LOWER PAXTON TOWNSHIP AUTHORITY
STANDARD DETAILS

GENERAL DETAILS (GEN)

GEN-1 Right-of-Way Gate

EROSION & SEDIMENTATION CONTROL DETAILS (ES)

ES-1 Main Line Trench Plug (Bentonite)
ES-2 Building Sewer Trench Plug (Bentonite)

TRENCH DETAILS (TR)

TR-1A Trench Detail for Existing Public/Private Paved or Gravel Streets and Parking Lots
TR-1B Trench Detail for New Public/Private Streets following Grading when Sewer is Installed on Undisturbed Earth or Rock.
TR-1C Trench Detail for New Public/Private Streets only when Mass Grading/Fill is Involved.
TR-2 Trench Detail in Unpaved Areas
TR-3 Unsuitable Material Excavation
TR-4 Final Trench Paving

MANHOLES DETAILS (MH)

MH-1 Precast Concrete Manhole with Precast Concrete Base
MH-2 Precast Concrete Manhole with Precast Concrete Base
MH-3 Precast Concrete Shallow Manhole with Precast Concrete Base
MH-4 Precast Concrete Manhole with Precast Concrete Base (Deep Manhole)
MH-5 Inside Drop Connection
MH-6 Outside Drop Connection (for Use upon Specific Approval of LPTA)
MH-7A Manhole Platform
MH-7B Safety Platform for Deep Manholes
MH-8 Manhole Steps
MH-9 Typical Plan of Manhole Channels
MH-10 Manhole Gasket
MH-11 Manhole Pipe Gaskets
MH-12 Manhole Pipe Adaptors
MH-13 Leveling Rings and Bolted Frame Details
MH-14 Poured Concrete Adjustment Riser
MH-15A Standard or Watertight Sewer Frame and Cover
MH-15-B Private Sewer Frame and Cover
MH-16 Existing Sanitary Sewer manhole Located in Sewer R/W to be Abandoned
MH-17 Existing Sanitary Sewer manhole Located in Paved Area to be Abandoned

BUILDING SEWER/SERVICE LATERAL DETAILS (LAT)

LAT-1 Service Lateral – Normal Depth
LAT-2 Service Lateral Connection to Existing Sewer Main
LAT-3 Service Lateral – Deep Sewer
LAT-4 Building Sewer and/or Service Lateral Installation/Replacement
LAT-5 Cleanout/Observation Tee Cap Protection Casting
LAT-6 Observation Tee

PIPING DETAILS (P)

P-1 Casing Details for Pipe Borings/Tunnels
P-2 Concrete Encasement Detail
P-3 Pipe Reconnection Detail
P-4 Steep Slope (Greater than 15%) Sanitary Sewer Detail

LOW PRESSURE SANITARY SEWER DETAILS (LP)

LP-1	Typical Grinder Pump Installation Detail - Elevation
LP-2	Typical Grinder Pump Installation Detail – Plan
LP-3A	Low Pressure Service Line 4” Connection at Gravity Main
LP-3B	Low Pressure Service Line 6” Connection at Gravity Main
LP-4	Typical Grinder Pump Station Electrical Layout
LP-5	Simplex Sewage Grinder Pump Station (for Single Residential Unit Applications)
LP-6	Low Pressure Sewer Discharge to Manhole
LP-7	In-Line Cleanout/Valve Pit for Low Pressure Sewer Main
LP-8	Curb Stop and Box Detail
LP-9	New Installation Grinder Pump Connection
LP-10	In-Line Terminal Cleanout for Low Pressure Main

FORCE MAIN DETAILS (FM)

FM-1	Air Release Valve and Chamber
FM-2	Flushing/Cleanout Chamber (Terminal)
FM-3	Forcemain Locator Assembly

GREASE REMOVAL DETAILS (G)

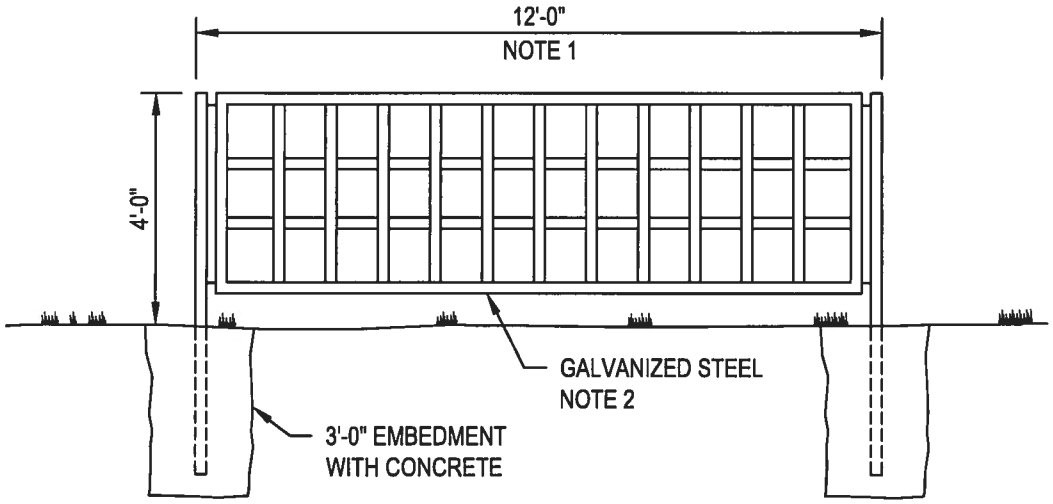
G-1	Precast Concrete Sampling Manhole
G-2	Typical Grease Interceptor to Sampling Manhole Connection
G-3	Typical 1000 Gallon Commercial Grease Interceptor
G-4	Typical 350 Gallon Single Basin Oil Interceptor Single Wall, Highguard

PUMPING STATION DETAILS (PS)

PS-1	Duplex Sewage Grinder Pump Station (for Commercial and Multi Unit Residential Apps)

TESTING DETAILS (T)

T-1	Existing Service Lateral and/or Building Sewer Air Test
T-2	Acceptance Air Test When Replacing Entire Sewer or Sections of Sewer



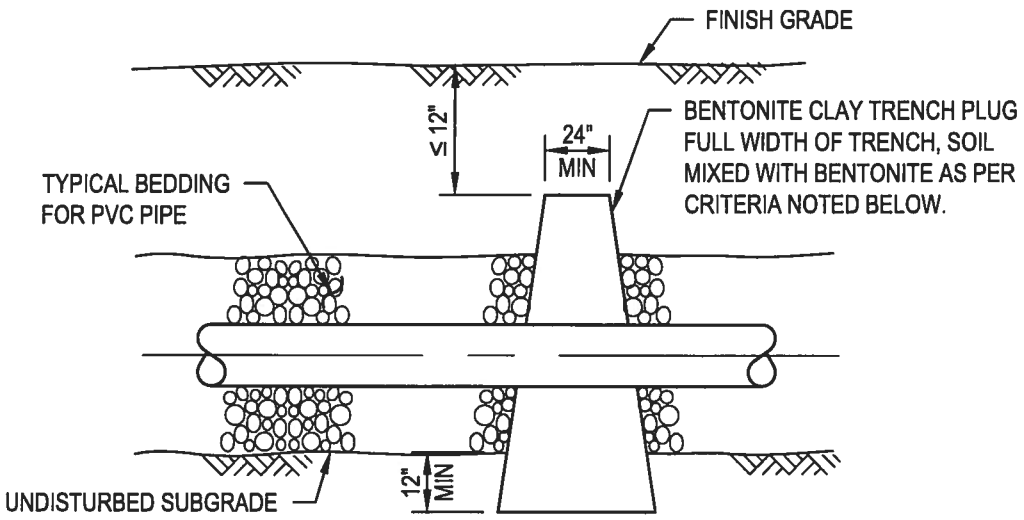
NOTE:

1. GATE WIDTH MAY VARY DEPENDING ON EASEMENT WIDTH.
2. GATE STYLE MAY VARY; SUBJECT TO LPTA APPROVAL.

RIGHT-OF-WAY GATE

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	GEN-1



CRITERIA FOR TRENCH PLUGS

BASE SOIL TYPE	USCS CLASSIFICATION[1]	PERCENT BENTONITE ADDITION[3]	BENTONITE ADDITION (LBS/CY SOIL)
A - Silts and Clays	ML, MH, CL, CH, SC	5%	150
B - Sands	SM, SW, SP	15%	500
C - Gravels[2]	GM, GC, GW	25%	900

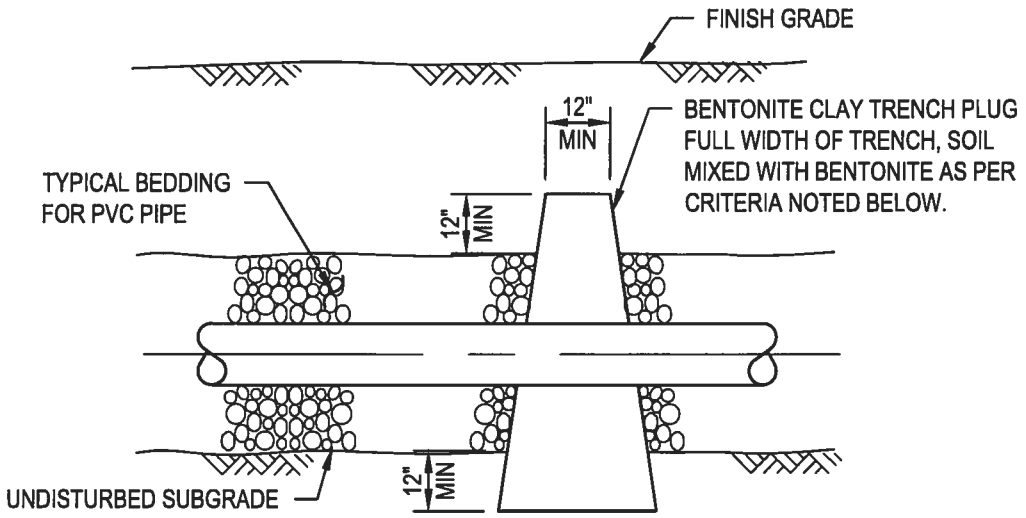
NOTES:

1. SUBMIT GRAIN SIZE ANALYSIS, PLASTICITY LIMITS (IF APPLICABLE), AND UNIFIED SOIL CLASSIFICATION SYSTEM CLASSIFICATION (PER ASTM D2487) FOR PROPOSED BASE SOIL TO TOWNSHIP FOR REVIEW AND APPROVAL.
2. TYPE C BASE SOILS MUST CONTAIN AT LEAST 10% BY WEIGHT FINES CONTENT (PASSING NO. 200 STANDARD SIEVE).
3. PERCENT BENTONITE ADDITION IS ON A WEIGHT BASIS. USE POWDERED SODIUM MONTMORILLONITE BENTONITE MEETING THE REQUIREMENTS OF AMERICAN PETROLEUM INSTITUTE SPECIFICATION 13A. THOROUGHLY MIX BENTONITE INTO APPROVED BASE SOIL PRIOR TO PLACEMENT AND COMPACTION, USING APPROVED ROTARY EQUIPMENT. CONTINUE MIXING UNTIL UNIFORM APPEARANCE AND CONSISTENCY ACHIEVED. PLACE BLENDED PLUG MATERIAL IN LIFTS NO THICKER THAN 6 INCHES AND COMPACT WITH AN APPROVED OSCILLATING BASE PLATE COMPACTOR (AKA "WACKER" OR "JUMPING JACK") UNTIL NO VISIBLE MOVEMENT OCCURS UNDER CONTINUED COMPACTION.
4. TRENCH PLUGS ARE REQUIRED FOR ALL STREAM AND WETLAND CROSSINGS. LOCATIONS AND SPACING OF TRENCH PLUGS ARE AS NOTED ON THE E&S NOTES AND DETAILS, AND AS SHOWN ON THE PLANS AND PROFILES.
5. TRENCH PLUGS ARE TO BE KEYED INTO THE BOTTOM OF TRENCH AND TRENCH WALLS BY A MINIMUM DISTANCE OF 12-INCHES.

MAIN LINE TRENCH PLUG (BENTONITE) DETAIL

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	ES-1



CRITERIA FOR TRENCH PLUGS

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NOTES:

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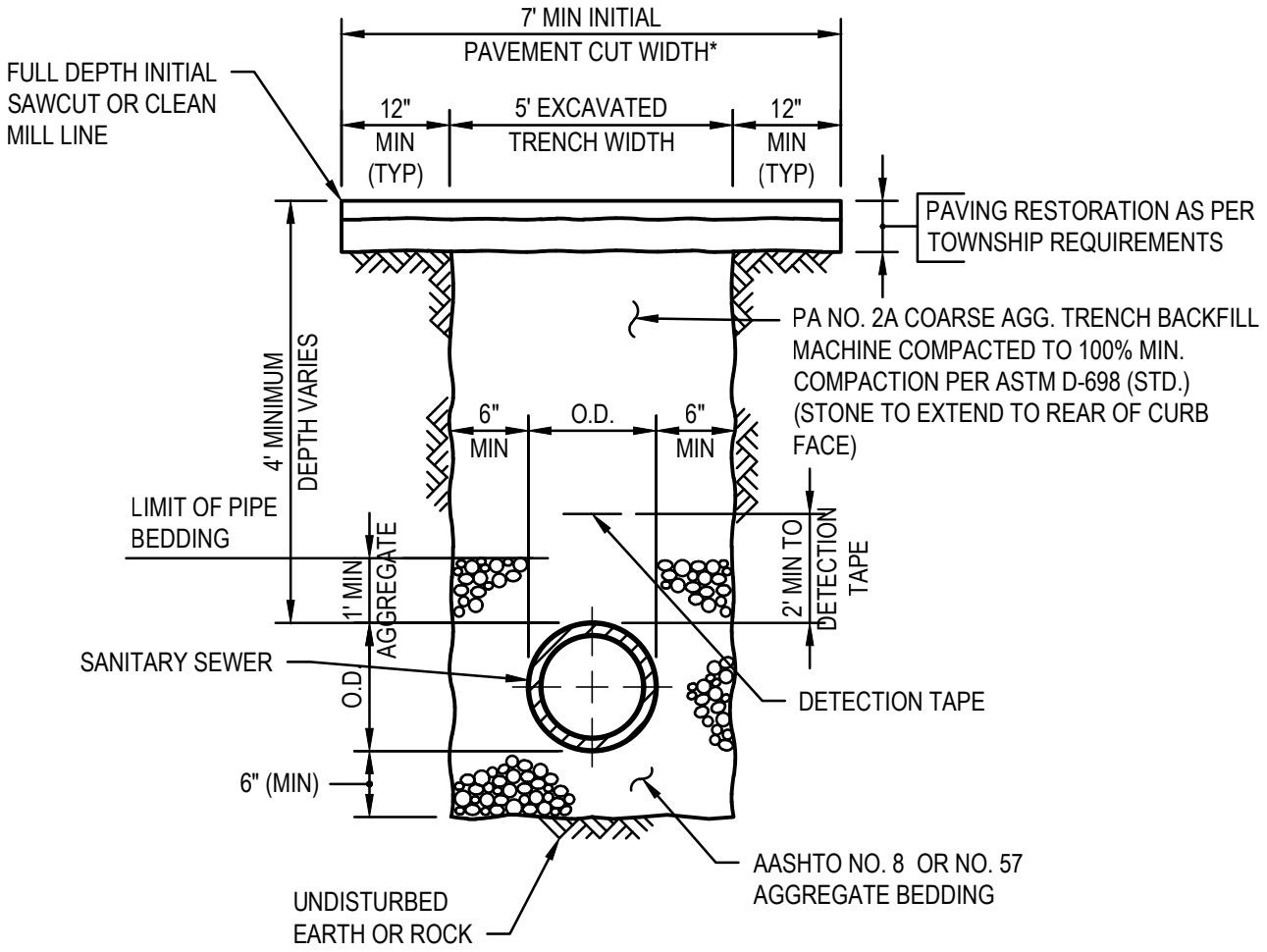
4. TRENCH PLUGS ARE REQUIRED FOR ALL STREAM AND WETLAND CROSSINGS. LOCATIONS AND SPACING OF TRENCH PLUGS ARE AS NOTED ON THE E&S NOTES AND DETAILS, AND AS SHOWN ON THE PLANS AND PROFILES.
5. TRENCH PLUGS ARE TO BE KEYED INTO THE BOTTOM OF TRENCH AND TRENCH WALLS BY A MINIMUM DISTANCE OF 12-INCHES.

BUILDING SEWER TRENCH PLUG (BENTONITE) DETAIL

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	ES-2

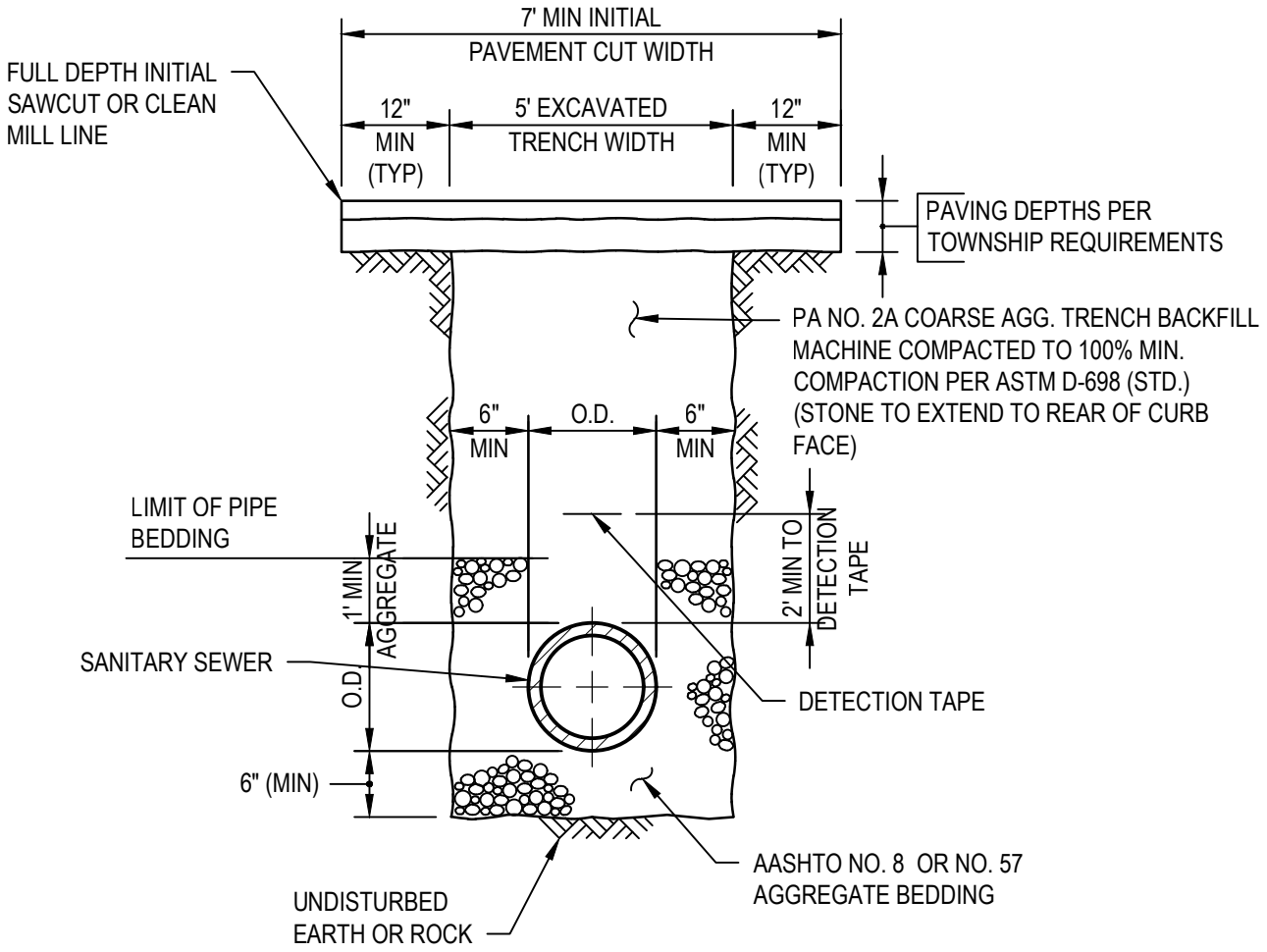
* SMALLER WIDTH WILL NOT BE ALLOWED



TRENCH DETAIL FOR EXISTING PUBLIC / PRIVATE PAVED OR GRAVEL STREETS AND PARKING LOTS

DATE	REVISIONS
JUNE, 2017	UPDATED STANDARD DETAILS

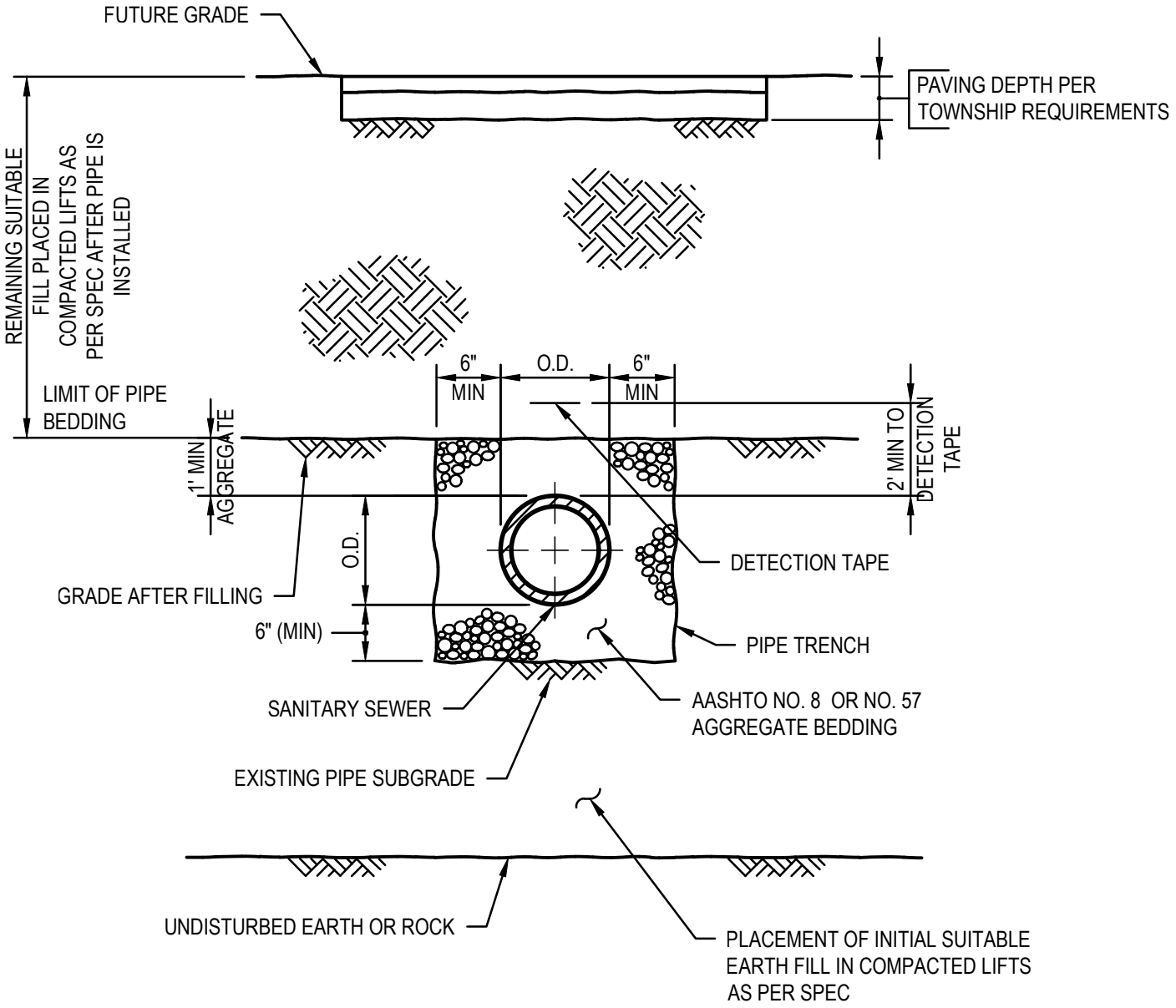
SCALE	FILE
NO SCALE	TR-1A



TRENCH DETAIL FOR NEW PUBLIC / PRIVATE STREETS FOLLOWING GRADING WHEN SEWER IS INSTALLED ON UNDISTURBED EARTH OR ROCK

DATE	REVISIONS
JUNE, 2017	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	TR-1B



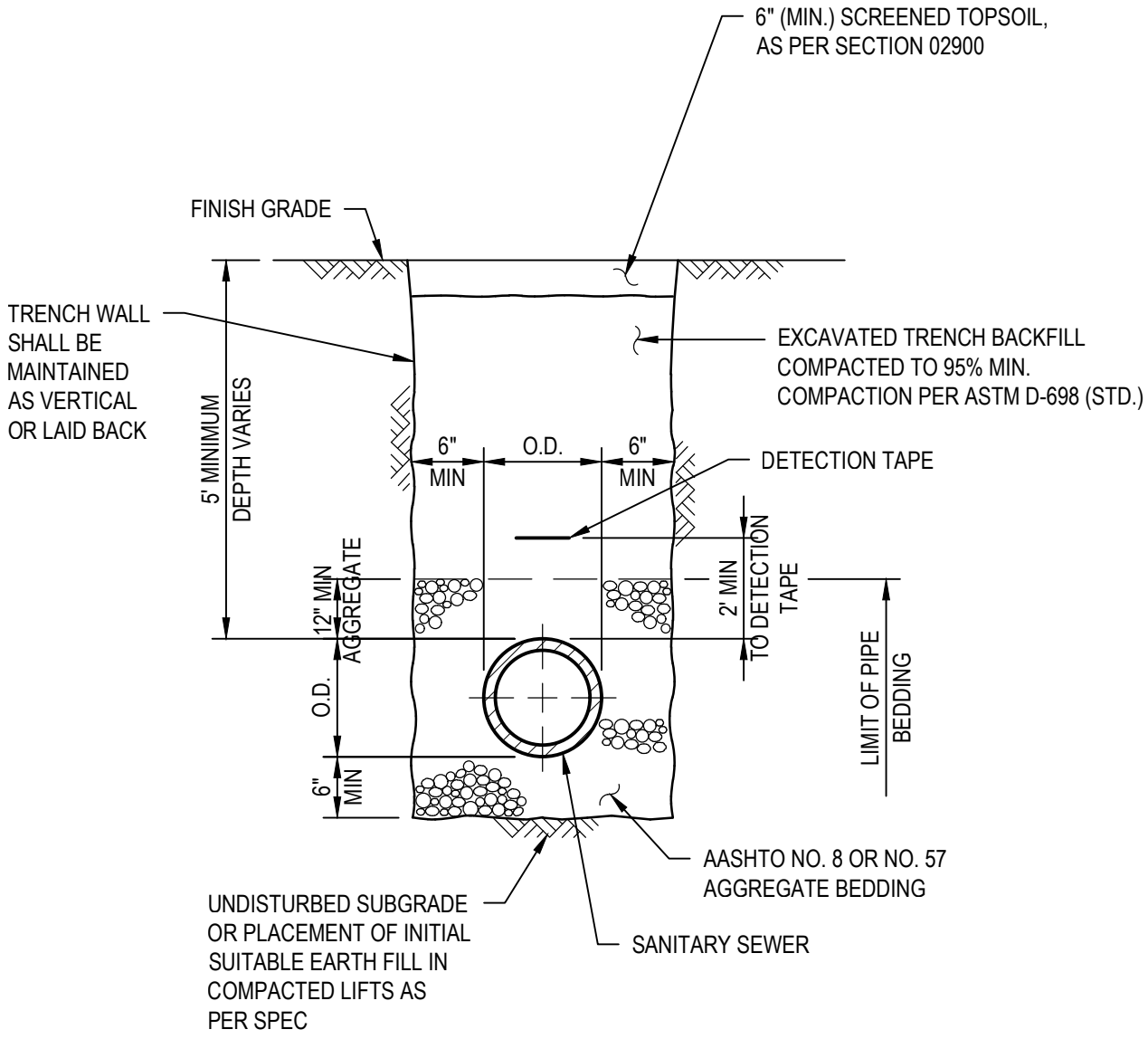
NOTE:

WHERE THERE IS FILL BENEATH THE PROPOSED SEWER THE PIPE SHALL BE DIP WITH PROTECTO 401 LINING. SDR 26 MAY BE APPROVED IF STONE BEDDING IS EXTENDED TO VIRGIN GROUND; HOWEVER, PRIOR APPROVAL FROM AUTHORITY IS REQUIRED.

TRENCH DETAIL FOR NEW PUBLIC / PRIVATE STREETS ONLY WHEN MASS GRADING / FILL IS INVOLVED

DATE	REVISIONS
JUNE, 2017	UPDATED STANDARD DETAILS

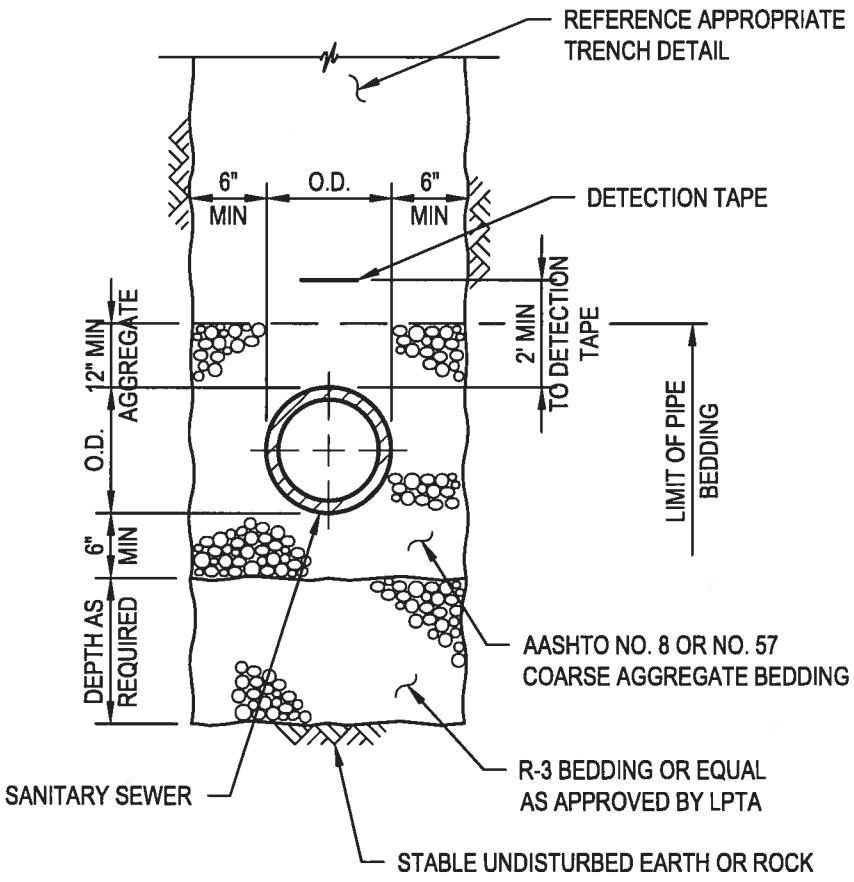
SCALE	FILE
NO SCALE	TR-1C



TRENCH DETAIL IN UNPAVED AREAS

DATE	REVISIONS
JUNE, 2017	UPDATED STANDARD DETAILS

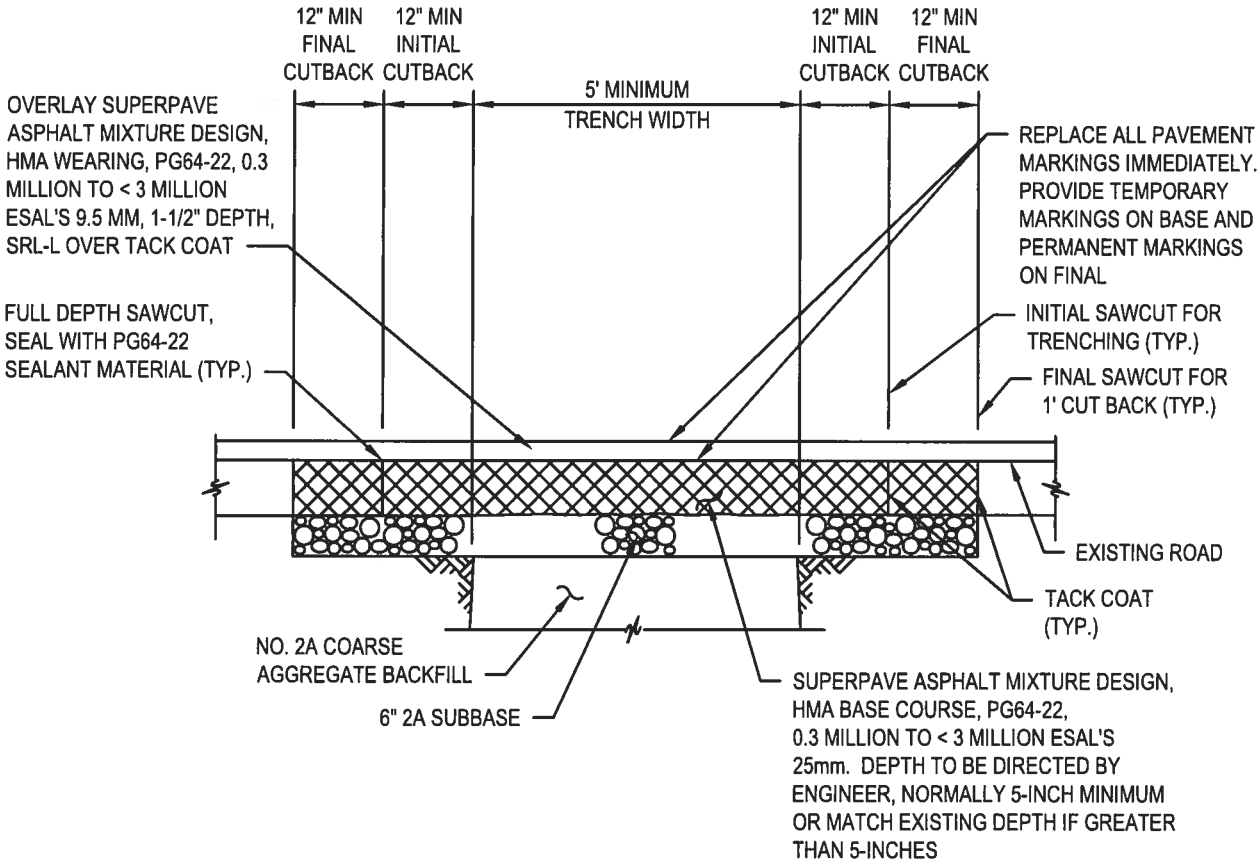
SCALE	FILE
NO SCALE	TR-2



UNSUITABLE MATERIAL EXCAVATION

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

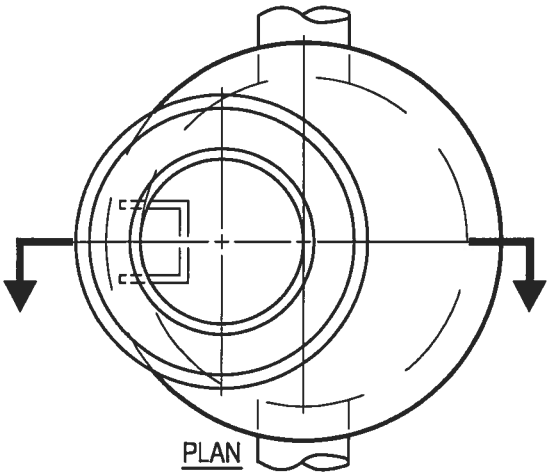
SCALE	FILE
NO SCALE	TR-3



FINAL TRENCH PAVING DETAIL

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

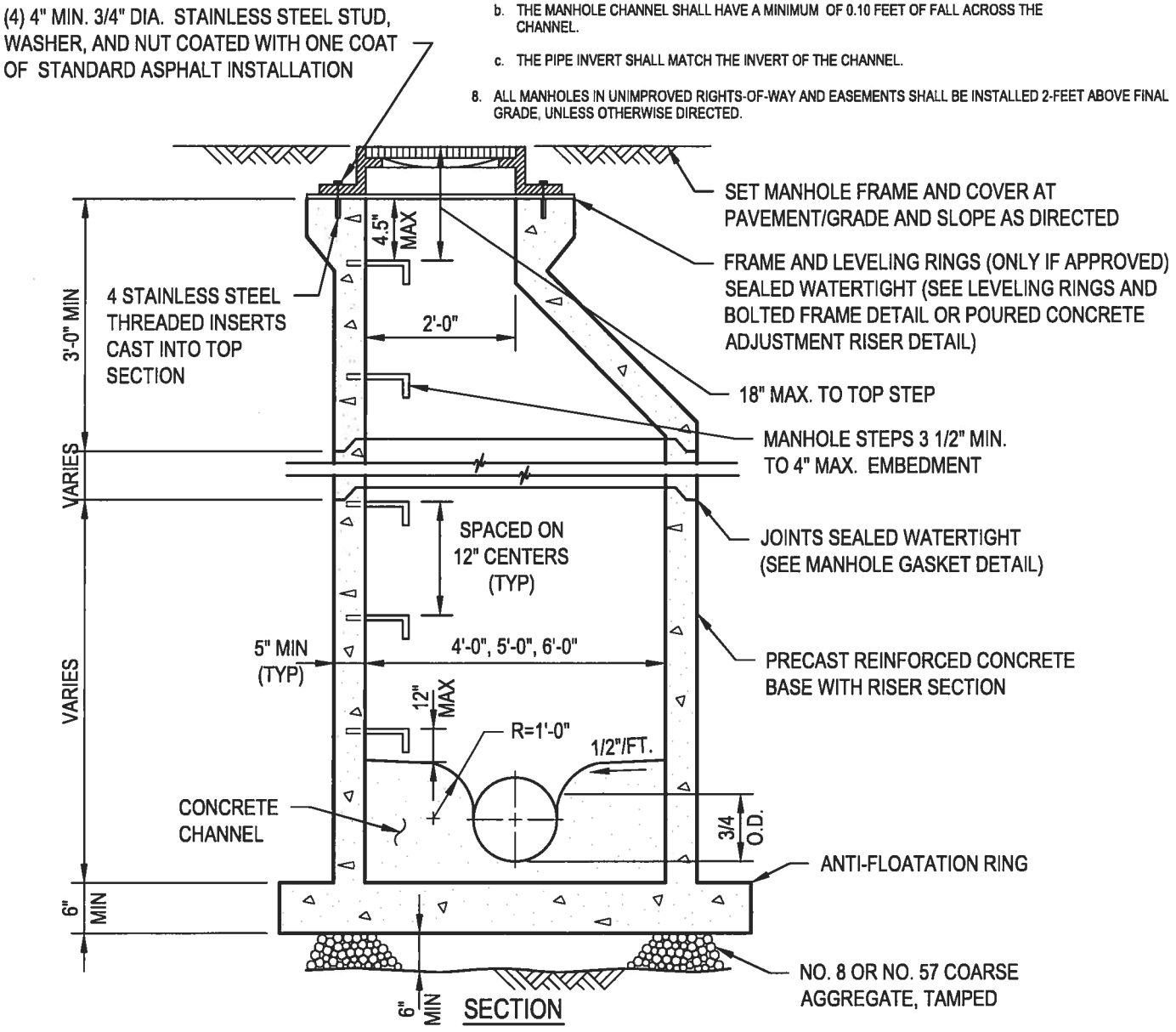
SCALE	FILE
NO SCALE	TR-4



PLAN

NOTES:

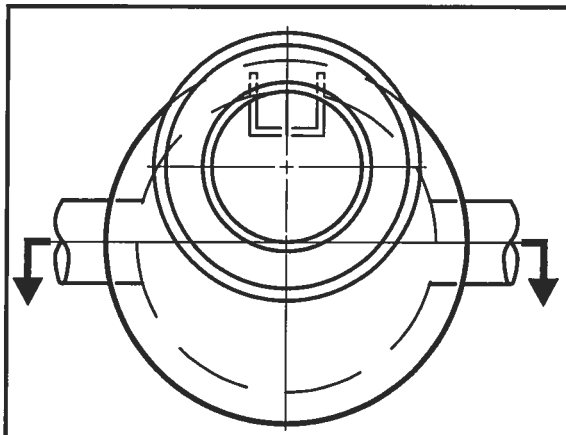
1. ALL MANHOLE FRAMES SHALL BE BOLTED TO MANHOLES.
2. ALL STONE GRADATIONS ARE AASHTO CLASSIFICATION.
3. PIPES SHALL PROTRUDE 2" INSIDE MANHOLE WALL.
4. REFERENCE SPECIFICATION SECTION 02605 FOR ANTI-FLOATATION REQUIREMENTS. ALL MANHOLES INSTALLED IN RIGHTS-OF-WAY / EASEMENTS SHALL HAVE A MINIMUM 6" ANTI-FLOATATION RING. 4-FOOT DIAMETER MANHOLES INSTALLED IN STREETS WITH DEPTHS GREATER THAN 11 FEET AND 5-FOOT DIAMETER MANHOLES INSTALLED IN STREETS WITH DEPTHS GREATER THAN 10 FEET SHALL HAVE A MINIMUM 6" ANTI-FLOATATION RING.
5. MANHOLE FRAMES SHALL BE SET WITH PREFORMED PLASTIC GASKET (RUB-R-NEK) PRIOR TO RESTORATION TO PREVENT FILTRATION.
6. FLAT TOPS ARE NOT TO BE USED ON 5' AND 6' DIAMETER MANHOLES UNLESS SPECIFICALLY NOTED ON THE DRAWINGS OR APPROVED BY THE ENGINEER.
7. MANHOLES SHALL BE INSTALLED MEETING THE FOLLOWING 3 CONDITIONS:
   a. THE SIDES "BARREL" OF THE MANHOLE SHALL BE PLUMB AND STRAIGHT.
   b. THE MANHOLE CHANNEL SHALL HAVE A MINIMUM OF 0.10 FEET OF FALL ACROSS THE CHANNEL.
   c. THE PIPE INVERT SHALL MATCH THE INVERT OF THE CHANNEL.
8. ALL MANHOLES IN UNIMPROVED RIGHTS-OF-WAY AND EASEMENTS SHALL BE INSTALLED 2-FEET ABOVE FINAL GRADE, UNLESS OTHERWISE DIRECTED.



PRECAST CONCRETE MANHOLE WITH PRECAST CONCRETE BASE

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

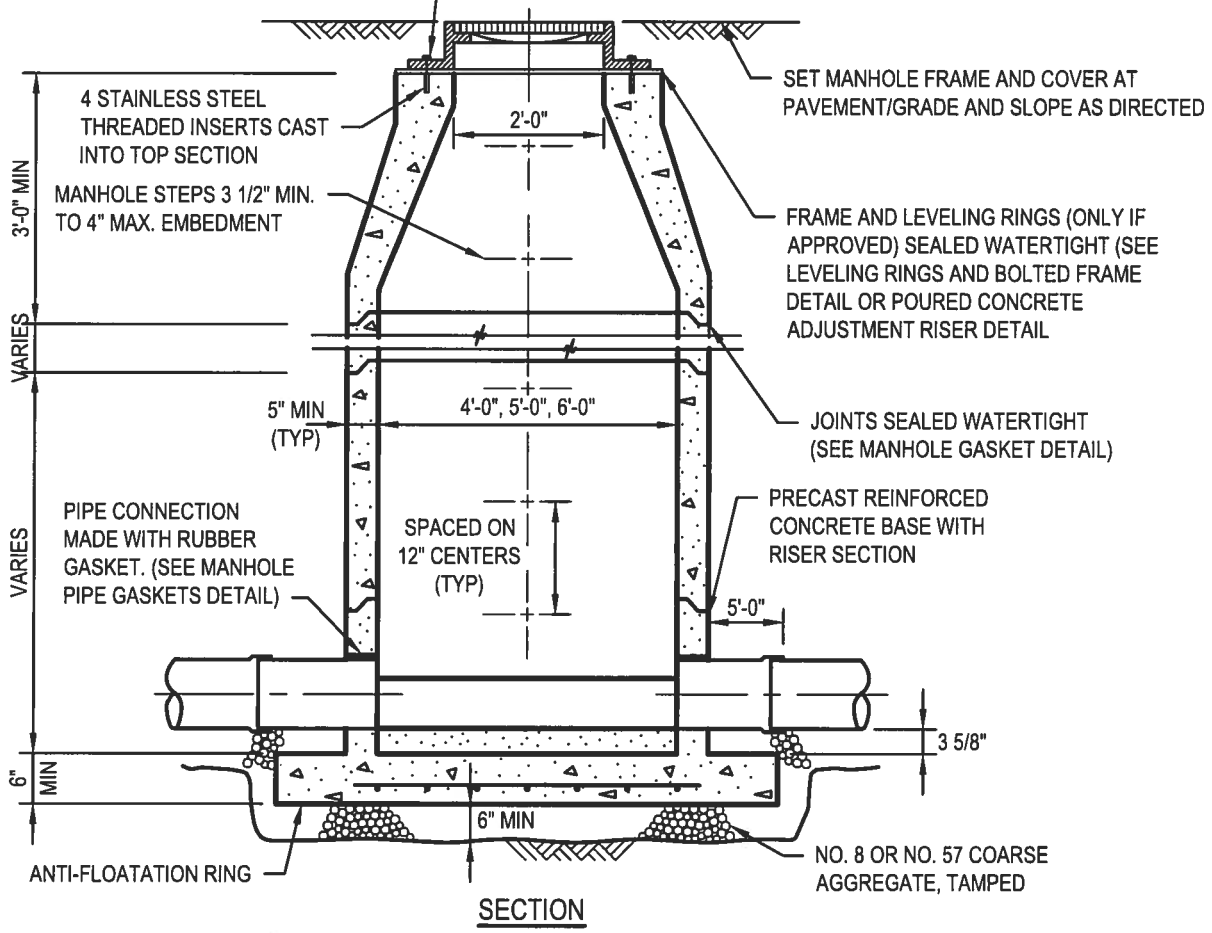
SCALE	FILE
NO SCALE	MH-1



PLAN

NOTES:

1. ALL MANHOLE FRAMES SHALL BE BOLTED TO MANHOLES.
2. ALL STONE GRADATIONS ARE AASHTO CLASSIFICATION.
3. PIPES SHALL PROTRUDE 2" INSIDE MANHOLE WALL.
4. REFERENCE SPECIFICATION SECTION 02605 FOR ANTI-FLOATATION REQUIREMENTS. ALL MANHOLES INSTALLED IN RIGHTS-OF-WAY / EASEMENTS SHALL HAVE A MINIMUM 6" ANTI-FLOATATION RING. 4-FOOT DIAMETER MANHOLES INSTALLED IN STREETS WITH DEPTHS GREATER THAN 11 FEET AND 5-FOOT DIAMETER MANHOLES INSTALLED IN STREETS WITH DEPTHS GREATER THAN 10 FEET SHALL HAVE A MINIMUM 6" ANTI-FLOATATION RING.
5. MANHOLE FRAMES SHALL BE SET WITH PREFORMED PLASTIC GASKET (RUB-R-NEK) PRIOR TO RESTORATION TO PREVENT FILTRATION.
6. FLAT TOPS ARE NOT TO BE USED ON 5' AND 6' DIAMETER MANHOLES UNLESS SPECIFICALLY NOTED ON THE DRAWINGS OR APPROVED BY THE ENGINEER.
7. MANHOLES SHALL BE INSTALLED MEETING THE FOLLOWING 3 CONDITIONS:
   a. THE SIDES "BARREL" OF THE MANHOLE SHALL BE PLUMB AND STRAIGHT.
   b. THE MANHOLE CHANNEL SHALL HAVE A MINIMUM OF 0.10 FEET OF FALL ACROSS THE CHANNEL.
   c. THE PIPE INVERT SHALL MATCH THE INVERT OF THE CHANNEL.
8. ALL MANHOLES IN UNIMPROVED RIGHTS-OF-WAY AND EASEMENTS SHALL BE INSTALLED 2-FEET ABOVE FINAL GRADE, UNLESS OTHERWISE DIRECTED.

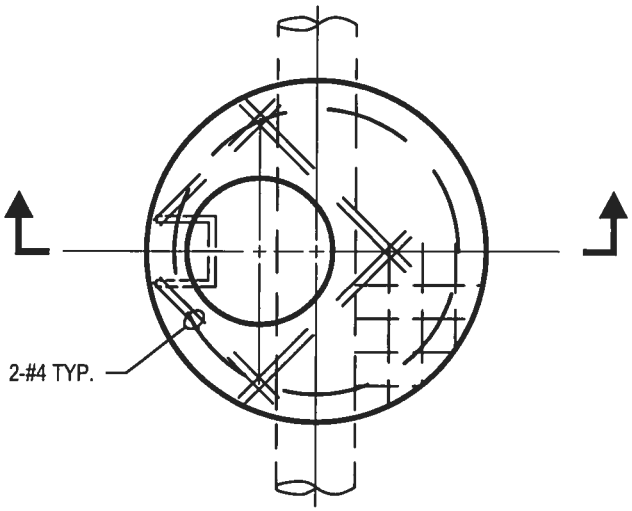


SECTION

PRECAST CONCRETE MANHOLE WITH PRECAST CONCRETE BASE

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

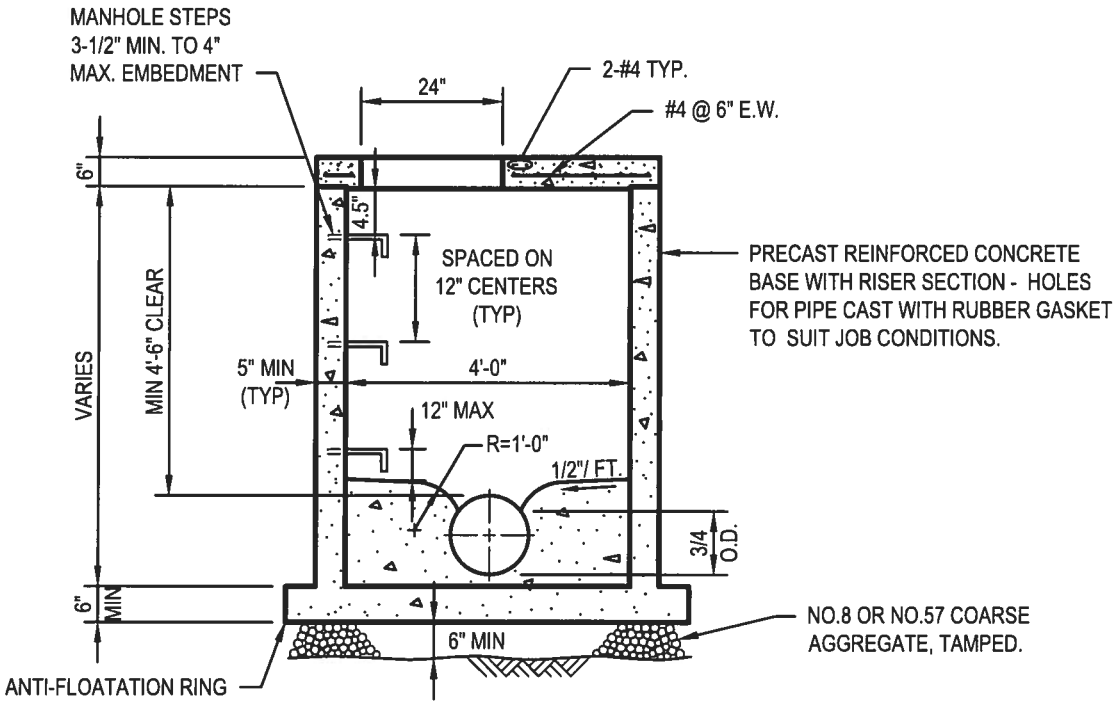
SCALE	FILE
NO SCALE	MH-2



PLAN

NOTES:

1. USE FLAT SLAB TOPS ONLY ON MANHOLES FOR CONNECTING SEWER LINES HAVING LESS THAN 5' DEPTH OF COVER OVER SHALLOWEST PIPE.
2. 4 THREADED STAINLESS STEEL INSERTS REQUIRED CAST INTO TOP SECTION FOR MANHOLE FRAME AND COVER.
3. MANHOLE FRAMES SHALL BE SET WITH PREFORMED PLASTIC GASKET (RUB-R-NEK) PRIOR TO RESTORATION TO PREVENT INFILTRATION.
4. FLAT TOPS SHALL ONLY TO BE USED ON 4' DIAMETER MANHOLES UNLESS APPROVED BY ENGINEER. FLAT TOPS SHALL NOT BE USED ON 5' AND 6' DIAMETER MANHOLES UNLESS APPROVED BY LPTA.

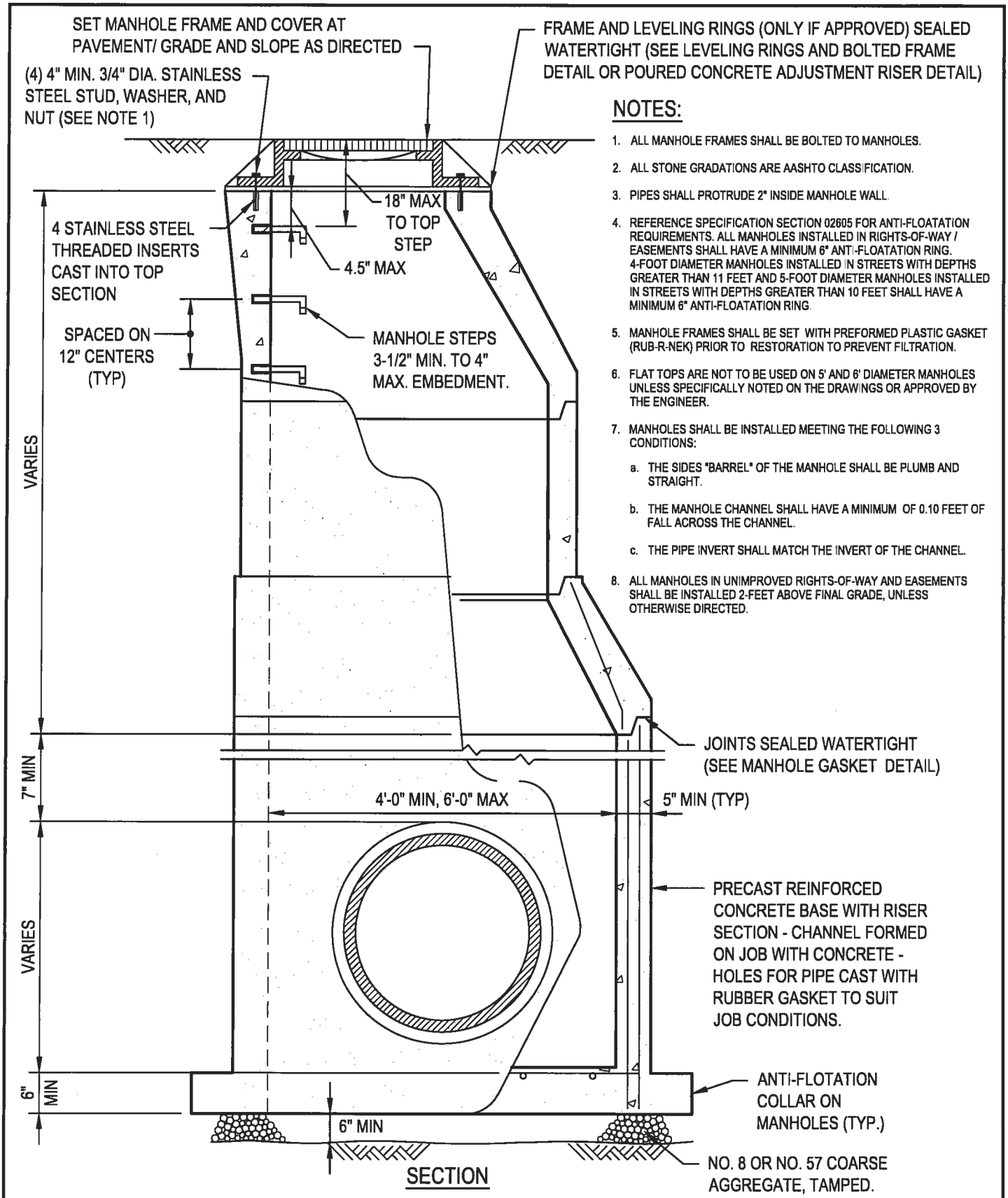


SECTION

PRECAST CONCRETE SHALLOW MANHOLE WITH PRECAST CONCRETE BASE

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	MH-3



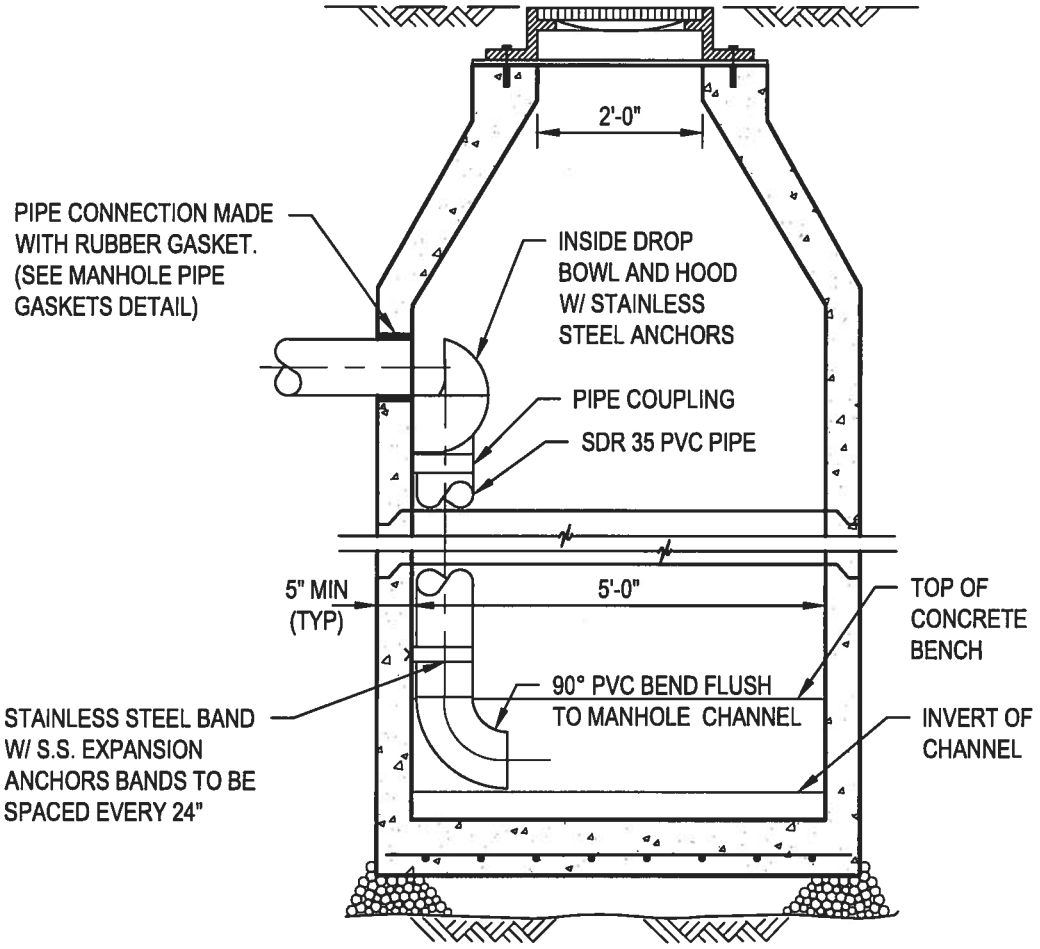
NOTES:

1. ALL MANHOLE FRAMES SHALL BE BOLTED TO MANHOLES.
2. ALL STONE GRADATIONS ARE AASHTO CLASSIFICATION.
3. PIPES SHALL PROTRUDE 2" INSIDE MANHOLE WALL.
4. REFERENCE SPECIFICATION SECTION 02605 FOR ANTI-FLOATATION REQUIREMENTS. ALL MANHOLES INSTALLED IN RIGHTS-OF-WAY / EASEMENTS SHALL HAVE A MINIMUM 6" ANTI-FLOATATION RING. 4-FOOT DIAMETER MANHOLES INSTALLED IN STREETS WITH DEPTHS GREATER THAN 11 FEET AND 5-FOOT DIAMETER MANHOLES INSTALLED IN STREETS WITH DEPTHS GREATER THAN 10 FEET SHALL HAVE A MINIMUM 6" ANTI-FLOATATION RING.
5. MANHOLE FRAMES SHALL BE SET WITH PREFORMED PLASTIC GASKET (RUB-R-NEK) PRIOR TO RESTORATION TO PREVENT FILTRATION.
6. FLAT TOPS ARE NOT TO BE USED ON 5' AND 6' DIAMETER MANHOLES UNLESS SPECIFICALLY NOTED ON THE DRAWINGS OR APPROVED BY THE ENGINEER.
7. MANHOLES SHALL BE INSTALLED MEETING THE FOLLOWING 3 CONDITIONS:
   a. THE SIDES "BARREL" OF THE MANHOLE SHALL BE PLUMB AND STRAIGHT.
   b. THE MANHOLE CHANNEL SHALL HAVE A MINIMUM OF 0.10 FEET OF FALL ACROSS THE CHANNEL.
   c. THE PIPE INVERT SHALL MATCH THE INVERT OF THE CHANNEL.
8. ALL MANHOLES IN UNIMPROVED RIGHTS-OF-WAY AND EASEMENTS SHALL BE INSTALLED 2-FEET ABOVE FINAL GRADE, UNLESS OTHERWISE DIRECTED.

PRECAST CONCRETE MANHOLE WITH PRECAST CONCRETE BASE (DEEP MANHOLE)

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	MH-4



SECTION

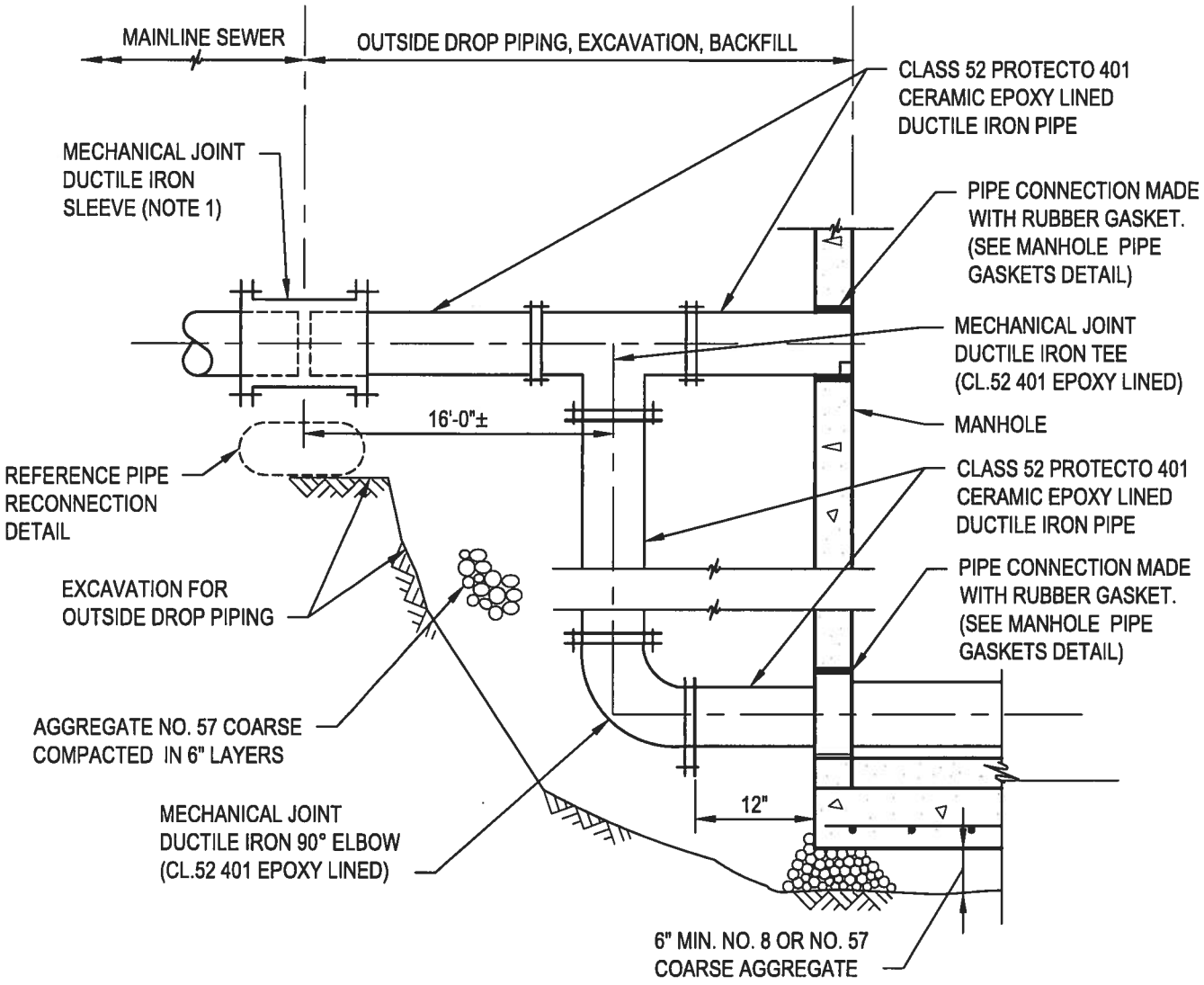
NOTES:

1. APPROVED BY LPTA ON CASE-BY-CASE BASIS ONLY. ACCEPTABLE MANUFACTURER: RELINER INSIDE DROP SYSTEM.
2. USE A 6-INCH OUTLET PIPE FOR AN 8-INCH INLET UNLESS OTHERWISE DIRECTED.
3. TRIM INFLUENT PIPE SO ONLY 2-INCHES MAXIMUM PROTRUDES INTO THE MANHOLE AND V-NOTCH BOTTOM EDGE OF PIPE.
4. INSTALL HOOD FOR SLOPES OVER 2.5% OR AS DIRECTED.
5. ALL DROP MANHOLES SHALL BE CONSTRUCTED AS INSIDE DROP CONNECTIONS UNLESS OTHERWISE DIRECTED.
6. PROVIDE PRECAST CHANNEL.
7. DISCHARGE PIPE FROM DROP CONNECTION SHALL BE INSTALLED INTO FLOW CHANNEL. IF FLOW CHANNEL DOES NOT EXIST, A FLOW CHANNEL MUST BE CONSTRUCTED.
8. ALL MANHOLES TO BE 5' DIAMETER FOR INSIDE DROP CONNECTIONS.

INSIDE DROP CONNECTION

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	MH-5



NOTES:

1. WHEN CONNECTING TO SDR 35 PVC PIPE, USE MECHANICAL JOINT COUPLING AND APPROXIMATELY 16'-0" OF PIPE FROM TEE TO DUCTILE IRON SLEEVE. THIS IS TO PREVENT SETTLEMENT AT JOINT. ALSO, MECHANICAL JOINT SHALL HAVE AN SDR 35 PVC GASKET FOR CONNECTION TO THE PVC PIPE.

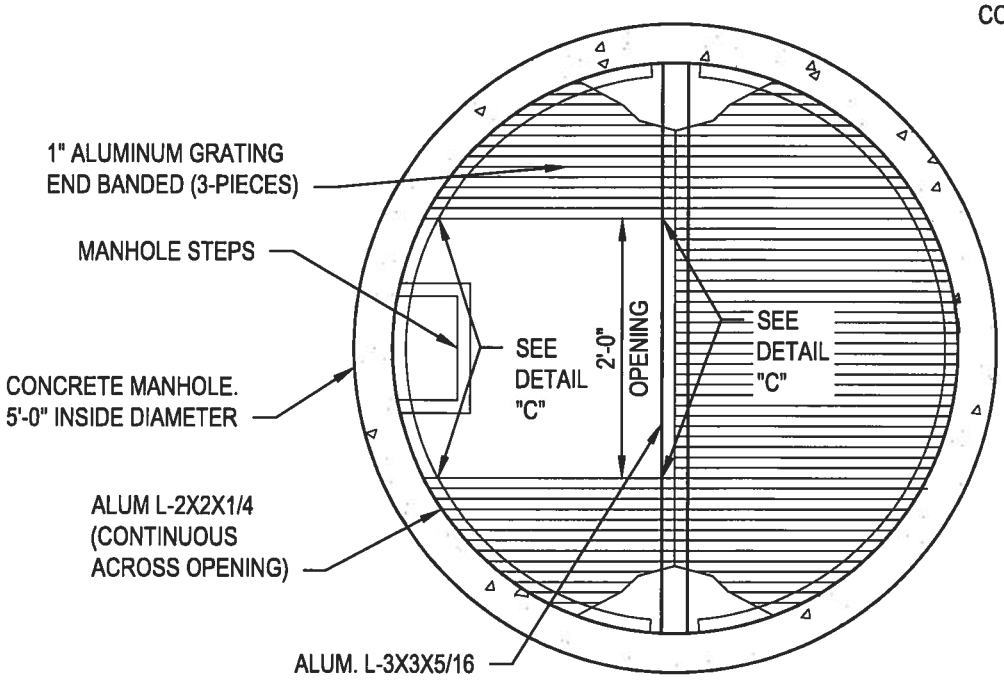
2. ALL DROP PIPING TO BE SAME SIZE AS MAINLINE PIPE.

OUTSIDE DROP CONNECTION
(FOR USE ONLY UPON SPECIFIC APPROVAL OF LPTA)

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

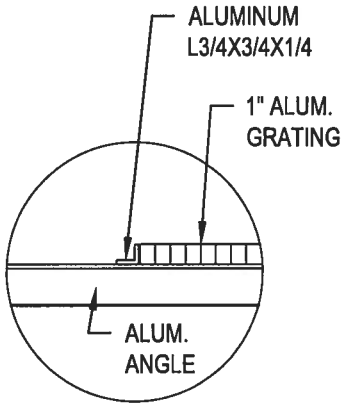
SCALE	FILE
NO SCALE	MH-6

NOTE:
ALL ALUMINUM IN CONTACT WITH CONCRETE SHALL BE COATED WITH BITUMASTIC



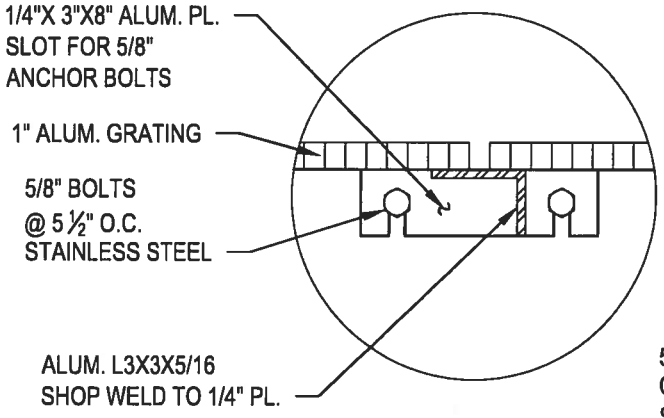
GRATING PLATFORM PLAN

NO SCALE



DETAIL 'C'

NO SCALE



DETAIL 'A'

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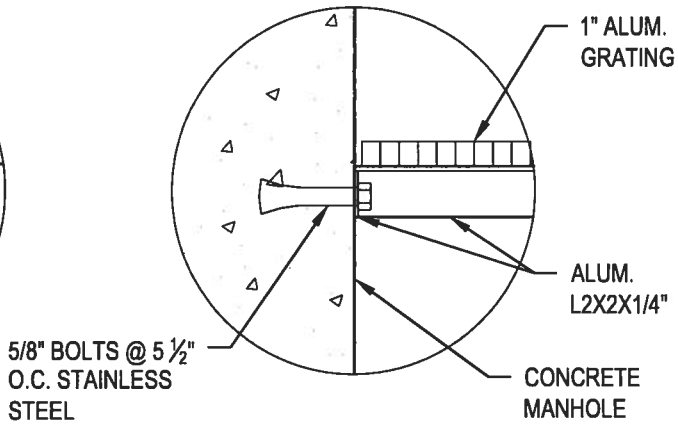


DETAIL 'B'

NO SCALE

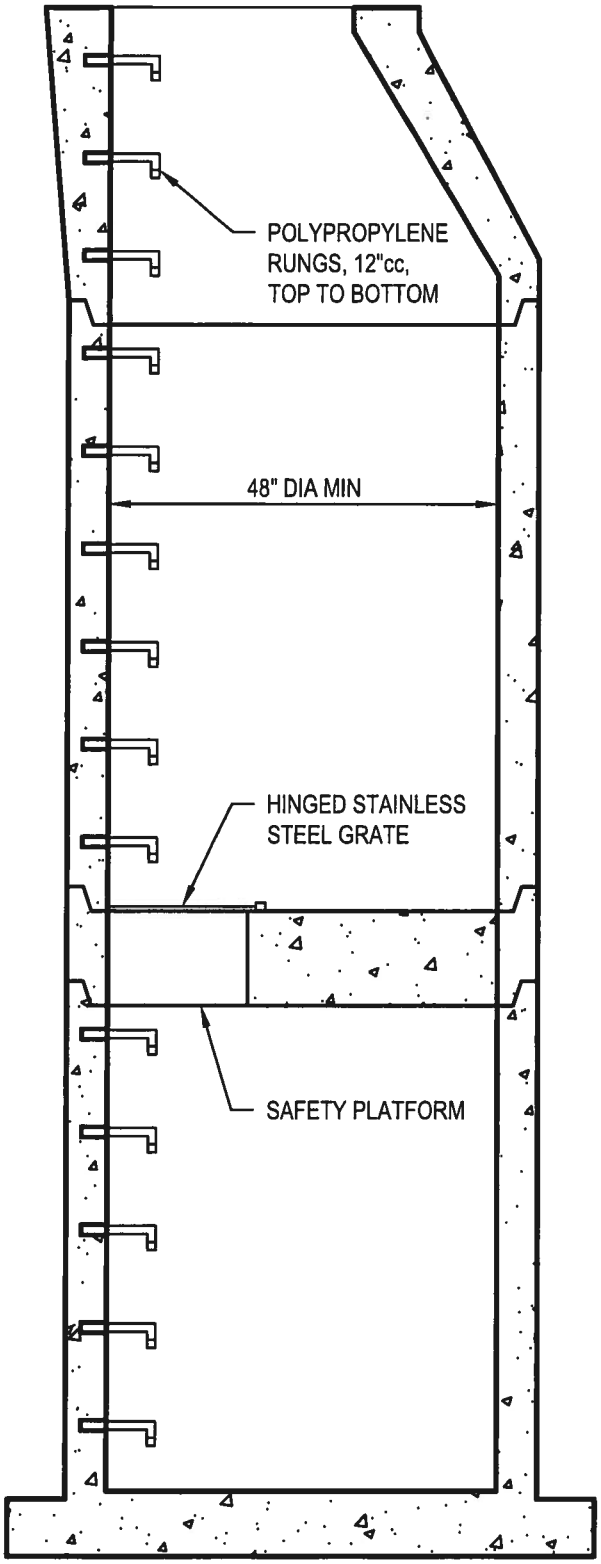
MANHOLE PLATFORM

DATE	REVISIONS

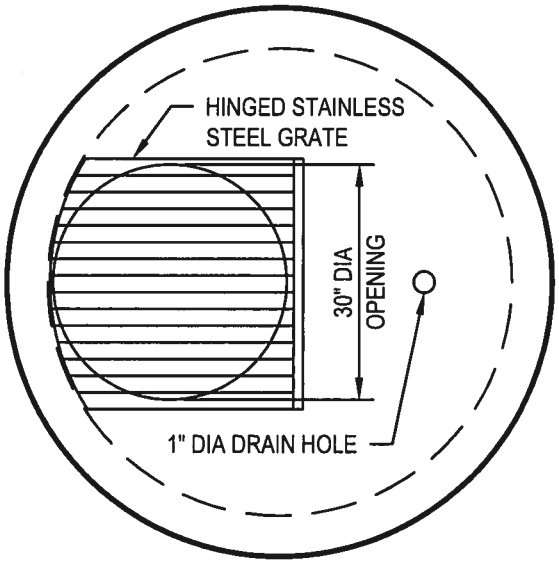
SCALE	FILE
NO SCALE	MH-7A

SPECIFICATIONS

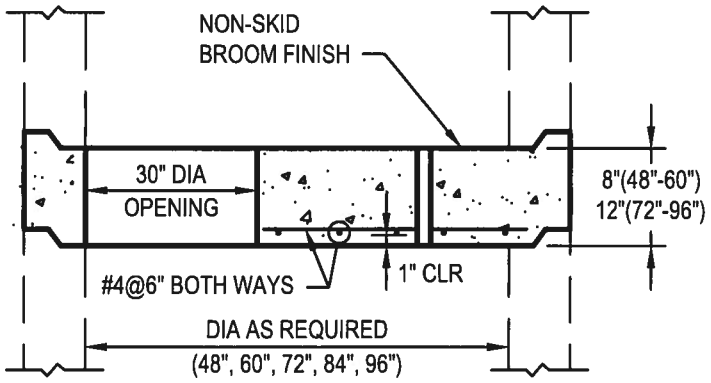
- THE CONCRETE IS DESIGNED TO OBTAIN A STRENGTH OF 4,000 PSI IN 28 DAYS.
- THE REINFORCING STEEL HAS A YIELD STRENGTH OF 60,000 PSI.
- THE SLABS ARE DESIGNED FOR 300 LBS/SQ FT LIVE LOAD.



SECTION



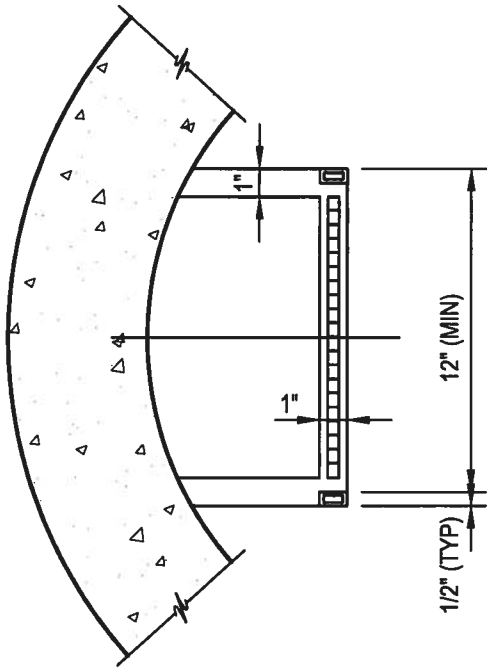
PLAN



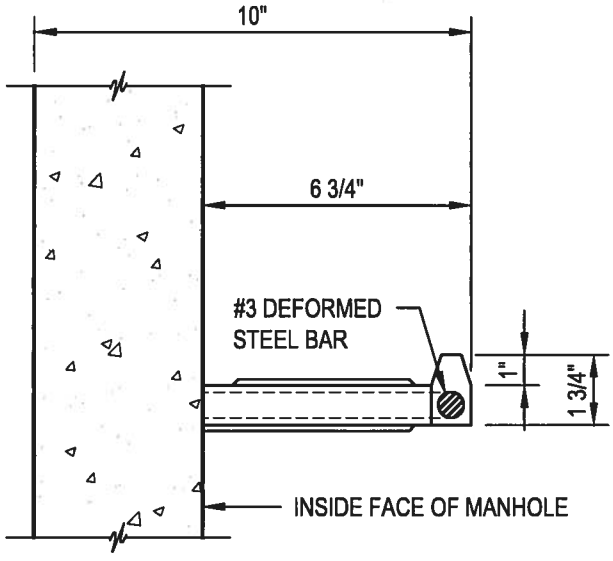
SAFETY PLATFORM DETAIL

SAFETY PLATFORM FOR DEEP MANHOLES

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS
SCALE: NO SCALE	FILE: MH-7B



PLAN

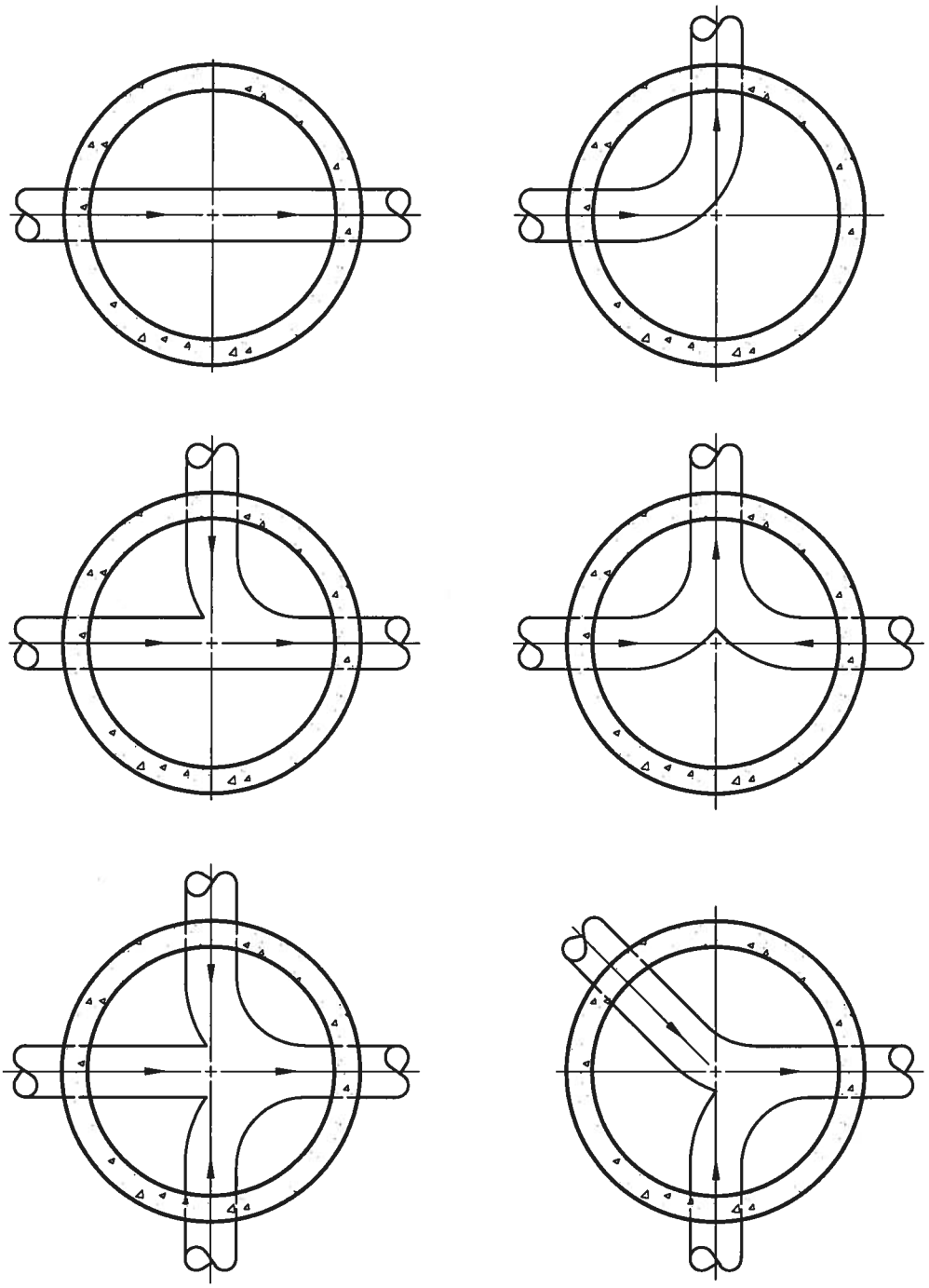


SECTIONAL ELEVATION
REINFORCED PLASTIC

MANHOLE STEPS

DATE	REVISIONS

SCALE	FILE
NO SCALE	MH-8



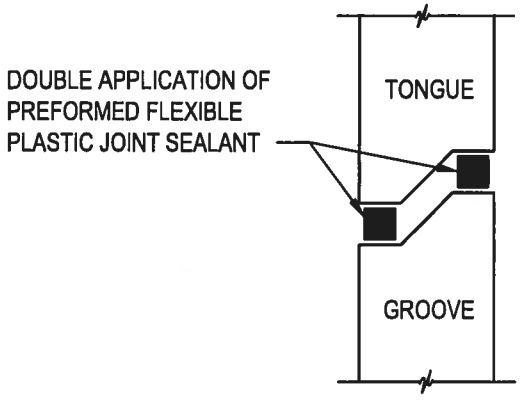
NOTE:

1. KEEP CURVE(S) TO A MINIMUM TO FACILITATE INSERTION AND REMOVAL OF TEST PLUGS AND INTERNAL INSPECTION EQUIPMENT.

TYPICAL PLAN OF MANHOLE CHANNELS

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	MH-9

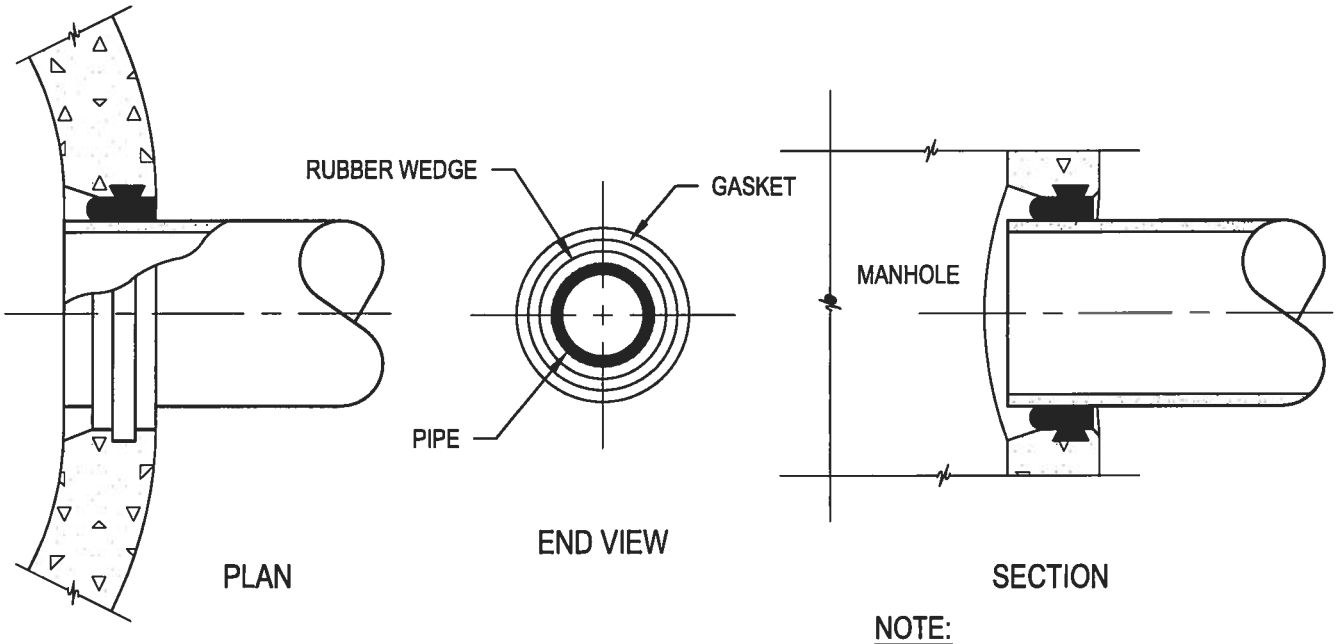


SECTION

MANHOLE GASKET

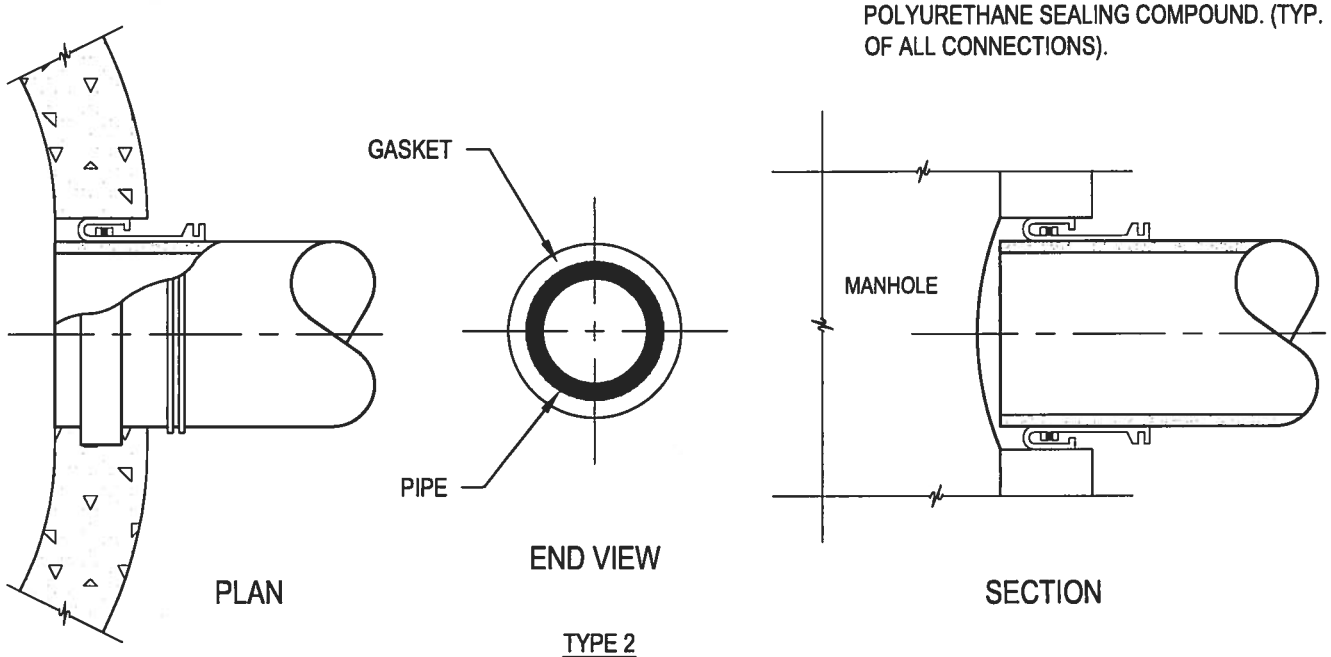
DATE	REVISIONS

SCALE	FILE
NO SCALE	MH-10



TYPE 1
RUBBER GASKET CAST INTO
PRECAST PIPE OPENINGS

NOTE:
AFTER PIPE-TO-MANHOLE INSTALLATION, SEAL ANNULAR SPACE AROUND PIPE, INSIDE AND OUTSIDE OF MANHOLE WITH POLYURETHANE SEALING COMPOUND. (TYP. OF ALL CONNECTIONS).

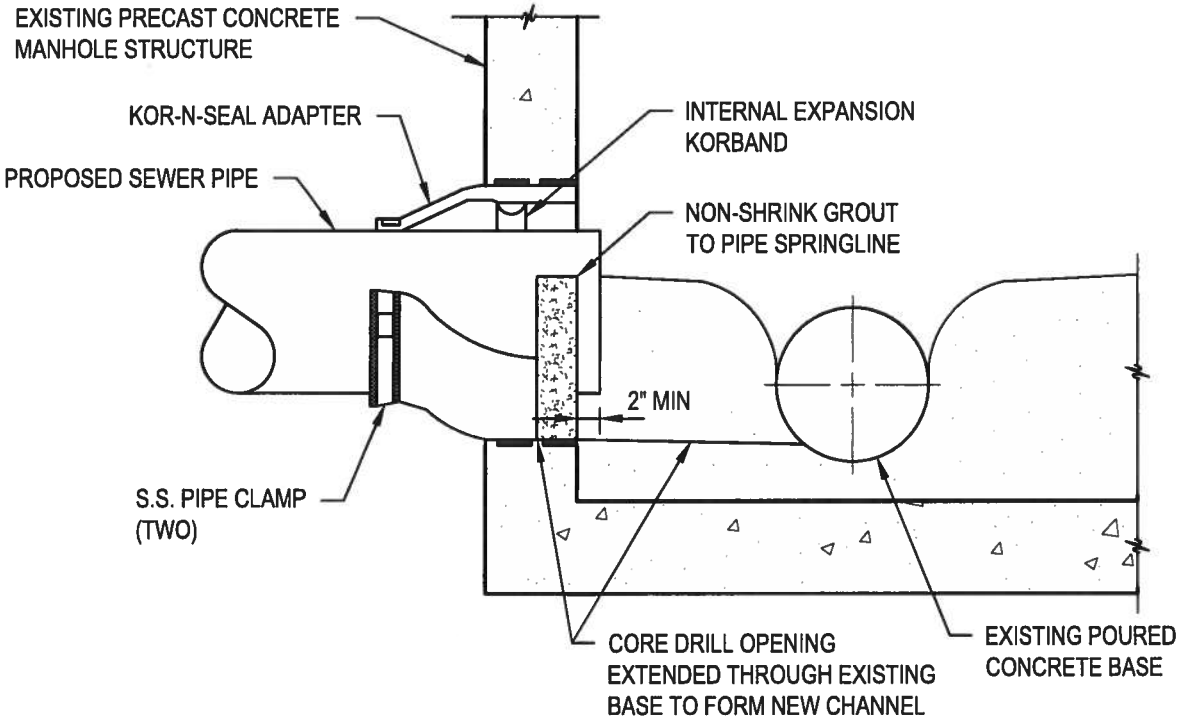


TYPE 2
RUBBER GASKET COMPRESSION RING
INSERT FOR PRECAST PIPE OPENINGS

MANHOLE PIPE GASKETS

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	MH-11



KOR-N-SEAL DETAIL

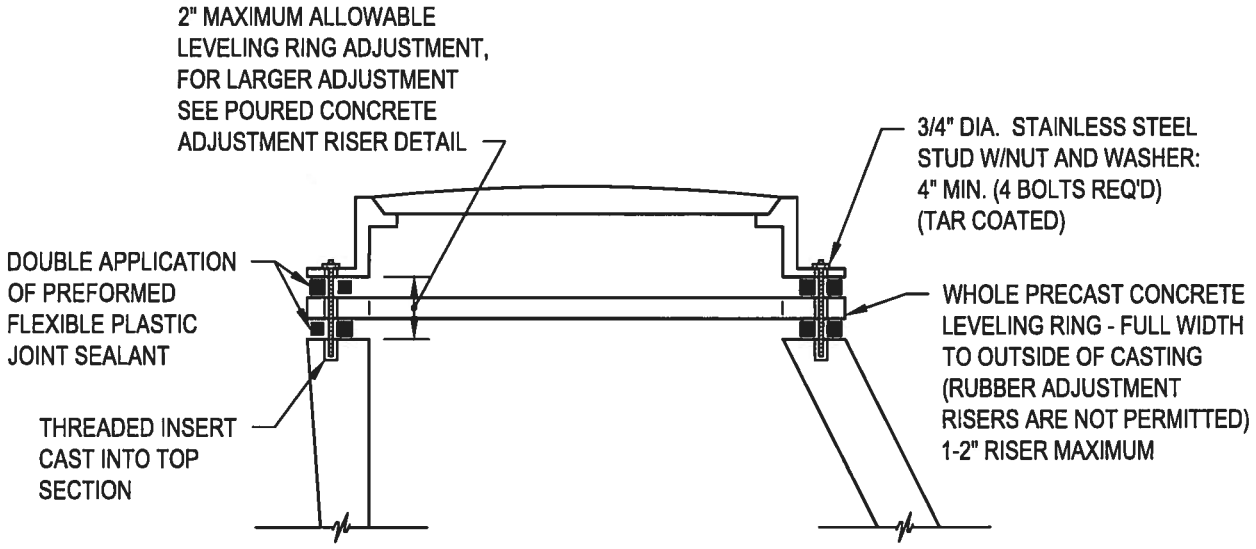
NOTE:

1. NEW PIPE CHANNEL RECONSTRUCTION IN ACCORDANCE WITH AUTHORITY REQUIREMENTS.
2. PIPE INVERT TO MATCH INVERT OF MANHOLE CHANNEL.

MANHOLE PIPE ADAPTERS

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	MH-12



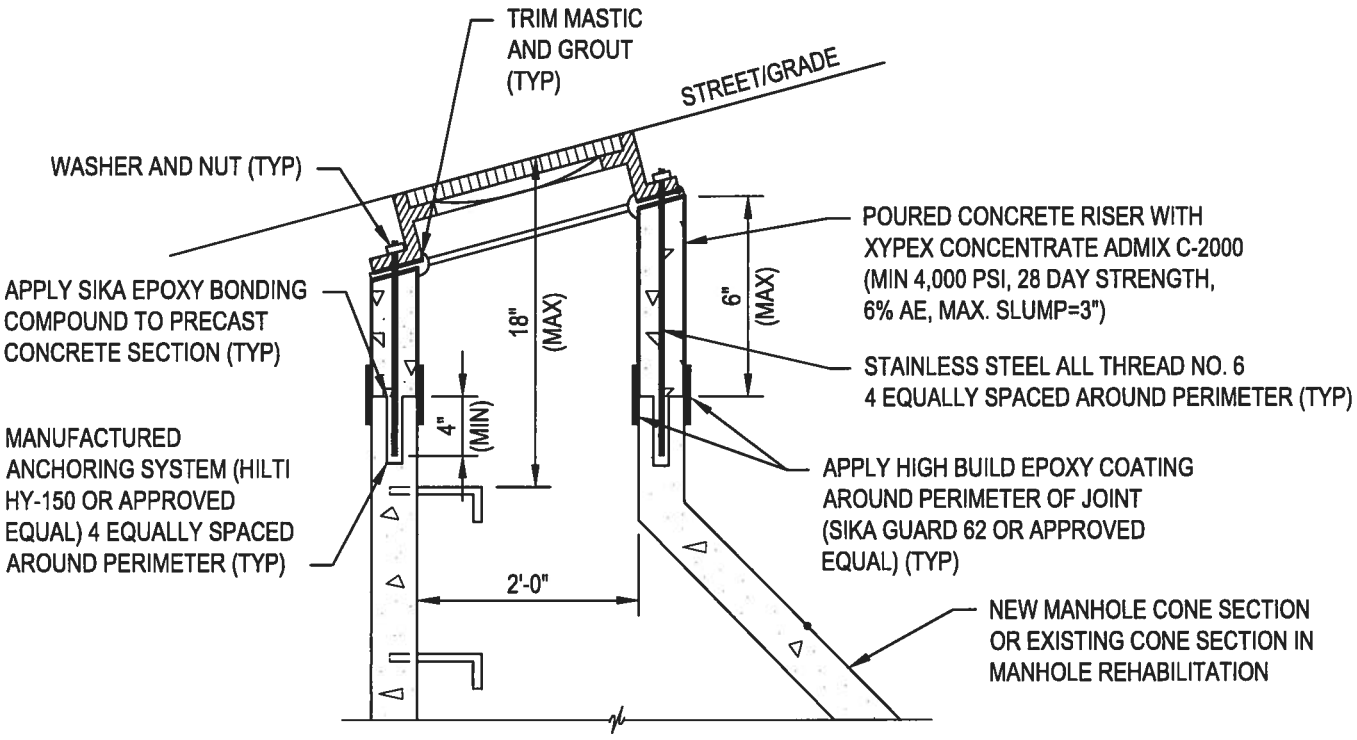
SECTION

NOTES:

1. ALL NON-SHRINK, NON-METALLIC GROUT SHALL BE TROWELED SMOOTH.
2. LEVELING AND/OR GRADE RINGS IN EXCESS OF 2-INCHES ARE NOT PERMITTED. IN LIEU OF LEVELING/GRADE RINGS, PROVIDE "POURED CONCRETE ADJUSTMENT RISER".

LEVELING RINGS AND BOLTED FRAME DETAILS

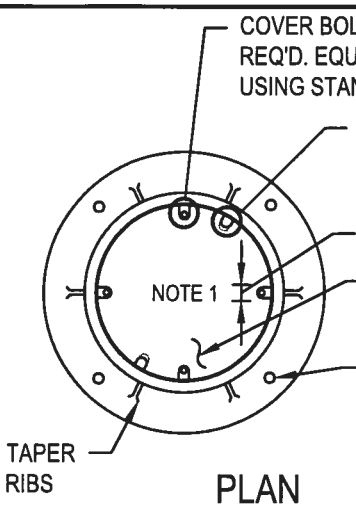
DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS
SCALE: NO SCALE	FILE: MH-13



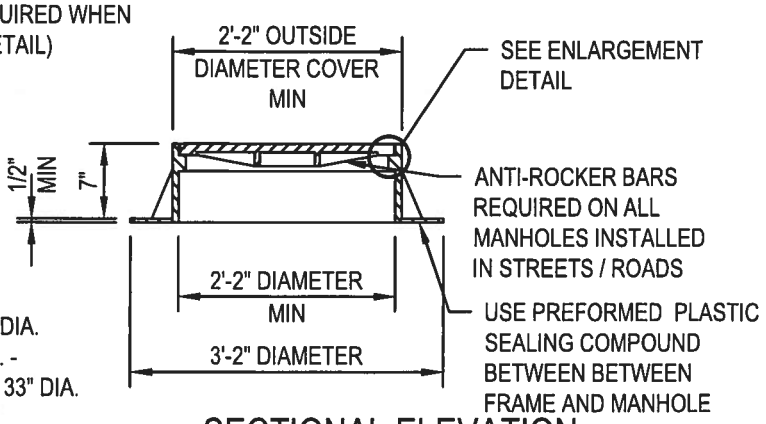
POURED CONCRETE ADJUSTMENT RISER

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

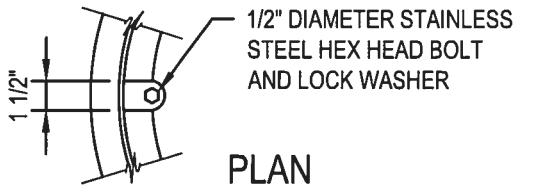
SCALE	FILE
NO SCALE	MH-14



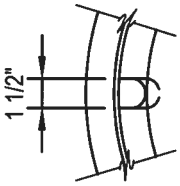
PLAN



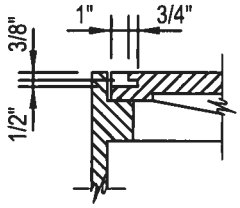
SECTIONAL ELEVATION



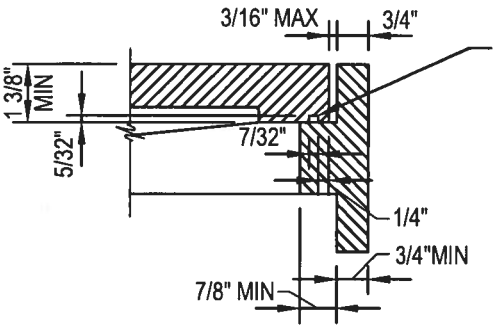
PLAN



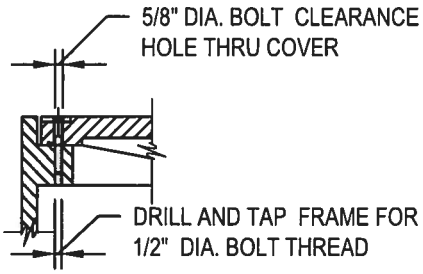
PLAN



SECTIONAL ELEVATION
COVER PICK HOLE



ENLARGEMENT DETAIL



SECTIONAL ELEVATION
COVER BOLT HOLE

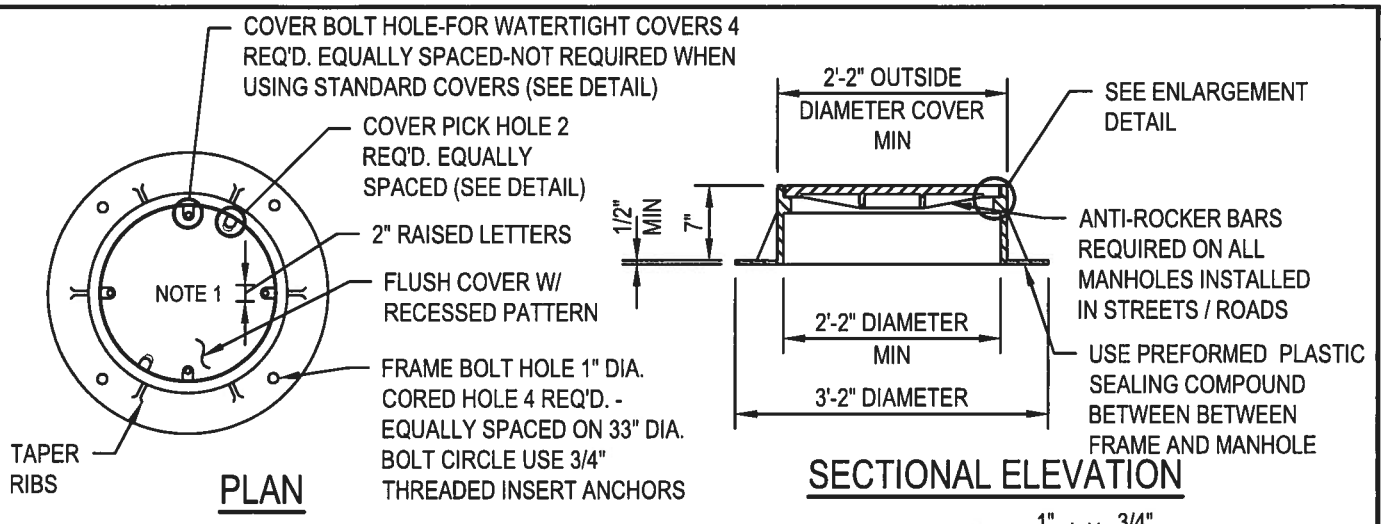
NOTES:

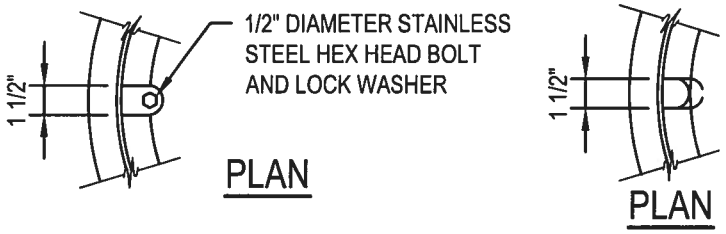
1. LETTERING SHALL BE "SEWER".
2. ALL MANHOLE FRAMES AND COVERS SHALL BE FOR HEAVY DUTY TRAFFIC, AASHTO HIGHWAY LOADING CLASS HS-20.
3. USE NEENAH FOUNDRY COMPANY, MODEL 1642 381-1 (STANDARD), MODEL 1916F (WATERTIGHT) AND MODEL 16422018 (LOW PROFILE). NO SUBSTITUTIONS WILL BE ACCEPTED.
4. APPLY LUBRICANT TO COVER BOLTS. USE 20 - 30 FT/LBS. MAXIMUM TORQUE.
5. APPLY ANTI-SEIZE COMPOUND TO ALL THREADED SURFACES.
6. LOW PROFILE MANHOLE FRAME AND COVERS SHALL ONLY BE USED TO COMPLY WITH LIMITATIONS ON RISER ADJUSTMENTS, AND AS APPROVED BY THE ENGINEER.
7. WATERTIGHT FRAME AND COVER TO BE USED IN ALL RIGHTS-OF-WAY OR AS DIRECTED BY OWNER.

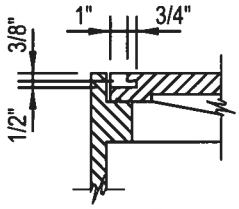
STANDARD OR WATERTIGHT SEWER FRAME AND COVER

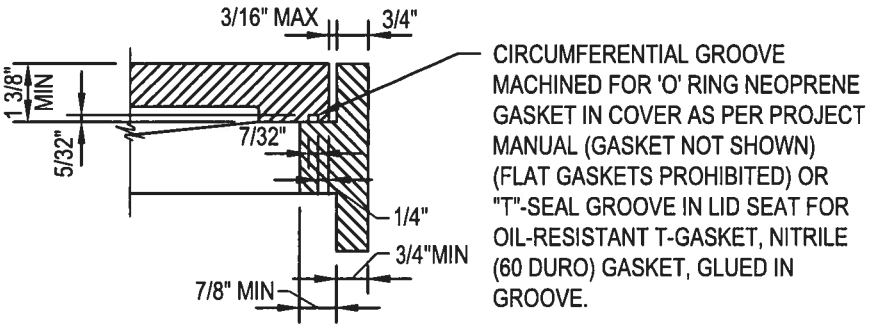
DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

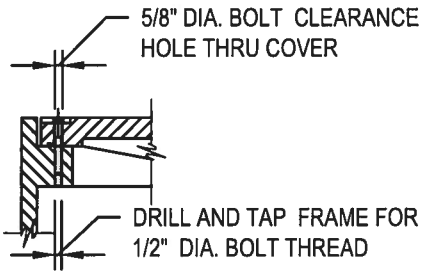
SCALE	FILE
NO SCALE	MH-15A











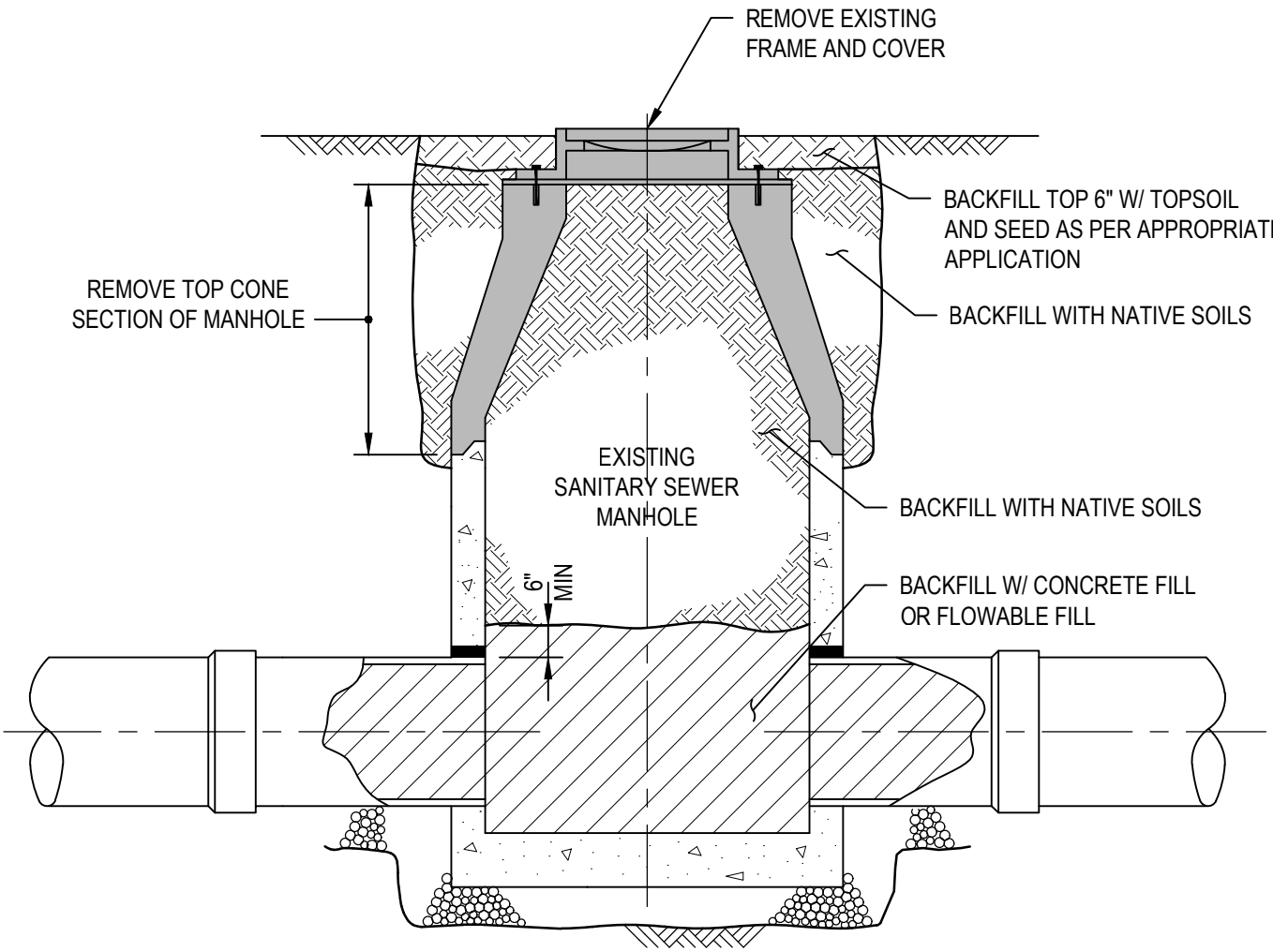
NOTES:

1. LETTERING SHALL BE "PRIVATE SEWER".
2. ALL MANHOLE FRAMES AND COVERS SHALL BE FOR HEAVY DUTY TRAFFIC, AASHTO HIGHWAY LOADING CLASS HS-20.
3. USE NEENAH FOUNDRY COMPANY, MODEL 1642 381-1 (STANDARD), MODEL 1916F (WATERTIGHT) AND MODEL 16422018 (LOW PROFILE). NO SUBSTITUTIONS WILL BE ACCEPTED.
4. APPLY LUBRICANT TO COVER BOLTS. USE 20 - 30 FT/LBS. MAXIMUM TORQUE.
5. APPLY ANTI-SEIZE COMPOUND TO ALL THREADED SURFACES.
6. LOW PROFILE MANHOLE FRAME AND COVERS SHALL ONLY BE USED TO COMPLY WITH LIMITATIONS ON RISER ADJUSTMENTS, AND AS APPROVED BY THE ENGINEER.
7. WATERTIGHT FRAME AND COVER TO BE USED IN ALL RIGHTS-OF-WAY OR AS DIRECTED BY OWNER.

PRIVATE SEWER FRAME AND COVER

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	MH-15B



SECTION

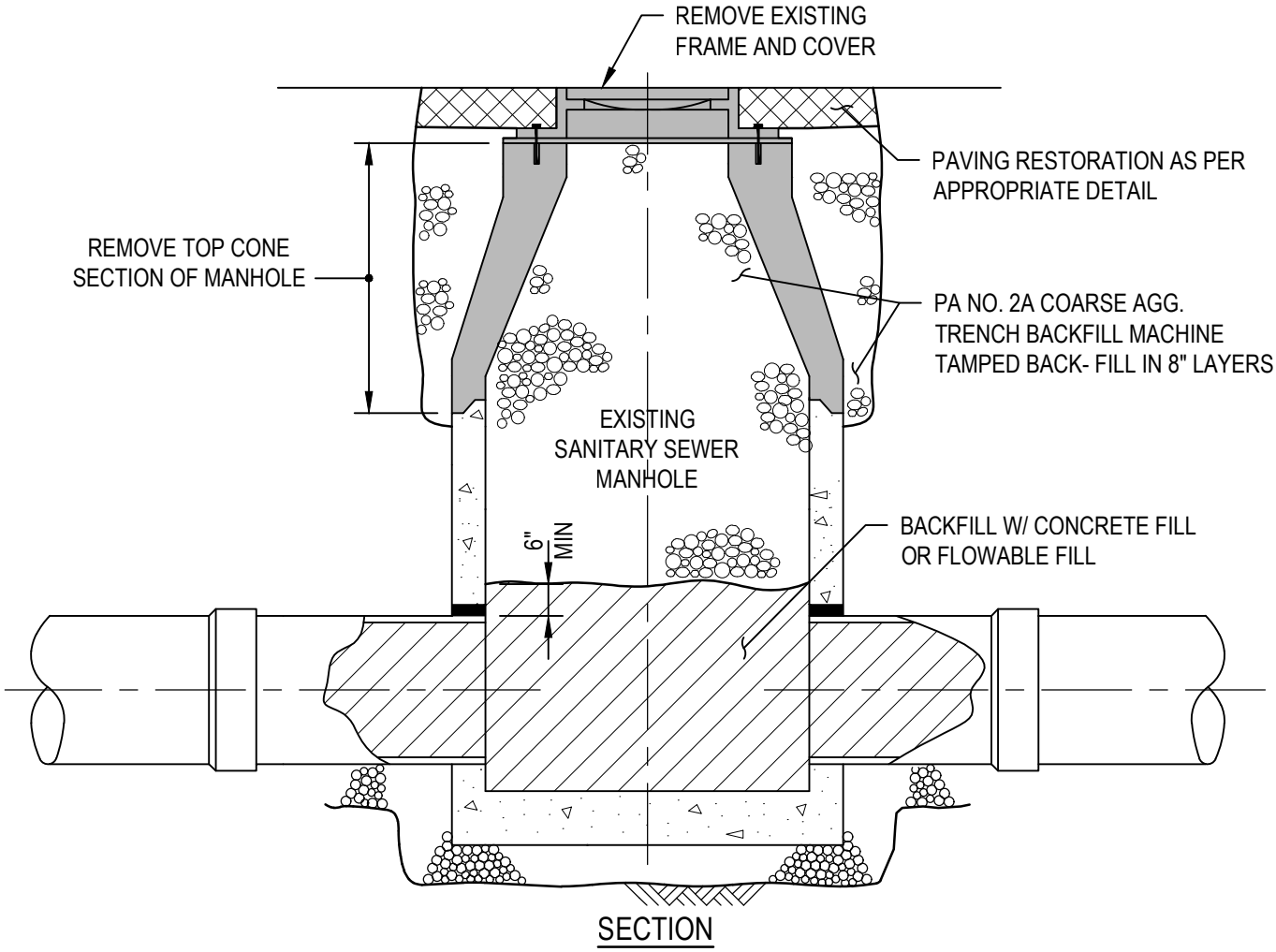
NOTE:

1. FLOWABLE FILL FOR ABANDONMENT OF MANHOLES AND SANITARY SEWERS SHALL BE TYPE C PER PENNDOT PUBLICATION 408, SECTION 220.

EXISTING SANITARY SEWER MANHOLE LOCATED IN SEWER R/W TO BE ABANDONED

DATE	REVISIONS

SCALE	FILE
NO SCALE	MH-16



SECTION

NOTE:

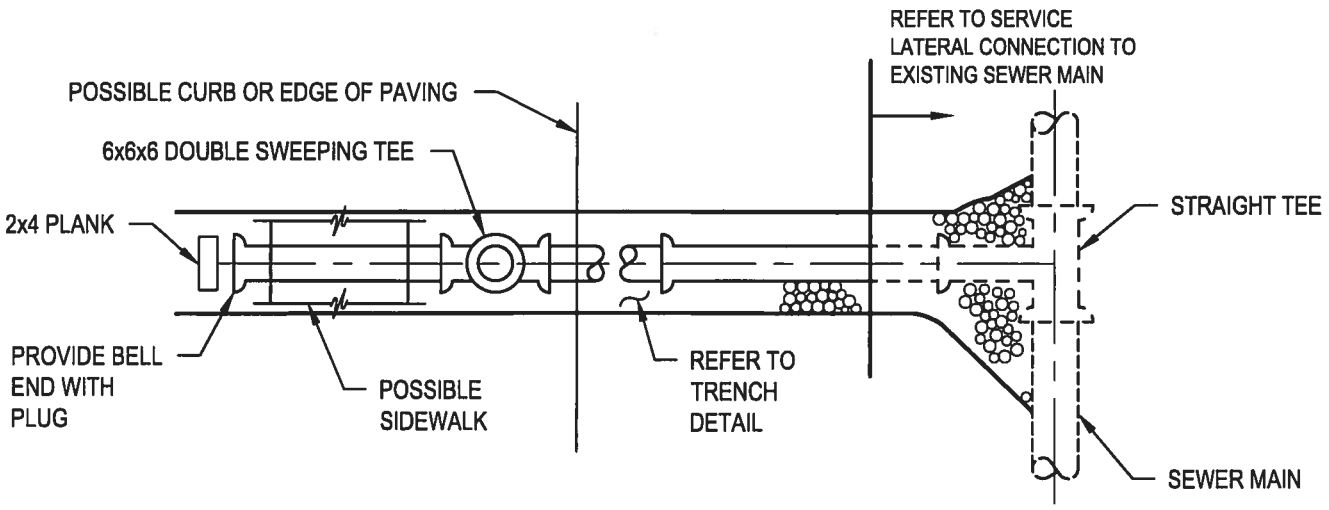
1. FLOWABLE FILL FOR ABANDONMENT OF MANHOLES AND SANITARY SEWERS SHALL BE TYPE C PER PENNDOT PUBLICATION 408, SECTION 220.

2. DETAIL APPLICABLE FOR STATE AND TOWNSHIP ROADS.

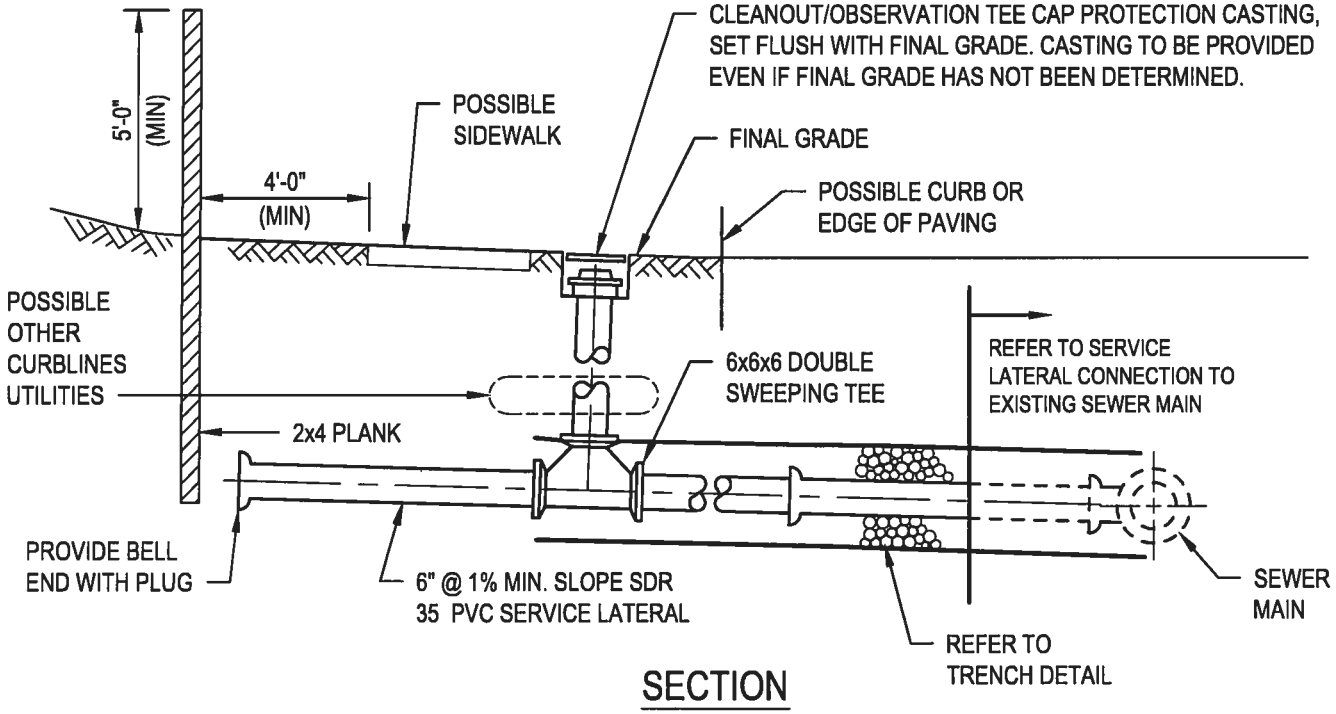
EXISTING SANITARY SEWER MANHOLE LOCATED IN PAVED AREA TO BE ABANDONED

DATE	REVISIONS

SCALE	FILE
NO SCALE	MH-17



PLAN



SECTION

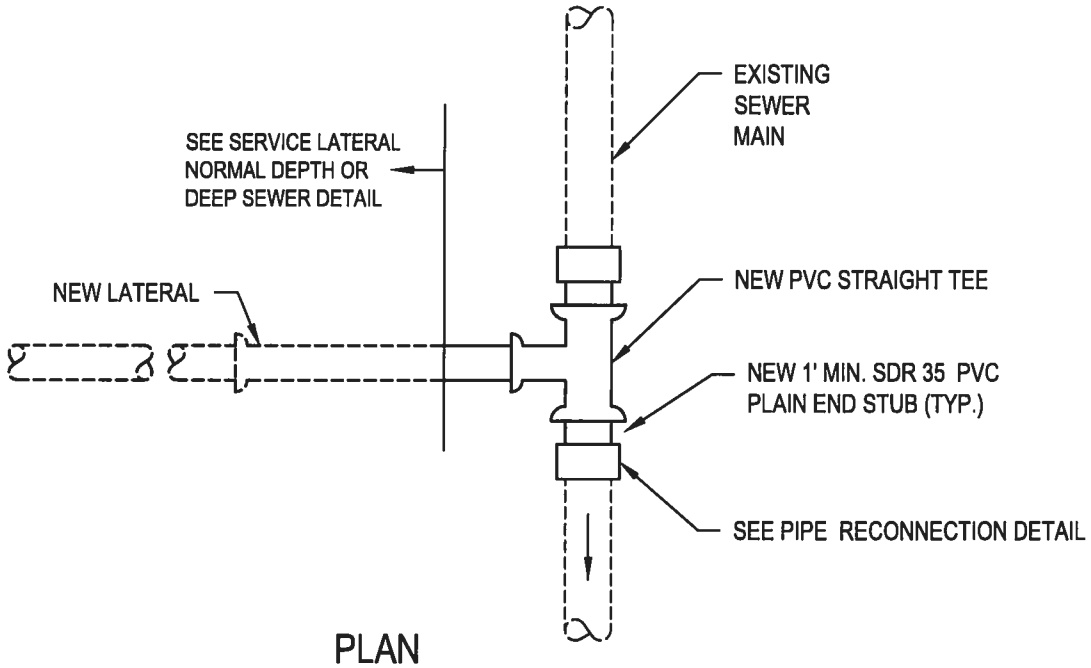
NOTES:

1. CURB CLEANOUT NOT TO BE LOCATED IN SIDEWALK (UNLESS DIRECTED BY LOWER PAXTON TOWNSHIP) OR BENEATH OTHER CURBLINE UTILITIES.

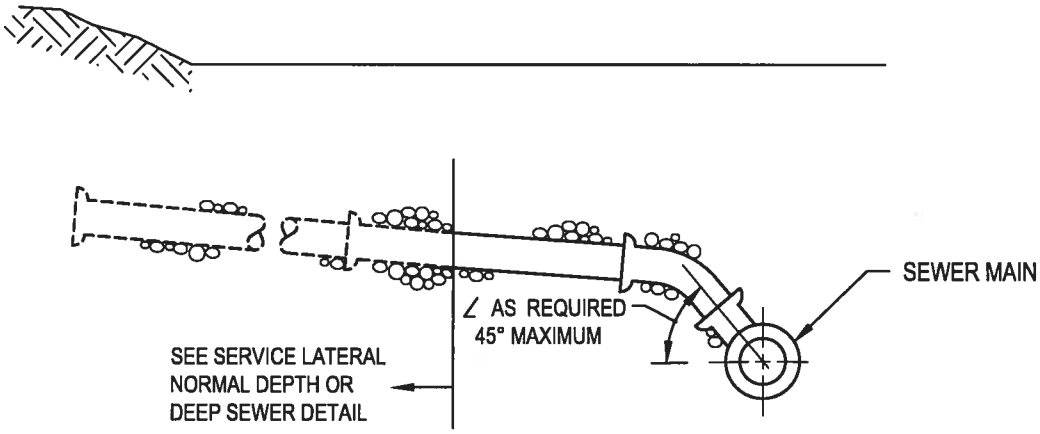
SERVICE LATERAL - NORMAL DEPTH

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	LAT-1



PLAN



ELEVATION

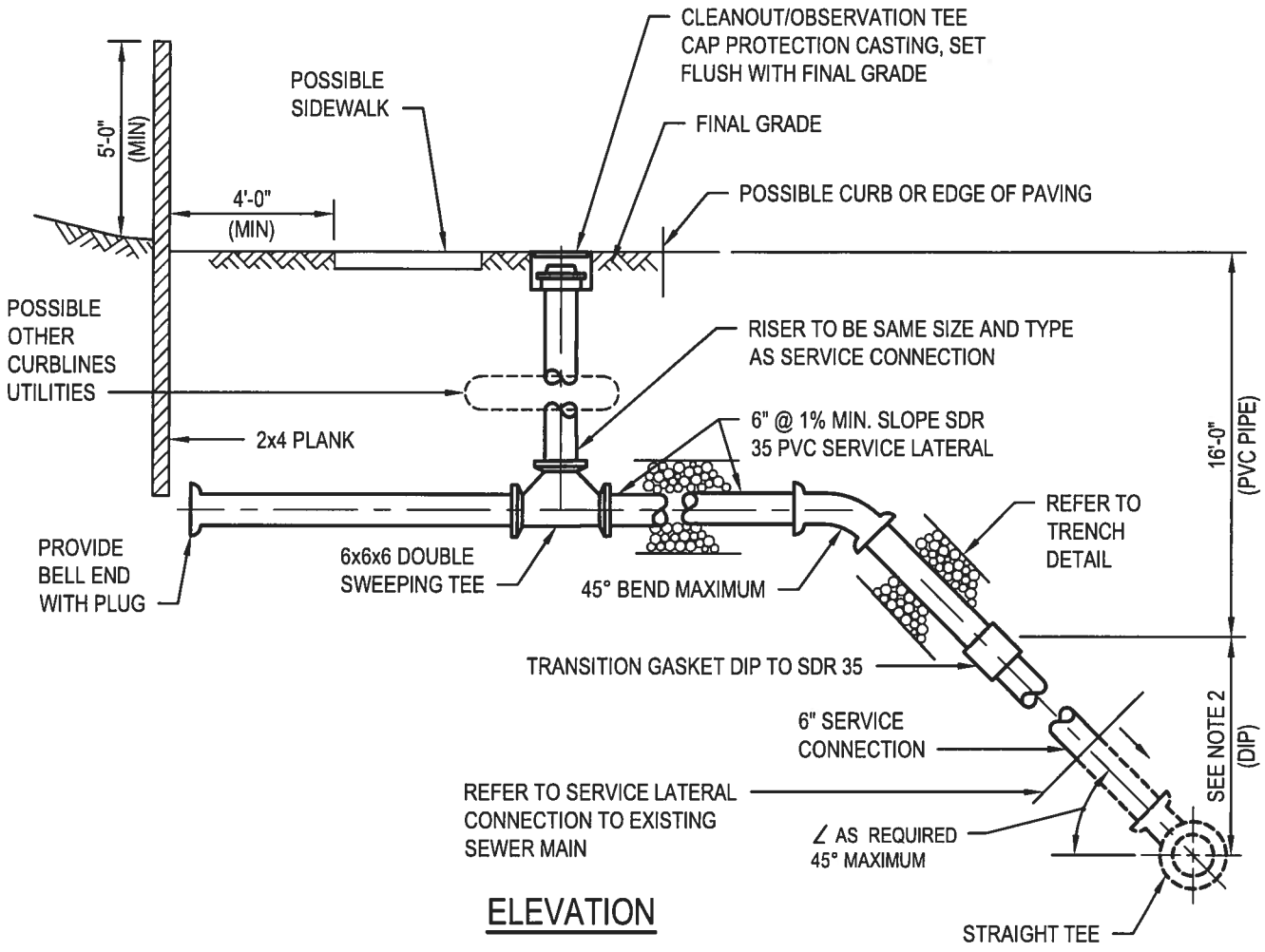
NOTES:

1. EXISTING MAIN SEWER TO BE SAW CUT.

SERVICE LATERAL CONNECTION TO EXISTING SEWER MAIN

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	LAT-2



ELEVATION

NOTES:

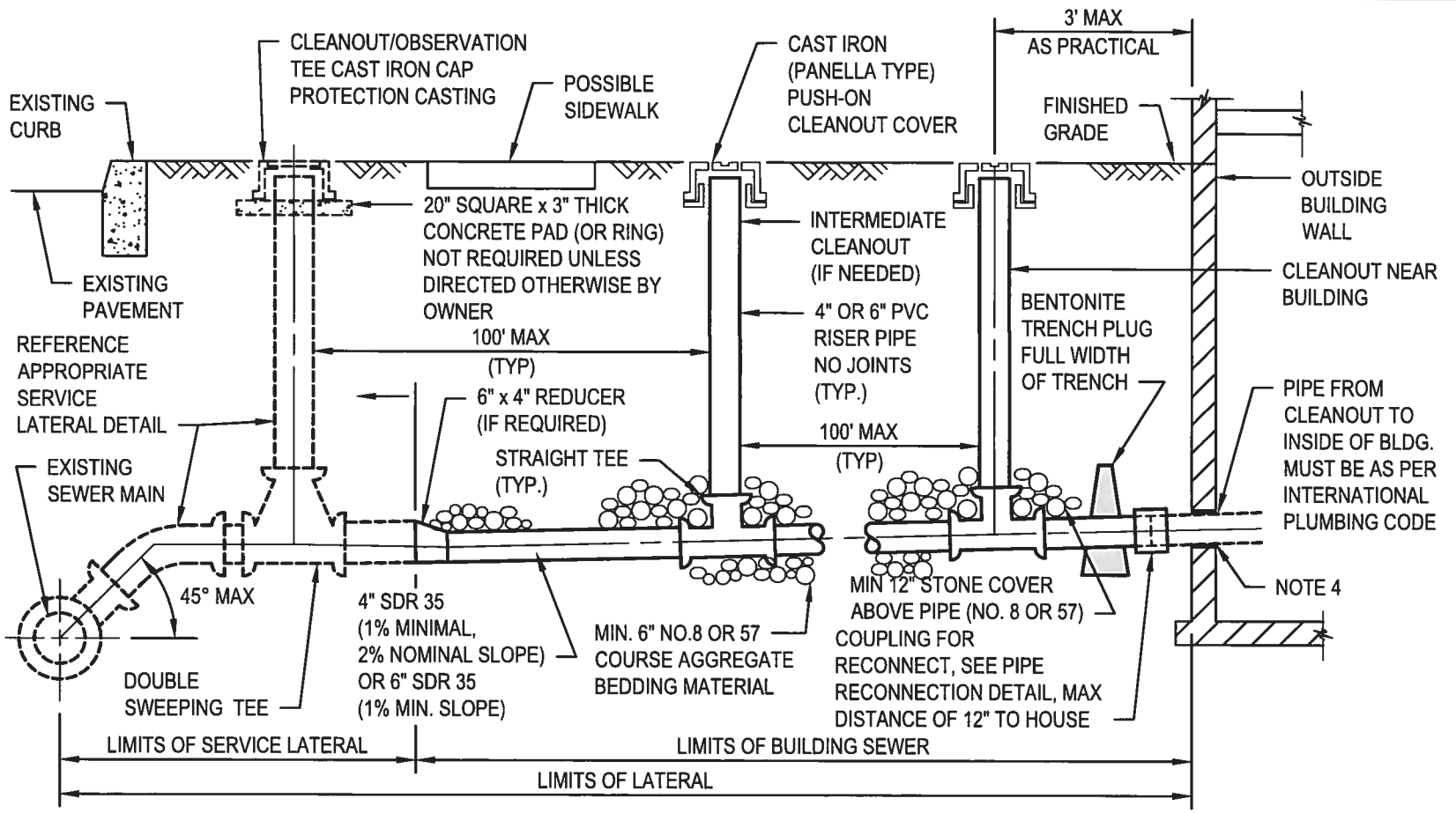
1. CURB CLEANOUT NOT TO BE LOCATED IN SIDEWALK (UNLESS DIRECTED BY LOWER PAXTON TOWNSHIP) OR BENEATH OTHER CURBLINE UTILITIES.
2. PIPE TYPE TO REMAIN THE SAME AS THE MAINLINE UNTIL 16' OR LESS OF COVER.

SERVICE LATERAL - DEEP SEWER

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

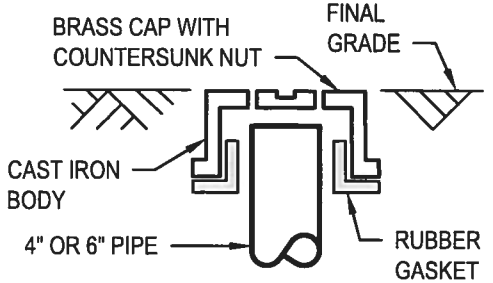
SCALE	FILE
NO SCALE	LAT-3

BUILDING SEWER AND/OR SERVICE LATERAL INSTALLATION/REPLACEMENT



NOTES:

1. PIPE SIZES AND MATERIALS TO BE IN ACCORDANCE WITH TOWNSHIP RULES & REGULATIONS.
2. IF 4" BUILDING SEWER EXISTS, USE ECCENTRIC 6" x 4" REDUCER FITTING FOR TRANSITION TO OBSERVATION TEE (4"x6" FLEXIBLE COUPLING NOT ALLOWED).
3. CLEANOUT SPACING IS 100' MAXIMUM.
4. A WALL SLEEVE TO BE 2" > THAN THE DIAM. OF BUILDING SEWER PIPE AND SEALED WATERTIGHT, AS PER THE INTERNATIONAL PLUMBING CODE.
5. A HORIZONTAL SEPARATION OF 5 FEET OF UNDISTURBED OR COMPACTED EARTH IS REQUIRED BETWEEN BUILDING SEWER AND WATER SERVICE.
6. IN TRAFFIC AREAS AND ON OBSERVATION TEE A CAST IRON PROTECTION CASTING SHALL BE USED INSTEAD OF A CAST IRON PUSH-ON CLEANOUT COVER
7. POSITIVELY NO EXTRA CLEANOUT TO BE ADDED AFTER INITIAL 6" LATERAL STUB FOR THE SOLE PURPOSE OF TESTING BUILDING SEWER. WILL BE CAUSE FOR REJECTION OF INSPECTION. PLUMBERS MUST TEST FROM 6" CLEANOUT RISER TO 4" BUILDING CLEANOUT.
8. INSTALL TRENCH PLUG IN ALL BUILDING SEWER TRENCHES

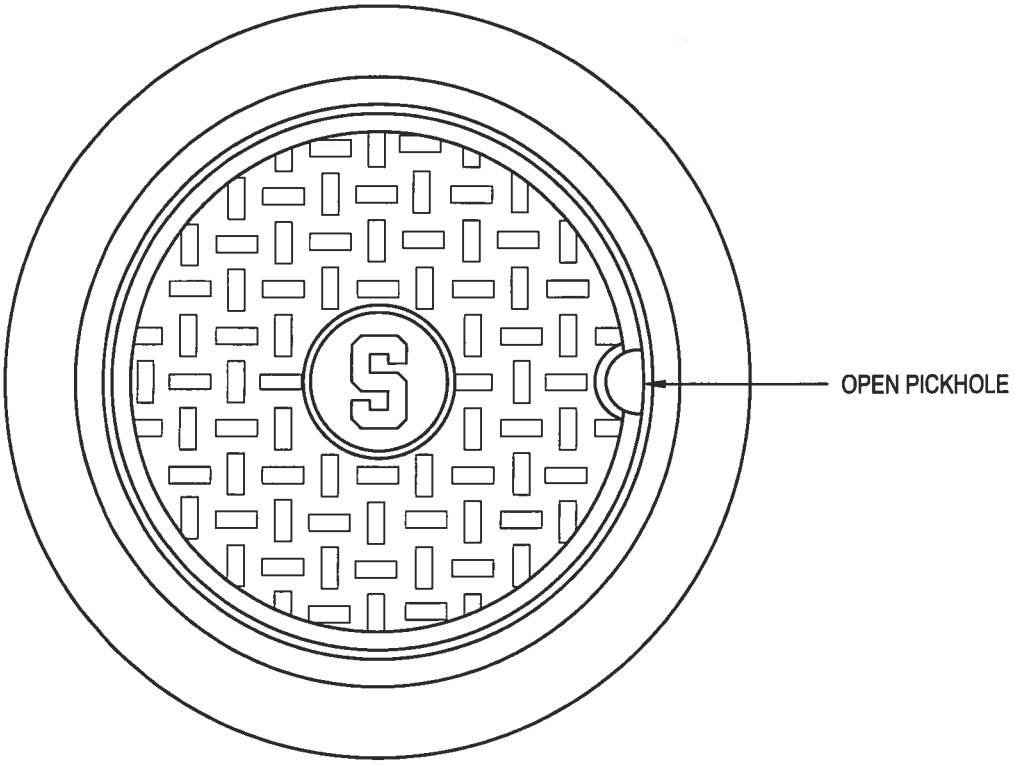


CAST IRON (PANELLA TYPE) PUSH-ON CLEANOUT COVER
NO SCALE

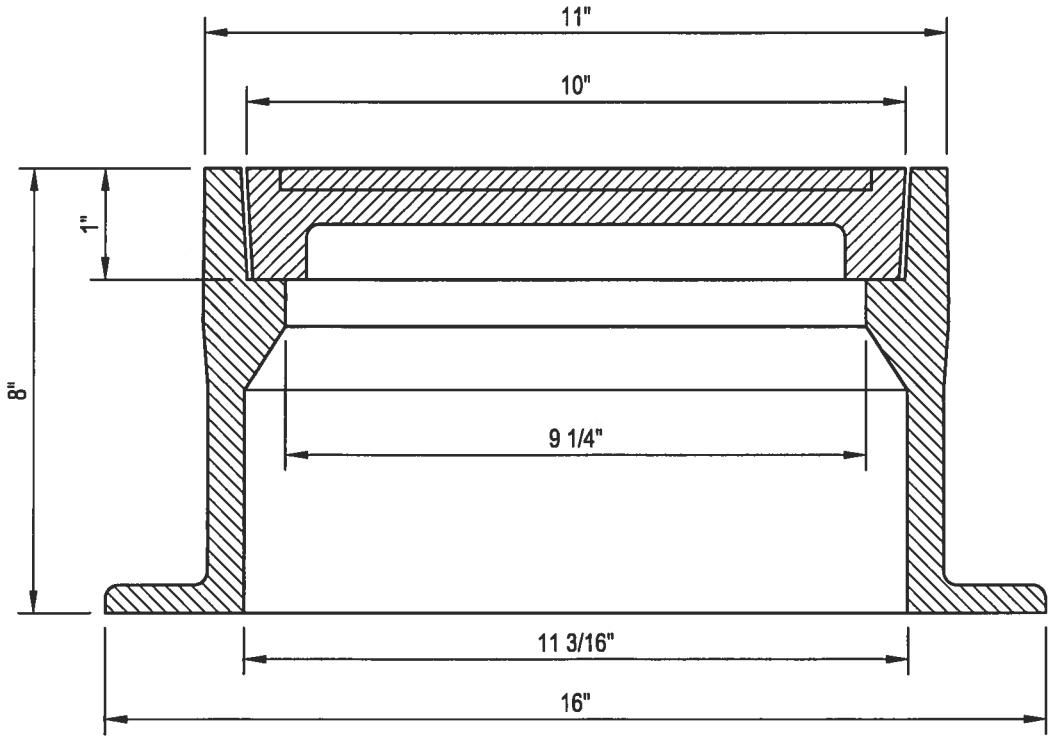
DATE	REVISIONS
OCT. 2016	UPDATED STANDARD DETAILS

SCALE: NO SCALE

FILE: LAT-4



PLAN

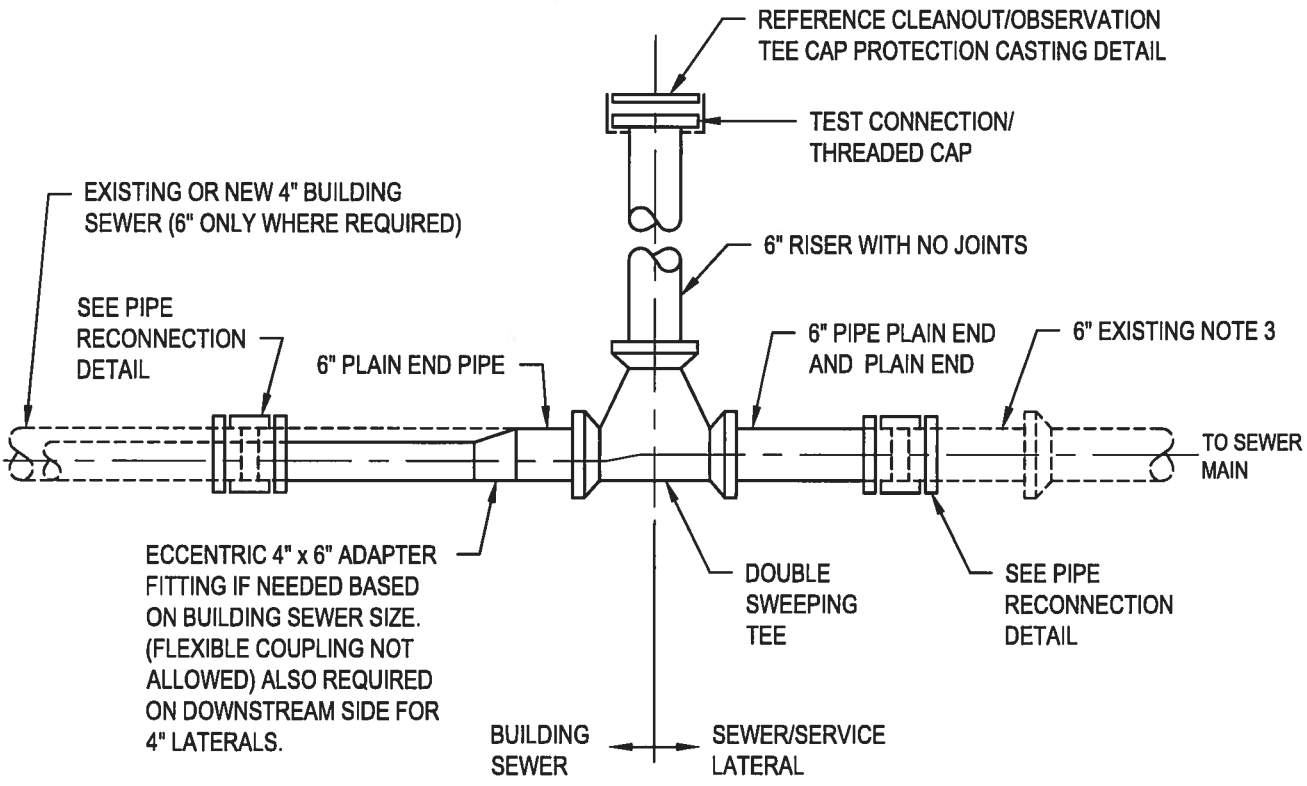


SECTION

CLEANOUT/OBSERVATION TEE CAP PROTECTION CASTING

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	LAT-5



ELEVATION

NOTES:

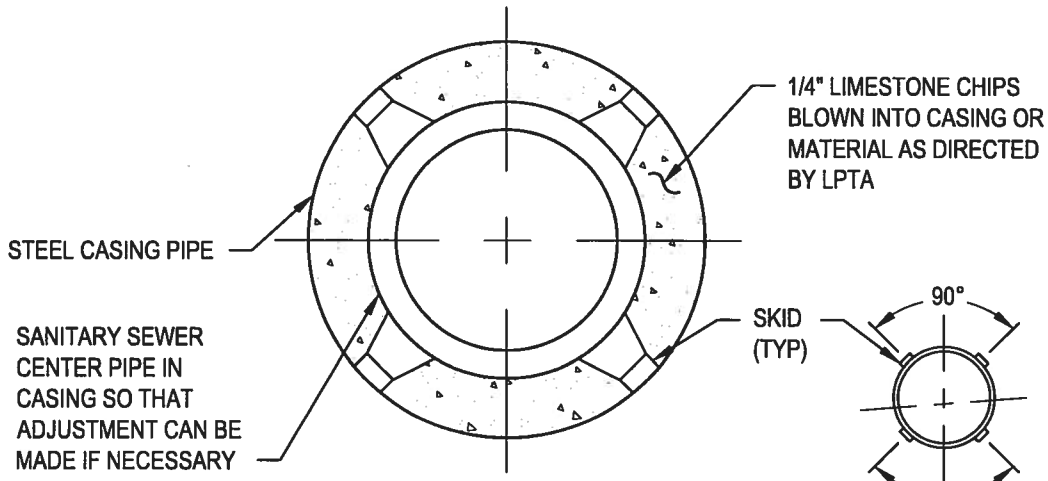
1. REFER TO APPROPRIATE DWG'S. FOR CLEANOUT CAP DETAILS.
2. LOCATE OBSERVATION TEE 5'-0" (MAX.) FROM CURB, OR AT THE CONNECTION POINT BETWEEN SEWER LATERAL AND BUILDING SEWER IF KNOWN.
3. IF 4" LATERAL EXISTS, USE ECCENTRIC 4" x 6" ADAPTER FITTING FOR TRANSITION TO OBSERVATION TEE (4" x 6" FLEXIBLE COUPLING NOT ALLOWED).

OBSERVATION TEE

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	LAT-6

CASING DETAILS FOR PIPE BORINGS/TUNNELS

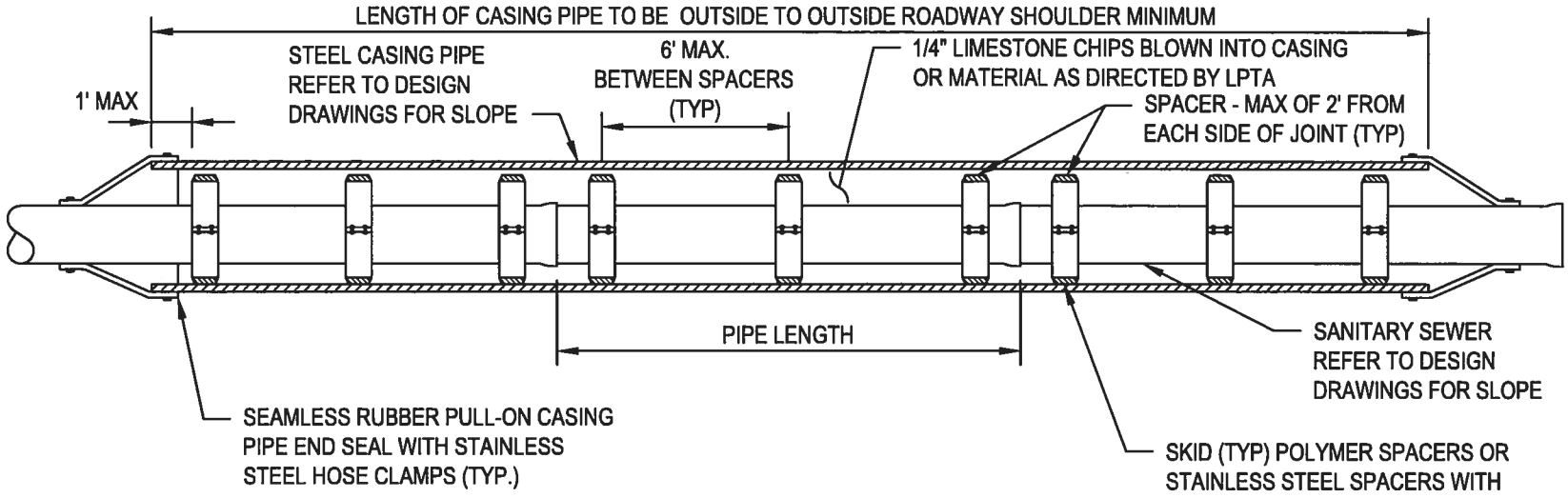


CASING SECTION

CASING TABLE

NOMINAL PIPE DIAMETER	MINIMUM NOMINAL CASING I.D.
8"	24"

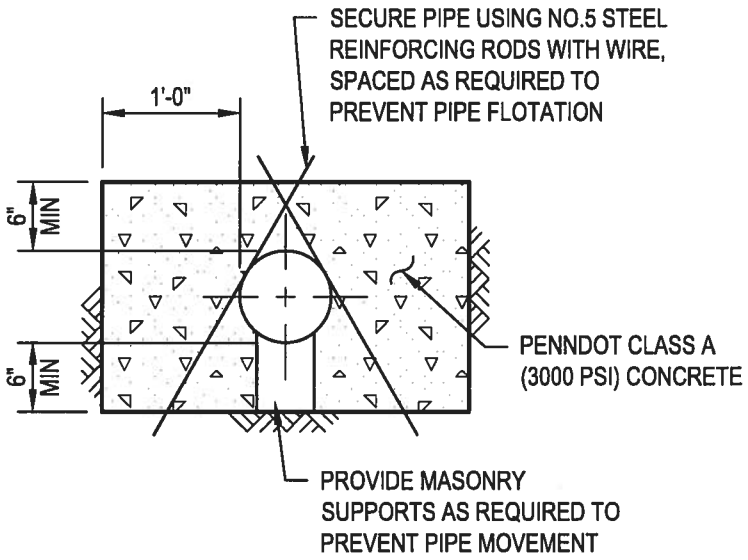
CASING PIPES SHALL BE SMOOTH STEEL WALL CONFORMING TO ASTM A-252 GRADE 2, OR ASTM A-139 GRADE B, MINIMUM PLATE THICKNESS 0.344-INCHES. CASING SHALL BE UNCOATED. MINIMUM YIELD STRENGTH OF 35,000 PSI.



CASING ELEVATION

NOTE:
BRICK OR CEMENT CASING END SEALS ARE NOT PERMITTED

SCALE	FILE	DATE	REVISIONS
NO SCALE	P-1	OCT. 2016	UPDATED STANDARD DETAILS



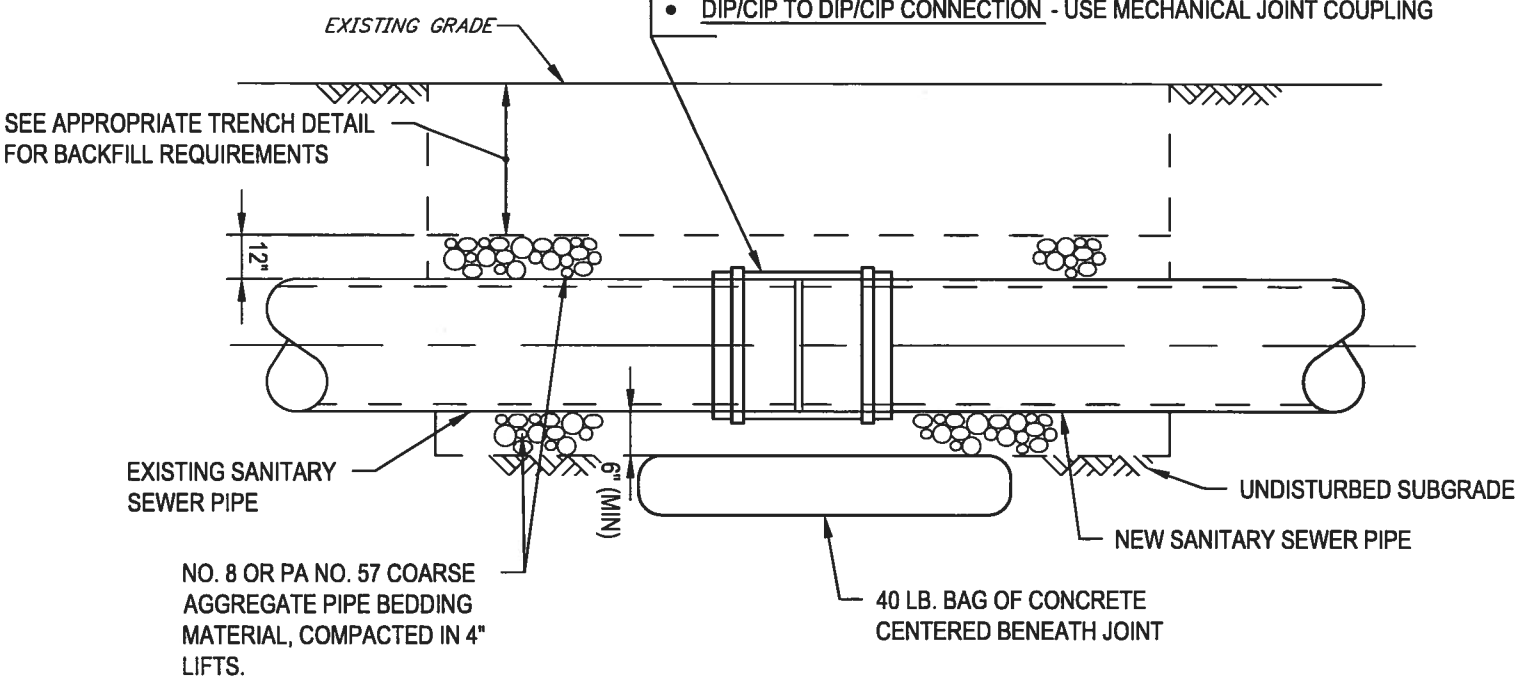
CONCRETE ENCASEMENT DETAIL

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	P-2

PIPE RECONNECTION DETAIL

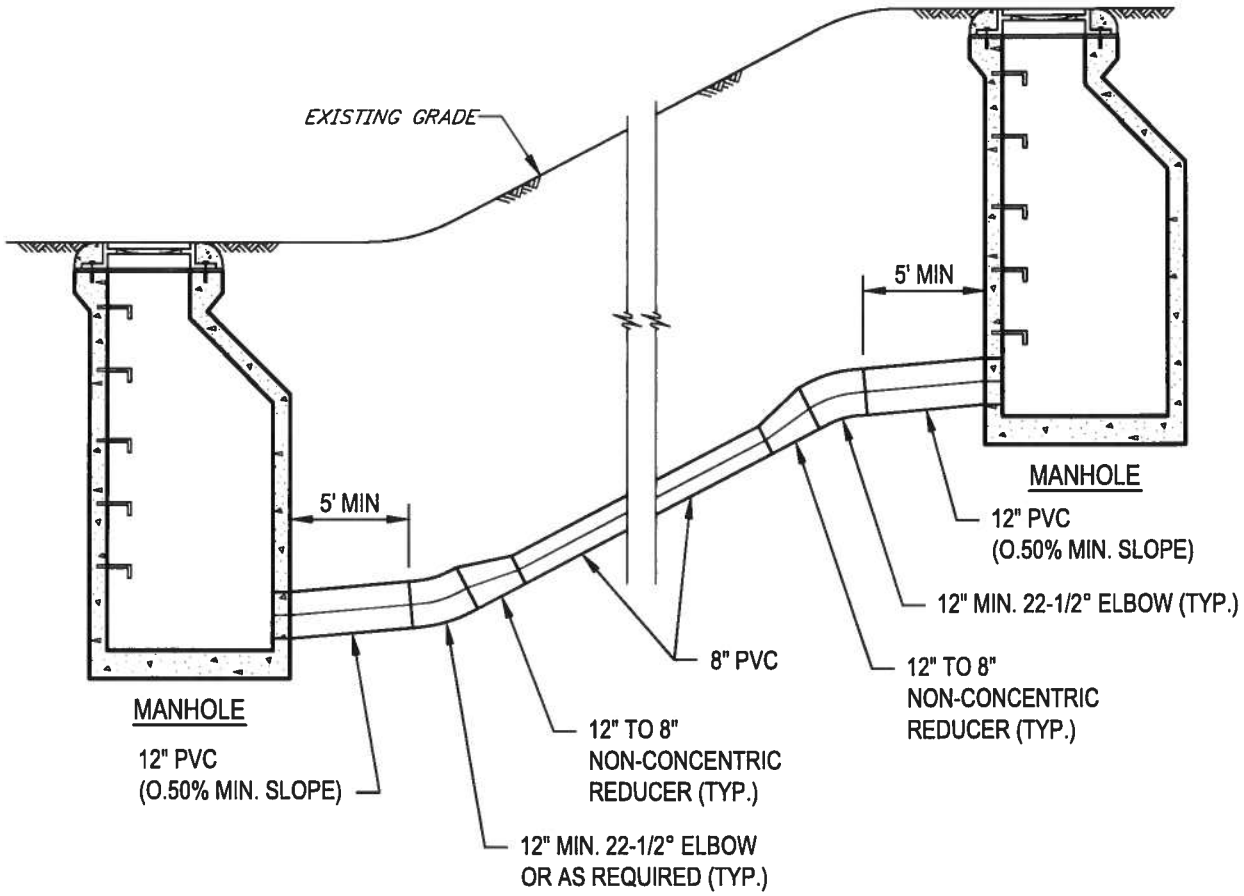
- PVC TO PVC CONNECTION - USE PVC REPAIR SLEEVE
- PVC TO CAST IRON CONNECTION - USE MECHANICAL JOINT COUPLING
- PVC TO DIP - USE MECHANICAL JOINT x SDR 35 TRANSITION GASKET
- PVC TO ACP CONNECTION - USE MECHANICAL JOINT COUPLING
- PVC TO TCP/VCP CONNECTION - USE MECHANICAL JOINT COUPLING
- DIP/CIP TO DIP/CIP CONNECTION - USE MECHANICAL JOINT COUPLING



NOTES:

1. RECONNECTIONS TO BE AIR TESTED IN ACCORDANCE WITH SPECIFICATIONS.
2. ON ALL PIPE OTHER THAN PVC, MECHANICAL COUPLERS ARE REQUIRED FOR PIPE 8 INCH AND OVER. MECHANICAL JOINT COUPLINGS TO BE SMITH-BLAIR OR APPROVED EQUAL.
3. USE STAINLESS STEEL ANTI-SHEAR COLLAR RUBBER ADAPTER ONLY FOR 4 AND 6 INCH BUILDING SEWERS .

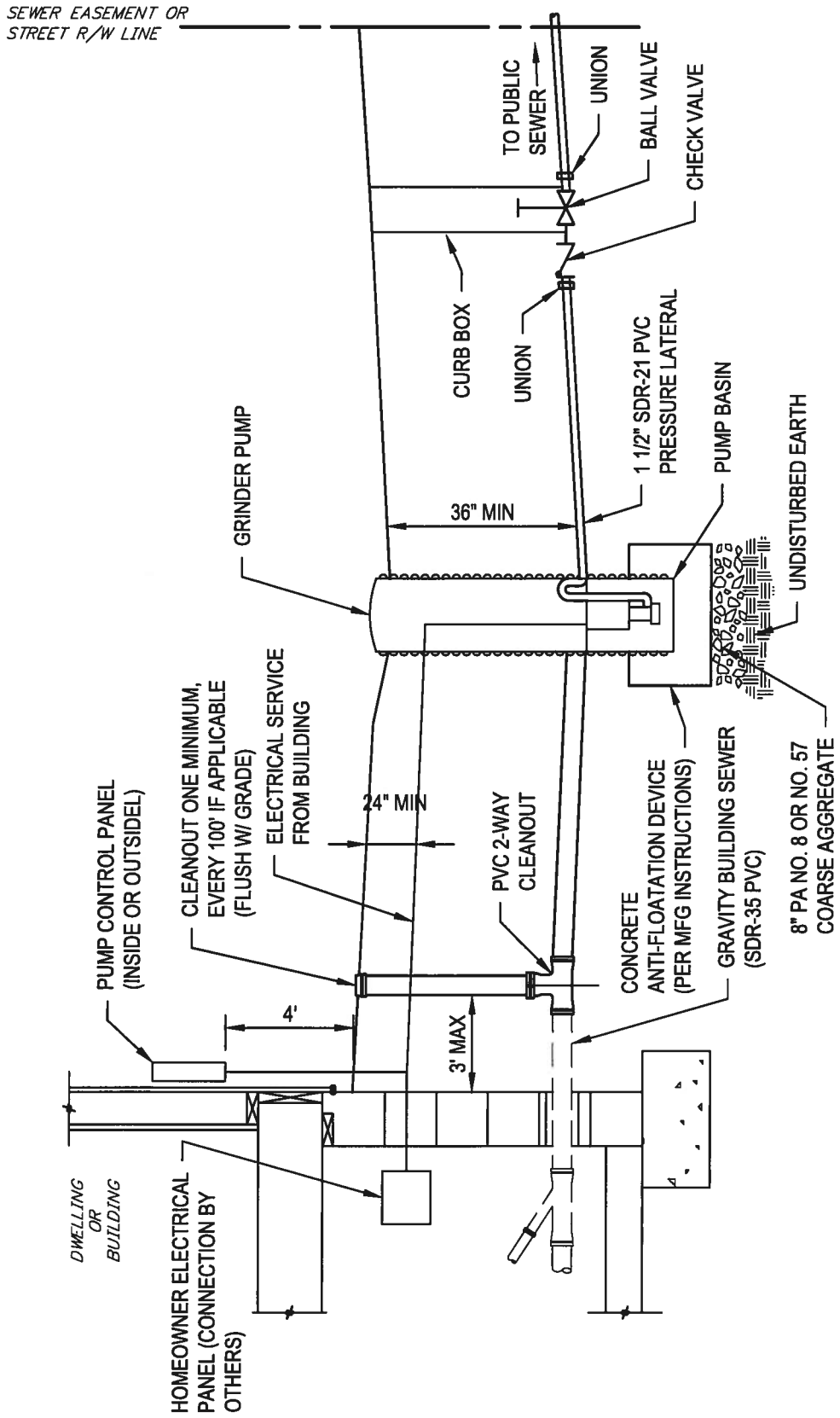
DATE	REVISIONS	SCALE	FILE
OCT, 2016	UPDATED STANDARD DETAILS	NO SCALE	P-3



STEEP SLOPE (GREATER THAN 15%) SANITARY SEWER DETAIL

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	DWG NO
NO SCALE	P-4



NOTES:

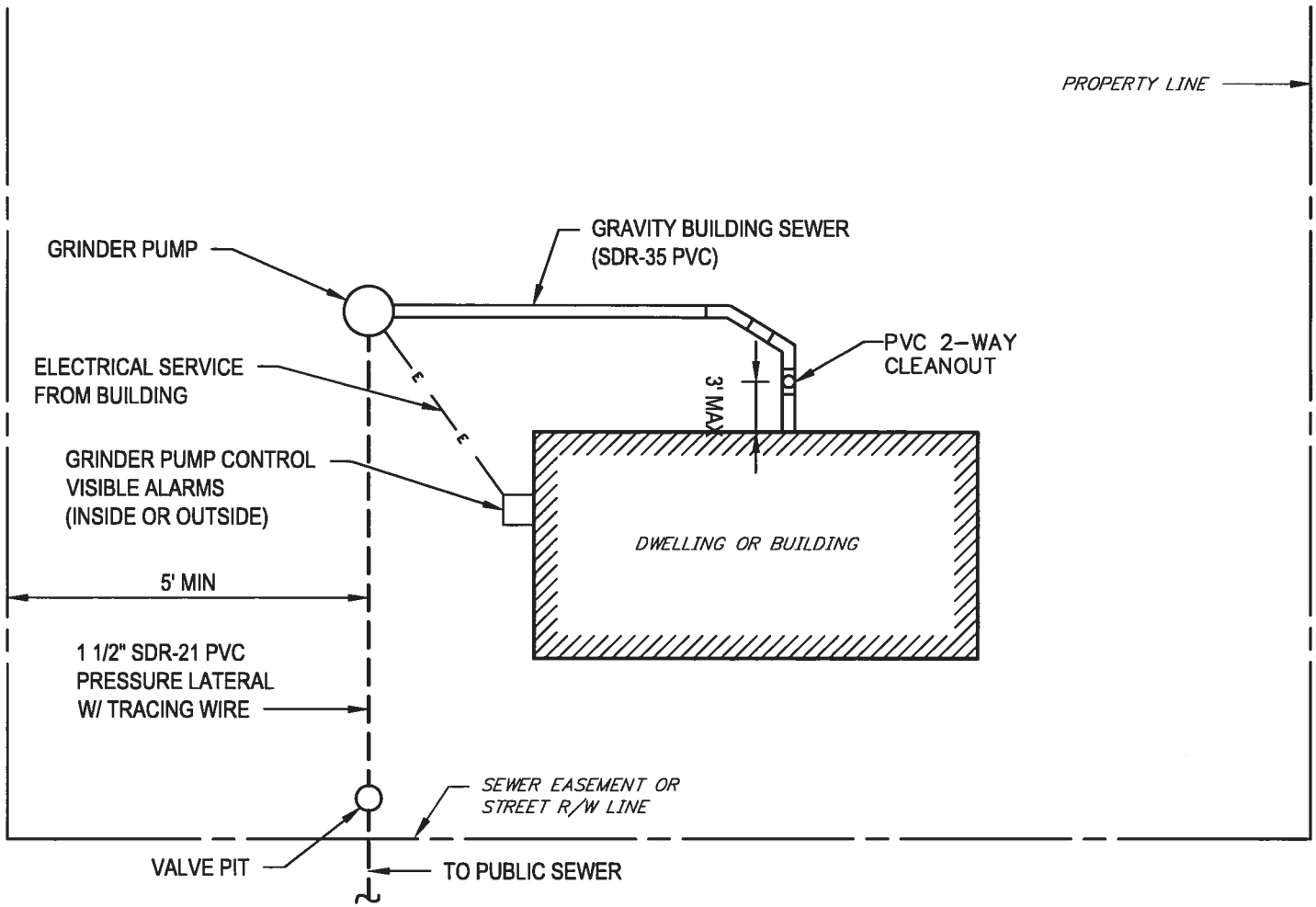
1. PROVIDE CHECK VALVE AND BALL VALVE IN VALVE PIT WHEN CONNECTING TO LOW PRESSURE SEWER MAIN.

TYPICAL GRINDER PUMP INSTALLATION DETAIL - ELEVATION

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	DWG. NO.
NO SCALE	LP-1

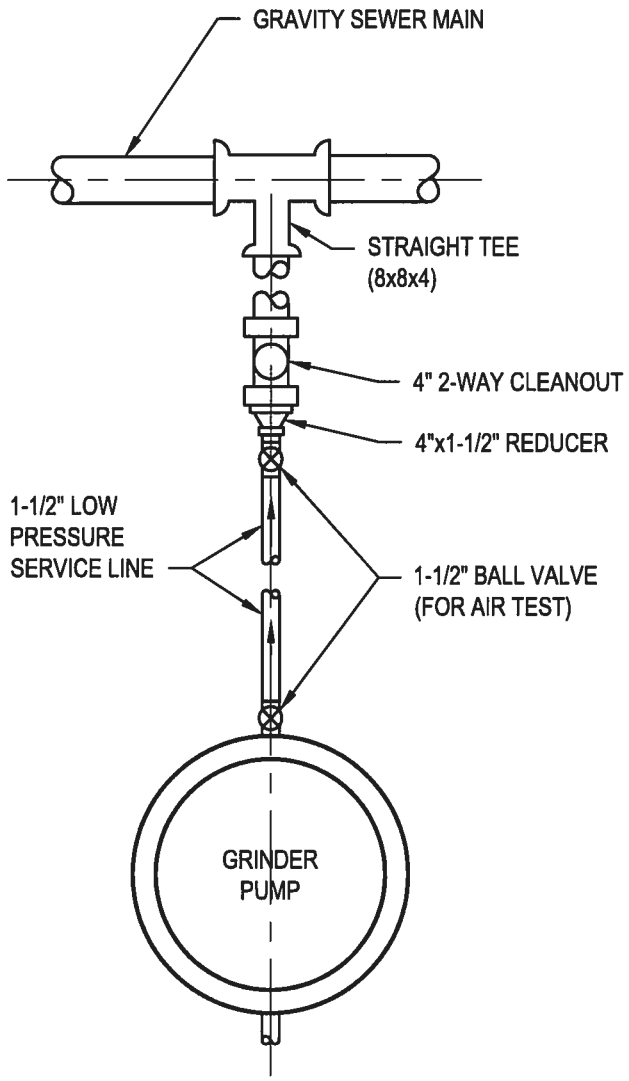
TYPICAL GRINDER PUMP INSTALLATION DETAIL - PLAN



NOTES:

1. ACTUAL PUMP STATION AND LATERAL LOCATIONS MAY VARY. CONTRACTOR TO COORDINATE INSTALLATION LOCATIONS WITH OWNER/TOWNSHIP.
2. CLEANOUT REQUIRED IN LOW PRESSURE SERVICE LATERAL EVERY 100', CONSISTING OF 1-1/2" TEE, SDR21 VERTICAL PIPE AND THREADED CAP.

SCALE	DATE
NO SCALE	OCT, 2016
DWG. NO. LP-2	REVISIONS: UPDATED STANDARD DETAILS

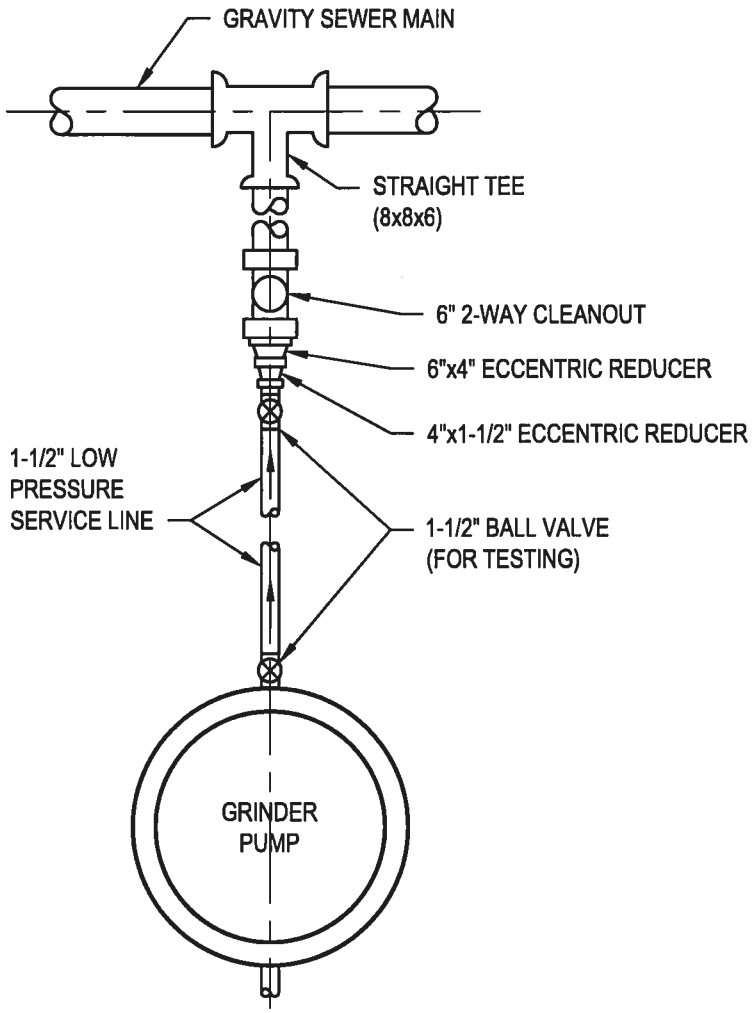


PLAN

LOW PRESSURE SERVICE LINE
4" CONNECTION AT GRAVITY MAIN

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	LP-3A

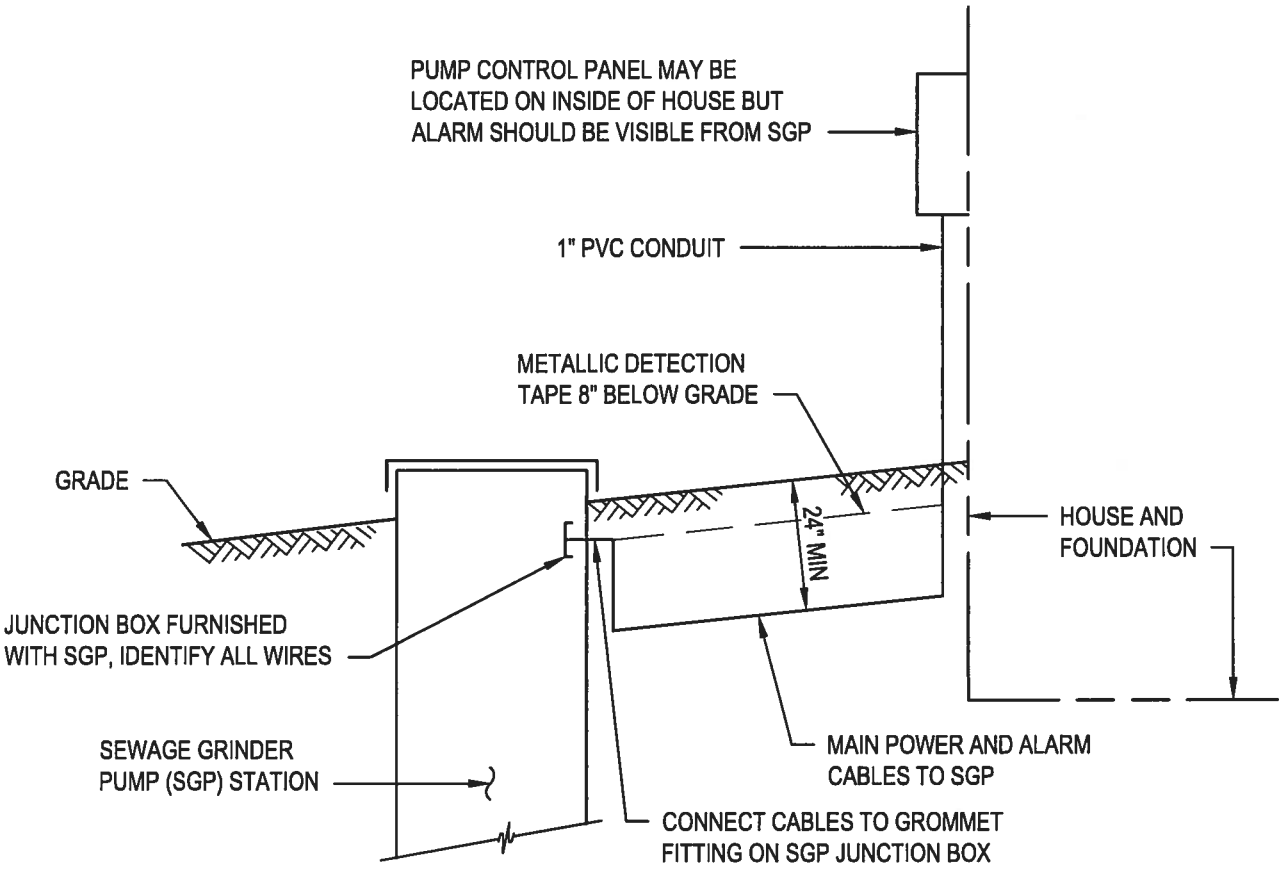


PLAN

LOW PRESSURE SERVICE LINE
6" CONNECTION AT GRAVITY MAIN

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

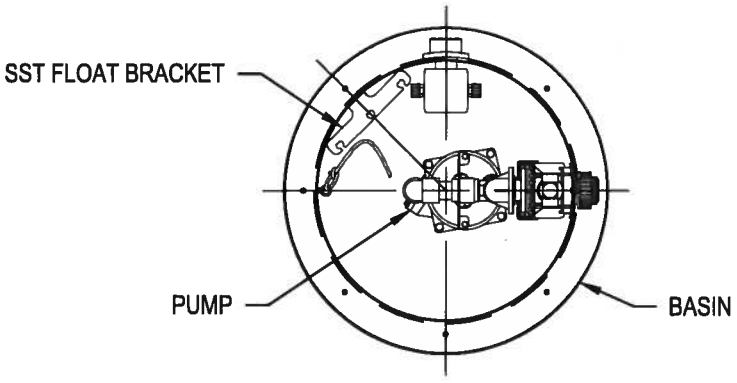
SCALE	FILE
NO SCALE	LP-3B



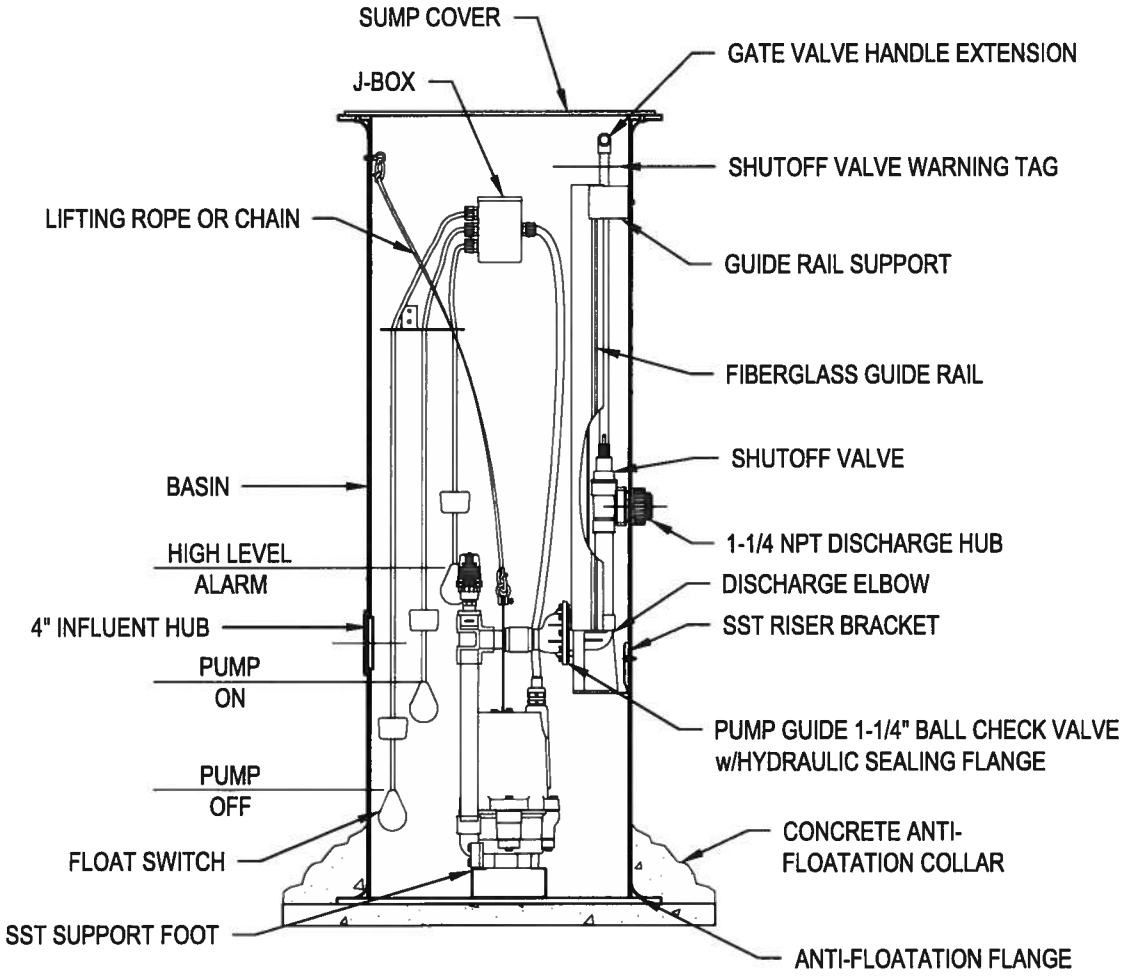
TYPICAL GRINDER PUMP STATION ELECTRICAL LAYOUT

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	LP-4



PLAN

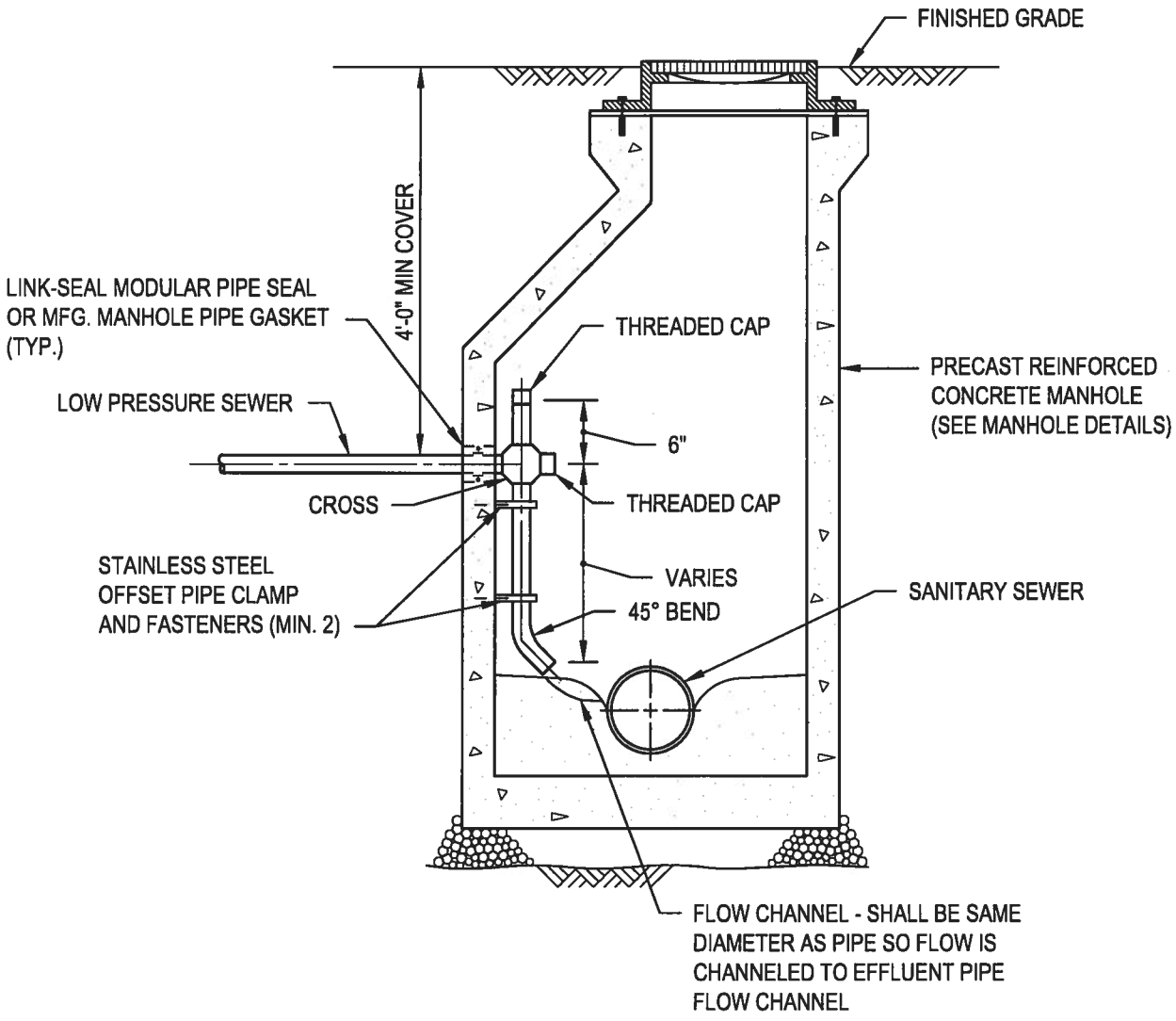


ELEVATION

SIMPLEX SEWAGE GRINDER PUMP STATION (FOR SINGLE RESIDENTIAL UNIT APPLICATIONS)

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

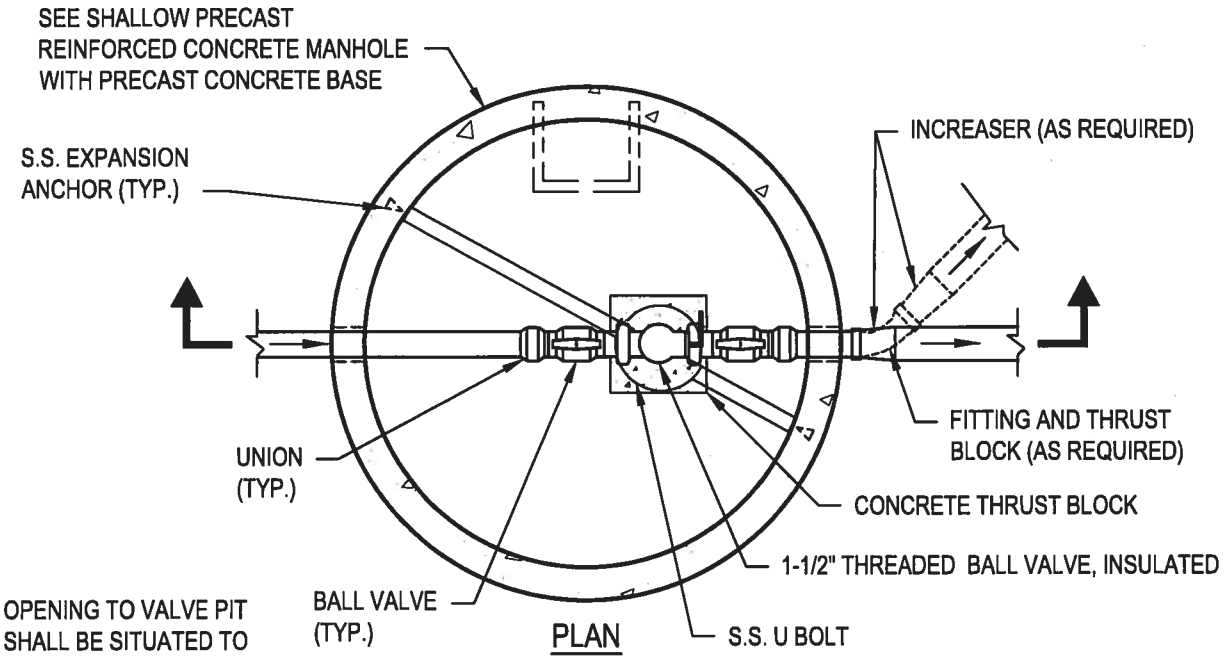
SCALE	FILE
NO SCALE	LP-5



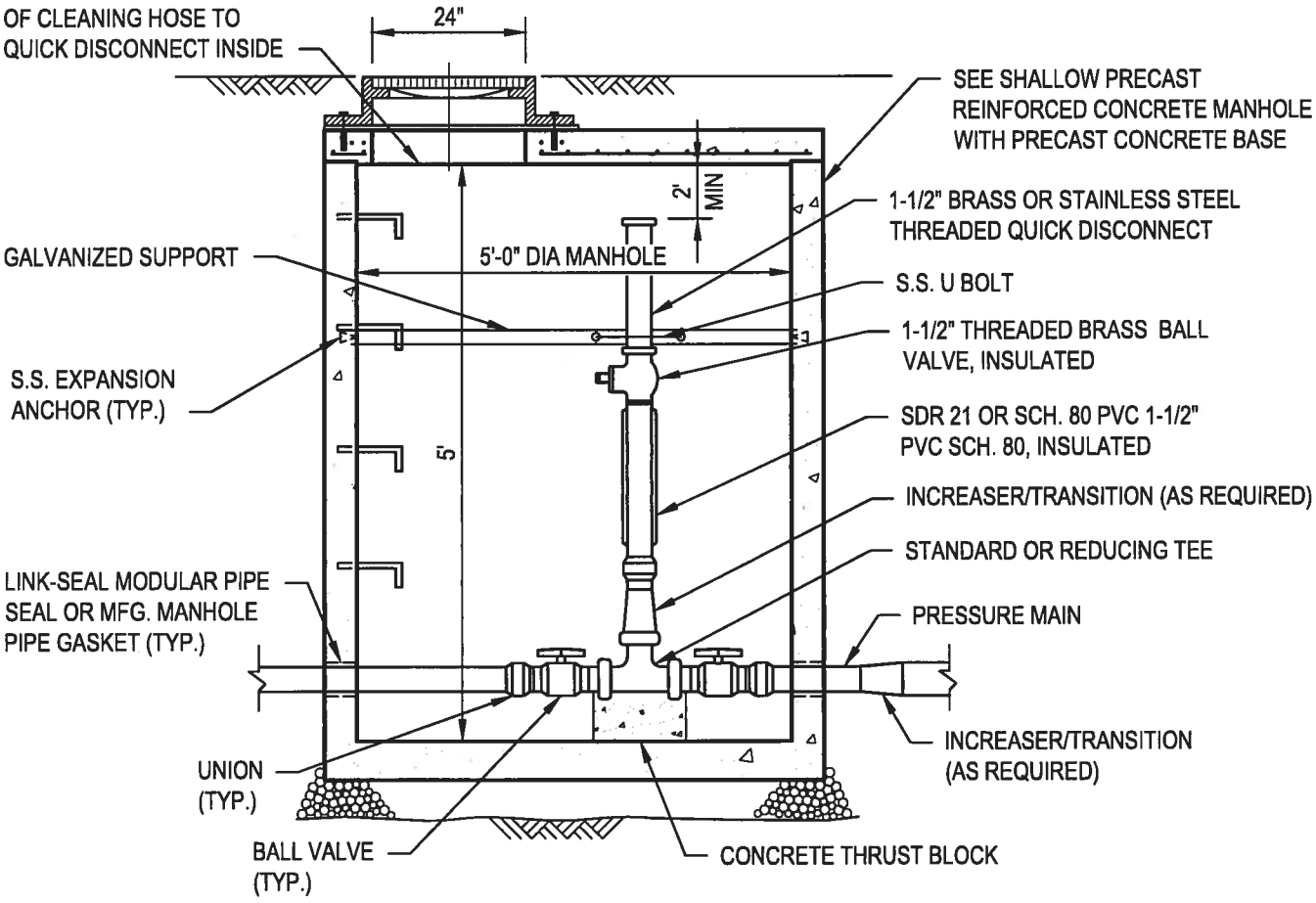
LOW PRESSURE SEWER DISCHARGE TO MANHOLE

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	DWG. NO.
NO SCALE	LP-6



PLAN

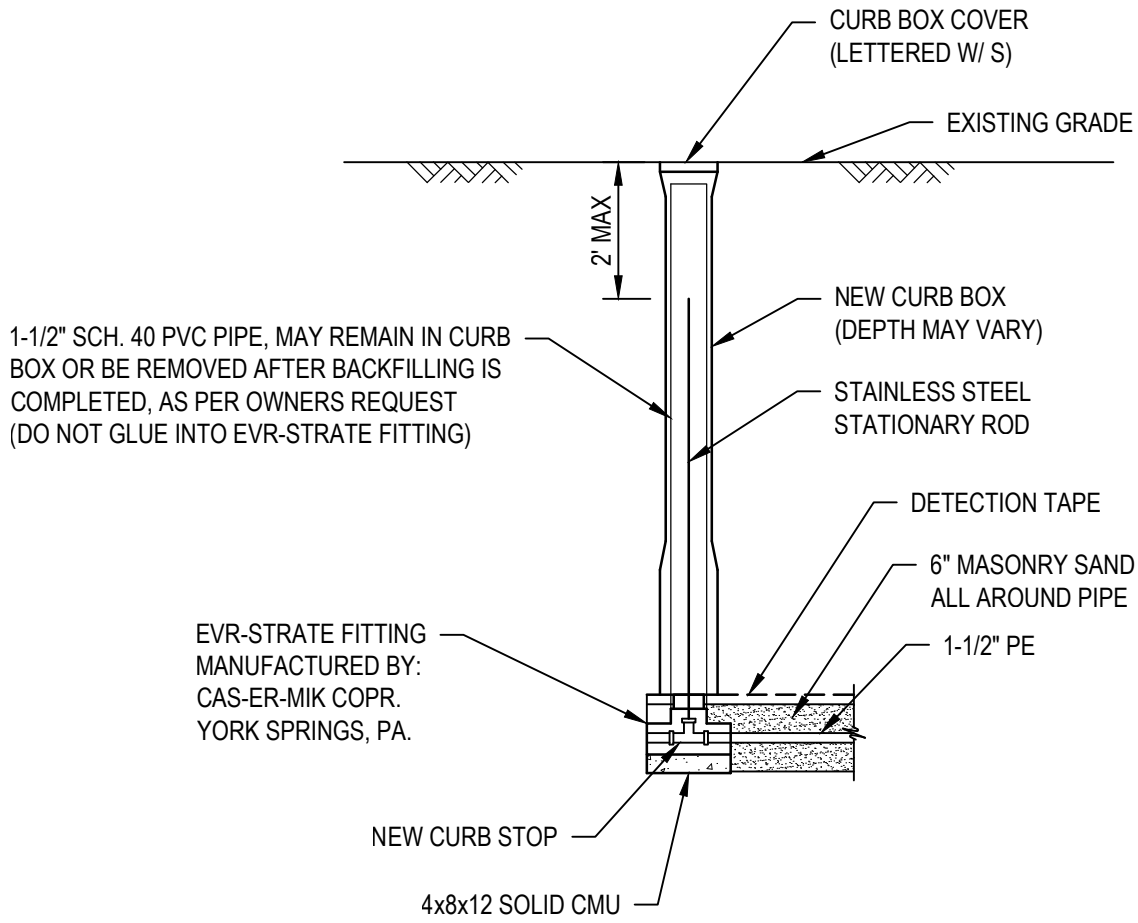


SECTIONAL ELEVATION

IN-LINE CLEANOUT/VALVE PIT FOR LOW PRESSURE SEWER MAIN

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

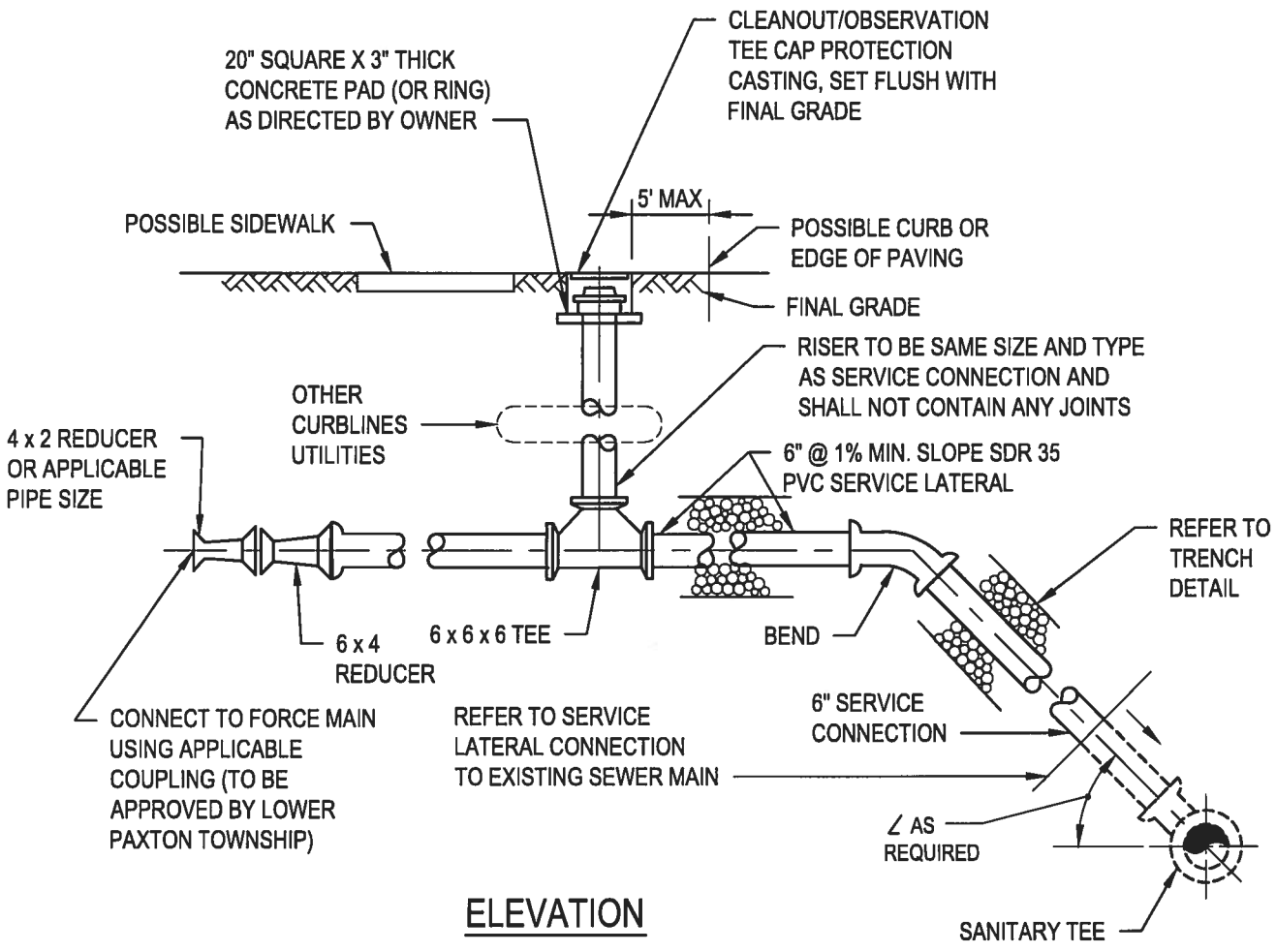
SCALE	DWG. NO.
NO SCALE	LP-7



CURB STOP AND BOX DETAIL

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	DWG. NO.
NO SCALE	LP-8



ELEVATION

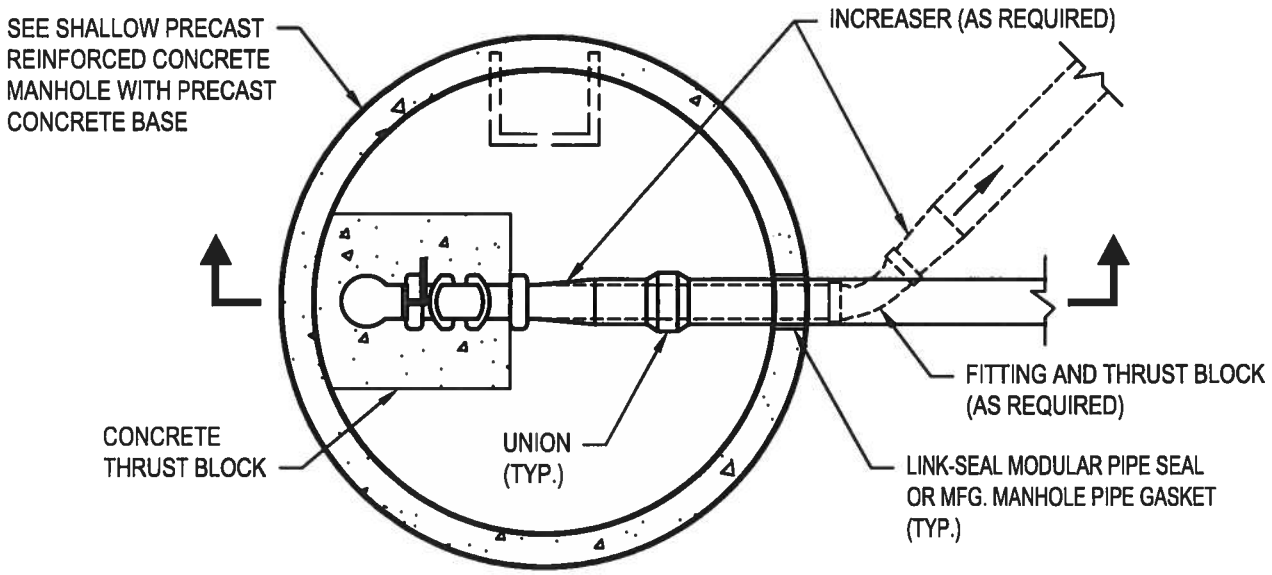
NOTES:

1. CURB CLEANOUT NOT TO BE LOCATED IN SIDEWALK OR BENEATH OTHER CURBLINE UTILITIES.

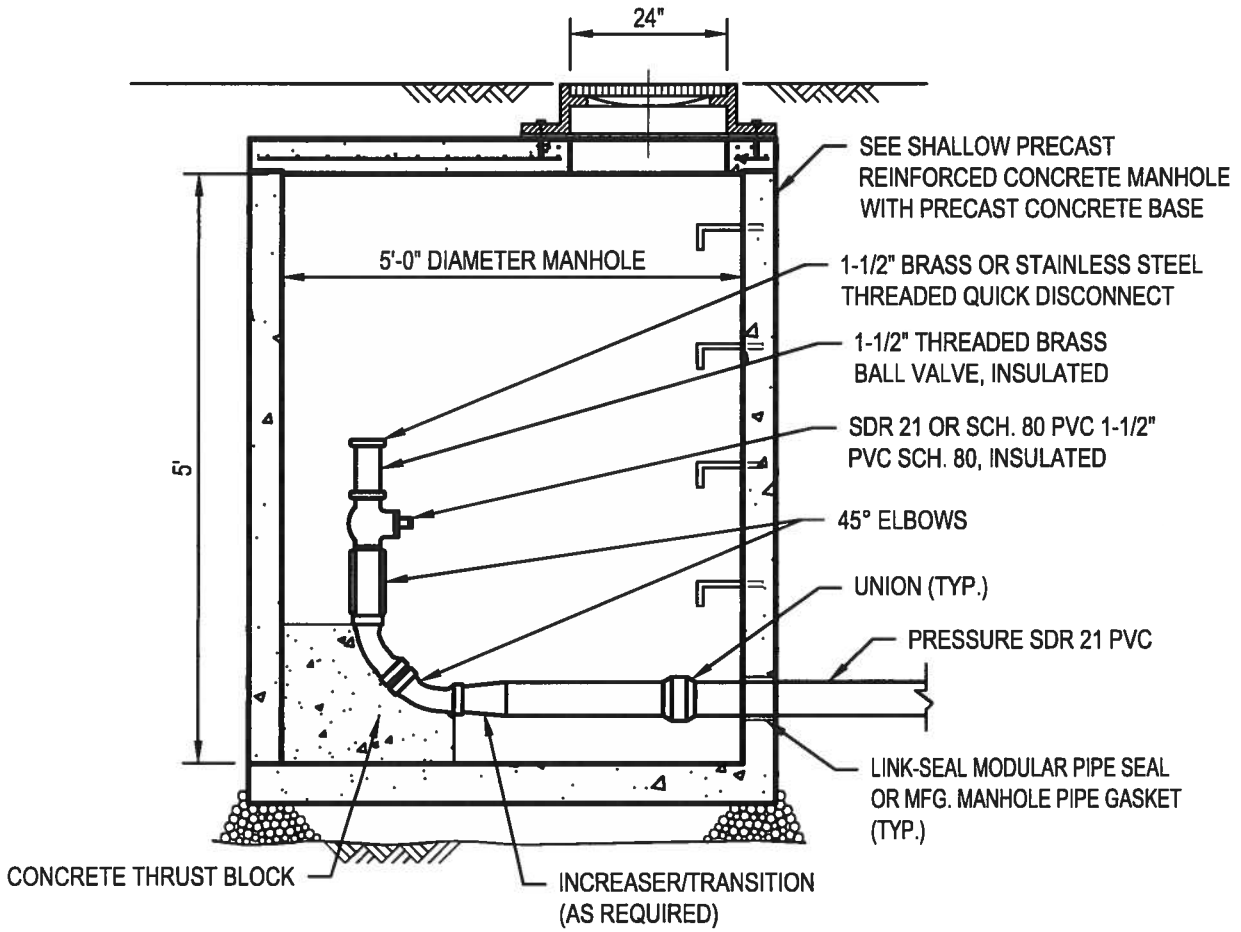
NEW INSTALLATION
GRINDER PUMP CONNECTION

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	LP-9



PLAN

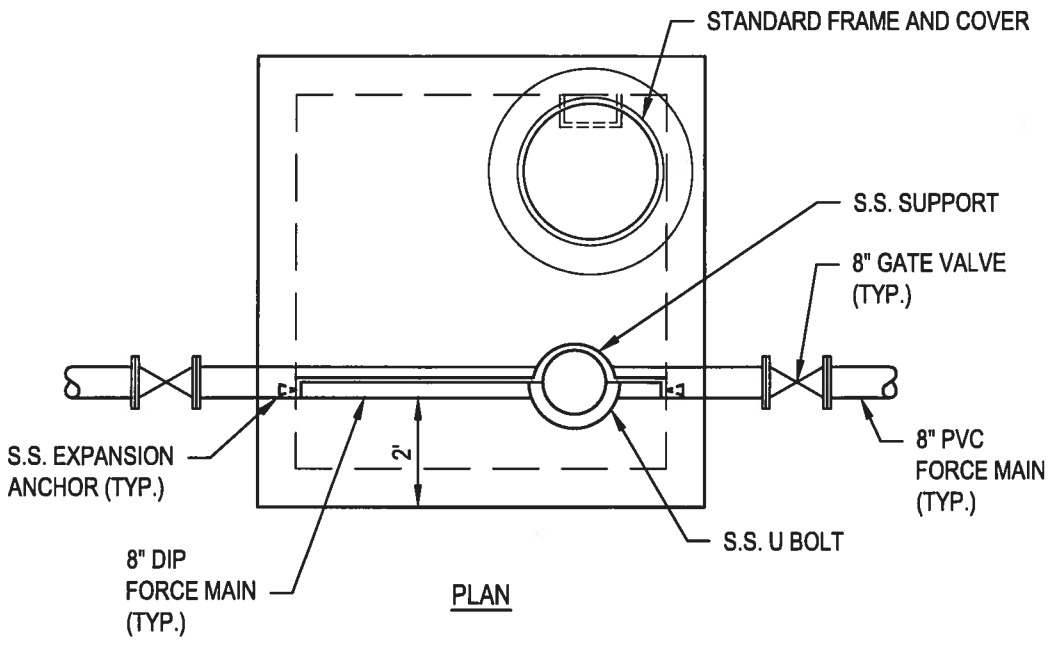


SECTIONAL ELEVATION

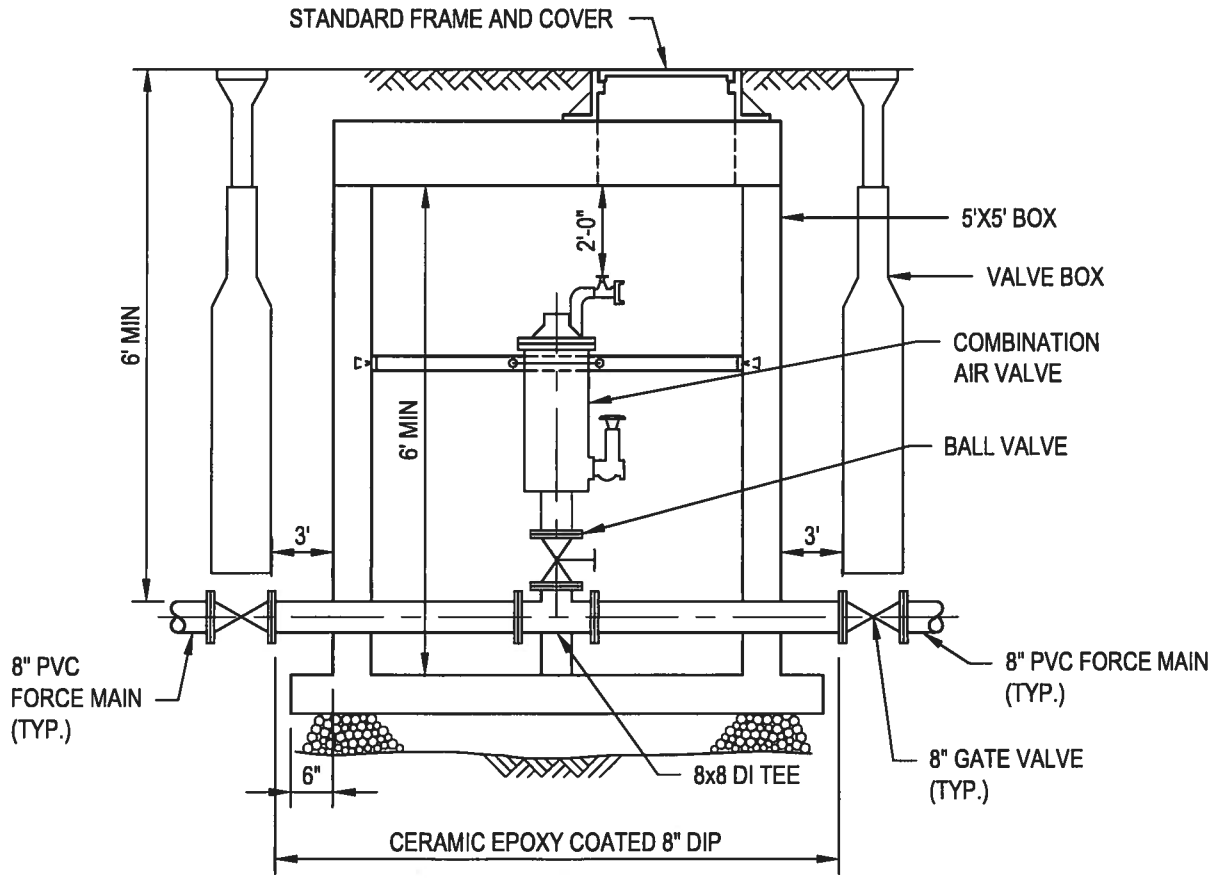
IN-LINE TERMINAL CLEANOUT FOR LOW PRESSURE MAIN

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	DWG NO
NO SCALE	LP-10



PLAN

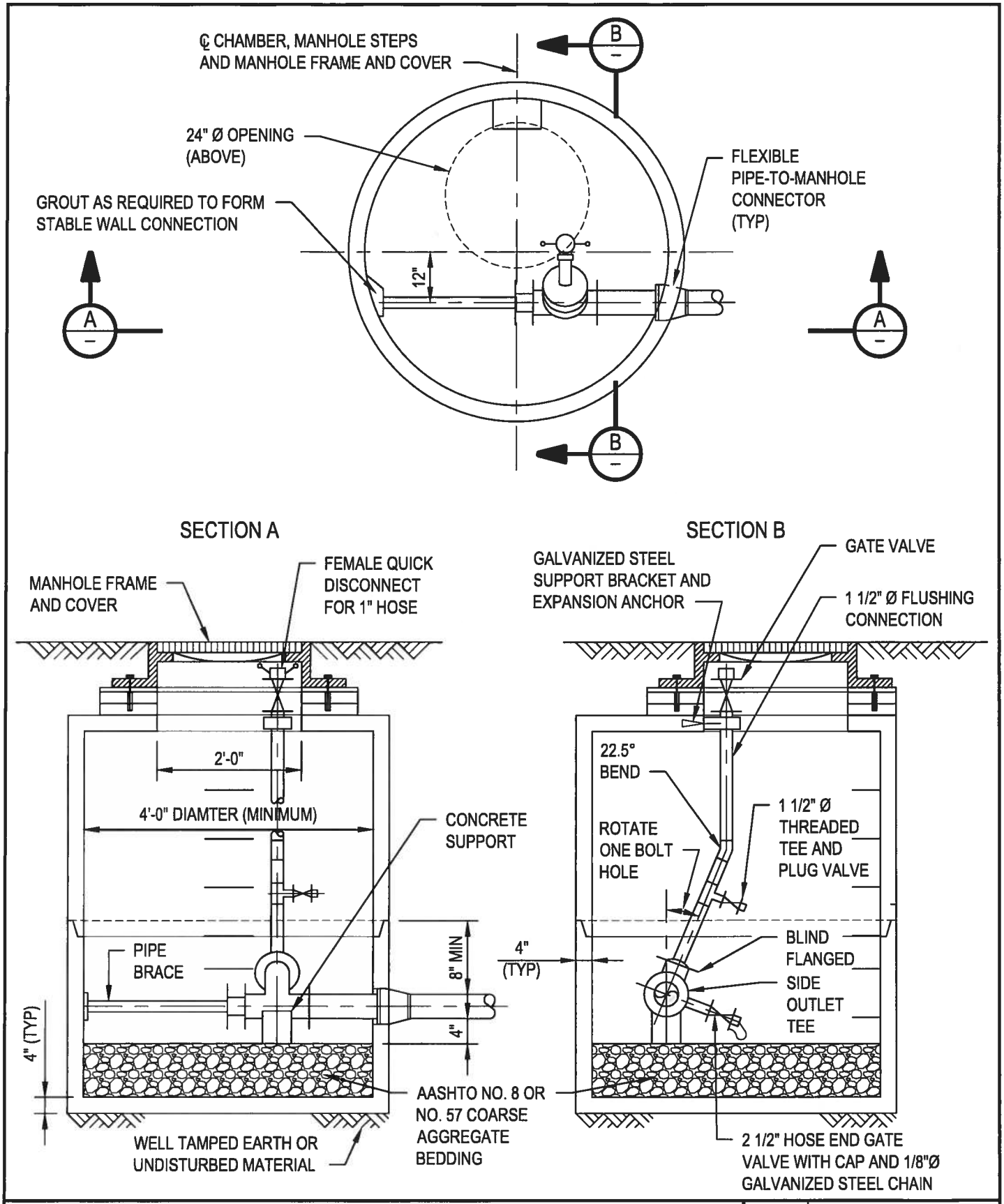


SECTION

AIR RELEASE VALVE CHAMBER

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

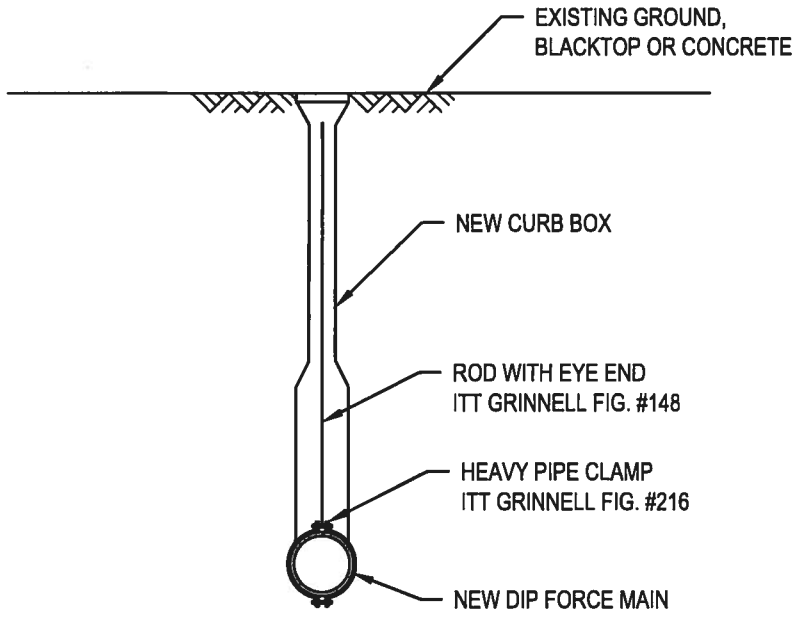
SCALE	DWG. NO.
NO SCALE	FM-1

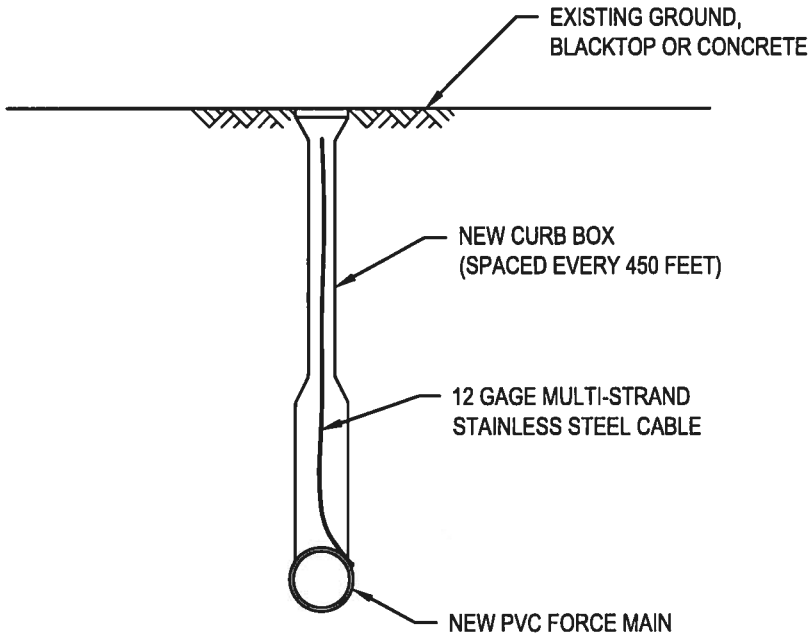


FLUSHING/CLEANOUT CHAMBER (TERMINAL)

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	FM-2

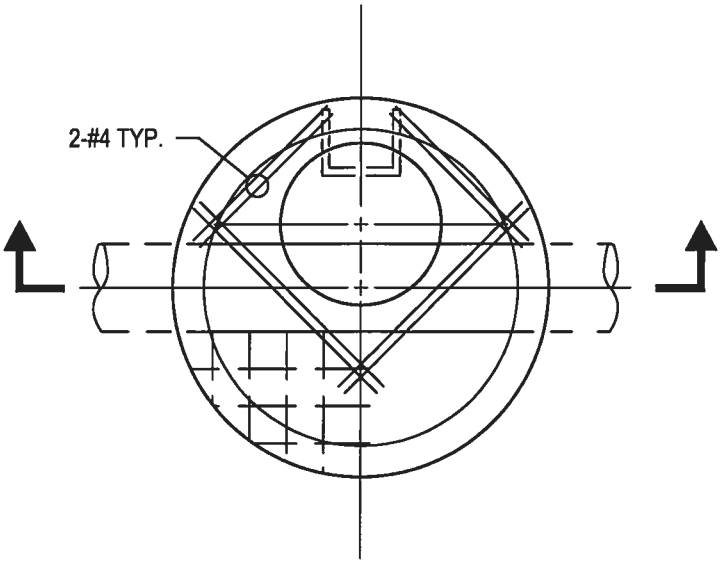




FORCEMAIN LOCATOR ASSEMBLY

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

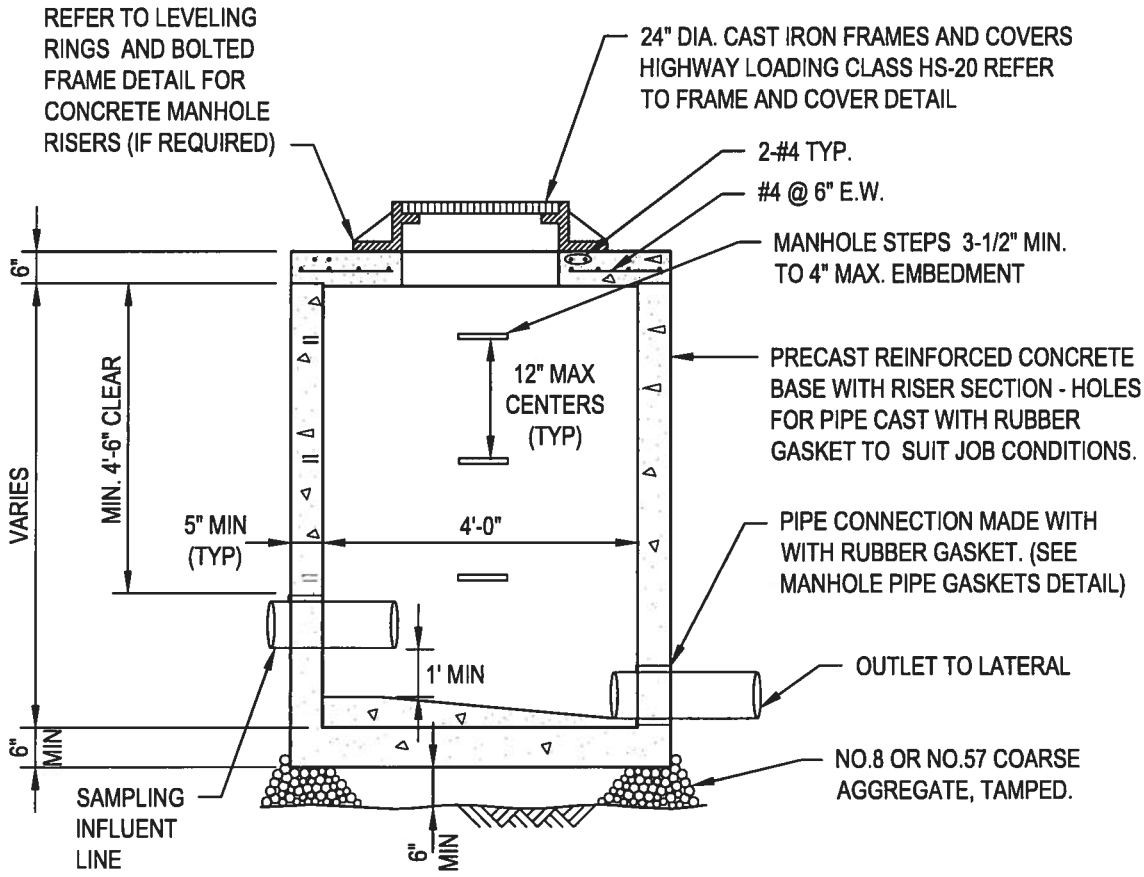
SCALE	DWG. NO.
NO SCALE	FM-3



PLAN

NOTES:

1. USE FLAT SLAB TOPS ON SAMPLING MANHOLES HAVING LESS THAN 5'-0" DEPTH OF COVER OVER SHALLOWEST PIPE.
2. 4 STAINLESS STEEL THREADED INSERTS REQUIRED CAST INTO TOP SECTION FOR MANHOLE FRAME AND COVER.
3. MANHOLE FRAMES SHALL BE SET WITH PREFORMED PLASTIC GASKET (RUB-R-NEK) PRIOR TO RESTORATION TO PREVENT INFILTRATION.
4. FLOW CHANNEL NECESSARY.



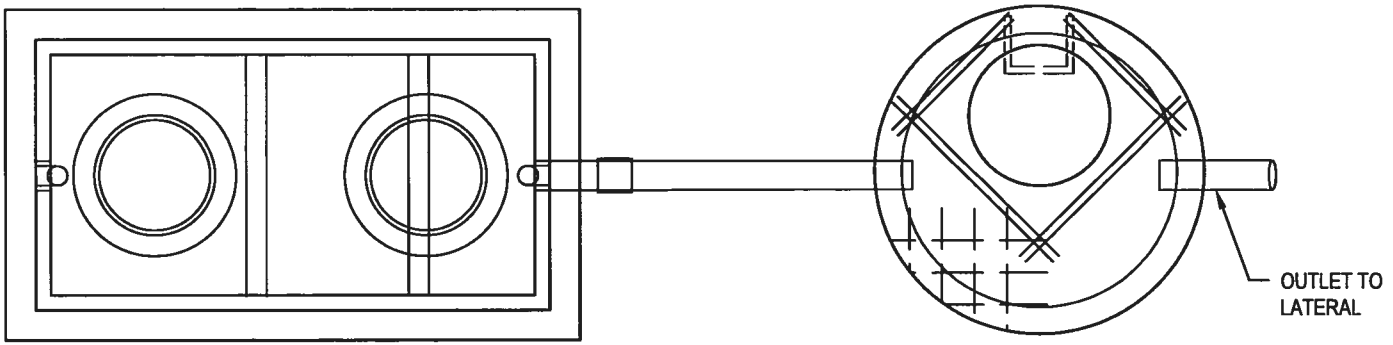
SECTION

PRECAST CONCRETE SAMPLING MANHOLE

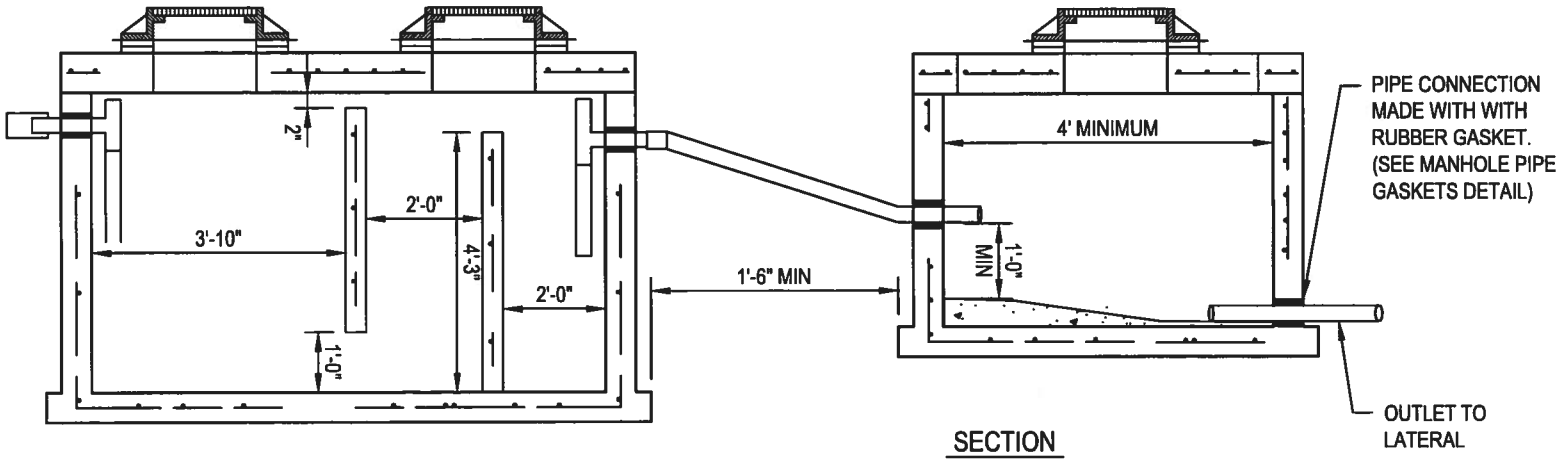
DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	G-1

TYPICAL GREASE INTERCEPTOR TO SAMPLING MANHOLE CONNECTION



PLAN

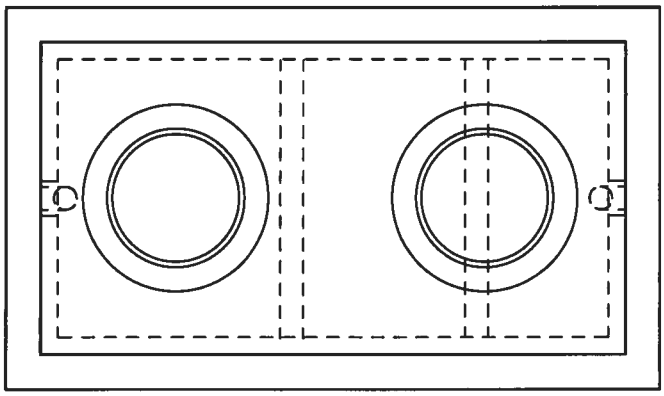


SECTION

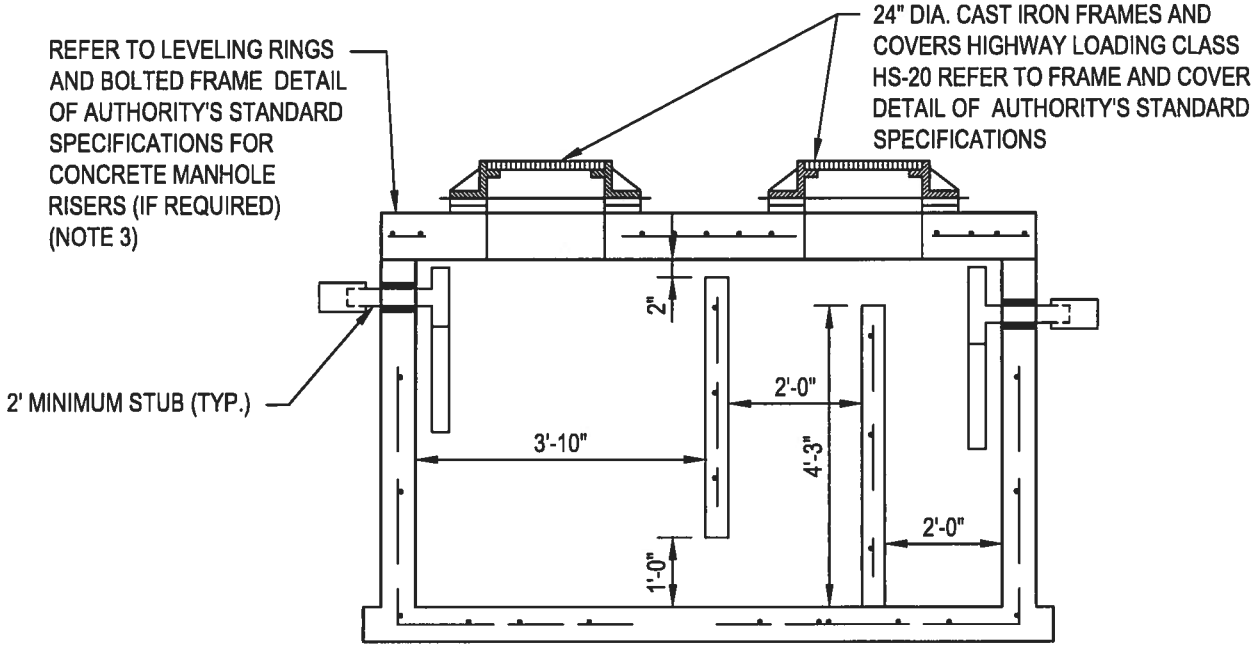
NOTES:

1. MINIMUM SIZE OF OF GREASE TRAP PERMITTED IS 1,000 GALLONS.
2. GREASE INTERCEPTOR SIZE AND DESIGN SHALL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. ACCEPTABLE MANUFACTURERS: MONARCH PRODUCTS OR APPROVED EQUAL.
4. CONCRETE FOR SLOPE TO BE 3500 psi MIX DESIGN MEETING SECTION 2605 PART 2.01 OF THE STANDARD SPECIFICATIONS.
5. FLOW CHANNEL NECESSARY.

SCALE	DATE	REVISIONS
NO SCALE	OCT. 2016	UPDATED STANDARD DETAILS
FILE G-2		



PLAN



SECTION

NOTES:

1. MINIMUM SIZE OF OF GREASE TRAP PERMITTED IS 1,000 GALLONS.
2. GREASE INTERCEPTOR SIZE AND DESIGN SHALL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. ACCEPTABLE MANUFACTURERS FOR GREASE INTERCEPTOR : MONARCH PRODUCTS OR APPROVED EQUAL.
4. ENSURE BATHROOM FACILITIES ARE NOT CONNECTED TO GREASE INTERCEPTOR

TYPICAL 1000 GALLON COMMERCIAL GREASE INTERCEPTOR

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	DWG. NO.
NO SCALE	G-3

TYPICAL 350 GALLON
SINGLE BASIN OIL INTERCEPTOR
SINGLE WALL, HIGHGUARD

GENERAL SPECIFICATIONS

NO. REQ'D: (1)
CAPACITY: 350 GALLONS
TYPE: UNDERGROUND, SINGLE WALL, HIGHGUARD
SINGLE BASIN OIL SAND INTERCEPTOR TANK
MATERIAL: MILD CARBON STEEL
FLOW RATE: 35 GPM
GAUGE: BASED ON 60" BURIAL
SHELL- 7 GA.
HEADS- 7 GA.
SURFACE PREP:
SSPC NO.6 BLAST ALL EXTERIOR SURFACES

COATING:	MATERIAL	THICKNESS
EXTERIOR-	POLYURETHANE	(75 MILS)
INTERIOR-	NONE	

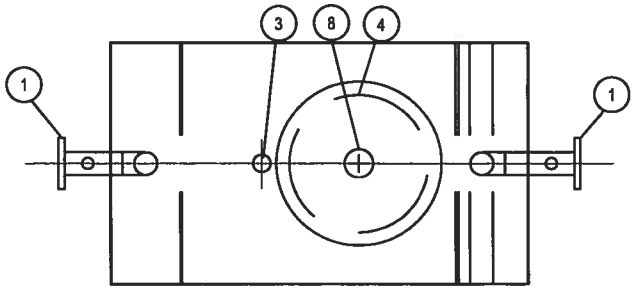
OPERATING PRESSURE: ATMOSPHERIC

NOTES

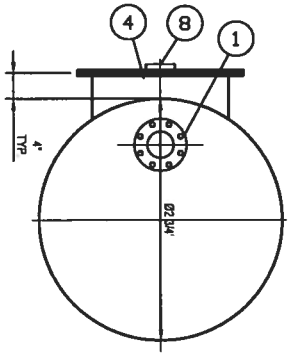
1. POLYURETHANE HIGHGUARD TANK IS NOT APPROVED FOR THE STORAGE OF HEATED PRODUCTS
2. ALL VENT PIPING BY INSTALLER
3. 15000 VOLT SPARK TEST PROVIDED AT FACTORY

PROVIDED EQUIPMENT

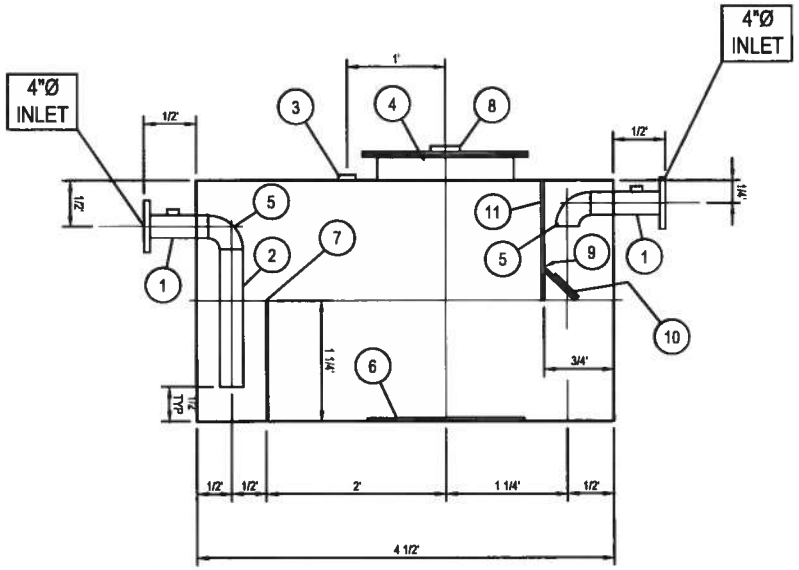
1. 150# R.F.S.O. FLANGE W/ 2" Ø FNPT FTG. FOR VENT
2. STEEL DOWNCOMER PIPE
3. 2" Ø FNPT FTG. FOR VENT
4. 24" Ø MANHOLE
5. 4" Ø STEEL ELBOW
6. STRIKER PLATES
7. SLUDGE BAFFLE
8. 4" Ø FNPT FTG. FOR GAUGE
9. VELOCITY HEAD DIFFUSION BAFFLE
10. WEAR PLATE
11. UNDERFLOW BAFFLE (REMOVABLE)



PLAN VIEW

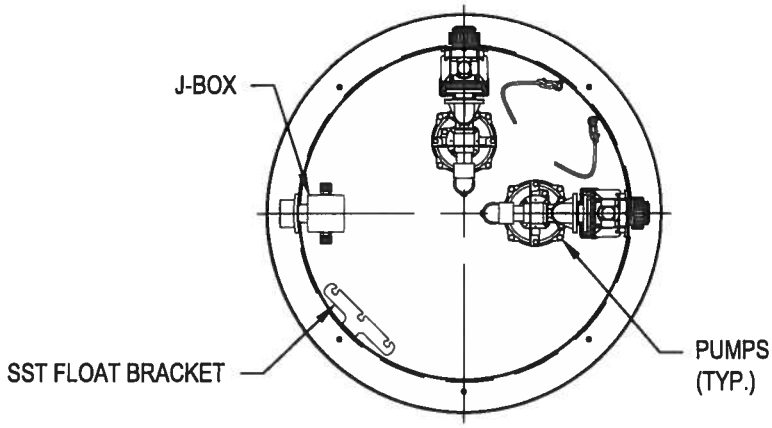


END VIEW

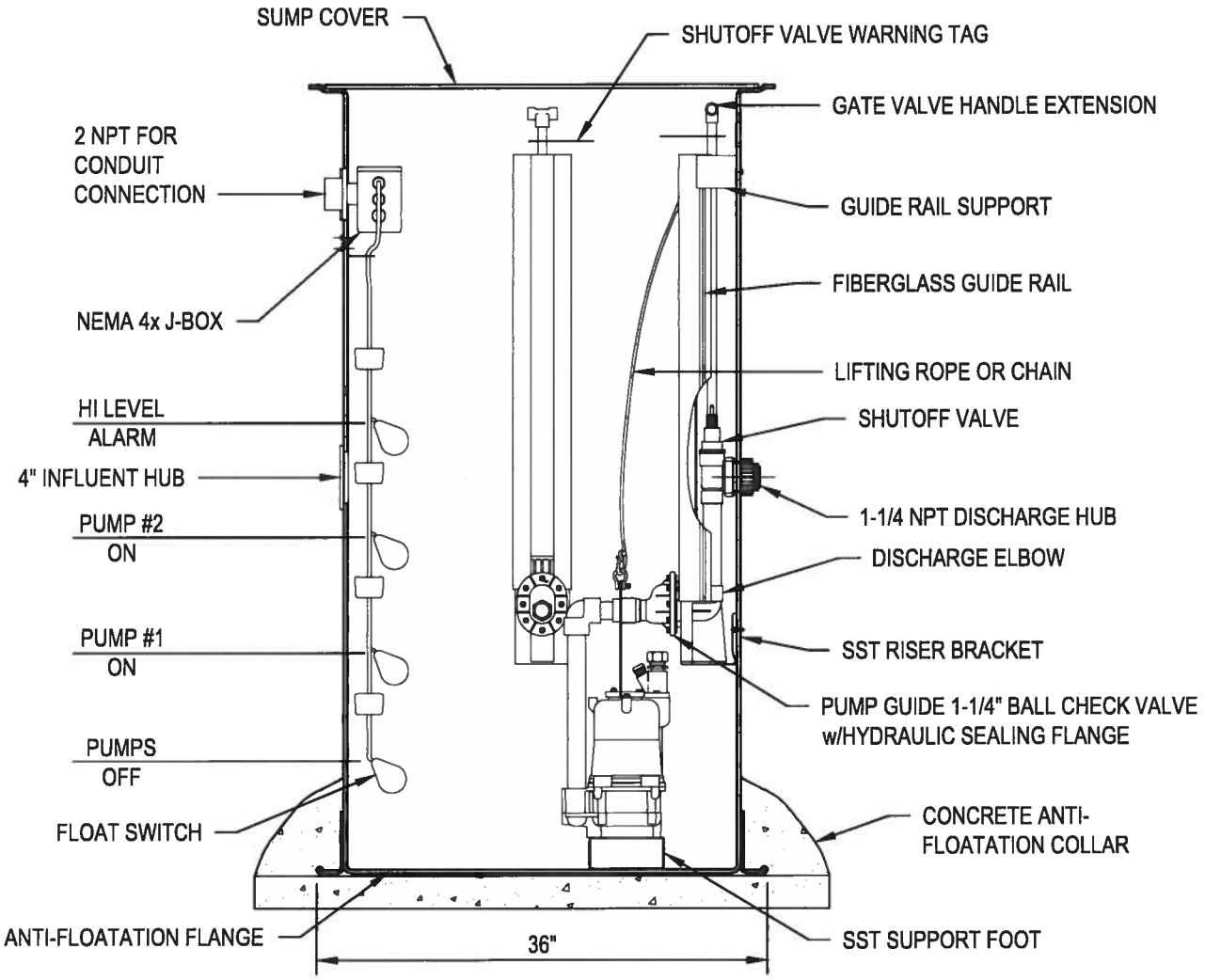


ELEVATION

SCALE	DATE	REVISIONS
NO SCALE	OCT, 2016	UPDATED STANDARD DETAILS
FILE G-4		



PLAN

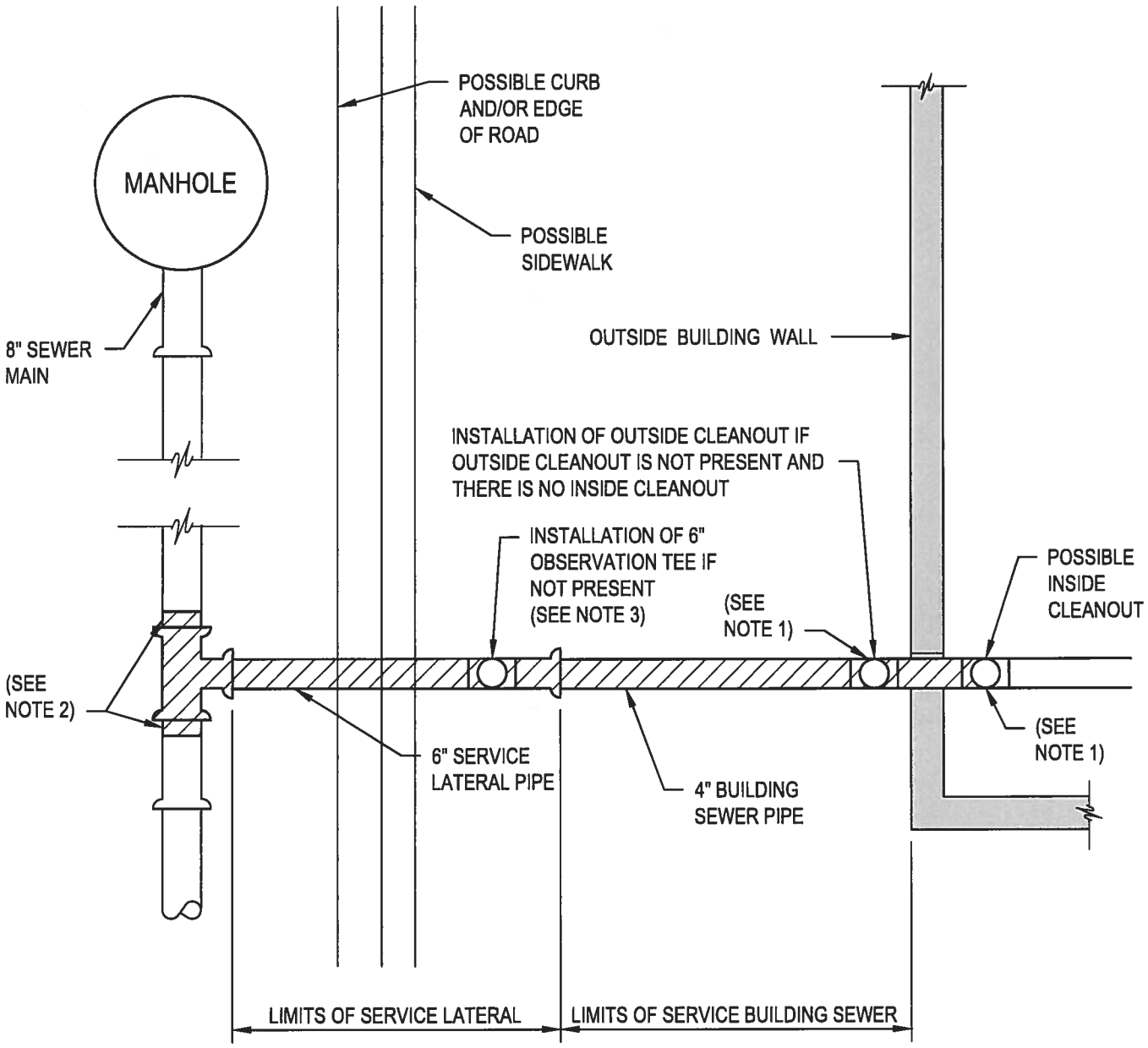


ELEVATION

DUPLEX SEWAGE GRINDER PUMP STATION (FOR COMMERCIAL AND MULTI UNIT RESIDENTIAL APPLICATIONS)

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	PS-1



NOTES:

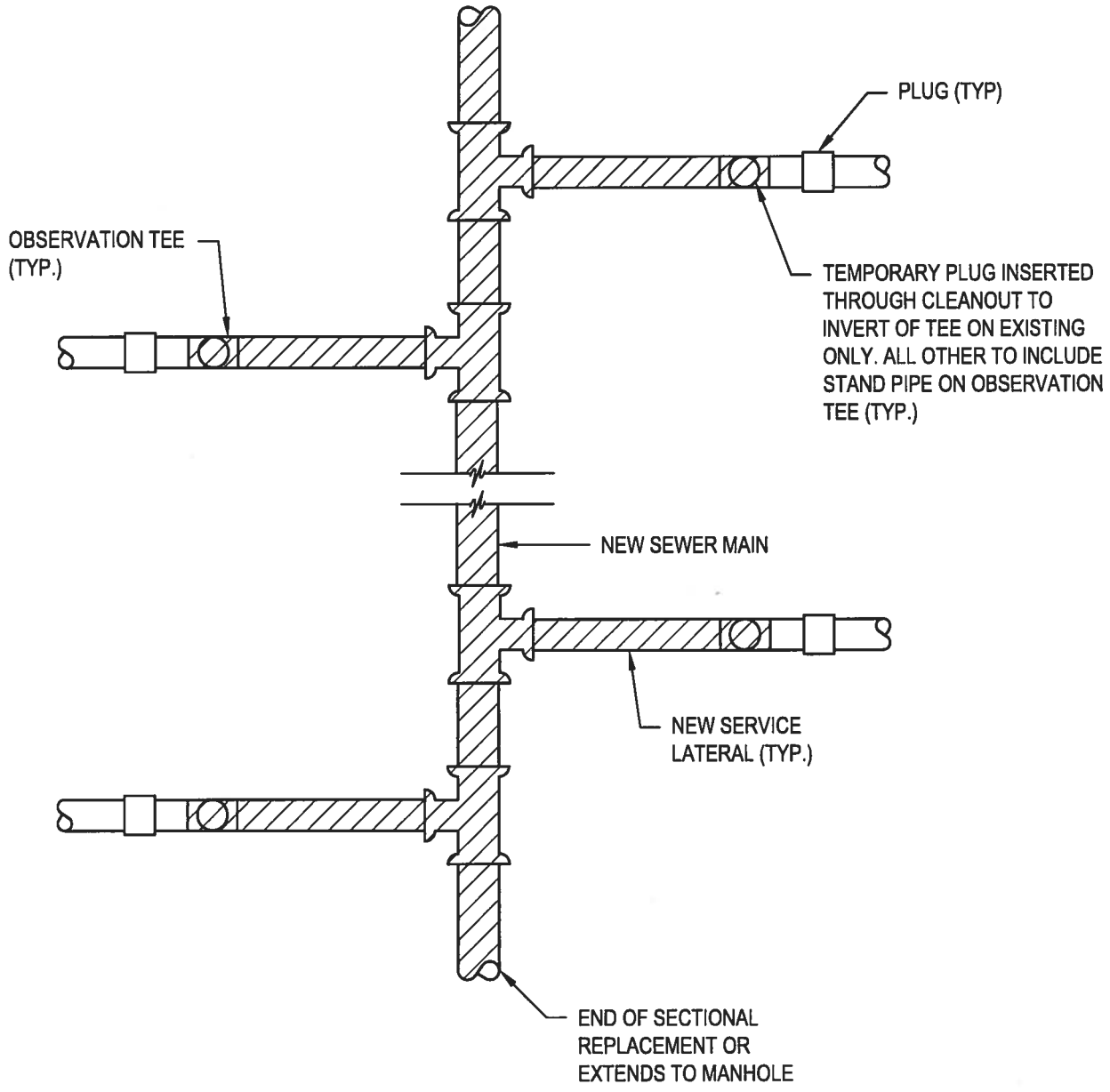
1. TEMPORARY PLUG INSERTED THROUGH CLEANOUT TO INVERT OF TEE FOR TESTING OF BUILDING SEWER PIPE.
2. TEMPORARY PLUG INSERTED AT MAINLINE PIPE FOR TESTING OF LATERAL PIPE.
3. TEMPORARY PLUG INSERTED THROUGH OBSERVATION TEE TO INVERT OF PIPE FOR TESTING OF SERVICE LATERAL AND BUILDING SEWER.

AREA TO BE AIR TESTED

EXISTING SERVICE LATERAL AND/OR BUILDING SEWER AIR TEST

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	T-1



NOTES:

1. ACCEPTANCE AIR TEST REQUIREMENTS WHEN REPLACING ENTIRE SEWER RUNS OR SECTIONAL REPLACEMENTS OF SEWER RUNS.

AREA TO BE AIR TESTED

ACCEPTANCE AIR TEST WHEN REPLACING ENTIRE SEWER OR SECTIONS OF SEWER

DATE	REVISIONS
OCT, 2016	UPDATED STANDARD DETAILS

SCALE	FILE
NO SCALE	T-2