

# HFO STORAGE TANK SYSTEM

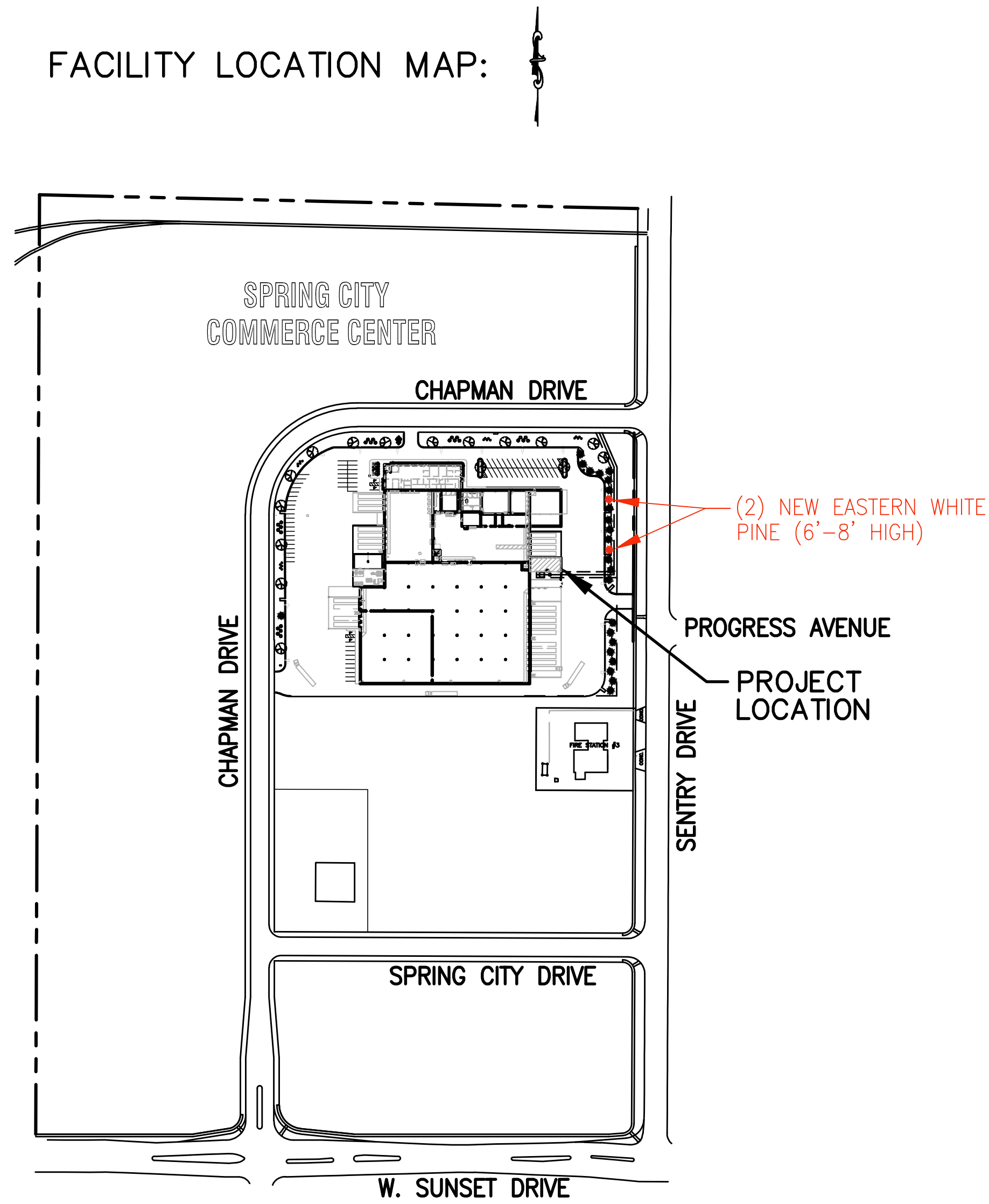
FOR

## CHAPMAN DRIVE FACILITY

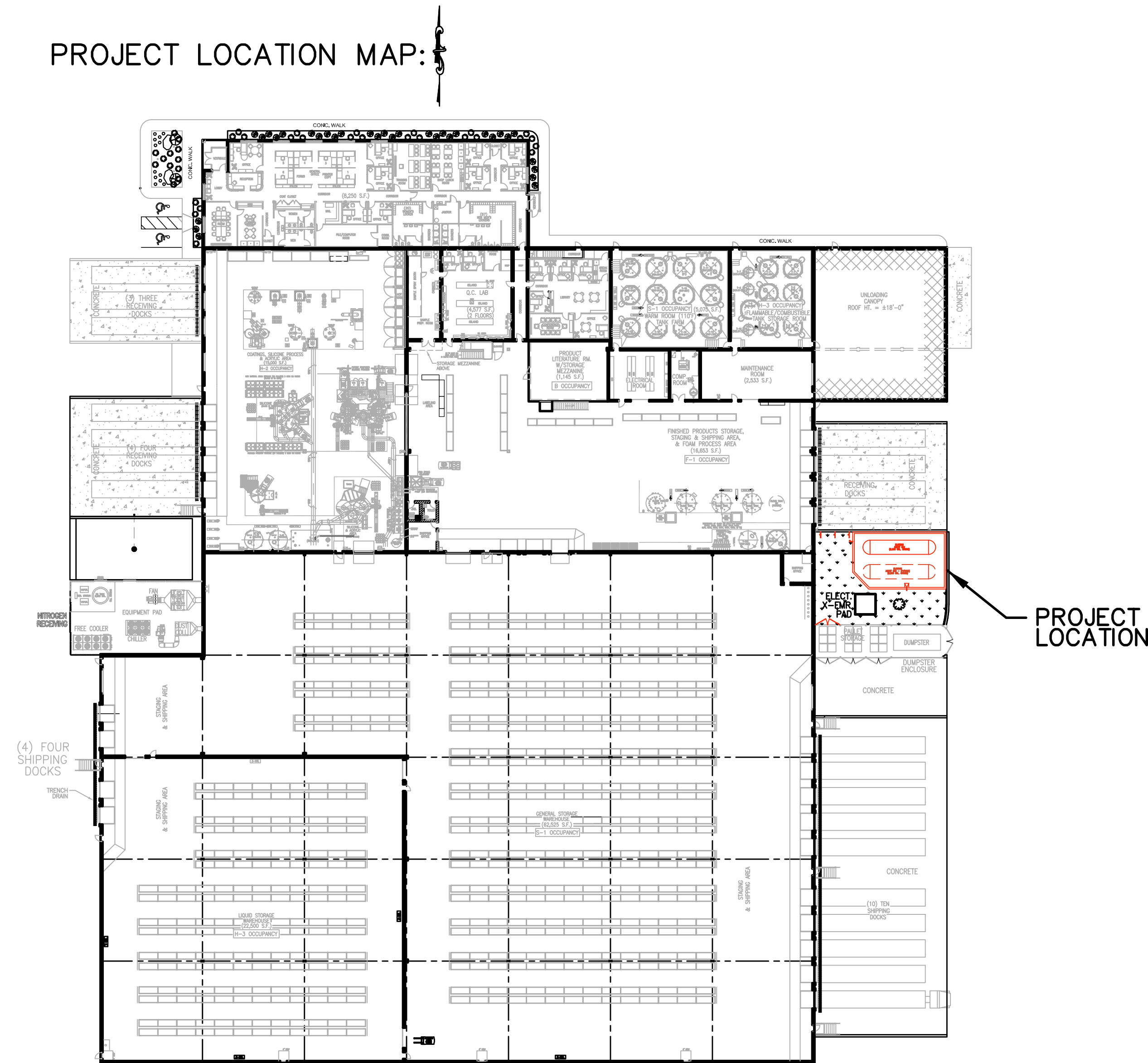
# Firestone

Firestone Building  
 Products Company, LLC  
 1245 Chapman Drive  
 Waukesha, WI 53186

FACILITY LOCATION MAP:



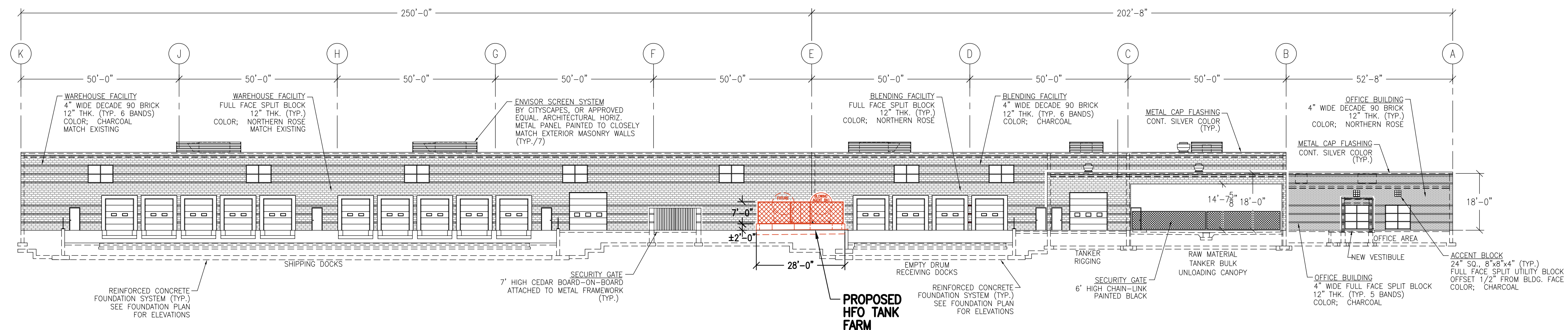
PROJECT LOCATION MAP:



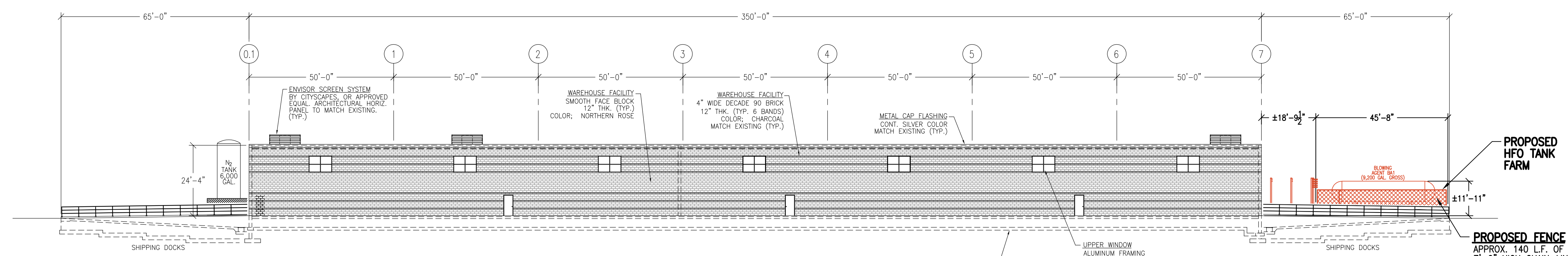
DRAWING INDEX:

SHEET NO.	REV. NO.	REV. DATE	DWG. NO.	TITLE
1	0	1/11/22	COVER	LOCATION MAPS AND DRAWING INDEX
2	0	1/11/22	A-1	EXTERIOR ELEVATIONS
3	0	1/11/22	S-1	FOUNDATION PLAN
4	0	1/11/22	S-2	STRUCTURAL SECTIONS, DETAILS & GEN. NOTES
5	0	1/11/22	PID-1	PROCESS MECHANICAL - P&ID SHEET 1
6	0	1/11/22	PID-2	PROCESS MECHANICAL - P&ID SHEET 2
7	0	1/11/22	M-1	MECHANICAL SPECIFICATIONS
8	0	1/11/22	M-2	PIPING SPECIFICATIONS & PIPING SPECIALTIES
9	0	1/11/22	M-3	OVERALL PIPING PLAN
10	0	1/11/22	M-4	PIPING PLAN AT EAST BULK UNLOADING DOCK
11	0	1/11/22	M-5	LOWER PIPING PLAN AT STORAGE TANKS
12	0	1/11/22	M-6	UPPER PIPING PLAN AT STORAGE TANKS
13	0	1/11/22	M-7	PIPING PLAN AT BLEND TANKS
14	0	1/11/22	M-8	PIPING SECTIONS

	262-783-7725 FAX 262-783-7726 19395 West Capital Drive, Brookfield, Wisconsin 53045	THIS DRAWING, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, REMAINS THE PROPERTY OF SPECTRUM ENGINEERING INCORPORATED. ANY CHANGES, REPRODUCTION, OR UNAUTHORIZED USE, IN WHOLE OR IN PART, FOR OTHER PROJECTS IS PROHIBITED UNLESS EXPRESSLY APPROVED BY SPECTRUM ENGINEERING INCORPORATED.	VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	NO. DATE BY REVISION 0 1/11/22 J.M.N. ISSUED FOR PERMITTING & CONTRACTOR BIDDING	DRAWN BY: S.A.M. DESIGNED BY: F. MOHSENIAN / J.M. NOLL PROJECT MANAGER: J.M. NOLL, P.E.		Firestone Building Products Company, LLC 1245 Chapman Drive Waukesha, WI 53186	CHAPMAN DRIVE FACILITY HFO STORAGE TANK SYSTEM PROJECT LOCATION MAP AND DRAWING INDEX	DRAWING NUMBER: COVER DATE: 1/11/22 PROJECT NUMBER: 21866 SHEET NUMBER: 1 OF 14



**EAST ELEVATION**  
SCALE: 1" = 20'-0"



**SOUTH ELEVATION**  
SCALE: 1" = 20'-0"

**PROPOSED FENCE**  
APPROX. 140 L.F. OF  
7'-0" HIGH CHAIN-LINK  
W/6'-0" GATE AS INDICATED  
BLACK-PAINTED FENCE  
INCLUDING GALV. ANCHORS  
FOR POST MOUNTING.  
MAXIMUM POST SPACING  
DESIGNED BY SUPPLIER, TO  
INCLUDE BRACING WHERE REQ'D.  
SUBMITTALS ARE REQUIRED FOR  
ENGINEER'S REVIEW.  
(TYP.)

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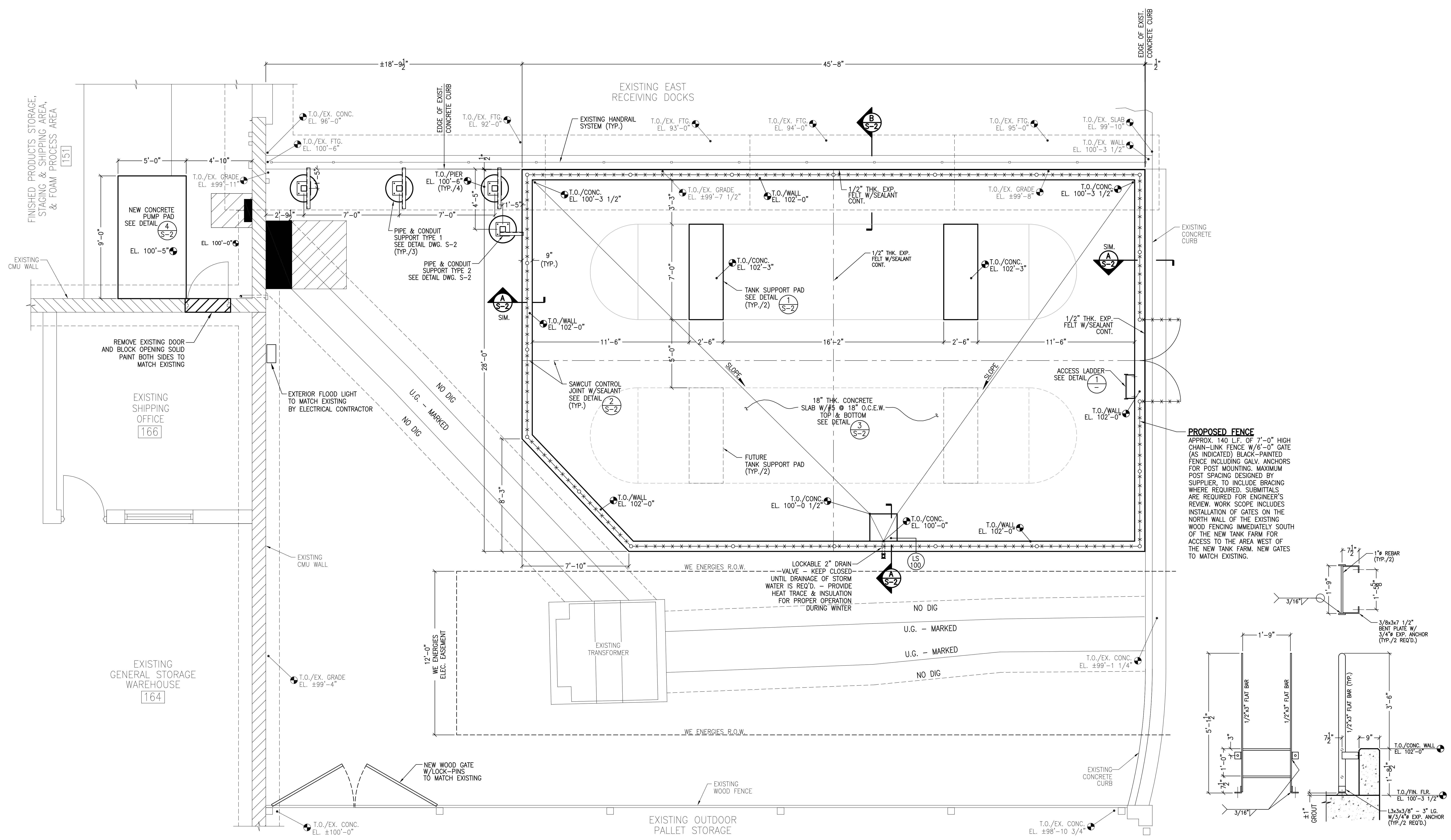
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PROJECT MANAGER: J.M. NOLL, P.E.

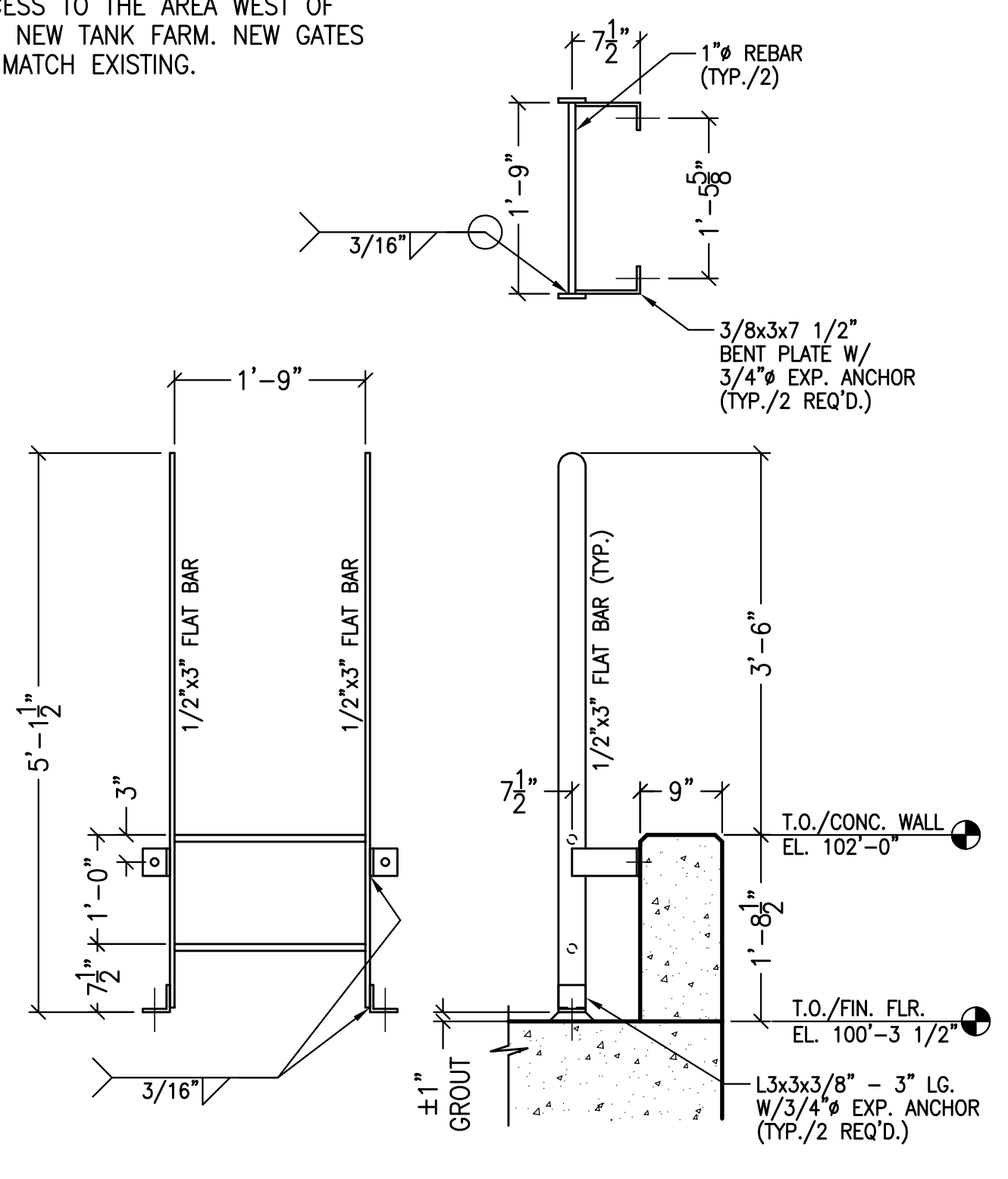
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**CHAPMAN DRIVE FACILITY  
HFO STORAGE TANK SYSTEM  
EXTERIOR ELEVATIONS**

DRAWING NUMBER:	A-1
DATE:	1/11/22
PROJECT NUMBER:	21866
SHEET NUMBER:	2 OF 14



**PROPOSED FENCE**  
 APPROX. 140' L.F. OF 7'-0" HIGH CHAIN-LINK FENCE W/6'-0" GATE (AS INDICATED) BLACK-PAINTED FENCE INCLUDING GALV. ANCHORS FOR POST MOUNTING, MAXIMUM POST SPACING DESIGNED BY SUPPLIER, TO INCLUDE BRACING WHERE REQUIRED. SUBMITTALS ARE REQUIRED FOR ENGINEER'S REVIEW. WORK SCOPE INCLUDES INSTALLATION OF GATES ON THE NORTH WALL OF THE EXISTING WOOD FENCING IMMEDIATELY SOUTH OF THE NEW TANK FARM FOR ACCESS TO THE AREA WEST OF THE NEW TANK FARM. NEW GATES TO MATCH EXISTING.



**SECONDARY CONTAINMENT CALCULATIONS:**  
 VOLUME AVAILABLE: (CONTAINMENT AREA x AVG. HEIGHT) - (VOLUME OF 4 TANK PADS)  
 = (1,072 S.F. x 1.66') x 7.481 GAL./CU. FT. = 13,313 GALLONS  
 VOLUME DESIRED BY OWNER: 9,200 GALLONS (VOLUME OF LARGEST TANK) x 1.25 = 11,500 GALLONS  
 = 11,500 GALLONS REQUIRED < 13,313 GALLONS AVAILABLE = OK

**SECONDARY CONTAINMENT FOUNDATION PLAN**  
 SCALE: 3/8" = 1'-0"

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

PROVIDE PRIME & FINISH PAINT. COLOR TO BE SAFETY YELLOW.

## GENERAL NOTES

### 1.1 GENERAL REQUIREMENTS

- 1.1.1 THE FOLLOWING GENERAL AND SPECIFIC NOTES, GENERAL REQUIREMENTS, AND SPECIFICATIONS TOGETHER WITH THE DESIGN DRAWINGS AS LISTED ON THE TITLE PAGE, SHALL APPLY TO ALL CONTRACTORS, SUB-CONTRACTORS AND SUPPLIERS ENGAGED IN EXECUTION OF THE WORK SHOWN ON THESE PLANS.
- 1.1.2 CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT TO PURCHASE AND INSTALL ALL WORK RELATED TO THE CONSTRUCTION AS DETAILED ON THE PROJECT DRAWINGS, SPECIFICATIONS AND THE PROJECT SCOPE OF WORK, SUBJECT TO THE TERMS AND CONDITIONS SET FORTH IN THE INSTRUCTIONS TO BIDDERS AND THE CONTRACT DOCUMENTS PROVIDED BY OWNER'S PURCHASING DEPARTMENT. CONTRACTOR SHALL ALSO COMPLY WITH ALL OWNER'S SAFETY AND HEALTH REQUIREMENTS WHEN CONDUCTING WORK ON OWNER'S PREMISES.
- 1.1.3 WORK MUST BE PROVIDED BY QUALIFIED EXPERIENCED CONTRACTORS IN COMPLIANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND WITH DUE REGARD FOR WORKER'S HEALTH AND SAFETY. CONTRACTORS CONDUCTING THE WORK SPECIFIED SHALL HOLD HARMLESS THE OWNER AND ENGINEER AGAINST ANY CLAIMS ARISING DUE TO THE NEGLIGENCE OF THE CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING AND SUPERVISING HIS PERSONNEL AND ALL OTHER TRADES ASSOCIATED WITH HIS WORK.
- 1.1.4 ALL CONSTRUCTION SHALL BE EXECUTED IN CONFORMANCE WITH THE FOLLOWING:
  - PLANS AND SPECIFICATIONS
  - STATE OF WISCONSIN BUILDING AND SAFETY CODES
  - GOVERNING LOCAL AND MUNICIPAL CODES
  - AMERICAN INSTITUTE OF STEEL CONSTRUCTION
  - AMERICAN CONCRETE INSTITUTE
  - AMERICAN SOCIETY OF TESTING MATERIALS SPECIFICATIONS
  - STEEL DECK INSTITUTE
  - AMERICAN WELDING SOCIETY SPECIFICATION "AWS STRUCTURAL CODE"
  - OSHA
 CONTRACTOR SHALL ENSURE FAMILIARITY WITH THE ABOVE ITEMS.
- 1.1.5 CONTRACTOR SHALL PROVIDE, ERECT, AND MAINTAIN FENCES, PLANKING, GUARD LIGHTS, BARRICADES, WARNING SIGNS AND GUARDS AS NECESSARY TO PROTECT ALL PERSONNEL, MATERIAL STORAGE, UTILITY PIPING, ELECTRICAL CONDUITS, BUILDINGS AND STRUCTURES.
- 1.1.6 CONTRACTOR SHALL PROVIDE ALL SURVEYING NECESSARY TO CHECK AND VERIFY GRADE ELEVATIONS, COLUMN LOCATIONS, PROFILES AND ELEVATIONS OF STRUCTURES; AND TO IDENTIFY ANY INTERFERENCES WITH THE NEW WORK. ENGINEER SHALL BE NOTIFIED OF ANY INTERFERENCES BEFORE CONTRACTOR BEGINS WORK. CONTRACTOR SHALL VERIFY ALL PROFILES, HEIGHTS AND DIMENSIONS FOR THE PROJECT PRIOR TO FABRICATION OF ANY MATERIAL, AND INFORM THE ENGINEER OF ANY DISCREPANCIES OR FRAMING INTERFERENCES.
- 1.1.7 SHOP DRAWINGS - SUBMIT DOCUMENTS AND PRINTS FOR REVIEW ON SAME SIZE SHEETS AS DESIGN DRAWINGS. SEPARATE BAR LISTS WILL NOT BE ACCEPTED. ENGINEER'S REVIEW DOES NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY FOR CORRECTNESS, FIT OR STRENGTH OF DETAILS. MANUFACTURER'S SPECIFICATIONS, CUT SHEETS, AND PRODUCT SAMPLES, COLOR CHIPS, ETC., ENGINEER'S REVIEW OF THE SHOP DRAWINGS IS REQUIRED PRIOR TO FABRICATION. CONTRACTOR MUST ALLOW MIN. OF 7 DAYS TURNAROUND FOR SHOP DRAWING REVIEW FOR EACH SUBMITTAL. SHOP DRAWINGS MUST CLEARLY SHOW DETAILS FOR ACCURATE PLACING OF REINFORCING STEEL, STRUCTURAL STEEL, ETC.

### 3.1 CONCRETE

- PROVIDE CAST-IN-PLACE CONCRETE WORK AS SHOWN ON CONTRACT DRAWINGS. SOIL BEARING PRESSURE, SUB-BASE COMPACTION, SIZES AND LOCATIONS MUST BE VERIFIED PRIOR TO START OF FORM WORK.
- 3.1.1. MINIMUM 28-DAY COMPRESSION STRENGTH = 4,000 PSI  
 MINIMUM CEMENT CONTENT = 564 lbs. per cu. yd. (ASTM C150 TYPE IA)  
 MAXIMUM WATER/CEMENT RATIO = 0.50  
 SLUMP RANGE OF CONCRETE = 3 ± 1 INCHES  
 AIR ENTRAINING ADMIXTURE = 6%  
 MAXIMUM AGGREGATE SIZE = 3/4"
- TESTING: FOR EACH BATCH OF CONCRETE DELIVERED TO THE SITE, AN INDEPENDENT TESTING AGENCY SHALL PREPARE A REPORT THAT INCLUDES THE FOLLOWING:
- MIX DESIGN DELIVERED
  - COMPRESSION STRENGTH OF CYLINDERS (ONE CYLINDER TEST AT 7-DAYS (FIELD CURED), TWO CYLINDER TESTS AT 28-DAYS, RETAIN ONE CYLINDER).
- TESTING AGENCY SHALL REPORT NON-COMFORMANCE WITH SPECIFICATIONS.
- 3.1.2 ALL CONCRETE SHALL CONTAIN A WATER-REDUCING ADMIXTURE. WATER-REDUCING ADMIXTURE: ASTM C494, TYPE A OR D, WRDA-79 BY W.R. GRACE COMPANY OR EQUAL.
  - 3.1.3 ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, INCLUDING SUPPLEMENT S1.
  - 3.1.4 ALL REINFORCING STEEL SHALL BE DETAILED AND PLACED IN ACCORDANCE WITH THE ACI-318 BUILDING CODE, LATEST EDITION AND "PLACING REINFORCING BARS", RECOMMENDED PRACTICES.
  - 3.1.5 ALL BENDS, UNLESS OTHERWISE SHOWN, SHALL BE A 90 DEGREE STANDARD HOOK AS DEFINED IN LATEST EDITION OF ACI 318.
  - 3.1.6 ALL CONCRETE SHALL BE CONSOLIDATED WITH INTERNAL VIBRATORS AS REQUIRED TO CONSOLIDATE THE CONCRETE DURING PLACEMENT. ALL EQUIPMENT AND METHODS SHALL CONFORM TO ACI 309.
  - 3.1.7 ALL CONCRETE SURFACES SHALL RECEIVE KURE-N-SEAL CURING AND SEALING COMPOUND.
  - 3.1.8 DRY PACK NON-SHRINK GROUT SHALL BE SET-GROUT, MANUFACTURED BY MASTER BUILDERS INCORPORATED, OR EQUAL.
  - 3.1.9 BONDING AGENT SHALL BE SIKADUR 32 HI-MOD BY SIKA CHEMICAL CORPORATION, OR EQUAL.
  - 3.1.10 WATERSTOP SHALL BE OF CONTINUOUS, 6"-RIBBED, TYPE 705 PVC, AS MANUFACTURED BY GREENSTREAK/SIKA CORPORATION OR APPROVED EQUAL, AND SHALL BE INSTALLED IN LOCATIONS SPECIFIED ON PLANS AND CURB JOINTS PROVIDE STANDARD FACTORY MADE CROSSSES AND TEES, ALL FIELD JOINTS SHALL BE PROVIDED PER MANUFACTURER'S RECOMMENDATIONS.
  - 3.1.11 APPLY JOINT SEALANT TO ALL CURBS AND SLABS CONTROL AND CONSTRUCTION JOINTS. JOINT SEALANT SHALL BE DOW CORNING 790. MINIMUM DEPTH OF THE INSTALLED JOINT SEALANT SHALL BE 1/2" INCH. USE A BACKER ROD OR A BOND BACKER WHEN INSTALLING THE JOINT SEALANT. ALL JOINTS SHALL BE CLEANED AND COATED WITH A PRIMER PRIOR TO THE SEALANT INSTALLATION. ALL WORK SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS IN FLOOR JOINTS & CRACKS IDENTIFIED AS SC-1.
  - 3.1.12 PRIOR TO POURING CONCRETE, MECHANICAL, PLUMBING AND ELECTRICAL UTILITY REQUIREMENTS MUST BE CHECKED TO VERIFY THAT PIPES, SLEEVES, CONDUIT, INSERTS AND ANY ITEM THAT SHOULD BE FORMED OR EMBEDDED ARE PROPERLY LOCATED AND SECURED IN PLACE.

### 5.1 STRUCTURAL STEEL

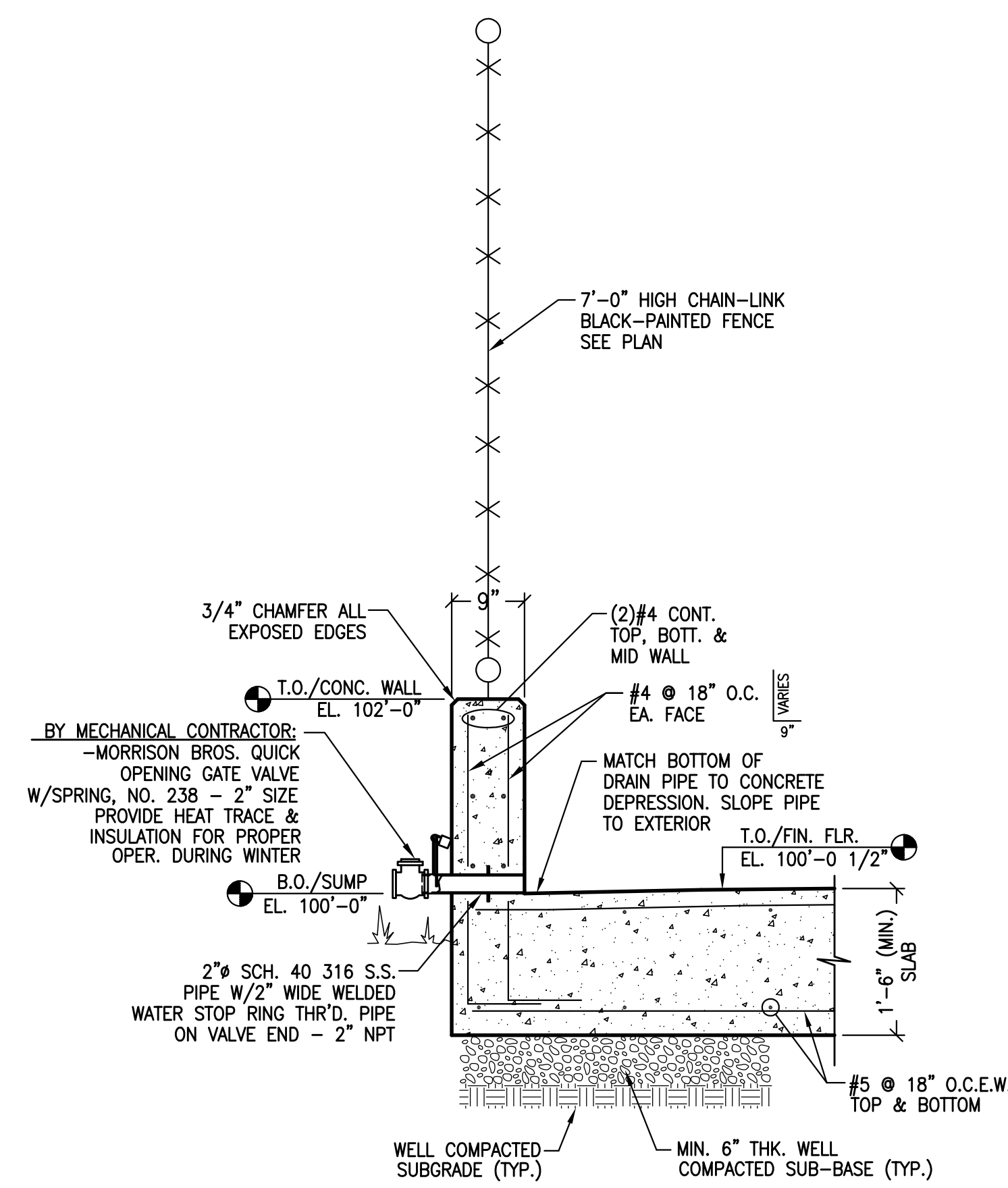
- PROVIDE ALL SURVEYING, VERIFICATIONS, DETAILING, FABRICATION AND INSTALLATION AS NECESSARY FOR A COMPLETE STRUCTURE NOT LIMITED TO: STRUCTURAL STEEL BEAMS, COLUMNS, GIRTS, MISC. SUPPORT ANGLES, BRACINGS, REINFORCEMENTS, BEAM PLATES, ANCHOR BOLTS, GUARD POSTS, METAL PANEL SYSTEM, ETC.
- 5.1.1 STRUCTURAL STEEL SHALL BE A992 GR. 50 FOR WIDE-FLANGED SECTIONS AND A36 FOR ALL OTHER SHAPES AND PLATE. ALL FIELD CONNECTIONS FOR MEMBERS SHALL BE MADE WITH HIGH STRENGTH BOLTS ASTM A-325 UNLESS NOTED OTHERWISE OR SPECIFIED. FIELD WELDING IN LIEU OF BOLTS TO BE USED ONLY WITH APPROVAL OF THE ENGINEER. SECONDARY AND BRACING MEMBERS MAY BE CONNECTED WITH STANDARD UNFINISHED BOLTS. SIZE OF FRAMED BEAM CONNECTIONS TO BE SHOWN IN TABLE 1 OF AISC DESIGN MANUAL, LATEST EDITION, UNLESS OTHERWISE SPECIFIED. USE GALVANIZED BOLTS FOR ALL CONNECTIONS EXPOSED TO THE EXTERIOR ELEMENTS.
  - 5.1.2 PRIME PAINT ALL STRUCTURAL STEEL EXCEPT AS NOTED.
  - 5.1.3 PROVIDE AND MAINTAIN CROSS BRACING OF ALL STRUCTURAL STEEL ERECTION UNTIL STRUCTURAL WORK IS SECURELY INCORPORATED INTO CONSTRUCTION TO ENSURE PLUMB AND SQUARE ALIGNMENT.
  - 5.1.4 WELDED CONNECTIONS SHALL CONFORM TO THE AMERICAN WELDING SOCIETY STANDARDS FOR PRE-QUALIFIED JOINTS, DETAILS, PROCESS AND PROCEDURE USING E-70 ELECTRODES. WELDING ELECTRODES SHALL CONFORM TO ASTM "SPECIFICATIONS FOR MILD STEEL ARC-WELDING ELECTRODES E-70".
  - 5.1.5 FABRICATION SHOP DRAWINGS SHALL BE SUBMITTED TO ERECTOR FOR REVIEW OF PROPER CONSTRUCTION AND FIELD VERIFICATION AT THE SAME TIME THEY ARE SUBMITTED TO ENGINEER FOR GENERAL CONFORMITY. SOME REVISIONS TO THE DRAWINGS SHOULD BE EXPECTED TO FIT FIELD CONDITIONS.

### 5.5 SHOP PAINTING

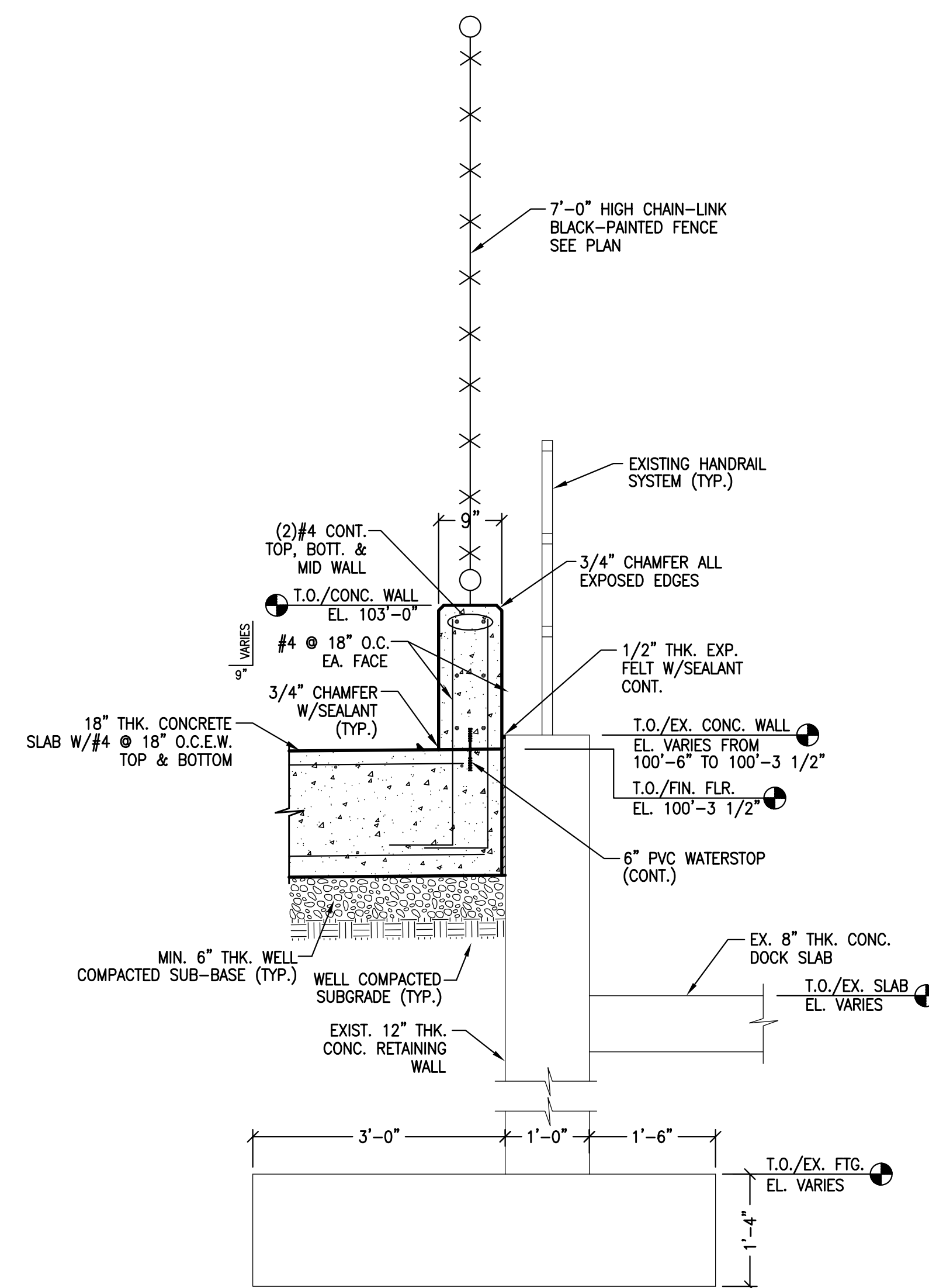
- 5.5.1 STRUCTURAL STEEL SHALL BE CLEANED TO THE MINIMUM ACCEPTANCE STANDARD REQUIREMENTS OF THE STEEL STRUCTURES PAINTING COUNCIL. CURRENT SPECIFICATIONS AS FOLLOWS:
  - ALL STRUCTURAL STEEL WIDE FLANGE MEMBERS PER SSPC-SP3.
  - ALL METAL PLATES AND METAL GRATING SHALL BE DEGREASED PRIOR TO PAINT.
- 5.5.2 ALL STEEL SHALL BE SHOP PRIMED WITH ONE COAT OF RUST INHIBITIVE METAL PRIMER NEMEC 1009 GRAY WITH A DRIED FILM THICKNESS OF 2.5 TO 3.5 MILS. ALL EMBEDDED STEEL SHALL ONLY HAVE THEIR EXPOSED SURFACES PAINTED. ANCHOR BOLTS SHALL NOT BE PAINTED. EXTRA PAINT SHALL BE SUPPLIED WITH STEEL DELIVERY FOR FIELD TOUCH-UP.

### 9.1 FIELD PAINTING

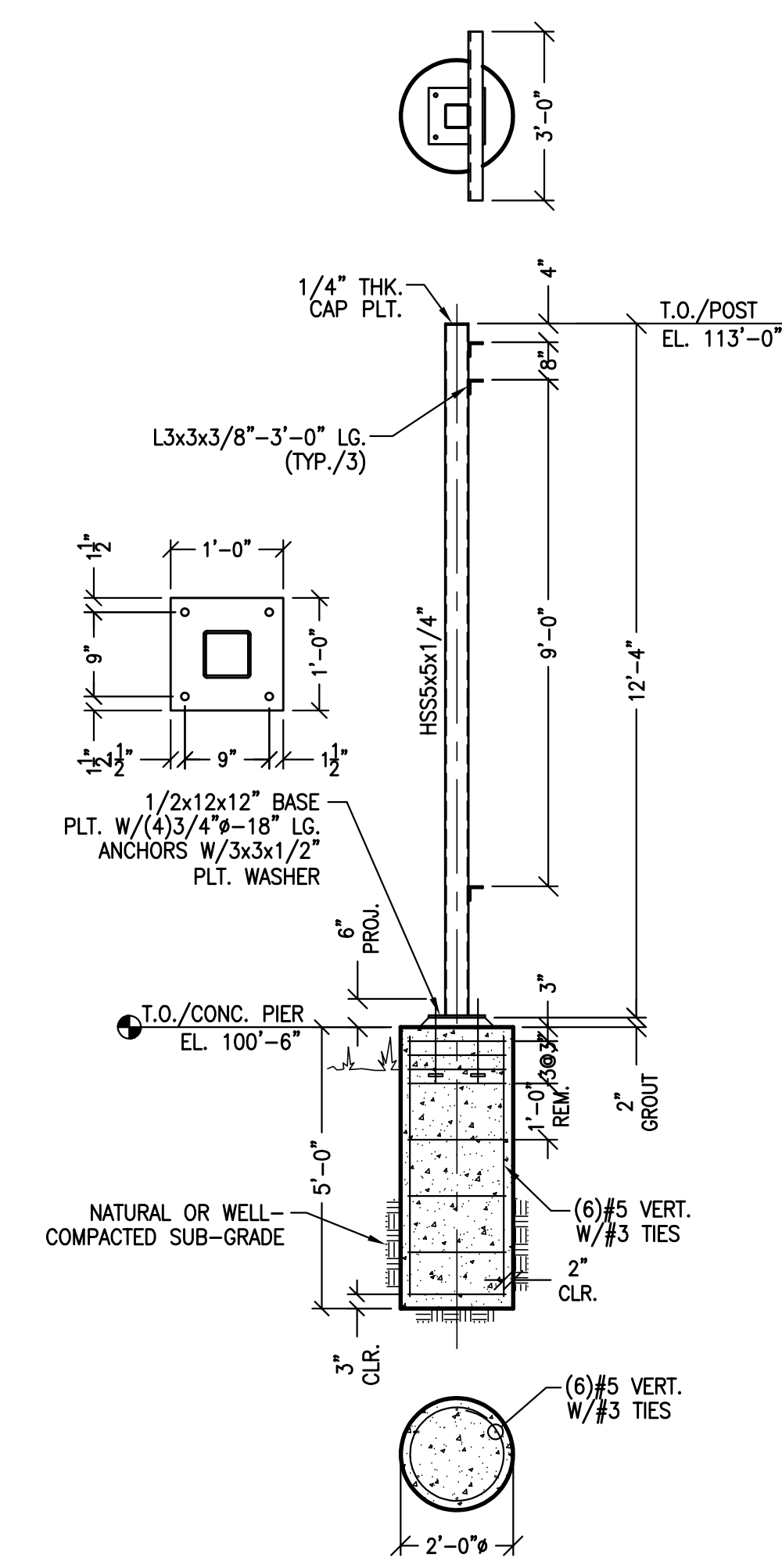
- 9.1.1 CONTRACTOR SHALL PROVIDE TOUCH-UP PRIMER PAINT ON SURFACES DAMAGED DURING SHIPPING, STORAGE, ERECTION AND WELDING, AS REQUIRED.
- 9.1.2 PAINTING WORK SHALL INCLUDE PROPER SURFACE PREPARATION. APPLY FIRESTONE PAINT FOR INTERIOR AND EXTERIOR STEEL FRAMING, MISCELLANEOUS STEEL, AND MASONRY WALLS, PER FIRESTONE'S SPECIFICATIONS.



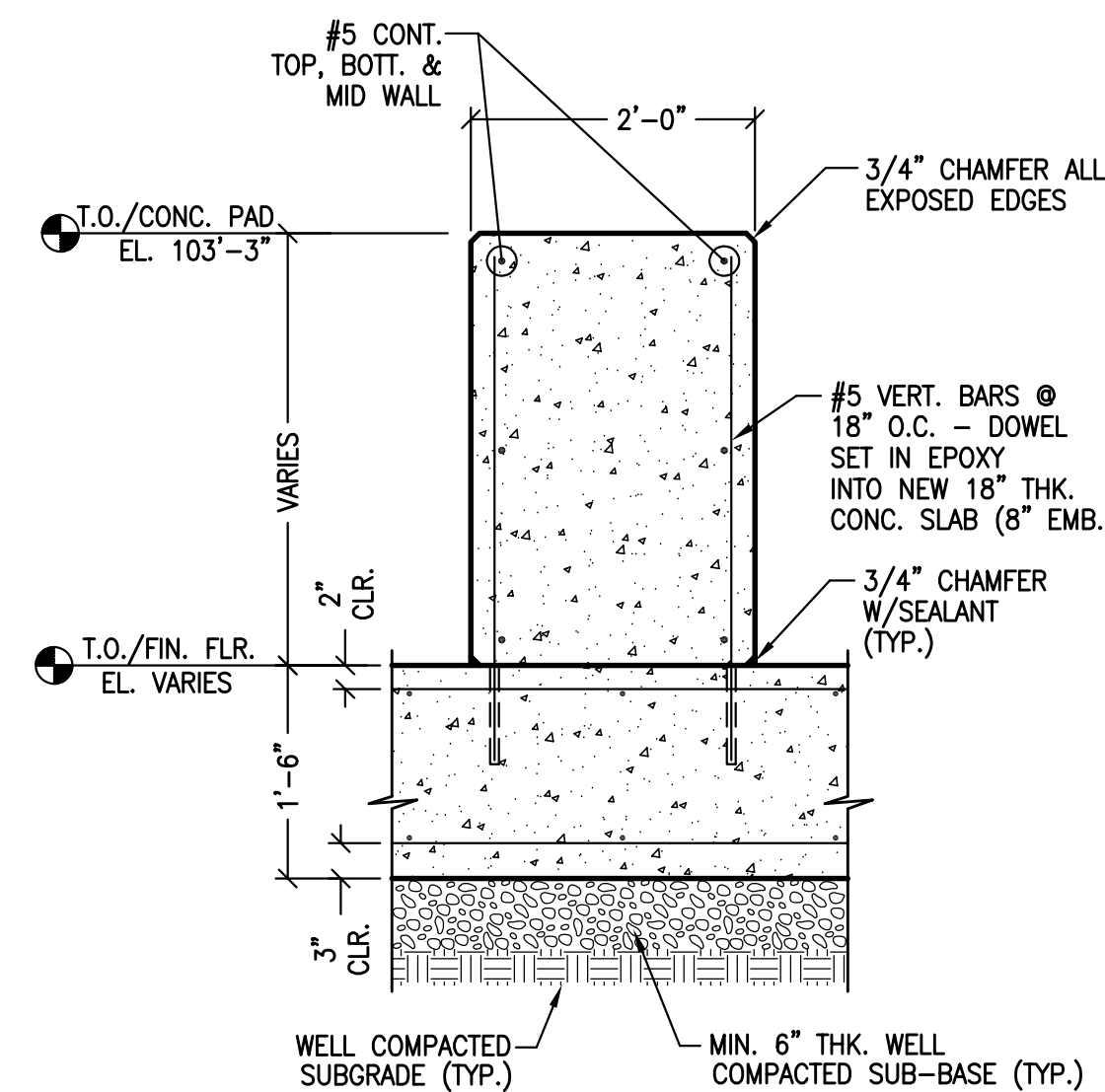
SECTION A  
SCALE: 3/4" = 1'-0"



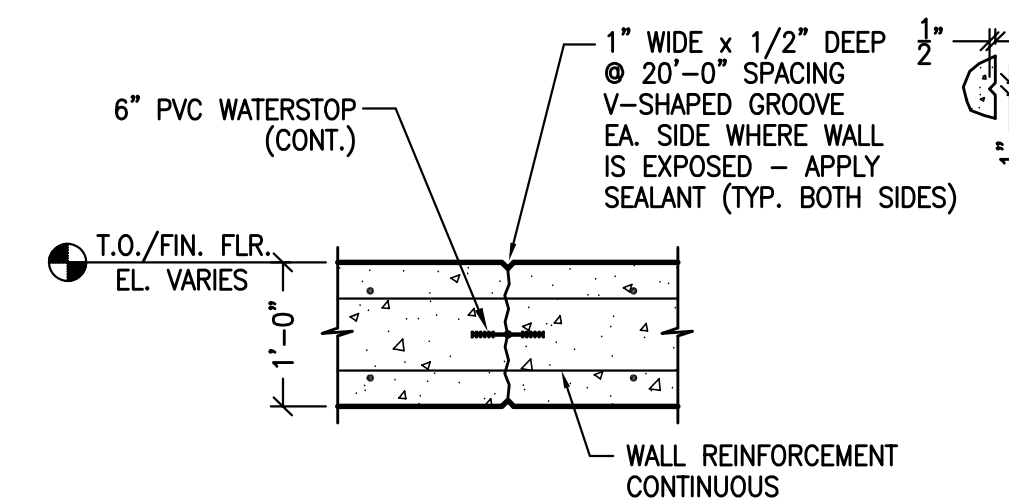
SECTION B  
SCALE: 3/4" = 1'-0"



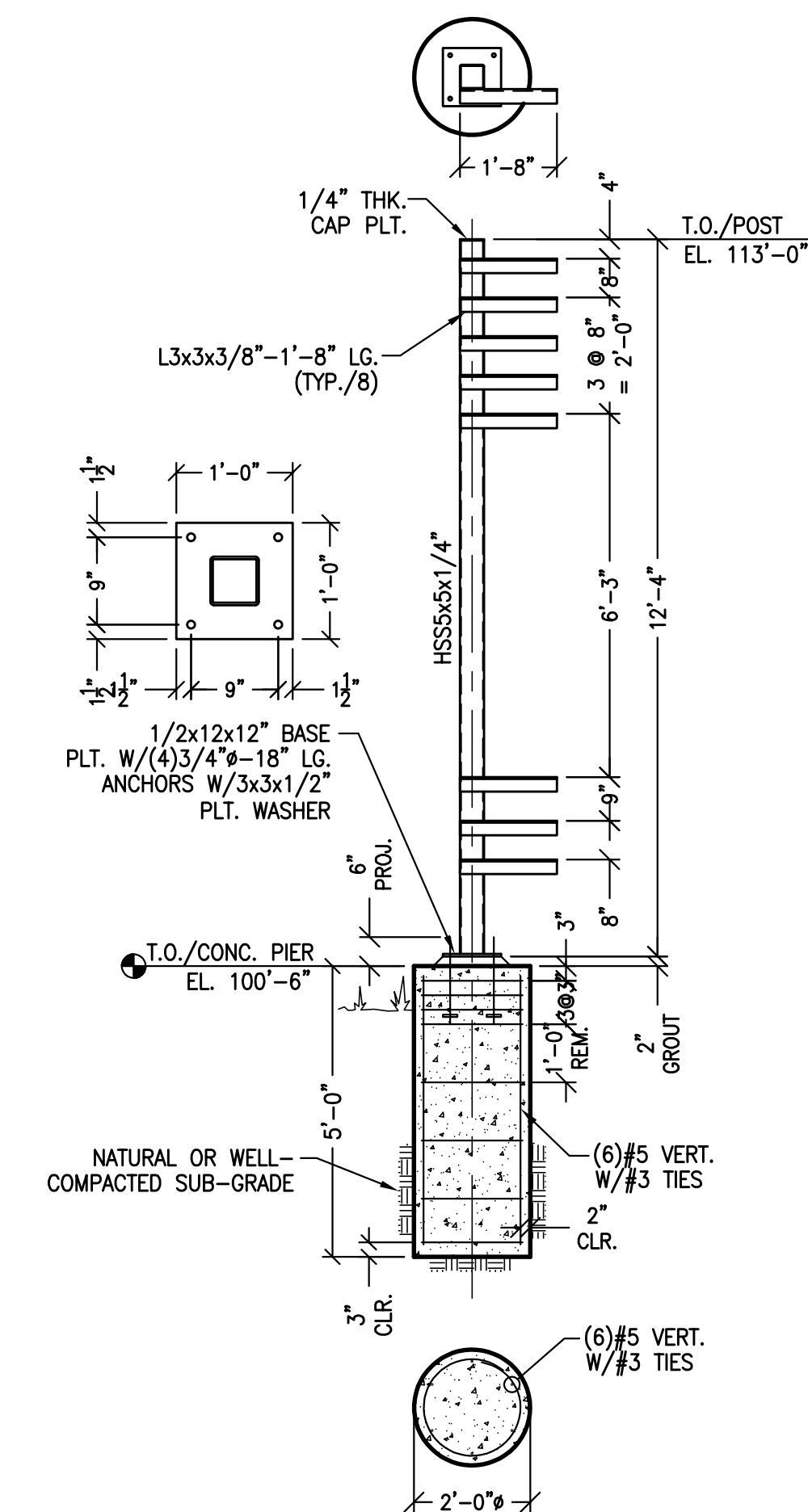
(3) THREE REQ'D.  
PIPE SUPPORT TYPE 1 DETAIL  
SCALE: 3/8" = 1'-0"



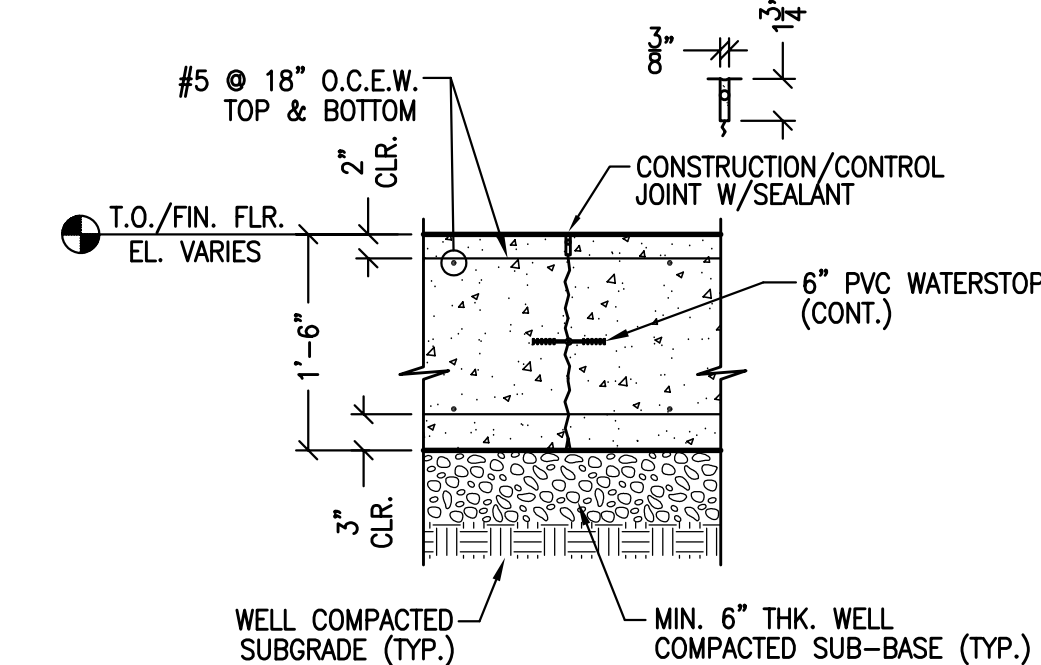
TYPICAL TANK SUPPORT PAD DETAIL 1  
SCALE: 3/4" = 1'-0"



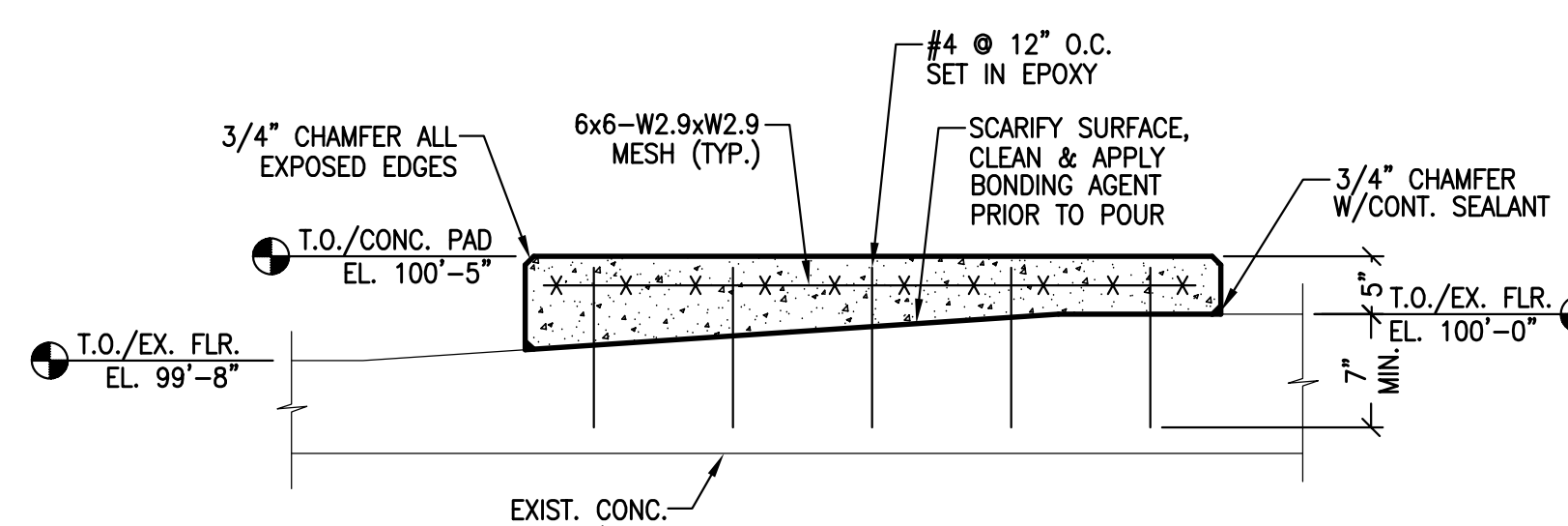
TYPICAL CAST-IN-PLACE CONCRETE WALL JOINTS DETAIL 2  
SCALE: 3/4" = 1'-0"



(1) ONE REQ'D.  
PIPE SUPPORT TYPE 2 DETAIL  
SCALE: 3/8" = 1'-0"



TYPICAL SLAB DETAIL 3  
SCALE: 3/4" = 1'-0"



PUMP PAD DETAIL 4  
SCALE: 3/4" = 1'-0"

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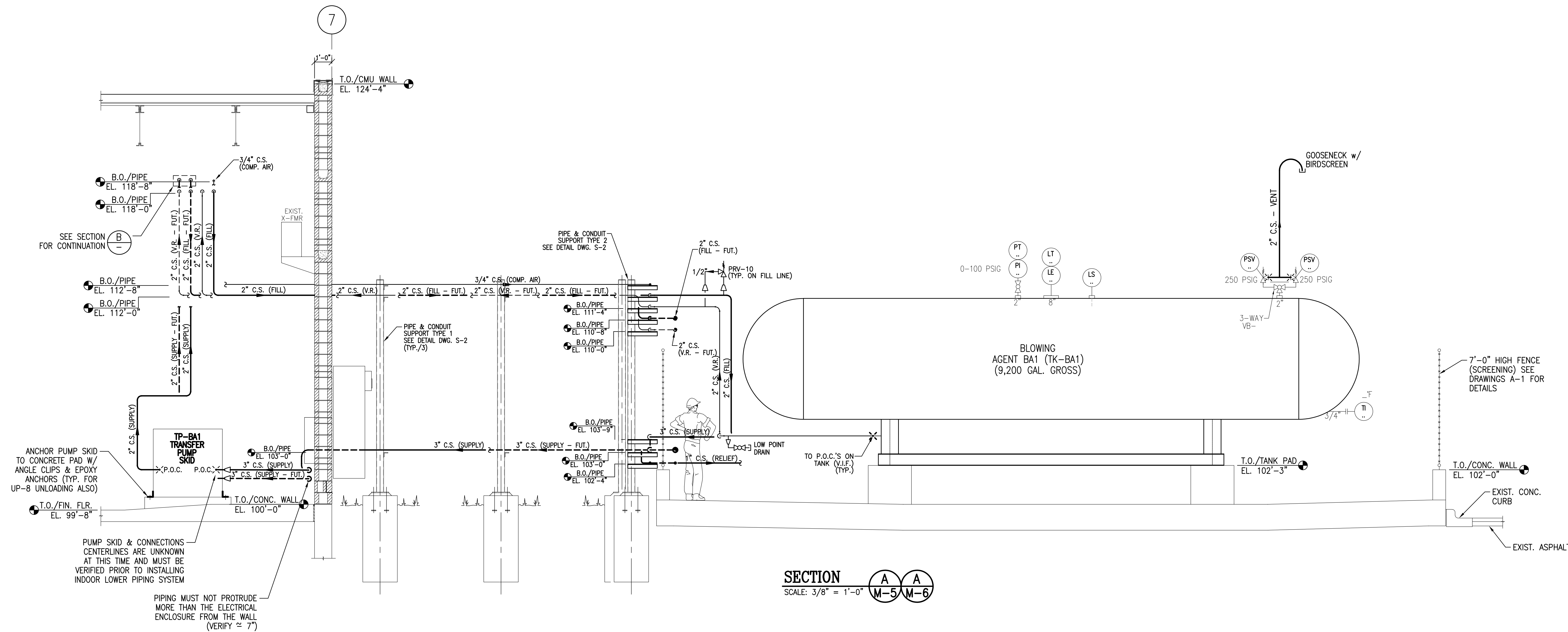
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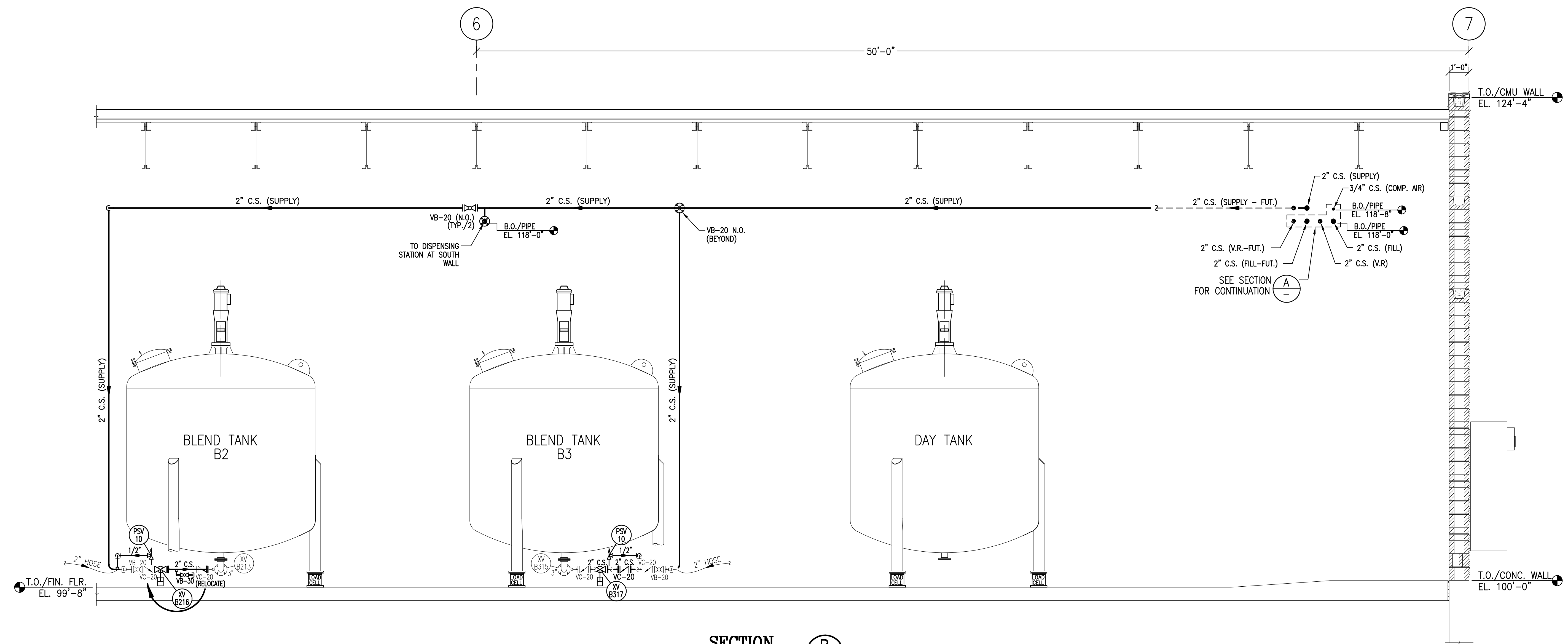
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CHAPMAN DRIVE FACILITY  
HFO STORAGE TANK SYSTEM  
STRUCTURAL SECTIONS, DETAILS & GEN. NOTES

DRAWING NUMBER: S-2  
DATE: 1/11/22  
PROJECT NUMBER: 21866  
SHEET NUMBER: 4 OF 14



**SECTION A-A**  
SCALE: 3/8" = 1'-0" M-5 M-6



**SECTION B-B**  
SCALE: 3/8" = 1'-0" M-7

- NOTES:**
1. FIELD VERIFY ALL PIPING ELEVATIONS.
  2. CONTRACTOR IS RESPONSIBLE FOR ALL PIPE SUPPORTS, WHETHER SHOWN ON DRAWINGS OR NOT.

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DRAWN BY:	CHECKED BY:
S.A.M.	J.M.N./F.M.
DESIGNED BY:	J.M. NOLL, P.E.
PROJECT MANAGER:	J.M. NOLL, P.E.

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**CHAPMAN DRIVE FACILITY  
HFO STORAGE TANK SYSTEM  
PIPING SECTIONS**

DRAWING NUMBER:	M-8
DATE:	1/11/22
PROJECT NUMBER:	21866
SHEET NUMBER:	14 OF 14