

City of Lacey S.T.E.P. System Sizing Requirement Chart

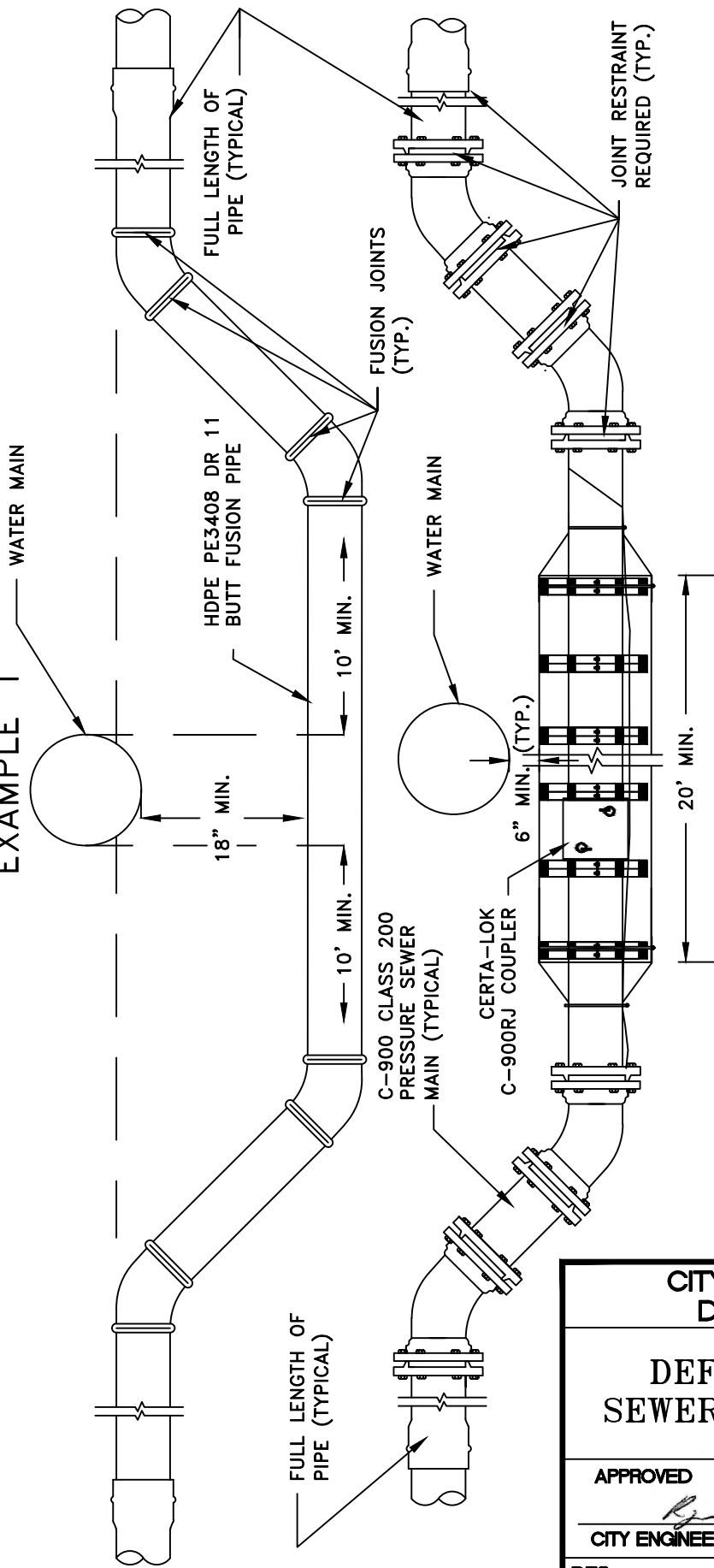
1) Dedicated access and parking shall be provided at small community station (8000gal) sites for City of Lacey maintenance vehicles. See

EDU's	TANK	PUMPS	SERVICE LATERAL	CONTROL PANEL REQUIREMENTS	ELECTRICAL SERVICE
1 EDU (Single Family STEP)	1,500 gallon, 2 compartment. See note 4			Orengo simplex Lacey panel #S1DS mounted on garage near power service. Dedicated 20 amp service for S.T.E.P. tank operation only.	120 VAC
2 EDU's (duplex, 2 family STEP)	3,000 gallon, 2 compartment. See note 4			Orengo simplex Lacey panel #S1DS mounted on garage near power service with a dedicated meter and 20 amp service for S.T.E.P. tank operation only	120 VAC
3 to 6 EDU's (Small Community System STEP)	8,000 gallon, 2 compartment. See note 5	Orengo duplex pumping system. Model PSA20-DAX2RODS-Lacey, including: (2) PF200512-20 pumps, PVU84-3625-L Biotube Pump Vault		Orengo duplex Lacey panel # DAX2RODS- mounted in stainless steel enclosure on concrete pad with a dedicated meter service.	240 VAC

also section 7C.030.

- 2) Single and Duplex Family systems require a disconnect switch mounted directly below the control panel. See detail.
- 3) All applicable requirements for section 7C Lift Stations shall apply for the small Community Systems site as deemed necessary by the City of Lacey.
- 4) Maximum riser height for single family (1500 gal), duplex family (3000 gal) and small community (8000 gal) S.T.E.P. tanks is 36".
- 5) Approved S.T.E.P tanks are as follows:
 - a. **Concrete** - 1500, (1700-special circumstances only) and 3000 gallon Evergreen Precast, Inc.; 1500 gallon Sound Placement Services, Inc., 1500 gallon Northwest Cascade Inc.
 - b. **Fiberglass** - Orengo Systems Model T1500-21-19/19-11/x-x/30: Containment Solutions Inc. 8000 gallon, model OSxxxxxx: or Xerxes Inc. 8000 gallon, Model xxxxx (see Section 7E.065 for fiberglass tank construction requirements).

EXAMPLE 1



EXAMPLE 2

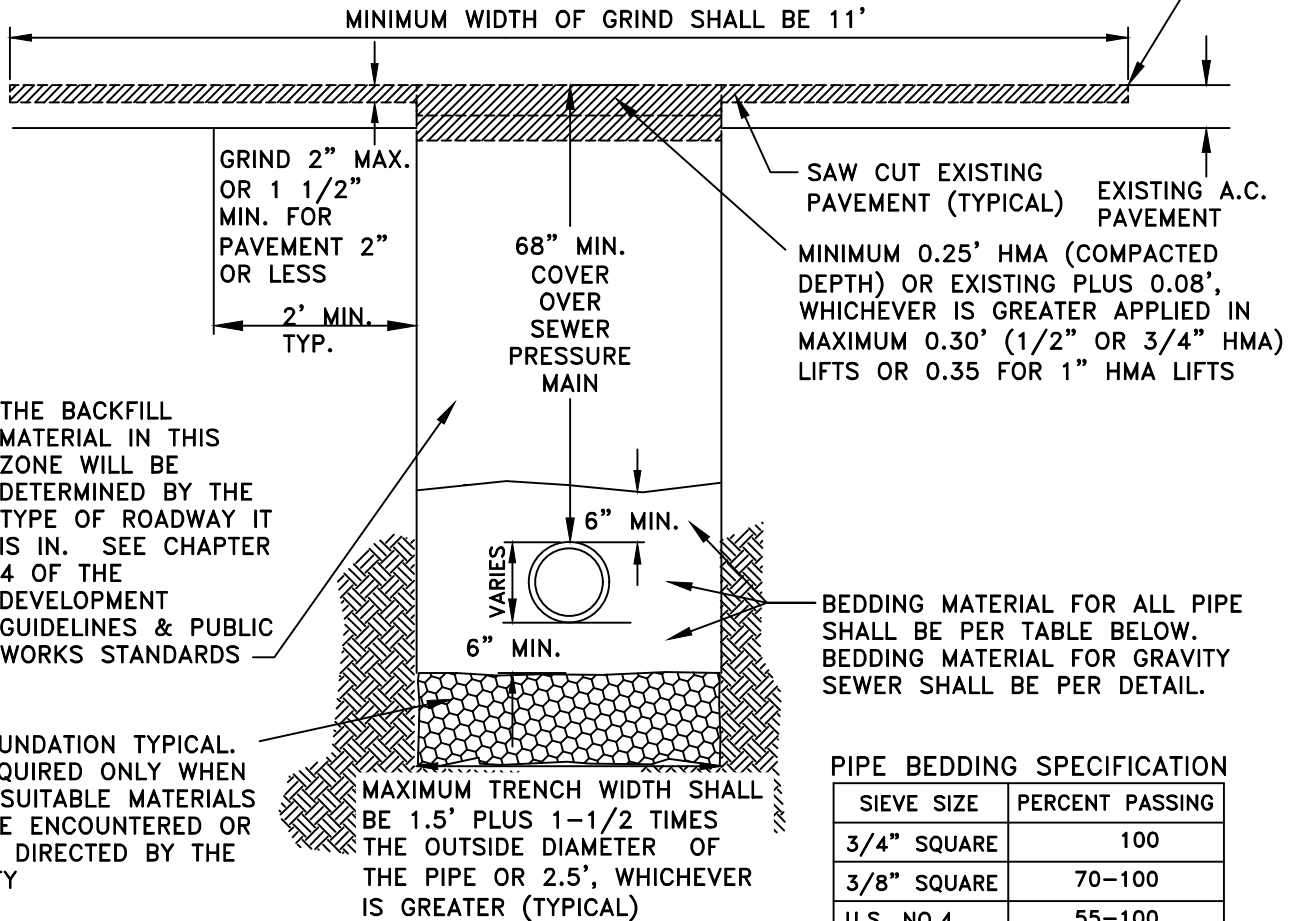
- GENERAL NOTES:
1. THE PIPING FOR THE DEFLECTED PRESSURE SEWER MAIN SHALL BE HDPE SDR 11 OR CERTAIN-TEED CERTA-LOK RJ C-900 CLASS 200.
 2. FOR CASING REQUIREMENTS SEE DETAIL.
 3. A FULL LENGTH OF PIPE SHALL BE INSTALLED AT BOTH BEGINNING AND END OF THE DEFLECTED RUNS UNLESS HDPE SDR 11 PIPE IS USED.
 4. THE FIRST BELL END JOINT AFTER THE DEFLECTED RUNS SHALL BE RESTRAINED.
 5. WHEN THE PRESSURE SEWER MAIN IS REQUIRED TO BE INSTALLED UNDER THE WATER MAIN (DEFLECTED) AND DOES NOT MEET THE 18" SEPARATION A CASING SHALL BE INSTALLED USING EXAMPLE 2 OR DETAIL AS A GUIDE.
 6. AT NO TIME SHALL A PRESSURE SEWER MAIN BE INSTALLED ABOVE A WATER MAIN OR SERVICE LINE.
 7. USE EXAMPLE 1 WHEN THE DEFLECTION OF THE PRESSURE SEWER MAIN MEETS THE 18" MINIMUM SEPARATION.
 8. WHEN CHANGING THE SIZE OF THE PRESSURE SEWER PIPE DUE TO MATERIAL CHANGES THE PIPE TYPE AND SIZE SHALL BE APPROVED BY THE CITY. FOR HDPE PIPE SEE CHART (TYPICAL SIZES & DIMENSIONS FOR IPS PE3408 HDPE DR 11.

CITY OF LACEY, WASHINGTON
DEPT. OF PUBLIC WORKS

**DEFLECTED PRESSURE
SEWER MAIN INSTALLATION**

APPROVED <i>Ryan A. Schwan</i> CITY ENGINEER		DWG. NO. 7-12.0
DES. WHO	DWN. WHO	CHK. RAS
DATE 08/24/2017		

EMULSIFIED ASPHALT GRADE
 CSS-1 TACK SHALL BE APPLIED
 TO EDGES OF EXISTING PAVEMENT.
 ALL JOINTS SHALL BE SEALED
 USING PAVING ASPHALT PG 64-22



THE BACKFILL MATERIAL IN THIS ZONE WILL BE DETERMINED BY THE TYPE OF ROADWAY IT IS IN. SEE CHAPTER 4 OF THE DEVELOPMENT GUIDELINES & PUBLIC WORKS STANDARDS

FOUNDATION TYPICAL. REQUIRED ONLY WHEN UNSUITABLE MATERIALS ARE ENCOUNTERED OR AS DIRECTED BY THE CITY

MAXIMUM TRENCH WIDTH SHALL BE 1.5' PLUS 1-1/2 TIMES THE OUTSIDE DIAMETER OF THE PIPE OR 2.5', WHICHEVER IS GREATER (TYPICAL)

MINIMUM 0.25' HMA (COMPACTED DEPTH) OR EXISTING PLUS 0.08', WHICHEVER IS GREATER APPLIED IN MAXIMUM 0.30' (1/2" OR 3/4" HMA) LIFTS OR 0.35 FOR 1" HMA LIFTS

BEDDING MATERIAL FOR ALL PIPE SHALL BE PER TABLE BELOW. BEDDING MATERIAL FOR GRAVITY SEWER SHALL BE PER DETAIL.

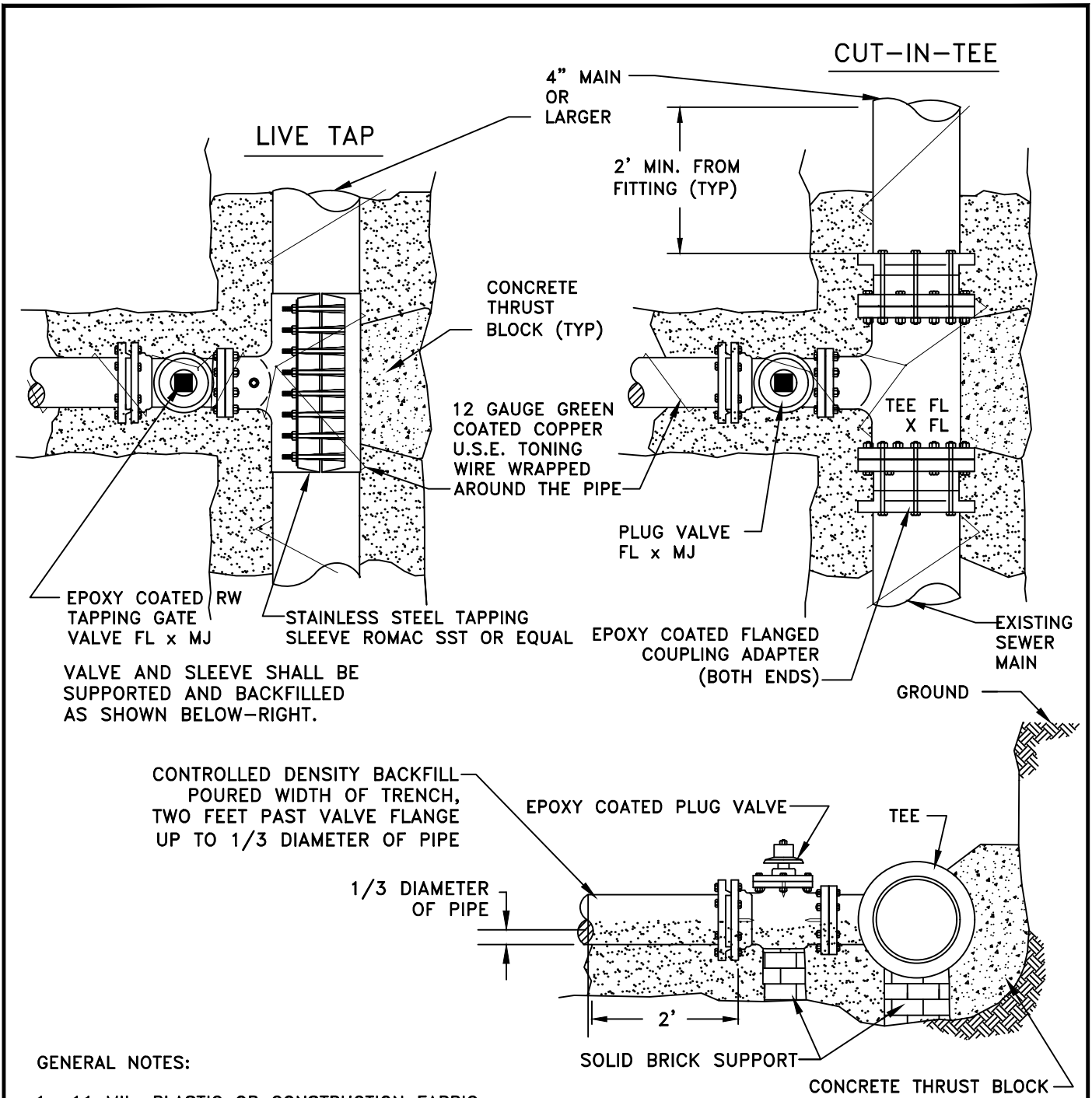
PIPE BEDDING SPECIFICATION

SIEVE SIZE	PERCENT PASSING
3/4" SQUARE	100
3/8" SQUARE	70-100
U.S. NO.4	55-100
U.S. NO. 10	35-95
U.S. NO. 20	20-80
U.S. NO. 40	10-55
U.S. NO. 100	0-10
U.S. NO. 200	0-03

GENERAL NOTES:

1. ALL MATERIALS EXCEPT H.M.A. SHALL BE COMPACTED IN 6-INCH MAXIMUM LIFTS TO 95% DENSITY AS DETERMINED BY ASTM D1557.
2. ALL MATERIALS, WORKMANSHIP, AND INSTALLATION SHALL BE IN CONFORMANCE WITH THE WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION AS AMENDED BY CITY OF LACEY STANDARDS.
3. KEEP TRENCH BOTTOM COMPACTED WITH UNIFORM GRADE. NO TEMPORARY SUPPORTS, I.E. BLOCKS, WILL BE ALLOWED TO SUPPORT PIPE. TRENCH BOTTOM SHALL BE TO GRADE PRIOR TO PIPE INSTALLATION.
4. WHENEVER GROUND WATER IS PRESENT A BARRIER SHALL BE INSTALLED ABOVE THE BEDDING.
5. DEVIATION FROM COMPACTION STANDARDS MAY BE APPROVED BY THE DIRECTOR, OR DESIGNEE, WHERE RECOMMENDED BY THE LICENSED PROFESSIONAL ENGINEER FOR PLANNED OR EXISTING INFILTRATION FACILITIES.
6. EXISTING SURFACES PAVED WITH PERMEABLE MATERIALS SHALL BE REPLACED IN-KIND WHERE FEASIBLE IN CONFORMANCE WITH 4B.180 TRENCH BACKFILL AND RESTORATION.

CITY OF LACEY, WASHINGTON DEPT. OF PUBLIC WORKS			
PIPE ZONE BEDDING FOR SEWER PRESSURE MAINS & SERVICES			
APPROVED <i>Ryan A. Schmitt</i> CITY ENGINEER		DWG. NO. 7-14.1	
DES WHO	DWN WHO	CKD RAS	DATE 08/24/2017



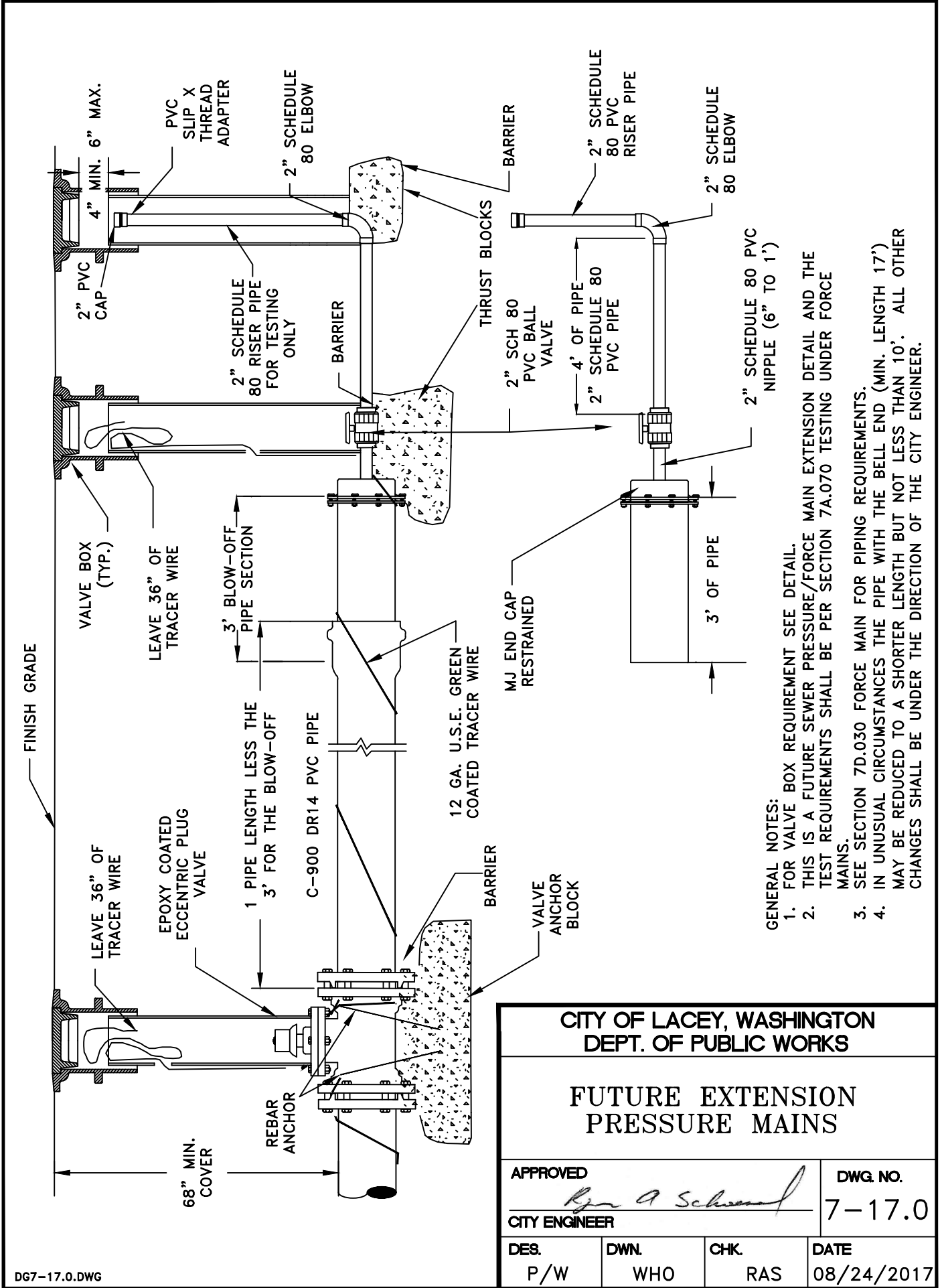
VALVE AND SLEEVE SHALL BE SUPPORTED AND BACKFILLED AS SHOWN BELOW-RIGHT.

CONTROLLED DENSITY BACKFILL
POURED WIDTH OF TRENCH,
TWO FEET PAST VALVE FLANGE
UP TO 1/3 DIAMETER OF PIPE

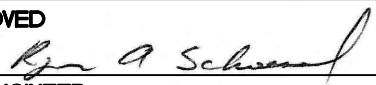
GENERAL NOTES:

1. 11 MIL. PLASTIC OR CONSTRUCTION FABRIC SHALL BE WRAPPED AROUND PIPE AND FITTINGS BEFORE THRUST BLOCK IS POURED AND BACKFILLED.
2. CONTROLLED DENSITY FILL SHALL CONSIST OF 1750# SAND, 1750# PEA GRAVEL, 230# WATER, 141# CEMENT, 6 OZ. WATER REDUCING AGENT PER 100# CEMENT.
3. THE MINIMUM DISTANCE FOR ANY TAP OR CUT-IN SHALL BE 2' FROM A BELL END OR FITTING.
4. SUPPORT VALVE AND SLEEVE CONTINUOUSLY THROUGH INSTALLATION.
5. CONNECT TO EXISTING TRACER WIRE PER DETAIL.
6. CUT-IN TEE SHALL BE EPOXY COATED 10 MILS THICK OR COATED WITH PROTECTO 401 OR APPROVED EQUAL.

CITY OF LACEY, WASHINGTON			
DEPT. OF PUBLIC WORKS			
CONNECTION TO EXISTING			
PRESSURE MAIN			
4" OR LARGER			
APPROVED		DWG. NO.	
<i>Ryan A. Schwan</i>		7-15.0	
CITY ENGINEER			
DES. P/W	DWN. WHO	CKD. RAS	DATE 08/24/2017



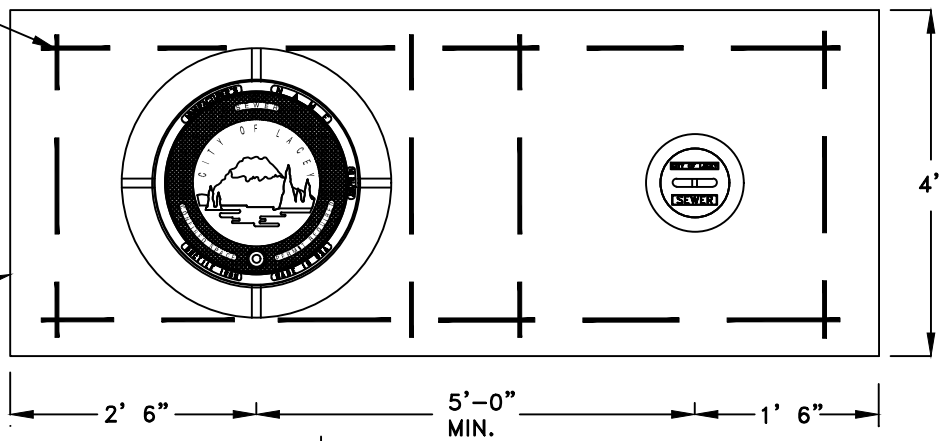
- GENERAL NOTES:
1. FOR VALVE BOX REQUIREMENT SEE DETAIL.
 2. THIS IS A FUTURE SEWER PRESSURE/FORCE MAIN EXTENSION DETAIL AND THE TEST REQUIREMENTS SHALL BE PER SECTION 7A.070 TESTING UNDER FORCE MAINS.
 3. SEE SECTION 7D.030 FORCE MAIN FOR PIPING REQUIREMENTS.
 4. IN UNUSUAL CIRCUMSTANCES THE PIPE WITH THE BELL END (MIN. LENGTH 17') MAY BE REDUCED TO A SHORTER LENGTH BUT NOT LESS THAN 10'. ALL OTHER CHANGES SHALL BE UNDER THE DIRECTION OF THE CITY ENGINEER.

CITY OF LACEY, WASHINGTON DEPT. OF PUBLIC WORKS			
FUTURE EXTENSION PRESSURE MAINS			
APPROVED  CITY ENGINEER		DWG. NO. 7-17.0	
DES.	DWN.	CHK.	DATE
P/W	WHO	RAS	08/24/2017

#4 REBAR TO MEET
ASTM A615 GRADE 60
FY=60,000 PSI

COMMERCIAL CONCRETE
PAD 9' x 4' x 8" (IF
OUTSIDE PAVED
ROADWAY)

PAVEMENT



24" CONCRETE CULVERT
PIPE, 24" DEEP, WITH
MANHOLE FRAME AND LID

THREADED CAP
HAND TIGHT

MALE ADAPTER
(GLUED FITTING)

18" VALVE BOX

12 GA U.S.E
GREEN TRACER
WIRE

STAND PIPE
SHALL BE 6"
PVC 3034

4" THICK
COMMERCIAL
CONCRETE

CUT VERTICAL SLOT TO
INSTALL TRACER WIRE

PRESSURE MAIN

2-45° ELBOWS
SLIP x SLIP
(GLUED JOINTS)

UNDISTURBED
EARTH

THRUST BLOCK W/
BARRIER NEXT TO PIPE

SCH 80 PVC BALL VALVE

THRUST
BLOCK

GENERAL NOTES:

1. SCH 80 PVC BALL VALVES SHALL NOT HAVE EXTENSIONS ADDED.
2. FOR VALVE BOX AND VALVE STEM RISER REQUIREMENTS SEE DETAIL.
3. THE MANHOLE FRAME AND COVER SHALL BE THE CITY OF LACEY "LOGO" LID. SEE DETAIL.
4. HDPE MAINS SHALL USE BUTT OR SOCKET FUSED FITTINGS AND ADAPTERS.
5. TO TRANSITION FROM HDPE TO THREAD OR PVC A 316 STAINLESS STEEL "POLY CAM" CONNECTOR SHALL BE USED.
3. IN A CUL-DE-SAC SCENARIO THE LAUNCH PORT SHALL END AT THE MIDDLE OF THE SAC.

CITY OF LACEY, WASHINGTON
DEPT. OF PUBLIC WORKS

2" PIG LAUNCH
ASSEMBLY

APPROVED

CITY ENGINEER

DWG. NO.

7-20.0

DES.

P/W

DWN.

WHO

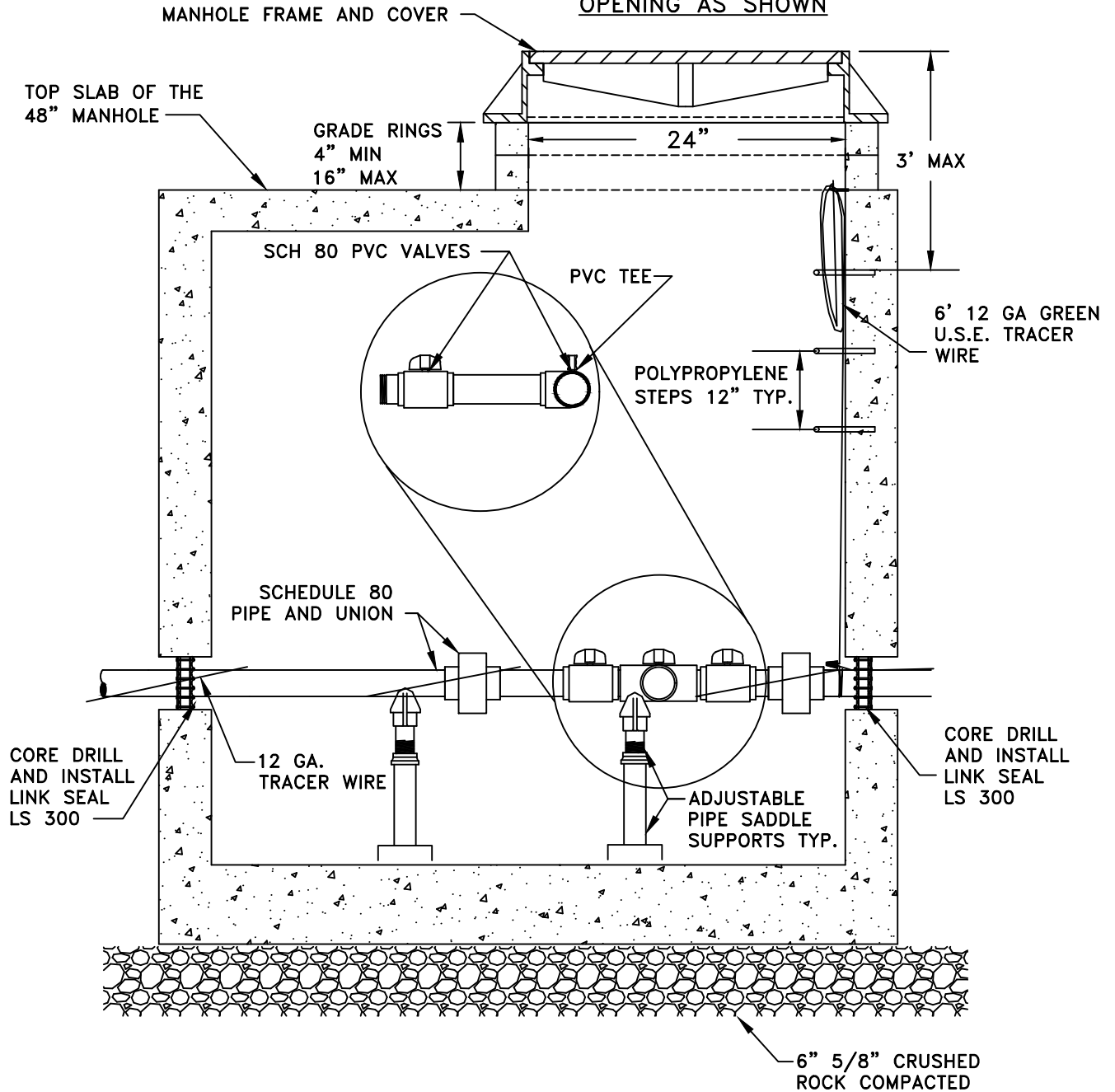
CKD.

RAS

DATE

08/24/2017

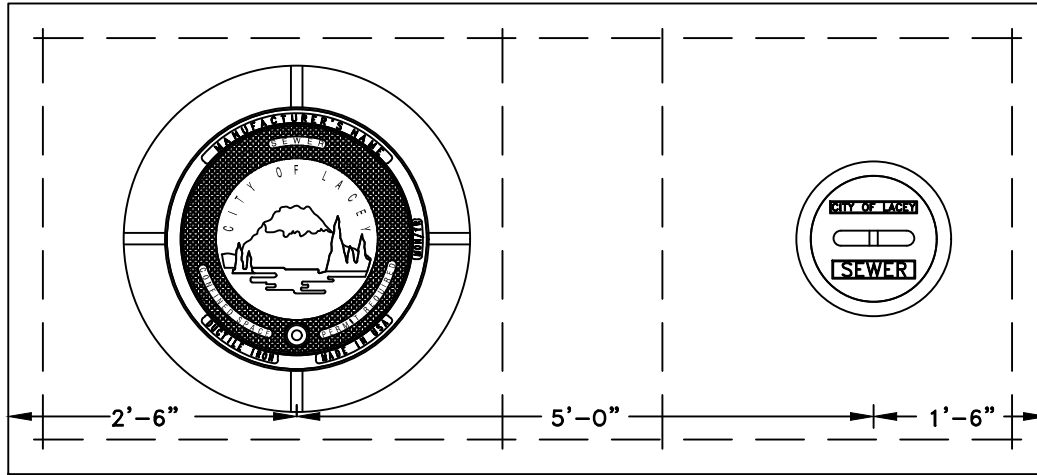
VALVE HANDLES SHALL BE ACCESSIBLE FROM THE MANHOLE OPENING AS SHOWN



GENERAL NOTES:

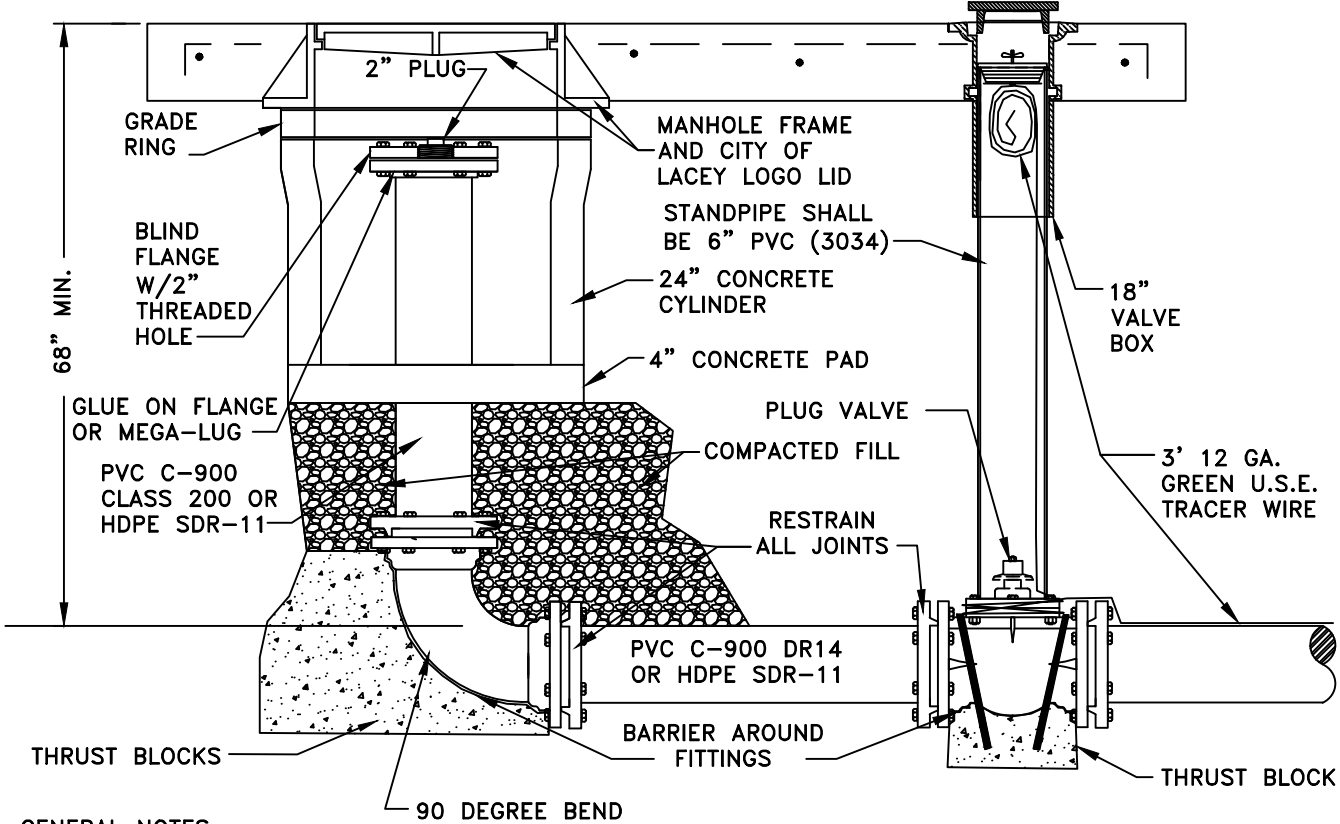
1. THE MANHOLE FRAME AND COVER SHALL BE THE CITY OF LACEY "LOGO" LID SEE DETAIL.
2. A SEWER GUARD SHALL BE INSTALLED IN ANY MANHOLE SUBJECT TO FLOODING.
3. THE PLACEMENT OF THE VALVE ASSEMBLY SHALL BE DIRECTLY BELOW THE MANHOLE FRAME AND LID.
4. PIPE, FITTINGS AND VALVES SHALL BE SCHEDULE 80 PVC.

CITY OF LACEY, WASHINGTON			
DEPT. OF PUBLIC WORKS			
2" INLINE PIG CATCHER ASSEMBLY			
APPROVED	<i>[Signature]</i>		DWG. NO.
CITY ENGINEER			7-20.1
DES.	DWN.	CKD.	DATE
P/W	WHO	RAS	08/24/2017



9' X 4' X 8"
CONCRETE PAD

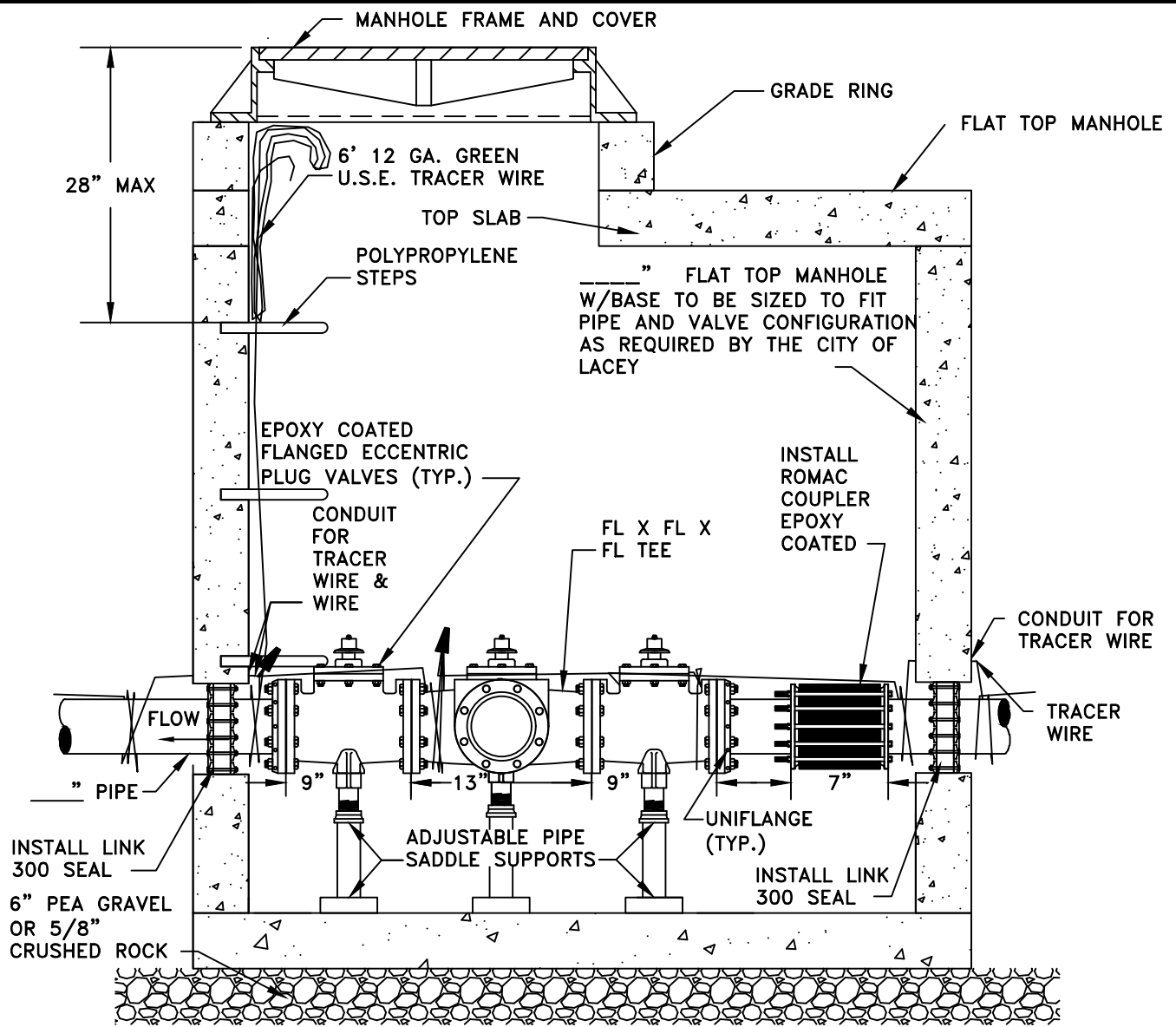
#4 REBAR TO MEET
ASTM A615 GRADE
60 FY=60,000 PSI



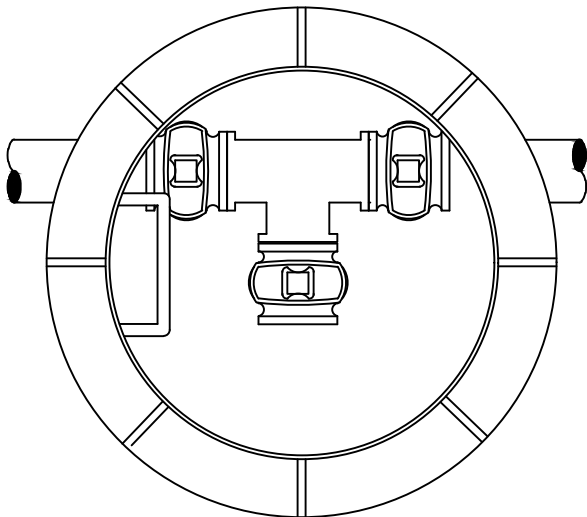
90 DEGREE BEND

- GENERAL NOTES:
1. FOR VALVE BOX AND VALVE STEM RISER REQUIREMENTS SEE DETAIL.
 2. THE PIG LAUNCH SIZES SHALL BE THE SAME SIZE AS THE MAIN.
 3. THE MANHOLE FRAME AND COVER SHALL BE THE CITY OF LACEY "LOGO" LID SEE DETAIL.
 4. PIG LAUNCH 10" OR LARGER SHALL REQUIRE SPECIAL DESIGN AND APPROVAL BY THE CITY AND MAY REQUIRE A LARGER MANHOLE LID OPENING OR A SPECIAL VAULT.
 5. IN A CUL-DE-SAC SCENARIO THE LAUNCH PORT SHALL END AT THE MIDDLE OF THE SAC.

CITY OF LACEY, WASHINGTON DEPT. OF PUBLIC WORKS			
4" THRU 8" PIG LAUNCH ASSEMBLY			
APPROVED <i>Ryan A. Schmitt</i> CITY ENGINEER		DWG. NO. 7-21.0	
DES. WHO	DWN. WHO	CKD. RAS	DATE 08/24/2017



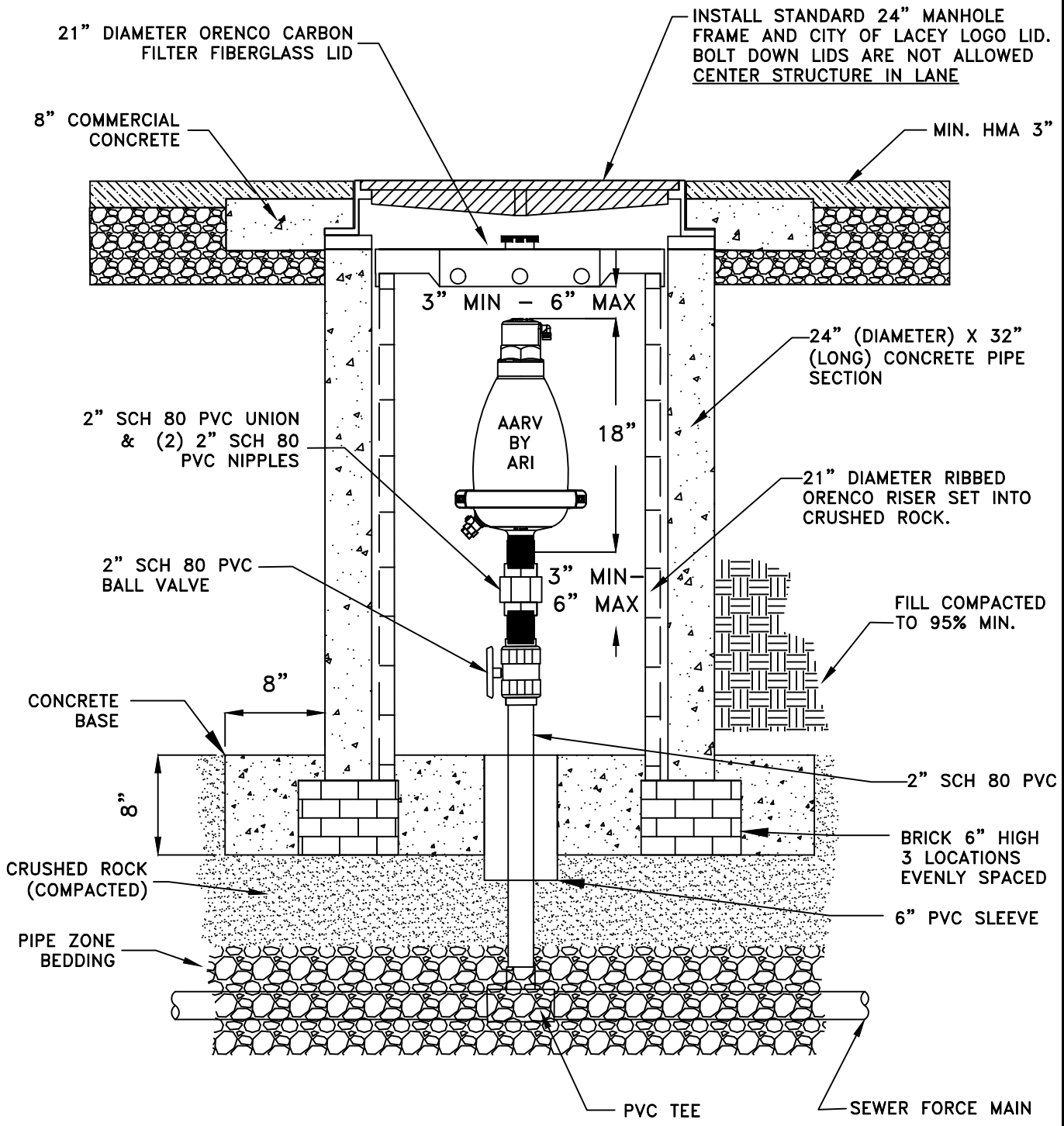
TOP VIEW THROUGH MANHOLE OPENING



- GENERAL NOTES:
1. THE MANHOLE LID SHALL BE THE CITY OF LACEY "LOGO" LID SEE DETAIL.
 2. ALL APPURTENANCES INSTALLED SHALL BE THE SAME SIZE AS THE PIPE.
 3. THE SIZE OF THE MANHOLE SHALL BE DETERMINED BY THE SIZE OF THE PIPE AND THE VALVE ASSEMBLY OR CONFIGURATION.
 4. RAIN GUARD IS REQUIRED IN AREAS SUBJECT TO FLOODING.
 5. BOLT DOWN LID IS NOT ALLOWED.

CITY OF LACEY, WASHINGTON DEPT. OF PUBLIC WORKS			
4" AND LARGER INLINE PIG CATCHER ASSEMBLY			
APPROVED <i>Ryan A. Schmitt</i> CITY ENGINEER		DWG. NO. 7-21.1	
DES. WHO	DWN. WHO	CKD. RAS	DATE 08/24/2017

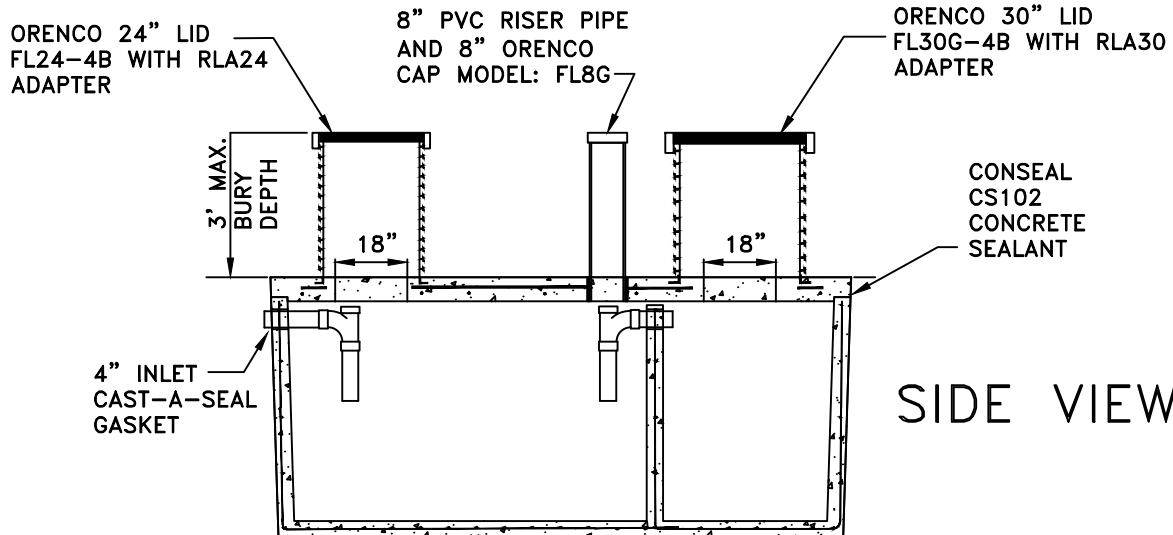
VALVE HUBS SHALL BE ACCESSIBLE FROM THE MANHOLE OPENING AS SHOWN ABOVE



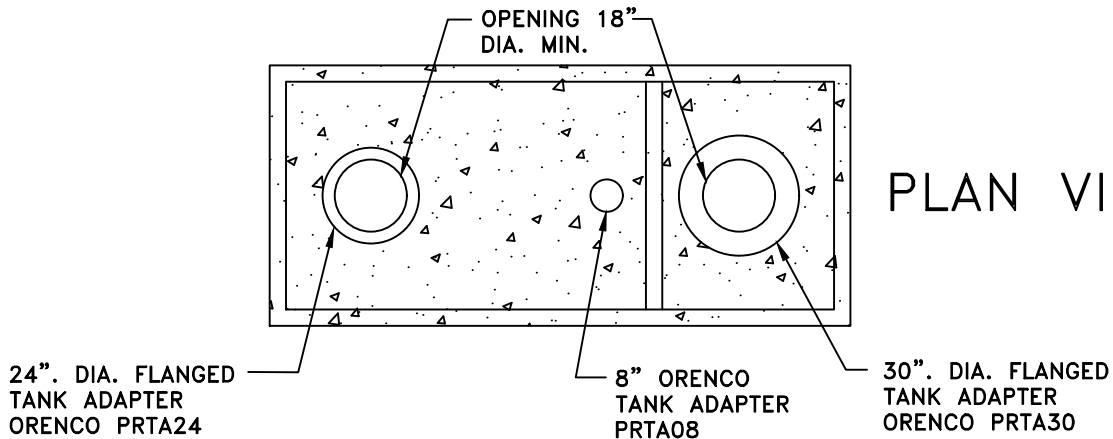
GENERAL NOTES:

1. THE STANDARD AIR RELEASE VALVE SHALL BE AN ARI, Inc. MODEL D-025 FOR SEWER LIFT STATION FORCE MAIN OR MODEL S-021 FOR S.T.E.P. SEWER FORE MAINS. OTHER MODELS MAY BE REQUIRED AS DETERMINED BY THE CITY OF LACEY DURING THE REVIEW OR CONSTRUCTION SUBMITTAL PHASE OF THE PROJECT.
2. A RAIN GUARD SHALL BE REQUIRED UNDER THE MANHOLE LID.

CITY OF LACEY, WASHINGTON DEPT. OF PUBLIC WORKS			
SEWER AIR RELEASE VALVE IN ROADWAY			
APPROVED	<i>Ryan A. Schwan</i>	DWG. NO.	7-25.0
CITY ENGINEER			
DES RD	DWN WHO	CKD RAS	DATE 08/24/2017



SIDE VIEW



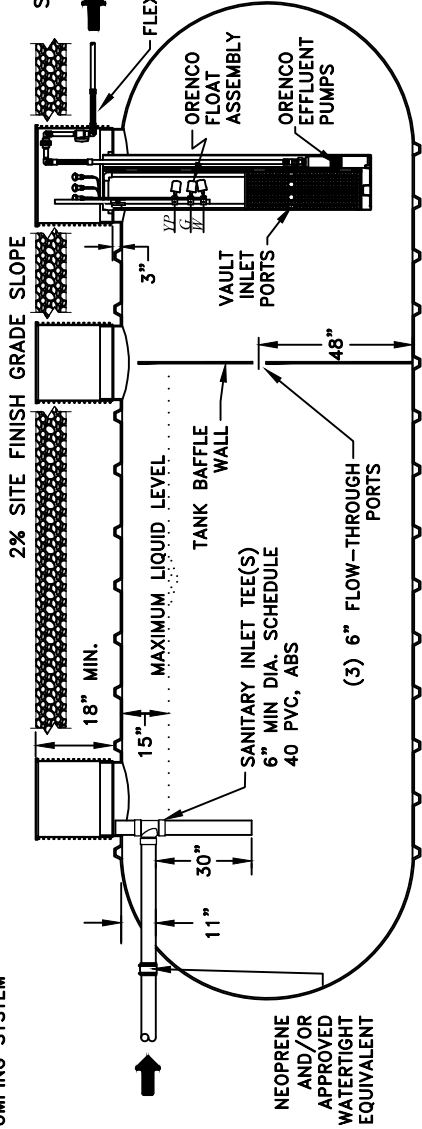
PLAN VIEW

GENERAL NOTES:

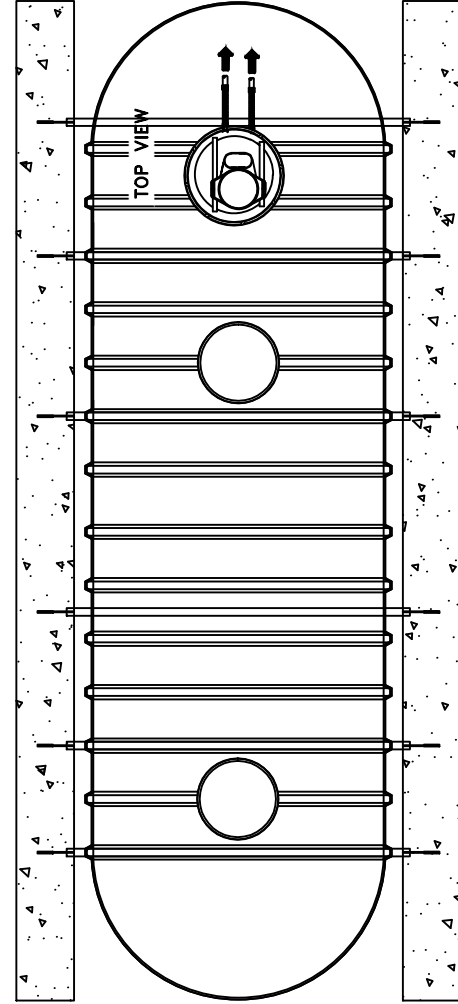
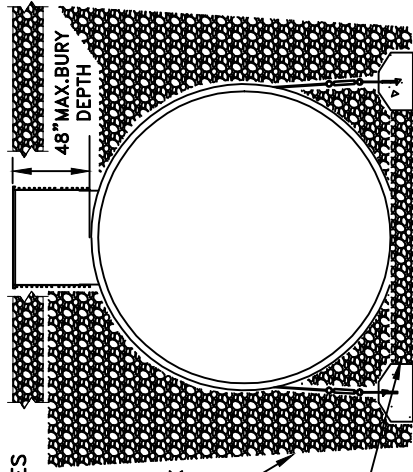
1. TANKS SHALL BE DESIGNED BY A REGISTERED STRUCTURAL ENGINEER AND SHALL BE APPROVED BY THE CITY OF LACEY. THE CITY DOES NOT ACCEPT ANY REBAR SUBSTITUTIONS SUCH AS NOVOMESH OR SIMILAR PRODUCTS.
2. TANKS AND/OR LIDS SHALL NOT BE TRANSPORTED FROM THE PRE-CAST MANUFACTURER'S SITE EARLIER THAN 7 DAYS AFTER MANUFACTURED DATE.
3. TANKS SHIPPED EARLIER THAN 7 DAYS WILL BE REJECTED.
4. TANK MANUFACTURED DATE SHALL BE CLEARLY MARKED INTO THE CONCRETE TANK AND LID WITHOUT PAINT.
5. TANKS APPROVED AS TRAFFIC BEARING TANKS SHALL BE DESIGNED TO WITHSTAND AN H-20 LIVE LOAD WITH A MINIMUM SOIL COVER OF 18 INCHES. LOAD RATING OF THE TANK SHALL BE CLEARLY STAMPED IN THE LID OR SIDE OF TANK. THE H-20 LID SUBMITTAL SHALL BE APPROVED BY THE CITY OF LACEY BEFORE DELIVERY AND INSTALLATION.
6. FLEXIBLE 4" INLET CONNECTION SHALL BE CAST-A-SEAL MANUFACTURED BY PRESS-SEAL GASKET CORPORATION.
7. THE S.T.E.P TANK SHALL BE DESIGNED TO HOLD THE RATED CAPACITY OF STORAGE INSIDE THE TANK WHEN FILLED TO THE NORMAL WORKING LEVEL. THERE SHALL BE AN ADDITIONAL 200 GALLONS OF STORAGE (MINIMUM) FROM WORKING LEVEL TO THE TOP OF THE TANK TO ALLOW 24 HOUR ADDITIONAL STORAGE IN THE EVENT OF A POWER OUTAGE.
8. THE INSIDE AND OUTSIDE SURFACES OF THE TANK SHALL BE PROTECTED BY APPLYING A HEAVY CEMENT-BASE WATERPROOF COATING OF THOROSEAL OR AN APPROVED EQUAL.
9. SEE SECTION 7E.060 FOR CONCRETE TANK CONSTRUCTION REQUIREMENTS.

CITY OF LACEY, WASHINGTON DEPT. OF PUBLIC WORKS			
1,500 AND 3000 GALLON S.T.E.P. TANKS			
APPROVED <i>Ryan A. Schwan</i> CITY ENGINEER		DWG. NO. 7-30.0	
DES WHO	DWN WHO	CKD RAS	DATE 08-24-2017

**8000 GALLON FIBERGLASS TANK
USE WITH ORENCO PSA20-LACEY-8000
PUMPING SYSTEM**



SEE SURFACE NOTES



DEADMEN REQUIRED. INSTALL PER TANK
MANUFACTURER'S REQUIREMENTS

FLOAT SETTINGS

FUNCTION	FUNCTION CODE	DIM FROM TOP OF TANK	DIM FROM PVU FLANGE
HWA / LAG ON	YP	17"	20"
LEAD PUMP ON	G	19"	25"
LEAD PUMP OFF		23"	
REDUNDANT OFF	W	26"	29"

SURFACE NOTES:

- A. 8" THICK 1-1/4" CRUSH SURFACE REQUIRED FOR NON-ACCESS APPLICATION
- B. 12" THICK 1-1/4" CRUSHED SURFACE ACCESS ROADWAY MIN. WIDTH 15' MAY BE REQUIRED
- C. GRASS MAY BE USED BY APPROVAL OF THE CITY AND MAINTAINED BY THE HOA

GENERAL NOTES:

1. THE FORMULA FOR DETERMINING THE SITE WIDTH SHALL BE AT A 1:1 RATIO OF VERTICAL DEPTH OF THE TANK AND THE HORIZONTAL DISTANCE TO THE PROPOSED PROPERTY OR EASEMENT LINE ON ALL SIDES OF THE TANK.
2. IF THE SITE IS IN THE CITY LIMITS AND IS ATTACHED TO THE RIGHT-OF-WAY BEHIND A SIDEWALK A 10' LONG X 15' WIDE ASPHALT APRON SHALL BE REQUIRED. THE ENTIRE SITE SHALL BE GRADED AT 2% TOWARDS THE RIGHT-OF-WAY OR STORM FACILITY IF AVAILABLE.
3. SINGLE WALL FIBERGLASS TANK SHALL MEET UL 1316 AND ASTM D4021 SPECIFICATIONS.
4. ANCHORING SYSTEM SHALL BE REQUIRED. ALL ANCHORS AND BEDDING SHALL MEET THE MANUFACTURER'S REQUIREMENTS.
5. WHEN A FENCE IS REQUIRED IT SHALL BE BLACK CHAINLINK WITH TOP RAIL AND BOTTOM WIRE. A 15' WIDE ACCESS GATE SHALL ALSO BE REQUIRED.
6. ALL PART NUMBERS CAN BE FOUND IN THE ORENCO CERTIFIED PACKAGE PSA20-LACEY8000WALLMOUNT AND/OR PSA20-LACEY8000FREESTANDING

**CITY OF LACEY, WASHINGTON
DEPT. OF PUBLIC WORKS**

**8000 GALLON FIBERGLASS
TANK FOR STEP SYSTEMS**

APPROVED

Ben A. Schumel
CITY ENGINEER

DWG. NO.

7-32.0

DES

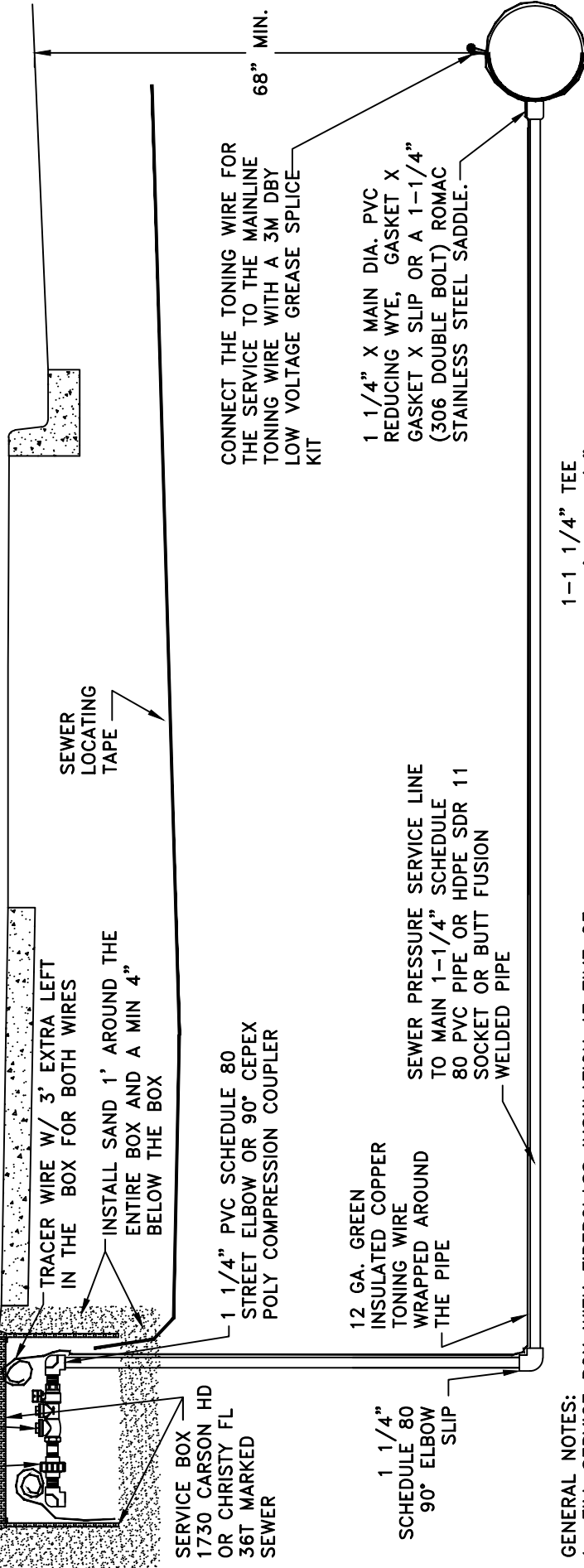
EBK

CKD

DATE

08/24/2017

SCH 80 PVC UNION
 1 1/4" STAINLESS STEEL UNI-LATERAL VALVE ASSEMBLY
 MANUFACTURED BY ENVIRONMENT ONE WITH SCHEDULE 80



SCH 80 PVC UNION
 1 1/4" STAINLESS STEEL UNI-LATERAL VALVE ASSEMBLY
 MANUFACTURED BY ENVIRONMENT ONE WITH SCHEDULE 80

SEWER LOCATING TAPE

TRACER WIRE W/ 3' EXTRA LEFT IN THE BOX FOR BOTH WIRES

INSTALL SAND 1' AROUND THE ENTIRE BOX AND A MIN 4" BELOW THE BOX

1 1/4" PVC SCHEDULE 80 STREET ELBOW OR 90° CEPEX POLY COMPRESSION COUPLER

12 GA. GREEN INSULATED COPPER TONING WIRE WRAPPED AROUND THE PIPE

1 1/4" SCHEDULE 80 SLIP

SEWER PRESSURE SERVICE LINE TO MAIN 1-1/4" SCHEDULE 80 PVC PIPE OR HDPE SDR 11 SOCKET OR BUTT FUSION WELDED PIPE

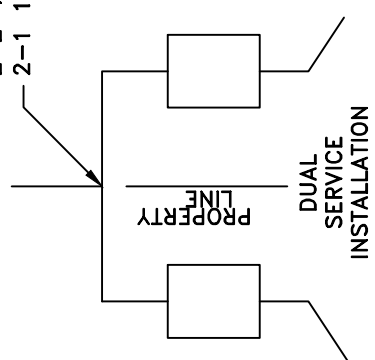
CONNECT THE TONING WIRE FOR THE SERVICE TO THE MAINLINE TONING WIRE WITH A 3M DBY LOW VOLTAGE GREASE SPLICE KIT

1 1/4" X MAIN DIA. PVC REDUCING WYE, GASKET X GASKET X SLIP OR A 1-1/4" (306 DOUBLE BOLT) ROMAC STAINLESS STEEL SADDLE.

1-1 1/4" TEE
 2-2' X 1 1/4" PIPE
 2-1 1/4" 90° ELBOWS

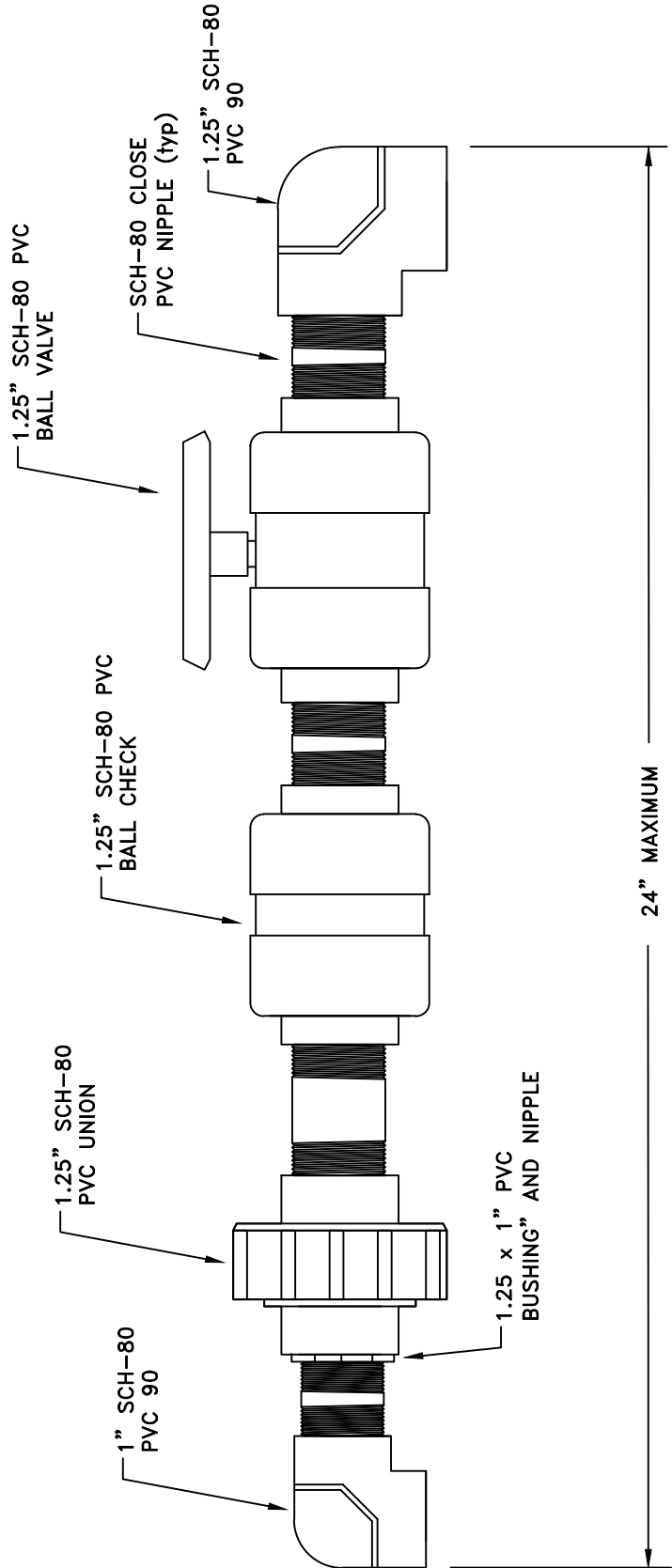
GENERAL NOTES:

1. FILL SERVICE BOX WITH FIBERGLASS INSULATION AT TIME OF ON-SITE CONNECTION TO THE STUB.
2. AFTER THE HYDRO-STATIC TEST HAS BEEN APPROVED BY THE CITY INSPECTOR THE CHECK VALVE SHALL BE INSTALLED.
3. FOR HDPE REQUIREMENTS SEE CHAPTER 7D.
4. FUTURE LOT CONNECTIONS SHALL BE MADE AT THE 90° ELBOW WITH THE TRACER WIRE INCLUDED IN THE INSTALLATION.
5. ALL SERVICE BOXES SHALL BE INSTALLED IN NON-TRAFFIC AREAS. EARTH BURY LOCATIONS SHALL USE SOLID HDPE GREEN LIDS. IN UNUSUAL CONDITIONS WHEN SERVICE BOXES ARE ALLOWED TO BE INSTALLED IN TRAFFIC AREAS, DUCTILE IRON LIDS SHALL BE REQUIRED WITH CONCRETE BOX 17" x 30".
6. THE VALVE CHECK ASSEMBLY SHALL BE 1 1/4" STAINLESS STEEL UNI-LATERAL MANUFACTURED BY ENVIRONMENT ONE ONLY. NO SUBSTITUTIONS WILL BE ALLOWED.
7. TO TRANSITION FROM HDPE TO PVC A 316 STAINLESS STEEL "POLY CAM" CONNECTOR SHALL BE USED.



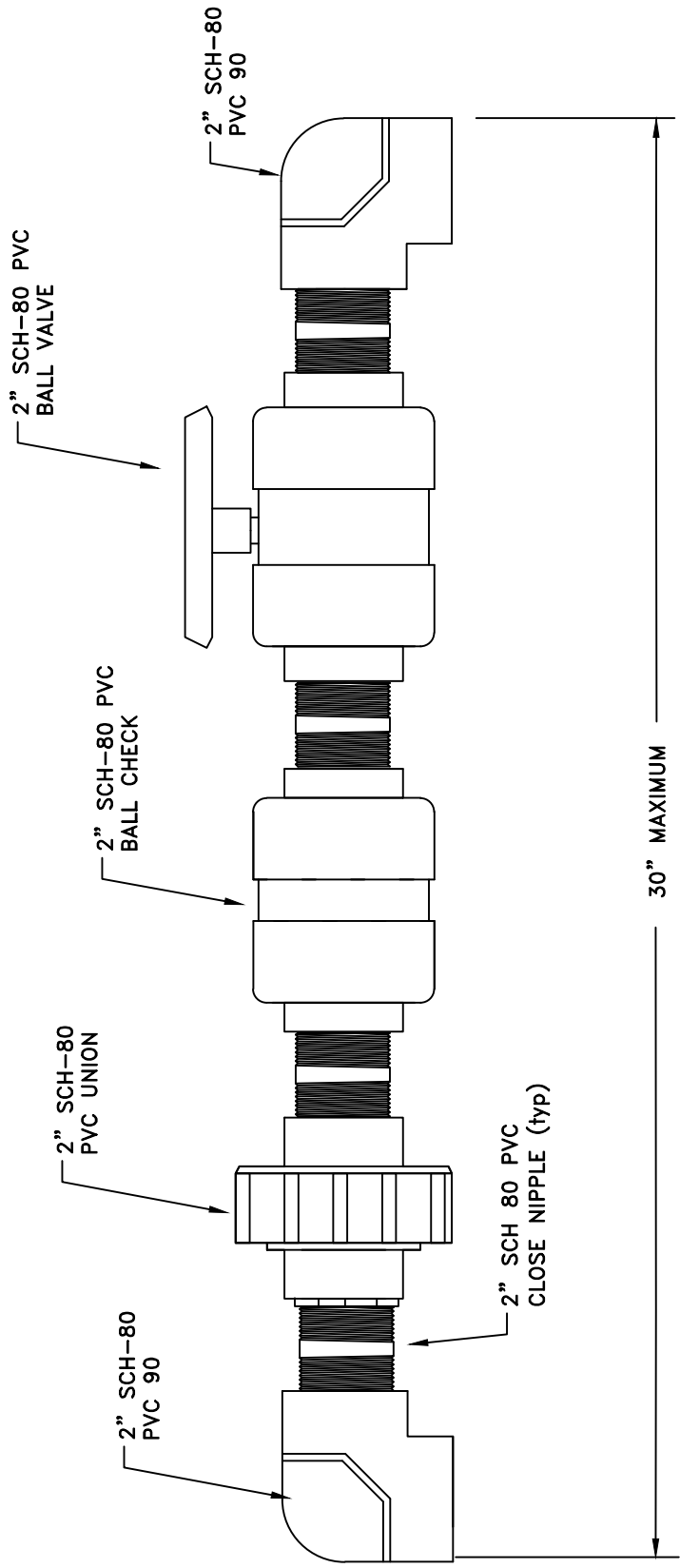
CITY OF LACEY, WASHINGTON
 DEPT. OF PUBLIC WORKS
 SINGLE & DUPLEX
 FAMILY GRINDER SERVICE
 CONNECTION

APPROVED	DWG. NO.
<i>R. A. Schmitt</i>	7-33.1
CITY ENGINEER	
DES WHO	DWN WHO
CKD RAS	DATE
	08/24/2017



- GENERAL NOTES:
1. VALVE ASSEMBLY SHALL BE ALL SCHEDULE 80 PVC SPEARS, KBI, CEPEX OR APPROVED EQUAL.
 2. FUTURE LOT CONNECTIONS SHALL BE MADE AT THE 90° ELBOW WITH THE TRACER WIRE INCLUDED IN THE INSTALLATION.
 3. TO TRANSITION FROM HDPE TO PVC A 316 STAINLESS STEEL "POLY CAM" CONNECTOR SHALL BE USED.

CITY OF LACEY, WASHINGTON DEPT. OF PUBLIC WORKS			
SINGLE AND DUPLEX FAMILY S.T.E.P. SEWER SERVICE VALVE ASSEMBLY			
APPROVED	<i>[Signature]</i>	DWG. NO.	7-34.0
CITY ENGINEER			
DES EHA	DWN EHA	CKD RAS	DATE 08/24/2017

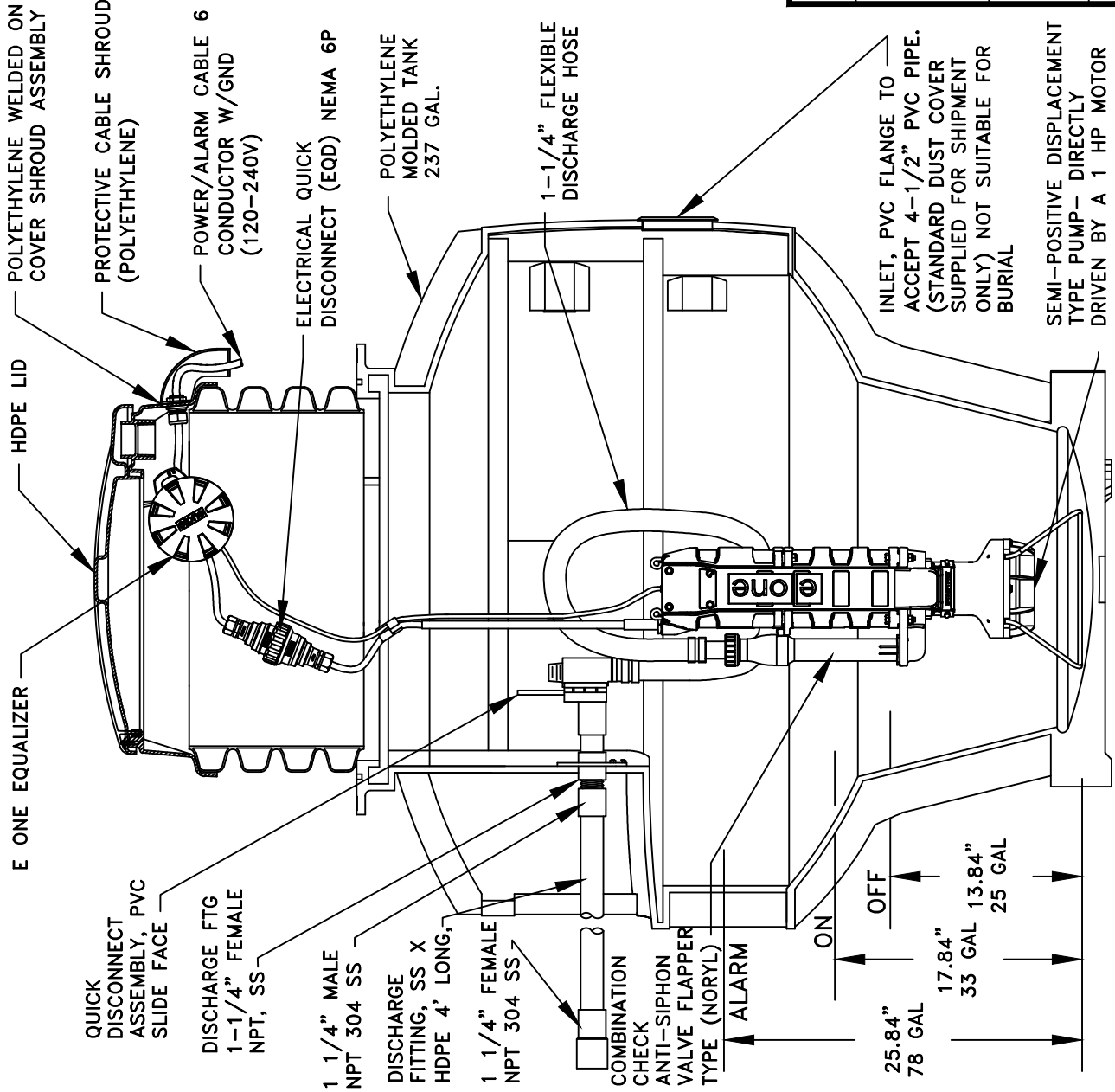


- GENERAL NOTES:
1. VALVE ASSEMBLY SHALL BE ALL SCHEDULE 80 PVC SPEARS, KBI, CEPEX OR APPROVED EQUAL.
 2. TO TRANSITION FROM HDPE TO PVC A 316 STAINLESS STEEL "POLY CAM" CONNECTOR SHALL BE USED.

CITY OF LACEY, WASHINGTON DEPT. OF PUBLIC WORKS		DWG. NO. 7-34.1	
2" COMMERCIAL STEP SEWER SERVICE VALVE ASSEMBLY		APPROVED <i>Ron A. Schmitt</i> CITY ENGINEER	DATE 08/24/2017
DES EHA	DWN EHA	CKD RAS	

GENERAL NOTES:

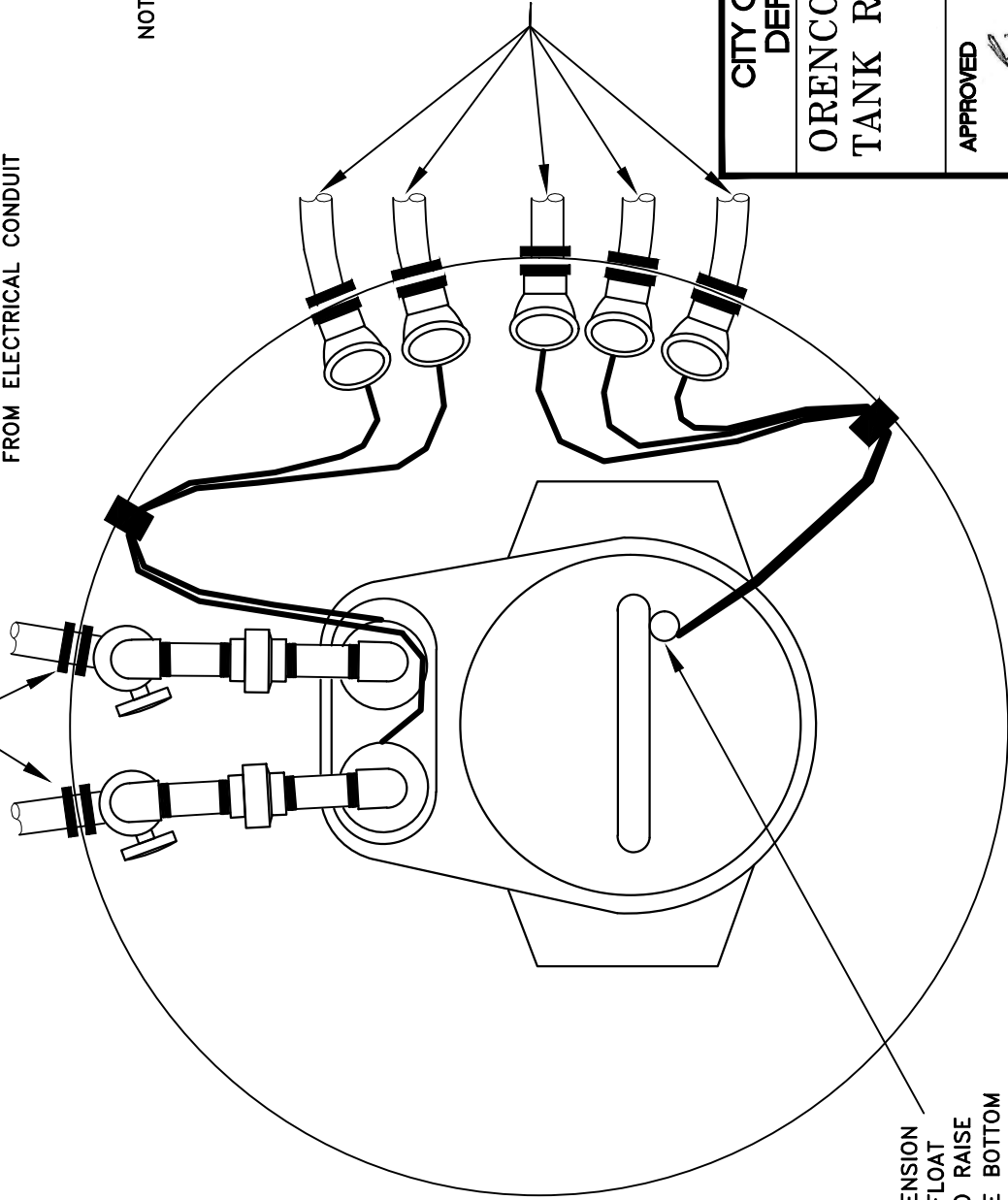
1. CONCRETE BALLAST MAY BE REQUIRED. BALLAST CALCULATIONS SHALL BE COMPLETED AND PROVIDED TO THE CITY ENGINEER FOR REVIEW. SEE INSTALLATION INSTRUCTIONS FOR DETAILS.
2. THE CONTROL PANEL SHALL BE THE E-ONE PROTECT PLUS WITH OPTIONAL BUILT IN GENERATOR PLUG AND AUTOMATIC TRANSFER SWITCH.
3. THE POWER SUPPLY BREAKER IN THE CUSTOMER HOME ELECTRICAL PANEL SHALL BE 30 AMP.
4. ELECTRICAL CONDUIT SHALL BE PROPERLY SEALED ACCORDING TO MANUFACTURER'S INSTRUCTIONS TO PREVENT WATER INTRUSION. THE GRINDER ASSEMBLY SHALL BE SET ON A MINIMUM OF 6" PEA GRAVEL BEDDING MATERIAL.
5. BACK FILL REQUIREMENTS SHALL COMPLY WITH MANUFACTURER'S REQUIREMENTS. CARE SHALL BE TAKEN TO INSURE THE TANK IS PROPERLY VENTED. MANUFACTURER'S REQUIREMENTS FOR BURIAL DEPTH, BACKFILL AROUND LID AND VENTING SHALL BE STRICTLY FOLLOWED. THE TANK AND LID SHALL NEVER BE INSTALLED IN AN AREA WHERE HIGH GROUND WATER OR FLOODING ARE POSSIBLE THAT MAY AFFECT PROPER VENTING.
6. PRIOR TO START UP THE INLET LATERAL AND TANK SHALL BE THOROUGHLY CLEANED, FLUSHED AND FREE OF DIRT, SAND, ROCKS, DEBRIS OR FOREIGN MATERIAL.



CITY OF LACEY, WASHINGTON DEPT. OF PUBLIC WORKS			
E-ONE WH-231 FOR RESIDENTIAL APPLICATION			
APPROVED	<i>Ron A. Schumel</i>		DWG. NO.
CITY ENGINEER			7-36.0
DES	DWN	CKD	DATE
WHO	WHO	RAS	08/24/2017

TANK RISER PENETRATIONS
TOP VIEW

PUMP DISCHARGE PLUMBING
TO EXIT RISER 90 DEGREES
FROM ELECTRICAL CONDUIT



ADD AN EXTENSION
HANDEL TO FLOAT
ASSEMBLY TO RAISE
6" FROM THE BOTTOM
OF THE LID

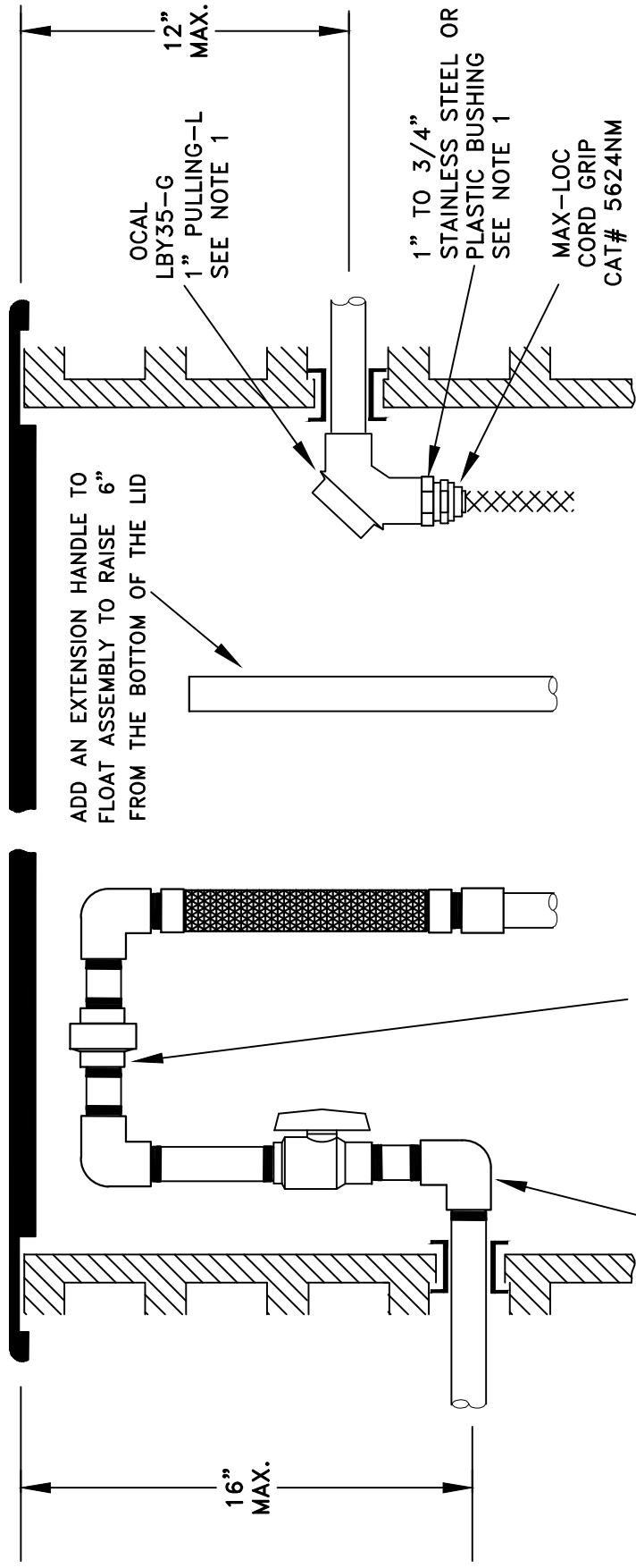
NOTE 1: PART PROVIDED BY INSTALLER

ISOLATION PEDESTAL CONDUITS
SEE CITY OF LACEY DETAIL
SEE NOTE 1

CITY OF LACEY, WASHINGTON
DEPT. OF PUBLIC WORKS

ORENCO COMMERCIAL STEP
TANK RISER PENETRATIONS
TOP VIEW

APPROVED	DWG. NO.	DATE
<i>Ben A. Schmitt</i>	7-37.0	
CITY ENGINEER	CKD	RAS
DES EBK	DWN EBK	DATE 08/24/2017



ADD AN EXTENSION HANDLE TO
FLOAT ASSEMBLY TO RAISE 6"
FROM THE BOTTOM OF THE LID

OCAL
LBY35-G
1" PULLING-L
SEE NOTE 1

1" TO 3/4"
STAINLESS STEEL OR
PLASTIC BUSHING
SEE NOTE 1

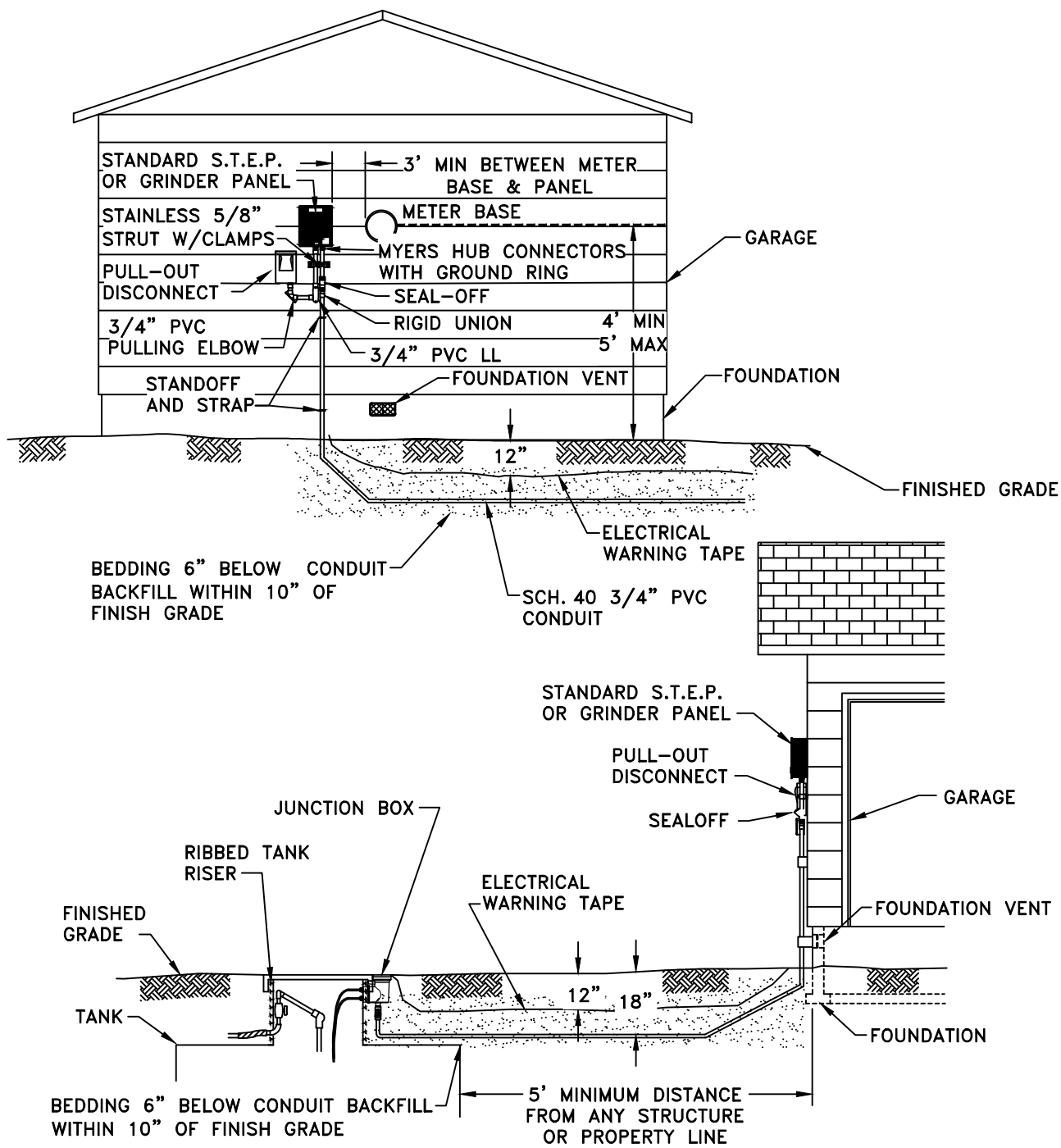
MAX-LOC
CORD GRIP
CAT# 5624NM

THE UNION NUT SLIDES BACK
TOWARDS THE VALVE
IF A FLOW RESTRICTOR IS REQUIRED
INSTALL BETWEEN
THE NIPPLE AND UNION

**PUMP DISCHARGE ASSEMBLY
DO NOT DEVIATE**

CITY OF LACEY, WASHINGTON DEPT. OF PUBLIC WORKS			
ORENCO COMMERCIAL STEP TANK RISER DETAIL SIDE VIEW			
APPROVED	<i>[Signature]</i>	DATE	DWG. NO. 7-37.1
CITY ENGINEER			
DES EBK	DWN EBK	CKD RAS	DATE 08/24/2017

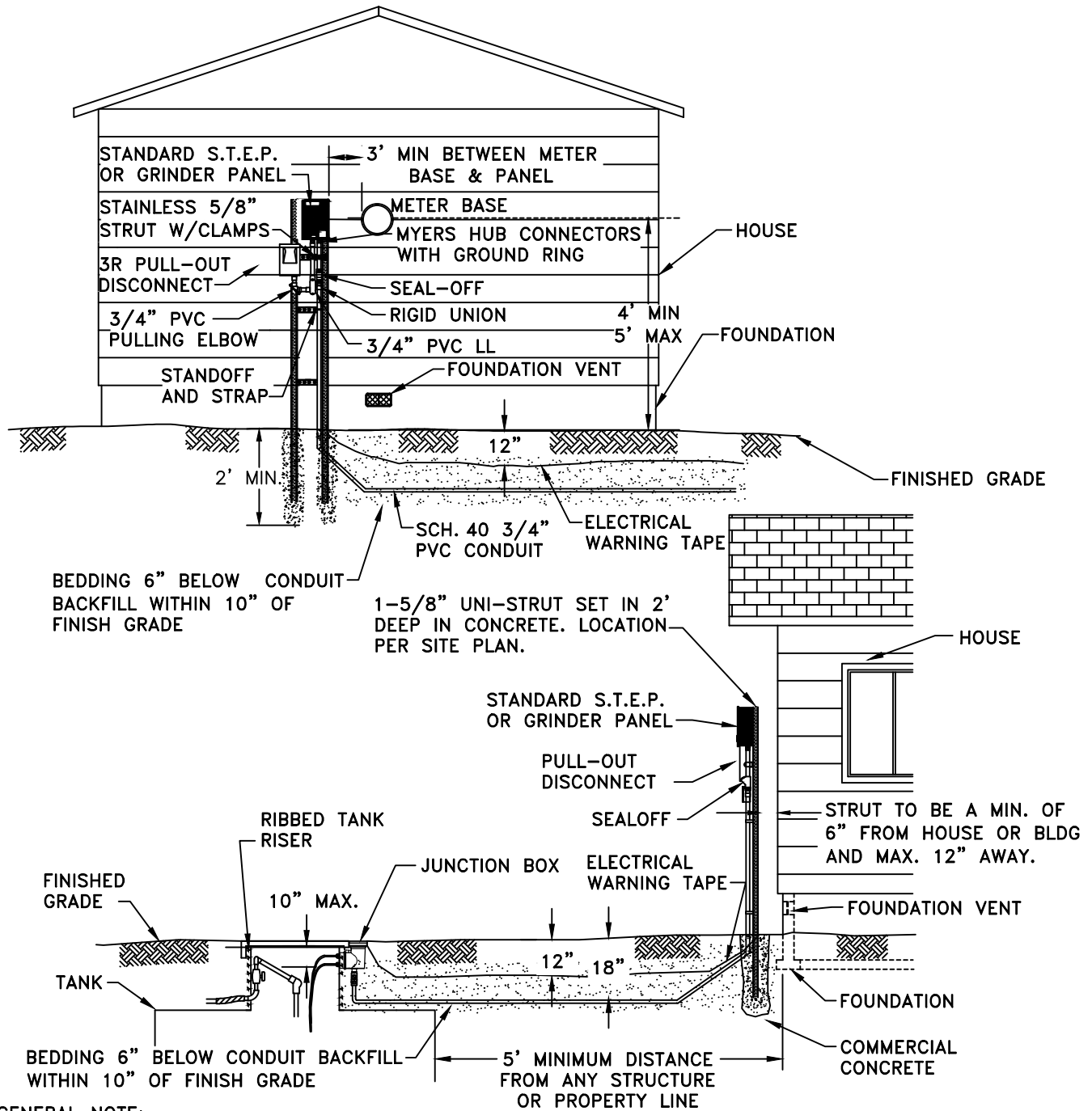
NOTE 1: PART PROVIDED BY INSTALLER



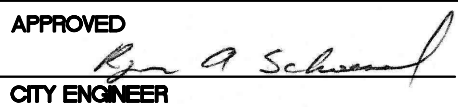
GENERAL NOTE:

1. CONTROL PANEL REQUIREMENTS ARE IN SECTION 7E.095.
2. ELECTRICAL CONDUIT MUST BE BEDDED IN SAND OR PEA GRAVEL. STEP LINES UNDER DRIVEWAYS SHALL BE CASED IN 2" CLASS 200 PVC EXTENDED 2 FEET BEYOND THE DRIVEWAY EDGES.
3. FOR PULL-OUT DISCONNECT BOX SEE DETAIL 7-11.2.
4. THE CONTROL PANEL FOR A 3000 GALLON SYSTEM SERVING A DUPLEX SHALL BE SERVED BY A DEDICATED POWER METER AND 20 AMP BREAKER.
5. USE OF POST MOUNTED PANEL SHALL BE PRE-APPROVED BY THE CITY OF LACEY.
6. SEAL OFF SHALL BE POURED AFTER FINAL INSPECTION PASSES.

CITY OF LACEY, WASHINGTON DEPT. OF PUBLIC WORKS			
S.T.E.P./GRINDER CONTROL PANEL			
APPROVED <i>Ryan A. Schwan</i> CITY ENGINEER	DWG. NO. 7-40.0		
DES. P/W	DWN. WHO	CKD. RAS	DATE 08/24/2017



- GENERAL NOTE:**
- CONTROL PANEL REQUIREMENTS ARE FOUND IN SECTION 7E.095.
 - ELECTRICAL CONDUIT MUST BE BEDDED IN SAND OR PEA GRAVEL. STEP LINES UNDER DRIVEWAYS SHALL BE CASED IN 2" CLASS 200 PVC EXTENDED 2 FEET BEYOND THE DRIVEWAY EDGES.
 - STEP AND GRINDER DISCONNECT SHALL BE TYPE 3R NON-FUSED PULL-OUT EATON DPU222R 60A 120/240V .
 - THE CONTROL PANEL FOR A 3000 GALLON SYSTEM SERVING A DUPLEX SHALL BE SERVED BY A DEDICATED POWER METER SERVICE AND 20 AMP BREAKER.
 - USE OF STRUT MOUNTED PANEL SHALL BE PRE-APPROVED BY THE CITY OF LACEY.
 - SEAL OFF SHALL BE Poured AFTER FINAL INSPECTION PASSES.

CITY OF LACEY, WASHINGTON DEPT. OF PUBLIC WORKS			
S.T.E.P./GRINDER CONTROL PANEL ON UNI-STRUT			
APPROVED  CITY ENGINEER			DWG. NO. 7-40.1
DES. EBK	DWN. EBK	CKD. RAS	DATE 08/24/2017

STANDARD
S.T.E.P.
OR
GRINDER
PANEL

ASSEMBLE STRUT USING 3/8" STAINLESS
STEEL BOLTS AND 1-1/4" FENDER WASHER
(TYP)

USE SQUARE STRUT WASHERS BETWEEN
ENCLOSURES AND STRUT WHEN MOUNTING
ENCLOSURES TO UNI-STRUT (TYP)

TYPE 3R PULL-OUT
DISCONNECT

MYERS HUB WITH
GROUNDING RING (TYP)

4' MIN

5' MAX

3/4" PVC PULLING
ELBOW

3/4" PVC LL

3/4"
VERTICAL
SEAL OFF

3/4" RIGID UNION

3/4" PVC ELECTRICAL
CONDUIT (TYP)

GENERAL NOTES:

1. DISCONNECT SHALL BE INSTALLED ON SYSTEMS IN BOTH COUNTY AND CITY.
2. S.T.E.P. AND GRINDER DISCONNECT BOX SHALL BE EATON DPU222R 60A 120/240V NON-FUSED PULL-OUT.
3. S.T.E.P SEAL-OFF SHALL BE POURED AFTER THE FINAL INSPECTION PASSES.
4. KEEP TREES AND SHRUBS 5' BACK FROM THE FRONT OF THE PANEL

1-5/8"
GALVANIZED
UNISTRUT,
SHALL BE
SET 2' INTO
CONCRETE.

CITY OF LACEY, WASHINGTON
DEPT. OF PUBLIC WORKS

S.T.E.P. AND GRINDER
PANEL DISCONNECT

APPROVED

CITY ENGINEER

DWG. NO.

7-40.2

DES
EBK

DWN
EBK

CKD
RAS

DATE
08/24/2017

DUPLEX CONTROL PANEL

SEE ORENCO'S CERTIFIED PACKAGE
PSA-LACEY8000WALLMOUNT FOR
ENCLOSURE PART NUMBER

CONDUIT LAYOUT
TOP VIEW

ALUMINUM PLATE BARRIER TO PROVIDE REQUIRED SEPARATION BETWEEN
THE INTRINSICALLY SAFE/CLASS II WIRING AND ALL OTHER WIRING

ALL CONDUITS ENTER THE THROUGH THE BOTTOM OF THE ENCLOSURE
ALL CONDUIT PENETRATIONS SHALL HAVE MYER TYPE HUBS
INSTALL GROUNDING BUSHINGS AND BOND CONDUIT

LEAVE ENOUGH SLACK IN THE
PUMP CORDS TO PULL PUMP
AND NEATLY HANG CORD

316 STAINLESS STEEL NON-SLOTTED
1-5/8" x 1-5/8" BACK TO BACK
DOUBLE UNI-STRUT

RUBBER
GROMMET

ISOLATION PEDESTAL

INCOMING POWER
FROM PULL-OUT
DISCONNECT

DOOR HINGE

TANK RISER

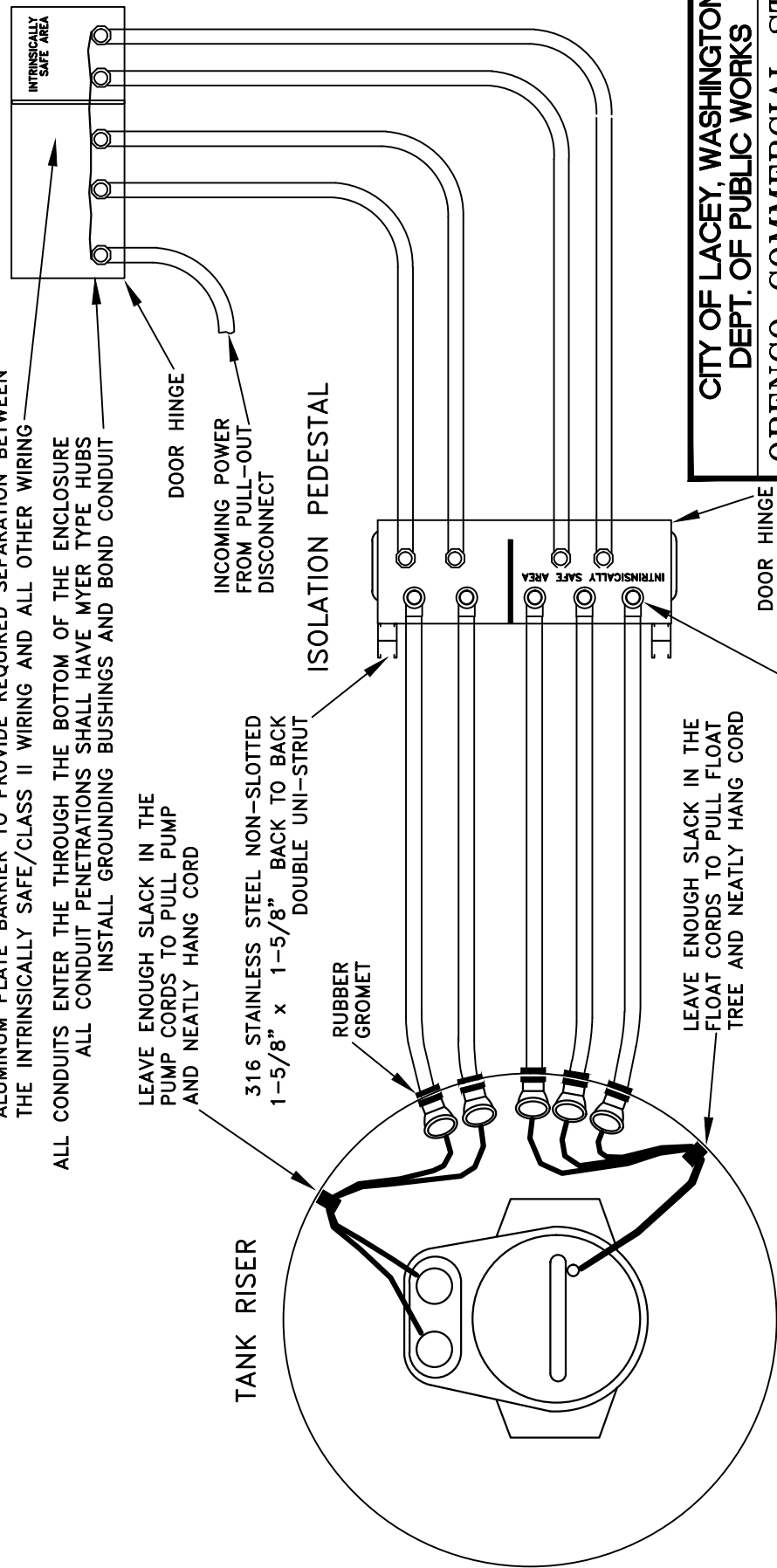
LEAVE ENOUGH SLACK IN THE
FLOAT CORDS TO PULL FLOAT
TREE AND NEATLY HANG CORD

ALL SEAL OFFS FACE THE
RISER OPPOSITE THE DOOR

*ALL CONDUIT AND FITTINGS FROM THE
ISOLATION PEDESTAL TO THE CONTROL PANEL
SHALL BE 1" GALVANIZED RIGID.
SEE NOTE 1

*ALL CONDUIT AND FITTINGS FROM THE RISER
TO THE ISOLATION PEDESTAL SHALL BE 1"
PVC COATED GALVANIZED RIGID.
SEE NOTE 1

NOTE 1: PART PROVIDED BY INSTALLER

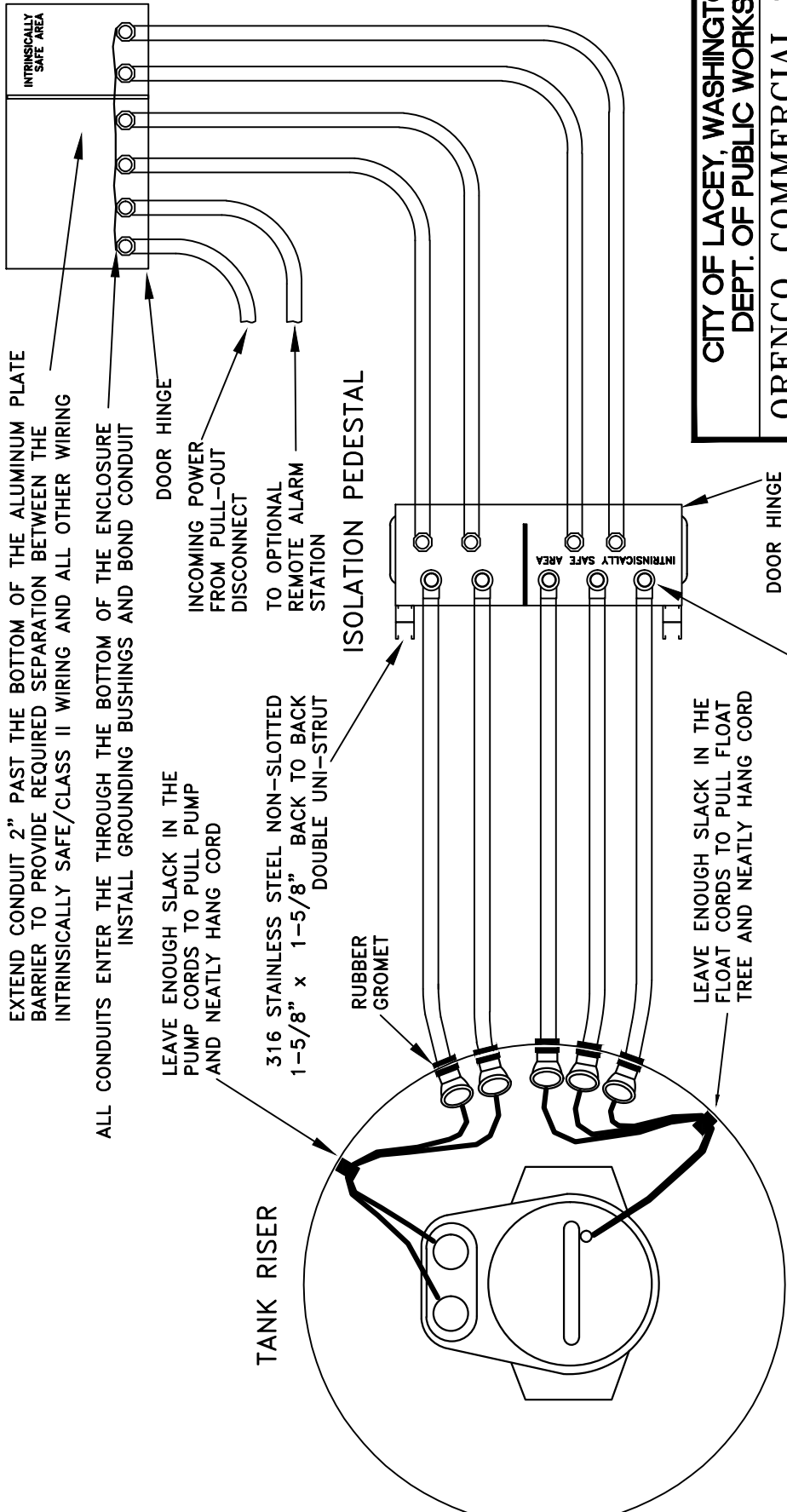


CITY OF LACEY, WASHINGTON
DEPT. OF PUBLIC WORKS

ORENCO COMMERCIAL STEP
WALL MOUNTED ENCLOSURE
CONDUIT & FIELD WIRING

APPROVED	DWG. NO.
<i>Ben A. Schmitt</i>	7-41.0
CITY ENGINEER	DATE
DES	CKD
EBK	RAS
DWN	EBK
DATE	8/24/17

CONDUIT LAYOUT
TOP VIEW



DUPLEX CONTROL PANEL
SEE ORENCO'S CERTIFIED PACKAGE
FOR PSA-LACEY8000FREESTANDING
ENCLOSURE PART NUMBER

EXTEND CONDUIT 2" PAST THE BOTTOM OF THE ALUMINUM PLATE
BARRIER TO PROVIDE REQUIRED SEPARATION BETWEEN THE
INTRINSICALLY SAFE/CLASS II WIRING AND ALL OTHER WIRING

ALL CONDUITS ENTER THE THROUGH THE BOTTOM OF THE ENCLOSURE
INSTALL GROUNDING BUSHINGS AND BOND CONDUIT

LEAVE ENOUGH SLACK IN THE
PUMP CORDS TO PULL PUMP
AND NEATLY HANG CORD

316 STAINLESS STEEL NON-SLOTTED
1-5/8" x 1-5/8" BACK TO BACK
DOUBLE UNI-STRUT

ISOLATION PEDESTAL

RUBBER
GROMMET

DOOR HINGE
INCOMING POWER
FROM PULL-OUT
DISCONNECT
TO OPTIONAL
REMOTE ALARM
STATION

LEAVE ENOUGH SLACK IN THE
FLOAT CORDS TO PULL FLOAT
TREE AND NEATLY HANG CORD

ALL SEAL OFFS FACE THE
RISER OPPOSITE THE DOOR

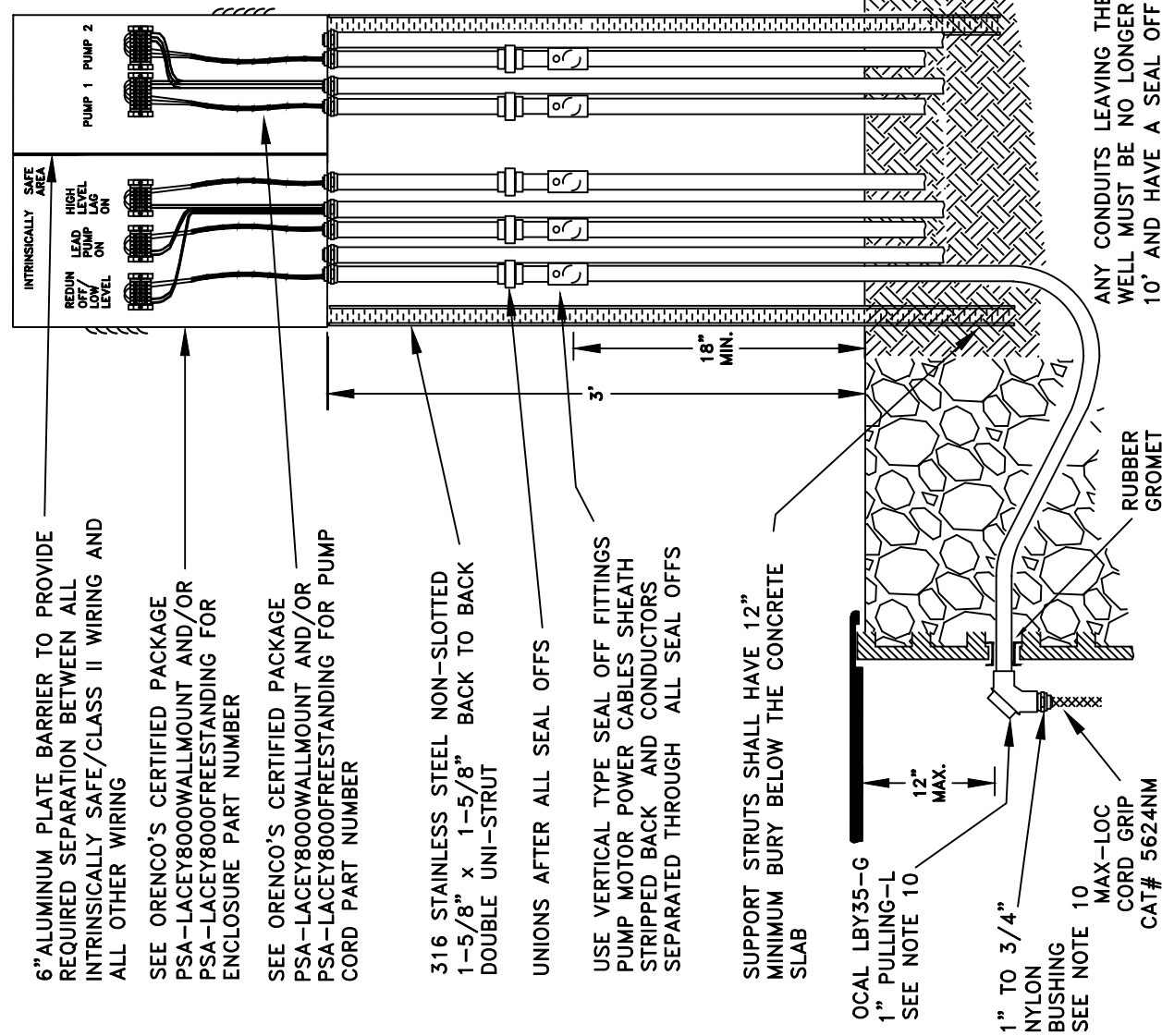
*ALL CONDUIT AND FITTINGS FROM THE
ISOLATION PEDESTAL TO THE CONTROL PANEL
SHALL BE 1" GALVANIZED RIGID.
SEE NOTE 1

*ALL CONDUIT AND FITTINGS FROM THE
RISER TO THE ISOLATION PEDESTAL SHALL
BE 1" PVC COATED GALVANIZED RIGID.
SEE NOTE 1

NOTE 1: PART PROVIDED BY INSTALLER

CITY OF LACEY, WASHINGTON DEPT. OF PUBLIC WORKS		DWG. NO.	DATE
ORENCO COMMERCIAL STEP FREE STANDING ENCLOSURE CONDUIT & FIELD WIRING		7-41.1	08/24/17
APPROVED	<i>[Signature]</i>	CITY ENGINEER	
DES EBK	DWN EBK	CKD RAS	DATE 08/24/17

ISOLATION PEDESTAL



6" ALUMINUM PLATE BARRIER TO PROVIDE REQUIRED SEPARATION BETWEEN ALL INTRINSICALLY SAFE/CLASS II WIRING AND ALL OTHER WIRING

SEE ORENCO'S CERTIFIED PACKAGE PSA-LACEY8000WALLMOUNT AND/OR PSA-LACEY8000FREESTANDING FOR ENCLOSURE PART NUMBER

SEE ORENCO'S CERTIFIED PACKAGE PSA-LACEY8000WALLMOUNT AND/OR PSA-LACEY8000FREESTANDING FOR PUMP CORD PART NUMBER

316 STAINLESS STEEL NON-SLOTTED 1-5/8" x 1-5/8" BACK TO BACK DOUBLE UNI-STRUT

UNIONS AFTER ALL SEAL OFFS

USE VERTICAL TYPE SEAL OFF FITTINGS PUMP MOTOR POWER CABLES SHEATH STRIPPED BACK AND CONDUCTORS SEPARATED THROUGH ALL SEAL OFFS

SUPPORT STRUTS SHALL HAVE 12" MINIMUM BURY BELOW THE CONCRETE SLAB

OCAL LBY35-G 1" PULLING-L SEE NOTE 10

1" TO 3/4" NYLON BUSHING SEE NOTE 10
 MAX-LOC CORD GRIP CAT# 5624NM

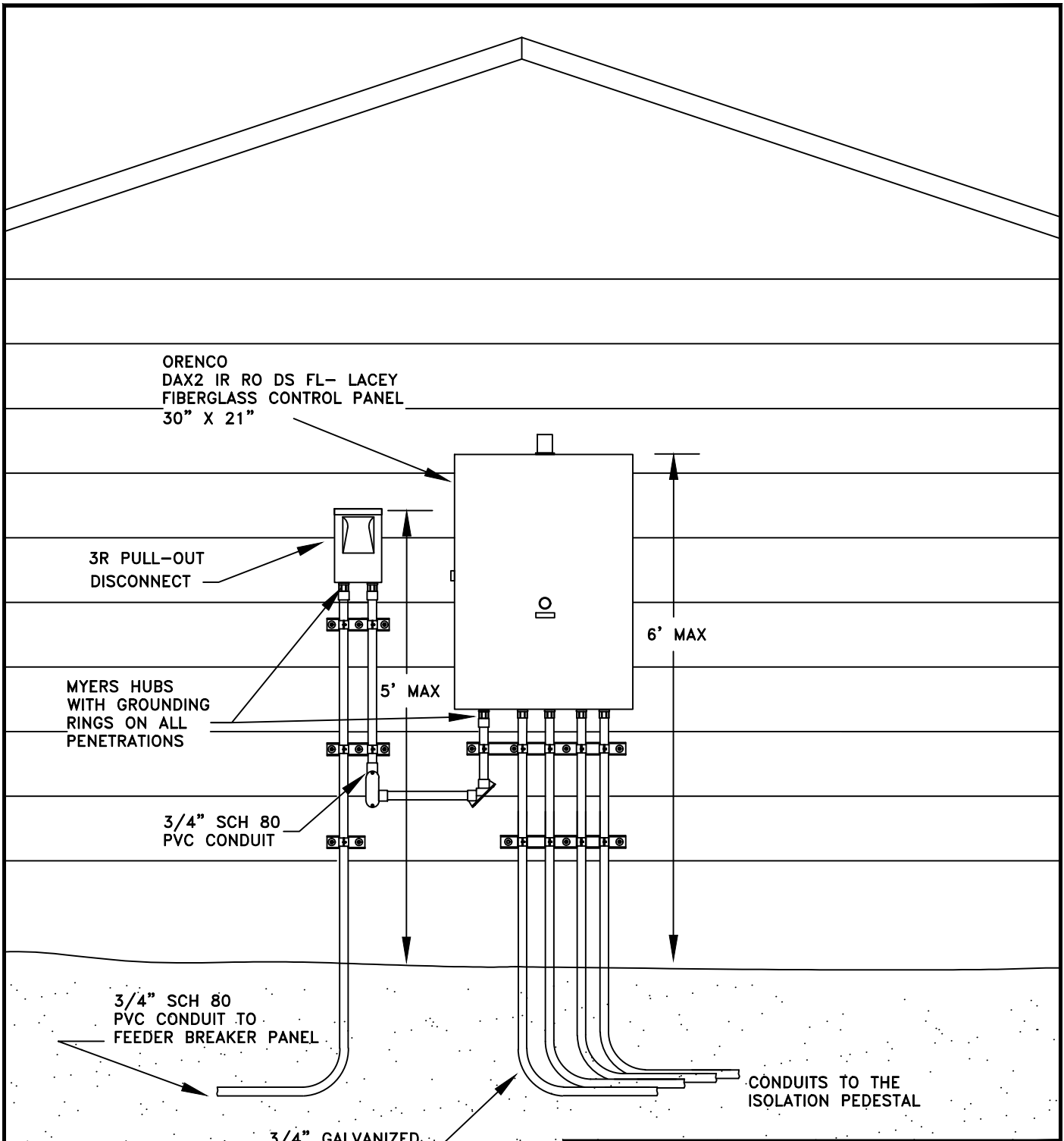
ANY CONDUITS LEAVING THE WET WELL MUST BE NO LONGER THAN 10' AND HAVE A SEAL OFF AT THE FIRST JOINT. SEE NOTE 10

1. ALL STRUT AND MOUNTING HARDWARE MUST BE STAINLESS STEEL
2. MYERS HUB FITTING MUST BE USED ON ALL ENCLOSURE PENETRATIONS
ALL CONDUIT MUST BE 1" PVC COATED GALVANIZED RIGID.
3. THE PROPER TOOLS MUST BE USED WHILE CUTTING, THREADING, BENDING AND TIGHTENING AN PVC COATED CONDUIT.
4. THE PVC COATING MUST REMAIN INTACT ONLY 1 INCH OF THE COATING MAY BE REMOVED AT THE END OF THE CONDUIT TO ALLOW FOR THE THREAD.
5. ANY CONDUIT WITH THE DAMAGED COATING MUST BE REPLACED.
6. THE COATING TOUCH UP PAINT IS ONLY TO BE USED FOR COSMETIC BLEMISHES.
7. ALL THREADED CONNECTIONS MUST BE COPPER COATED AND TIGHTENED APPROPRIATELY.
8. ALL UNDER GROUND CONDUIT RUNS MUST BE INSPECTED BEFORE THEY CAN BE COVERED.
9. PART PROVIDED BY INSTALLER

**CITY OF LACEY, WASHINGTON
DEPT. OF PUBLIC WORKS**

ORENCO COMMERCIAL STEP ISOLATION PEDESTAL

APPROVED	DWG. NO.
<i>[Signature]</i>	7-41.2
CITY ENGINEER	DATE
DES	CKD
EBK	RAS
DWN	DATE
EBK	8/27/17



ORENCO
DAX2 IR RO DS FL- LACEY
FIBERGLASS CONTROL PANEL
30" X 21"

3R PULL-OUT
DISCONNECT

MYERS HUBS
WITH GROUNDING
RINGS ON ALL
PENETRATIONS

3/4" SCH 80
PVC CONDUIT

3/4" SCH 80
PVC CONDUIT TO
FEEDER BREAKER PANEL

3/4" GALVANIZED
RIGID CONDUIT

6' MAX

5' MAX

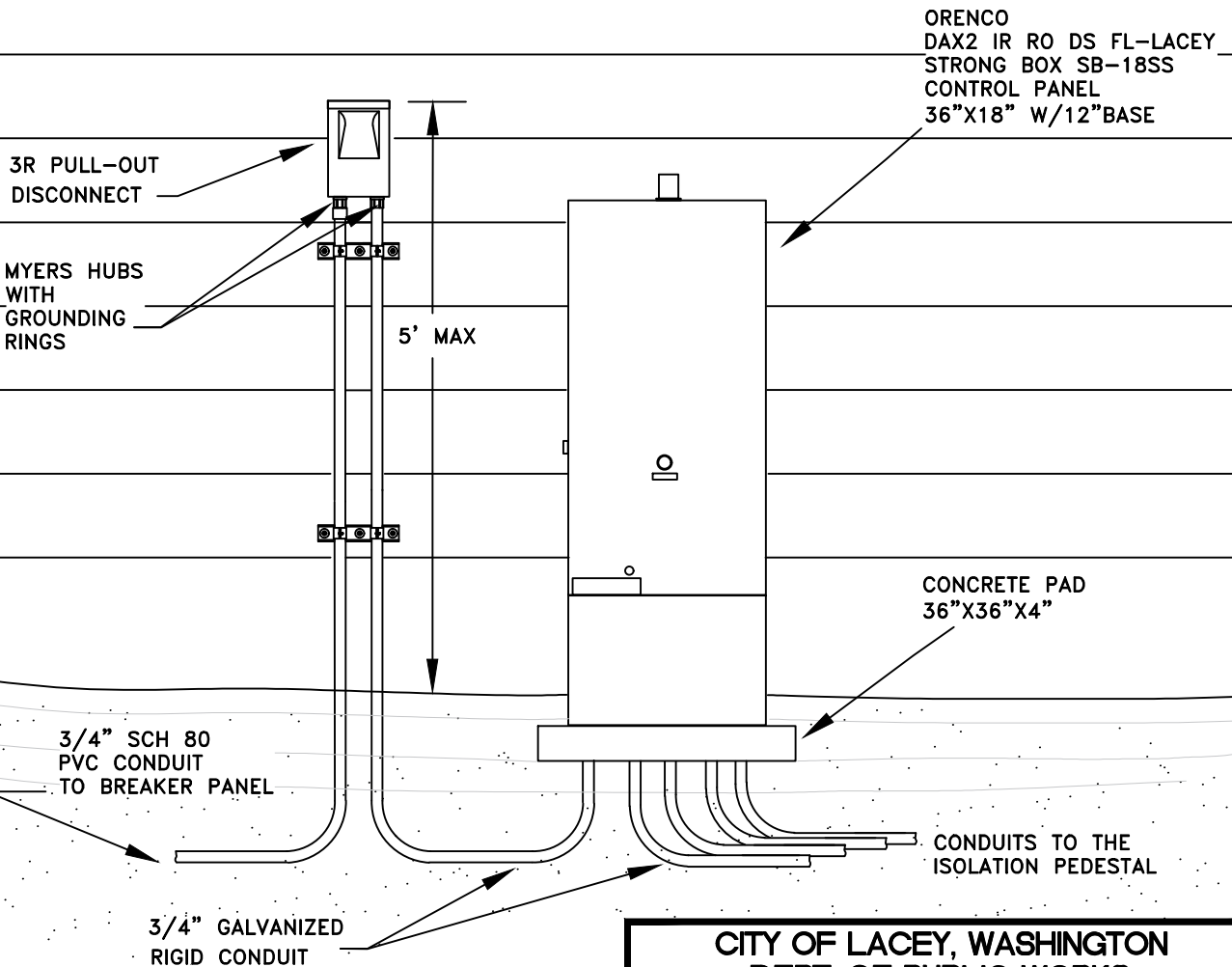
CONDUITS TO THE
ISOLATION PEDESTAL

GENERAL NOTE:

1. ELECTRICAL CONDUIT MUST BE BEDDED IN SAND OR PEA GRAVEL.
2. DISCONNECT SHALL BE TYPE 3R NON-FUSED PULL-OUT EATON DPU222R 60A 120/240V.
3. THE CONTROL DUPLEX SHALL BE SERVED BY A DEDICATED POWER METER SERVICE AND 30 AMP BREAKER.
4. GROUND BOND CONDUITS IN THE ORENCO FIBERGLASS CONTROL PANEL

CITY OF LACEY, WASHINGTON			
DEPT. OF PUBLIC WORKS			
COMMERCIAL STEP			
WALL MOUNT CONTROL			
WITH DISCONNECT			
APPROVED	<i>[Signature]</i>		DWG. NO.
CITY ENGINEER			7-42.0
DES.	DWN.	CKD.	DATE
EBK	EBK	RAS	08/24/2017

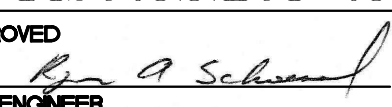
DISCONNECT MOUNTED TO A WALL MUST BE MOUNTED IN A DIRECT LINE OF SIGHT WHEN STANDING AT THE CONTROL PANEL



GENERAL NOTE:

1. ELECTRICAL CONDUIT MUST BE BEDDED IN SAND OR PEA GRAVEL.
2. DISCONNECT SHALL BE TYPE 3R NON-FUSED PULL-OUT EATON DPU222R 60A 120/240V .
3. THE CONTROL DUPLEX SHALL BE SERVED BY A DEDICATED POWER METER SERVICE AND 30 AMP BREAKER.
4. USE OF POST MOUNTED PANEL SHALL BE PRE-APPROVED BY THE CITY OF LACEY.
5. GROUND BOND CONDUITS IN THE STRONG BOX BASE

DG7-42.1.DWG

CITY OF LACEY, WASHINGTON DEPT. OF PUBLIC WORKS			
COMMERCIAL STEP FREE STANDING CONTROL W/DISCONNECT ON WALL			
APPROVED  CITY ENGINEER			DWG. NO. 7-42.1
DES. EBK	DWN. EBK	CKD. RAS	DATE 08/24/2017

DISCONNECT MOUNTED TO POST TO THE LEFT
WHEN STANDING AT THE CONTROL PANEL

ORENCO
DAX2 IR RO DS FL-LACEY
STRONG BOX SB-18SS
CONTROL PANEL
36"X18" W/12"BASE

3R PULL-OUT
DISCONNECT

MYERS HUBS
WITH
GROUNDING
RINGS

4' MAX

1-5/8" GALVANIZED
UNISTRUT, SHALL BE
SET 3' INTO
CONCRETE.

CONCRETE PAD
36"X36"X4"

3/4" SCH 80
PVC CONDUIT TO
FEEDER BREAKER PANEL

CONDUITS TO THE
ISOLATION PEDESTAL

3/4" GALVANIZED RIGID
CONDUIT

GENERAL NOTE:

1. ELECTRICAL CONDUIT MUST BE BEDDED IN SAND OR PEA GRAVEL.
2. DISCONNECT SHALL BE TYPE 3R NON-FUSED PULL-OUT EATON DPU222R 60A 120/240V .
3. THE CONTROL DUPLEX SHALL BE SERVED BY A DEDICATED POWER METER SERVICE AND 30 AMP BREAKER.
4. USE OF POST MOUNTED PANEL SHALL BE PRE-APPROVED BY THE CITY OF LACEY.
5. GROUND BOND CONDUITS IN THE STRONG BOX BASE

CITY OF LACEY, WASHINGTON
DEPT. OF PUBLIC WORKS

COMMERCIAL STEP
FREE STANDING CONTROL
DISCONNECT ON STRUT

APPROVED

CITY ENGINEER

DWG. NO.

7-42.2

DES.

EBK

DWN.

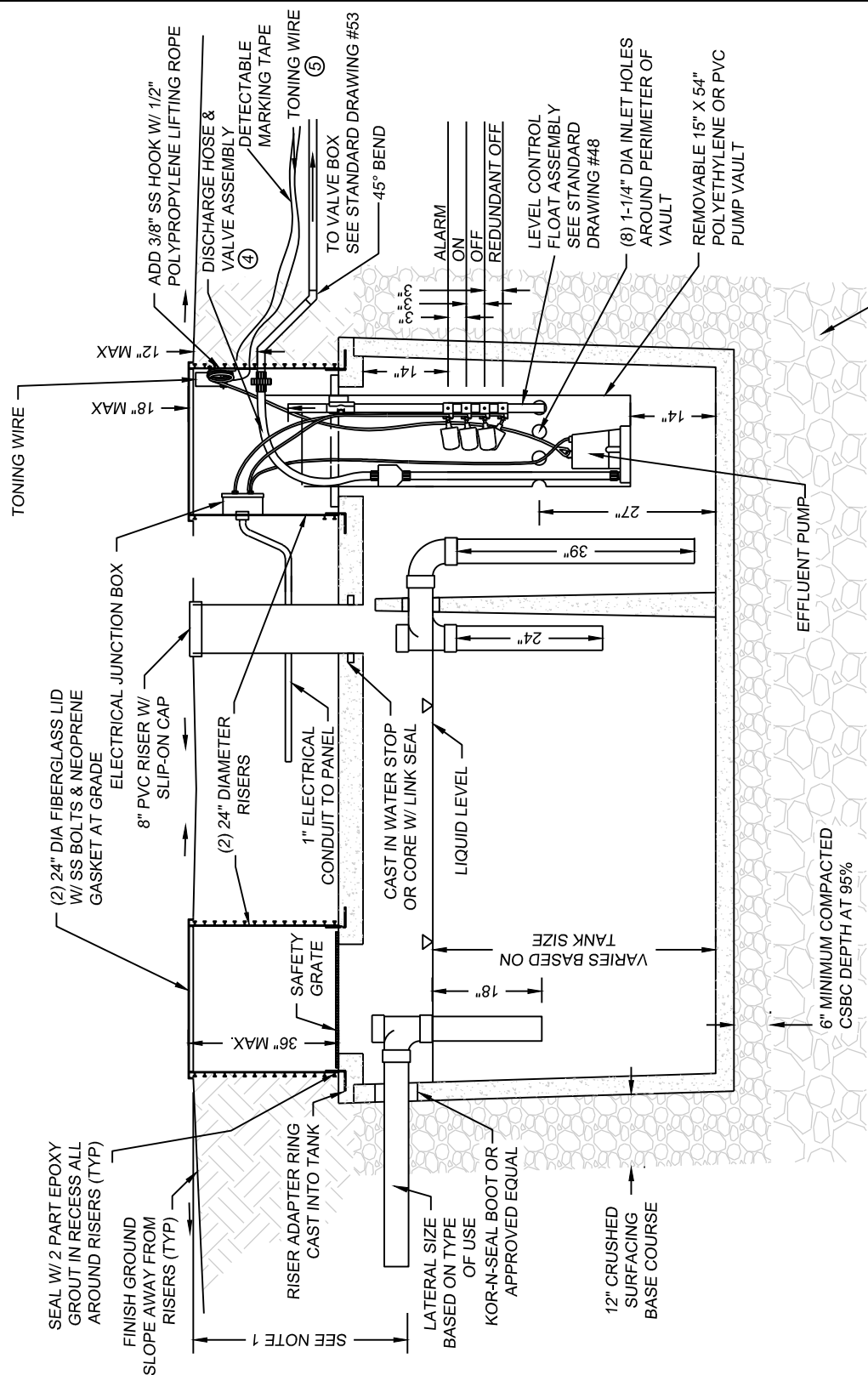
EBK

CKD.

RAS

DATE

08/24/0217



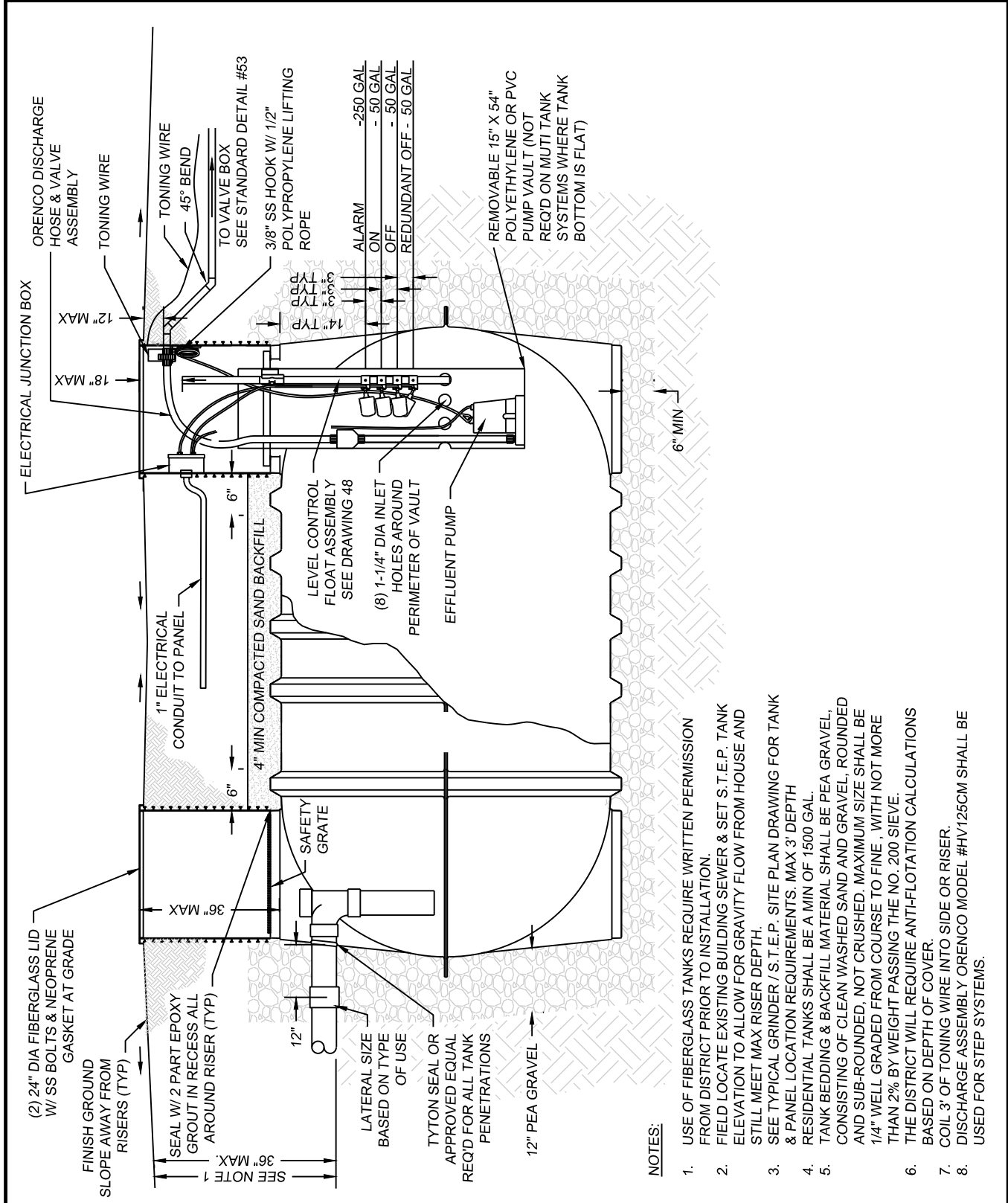
SEE STANDARD DETAIL #5 IF UNSUITABLE BASE MATERIAL IS ENCOUNTERED AS DETERMINED BY THE ENGINEER

- NOTES:**
1. FIELD LOCATE EXISTING BUILDING SEWER & SET TANK ELEVATION TO DRAIN BUILDING SEWER AT MIN 1/4" PER FOOT. MAX DEPTH AS NEEDED TO LIMIT RISER DEPTH TO 3'.
 2. SEE TYPICAL GRINDER / S.T.E.P. SITE PLAN DRAWING FOR APPROXIMATE TANK & PANEL LOCATIONS.
 3. MIN SIZE SHALL BE 1500 GAL.
 4. DISCHARGE HOSE AND VALVE ASSEMBLY BY ORENCO MODEL # HV125CM
 5. COIL 3' OF TONING WIRE INTO SIDE OR RISER.



**RESIDENTIAL CONCRETE
 S.T.E.P. TANK
 STANDARD DRAWING**

NTS
47
 APPROVED: APR 2020



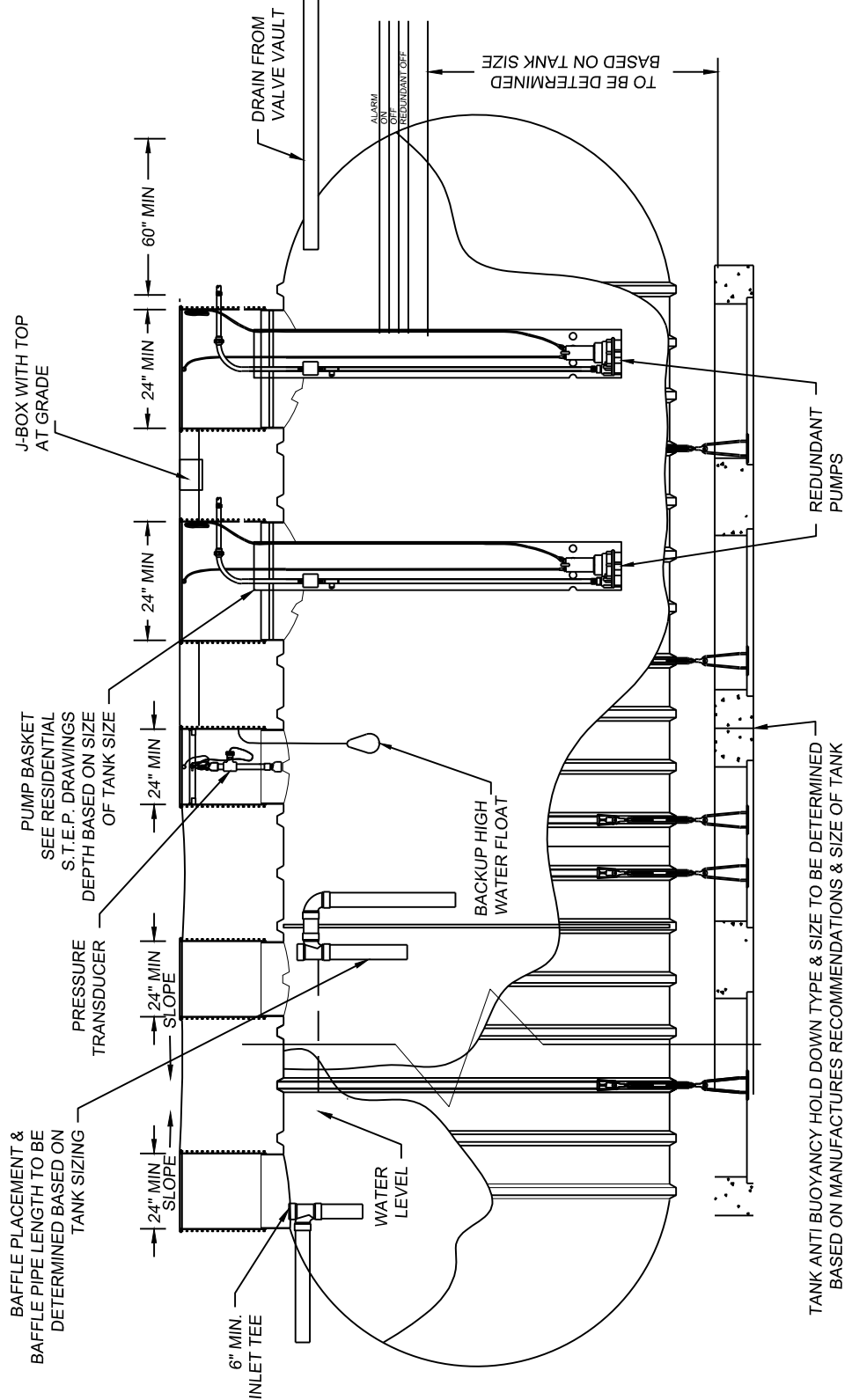
- NOTES:**
1. USE OF FIBERGLASS TANKS REQUIRE WRITTEN PERMISSION FROM DISTRICT PRIOR TO INSTALLATION.
 2. FIELD LOCATE EXISTING BUILDING SEWER & SET S.T.E.P. TANK ELEVATION TO ALLOW FOR GRAVITY FLOW FROM HOUSE AND STILL MEET MAX RISER DEPTH.
 3. SEE TYPICAL GRINDER / S.T.E.P. SITE PLAN DRAWING FOR TANK & PANEL LOCATION REQUIREMENTS: MAX 3' DEPTH RESIDENTIAL TANKS SHALL BE A MIN OF 1500 GAL.
 4. TANK BEDDING & BACKFILL MATERIAL SHALL BE PEA GRAVEL, CONSISTING OF CLEAN WASHED SAND AND GRAVEL, ROUNDED AND SUB-ROUNDED, NOT CRUSHED. MAXIMUM SIZE SHALL BE 1/4" WELL GRADED FROM COURSE TO FINE, WITH NOT MORE THAN 2% BY WEIGHT PASSING THE NO. 200 SIEVE.
 5. THE DISTRICT WILL REQUIRE ANTI-FLOTATION CALCULATIONS BASED ON DEPTH OF COVER.
 6. COIL 3' OF TONING WIRE INTO SIDE OR RISER.
 7. DISCHARGE ASSEMBLY ORENCO MODEL #HV125CM SHALL BE USED FOR STEP SYSTEMS.



RESIDENTIAL FIBERGLASS S.T.E.P. TANK

STANDARD DRAWING

NTS
48
APPROVED: APR 2020

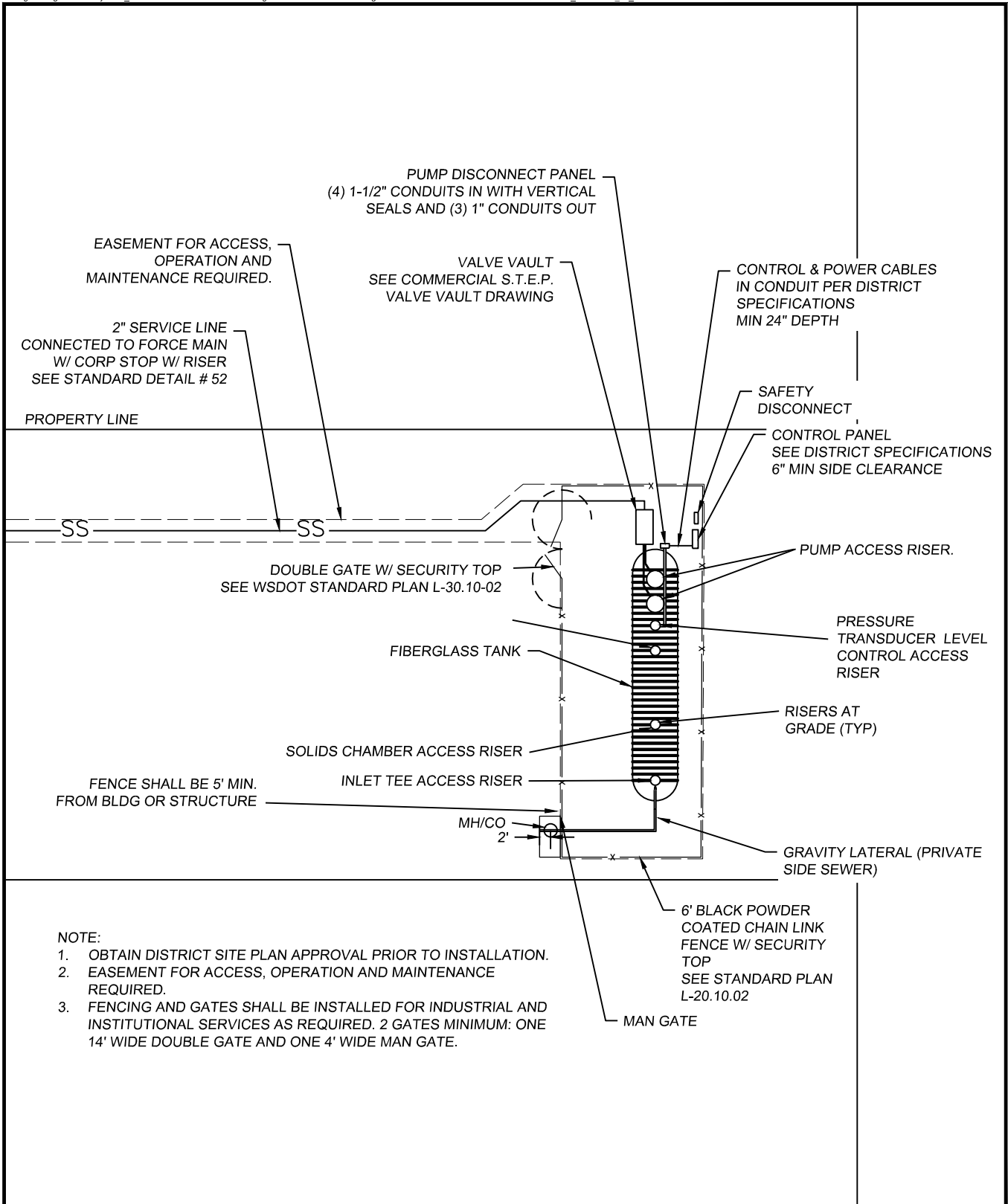


COMMERCIAL FIBERGLASS S.T.E.P TANK

STANDARD DRAWING

NTS
49

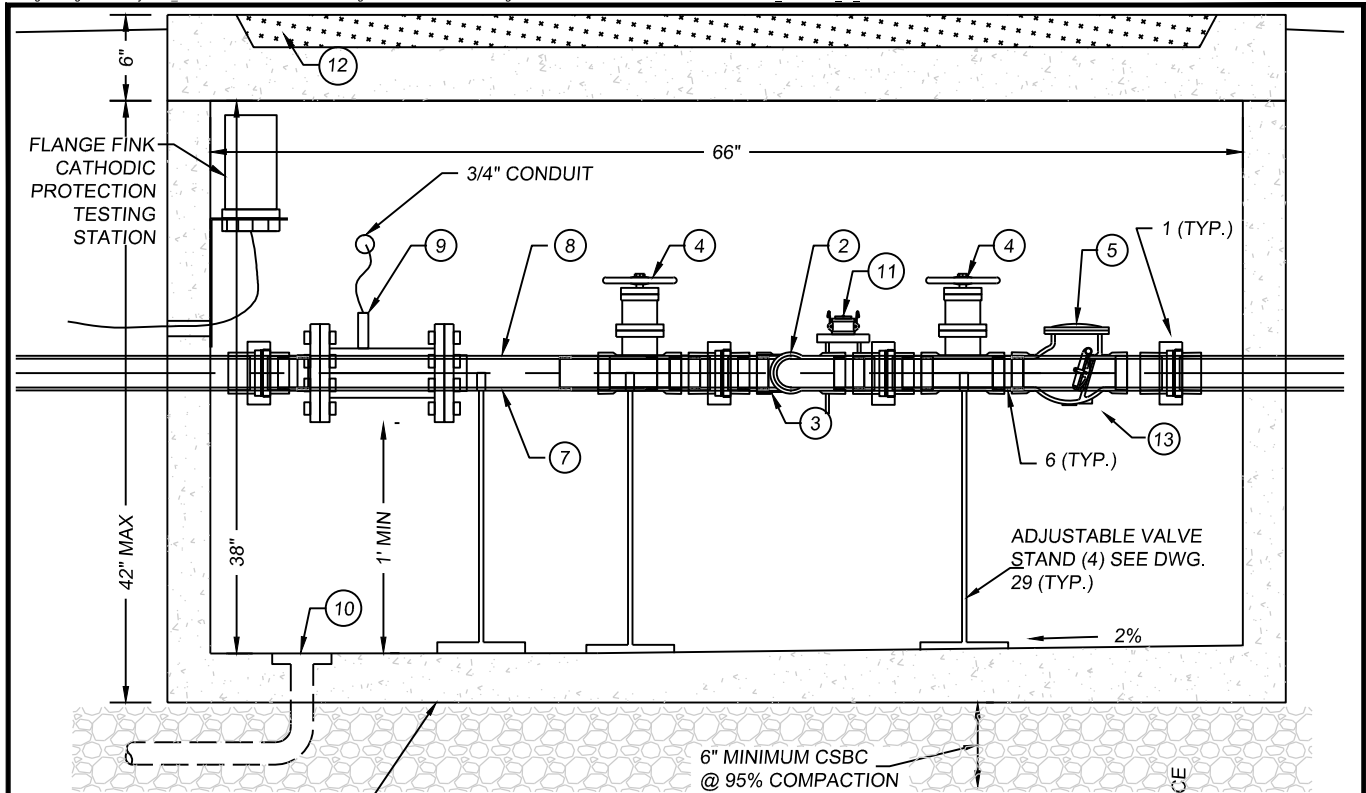
APPROVED: APR 2020



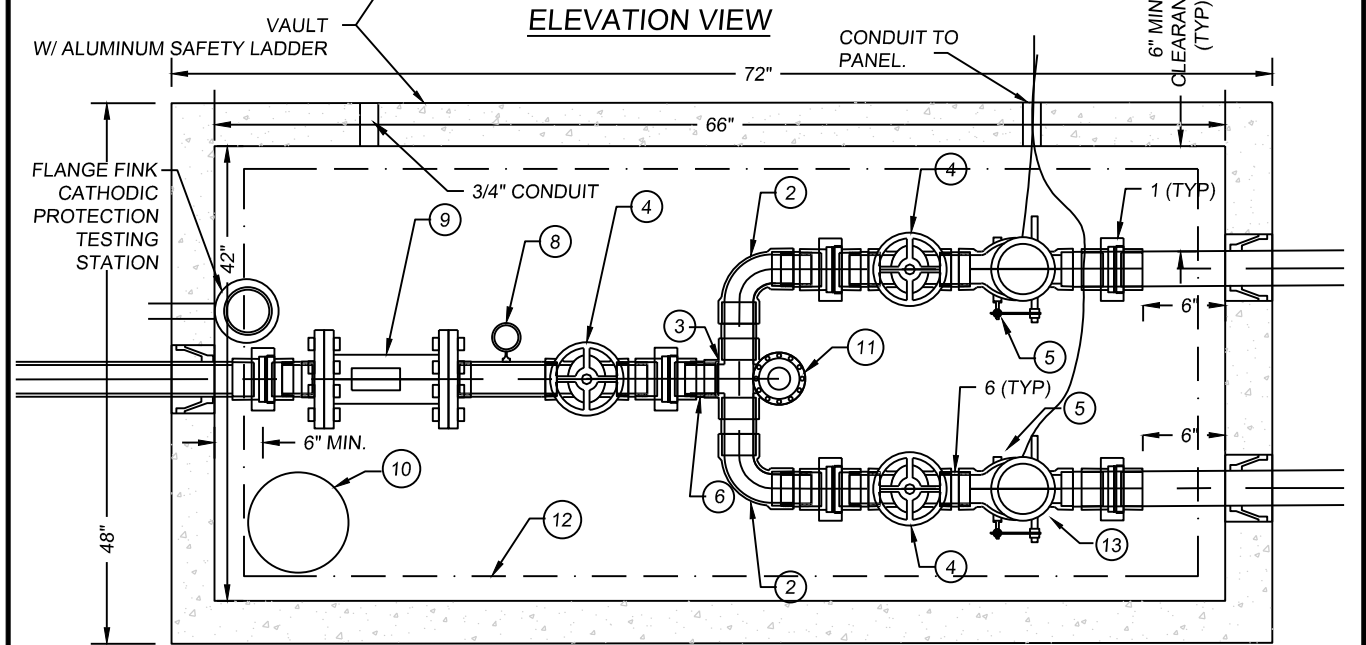
**COMMERCIAL S.T.E.P DUPLEX
 SITE PLAN**

STANDARD DRAWING

NTS
50
 APPROVED: APR 2020



ELEVATION VIEW



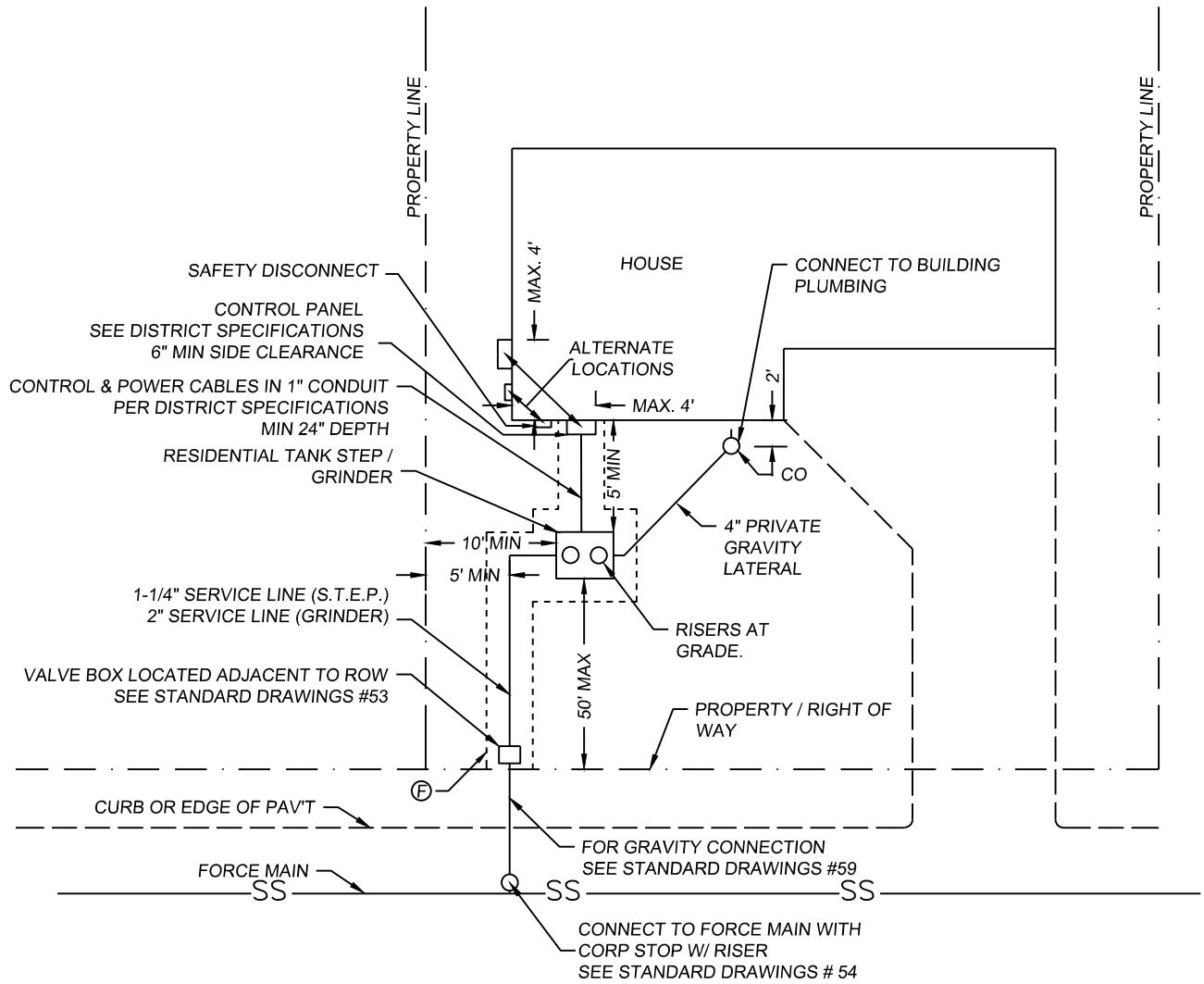
PLAN VIEW

- | | |
|--|--|
| <ul style="list-style-type: none"> 1. SCH 80 UNION 2. SCH 80 90° BEND 3. SCH 80 CROSS 4. BRONZE GATE VALVE 5. BRONZE CHECK VALVE 6. SCH 80 NIPPLE - SHOULDER (TYP.) 7. SCH 80 NIPPLE - 6" LONG 8. PRESSURE GAUGE SEE DRAWING #31 | <ul style="list-style-type: none"> 9. FLOW METER 10. SUMP DRAIN. 11. 90° BEND, BLIND FLANGE, THREADED NIPPLE AND CAM LOCK HOSE ASSEMBLY 12. 36"x60" HEAVY DUTY H-20 ALUMINUM HATCH |
|--|--|



**COMMERCIAL S.T.E.P DUPLEX
 VALVE BOX
 STANDARD DRAWING**

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NOTES:

- A. LOCATE S.T.E.P. / GRINDER TANK MIN OF 5' FROM BUILDING & AS CLOSE TO PUBLIC RIGHT-OF-WAY AS POSSIBLE.
- B. MAINTAIN DISTRICT ACCESS TO TANK, VALVE BOX, CONTROL PANEL, & SAFETY DISCONNECT.
- C. CONTROL PANEL SHALL BE LOCATED WITH AN UNOBSTRUCTED LINE OF SIGHT TO THE STEP TANK PER DISTRICT SPECIFICATIONS WITHOUT DISTRICT APPROVAL.
- D. VALVE BOX OR TANK SHALL NOT BE LOCATED IN DRIVEWAY WITHOUT DISTRICT APPROVAL.
- E. OBTAIN DISTRICT SITE PLAN APPROVAL PRIOR TO INSTALLATION.
- F. EASEMENT FOR ACCESS, OPERATION AND MAINTENANCE REQUIRED.

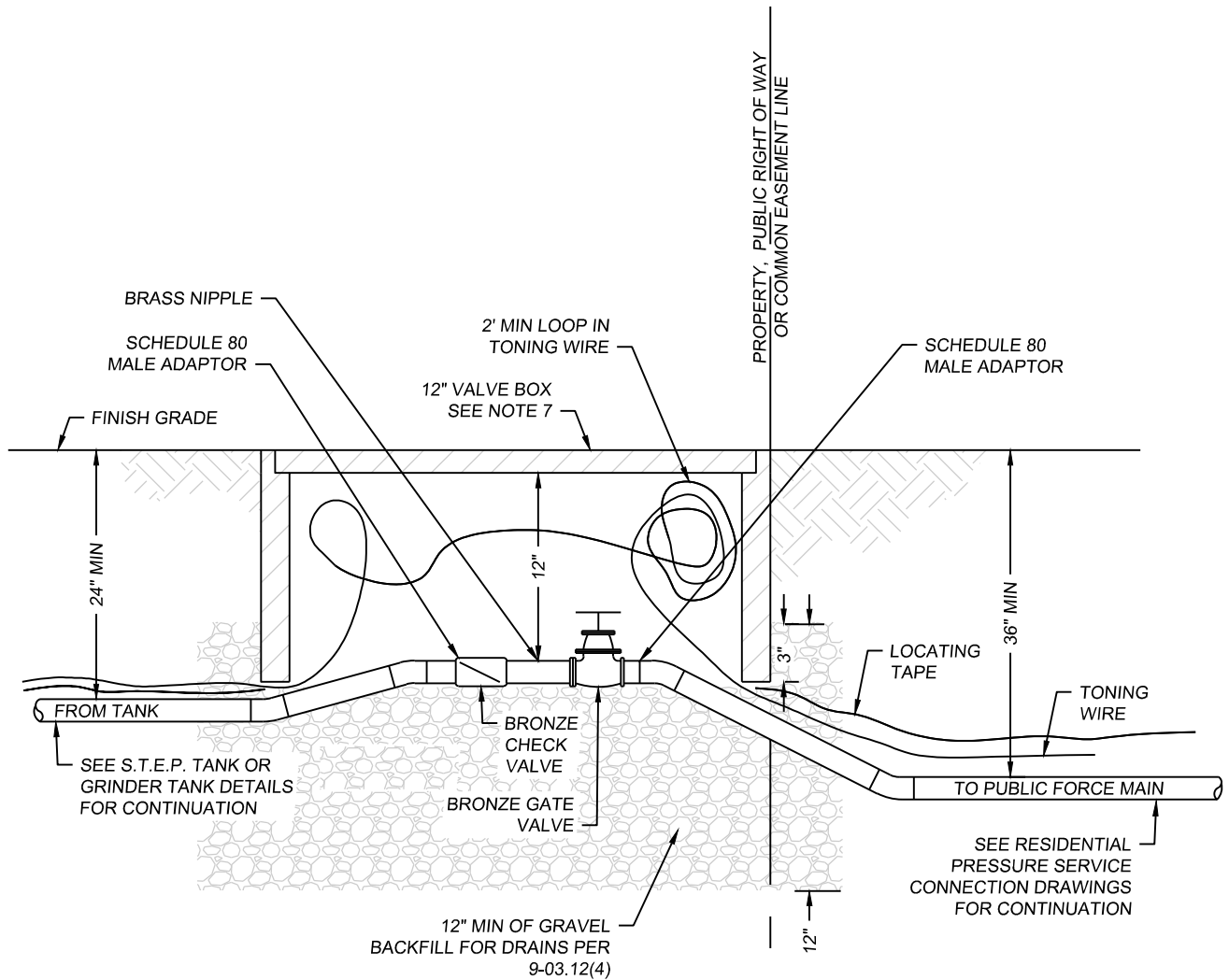


RESIDENTIAL GRINDER / S.T.E.P. SITE PLAN

STANDARD DRAWING

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NOTE:

1. ALL PVC PIPE FOR SERVICE LINES SHALL BE SCH 40 (ASTM 1785).
2. ALL THREADED PVC FITTINGS FOR SERVICE LINES SHALL BE SCH 80.
3. PIPE SIZE FOR GRINDER SERVICE LINES SHALL BE 2" MIN DIAMETER.
4. PIPE SIZE FOR S.T.E.P. SERVICE LINES SHALL BE 1 1/4".
5. FITTINGS & VALVES SHALL MATCH PIPE SIZE.
6. NO CLOSE NIPPLES.
7. VALVE BOX SHALL BE CARSON IND. MOD# 1419 W/ BOLTED, NON-HINGED COVER & A # 1419E EXTENSION OR APPROVED EQUAL.

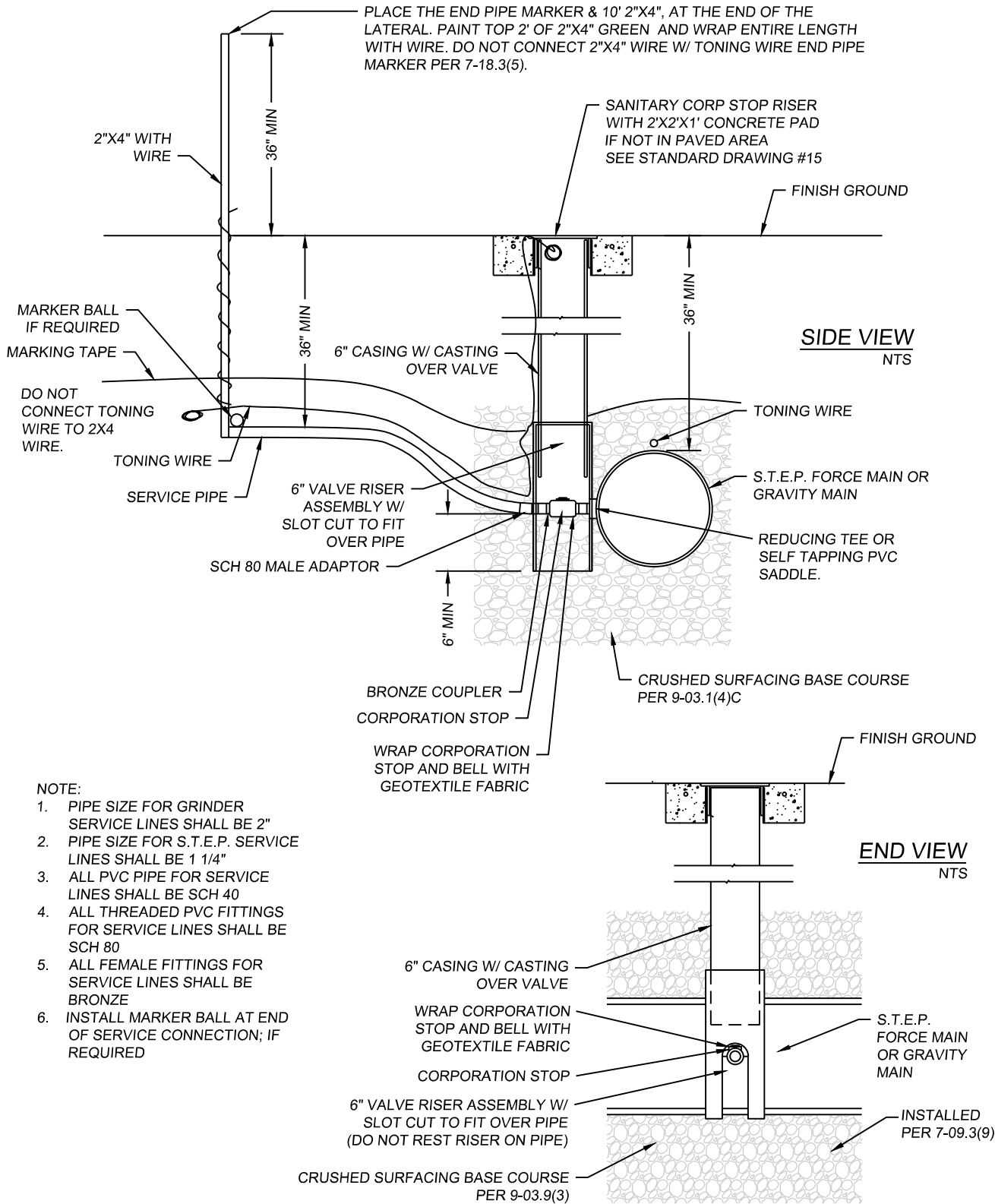


RESIDENTIAL GRINDER / S.T.E.P. VALVE BOX

STANDARD DRAWING

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- NOTE:
1. PIPE SIZE FOR GRINDER SERVICE LINES SHALL BE 2"
 2. PIPE SIZE FOR S.T.E.P. SERVICE LINES SHALL BE 1 1/4"
 3. ALL PVC PIPE FOR SERVICE LINES SHALL BE SCH 40
 4. ALL THREADED PVC FITTINGS FOR SERVICE LINES SHALL BE SCH 80
 5. ALL FEMALE FITTINGS FOR SERVICE LINES SHALL BE BRONZE
 6. INSTALL MARKER BALL AT END OF SERVICE CONNECTION; IF REQUIRED

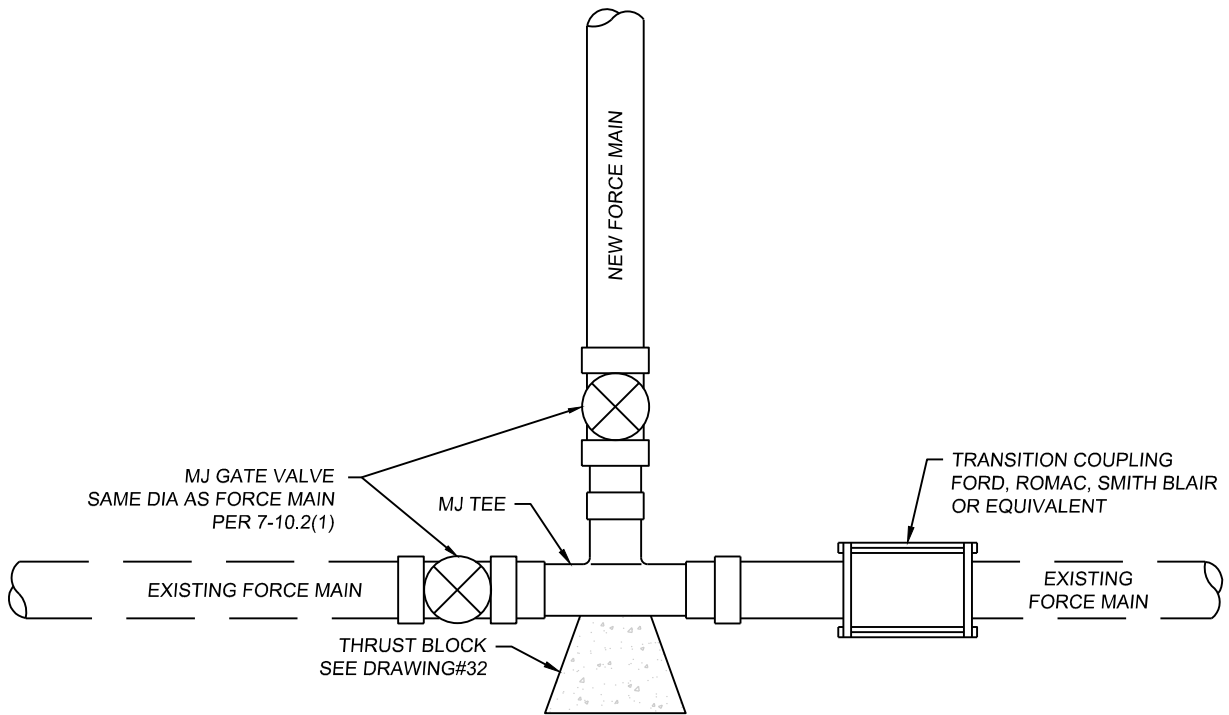


RESIDENTIAL PRESSURE SERVICE CONNECTION

STANDARD DRAWING

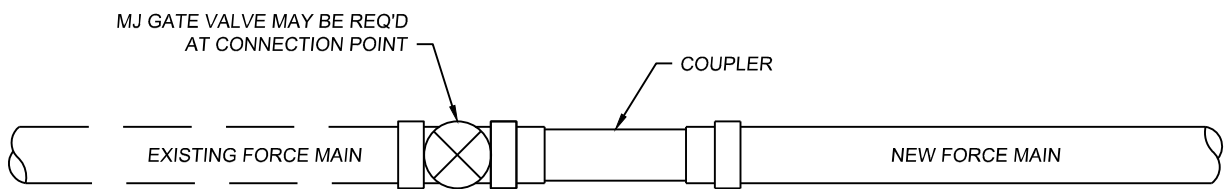
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TEE CONNECTION DETAIL

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IN LINE CONNECTION DETAIL

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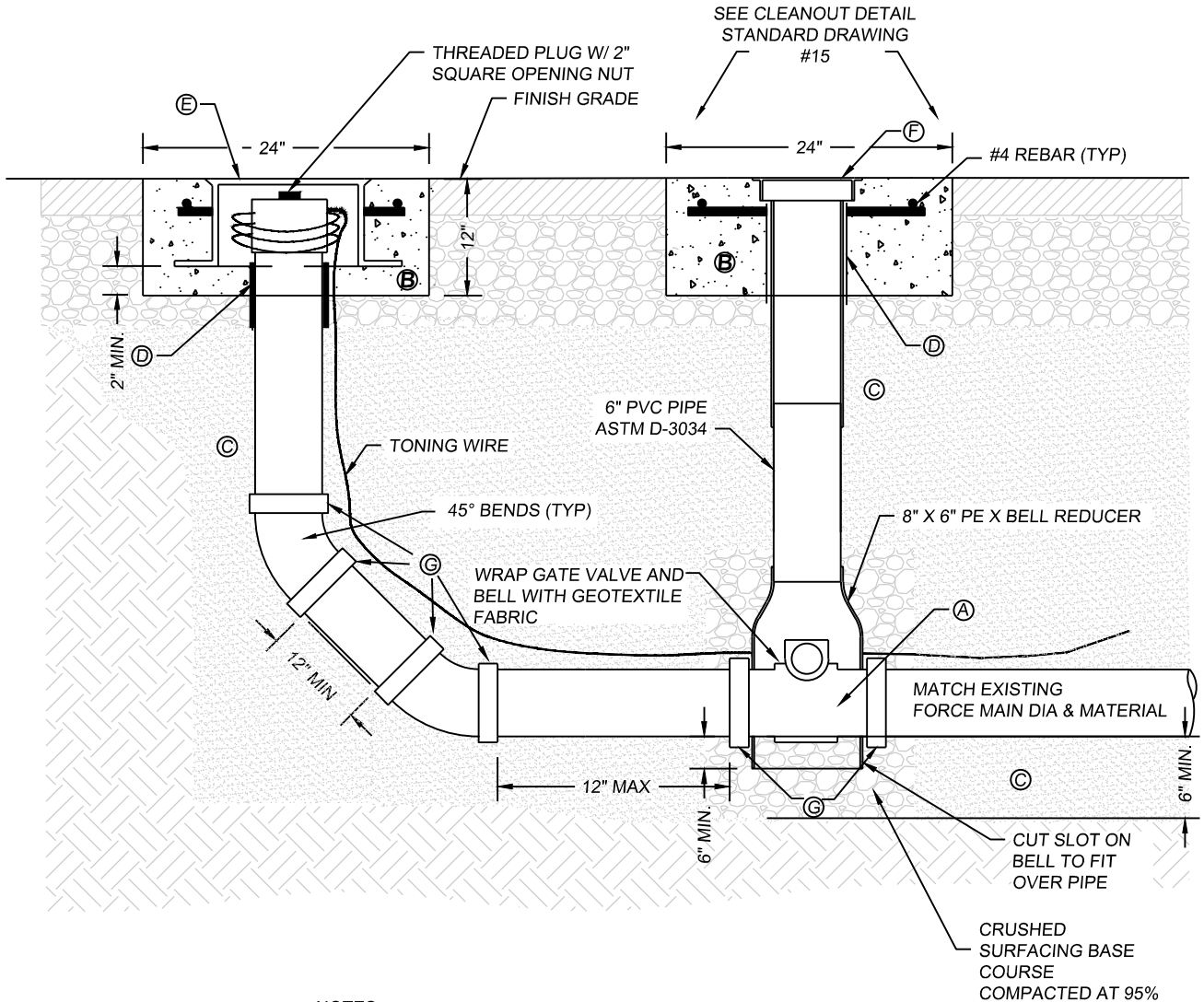
GRINDER / S.T.E.P. FORCE MAIN EXTENSION

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NOTES:

- A. MJ GATE VALVE (AWWA C515) W/ NON RISING STEM W/ 2" SQUARE BRONZE OPERATOR W/ RESTRAINED JOINTS(EACH SIDE) (9-30.0).
- B. CONCRETE (CLASS 3000). COLLAR TO BE INSTALLED WHEN LOCATED OUTSIDE OF PAVED AREAS W/ 50# FELT BETWEEN PIPE AND CONCRETE. SEE STANDARD DETAIL #15.
- C. BEDDING & BACKFILL TO CONFORM WITH MATERIALS. SPECIFIED IN THE SEWER LINE EXTENSION PLANS.
- D. NOT USED.
- E. STANDARD ADJUSTABLE CLEANOUT CAST IRON FRAME AND COVER MANUFACTURED BY EAST JORDON IRON WORKS OR APPROVED EQUAL.
- F. VALVE BOX SHALL BE OLYMPIC FOUNDRY CAST IRON COVER TO READ "SEWER".

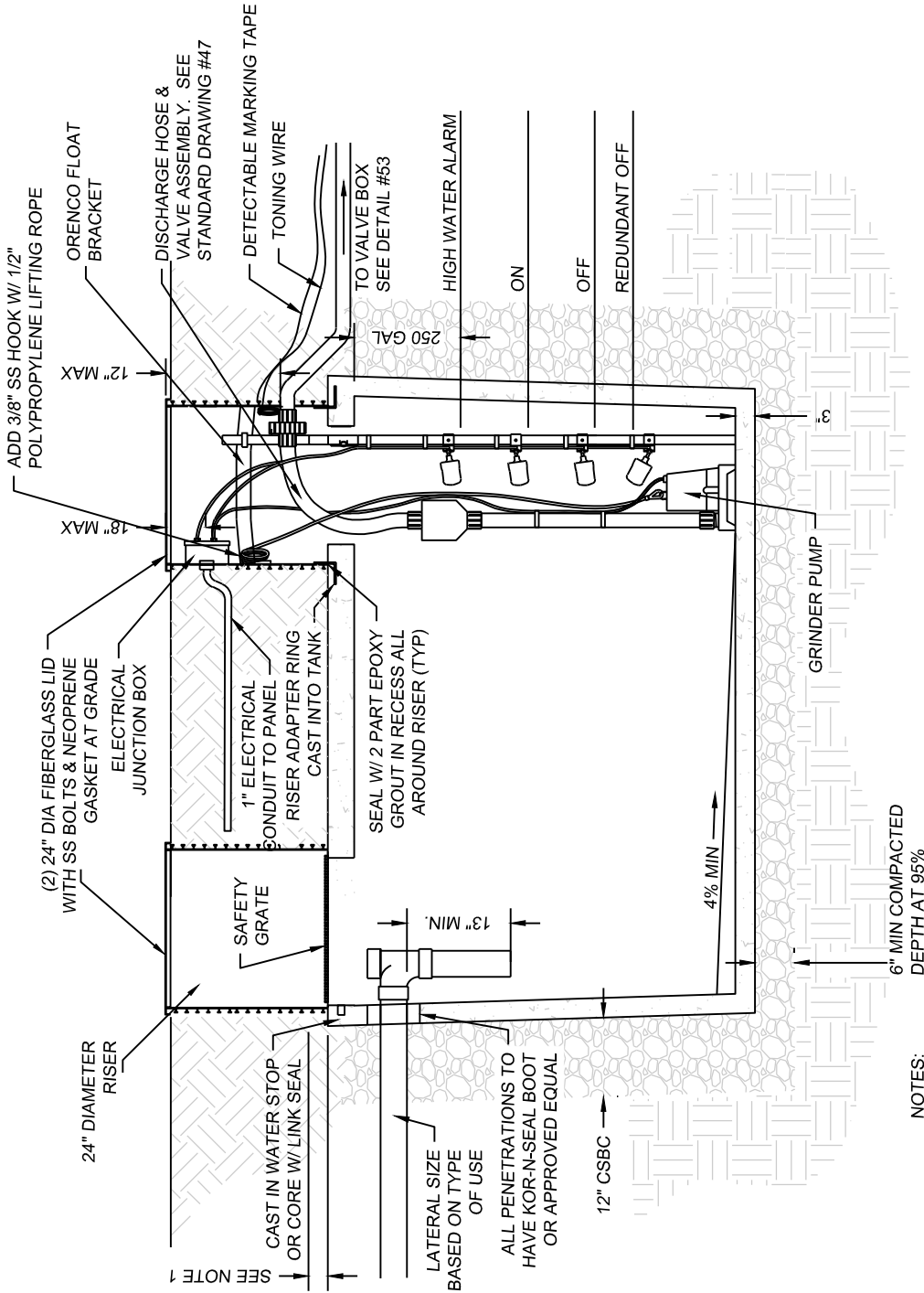


RESIDENTIAL GRINDER / S.T.E.P. FORCE MAIN CLEANOUT

STANDARD DRAWING

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NOTES:

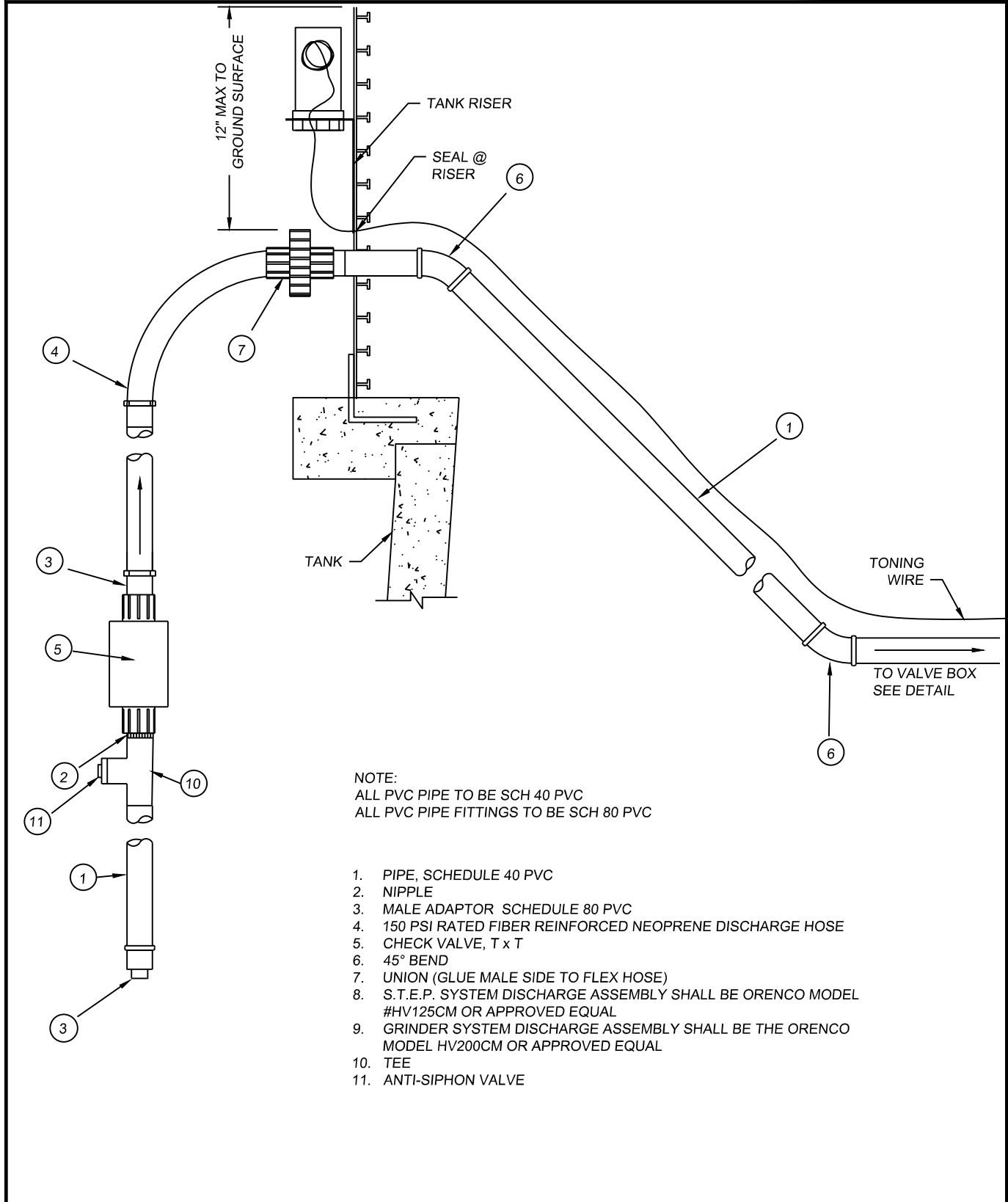
1. FIELD LOCATE EXISTING BUILDING SEWER & SET INTERCEPTOR TANK ELEVATION TO DRAIN BUILDING SEWER AT MIN 1/4" PER FOOT.
2. SEE TYPICAL GRINDER / S.T.E.P. SITE PLAN DRAWING FOR APPROXIMATE TANK & PANEL LOCATIONS.
3. DIMENSIONS SHALL BE SUBJECT TO THE REQUIREMENTS OF THE DISTRICT SPECIFICATIONS.
4. MIN SIZE SHALL BE 500 GAL.
5. SEE DISTRICT FOR FLOAT SET POINTS.



RESIDENTIAL GRINDER PUMP TANK

STANDARD DRAWING

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NOTE:
 ALL PVC PIPE TO BE SCH 40 PVC
 ALL PVC PIPE FITTINGS TO BE SCH 80 PVC

- 1. PIPE, SCHEDULE 40 PVC
- 2. NIPPLE
- 3. MALE ADAPTOR SCHEDULE 80 PVC
- 4. 150 PSI RATED FIBER REINFORCED NEOPRENE DISCHARGE HOSE
- 5. CHECK VALVE, T x T
- 6. 45° BEND
- 7. UNION (GLUE MALE SIDE TO FLEX HOSE)
- 8. S.T.E.P. SYSTEM DISCHARGE ASSEMBLY SHALL BE ORENCO MODEL #HV125CM OR APPROVED EQUAL
- 9. GRINDER SYSTEM DISCHARGE ASSEMBLY SHALL BE THE ORENCO MODEL HV200CM OR APPROVED EQUAL
- 10. TEE
- 11. ANTI-SIPHON VALVE



STEP / GRINDER DISCHARGE HOSE & VALVE ASSEMBLY

STANDARD DRAWING

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