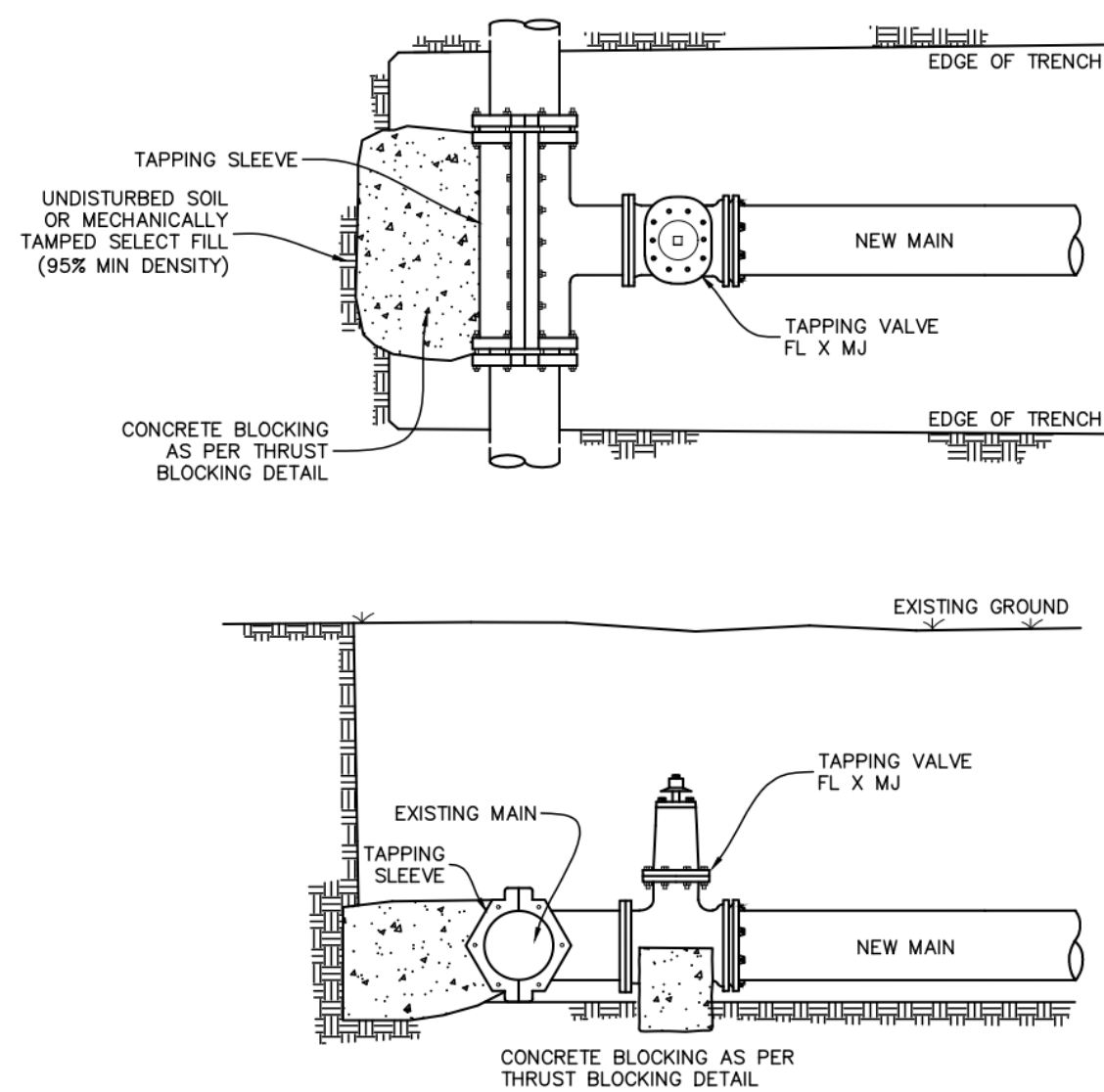


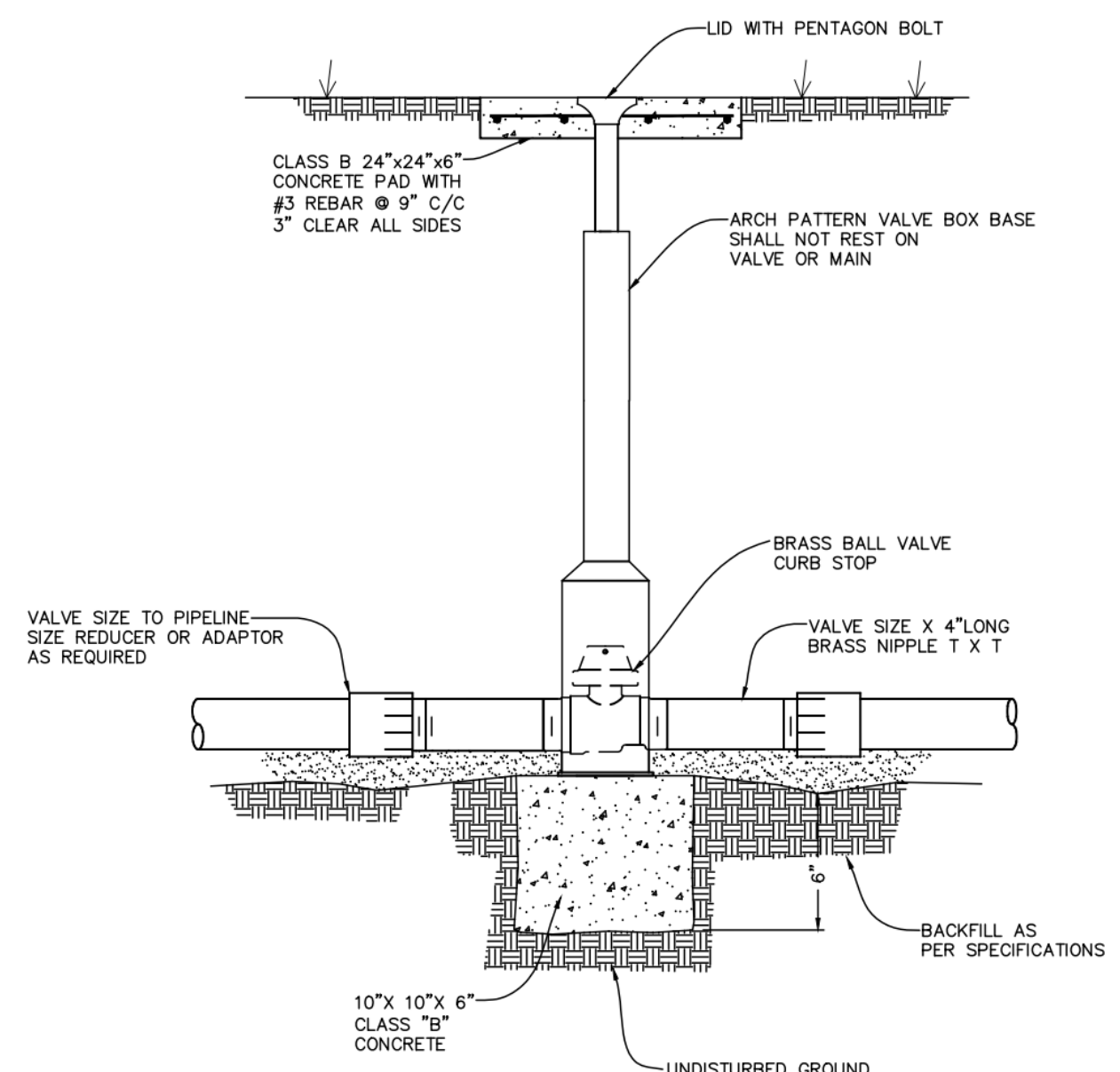
WATER VALVE BURIED INSTALLATION
SCALE: N.T.S.



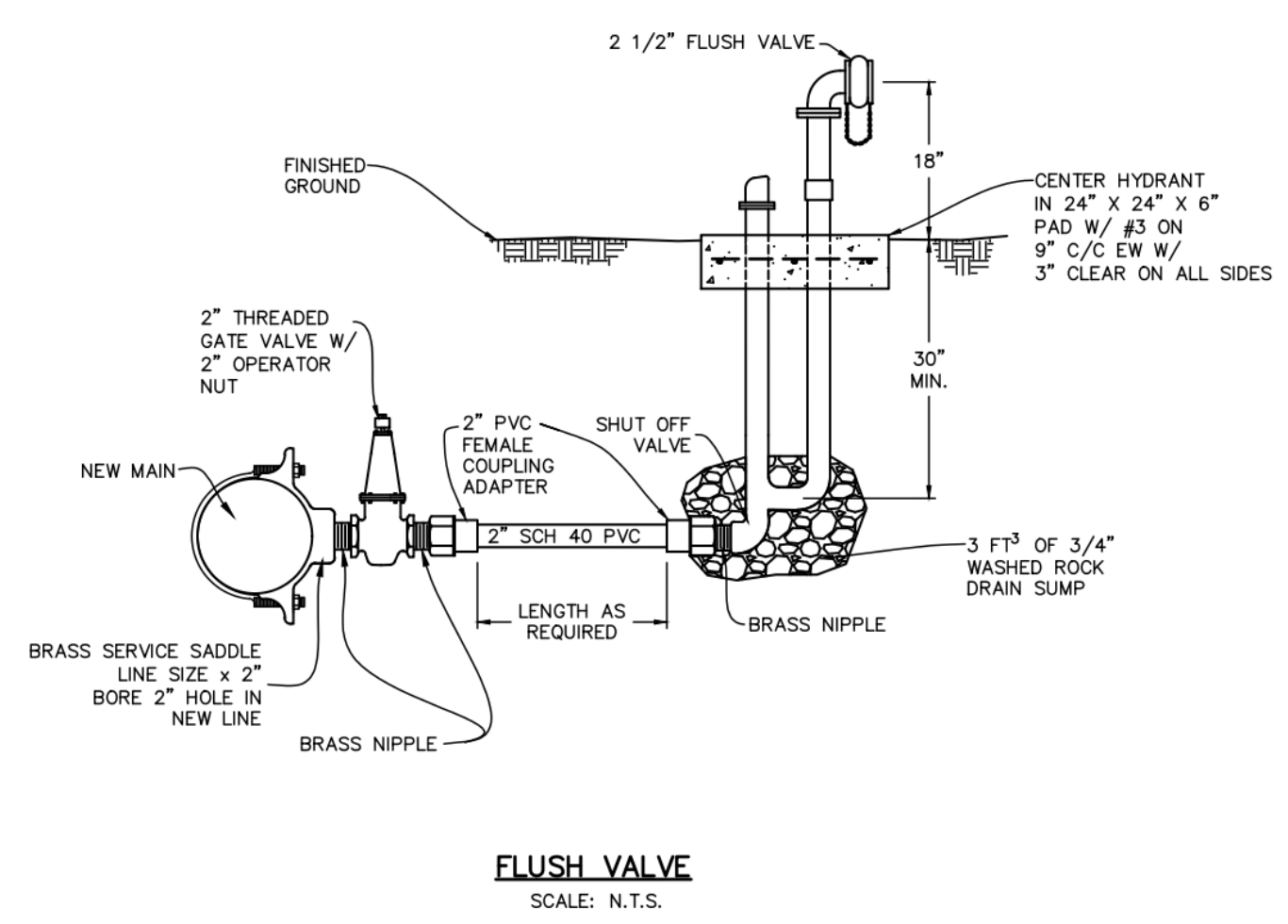
TAPPING SLEEVE & VALVE
SCALE: N.T.S.

BOTH VALVE AND SLEEVE (INCLUDING NUTS, BOLTS, AND FLANGES) SHALL BE WRAPPED WITH MINIMUM 3 MIL POLY WRAP, OR SEALED WITH RUBBER-IN-A-CAN PRIOR TO THRUST BLOCK PLACEMENT OR BACKFILL. PIPE WALL REMOVED FROM MAIN BY TAPPING SHALL BE PROVIDED TO ENGINEER.

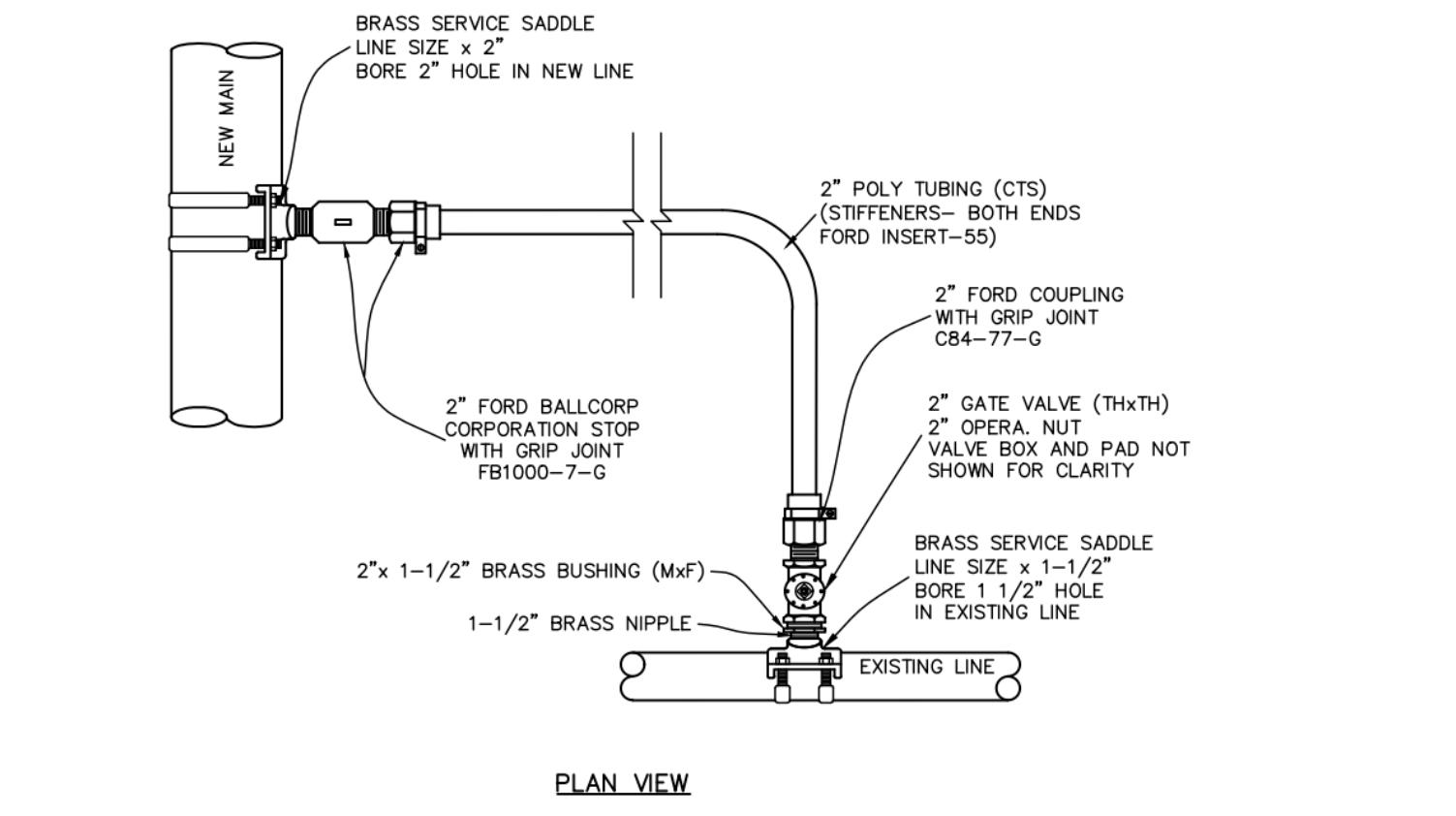
ENGINEER TO CHECK OWNER PREFERENCE ABOUT USING POLY WRAP OR RUBBER-IN-A-CAN



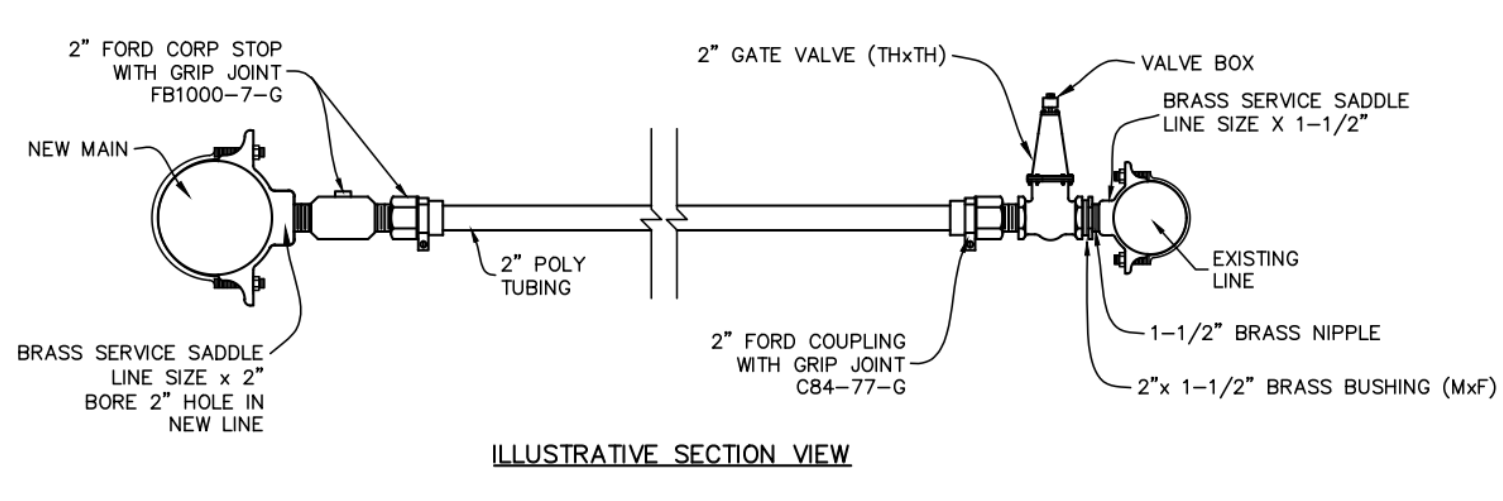
1 1/2" & SMALLER BURIED VALVES
SCALE: N.T.S.



FLUSH VALVE
SCALE: N.T.S.



PLAN VIEW

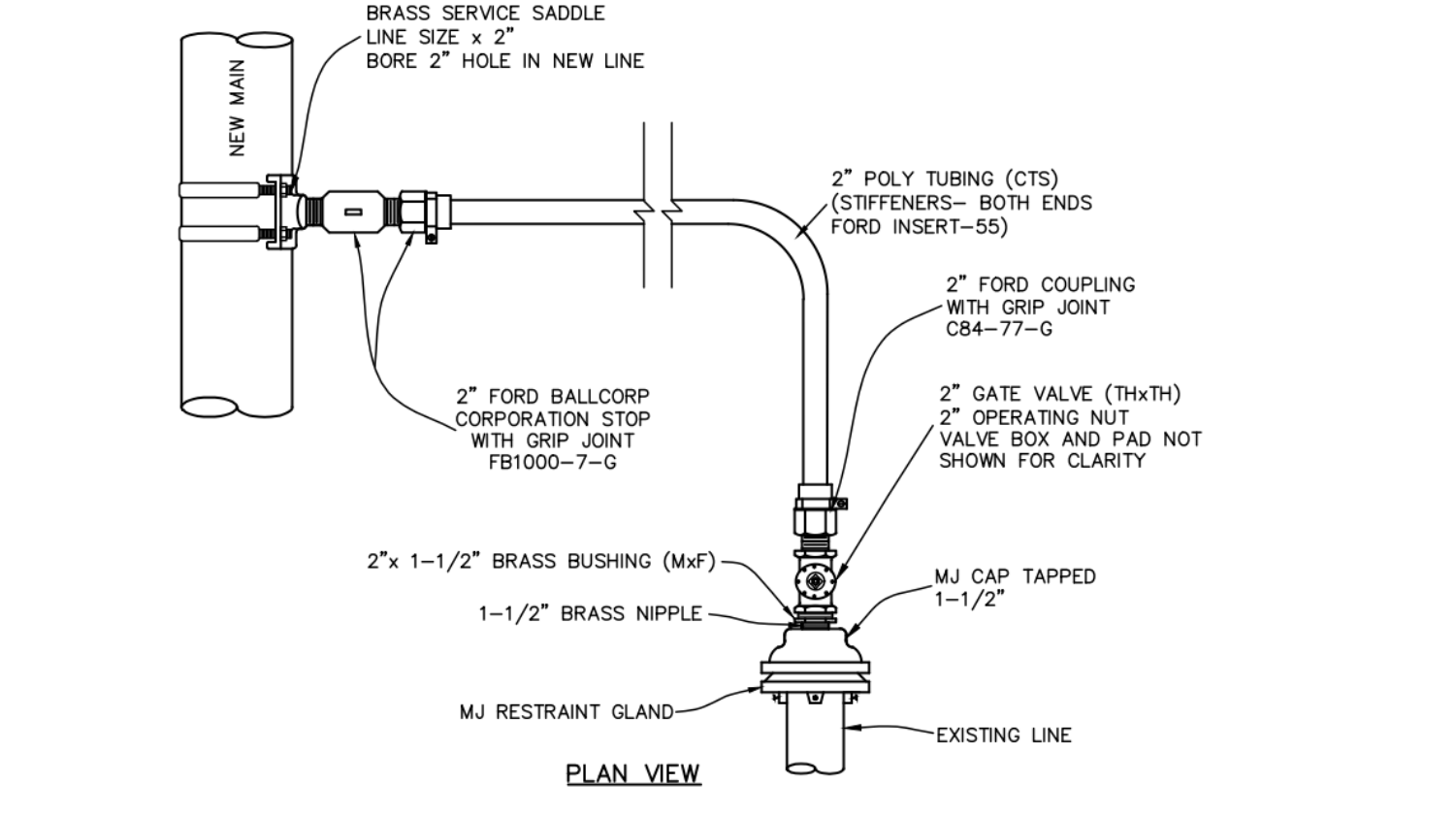


ILLUSTRATIVE SECTION VIEW

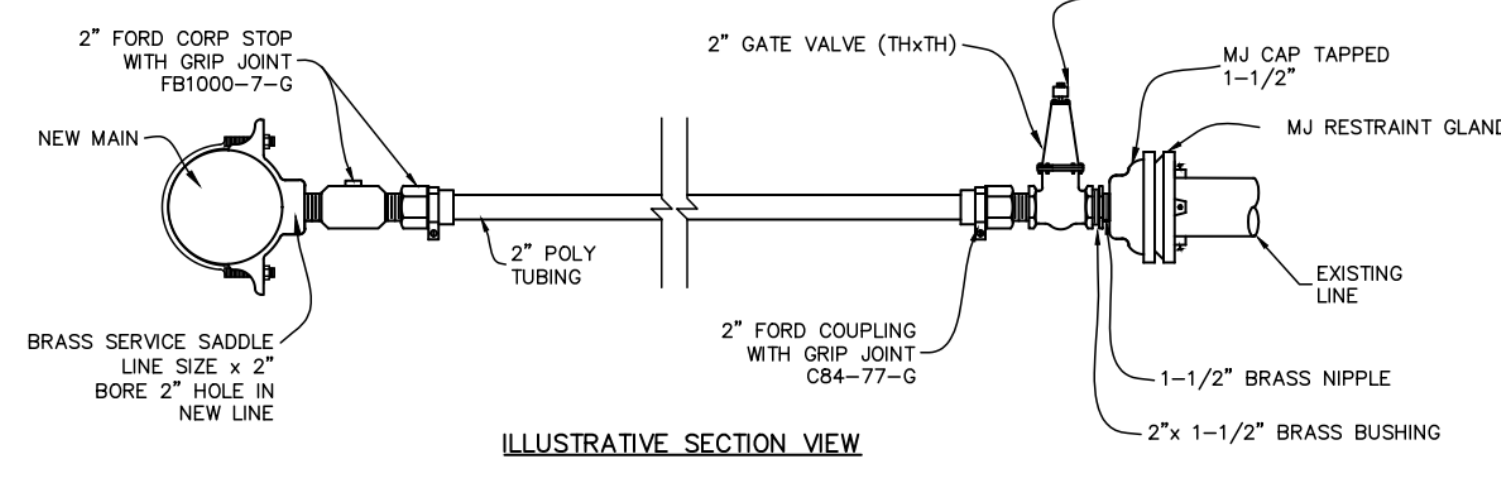
NOTE: FOR EXISTING MAINS, CUT IN A LINE SIZE TEE IN PLACE OF THE SERVICE SADDLE. ADAPT BRANCH OF NEW TEE TO VALVE (NO PVC MALE ADAPTERS.)

CONNECTION OF NEW MAIN TO 3\"/>

SCALE: N.T.S.



PLAN VIEW

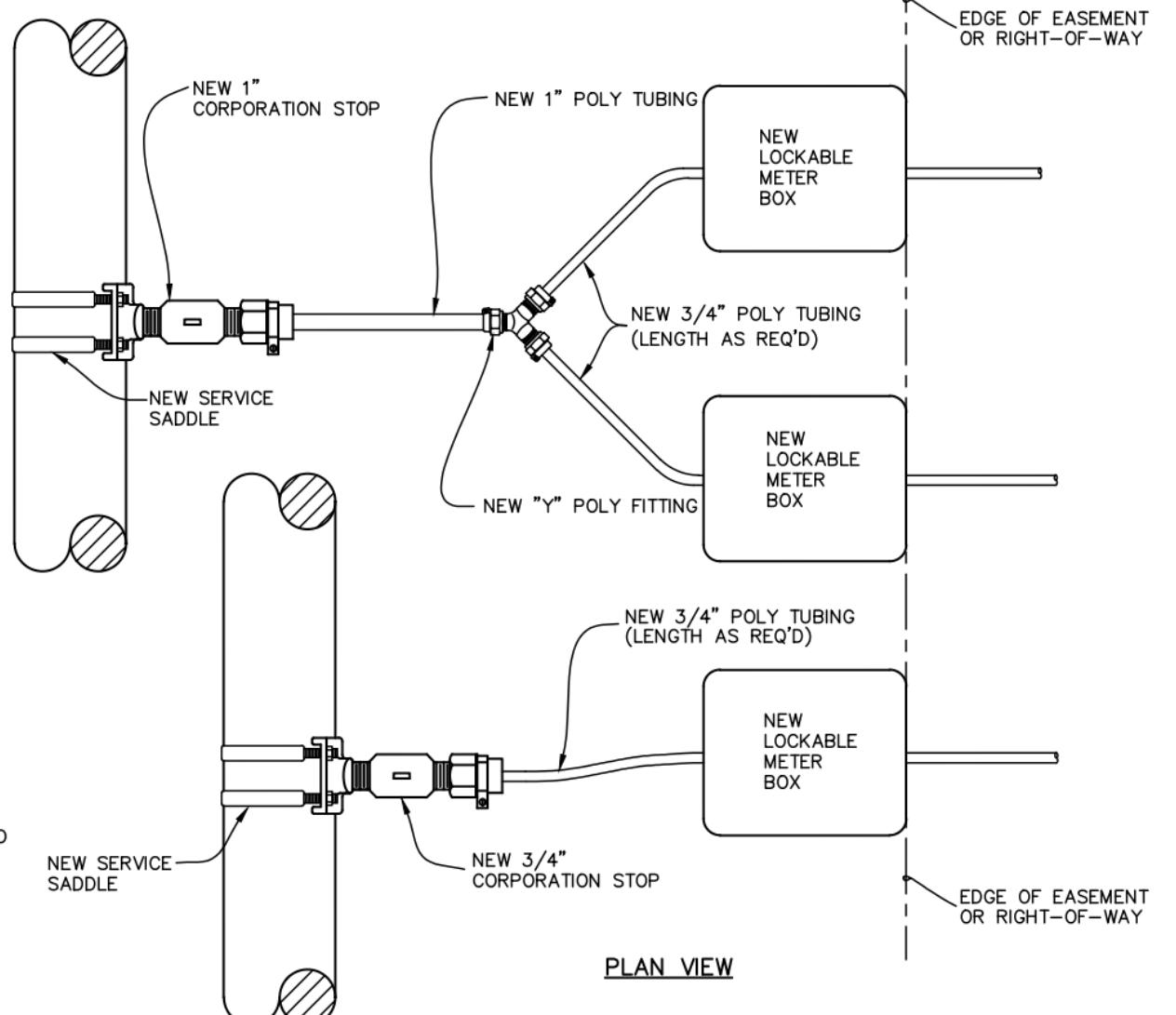


ILLUSTRATIVE SECTION VIEW

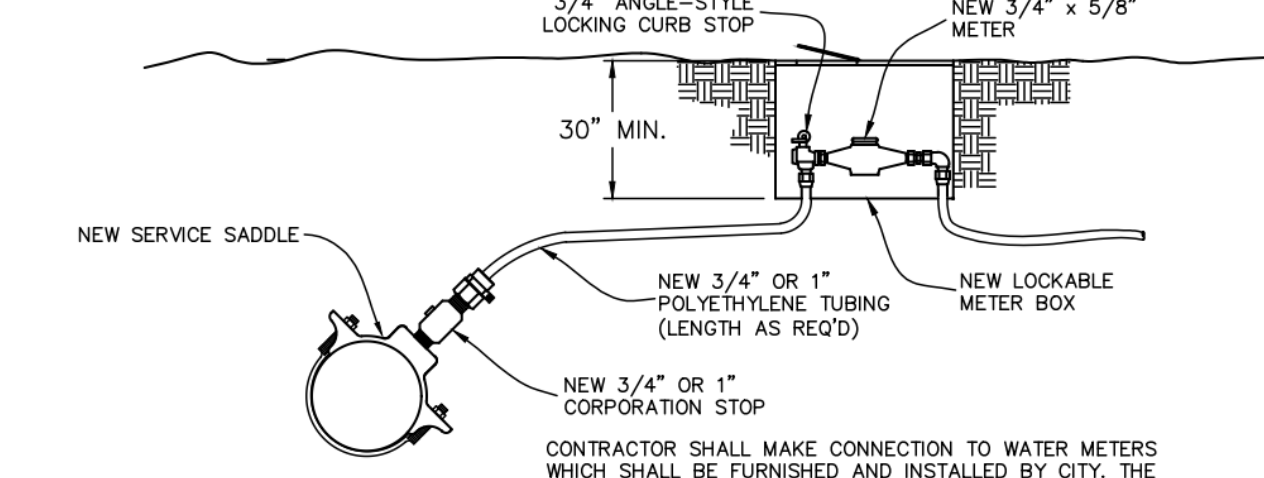
NOTE: FOR EXISTING MAINS, CUT IN A LINE SIZE TEE IN PLACE OF THE SERVICE SADDLE. ADAPT BRANCH OF NEW TEE TO VALVE (NO PVC MALE ADAPTERS.)

CONNECTION OF NEW MAIN TO END OF 3\"/>

SCALE: N.T.S.



PLAN VIEW

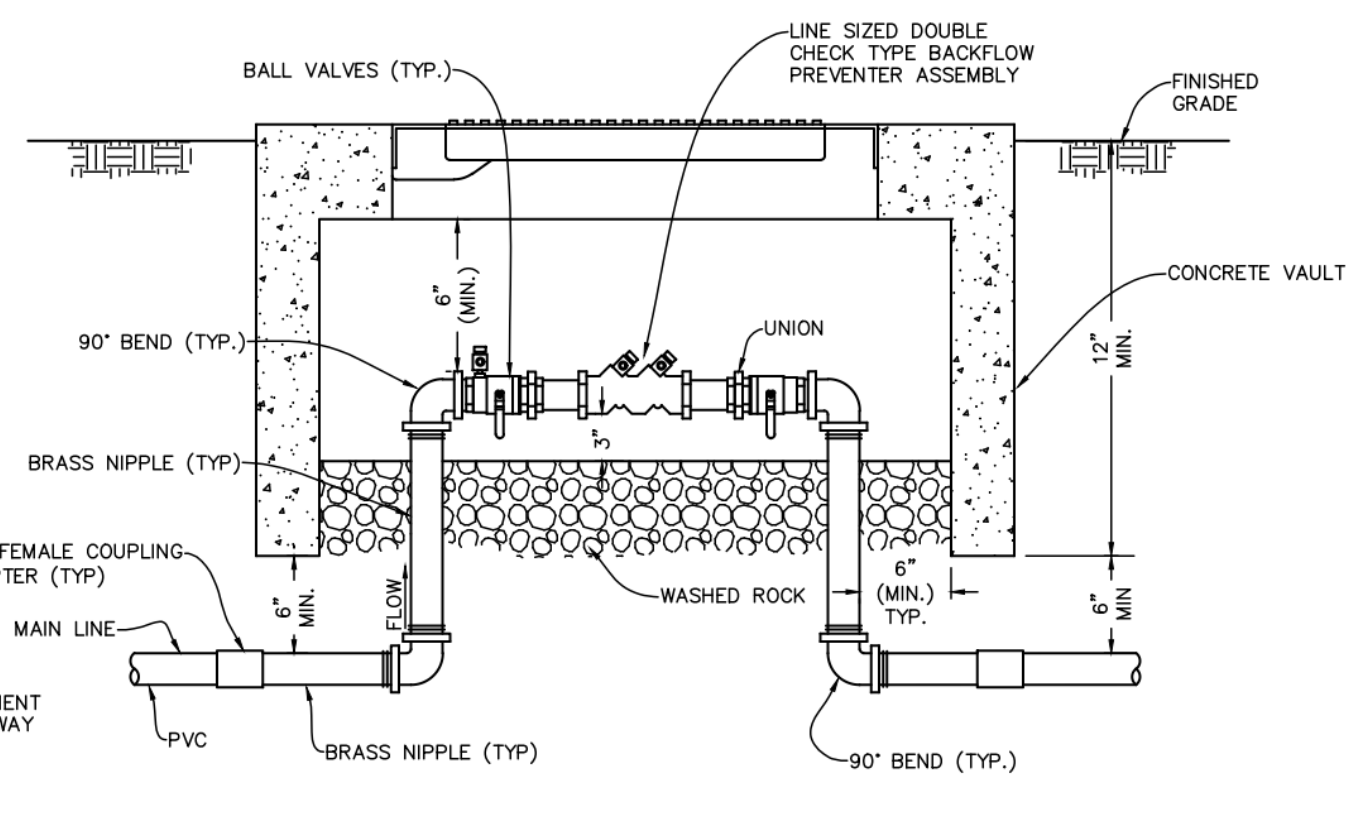


PROFILE VIEW

WATER SERVICE CONNECTION
SCALE: N.T.S.

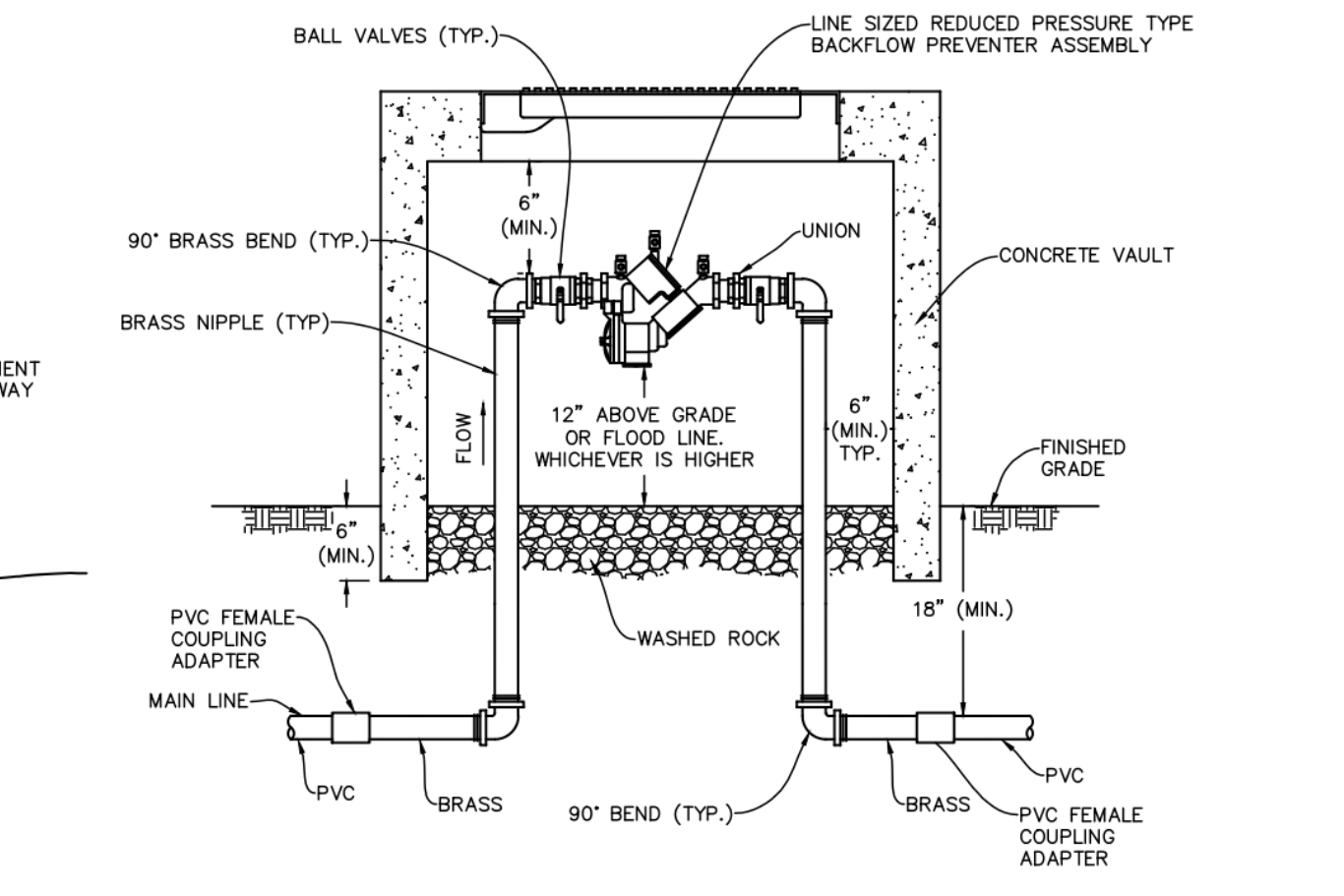
CONTRACTOR SHALL MAKE CONNECTION TO WATER METERS WHICH SHALL BE FURNISHED AND INSTALLED BY CITY. THE CONTRACTOR SHALL PROVIDE NO LESS THAN TWO DAYS NOTICE TO THE SYSTEM OWNER PRIOR TO WATER METER CONNECTION. LOCATIONS OF PROPOSED CONNECTIONS SHALL BE AS DETERMINED IN THE FIELD BY THE SYSTEM OWNER.

ALL SERVICE LINE TUBING SHALL BE POLYETHYLENE TUBING PER TECHNICAL SPECIFICATIONS.



3\"/>

NOTE: PLACE BASE OF VAULT ON UNDISTURBED SOIL OR MECHANICALLY TAMPED BACKFILL.



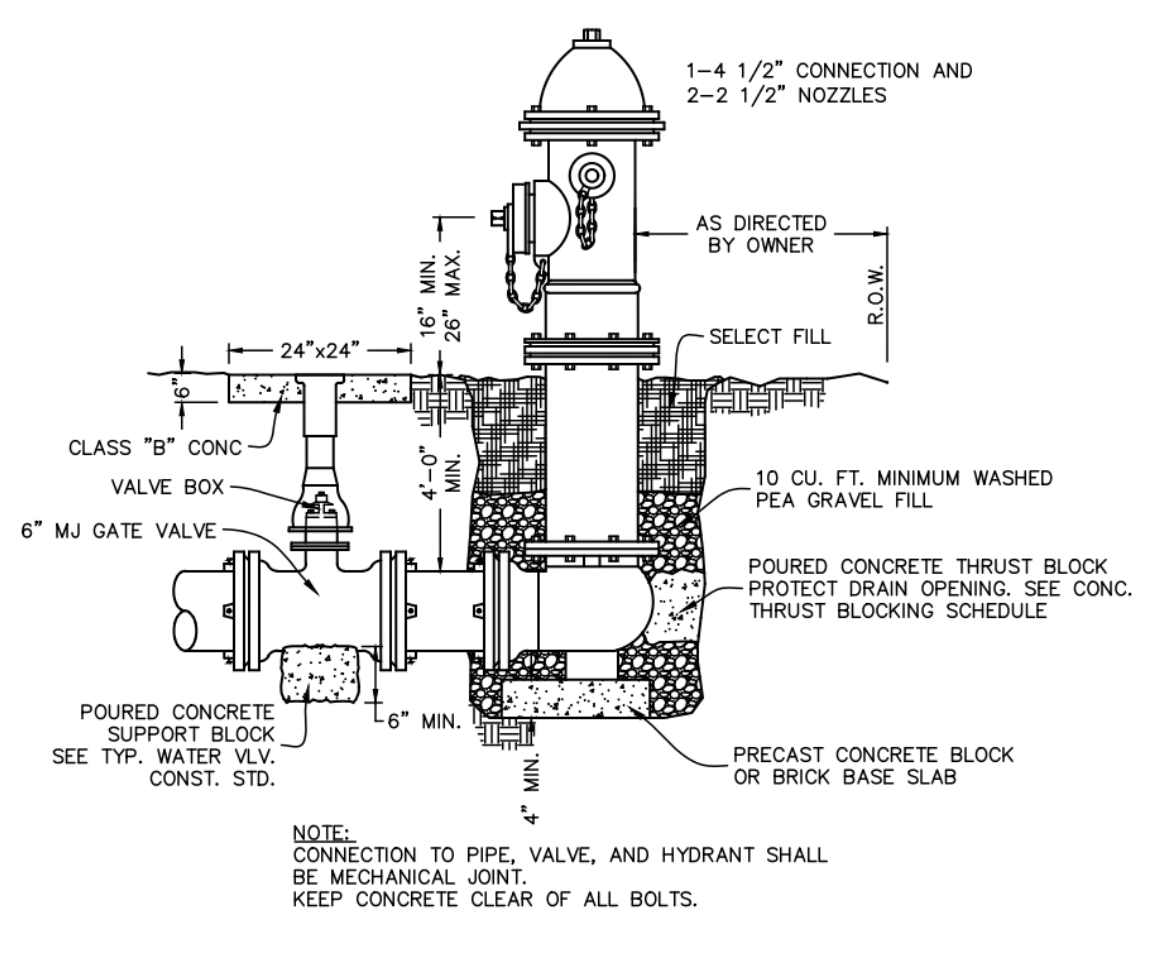
3\"/>

NOTE: PLACE BASE OF VAULT ON UNDISTURBED SOIL OR MECHANICALLY TAMPED BACKFILL.

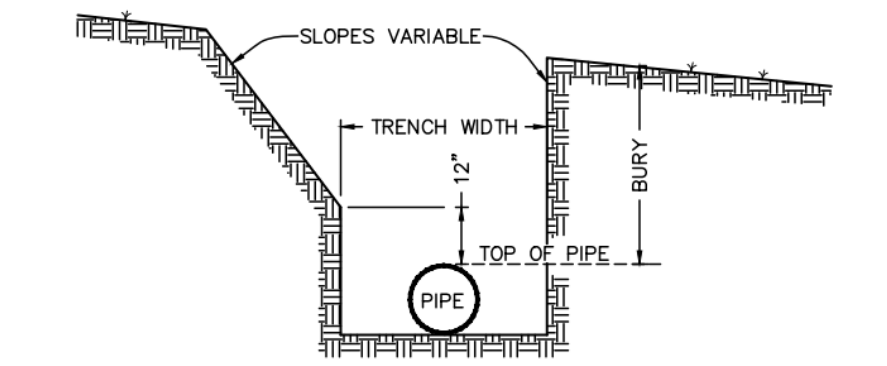
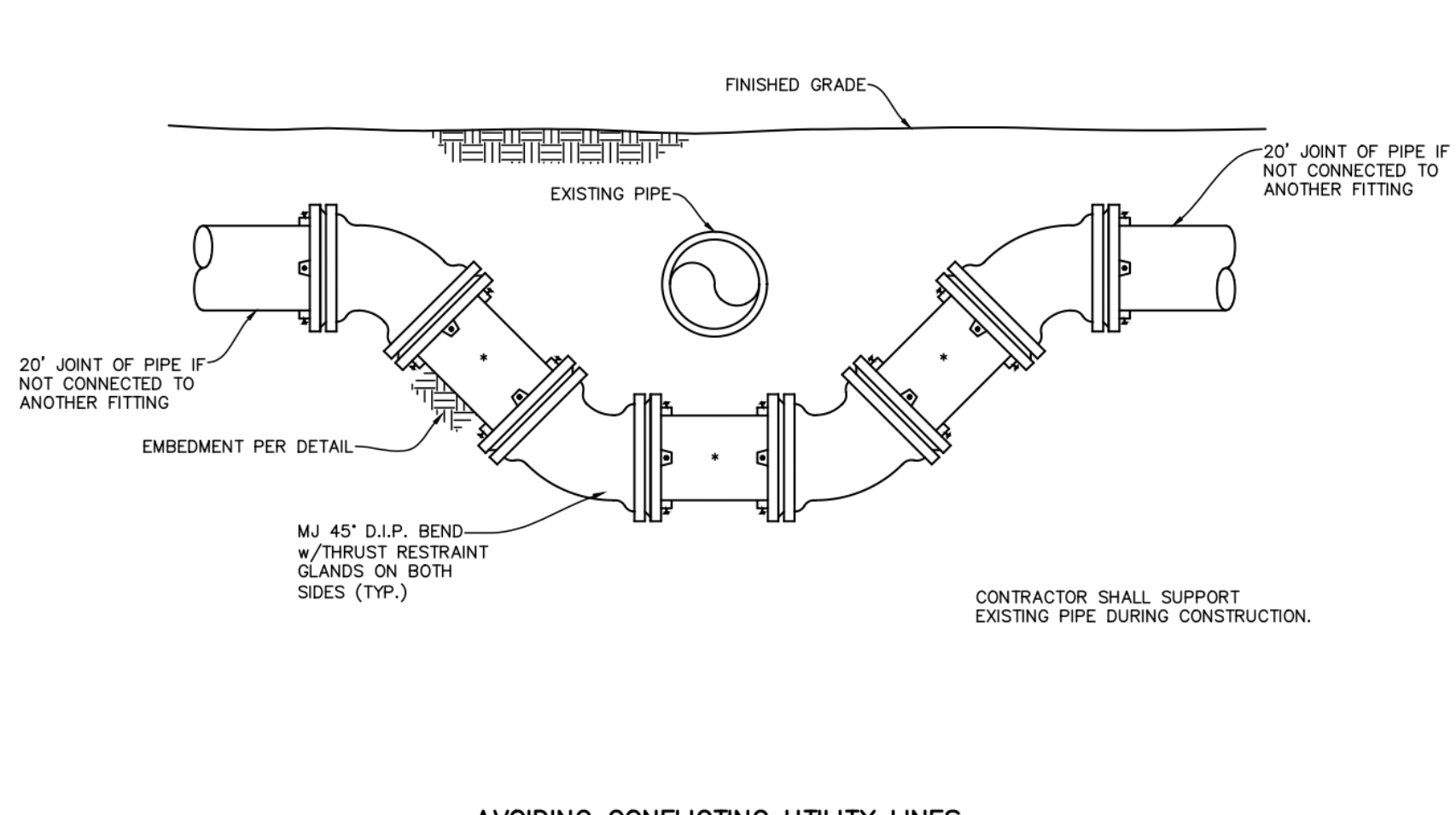
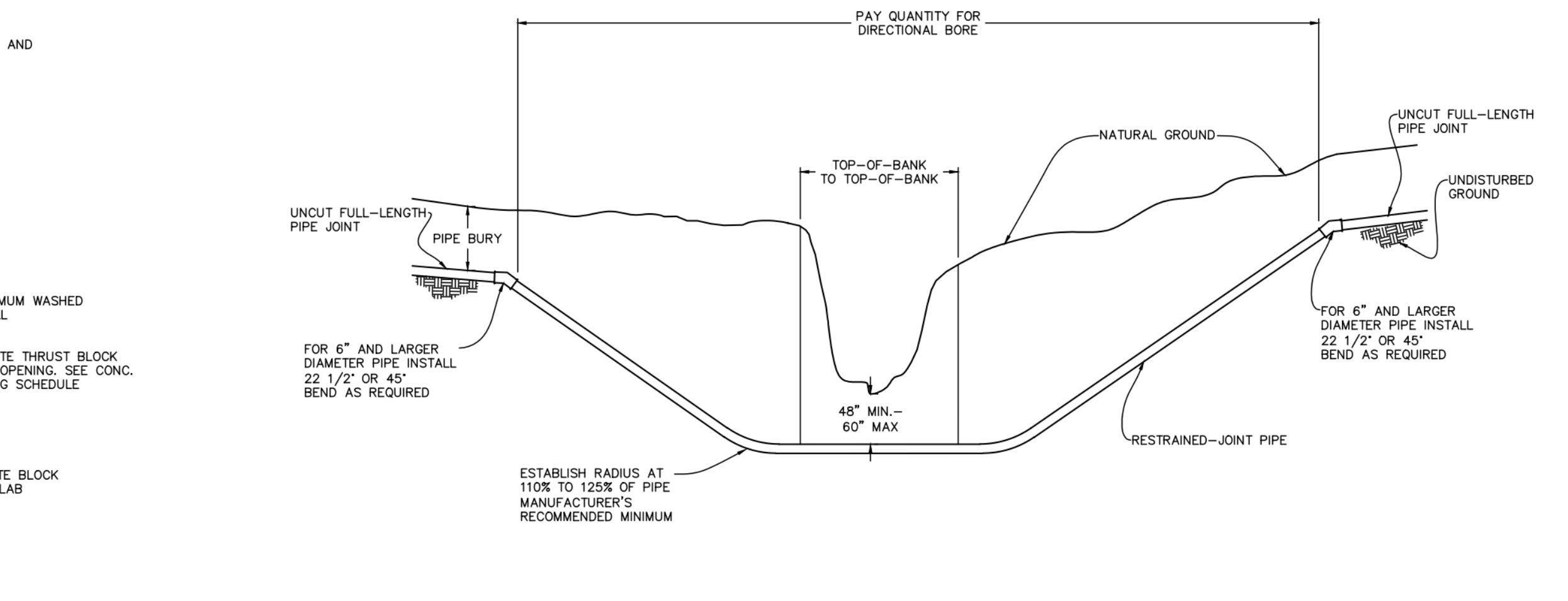
THESE PLANS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.

NOTE: LOCATION OF EXISTING BURIED UTILITIES, WHERE SHOWN, IS APPROXIMATE ONLY. THERE MAY EXIST UTILITIES WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTION OF ALL BURIED UTILITIES.

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ALL MJ JOINTS REQUIRE MECHANICAL THRUST RESTRAINT IN ADDITION TO CONCRETE THRUST BLOCKING.



PIPE USED FOR	SIZE	TRENCH WIDTH MINIMUM	TRENCH WIDTH MAXIMUM	MINIMUM BURY (1)
WATER SERVICES	3/4"-1-1/4"	6"	12"	30"
WATER SERVICES	1 1/2"-2-1/2"	6"	12"	30"
WATER MAINS	1"	6"	12"	30"
WATER MAINS	1-1/4"	6"	12"	30"
WATER MAINS	1-1/2"	6"	12"	30"
WATER MAINS	2"	6"	12"	30"
WATER MAINS	2-1/2"	6"	12"	30"
WATER MAINS	3"	6"	18"	30"
WATER AND SEWER MAINS	4"	20"	24"	36"
WATER AND SEWER MAINS	6"	22"	30"	36"
WATER AND SEWER MAINS	8"	24"	30"	42"
WATER AND SEWER MAINS	10"	26"	30"	42"
WATER AND SEWER MAINS	12"	28"	36"	42"
SEWER MAINS	15"	31"	42"	42"
WATER MAINS	16"	31"	42"	42"
WATER AND SEWER MAINS	18"	35"	42"	42"

(1) THESE BURIES ARE APPLICABLE TO GRAVITY PIPELINE WHERE NO DEPTH IS SPECIFIED IN THE PLAN/PROFILE DRAWINGS, AND TO PRESSURE PIPELINES. IN ADDITION, NO PRESSURE LINE SHALL BE LESS THAN 36" DEEP UNDER BORROW DITCHES OR CREEK BOTTOMS. WHERE SPECIFIED ELEVATIONS ARE SHOWN ELSEWHERE FOR GRAVITY LINES, SUCH AS IN PLAN/PROFILE DRAWINGS, THOSE GRADES SHALL GOVERN.

TRENCH WIDTH AND BURY GRAVITY AND/OR PRESSURE LINES

SCALE: N.T.S.

ENGINEER SHALL TALK WITH OWNER ABOUT POSSIBLY EXTENDING THE WARRANTY FOR TRENCH SETTLEMENT AND PAVEMENT REPAIR TO TWO YEARS TO ACCOMMODATE POSSIBLE SETTLEMENT.

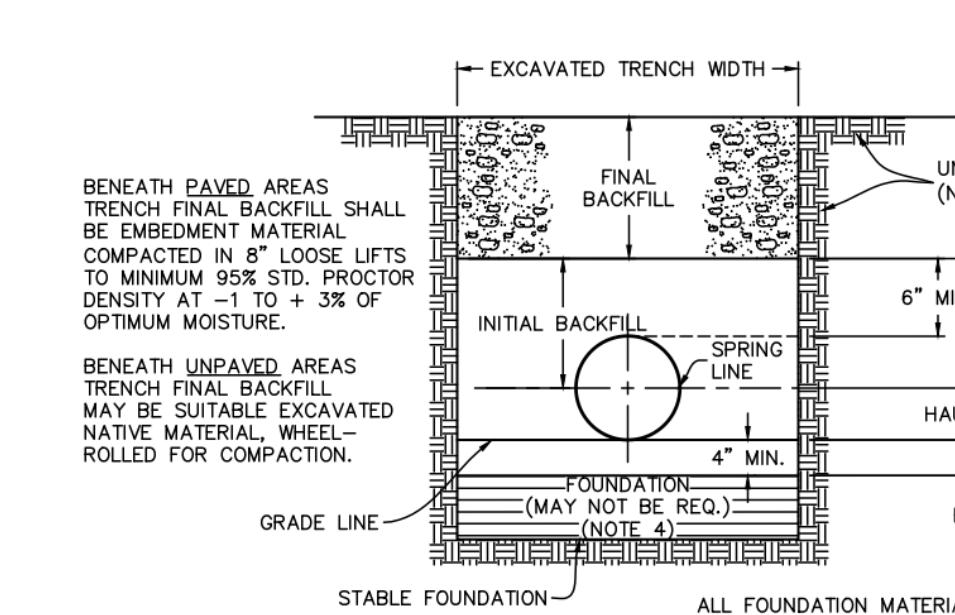


CONCRETE ENCASEMENT OF PIPE

SCALE: N.T.S.

CONCRETE ENCASEMENT OF PIPE

SCALE: N.T.S.

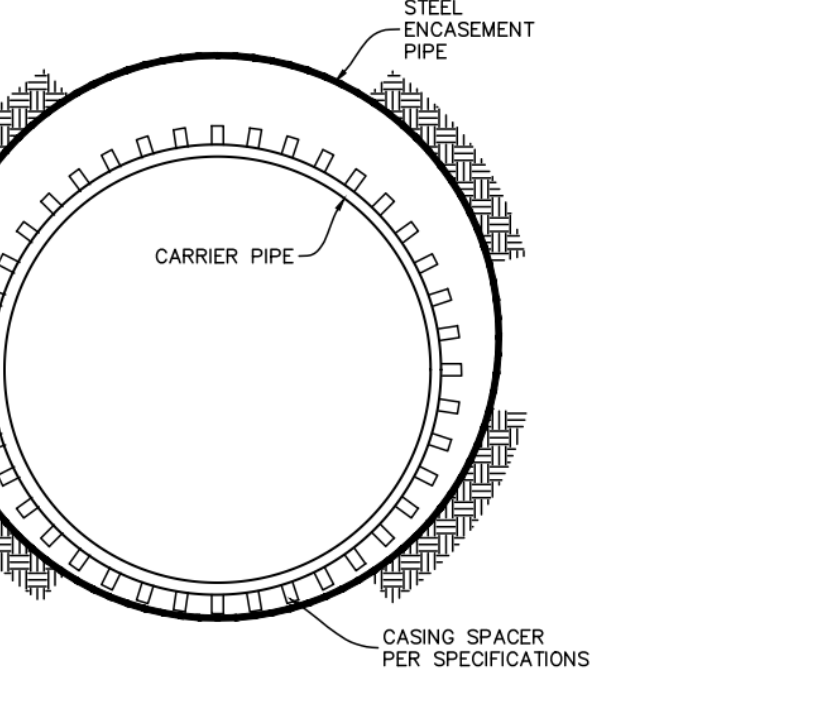


BACKFILL NOTES:

- ON HIGHWAY RIGHT-OF-WAY, BACKFILL METHODS SHALL CONFORM TO THE OWNER'S PERMIT IF MORE RESTRICTIVE THAN NOTED ABOVE.
- SEE "STREET, DRIVEWAY, AND SIDEWALK REPAIRS" STANDARD FOR WEARING SURFACE, BASE AND SUBBASE REQUIREMENTS FOR TRENCHES BENEATH SURFACED OR PAVED AREAS.
- TRENCHES BENEATH STRUCTURES SHALL BE BACKFILLED SAME AS UNDER SURFACED AREAS.
- PIPE SHALL NOT BE LAID ON UNSTABLE FOUNDATION. THE CONTRACTOR SHALL REMOVE SUCH UNSUITABLE MATERIAL AND REPLACE IT WITH ACCEPTABLE MATERIAL.
- FOR TRENCHING IN UNPAVED AREAS, IN THE AREA 12" OR MORE ABOVE THE TOP OF THE PIPE, THE EXCAVATED TRENCH WIDTH AND BACKSLOPE MAY VARY TO COMPLY WITH APPROPRIATE SAFETY PRACTICES AND REGULATIONS.
- IN ALL TRENCHED AREAS THAT ARE TO RECEIVE PAVEMENT REPAIR, THE PIPE WILL BE INSTALLED IN TRENCHES WITH NEAR VERTICAL WALLS EMPLOYING OSHA-APPROVED TRENCH SAFETY METHODS (WALL JACKS, TRENCH BOXES, ETC). SLOPING THE SIDES OF THE TRENCH WILL NOT BE ALLOWED SO THAT PAVEMENT REPAIR AT THE TOP OF THE TRENCH WILL BE MINIMIZED.

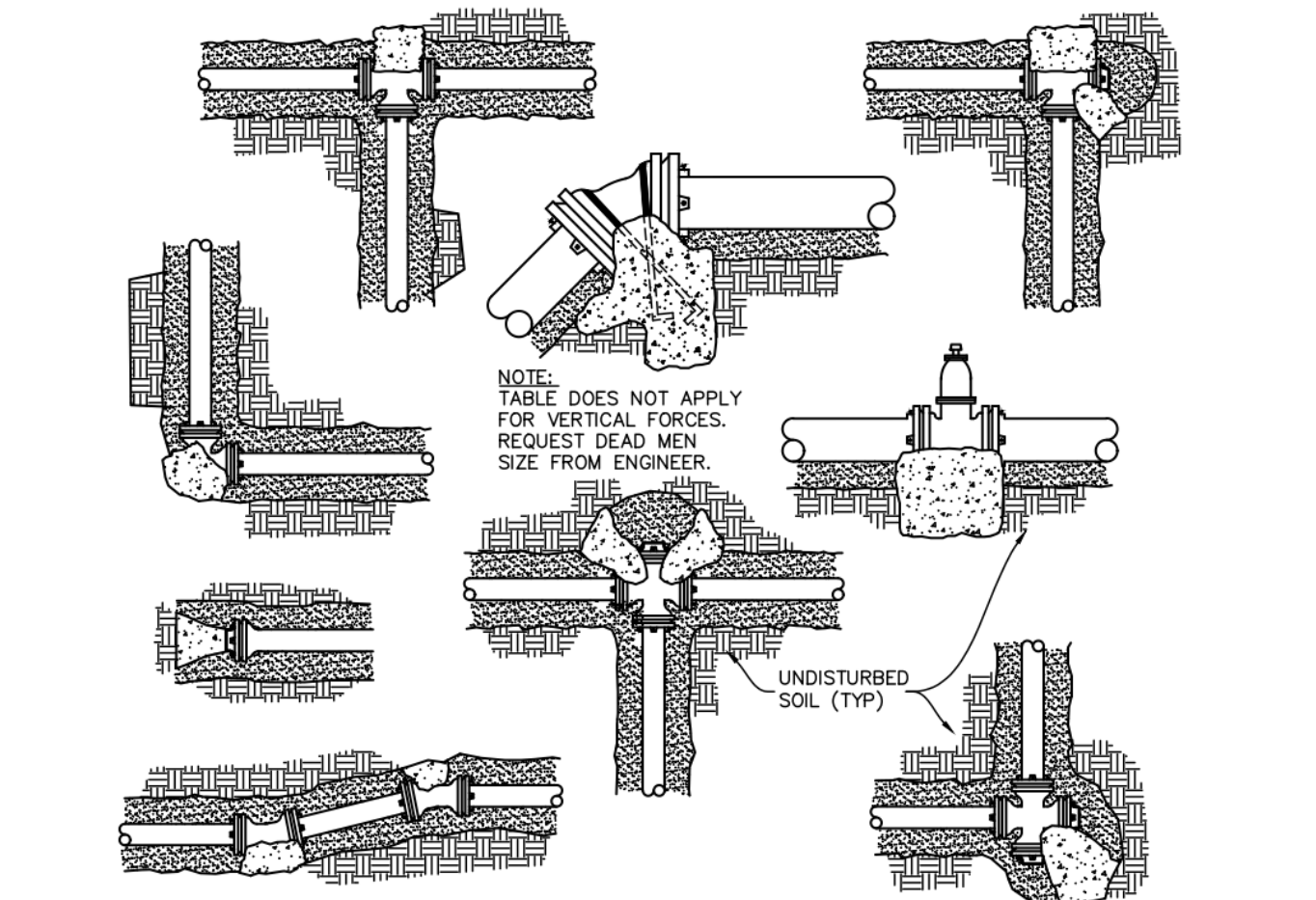
BACKFILL FOR SANITARY SEWER (GRAVITY AND AND PRESSURE) AND FOR 6" OR LARGER POTABLE WATER MAINS

SCALE: N.T.S.



HWY/RR ENCASEMENT DATA

PIPE DESCRIPTION	CASING NOMINAL SIZE	TRACED CASING SPACER		CASING REQ'D	WALL THICKNESS	CASING COATING
		PROJECTION	TYPE REQ'D			
xxx	xxx	xxx	xxx	xxx	xxx	xxx
xxx	xxx	xxx	xxx	xxx	xxx	xxx
xxx	xxx	xxx	xxx	xxx	xxx	xxx



MINIMUM SQ.FT. BEARING AREA REQUIRED AT 150 PSI.

PIPE	11-1/4"	22-1/2"	45"	90"	VALUES LESS
2"	0.2	0.2	0.5	0.8	0.6
4"	0.5	0.8	1.7	2.7	2.8
6"	0.9	1.5	3.0	4.0	4.0
8"	1.4	2.9	6.0	10.0	8.5
10"	2.0	4.5	9.0	16.2	12.0
12"	3.0	6.8	12.0	21.0	16.0
18"	6.2	14.0	23.0	50.0	30.0
20"	11	21	42.2	78	55

- AREA IS BASED ON 1000 PSF ALLOWABLE BEARING PRESSURE.
- WHEN SOFT CLAY IS ENCOUNTERED THE BEARING AREAS SHALL BE DOUBLED.
- USE CONCRETE FORMS TO KEEP CONCRETE CLEAR OF ALL BOLTS AND FLANGES.
- TABLE IS BASED ON ANMA NO. 23, PVC PIPE DESIGN MANUAL.
- ALL FITTINGS (INCLUDING NUTS AND BOLTS) TO BE DOUBLE WRAPPED WITH MINIMUM 3 MIL POLY WRAP.
- THRUST RESTRAINT GLANDS ARE REQUIRED ON ALL MJ CONNECTIONS IN ADDITION TO CONCRETE THRUST BLOCKING.

LEGEND

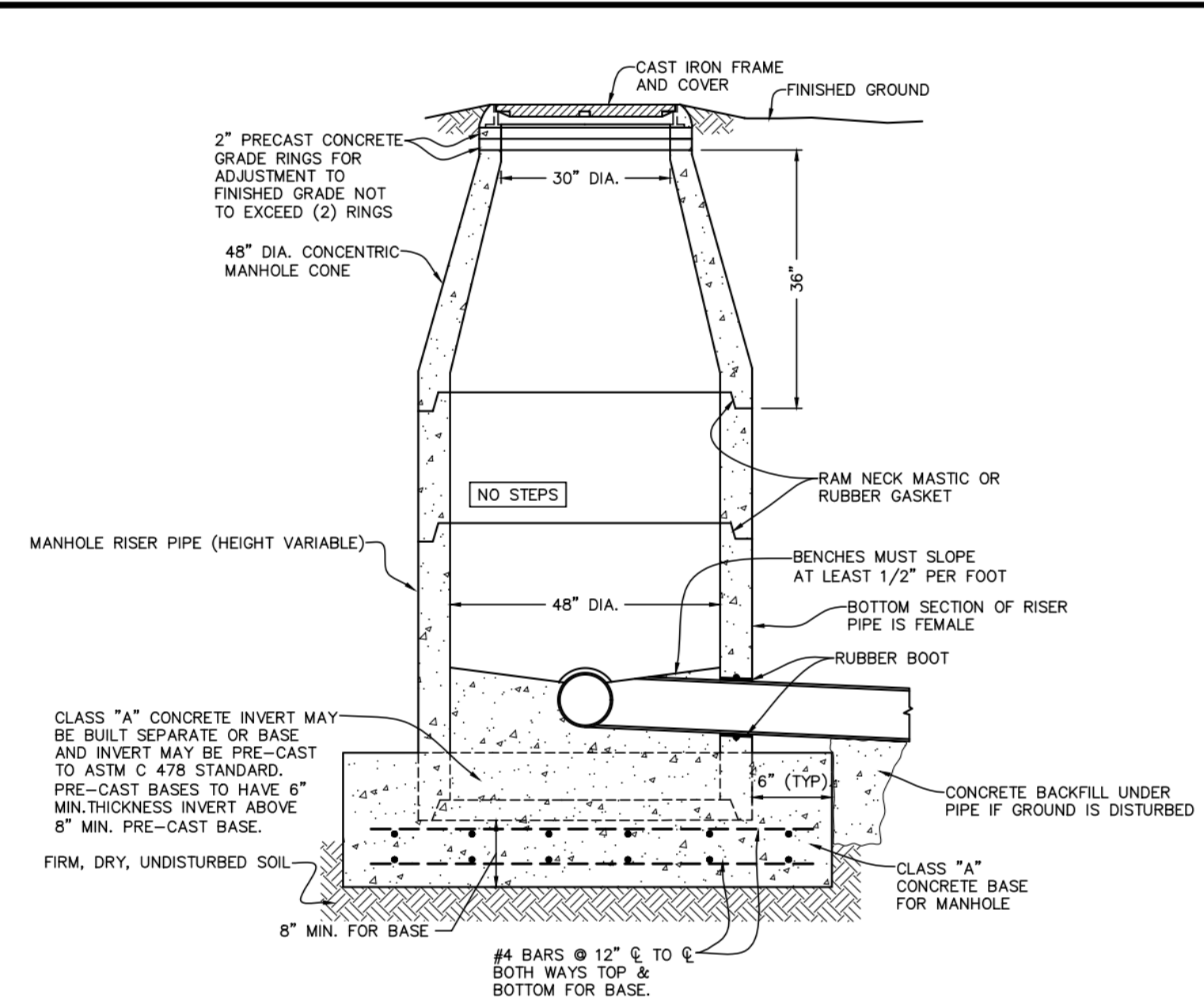
	MAILBOX
	SEWER CLEANOUT
	TRAFFIC SIGN
	SEWER MANHOLE
	12" TREE
	TREE WITH SIZE
	SHRUBS OR BRUSH
	POWER POLE WITH GUY WIRE
	WATER METER
	WATER MAIN & SIZE
	FIRE HYDRANT
	WATER VALVE
	GAS METER
	GAS LINE
	FIBER OPTIC
	TELEPHONE CABLE
	UNDERGROUND ELECTRIC
	WASTEWATER MAIN & SIZE
	CATV/TELEPHONE PEDESTAL
	WIRE FENCE
	WOOD FENCE
	CHAIN LINK FENCE

PROPOSED WATER

	6" C-900 DR18 PVC	WATER LINE & SIZE
	WATER VALVE	WATER VALVE
	FLUSH VALVE	FLUSH VALVE
	EXISTING WATER SERVICE TRANSFER	EXISTING WATER SERVICE TRANSFER
	FIRE HYDRANT	FIRE HYDRANT

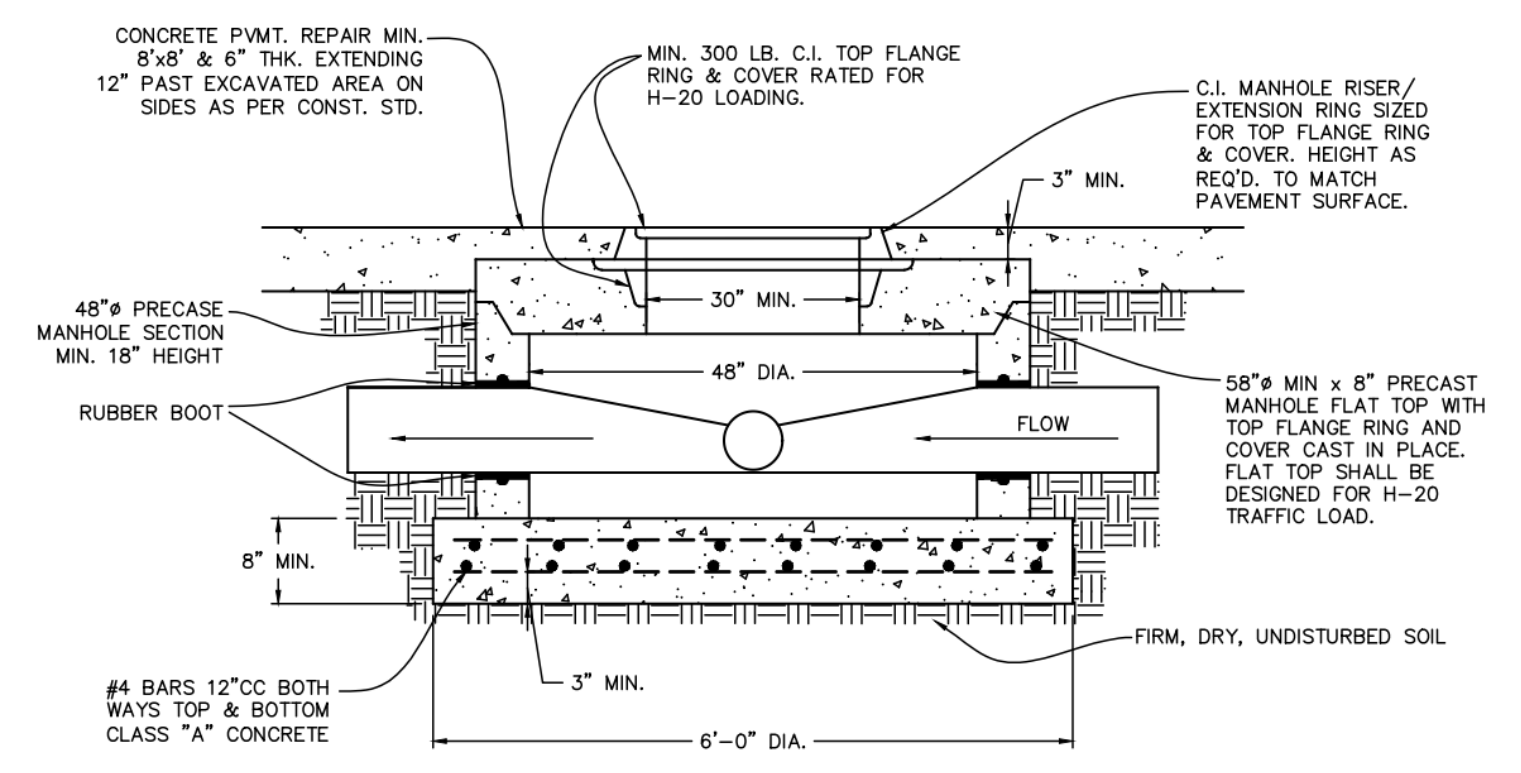
PROPOSED SEWER

	8" SDR35 PVC	SEWER LINE & SIZE
	MANHOLE	MANHOLE
	CLEANOUT	CLEANOUT
	APPROX. LOCATION OF SERVICES	APPROX. LOCATION OF SERVICES
	EXISTING SEWER SERVICE TRANSFER	EXISTING SEWER SERVICE TRANSFER

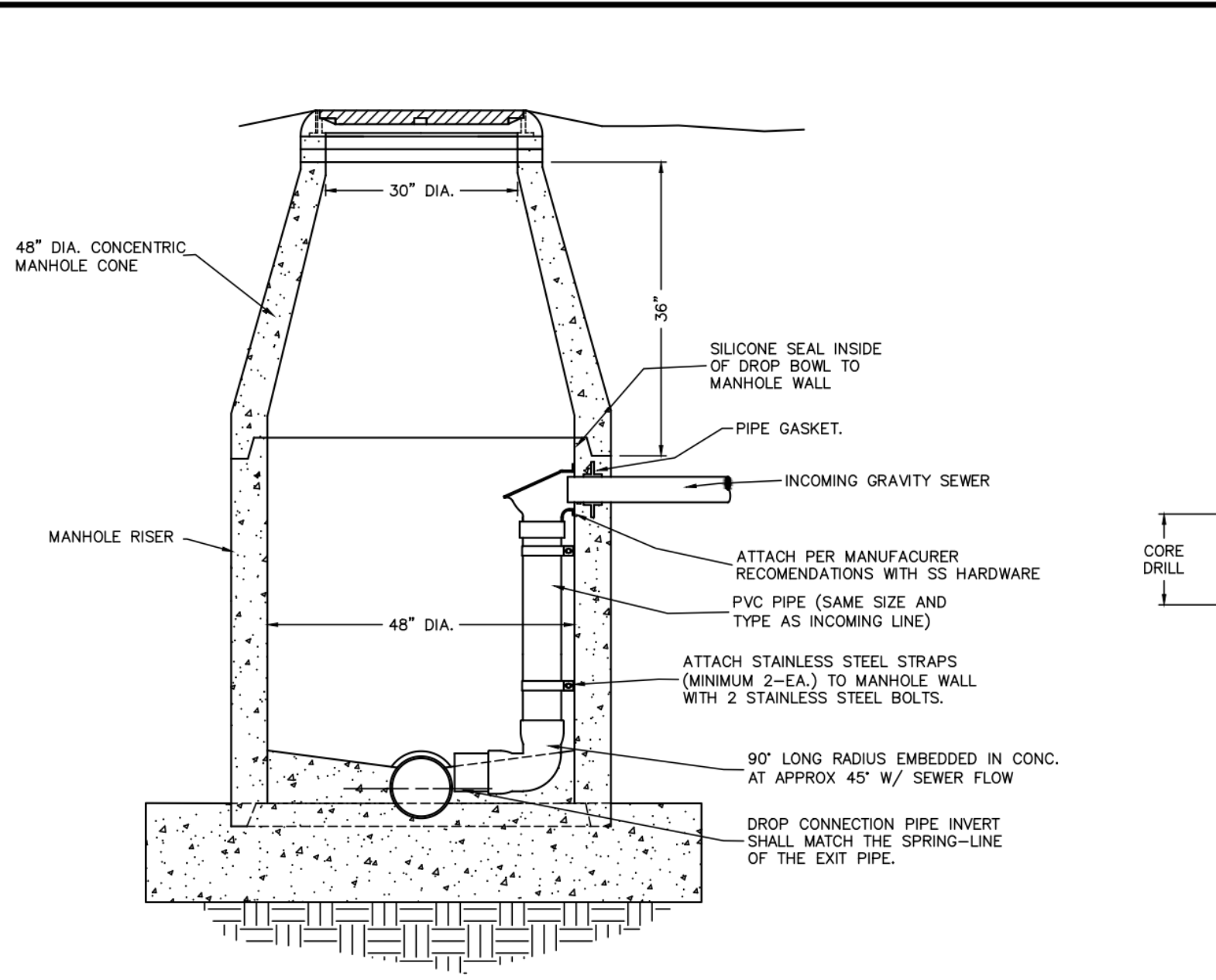


48\"/>

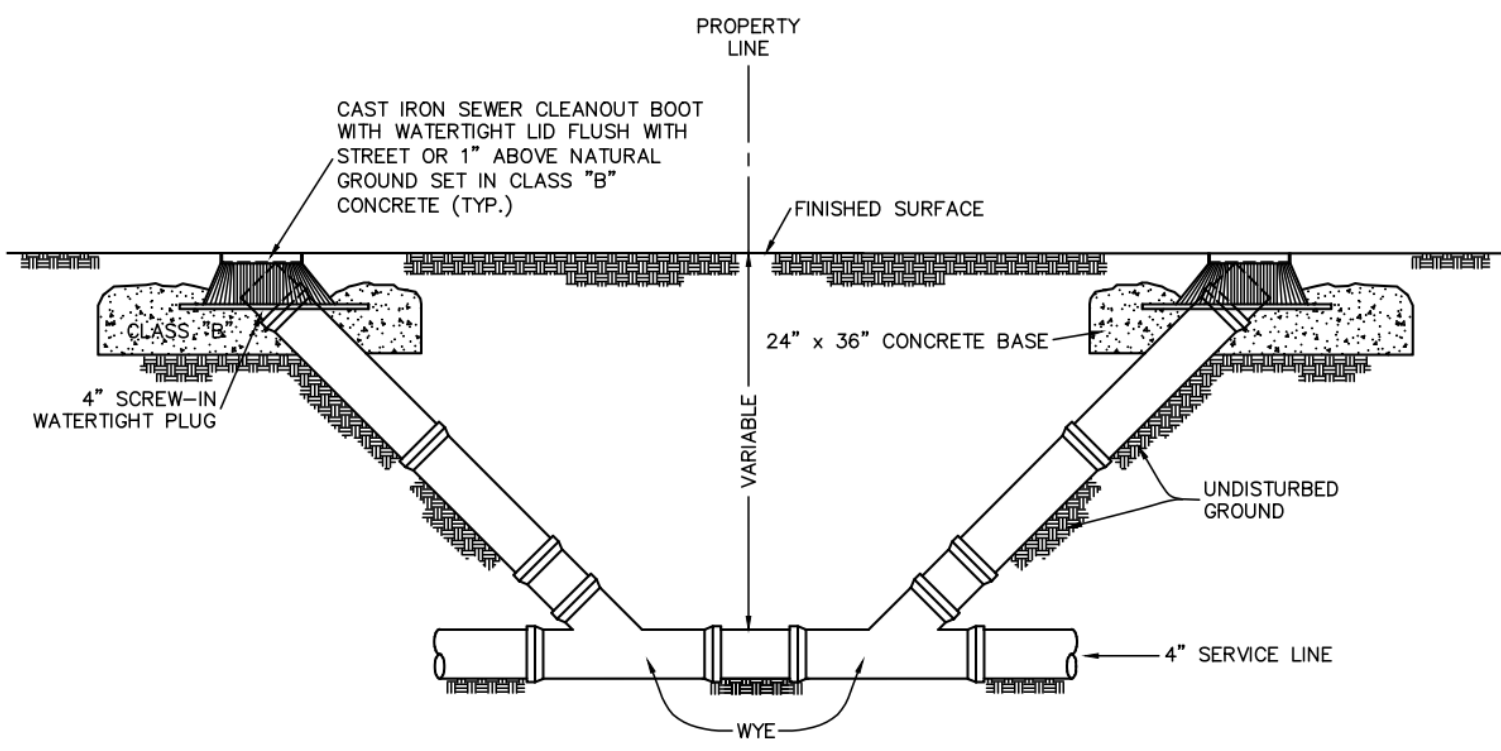
- NOTES:
- WHERE WATERTIGHT MANHOLE CASTINGS ARE SPECIFIED ON THE DRAWINGS, THEY SHALL BE OF THE BOLT-DOWN VARIETY WITH A NEOPRENE OR RUBBER GASKET BETWEEN THE RING & COVER (SEE SPECS)
 - ANTI INFILTRATION INFLOW RING & COVER
 - SET GRADE-RINGS (IF ANY) AND FRAME IN A BED OF GROUT. CAP SHOULDERS WITH NON-SHRINK GROUT.



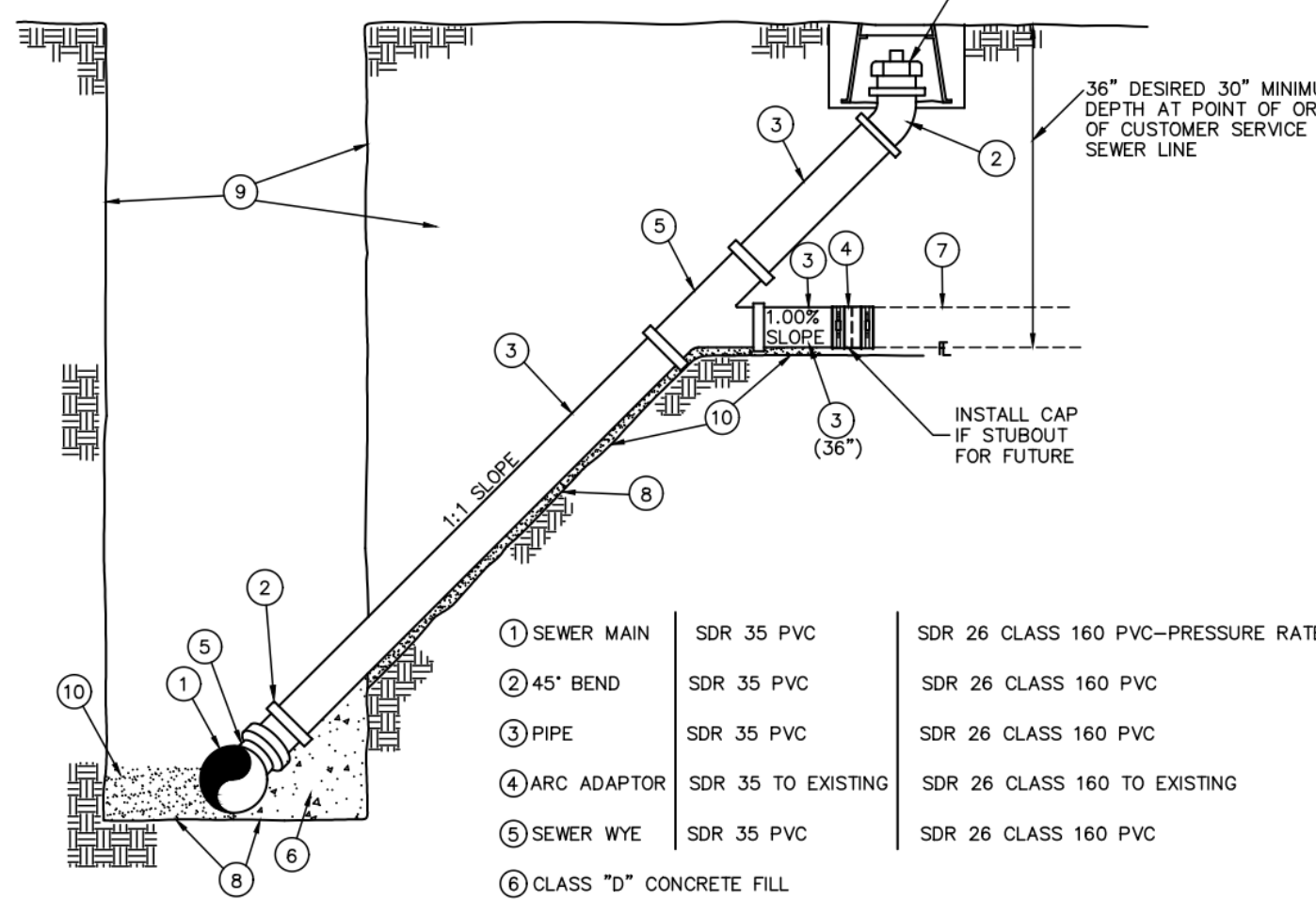
SPECIAL MANHOLE WITH LESS THAN 36\"/>



MANHOLE INSIDE DROP STRUCTURE

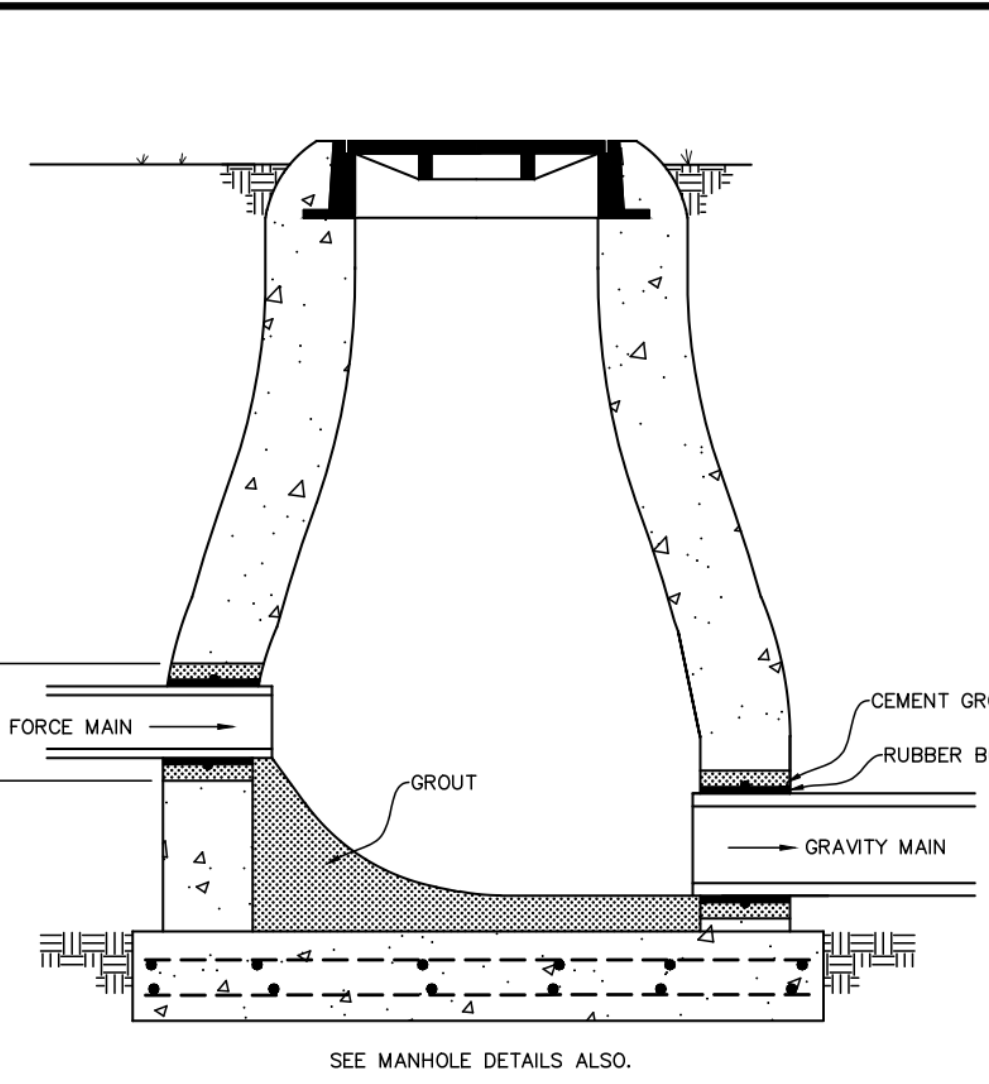


DOUBLE SEWER SERVICE CLEANOUT



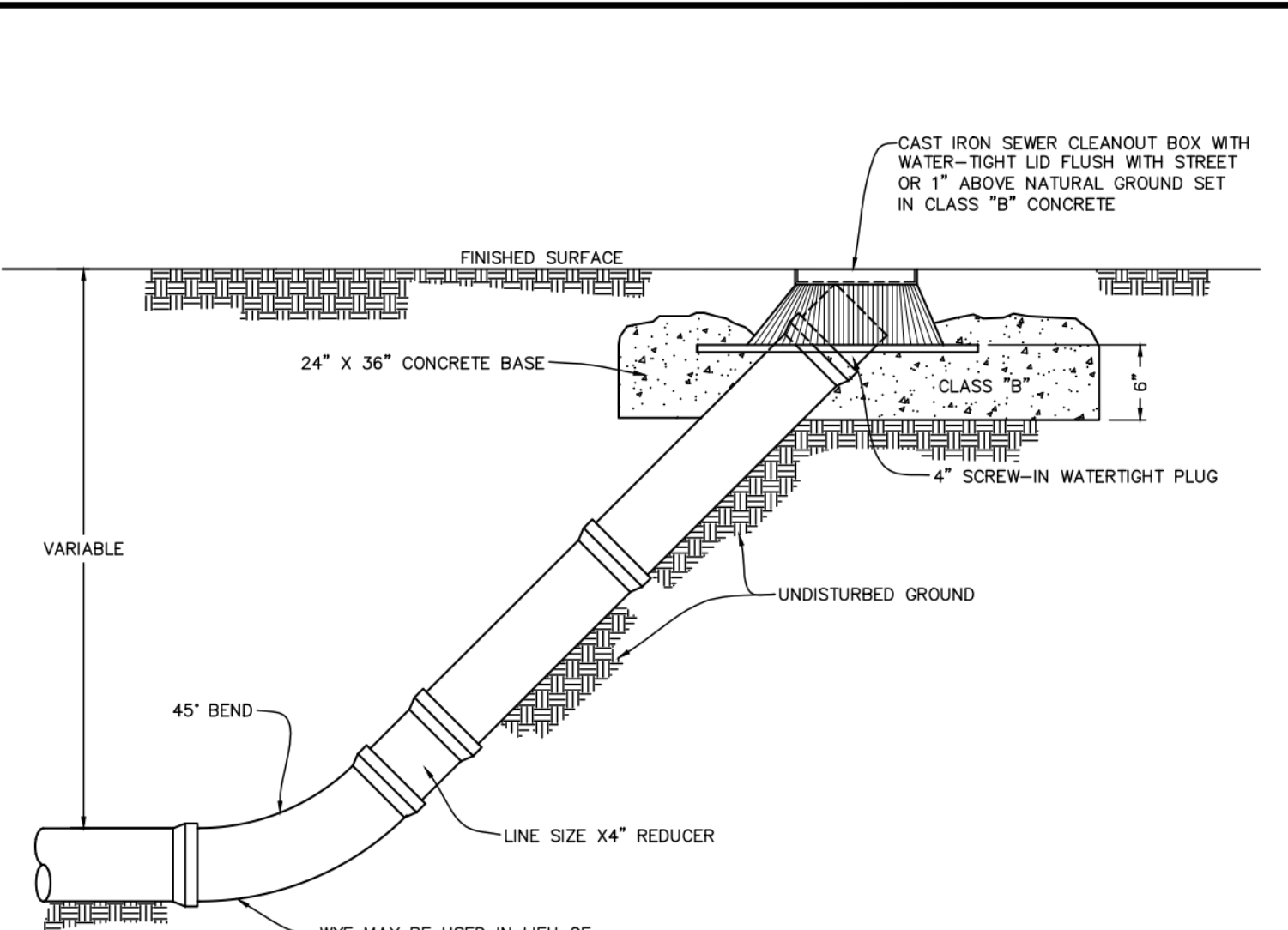
CUSTOMER SEWER SERVICE TRANSFER WITH CLEANOUT

- GENERAL NOTES
- SANITARY TEE'S OR T-Y'S WILL NOT BE PERMITTED
 - TAPPING EXISTING LINES WILL REQUIRE TAPPING SADDLE
 - CONTRACTOR SHALL FURNISH SEWER MAIN STATION NUMBERS ON ALL TAPS
 - SEE TECHNICAL SPECIFICATIONS FOR ADDITIONAL DETAILS/REQUIREMENTS
 - TRACER TAPE REQUIRED ON HIGHWAY R.O.W.
- | | | |
|--|--------------------|-------------------------------------|
| ① SEWER MAIN | SDR 35 PVC | SDR 26 CLASS 160 PVC—PRESSURE RATED |
| ② 45° BEND | SDR 35 PVC | SDR 26 CLASS 160 PVC |
| ③ PIPE | SDR 35 PVC | SDR 26 CLASS 160 PVC |
| ④ ARC ADAPTOR | SDR 35 TO EXISTING | SDR 26 CLASS 160 TO EXISTING |
| ⑤ SEWER WYE | SDR 35 PVC | SDR 26 CLASS 160 PVC |
| ⑥ CLASS "D" CONCRETE FILL | | |
| ⑦ EXISTING CUSTOMER SERVICE | | |
| ⑧ UNDISTURBED GROUND | | |
| ⑨ SEWER LINE TRENCH | | |
| ⑩ EMBEDMENT MATERIAL | | |
| ⑪ CLEANOUT W/ 4" SCREW-IN WATERTIGHT PLUG IN PLASTIC SEWER BOX | | |

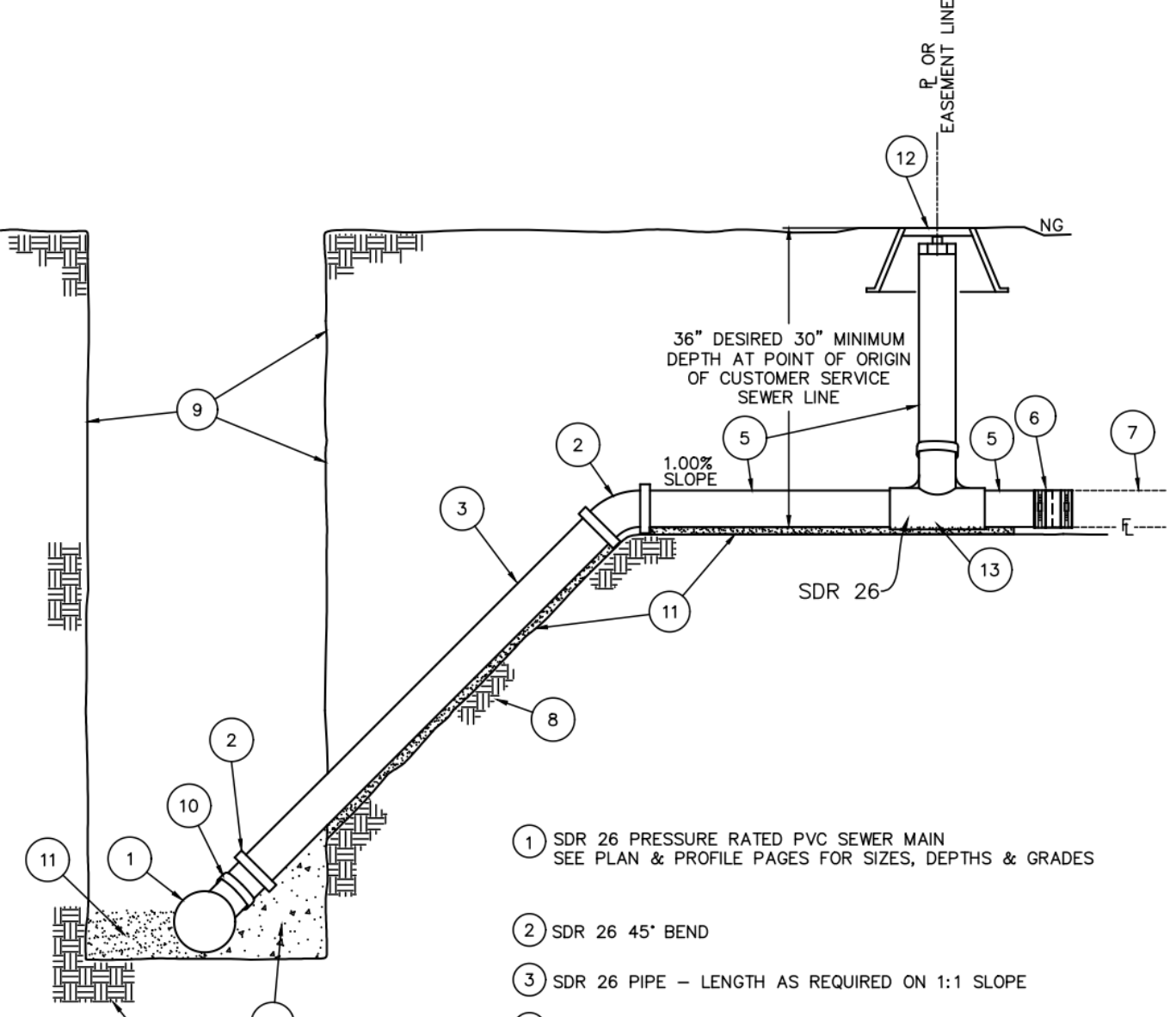


FORCE MAIN CONNECTION INTO MANHOLE

FOR EXISTING MANHOLES, CORE DRILL HOLE 4" LARGER THAN PIPE O.D. INSTALL RUBBER BOOT TO CENTER OF WALL THEN PACK ANNULAR SPACE ON BOTH SIDES WITH NON-SHRINK GROUT.

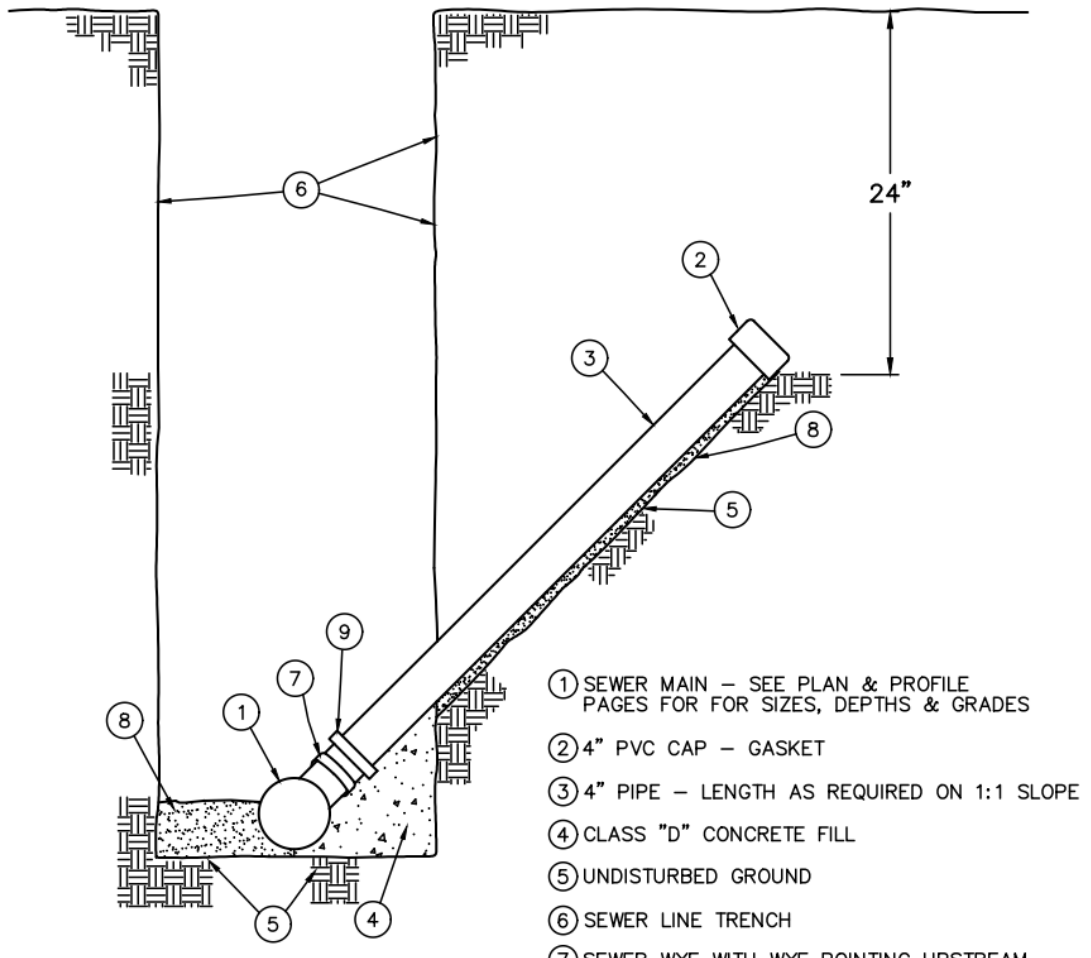


MAIN LINE SEWER CLEANOUT



CUSTOMER SEWER SERVICE TRANSFER TO SDR 26 PRESSURE RATED PVC MAIN

- GENERAL NOTES
- SANITARY TEE'S OR T-Y'S AT WASTEWATER MAIN WILL NOT BE PERMITTED
 - CONTRACTOR SHALL FURNISH SEWER MAIN STATION NUMBERS ON ALL TAPS
 - TRACER TAPE REQUIRED ON HIGHWAY R.O.W.
 - CLEANOUT TO BE INSTALLED AT PROP. LINE OR EMIT. LINE FOR ALL CUSTOMER SEWER SERVICE TRANSFERS
 - SEE TECHNICAL SPECIFICATIONS FOR ADDITIONAL DETAILS/REQUIREMENTS
 - PRESSURE - RATED FITTINGS REQUIRED.



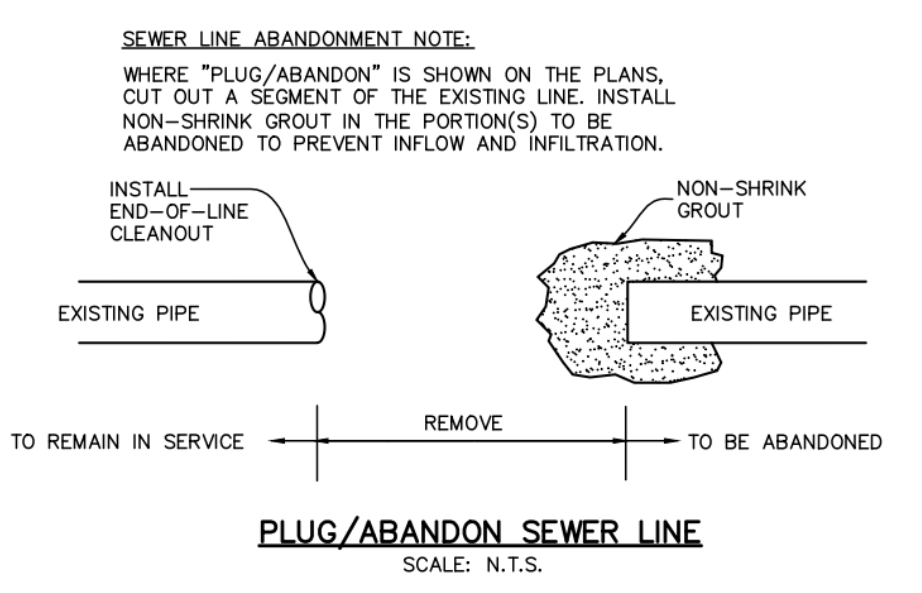
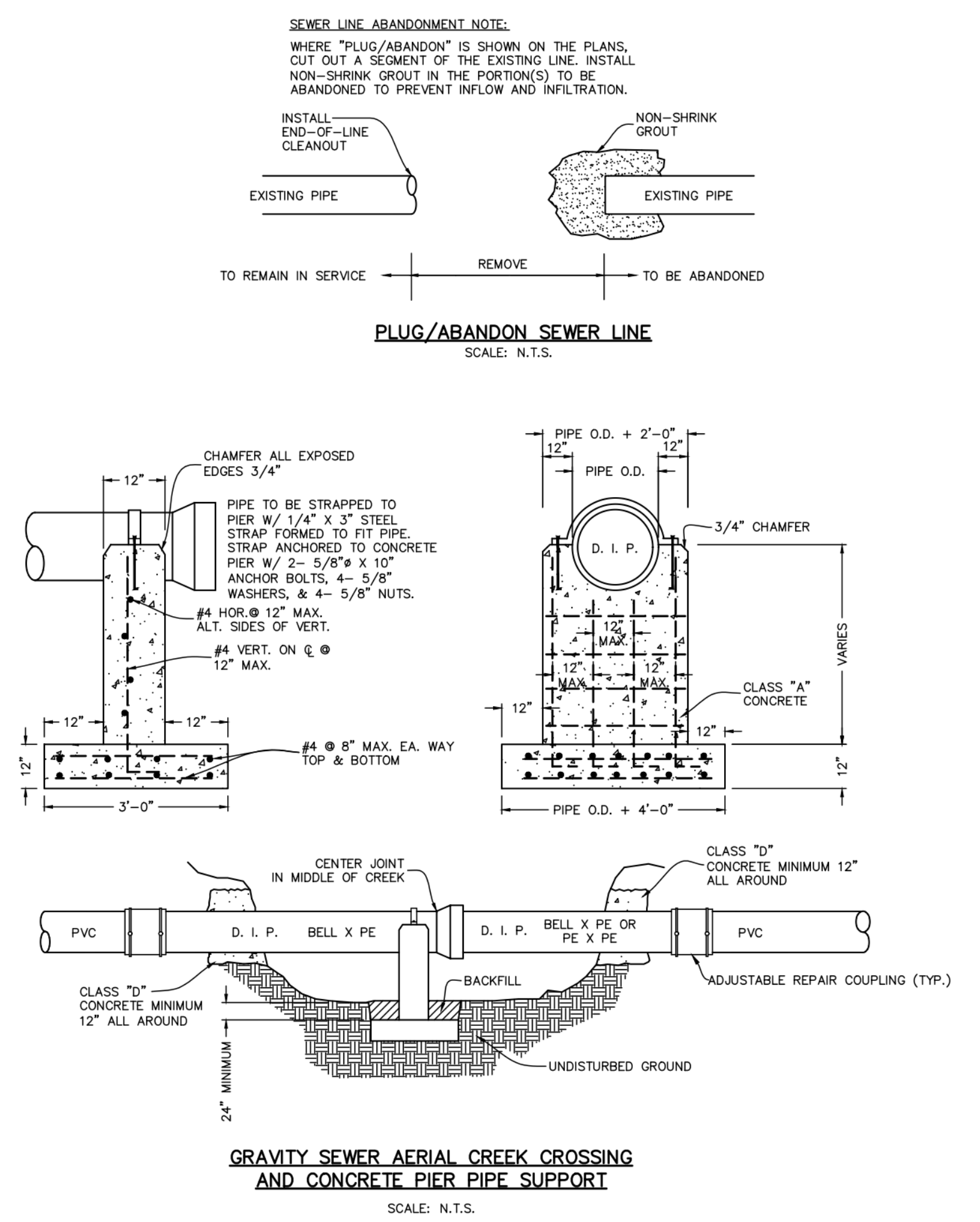
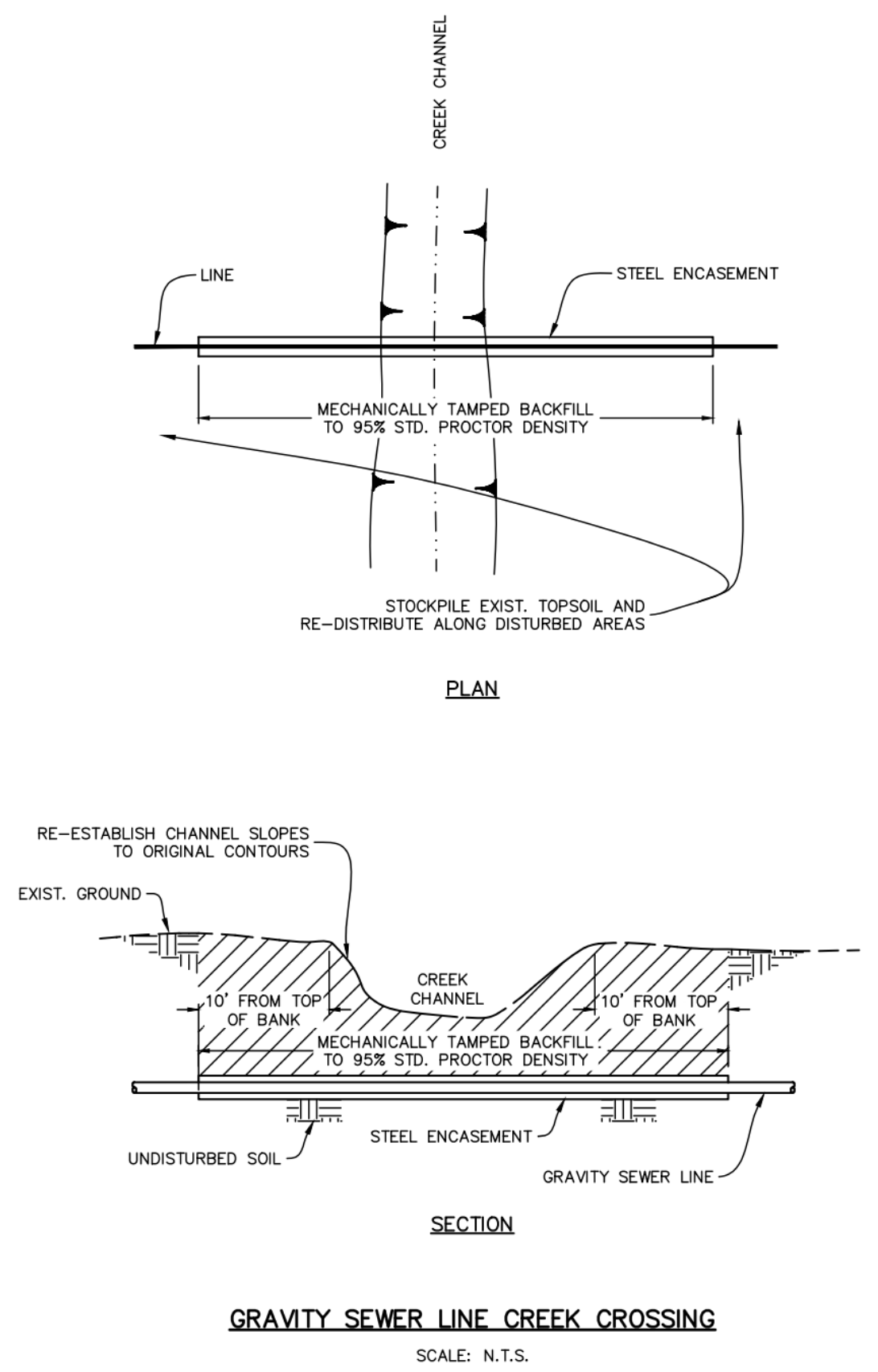
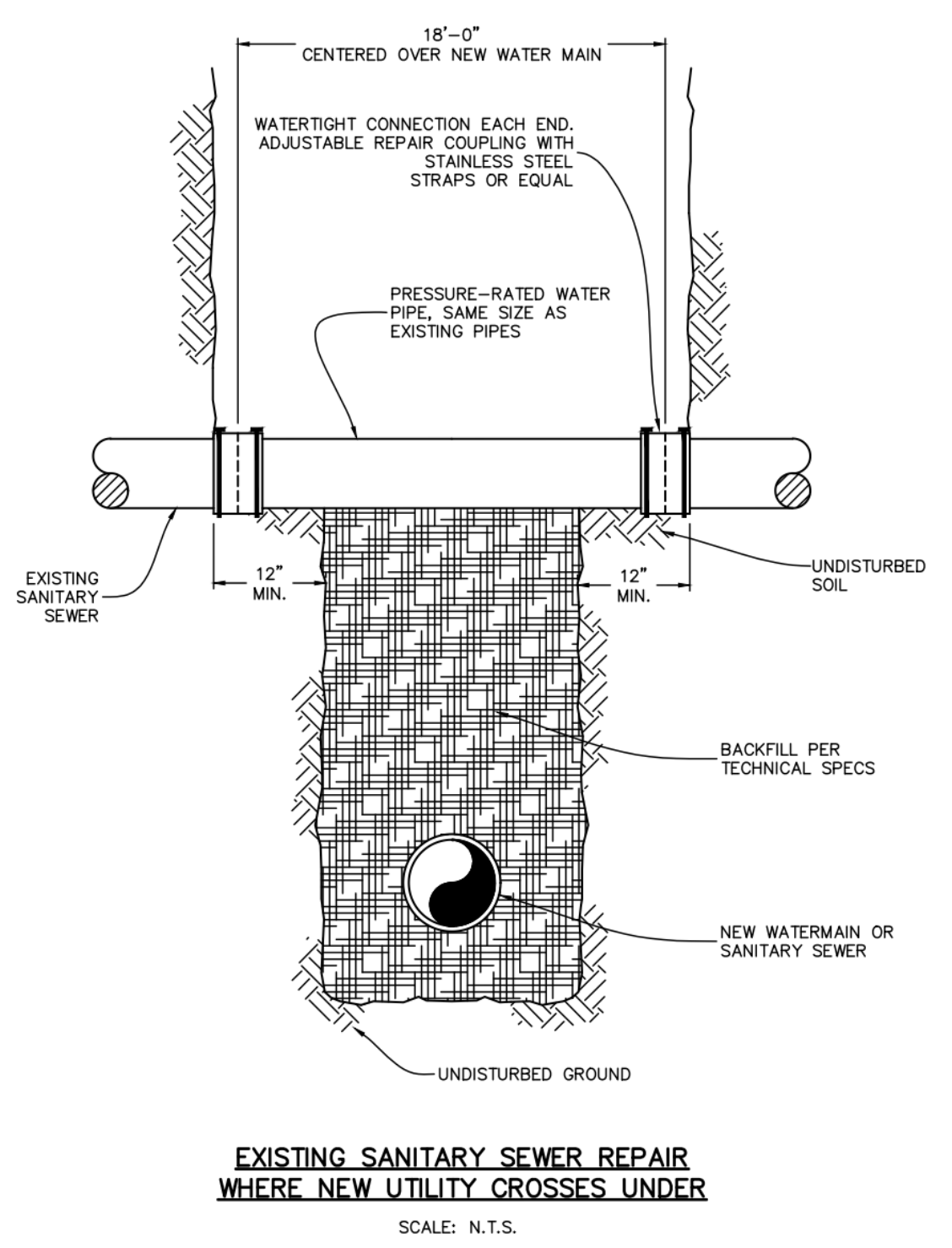
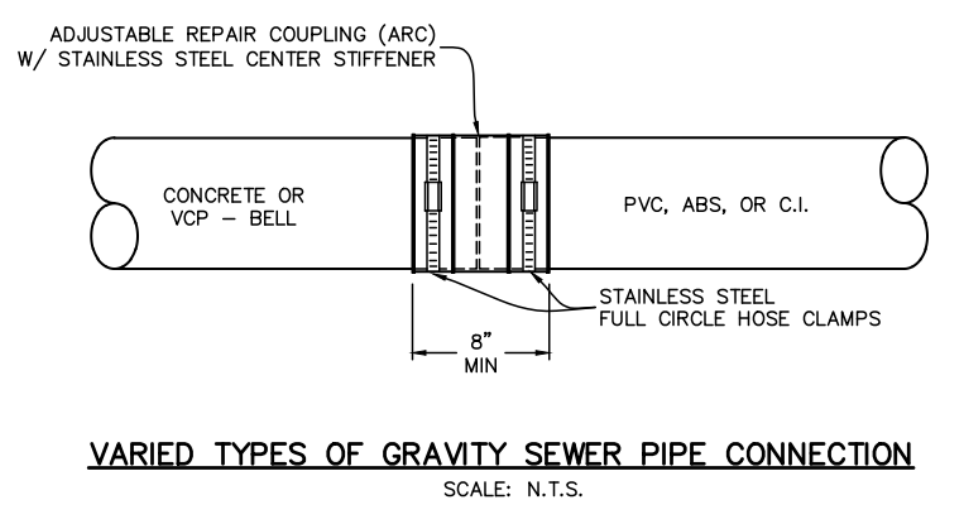
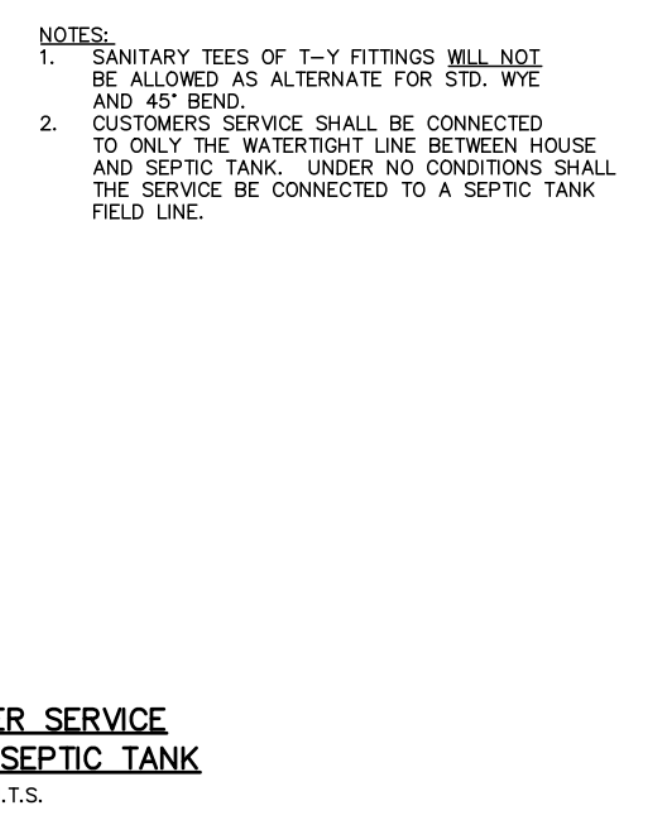
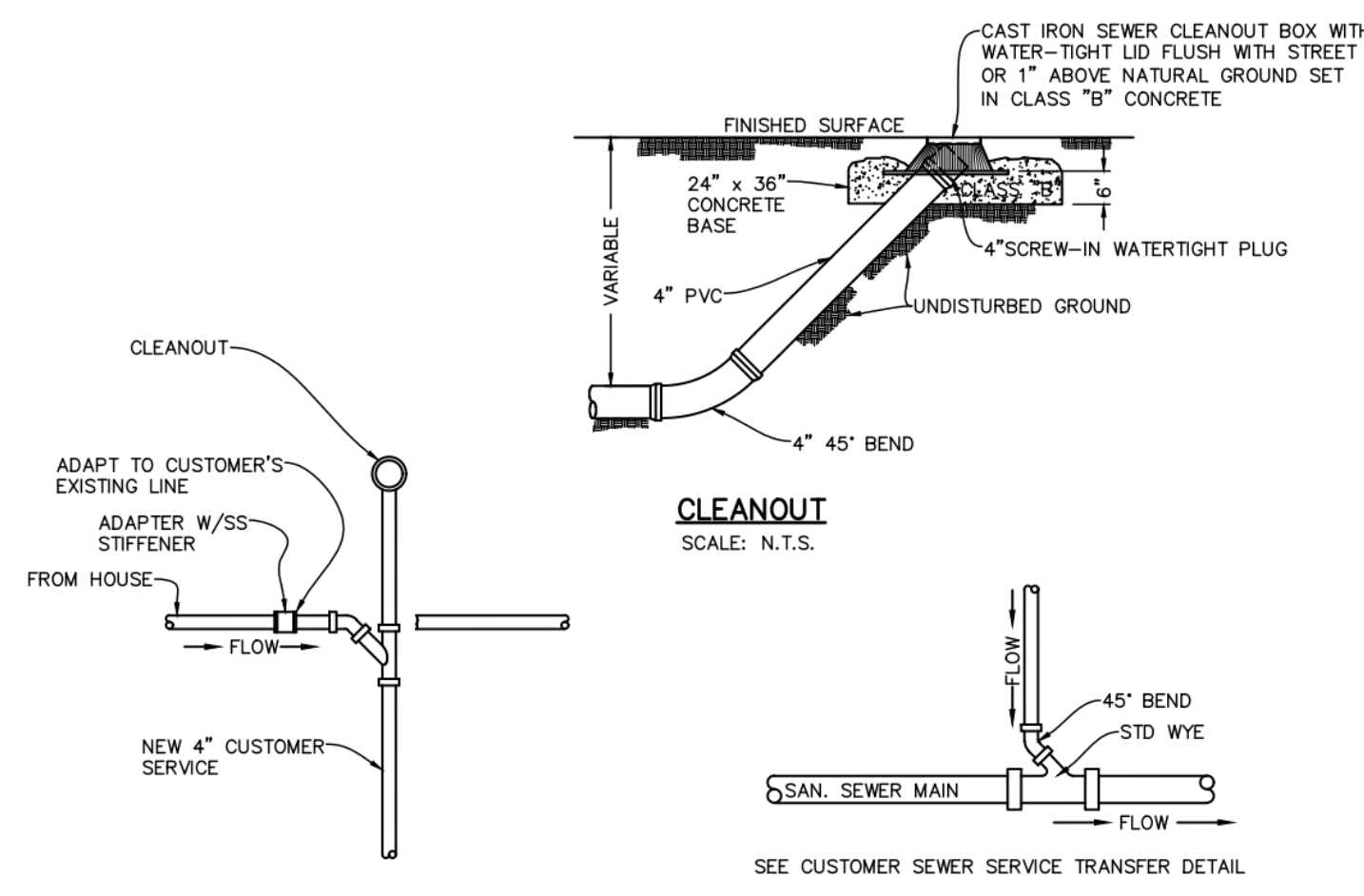
CUSTOMER SEWER SERVICE STUBOUT

- GENERAL NOTES
- SANITARY TEE'S OR T-Y'S WILL NOT BE PERMITTED
 - TAPPING EXISTING LINES WILL REQUIRE TAPPING SADDLE
 - CONTRACTOR SHALL FURNISH SEWER MAIN STATION NUMBERS ON ALL TAPS
 - SEE TECHNICAL SPECIFICATIONS FOR ADDITIONAL DETAILS/REQUIREMENTS
 - TRACER TAPE REQUIRED ON HIGHWAY R.O.W.
 - SERVICE PIPE AND FITTINGS SHALL MATCH MAIN LINE TYPE

THESE PLANS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.

NOTE: LOCATION OF EXISTING BURIED UTILITIES, WHERE SHOWN, IS APPROXIMATE ONLY. THERE MAY BE EXISTING UTILITIES WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL BURIED UTILITIES.

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THESE PLANS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.

NOTE: LOCATION OF EXISTING BURIED UTILITIES, WHERE SHOWN, IS APPROXIMATE ONLY. THERE MAY EXIST UTILITIES WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTION OF ALL BURIED UTILITIES.

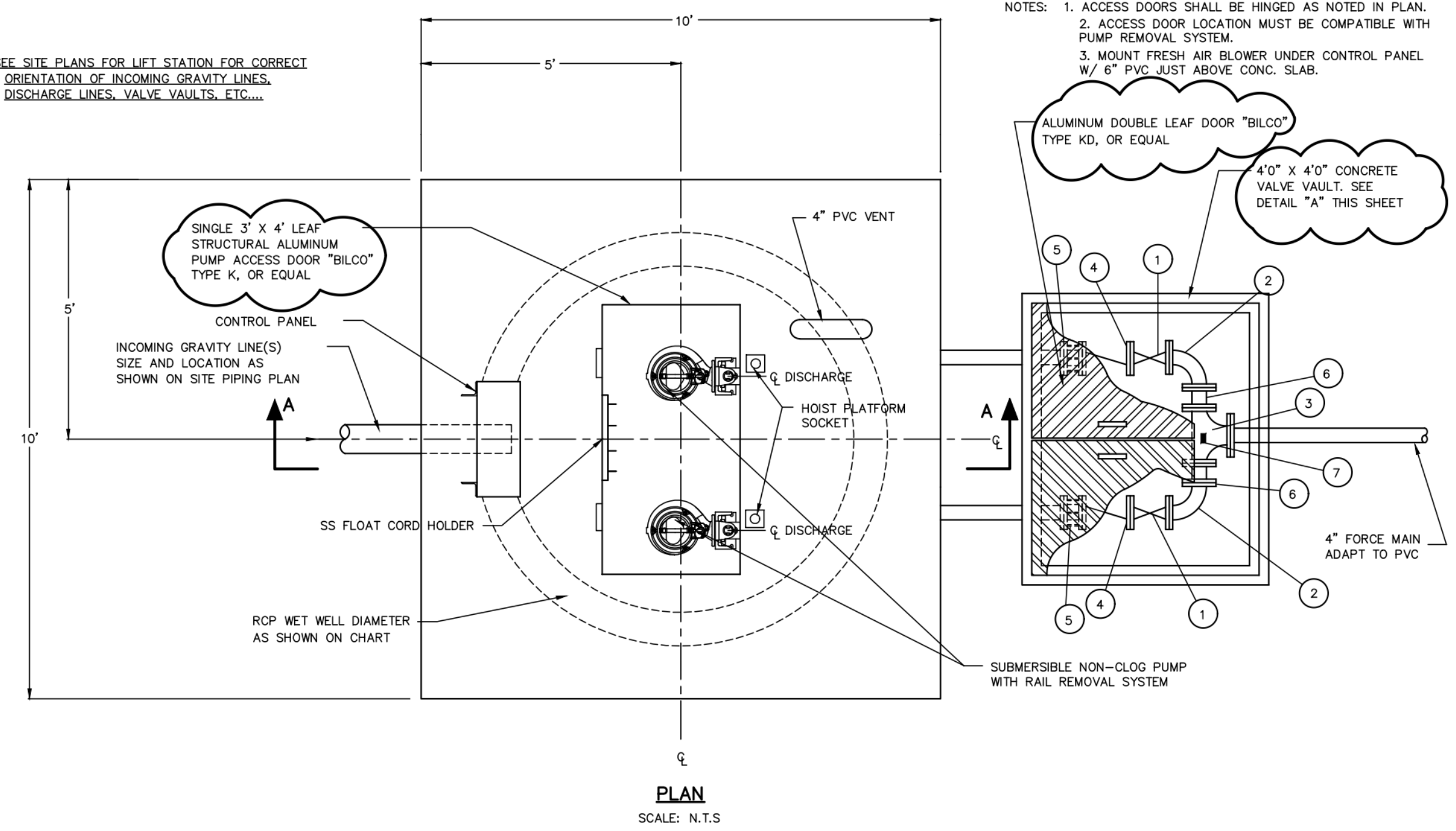
EAST TEXAS MUD

SEWER CONSTRUCTION STANDARDS

HAYTER ENGINEERING
Practical Infrastructure Solutions
T: 817-315-1151 | F: 817-315-1152 | C: 817-315-1153 | A: 817-315-1154 | E: info@haytereng.com

DRAWN BY: CK
DATE: MARCH 2022
SCALE: AS SHOWN
PAGE 4 OF 6 PAGES

NOTE: SEE SITE PLANS FOR LIFT STATION FOR CORRECT ORIENTATION OF INCOMING GRAVITY LINES, DISCHARGE LINES, VALVE VAULTS, ETC....



NOTES: 1. ACCESS DOORS SHALL BE HINGED AS NOTED IN PLAN.
2. ACCESS DOOR LOCATION MUST BE COMPATIBLE WITH PUMP REMOVAL SYSTEM.
3. MOUNT FRESH AIR BLOWER UNDER CONTROL PANEL W/ 6" PVC JUST ABOVE CONC. SLAB.

DIMENSION/ELEVATION CHART

CRITERIA	LIFT STATION #1	LIFT STATION #2
DIAMETER	6'0" RCP	6'0" RCP
DEPTH	12'-9.6"	15'-0"
ELEV. A	756.00	739.50
ELEV. B	748.00	729.00
ELEV. C	747.00	728.00
ELEV. D	745.50	727.32
ELEV. E	744.70	725.90
ELEV. F	743.20	724.50
ELEV. G	742.20	723.50

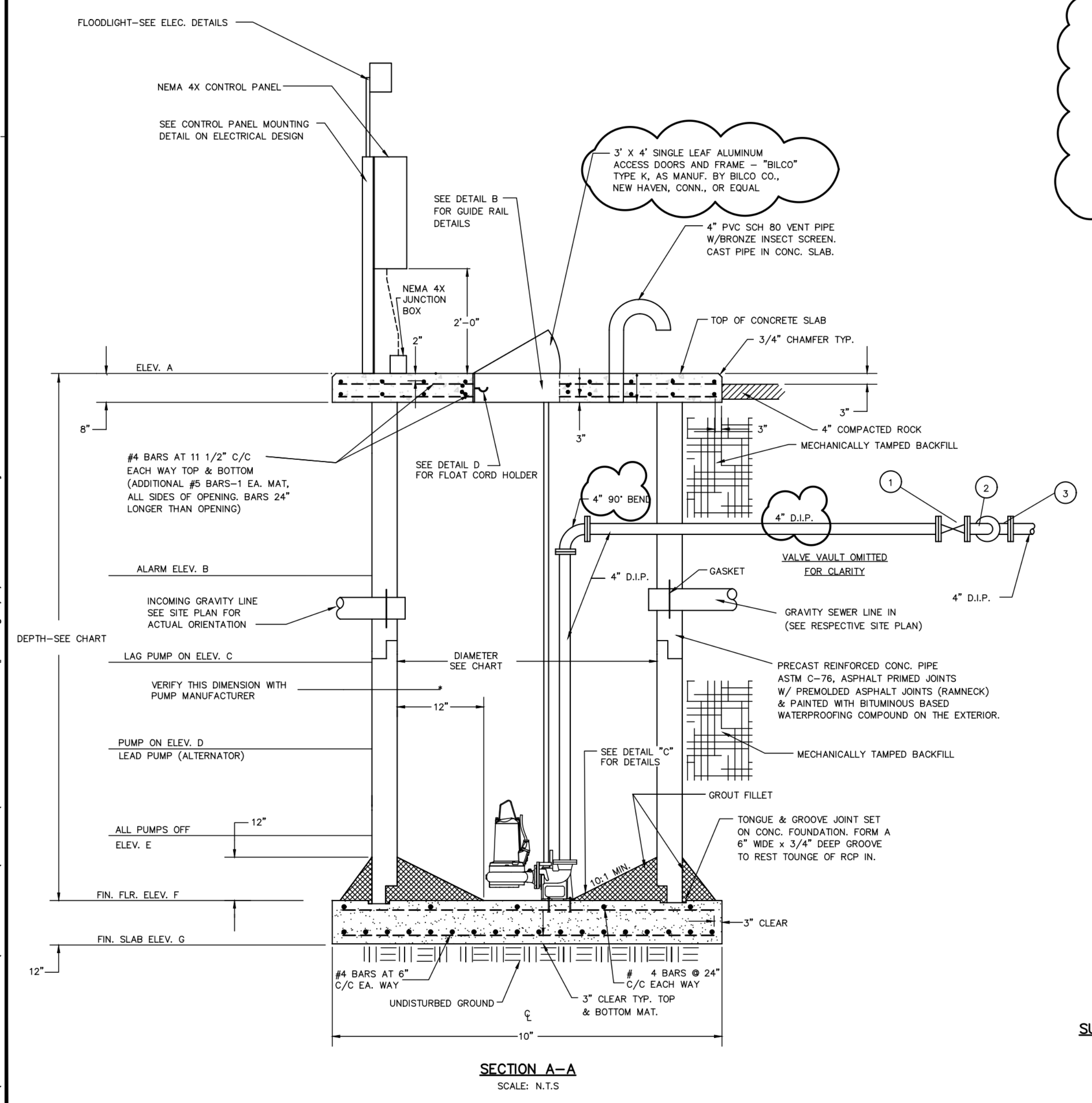
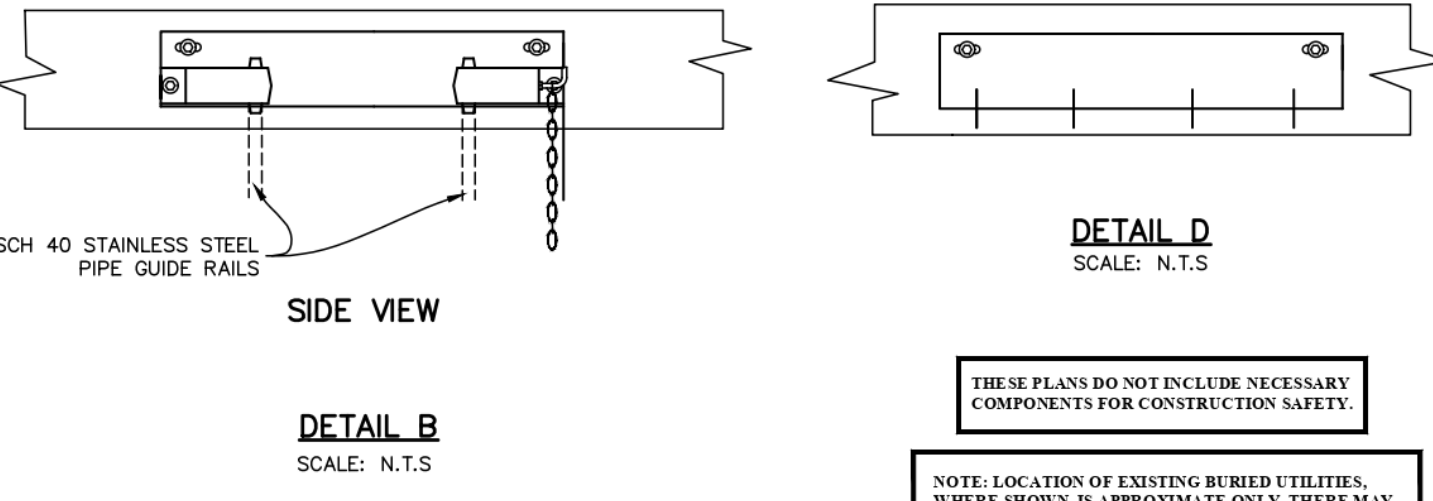
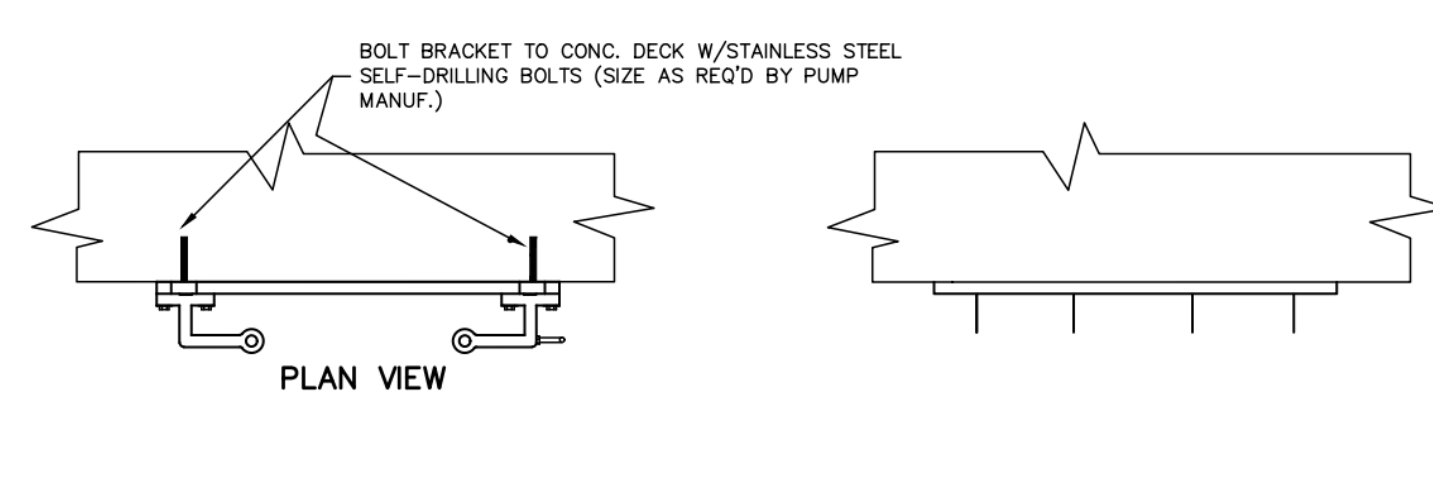
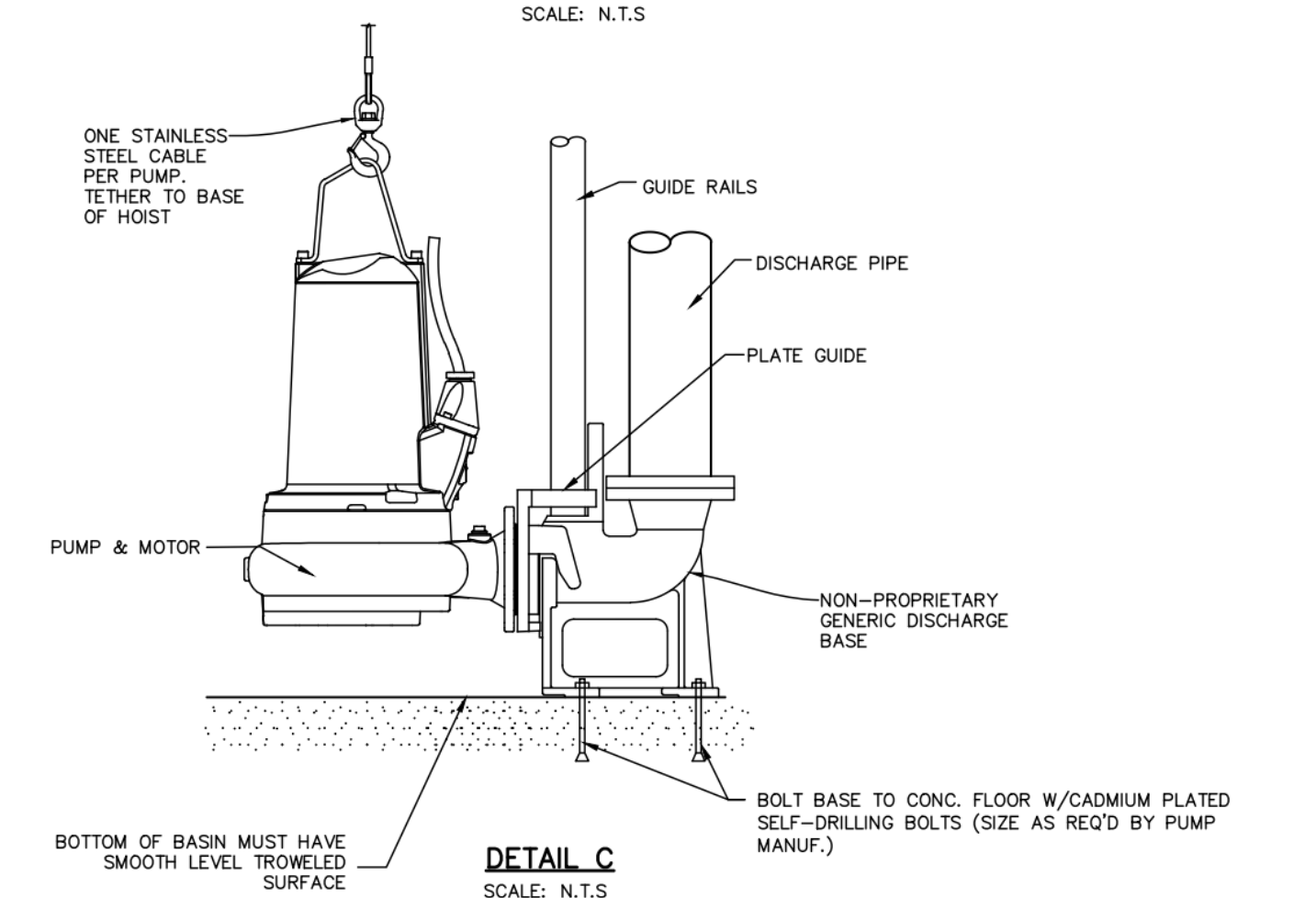
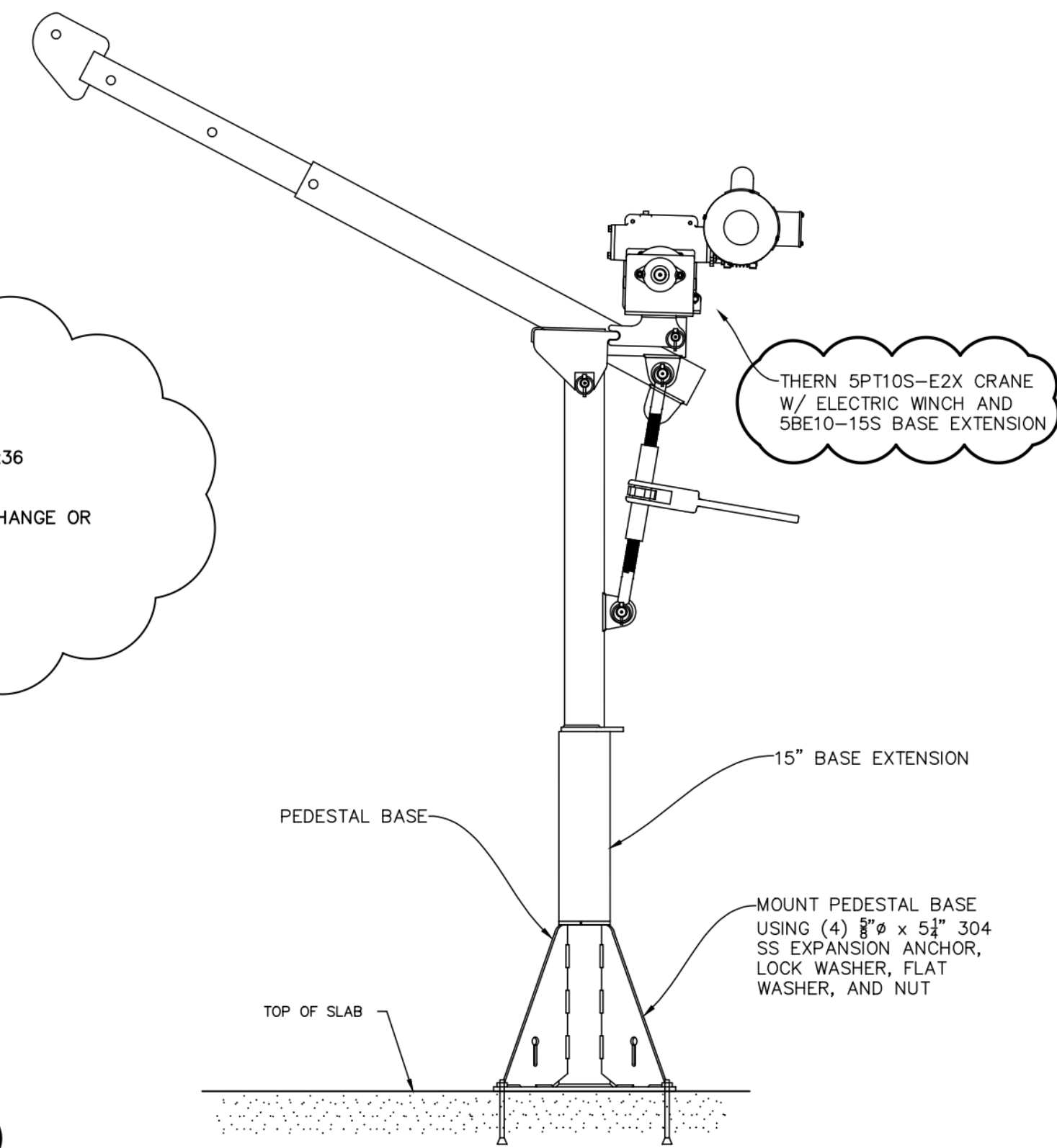
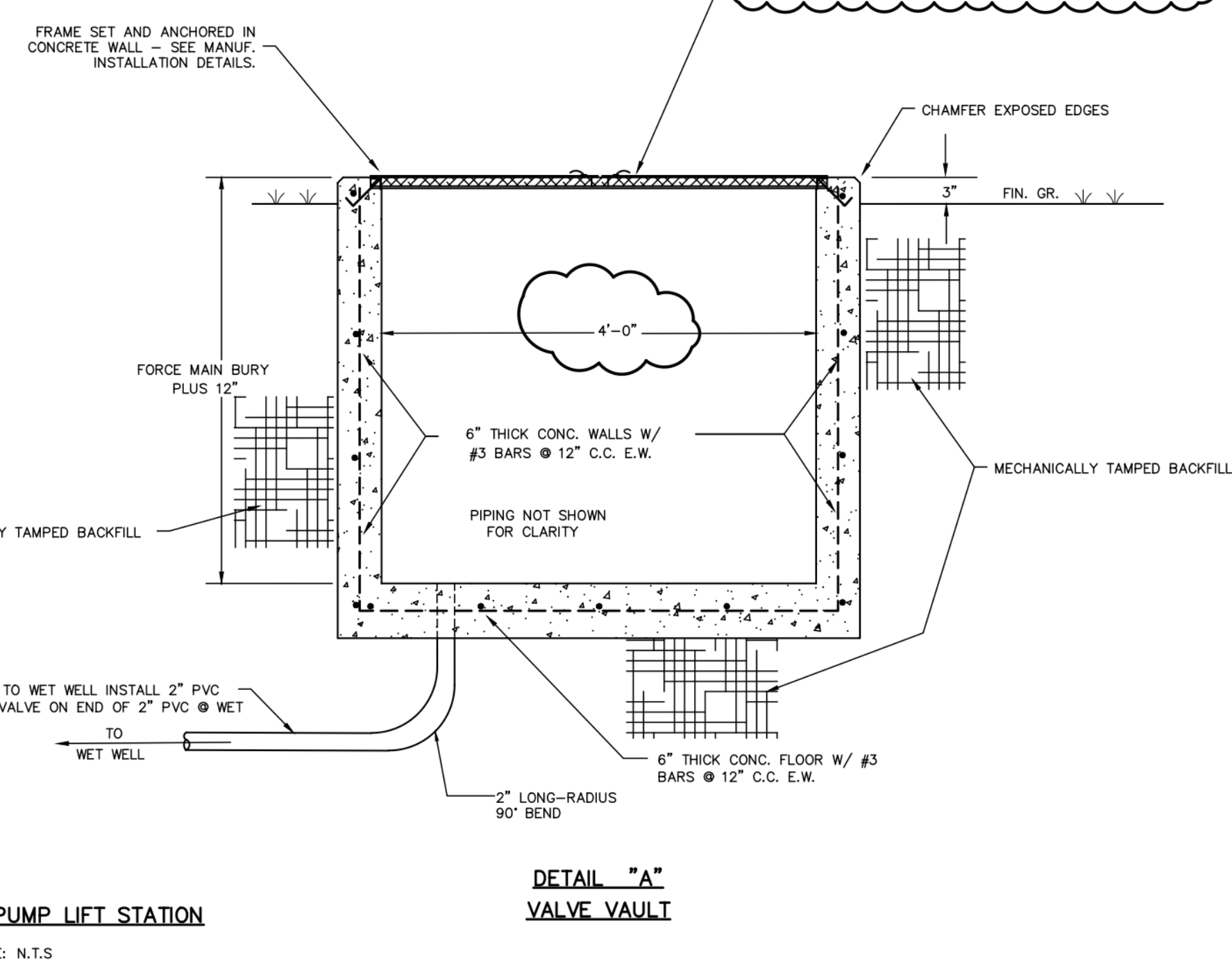
FITTING SCHEDULE

ITEM	DESCRIPTION
1	4" GATE VLV. W/HANDWHEEL
2	4" D.I. 90° BEND
3	4" X 4" D.I. BULLHEAD TEE
4	4" CHECK VALVE (SEE NOTES)
5	4" FLANGED COUPLING ADAPTER
6	4" SPOOL PIECE
7	HOSE BID TAP W/0-50 FT. LIQUID FILLED 2" GAUGE AND DIAPHRAM-TYPE GAUGE GUARD

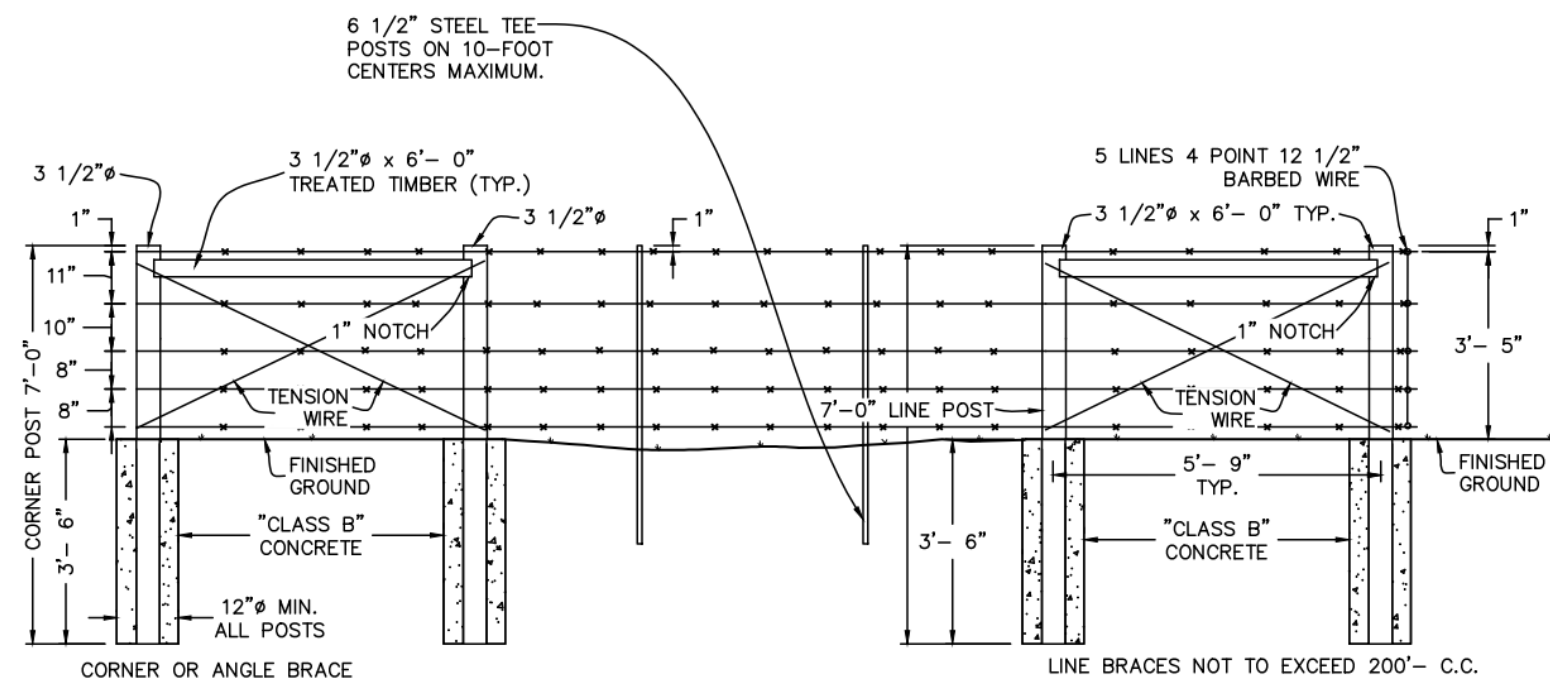
PUMP DATA

STA.#	PUMP #	GPM	TDH	HP	RPM	VOLTS	PH	TYPE
1	1	100	48.0	5	1750	240	3	SUBMERSIBLE NON-CLOG
1	2	100	48.0	5	1750	240	3	SUBMERSIBLE NON-CLOG
2	1	100	37.9	3	1750	240	3	SUBMERSIBLE NON-CLOG
2	2	100	37.9	3	1750	240	3	SUBMERSIBLE NON-CLOG

NOTE: ENGINEER SHALL DETERMINE THE APPROPRIATENESS OF ALL COMPONENTS SHOWN FOR EACH PROJECT DESIGN

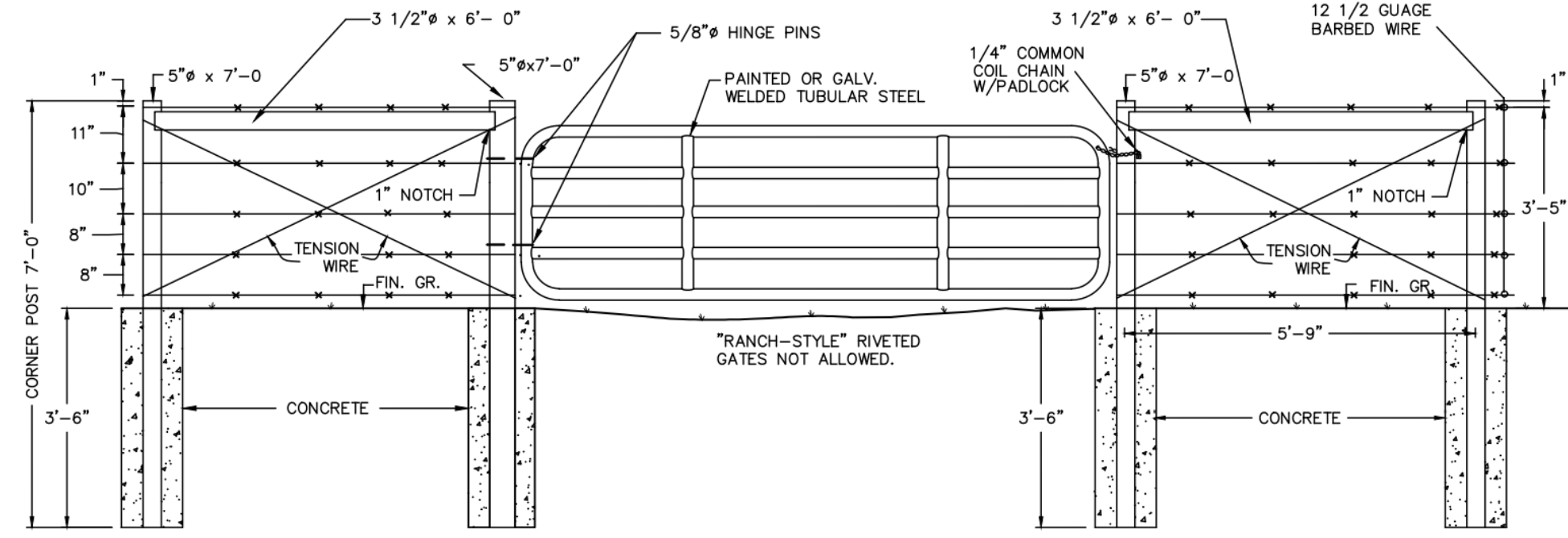


THESE PLANS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.
NOTE: LOCATION OF EXISTING BURIED UTILITIES, NUMBER SHOWN IS APPROXIMATE ONLY. THERE MAY EXIST UTILITIES WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTION OF ALL BURIED UTILITIES.



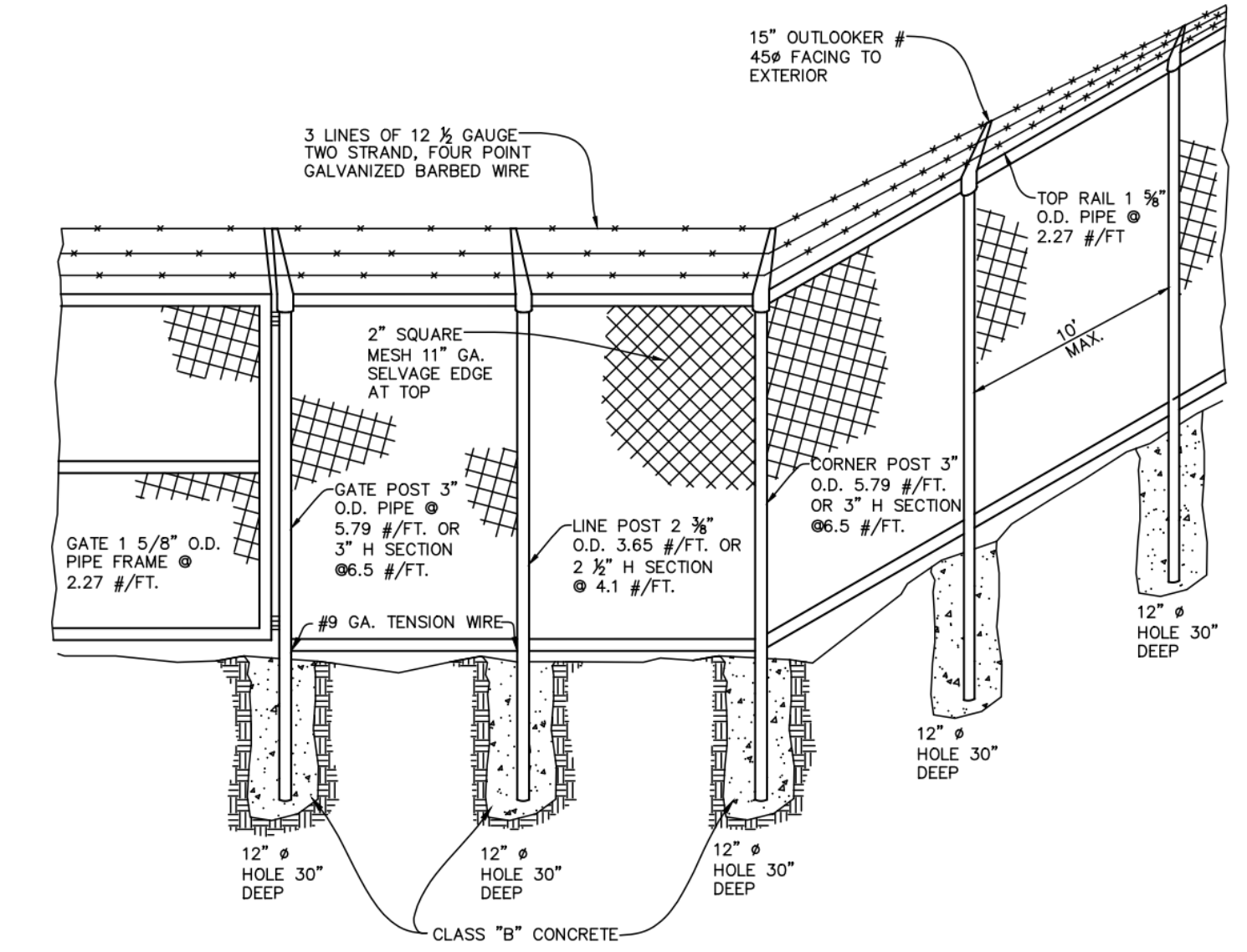
STAPLE WIRE TO WOODEN POSTS. USE MANUFACTURER'S CLIPS TO FASTEN WIRE TO STEEL FENCE POSTS. WIRE TO BE STRETCHED ONLY AFTER LINE BRACES AND CORNER OR ANGLE BRACES HAVE BEEN CONSTRUCTED AND AFTER CONCRETE HAS CURED FOR A WEEK. NO TEE POSTS ARE REQUIRED WHEN BRACES ARE LESS THAN 10 FEET APART. LINE BRACES ARE REQUIRED ON BOTH SIDES OF FENCES THAT WERE CUT FOR UTILITY LINE INSTALLATION.

BARBED WIRE FENCE
SCALE: N.T.S.

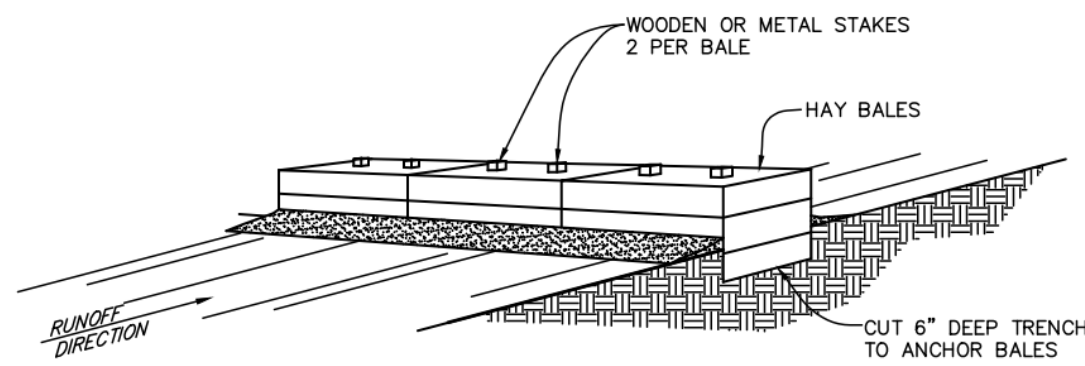


ACCESS GATE

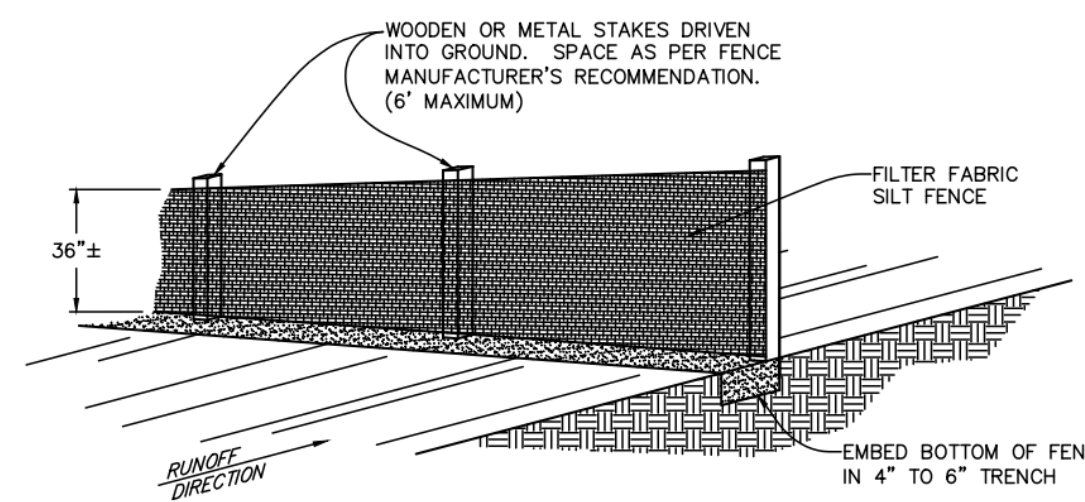
SCALE: N.T.S.
CONCRETE SHALL BE ALLOWED TO SET UP FOR 7 DAYS BEFORE HORIZONTAL BRACE POSTS OR TENSION WIRE ARE INSTALLED.
STAPLE WIRE TO WOODEN POSTS. USE MANUFACTURER'S CLIPS TO FASTEN WIRE TO STEEL FENCE POSTS. WIRE TO BE STRETCHED ONLY AFTER LINE BRACES AND CORNER OR ANGLE BRACES HAVE BEEN CONSTRUCTED AND AFTER CONCRETE HAS CURED FOR A WEEK. NO TEE POSTS ARE REQUIRED WHEN BRACES ARE LESS THAN 10 FEET APART. LINE BRACES ARE REQUIRED ON BOTH SIDES OF FENCES THAT WERE CUT FOR UTILITY LINE INSTALLATION.



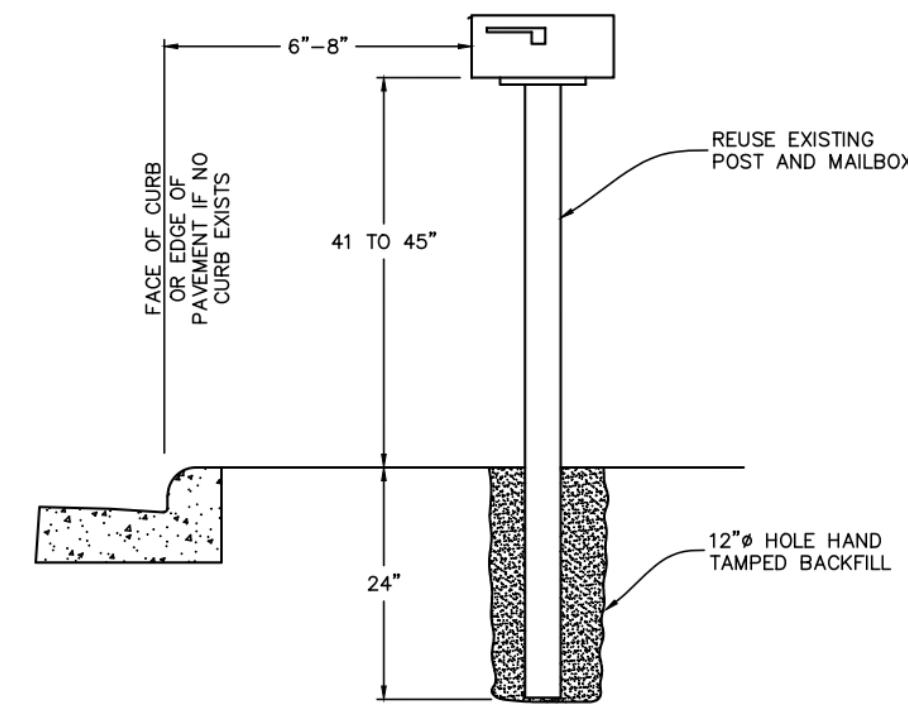
MANPROOF FENCE



TYPICAL HAY BALE DIKE



TYPICAL SILT FENCE BARRIER
EROSION AND SEDIMENT CONTROL
SCALE: N.T.S.



RELOCATED MAILBOX
SCALE: N.T.S.

ENGINEER TO CONTACT LOCAL POSTMASTER FOR SET BACK DISTANCE FOR MAIL BOXES ON ROADS WITHOUT CURB

THESE PLANS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.

NOTE: LOCATION OF EXISTING BURIED UTILITIES, WHERE SHOWN, IS APPROXIMATE ONLY. THERE MAY EXIST UTILITIES WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTION OF ALL BURIED UTILITIES.