

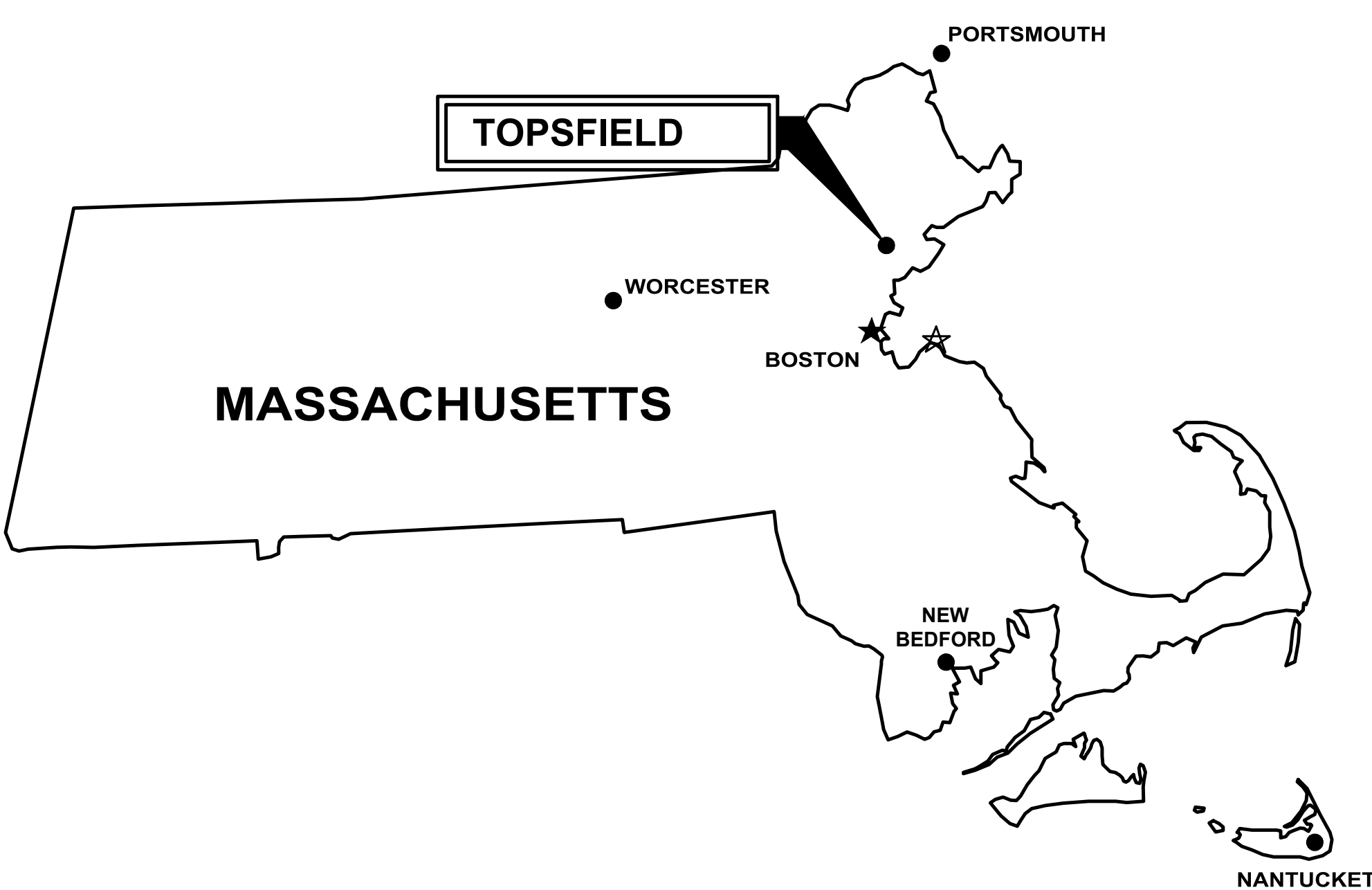
# TOWN OF TOPSFIELD, MASSACHUSETTS

## CONTRACT DRAWINGS FOR

# BOSTON STREET WATER STORAGE TANK REPLACEMENT

FEBRUARY 2024

PERMIT SUBMITTAL



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#### GENERAL

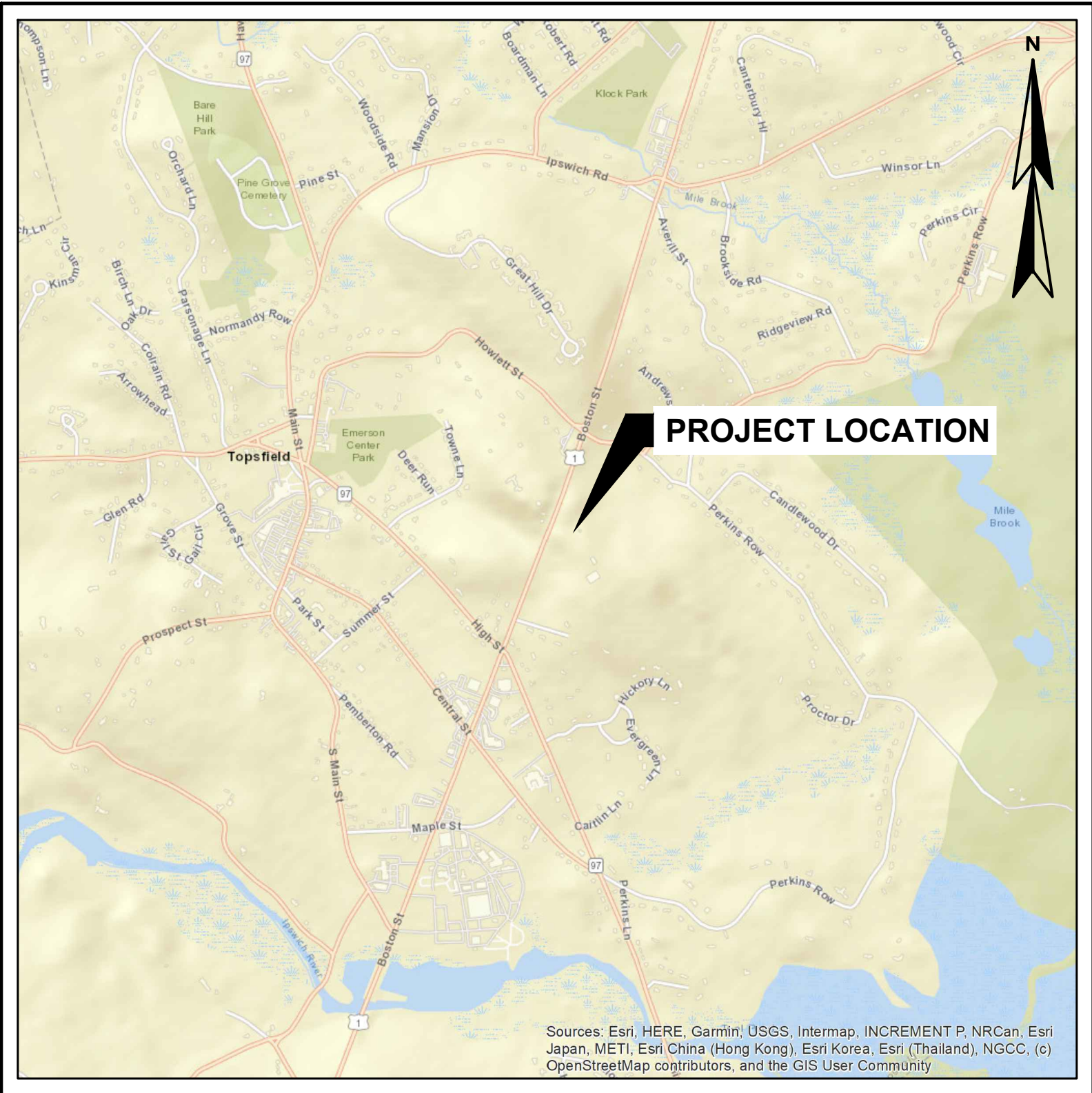
--- COVER SHEET

#### CIVIL

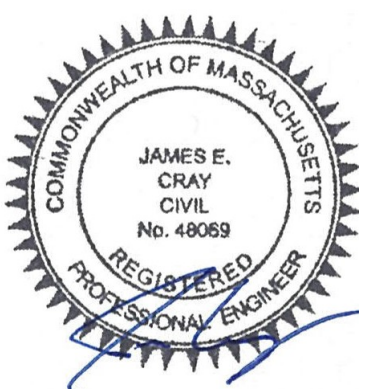
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LOCATION PLAN  
SCALE: NTS



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GENERAL NOTES

1. THE OWNER WILL BE RESPONSIBLE FOR OBTAINING THE PERMITS LISTED IN THE SUPPLEMENTARY OR SPECIAL CONDITIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BE FAMILIAR WITH THE APPLICABLE PROVISIONS OF EACH PERMIT AS THEY APPLY TO THE WORK PRIOR TO BIDDING AND ABIDE BY THOSE PROVISIONS DURING CONSTRUCTION. COPIES OF ALL OBTAINED PERMITS ARE AVAILABLE FOR REVIEW FROM THE OWNER. ALL OTHER PERMITS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
2. THE OWNER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY RIGHTS OF WAY AND EASEMENTS. THE CONTRACTOR SHALL VERIFY THAT THE NECESSARY EASEMENTS HAVE BEEN SECURED BY THE OWNER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BE FAMILIAR WITH THE APPLICABLE PROVISIONS OF EACH EASEMENT AS THEY APPLY TO THE WORK PRIOR TO BIDDING AND ABIDE BY THOSE PROVISIONS DURING CONSTRUCTION. COPIES OF ALL RIGHTS-OF-WAY AND EASEMENTS ARE AVAILABLE FOR REVIEW FROM THE OWNER.
3. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TRAFFIC FLOW AT ALL TIMES. CONTRACTOR SHALL INSTALL AND MAINTAIN TRAFFIC CONTROL SIGNS IN ACCORDANCE WITH THE MUTCD AND ALL STATE AND LOCAL REGULATIONS. THE CONTRACTOR IS REQUIRED TO SUBMIT A TRAFFIC CONTROL PLAN TO THE OWNER PRIOR TO COMMENCING CONSTRUCTION. THE POLICE DEPARTMENT AND FIRE DEPARTMENT ARE TO BE NOTIFIED AT LEAST 24-HOURS IN ADVANCE OF ANY STREET CLOSING OR DETOUR. REFER TO SPECIFICATION SECTION 01570.
4. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).
5. CONTRACTOR SHALL COMPLY WITH THE COORDINATION REQUIREMENTS AND RELATED COSTS, IF ANY, AS SPECIFIED IN SPECIFICATION SECTION 01050.
6. CONTRACTOR SHALL NOTE THAT, IN GENERAL, ALL EXISTING CONDITION INFORMATION ON THE DRAWINGS ARE SHOWN WITH A LIGHTER LINE WEIGHT AND WITH A SLANTED TYPE TEXT.

EXISTING SITE CONDITIONS

1. THE LOCATIONS OF UNDERGROUND UTILITIES AND STRUCTURES, AS SHOWN ON THE DRAWINGS, ARE APPROXIMATE AND MAY NOT BE COMPLETE. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE BASED ON PREVIOUS CONSTRUCTION DESIGN PLANS, WHICH ARE AVAILABLE FOR INSPECTION AT THE ENGINEER'S OFFICE. NO GUARANTEE IS MADE THAT UTILITIES OR STRUCTURES WILL BE ENCOUNTERED WHERE SHOWN, OR THAT ALL UNDERGROUND UTILITIES AND STRUCTURES ARE SHOWN. ALL LOCATIONS AND SIZES OF EXISTING UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD WITH TEST PITS AS REQUIRED PRIOR TO BEGINNING CONSTRUCTION OF NEW FACILITIES OR PIPING THAT MAY BE AFFECTED. THE CONTRACTOR WILL REALIGN NEW PIPE LOCATIONS AS REQUIRED TO CONFORM TO EXISTING LINES AND AS APPROVED BY THE ENGINEER.
2. BELOW GRADE UTILITY INFORMATION IS BASED ON INFORMATION PROVIDED BY EACH UTILITY. LOCATION OF PUBLIC UTILITIES SHOWN IS ONLY APPROXIMATE AND MAY NOT BE COMPLETE. PRIVATE UNDERGROUND UTILITIES SUCH AS, BUT NOT LIMITED TO, SEWER LINES, WATER LINES AND BURIED ELECTRICAL SERVICE ENTRANCES ARE NOT SHOWN. THE CONTRACTOR SHALL ASCERTAIN THE LOCATION AND SIZE OF EXISTING UTILITIES IN THE FIELD WITH THE RESPECTIVE UTILITY COMPANY REPRESENTATIVE PRIOR TO COMMENCING WORK. REFER TO SPECIFICATION SECTION 01050. ADDITIONAL TEST PITS, BEYOND THOSE SHOWN, MAY BE REQUIRED. UTILITY CONTACTS ARE AS FOLLOWS:

ELECTRIC: NATIONAL GRID 1101 TURNPIKE ST NORTH ANDOVER, MA 01845 1 (800) 233-5325	WATER/SEWER/DRAIN: TOPSFIELD PUBLIC WORKS 279 BOSTON ST TOPSFIELD, MA 01983 (978) 887-1517
DIG SAFE: 811 (888) 344-7233	GAS: NATIONAL GRID 1101 TURNPIKE ST NORTH ANDOVER, MA 01845 1 (800) 233-5325

3. THERE ARE NO KNOWN HAZARDOUS ENVIRONMENTAL CONDITIONS WITHIN THE AREA OF WORK. REFER TO SPECIFICATION SECTION 00800-SC-5.06. IF THE PRESENCE OF HAZARDOUS ENVIRONMENTAL CONDITIONS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE ENGINEER IMMEDIATELY. ALL ACTIVITIES, HANDLING AND DISPOSAL OF HAZARDOUS ENVIRONMENTAL CONDITIONS AND MATERIALS SHALL BE IN ACCORDANCE WITH OSHA, FEDERAL, STATE, AND LOCAL REGULATIONS.

SITE DEMOLITION

1. DEMOLITION OF EXISTING 0.5 MG PRE-STRESSED CONCRETE STORAGE TANK CANNOT BEGIN UNTIL THE NEW WATER STORAGE TANK HAS BEEN CONSTRUCTED, TESTED, APPROVED, AND BROUGHT ONLINE.
2. A SOLID GREY HATCH HIGHLIGHTS AND REPRESENTS DEMOLITION ON AN ITEM(S) IN THE AREA ASSOCIATED WITH THE HATCH.
3. REFER TO THE EXISTING SITE PLAN, FOR ADDITIONAL INFORMATION REGARDING EXISTING FACILITIES. REFER TO THE LAYOUT DRAWING FOR LIMITS OF WORK.
4. REFER TO PROCESS, INSTRUMENTATION AND ELECTRICAL DRAWINGS FOR SPECIFIC INFORMATION REGARDING DEMOLITION AND REMOVAL.
5. REFER TO SPECIFICATION SECTION 01010B, WHICH CONTAINS INFORMATION ON CONSTRAINTS OF CONSTRUCTION SEQUENCING.
6. DEMOLISH/REMOVE EXISTING PIPING AS REQUIRED FOR CONSTRUCTION OF NEW FACILITIES. ALL PIPING, EQUIPMENT AND MATERIALS TO BE DEMOLISHED AND/OR REMOVED FROM SERVICE SHALL BE COORDINATED WITH THE OWNER AND ENGINEER BEFORE COMMENCING THAT WORK. EXISTING PIPING THAT NEEDS TO BE REMOVED FOR CONSTRUCTION, BUT IS TO REMAIN, SHALL BE REINSTALLED/REPLACED AS NEEDED. EXISTING PIPES AND CONDUIT DESIGNATED AS "ABANDONED" MAY BE REMOVED IF THE CONTRACTOR SO CHOOSES. IF ABANDONED PIPE CONFLICTS WITH NEW SITE PIPING OR FACILITIES, THEN A PORTION OF THE ABANDONED PIPE SHALL BE REMOVED, AND THE NEW ENDS OF ABANDONED PIPE CAPPED OR PLUGGED WITH CONCRETE.
7. ALL EXISTING PIPING AND UTILITIES WHICH ARE BENEATH PROPOSED STRUCTURES, AND ARE TO BE ABANDONED, SHALL BE REMOVED TO A MINIMUM OF 5-FEET OUTSIDE OF THE STRUCTURE. PIPE AND UTILITIES BENEATH PROPOSED STRUCTURES THAT ARE TO REMAIN SHALL BE CONCRETE ENCASED, UNLESS OTHERWISE INDICATED. REFER TO THE STRUCTURAL DRAWINGS FOR DETAILS.
8. SEVERING OF EXISTING UTILITIES FOR ABANDONMENT, OR REMOVAL OF A SEGMENT FROM SERVICE, SHALL BE PERFORMED IN SUCH A MANNER AS TO ALLOW THE REMAINING ACTIVE SEGMENT TO CONTINUE IN ITS INTENDED SERVICE. CAP ACTIVE SEGMENTS WITH APPROPRIATE FITTINGS, JOINT RESTRAINT, ETC. TO ENSURE THEIR INTEGRITY. PLUG ENDS OF ABANDONED PIPE SEGMENTS WITH CONCRETE UNLESS SPECIAL CIRCUMSTANCES DICTATE PLUGGING ABANDONED PIPES WITH BLIND FLANGES, RESTRAINED MECHANICAL JOINT PLUGS, ETC. AS APPROPRIATE.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND DISPOSING OF ALL DEMOLISHED PIPING, EQUIPMENT AND MATERIALS. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL STATE AND LOCAL REGULATIONS. THE OWNER RESERVES THE RIGHT TO RETAIN ANY SUCH PIPING, EQUIPMENT AND MATERIALS DESIGNATED FOR DEMOLITION. SUCH MATERIALS TO BE RETAINED SHALL BE PROPERLY STORED IN AN ON-SITE LOCATION. COORDINATE LOCATION AND MATERIALS TO BE SALVAGED WITH THE OWNER/ENGINEER. REFER TO SPECIFICATION SECTION 02050A.
10. THE CONTRACTOR SHALL KEEP A RECORD OF DEMOLITION AS PART OF THE PROJECT RECORD DOCUMENTS IN ACCORDANCE WITH SPECIFICATION SECTION 01720.
11. THE CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO ENSURE THAT ALL EXISTING OPERATIONS ARE MAINTAINED DURING CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE ANY TEMPORARY DISRUPTIONS WITH THE OWNER AND ENGINEER. REFER TO SPECIFICATION SECTION 01010B.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE APPROPRIATE DISPOSAL OF FLOWS RESULTING FROM PRECIPITATION AND GROUNDWATER DEWATERING OPERATIONS.

SITE CLEARING, GRUBBING AND GRADING

1. STRIPPING OF TOPSOIL (LOAM) SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02115. REFER TO THE LAYOUT AND GRADING DRAWINGS FOR LIMIT OF WORK AND STRIPPING.
2. CONTRACTOR SHALL MINIMIZE CLEARING OPERATIONS. CLEARING AND GRUBBING SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02110. CLEARING LIMITS SHALL BE AS INDICATED ON THE DRAWINGS, BUT AT ALL TIMES WITHIN EXISTING ROAD RIGHTS OF WAY AND PROPERTY LINES ON STATE OR COUNTY OWNED PROPERTY OR EASEMENTS. ALL CLEARING AND GRUBBING MATERIAL SHALL BE THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF AT A SITE PROVIDED BY THE CONTRACTOR IN COMPLIANCE WITH ALL STATE AND LOCAL LAWS.

3. THE CONTRACTOR SHALL FOLLOW ALL ENDANGERED SPECIES ACT 4(D) RULES REGARDING THE NORTHERN LONG EARED BAT. THIS INCLUDES AVOIDANCE OF TREE REMOVAL DURING THE MONTHS OF JUNE AND JULY. CONTRACTOR SHALL PLAN ACCORDINGLY.
4. CONTRACTOR SHALL PROVIDE PROPER EROSION CONTROL AND DRAINAGE MEASURES IN ALL AREAS OF WORK, AND CONFINE SOIL SEDIMENT TO WITHIN THE LIMITS OF EXCAVATION AND GRADING. PRIOR TO BEGINNING EXCAVATION WORK, EROSION CONTROL FENCE SHALL BE INSTALLED AT THE DOWN GRADIENT PERIMETER OF THE ACTUAL LIMITS OF GRUBBING AND/OR GRADING, AND AS SHOWN ON THE DRAWINGS. EROSION CONTROL MEASURES SHOWN ON THE DRAWINGS ARE A MINIMUM, CONTRACTOR SHALL TAKE ALL OTHER NECESSARY MEASURES. EROSION CONTROL FENCE SHALL ALSO BE INSTALLED AT THE DOWN GRADIENT PERIMETER OF THE TOPSOIL STOCKPILES. ALL DISTURBED EARTH SURFACES SHALL BE STABILIZED IN THE SHORTEST PRACTICAL TIME AND TEMPORARY EROSION CONTROL DEVICES SHALL BE EMPLOYED UNTIL SUCH TIME AS ADEQUATE SOIL STABILIZATION HAS BEEN ACHIEVED. TEMPORARY STORAGE OF EXCAVATED MATERIAL SHALL BE STABILIZED IN A MANNER THAT WILL MINIMIZE EROSION. ALL INSTALLED EROSION CONTROL FACILITIES SHALL BE REMOVED AT THE END OF THE PROJECT. REFER TO SPECIFICATION SECTION 02270.
5. ALL STORM DRAINAGE INLETS SHALL BE PROTECTED BY HAY BALE FILTERS TO PREVENT ENTRY OF SEDIMENT FROM RUNOFF WATERS DURING CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ALL COLLECTED SEDIMENT, AND THAT WHICH COLLECTS IN THE STORM DRAIN SYSTEM. REFER TO THE CIVIL DETAIL DRAWINGS.
6. THE GEOTECHNICAL DATA REPORT FOR THE PROJECT SITE IS INCLUDED IN APPENDIX A AND IS DESCRIBED IN SPECIFICATION SECTION 00800 (SUPPLEMENTAL CONDITIONS).
7. CONTRACTOR SHALL CONTROL DUST ON THE CONSTRUCTION SITE TO A REASONABLE LIMIT, AS DETERMINED BY THE ENGINEER, AND AS OUTLINED IN SPECIFICATION SECTION 01562.
8. CONTRACTOR SHALL NOT TRACK OR SPILL EARTH, DEBRIS OR OTHER CONSTRUCTION MATERIAL ON PUBLIC OR PRIVATE STREETS AND PLANT DRIVES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMMEDIATE ASSOCIATED CLEAN UP.
9. ALL CATCH BASINS, MANHOLES, VALVE PITS, VALVE BOXES AND OTHER BURIED FACILITIES WITH SURFACE ACCESS SHALL BE ADJUSTED TO MATCH FINAL GRADES, UNLESS OTHERWISE INDICATED.
10. THE CONTRACTOR SHALL NOT HAVE ANY RIGHT OF PROPERTY IN ANY MATERIALS TAKEN FROM ANY EXCAVATION. SUITABLE EXCAVATED MATERIAL MAY BE INCORPORATED IN THE PROJECT, WITH EXCESS MATERIAL DISPOSED OF AT A LOCATION PROVIDED BY THE CONTRACTOR. THESE PROVISIONS SHALL IN NO WAY RELIEVE THE CONTRACTOR OF OBLIGATIONS TO PROPERLY DISPOSE OF AND REPLACE ANY MATERIAL DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING. THE CONTRACTOR SHALL DISPOSE OF UNSUITABLE AND EXCESS MATERIAL IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE CONTRACT DOCUMENTS.
11. CONTRACTOR SHALL REMOVE AND REPLACE, OR REPAIR, ALL CURBS, SIDEWALKS, PAVEMENT AND OTHER ITEMS DAMAGED BY CONSTRUCTION ACTIVITIES TO AT LEAST THEIR ORIGINAL CONDITION, TO THE SATISFACTION OF THE OWNER AND ENGINEER.
12. WHERE EXISTING PAVEMENT IS REMOVED AND REPLACED, MATCH EXISTING GRADES TO THE EXTENT POSSIBLE. COORDINATE FINE GRADING WITH THE ENGINEER.
13. ALL ROAD AND DRIVE CROSS SLOPES SHALL PITCH 1/4-INCH PER FOOT MINIMUM. ALL PAVED SURFACES SHALL PITCH 1% UNLESS OTHERWISE NOTED. REFER TO THE CIVIL DETAIL DRAWINGS.

ALL NON-ROADWAY AREAS THAT ARE EXCAVATED, FILLED, OR OTHERWISE DISTURBED BY THE CONTRACTOR SHALL BE LOAMED, GRADED, LIMED, FERTILIZED, SEEDED AND MULCHED, UNLESS OTHERWISE NOTED. THE TOP 4-INCHES OF SOIL SHALL BE LOAM. REFER TO SPECIFICATION SECTION 02485, LANDSCAPING/LOAM AND SEED.

14. THE BASE COURSE PAVING SHALL BE INSTALLED PRIOR TO WINTER AND THE FINAL PAVING SHALL BE INSTALLED IN THE SPRING OF 2025.

CIVIL SITE LAYOUT

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THIS PROVIDED LAYOUT INFORMATION THROUGHOUT THE COURSE OF CONSTRUCTION. REPORT ANY LAYOUT DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
2. REFER TO THE SITE PIPING AND SITE GRADING DRAWINGS FOR ADDITIONAL LAYOUT INFORMATION.
3. CONTRACTOR SHALL EXCAVATE TEST PITS, WHERE NECESSARY, PRIOR TO CONSTRUCTION LAYOUT AND RESULTS REPORTED TO THE ENGINEER FOR REVIEW FOR CONFORMANCE TO THE PLANS. TEST PITS ARE REQUIRED WHERE SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER.
4. IN GENERAL, THE GIVEN STRUCTURE LOCATIONS ARE TO THE OUTSIDE FACE OF THE STRUCTURE FOUNDATION WALL, NOT FOOTINGS. RADII SHOWN FOR ROADS ARE TO EDGE OF PAVEMENT.
5. PLACE CRUSHED STONE MOWING STRIP AROUND THOSE STRUCTURES AS INDICATED ON THE DRAWINGS. REFER TO THE CIVIL DETAIL DRAWINGS.
6. THE LOCATIONS AND LIMITS OF ALL ON-SITE WORK AND STORAGE AREAS SHALL BE REVIEWED/COORDINATED WITH, AND ACCEPTABLE TO, THE OWNER AND ENGINEER. THE CONTRACTOR SHALL LIMIT ACTIVITIES TO THESE AREAS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RE-ESTABLISHING AND RESETTling ALL EXISTING PROPERTY MONUMENTATION DISTURBED BY CONSTRUCTION. THIS WORK SHALL BE DONE BY A LAND SURVEYOR REGISTERED IN THE COMMONWEALTH OF MASSACHUSETTS, AT NO ADDITIONAL COST TO THE OWNER.
8. WRITTEN DIMENSIONS SHALL PREVAIL. DO NOT SCALE DISTANCES FROM THE DRAWINGS. REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
9. BOLLARD LOCATIONS SHOWN ARE APPROXIMATE. COORDINATE BOLLARD LOCATIONS WITH THE ENGINEER. REFER TO THE CIVIL DETAIL DRAWINGS.
10. PARKING SPACES SHALL BE 10' WIDE X 20' LONG (TYPICAL) FOR REGULAR SPACES, AND 12' WIDE X 20' LONG (TYPICAL) FOR HANDICAP SPACES, UNLESS SHOWN OTHERWISE.
11. ALL ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988, US FEET. ORIENTATION IS GRID NORTH ON THE MASSACHUSETTS STATE PLANE - MAINLAND ZONE NAD83, US FEET COORDINATE SYSTEM. PROJECT BENCH MARK IS SHOWN ON THE DRAWINGS. CONTRACTOR SHALL VERIFY BENCHMARK ELEVATIONS PRIOR TO USING IN CONSTRUCTION.
12. EXISTING CONDITIONS SITE PLAN DEVELOPED FROM SURVEY DRAWING PREPARED BY LIGHTHOUSE LAND SURVEYING, DATED APRIL 2023, AND EXISTING RECORD DRAWING INFORMATION.

CIVIL SITE PIPING

1. ALL PIPE LINES SHALL SLOPE UNIFORMLY BETWEEN ELEVATIONS INDICATED ON THE DRAWINGS. NO CRESTS IN PIPING WILL BE PERMITTED. CONCRETE OR OTHER ACCEPTABLE RESTRAINT SYSTEM IS REQUIRED ON ALL FITTINGS ON PRESSURE PIPE, WHERE A RESTRAINED JOINT SYSTEM IS USED. THE NUMBER OF PIPES WITH RESTRAINED JOINTS ON EITHER SIDE OF THE FITTING SHALL BE DESIGNED TO REFLECT THE PROJECT SOIL CONDITIONS AND PEAK SURGE PRESSURE IN THE PIPING SYSTEM. SEE THE CIVIL DETAIL DRAWINGS FOR THRUST BLOCK DETAILS. PROVIDE ALL BENDS (HORIZONTAL AND VERTICAL) AS REQUIRED TO MEET THE GRADES AND ALIGNMENT INDICATED ON THE DRAWINGS
2. THE CONTRACTOR SHALL ASCERTAIN THE LOCATION AND SIZE OF EXISTING PIPING AND UTILITIES IN THE FIELD BY TEST PIT EXCAVATION PRIOR TO COMMENCING INSTALLATION OF ANY OF THE NEW PIPING AFFECTED. WHERE NEW PIPE CONNECTS TO EXISTING PIPING OR STRUCTURAL PENETRATION, CONTRACTOR SHALL VERIFY ELEVATION BY TEST PIT, AS REQUIRED, PRIOR TO INSTALLATION OF ANY OF THE ASSOCIATED/AFFECTED NEW PIPING. IDENTIFIED CONFLICTS WITH EXISTING PIPING AND UTILITIES WILL BE REVIEWED WITH THE ENGINEER PRIOR TO COMMENCING INSTALLATION. THE HORIZONTAL ALIGNMENT OF NEW PIPING MAY BE ADJUSTED IN THE FIELD SUBJECT TO PRIOR REVIEW AND ACCEPTANCE OF THE ENGINEER. CONTRACTOR SHALL BE RESPONSIBLE FOR LAYOUT OF ALL PROPOSED WORK AS SHOWN ON THE DRAWINGS AND REPORT ANY LAYOUT DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
3. ALL BURIED CONNECTIONS TO STRUCTURES SHALL HAVE SLEEVE TYPE FLEXIBLE CONNECTIONS APPROXIMATELY 4-FEET FROM THE STRUCTURES. ALL SLEEVE TYPE COUPLINGS ON PRESSURE LINES SHALL BE RESTRAINED (SOLID SLEEVE). REFER TO SPECIFICATION SECTION 02615
4. TRENCH INSULATION SHALL BE USED WHERE DEPTH OF COVER IS LESS THAN 4-FEET. REFER TO THE CIVIL DETAIL DRAWINGS FOR THE TRENCH INSULATION DETAIL.
5. TRENCH INSULATION SHALL BE USED WHEN THERE IS LESS THAN 2-FEET BETWEEN THE SEWER OR FORCE MAIN AND A CULVERT. REFER TO THE CIVIL DETAIL DRAWINGS FOR THE TRENCH INSULATION DETAIL.

6. MANHOLES ARE 4-FEET IN DIAMETER UNLESS OTHERWISE NOTED. THE TOP OF MANHOLE FRAMES SHALL BE SET FLUSH WITH FINISH GRADE, UNLESS OTHERWISE NOTED ON DRAWINGS. SEWER MANHOLE INVERTS SHOWN ON THE DRAWINGS ARE TO THE INSIDE FACE OF THE MANHOLE.

7. PIPES WITHIN VALVE PITS (MANHOLES) SHALL BE SUPPORTED 12-INCHES ABOVE BOTTOM OF MANHOLE ON ADJUSTABLE PIPE SADDLE SUPPORTS, IN ACCORDANCE WITH SPECIFICATION SECTION 15094, UNLESS OTHERWISE INDICATED.
8. CONTRACTOR SHALL RE-SHAPE INVERTS AS REQUIRED WHEN CONNECTING INTO EXISTING MANHOLES.
9. REFER TO SPECIFICATION SECTION 02200 FOR PIPE AND STRUCTURE BEDDING AND BACKFILL REQUIREMENTS.
10. COMPACTION TESTS WILL BE PERFORMED IN ACCORDANCE WITH SPECIFICATION SECTION 02200. ANY SETTLEMENT OCCURRING WITHIN ONE-YEAR OF FINAL COMPLETION OF THE WORK SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST.

OPEN TRENCHES IN THE ROADWAY MUST BE BACKFILLED AT THE END OF THE WORKDAY.

11. IN THOSE INSTANCES WHERE POWER OR TELEPHONE POLE SUPPORT IS REQUIRED, THE CONTRACTOR SHALL PROVIDE A MINIMUM 48-HOUR NOTICE TO THE RESPECTIVE UTILITY POLE OWNER. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR TEMPORARY BRACING OF UTILITIES.
12. WHERE NEW PIPING IS TO BE CONNECTED TO EXISTING PIPING, THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ADAPTERS, FITTINGS, AND ADDITIONAL PIPE AS REQUIRED TO COMPLETE THE CONNECTION. CONTRACTOR SHALL VERIFY LOCATION, ELEVATION, ORIENTATION AND MATERIAL OF CONSTRUCTION. TEST PITS SHALL BE USED AS REQUIRED.
13. ALL EXISTING UTILITIES ENCOUNTERED DURING CONSTRUCTION ARE TO REMAIN IN SERVICE UNLESS OTHERWISE NOTED ON THE CIVIL EXISTING CONDITIONS AND DEMOLITION PLAN. ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND DISPOSAL OF ALL DEMOLITION MATERIALS IN ACCORDANCE WITH SPECIFICATION SECTION 02050.
15. ALL STRUCTURES AND PIPELINES LOCATED ADJACENT TO ANY TRENCH EXCAVATION SHALL BE PROTECTED AND FIRMLY SUPPORTED BY THE CONTRACTOR UNTIL THE TRENCH IS BACKFILLED. DAMAGE TO ANY SUCH STRUCTURES CAUSED BY OR RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. ALL UTILITIES REQUIRING REPAIR, RELOCATION OR ADJUSTMENT AS A RESULT OF THE PROJECT SHALL BE COORDINATED THROUGH THE OWNER.
16. PIPING ON THE SITE PIPING PLAN HAS BEEN SHOWN BROKEN FOR CLARITY ONLY. PIPE BREAKS DO NOT INDICATE RELATIVE ELEVATIONS OF PIPING.
17. ELECTRICAL CONDUIT RUNS ARE INDICATED ON THE ELECTRICAL DRAWINGS AND ARE SHOWN IN DASHED/PHANTOM LINEWEIGHT ON THE CIVIL DRAWINGS FOR CONVENIENCE. CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION, EXCAVATION AND BACKFILLING REQUIRED FOR THE ELECTRICAL CONDUITS, AND SHALL FURNISH AND INSTALL ELECTRICAL MANHOLES AND HANDHOLES. COORDINATE THE LOCATION OF THE ELECTRICAL MANHOLES AND HANDHOLES, AND THE REQUIRED OPENING SIZES, WITH THE ELECTRICAL CONTRACTOR.
18. WHENEVER PROPOSED STRUCTURES ARE LOCATED PARTLY WITHIN A PAVED AREA AND PARTLY IN A NON-PAVED AREA, A BITUMINOUS CONCRETE PAVED APRON 2-FEET WIDE SHALL BE SUPPLIED AROUND THE PROPOSED COVER. PAVEMENT SHALL SLOPE AWAY FROM THE COVER.

CIVIL ABBREVIATIONS

&	AND	MH	MANHOLE
Ø, DIA	DIAMETER	MIN	MINIMUM
#, NO	NUMBER	MW	MONITORING WELL
AC	ASBESTOS CEMENT	N	NORTH
APP'D	APPROVED	NGVD	NATIONAL GEODEIC VERTICAL DATUM
BR	BRICK	N/A	NOT AVAILABLE/APPLICABLE
BLDG	BUILDING	NTS	NOT TO SCALE
CB	CATCH BASIN	OD	OUTSIDE DIAMETER
CEN	CENTER	OUT	OUTFALL
CFS	CUBIC FEET PER SECOND	PC	PERFORATED CLAY
CI	CAST IRON	PSF	POUNDS PER SQUARE FOOT
CIPP	CURED-IN-PLACE-PIPE	PSI	POUNDS PER SQUARE INCH
CL	CENTERLINE	PS	PRIMARY SLUDGE
CMP	CORRUGATED METAL PIPE	PT	POINT OF TANGENCY
CO	CLEANOUT	PVC	POLYVINYL CHLORIDE
CONC	CONCRETE	RCP	REINFORCED CONCRETE PIPE
COR	CORNER	RD	ROOF DRAIN
CU	COPPER	REQ'D	REQUIRED
CY	CUBIC YARD	S	SLOPE, SEWER
DEMO	DEMOLITION	SD	STORM DRAIN
DMH	DRAIN MANHOLE	SF	SQUARE FEET
DI	DUCTILE IRON	SMH	SANITARY SEWER MANHOLE
DR	DRAIN	SQ	SQUARE
DWG	DRAWING	STA	STATION
EL	ELEVATION	T, XFMR	TRANSFORMER
EMH	ELECTRIC MANHOLE	TBM	TEMPORARY BENCH MARK
FM	FORCE MAIN	THK	THICKNESS
FT	FEET	TOS	TOP OF STRUCTURE
G	GAS	TYP	TYPICAL
HDPE	HIGH DENSITY POLYETHYLENE	UD	UNDERDRAIN
HYD	HYDRANT	UG	UNDERGROUND
IN	INCH	UGE	UNDERGROUND ELECTRIC
INF	INFLUENT	VC	VITRIFIED CLAY
INV	INVERT	VF	VERTICAL FOOT
LBS	POUNDS	W/	WITH
LF	LINEAR FOOT	W	POTABLE WATER
MAX	MAXIMUM	WS	WATER SERVICE

EXISTING	LEGEND	PROPOSED
	PROPERTY/ROW LINE	
	SETBACK LINE	
	EASEMENT LINE	
	CENTERLINE	
	EDGE OF PAVEMENT	
	CURBING	
	EDGE OF GRAVEL	
	EDGE OF CONCRETE	
	CONTOUR	
	BUILDING	
	STONEWALL	
	TREELINE	
	CHAIN LINK FENCE	
	STOCKADE FENCE	
	BARB WIRE FENCE	
	RETAINING WALL	
	GUARDRAIL	
	SEWER	
	SEWER FORCE MAIN	
	GAS	
	WATER	
	STORM DRAIN	
	UNDERDRAIN	
	CULVERT	
	UNDERGROUND ELECTRIC	
	OVERHEAD ELECTRIC	
	UNDERGROUND TELEPHONE	
	UNDERGROUND CABLE TV	
	IRON PIPE/REBAR	
	DRILLHOLE	
	MONUMENT	
	SURVEY CONTROL POINT	
	SPOT ELEVATION	
	SEWER MANHOLE	
	DRAINAGE MANHOLE	
	CATCH BASIN	
	ELECTRIC MANHOLE	
	TELEPHONE MANHOLE	
	SHUTOFF VALVE	
	WATER SERVICE SHUTOFF	
	YARD HYDRANT	
	HYDRANT	
	GAS SERVICE SHUTOFF	
	GAS GATE VALVE	
	UTILITY POLE	
	UTILITY POLE W/ GUY	
	UTILITY POLE W/ LIGHT	
	LIGHT POLE	
	BOLLARD	
	FLAGPOLE	
	CONIFEROUS TREE	
	DECIDUOUS TREE	
	SHRUB	
	WETLAND FLAG	
	EDGE OF WATER	
	STREAM	
	EDGE OF WETLANDS	
	FLOODPLAIN	
	WETLANDS	
	DRAINAGE FLOW	
	DRAINAGE SWALE	
	PAVEMENT MARKINGS	
	SIGN	
	MAILBOX	
	TEMPORARY BENCH MARK	
	TEST PIT	
	TEST BORING	
	TEST PROBE	
	MONITORING WELL	
	LIMIT OF WORK	
	SILT FENCE/SILT SOCK	
	RIPRAP	
	RAILROAD	
	MATCHLINE	
	ROCK OUTCROP	
	INLET PROTECTION	

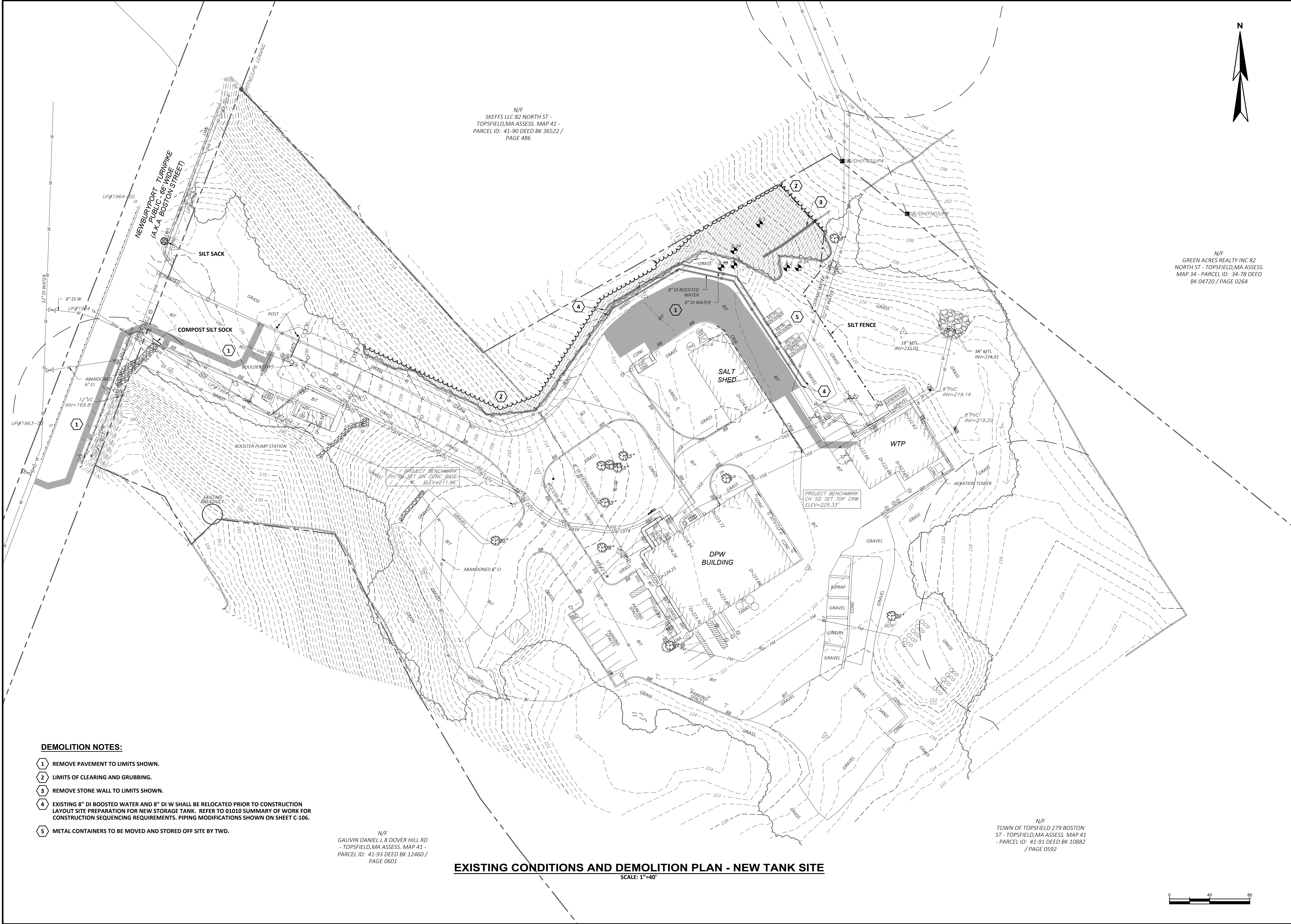
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PROJECT NO: 20974	DESIGNED: C.DAIGLE	CAD COORD: S.COCHRAN	CAD: D.METZ	CHECKED: J.CRAY	DATE: 02-2024	APPROVED: J.CRAY	DATE: 02-2024	SUBMISSION: PERMIT SUBMITTAL
TOWN OF TOPSFIELD, MASSACHUSETTS BOSTON STREET WATER STORAGE TANK REPLACEMENT GENERAL NOTES, LEGEND AND ABBREVIATIONS								
DRAWING C-001								







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A:\ENGINE\TOPSFIELD\20974-BOSTONST-TANKREPLACEMENT\DRAWINGS\CU\20974-CS-EXISTINGCONDITIONS\DWG | 20974-CS-EXISTINGCONDITIONS\DWG | 12.5848 | 12/21/2024 12:21:03 PM | DANIEL METZ



DEMOLITION NOTES:

- 1 REMOVE PAVEMENT TO LIMITS SHOWN.
- 2 LIMITS OF CLEARING AND GRUBBING.
- 3 REMOVE STONE WALL TO LIMITS SHOWN.
- 4 EXISTING 8" DI BOOSTED WATER AND 8" DI W SHALL BE RELOCATED PRIOR TO CONSTRUCTION LAYOUT SITE PREPARATION FOR NEW STORAGE TANK. REFER TO 01010 SUMMARY OF WORK FOR CONSTRUCTION SEQUENCING REQUIREMENTS. PIPING MODIFICATIONS SHOWN ON SHEET C-106.
- 5 METAL CONTAINERS TO BE MOVED AND STORED OFF SITE BY TWD.

N/F  
GAUVIN DANIEL L 8 DOVER HILL RD  
- TOPSFIELD, MA ASSESS. MAP 41 -  
PARCEL ID: 41-93 DEED BK 12460 /  
PAGE 0601

EXISTING CONDITIONS AND DEMOLITION PLAN - NEW TANK SITE  
SCALE: 1"=40'

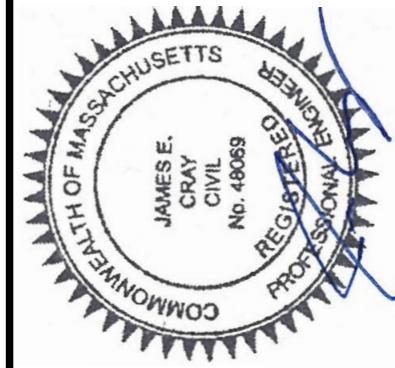
N/F  
TOWN OF TOPSFIELD 279 BOSTON  
ST - TOPSFIELD, MA ASSESS. MAP 41  
- PARCEL ID: 41-91 DEED BK 10882  
/ PAGE 0592



N/F  
GREEN ACRES REALTY INC 82  
NORTH ST - TOPSFIELD, MA ASSESS.  
MAP 34 - PARCEL ID: 34-78 DEED  
BK 04720 / PAGE 0264

N/F  
SKEFFS LLC 82 NORTH ST -  
TOPSFIELD, MA ASSESS. MAP 41 -  
PARCEL ID: 41-90 DEED BK 36522 /  
PAGE 486

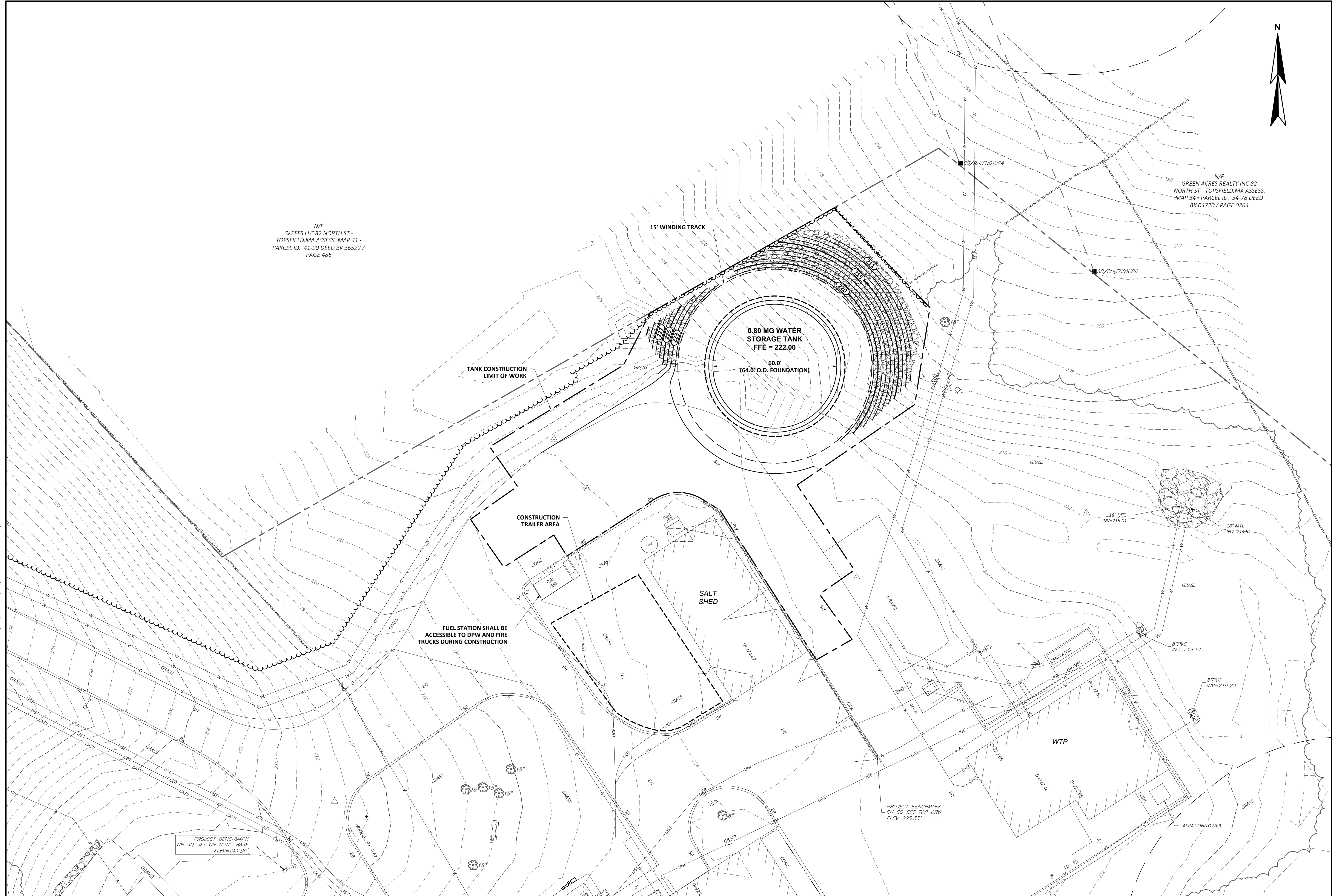
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		PROJECT NO: 20974		DESIGNED: C.DAIGLE		PROJECT NO: 20974	
		CAD COORD: S.COCHRAN		CAD: D.METZ		DESIGNED: C.DAIGLE	
		CHECKED: J.CRAY		DATE: 02-2024		CAD: D.METZ	
		APPROVED: J.CRAY		DATE: 02-2024		CHECKED: J.CRAY	
EXISTING CONDITIONS AND DEMOLITION PLAN NEW TANK SITE		SUBMISSION: PERMIT SUBMITTAL		DATE: 02-2024		APPROVED: J.CRAY	
						SUBMISSION: PERMIT SUBMITTAL	



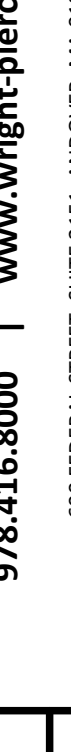

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EXISTING CONDITIONS AND DEMOLITION PLAN  
NEW TANK SITE

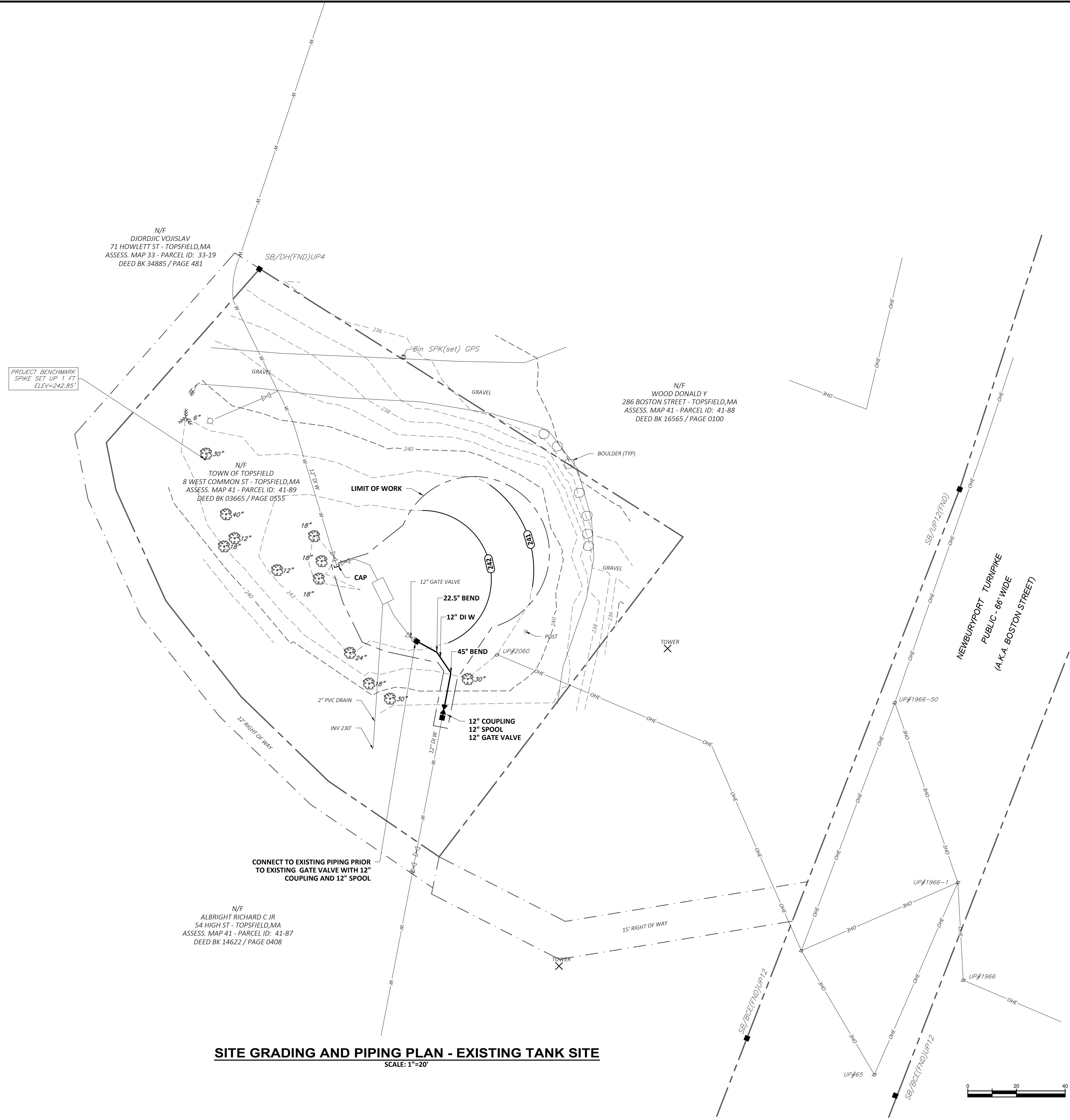




**CONSTRUCTION LAYOUT PLAN - NEW TANK SITE**  
SCALE: 1"=20'

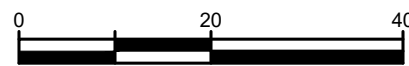
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	CONSTRUCTION LAYOUT PLAN NEW TANK SITE							







**NOTE:**  
ALL WORK INCLUDED IN THIS SHEET FALLS UNDER BID ALTERNATE "A" AS  
DESCRIBED IN SPECIFICATION SECTION 01100 – ALTERNATES.

**SITE GRADING AND PIPING PLAN - EXISTING TANK SITE**  
SCALE: 1"=20'

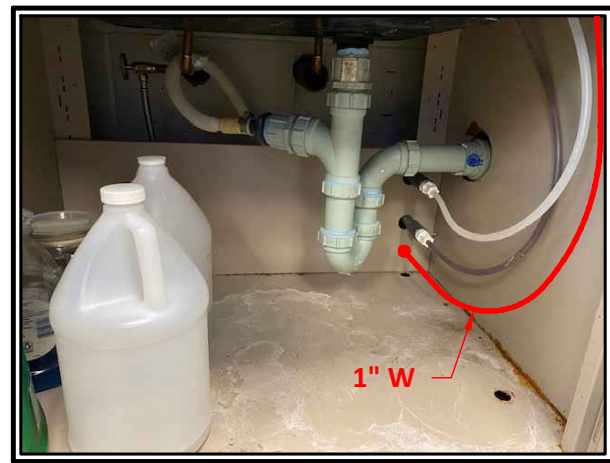
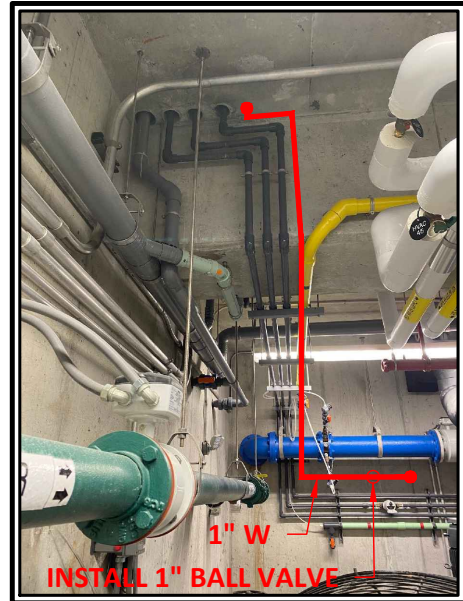
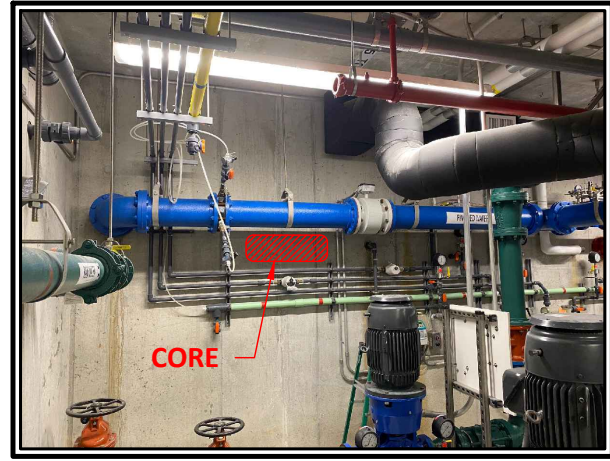
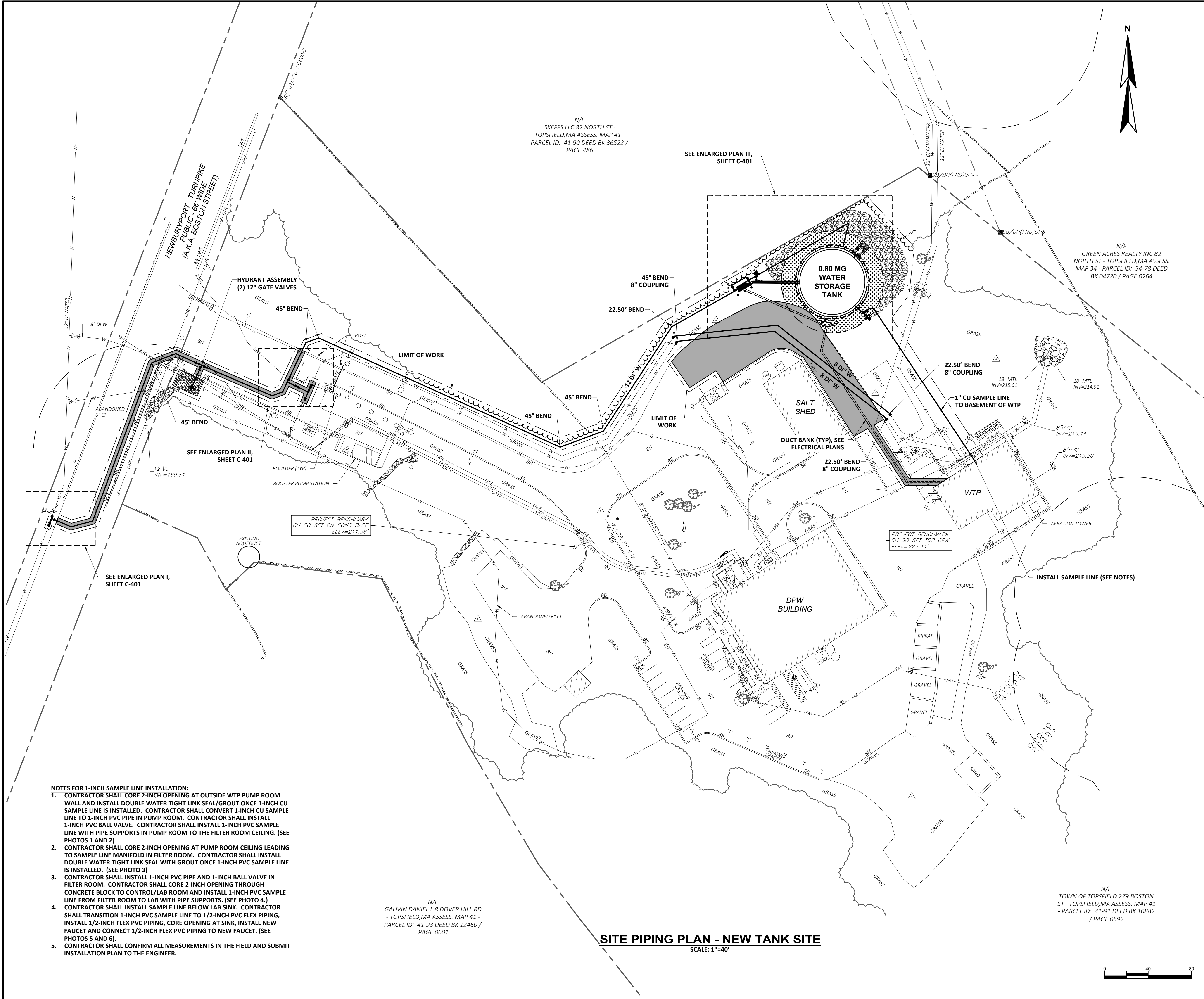


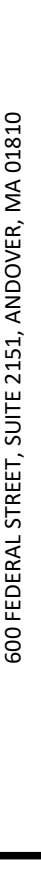

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	SITE GRADING AND PIPING PLAN EXISTING TANK SITE				△	△	△



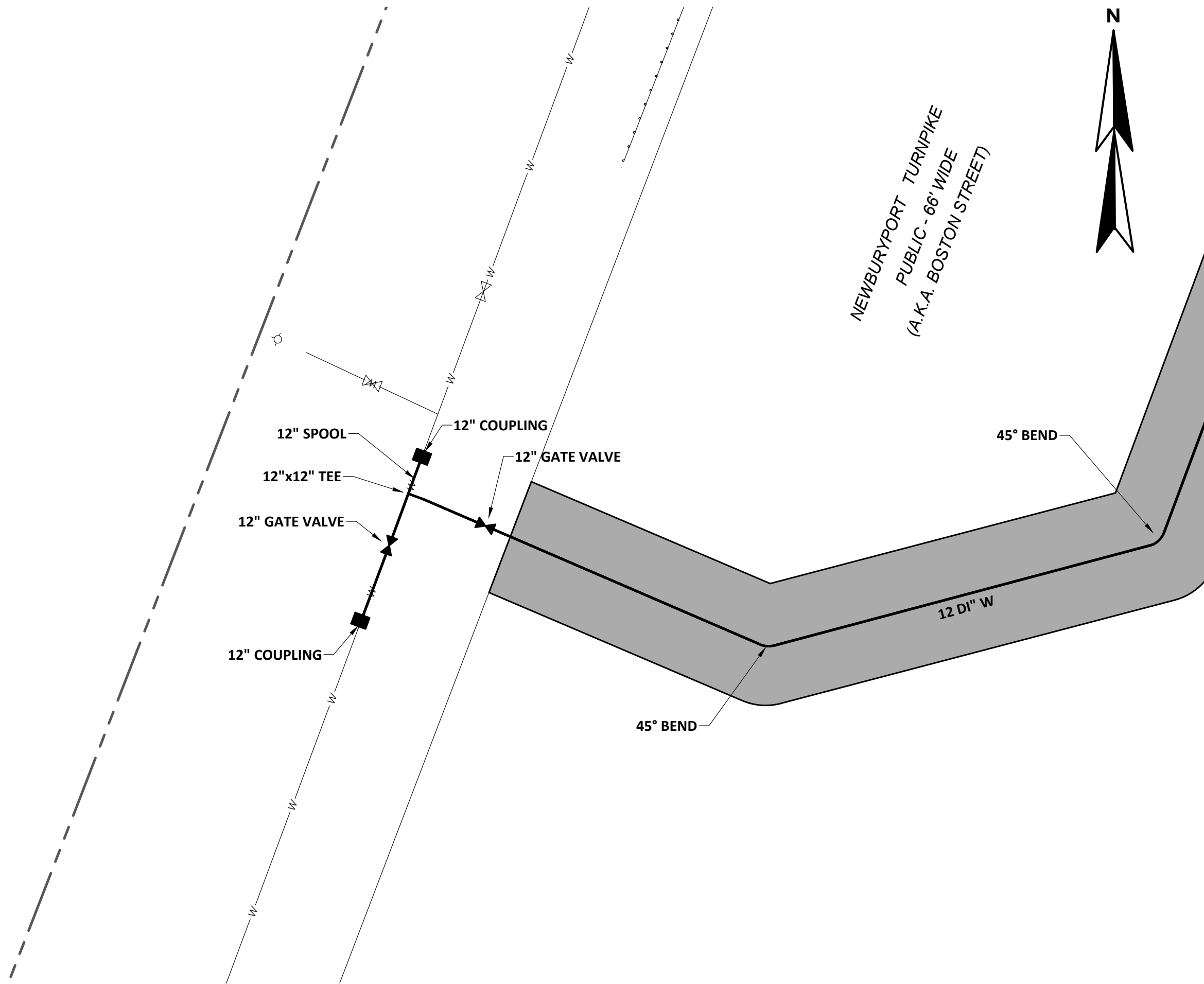




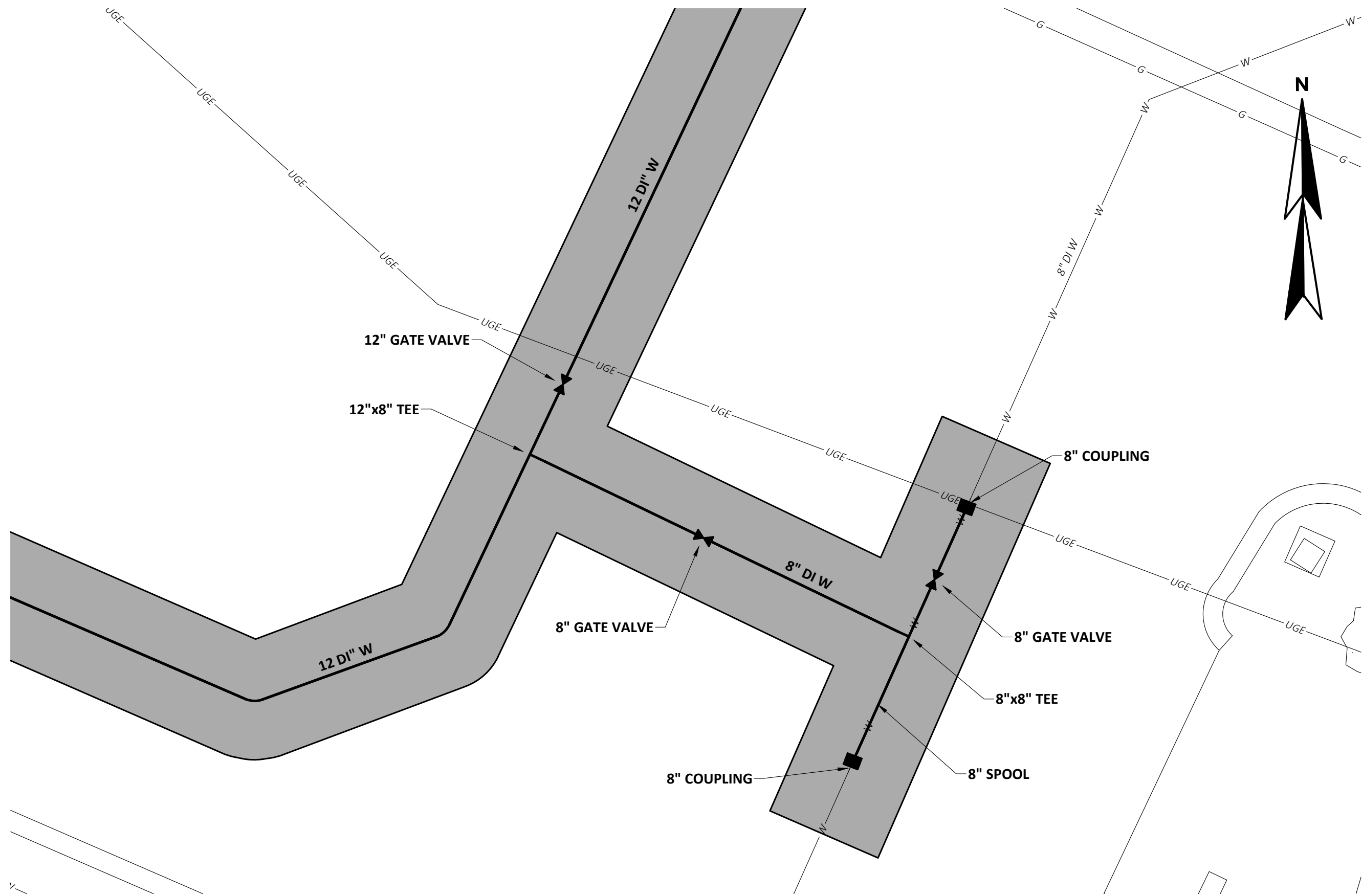


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	SITE PIPING PLAN NEW TANK SITE						
C-106							

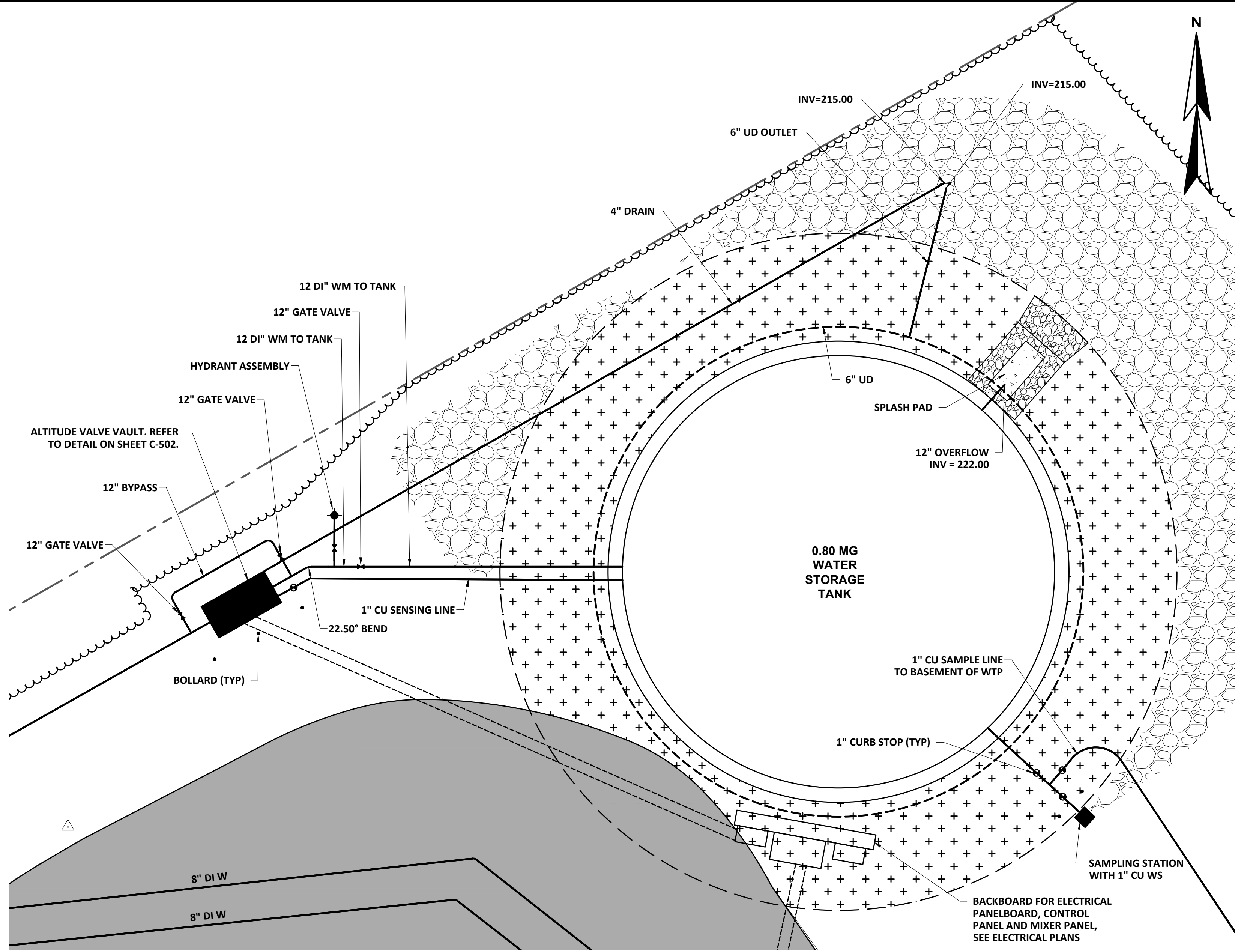




ENLARGED PIPING PLAN I - NEW TANK SITE  
SCALE: 1"=5'



ENLARGED PIPING PLAN II - NEW TANK SITE  
SCALE: 1"=5'



ENLARGED PIPING PLAN III - NEW TANK SITE  
SCALE: 1"=10'



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ENLARGED PIPING PLANS				
DRAWING C-401				

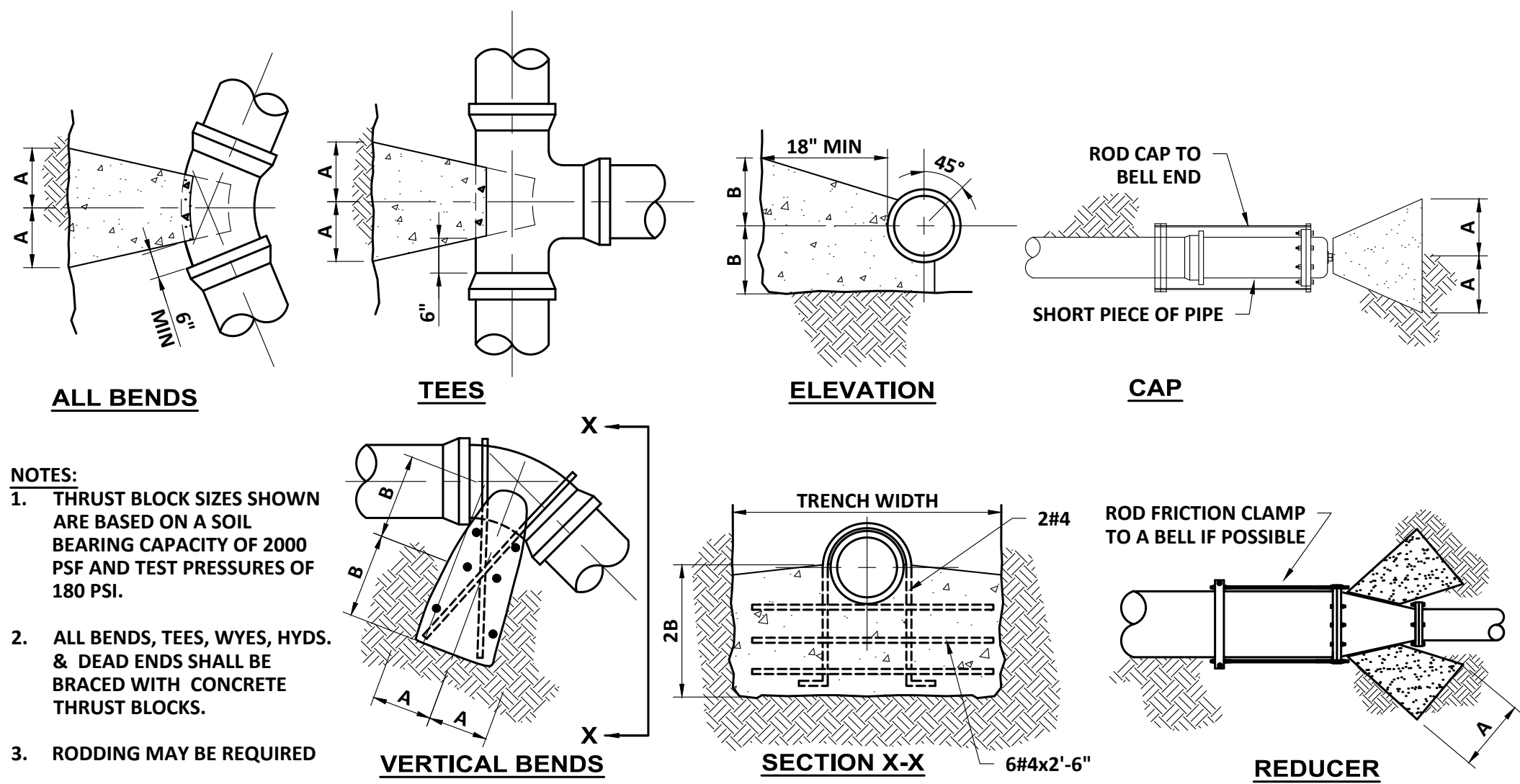
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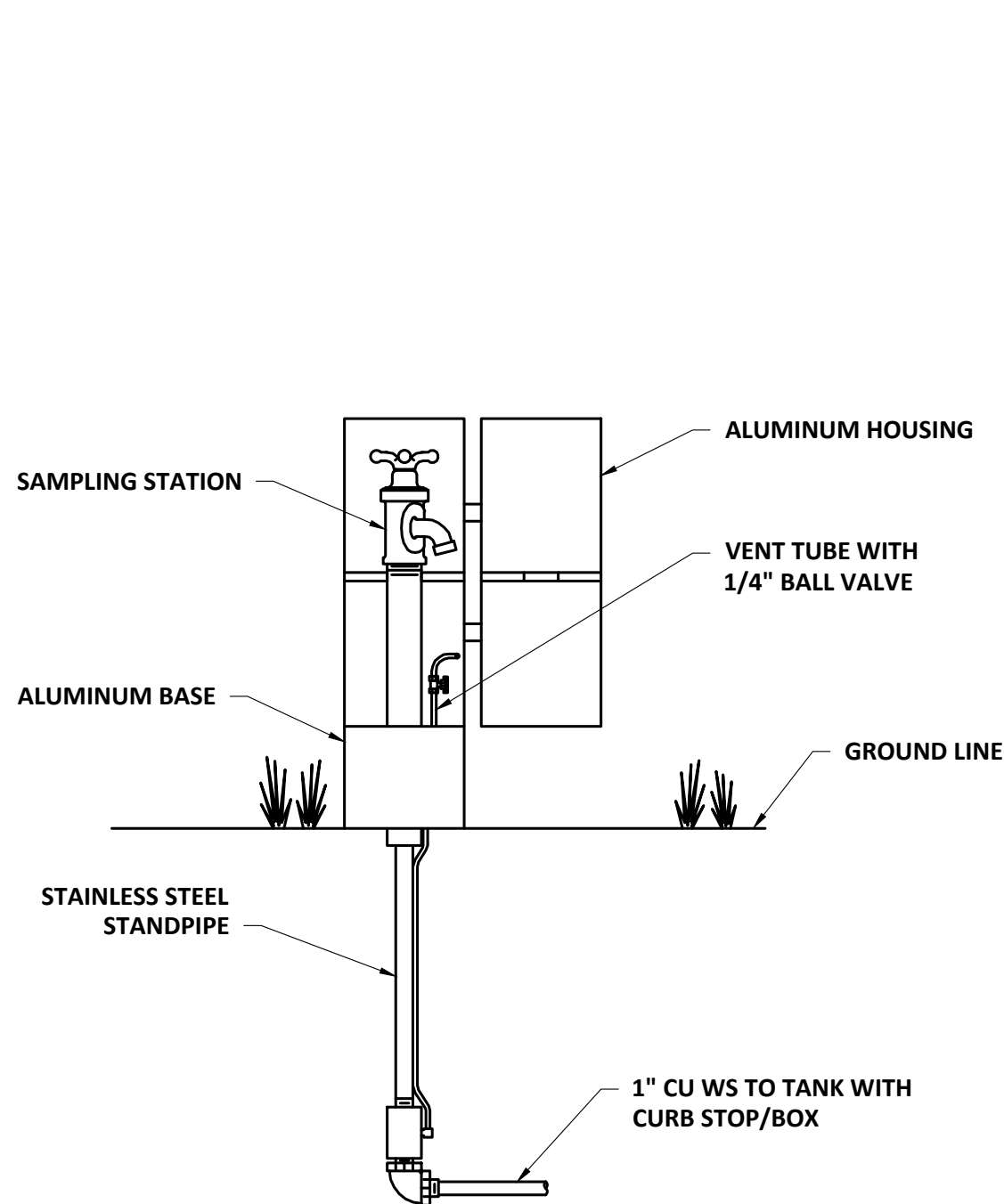


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PIPE SIZE	90° BEND		45° BEND		22 1/2° BEND		11 1/4° BEND		TEE		VERTICAL BEND (DOWN)		PLUG		REDUCER	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
4"	15"	12"	12"	9"	9"	6"	6"	6"	12"	12"	24"	21"	12"	12"	12"	12"
6"	15"	12"	12"	9"	9"	6"	6"	6"	12"	12"	24"	21"	12"	12"	12"	12"
8"	20"	15"	14"	12"	9"	9"	9"	6"	18"	12"	33"	24"	14"	14"	18"	12"
10"	21"	21"	18"	15"	15"	9"	9"	9"	20"	18"	40"	27"	16"	16"	20"	18"
12"	27"	24"	23"	15"	15"	12"	12"	9"	25"	18"	48"	30"	18"	18"	25"	18"
16"	37"	30"	30"	21"	21"	15"	13"	12"	32"	24"	57"	36"	22"	22"	32"	24"

**THRUST BLOCKS**  
NTS

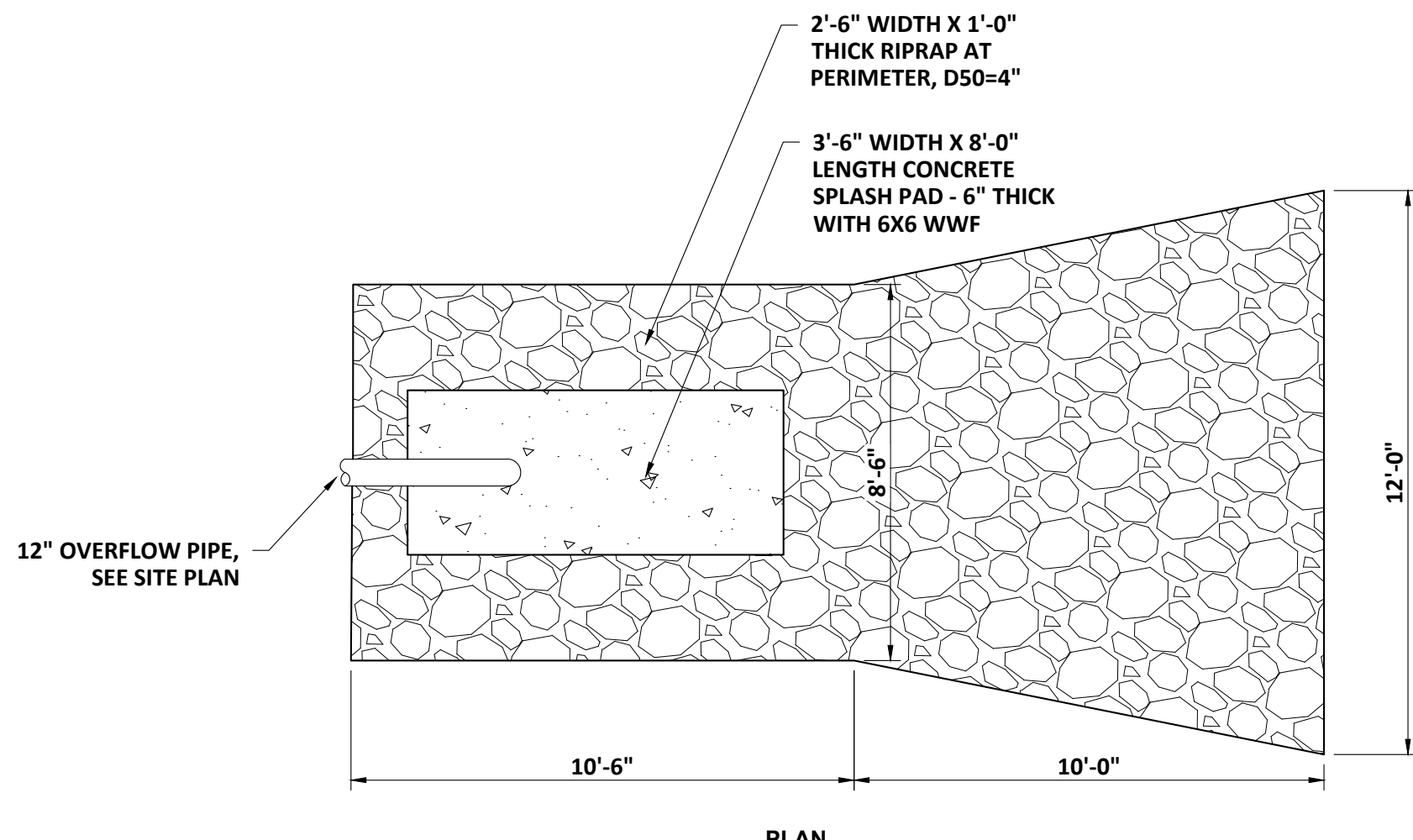


- NOTES:**
- SUBGRADE SHALL BE COMPACTED BACKFILL CONSISTING OF EXCAVATED MATERIAL, GRAVEL BORROW.
  - PIPE SHALL BE INSTALLED WITH A MINIMUM OF 6" SAND BEDDING AND 12" OF SAND COVER.

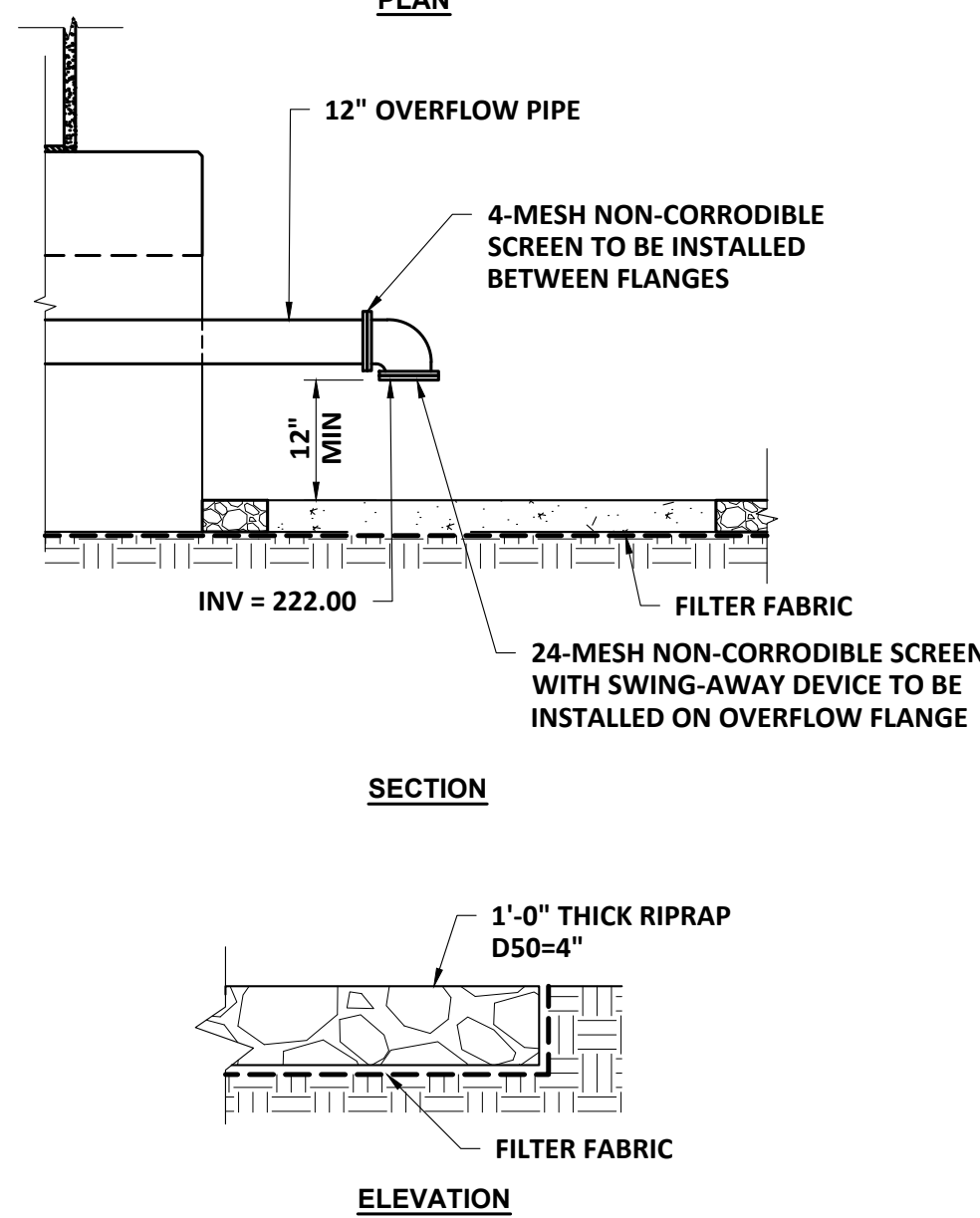
**SAMPLE STATION SPECIFICATIONS:**

- SHALL BE ECLIPSE #88-SS AS MANUFACTURED BY KUPFERLE FOUNDRY COMPANY, OR APPROVED EQUAL.
- SHALL HAVE A 1/2" FIP INLET AND 7/16" UNTHREADED BLOWOFF AND SAMPLING BIBB.
- SHALL BE ENCLOSED IN A LOCKABLE, NON-REMOVABLE ALUMINUM HOUSING WITH HINGED OPENING.
- ALL WORKING PARTS AND WATER WAY SHALL BE STAINLESS STEEL.
- ALL WORKING PARTS SHALL BE SERVICEABLE FROM ABOVE GROUND.
- A SELF-DRAINING STAINLESS STEEL PET COCK SHALL BE INSTALLED BELOW THE SAMPLING BIBB.
- CONTRACTOR SHALL PROVIDE ALL FITTING AND COUPLING REQUIRED TO CONNECT TO THE WATER MAIN.

**SAMPLING STATION DETAIL**  
SCALE: NTS

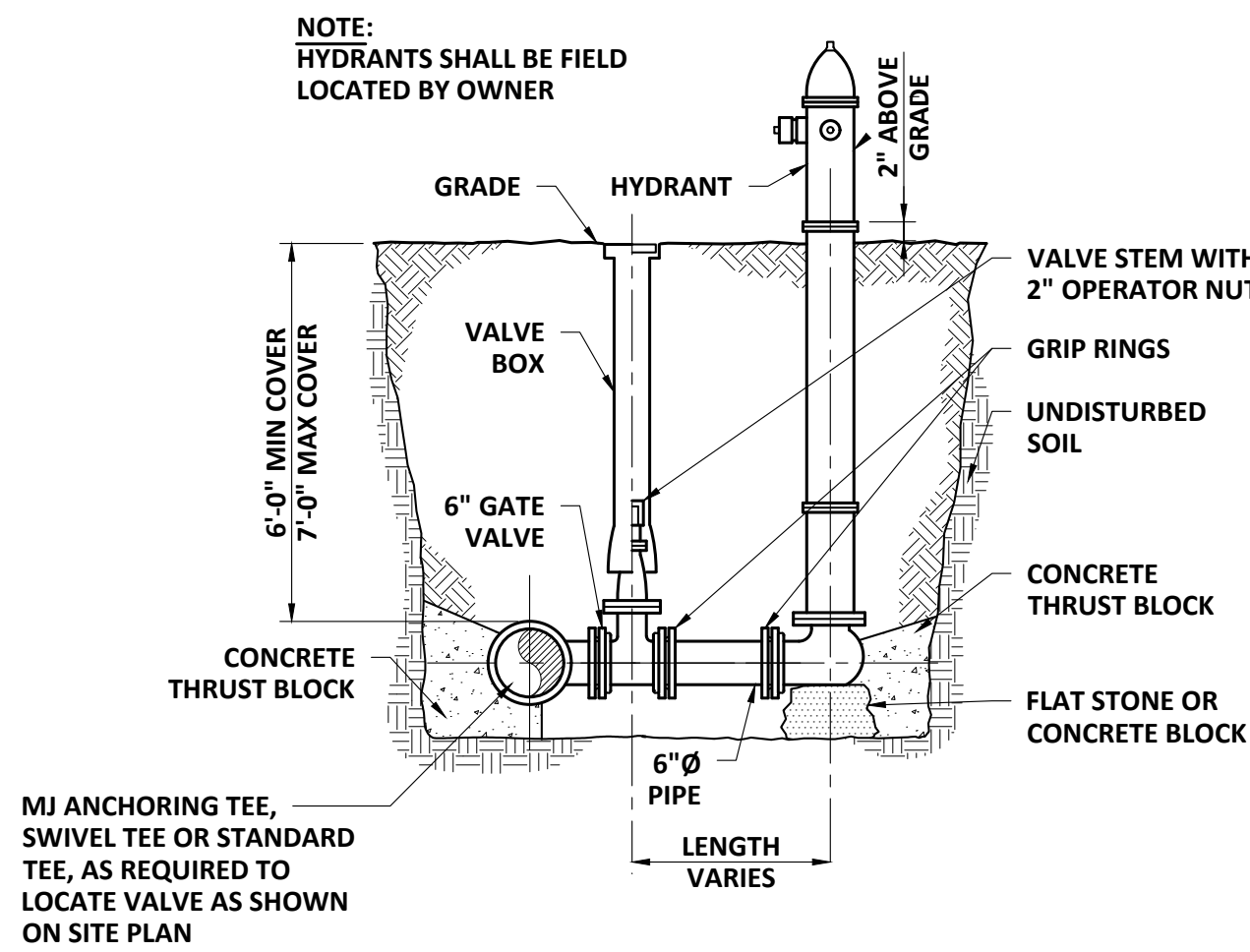


**PLAN**

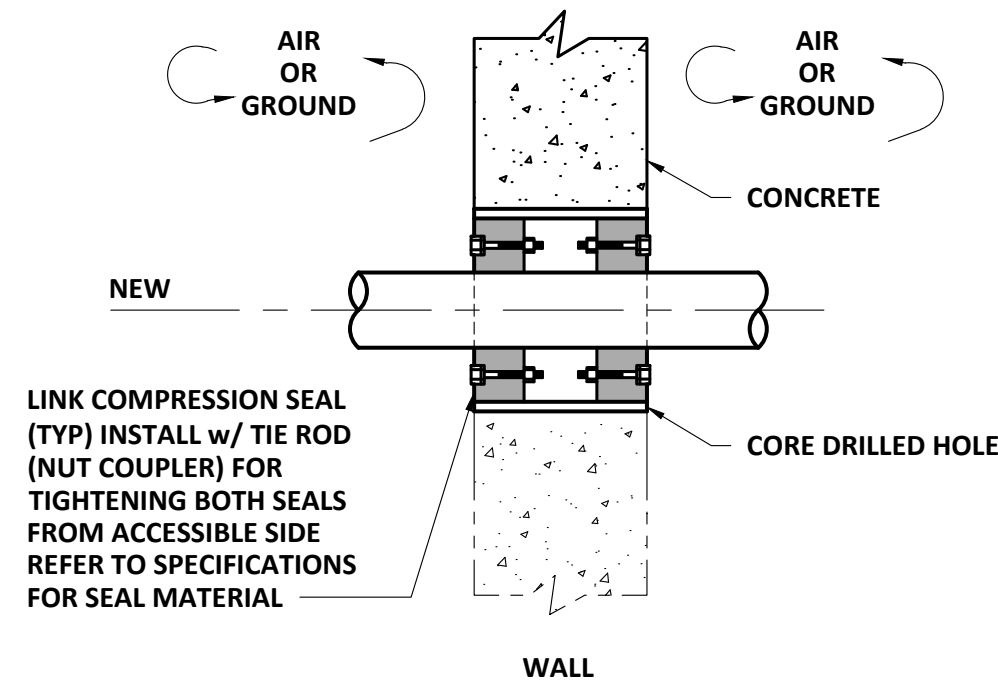


**ELEVATION**

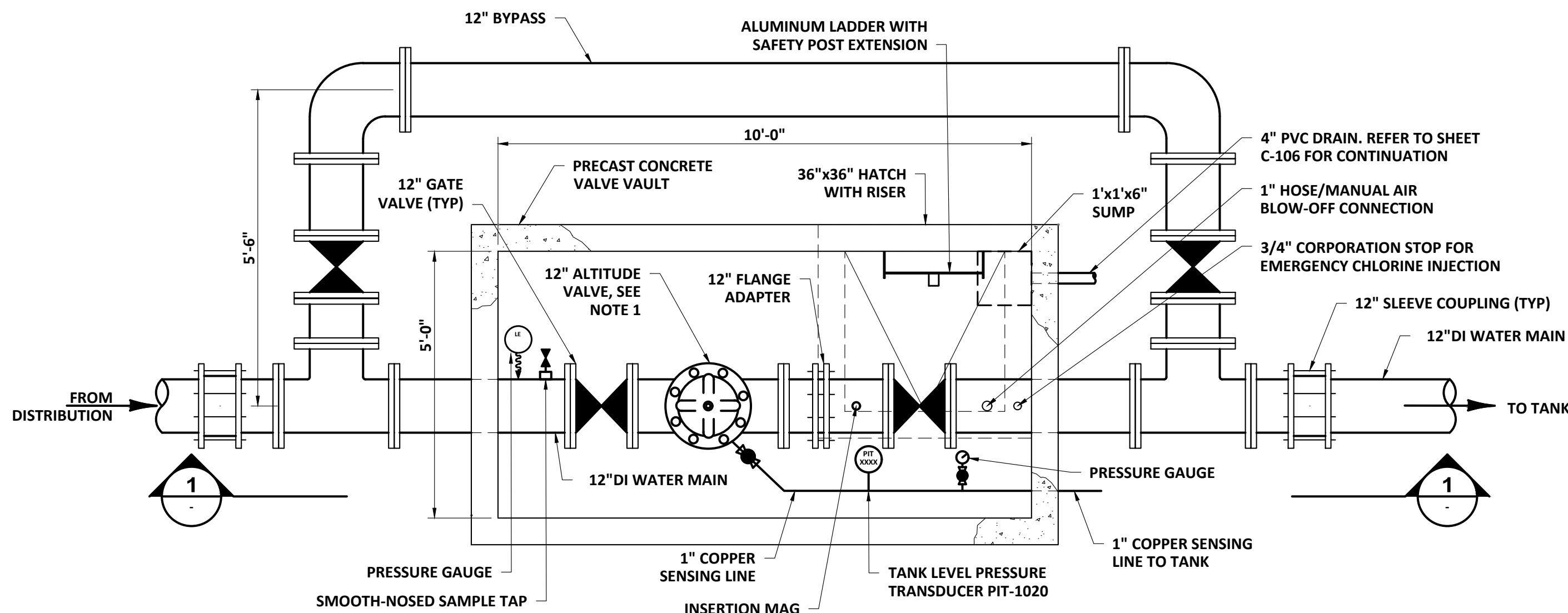
**CONCRETE SPLASH PAD**  
SCALE: NTS



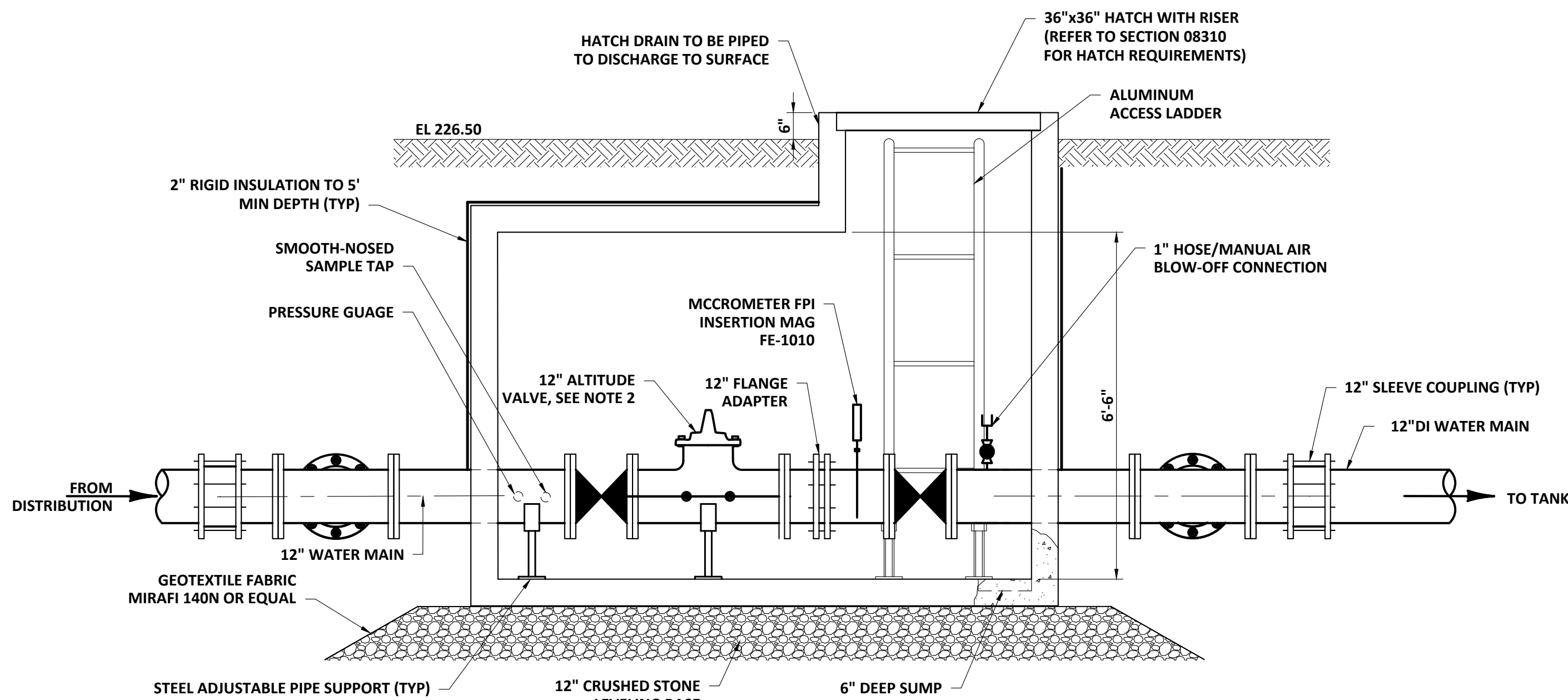
**HYDRANT CONNECTION**  
SCALE: NTS



**CONSTRUCTION PIPING PENETRATION DETAIL**  
SCALE: NTS



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



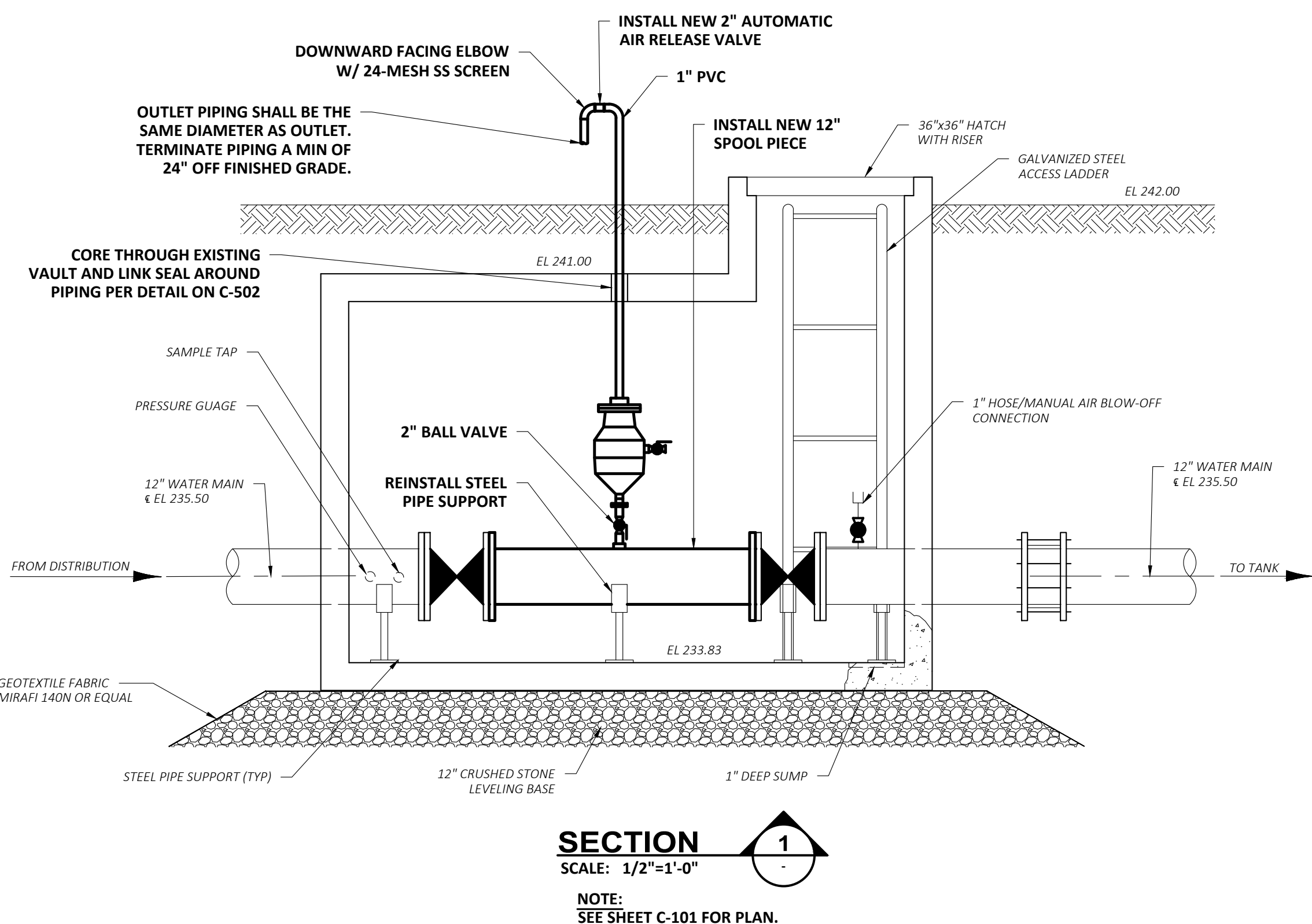
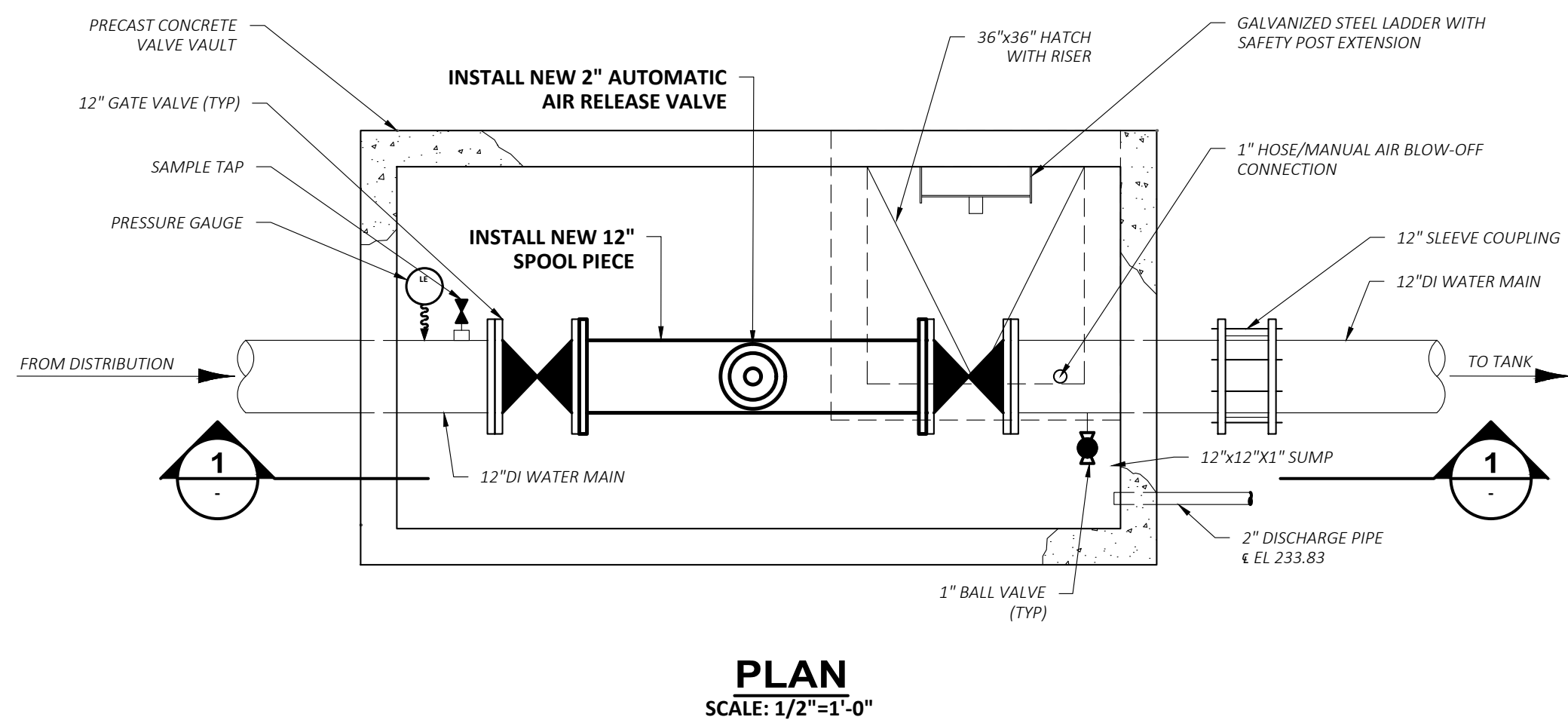
**SECTION**  
SCALE: 1/2"=1'-0"

- NOTES:**
- SEE SPEC SECTION 03420 FOR PRE-CAST VAULT DESIGN REQUIREMENTS.
  - ALTITUDE VALVE SHALL BE SUPPLIED WITH LIMIT SWITCH FOR REMOTE VALVE POSITION (OPEN/CLOSED) INDICATION AND WIRED TO TANK CONTROL PANEL (CP-ST). REFER TO ELECTRICAL DRAWINGS. SEE SPEC SECTION 15119 FOR ALTITUDE VALVE DESIGN REQUIREMENTS.
  - CONTRACTOR SHALL CONFIRM LISTED ELEVATIONS WITH RESPECT TO SITE CONDITIONS PRIOR TO ORDERING STRUCTURES.


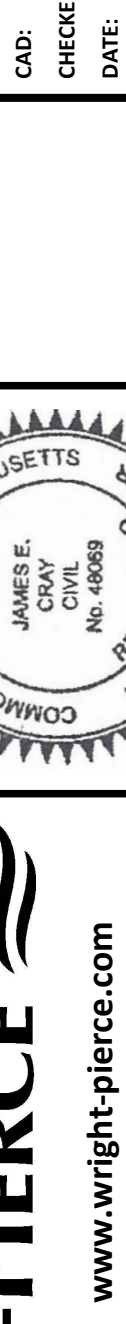
**ALTITUDE VALVE VAULT**  
SCALE: 1/2"=1'-0"

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TOWN OF TOPSFIELD, MASSACHUSETTS BOSTON STREET WATER STORAGE TANK REPLACEMENT								
DETAILS II								
DRAWING C-502								





**INSTALLATION OF AIR RELEASE VALVE AND 12-INCH SPOOL PIPE- EXISTING TANK SITE - BID ALTERNATE A**  
SCALE: 1/2"=1'-0"

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	DETAILS III				△		



EROSION AND SEDIMENTATION CONTROL NOTES

THIS PLAN HAS BEEN DEVELOPED AS A STRATEGY TO CONTROL SOIL EROSION AND SEDIMENTATION DURING AND AFTER CONSTRUCTION. THIS PLAN IS BASED ON THE STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION IN URBAN AND SUBURBAN AREAS AS CONTAINED IN THE "MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS", FRANKLIN, HAMPDEN, HAMPSHIRE CONSERVATION DISTRICTS, DATED MARCH, 1997.

THE PROPOSED LOCATIONS OF SILTATION AND EROSION CONTROL STRUCTURES REQUIRED FOR THE PUMP STATION AND WATER METERING STATION ARE SHOWN ON THE GRADING/EROSION CONTROL PLANS. PROVIDE SILT FENCE, STONE CHECK DAMS AND OTHER EROSION CONTROL MEASURES AS REQUIRED TO ADEQUATELY PREVENT SEDIMENT TRANSPORT AS NOTED IN THE BMP.

1. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE IN ACCORDANCE WITH THE "MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS", FRANKLIN, HAMPDEN, HAMPSHIRE CONSERVATION DISTRICTS, DATED MARCH, 1997.

2. THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE MAINTAINED IN AN UNTREATED OR UNVEGETATED CONDITION FOR THE MINIMUM TIME REQUIRED. IN GENERAL, AREAS TO BE VEGETATED SHALL BE PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF THE SOIL.

3. SEDIMENT BARRIERS (SILT FENCE, STONE CHECK DAMS, ETC.) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF UPGRADIENT DRAINAGE AREAS.

4. INSTALL SILT FENCE AT TOE OF SLOPES TO FILTER SILT FROM RUNOFF. SEE SILT FENCE DETAIL FOR PROPER INSTALLATION. SILT FENCE WILL REMAIN IN PLACE PER NOTE #5.

5. ALL EROSION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED AND/OR REPAIRED EVERY 7 DAYS AND IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT OR WHEN NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSURE. SEDIMENT DEPOSITS MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE PERMANENTLY STABILIZED.

6. NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2 TO 1) UNLESS STABILIZED WITH PERMANENT EROSION CONTROL MEASURES.

7. IF FINAL SEEDING OF THE DISTURBED AREAS IS NOT TO BE COMPLETED 30 DAYS PRIOR TO THE ANTICIPATED DATE OF THE FIRST KILLING FROST, USE TEMPORARY MULCHING (DORMANT SEEDING MAY BE ATTEMPTED AS WELL) TO PROTECT THE SITE AND DELAY PERMANENT SEEDING, UNTIL UPGRADIENT AREAS ARE STABILIZED.

8. WHEN FEASIBLE, TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINISH GRADED SHALL BE COMPLETED 30 DAYS PRIOR TO THE FIRST KILLING FROST.

9. DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO THE SITE AND REGRADED ONTO OPEN AREAS. POST SEEDING SEDIMENT, IF ANY, WILL BE DISPOSED OF IN AN ACCEPTABLE MANNER.

10. REVEGETATION MEASURES WILL COMMENCE UPON COMPLETION OF CONSTRUCTION EXCEPT AS NOTED ABOVE. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED WILL BE GRADED, SMOOTHED, AND REVEGETATED AS FOLLOWS:

A. A MINIMUM OF FOUR (4) INCHES OF LOAM WILL BE SPREAD OVER DISTURBED AREAS AND SMOOTHED TO A UNIFORM SURFACE.

B. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST. IF SOIL TESTING IS NOT DEEMED FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 800 POUNDS PER ACRE OR 18.4 POUNDS PER 1,000 SQUARE FEET USING 10-20-20 (N-P205-K20) OR EQUIVALENT. APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 LB PER 1,000 SQ. FT.).

C. FOLLOWING SEED BED PREPARATION, DITCHES AND BACK SLOPES WILL BE SEEDDED WITH A MIXTURE OF 47% CREEPING RED FESCUE, 5% REDTOP, AND 48% TALL FESCUE. THE LAWN AREAS WILL BE SEEDDED WITH A PREMIUM TURF MIXTURE OF 44% KENTUCKY BLUEGRASS, 44% CREEPING RED FESCUE, AND 12% PERENNIAL RYE GRASS. SEEDING RATE IS 3.0 LBS PER 1000 SQ. FT. LAWN QUALITY SOD MAY BE SUBSTITUTED FOR SEED.

D. HAY MULCH AT THE RATE OF 70-90 LBS PER 1000 SQUARE FEET OR A HYDRO-APPLICATION OF CELLULOSE FIBER SHALL BE APPLIED FOLLOWING SEEDING. A SUITABLE BINDER WILL BE USED ON HAY MULCH FOR WIND CONTROL.

11. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE WORK AREA IS STABILIZED.

12. WETLANDS (EXCEPTING THOSE WHICH ARE TO BE FILLED IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS) WILL BE PROTECTED WITH SILT FENCE INSTALLED AT THE EDGE OF THE WETLAND OR THE BOUNDARY OF WETLAND DISTURBANCE.

13. IN GENERAL, AREAS WITHIN 100 FEET OF DELINEATED WETLANDS OR STREAMS SHALL HAVE A MAXIMUM PERIOD OF EXPOSURE OF NOT MORE THAN 15 DAYS.

14. FOLLOW APPROPRIATE EROSION CONTROL MEASURES PRIOR TO EACH STORM IN ALL AREAS WITHIN 100 FEET OF DELINEATED WETLANDS OR STREAMS.
- EROSION CONTROL DURING WINTER CONSTRUCTION
1. WINTER CONSTRUCTION PERIOD DEFINED: NOVEMBER 1 THROUGH APRIL 15.

2. WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.

3. EXPOSED AREA SHOULD BE LIMITED TO THAT WHICH CAN BE MULCHED IN ONE DAY PRIOR TO ANY PRECIPITATION EVENT.

4. AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW OR HAY AT A RATE OF 100 POUNDS PER 1,000 SQUARE FEET (WITH OR WITHOUT SEEDING) OR DORMANT SEEDDED, MULCHED, AND ADEQUATELY ANCHORED BY AN APPROVED ANCHORING TECHNIQUE. IN ALL CASES, MULCH SHALL BE APPLIED SUCH THAT SOIL SURFACE IS NOT VISIBLE THROUGH THE MULCH.

5. BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE-FREEZING TEMPERATURES, THE SLOPES SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1 AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED, AND IS SMOOTH, THEN THE AREA MAY BE DORMANT SEEDDED AT A RATE 200%-300% HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. IF CONSTRUCTION CONTINUES DURING FREEZING WEATHER, ALL EXPOSED AREAS SHALL BE GRADED BEFORE FREEZING AND THE SURFACE TEMPORARILY PROTECTED FROM EROSION BY THE APPLICATION OF MULCH. SLOPES SHALL NOT BE LEFT EXPOSED OVER THE WINTER OR ANY OTHER EXTENDED TIME OF WORK SUSPENSION UNLESS TREATED IN THE ABOVE MANNER. UNTIL SUCH TIME AS WEATHER CONDITIONS PERMIT, ALL DITCHES TO BE FINISHED WITH THE PERMANENT SURFACE TREATMENT, EROSION SHALL BE CONTROLLED BY THE INSTALLATION OF BALES OF HAY OR STONE CHECK DAMS IN ACCORDANCE WITH THE STANDARD DETAILS.

6. A) BETWEEN THE DATES OF NOVEMBER 1 AND APRIL 15, ALL MULCH SHALL BE EITHER WOOD CELLULOSE FIBER OR BE ANCHORED WITH MULCH NETTING OR CHEMICAL TACK.

B) MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3%, FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8%.

C) MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15%. AFTER OCTOBER 1, THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%.

7. AFTER NOVEMBER 1, THE CONTRACTOR SHALL APPLY DORMANT SEEDING OR MULCH AND ANCHORING ON ALL BARE EARTH AT THE END OF EACH WORKING DAY.

8. DURING WINTER CONSTRUCTION PERIODS, ALL SNOW SHALL BE REMOVED FROM AREAS OF SEEDING AND MULCHING PRIOR TO PLACEMENT.
- MULCH ANCHORING
- ANCHOR MULCH WITH: MULCH NETTING (AS PER MANUFACTURER); ASPHALT EMULSION (0.05 GALLONS PER SQ. YD.); CHEMICAL TACK (AS PER MANUFACTURER'S SPECIFICATIONS); OR BE WOOD CELLULOSE FIBER (2000 LBS/ACRE). WETTING FOR SMALL AREAS AND ROAD DITCHES MAY BE PERMITTED.
- ADDITIONAL TEMPORARY SEED MIXTURE (OR PERIODS LESS THAN 12 MONTHS)
- | DATES                      | SEED                  | RATE         |
|----------------------------|-----------------------|--------------|
| 4/1 - 7/1<br>8/15 - 9/15   | OATS                  | 80 LBS/ACRE  |
| 4/1 - 6/1<br>(8/15 - 9/15) | ANNUAL RYE GRASS      | 40 LBS/ACRE  |
| (8/15 - 10/15)             | WINTER RYE            | 120 LBS/ACRE |
| (11/1 - 4/1)               | MULCH W/ DORMANT SEED | 80 LBS/ACRE* |
| (5/1 - 6/30)               | FOXTAIL MILLET        | 30 LBS/ACRE  |
- \*SEED RATE ONLY
- MULCH AND MULCH ANCHORING
- | MULCH  |                                    |                         |
|--|------------------------------------|-------------------------|
| LOCATION   | MULCH                              | RATE (1000 S.F.)        |
| PROTECTED AREA   | STRAW OR HAY *                     | 100 POUNDS              |
| WINDY AREAS  | STRAW OR HAY (ANCHORED) *          | 100 POUNDS              |
| MODERATE TO HIGH VELOCITY AREAS OR STEEP SLOPES (GREATER THAN 3:1) | JUTE MESH, EXCELSIOR MAT OR EQUIV. | AS REQUIRED AS REQUIRED |

\* A HYDRO-APPLICATION OF CELLULOSE FIBER MAY BE APPLIED FOLLOWING SEEDING. A SUITABLE BINDER SHALL BE USED ON HAY MULCH FOR WIND CONTROL.
- 
- SILT FENCE INSTALLATION DETAIL
- SCALE: NTS
- 
- HAY BALE CHECK DAM
- SCALE: "NTS"
- 
- COMBINATION SILT FENCE AND HAY BALE BARRIER
- SCALE: "NTS"
- 
- COMPOST SILT SOCK
- SCALE: NTS
- NOTES:

  - ALL MATERIAL TO MEET SPECIFICATIONS
  - SILT SOCK COMPOST/SOIL/ROCK/SEED FILL TO MEET APPLICATION REQUIREMENTS
  - SILT SOCK DEPICTED IS FOR MINIMUM SLOPES. GREATER SLOPES MAY REQUIRE LARGER SOCKS PER THE ENGINEER
  - COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.
- 
- TEMPORARY HAY BALE SEDIMENT BASIN
- SCALE: "NTS"
- 
- | DITCH SLOPE (FT/FT) | L (FT) |
|---------------------|--------|
| 0.020               | 100    |
| 0.030               | 66     |
| 0.040               | 50     |
| 0.050               | 40     |
| 0.080               | 25     |
| 0.100               | 20     |
| 0.120               | 17     |
| 0.150               | 13     |
- CROSS SECTION
- 
- PROFILE
- STONE CHECK DAM DETAIL
- SCALE: NTS
- 
- SILT SACK CATCH BASIN INLET
- SCALE: NTS
- NOTE:  
INSTALL SILT SACK PER MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. EMPTY OR REMOVE SEDIMENT FROM SILT SACK WHEN RESTRAINT CORD IS NO LONGER VISIBLE. CLEAN, RINSE, AND REPLACE AS NEEDED.
- PROJECT NO: 20974  
DESIGNED: C.DARGLE  
CAD COORD: S.COCHRAN  
CAD: D.METZ  
CHECKED: J.CRAY  
DATE: 02-2024  
APPROVED: J.CRAY  
DATE: 02-2024  
SUBMISSION: PERMIT SUBMITTAL

APPROVALS

NO	DATE	REVISIONS
1		
2		
3		
4		
5		

COMMONWEALTH OF MASSACHUSETTS  
JAMES E. CRAY  
CIVIL  
No. 4068  
REGISTERED PROFESSIONAL

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TOWN OF TOPSFIELD, MASSACHUSETTS  
BOSTON STREET  
WATER STORAGE TANK  
REPLACEMENT

EROSION CONTROL NOTES AND DETAILS

DRAWING  
C-504





PHOTO  
ACCESS TO ROUTE 1

1  
C-101



PHOTO  
ACCESS ROAD/HOUSE TOWARDS ROUTE 1

2  
C-101



PHOTO  
ACCESS ROAD/HOUSE AND TANK

3  
C-101



PHOTO  
ACCESS ROAD TO TANK SITE

4  
C-101



PHOTO  
ACCESS ROAD TOWARDS ROUTE 1

5  
C-101



PHOTO  
ACCESS ROAD

6  
C-101



PHOTO  
ENTRANCE TO SITE

7  
C-101



PHOTO  
TANK, WEST SIDE

8  
C-101



PHOTO  
TANK, NORTH SIDE

9  
C-101



PHOTO  
TANK, NORTHEAST SIDE

10  
C-101



PHOTO  
TANK, SOUTH SIDE

11  
C-101



PHOTO  
TELEMETRY VAULT

12  
C-101



PHOTO  
TELEMETRY EQUIPMENT

13  
C-101



PHOTO  
TANK, SOUTHWEST SIDE, VALVE VAULT

14  
C-101



PHOTO  
ALTITUDE VALVE AND PROCESS PIPING

15  
C-101



PHOTO  
ALTITUDE VALVE

16  
C-101

REVISIONS		APPD	DATE
NO	Δ		
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PROJECT NO: 20974  
DESIGNED: C.DARGLE  
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DATE: 02-2024  
APPROVED: J.CRAY  
DATE: 02-2024  
SUBMISSION: PERMIT SUBMITTAL

COMMONWEALTH OF MASSACHUSETTS  
JAMES E. CRAY  
CIVIL  
No. 44869  
REGISTERED PROFESSIONAL  
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TOWN OF TOPSFIELD, MASSACHUSETTS  
BOSTON STREET  
WATER STORAGE TANK  
REPLACEMENT

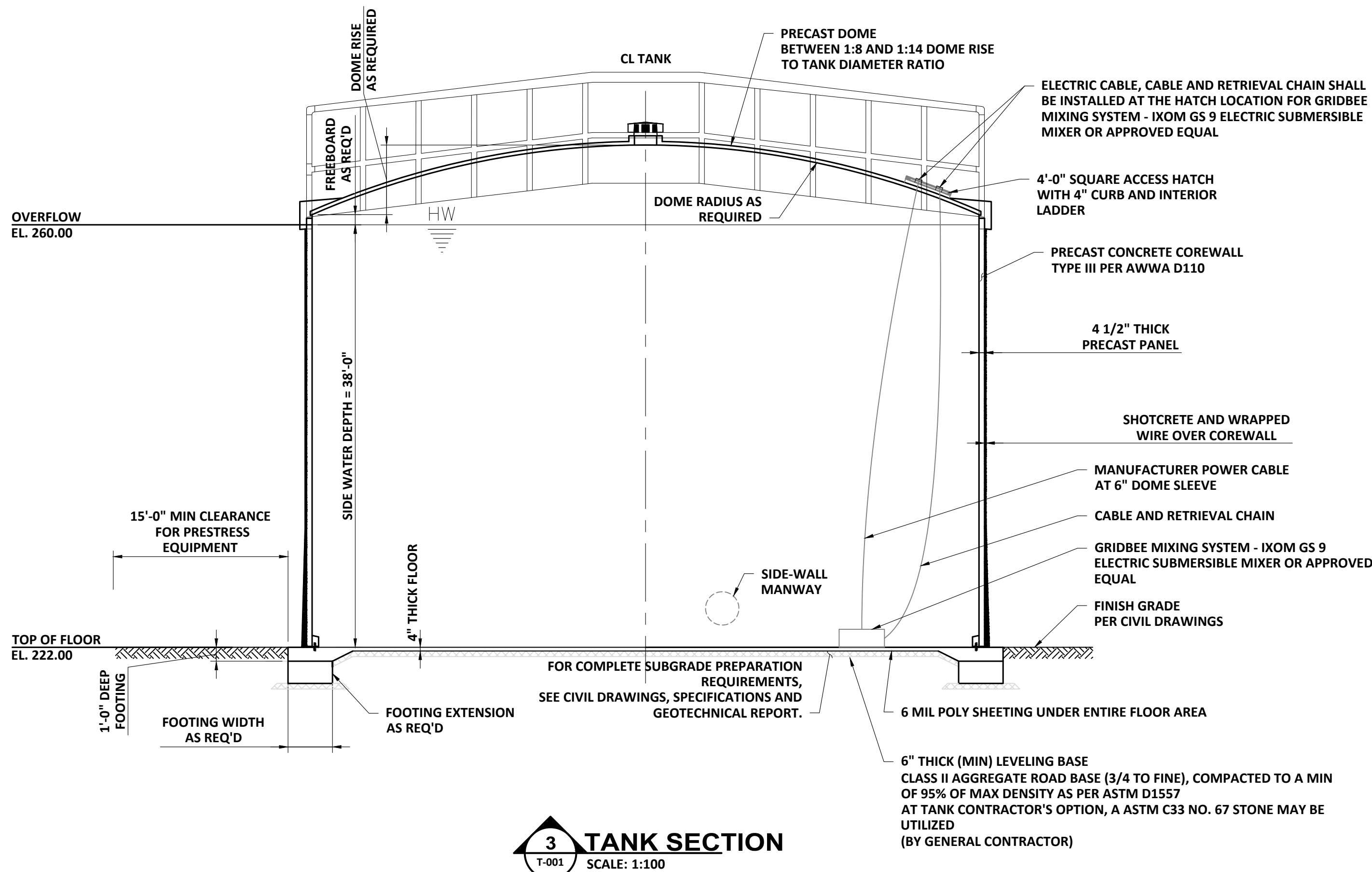
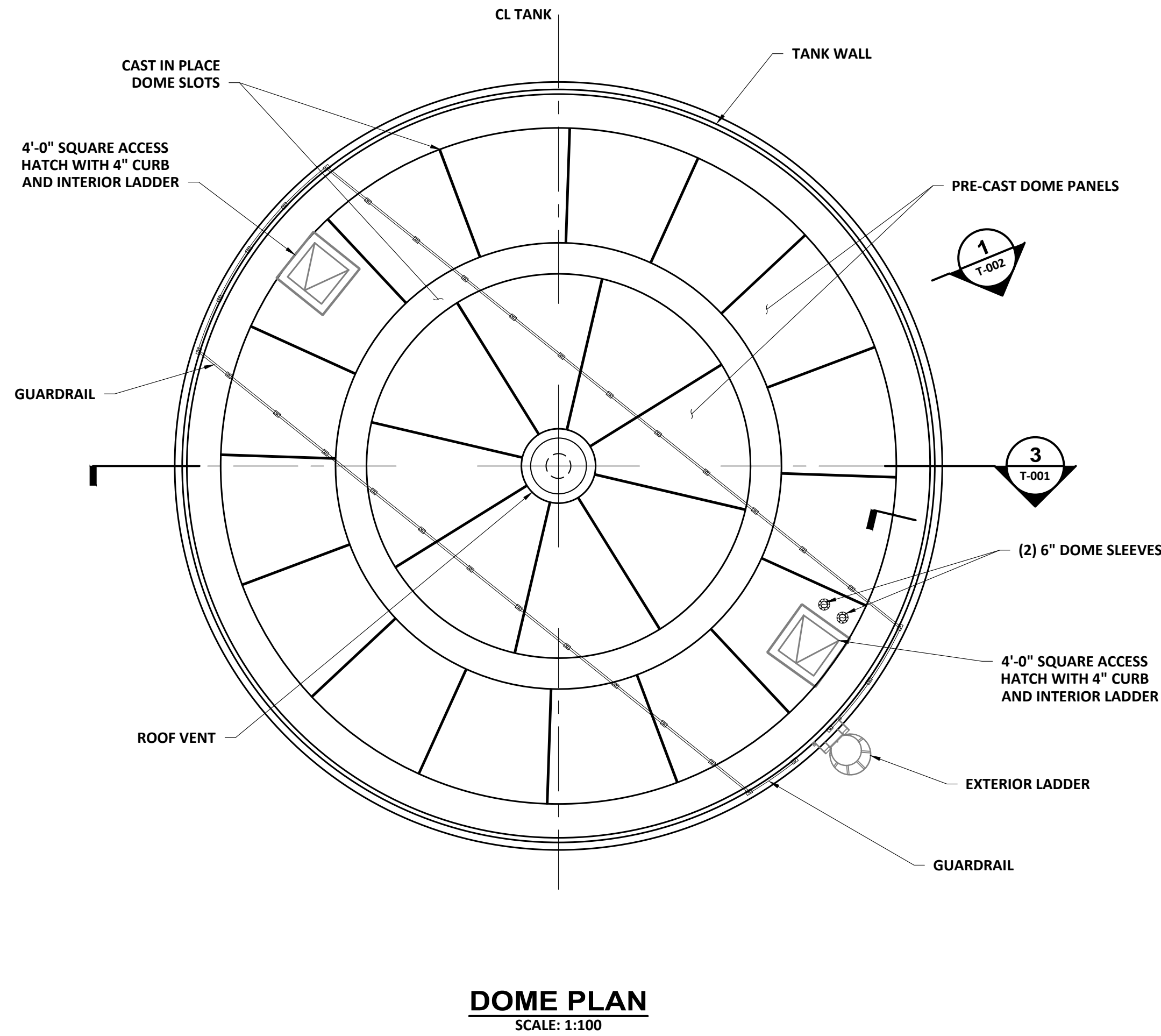
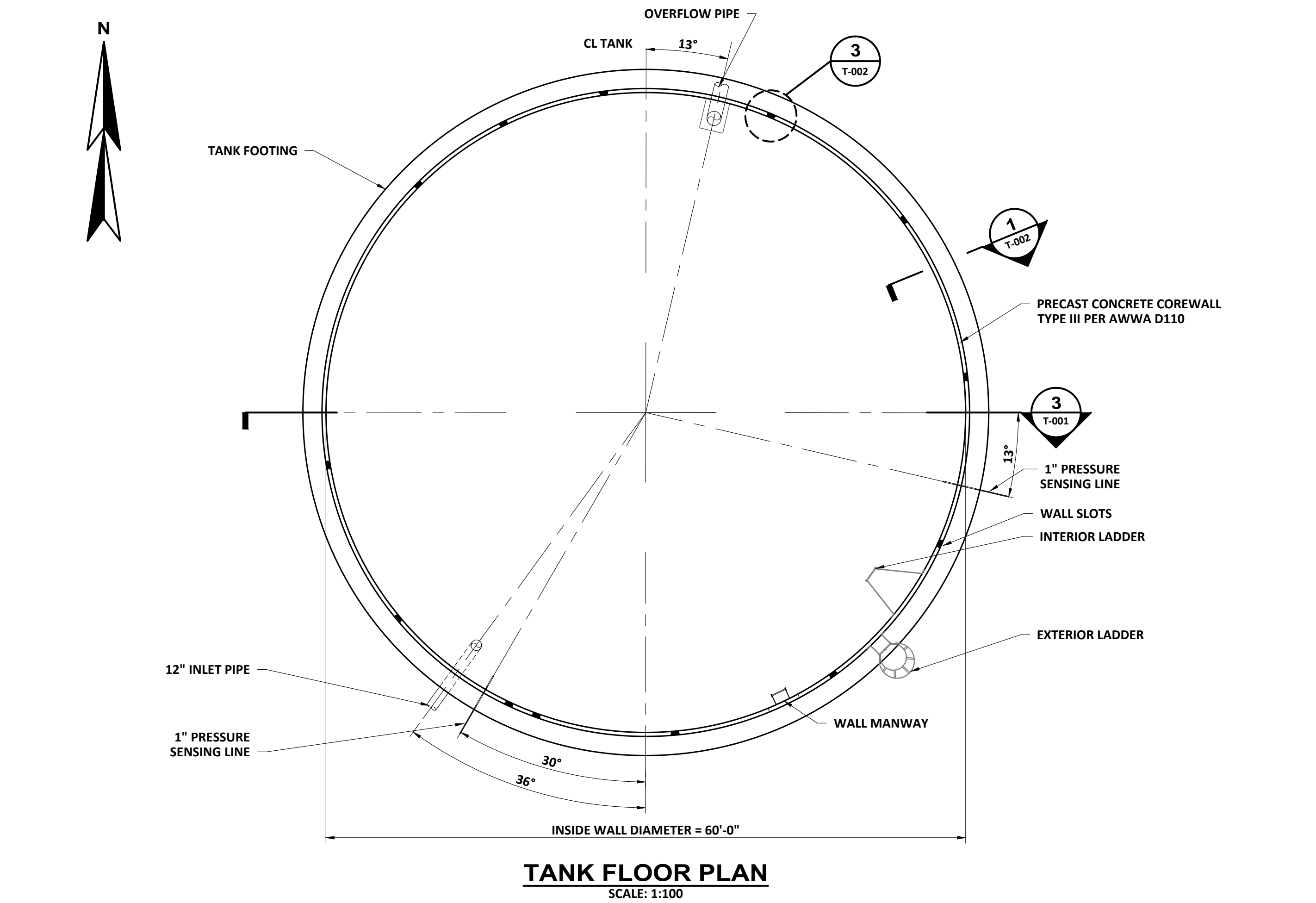
SITE PHOTOS



BID ALTERNATE "A"

DRAWING  
C-901



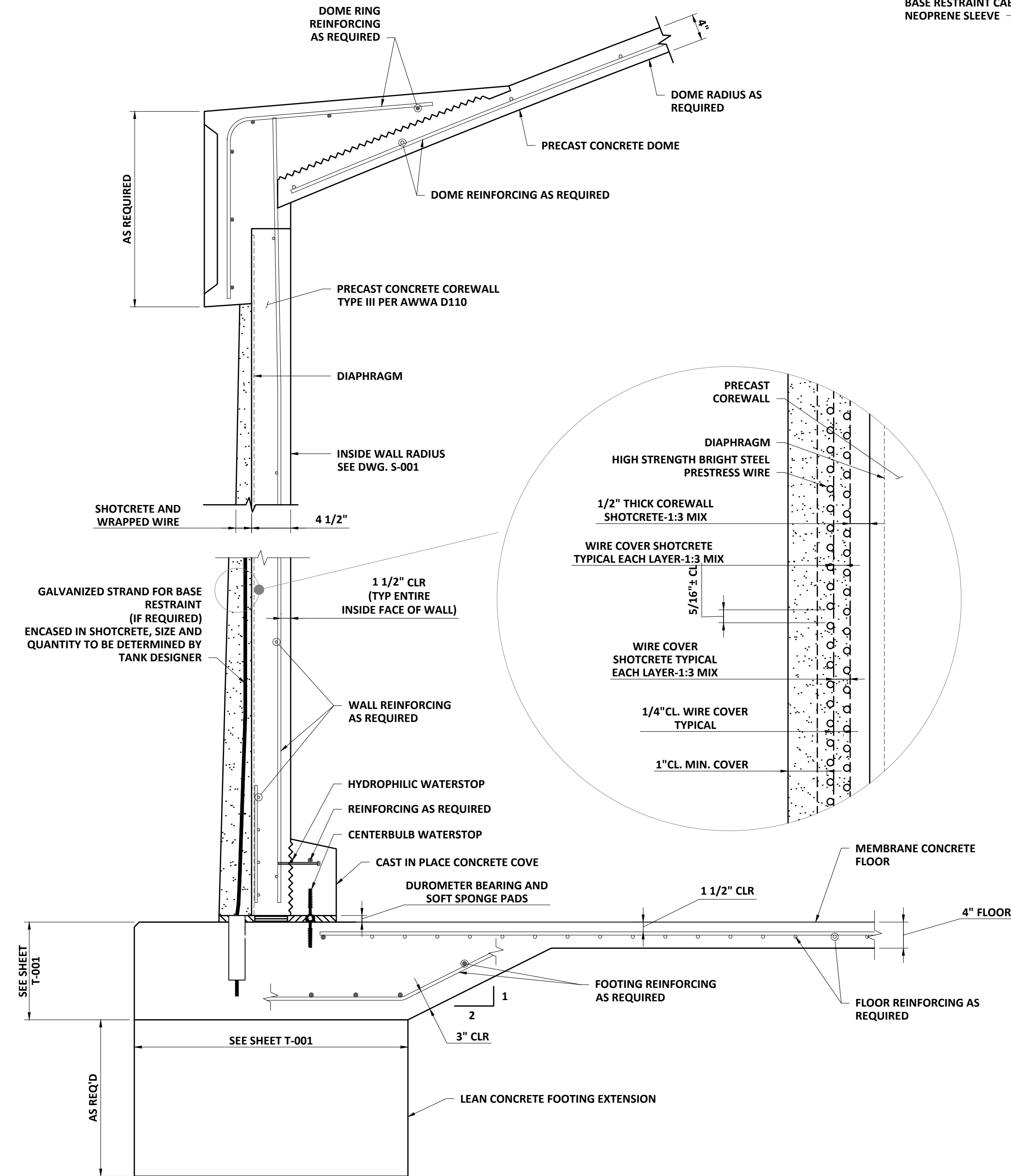
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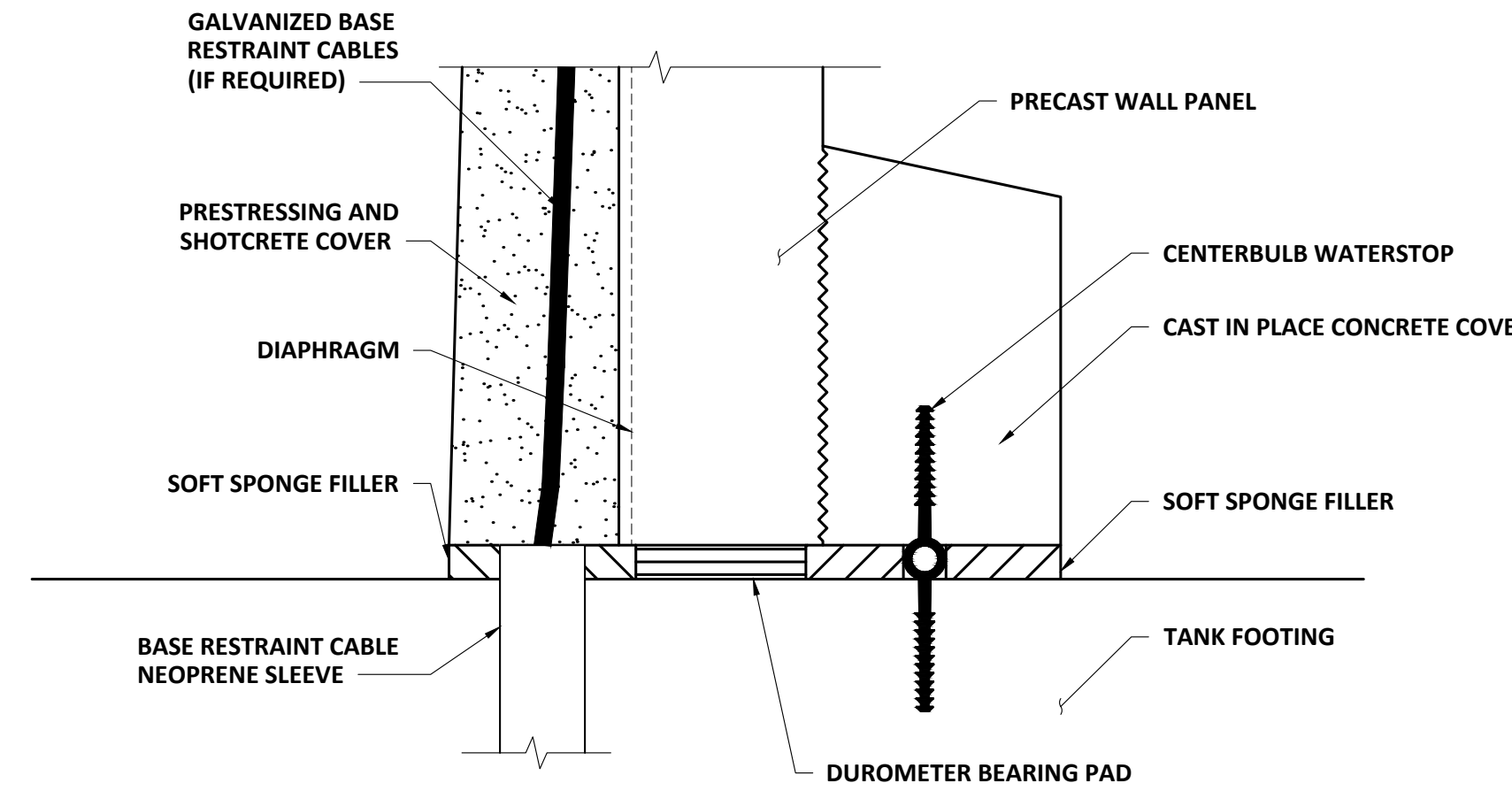
TOWN OF TOPSFIELD, MASSACHUSETTS BOSTON STREET WATER STORAGE TANK REPLACEMENT		 978.416.8000   <a href="http://www.wright-pierce.com">www.wright-pierce.com</a> 600 FEDERAL STREET, SUITE 2151, ANDOVER, MA 01810		<div>PROJECT NO: 20974 DESIGNED: J. MALIN CAD COORD: S. COCHRAN CAD: C. MERRICK CHECKED: J. CLAY DATE: 02-2024 APPROVED: J. CLAY DATE: 02-2024 SUBMISSION: CONTRACT DRAWINGS</div>	REVISIONS		APP'D. DATE
					NO		
DRAWING		T-001		A			
TANK PLANS AND SECTION		A		A			



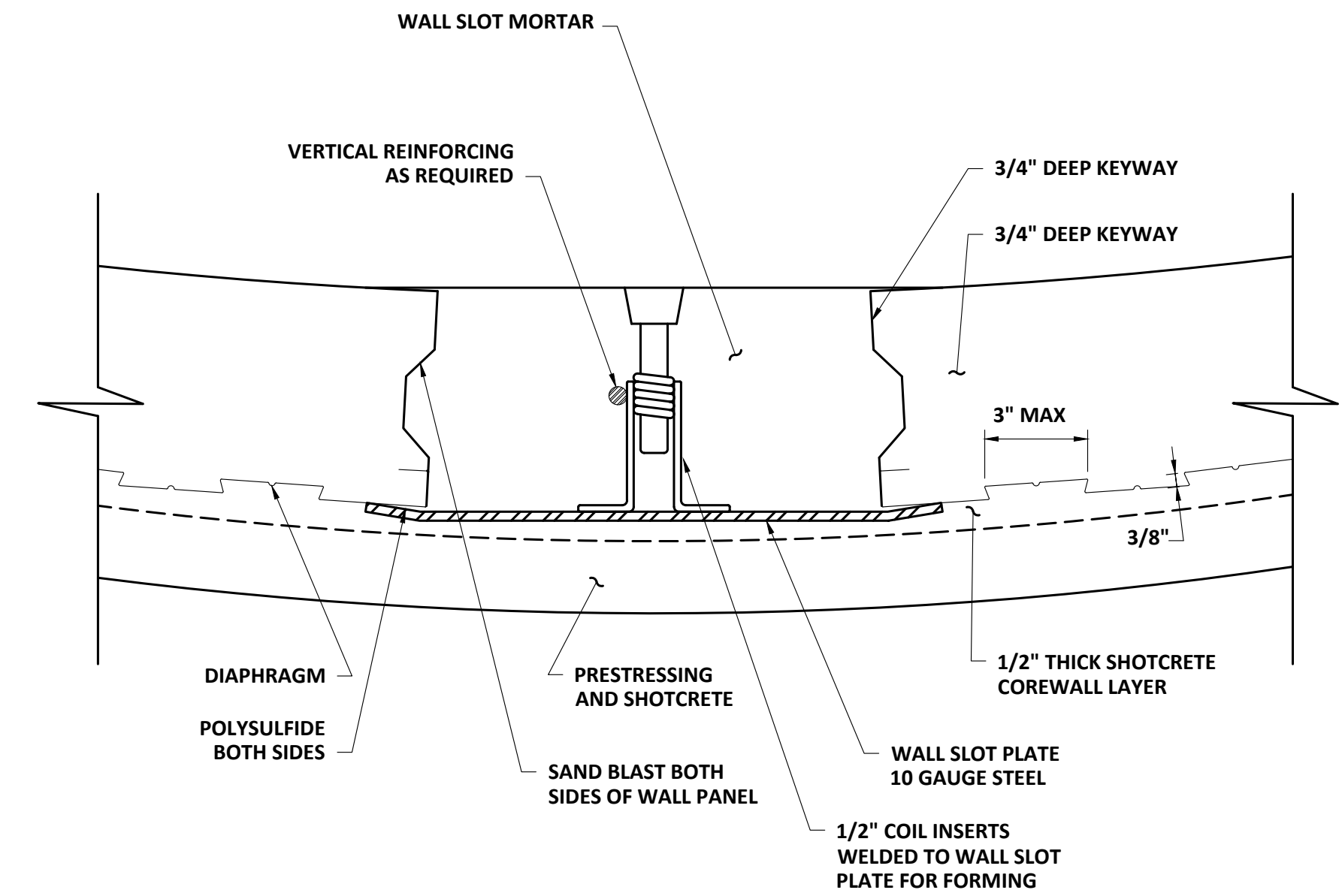
- NOTES:**
- 1) FOOTING AND FLOOR TO BE FINISHED PER SPECIFICATIONS.
  - 2) MAINTAIN CLEARANCE BETWEEN THE INDIVIDUAL STRANDS IN THE BASE RESTRAINT CABLE SETS (DO NOT BUNDLE). CABLES MAY TOUCH WITHIN 2" OF THE BOOT.
  - 3) THE COMBINED FLOOR AND WALL FOOTING SHALL BE POURED MONOLITHICALLY UNLESS APPROVED BY THE ENGINEER.
  - 4) BASE RESTRAINT CABLES MAY BE BENT PRIOR TO INSTALLATION.
  - 5) BASE RESTRAINT CABLE DESIGN REQUIREMENTS TO BE DETERMINED BY TANK CONTRACTOR.



**1 FOOTING, WALL, AND ROOF SECTION**  
T-001 SCALE: NTS

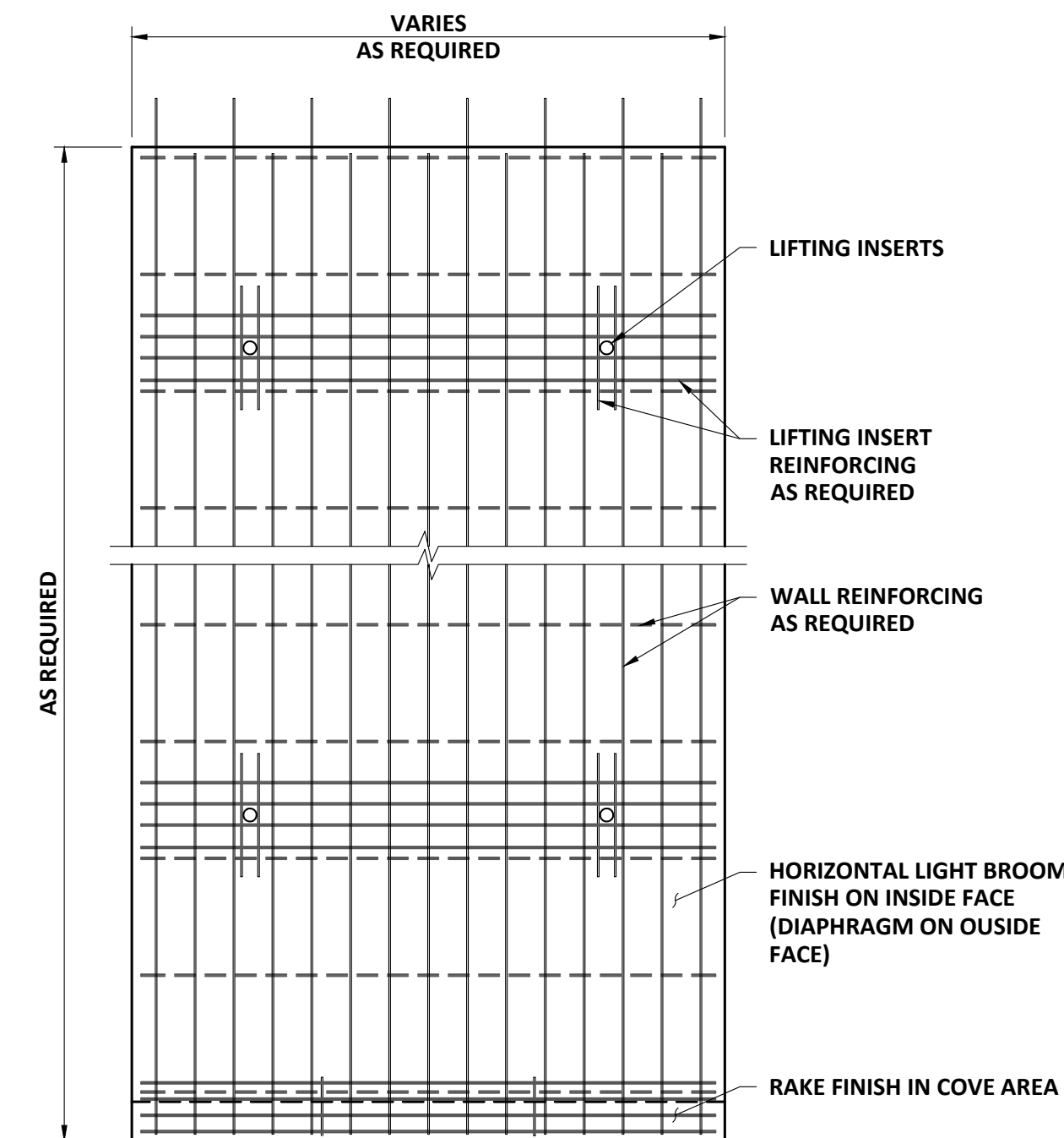


**WALL BASE** 2  
SCALE: NTS

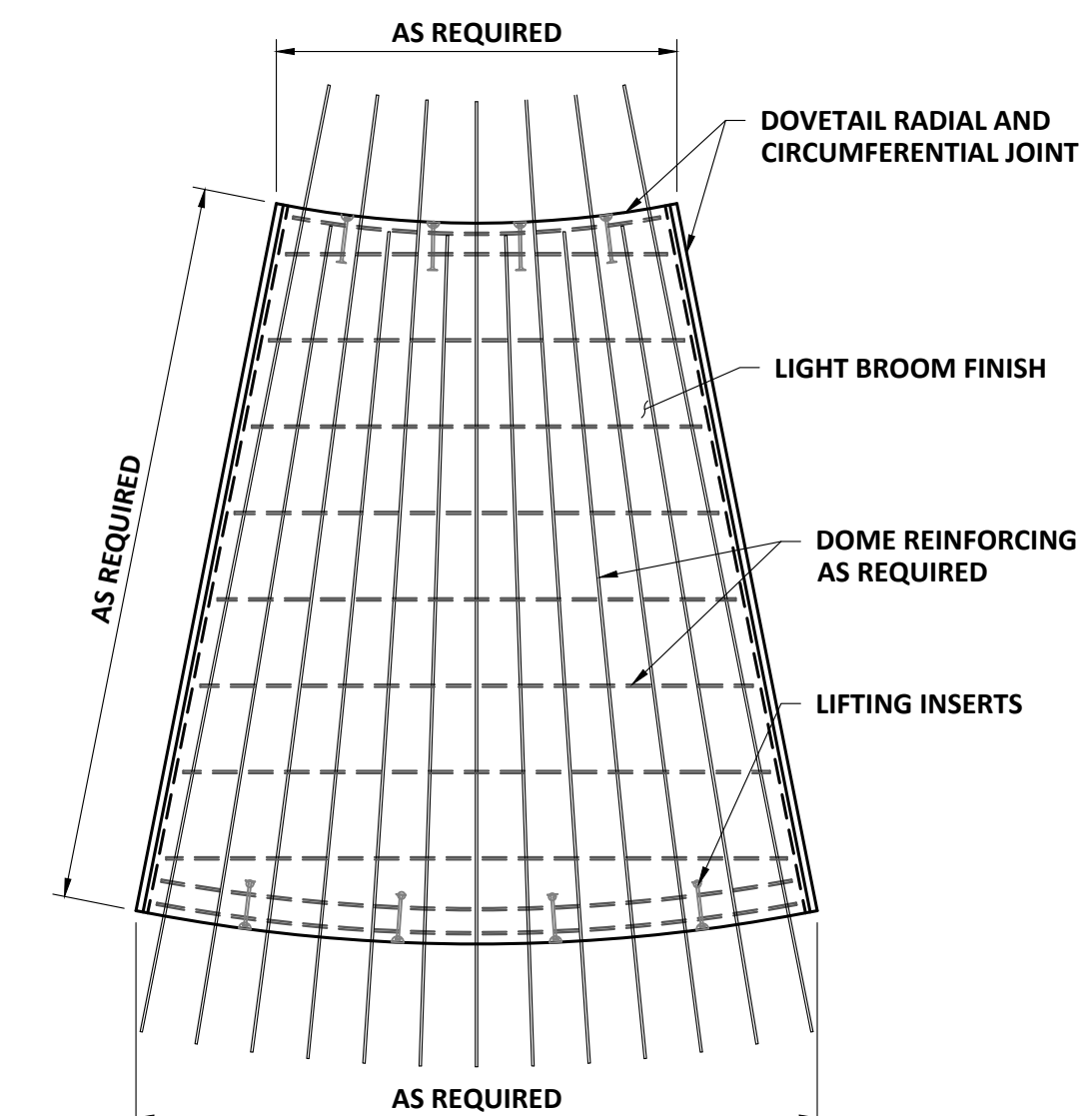


**WALL SLOT**  
SCALE: NTS


3  
T-001



**PRECAST WALL PANEL** 4  
SCALE: NTS

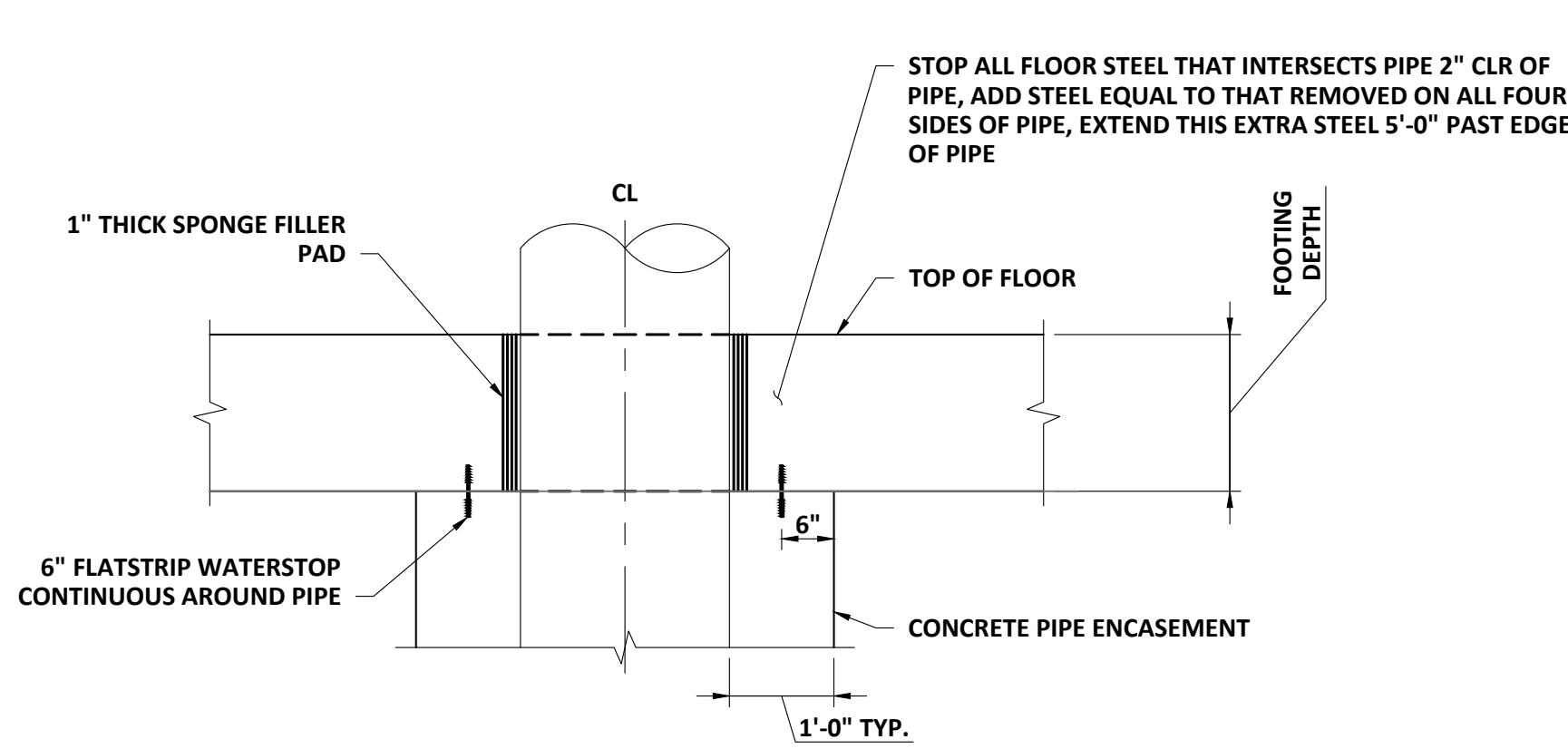


**PRECAST DOME PANEL** 5  
SCALE: NTS

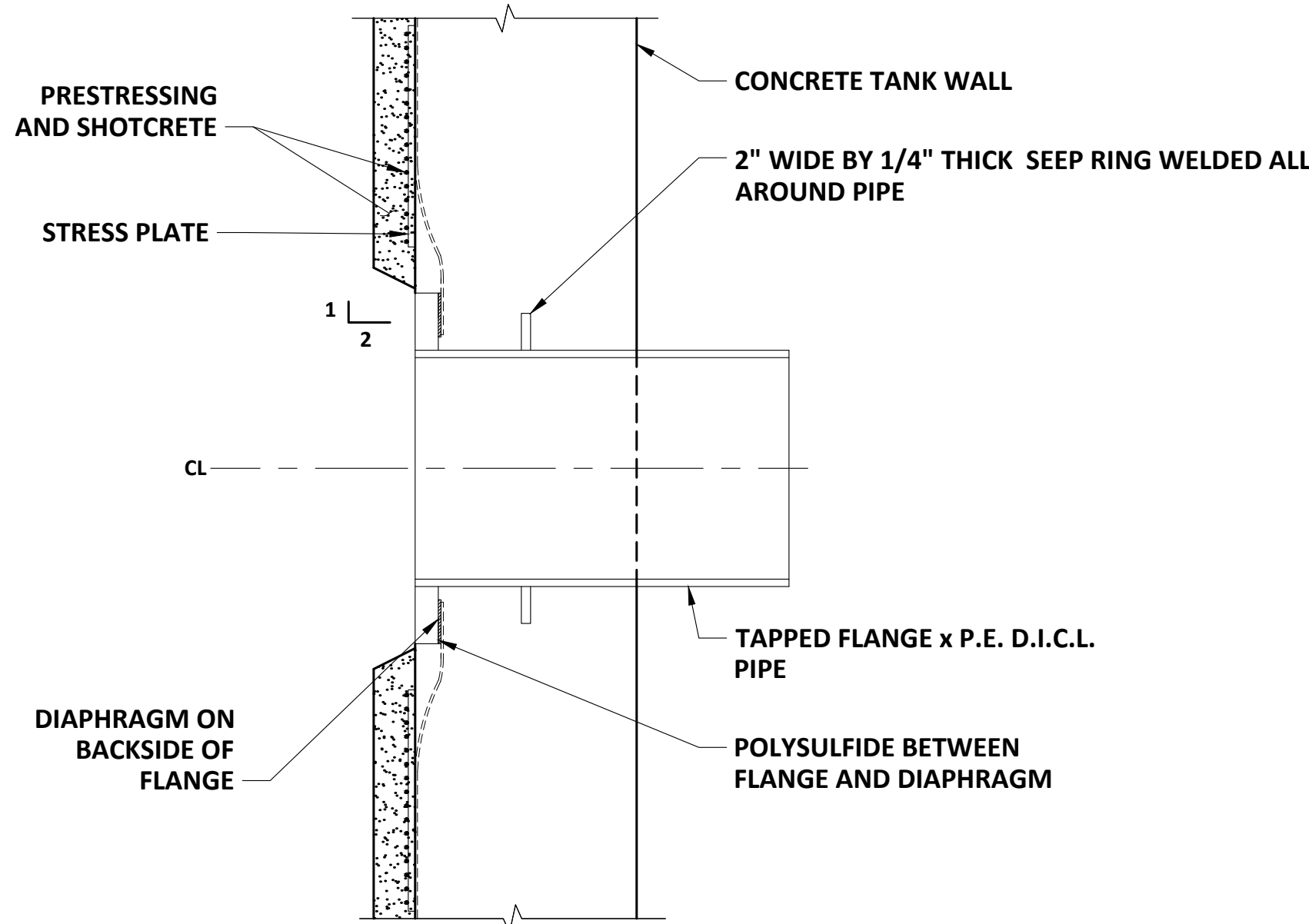
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				DESIGNED:				
				CAD COORD: S. COCHRAN		△		
				CAD: C. MERRICK		△		
				CHECKED:		△		
				DATE: 02-2024		△		
				APPROVED:		△		
				DATE: 02-2024		△		
				SUBMISSION: CONTRACT DRAWINGS		△		



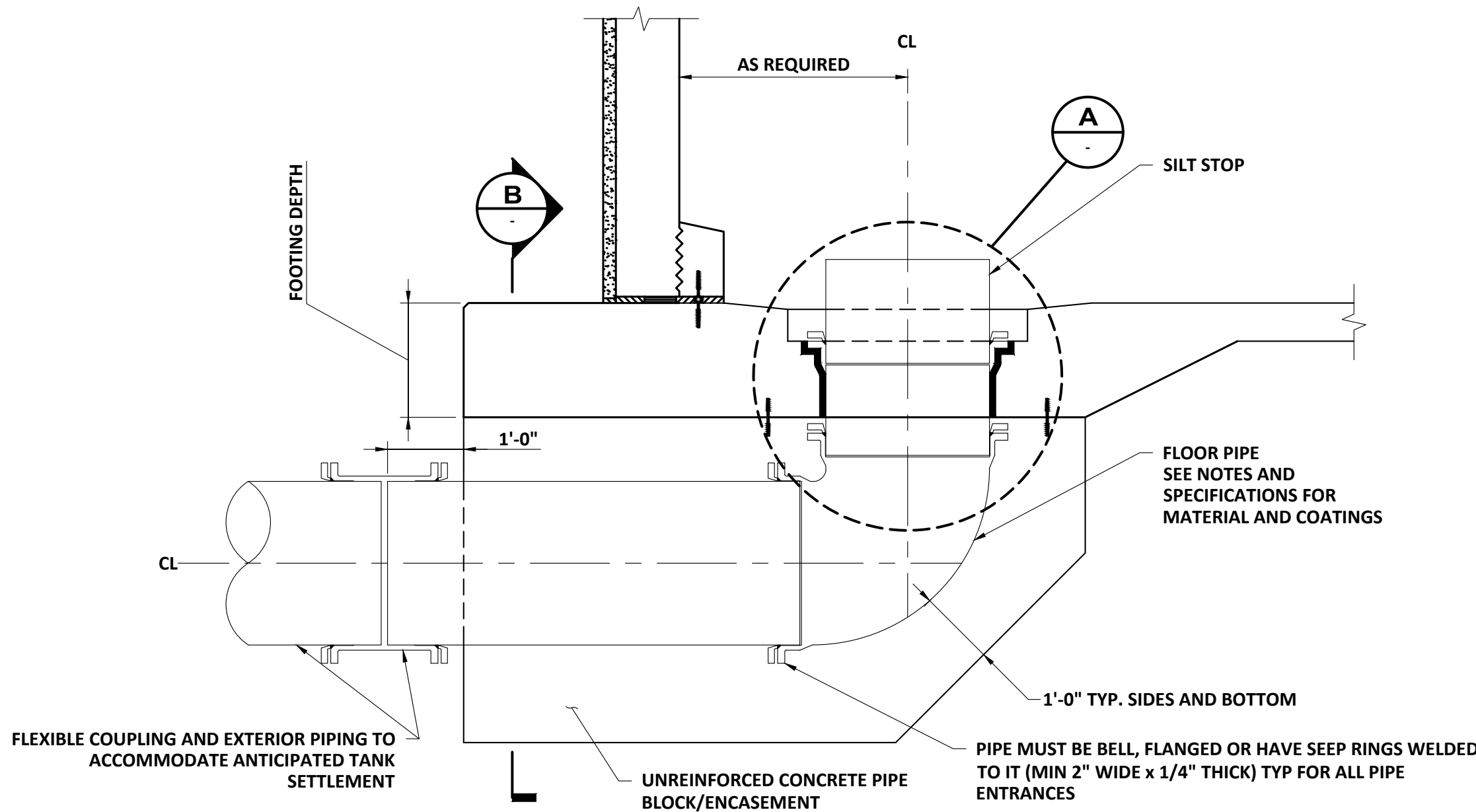
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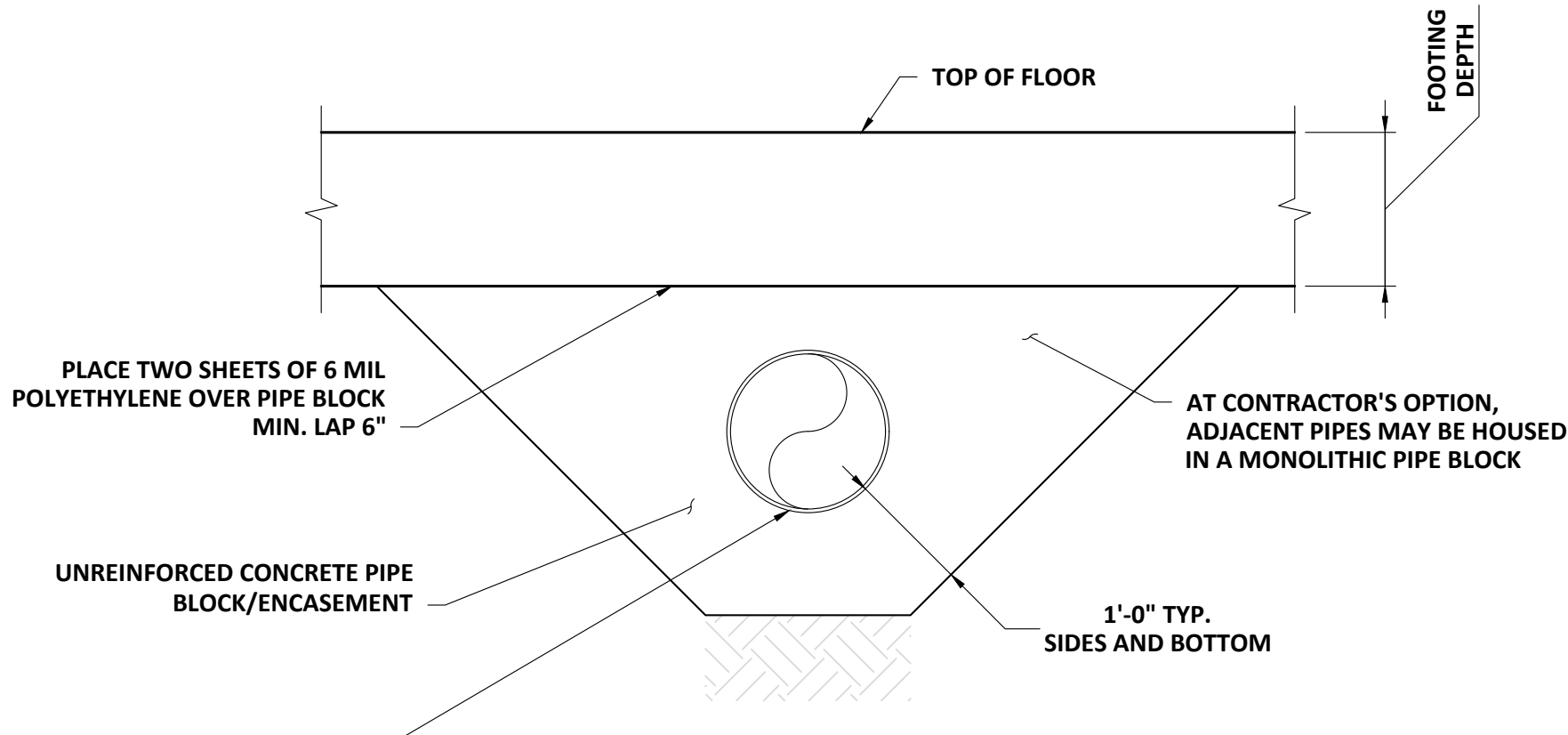
**TYPICAL FLOOR PIPE ENTRANCE (A)**  
SCALE: NTS



**TYPICAL WALL PIPE ENTRANCE (C)**  
SCALE: NTS

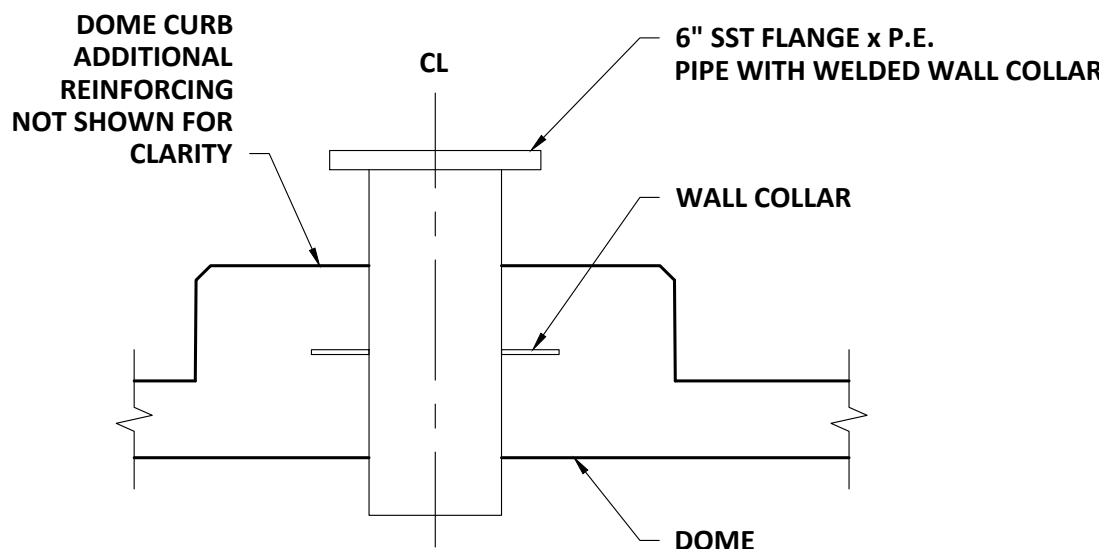


**INLET/OUTLET (1)**  
SCALE: NTS

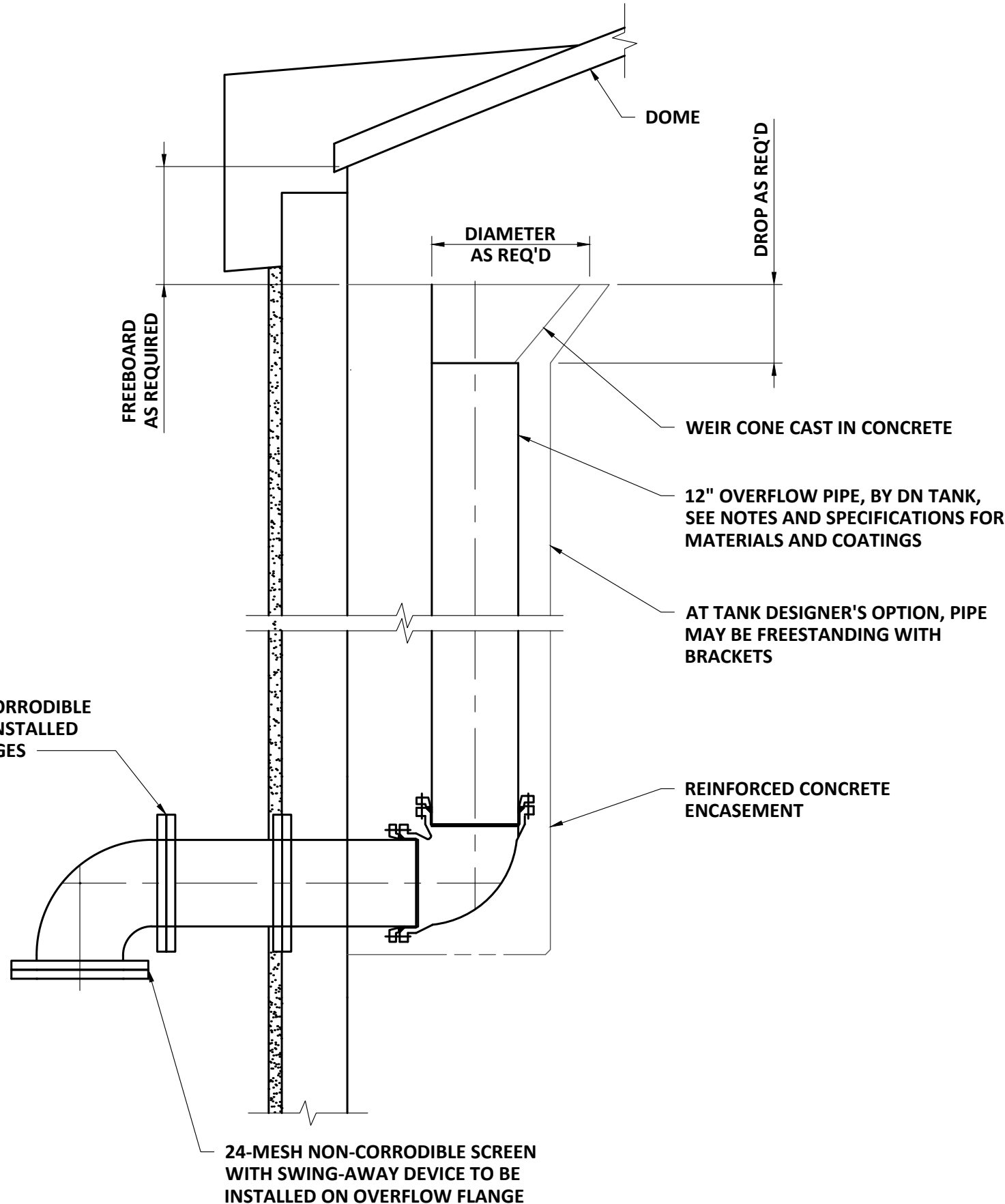


**PIPE SECTION (B)**  
SCALE: NTS

- PIPING NOTES:
1. ALL PIPE MATERIAL TO BE D.I.C.L. UNLESS NOTED OTHERWISE.
  2. EPOXY COAT EXTERIOR OF PIPING INSIDE TANK. NO COATING ON PIPE IN CONTACT WITH CONCRETE.
  3. EXTERIOR PIPING CONNECTION TO BE DESIGNED TO TOLERATE EXPECTED TANK SETTLEMENT.



**DOMESLEEVE (3)**  
SCALE: NTS



**OVERFLOW PIPE (4)**  
SCALE: NTS

NO	REVISIONS	APPD	DATE
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PROJECT NO: 20974	DESIGNED: S. COCHRAN	CAD COORD: C. MERRICK	CAD: C. MERRICK	CHECKED: C. MERRICK	DATE: 02-2024	APPROVED: C. MERRICK	DATE: 02-2024	SUBMISSION: CONTRACT DRAWINGS
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COMMONWEALTH OF MASSACHUSETTS JAMES E. COCHRAN CIVIL No. 44689 REGISTERED PROFESSIONAL ENGINEER STATE OF MASSACHUSETTS
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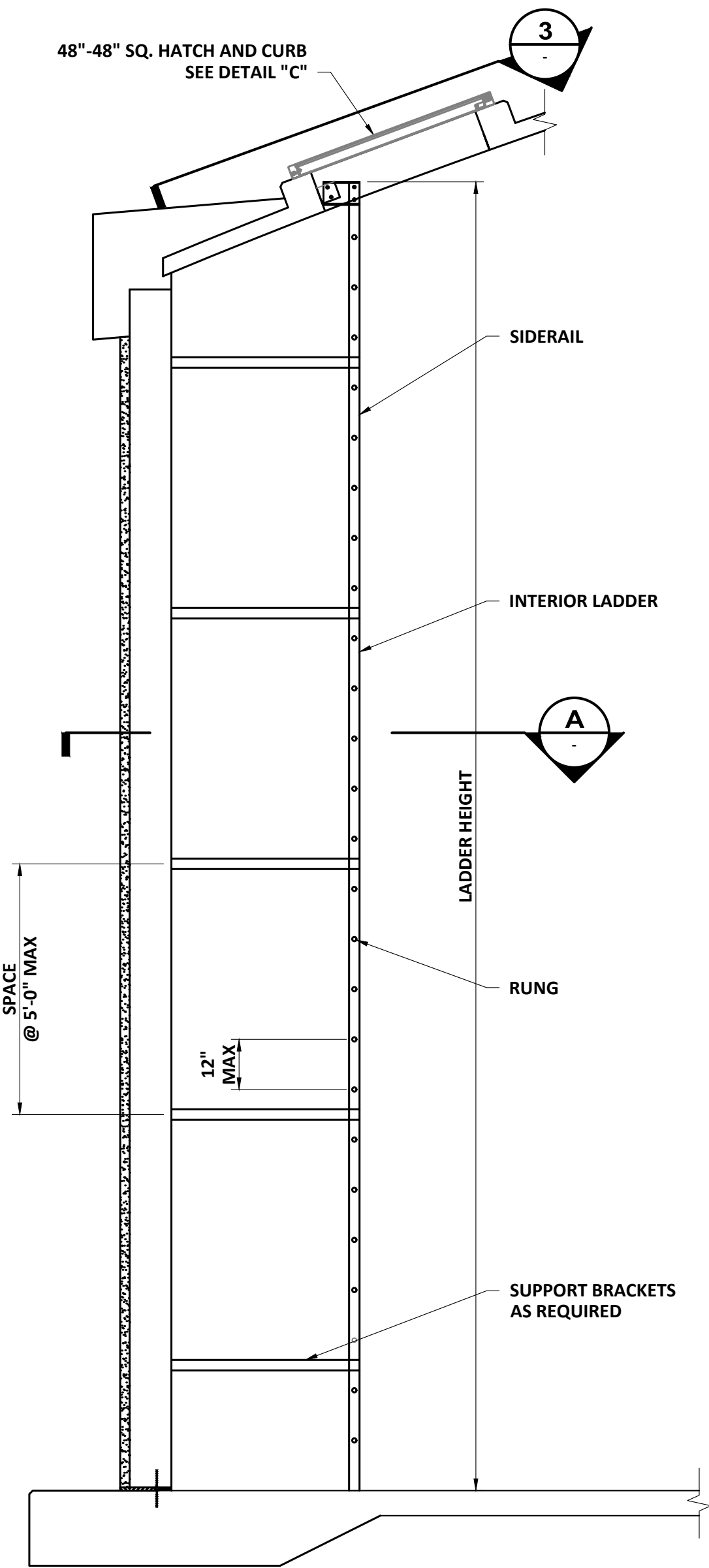
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TOWN OF TOPSFIELD, MASSACHUSETTS BOSTON STREET WATER STORAGE TANK REPLACEMENT	TANK PIPING
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DRAWING	T-003
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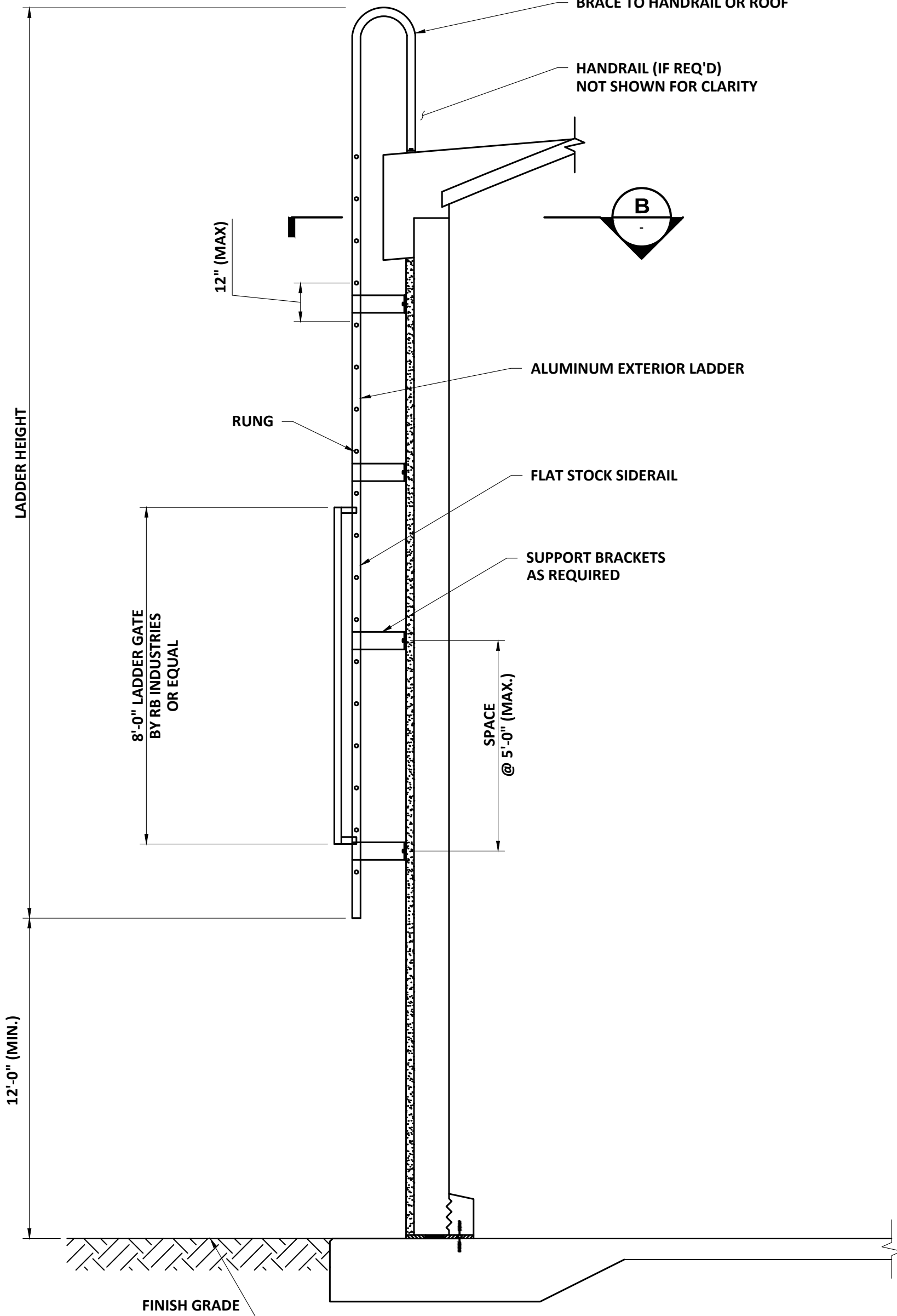
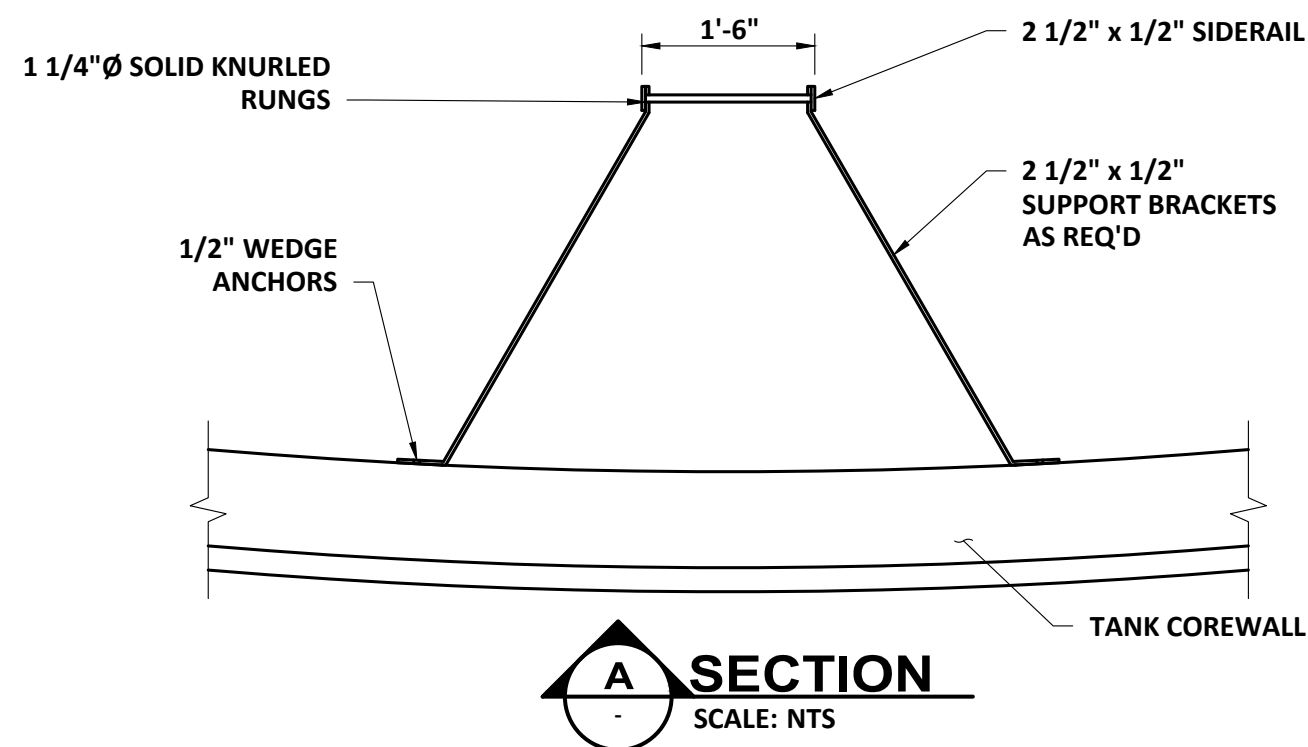


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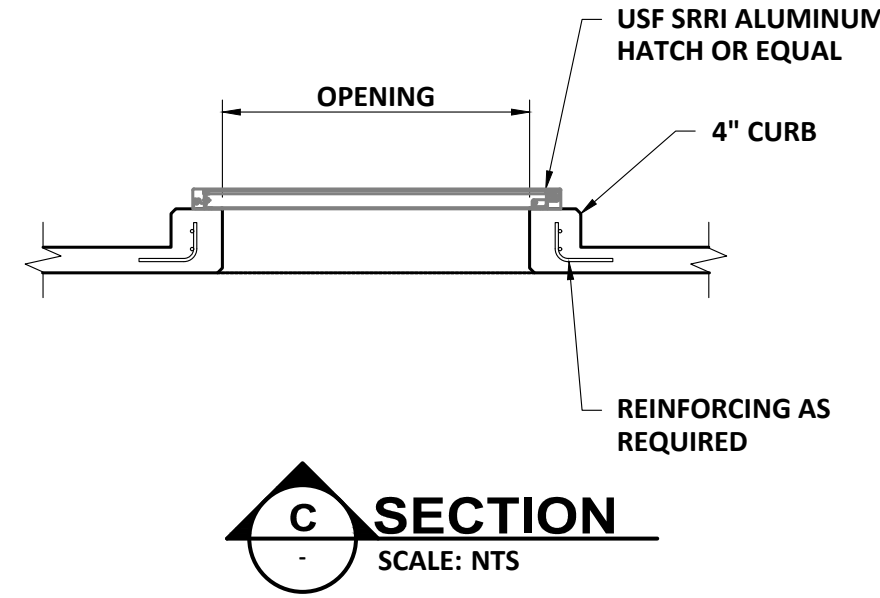
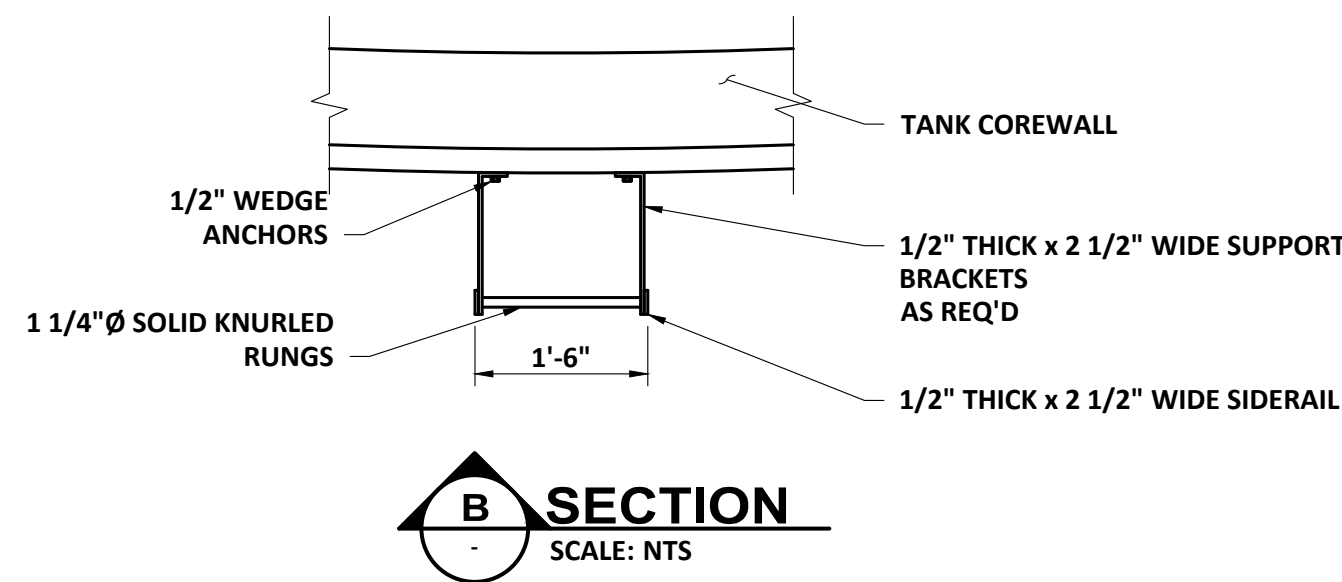
**INTERIOR LADDER** 1  
SCALE: NTS

- INTERIOR LADDER NOTES:
- 1) LADDER MATERIAL SHALL BE 6061-T6 ALUMINUM.
  - 2) OSHA COMPLIANT FALL PREVENTION DEVICE SHALL BE INSTALLED (SST).
  - 3) LADDER RUNGS TO BE SOLID BARS AND FLUTED.
  - 4) USE SST WEDGE ANCHORS FOR ALL CONNECTIONS TO CONCRETE UNLESS NOTED OTHERWISE.

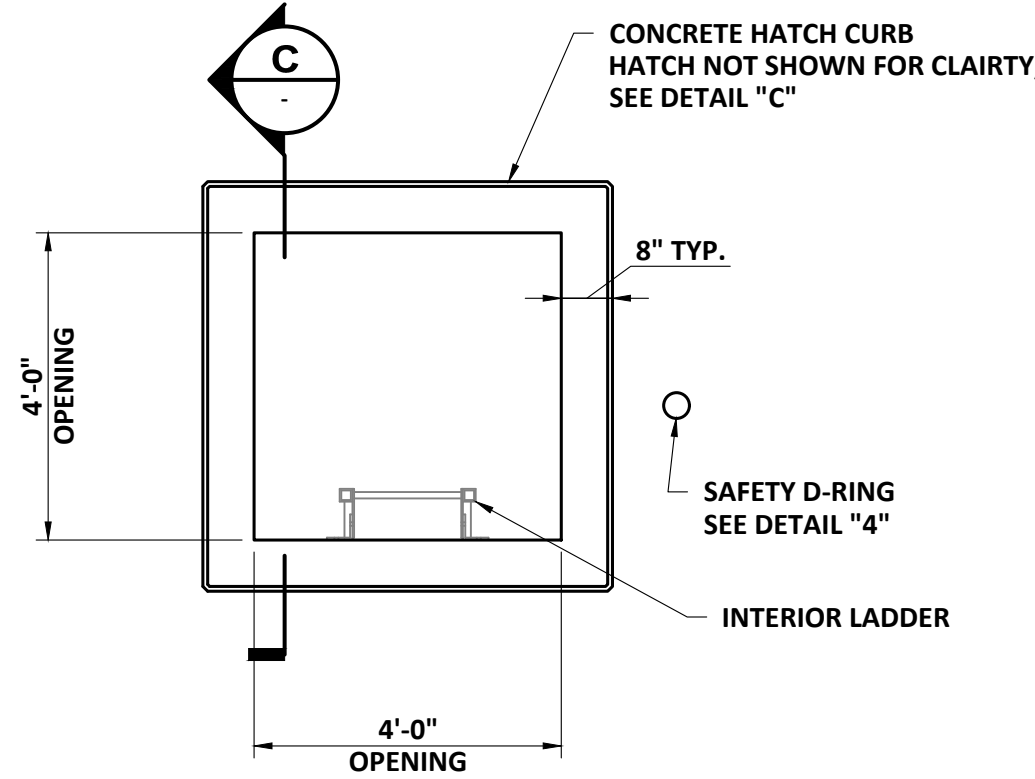


**EXTERIOR LADDER** 2  
SCALE: NTS

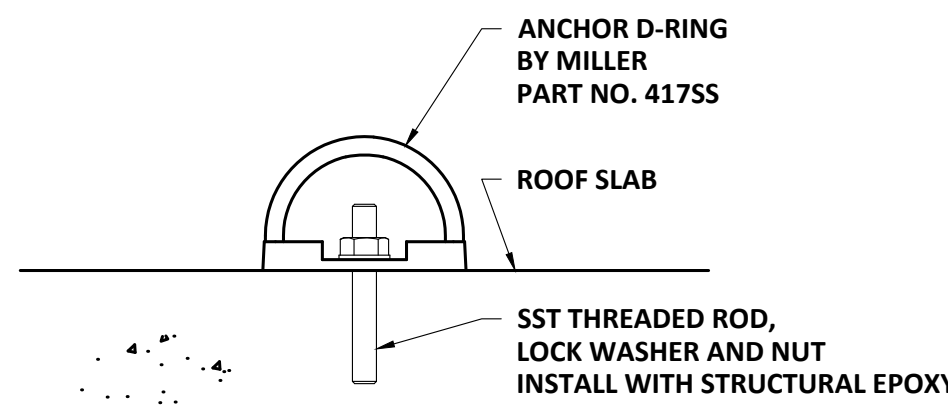
- EXTERIOR LADDER NOTES:
- 1) ALL MATERIAL FOR EXTERIOR LADDER, SIDERAILS, RUNGS AND BRACKETS TO BE 6061-T6 ALUMINUM.
  - 2) OSHA COMPLIANT FALL PREVENTION DEVICE SHALL BE INSTALLED (SST).
  - 3) LADDER RUNGS TO BE SOLID BARS AND KNURLED.
  - 4) ALL WELDS TO BE 3/16" MINIMUM.
  - 5) ALL ALUMINUM IN CONTACT WITH CONCRETE MUST BE COATED WITH A HEAVY BITUMASTIC COATING, EPOXY PAINT OR SHIMMED USING PVC.
  - 6) USE SST WEDGE ANCHORS FOR ALL CONNECTIONS TO CONCRETE UNLESS NOTED OTHERWISE.
  - 7) WHERE SST BOLTS ARE IN CONTACT WITH DISSIMILAR METALS, USE INSULATING SLEEVES AND PHENOLIC WASHERS TO ELECTRICALLY ISOLATE THE BOLTS.
  - 8) WHERE SST BOLTS ARE PLACED IN THE WALL EXTERIOR, DRILL AND PLACE AFTER WRAPPING AND BEFORE FINAL SHOTCRETING.



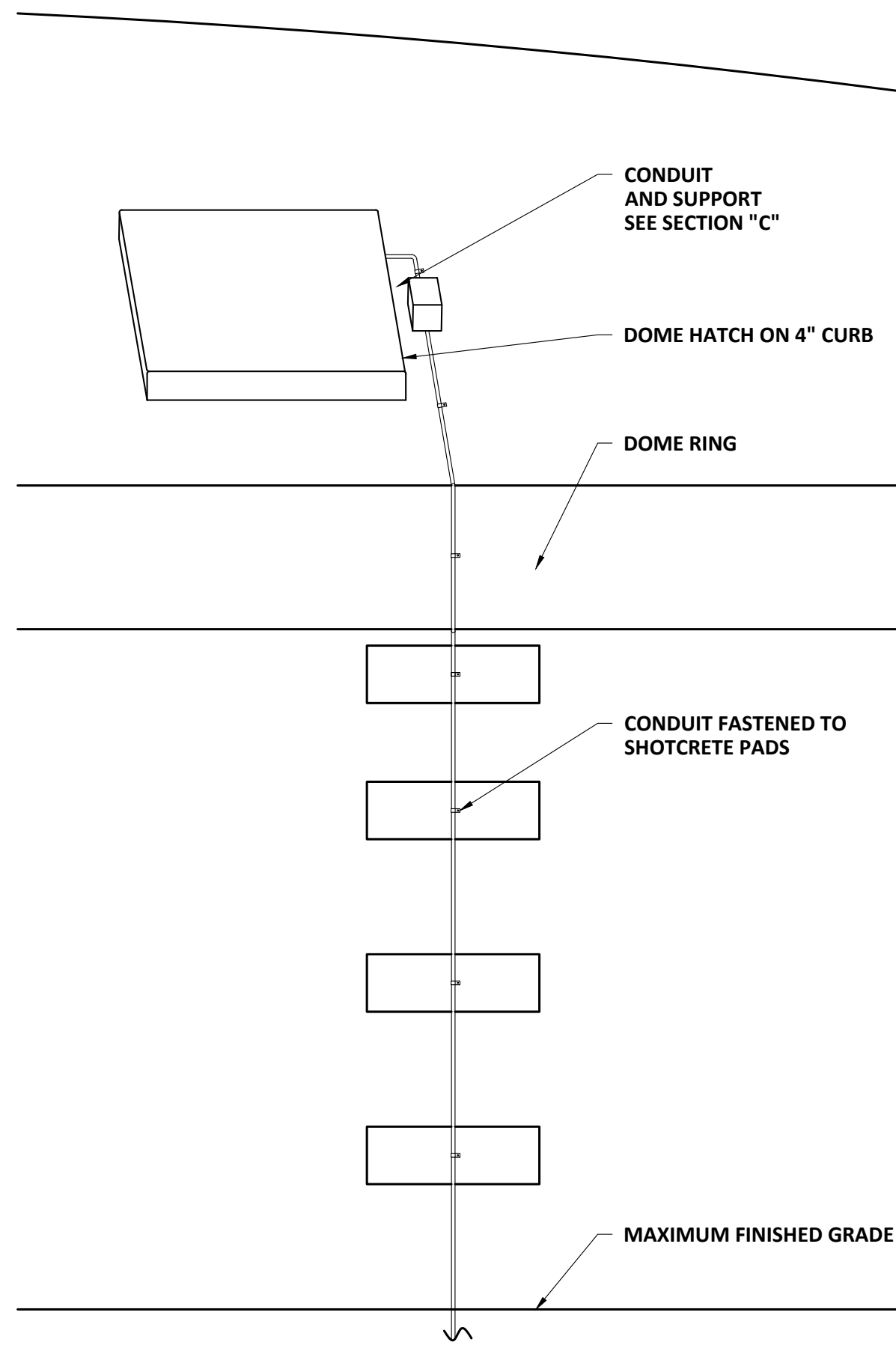
- ROOF HATCHES NOTES:
- 1) HATCHES TO BE SINGLE LEAF USF SRRI ALUMINUM HATCHES OR EQUAL.
  - 2) ALL ALUMINUM IN CONTACT WITH CONCRETE MUST BE COATED WITH A HEAVY BITUMASTIC COATING, EPOXY PAINT OR SHIMMED USING PVC.
  - 3) USE SST WEDGE ANCHORS FOR ALL CONNECTIONS TO CONCRETE UNLESS NOTED OTHERWISE.
  - 4) WHERE SST BOLTS ARE IN CONTACT WITH DISSIMILAR METALS, USE INSULATING SLEEVES AND PHENOLIC WASHERS TO ELECTRICALLY ISOLATE THE BOLTS.



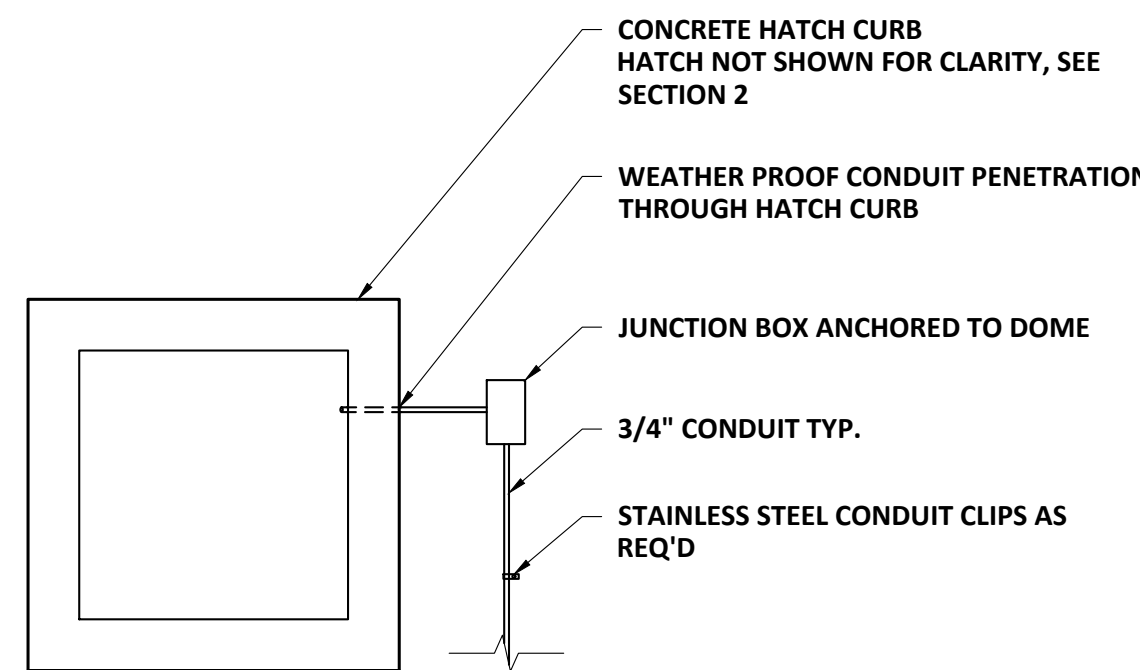
**4'-0" SQ. ACCESS HATCH** 3  
SCALE: NTS



**SAFETY D-RING** 4  
SCALE: NTS



**CONDUIT** 5  
SCALE: NTS



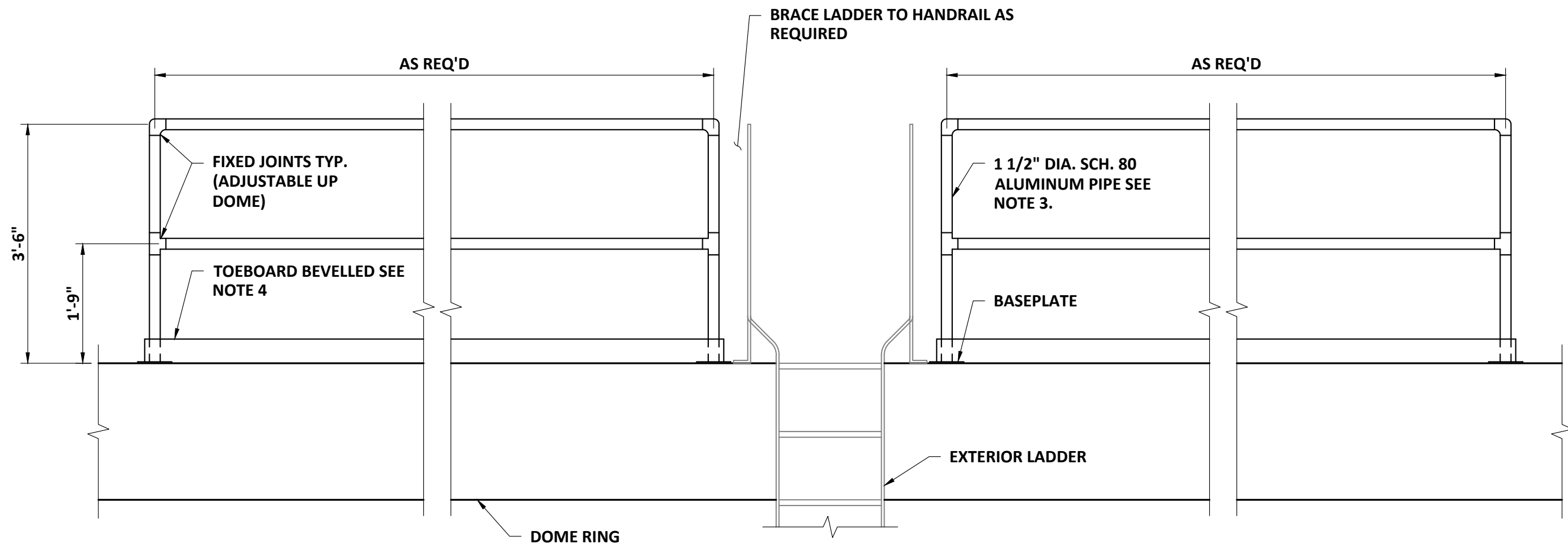
**CONDUIT AT HATCH** 6  
SCALE: NTS

TOWN OF TOPSFIELD, MASSACHUSETTS BOSTON STREET WATER STORAGE TANK REPLACEMENT		DRAWING	T-004																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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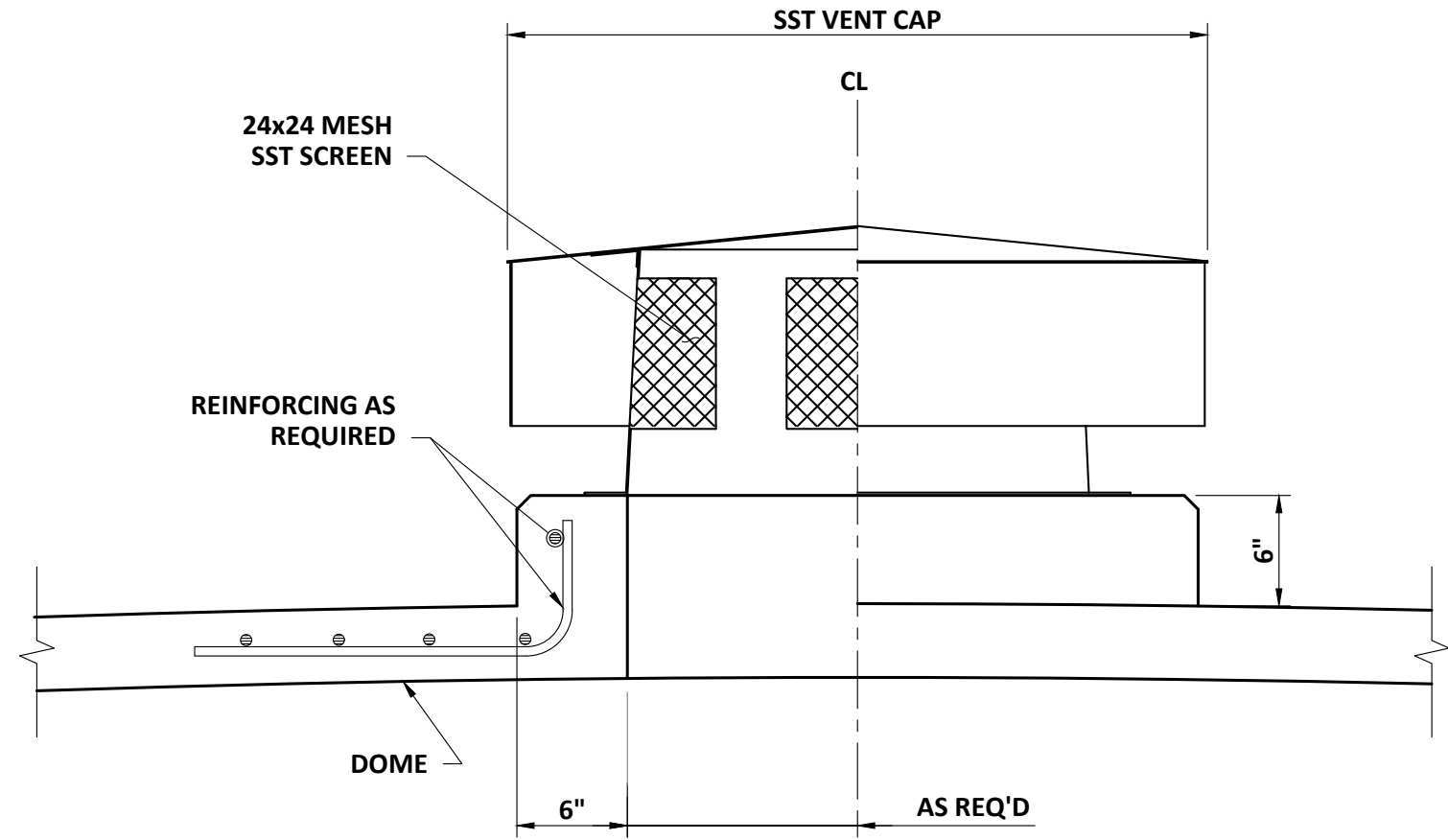
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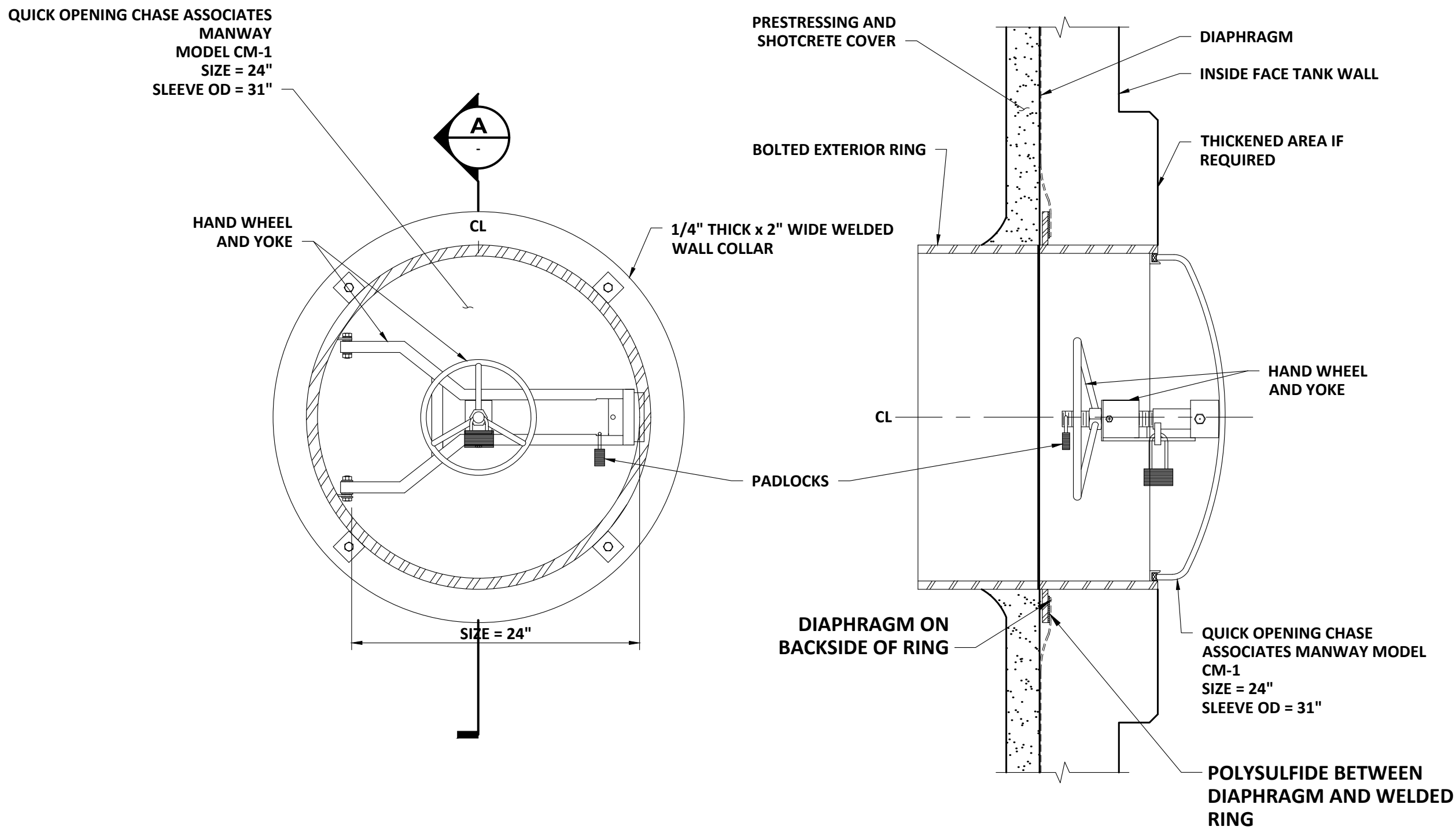
**GUARDRAIL ELEVATION** 1  
SCALE: NTS T-001

- GUARDRAIL NOTES:**
- 1) ALL MATERIAL FOR RAILS AND POSTS TO BE 6061-T6 ALUMINUM.
  - 2) HANDRAIL FITTINGS SHALL BE SPEEDRAIL BY HOLLAENDER, INC OR EQUAL.
  - 3) HORIZONTAL RAILS AND POSTS TO BE 1 1/2" SCH 80 PIPE.
  - 4) HOLLAENDER BEVELLED TOE BOARD SHALL BE ATTACHED TO FRONT RAIL.
  - 5) USE SST FOR ALL BOLTS UNLESS NOTED OTHERWISE.
  - 6) USE SST WEDGE ANCHORS FOR ALL CONNECTIONS TO CONCRETE UNLESS NOTED OTHERWISE.



**ROOF VENT** 2  
SCALE: NTS T-001

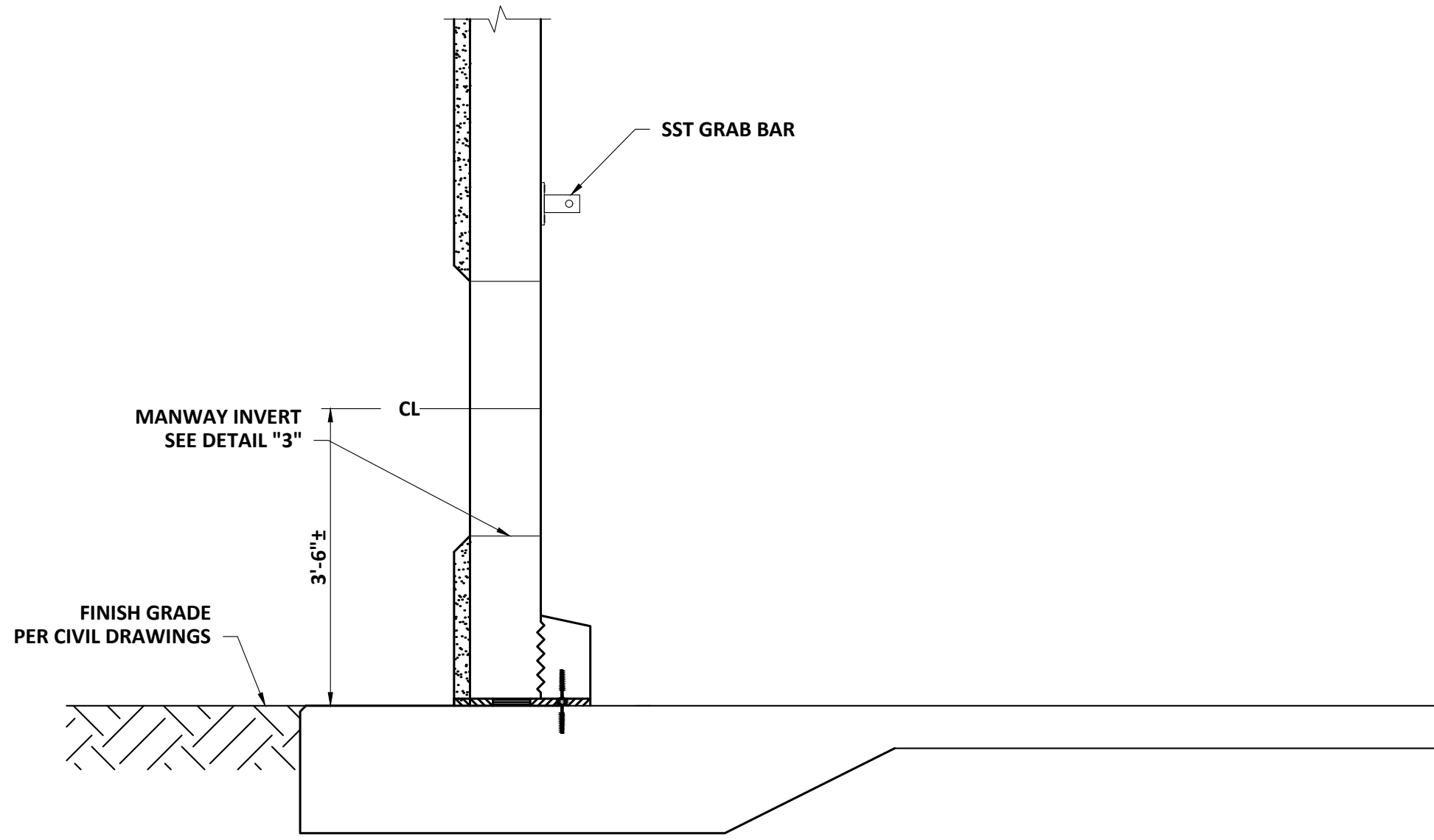
- ROOF VENT NOTES:**
- 1) VENT TO BE SST.
  - 2) SIZE PER PROJECT VENTING RATES.
  - 3) USE SST WEDGE ANCHORS FOR ALL CONNECTIONS TO CONCRETE UNLESS NOTED OTHERWISE.
  - 4) ROOF VENT SHALL COMPLY WITH MASSDEP AND AWWA REQUIREMENTS.



**WALL MANWAY** 3  
SCALE: NTS T-001

- WALL MANWAY NOTES:**
- 1) MANWAY MATERIAL TO BE SST.
  - 2) THE MANWAY WILL BE CAST INTO THE WALL AND THE EXTERIOR MANWAY RING WILL BE BOLTED ON AFTER TANK PRESTRESSING IS COMPLETE, PRIOR TO FINAL COVERCOAT PLACEMENT.

**A SECTION**  
SCALE: NTS

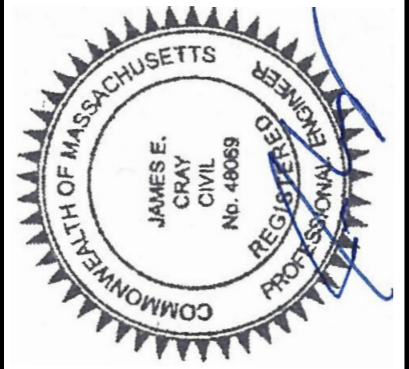



**MANWAY WALL** 4  
SCALE: NTS T-001

- MANWAY LADDER NOTES:**
- 1) ALL MATERIAL FOR LADDER AND RUNGS TO BE FIBER REINFORCED POLYMER.
  - 2) MANWAY GRAB BAR TO BE SST.
  - 3) LADDER RUNGS TO BE SOLID BARS AND FLUTED.
  - 4) USE SST WEDGE ANCHORS FOR ALL CONNECTIONS TO CONCRETE UNLESS NOTED OTHERWISE.

REVISIONS		APP'D	DATE
NO			
1			
2			
3			
4			
5			
6			

PROJECT NO: 20974	DESIGNED: S. COCHRAN	CAD COORD: C. MERRICK	CAD: C. MERRICK	CHECKED: 02-2024	APPROVED: 02-2024	SUBMISSION: CONTRACT DRAWINGS





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TOWN OF TOPSFIELD, MASSACHUSETTS	MISCELLANEOUS APPURTENANCES
BOSTON STREET	
WATER STORAGE TANK	
REPLACEMENT	

DRAWING	T-005
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