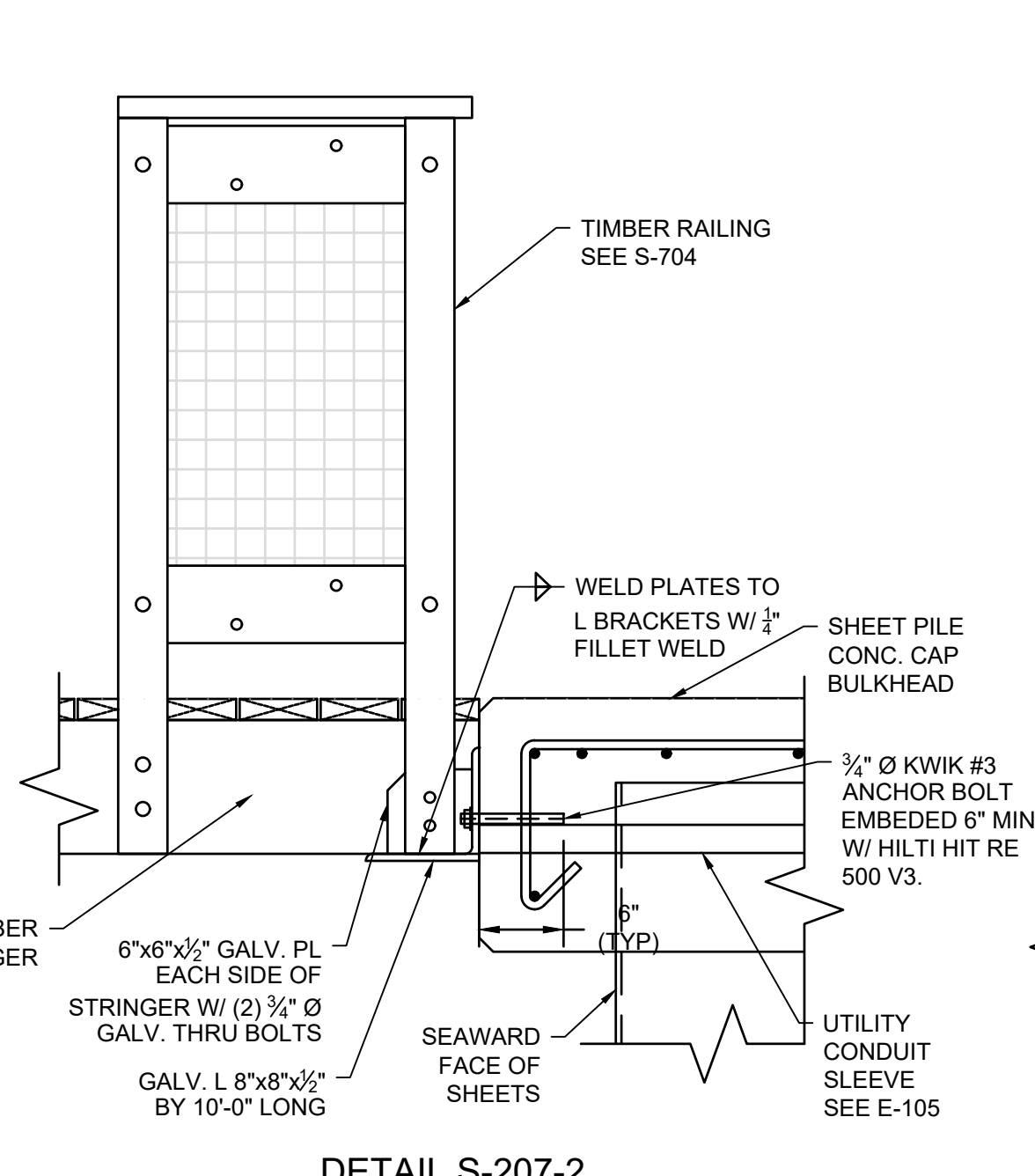
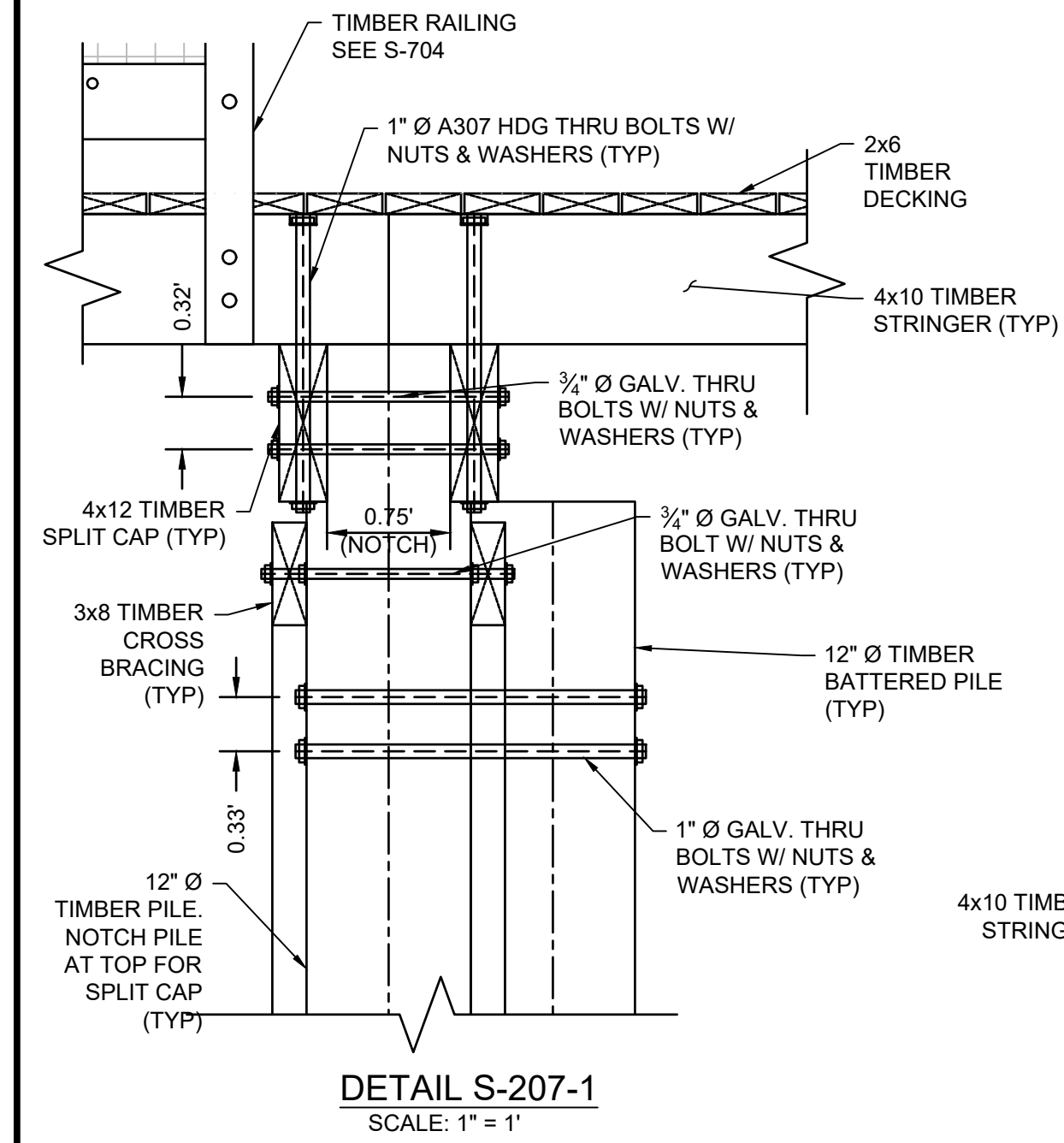
Thursday, March 7, 2024 11:38:47 AM
DWG Filename: s-205 town pier p&p§ions.dwg
Layout: commercial landing pier plan profile & section
DWG Folder Location:



DEPARTMENT OF PUBLIC WORKS
TOWN OF ORLEANS, MASSACHUSETTS
ROCK HARBOR COMMERCIAL WHARF
IMPROVEMENTS

REVISIONS	
NO.	DESCRIPTION

BY	DATE
MHW=10.03'	
DATE OF PREPARATION	
SURVEYED	MEC/JAH 10/24/19 & 3/2/21
DRAWN	BAM 12/05/2023
DESIGNED	SRS 06/28/2021
CHECKED	PSR 12/24/2023
SHEET TITLE:	
TIMBER PIER DETAILS	
ISSUANCE:	
ISSUED FOR BID	
PROJECT NO: 00190004.10	
SHEET NUMBER	
S-207	



D TYPICAL PIER ELEVATION
SCALE: 1" = 2"

Thursday, March 7, 2024 11:39:11 AM
DWG Filename: s-205 town pier p&p§ions.dwg Layout: s-207 timber pier details
DWG Folder Location:



DEPARTMENT OF PUBLIC WORKS
 TOWN OF ORLEANS, MASSACHUSETTS
 ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS

NO.	BY	DATE	REVISIONS	
			DESCRIPTION	DATE

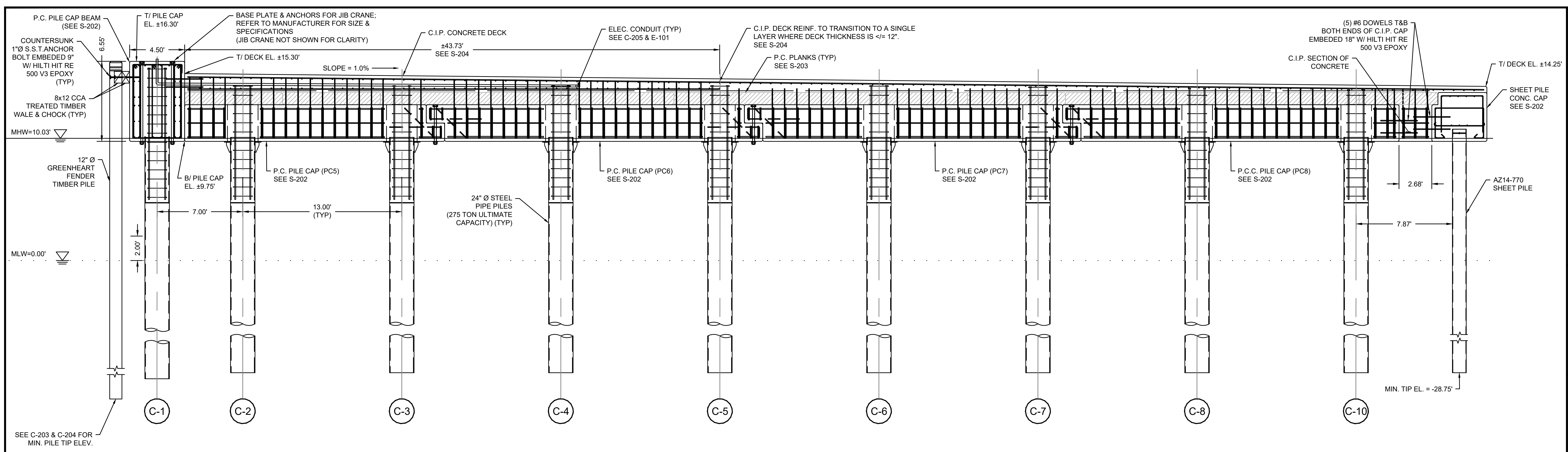
DATE OF PREPARATION

	BY	DATE
SURVEYED	MEC/JAH	10/24/19 & 3/2/21
DRAWN	BAM	12/05/2023
DESIGNED	SRS	06/28/2021
CHECKED	PSR	12/24/2023

SECTION VIEWS
 1 OF 4

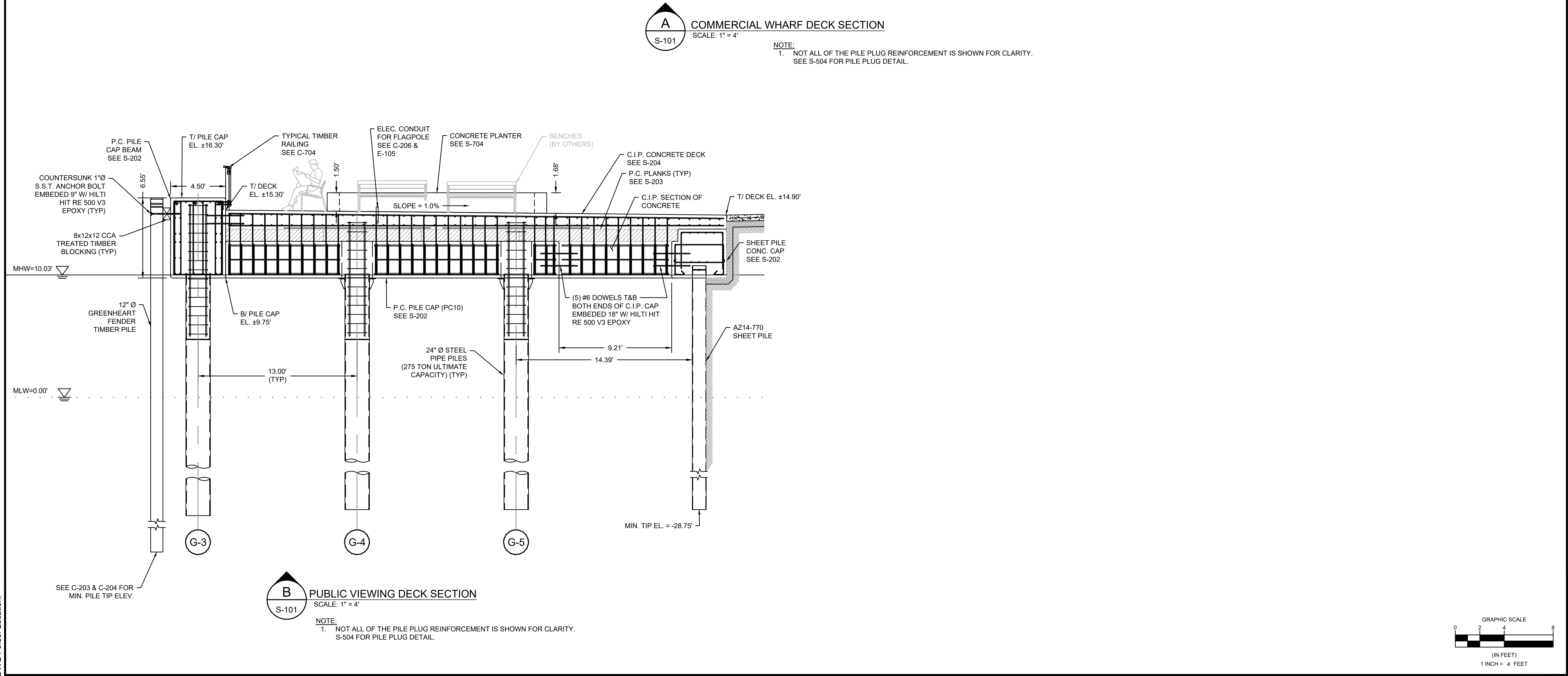
ISSUANCE:
ISSUED FOR BID

PROJECT NO: 00190004.10
 SHEET NUMBER
S-501



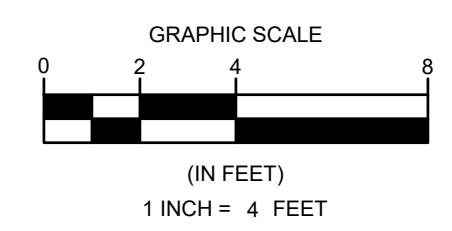
A
 COMMERCIAL WHARF DECK SECTION
 SCALE: 1" = 4'

NOTE:
 1. NOT ALL OF THE PILE PLUG REINFORCEMENT IS SHOWN FOR CLARITY. SEE S-504 FOR PILE PLUG DETAIL.

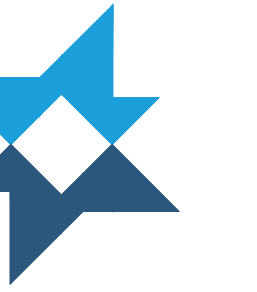


B
 PUBLIC VIEWING DECK SECTION
 SCALE: 1" = 4'

NOTE:
 1. NOT ALL OF THE PILE PLUG REINFORCEMENT IS SHOWN FOR CLARITY. SEE S-504 FOR PILE PLUG DETAIL.



Thursday, March 7, 2024 11:39:32 AM
 DWG Filename: s-501 structural sections.dwg Layout: s-501 section views 1
 DWG Folder Location:



DEPARTMENT OF PUBLIC WORKS
 TOWN OF ORLEANS, MASSACHUSETTS
 ROCK HARBOR COMMERCIAL WHARF
 IMPROVEMENTS

REVISIONS	
NO.	DESCRIPTION

NO.	BY	DATE

DATE OF PREPARATION

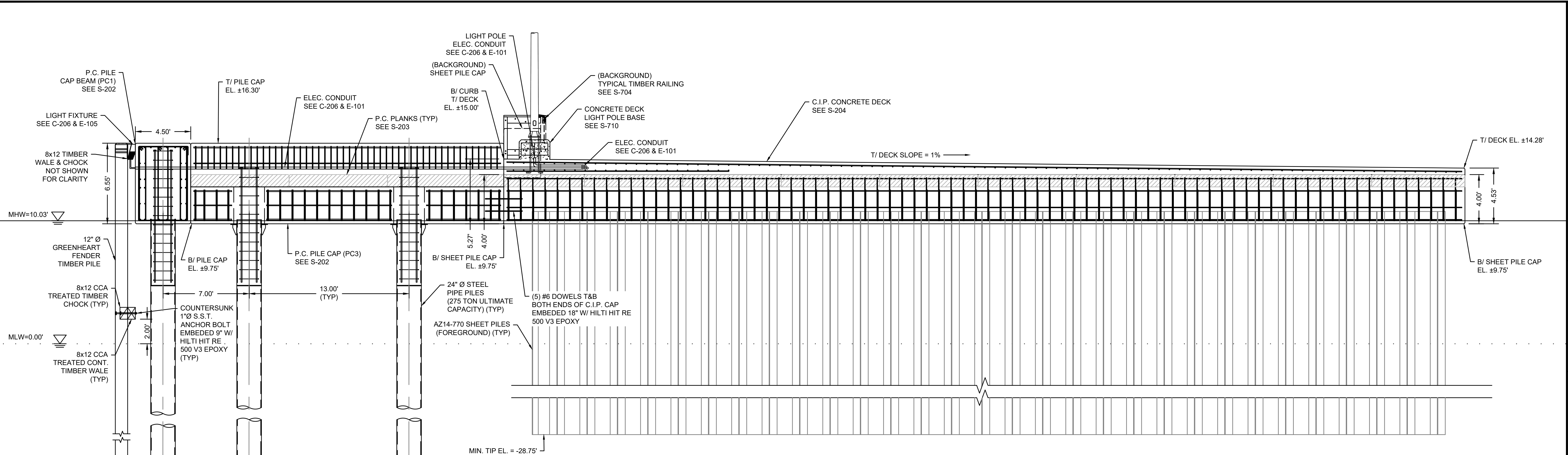
SURVEYED	BY	DATE
	MEC/JAH	10/24/19 & 3/2/21
DRAWN	BAM	12/05/2023
DESIGNED	SRS	06/28/2021
CHECKED	PSR	12/24/2023

SHEET TITLE:

SECTION VIEWS
 2 OF 4

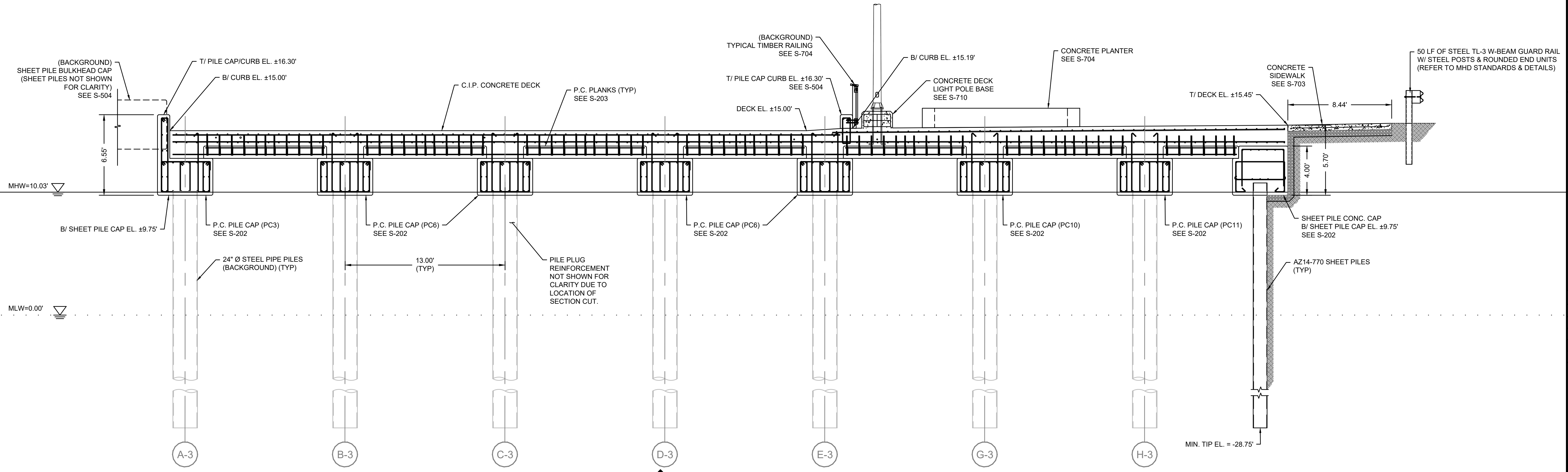
ISSUANCE:
ISSUED FOR BID

PROJECT NO: 00190004.10
 SHEET NUMBER



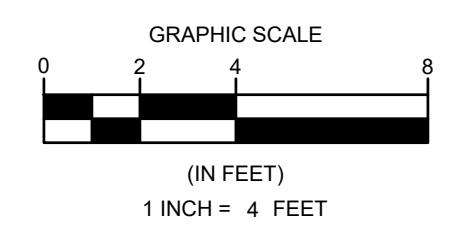
C BULKHEAD / COMMERCIAL WHARF SECTION
 SCALE: 1" = 4"

NOTE:
 1. NOT ALL OF THE PILE PLUG REINFORCEMENT IS SHOWN FOR CLARITY. SEE S-504 FOR PILE PLUG DETAIL.



D COMMERCIAL WHARF & PUBLIC VIEWING DECK ELEVATION
 SCALE: 1" = 4"

NOTE:
 1. PRECAST PILE CAP BEAM SUPPORT NOT SHOWN FOR CLARITY.
 2. BENCHES (BY OTHERS) NOT SHOWN FOR CLARITY.



DEPARTMENT OF PUBLIC WORKS
TOWN OF ORLEANS, MASSACHUSETTS
ROCK HARBOR COMMERCIAL WHARF
IMPROVEMENTS

NO.	BY	DATE	DESCRIPTION

DATE OF PREPARATION

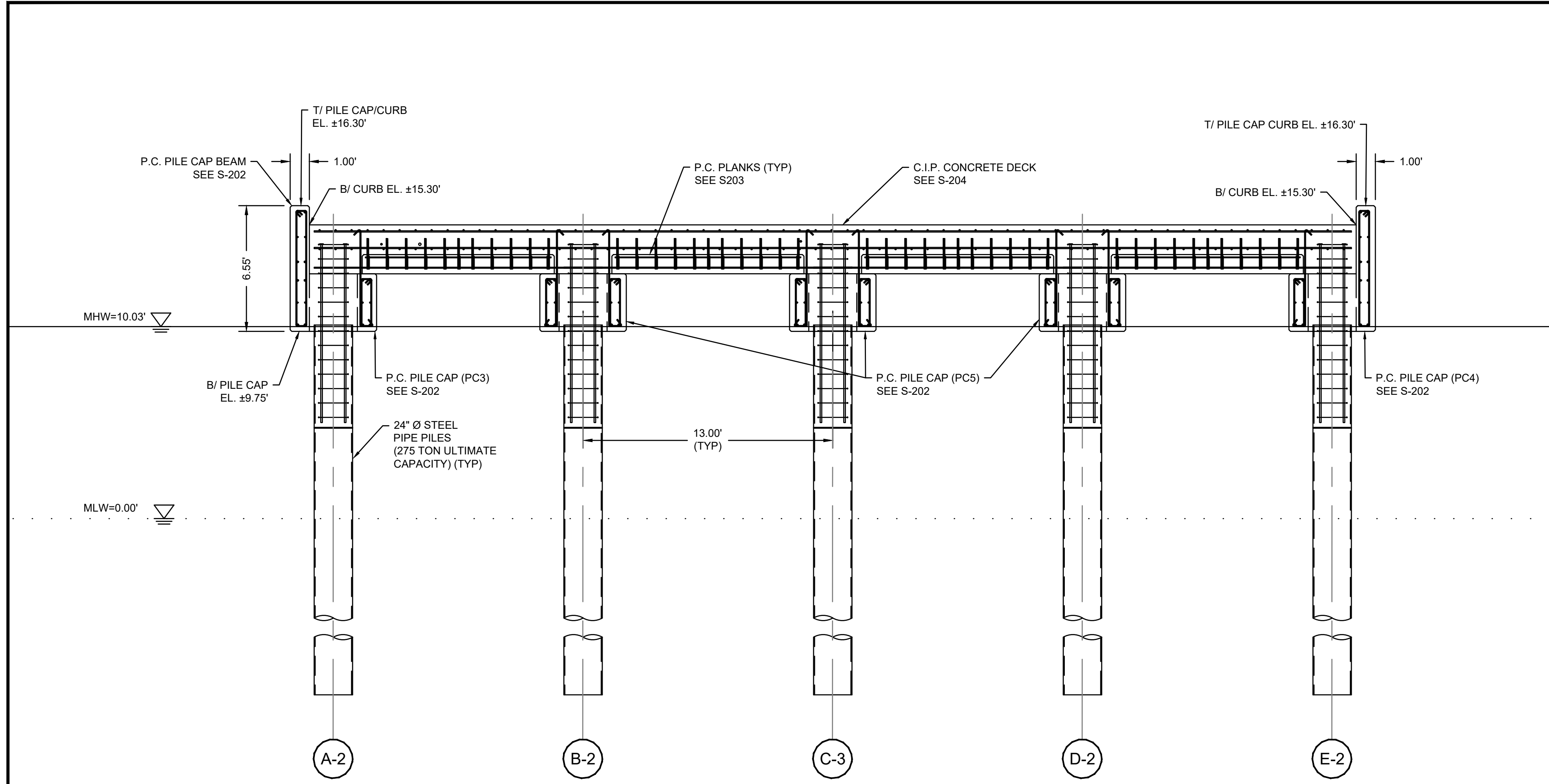
	BY	DATE
SURVEYED	MEC/JAH	10/24/19 & 3/2/21
DRAWN	BAM	12/05/2023
DESIGNED	SRS	06/28/2021
CHECKED	PSR	12/24/2023

SHEET TITLE:

**SECTION VIEWS
3 OF 4**

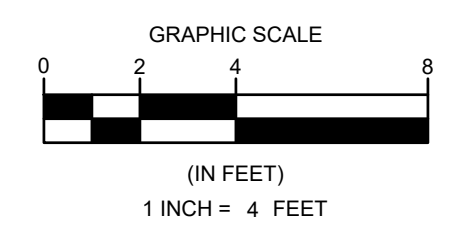
ISSUANCE:
ISSUED FOR BID

PROJECT NO: 00190004.10
SHEET NUMBER
S-503



E COMMERCIAL WHARF MIDDLE SECTION
S-101 SCALE: 1" = 4'

- NOTE:
- NOT ALL OF THE PILE PLUG REINFORCEMENT IS SHOWN FOR CLARITY. SEE S-504 FOR PILE PLUG DETAIL.
 - PRECAST PILE CAP BEAM SUPPORT NOT SHOWN FOR CLARITY.



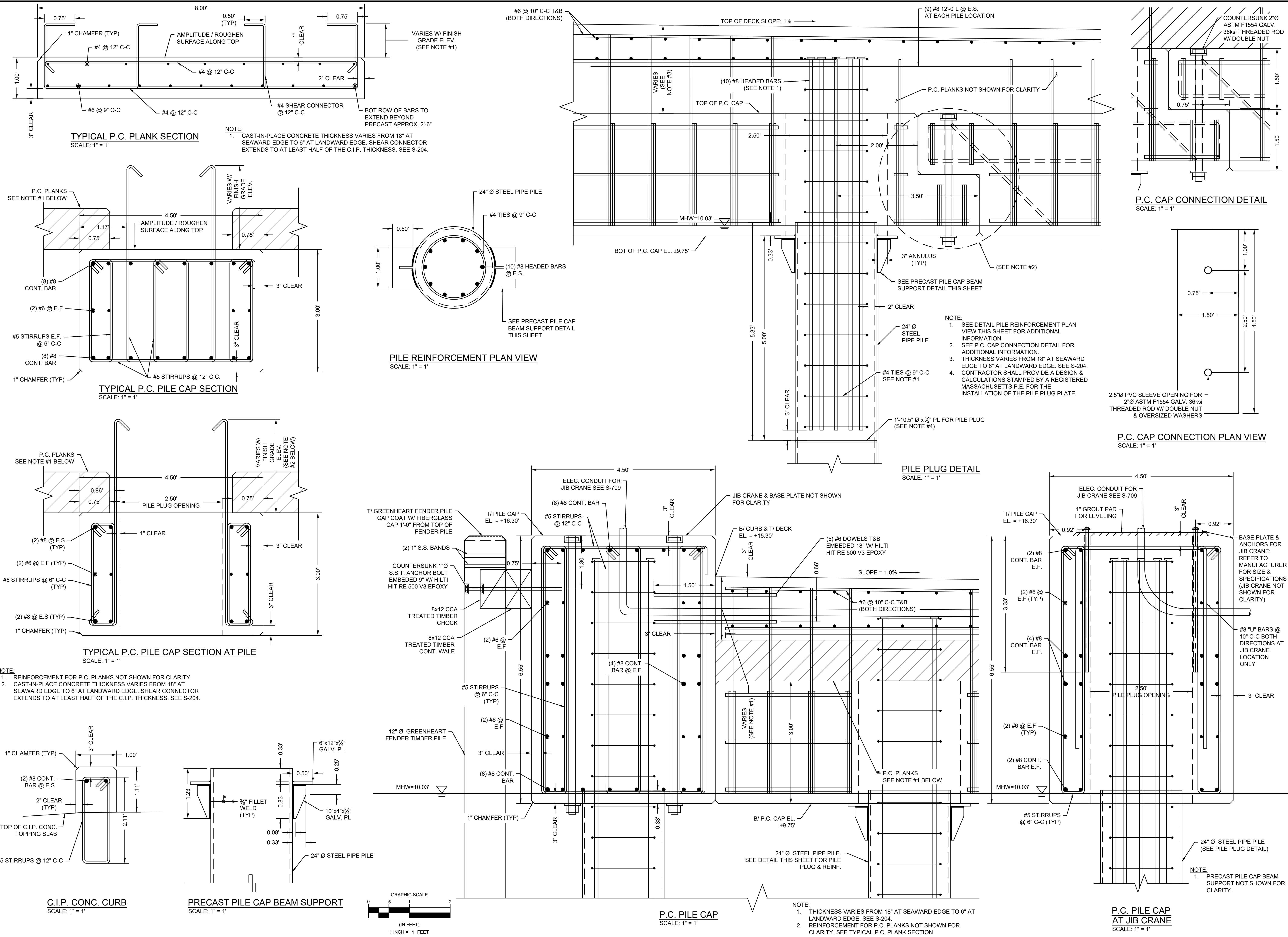
NO.	DATE	DESCRIPTION

DATE OF PREPARATION	
BY	DATE
SURVEYED	MEC/JAH 10/24/19 & 3/2/21
DRAWN	BAM 12/05/2023
DESIGNED	SRS 06/28/2021
CHECKED	PSR 12/24/2023

SHEET TITLE:
**SECTION VIEWS
4 OF 4**

ISSUANCE:
ISSUED FOR BID

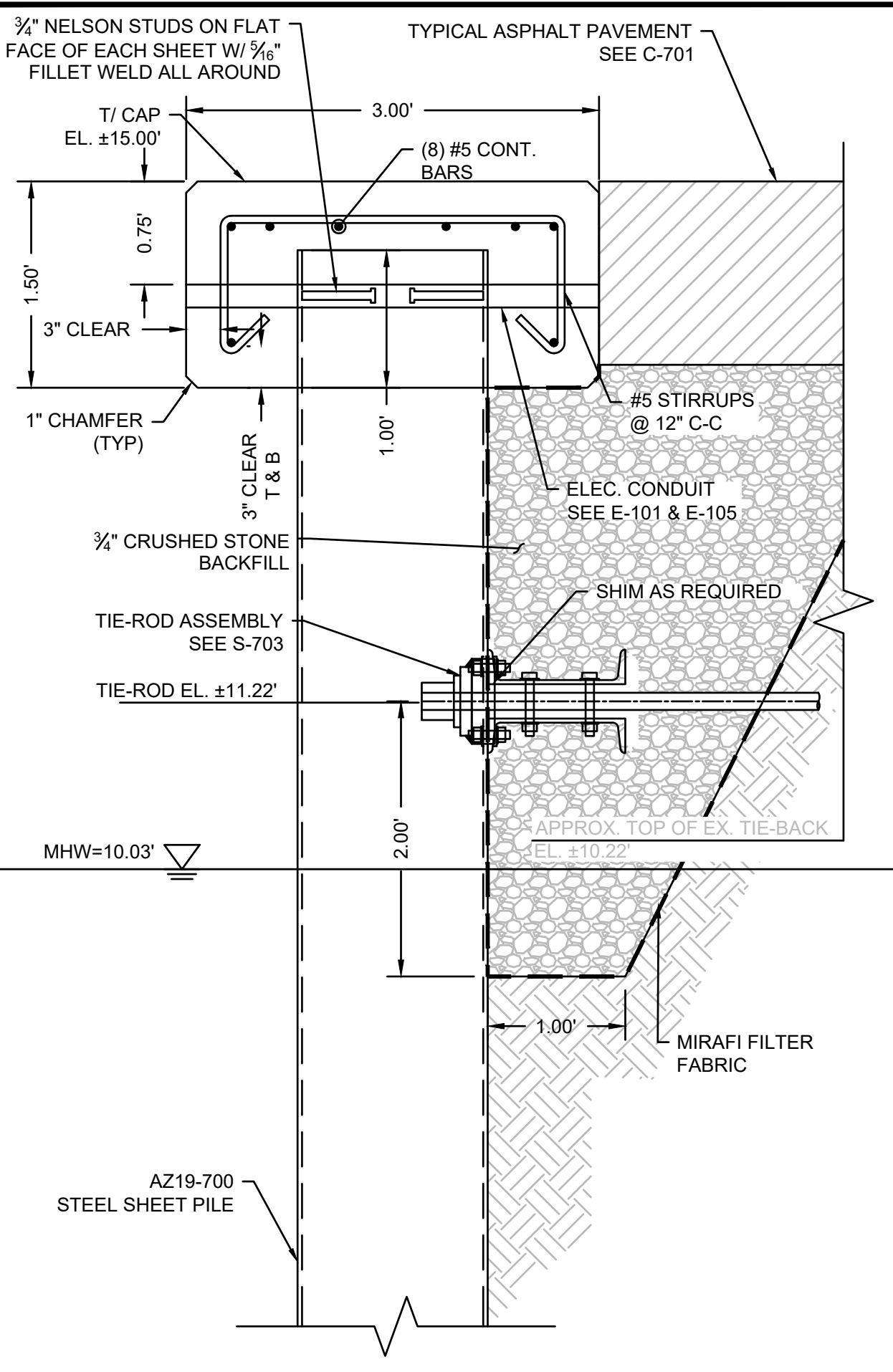
PROJECT NO: 00190004.10
SHEET NUMBER



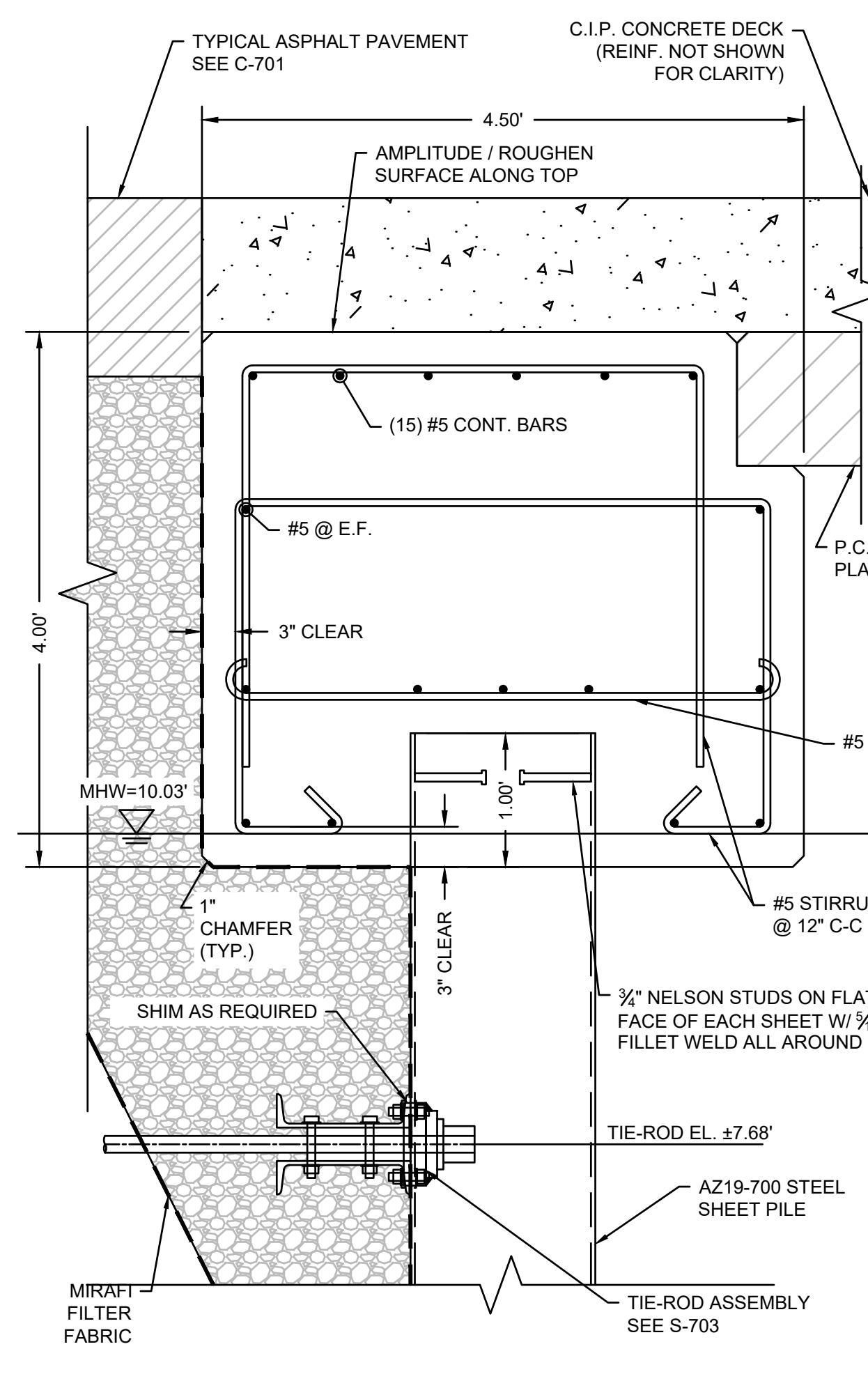
Thursday, March 7, 2024 11:40:31 AM
DWG Filename: s-501 structural sections.dwg
Layout: s-504 section views 4
DWG Folder Location:

REVISIONS	
NO.	DESCRIPTION

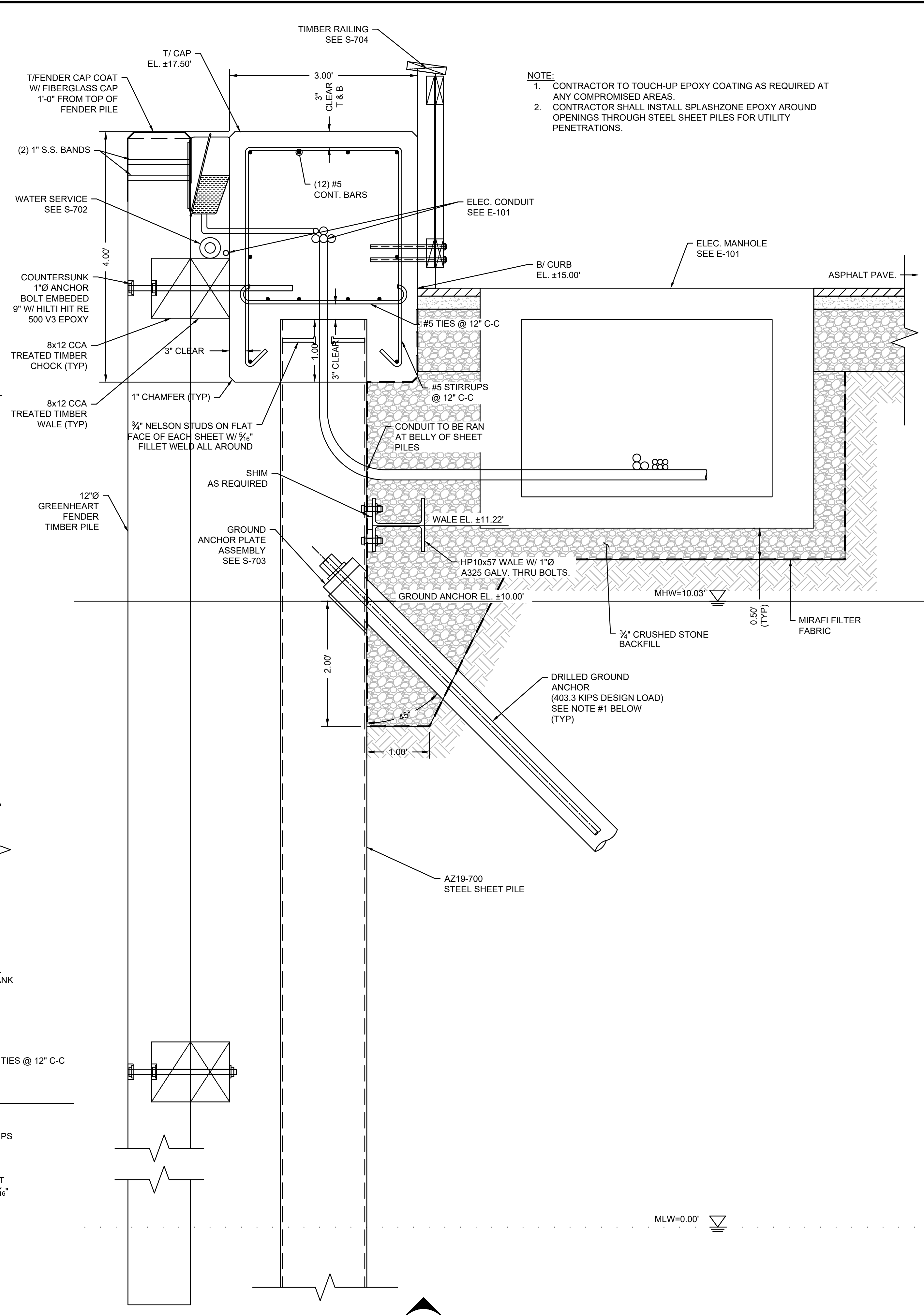
DATE OF PREPARATION	
BY	DATE
SURVEYED MEC/JAH	10/24/19 & 3/2/21
DRAWN BAM	12/05/2023
DESIGNED SRS	06/28/2021
CHECKED PSR	12/24/2023
SHEET TITLE:	
STRUCTURAL DETAILS 1 OF 8	
ISSUANCE:	
ISSUED FOR BID	
PROJECT NO: 00190004.10	
SHEET NUMBER	
S-701	



A SHEET PILE BULKHEAD SECTION AT COMMERCIAL LANDING PIER
 SCALE: 1" = 1'

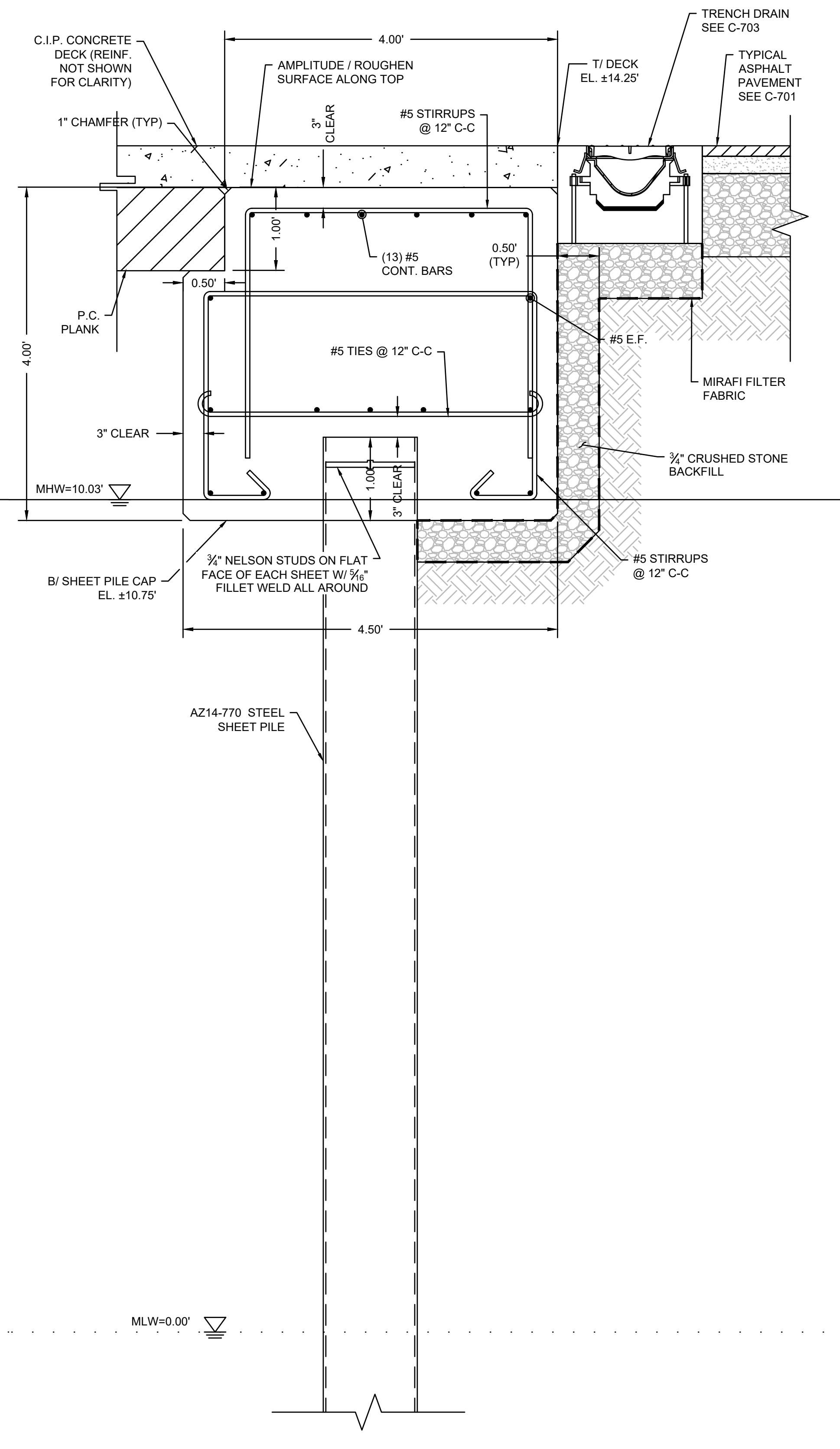


G SHEET PILE BULKHEAD SECTION AT LOWER WALE
 SCALE: 1" = 1'

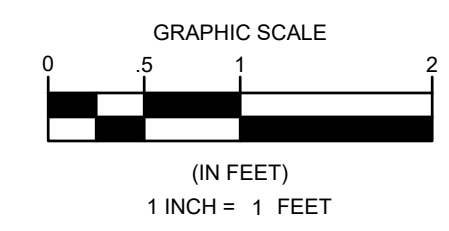


B SHEET PILE BULKHEAD TYPICAL SECTION
 SCALE: 1" = 1'

NOTE:
 1. CONTRACTOR TO DESIGN GROUND ANCHOR ASSEMBLY INCLUDING GROUND ANCHOR, STAND-OFF PLATES AND CAP PLATES. CONTRACTOR SHALL SUBMIT CALCULATIONS AND DRAWINGS FOR GROUND ANCHOR DESIGN, STAMPED BY AN ENGINEER REGISTERED IN THE STATE OF MA. FOR SOILS INFORMATION SEE ATTACHMENT "A" OF THE CONTRACT DOCUMENTS.



F SHEET PILE BULKHEAD SECTION AT TRENCH DRAIN
 SCALE: 1" = 1'



NOTE:
 1. CONTRACTOR TO TOUCH-UP EPOXY COATING AS REQUIRED AT ANY COMPROMISED AREAS.
 2. CONTRACTOR SHALL INSTALL SPLASHZONE EPOXY AROUND OPENINGS THROUGH STEEL SHEET PILES FOR UTILITY PENETRATIONS.

NO.	DATE	DESCRIPTION

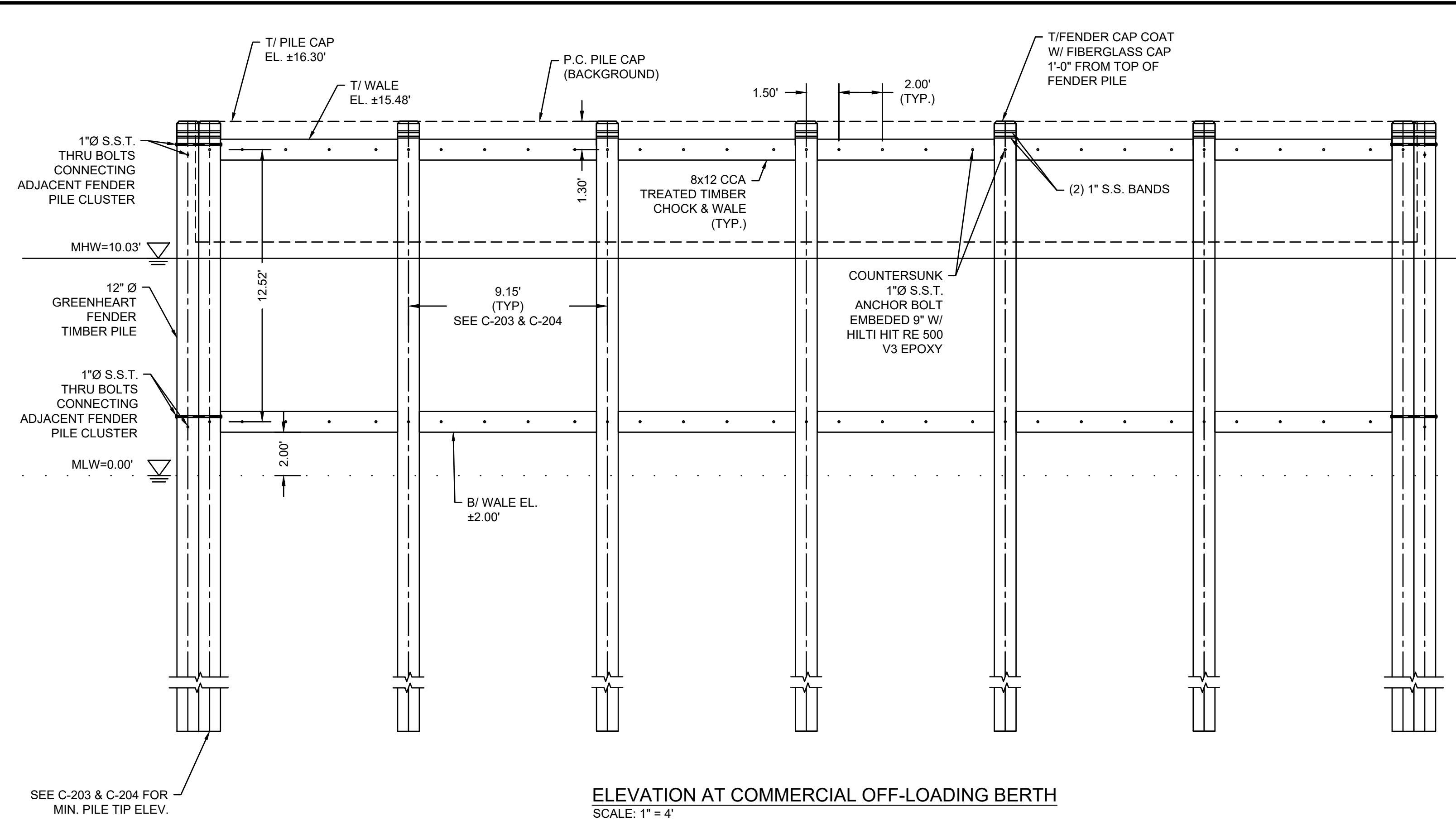
DATE OF PREPARATION	
BY	DATE
SURVEYED	MEC/JAH 10/24/19 & 3/2/21
DRAWN	BAM 12/05/2023
DESIGNED	SRS 06/28/2021
CHECKED	PSR 12/24/2023

SHEET TITLE:
STRUCTURAL DETAILS 2 OF 8

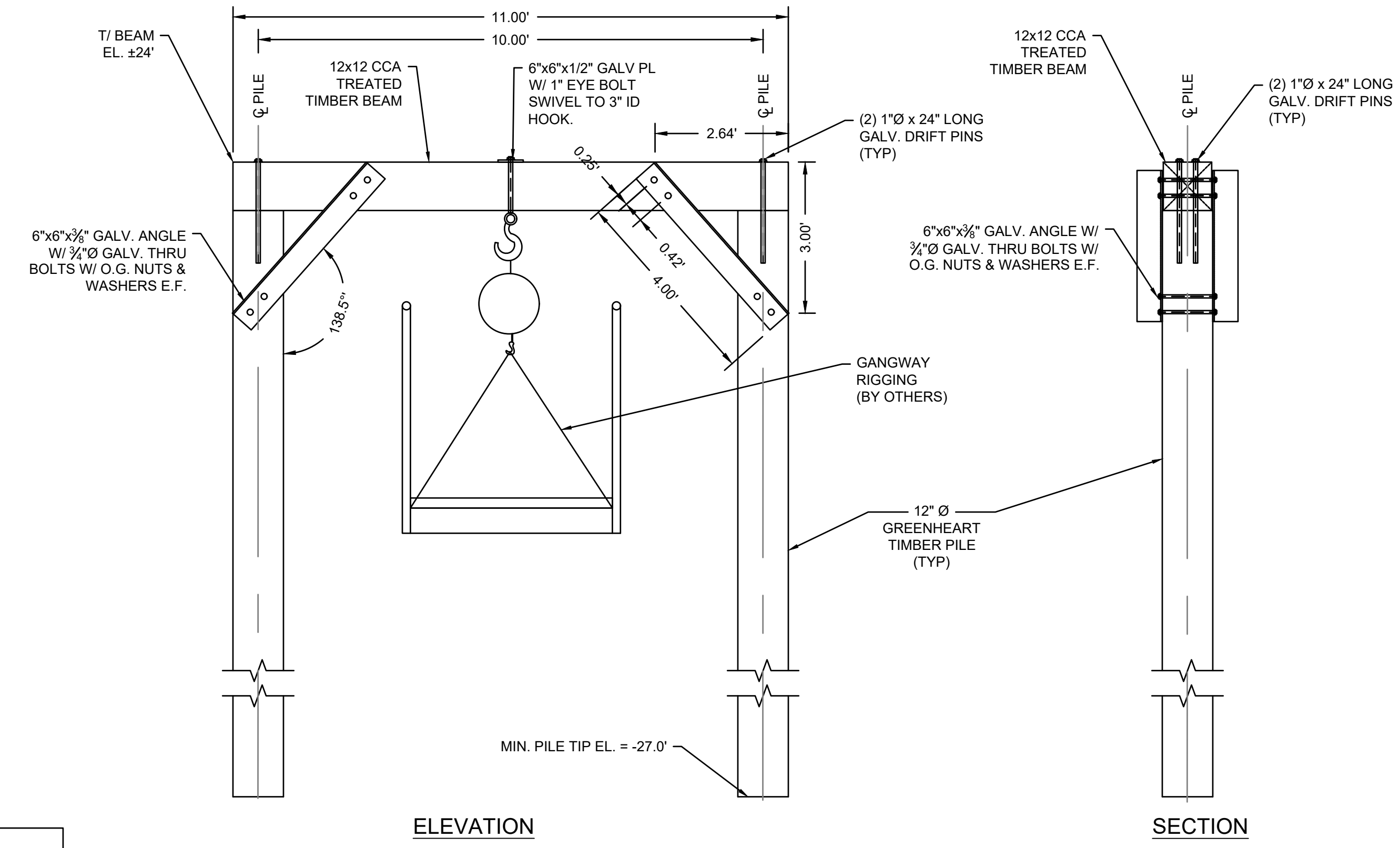
ISSUANCE:
ISSUED FOR BID

PROJECT NO: 00190004.10
SHEET NUMBER

S-702



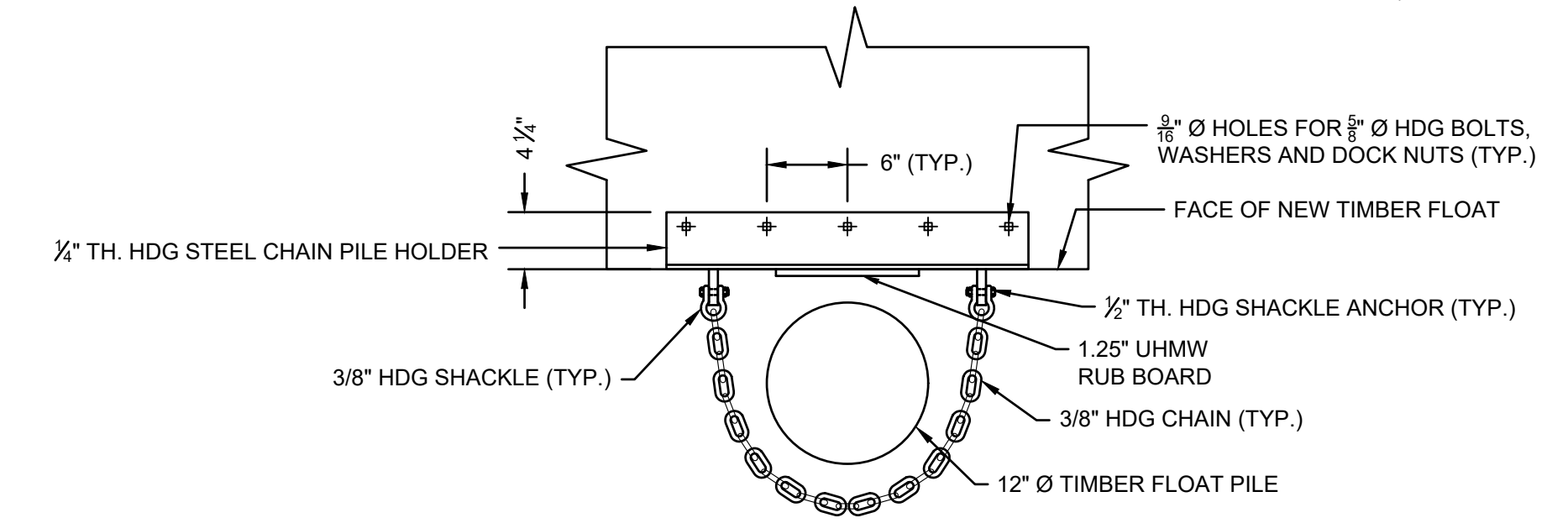
ELEVATION AT COMMERCIAL OFF-LOADING BERTH
SCALE: 1" = 4"



ELEVATION

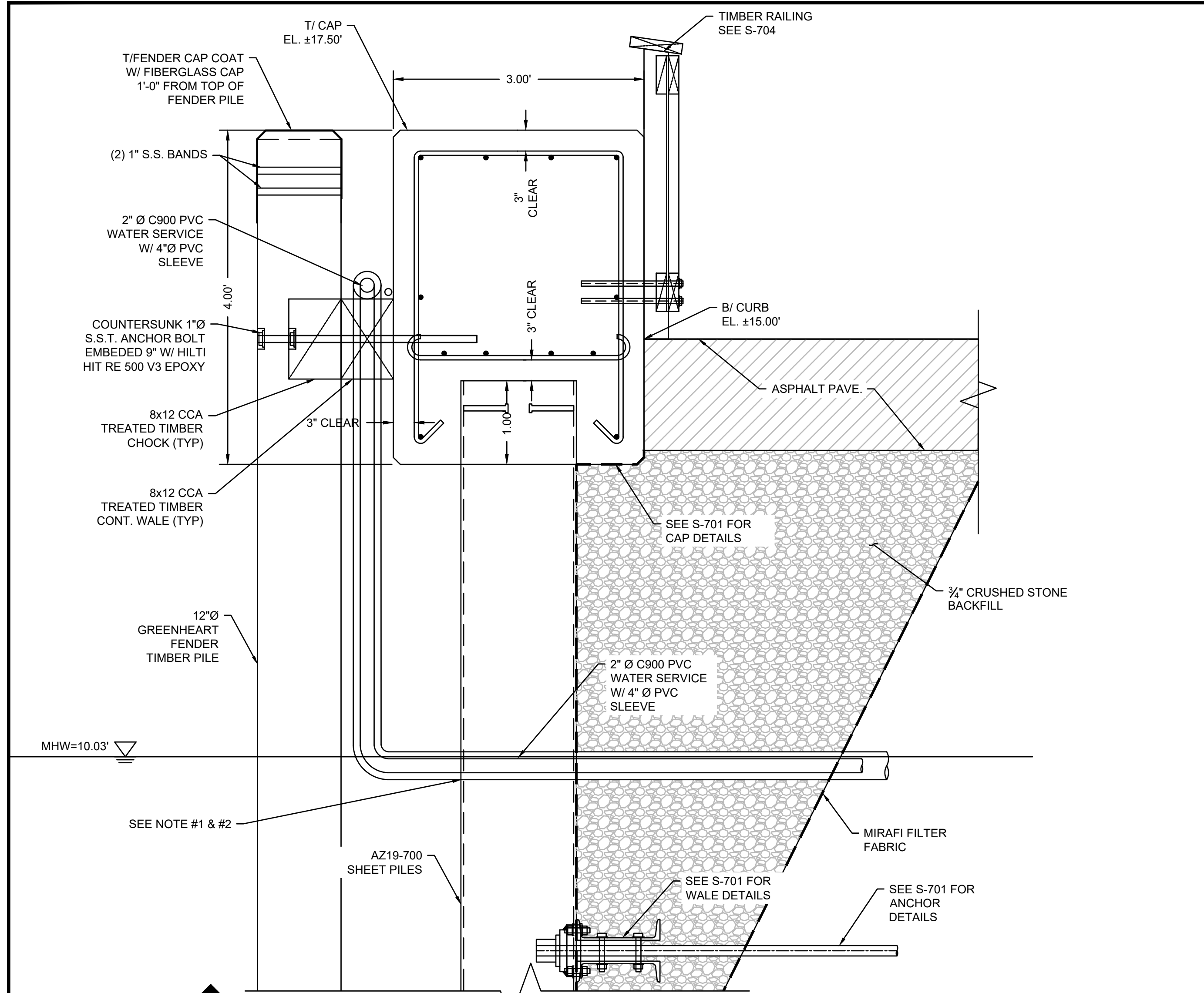
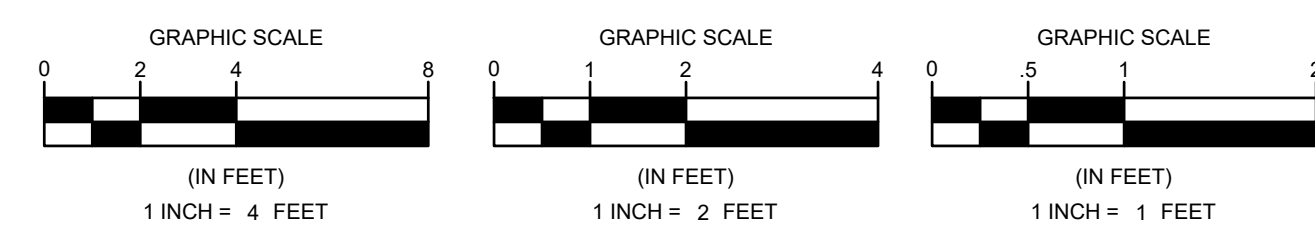
GANTRY BEAM DETAIL
SCALE: 1" = 2"

SECTION



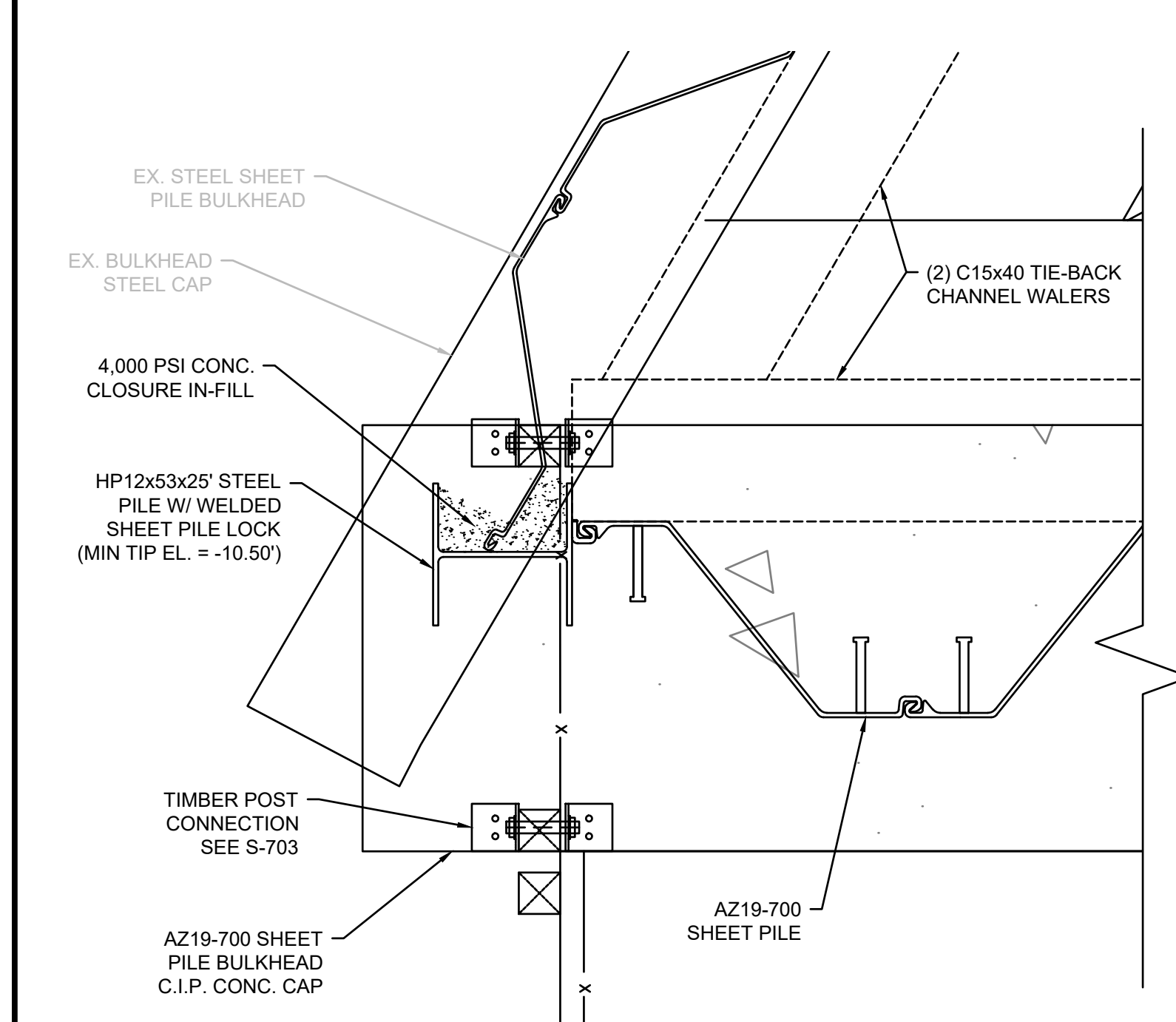
NOTE:
CONTRACTOR SHALL INSTALL SECTIONS OF 2" SCH 40 PVC PIPE ALONG CHAIN TO PREVENT BINDING OF CHAIN AND CHAFFING OF STEEL PILE.

FLOAT PILE GUIDE DETAIL
SCALE: 1" = 1"

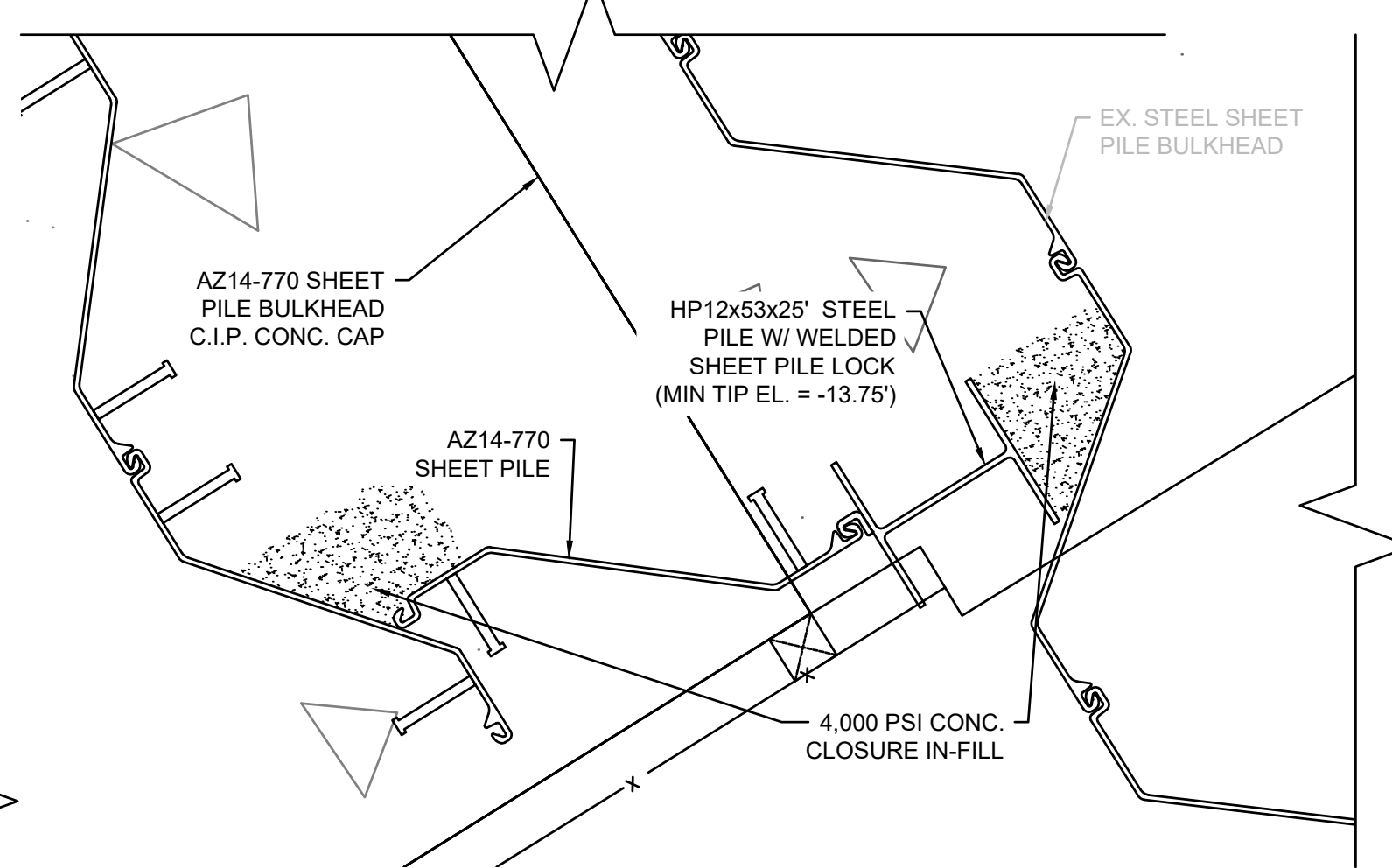


A
WATER SERVICE DETAIL THROUGH SHEETPILE
SCALE: 1" = 1"

NOTE:
1. CONTRACTOR TO TOUCH-UP EPOXY COATING AS REQUIRED AT ANY COMPROMISED AREAS.
2. CONTRACTOR SHALL INSTALL SPLASHZONE EPOXY AROUND OPENINGS THROUGH STEEL SHEET PILES FOR UTILITY PENETRATIONS.



NORTHERN SHEET PILE BULKHEAD CLOSURE DETAIL
SCALE: 1" = 1"



SOUTHERN SHEET PILE BULKHEAD CLOSURE DETAIL
SCALE: 1" = 1"

DEPARTMENT OF PUBLIC WORKS
TOWN OF ORLEANS, MASSACHUSETTS
ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS

REVISIONS		DESCRIPTION	
NO.	DATE	BY	DATE

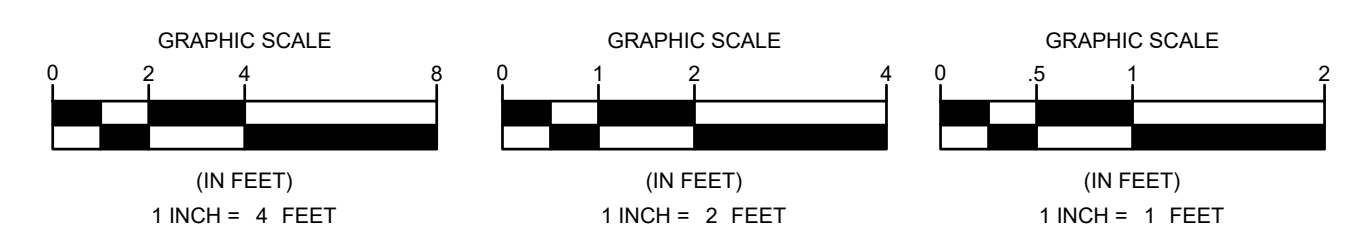
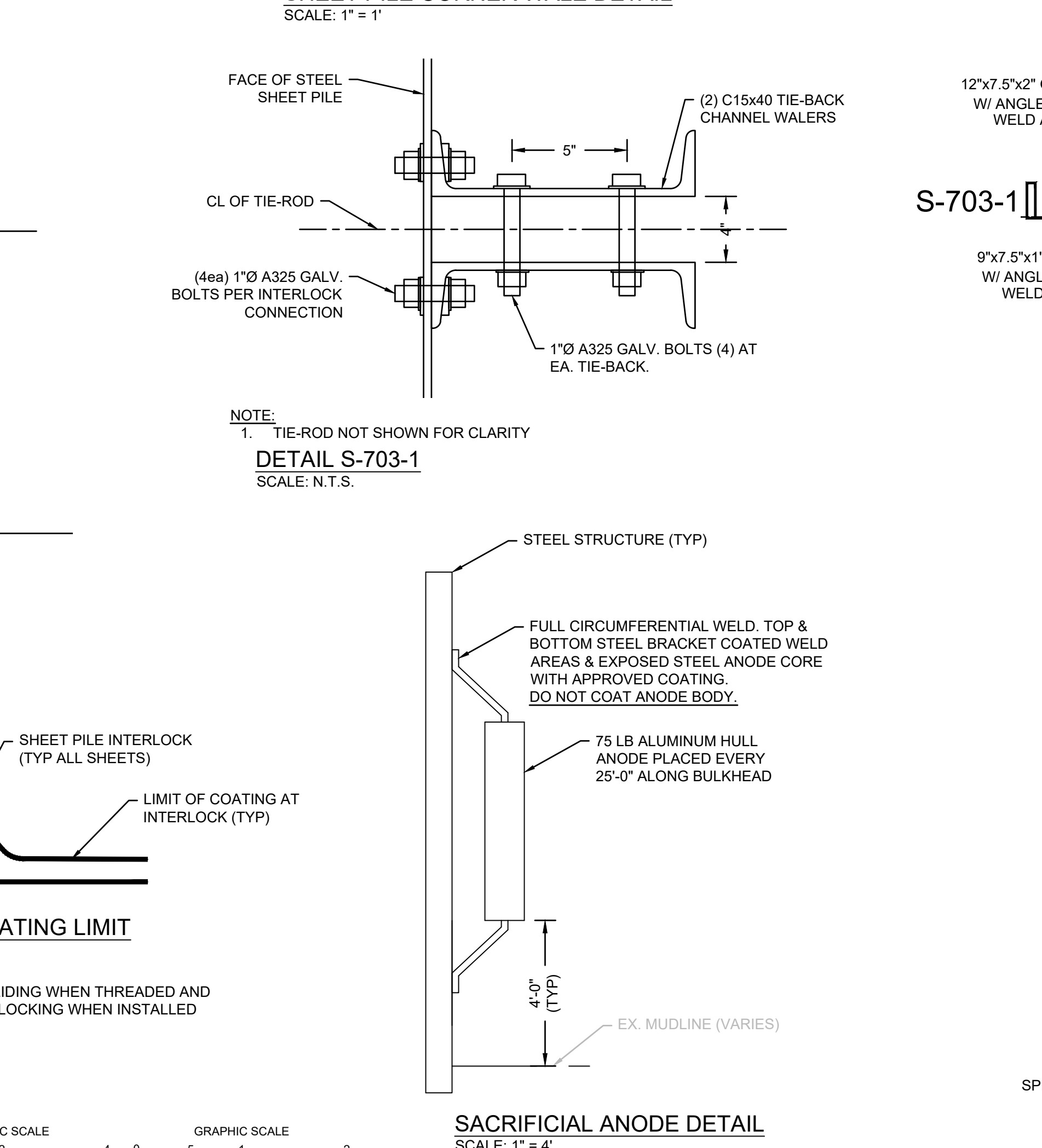
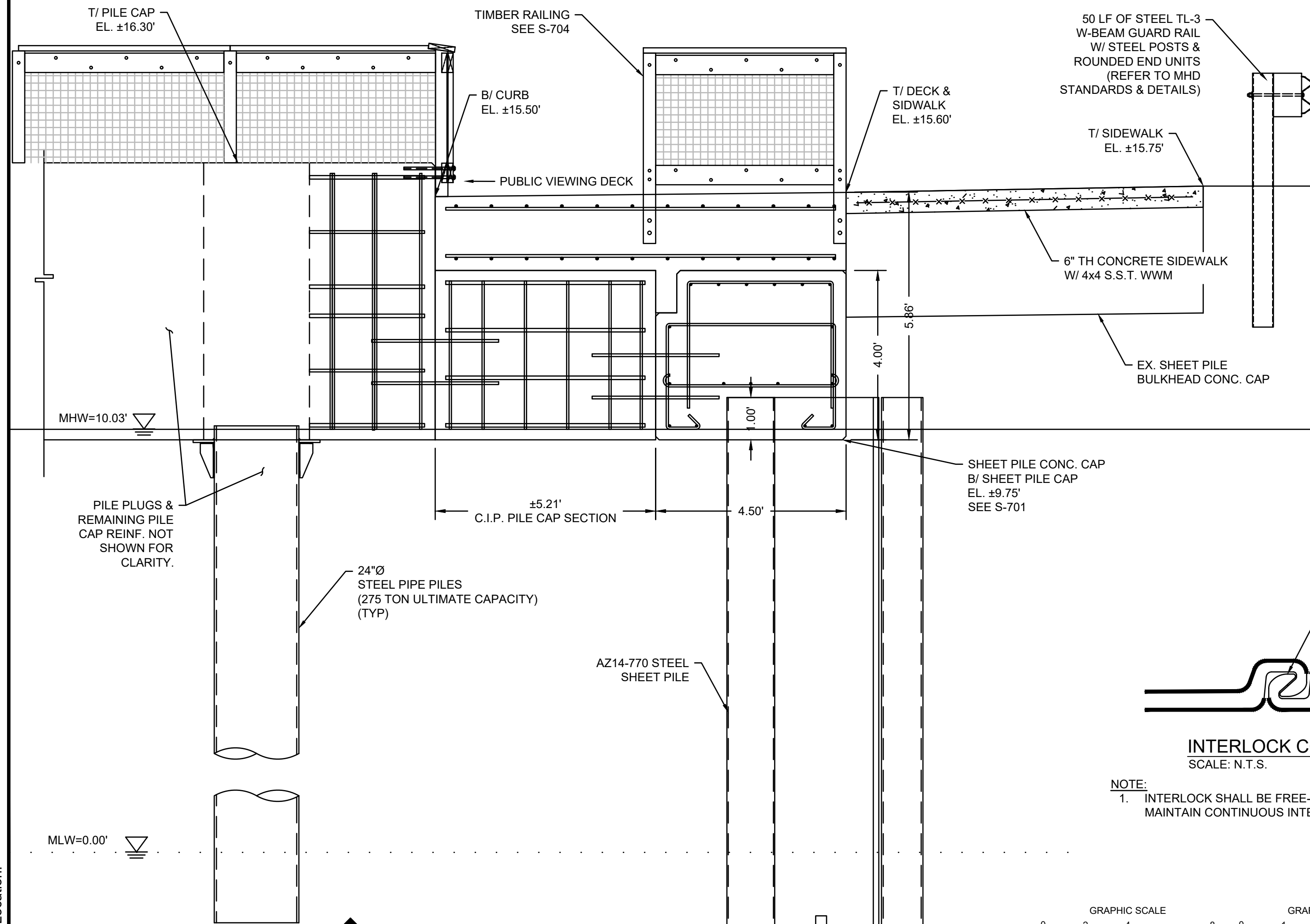
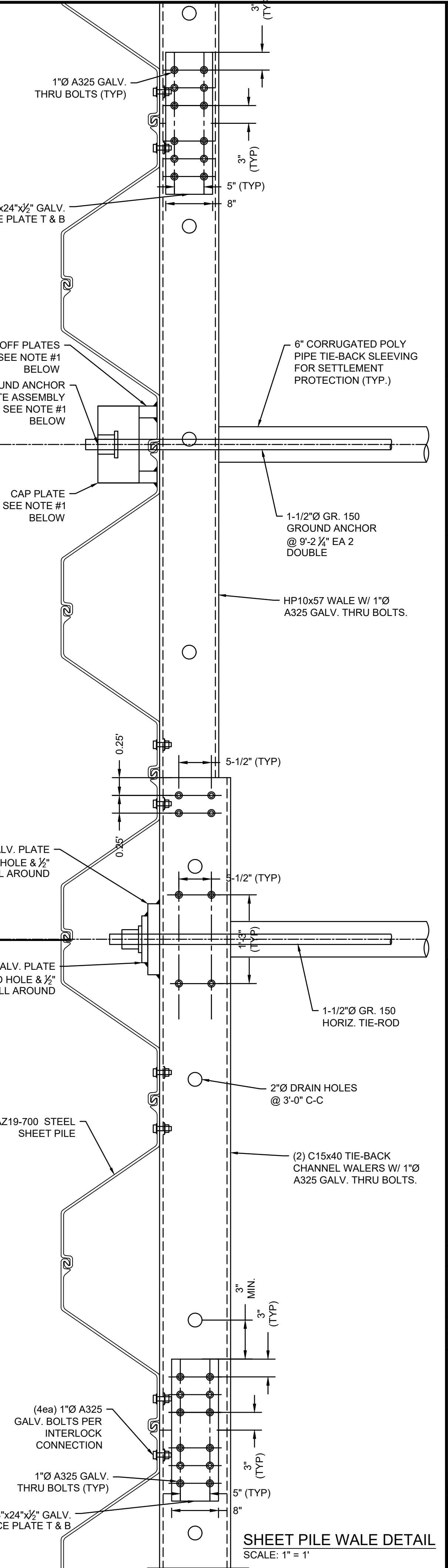
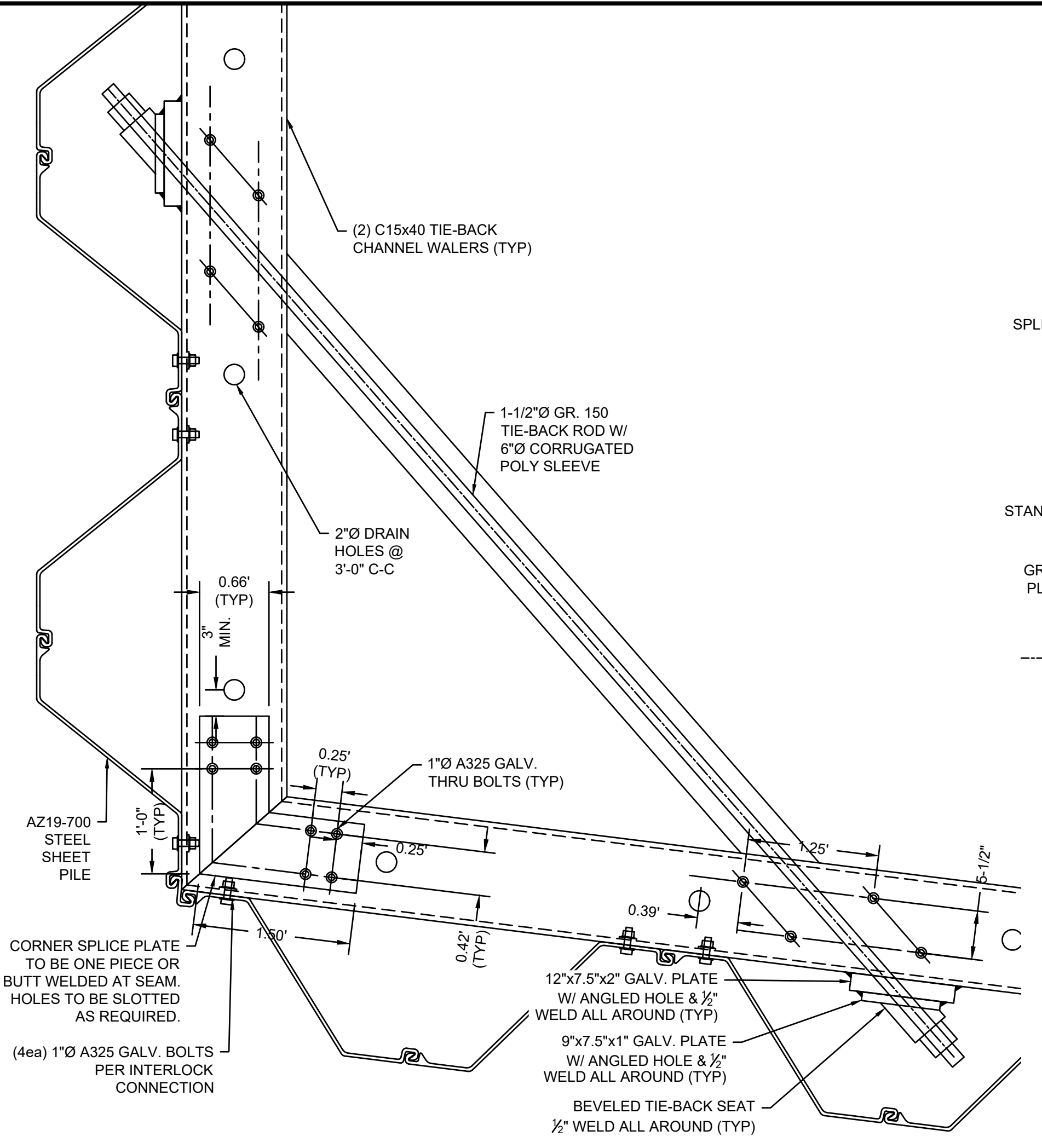
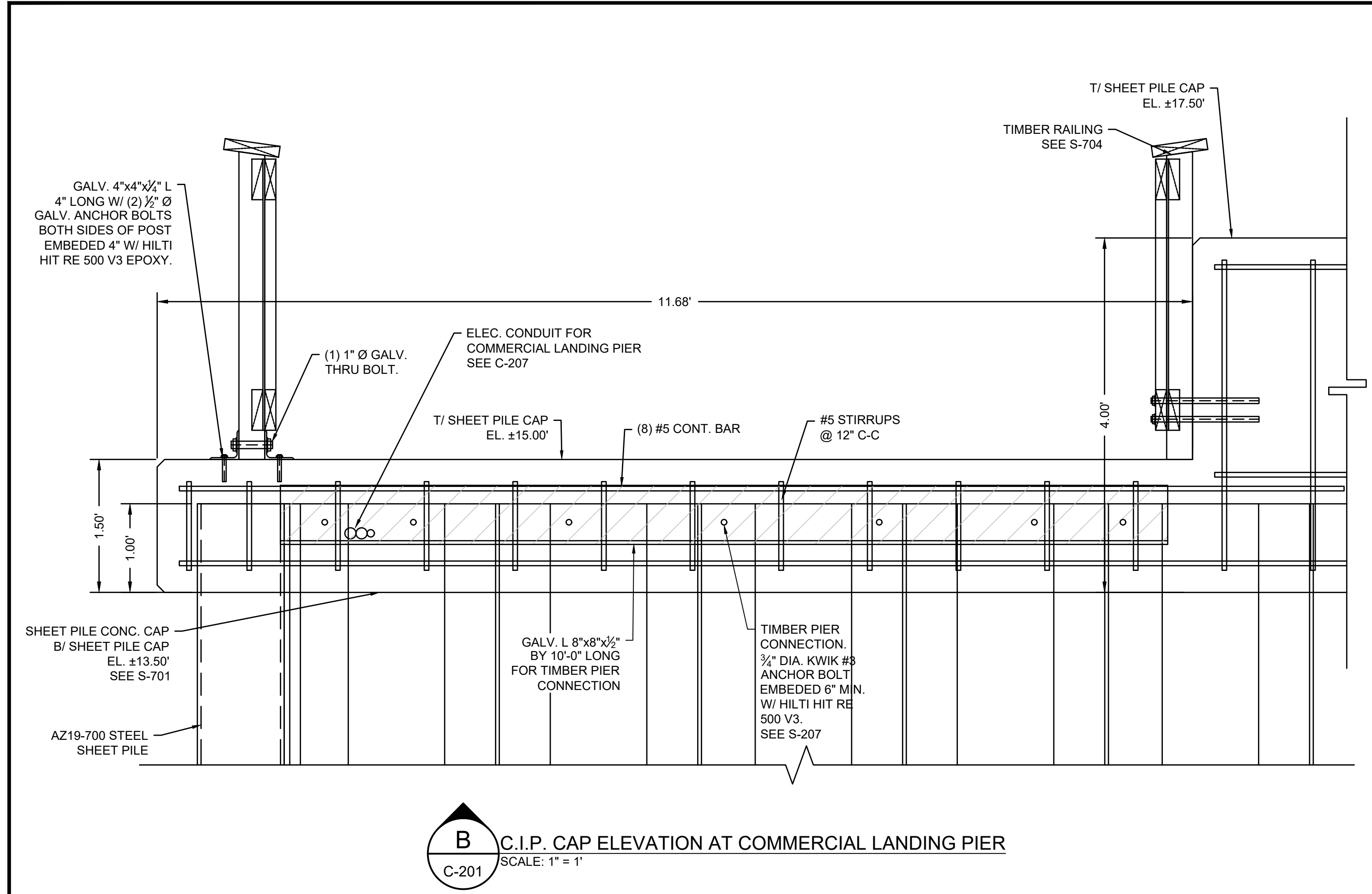
DATE OF PREPARATION		
SURVEYED	BY	DATE
MEC/JAH		10/24/19 & 3/2/21
DRAWN	BAM	12/05/2023
DESIGNED	SRS	06/28/2021
CHECKED	PSR	12/24/2023

SHEET TITLE:
STRUCTURAL DETAILS 3 OF 8

ISSUANCE:
ISSUED FOR BID

PROJECT NO: 00190004.10
SHEET NUMBER

S-703



Thursday, March 7, 2024 11:42:14 AM
DWG Filename: s-703 structural details.dwg
Layout: s-703 structural details 3 of 8
DWG Folder Location:

REVISIONS	
NO.	DESCRIPTION

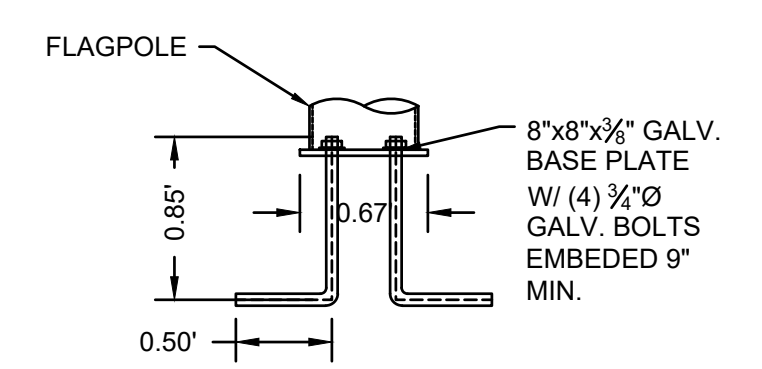
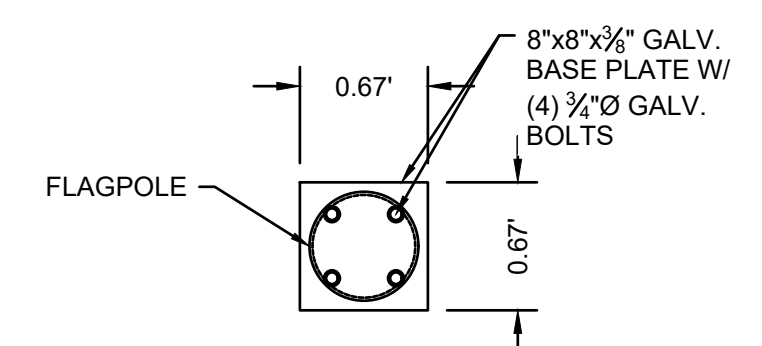
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BY	DATE	

SURVEYED	MEC/JAH	10/24/19 & 3/2/21
DRAWN	BAM	12/05/2023
DESIGNED	SRS	06/28/2021
CHECKED	PSR	12/24/2023

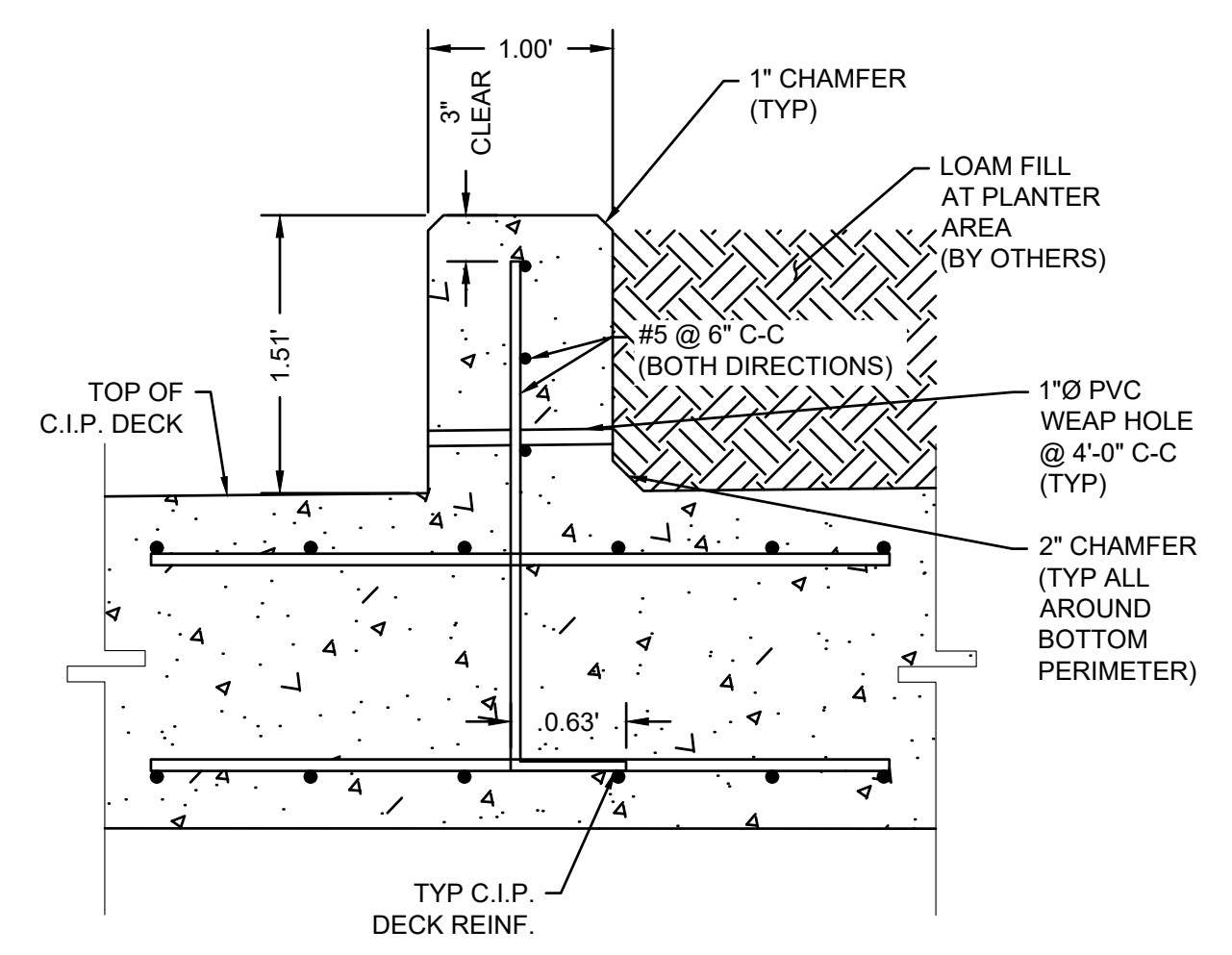
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STRUCTURAL DETAILS 4 OF 8

ISSUANCE:
ISSUED FOR BID

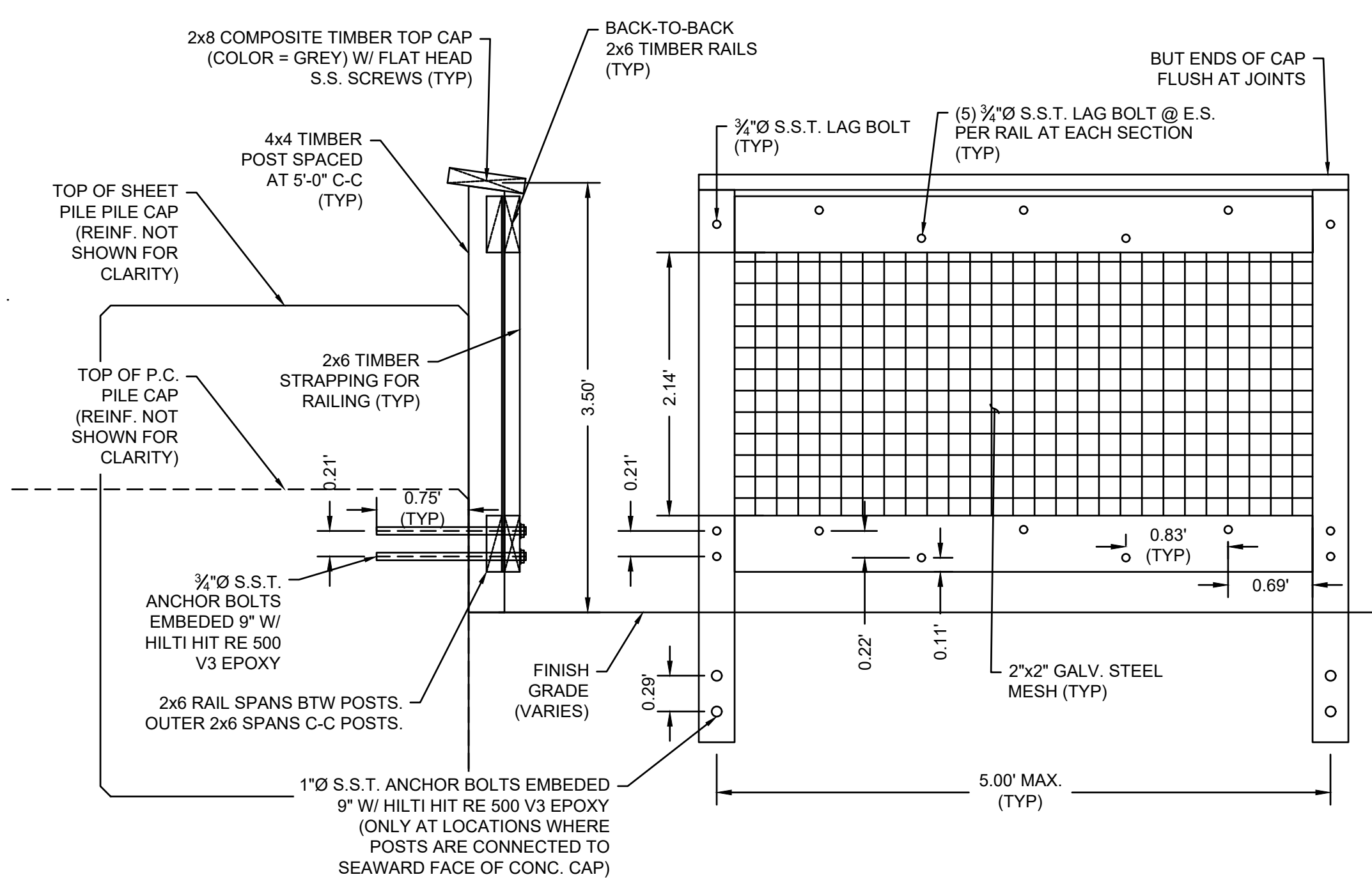
PROJECT NO: 00190004.10
SHEET NUMBER
S-704



FLAGPOLE CONNECTION DETAIL
SCALE: 1" = 1"
NOTE:
1. FLAGPOLE BASE PLATE & ANCHORS PER MANUF. RECOMMENDATIONS.

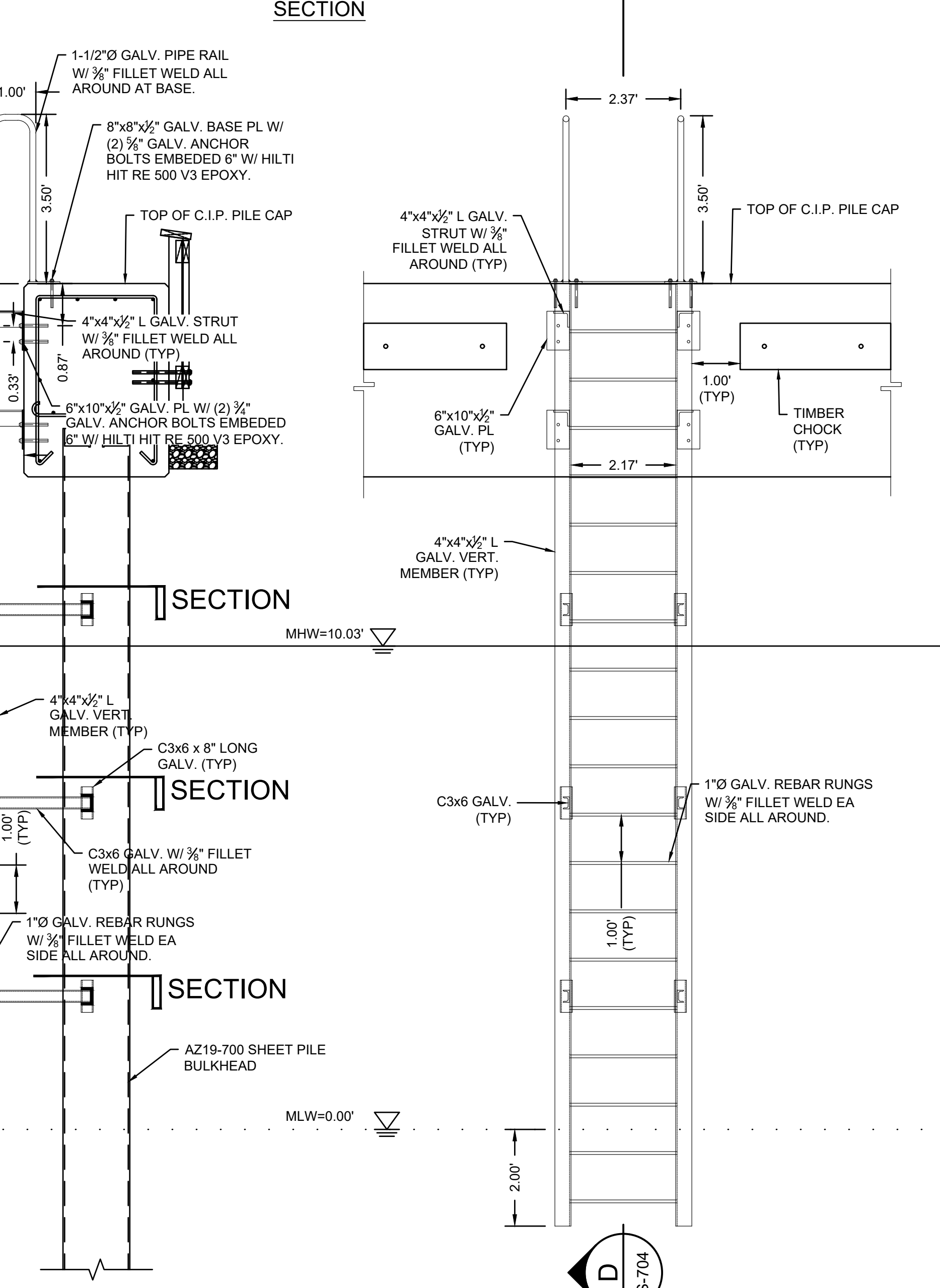
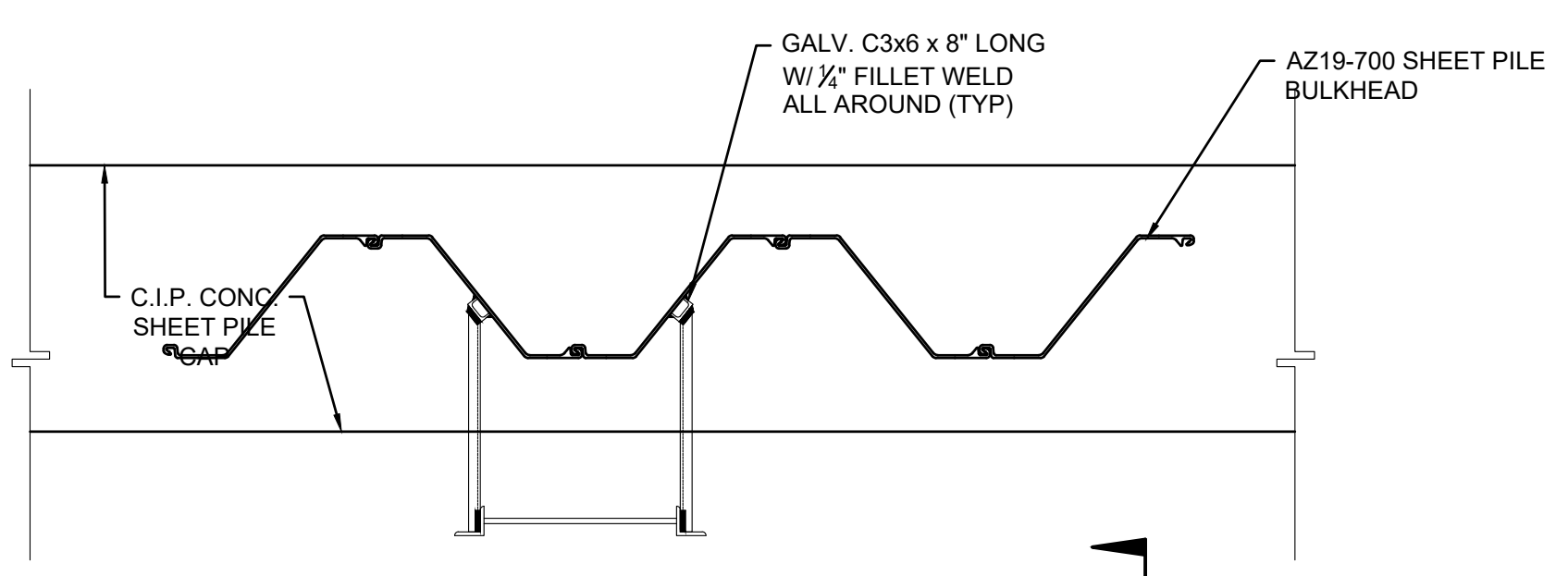
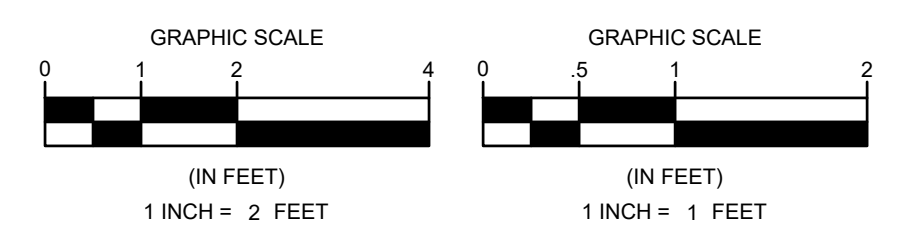


J
DETAIL
S-101
SCALE: 1" = 1"



NOTE:
1. CONTRACTOR TO MATCH EXISTING COMPOSITE TOP CAP & TIMBER RAILING DESIGN LOCATED ALONG BAY VIEW DRIVE, ORLEANS, MA.

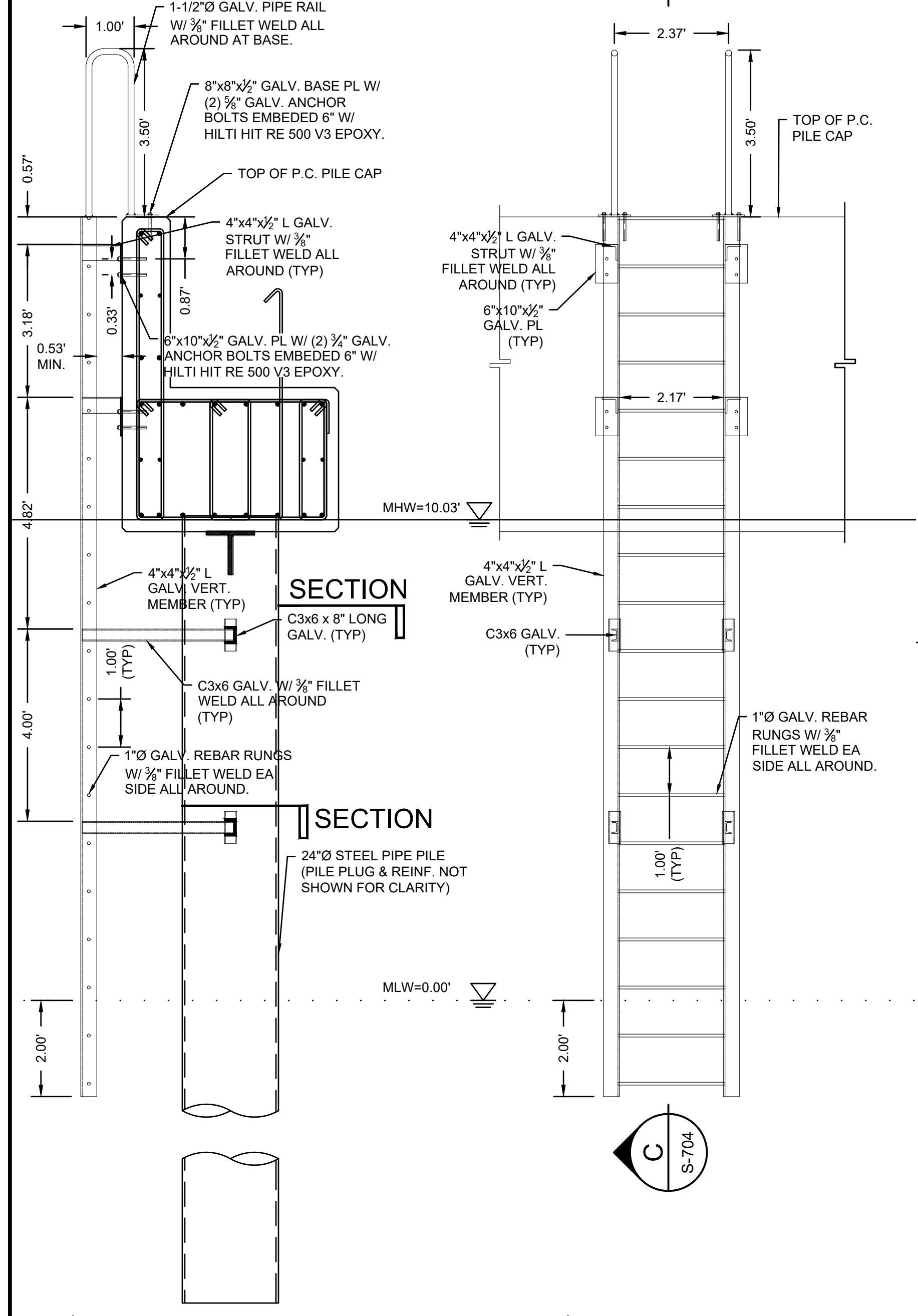
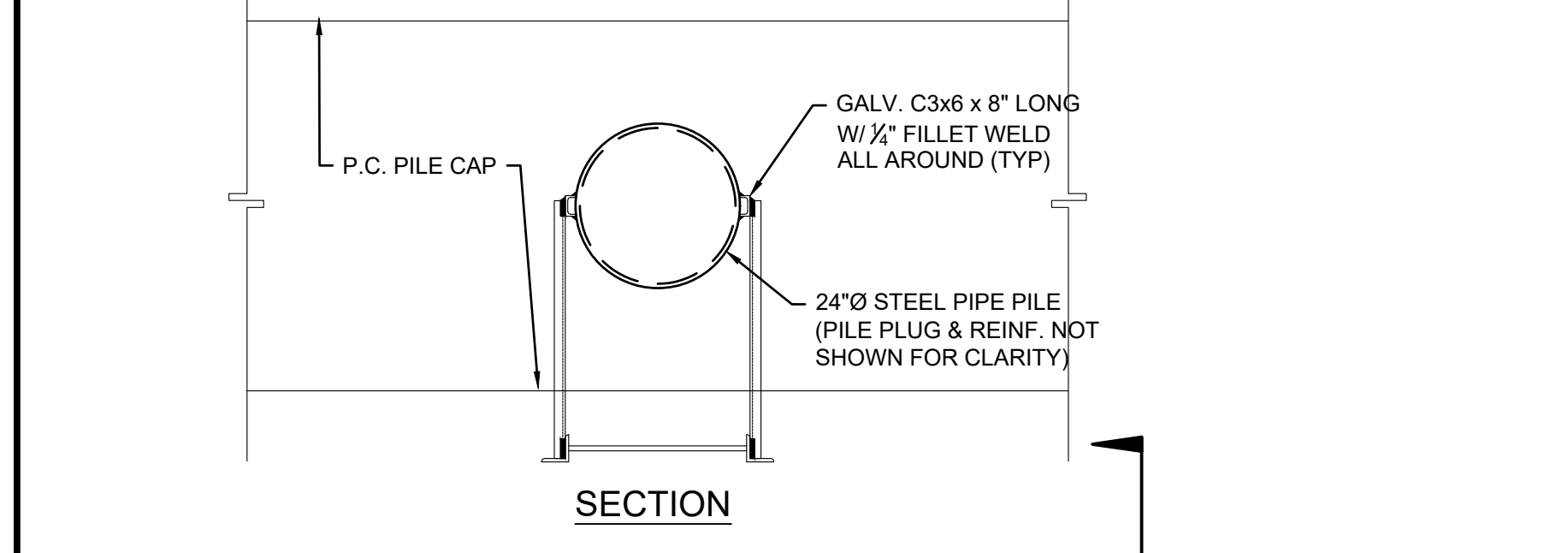
TIMBER RAILING DETAIL
SCALE: 1" = 1"



D
EMERGENCY LADDER SHEET PILE CONNECTION SECTION
SCALE: 1" = 2"

B
EMERGENCY LADDER SHEET PILE CONNECTION SECTION
SCALE: 1" = 2"

NOTE:
1. GROUND ANCHOR, BULKHEAD WALER, TIMBER FENDER WALER & CHOCK NOT SHOWN FOR CLARITY.



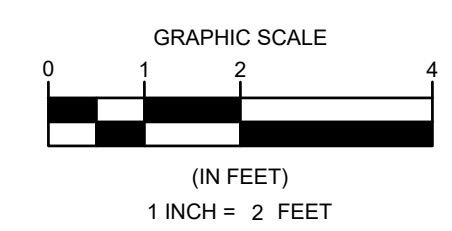
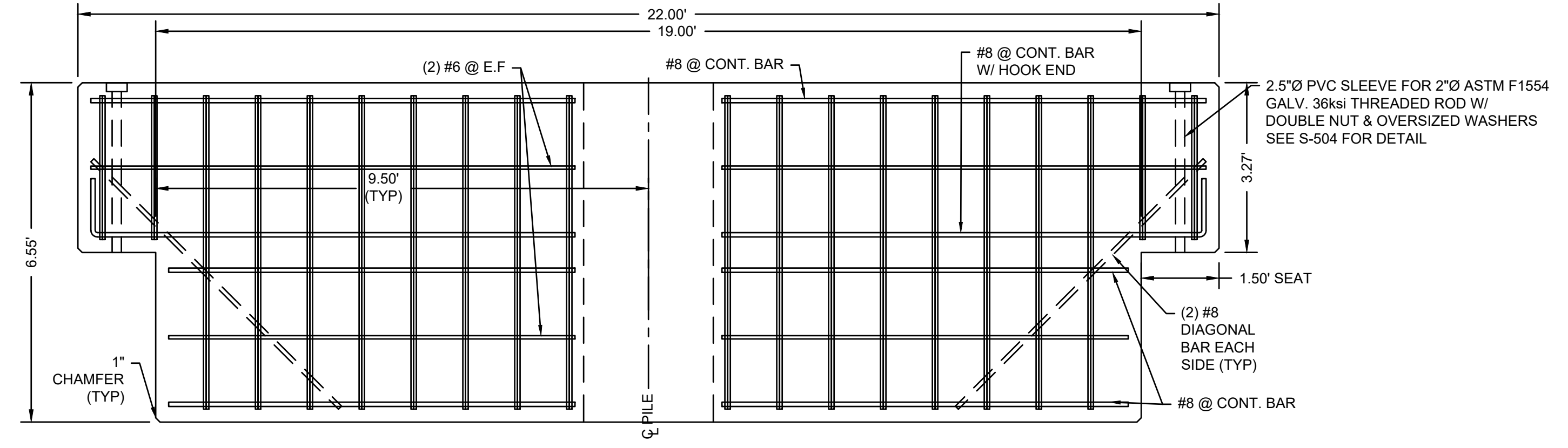
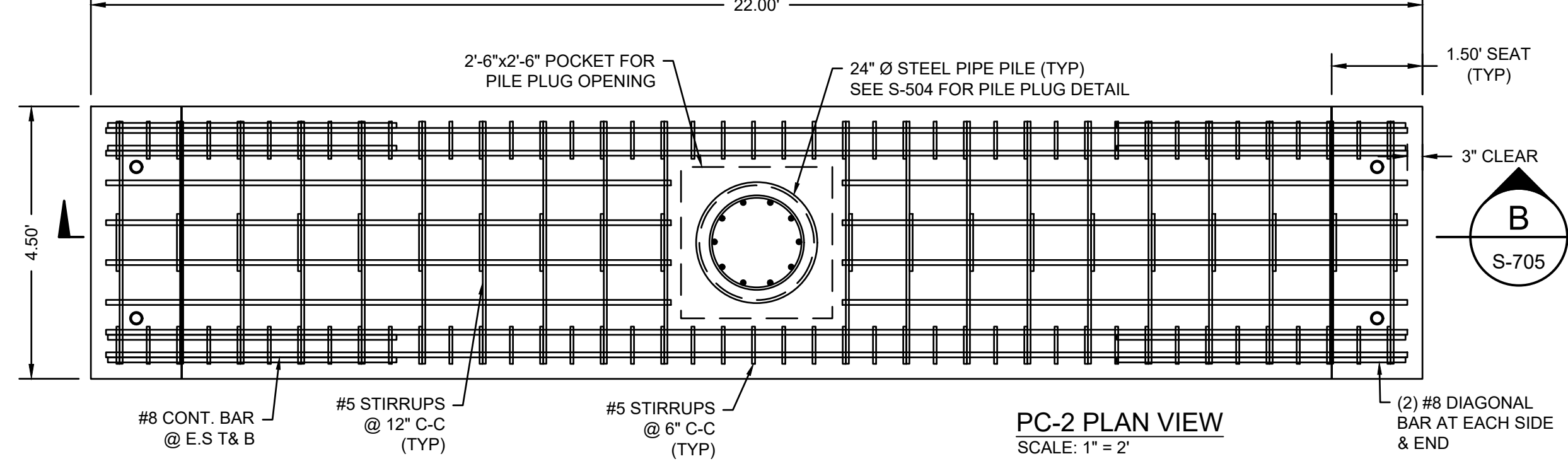
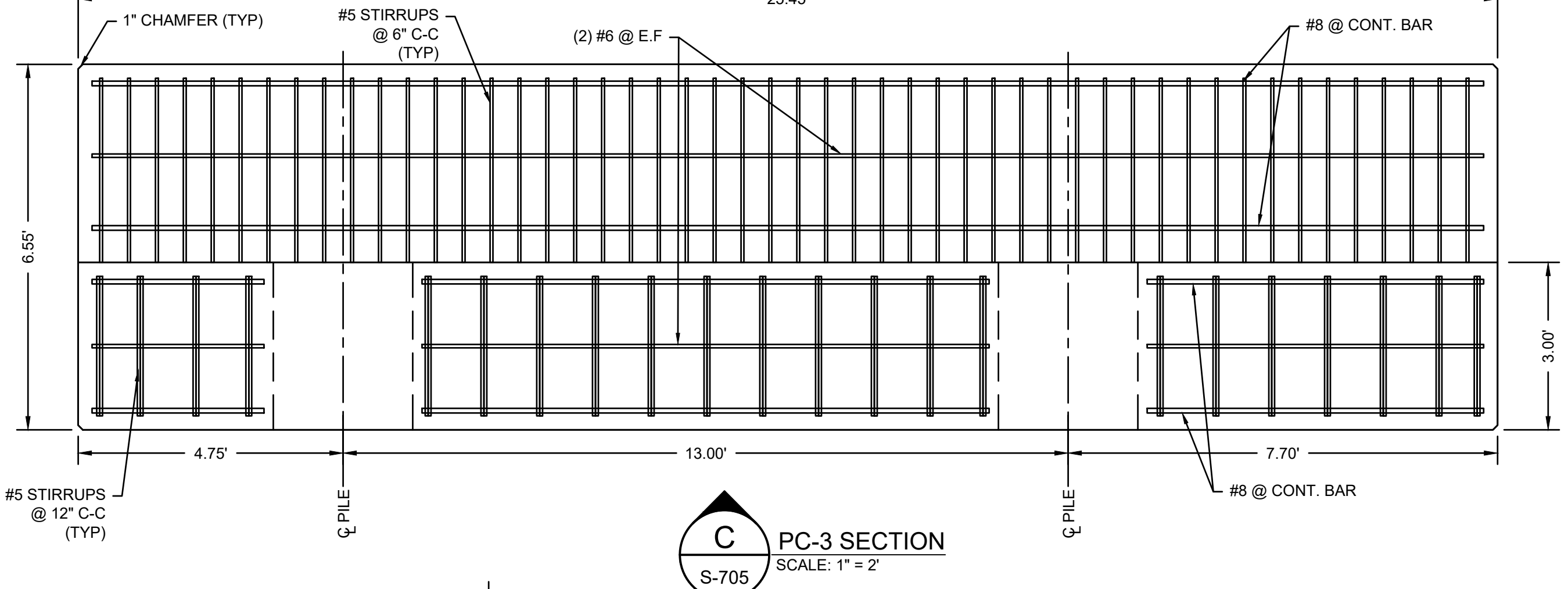
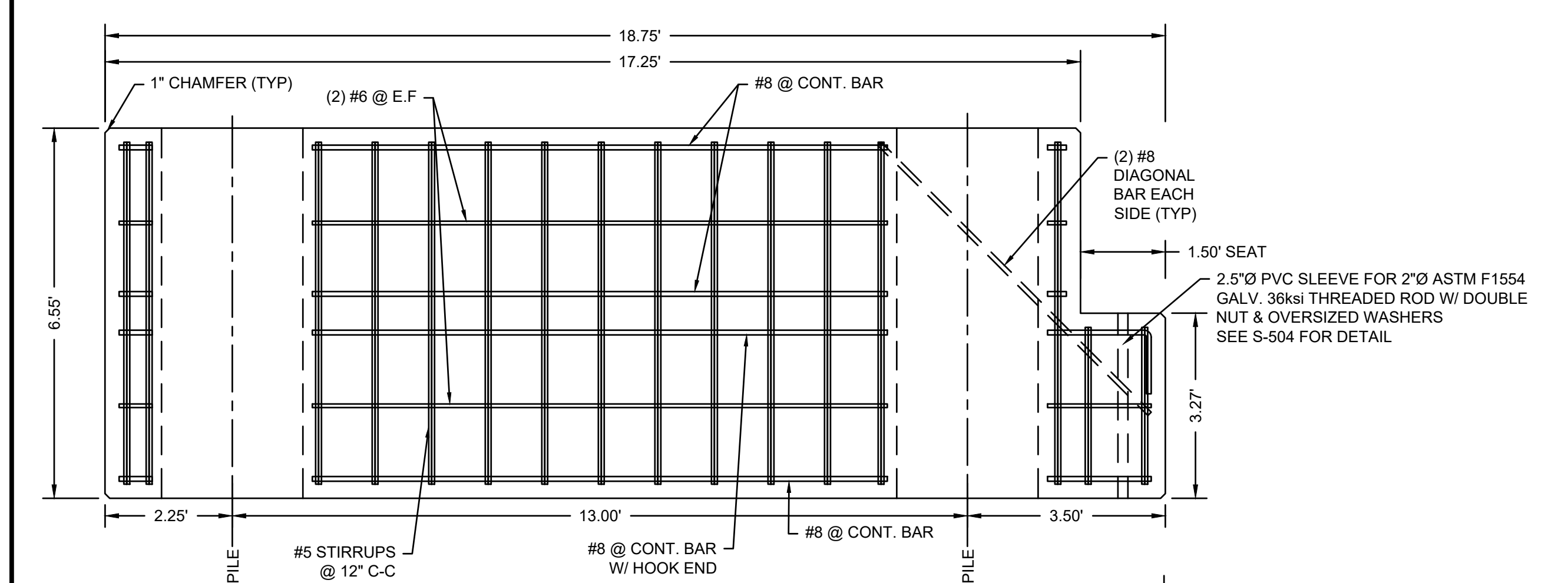
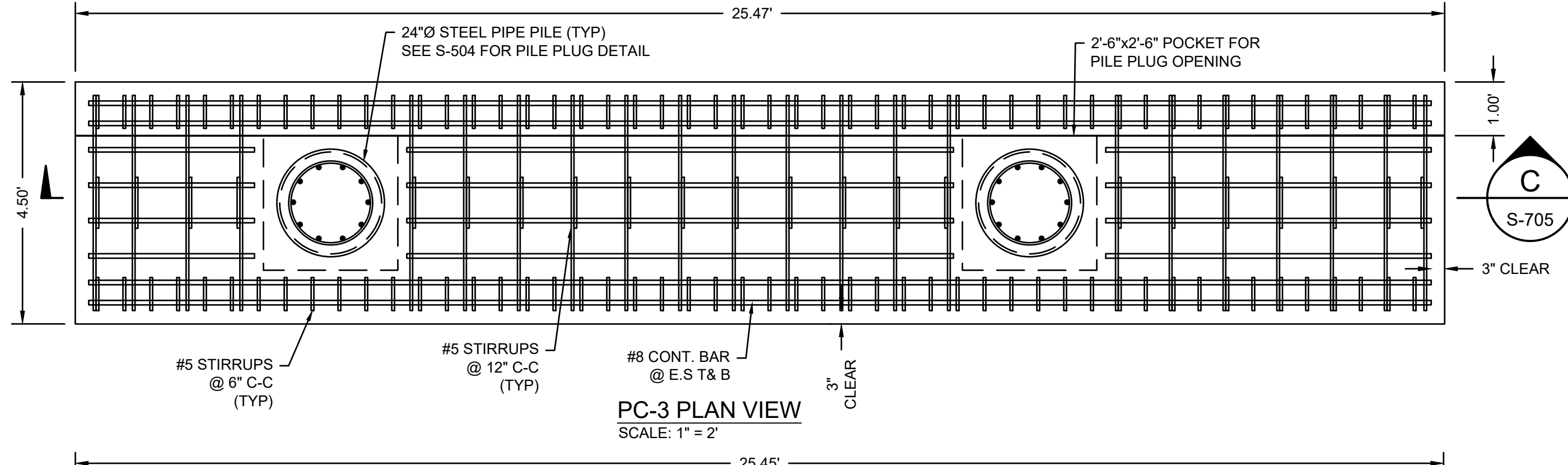
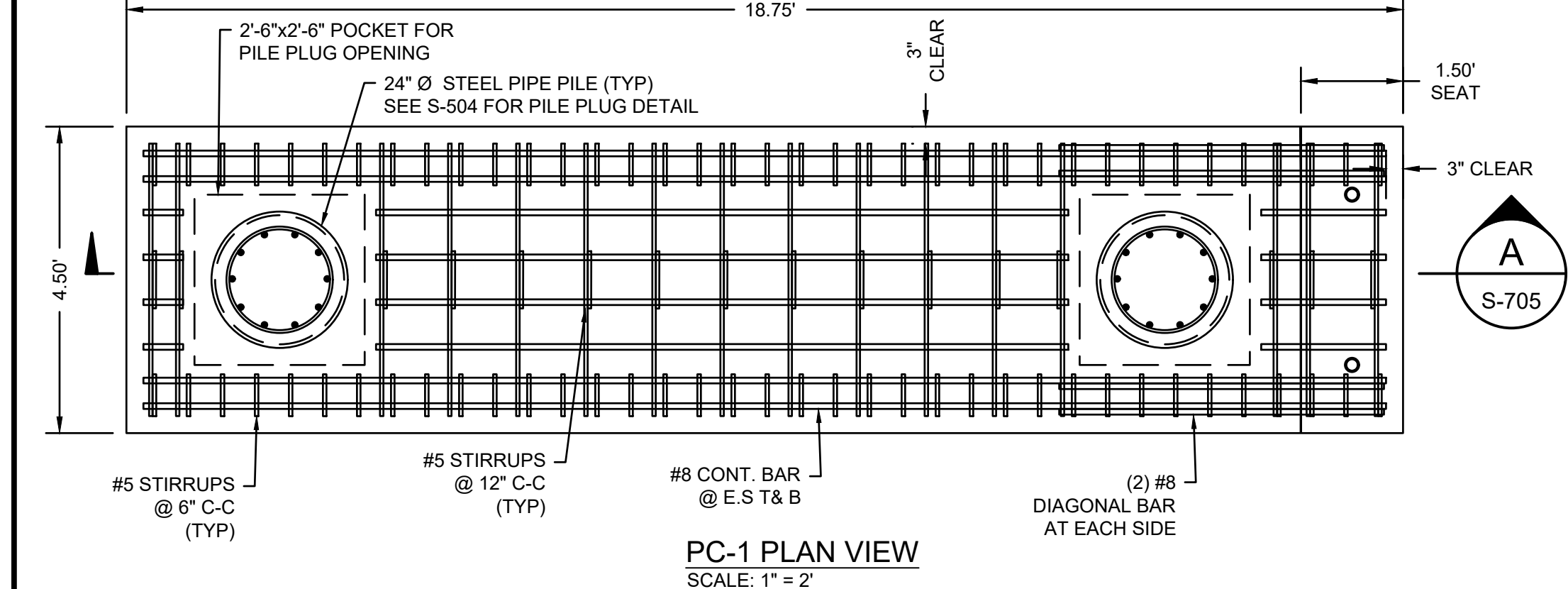
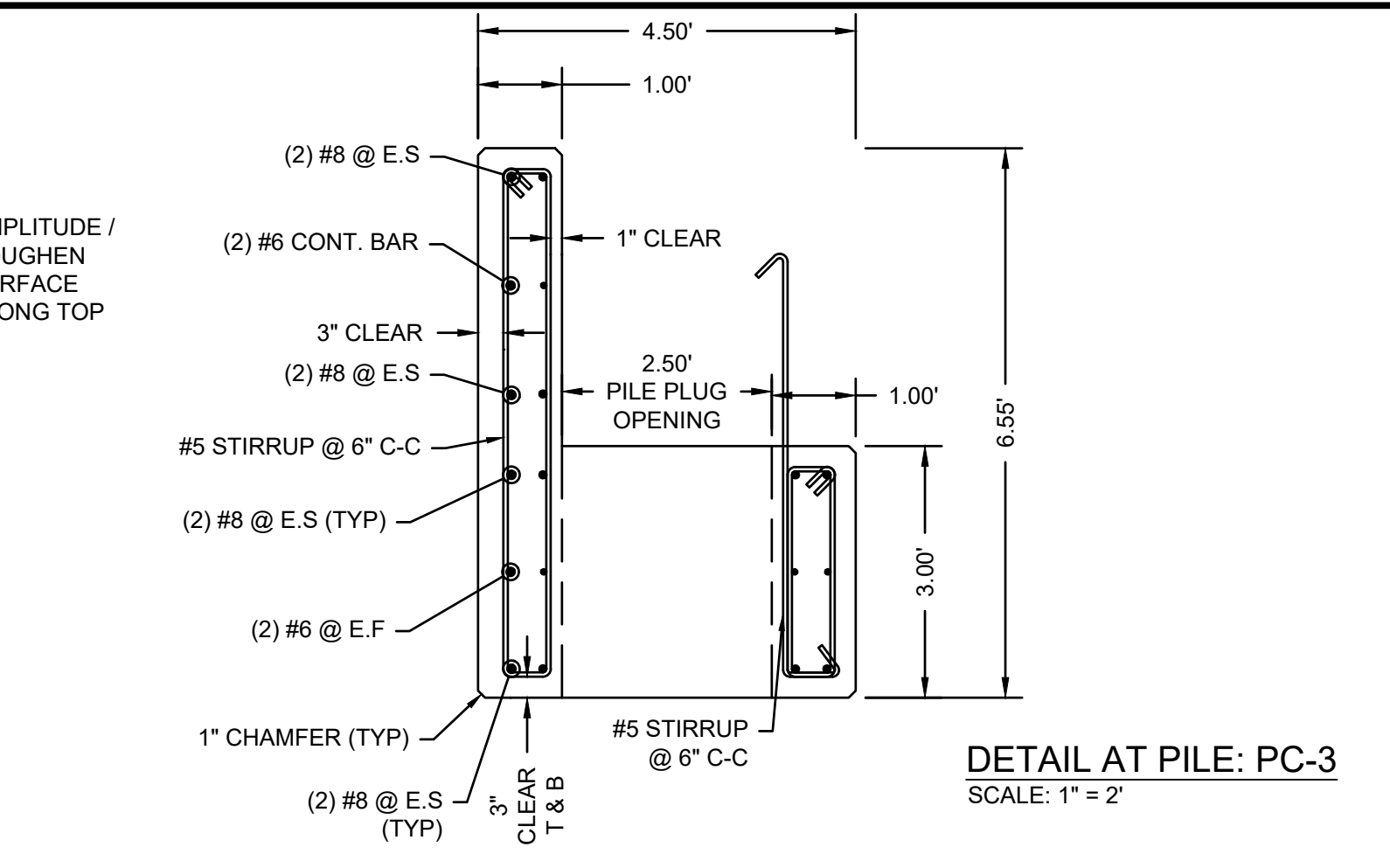
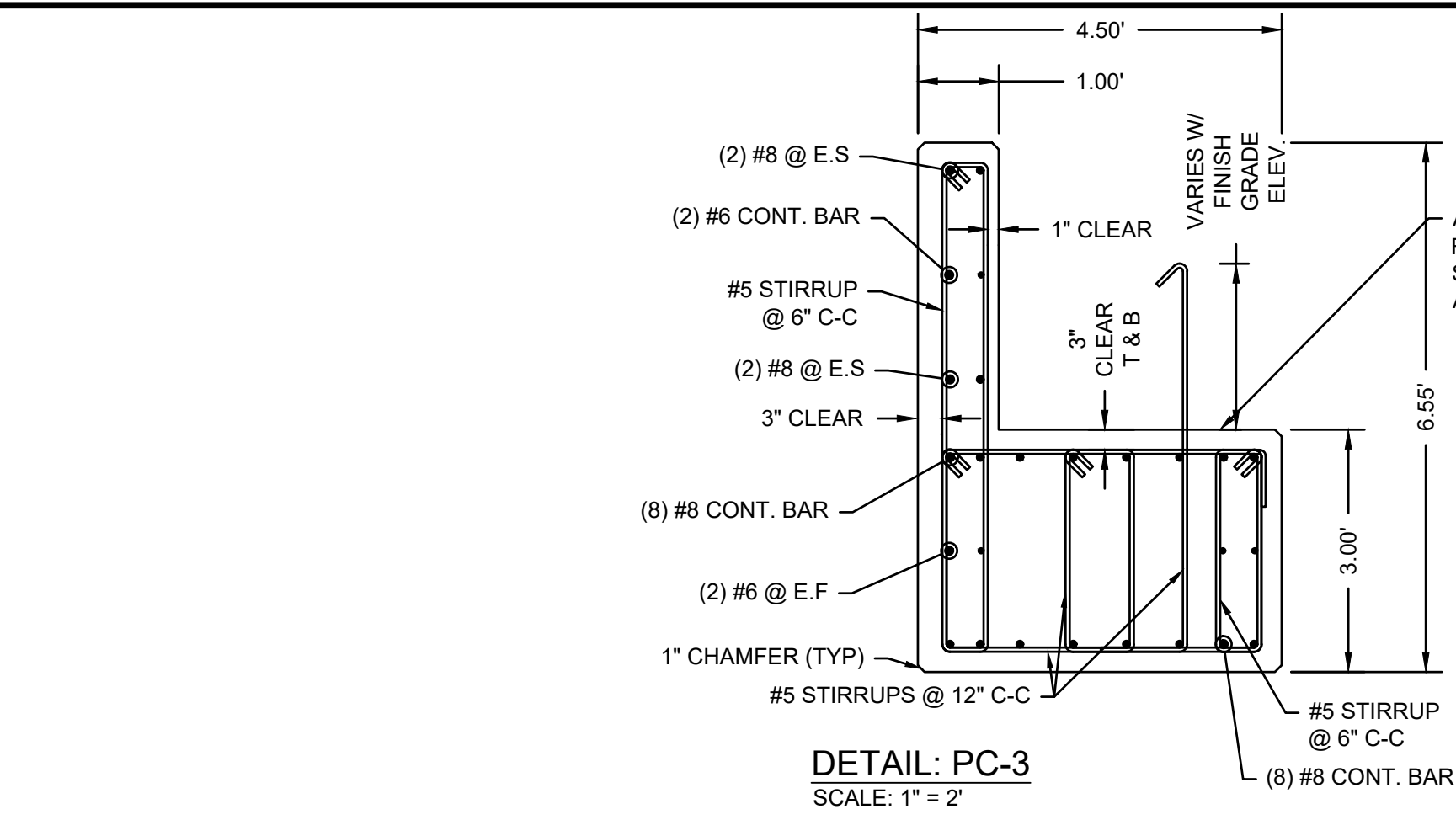
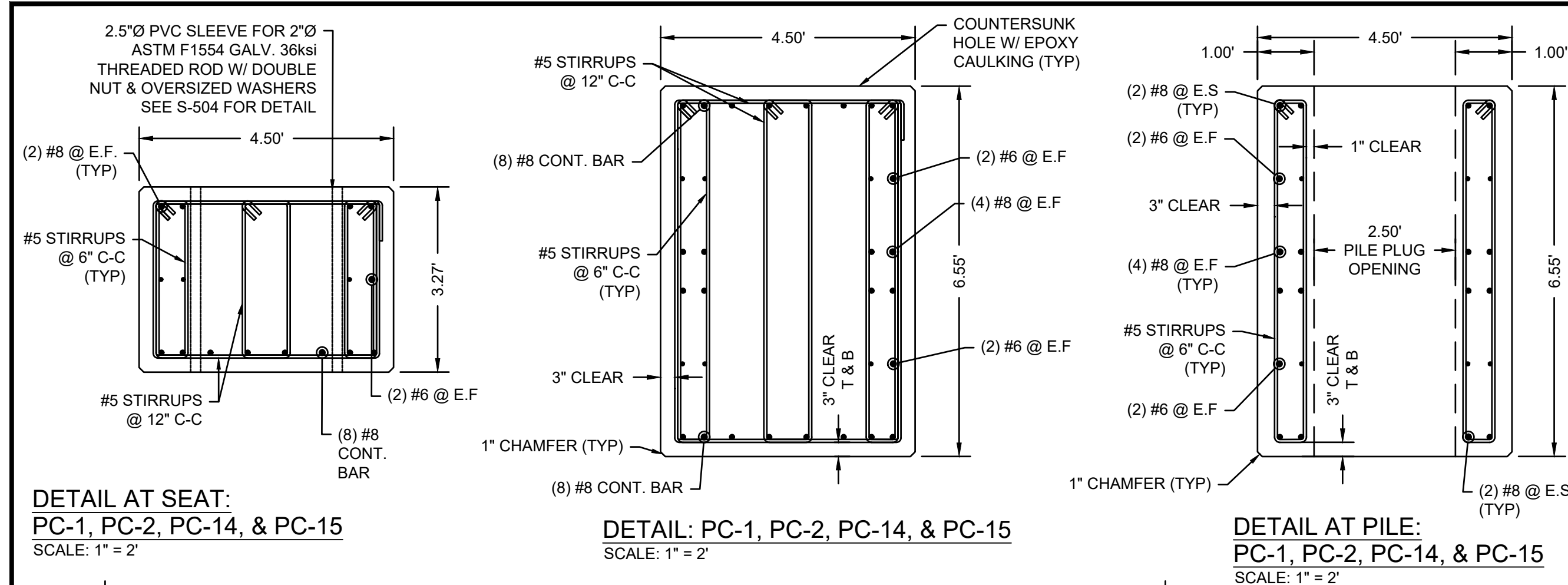
C
EMERGENCY LADDER PILE CONNECTION SECTION
SCALE: 1" = 2"

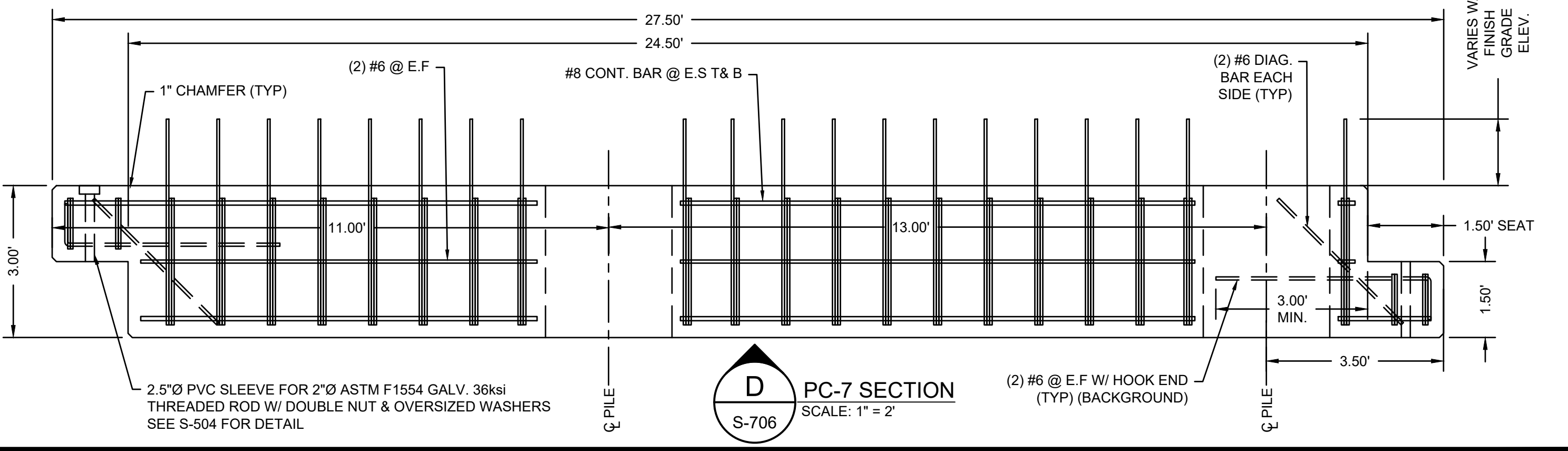
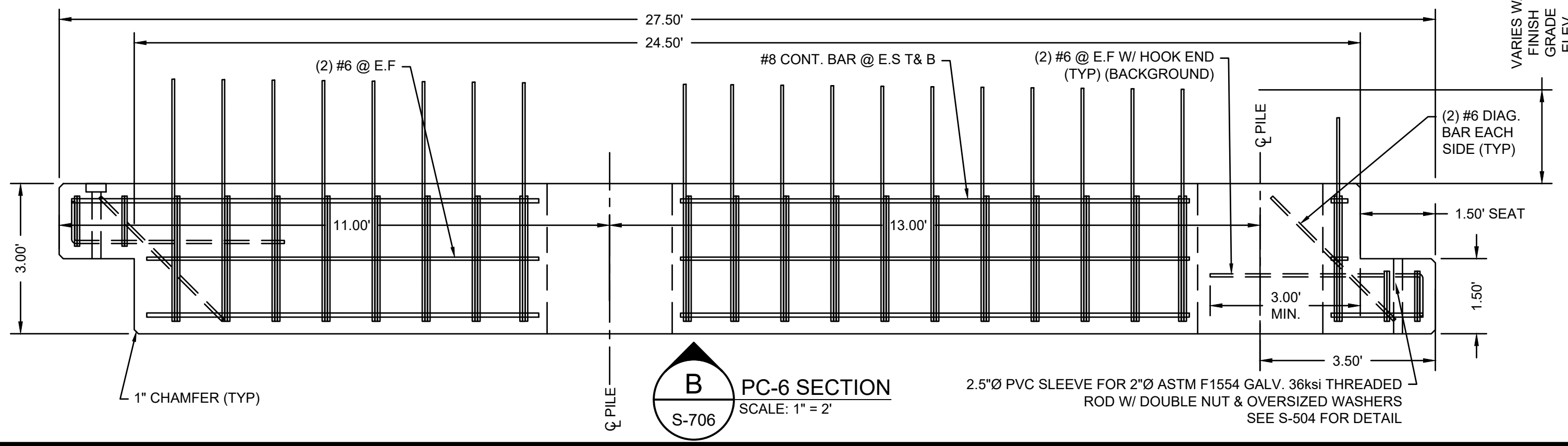
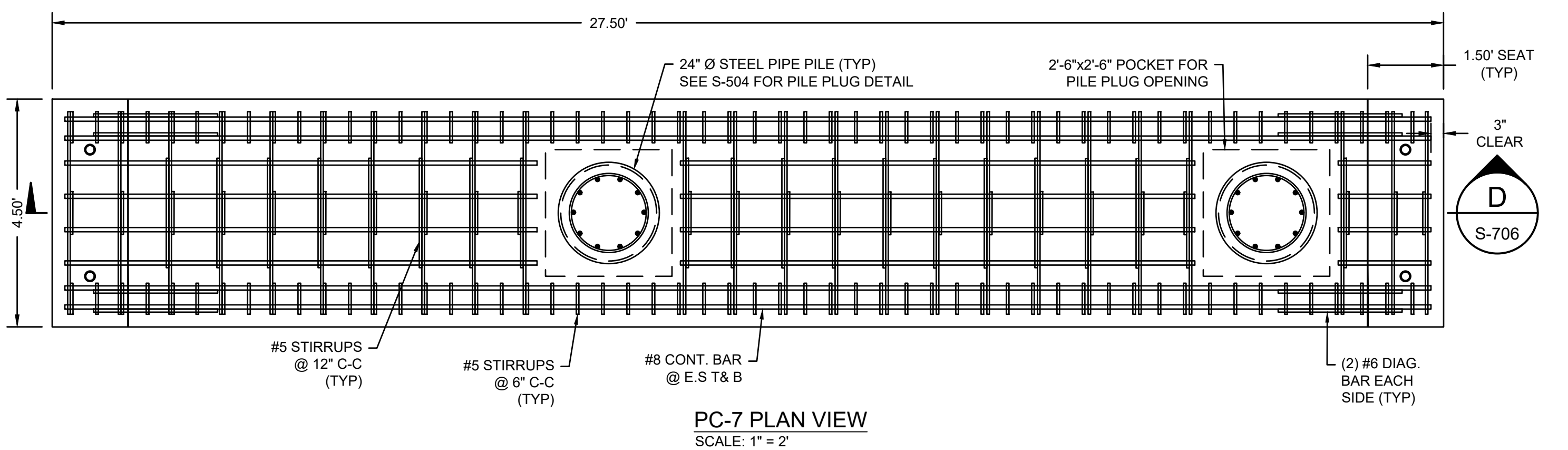
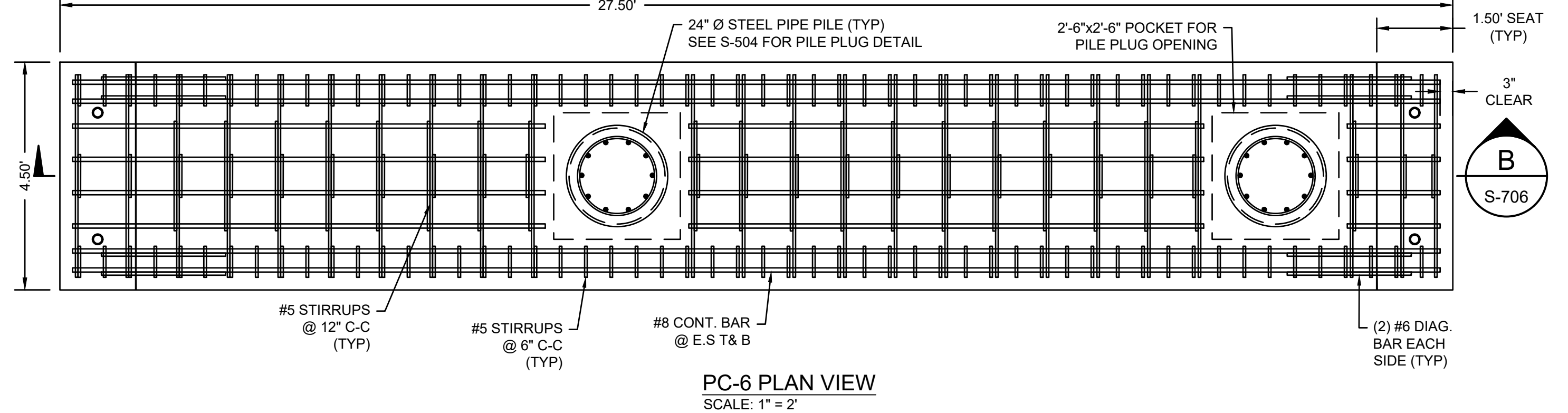
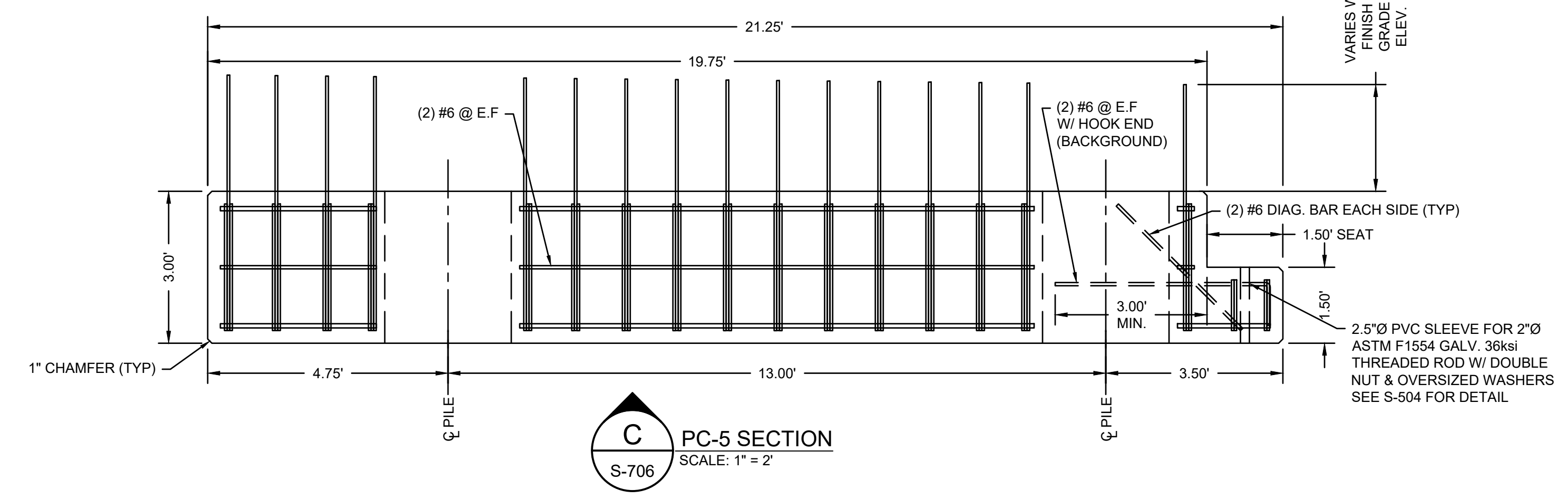
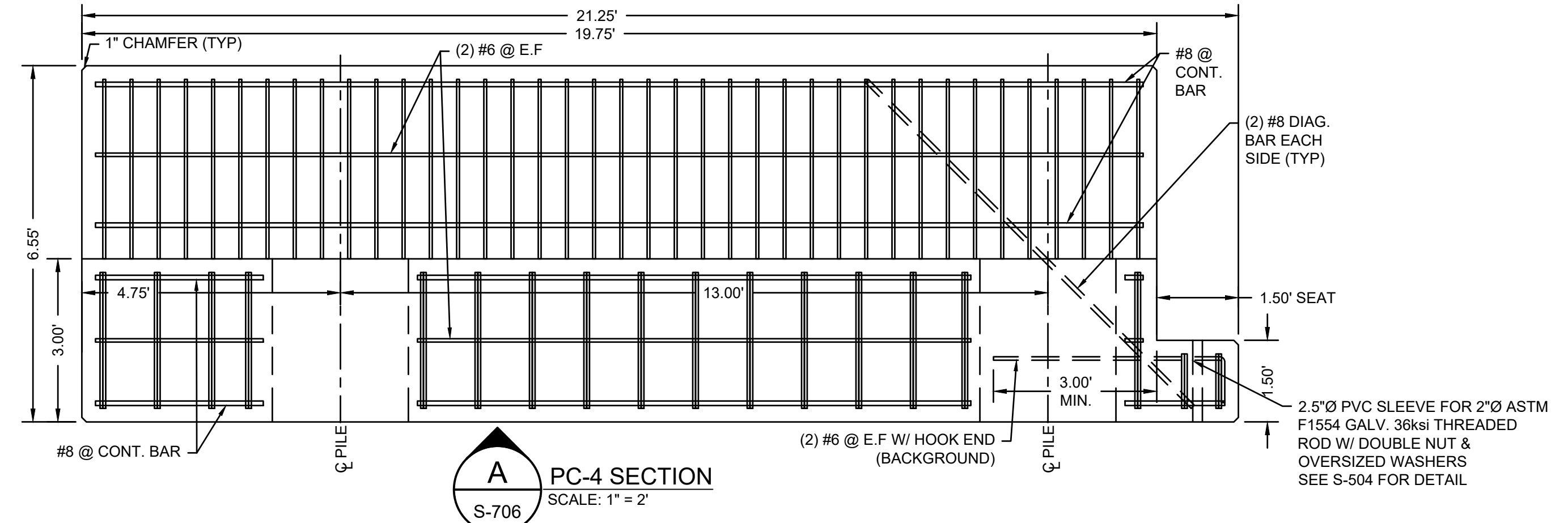
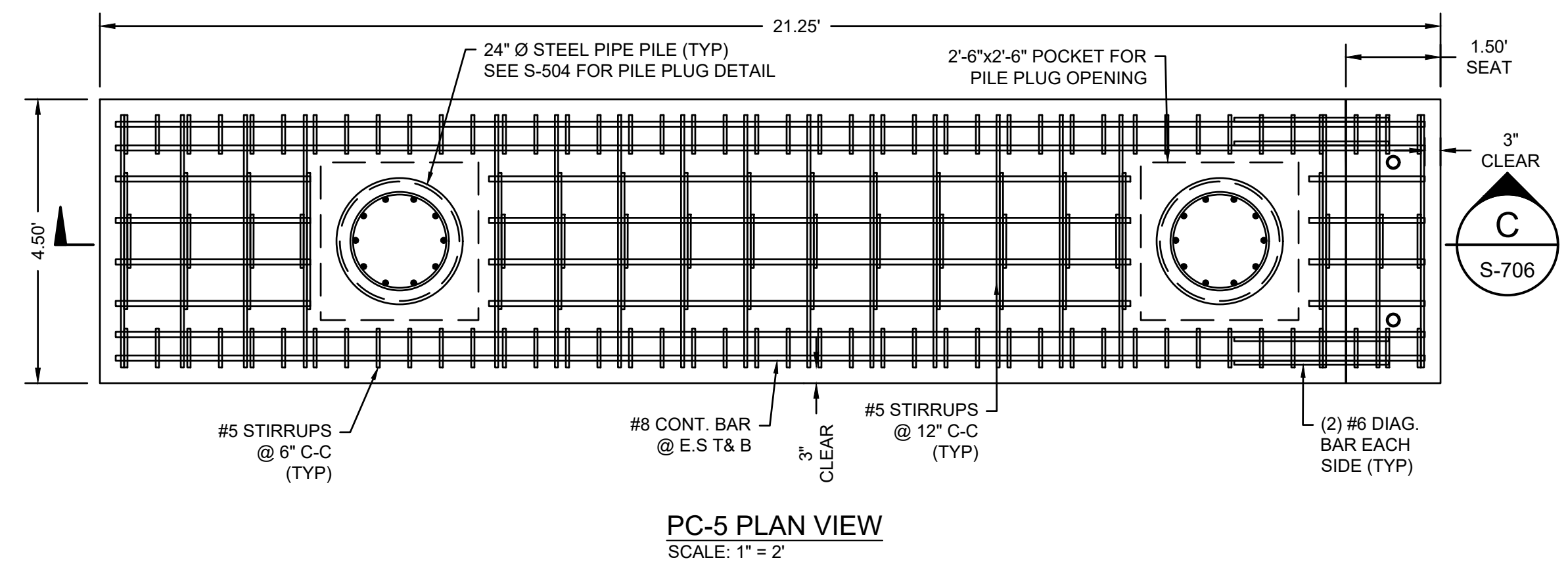
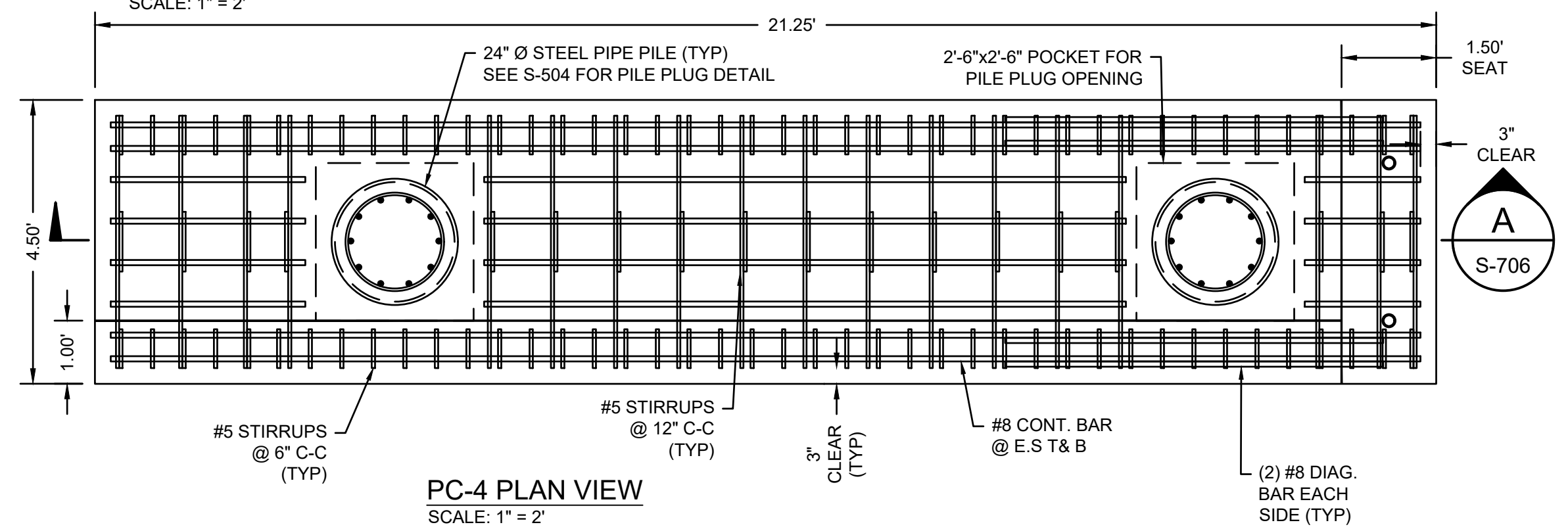
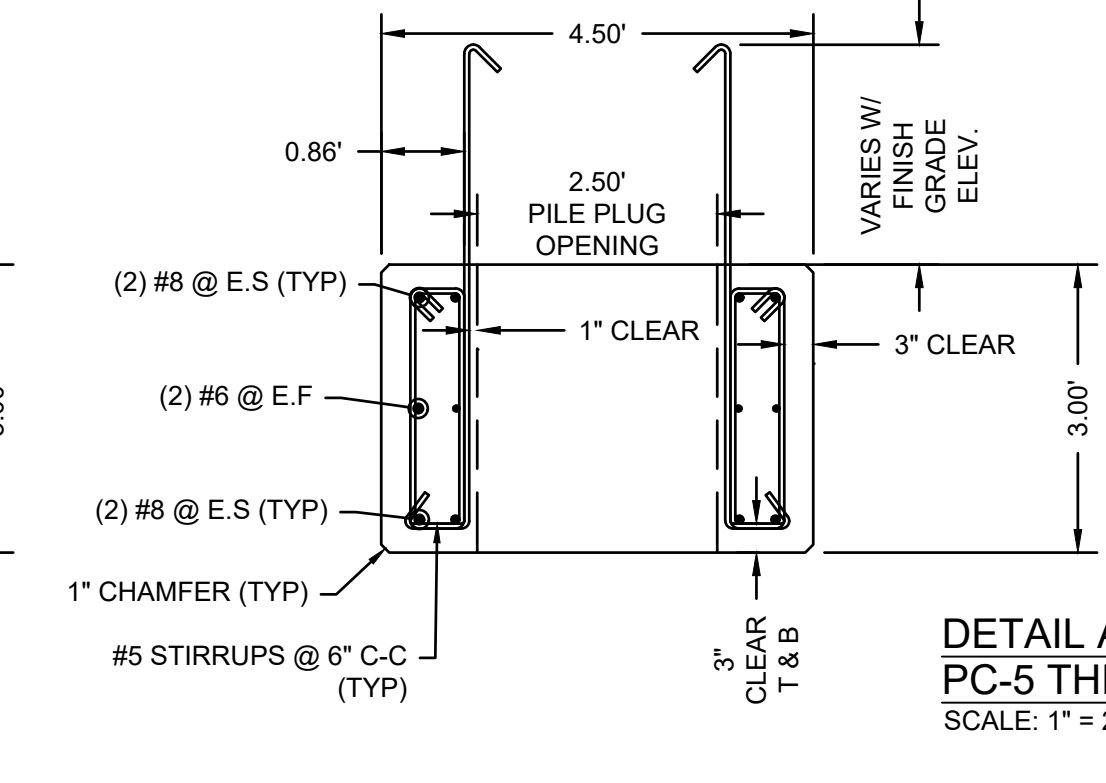
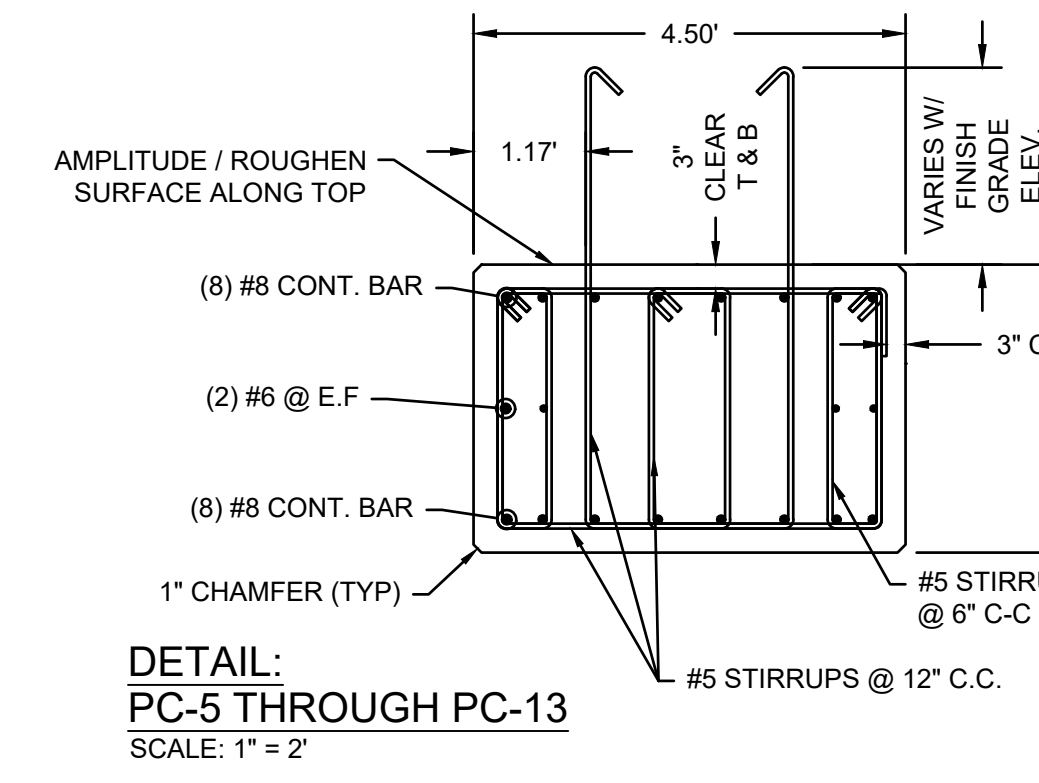
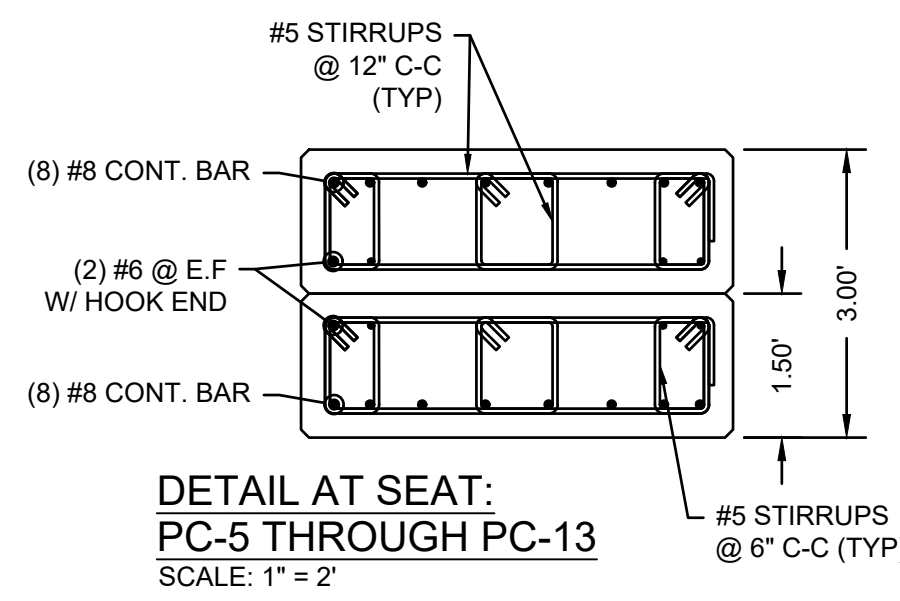
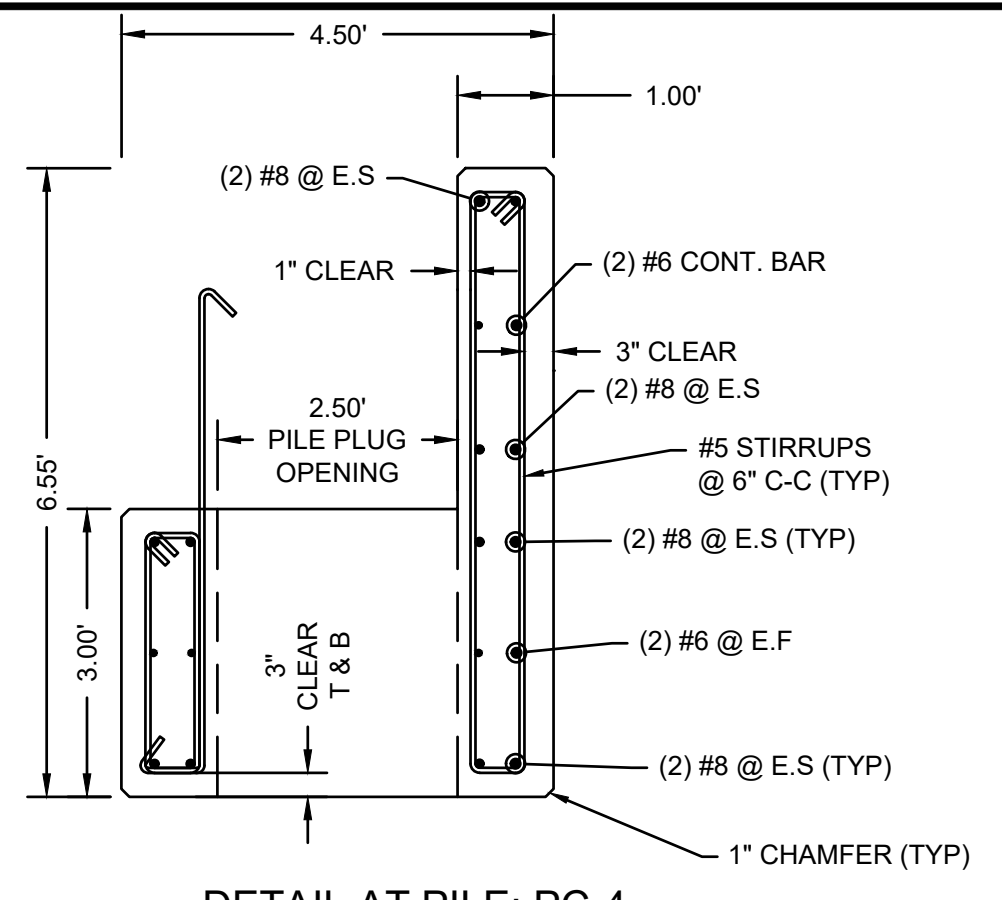
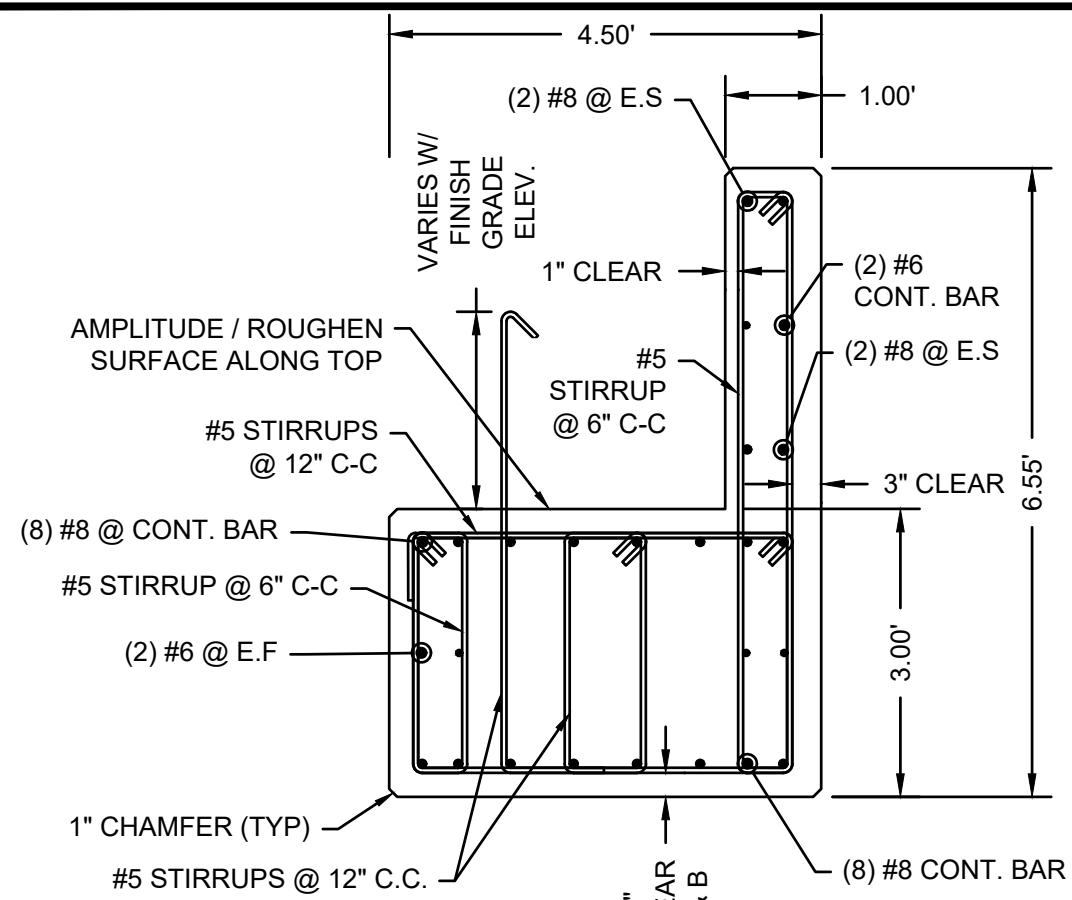
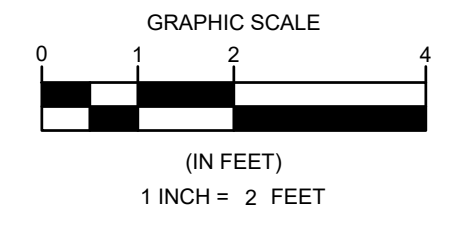
K
EMERGENCY LADDER PILE CONNECTION SECTION
SCALE: 1" = 2"

NO.	BY	DATE	DESCRIPTION

DATE OF PREPARATION: _____

SURVEYED	BY	DATE
MEC/JAH		10/24/19 & 3/22/21
DRAWN	BAM	12/05/2023
DESIGNED	SRS	06/28/2021
CHECKED	PSR	12/24/2023





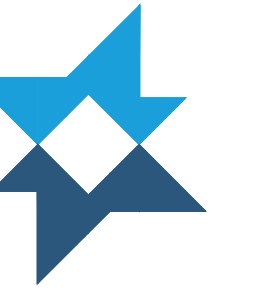
NO.	BY	DATE	DESCRIPTION

DATE OF PREPARATION	
BY	DATE
SURVEYED	MEC/JAH 10/24/19 & 3/2/21
DRAWN	BAM 12/05/2023
DESIGNED	SRS 06/28/2021
CHECKED	PSR 12/24/2023

SHEET TITLE:
STRUCTURAL DETAILS 6 OF 8

ISSUANCE:
ISSUED FOR BID

PROJECT NO: 00190004.10
 SHEET NUMBER



DEPARTMENT OF PUBLIC WORKS
TOWN OF ORLEANS, MASSACHUSETTS
ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS

NO.	BY	DATE	DESCRIPTION

DATE OF PREPARATION: _____

SURVEYED	BY	DATE
MEC/JAH		10/24/19 & 3/2/21
DRAWN	BAM	12/05/2023
DESIGNED	SRS	06/28/2021
CHECKED	PSR	12/24/2023

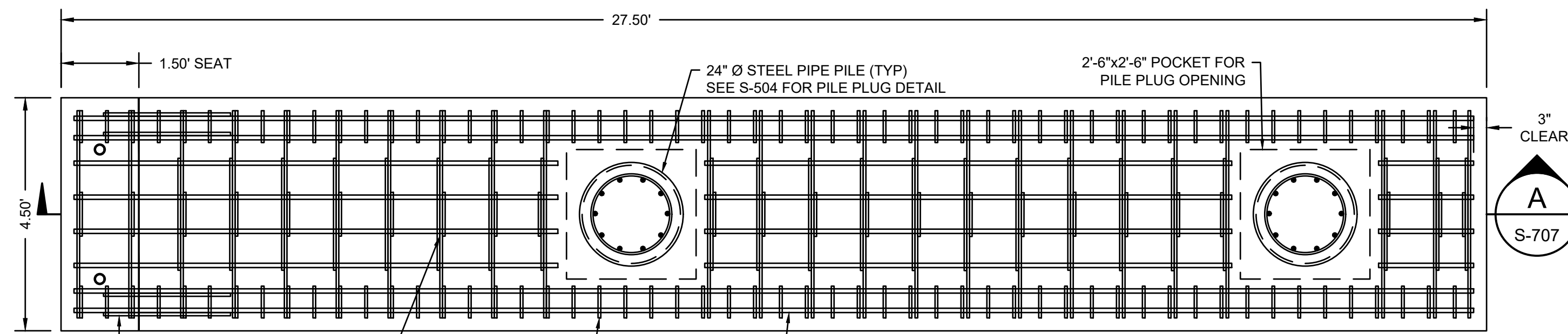
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STRUCTURAL DETAILS 7 OF 8

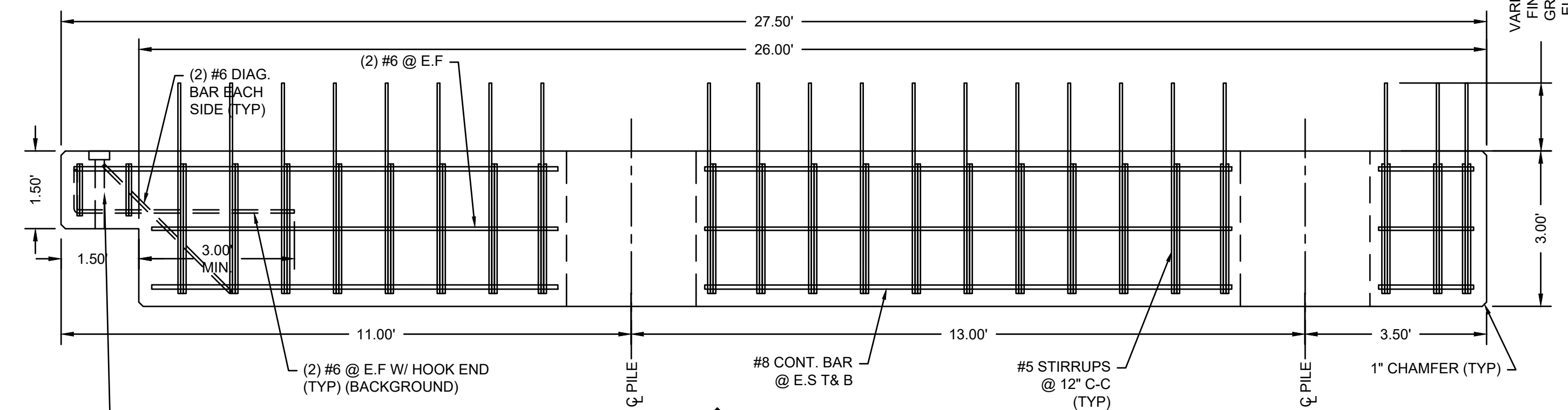
ISSUANCE:
ISSUED FOR BID

PROJECT NO: 00190004.10
SHEET NUMBER

S-707

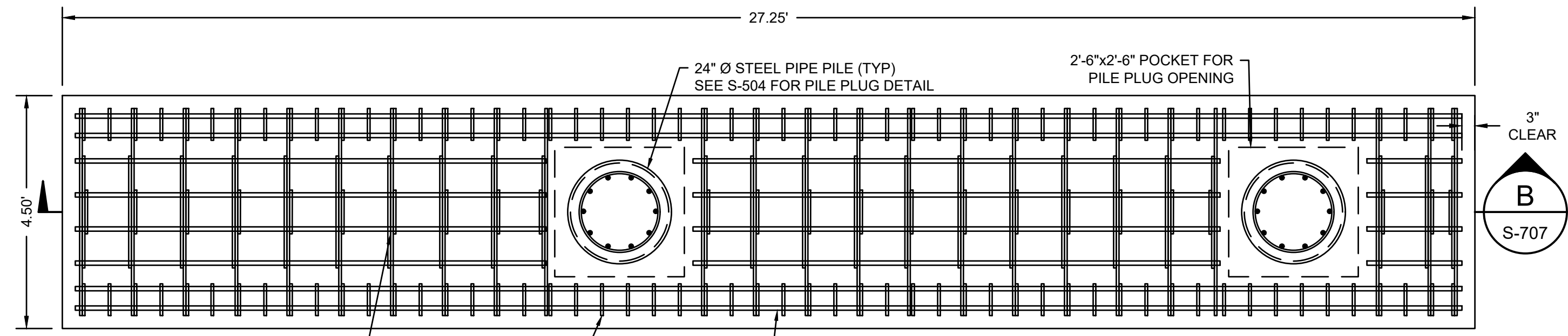


PC-8 PLAN VIEW
SCALE: 1" = 2'

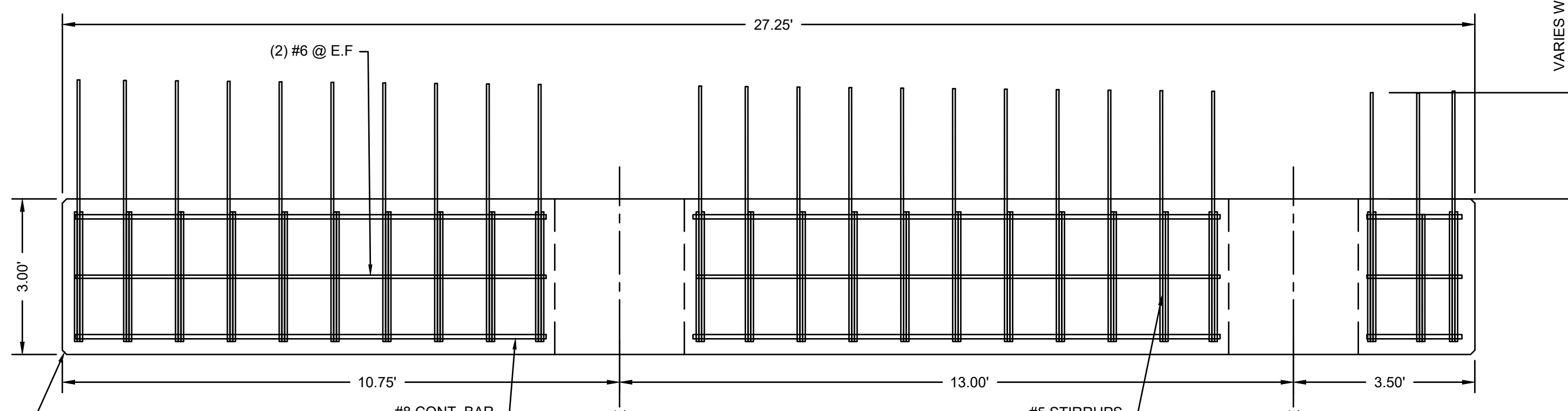


PC-8 SECTION
SCALE: 1" = 2'

NOTE: FOR CROSS SECTION, SEE S-706

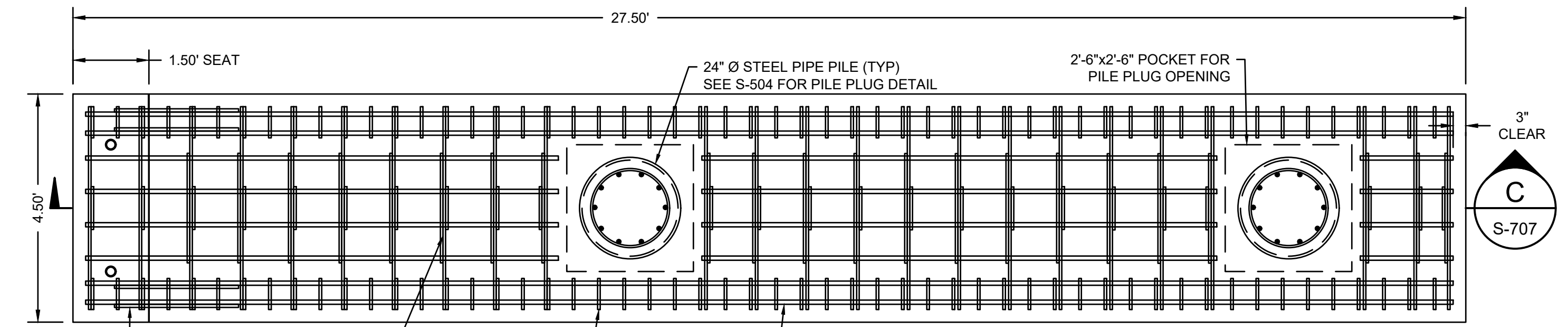


PC-10 PLAN VIEW
SCALE: 1" = 2'

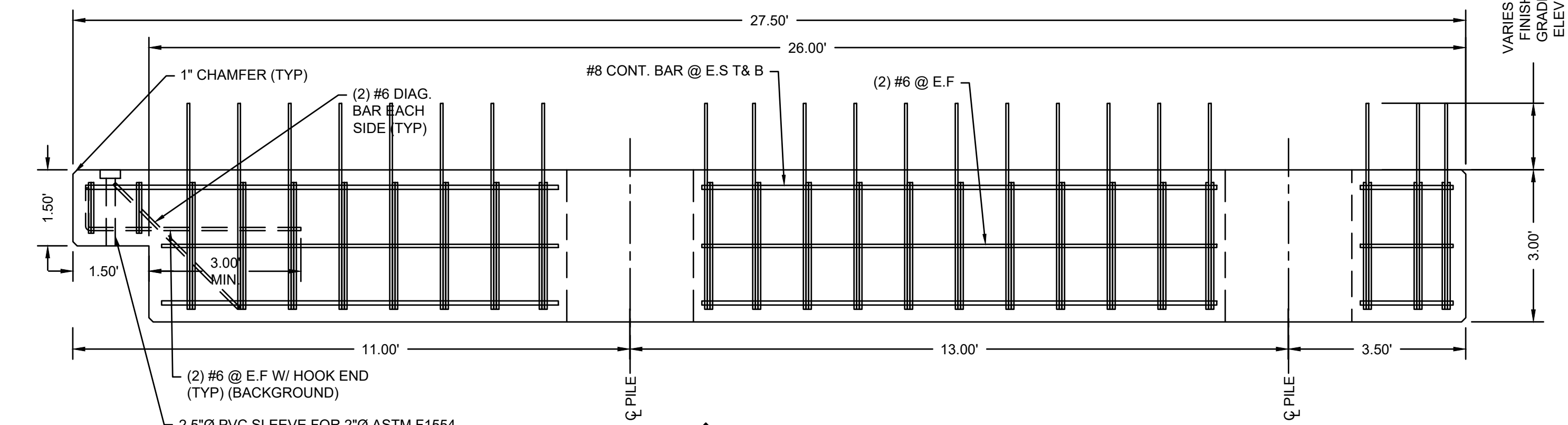


PC-10 SECTION
SCALE: 1" = 2'

NOTE: FOR CROSS SECTION, SEE S-706

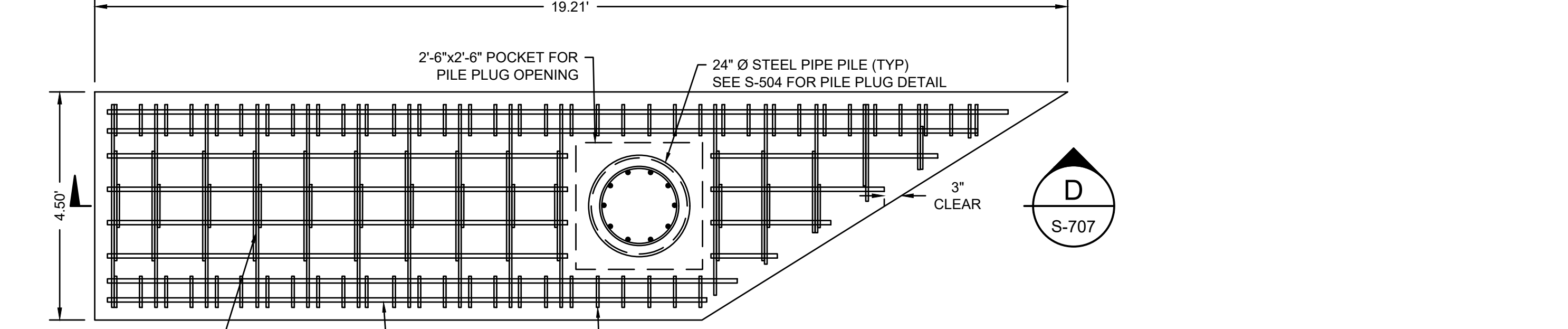


PC-9 PLAN VIEW
SCALE: 1" = 2'

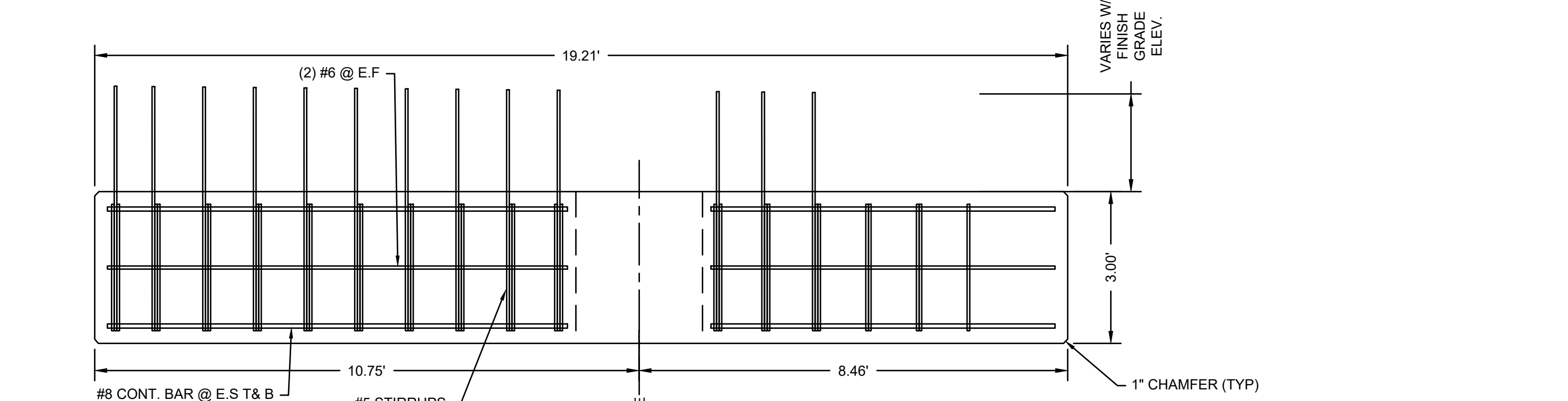


PC-9 SECTION
SCALE: 1" = 2'

NOTE: FOR CROSS SECTION, SEE S-706

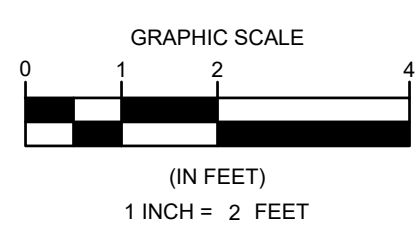


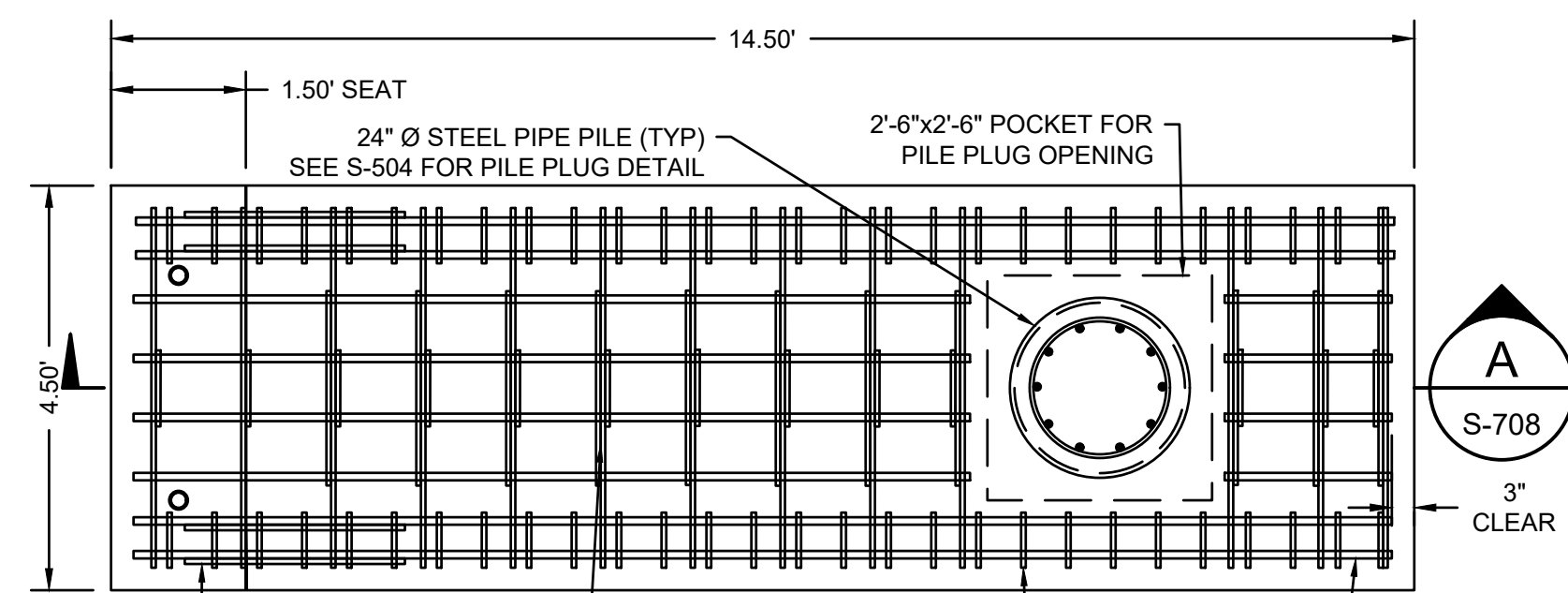
PC-11 PLAN VIEW
SCALE: 1" = 2'



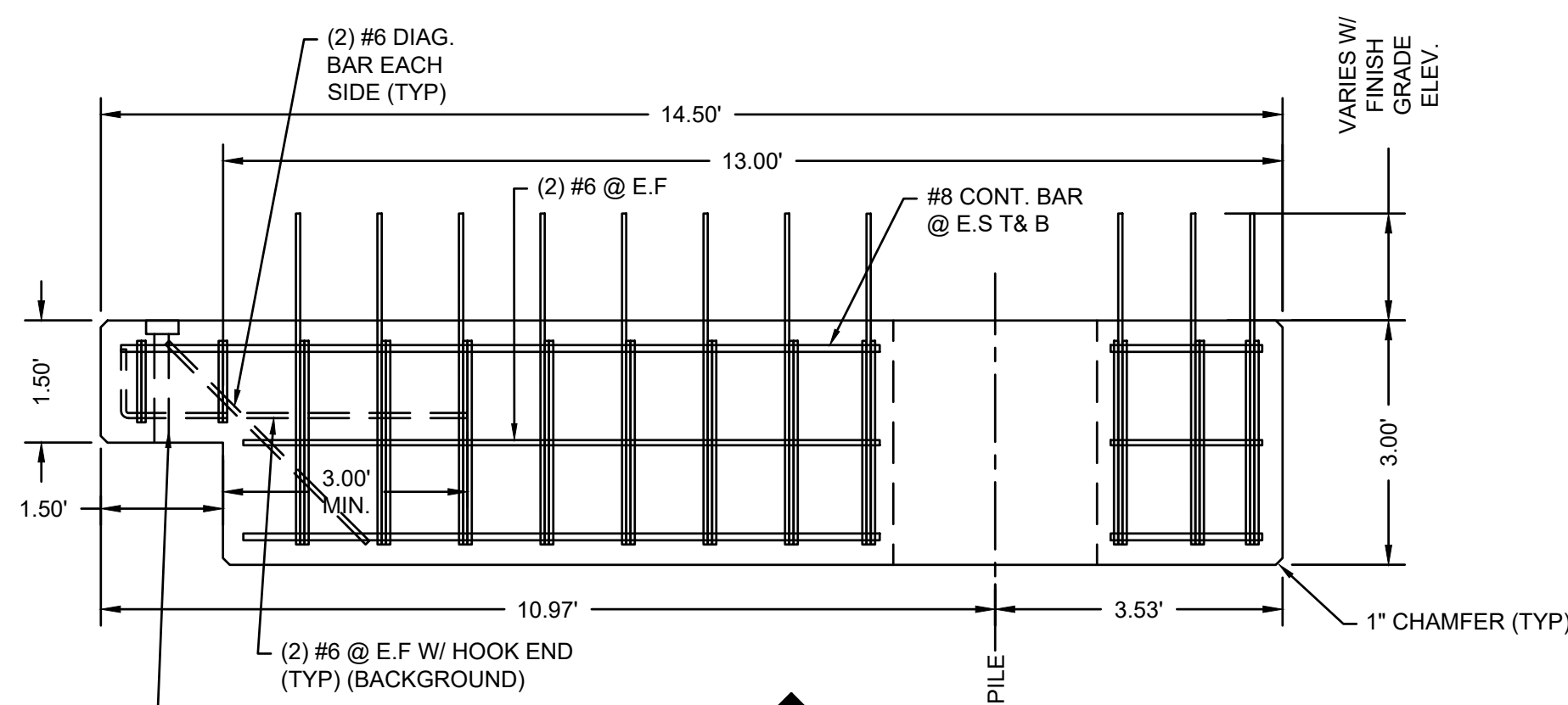
PC-11 SECTION
SCALE: 1" = 2'

NOTE: FOR CROSS SECTION, SEE S-706

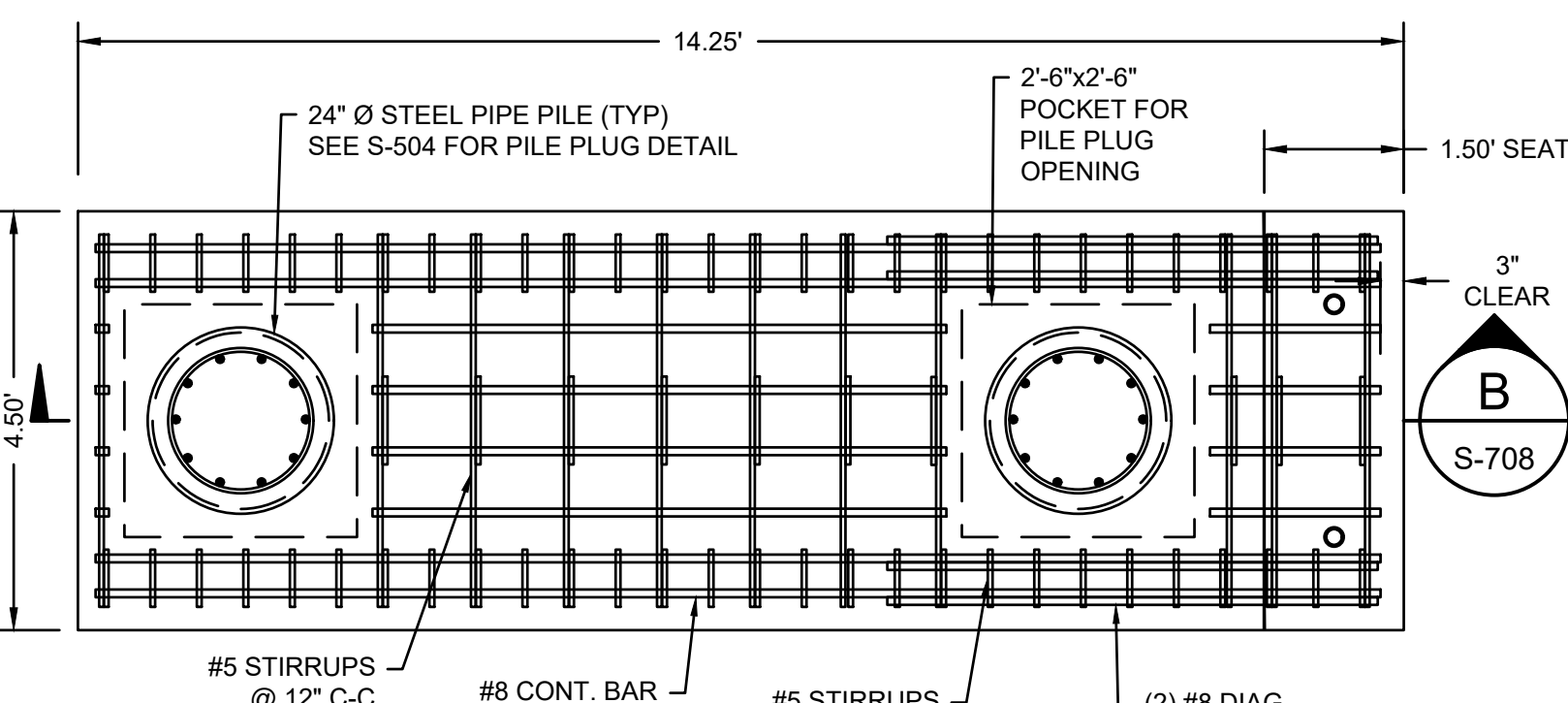




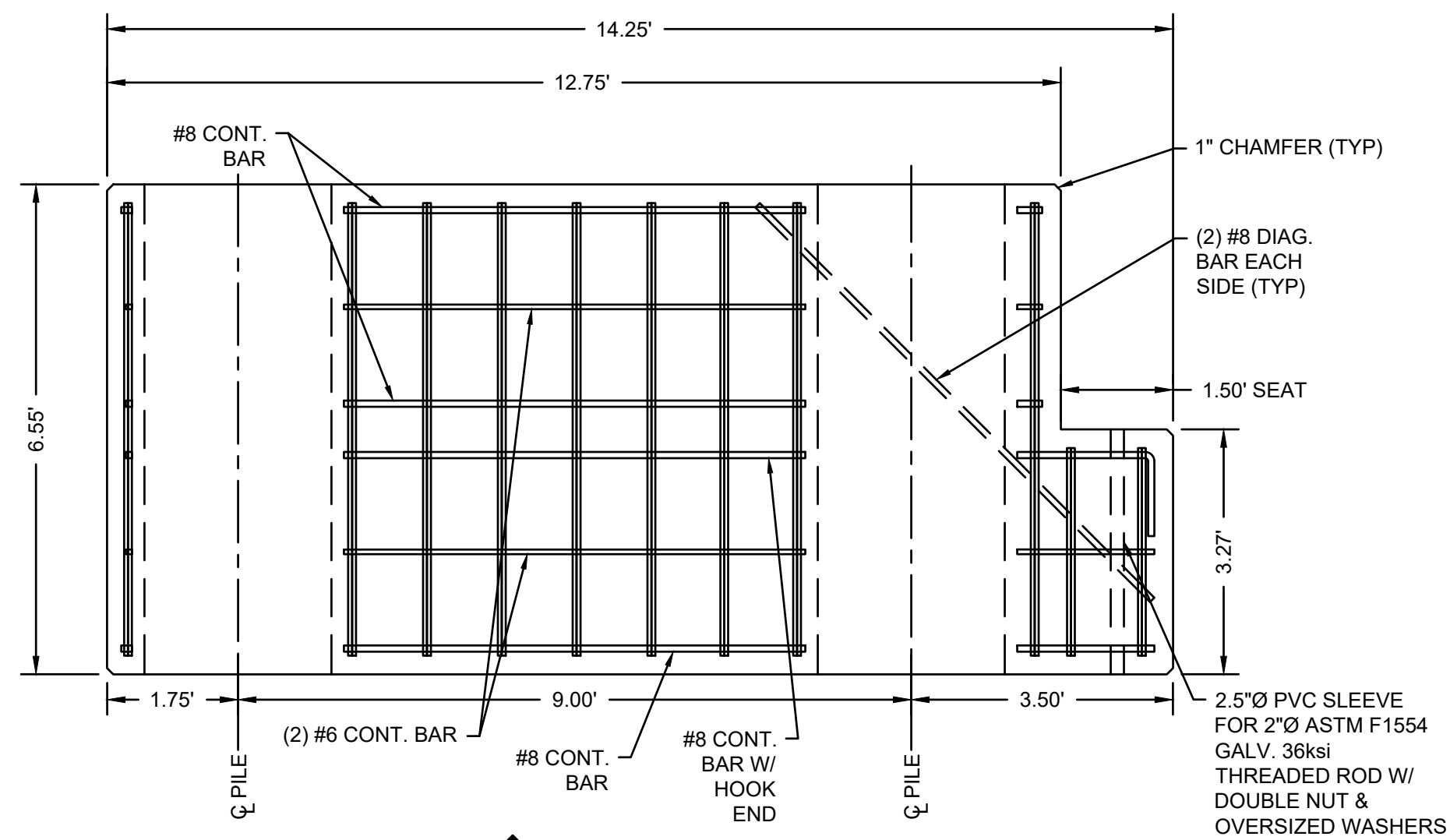
PC-12 PLAN VIEW
SCALE: 1" = 2'



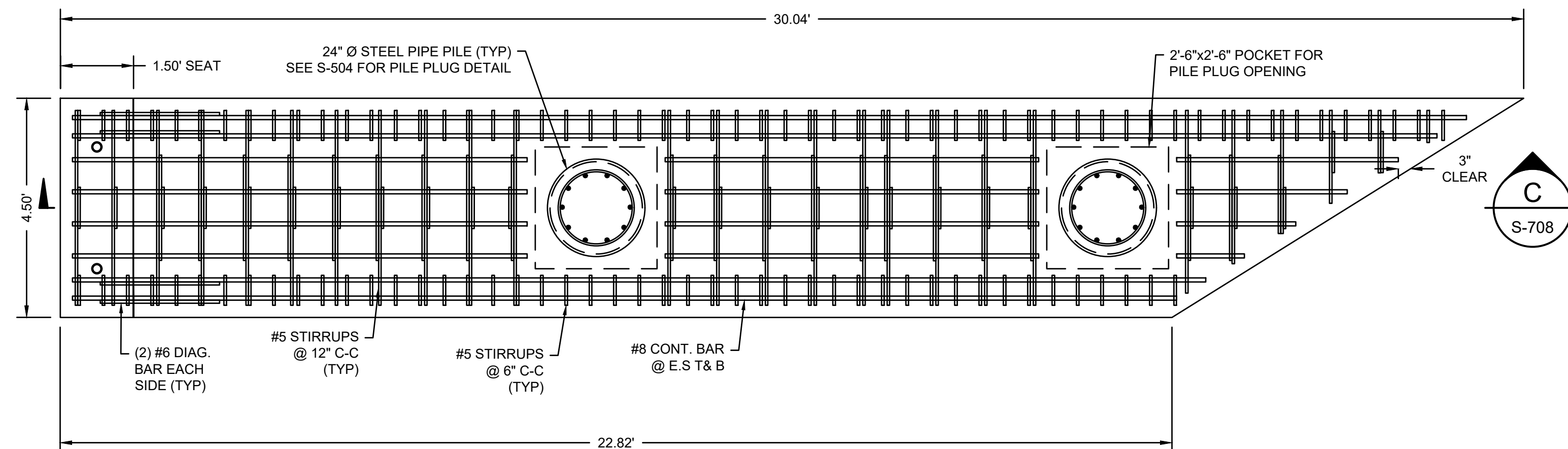
A PC-12 SECTION
SCALE: 1" = 2'
NOTE: FOR CROSS SECTION, SEE S-706



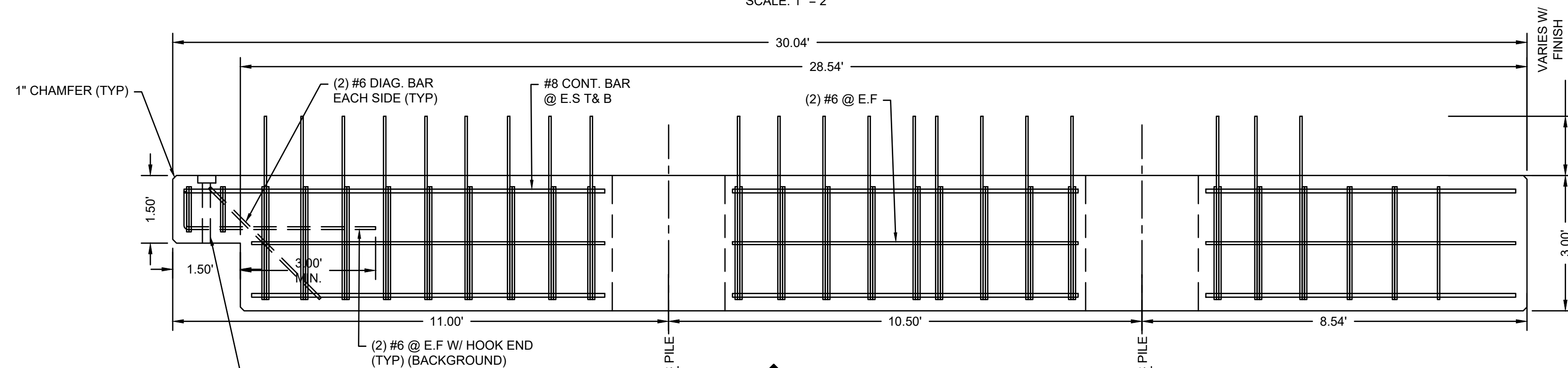
PC-14 PLAN VIEW
SCALE: 1" = 2'



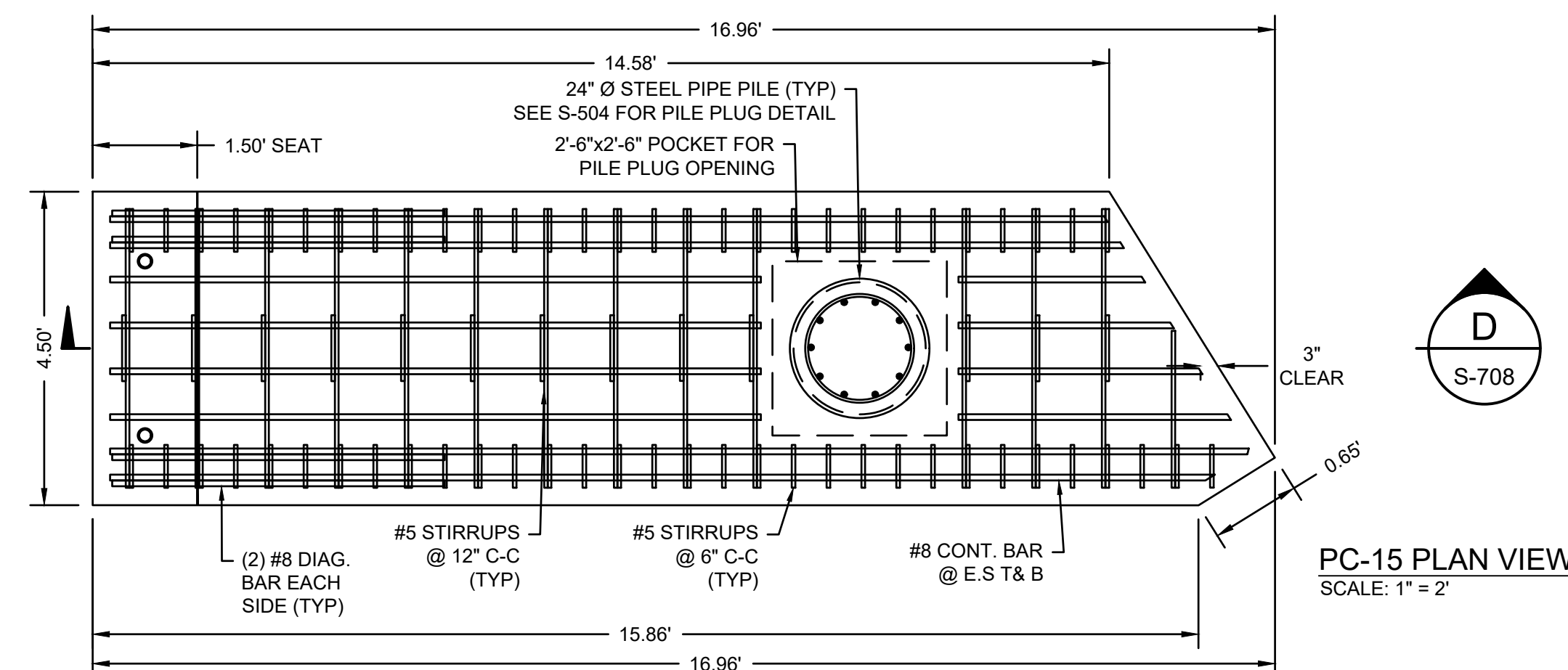
B PC-14 SECTION
SCALE: 1" = 2'
NOTE: FOR CROSS SECTION, SEE S-705



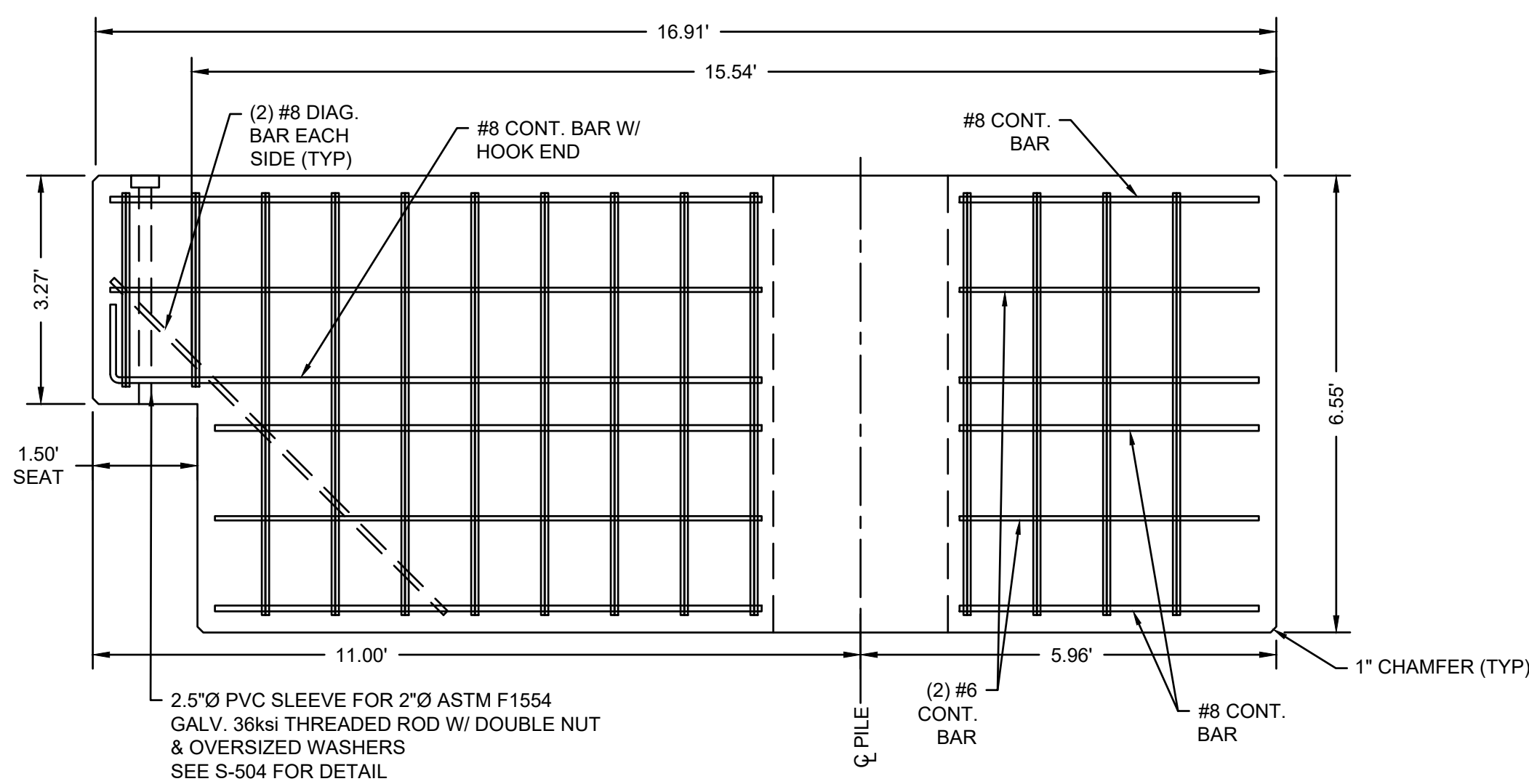
PC-13 PLAN VIEW
SCALE: 1" = 2'



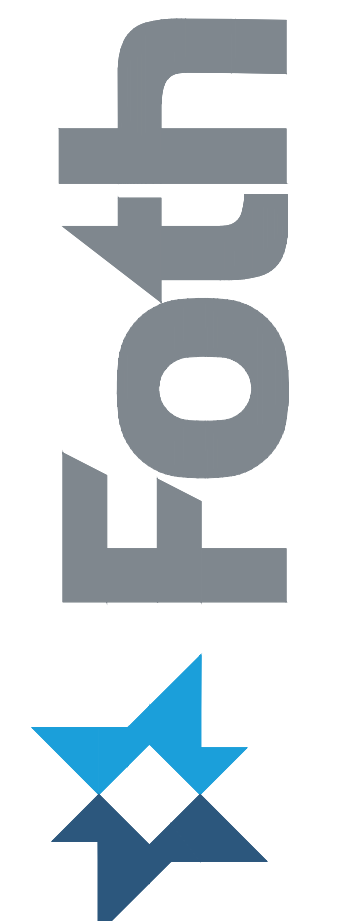
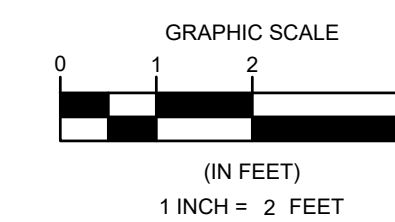
C PC-13 SECTION
SCALE: 1" = 2'
NOTE: FOR CROSS SECTION, SEE S-706



PC-15 PLAN VIEW
SCALE: 1" = 2'



D PC-15 SECTION
SCALE: 1" = 2'
NOTE: FOR CROSS SECTION, SEE S-705



DEPARTMENT OF PUBLIC WORKS
TOWN OF ORLEANS, MASSACHUSETTS
ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS

NO.	BY	DATE	REVISIONS	
			DESCRIPTION	DATE

DATE OF PREPARATION

SURVEYED	BY	DATE
MEC/JAH		10/24/19 & 3/2/21
DRAWN	BAM	12/05/2023
DESIGNED	SRS	06/28/2021
CHECKED	PSR	12/24/2023

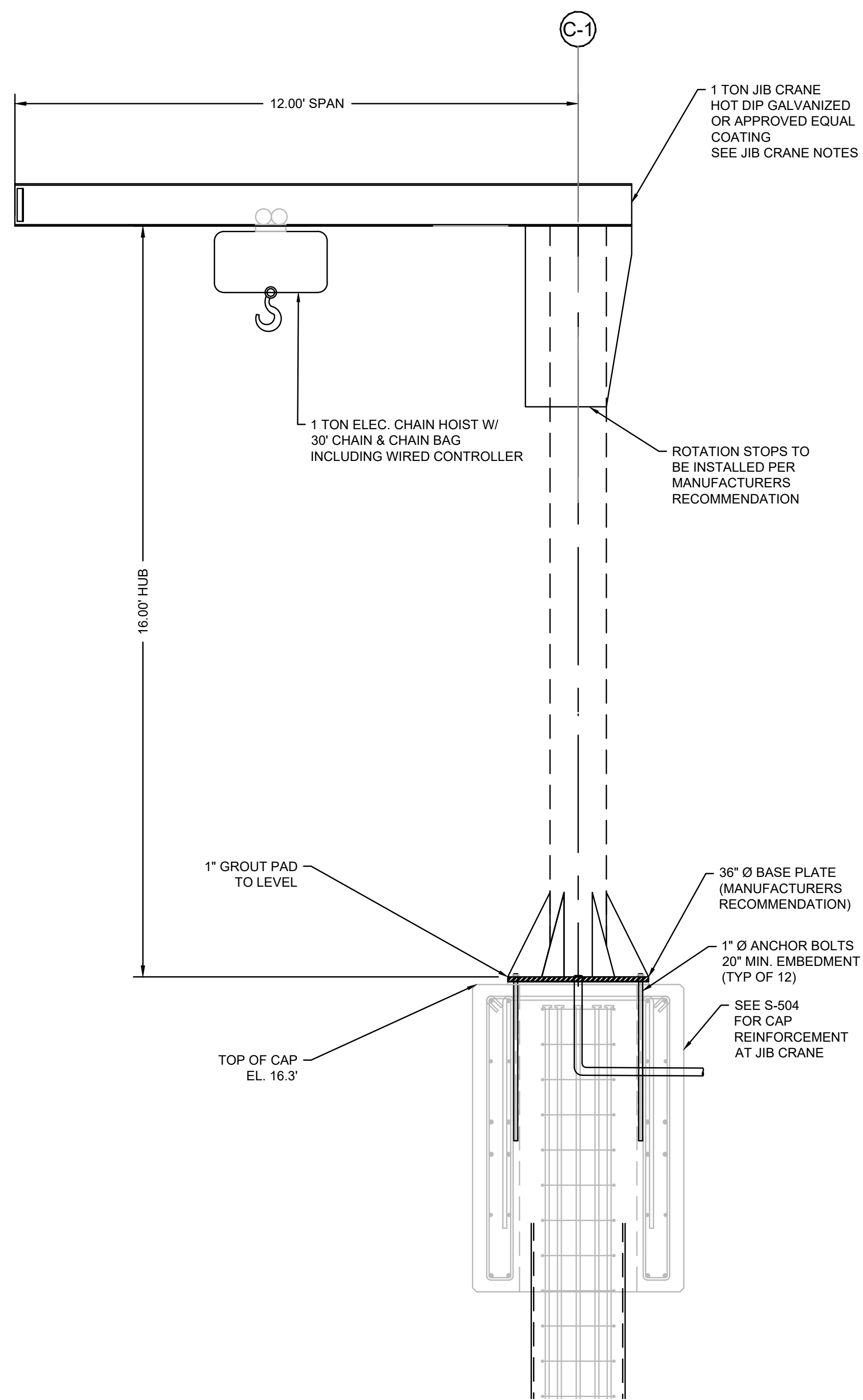
STRUCTURAL
DETAILS 8 OF 8

ISSUED FOR BID

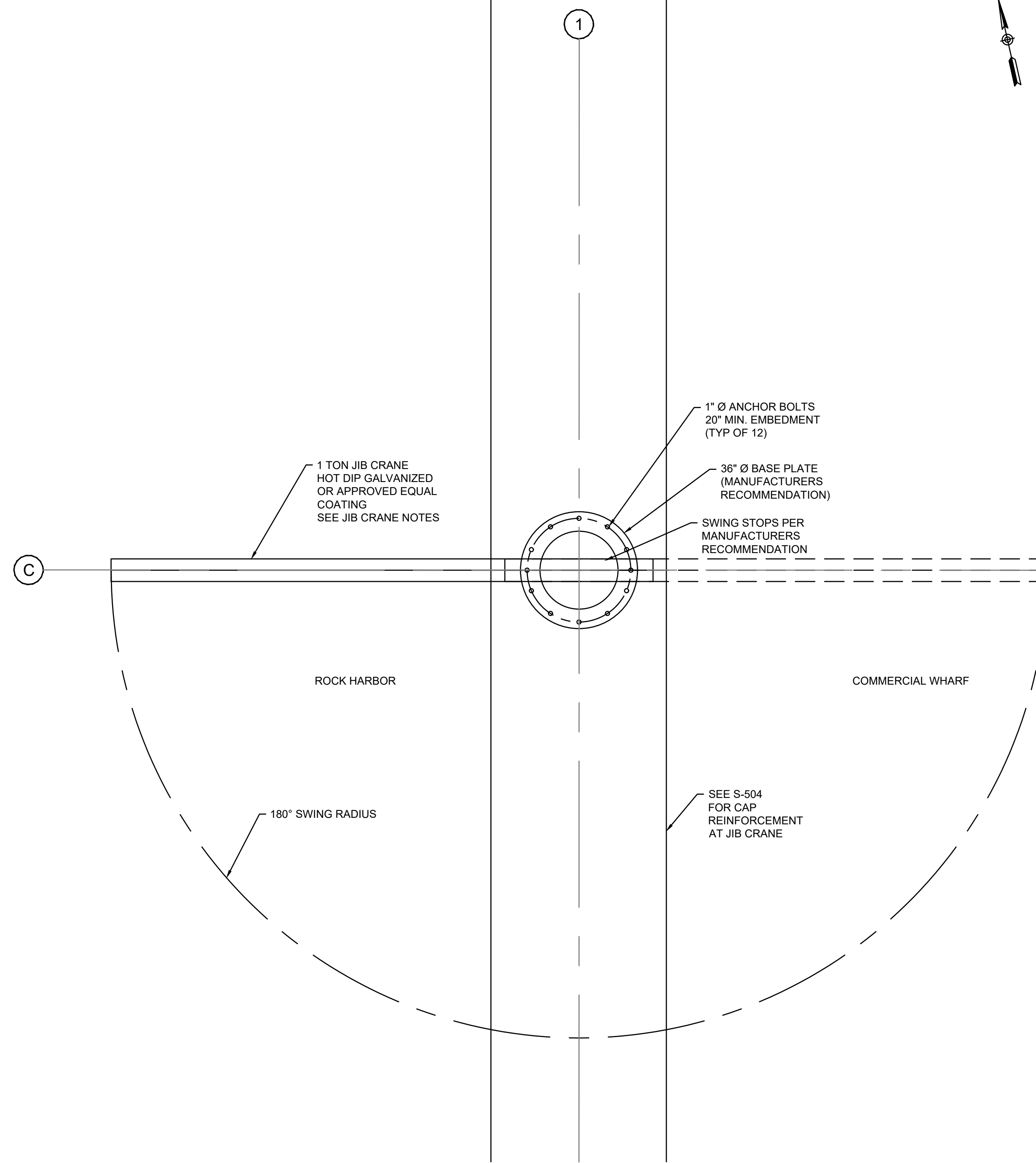
PROJECT NO: 00190004.10
SHEET NUMBER

S-708

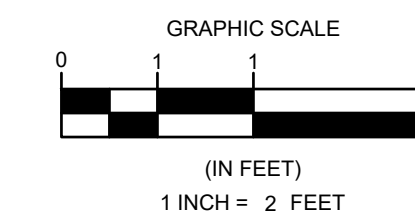
Thursday, March 7, 2024 11:43:56 AM
DWG Filename: s-701 structural details.dwg Layout: s-708 structural details 8 of 8
DWG Folder Location:



JIB CRANE SECTION
SCALE: 1" = 2'

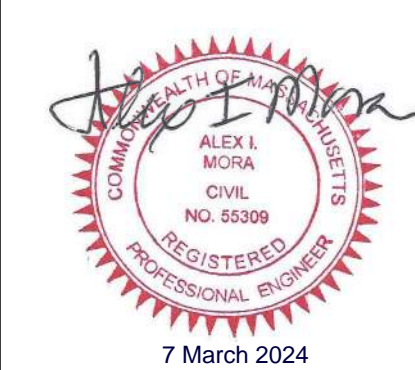


JIB CRANE PLAN VIEW
SCALE: 1" = 2'



JIB CRANE NOTES:

- JIB CRANE MANUFACTURER NOT RESPONSIBLE FOR ANCHORAGE TO CONCRETE CAP. ALL OTHER COMPONENTS INCLUDING BASE PLATE SHALL BE DESIGNED BY JIB CRANE MANUFACTURER.
- JIB CRANE MANUFACTURER TO PROVIDE DESIGN FORCES FOR FOUNDATION ANALYSIS BY OTHERS.
- CONTRACTOR SHALL UTILIZE JIB CRANE BASE PLATE AND ANCHORAGE TEMPLATE TO LAYOUT ANCHOR BOLTS IN THE FIELD.
- JIB CRANE WARRANTY SHALL COVER ALL JIB CRANE COMPONENTS EXCEPT CONCRETE FOUNDATION.
- JIB CRANE TO BE HOT DIPPED GALVANIZED OR APPROVED EQUAL COATING.
- JIB CRANE SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
- CONTRACTOR TO INSTALL CONDUIT FOR ELECTRICAL SERVICE CONNECTION TO ELECTRIC WINCH AT MANUFACTURERS RECOMMENDED LOCATION.
- CONTRACTOR SHALL INSTALL ROTATION STOPS AND CHAIN HOIST IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.



DEPARTMENT OF PUBLIC WORKS
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NO.	BY	DATE	DESCRIPTION	
				REVISIONS

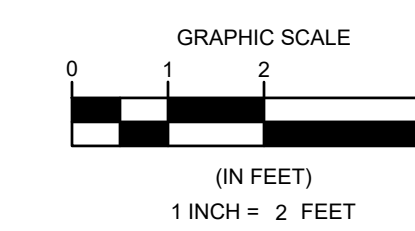
DATE OF PREPARATION

	BY	DATE
SURVEYED	MEC/JAH	10/24/19 & 3/2/21
DRAWN	BAM	12/05/2023
DESIGNED	SRS	06/28/2021
CHECKED	PSR	12/24/2023

SHEET TITLE:
JIB CRANE DETAILS

ISSUANCE:
ISSUED FOR BID

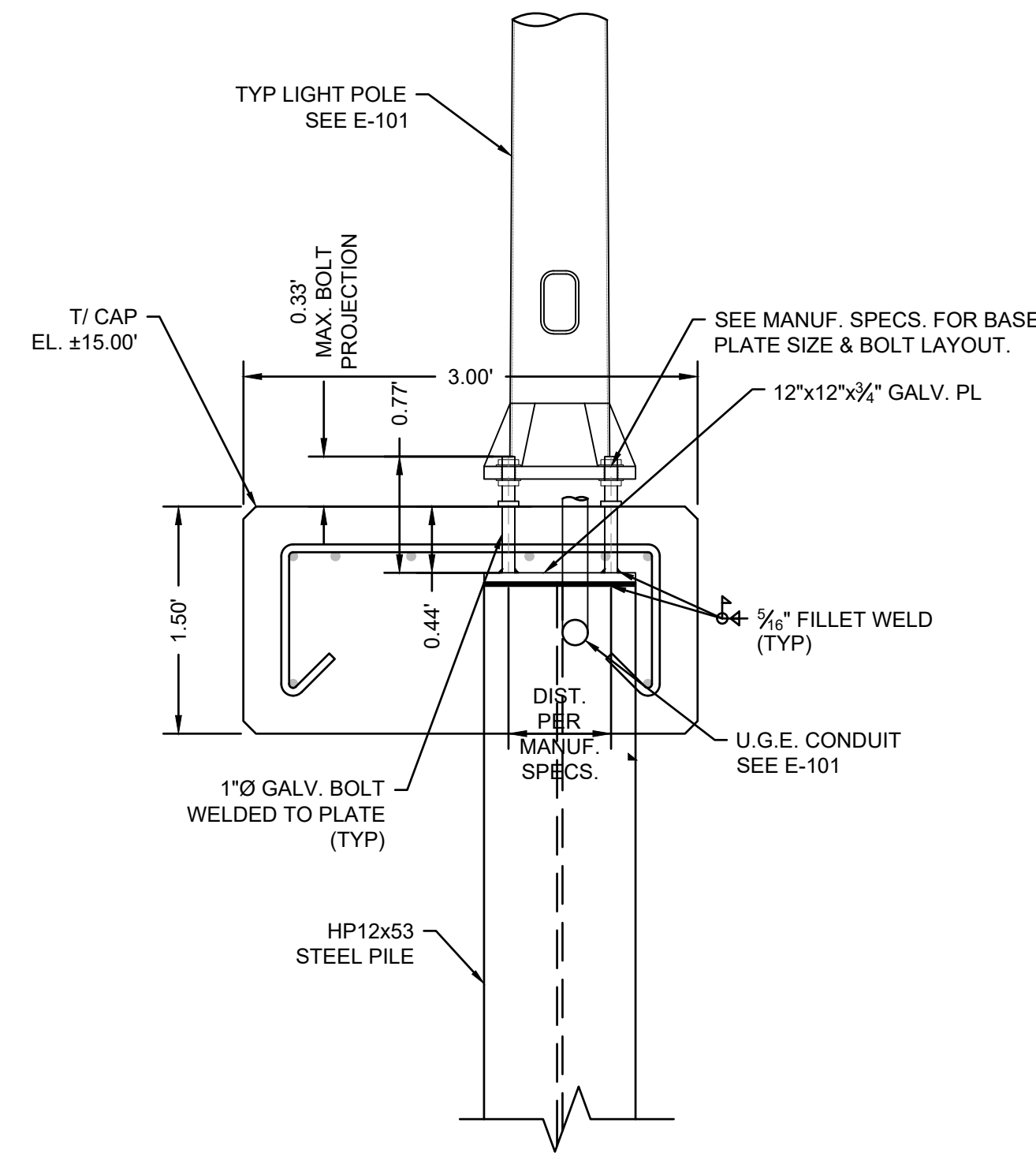
PROJECT NO: 00190004.10
SHEET NUMBER
S-709



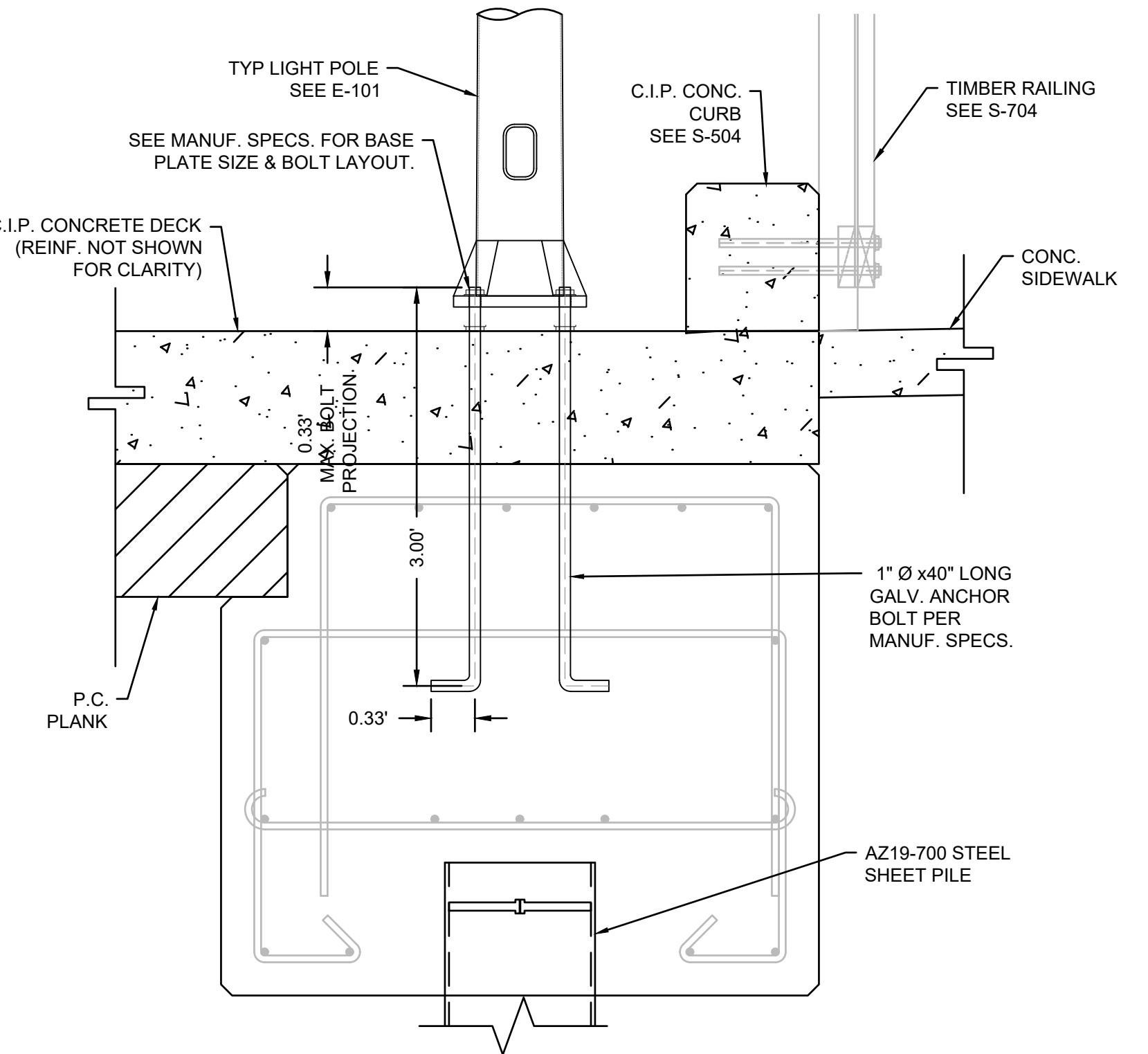
REVISIONS		DATE OF PREPARATION	
NO.	DESCRIPTION	BY	DATE
1			
2			
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4			
5			

ISSUANCE:
ISSUED FOR BID

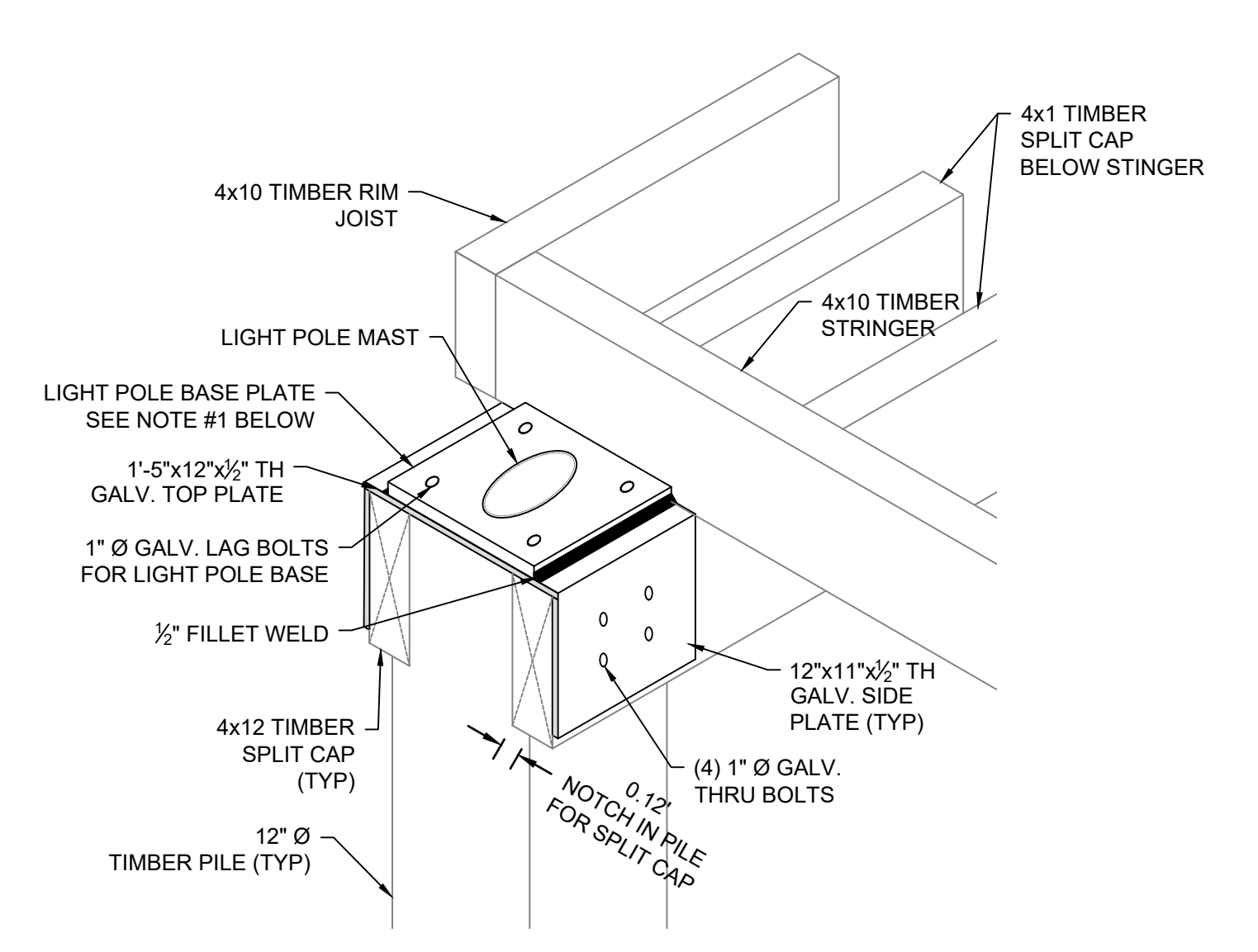
PROJECT NO: 00190004.10
SHEET NUMBER
S-710



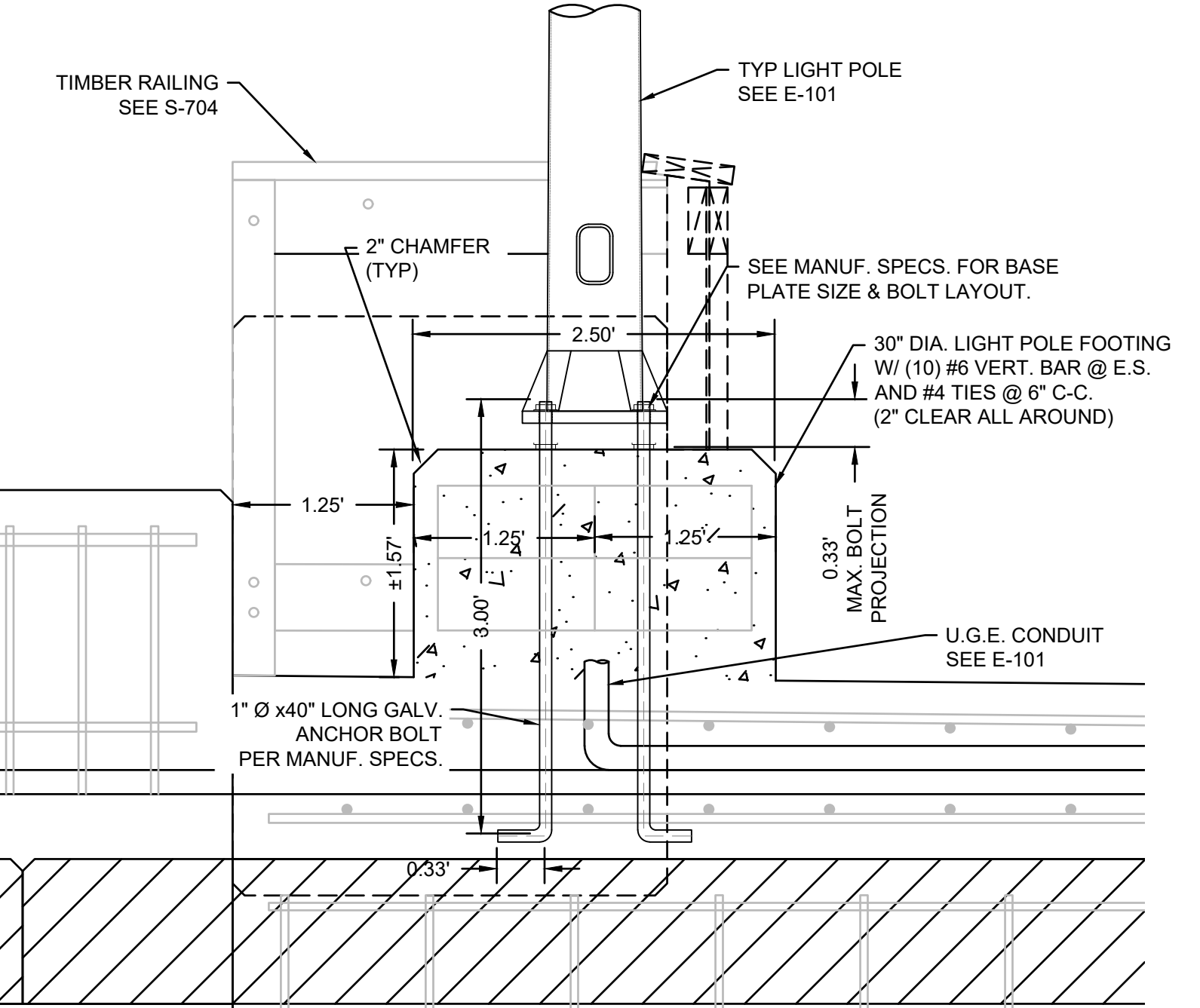
LIGHT POLE BASE CONCRETE CAP CONNECTION DETAIL
SCALE: 1" = 1"
NOTE:
1. TIMBER RAILINGS AND PIER NOT SHOWN FOR CLARITY.
2. CONTRACTOR TO TOUCH-UP EPOXY COATING AS REQUIRED AT ANY COMPROMISED AREAS.
3. CONTRACTOR SHALL INSTALL SPLASHZONE EPOXY AROUND OPENINGS THROUGH STEEL SHEET PILES FOR UTILITY PENETRATIONS.



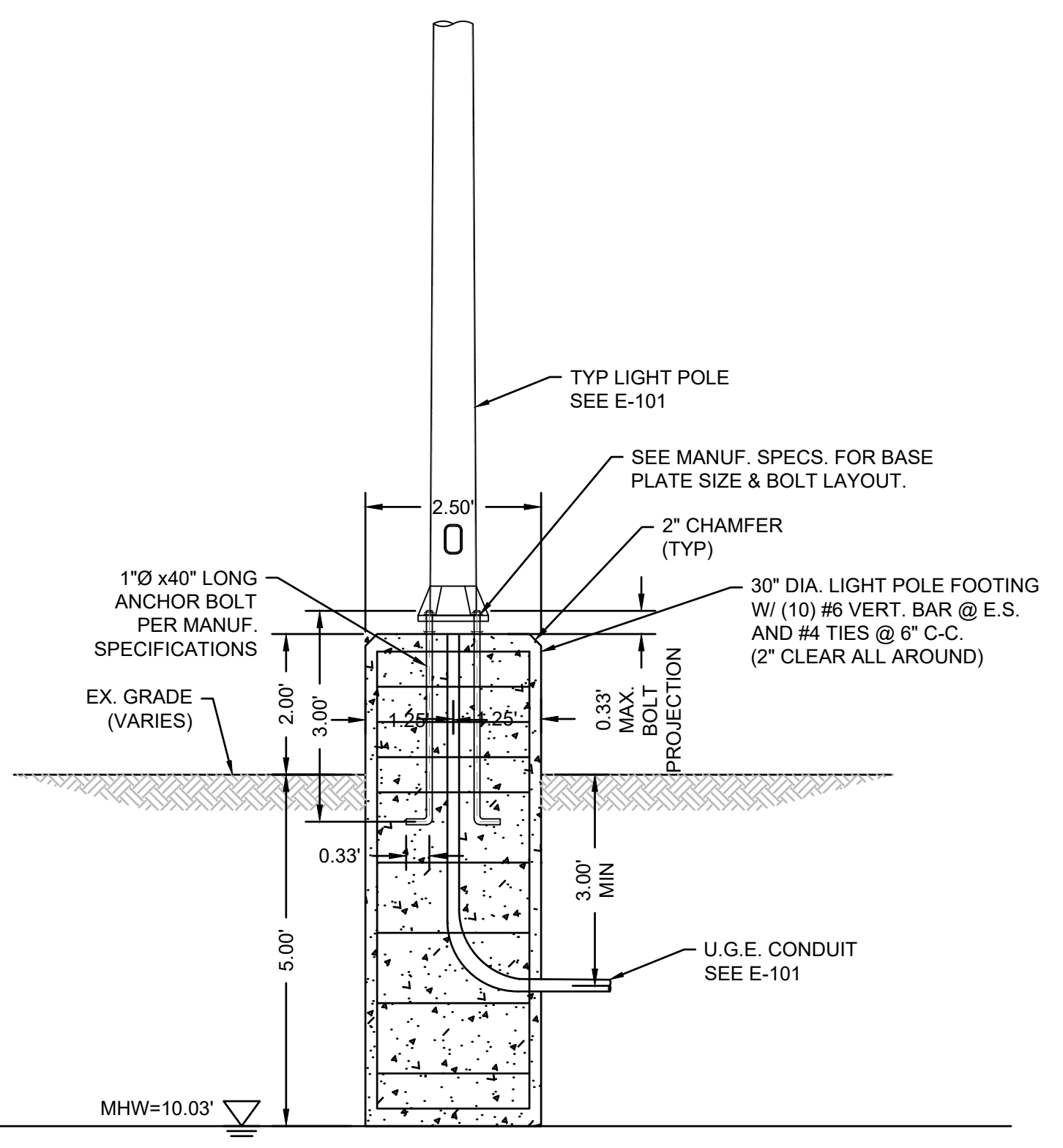
LIGHT POLE BASE CONCRETE DECK CONNECTION DETAIL
SCALE: 1" = 1"
NOTE:
1. REINFORCEMENT FOR CAST-IN-PLACE CURB, DECK, AND PRECAST PLANKS NOT SHOWN FOR CLARITY.



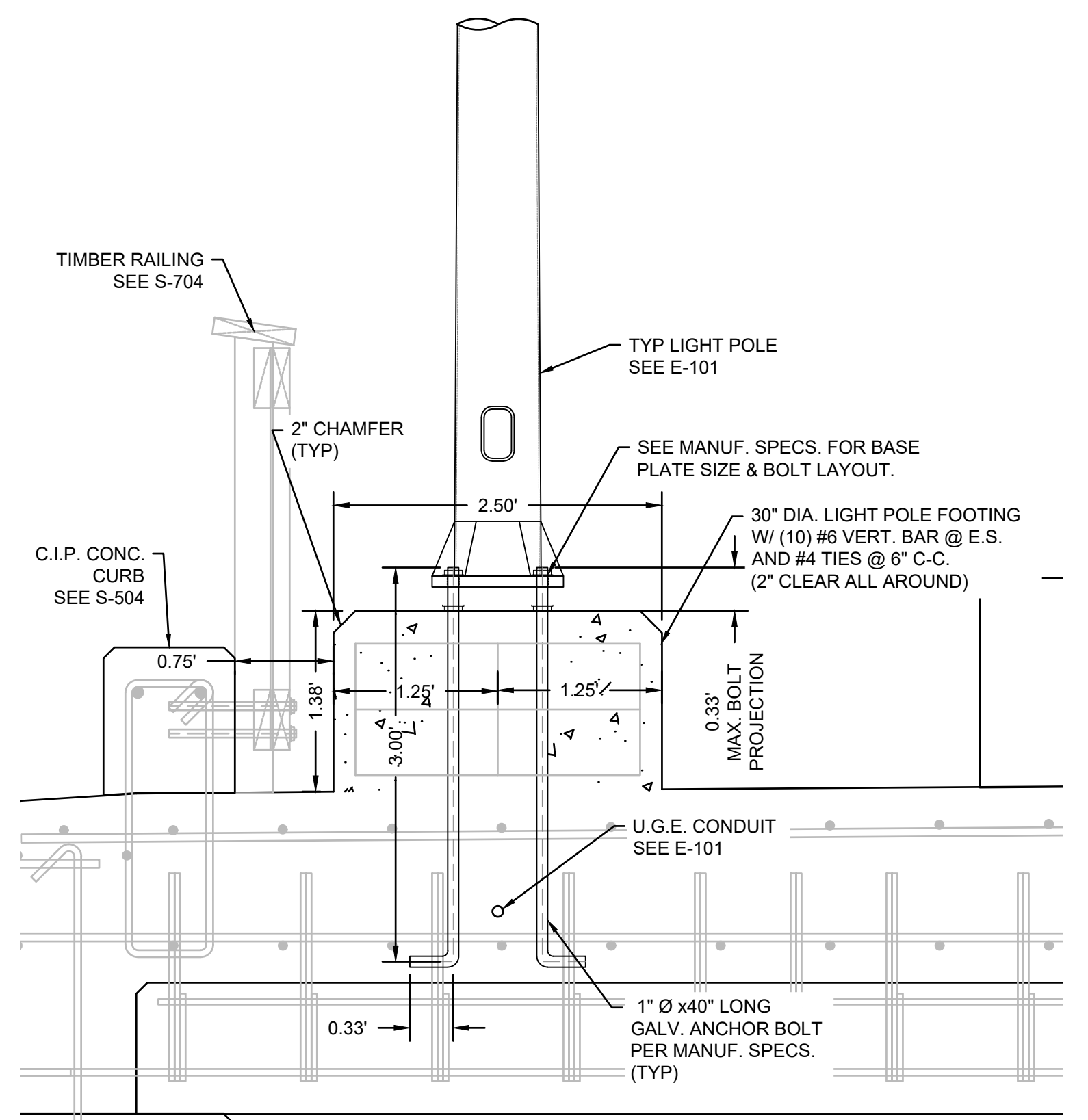
LIGHT POLE BASE TIMBER PIER CONNECTION DETAIL
SCALE: 1" = 1"
NOTE:
1. 12"x12"x1" LIGHT POLE BASE PLATE SHOWN IN DETAIL ABOVE. CONTRACTOR TO PROVIDE ALTERNATE CONNECTION DETAIL SHOULD THE LIGHT POLE BASE PLATE INCREASE IN SIZE BEYOND WHAT IS REPRESENTED.
2. LIGHT POLE BASE PLATE SHALL BE GALVANIZED.



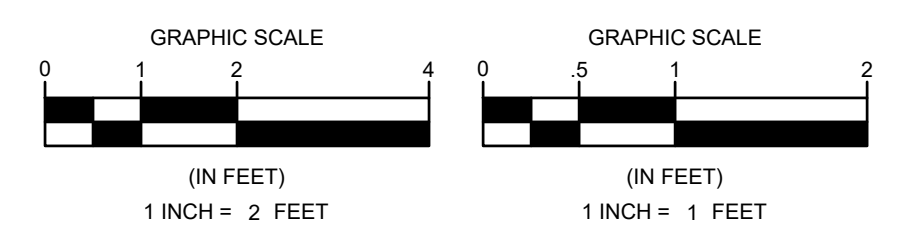
LIGHT POLE BASE CONCRETE DECK CONNECTION DETAIL
SCALE: 1" = 1"
LOCATED ADJACENT TO PILE #3A

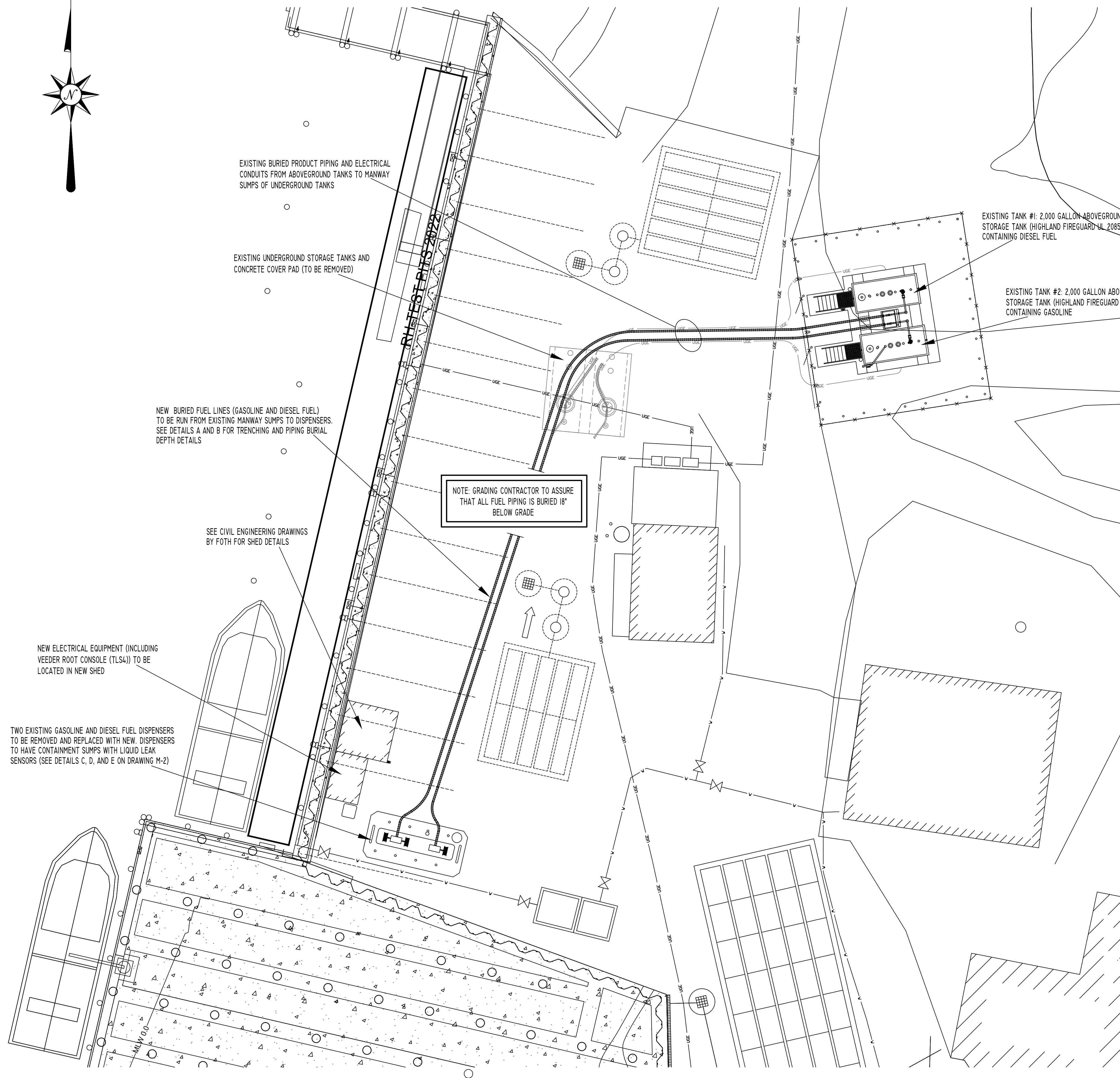
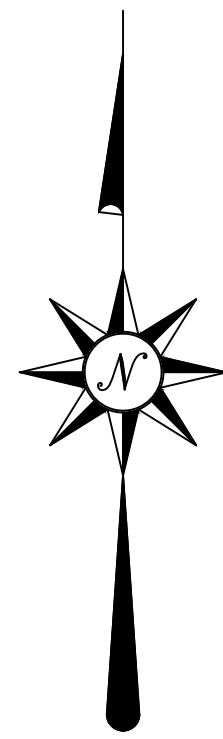


LIGHT POLE BASE DETAIL
SCALE: 1" = 2"



LIGHT POLE BASE CONCRETE DECK CONNECTION DETAIL
SCALE: 1" = 1"
LOCATED ADJACENT TO PILE #3F





WEB ENGINEERING DRAWING LIST:

- A-1 SITE DETAIL - PROPOSED MODIFICATIONS
- M-1 MECHANICAL
- M-2 DETAILS
- S-1 CONCRETE
- E-1 ELECTRICAL SCHEMATIC: POWER, DATA, AND SIGNAL CONDUITS

A-1

TOWN OF ORLEANS DEPARTMENT OF PUBLIC WORKS
 ROCK HARBOR ROAD, ORLEANS, MASSACHUSETTS

SITE DETAIL - PROPOSED MODIFICATIONS

WEB ENGINEERING ASSOCIATES, INC.
 111 SUMMER STREET, SCITUATE, MASSACHUSETTS 02066

CONTRACTOR RESPONSIBILITIES:

- 1) PROVIDE ENTIRE FUNCTIONING SYSTEM
- 2) PREPARE AND PROVIDE AN OPERATIONS AND MAINTENANCE MANUAL (IN PDF FORMAT PRIOR TO STARTUP).
- 3) STARTUP TROUBLESHOOTING AND OWNER TRAINING
- 4) DEMOLISH, DISMANTLE, AND DISPOSE OF OFFSITE IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS. ALL EXISTING PIPING, CONDUIT, EQUIPMENT, FITTINGS, DISPENSERS, CONTAINMENT SUMPS, EXCAVATION SOILS, ETC. NOT SPECIFICALLY DESIGNATED FOR RE-USE OR RETENTION BY THE OWNER. THE CONTRACTOR SHALL REMOVE SUCH ITEMS FROM THE PROPERTY PRIOR TO THE COMPLETION OF THE PROJECT.

TESTING NOTES:

- 1) ANY ABOVEGROUND PIPING AFFECTED BY INSTALLATION OF NEW BURIED PIPING TO BE PRESSURE TESTED TO 50 PSI MIN. FOR 1 HOUR. SOAP ALL JOINTS.
- 2) PRIOR TO BACKFILLING, ALL BURIED PIPING TO BE HYDROSTATICALLY OR PNEUMATICALLY TESTED IN ACCORDANCE WITH API 1615 OR NFPA 30 AND IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION MANUAL.
- 3) CONTRACTOR TO HYDROSTATICALLY TEST ALL DISPENSER SUMPS AS DESCRIBED IN 310 CMR 80.00
- 4) CONTRACTOR TO PROVIDE WRITTEN CERTIFICATION OF ALL TESTING RESULTS

GENERAL NOTES:

- 1) ALL CONSTRUCTION TO MEET OR EXCEED:
 - A) NFPA 1 "FIRE CODE" - 2021 EDITION
 - B) NFPA 30 "FLAMMABLE AND COMBUSTIBLE LIQUIDS CODE" - 2021 EDITION
 - C) NFPA 30A "CODE FOR MOTOR FUEL DISPENSING FACILITIES AND REPAIR GARAGES" - 2021 EDITION
 - D) 527 CMR 1.00 "MASSACHUSETTS COMPREHENSIVE FIRE SAFETY CODE"
 - E) NATIONAL ELECTRICAL CODE FOR HAZARDOUS CLASSIFICATION.
- 2) PIPING AND VENTING TO MEET OR EXCEED ASME B31 "PRESSURE PIPING CODE" AND API 2000 FOR "VENTING ATMOSPHERIC AND LOW PRESSURE STORAGE TANKS."

— UGE ——— EXISTING UNDERGROUND ELECTRICAL
 — OHW ——— EXISTING OVERHEAD ELECTRICAL



SCALE: 1 INCH = 10 FEET

SEE FOTH CIVIL DRAWINGS FOR COMPLETE SITE PLAN AND ELEVATION DATUM

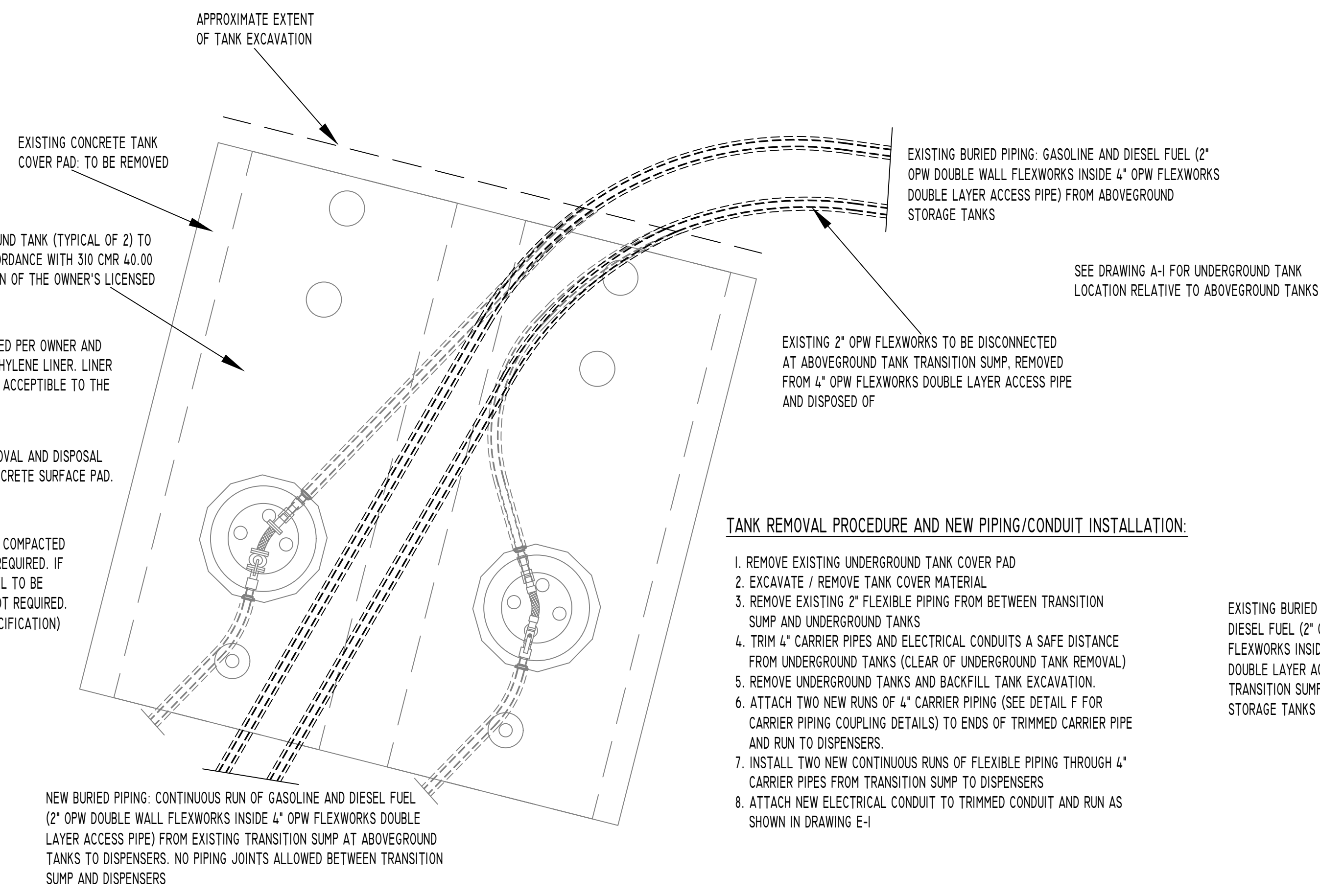
THIS DRAWING TAKEN FROM PLANS OF LAND BY FOTH INFRASTRUCTURE & ENVIRONMENT, LLC OF MARION, MASSACHUSETTS, DATED JULY 25, 2023 AND SHOULD NOT BE USED FOR THE DETERMINATION OF PROPERTY LINES, METES, BOUNDS, ETC.

DATE	REVISION

FILE: NEW SITE DETAIL B
 DRAWN BY: JAS
 DATE: 2/6/24
 JOB #: 22-E-012
 WEB DRAWING NO. 24003

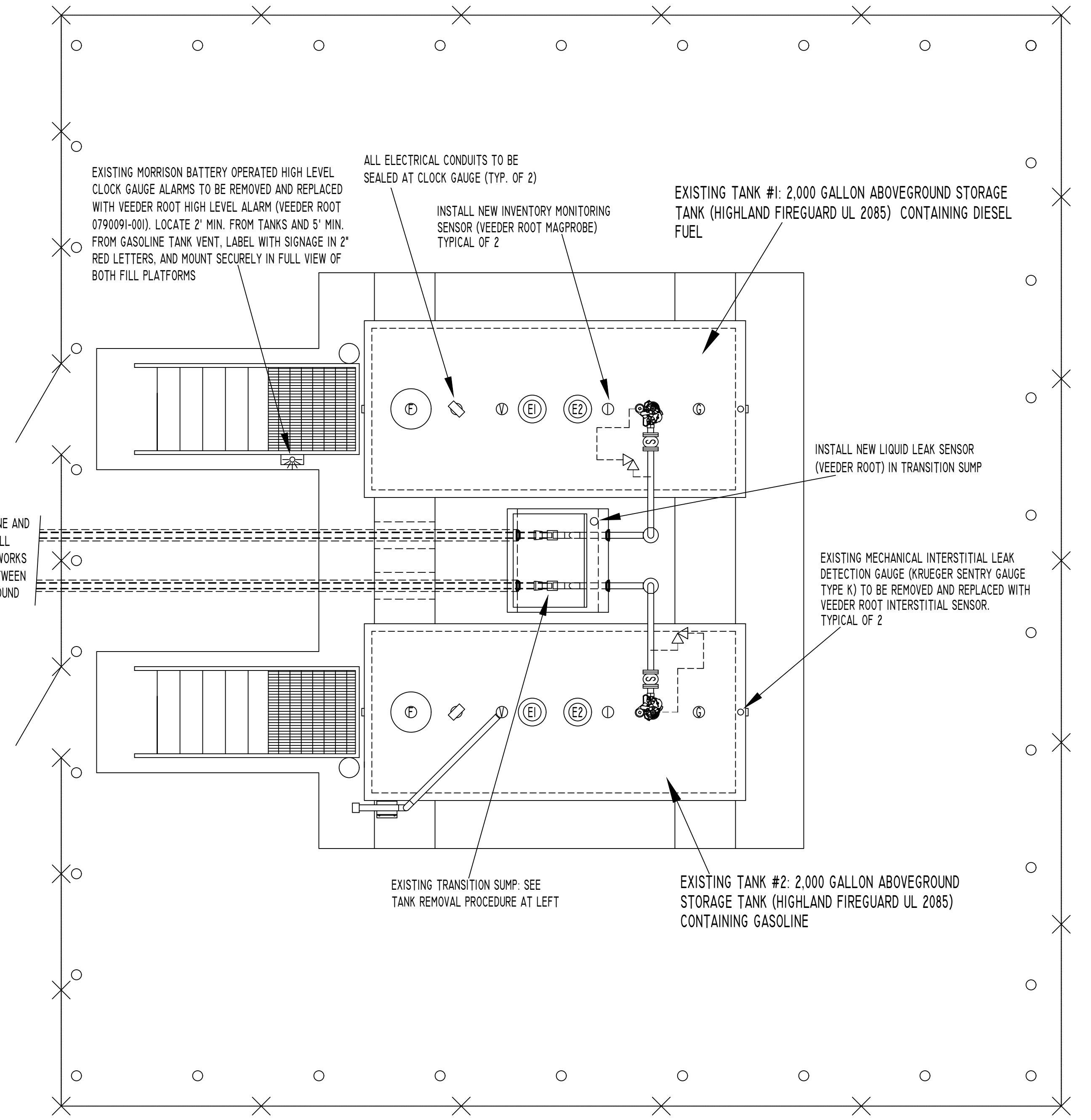


DATE	REVISION



TANK REMOVAL PROCEDURE AND NEW PIPING/CONDUIT INSTALLATION:

1. REMOVE EXISTING UNDERGROUND TANK COVER PAD
2. EXCAVATE / REMOVE TANK COVER MATERIAL
3. REMOVE EXISTING 2" FLEXIBLE PIPING FROM BETWEEN TRANSITION SUMP AND UNDERGROUND TANKS
4. TRIM 4" CARRIER PIPES AND ELECTRICAL CONDUITS A SAFE DISTANCE FROM UNDERGROUND TANKS (CLEAR OF UNDERGROUND TANK REMOVAL)
5. REMOVE UNDERGROUND TANKS AND BACKFILL TANK EXCAVATION.
6. ATTACH TWO NEW RUNS OF 4" CARRIER PIPING (SEE DETAIL F FOR CARRIER PIPING COUPLING DETAILS) TO ENDS OF TRIMMED CARRIER PIPE AND RUN TO DISPENSERS.
7. INSTALL TWO NEW CONTINUOUS RUNS OF FLEXIBLE PIPING THROUGH 4" CARRIER PIPES FROM TRANSITION SUMP TO DISPENSERS
8. ATTACH NEW ELECTRICAL CONDUIT TO TRIMMED CONDUIT AND RUN AS SHOWN IN DRAWING E-1

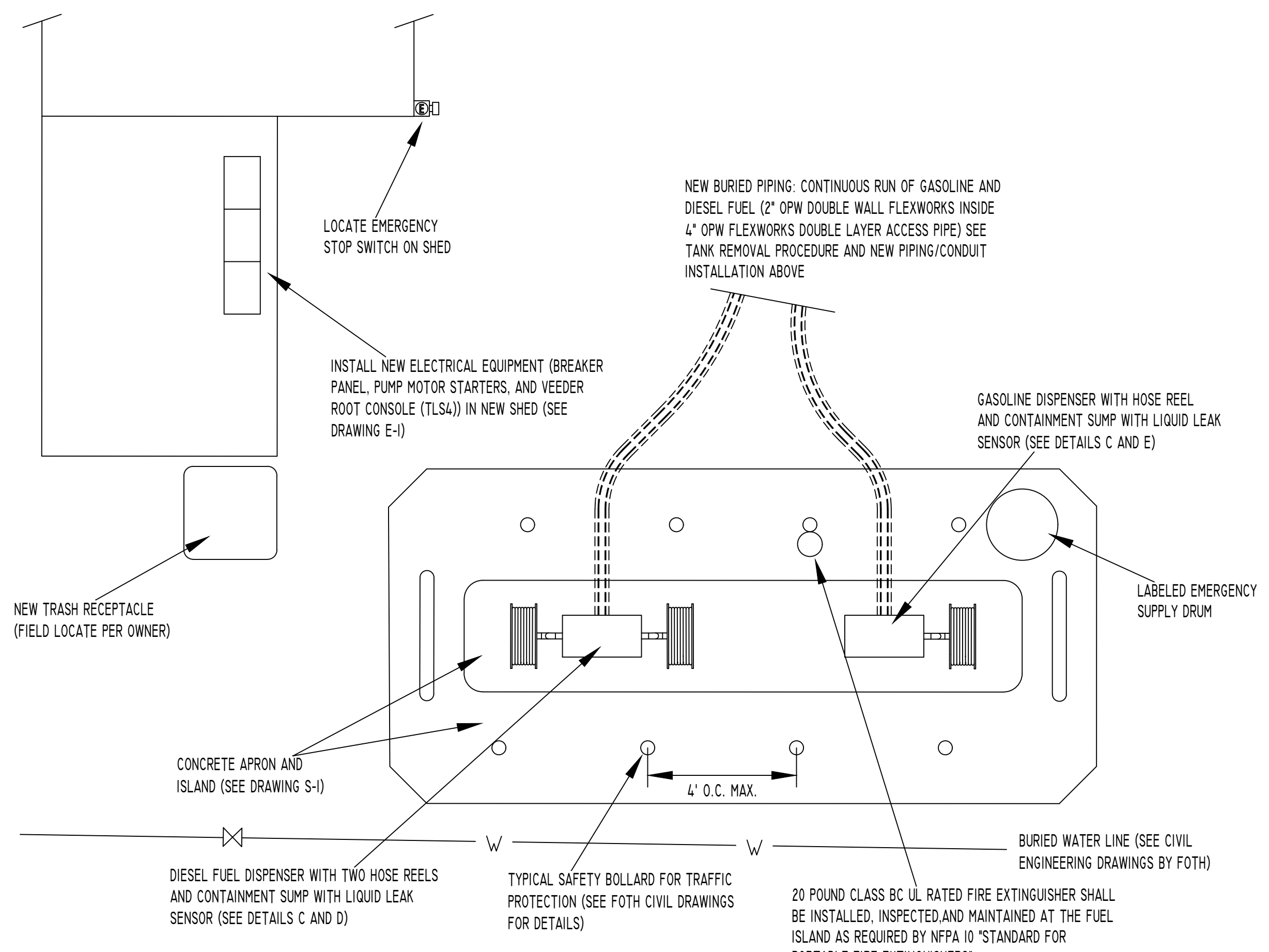


PLAN VIEW: EXISTING ABOVEGROUND STORAGE TANKS

FUELING PROCEDURES SIGNAGE:

FUELING PROCEDURE SIGNAGE (TO BE MOUNTED ON SHED IN FULL VIEW OF FUELING) REFERRED TO IN NFPA 1, PARAGRAPH 28.1.8.2.6(6) SHALL INCLUDE THE FOLLOWING INFORMATION:

- 1) PROCEDURES BEFORE FUELING
 - A) STOP ALL ENGINES AND AUXILIARIES
 - B) SHUT OFF ALL ELECTRICITY, OPEN FLAMES, AND HEAT SOURCES
 - C) CHECK BILGES FOR FUEL VAPORS
 - D) EXTINGUISH ALL SMOKING MATERIALS
 - E) CLOSE ACCESS FITTINGS AND OPENINGS THAT COULD ALLOW FUEL VAPORS TO ENTER ENCLOSED SPACES
 - F) REMOVE ALL PERSONNEL FROM THE VESSEL/BARGE EXCEPT FOR THE PERSON HANDLING THE FUELING HOSE
- 2) PROCEDURES DURING FUELING
 - A) MAINTAIN NOZZLE CONTACT WITH FILL PIPE
 - B) ATTEND FUEL-FILLING NOZZLE AT ALL TIMES
 - C) WIPE UP SPILLS IMMEDIATELY
 - D) AVOID OVERFILLING
- 3) PROCEDURES AFTER FUELING AND BEFORE STARTING ENGINE
 - A) INSPECT BILGES FOR LEAKAGE OR FUEL ODORS
 - B) VENTILATE UNTIL ODORS ARE REMOVED



PLAN VIEW: DISPENSER AREA

SIGNAGE:

WARNING SIGNS SHALL BE CONSPICUOUSLY POSTED ON THE FRONT AND BACK OF FUELING ASSEMBLIES AND SHALL INCORPORATE THE FOLLOWING LANGUAGE:

**WARNING
NO SMOKING - STOP MOTOR**

THE WORDS "WARNING" AND "NO SMOKING - STOP MOTOR" SHALL CONSIST OF BLOCK LETTERS NOT LESS THAN ONE INCH IN HEIGHT, WHITE LETTERS ON A RED BACKGROUND. THE REMAINING SENTENCES SHALL CONSIST OF BLOCK LETTERS NOT LESS THAN 1/2 INCH IN HEIGHT, RED LETTERS ON A WHITE BACKGROUND.

ADDITIONAL EMERGENCY SIGNAGE AT DISPENSING AREAS WITH EMERGENCY INSTRUCTIONS IN CASE OF FIRE OR SPILL:

- 1) USE EMERGENCY STOP BUTTON
- 2) REPORT ACCIDENT BY CALLING LOCAL FIRE NUMBER
- 3) REPORT LOCATION

HIGH LEVEL ALARM, EMERGENCY STOP SWITCHES, AND EMERGENCY SHUT OFF VALVES TO BE LABELED WITH SIGNAGE IN 2" RED LETTERS ON A WHITE BACKGROUND. SIGNAGE MATERIAL TO BE ALUMINUM FIRMLY MOUNTED TO SUPPORT SUBJECT TO MAXIMUM WIND LOADS

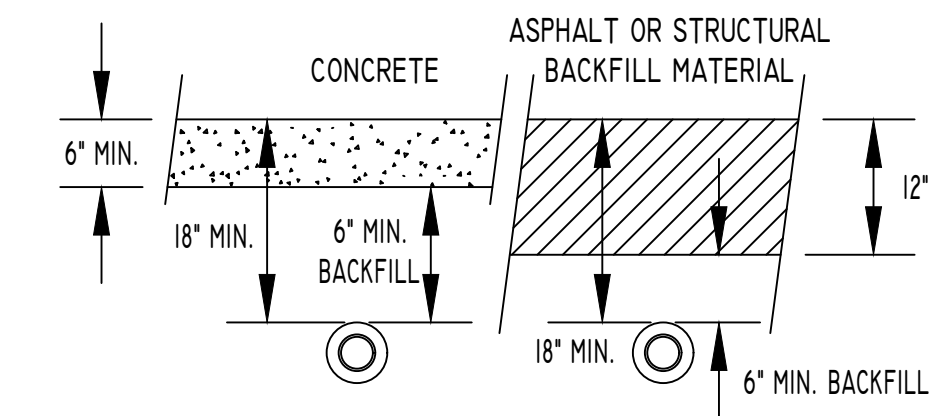
SAFETY SIGNAGE TO BE LOCATED AT ALL FUELING STATIONS INDICATING:

- 1) NO SMOKING
- 2) TURN OFF ENGINE WHEN FUELING VEHICLES
- 3) EMERGENCY TELEPHONE NUMBERS.

SEE DRAWING M-2 FOR REFERENCED DETAILS

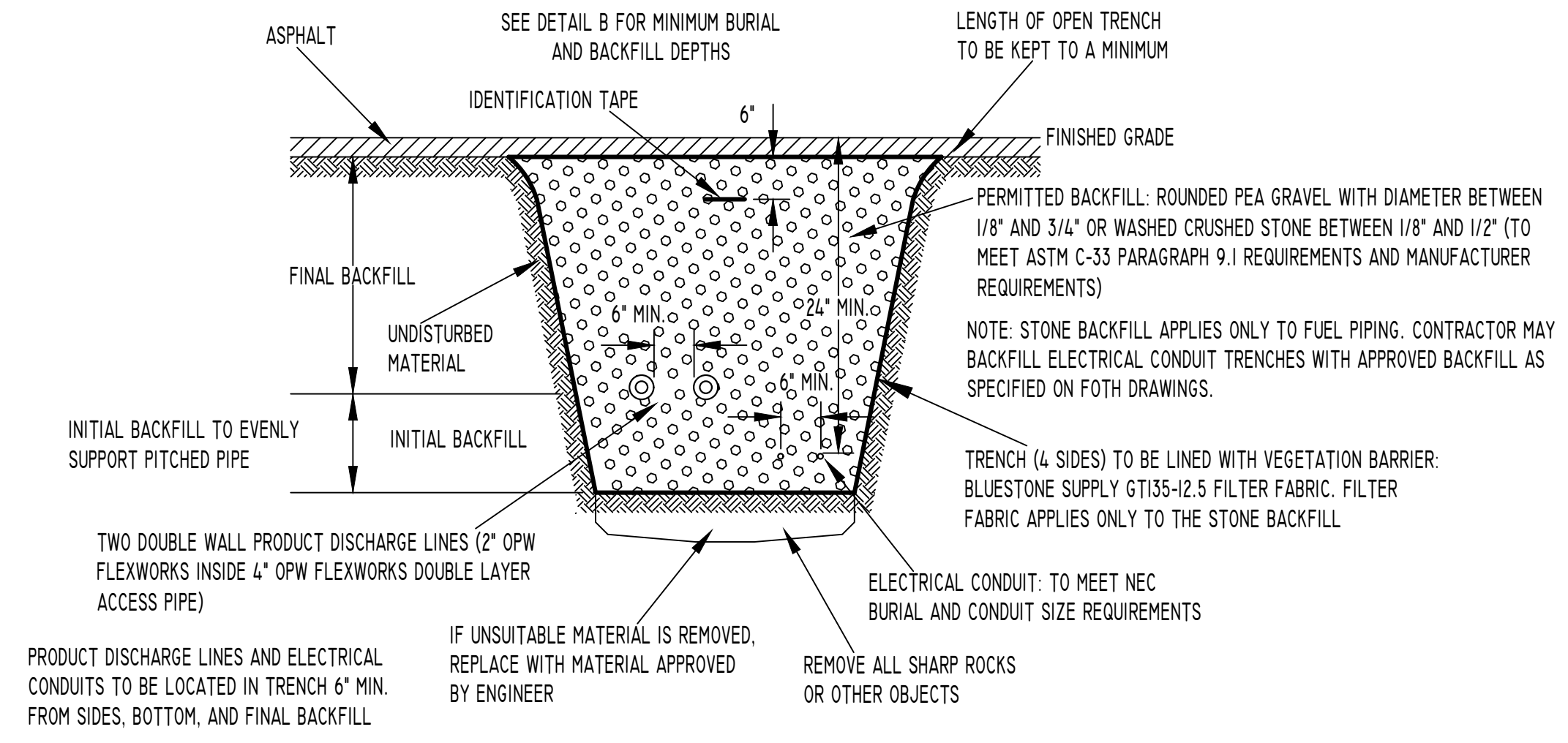
DATE	REVISION

FILE: DETAILS
DRAWN BY: JAS
DATE: 2/6/24
JOB #: 22-E-012
WEB DRAWING NO. 24.005
SCALE: 3/8" = 1'

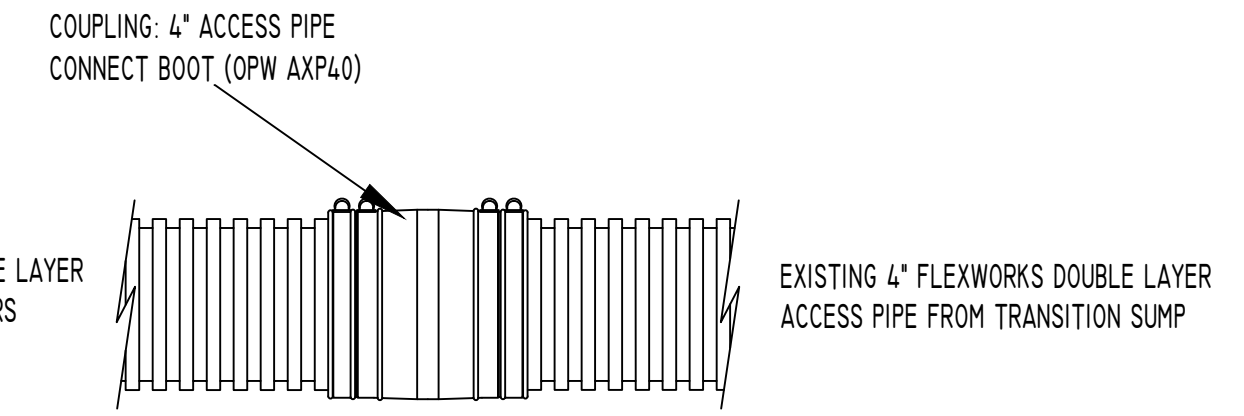


2" OPW FLEXWORKS FLEXIBLE PIPING INSIDE
4" OPW FLEXWORKS DOUBLE LAYER ACCESS PIPE

DETAIL B
MINIMUM PIPING BURIAL DEPTHS
NOT TO SCALE

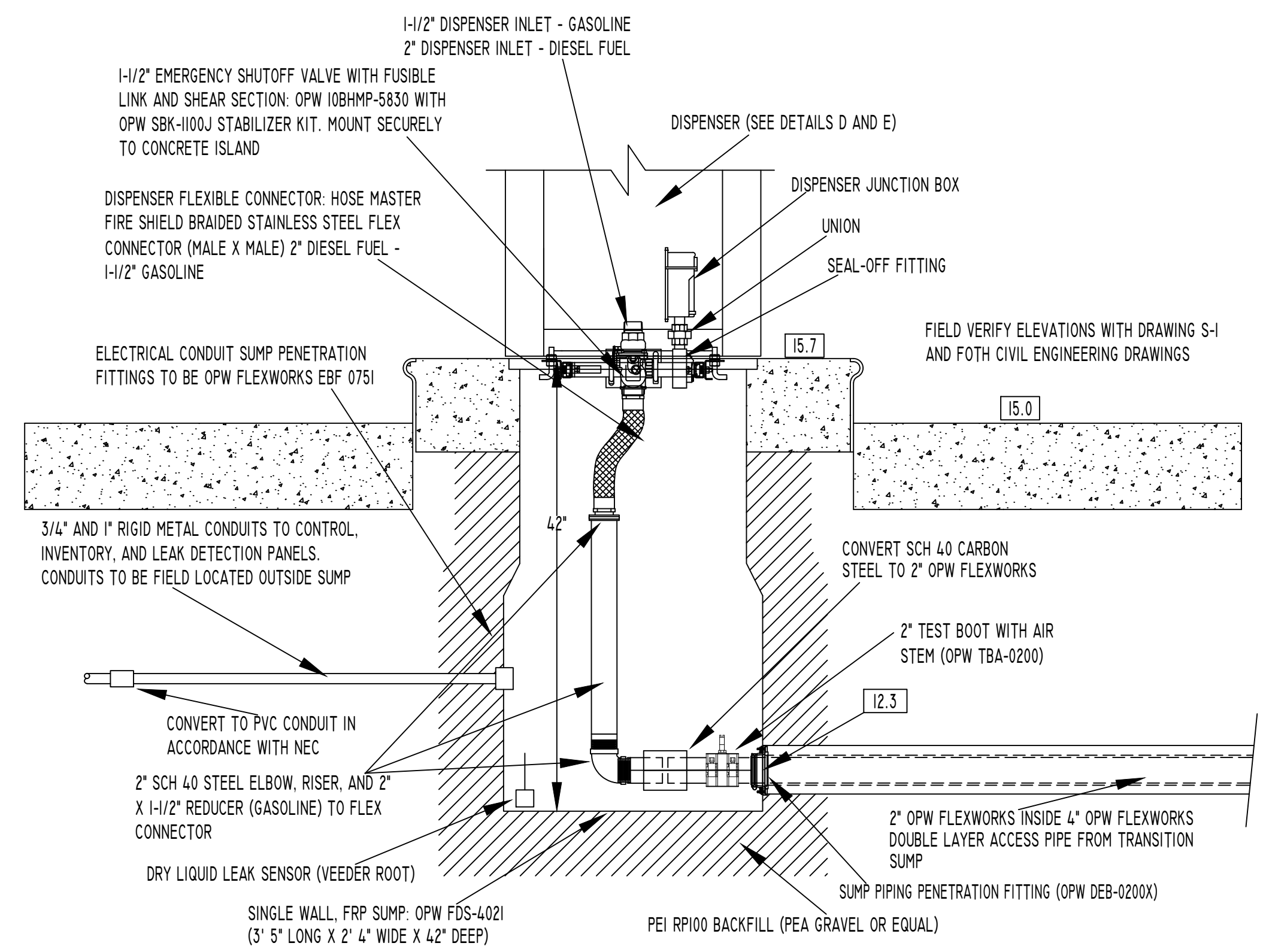


DETAIL A
TYPICAL PIPING TRENCH
NOT TO SCALE



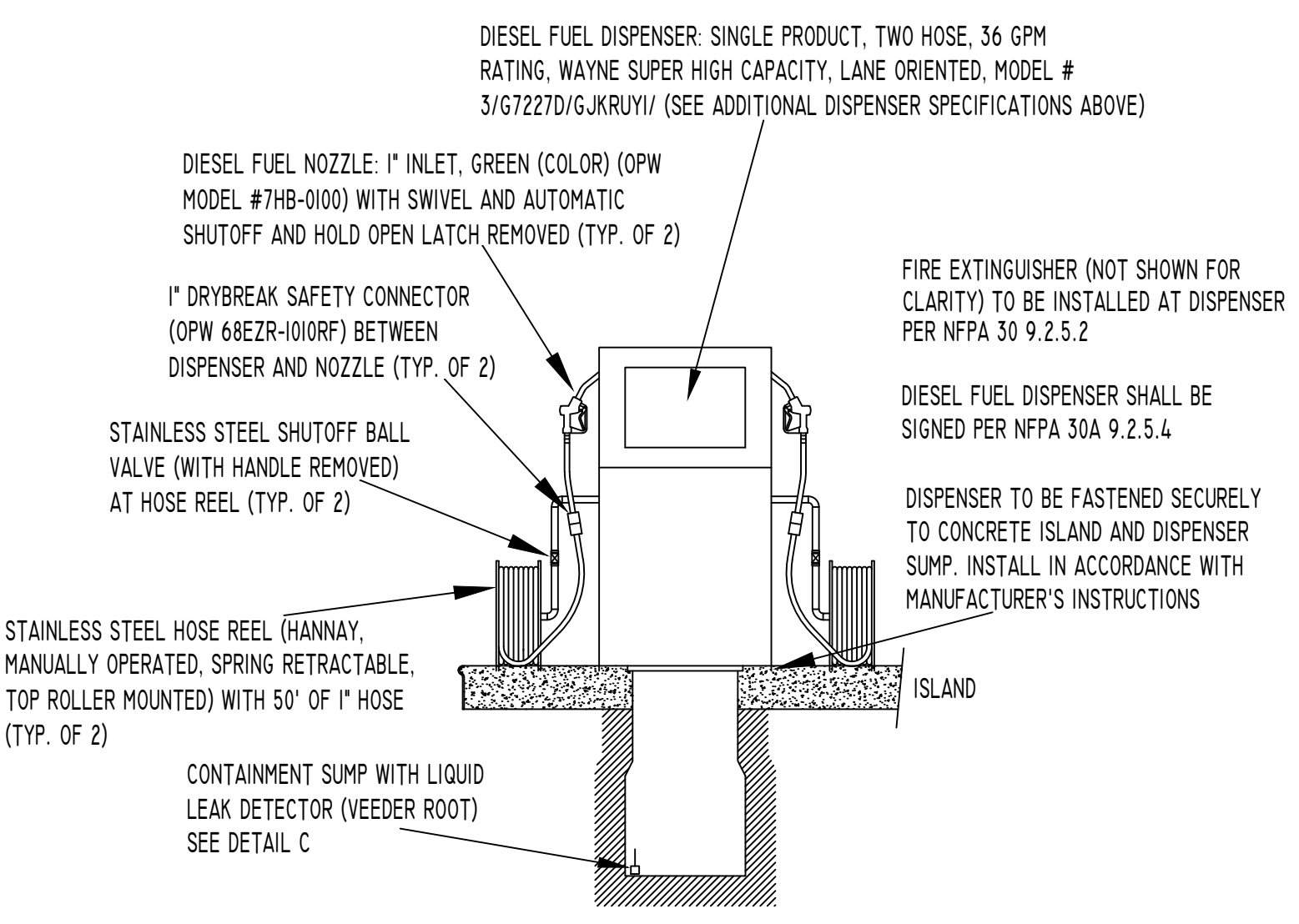
DETAIL F
4" OPW CARRIER PIPE COUPLING
NOT TO SCALE

- ADDITIONAL DISPENSER SPECIFICATIONS:**
- ELECTRONIC DISPLAYS. MECHANICAL REGISTERS ARE NOT ACCEPTABLE.
 - FOR EACH HOSE, BACKLIT 1.5" LIQUID CRYSTAL (LCD) TOTAL SALE AND 1" GALLONS DISPLAYS, AND 1/2" UNIT PRICE DISPLAY.
 - DISPLAY BACKUP FOR A MINIMUM OF 15 MINUTES IN THE EVENT OF POWER LOSS.
 - SEPARATE DISPLAY FOR EACH HOSE FOR ERROR CODES AND INDICATING OPERATING MODE.
 - ALL DISPLAYS COVERED WITH TEMPERED OR DOUBLE-STRENGTH GLASS (PLASTIC NOT ACCEPTABLE).
 - ELECTRONIC REGISTER - 115VAC / 240VAC 50/60 HZ
 - ELECTROMECHANICAL TOTALIZER, 7-DIGIT NON-RESETTABLE, FOR EACH HOSE LOCATED ON DISPENSER DIAL FACE BEZELS FOR INVENTORY CONTROL.
 - ELECTRONIC 6-DIGIT NON-RESETTABLE AND RESETTABLE TOTALIZERS PER HOSE.
 - DIAGNOSTICS INCLUDING LOG OF LAST 50 ERRORS/EVENTS. DISPENSER SOFTWARE CONFIGURABLE AND DOWNLOADABLE FROM PC.
 - HAND HELD REMOTE CONTROL FOR ACCESSING TOTALS, DIAGNOSTICS, & CONFIGURING DISPENSER VIA LCD W/O OPENING CABINET.
 - DUAL PULSE OUTPUT INTERFACE FOR EACH HOSE FOR CONNECTION TO FUEL CONTROL AND TANK MONITORING SYSTEMS - 120VAC.
 - CABINET: LOWER HYDRAULIC CABINET TOP, SIDES, AND BASE CONSTRUCTED FROM STAINLESS STEEL.
 - TOP REGISTER CABINET CONSTRUCTED FROM GALVANNEALED STEEL WITH POWDER-COATED BLACK FINISH.
 - STAINLESS STEEL LOWER DOORS.
 - HINGED LOWER DOORS FOR EASY SERVICE ACCESS WITHOUT HAVING TO REMOVE PANELS.
 - LED-LIGHTED BRAND PANELS LABELED UNLEADED.
 - LANE-ORIENTED NOZZLE BOOT ON EACH DISPENSER SIDE WITH LIFT-TO-START NOZZLE HOOKS TO TURN ON/OFF DISPENSER.
 - NOZZLE BOOTS SHALL ACCOMMODATE UL STANDARD INTERCHANGEABLE NOZZLES AND SHORT SPOUT VAPOR RECOVERY NOZZLES.
 - HOSE HANGER FOR EACH HOSE OUTLET TO KEEP HOSES OFF THE ISLAND WHEN NOT IN USE.
 - TWO (2) POSITIVE DISPLACEMENT, TWO-PISTON METERS WITH INTEGRAL HALL EFFECT PULSERS WITH NO MOVING PARTS TO WEAR OUT.
 - ELECTRONIC CALIBRATION WITHOUT THE NEED TO SET MECHANICAL ADJUSTERS.
 - ONE (1) PROPORTIONAL SOLENOID VALVE FOR EACH HOSE, PROGRAMMABLE THROUGH ELECTRONIC REGISTER TO SET MAXIMUM FLOW RATE.
 - ONE (1) INTERNAL FILTER WITH 30-MICRON ELEMENT FOR EACH HOSE TO HELP ENSURE PRODUCT PURITY.
 - TWO (2) 1" DISCHARGE OUTLETS WITH 3/4" REDUCING BUSHINGS SO THAT EITHER A 3/4" OR 1" HOSES MAY BE USED.
 - ONE (1) 1.5 INCH NPT INLET FOR ONE PRODUCT.
 - EXPLOSION-PROOF JUNCTION BOX IN HYDRAULIC CABINET TO MAKE ALL DISPENSER POWER AND CONTROL WIRING TERMINATIONS.
 - WARRANTY: ONE YEAR PARTS AND LABOR.
 - STANDARDS/APPROVALS: ADA COMPLIANT USER CONTROLS PER ANSI A117.1; C-UL-US LISTED; FCC, W&M APPROVALS.

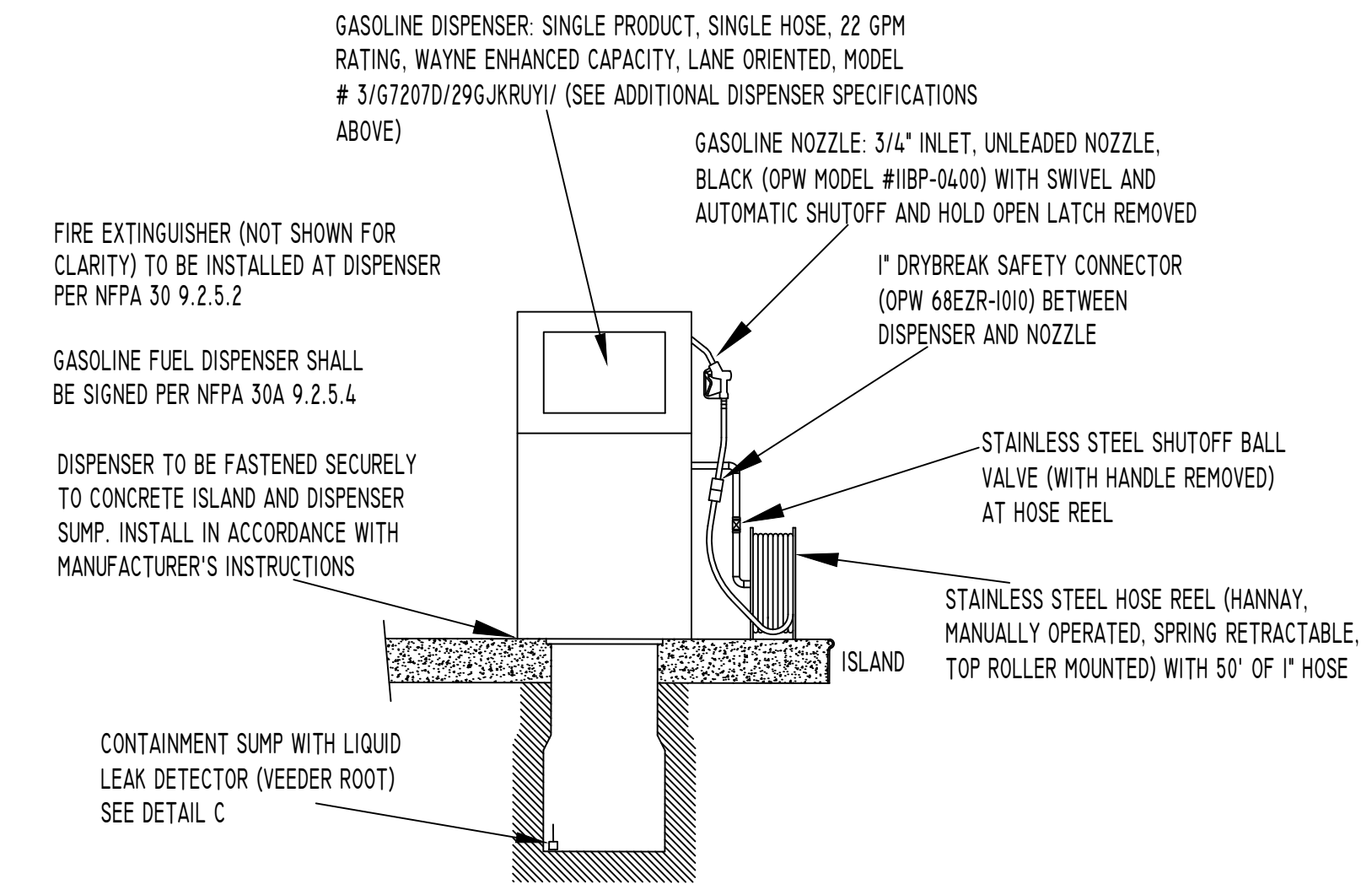


DETAIL C
DIESEL FUEL AND GASOLINE DISPENSER
CONTAINMENT SUMP
NOT TO SCALE

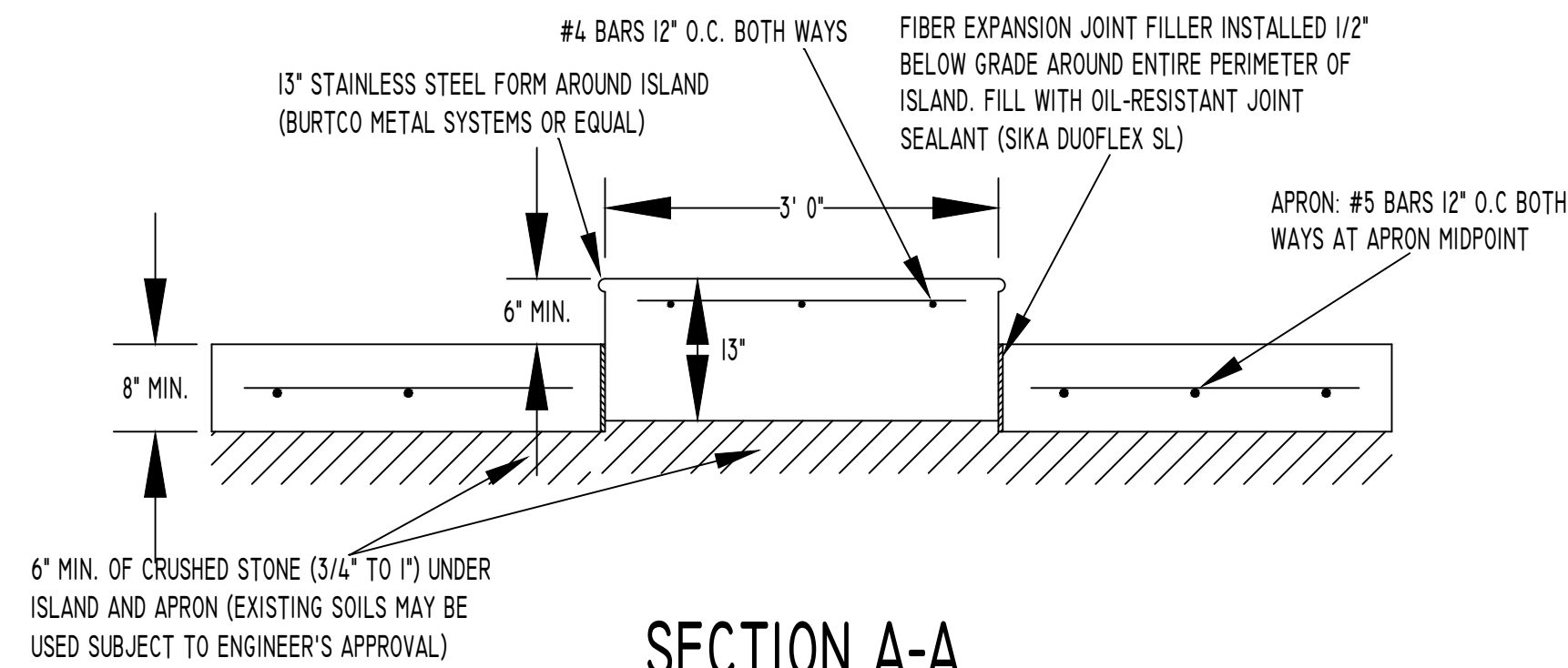
xxx.x PROPOSED ELEVATION



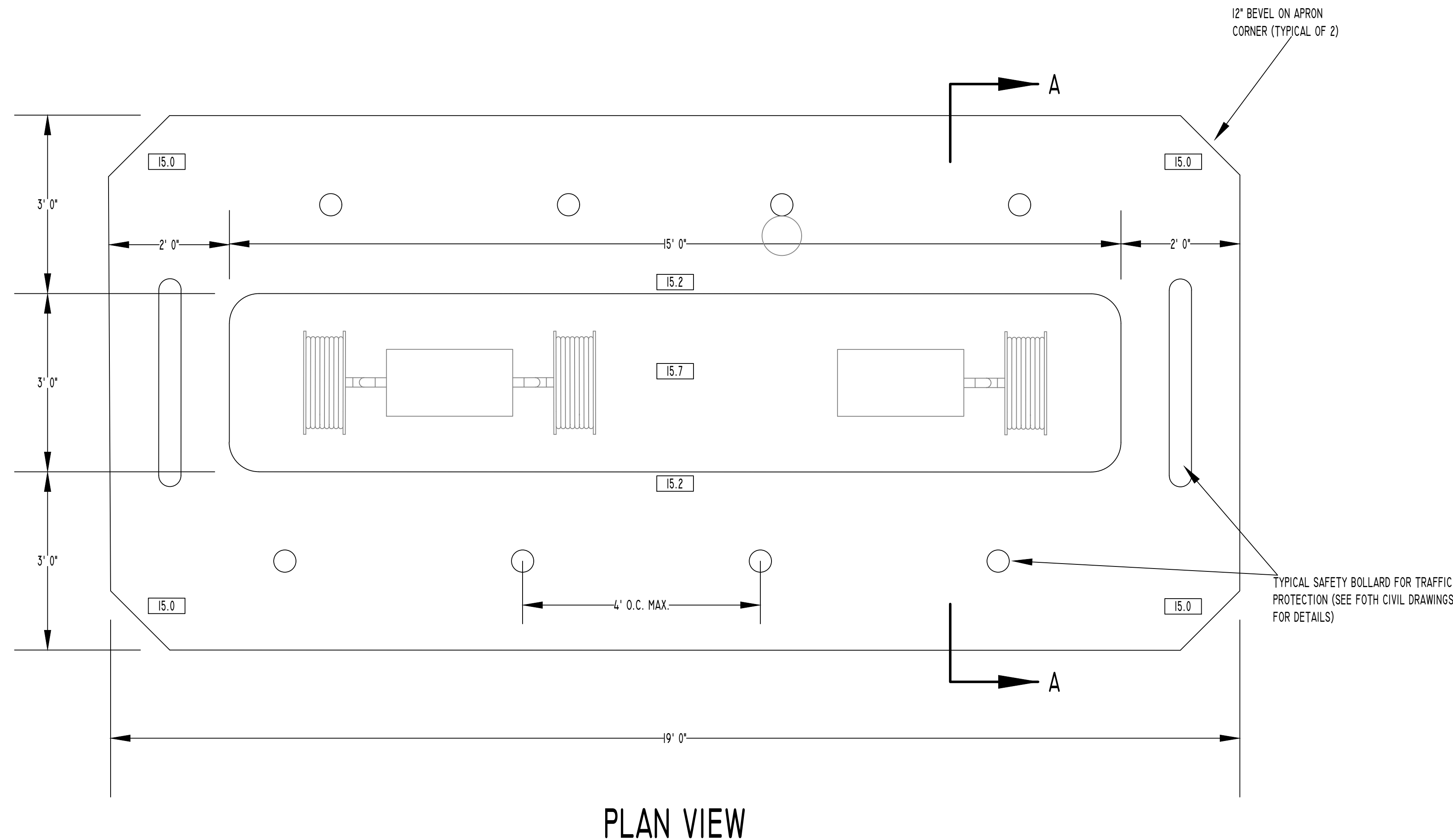
DETAIL D
DIESEL FUEL DISPENSER
NOT TO SCALE



DETAIL E
GASOLINE DISPENSER
NOT TO SCALE



SECTION A-A
FUELING ISLAND AND APRON
NOT TO SCALE



PLAN VIEW

GENERAL GEOTECHNICAL AND CONCRETE NOTES:

- 1) ALL CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE LATEST STATE OF NEW MASSACHUSETTS BUILDING CODE.
 - 2) ALL CONCRETE WITH MAX WC-0.45 SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT THE END OF 28 DAYS EXCEPT AS NOTED. PROVIDE PROOF OF COMPRESSION THROUGH A MINIMUM OF FIVE FIELD SAMPLES CYLINDERS PER CONCRETE POUR. (CRACK FIRST AT 7 DAYS AND THREE AT 28, AND ONE HELD) ALL EXTERIOR EXPOSED CONCRETE SHALL BE AIR ENTRAINED. (NOMINAL 6%) ALL PROPOSED CONCRETE MIXES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION. ALL APPROVED MIX DESIGNS SHALL BE IN STRICT CONFORMANCE TO CHAPTER 4 OF ACI 318. ALL CONCRETE SHALL CONFORM TO ACI 350R CONCRETE SANITARY ENGINEERING STRUCTURES. PROVIDE PROCEDURES FOR CURING CONCRETE TO ENGINEER FOR APPROVAL.
 - 3) ALL REINFORCING STEEL, EXCEPT AS OTHERWISE NOTED, SHALL BE DEFORMED BARS CONFORMING TO ASTM DESIGNATION A615 GRADE 60.
 - 4) SHORE, SHEET AND BRACE EXCAVATIONS AS REQUIRED TO ASSURE COMPLETE SAFETY AGAINST COLLAPSE OF EARTH AND DAMAGE TO ADJACENT PROPERTY INCLUDING BUT NOT LIMITED TO EXISTING STREETS, OF EARTH AND DAMAGE TO ADJACENT PROPERTY INCLUDING BUT NOT LIMITED TO EXISTING STREETS, BUILDING AND UTILITY LINES. ALL SHORING, SHEETING AND BRACING SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER.
 - 5) ALL EXCAVATIONS SHALL BE CARRIED DOWN TO UNDISTURBED MATERIAL HAVING A MINIMUM BEARING CAPACITY OF 2500 PSF OR SHALL BEAR ON COMPACTED FILL WHICH SHALL BE PREPARED IN THE FOLLOWING MANNER:
 - A) REMOVE ALL EXISTING FILL AND ORGANIC LOAMY MATERIAL TO ELEVATIONS SHOWN ON DESIGN DRAWINGS AS BEING UNSUITABLE.
 - B) STRUCTURAL FILL BACKFILLING FOR EXCAVATIONS AT COLUMNS AND SLAB ON GRADE UNDERLAYMENT (TO WITHIN 6' OF THE BOTTOM OF SLAB BOTTOM).
- | SIEVE SIZE | % PASS |
|------------|--------|
| 3-1/2" | 100 |
| 3/4" | 50-100 |
| NO. 4 | 25-75 |
- C) THE 6" IMMEDIATELY BELOW THE CONCRETE TO BE PROCESSED STONE BASE MEETING C700T 817 SECTION M.05.01 WITH MAX GRAIN SIZE 1.25".
 - D) COMPACTION SHALL BE CARRIED OUT ONLY WHILE A COMPETENT INSPECTOR, APPROVED BY THE ENGINEER, IS ON THE PROJECT. COMPACT TO AT LEAST 95% OF MODIFIED OPTIMUM DENSITY, PER ASTM D1557.
 - E) DEPTH OF EXCAVATION REQUIRED IS ESTIMATED AND NOT TO BE CONSTRUED AS LIMITING IN ANY WAY THE AMOUNT OF EXCAVATION REQUIRED TO REACH GOOD BEARING. NO FOOTINGS OR CONCRETE ARE TO BE PLACED IN WATER OR ON FROZEN GROUND.
 - 6) SHOP DRAWINGS, REVIEWED BY THE GENERAL CONTRACTOR, FOR REINFORCING, AND POUR SCHEDULES SHALL BE SUBMITTED TO THE ENGINEER AND A STAMPED APPROVAL RECEIVED BEFORE FABRICATION CAN PROCEED. ERECTION SHALL BE MADE FROM SHOP DRAWINGS ONLY.
 - 7) ALL TYPES OF SLABS AND BEAMS SHALL BE PLACED WITHOUT HORIZONTAL CONSTRUCTION JOINTS. VERTICAL CONSTRUCTION JOINTS AND STOPS IN CONCRETE WORK SHALL BE MADE AT THE MIDSPAN OR AT POINTS OF MINIMUM SHEAR. PROVIDE DOWELS AT VERTICAL SLAB CONSTRUCTION JOINTS OF AN EQUIVALENT OF 0.5% OF THE VERTICAL CONCRETE JOINT AREA.
 - 8) CONSTRUCTION JOINTS MAY NOT BE ADDED, EXCEPT WITH THE APPROVAL OF AN ENGINEER.
 - 9) ALL SHORING SHALL REMAIN IN PLACE UNTIL CONCRETE HAS ATTAINED 75% OF ITS 28 DAY STRENGTH.
 - 10) ALL REINFORCING, INCLUDING COLUMN AND PIER TIES, SHALL BE DETAILED IN ACCORDANCE WITH ACI MANUAL AS AMENDED TO DATE.
 - 11) WHERE CONTINUOUS BARS ARE CALLED FOR, INDICATED, OR REQUIRED, THEY SHALL BE RUN CONTINUOUSLY AROUND CORNERS, LAPPED AT NECESSARY SPLICES, SPLICES STAGGERED WHEREVER POSSIBLE, AND HOOKED AT DISCONTINUOUS ENDS. LAPS SHALL BE CLASS B.
 - 12) PROVIDE AND SCHEDULE WITH REBAR PLACEMENT SHOP DRAWINGS, ACCESSORIES TO HOLD THE REINFORCING PER ACI 318 CODE AND ACI 315 DETAILING MANUAL.
 - 13) CLEARANCE OF MAIN REINFORCING BARS FROM ADJACENT CONCRETE SURFACES SHALL BE:
 - 14) WHERE UNFORMED FACE OF CONCRETE IS IN CONTACT WITH EARTH, 3"
 - 15) WHERE FORMED FACE OF CONCRETE IS IN CONTACT WITH EARTH, OR EXPOSED TO WEATHER, 2"
 - 16) THE MAXIMUM ALLOWABLE DEVIATION FROM THE FIGURES ABOVE, WHEN PLACING REINFORCING IN THE FORMS, SHALL BE 1/4" FOR ALL SHAPES.
 - 17) COORDINATE ALL CONCRETE CONSTRUCTION WITH EQUIPMENT LOCATIONS AND MANUFACTURER'S REQUIREMENTS.
 - 18) ALL EXPOSED CONCRETE EDGES TO HAVE CHAMFER (ENGINEER TO APPROVE ALL CHAMFER STRIPS)
 - 19) ALL CONCRETE TO BE CONTINUOUSLY AND ADEQUATELY VIBRATED DURING PLACEMENT.

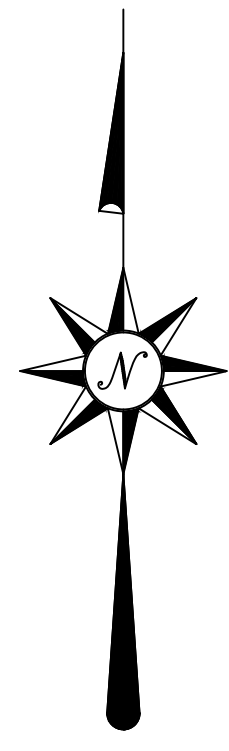
XX.X PROPOSED ELEVATION

FOOTPRINT OF DISPENSERS AND HOSE REELS

DATE	REVISION

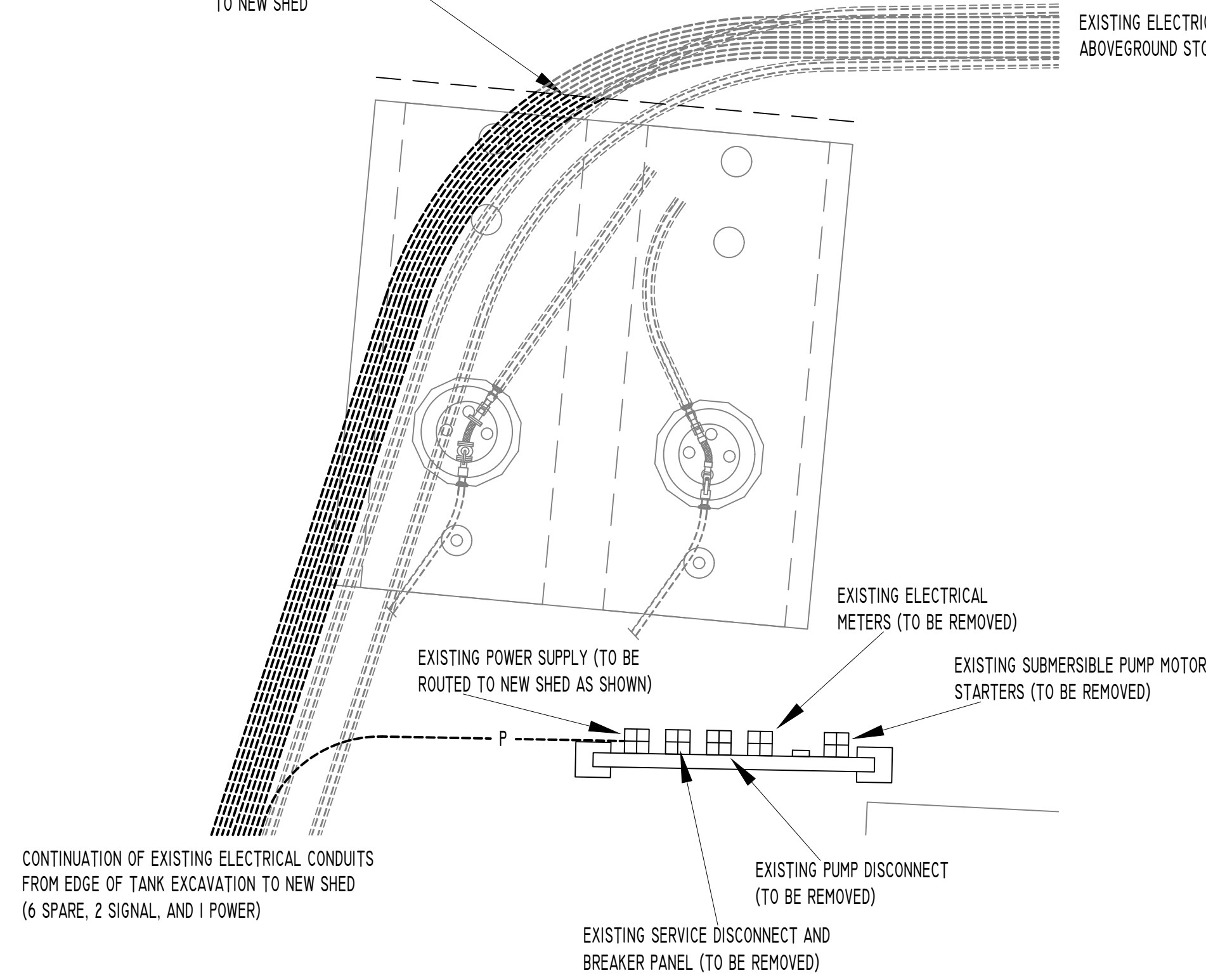
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DATE: 2/6/24
JOB #: 22-E-012
WEB DRAWING NO. 24006
SCALE: 3/4" = 1'





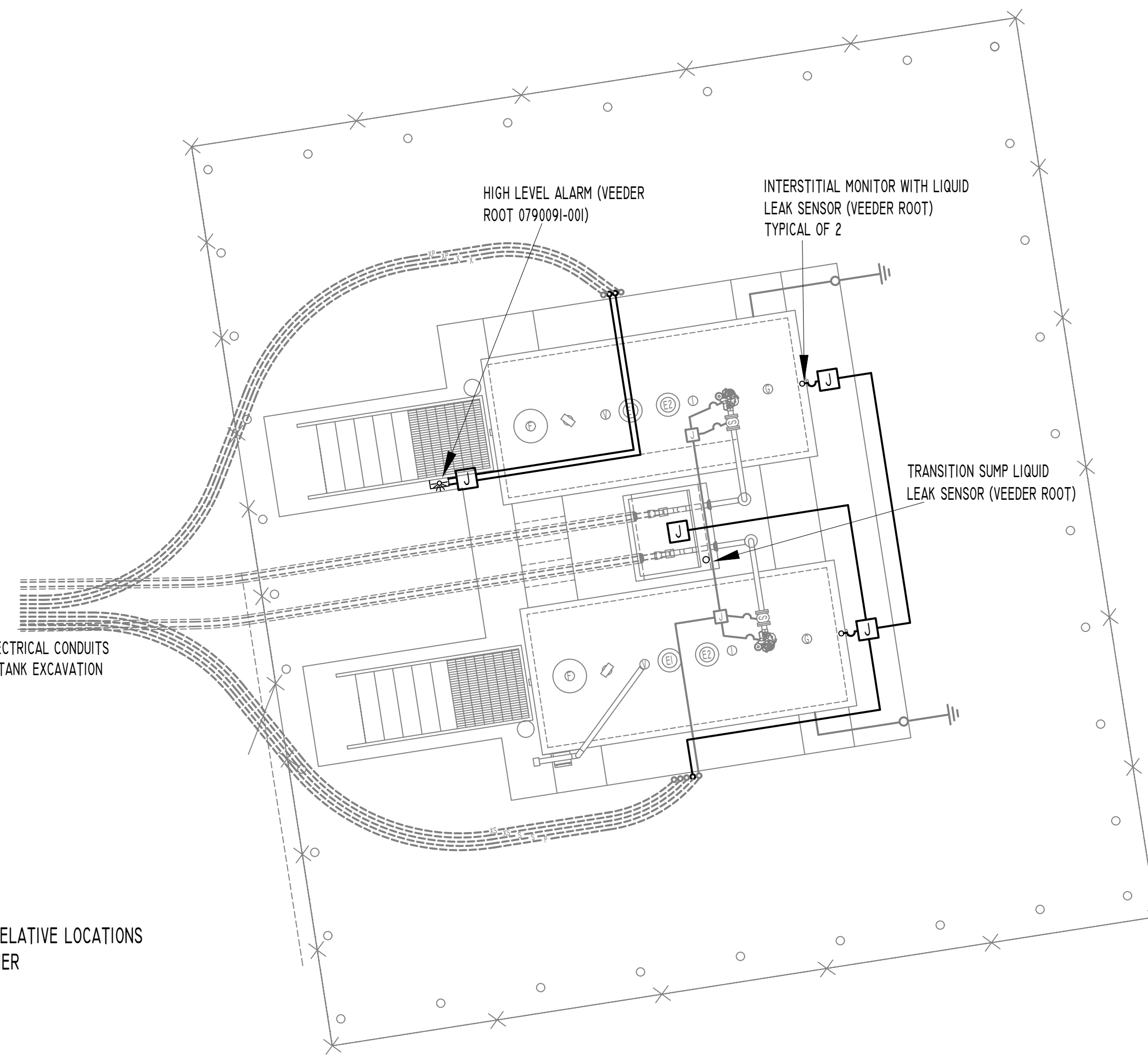
UPON REMOVAL OF EXISTING TANK PAD AND EXCAVATION OF TANK TOP COVER MATERIAL, EXISTING ELECTRICAL CONDUITS TO BE TRIMMED BACK TO EDGE OF TANK FIELD EXCAVATION. AFTER BACKFILLING OF TANK EXCAVATION, EXISTING CONDUITS TO BE COUPLED TO NEW AND EXTENDED TO NEW SHED

EXISTING ELECTRICAL CONDUITS FROM ABOVEGROUND STORAGE TANKS



EXISTING ELECTRICAL EQUIPMENT AND FORMER UST AREA

SEE DRAWING A-I FOR RELATIVE LOCATIONS OF AREAS TO EACH OTHER



ABOVEGROUND STORAGE TANK AREA

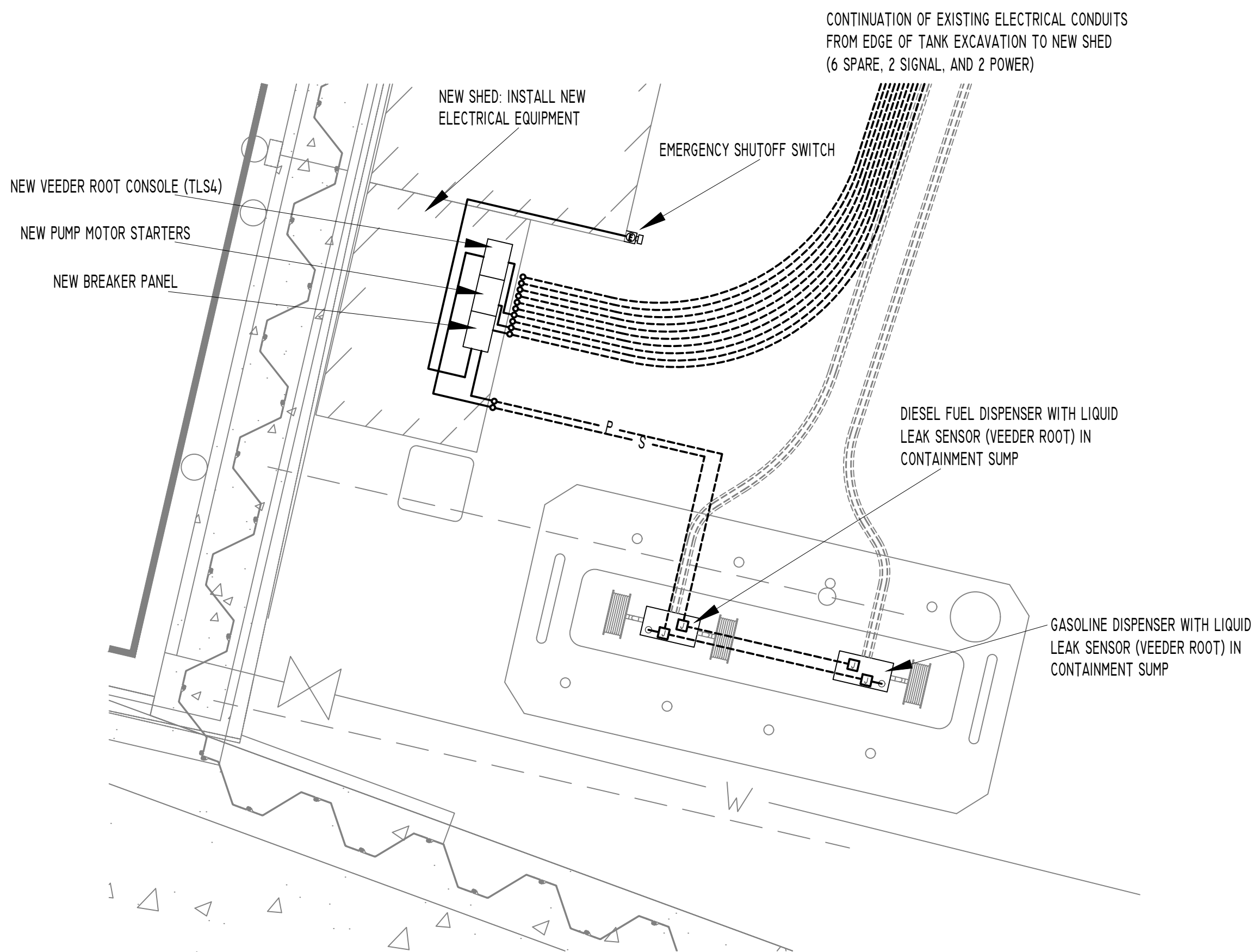
GENERAL ELECTRICAL NOTES:

- 1) WORK SHALL BE PERFORMED IN CONFORMANCE TO THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC)
- 2) EQUIPMENT AND DEVICES ARE TO BE INSTALLED AS INDICATED IN THEIR MANUFACTURERS' INSTRUCTIONS AND NOTE 1 ABOVE.
- 3) FEEDER AND CONTROL RACEWAYS ARE TO CONTAIN COPPER CONDUCTORS OF A MINIMUM SIZE OF #12 AWG AND USE CONDUITS OF A MINIMUM SIZE OF 3/4 INCH. CONDUCTOR INSULATION COLORS ARE TO FOLLOW THE GENERAL ELECTRIC "GEOTROL" COLOR CODE.
- 4) PANEL SCHEDULES ARE TO BE UPDATED BY TYPING IN THE INFORMATION FOR CIRCUITS CONNECTED.
- 5) ABOVEGROUND RACEWAYS SHALL BE RIGID GALVANIZED STEEL WITH RIGID GALVANIZED STEEL FITTINGS INSTALLED PER MANUFACTURERS' INSTRUCTIONS TO CREATE A WATER-TIGHT CORROSION RESISTANT RACEWAY. ALL RIGID GALVANIZED STEEL CONDUIT AND FITTINGS TO BE PVC COATED (ROBOY OR EQUAL). ALL EXPOSED GALVANIZED STEEL TO BE TOUCHED UP IN FIELD AFTER INSTALLATION.
- 6) UNDERGROUND RACEWAYS SHALL BE SCHEDULE 40 PVC ELECTRICAL CONDUIT. PVC SHALL CONVERT TO GALVANIZED STEEL UNDERGROUND A MINIMUM 2 FEET BEFORE CONVERTING BACK TO ABOVE GRADE OR INSIDE A SUMP.
- 7) FUEL ISLAND ELECTRICAL EQUIPMENT IS TO BE FED FROM SWITCHED NEUTRAL BREAKERS THROUGH A CONTACTOR THAT DISCONNECTS POWER, NEUTRAL, AND GROUND CONDUCTORS FOR EACH ITEM. THE CONTRACTOR IS TO BE ACTIVATED IN A FAILSAFE MODE BY THE E-STOP BUTTONS.
- 8) ALL BURIED ELECTRICAL TO HAVE CAUTION TAPE INSTALLED JUST BELOW GRADE AS SHOWN IN DETAIL A ON DRAWING M-2

ALL ELECTRICAL EQUIPMENT TO HAVE LOCK OUT TAG OUT CAPABLE DISCONNECT SWITCHES.

EMERGENCY SHUTOFF DEVICES OR ELECTRICAL DISCONNECTS SHALL DISCONNECT POWER TO ALL DISPENSING DEVICES, ALL REMOTE PUMPS SERVING THE DISPENSING DEVICES, ALL ASSOCIATED POWER, CONTROL, AND SIGNAL CIRCUITS, AND ALL OTHER ELECTRICAL EQUIPMENT IN THE HAZARDOUS (CLASSIFIED) LOCATIONS SURROUNDING THE FUEL DISPENSING DEVICES. WHEN MORE THAN ONE EMERGENCY SHUTOFF DEVICE OR ELECTRICAL DISCONNECT IS PROVIDED, ALL DEVICES SHALL BE INTERCONNECTED. RESETTING FROM AN EMERGENCY SHUTOFF CONDITION SHALL REQUIRE MANUAL INTERVENTION AND THE MANNER OF RESETTING SHALL BE APPROVED BY THE AUTHORITY HAVING JURISDICTION.

NOTE: CONTRACTOR TO DEMONSTRATE PROPER INSTALLATION OF SPARE ELECTRICAL CONDUITS BY BLOWING STRING THROUGH CONDUITS. STRING SHALL BE LEFT IN PLACE AND SUITABLY ACCESSIBLE FOR FUTURE ELECTRICAL WORK



NEW ELECTRICAL SHED AND DISPENSER ISLAND AREA

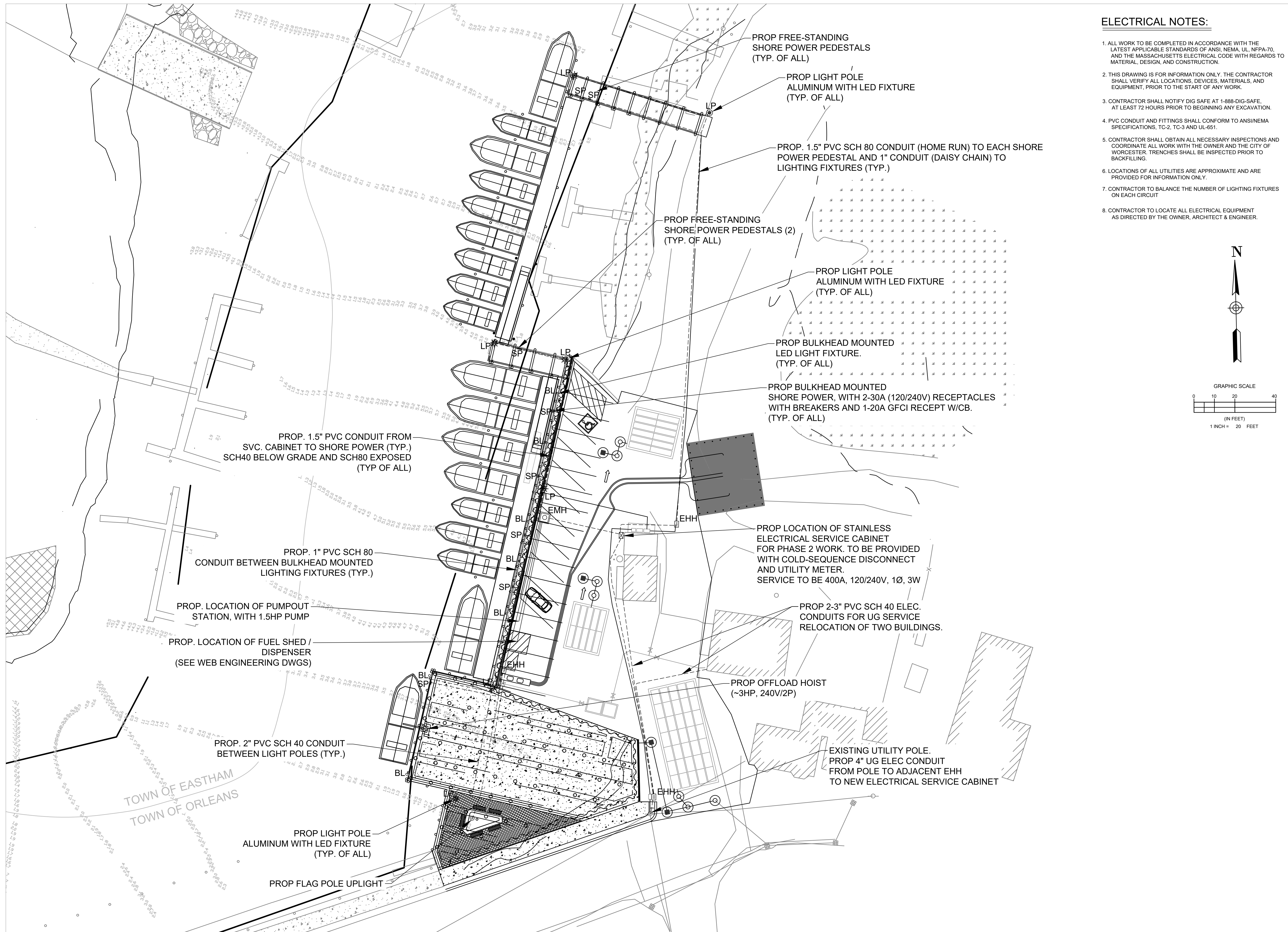
ELECTRICAL, BONDING, LIGHTNING PROTECTION, AND GROUNDING NOTES:

- 1) ALL ELECTRICAL CONSTRUCTION SHALL MEET OR EXCEED ALL APPLICABLE MASSACHUSETTS STATE ELECTRICAL CODES AND THE NATIONAL ELECTRICAL CODE FOR HAZARDOUS USE AREAS.
- 2) ELECTRICAL CLASSIFICATION: CLASS I, DIV 1/2
- 3) GROUNDING AND BONDING TO MEET OR EXCEED NFPA 30-2021 6.5.4.1. PROVIDE ONE GROUNDING ROD AT EACH TANK: 1/2" X 10' DRIVEN SOLID COPPER.
- 4) ABOVE GROUND STORAGE TANKS, STAINLESS STEEL PIPING, AND CONCRETE REINFORCEMENT TO BE INCLUDED IN LIGHTNING PROTECTION/GROUNDING SYSTEM.
- 5) ALL CONNECTIONS TO BE MADE WITH #2 BARE STRANDED COPPER WIRE.

CONDUIT SIZES ARE MINIMUM SIZES. CONTRACTOR MAY COMBINE WIRE IN CONDUIT IN STRICT ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND EQUIPMENT MANUFACTURER'S REQUIREMENTS.

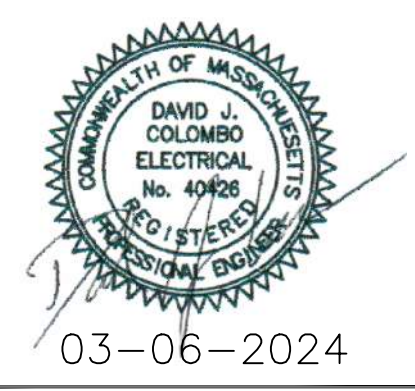
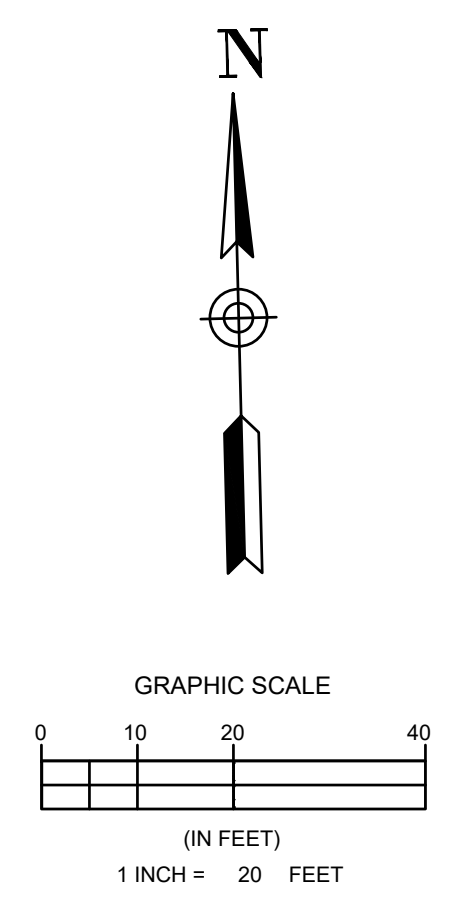
LOCATION OF CONDUITS SHOWN IS SCHEMATIC ONLY.

	JUNCTION BOX - SIZED PER NEC BY CONTRACTOR
	JUNCTION BOX WITH FLEXIBLE CONDUIT CONNECTION
	UNDERGROUND CONDUIT (POWER)
	UNDERGROUND CONDUIT (SIGNAL)
	ABOVEGROUND CONDUIT (POWER)
	ABOVEGROUND CONDUIT (SIGNAL)
	UNDERGROUND CONDUIT (X-SPARE, XP-SPARE POWER, XS-SPARE SIGNAL)
	CONDUIT "STUB UP" (TRANSITION FROM BURIED TO ABOVE GRADE)



ELECTRICAL NOTES:

1. ALL WORK TO BE COMPLETED IN ACCORDANCE WITH THE LATEST APPLICABLE STANDARDS OF ANSI, NEMA, UL, NFPA-70, AND THE MASSACHUSETTS ELECTRICAL CODE WITH REGARDS TO MATERIAL, DESIGN, AND CONSTRUCTION.
2. THIS DRAWING IS FOR INFORMATION ONLY. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS, DEVICES, MATERIALS, AND EQUIPMENT, PRIOR TO THE START OF ANY WORK.
3. CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE, AT LEAST 72 HOURS PRIOR TO BEGINNING ANY EXCAVATION.
4. PVC CONDUIT AND FITTINGS SHALL CONFORM TO ANSINEMA SPECIFICATIONS, TC-2, TC-3 AND UL-651.
5. CONTRACTOR SHALL OBTAIN ALL NECESSARY INSPECTIONS AND COORDINATE ALL WORK WITH THE OWNER AND THE CITY OF WORCESTER. TRENCHES SHALL BE INSPECTED PRIOR TO BACKFILLING.
6. LOCATIONS OF ALL UTILITIES ARE APPROXIMATE AND ARE PROVIDED FOR INFORMATION ONLY.
7. CONTRACTOR TO BALANCE THE NUMBER OF LIGHTING FIXTURES ON EACH CIRCUIT
8. CONTRACTOR TO LOCATE ALL ELECTRICAL EQUIPMENT AS DIRECTED BY THE OWNER, ARCHITECT & ENGINEER.



DEPARTMENT OF PUBLIC WORKS
 TOWN OF ORLEANS, MASSACHUSETTS
 ROCK HARBOR COMMERCIAL
 WHARF IMPROVEMENTS

REVISIONS		DESCRIPTION	
NO	DATE	BY	
1			
2			
3			
4			

DATE OF PREPARATION

SURVEYED	BY	DATE
MEC/JAH		10/24/19 & 3/2/21
DRAWN	DJC	3/6/2024
DESIGNED	DJC	3/6/2024
CHECKED	DJC	3/6/2024

ISSUANCE: **ISSUED FOR BID**

SHEET TITLE:
**ELECTRICAL
 SITE PLAN**

PROJECT NO: 00190004.10
 SHEET NUMBER
 E-101

GENERAL NOTES:

- 1. IN THIS DOCUMENT, "CONTRACTOR" SHALL REFER TO GENERAL CONTRACTOR AND "SUBCONTRACTOR" SHALL REFER TO THE ELECTRICAL CONTRACTOR AND THEIR SUBCONTRACTORS.
2. THE SYSTEM DESIGN SHALL BE INSTALLED IN ACCORDANCE WITH THESE DOCUMENTS AND SPECIFICATIONS AND IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC), THE UTILITY, AND THE AUTHORITY HAVING JURISDICTION (AHJ). ANY LOCAL CODE THAT SUPERSEDES THE NEC SHALL GOVERN.
3. SUBCONTRACTORS SHALL HAVE A MINIMUM OF TWO PEOPLE WORKING TOGETHER AT ALL TIMES.
4. THESE DOCUMENTS AND SPECIFICATIONS ARE THE MINIMUM REQUIRED FOR PROJECT COMPLETION. SUBCONTRACTOR SHALL ENSURE THAT THESE REQUIREMENTS ARE MET OR EXCEEDED WITH HIGH QUALITY EQUIPMENT, MATERIALS, AND WORKMANSHIP.
5. THE EQUIPMENT AND COMPONENTS SHALL BE SHOWN IN ACCORDANCE WITH THE APPLICABLE ARTICLES OF THE NEC AND AS MARKED IN THESE DOCUMENTS.
6. ALL EQUIPMENT AND MATERIALS SHALL BE INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS. ANY METHODS AND MATERIALS NOT SPECIFIED SHALL BE SUBMITTED AND APPROVED PRIOR TO INSTALLATION.
7. ALL EQUIPMENT AND ENCLOSURES SHALL BE FREE FROM DEBRIS AND ANY MATERIALS THAT MAY CAUSE DAMAGE.
8. SUBCONTRACTOR SHALL PROVIDE SUBMITTALS FOR ALL EQUIPMENT AND MATERIALS. SUBMITTALS SHALL BE APPROVED PRIOR TO ANY WORK PERFORMED. SUBCONTRACTOR WILL BE AT RISK FOR WORK PERFORMED WITH ANY SUBMITTALS THAT ARE NOT APPROVED.
9. SUBCONTRACTOR SHALL CALL "811" PRIOR TO ANY GROUND PENETRATION AND PROVIDE TICKET NUMBER TO CONTRACTOR.
10. ALL EXISTING UTILITIES SHALL BE FIELD VERIFIED AND MARKED. SUBCONTRACTOR SHALL COORDINATE WITH UTILITY FOR REQUIRED SHUTDOWN SERVICES. ANY UTILITIES THAT REMAIN SHALL BE PROTECTED DURING CONSTRUCTION. ANY DAMAGE SHALL BE REPAIRED TO THE UTILITY OWNER'S SATISFACTION.
11. SUBCONTRACTOR SHALL VERIFY ALL EXISTING SITE CONDITIONS AND MEASUREMENTS AND SHALL NOTIFY CONTRACTOR AND DOCUMENT ANY DISCREPANCIES PRIOR TO ANY WORK.
12. ALL FORMING, BRACING, AND SHORING FOR EQUIPMENT SHALL BE SUPPLIED AND INSTALLED BY THE SUBCONTRACTOR.
13. ANY CHANGES INITIATED BY SUBCONTRACTOR SHALL BE SUBMITTED FOR APPROVAL PRIOR TO ANY WORK. APPROVED CHANGES SHALL BE INCLUDED IN THESE DOCUMENT REVISIONS AND PROVIDED TO THE ENGINEER OF RECORD. SUBCONTRACTOR WILL BE AT RISK FOR WORK PERFORMED WITHOUT APPROVAL.
14. SUBCONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF ALL EQUIPMENT MOUNTING, MATERIALS, AND HARDWARE AND MOCK-UP IMAGES FOR APPROVAL PRIOR TO ANY WORK.
15. SUBCONTRACTOR SHALL RECORD ALL CHANGES AND PROVIDE REDLINED DRAWINGS TO THE CONTRACTOR AT THE COMPLETION OF THE PROJECT.

GENERAL ELECTRICAL NOTES

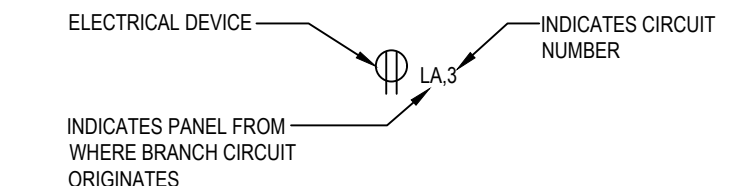
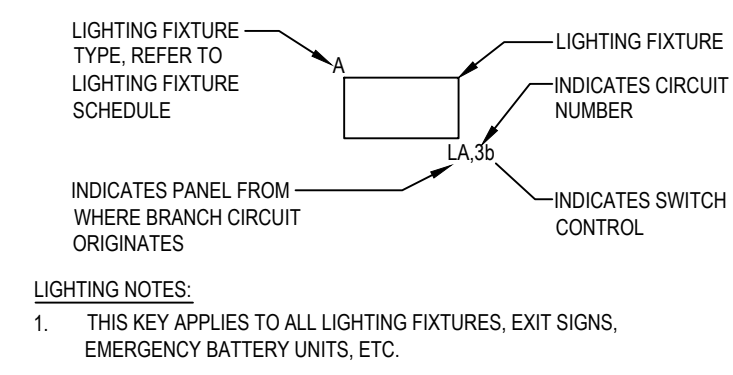
- 1. DRAWINGS ARE NECESSARILY DIAGRAMMATIC BY THEIR NATURE AND ARE NOT INTENDED TO SHOW EVERY CONNECTION IN DETAIL OR EVERY PIPE OR CONDUIT IN ITS EXACT LOCATION. CAREFULLY INVESTIGATE STRUCTURAL AND FINISH CONDITIONS AND COORDINATE THE WORK, ORGANIZE AND LAY OUT WORK SO THAT IT WILL BE CONCEALED IN FURRED CHASES AND SUSPENDED CEILING, ETC., IN FINISHED PORTIONS OF THE BUILDING, UNLESS SPECIFICALLY NOTED TO BE EXPOSED. INSTALL ALL WORK PARALLEL OR PERPENDICULAR TO BUILDING LINES UNLESS OTHERWISE NOTED.
2. THE INTENT OF THE DRAWINGS IS TO ESTABLISH THE TYPES OF SYSTEMS AND FUNCTIONS, NOT TO SET FORTH EACH ITEM ESSENTIAL TO THE FUNCTIONING OF THE SYSTEM. INSTALL THE WORK COMPLETE, INCLUDING MINOR DETAILS NECESSARY TO PERFORM THE FUNCTION INDICATED. REVIEW PERTINENT DRAWINGS, MANUFACTURER'S INSTALLATION MANUALS, ETC., AND ADJUST THE WORK TO CONDITIONS SHOWN, WHERE DISCREPANCIES OCCUR BETWEEN DRAWINGS, SPECIFICATIONS, MANUFACTURER INSTALLATION AND OPERATION MANUALS AND ACTUAL FIELD CONDITIONS, NOTIFY THE OWNER & ENGINEER PRIOR TO BEGINNING ANY WORK.
3. COORDINATE THE ACTUAL LOCATIONS OF ELECTRICAL EQUIPMENT WITH BUILDING FEATURES AND OTHER EQUIPMENT IN THE FIELD. REVIEW ANY PROPOSED CHANGES IN ELECTRICAL EQUIPMENT LOCATION WITH THE OWNER.
4. ALL DIMENSIONAL INFORMATION RELATED TO NEW STRUCTURES SHALL BE TAKEN FROM THE APPROPRIATE DRAWINGS. ALL DIMENSIONAL INFORMATION RELATED TO EXISTING FACILITIES SHALL BE TAKEN FROM ACTUAL MEASUREMENTS MADE BY THE CONTRACTOR ON THE SITE.
5. WORK, MATERIALS AND EQUIPMENT SHALL COMPLY WITH THE RULES AND REGULATIONS SPECIFIED IN THE EDITION OF NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) ADOPTED BY THE JURISDICTION OF THE PROJECT.
6. ALL EQUIPMENT AND MATERIALS SHALL BE DELIVERED TO THE PROJECT SITE CLEAN AND SEALED FOR PROTECTION. TAKE SUCH PRECAUTIONS AS ARE NECESSARY TO PROTECT APPARATUS AND MATERIALS FROM DAMAGE. PROTECT FACTORY FINISH FROM DAMAGE DURING CONSTRUCTION UNTIL ACCEPTANCE OF THE PROJECT. RESTORE ANY FINISHES THAT BECAME STAINED OR DAMAGED TO OWNER & ENGINEER'S SATISFACTION.
7. PROVIDE NEW PRODUCTS OF MANUFACTURERS REGULARLY ENGAGED IN PRODUCTION OF SUCH EQUIPMENT. PROVIDE THE MANUFACTURER'S LATEST STANDARD DESIGN FOR THE TYPE OF PRODUCT SPECIFIED.
8. PRODUCTS SHALL CONFORM TO REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE WHERE UNDERWRITERS' LABORATORIES HAVE SET STANDARDS AND LISTED PRODUCTS AND ISSUED LABELS. PRODUCTS USED SHALL BE LISTED AND LABELED TO THOSE STANDARDS BY UL OR ANOTHER AGENCY ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION. PRODUCTS SHALL BE INSTALLED IN ACCORDANCE WITH THE LISTING OF THE EQUIPMENT.
9. SUPPLY SIDE CONNECTIONS AS PERMITTED BY NEC ARTICLE 690.64 SHALL BE MADE IN ACCORDANCE WITH NEC ARTICLE 230.
10. DESIGNATIONS: EXTERNALLY MARK ALL EQUIPMENT, DEVICES, FEEDERS, BRANCH CIRCUITS AND SIMILAR ITEMS WITH NAMEPLATES AS IDENTIFIED ELSEWHERE IN THESE DRAWINGS AND SPECIFICATIONS.
11. MATERIALS AND EQUIPMENT TO BE REMOVED, EXCEPT ITEMS SPECIFICALLY NOTED TO BE RELOCATED OR RETURNED TO THE OWNER, BECOME PROPERTY OF THE SUBCONTRACTOR AND SHALL BE IMMEDIATELY REMOVED FROM THE PROJECT SITE. IF THE OWNER IDENTIFIES OTHER ITEMS DURING CONSTRUCTION, THOSE ITEMS BECOME OWNER PROPERTY AND SHALL BE TURNED OVER TO THE OWNER.
12. COORDINATE THE SCHEDULING OF ALL WORK REQUIRING ELECTRICAL SHUTDOWNS WITH THE OWNER. THIS MAY REQUIRE PERFORMING THE WORK OUTSIDE OF NORMAL WORKING HOURS, AND/OR PROVIDING TEMPORARY POWER WITH A PORTABLE GENERATOR OR BY OTHER APPROVED MEANS. COORDINATE TEMPORARY POWER REQUIREMENTS AND POSSIBLE ALTERNATE POWER SOURCES WITH THE OWNER.
13. EQUIPMENT INSTALLATION SHALL BE IN ACCORDANCE WITH THE RESPECTIVE EQUIPMENT MANUFACTURER'S PUBLISHED RECOMMENDATIONS.
14. OBSERVE ALL CLEARANCES REQUIRED BY NEC 110.26.
15. EQUIPMENT SHALL BE SET LEVEL AND PLUMB.
16. SEAL OPENINGS INTO EQUIPMENT TO PREVENT ENTRANCE OF ANIMALS, BIRDS AND INSECTS.
17. ALL UNUSED OPENINGS SUCH AS, BUT NOT LIMITED TO, KNOCKOUTS ON PANELS AND BOXES, SURFACE WIREWAY OPENINGS, BUSWAY OPENINGS, AND CIRCUIT BREAKER EMPLY SLOTS SHALL BE COVERED WITH APPROVED COVER PLATES.
18. ON ROOF MOUNTED INSTALLATIONS WITH A PARAPET LESS THAN 54" IN HEIGHT, SERVICEABLE EQUIPMENT SHALL BE SET BACK AT LEAST 10" FROM THE EDGE OF THE ROOF.
19. COOPERATE WITH TRADES OF ADJACENT, RELATED OR AFFECTED MATERIALS OR OPERATIONS, AND WITH TRADES PERFORMING CONTINUATION OF THIS WORK IN ORDER TO EFFECT TIMELY AND ACCURATE PLACING OF WORK AND TO COORDINATE, IN PROPER AND CORRECT SEQUENCE, THE WORK OF SUCH TRADES.
20. WORK SHALL BE PERFORMED BY COMPETENT WORKERS SKILLED IN THEIR TRADE.
21. THIS INSTALLATION SHALL BE COMPLETE AND FUNCTIONAL.
22. COORDINATE SYSTEM TURNOVER WITH OWNER & ENGINEER.
23. SUBCONTRACTOR SHALL FOLLOW OWNER & ENGINEER SEQUENCE AND PROCEDURES FOR QUALITY ASSURANCE TESTING AND SYSTEM COMMISSIONING DURING INSTALLATION, INCLUDING MEGGER TESTING OF ALL CONDUCTORS AFTER BEING PULLED THROUGH CONDUIT BUT PRIOR TO TERMINATION.
24. OWNER & ENGINEER RESERVES THE RIGHT TO APPROVE OR DISAPPROVE ANY PRODUCTS OR WORK NOT IN CONFORMANCE WITH THESE SPECIFICATIONS.

Table with columns: ID, KVA, 480 VOLT OVERCURRENT, 208 VOLT OVERCURRENT, 480V FEEDER, 120/208V FEEDER, GROUNDING. Rows T1 through T10.

LEGEND OF FEEDER SIZES - COPPER CONDUCTORS. Table with columns: FEEDER SYMBOL, CONDUCTORS (3 PHASE, 3 WIRE) WITH GROUND, MINIMUM RACEWAY SIZE, CONDUCTORS (3 PHASE, 4 WIRE) WITH GROUND, MINIMUM RACEWAY SIZE, NOMINAL AMPERE RATING. Includes a legend for symbols and notes.

BRANCH CIRCUITS SCHEDULE. Table with columns: CIRCUIT BREAKER, CONDUCTOR. Rows for 120 OR 277 VOLT 1Ø, 2W. CIRCUITS; 208 VOLT 1Ø, 2W. CIRCUITS; 208/120 VOLT, 1Ø, 3W CIRCUITS; 208Y/120 & 480Y/277 VOLT, 3Ø, 4W CIRCUITS.

NEMA ENCLOSURE SCHEDULE. Table with columns: TYPE, DESCRIPTION. Rows 1 through 12.



- POWER NOTES: 1. THIS KEY APPLIES TO ALL RECEPTACLES, JUNCTION BOXES, DISCONNECT SWITCHES, THERMAL SWITCHES, ETC.
GENERAL NOTES: 1. WIRING (MC, NM, FMC, THHN, ETC.) AND CONDUIT SHALL BE REQUIRED BETWEEN ALL LIGHTING FIXTURES, RECEPTACLES, OUTLETS, ETC. INDICATED WITH CIRCUIT NUMBERS AND PANEL DESIGNATIONS. REFER TO SPECIFICATIONS FOR APPLICABLE MEANS AND METHODS.
2. ALTHOUGH ALL BRANCH CIRCUIT WIRE AND CONDUIT IS NOT SHOWN, IT IS THE INTENT OF THESE DOCUMENTS THAT A COMPLETE BRANCH CIRCUIT WIRING SYSTEM BE INSTALLED.
3. WIRING SHALL BE 2#12-1/2G-1/2" MINIMUM.

CIRCUITING KEY N.T.S.

CONDUIT NOTES:

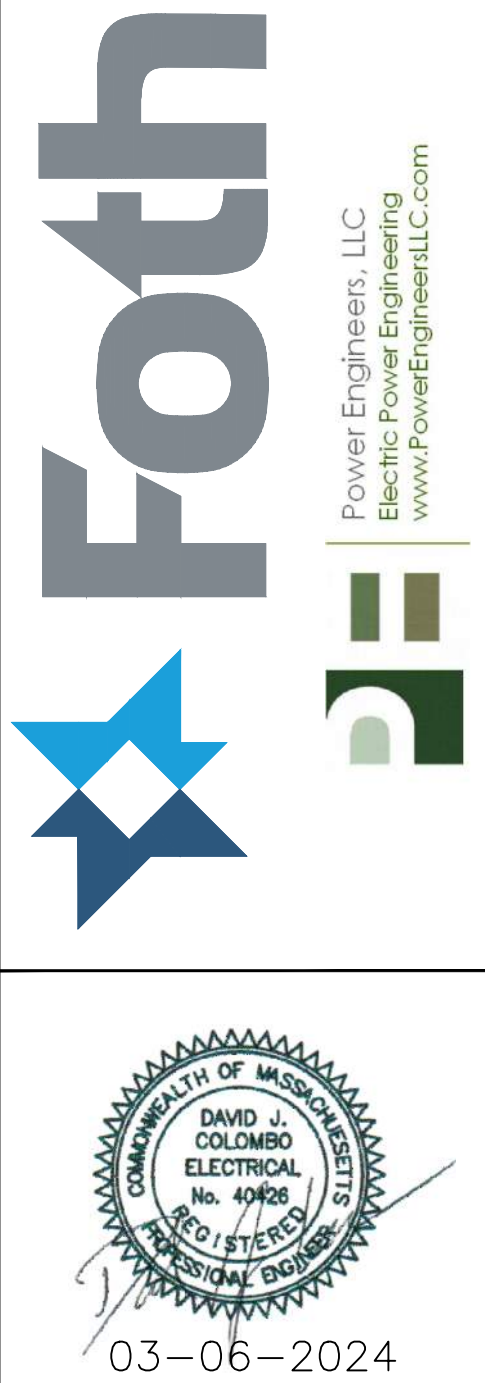
- 1. ALL WORK TO BE COMPLETED IN ACCORDANCE WITH THE LATEST APPLICABLE STANDARDS OF ANSI, NEMA, UL, NFPA-70, WITH REGARDS TO MATERIAL, DESIGN, AND CONSTRUCTION.
2. THIS DRAWING IS FOR INFORMATION ONLY. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS, DEVICES, MATERIALS, AND EQUIPMENT, PRIOR TO THE START OF ANY WORK.
3. CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE, AT LEAST 72 HOURS PRIOR TO BEGINNING ANY EXCAVATION.
4. PVC CONDUIT AND FITTINGS SHALL CONFORM TO ANSINEMA SPECIFICATIONS, TC-2, TC-3 AND UL-651.
5. CONTRACTOR SHALL OBTAIN ALL NECESSARY INSPECTIONS AND COORDINATE ALL WORK WITH THE OWNER AND THE ENGINEER. TRENCHES SHALL BE INSPECTED PRIOR TO BACKFILLING.
6. LOCATIONS OF ALL UTILITIES ARE APPROXIMATE AND ARE PROVIDED FOR INFORMATION ONLY.
7. CONTRACTOR TO LOCATE ALL ELECTRICAL EQUIPMENT AS DIRECTED BY THE OWNER, ARCHITECT & ENGINEER.

LIGHTING NOTES:

- 1. SEE DRAWING FOR ELECTRICAL LEGEND AND GENERAL NOTES.
2. COORDINATE LIGHTING FIXTURE MOUNTING HEIGHTS WITH ARCHITECTURAL CASEWORK AND INTERIOR ELEVATION DRAWINGS.
3. COORDINATE EXACT LIGHTING FIXTURE LOCATIONS AND LENGTHS WITH ARCHITECTURAL REFLECTED CEILING PLAN.
4. ALL NEW EQUIPMENT SHALL MATCH BASE BUILDING STANDARDS AND SPECIFICATIONS, UNLESS NOTED OTHERWISE. ALL NEW EQUIPMENT SHALL BE COMPATIBLE WITH THE EXISTING SYSTEM.
5. CIRCUIT NUMBER DESIGNATIONS ARE INTENDED TO ILLUSTRATE BRANCH WIRING CONFIGURATION ONLY.
6. ELECTRICAL CONTRACTOR SHALL COORDINATE AND CONFIRM K RATING (TEMPERATURE) OF FIXTURE LAMPS TO ACHIEVE COLOR AS PER ARCHITECT. LAMPS SHALL BE 3500K UNLESS NOTED OTHERWISE.
7. PROVIDE "HOT" UNSWITCHED POWER AT ALL LIFE SAFETY BATTERY BALLASTS AND EXIT SIGNS. BRANCH CIRCUITS SHALL BE 3 WIRE WHERE REQUIRED. ALL EXIT SIGNS SHALL BE SUPPLIED WITH INTERNAL, 90 MINUTE, EMERGENCY BATTERY.
8. ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ANY STEP DOWN TRANSFORMERS, WIRING, AND CONTROLS FOR LOW VOLTAGE LIGHTING WHERE NECESSARY.
9. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL MOUNTING HARDWARE APPLICABLE TO FIXTURE AND CEILING TYPES INTO WHICH FIXTURE IS TO BE INSTALLED. REFER TO ARCHITECT'S REFLECTED CEILING PLAN FOR CEILING MATERIALS.
10. ALL EMERGENCY BATTERY PACKS SHALL BE SUPPLIED WITH CONTACTS TO ACCEPT REMOTE EMERGENCY HEADS.
11. CONTRACTOR SHALL COORDINATE ALL LIGHTING WITH NEW SYSTEMS ABOVE CEILING PRIOR TO INSTALLATION. CONTRACTOR SHALL RESOLVE ANY INSTALLATION CONFLICTS IN FIELD AND NOTIFY ARCHITECT AND ENGINEER OF CHANGE.
12. WHERE LIGHT FIXTURES ARE LOCATED WITHIN RATED CEILING OR WALLS, THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A UL APPROVED FIRE RATED ENCLOSURE. PROVIDE ELCO FIRE BOX OR APPROVED EQUAL.
13. COORDINATE WITH THE ARCHITECTURAL DRAWING THE CEILING TYPES AND PROVIDE IC RATINGS WERE REQUIRED.
14. ALL EXPOSED AND SURFACE MOUNTED CONDUIT SHALL BE GALVANIZED RIGID STEEL.
15. PROVIDE A 7 DAY PROGRAMMABLE ASTRONOMICAL TIME CLOCK WITH INTEGRAL PHOTOCCELL FOR ALL EXTERIOR LIGHTING (TYPICAL).
16. ALL FIXTURES UTILIZING HID LAMPS SHALL MEET THE ENERGY INDEPENDENT AND SECURITY ACT "EISA"

DISTRIBUTION PANEL SCHEDULE. Table with columns: PHASE: 1, WIRES: 3, VOLTAGE: 120/240V, MAIN: 400A MAIN C.B., 42 CIRCUIT PANEL MINIMUM. Rows for circuit numbers 1 through 22.

PROPOSED ELECTRICAL PANELBOARD SCHEDULE NOT TO SCALE

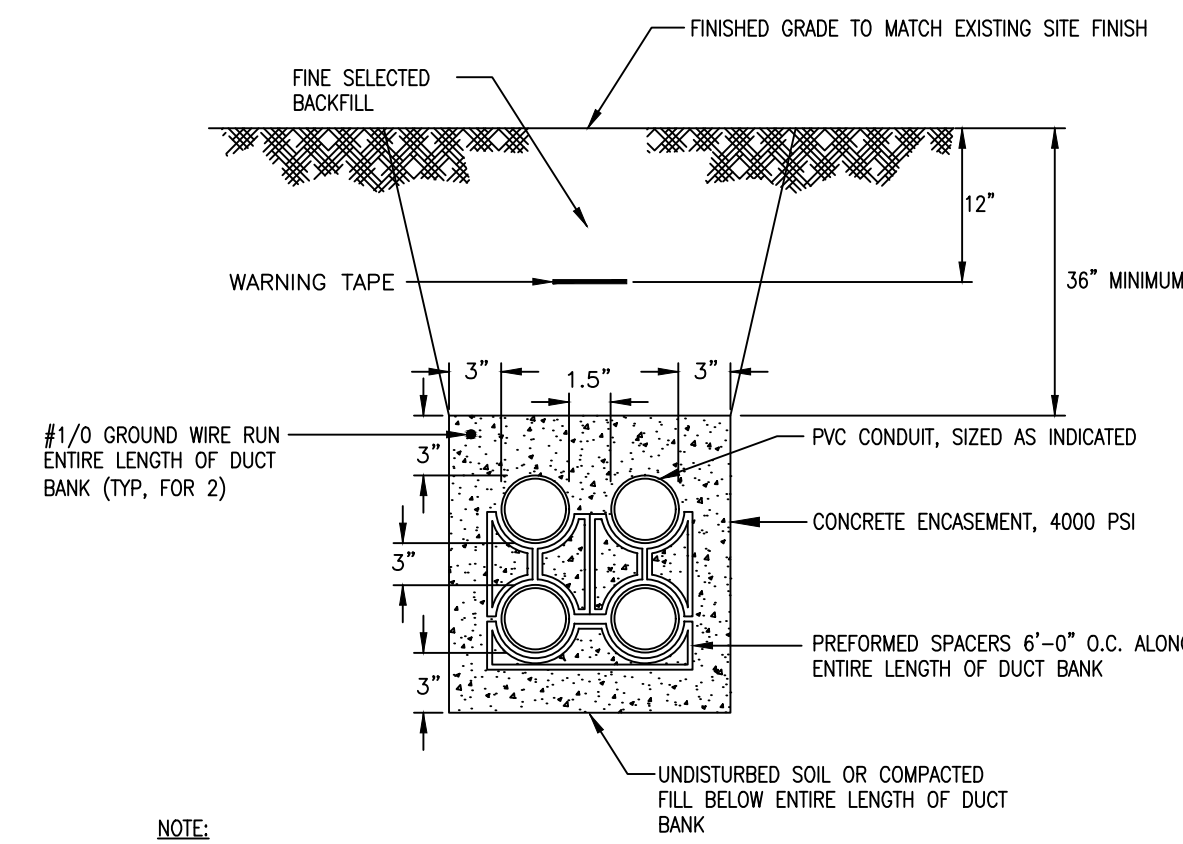


DEPARTMENT OF PUBLIC WORKS
TOWN OF ORLEANS, MASSACHUSETTS
ROCK HARBOR COMMERCIAL WHARF IMPROVEMENTS

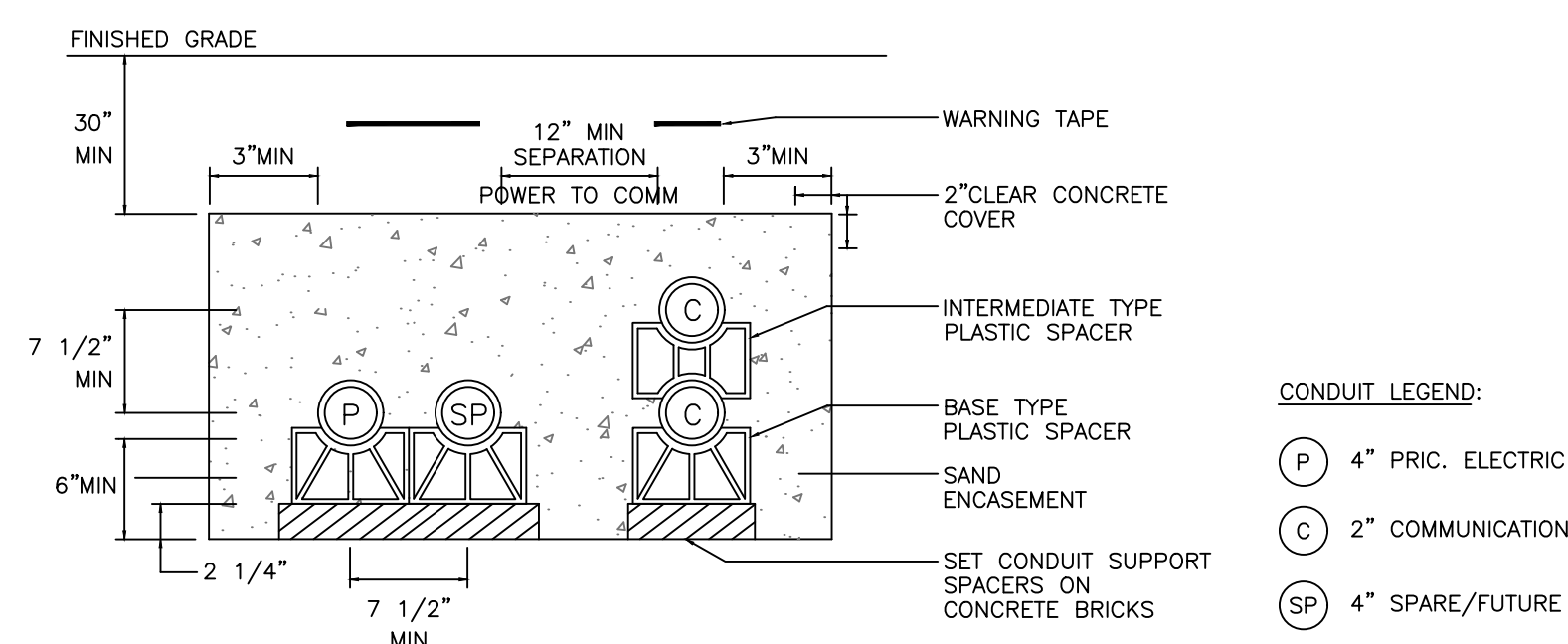
Table with columns: NO, BY, DATE, DESCRIPTION. Rows for revisions.

Table with columns: DATE OF PREPARATION, BY, DATE. Rows for SURVEYED, DRAWN, DESIGNED, CHECKED.

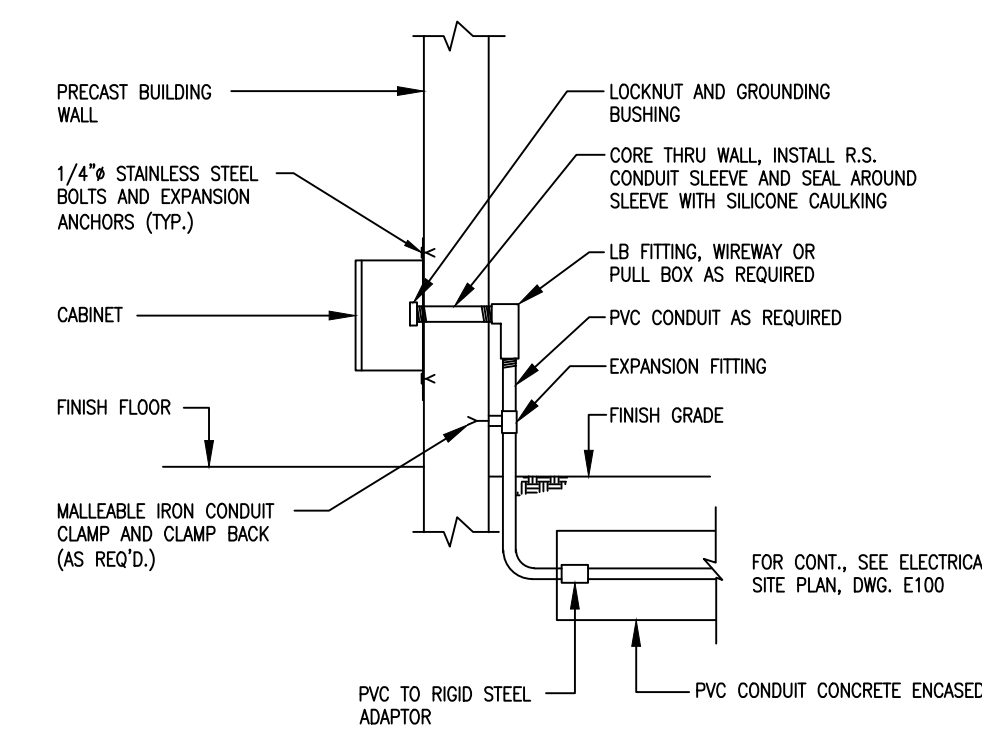
ISSUANCE: ISSUED FOR BID
PROJECT NO: 0021M087.00
SHEET NUMBER E-103



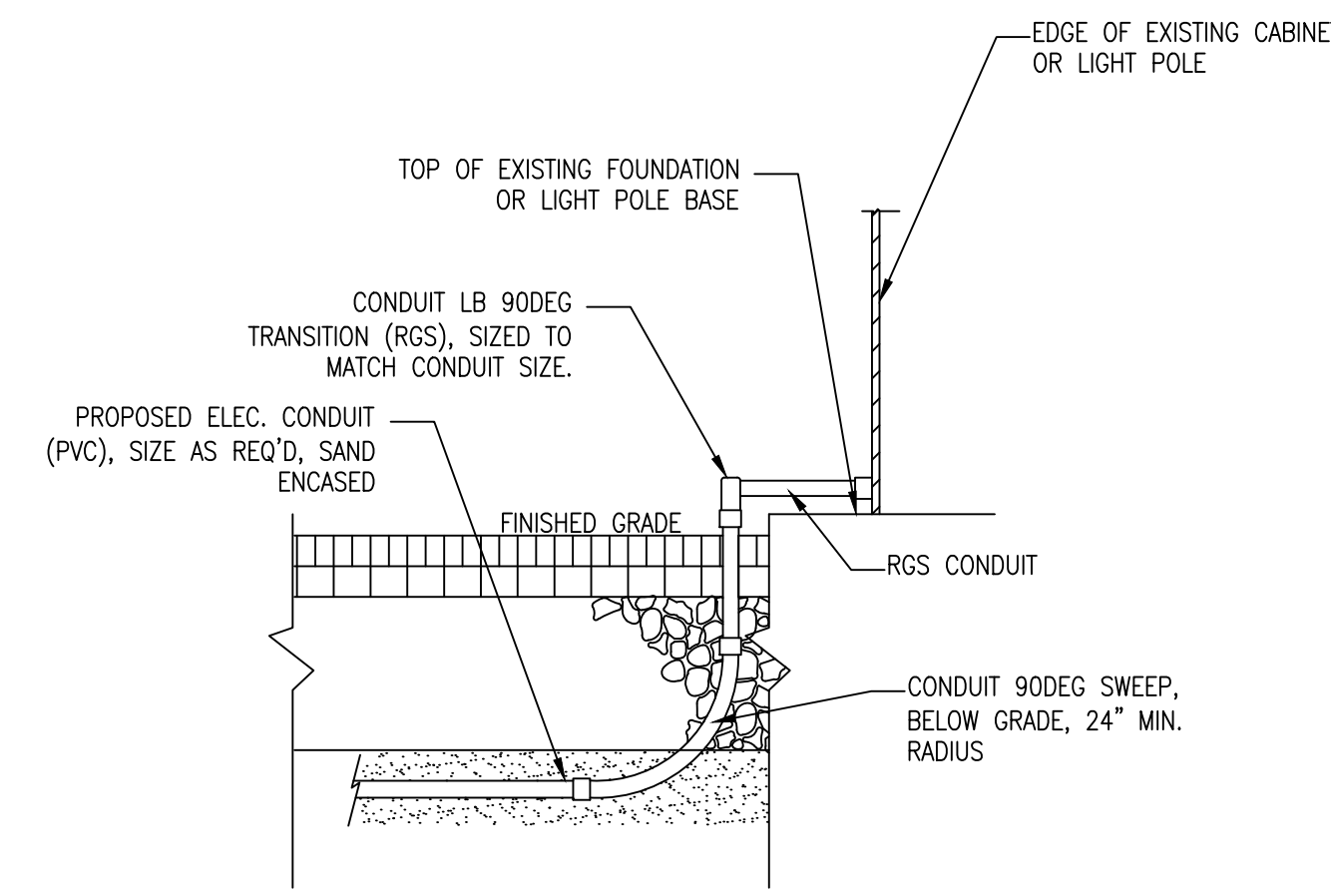
E104 1
TYPICAL DUCTBANK SECTION
N.T.S.



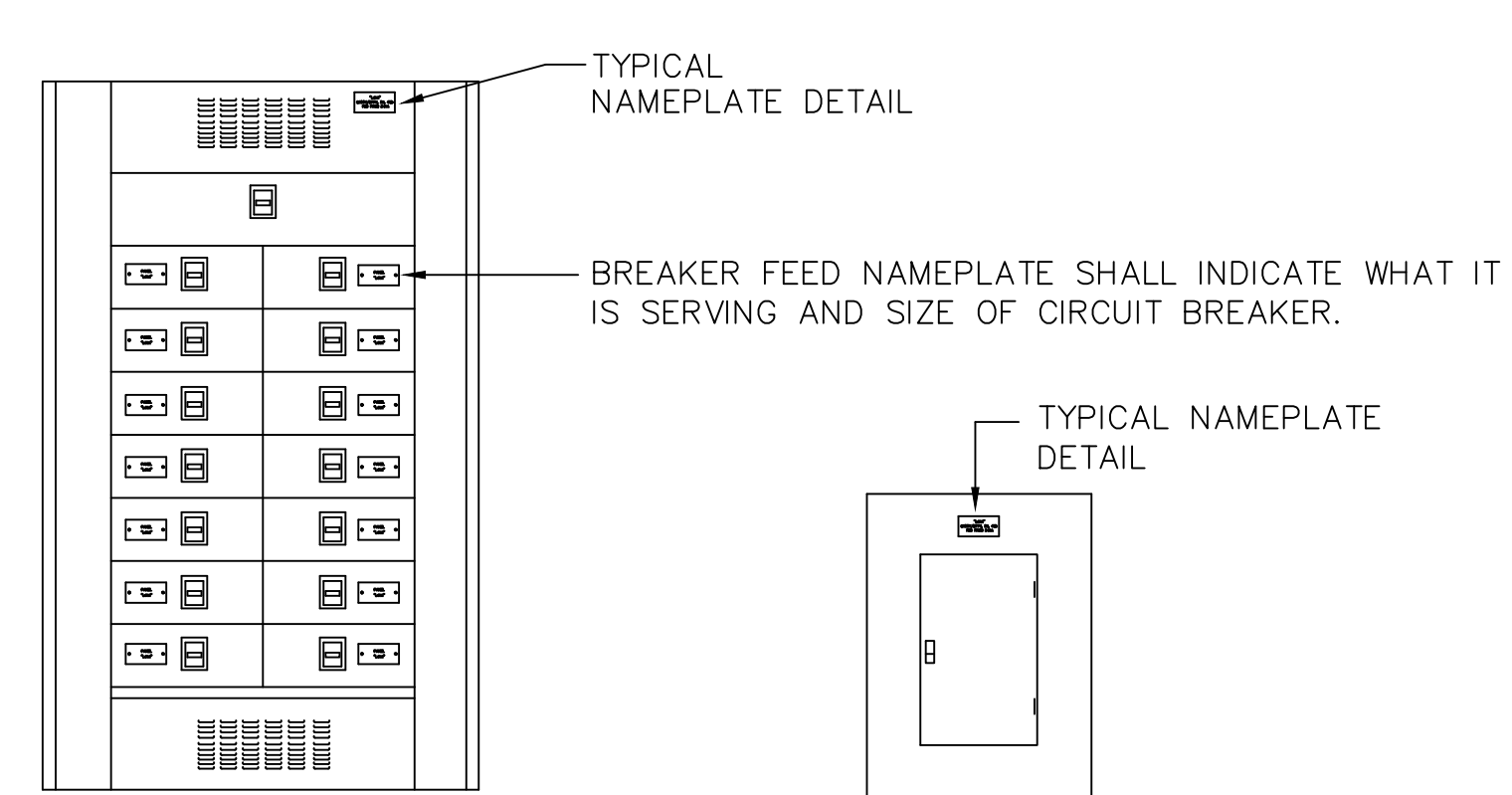
E104 2
COMBINED ELEC./COMM. TRENCH DETAIL
NOT TO SCALE



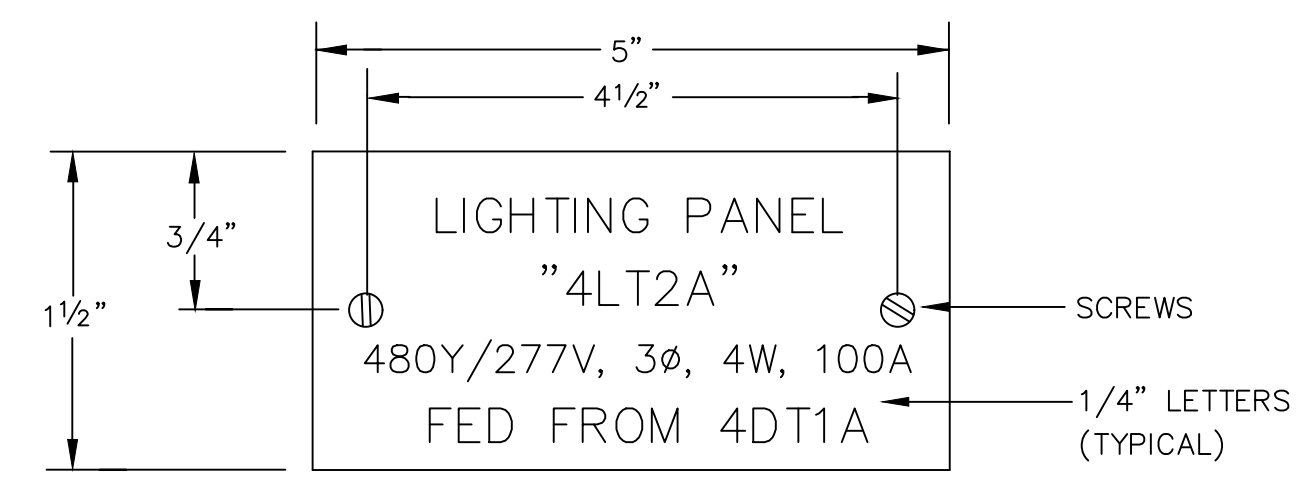
E104 4
TYPICAL THRU-WALL CONDUIT DETAIL
N.T.S.



E104 5
CONDUIT TRANSITION ABOVE/BELOW GRADE
N.T.S.

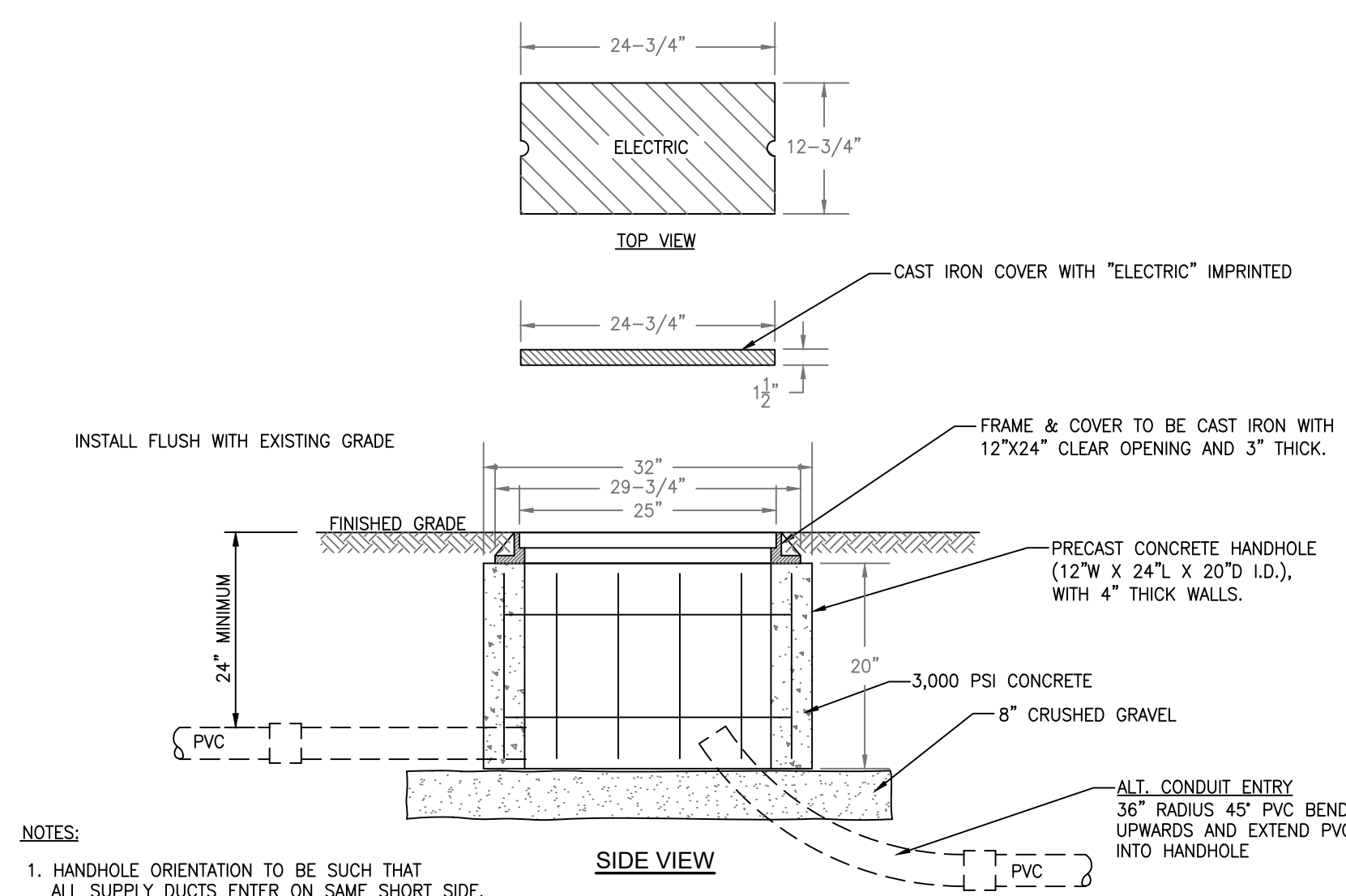


E104 8
TYPICAL PANELBOARD NAMEPLATE LOCATIONS
N.T.S.



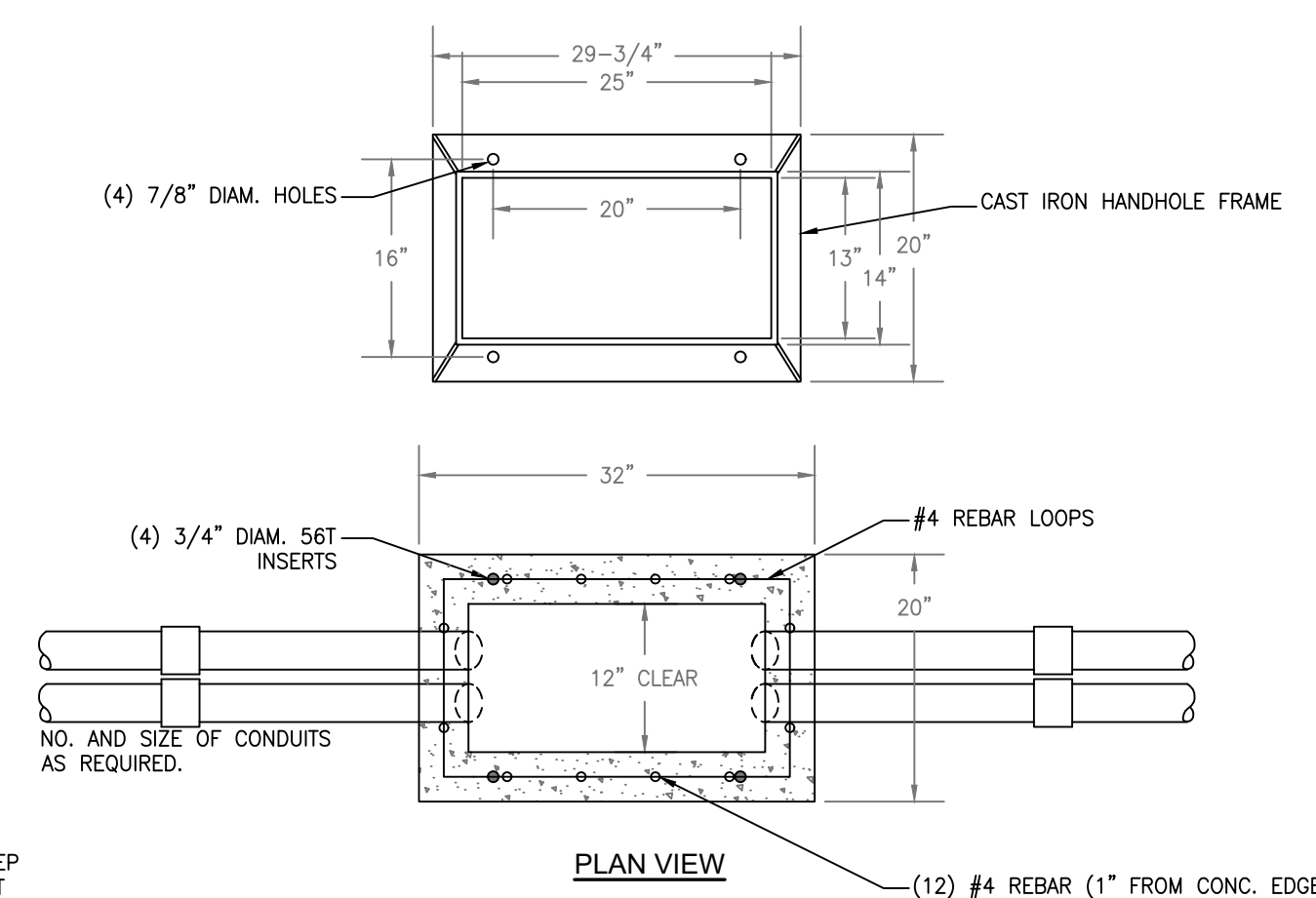
- NOTES:**
- REFER TO SPECIFICATIONS FOR ADDITIONAL NAMEPLATE REQUIREMENTS.
 - NAMEPLATE TO BE 1/16" THICK WHITE PLASTIC WITH BLACK CENTER LAMINATE. FACE SHALL BE WHITE, ENGRAVED LETTERS SHALL BE BLACK.
 - SECURE NAMEPLATE TO SURFACES WITH (2) FLAT HEAD BRASS SCREWS. ADHESIVE CEMENT SHALL NOT BE ALLOWED.
 - NAMEPLATE INFORMATION SHALL INCLUDE DEVICE NAME, SUPPLY VOLTAGE, AMPERAGE AND LOCATION FED FROM.

E104 9
TYPICAL PANELBOARD NAMEPLATE
N.T.S.

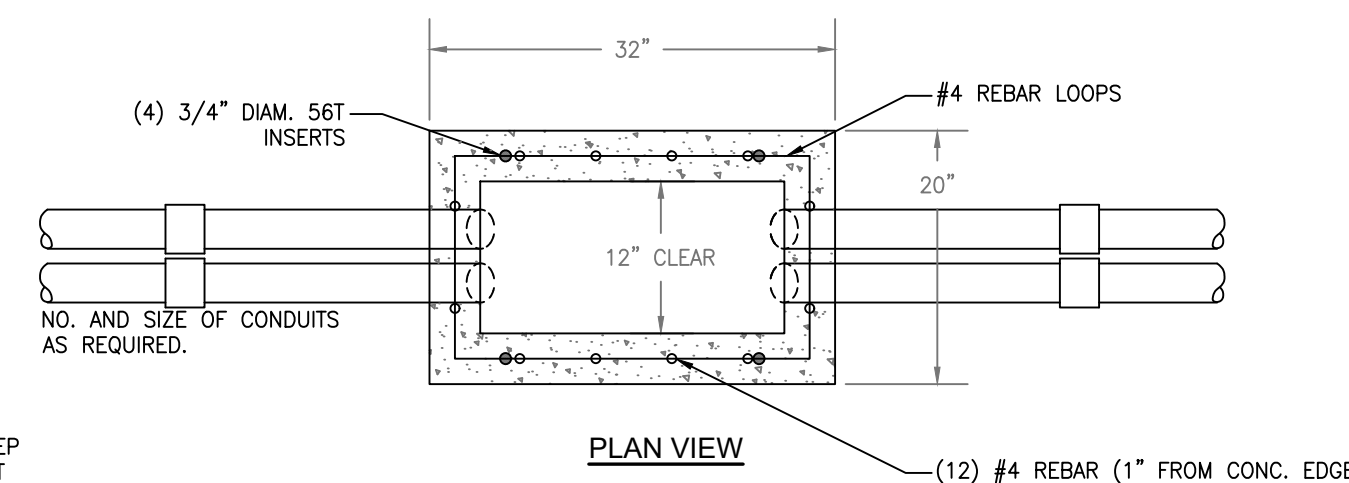


- NOTES:**
- HANDHOLE ORIENTATION TO BE SUCH THAT ALL SUPPLY DUCTS ENTER ON SAME SHORT SIDE.
 - SIZE AND NUMBER OF CONDUITS AS REQUIRED.
 - CONDUIT LOCATIONS SHOWN ARE TYPICAL.

E104 3
PRECAST ELECTRIC HANDHOLE DETAIL
N.T.S.



E104 6
GROUND BUS CONNECTION DETAIL
N.T.S.



E104 7
SYSTEM GROUNDING CONNECTIONS DETAIL
N.T.S.

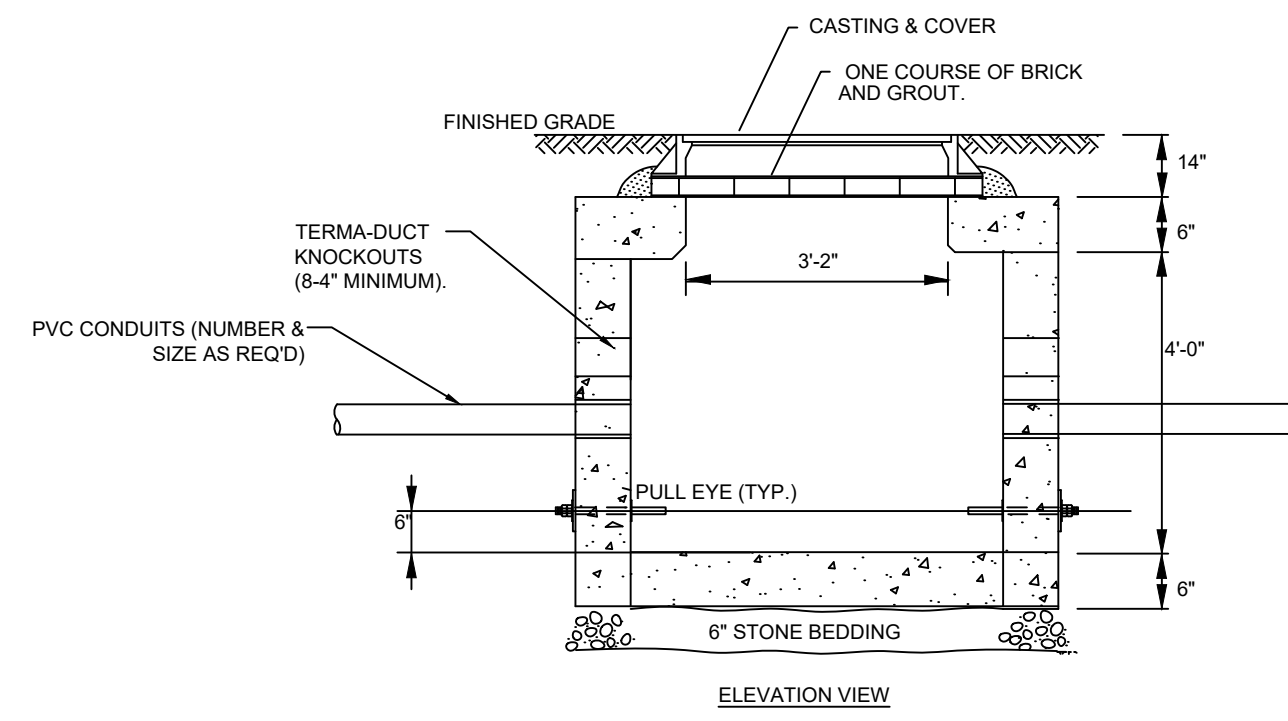
NO.	BY	DATE	DESCRIPTION

DATE OF PREPARATION	
BY	DATE

SHEET TITLE:
ELECTRICAL DETAILS

ISSUANCE:
ISSUED FOR BID

PROJECT NO: 0021M087.00
SHEET NUMBER
E-104

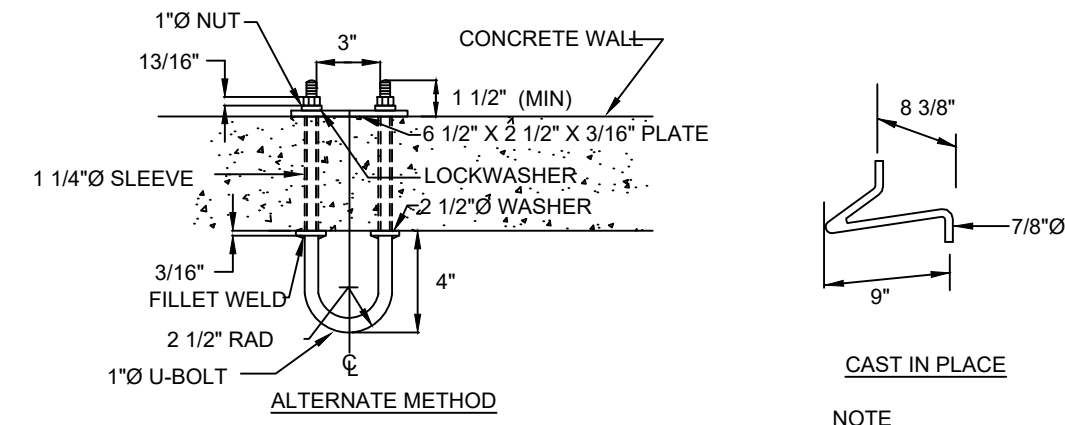


4'X4' ELEC MANHOLE DETAIL
N.T.S.

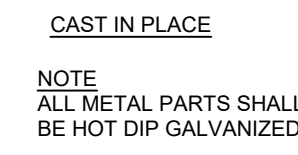
ELECTRIC MH INSTALLATION NOTES:

1. THE FIRST 12" OF FILL SHOULD BE SAND OR OTHER GRANULAR MATERIAL (NOT TO EXCEED 1/2") TAMPED USING LIGHTWEIGHT EQUIPMENT SUCH AS PNEUMATIC OR VIBRATING TAMPERS.
2. BACKFILL SHALL BE FREE FROM LARGE STONES, FROZEN MATERIAL, WOOD, AND OTHER EXTRANEIOUS MATERIALS.
3. ALL BACKFILL SHALL BE THOROUGHLY COMPACTED IN LAYERS OF NOT MORE THAN 6 INCHES.
4. IN ROCK EXCAVATION, PROVIDE 6" DEAD SAND CUSHION AROUND STRUCTURES.
5. CONTRACTOR SHALL PLACE MARKING TAPE 18" ABOVE DUCT STRUCTURE.
6. DEPTH OF SUB BASE AND MATERIAL USED SHALL CONFORM TO STANDARD STATE AND/OR MUNICIPAL SPECIFICATIONS.

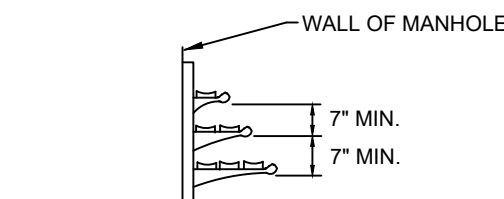
E105 1 PRECAST ELECTRIC MANHOLE DETAIL
N.T.S.



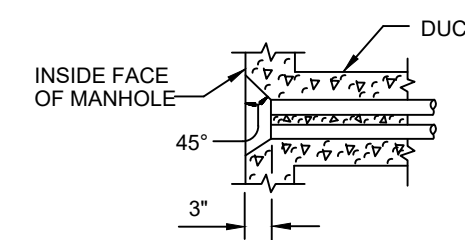
DETAIL OF PULLING-IN IRON



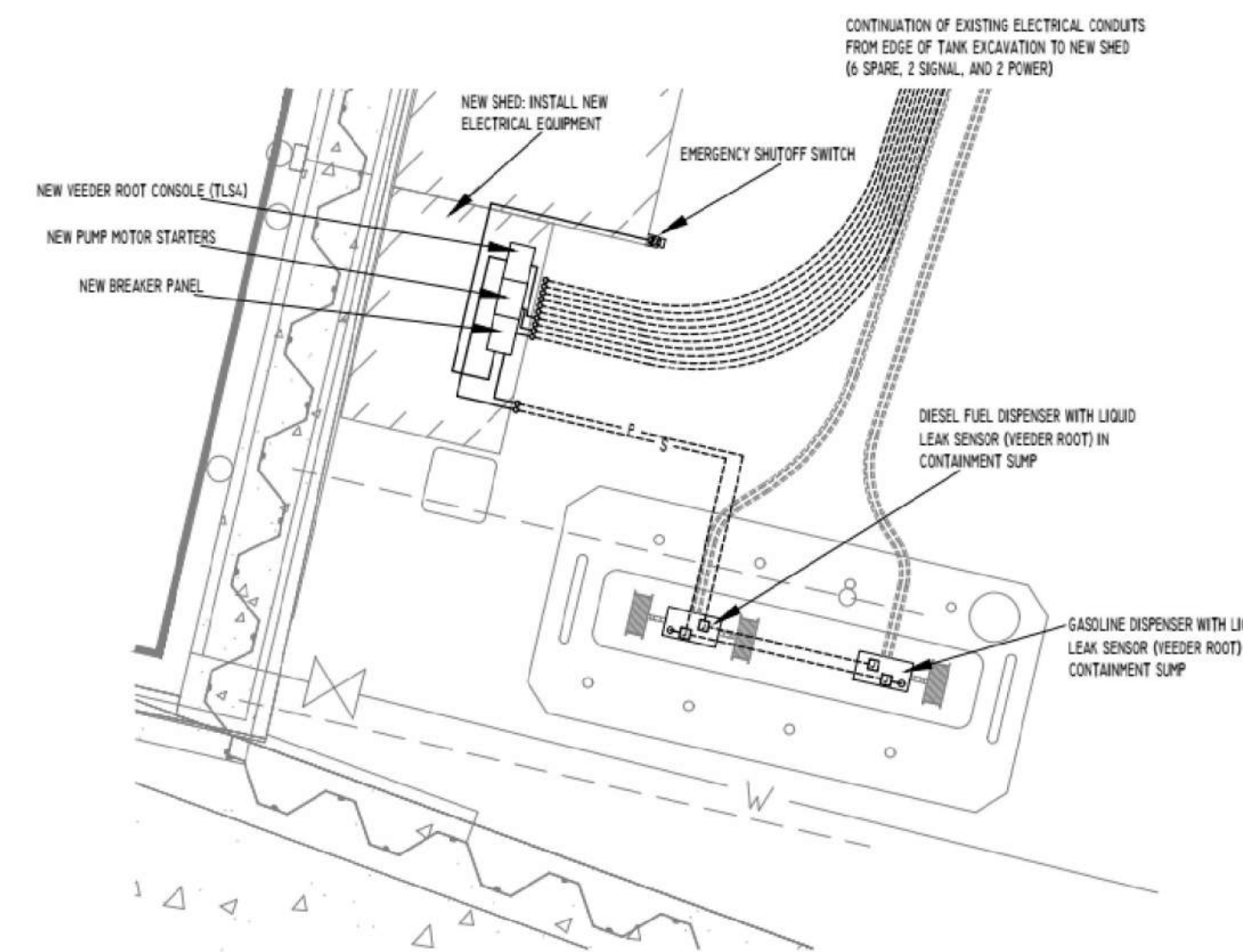
CAST IN PLACE
NOTE: ALL METAL PARTS SHALL BE HOT DIP GALVANIZED



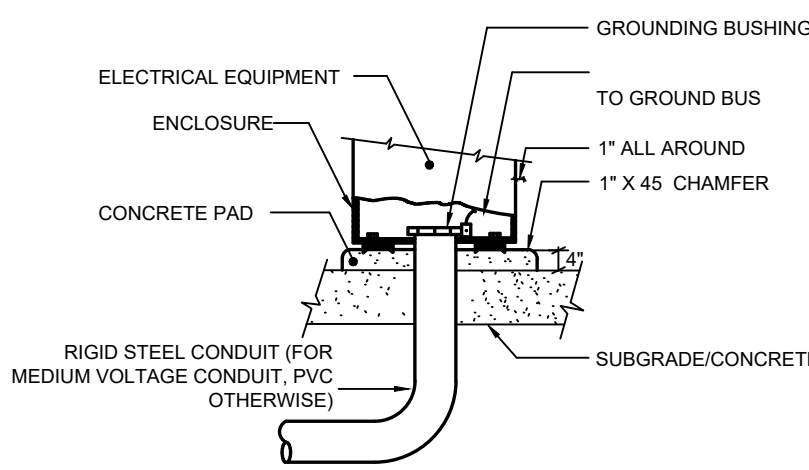
TYPICAL CABLE RACK



TYPICAL DUCT ENTRANCE

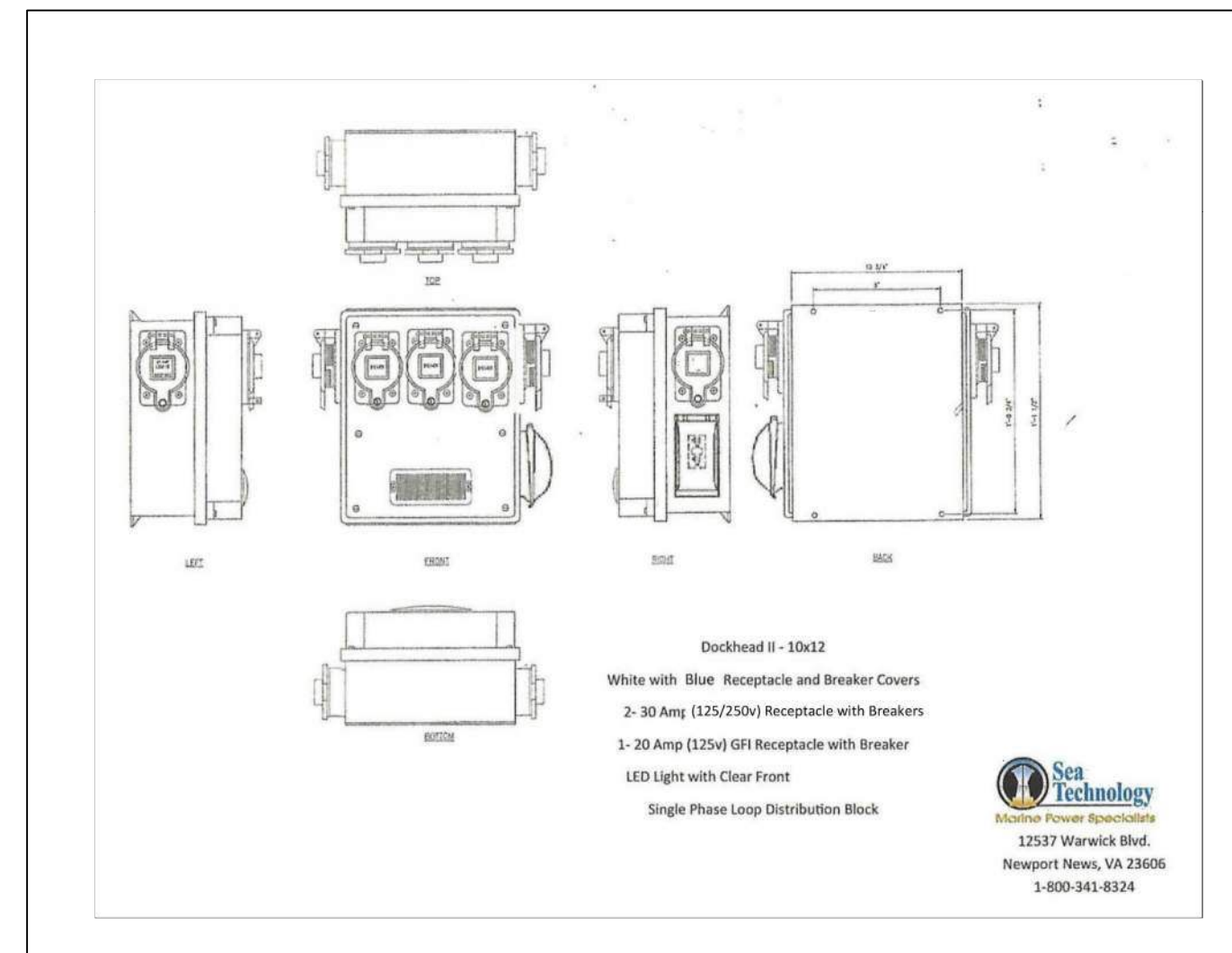


E106 6 FUEL ISLAND ELECTRICAL DETAIL
SEE WEB ENGINEERING DRAWINGS FOR ADDITIONAL DETAILS

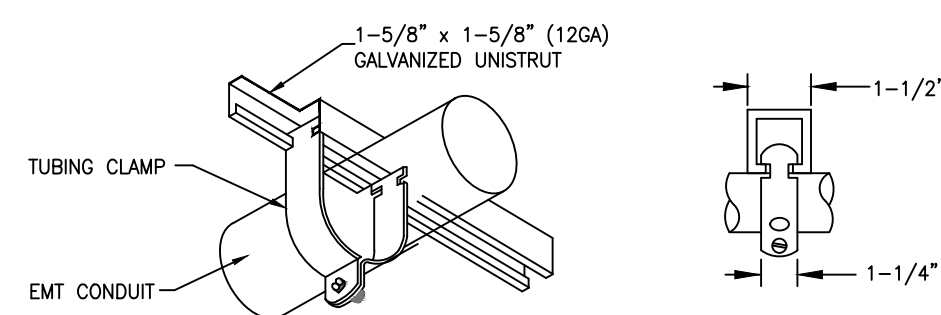


E105 3 CONDUIT ENTRANCE FROM BELOW
NOT TO SCALE

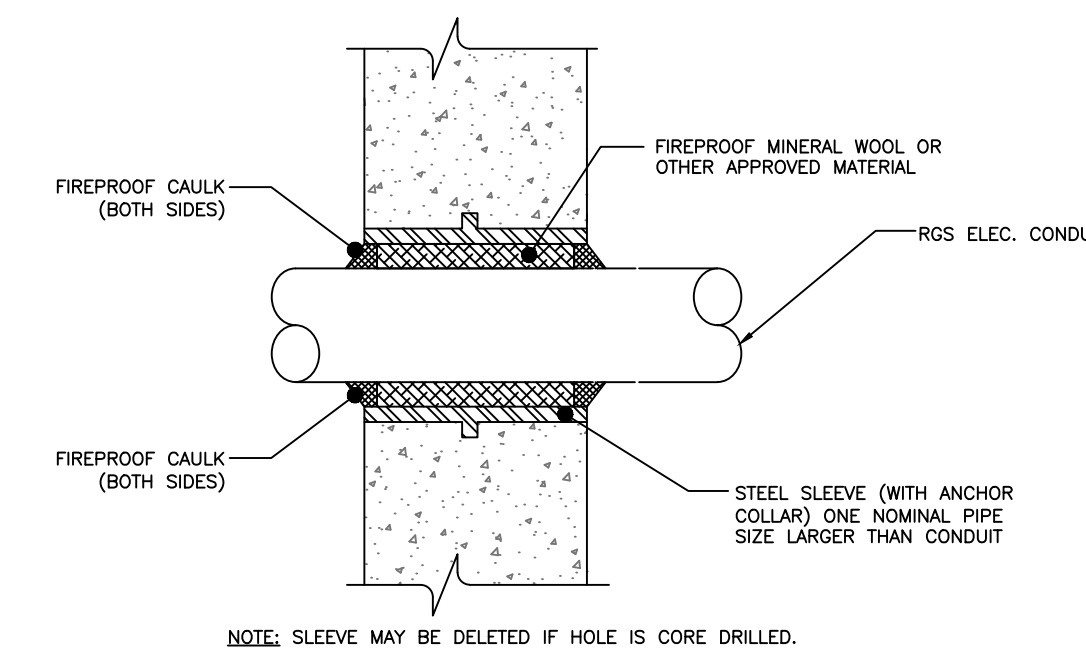
E105 2 PRECAST MANHOLE PULLING IRON DETAILS
N.T.S.



E105 4 50A-208V SHORE POWER RECEPTACLE DETAIL
NOT TO SCALE



E105 5 CONDUIT ATTACHMENT DETAIL
N.T.S.



E105 7 CONDUIT PENETRATION DETAIL
N.T.S.

NO.	BY	DATE	REVISIONS	
			DESCRIPTION	DATE

DATE OF PREPARATION		
BY	DATE	

SHEET TITLE:

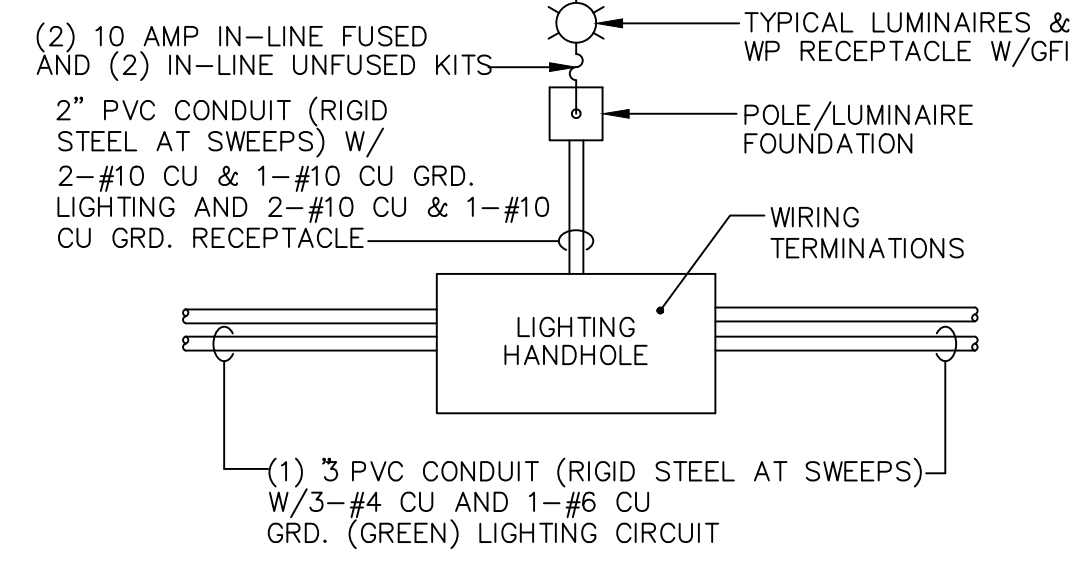
ELECTRICAL DETAILS

ISSUANCE:

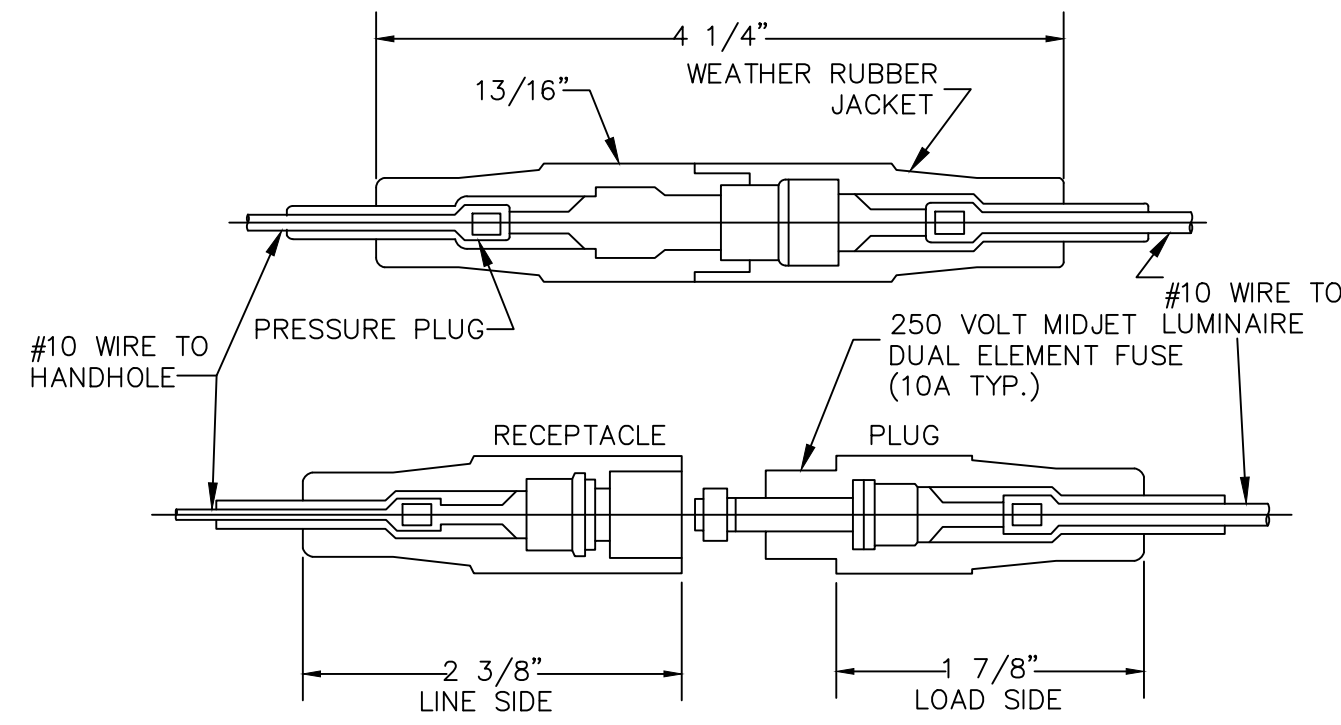
ISSUED FOR BID

PROJECT NO: 0021M087.00
SHEET NUMBER
E-105

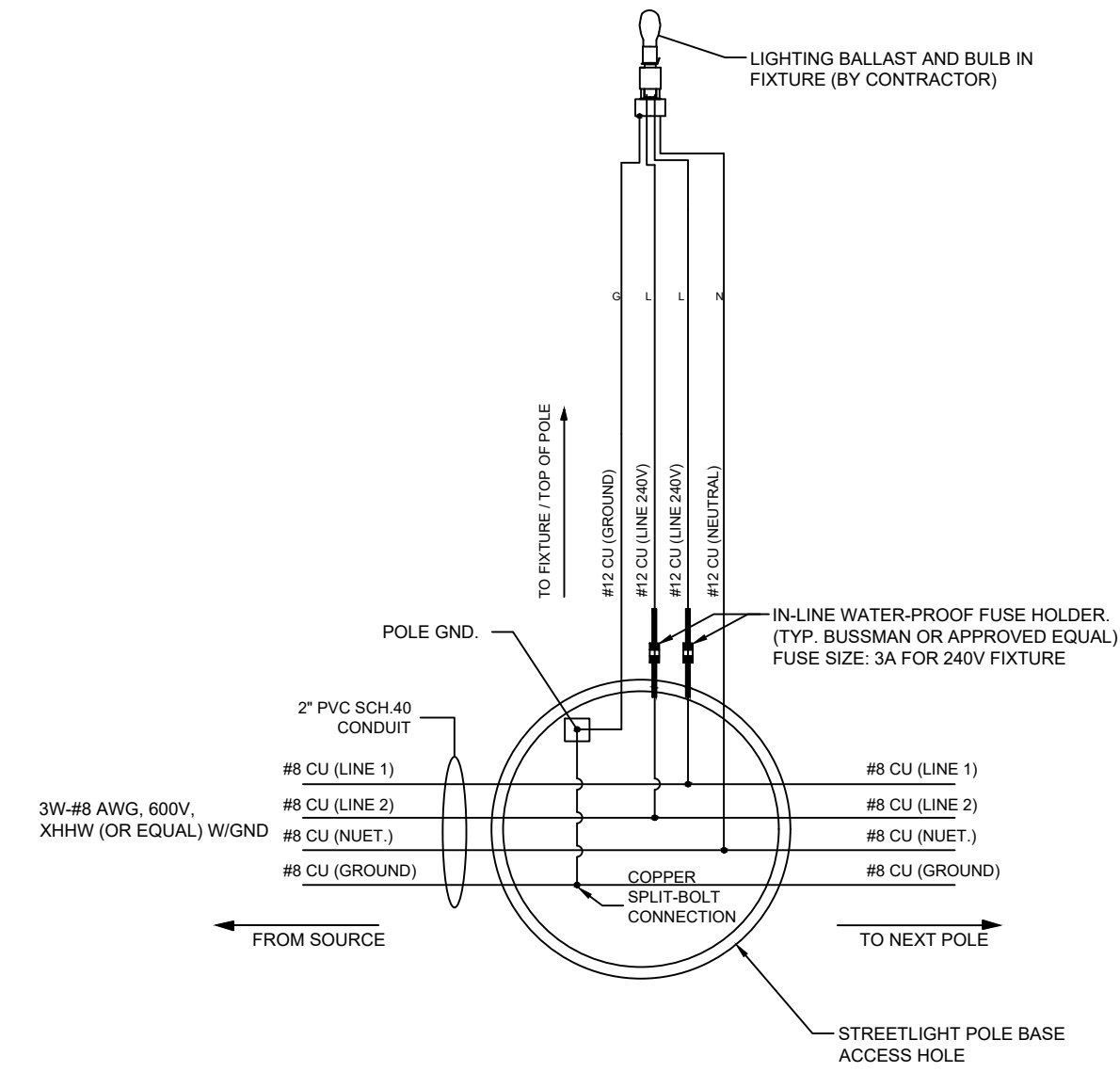
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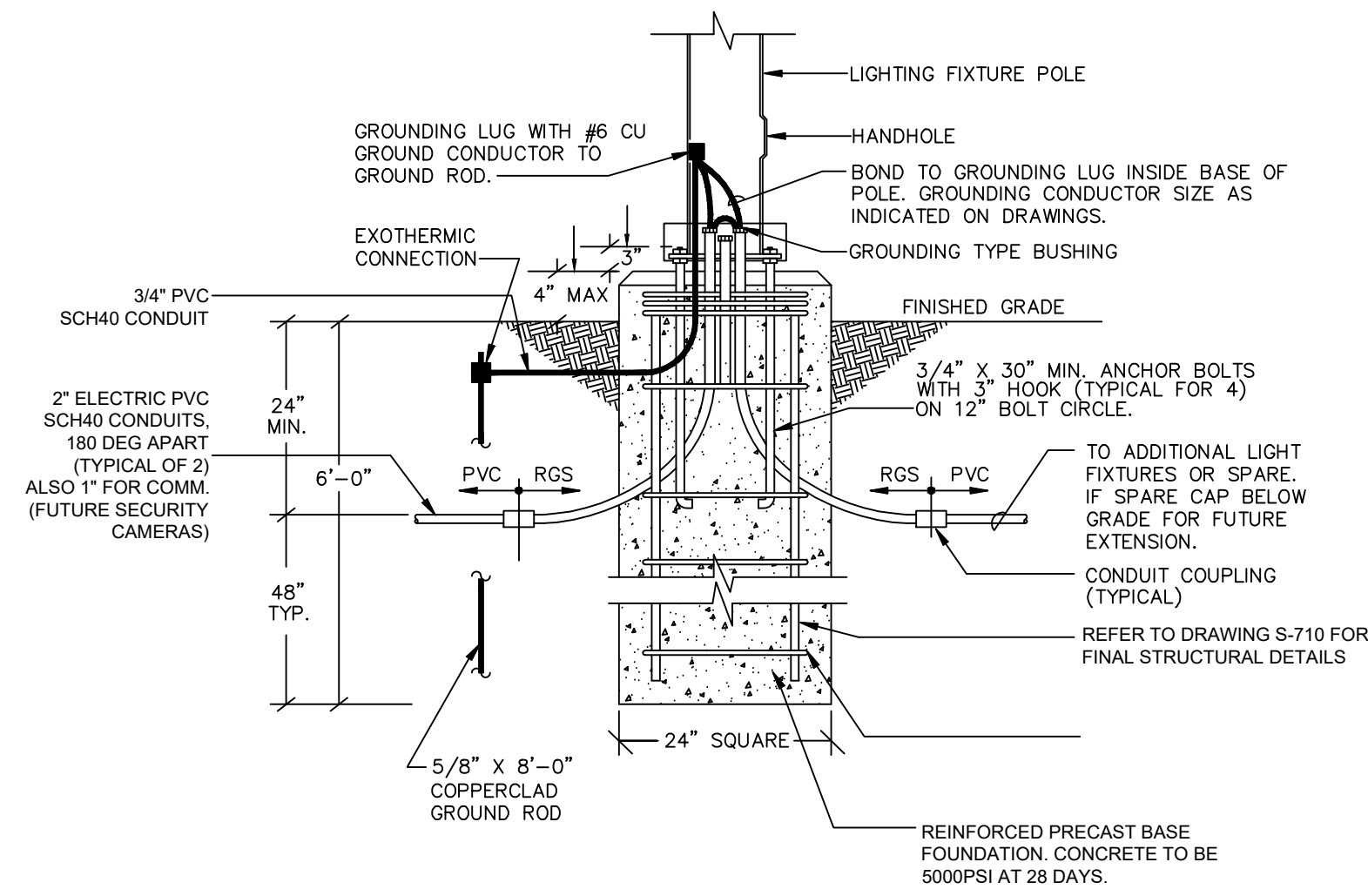
E106.1
TYPICAL HANDHOLE/CONDUIT DETAIL
N.T.S.



E106.2
FUSE DETAIL, LIGHT POLE BASE
N.T.S.

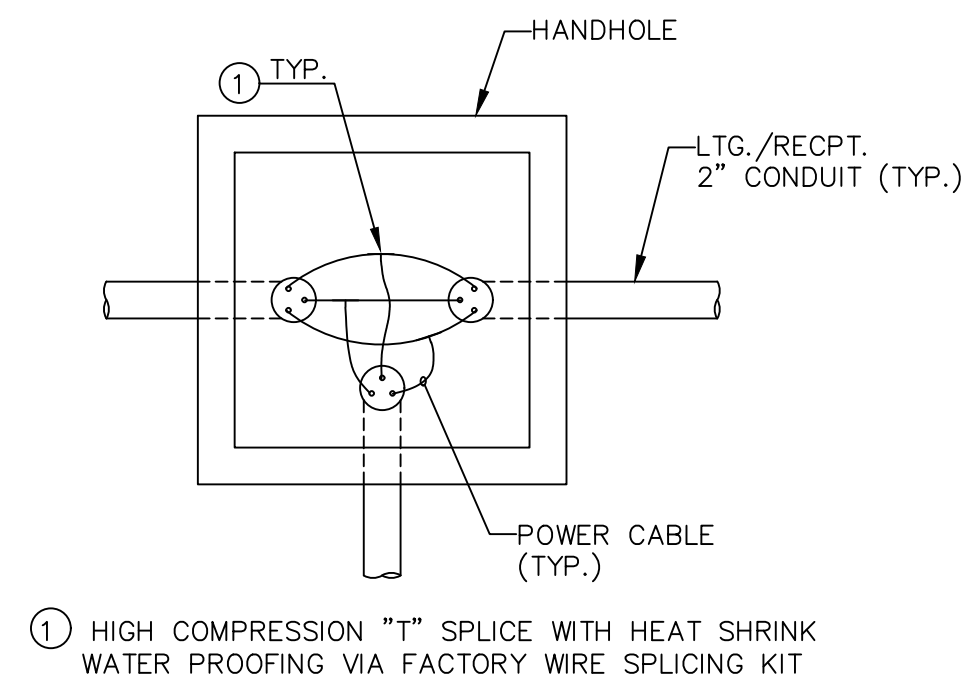


E106.5
TYPICAL LIGHT POLE WIRING DETAIL
N.T.S.

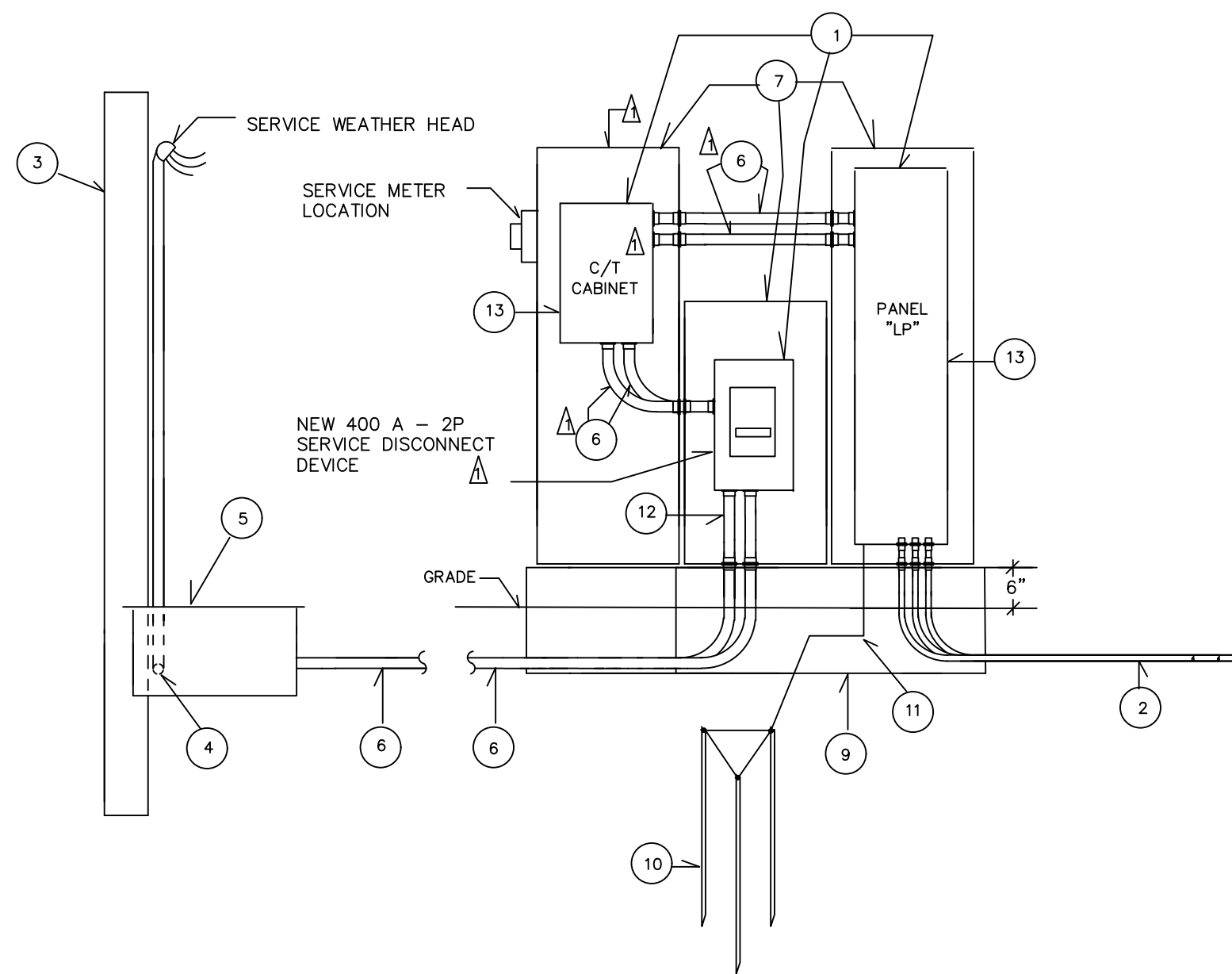


E106.3
TYPICAL LIGHT POLE DETAIL
N.T.S.

- LIGHT POLE FOUNDATION NOTES:**
- BOLT PATTERN SHOWN IS TYPICAL AND NOT FOR CONSTRUCTION CONTRACTOR TO PROVIDE BOLT PATTERN DETAILS BASED ON SELECTED MANUFACTURER.
 - PROVIDE REBAR DETAIL FROM PRECAST CONCRETE VENDOR FOR APPROVAL.
 - CONDUIT LOCATIONS SHOWN ARE TYPICAL.



E106.4
TYPICAL POWER CABLE SPlicing DETAIL
N.T.S.



E106.6
ELECTRICAL SERVICE CABINET DETAIL
N.T.S.

ELECTRICAL NOTES

- INSTALL A MAIN SERVICE DISCONNECT DEVICE, PANEL BOARD, C/T CABINET AND UTILITY SERVICE METER ON NEW CONCRETE HOUSEKEEPING PAD. THE PANELBOARD SHALL BE RATED AT 400 AMP, 120/240 VOLT, SINGLE PHASE, 60 HZ, MOUNTED IN TYPE 4X ENCLOSURES.
- TYPICAL CONDUIT OUT TO SHORE POWER CENTERS AND RELOCATED SHED.
- EXISTING UTILITY POLE.
- ONE (1), 4" SCHED. 40, PVC CONDUIT, WITH 3# 600 MCM + 1# 3AWG CU GND., IN EACH.
- PROVIDE NEW UTILITY COMPANY APPROVED PULL BOX AT BASE OF EXISTING UTILITY POLE.
- 1 - 4" C., WITH 3#600 MCM + 1#3AWG CU GND., IN EACH FROM PULL BOX TO MAIN SERVICE DISCONNECT DEVICE TO C/T CABINET AND TO PANELBOARD.
- PANEL BOARD, C/T CABINET AND MAIN DISCONNECT DEVICE TO BE LOCATED IN NEMA 4X, TYPE 304, CORROSION RESISTANT, STAINLESS STEEL ENCLOSURES (SIZE AS REQUIRED) PER APPROVED MANUFACTURER, WITH LOCKING HANDLE, INTERNAL FRAME FOR MOUNTING PANELBOARD AND THE C/T EQUIPMENT AND ALL NECESSARY ACCESSORIES INCLUDING AN EXTERNALLY MOUNTED PHOTOCELL AND INTERNALLY MOUNTED TIME CLOCKS FOR CONTROL OF THE WALL LIGHTS & FLAG POLE LIGHT (TYPE A) AN INTERNAL LIGHT KIT WITH LIGHT SWITCH AND 20A, 120 VOLT, GFI PROTECTED DUPLEX RECEPTACLES.
- ALL CONDUITS INDICATED ARE RUN UNDERGROUND FROM THE PANEL BOARD TO THE SHORE POWER CENTERS AND LIGHTING.
- REINFORCED HOUSEKEEPING PAD (SIZE AS REQUIRED).
- EXISTING GROUND RODS TO REMAIN AND TO BE REUSED, AFTER TESTING FOR GROUND INTEGRITY, FOR NEW PANEL GROUND AS REQUIRED BY NFPA-70, ARTICLE 250.
- 1 # 2/0 GROUND WIRE TO EXISTING GROUND ROD COUNTERPOISE.
- EXISTING SERVICE CONDUITS TO BE REROUTED TO THE ENCLOSURE OF THE NEW MAIN SERVICE DISCONNECT DEVICE AS INDICATED.
- NEW 400A, 120/240V 42 CIRCUIT PANELBOARD.



03-06-2024

DEPARTMENT OF PUBLIC WORKS
TOWN OF ORLEANS, MASSACHUSETTS
ROCK HARBOR COMMERCIAL
WHARF IMPROVEMENTS

NO.	BY	DATE	REVISIONS	
			DESCRIPTION	

DATE OF PREPARATION	
BY	DATE

SHEET TITLE:

**ELECTRICAL
DETAILS**

ISSUANCE:

ISSUED FOR BID

PROJECT NO: 0021M087.00

SHEET NUMBER

E-106