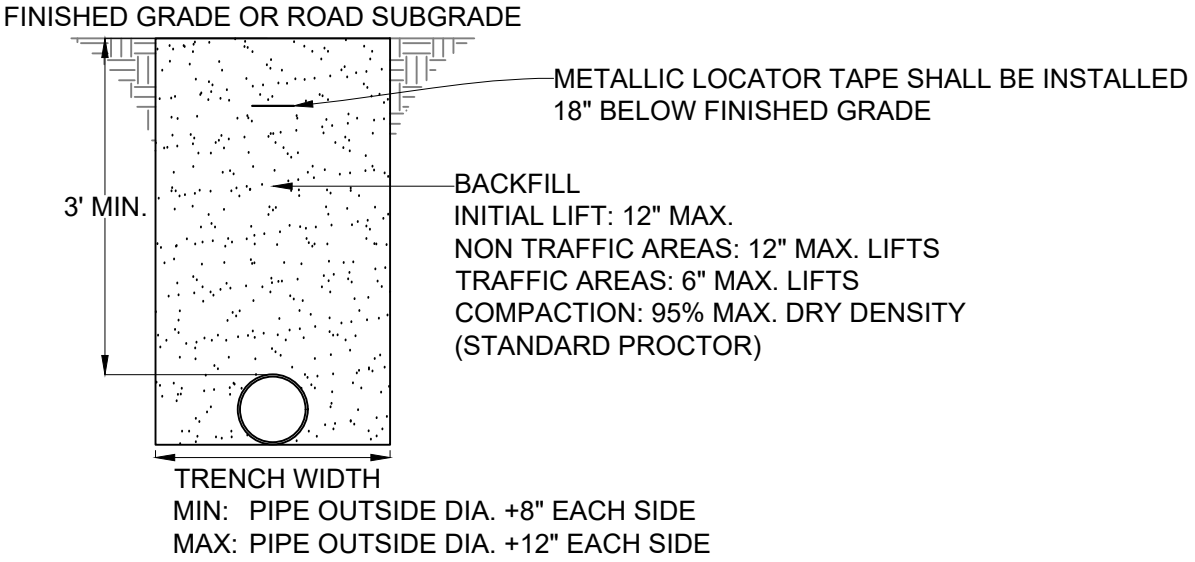
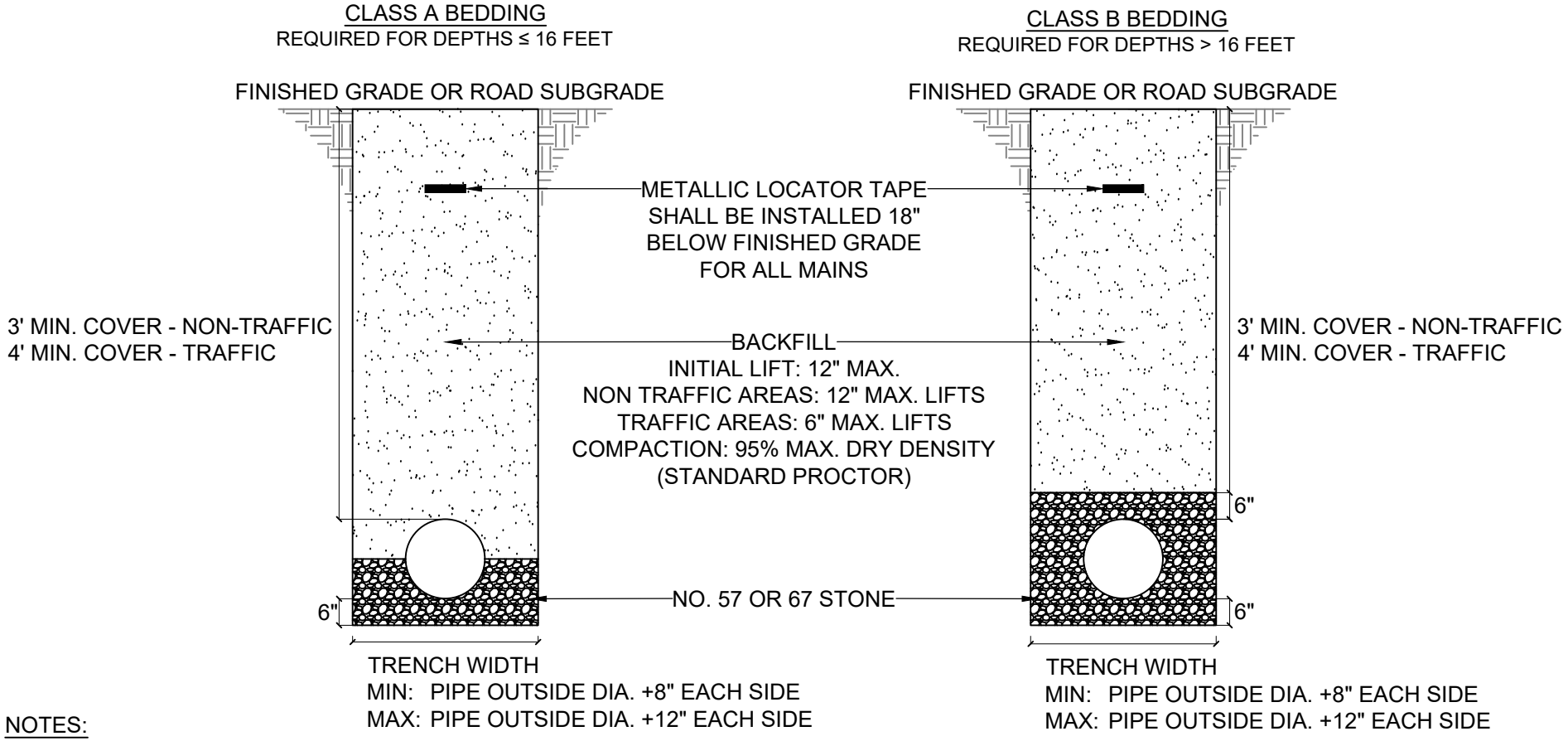


NOTES:

1. NO STONES SHALL BE INCLUDED IN THE BACKFILL MATERIAL FOR AT LEAST 2 FEET ABOVE THE TOP OF THE PIPE.
2. PROVIDE RECESSES TO RECEIVE PIPE BELL.
3. UNDERCUT UNSUITABLE MATERIAL AS DIRECTED BY THE ENGINEER AND BACKFILL WITH APPROVED MATERIAL.
4. WHERE NECESSARY, TEMPORARILY DIVERT SURFACE WATER TO MAINTAIN A DRY CONDITION IN THE PIPE FOUNDATION. DIRECT THIS TEMPORARY FLOW INTO SUITABLE EROSION CONTROL DEVICES.
5. NO ORGANIC MATERIAL PERMITTED FOR BACKFILLING.
6. FLOWABLE FILL MAY BE REQUIRED AT THE DIRECTION OF THE WATER RESOURCES DIRECTOR.

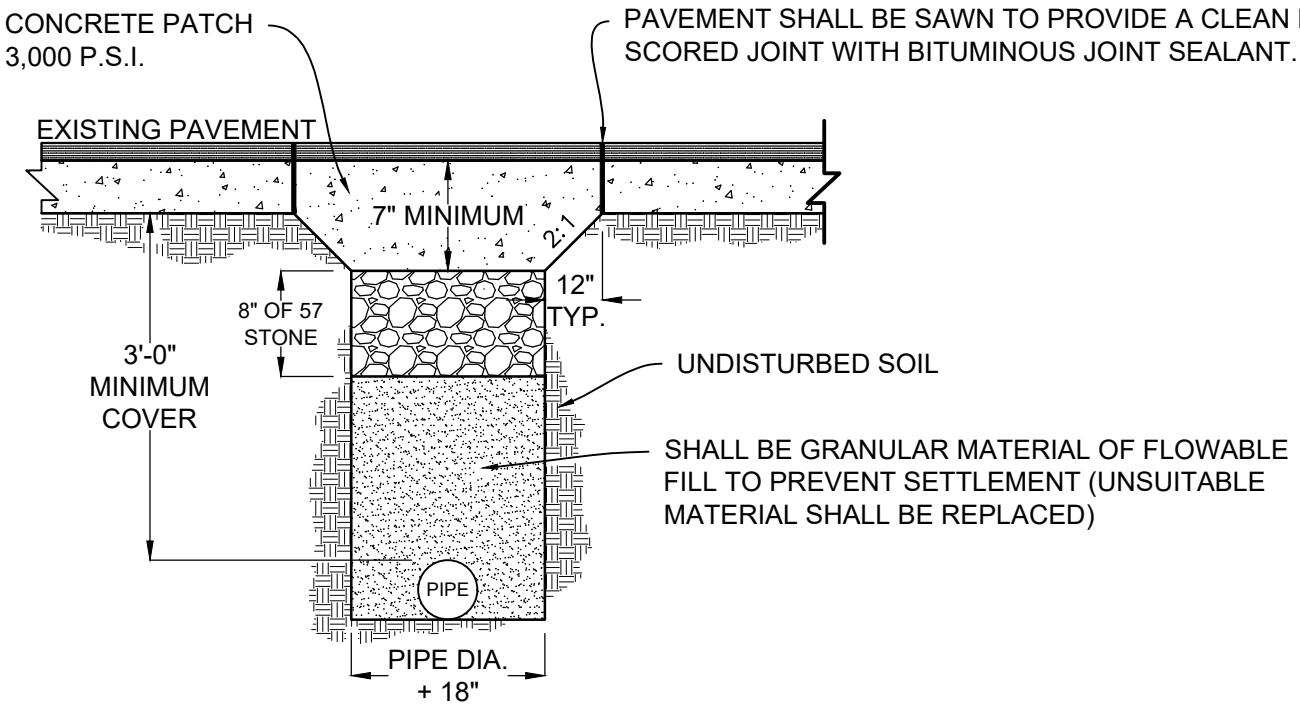
TOWN OF APEX STANDARDS	WATER MAIN PIPE BACKFILLING	STD. NO.
EFFECTIVE: MARCH 23, 2021		450.01
		SHEET 1 OF 1



NOTES:

1. FOR TRENCHES REQUIRING SHORING & BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING & BRACING.
2. FLOWABLE FILL MAY BE REQUIRED AT THE DIRECTION OF THE WATER RESOURCES DIRECTOR.
3. NO STONES SHALL BE INCLUDED IN THE BACKFILL MATERIAL FOR AT LEAST 2 FEET ABOVE THE TOP OF THE PIPE.
4. PROVIDE RECESSES TO RECEIVE PIPE BELL.
5. UNDERCUT UNSUITABLE MATERIAL AS DIRECTED BY THE ENGINEER AND BACKFILL WITH APPROVED MATERIAL.
6. WHERE NECESSARY, TEMPORARILY DIVERT SURFACE WATER TO MAINTAIN A DRY CONDITION IN THE PIPE FOUNDATION. DIRECT THIS TEMPORARY FLOW INTO SUITABLE EROSION CONTROL DEVICES.
7. NO ORGANIC MATERIAL PERMITTED FOR BACKFILLING.

TOWN OF APEX STANDARDS	SANITARY SEWER PIPE BEDDING & BACKFILLING	STD. NO. 450.02
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1

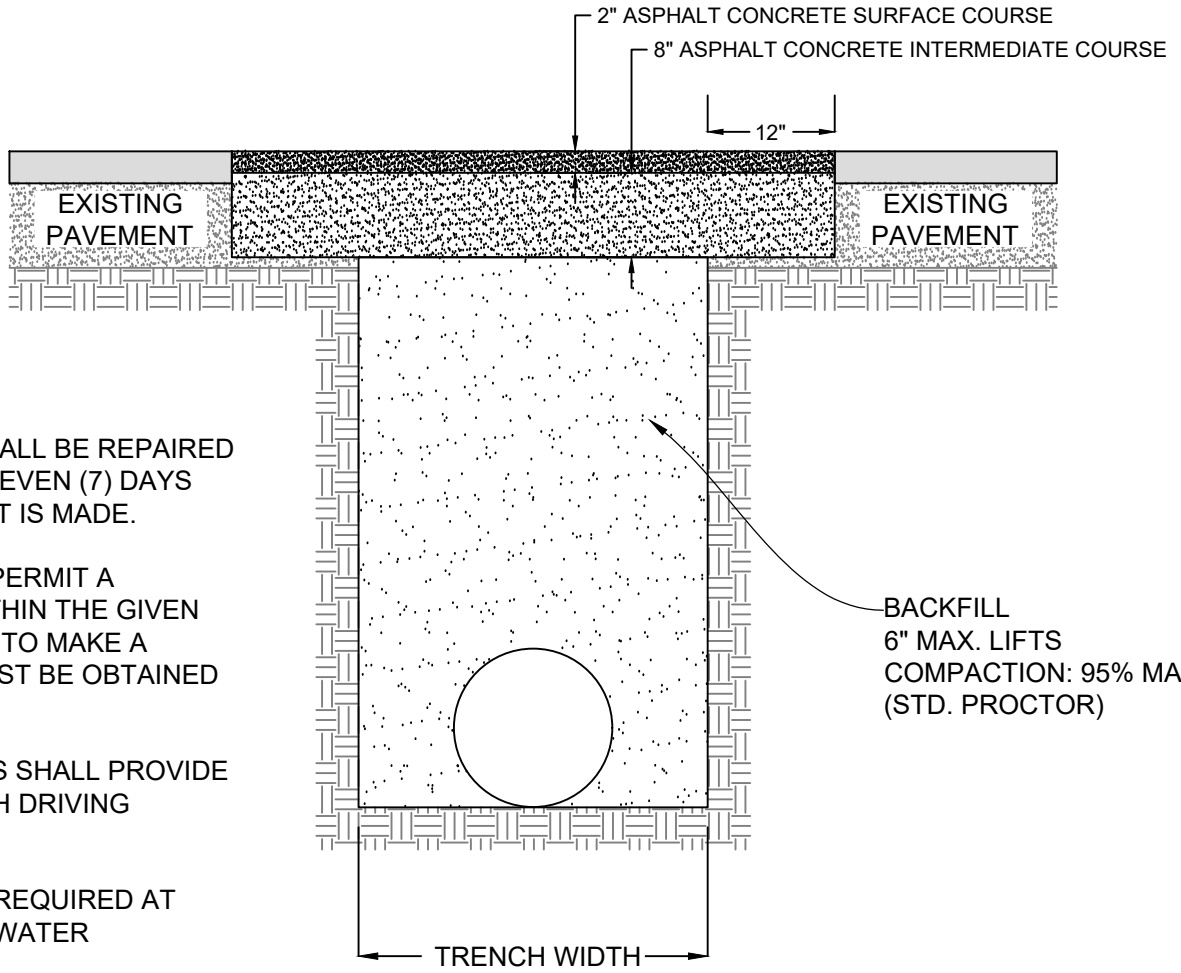


CONCRETE PAVEMENT

NOTES:

1. ALL PAVEMENT CUTS SHALL BE REPAIRED WITHIN A MAXIMUM OF SEVEN (7) DAYS FROM THE DATE THE CUT IS MADE.
2. CONCRETE TRENCH CAP ON ASPHALT STREETS SHALL BE USED ONLY DURING INCLEMENT WEATHER WHEN ASPHALT PLANTS ARE NOT OPERATING.
3. IN ALL OPEN TRENCHES, BACKFILL SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING COMPACTION REQUIREMENTS BY SOILS TESTING CERTIFIED BY A LICENSED PROFESSIONAL GEOTECHNICAL ENGINEER.
4. BACKFILL WITH A HIGH CLAY CONTENT, HIGH SHRINK-SWELL POTENTIAL, OR HIGH MOISTURE CONTENT THAT CANNOT MEET COMPACTION REQUIREMENTS SHALL BE DEEMED UNSUITABLE AND SHALL BE REPLACED WITH SUITABLE BACKFILL MATERIAL.
5. ALL PAVEMENT PATCHES SHALL PROVIDE A UNIFORM AND SMOOTH DRIVING SURFACE.
6. OPEN CUT OF NCDOT ROADWAYS WILL NOT BE ALLOWED WITHOUT PRIOR APPROVAL FROM THE NCDOT DISTRICT ENGINEER OR AS INDICATED ON THE DRAWING

TOWN OF APEX STANDARDS	CONCRETE REPAIR	STD. NO. 450.03
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1



NOTES:

1. ALL PAVEMENT CUTS SHALL BE REPAIRED WITHIN A MAXIMUM OF SEVEN (7) DAYS FROM THE DATE THE CUT IS MADE.

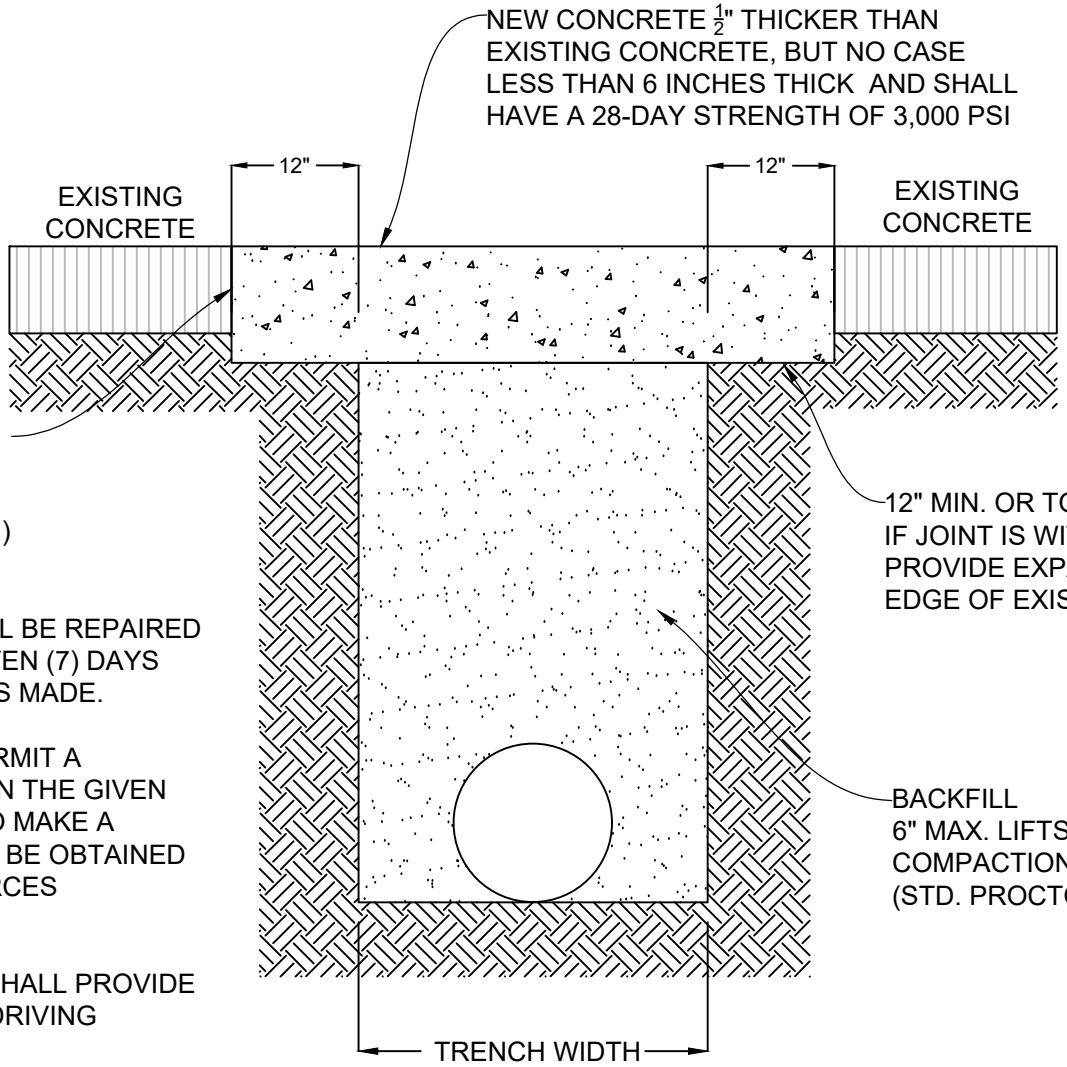
2. IF CONDITIONS DO NOT PERMIT A PERMANENT REPAIR WITHIN THE GIVEN TIME LIMIT, PERMISSION TO MAKE A TEMPORARY REPAIR MUST BE OBTAINED FROM THE TOWN.

3. ALL PAVEMENT PATCHES SHALL PROVIDE A UNIFORM AND SMOOTH DRIVING SURFACE.

4. FLOWABLE FILL MAY BE REQUIRED AT THE DIRECTION OF THE WATER RESOURCES DIRECTOR.

MIN: PIPE OUTSIDE DIAMETER + 8" EACH SIDE
MAX: PIPE OUTSIDE DIAMETER +12" EACH SIDE

TOWN OF APEX STANDARDS	TRENCH & PAVEMENT REPAIR SECTION FOR ASPHALT	STD. NO. 450.04
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1



NOTES:

1. ALL PAVEMENT CUTS SHALL BE REPAIRED WITHIN A MAXIMUM OF SEVEN (7) DAYS FROM THE DATE THE CUT IS MADE.

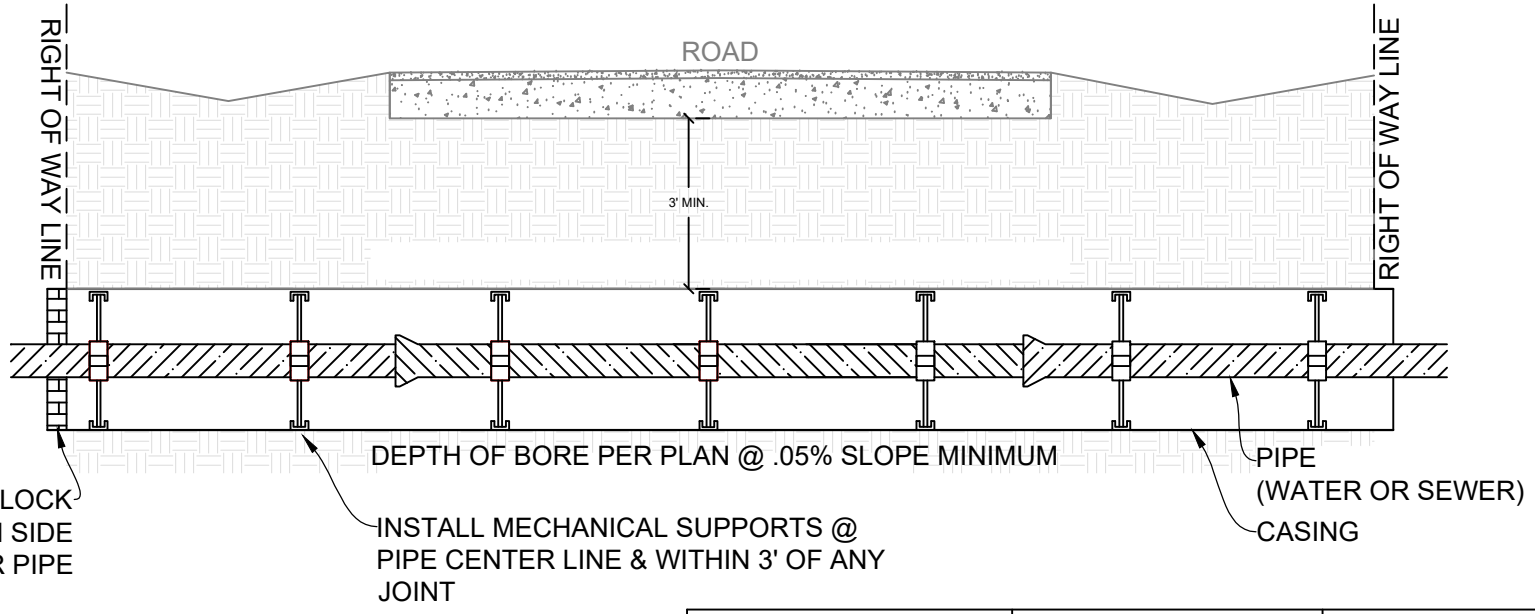
2. IF CONDITIONS DO NOT PERMIT A PERMANENT REPAIR WITHIN THE GIVEN TIME LIMIT, PERMISSION TO MAKE A TEMPORARY REPAIR MUST BE OBTAINED FROM THE WATER RESOURCES DIRECTOR.

3. ALL PAVEMENT PATCHES SHALL PROVIDE A UNIFORM AND SMOOTH DRIVING SURFACE.

4. FLOWABLE FILL MAY BE REQUIRE THE DIRECTION OF THE WATER RESOURCES DIRECTOR.

MIN: PIPE OUTSIDE DIAMETER + 8" EACH SIDE
MAX: PIPE OUTSIDE DIAMETER +12" EACH SIDE

TOWN OF APEX STANDARDS	TRENCH & PAVEMENT REPAIR SECTION FOR CONCRETE	STD. NO. 450.05
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1



NOTES:

1. CASING SHALL BE UNCOATED SPIRAL WELDED STEEL MEETING ASTM A-139, GRADE B WITH A YIELD STRENGTH OF 35,000 PSI.
2. CROSSINGS ON NCDOT MAINTAINED ROADS TO BE IN ACCORDANCE WITH CURRENT NCDOT STANDARDS AND APPROVED ENCROACHMENT AGREEMENT.
3. RESTRAINED JOINT PIPE ONLY. MEGE-LUGS ARE NOT PERMITTED.
4. SUPPORTS SHALL BE MANUFACTURED BY ADVANCE PRODUCTS & SYSTEMS, INC, PIPELINE SEAL AND INSULATOR LTD, OR BWM COMPANY.
5. THREE SUPPORTS SHALL BE INSTALLED ON EACH PIPE SEGMENT.
6. LARGER ENCASEMENT SIZES MAY BE UTILIZED AT THE DISCRETION OF THE DESIGN ENGINEER AND/OR CONTRACTOR FOR EASE OF INSTALLATION AS LONG AS ALL OTHER DESIGN CRITERIA IS MET.
7. ALL PIPES 36" AND LARGER SHALL REQUIRE 4 SUPPORTS.

Carrier Pipe Nominal Diameter (inches)	Casing Minimum Inside Diameter (inches)	Casing Nominal Wall Thickness (inches)
6	14	0.375
8	16	0.375
10	18	0.375
12	20	0.375
14	24	0.375
16	30	0.500
18	30	0.500
20	36	0.500
24	36	0.625
30	42	0.625
36	48	0.750
42	54	0.875

TOWN OF APEX STANDARDS

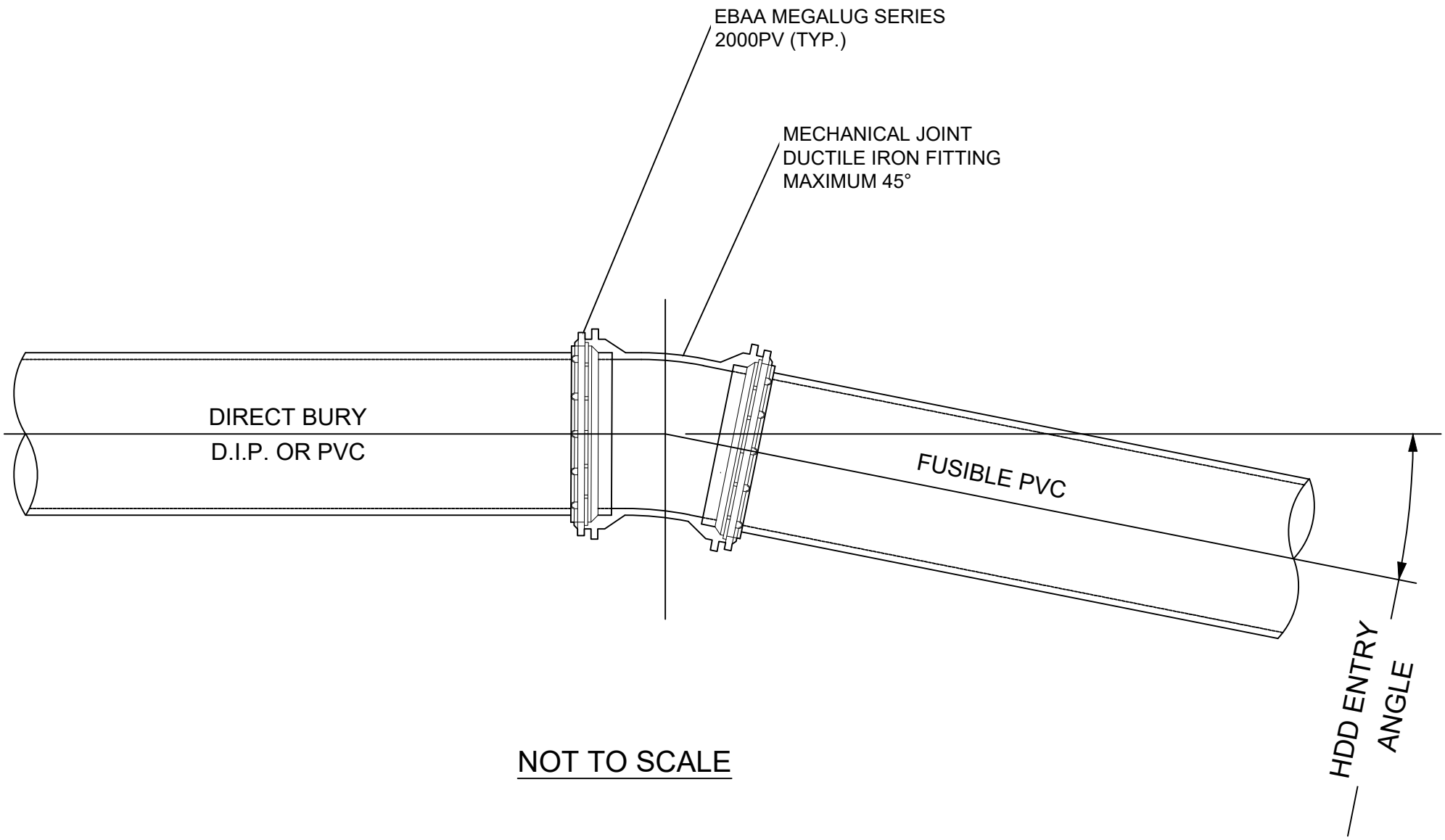
EFFECTIVE: MARCH 23, 2021

BORE & JACK

STD. NO.

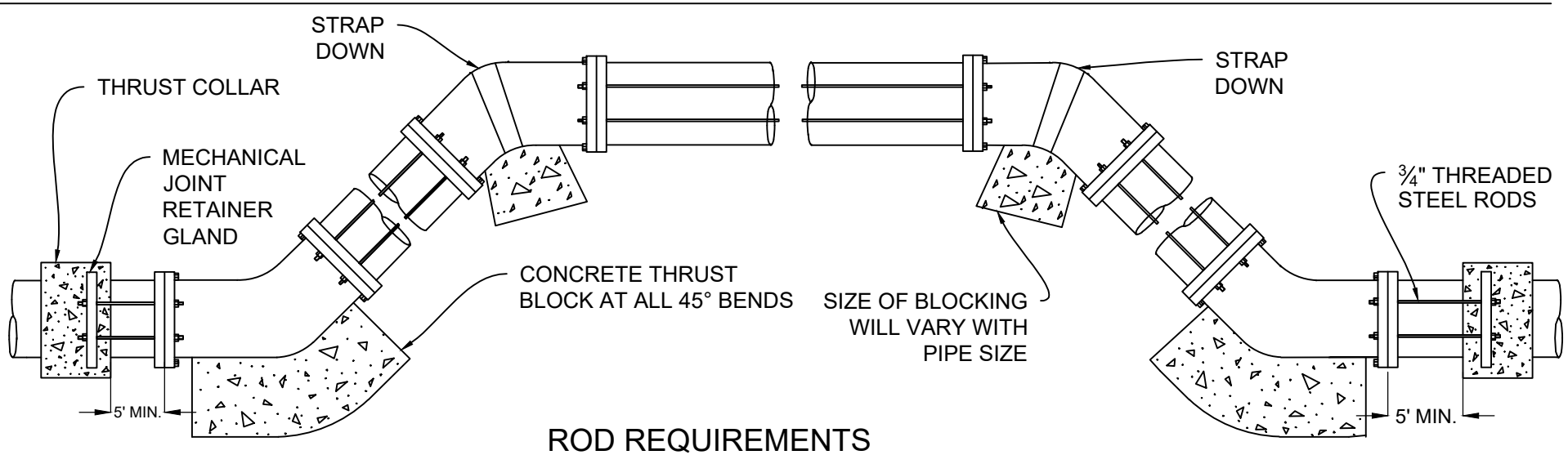
450.06

SHEET 1 OF 1



NOT TO SCALE

TOWN OF APEX STANDARDS	HDD TRANSITION FITTING	STD. NO.
EFFECTIVE: MARCH 23, 2021		450.07
		SHEET 1 OF 1



ROD REQUIREMENTS

SIZE OF 45 BEND	STATIC THRUST IN POUNDS	NO. OF RODS REQUIRED
6"	4,328	2
8"	7,694	4
10"	12,503	4
12"	17,312	4
14"	24,046	6
16"	30,779	8
18"	50,016	8
24"	69,252	8

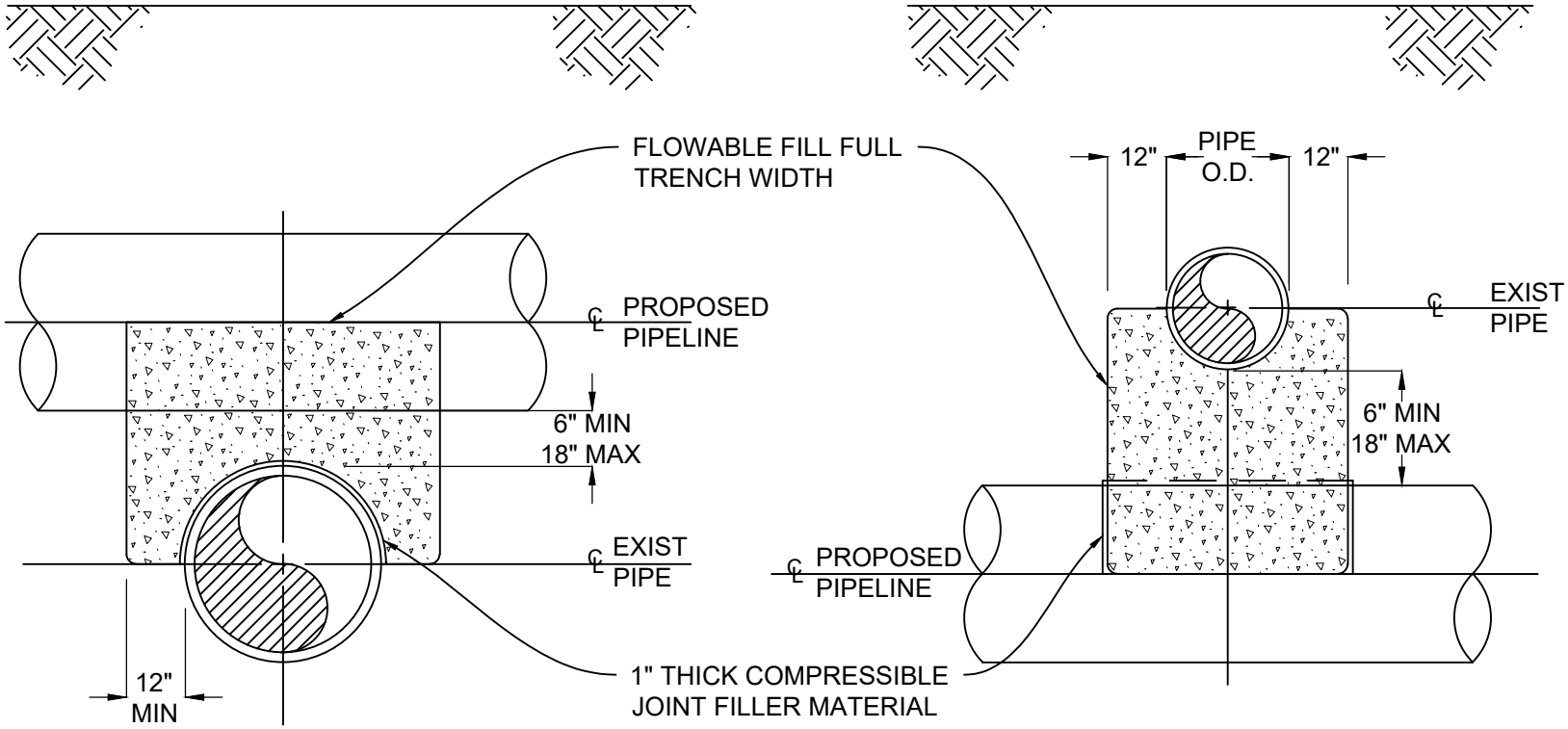
NOTES:

1. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED.
2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT BENDS.
3. RESTRAINED MECHANICAL GLANDS TO BE USED AT ALL FITTINGS.
4. MUST USE DUCTILE IRON EYE BOLTS WHERE NECESSARY.
5. 3' MINIMUM COVER MUST BE MAINTAINED ON ALL MAINS.
6. ADD MECHANICAL JOINT RETAINER GLANDS THROUGHOUT ASSEMBLY.

TOWN OF APEX STANDARDS	VERTICAL BEND	STD. NO.
EFFECTIVE: MARCH 23, 2021		450.08
		SHEET 1 OF 1

NOTES:

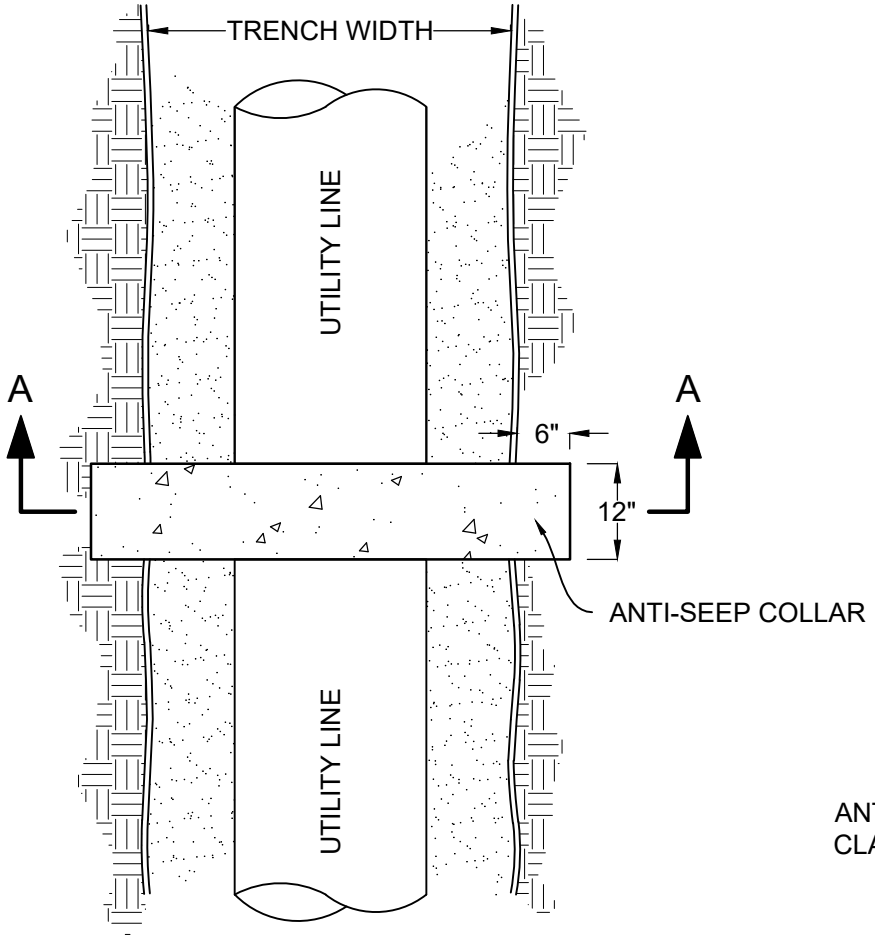
1. NO CONCRETE CRADLE REQUIRED FOR SEPARATION GREATER THAN 18"
2. ALL PIPE BELLS SHALL BE LOCATED OUTSIDE OF CONCRETE CRADLE.



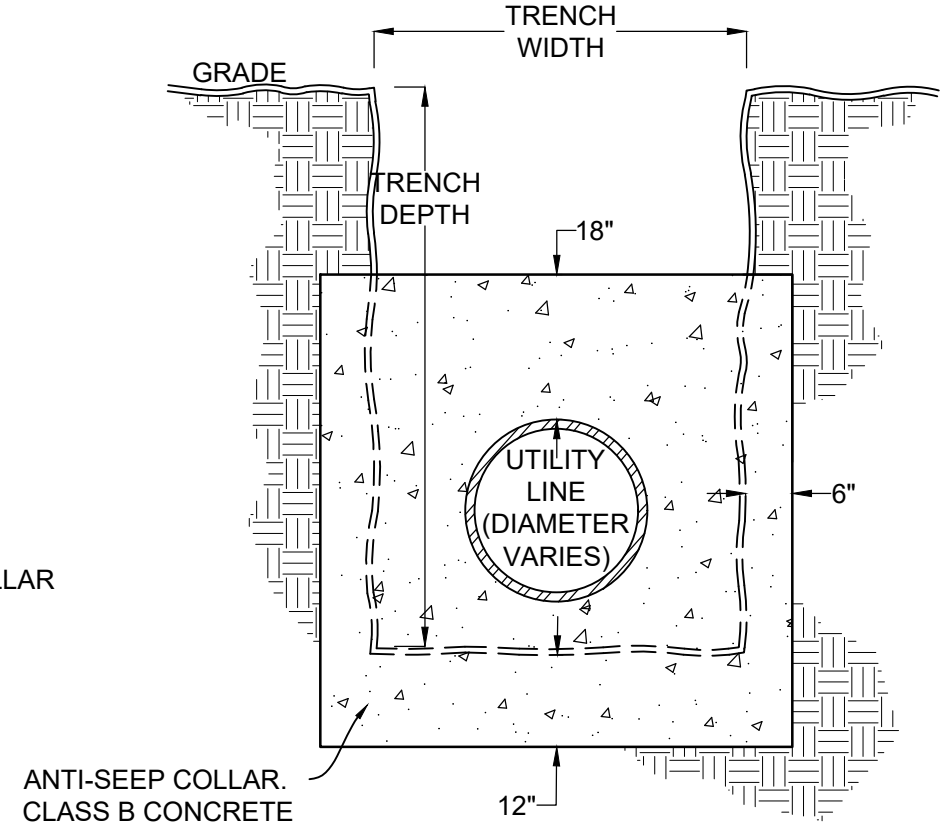
PROPOSED PIPELINE OVER EXISTING PIPE

PROPOSED PIPELINE UNDER EXISTING PIPE

TOWN OF APEX STANDARDS	CONCRETE CRADLE	STD. NO.
EFFECTIVE: MARCH 23, 2021		450.09
		SHEET 1 OF 1

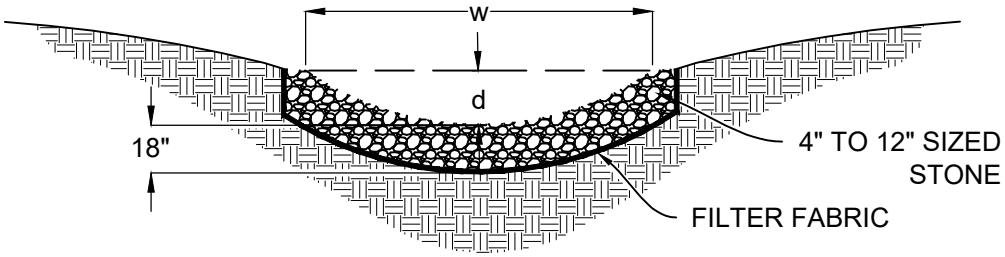


PLAN VIEW

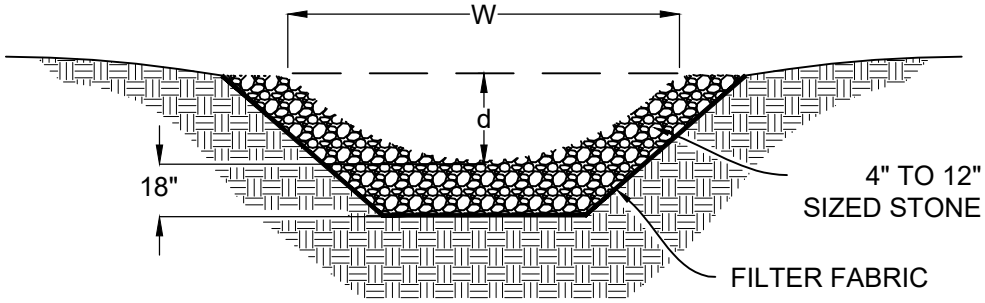


SECTION A-A

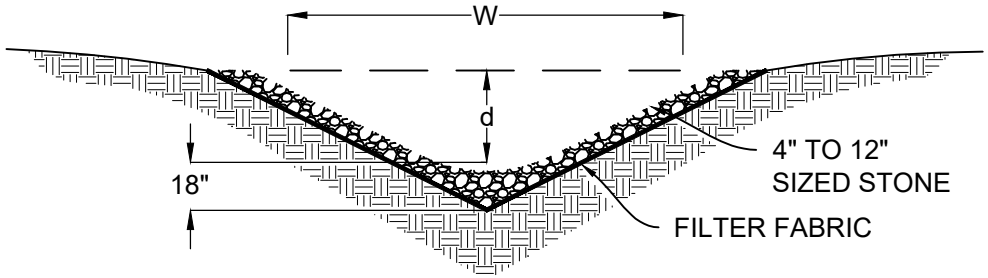
TOWN OF APEX STANDARDS	ANTI-SEEP COLLAR	STD. NO.
EFFECTIVE: MARCH 23, 2021		450.10
		SHEET 1 OF 1



PARABOLIC-SHAPED



TRAPEZOIDAL
(TYPICAL RIPRAP CHANNEL)

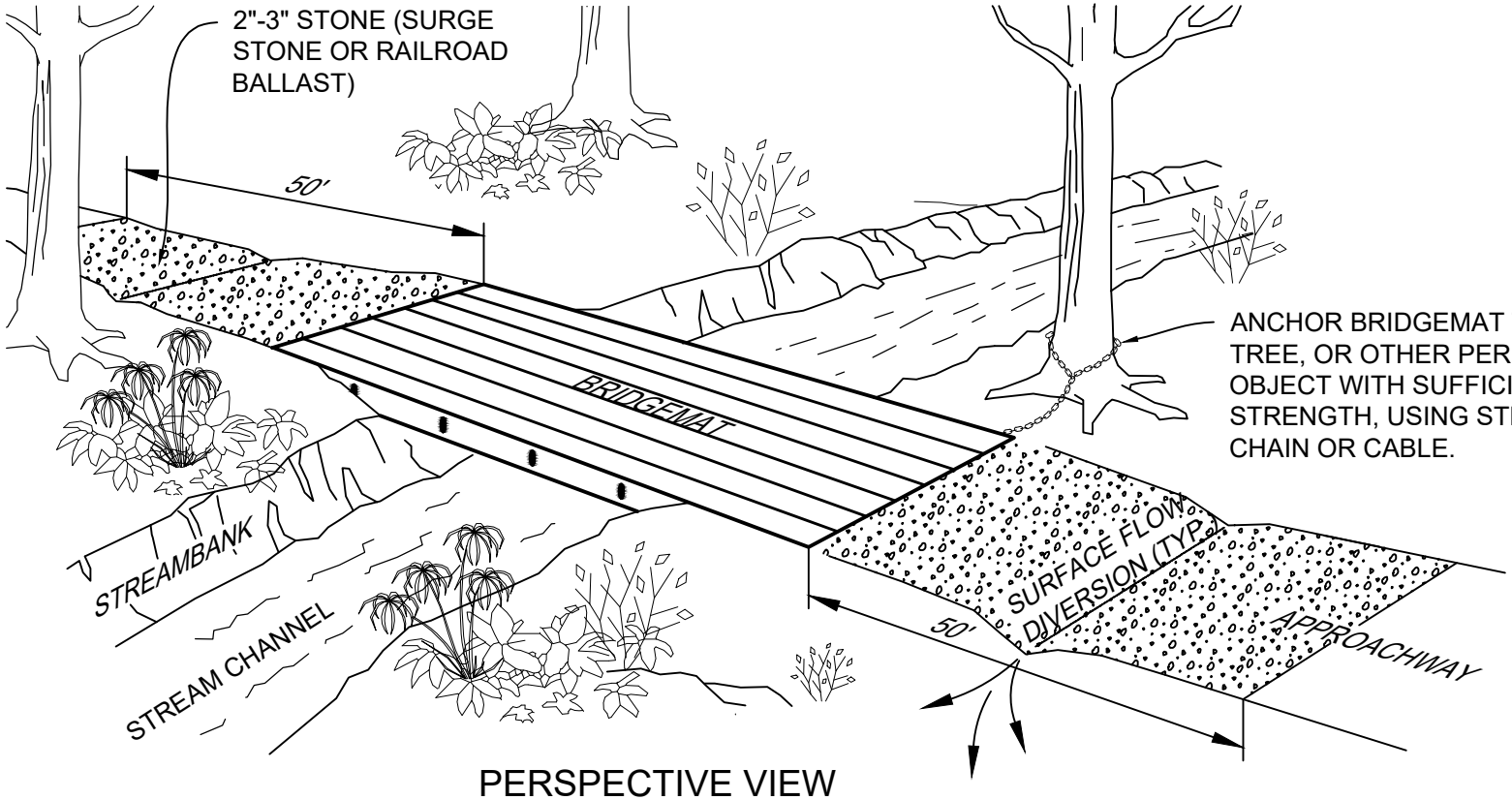


V-SHAPED

NOTES:

1. TO BE USED WHERE EXCESSIVE STORM WATER VELOCITIES PROHIBIT VEGETATIVE LININGS.
2. SIZE OF STONE MUST BE DETERMINED BY APPROPRIATE DESIGN PROCEDURE.
3. DIMENSIONS FOR d & W VARIES ACCORDING TO DESIGN.

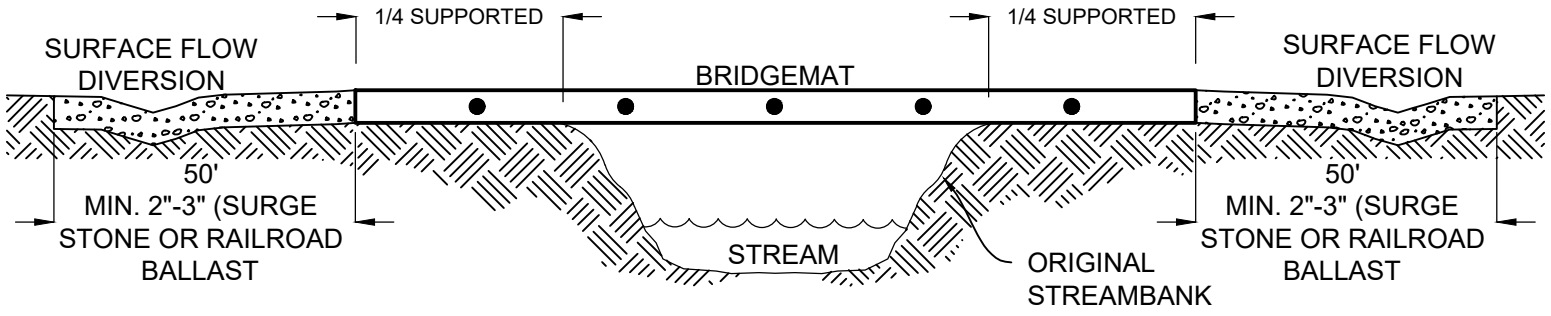
TOWN OF APEX STANDARDS	OPEN CUT DITCH	STD. NO.
EFFECTIVE: MARCH 23, 2021		450.11
		SHEET 1 OF 1



PERSPECTIVE VIEW

NOT TO SCALE

SIDE VIEW



TOWN OF APEX STANDARDS	VEHICLE CROSSING AT STREAM	STD. NO. 450.12
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 2

INSTALLATION NOTES:

1. REFER TO "NORTH CAROLINA DIVISION OF FOREST RESOURCES" LITERATURE, INSTALLATION MAINTENANCE GUIDELINES, & "NORTHCAROLINA FORESTRY BMP MANUAL-2006".

2. USE A BULLDOZER, KNUCKLEBOOM LOADER, OR SKIDDER TO INSTALL & REMOVE DRAGLINE MATS.

3. KEEP HEAVY EQUIPMENT OUT OF STREAM.

4. INSTALL WATER DIVERSION DEVICES (WATER BARS, TURNOUTS, BROAD-BASED DIPS, ETC.) ON BOTH SIDES OF THE MATS.

5. STABILIZE EXPOSED MINERAL SOIL WITH TREE TOPS OR BRUSH DURING MAT INSTALLATION, AND SEEDING/MULCH AFTER MAT REMOVAL.

6. INSTALL MATS TO CREATE A MINIMUM TEN FOOT BRIDGE WIDTH.

7. MATS SHALL BE INSTALLED SUCH THAT THERE ARE NO GAPS BETWEEN THE MATS AND NO GAPS BETWEEN THE END OF THE MATS AND STONE APPROACHES.

MAINTENANCE NOTES:

1. KEEP MATS' SURFACE FREE OF MINERAL SOIL AND DEBRIS THAT COULD ENTER STREAM.

2. PERIODICALLY CHECK MAT HARDWARE; RETIGHTEN NUTS & CABLE CLAMPS AS NECESSARY TO MAINTAIN BRIDGE STRENGTH AND INTEGRITY.

3. IMMEDIATELY REMOVE ANY DEBRIS WHICH ENTERS THE STREAM AT THE CROSSING LOCATION.

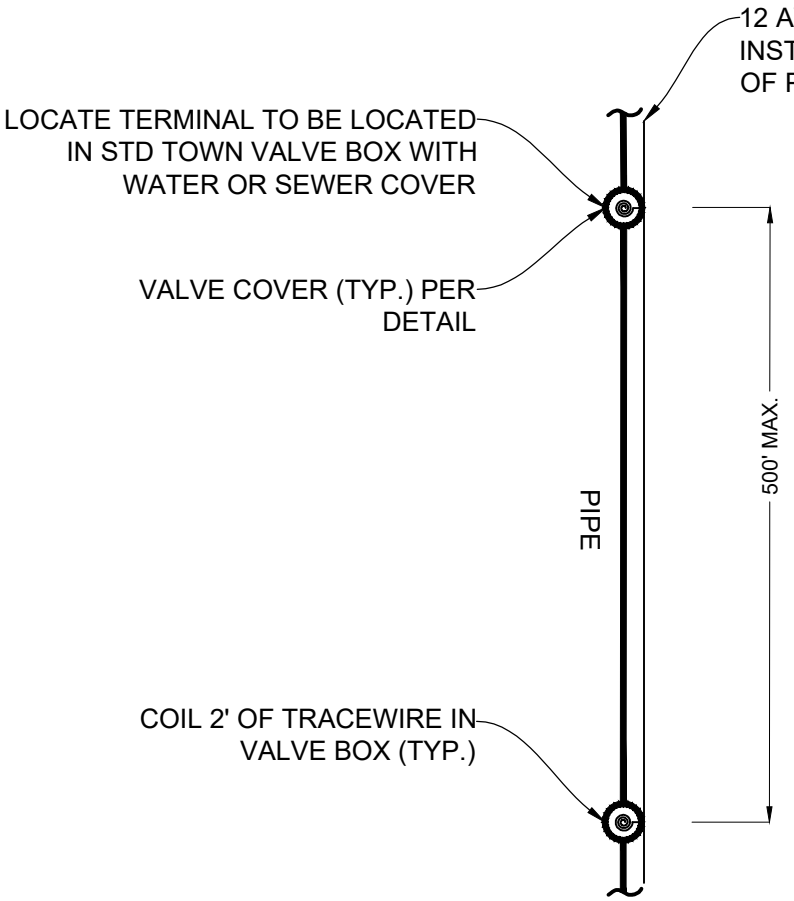
REMOVAL NOTES:

1. CLEAN OFF BRIDGE SURFACE.

2. REMOVE MATS BY USING MAT CABLE LOOP OR SKIDDER GRAPPLE.

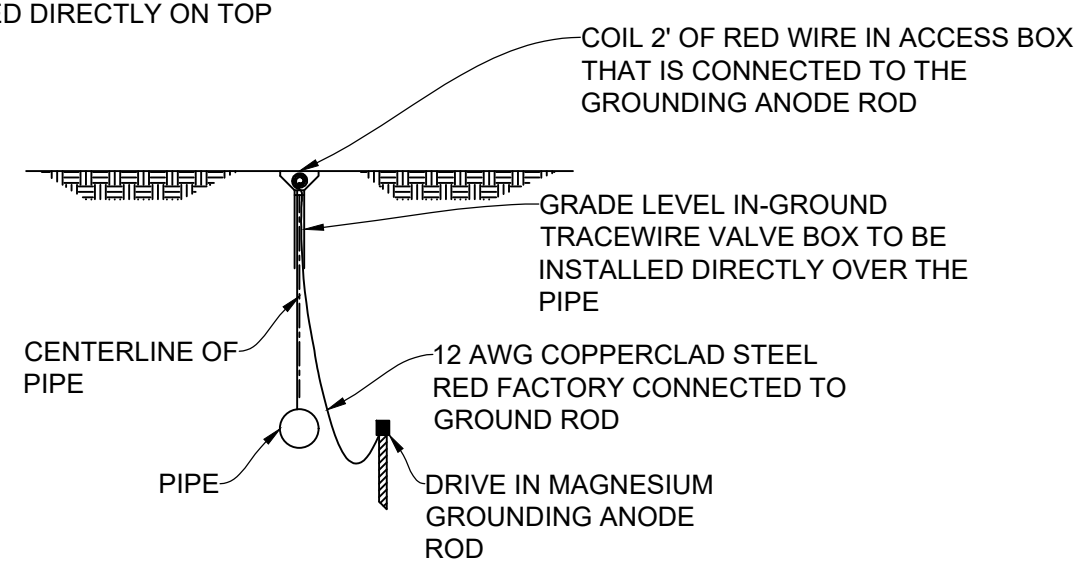
3. PERMANENTLY STABILIZE DISTURBED PORTIONS OF STREAM BANK AND APPROACH ROADS WITH PERENNIAL GRASSES/MULCH (OR WETLAND MIX WHEN APPLICABLE).

4. LEAVE APPROPRIATE WATER DIVERSION STRUCTURES IN PLACE ON BOTH SIDES OF STREAM.



OVERALL PIPE VIEW

NOT TO SCALE



PIPE SECTION VIEW

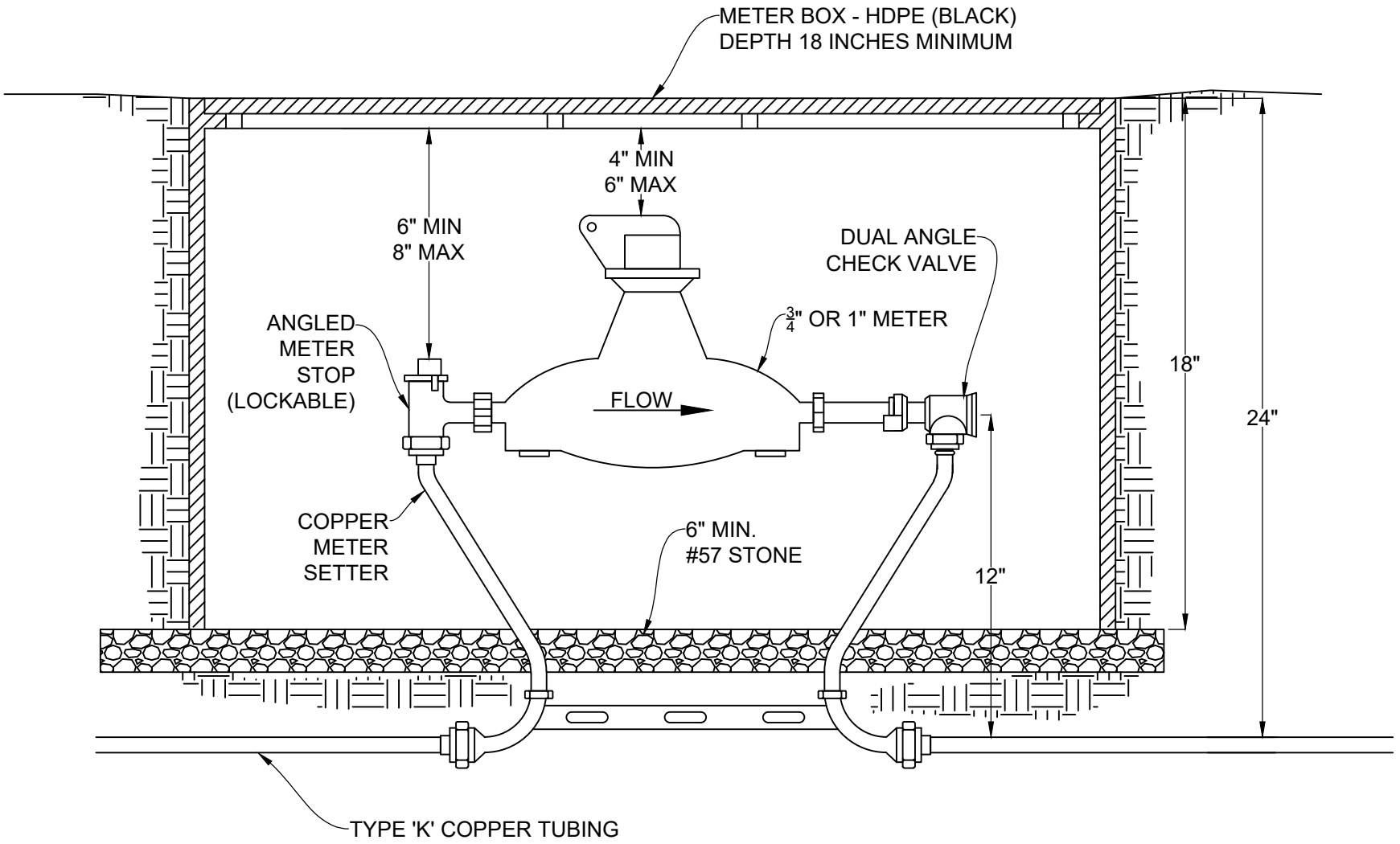
NOT TO SCALE

NOTE:

1. TRACER WIRE AND ACCESSORIES SHALL BE BLUE FOR WATER INSTALLATIONS AND GREEN FOR WASTEWATER INSTALLATIONS.

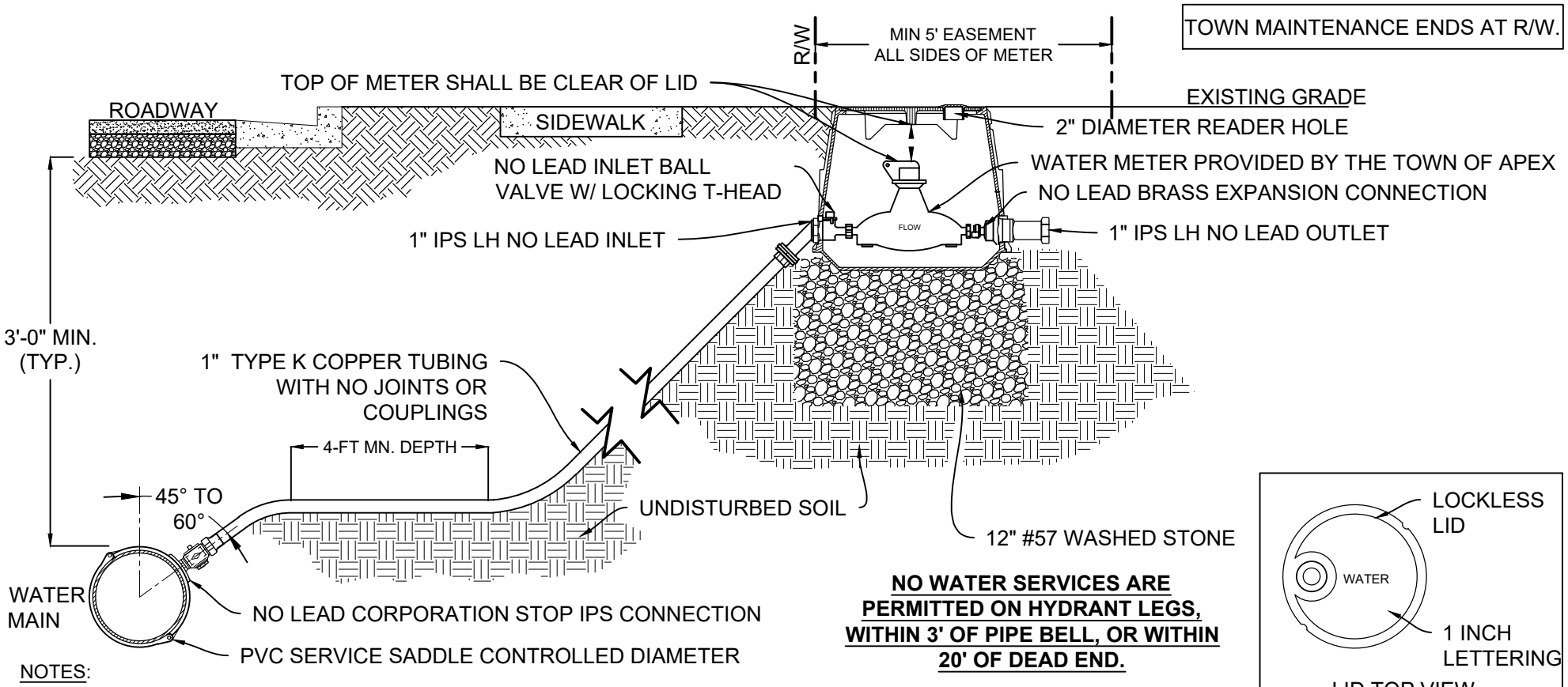
2. TEST STATIONS SHALL BE 2.5" DIAMETER WITH 2 TERMINALS, GREEN OR BLUE TOP AND BE EQUIVALENT TO BINGHAM AND TAYLOR MODEL P-225SR OR COPPERHEAD MODEL LD12TP AND SHALL BE INSTALLED IN A TOWN STANDARD VALVE BOX PER STANDARD DETAIL.

TOWN OF APEX STANDARDS	TRACER WIRE	STD. NO.
EFFECTIVE: MARCH 23, 2021		450.13
		SHEET 1 OF 1



(SEE SHEET 2 OF 2 FOR NOTES)

TOWN OF APEX STANDARDS	3/4" & 1" WATER SERVICE & METER BOX	STD. NO. 600.01
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 2



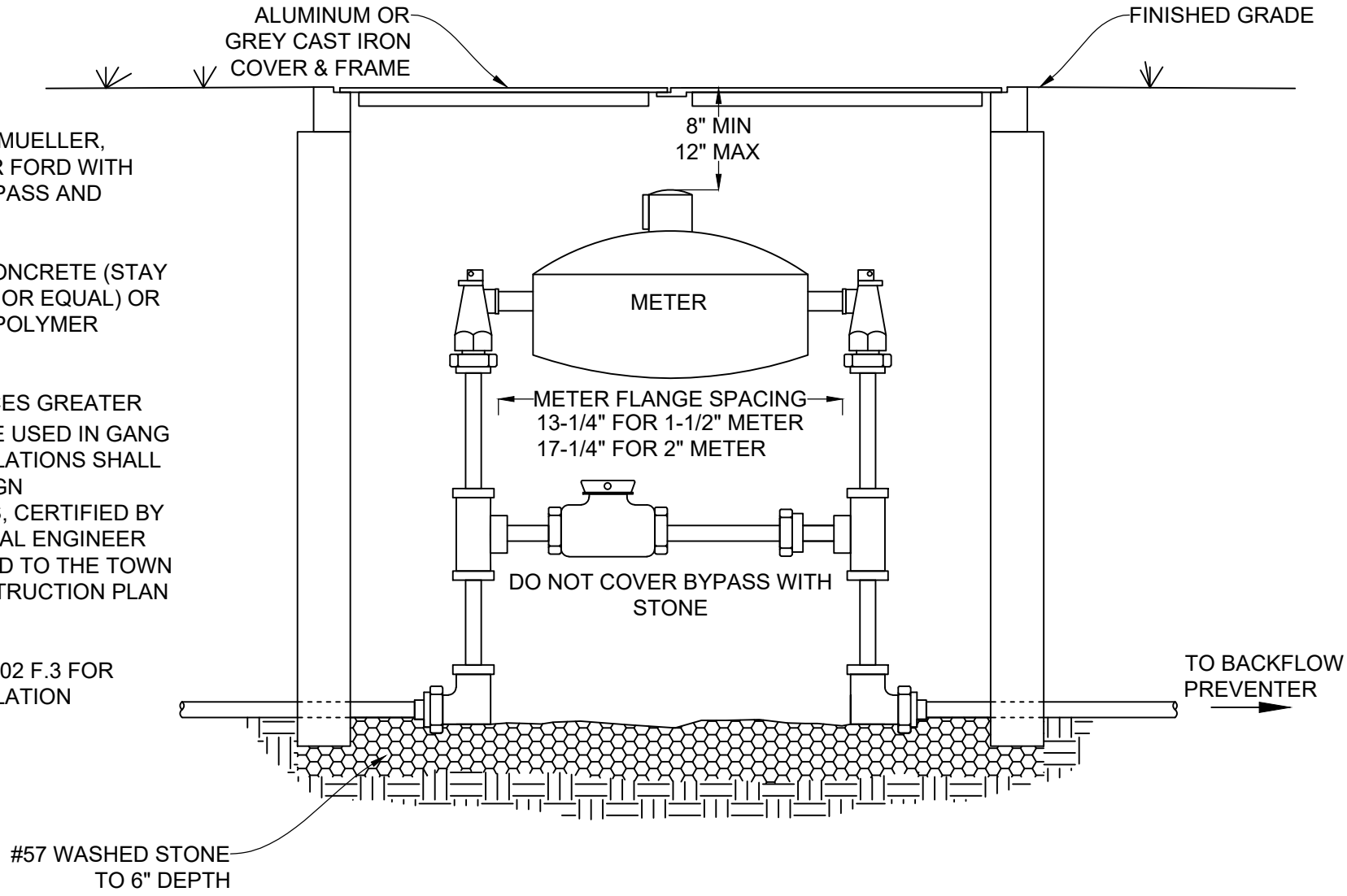
NOTES:

1. WATER METER SHALL NOT BE LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC.
2. ALL METER BOXES AND LIDS SHALL BE APPROVED BY THE TOWN.
3. ALL SERVICE LINES, VALVES AND FITTINGS SHALL COMPLY WITH AWWA C800.
4. THE INTERIOR AND EXTERIOR OF THE BOX AND LID SHALL BE COLORED BLACK.
5. ALL RELOCATIONS OF EXISTING OR PERMITTED INFRASTRUCTURE INCLUDING SERVICE PIPING AND METER BOXES SHALL BE PERMITTED AND INSPECTED IN CONFORMANCE WITH TOWN POLICIES AND PROCEDURES.
6. BOX AND LID SHALL BE CAST IRON, ASTM A48, CLASS 25.
7. COPPER TUBING SHALL BE LEAD FREE, TYPE K SOFT COPPER TUBING CONFORMING TO ASTM STANDARD B58.
8. MARKING TAPE SHALL BE INSTALLED FOR ALL SERVICE CONNECTIONS FROM THE MAIN LINE TO THE METER FOR ALL NEW CONSTRUCTION OR RETROFIT INSTALLATIONS USING OPEN TRENCH METHODS.

TOWN OF APEX STANDARDS	3/4" & 1" WATER SERVICE & METER BOX	STD. NO. 600.01
EFFECTIVE: MARCH 23, 2021		SHEET 2 OF 2

NOTES:

1. METER YOKE - MUELLER, MCDONALD OR FORD WITH LOCKABLE BY-PASS AND METER STOPS.
2. BOX MAY BE CONCRETE (STAY RIGHT MB 2737 OR EQUAL) OR LIGHTWEIGHT POLYMER CONCRETE.
3. WATER SERVICES GREATER THAN $\frac{3}{4}$" IN SIZE USED IN GANG METER INSTALLATIONS SHALL REQUIRE DESIGN CALCULATIONS, CERTIFIED BY A PROFESSIONAL ENGINEER AND SUBMITTED TO THE TOWN BEFORE CONSTRUCTION PLAN APPROVAL.
4. SEE SECTION 602 F.3 FOR METER INSTALLATION CONDITIONS.

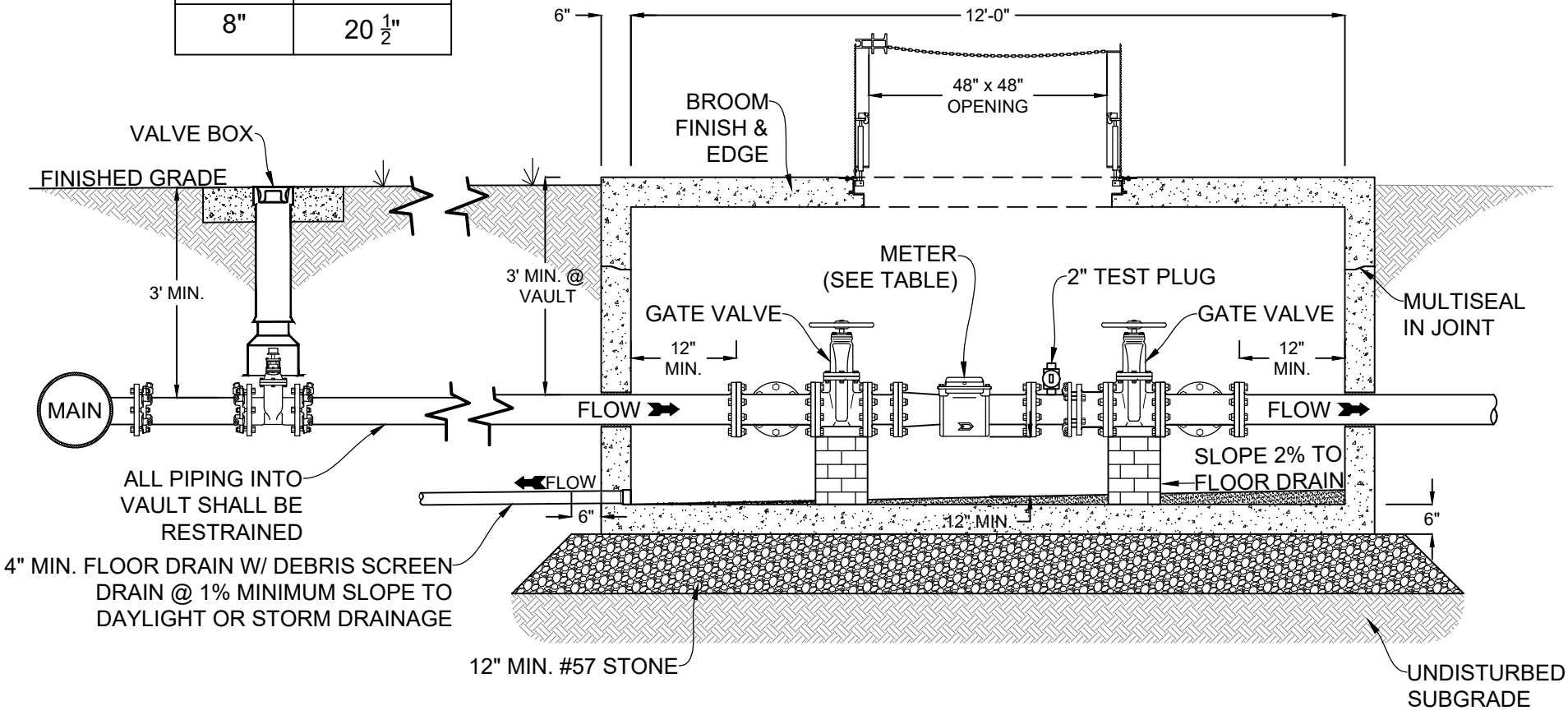


TOWN OF APEX STANDARDS	1-1/2" & 2" METER INSTALLATION & VAULT	STD. NO. 600.02
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1

NOTES:

1. INSTALLATIONS LARGER THAN 3" SHALL REQUIRE A SPECIAL DETAIL AND PRIOR APPROVAL FROM THE WATER RESOURCES DIRECTOR.
2. ALL PIPE SHALL BE DUCTILE IRON. A BYPASS LINE MUST BE INCLUDED.
3. THERE SHALL BE A MINIMUM 5 FOOT EASEMENT AROUND ALL SIDES OF THE METER VAULT.

METER	OPENING
3"	12 ½"
4"	14 ½"
6"	18 ½"
8"	20 ½"



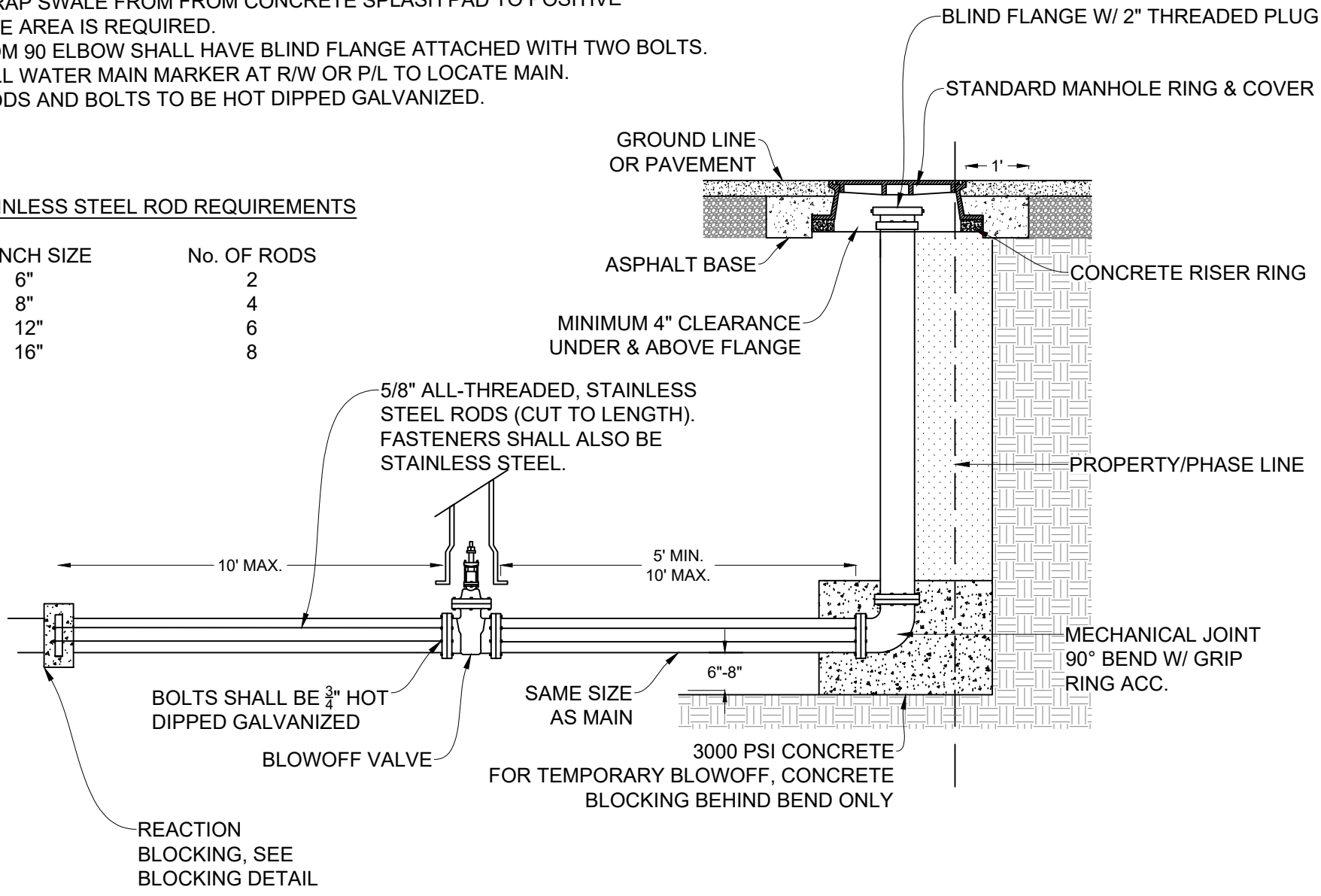
SECTION VIEW

TOWN OF APEX STANDARDS	3" & LARGER METER INSTALLATION & VAULT	STD. NO. 600.03
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 2

NOTES:
1. DRILL 1/4" WEEP HOLE FOR STACK DRAINAGE INTO STONE.
2. DOUBLE 3/4" BRIDLE RODS ON BOTH SIDES.
3. A RIP-RAP SWALE FROM FROM CONCRETE SPLASH PAD TO POSITIVE DRAINAGE AREA IS REQUIRED.
4. BOTTOM 90 ELBOW SHALL HAVE BLIND FLANGE ATTACHED WITH TWO BOLTS.
5. INSTALL WATER MAIN MARKER AT R/W OR P/L TO LOCATE MAIN.
6. 3/4" RODS AND BOLTS TO BE HOT DIPPED GALVANIZED.

STAINLESS STEEL ROD REQUIREMENTS

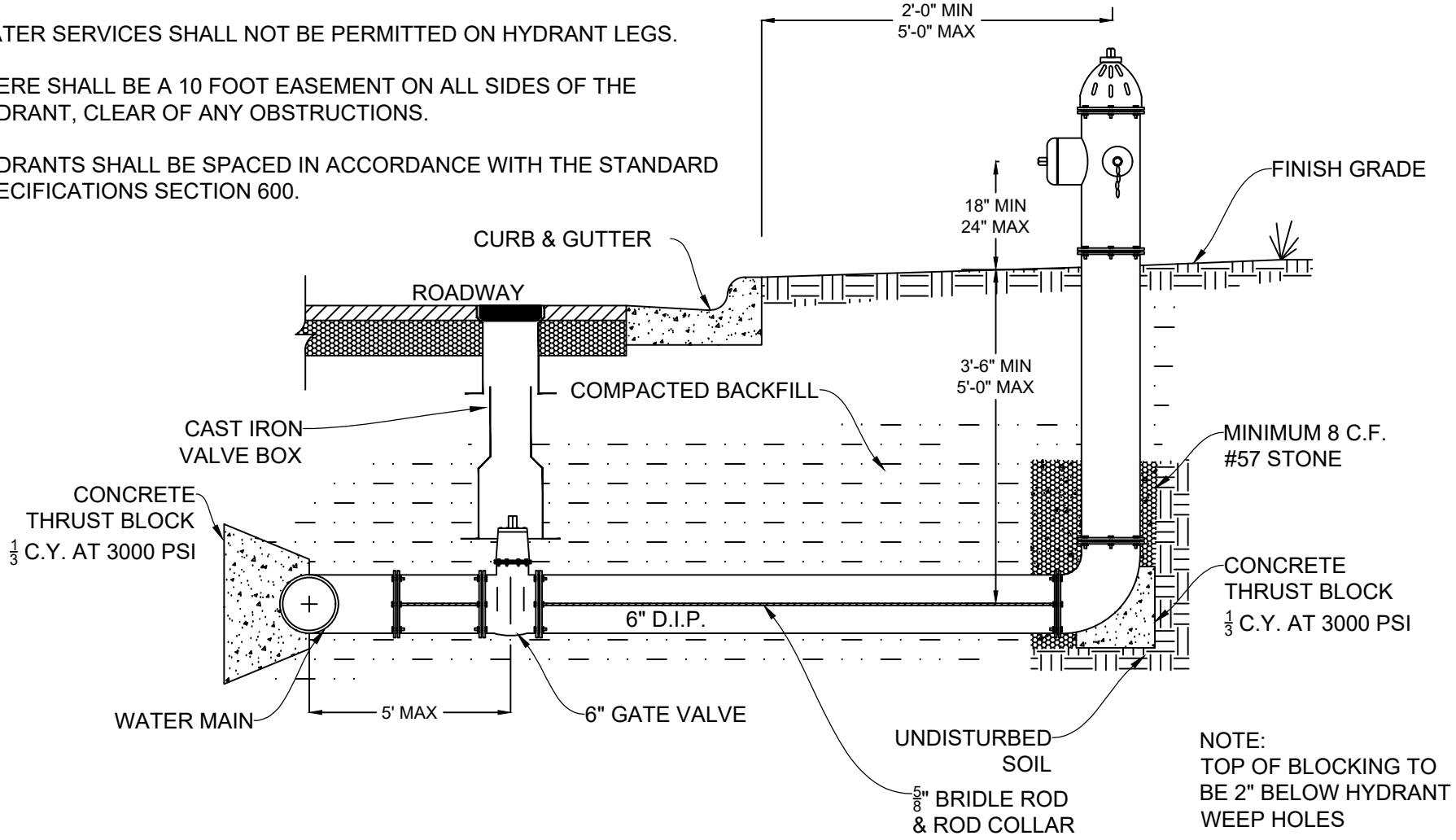
BRANCH SIZE	No. OF RODS
6"	2
8"	4
12"	6
16"	8



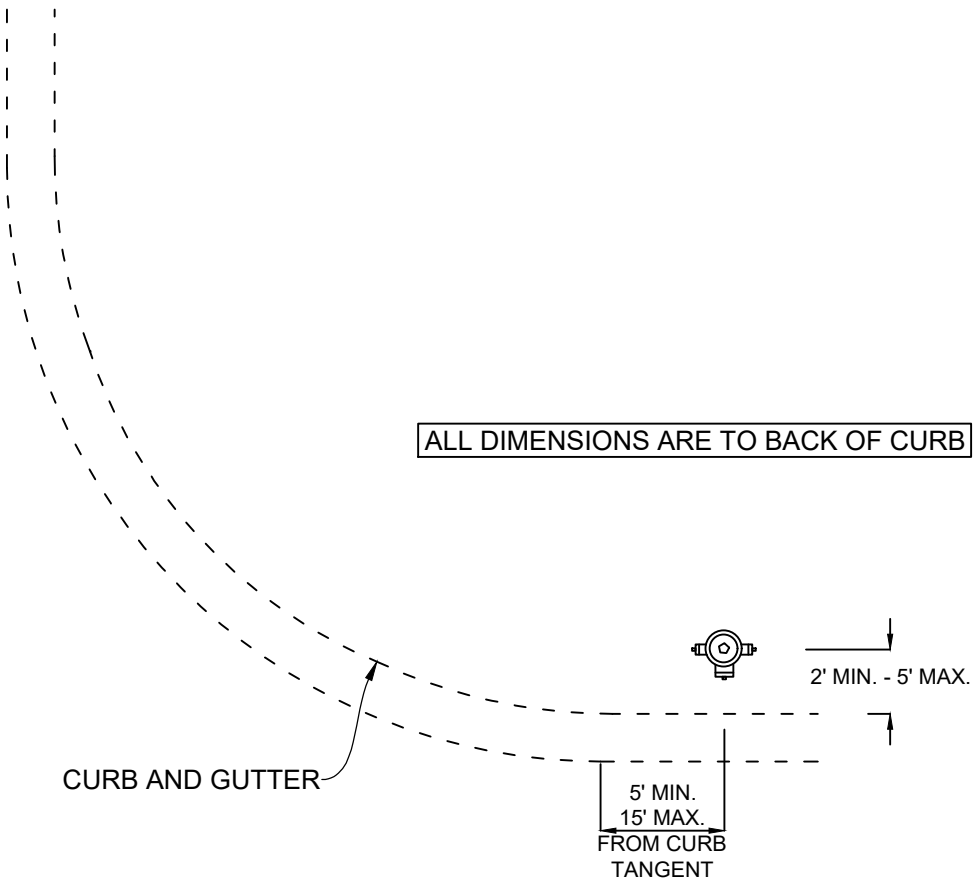
TOWN OF APEX STANDARDS	BLOW-OFF ASSEMBLY	STD. NO. 600.04
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1

NOTES:

1. HYDRANT TO BE PLACED WITH PUMPER NOZZLE FACING THE CLOSEST CURB.
2. HYDRANT TO BE PAINTED ONE COAT OF RED AFTER INSTALLATION.
3. WATER SERVICES SHALL NOT BE PERMITTED ON HYDRANT LEGS.
4. THERE SHALL BE A 10 FOOT EASEMENT ON ALL SIDES OF THE HYDRANT, CLEAR OF ANY OBSTRUCTIONS.
5. HYDRANTS SHALL BE SPACED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 600.



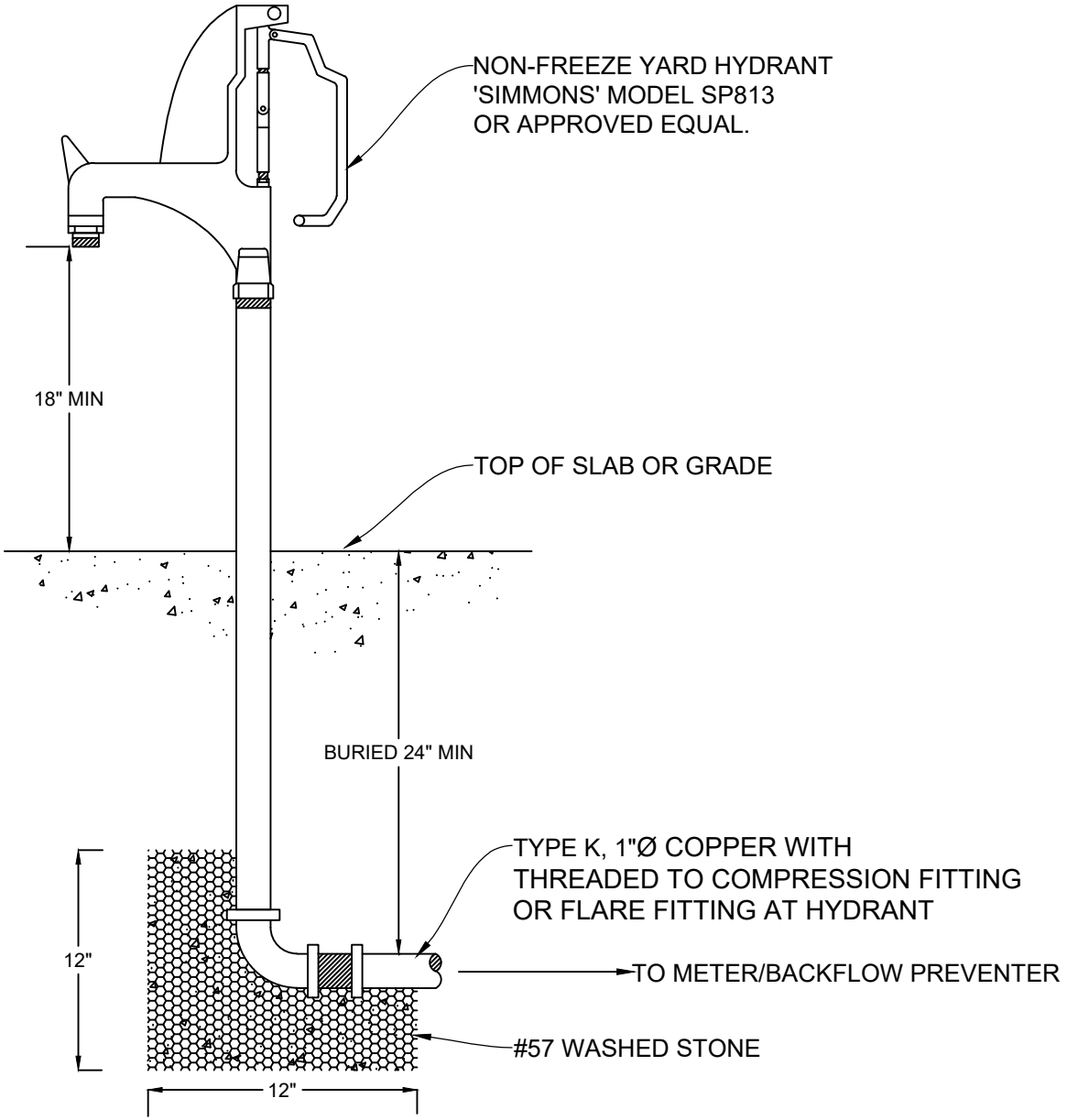
TOWN OF APEX STANDARDS	HYDRANT INSTALLATION	STD. NO. 600.05
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1



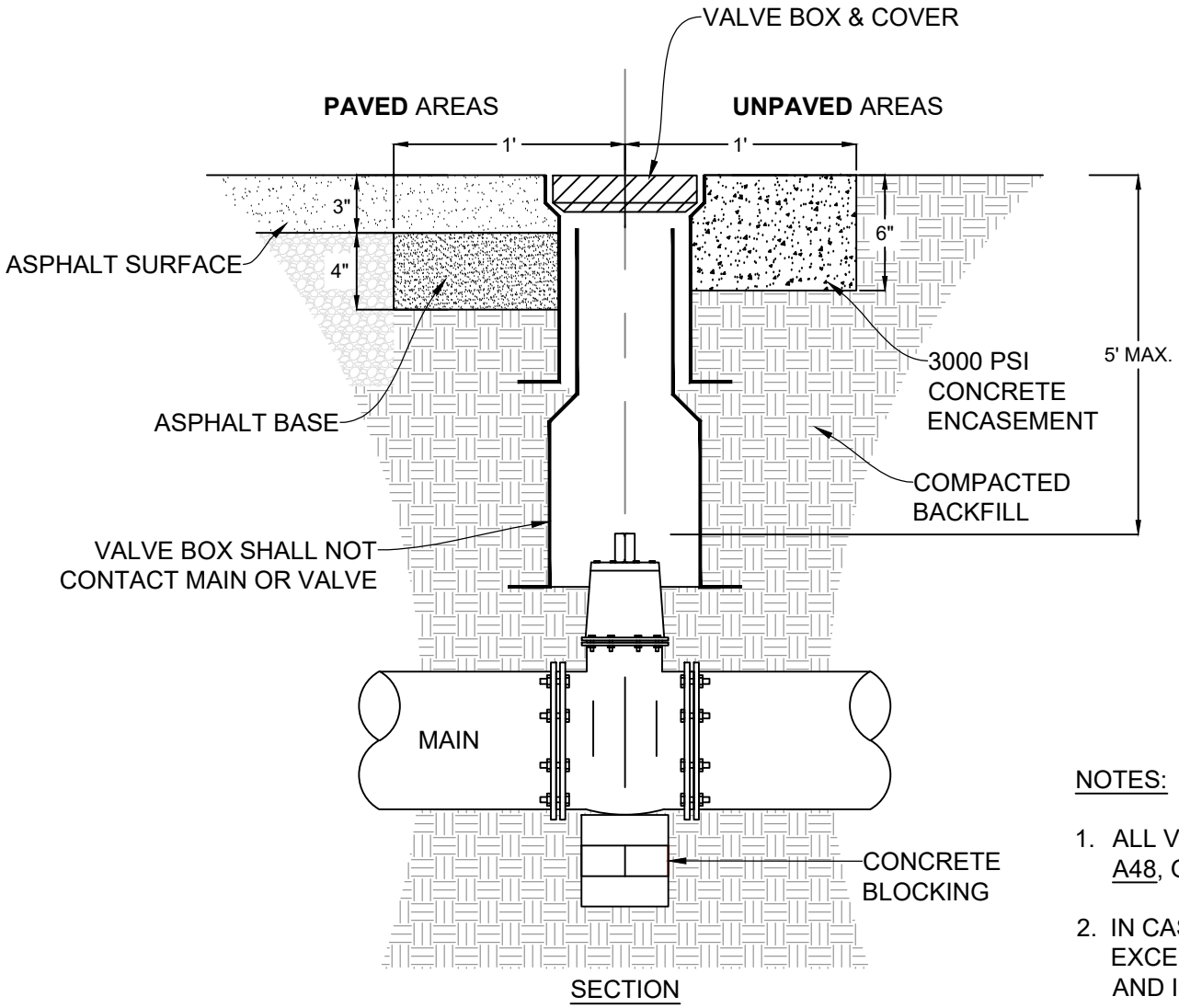
NOTES:

1. HYDRANTS SHALL BE SPACED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 600.

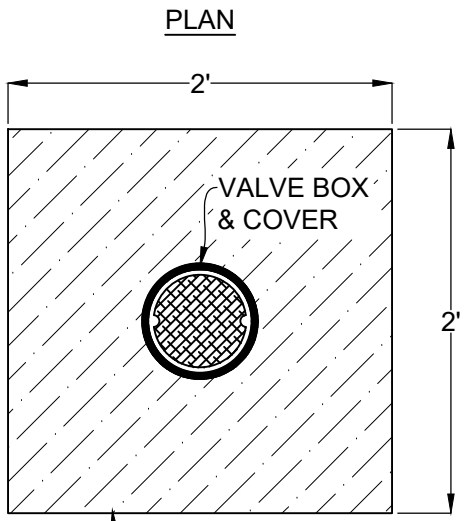
TOWN OF APEX STANDARDS	HYDRANT LOCATION	STD. NO.
EFFECTIVE: MARCH 23, 2021		600.06
		SHEET 1 OF 1



TOWN OF APEX STANDARDS	YARD HYDRANT (NON-FREEZE)	STD. NO. 600.07
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1



SECTION



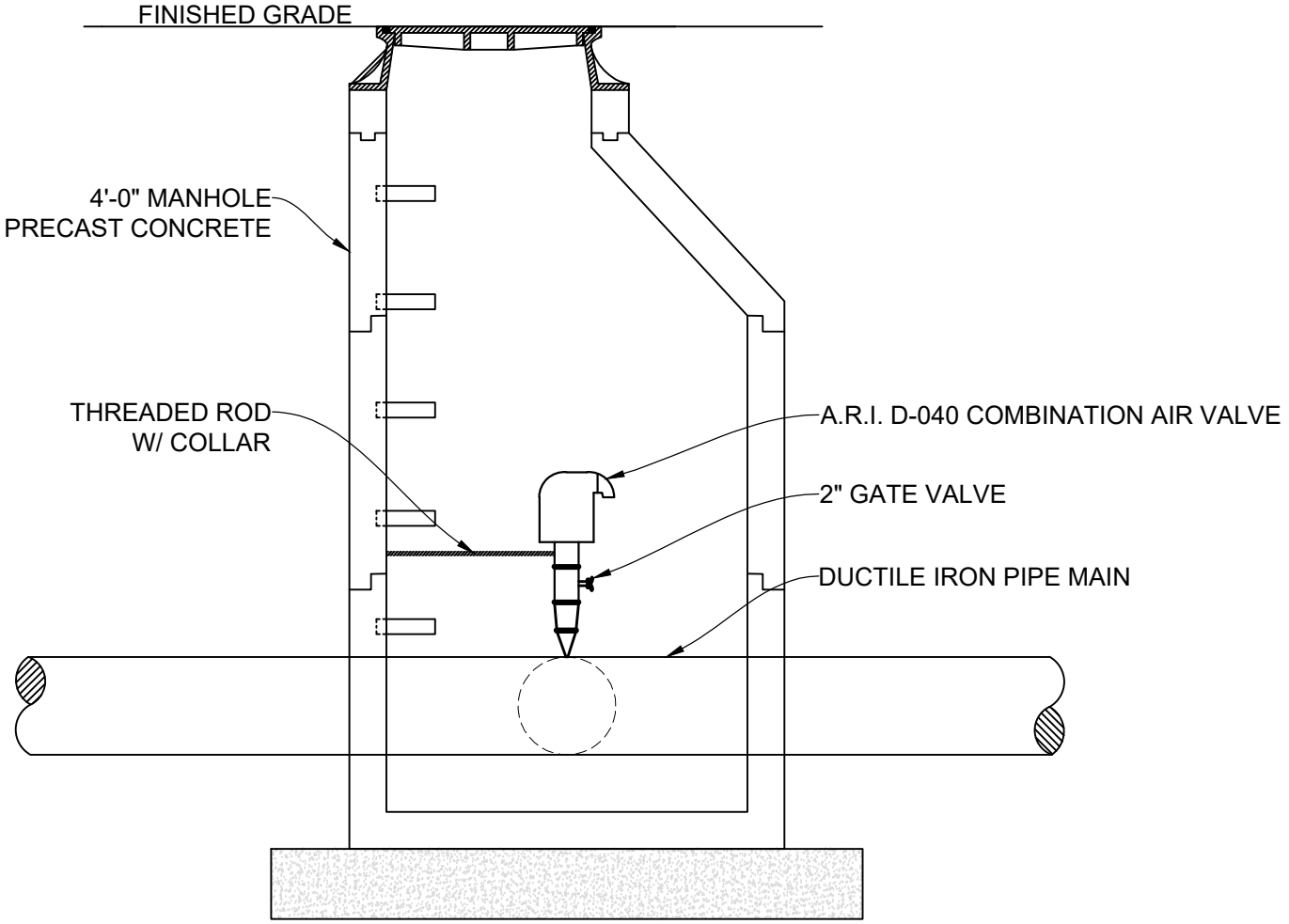
NOTES:

1. ALL VALVE BOXES AND COVERS SHALL MEET ASTM A48, GRADE 35B IRON REQUIREMENTS.
2. IN CASES WHERE MAX. VALVE BOX HEIGHT IS EXCEEDED, USE 6" DIP AS A PROTECTIVE SLEEVE AND INCLUDE A VALVE NUT EXTENSION.
3. IF THE VALVE OPERATING NUT IS GREATER THAN 6 FEET FROM THE SURFACE AN EXTENSION KIT FROM THE VALVE MANUFACTURER MUST BE PROVIDED.

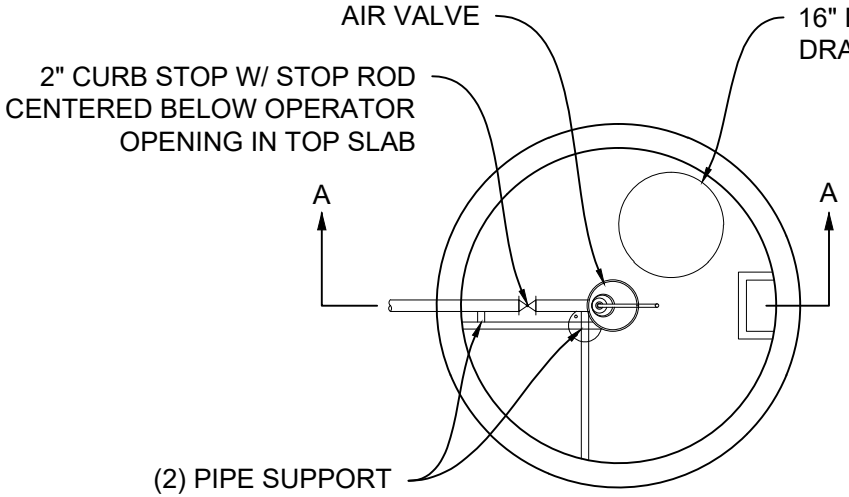
TOWN OF APEX STANDARDS	VALVE BOX INSTALLATION	STD. NO. 600.08
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1

NOTES:

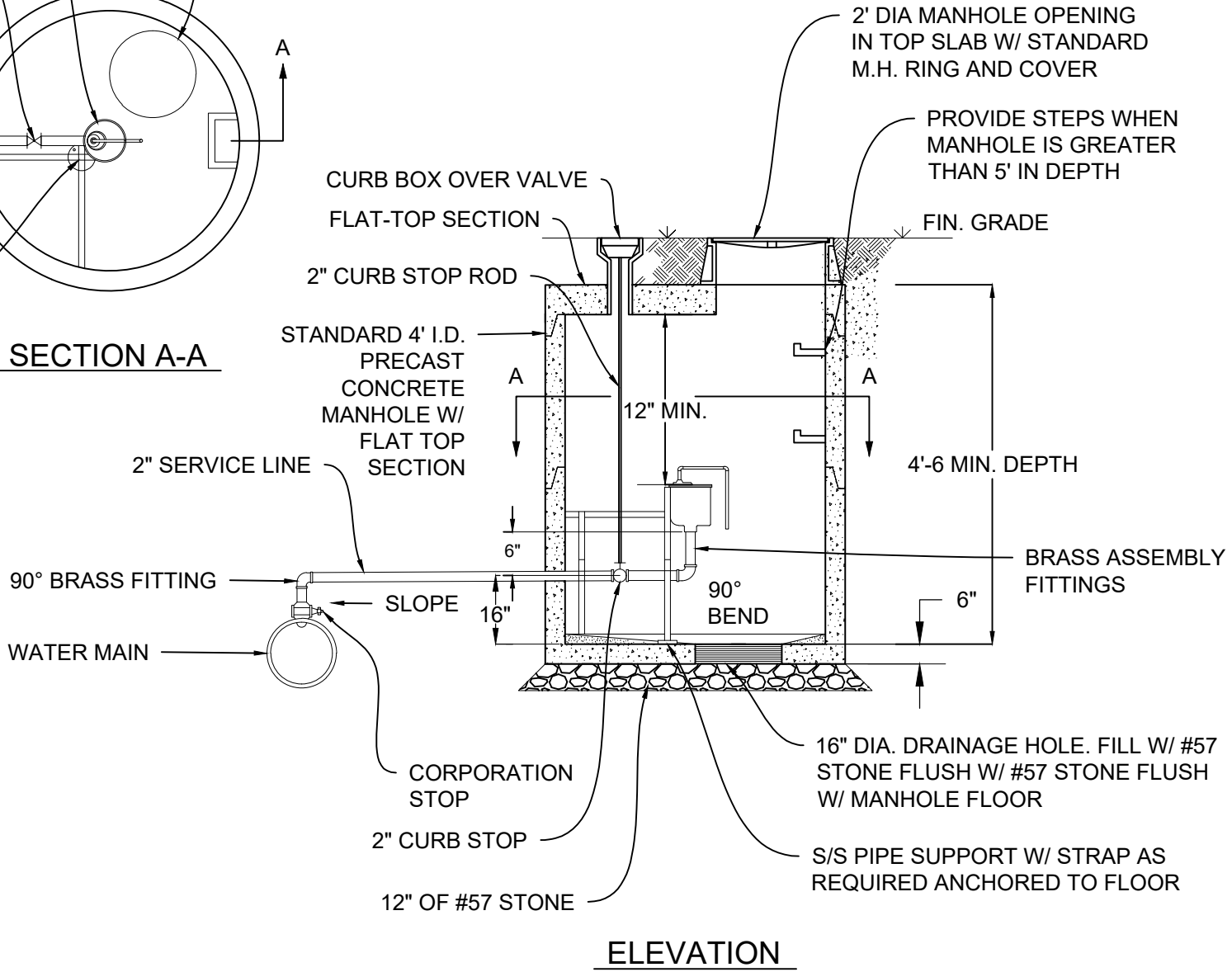
1. TAP SIZE AND ISOLATION VALVE TO BE SAME SIZE AS AIR VALVE.
2. ALL PIPING AND FITTINGS IN THE MANHOLE SHALL BE BRASS OR BRONZE UNLESS NOTED OTHERWISE.
3. MANHOLE STEPS SHALL BE PLACED 16" O.C. WHEN DEPTH OF MANHOLE EXCEEDS 4 FEET.
4. MANHOLE INTERIOR SHALL BE EPOXY COATED IN THE CASE OF SEWER.
5. WATER MAINS 16" AND LARGER OR IN OUTFALLS MAY REQUIRE 5 FOOT DIAMETER MANHOLES AND/OR FLAT TOP MANHOLES.



TOWN OF APEX STANDARDS	AIR RELEASE MANHOLE FOR WATER MAINS	STD. NO. 600.12
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 2

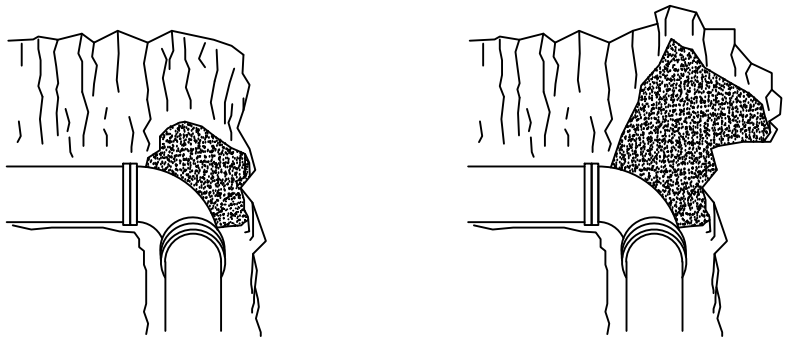


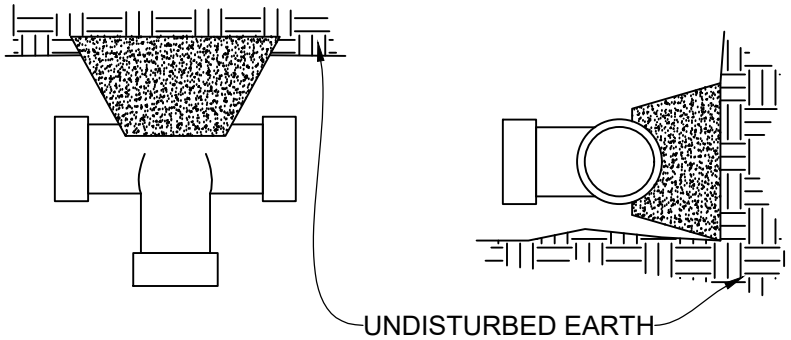
SECTION A-A



ELEVATION

TOWN OF APEX STANDARDS	AIR RELEASE MANHOLE OFFSET FROM WATER MAIN	STD. NO. 600.12
EFFECTIVE: MARCH 23, 2021		SHEET 2 OF 2





MINIMUM CONCRETE BLOCKING (C.Y.)*					
NOM. PIPE DIA. (INCHES)	TEES & DEAD ENDS	90° BEND	45° BEND	22-1/2° BEND	11-1/4° BEND
4	0.1	0.1	0.1	0.1	0.1
6	0.2	0.2	0.1	0.1	0.1
8	0.2	0.3	0.2	0.1	0.1
10	0.3	0.5	0.3	0.2	0.2
12	0.4	0.6	0.5	0.3	0.3
14	0.7	0.9	0.6	0.5	0.5
16	0.7	0.9	0.6	0.5	0.5
18	0.9	1.2	0.7	0.6	0.6
20	1.1	1.6	1.1	0.7	0.7
24	1.7	2.3	1.6	0.9	0.9

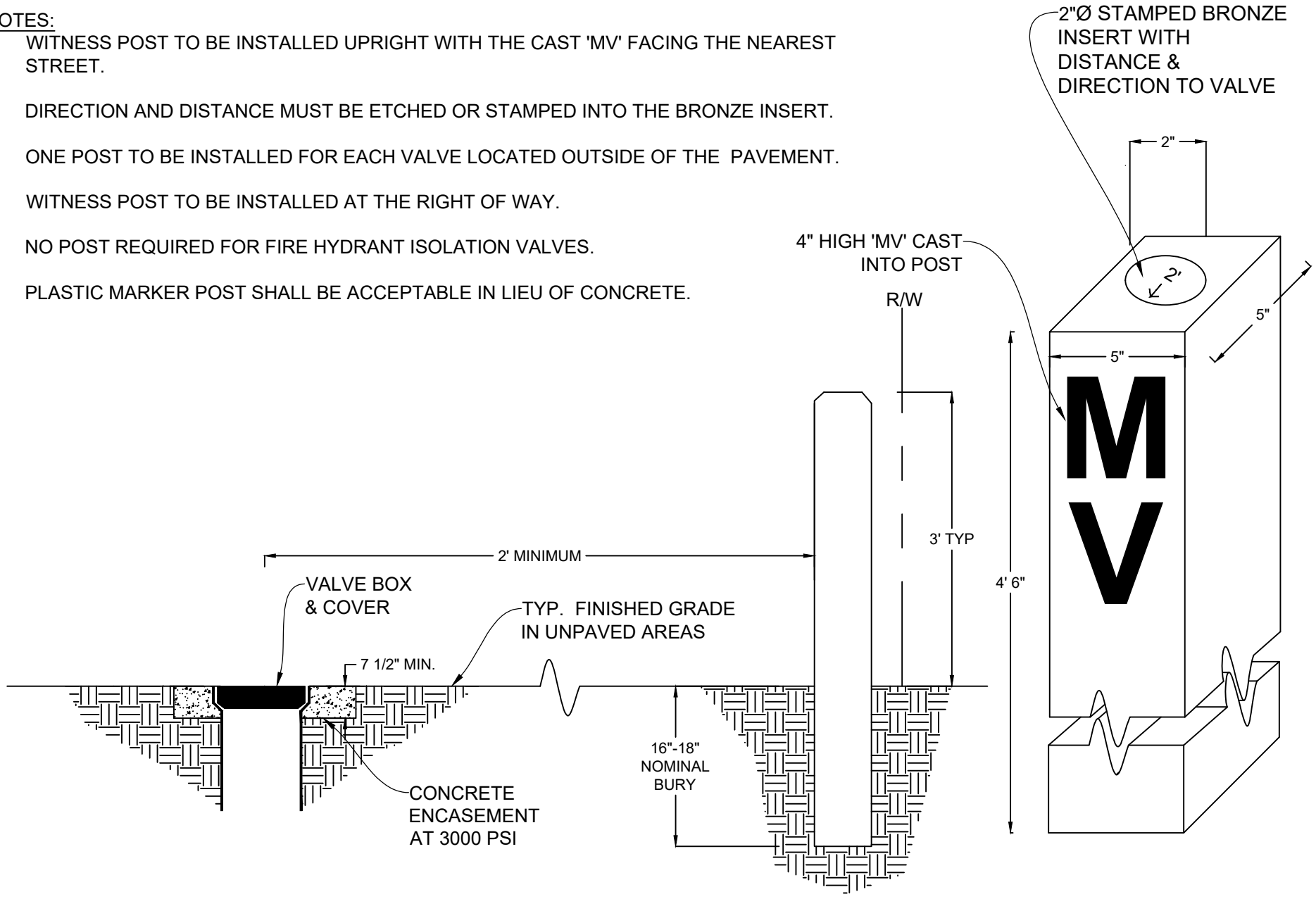
* CONCRETE SHALL BE 3000 PSI

NOTES:

1. WRAP FITTINGS IN 6 MIL PLASTIC BEFORE POURING CONCRETE. (NO CONCRETE SHALL COVER BOLTS OR GLANDS).
2. ALL BLOCKING SHALL BE PLACED SO THAT THE PIPE END FITTING JOINTS WILL BE ACCESSIBLE FOR REPAIRS.
3. REACTION BLOCKING SHALL BE TO SUFFICIENT SIZE TO PREVENT THE FITTING FROM BLOWING OFF THE MAIN A MAXIMUM TEST PRESSURE.
4. FITTINGS SHALL BE BLOCKED TO SOLID , UNDISTURBED EARTH WITH CONCRETE.

NOTES:

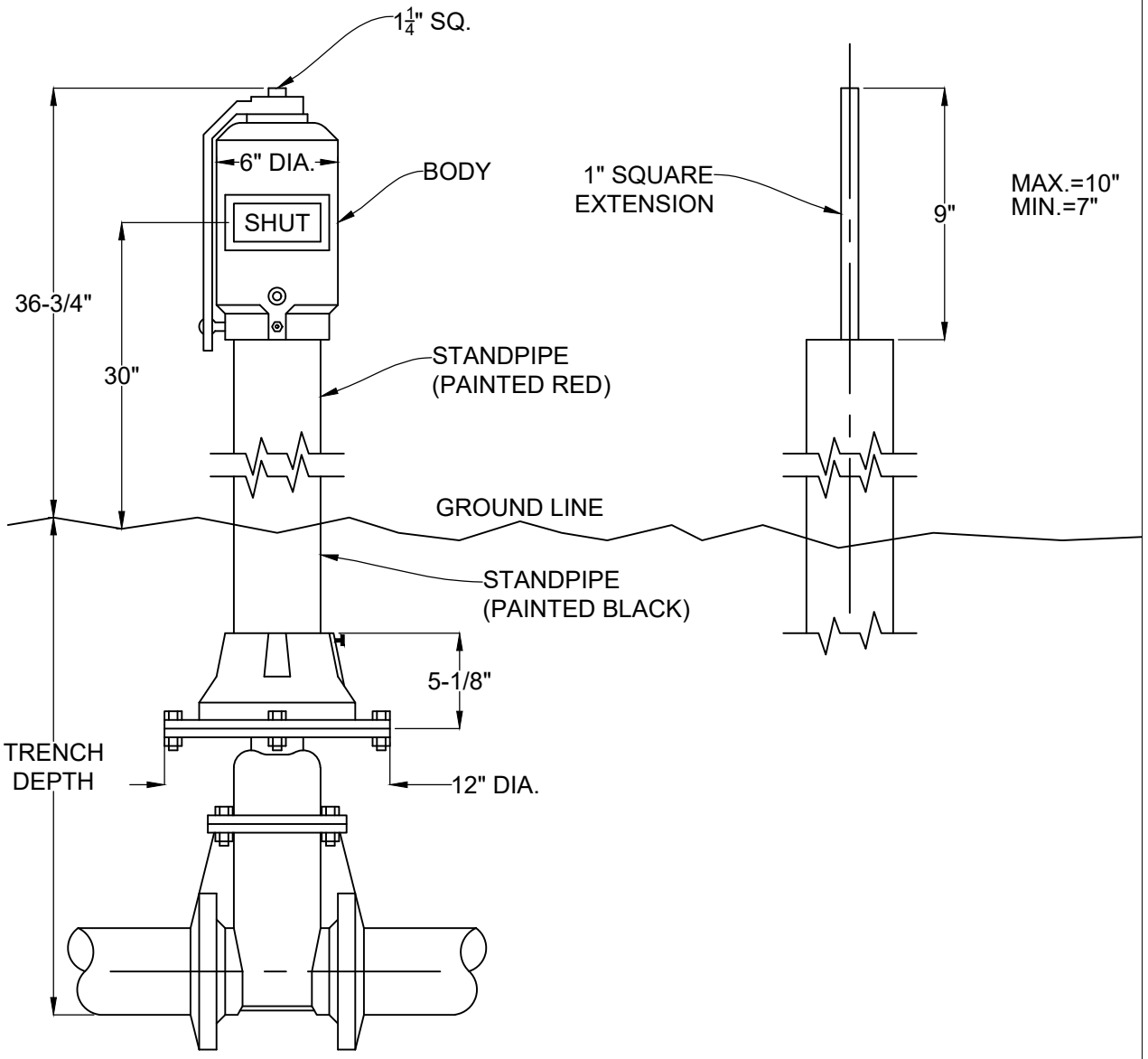
1. WITNESS POST TO BE INSTALLED UPRIGHT WITH THE CAST 'MV' FACING THE NEAREST STREET.
2. DIRECTION AND DISTANCE MUST BE ETCHED OR STAMPED INTO THE BRONZE INSERT.
3. ONE POST TO BE INSTALLED FOR EACH VALVE LOCATED OUTSIDE OF THE PAVEMENT.
4. WITNESS POST TO BE INSTALLED AT THE RIGHT OF WAY.
5. NO POST REQUIRED FOR FIRE HYDRANT ISOLATION VALVES.
6. PLASTIC MARKER POST SHALL BE ACCEPTABLE IN LIEU OF CONCRETE.



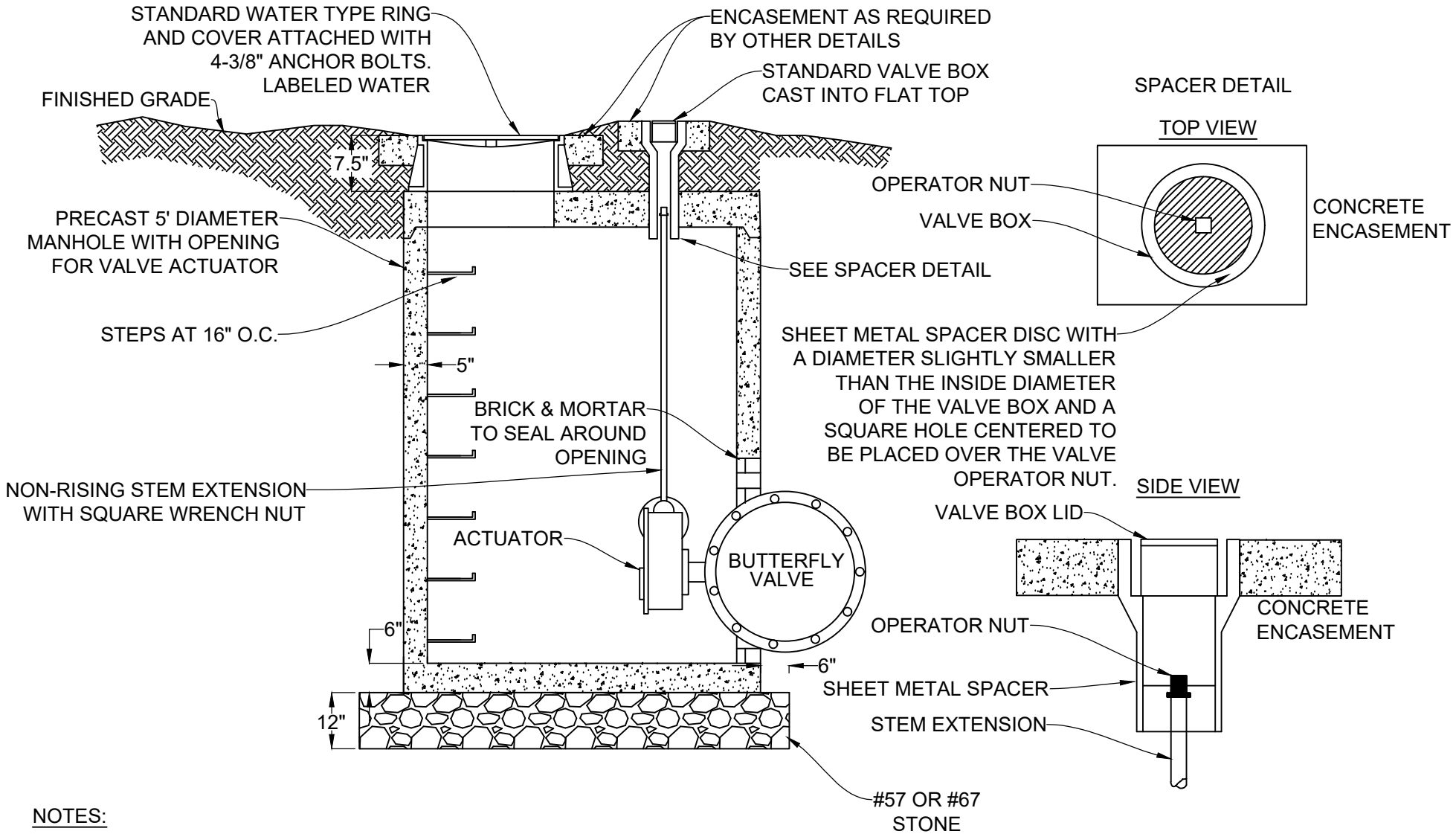
TOWN OF APEX STANDARDS	VALVE BOX MARKER FOR UNPAVED AREAS	STD. NO. 600.15
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1

FIELD ADJUSTMENT INSTRUCTIONS:

1. REMOVE THE BODY FROM THE TOP OF THE INDICATOR POST ASSEMBLY.
2. CUT THE REQUIRED LENGTH OF THE BOTTOM OF THE STANDPIPE FOR THE GROUND LINE TO MATCH UP WITH THE STANDPIPE GROUND LINE MARK.
3. CUT THE 1" SQ. EXTENSION AT A DISTANCE OF 9" ABOVE THE TOP OF THE STANDPIPE.
4. SET THE "OPEN" AND "SHUT" TARGETS FOR THE APPROPRIATE VALVE SIZE.
5. REATTACH THE BODY TO THE TOP OF THE INDICATOR POST ASSEMBLY.
6. LOCATION OF VALVE PER NFPA.



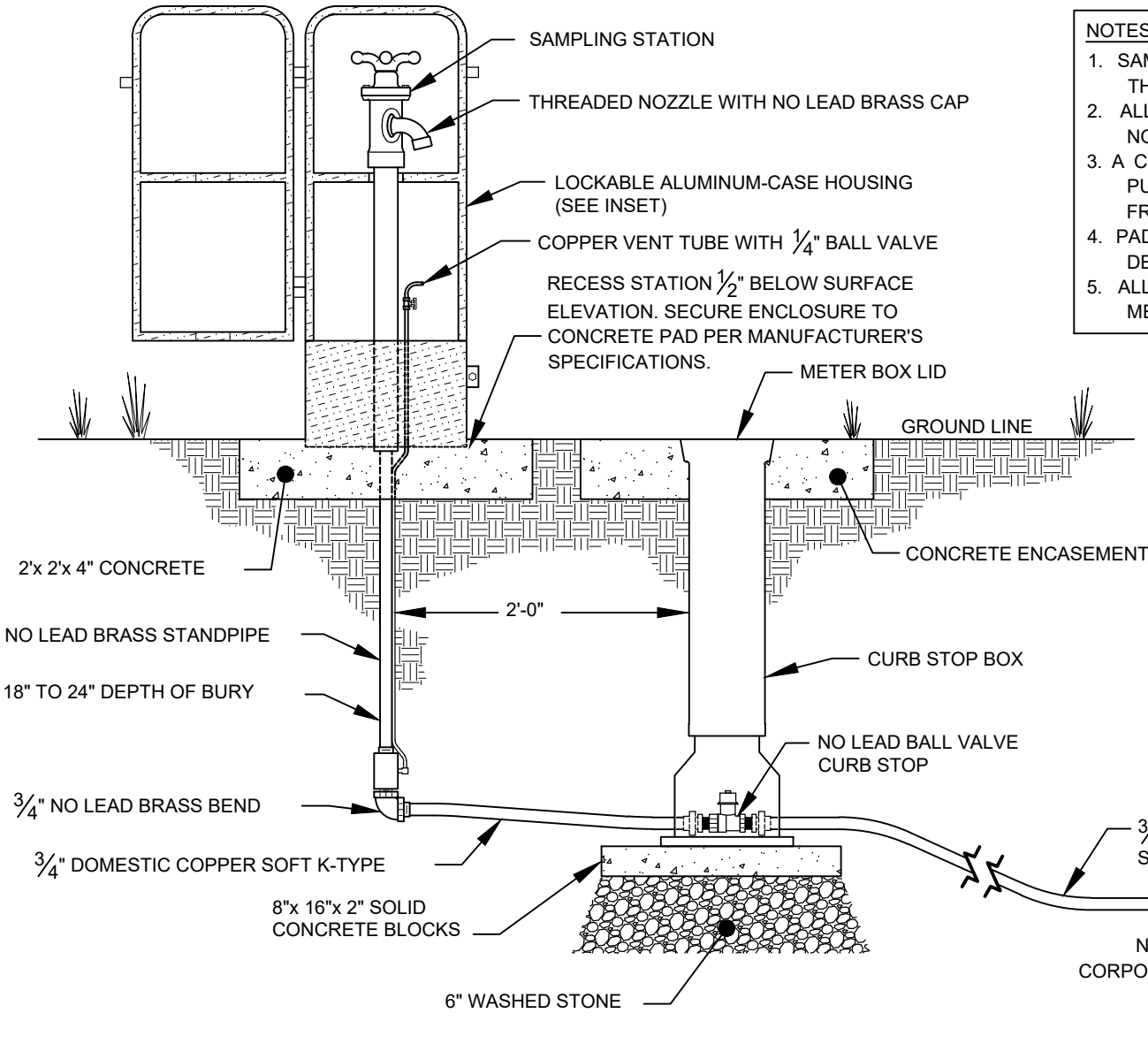
TOWN OF APEX STANDARDS	POST INDICATOR VALVE	STD. NO.
EFFECTIVE: MARCH 23, 2021		600.16
		SHEET 1 OF 1



NOTES:

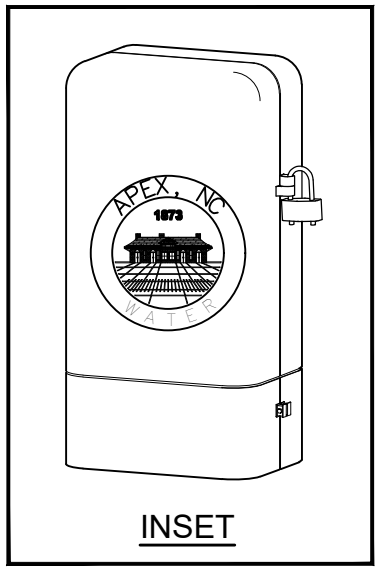
1. MANHOLE TO BE USED ON ALL VALVES 16" AND LARGER.
2. THIS CONFIGURATION TO BE USED ON ALL BUTTERFLY VALVES 16" AND LARGER.

TOWN OF APEX STANDARDS	BUTTERFLY VALVE WITH 5' MANHOLE ENCASEMENT	STD. NO. 600.17
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1



NOTES:

1. SAMPLING STATIONS SHALL BE 18"-24" BURY, WITH A 3/4 THREADED NOZZLE WITH 'NO LEAD' BRASS CAP.
2. ALL STATIONS SHALL BE ENCLOSED IN A LOCKABLE, NON-REMOVABLE, ALUMINUM-CAST HOUSING.
3. A COPPER VENT TUBE WILL ENABLE EACH STATION TO BE PUMPED FREE OF STANDING WATER TO PREVENT FREEZING AND TO MINIMIZE BACTERIA GROWTH.
4. PADLOCK PROVIDED BY TOWN OF APEX PUBLIC WORKS DEPARTMENT.
5. ALL BRASS COMPONENTS SHALL BE 'NO LEAD' BRASS MEETING UNS C89833 AS PER ASTM B584.

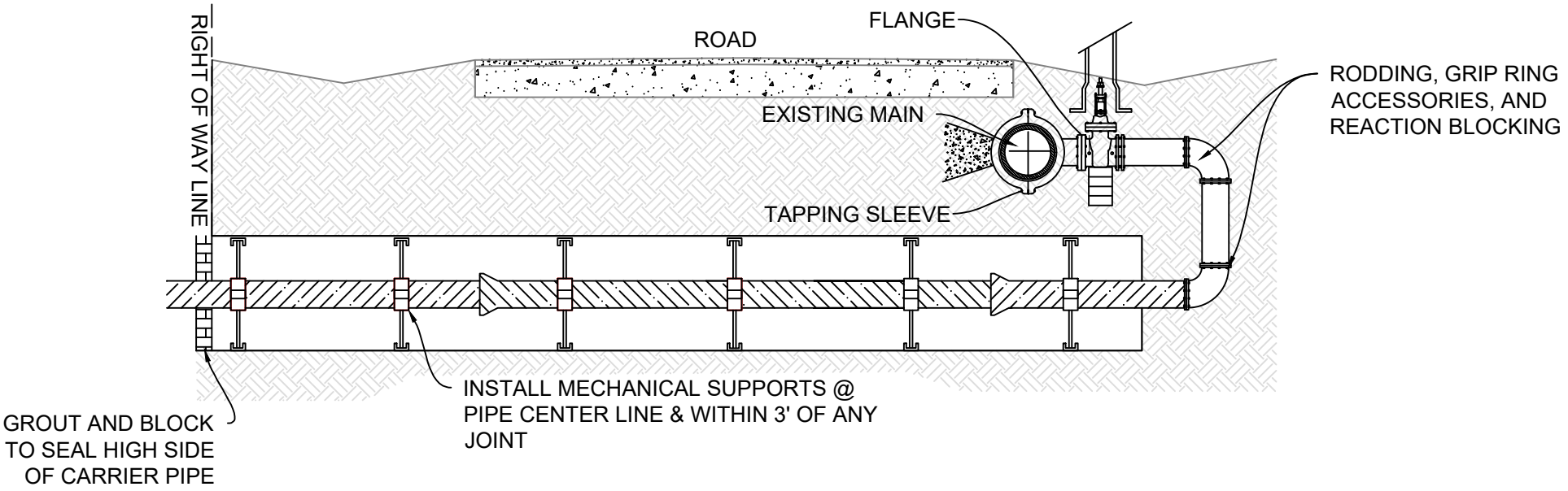


INSET

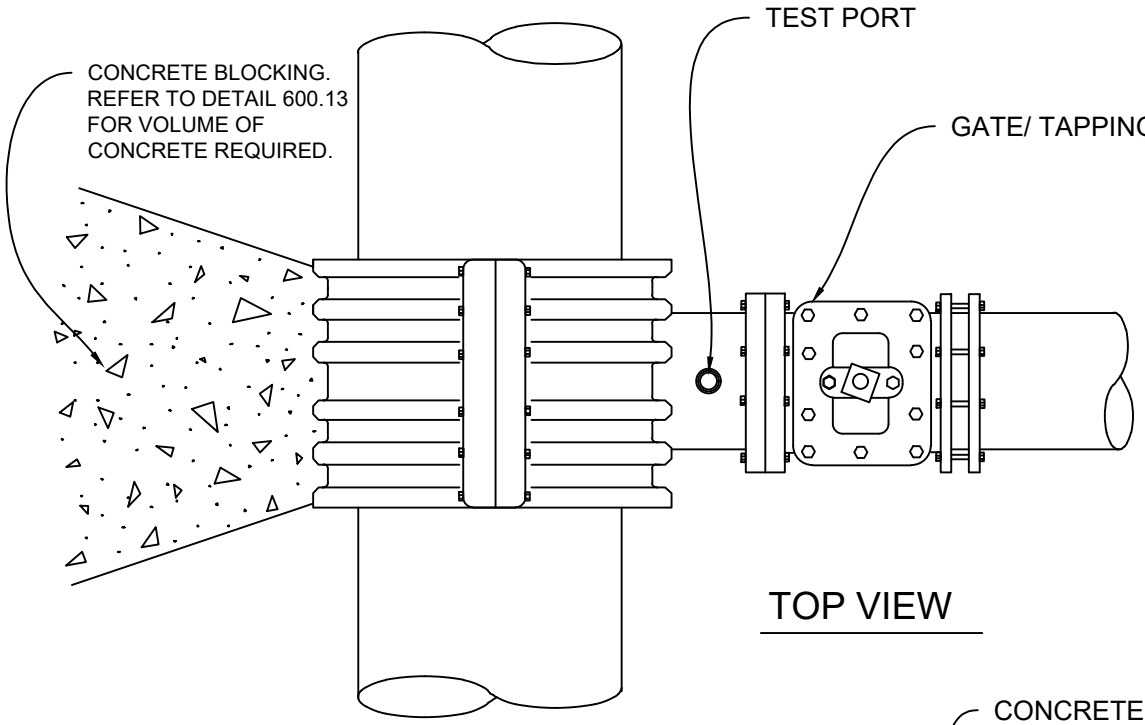
TOWN OF APEX STANDARDS	SAMPLING STATION	STD. NO.
EFFECTIVE: MARCH 23, 2021		600.18
		SHEET 1 OF 1

NOTES:

1. REFER TO BORE AND JACK DETAIL (450.06) FOR PIPE, CASING, SUPPORTS, AND OTHER DETAILS.
2. PRIOR APPROVAL FROM THE WATER RESOURCES DIRECTOR MUST BE OBTAINED FOR THIS METHOD OF CONNECTION.



TOWN OF APEX STANDARDS	REVERSE TAP	STD. NO.
EFFECTIVE: MARCH 23, 2021		600.21
		SHEET 1 OF 1



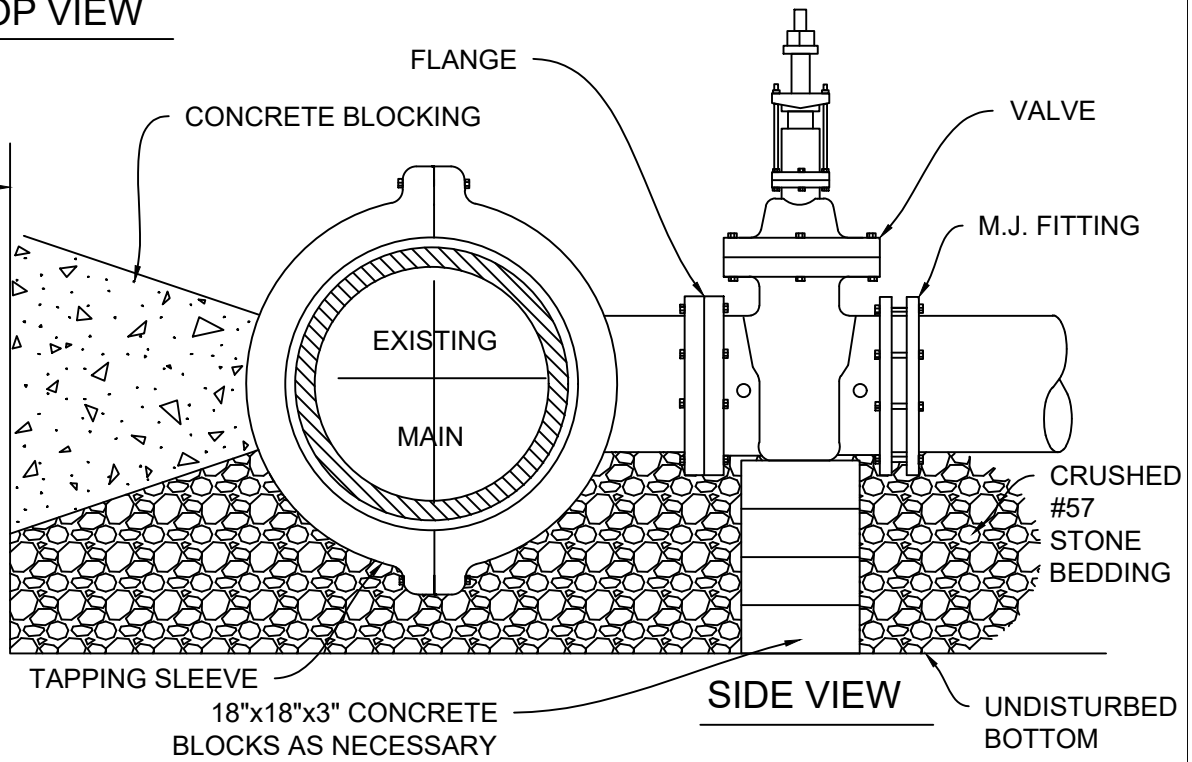
TOP VIEW

NOTES:

1. 3000 PSI SOLID CONCRETE SHALL BE USED AS FOOTING FOR DUCTILE IRON PIPE.
2. ALL FITTINGS SHALL BE COVERED WITH 10 MIL. POLYETHYLENE SHEETS PRIOR TO POURING CONCRETE BLOCKING.
3. PIPES SHALL BE SUPPORTED EITHER SIDE OF SADDLE LOCATION WITH CONCRETE ENCASEMENT PRIOR TO INSTALLING SLEEVE.

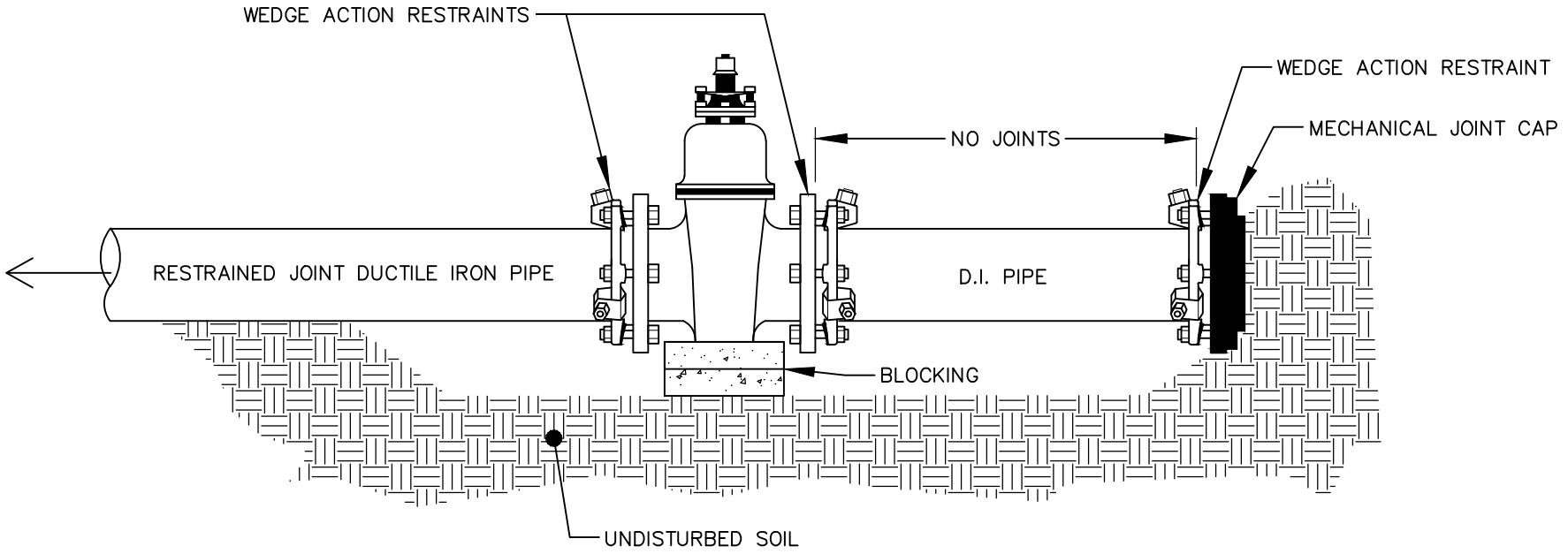
NOTES:

1. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
2. TEST PRESSURE SHALL NOT BE APPLIED FOR A MINIMUM OF 7 DAYS AFTER THRUST BLOCK PLACEMENT.
3. TAPPING SLEEVE & VALVE TO BE HYDROSTATICALLY TESTED AT 150 PSI FOR 15 MINUTES WITH ZERO PRESSURE LOSS.
4. TAPPING SLEEVES SHALL BE STAINLESS STEEL BODY, MECHANICAL JOINT, DESIGNED AND MANUFACTURED FOR A MINIMUM WORKING PRESSURE OF 250 PSI AND MEET AWWA STANDARDS.



SIDE VIEW

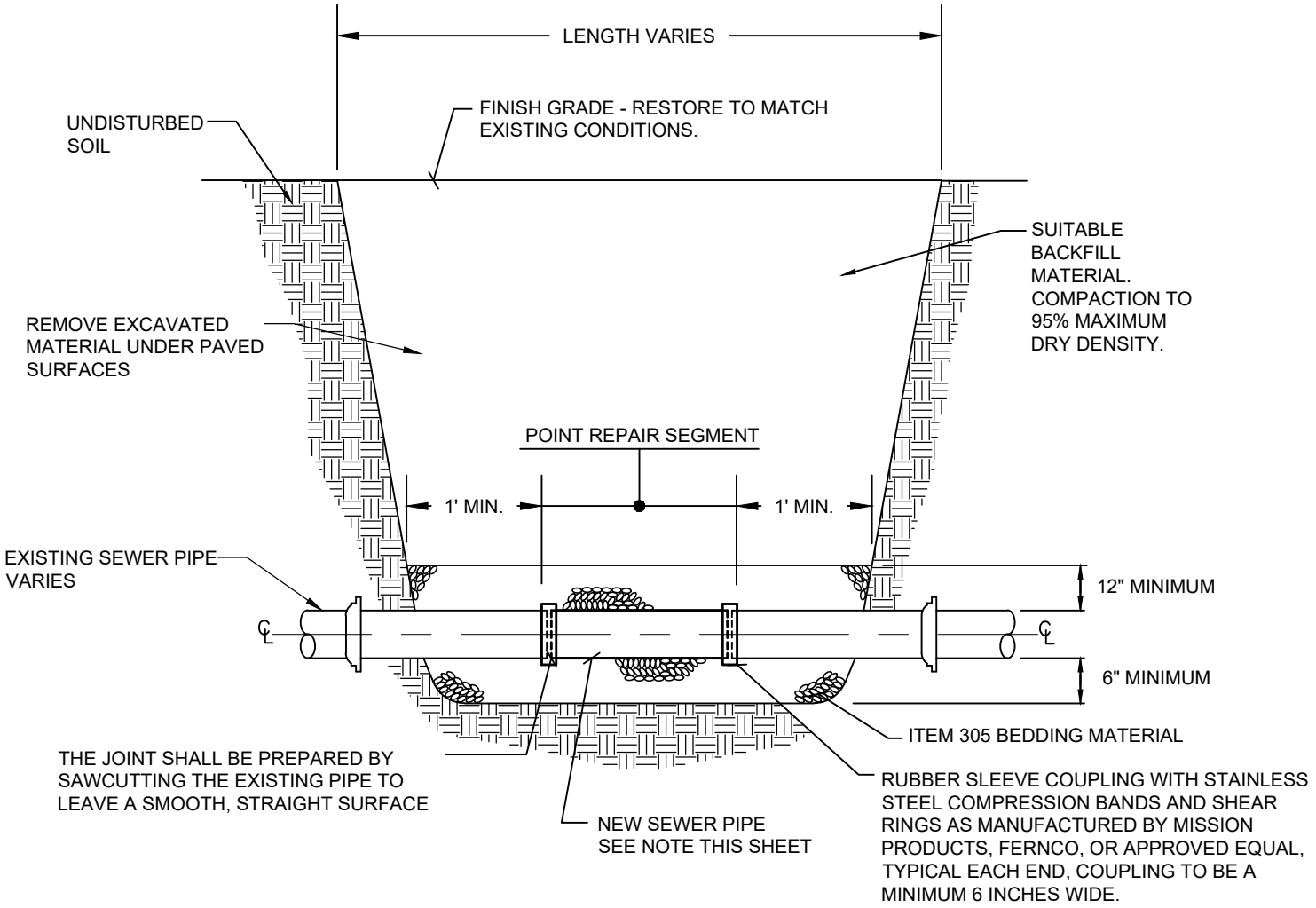
TOWN OF APEX STANDARDS	TAPPING SLEEVE AND VALVE	STD. NO. 600.22
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1



NOTES:
1. THIS DETAIL SHALL APPLY ONLY TO TEMPORARY CAPPING. PERMANENT DEAD END LINES TO BE IN ACCORDANCE WITH THE STANDARD BLOWOFF DETAIL.

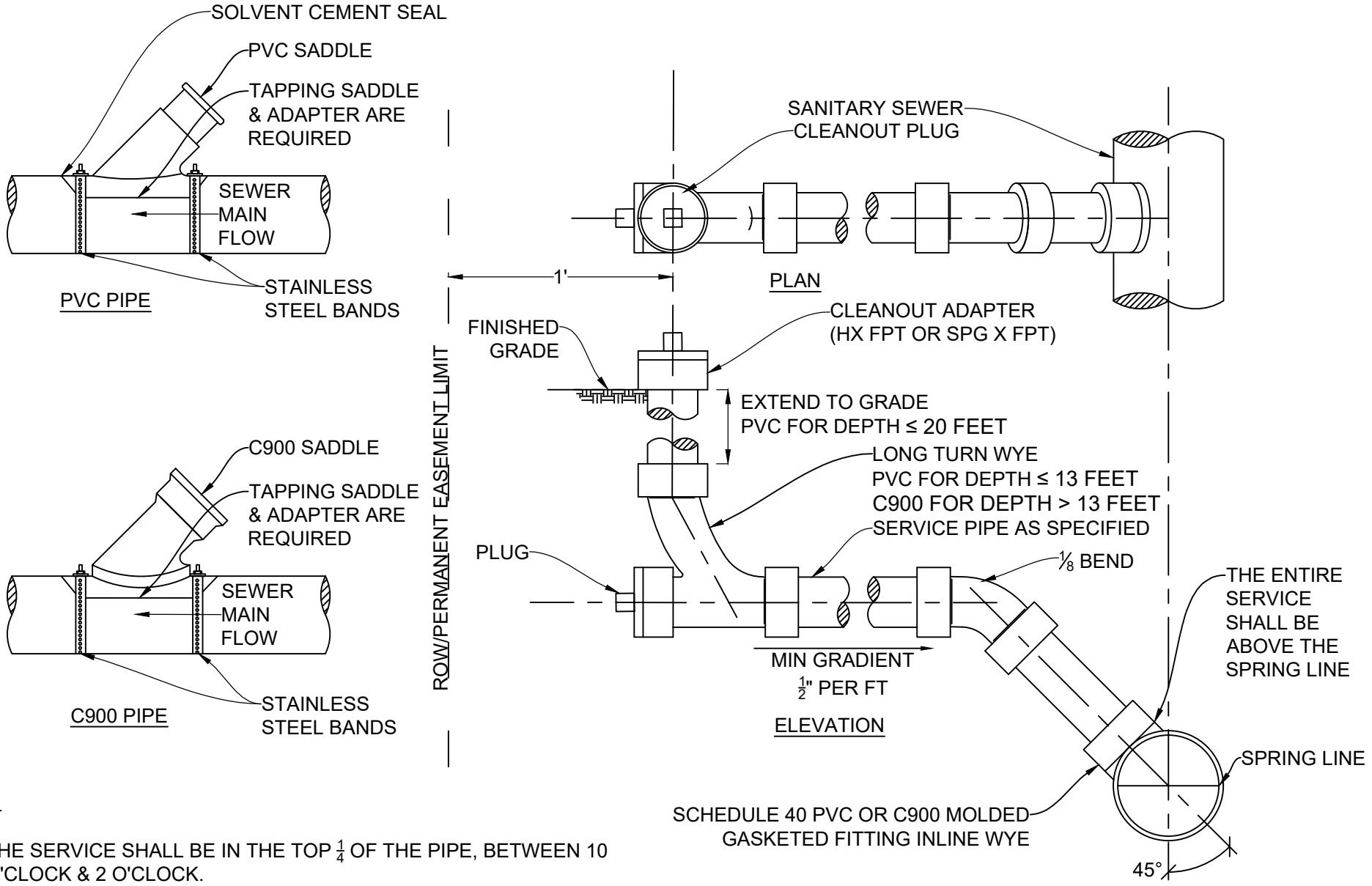
2. REQUIRED RESTRAINT AWAY FROM THE DEAD END MAY BE MJ PIPE WITH WEDGE ACTION RESTRAINTS FOR PIPE ≤ 12 INCH DIAMETER.

TOWN OF APEX STANDARDS	STANDARD STUBOUT/CAPPING DETAIL	STD. NO. 600.23
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1



NOTE:
NEW SEWER PIPE LENGTH & TYPE TO BE DEFINED BY ENGINEER.

TOWN OF APEX STANDARDS	STANDARD TYPICAL SEWER POINT REPAIR	STD. NO.
EFFECTIVE: MARCH 23, 2021		700.01
		SHEET 1 OF 1



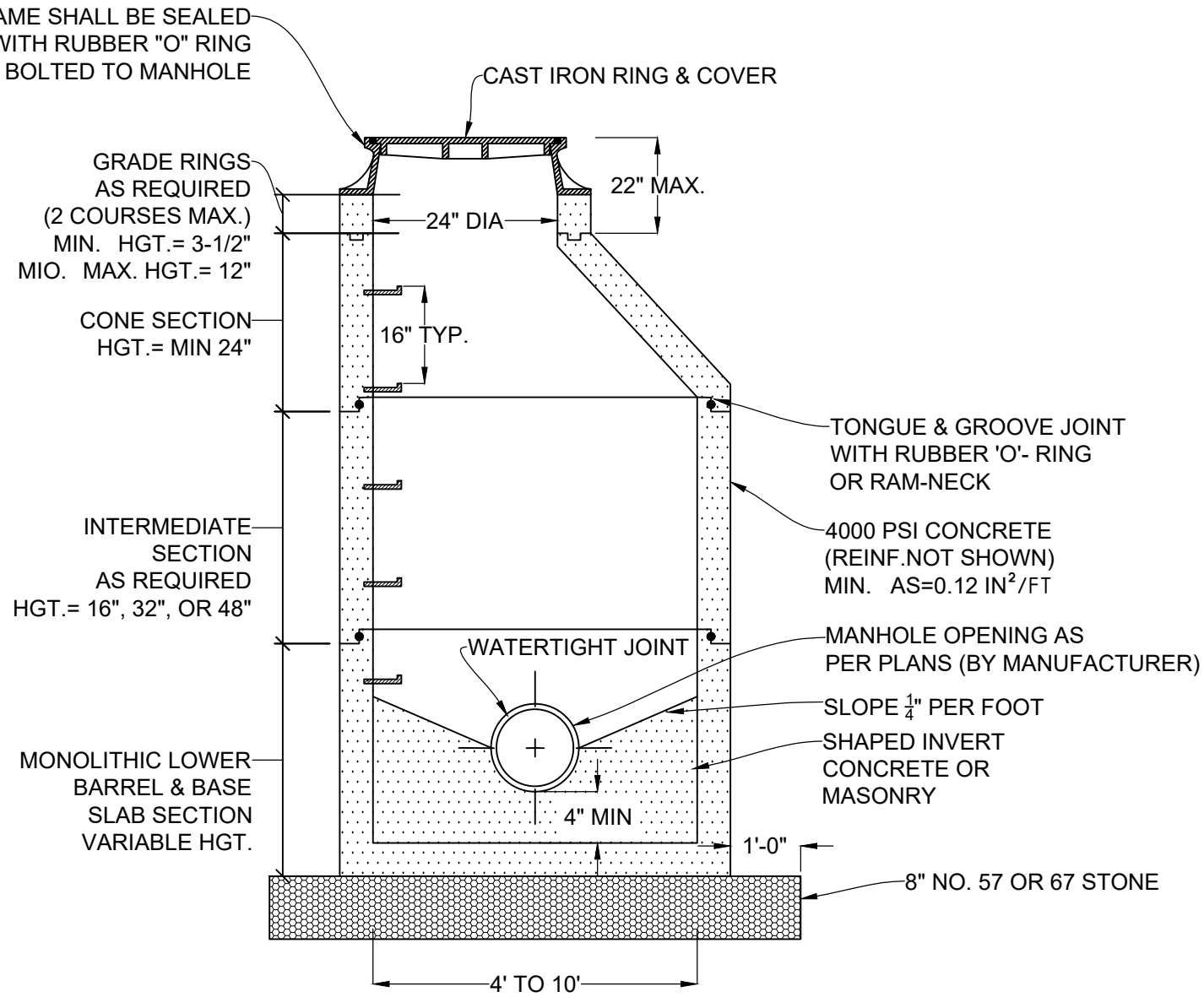
NOTES:

1. THE SERVICE SHALL BE IN THE TOP $\frac{1}{4}$ OF THE PIPE, BETWEEN 10 O'CLOCK & 2 O'CLOCK.
2. ONE ADDITIONAL 22.5 DEGREE FITTING MAY BE UTILIZED TO INSTALL THE SERVICE PERPENDICULAR TO THE MAIN.

TOWN OF APEX STANDARDS	SANITARY SEWER SERVICE CONNECTIONS	STD. NO.
EFFECTIVE: MARCH 23, 2021		700.03
		SHEET 1 OF 1

NOTES:

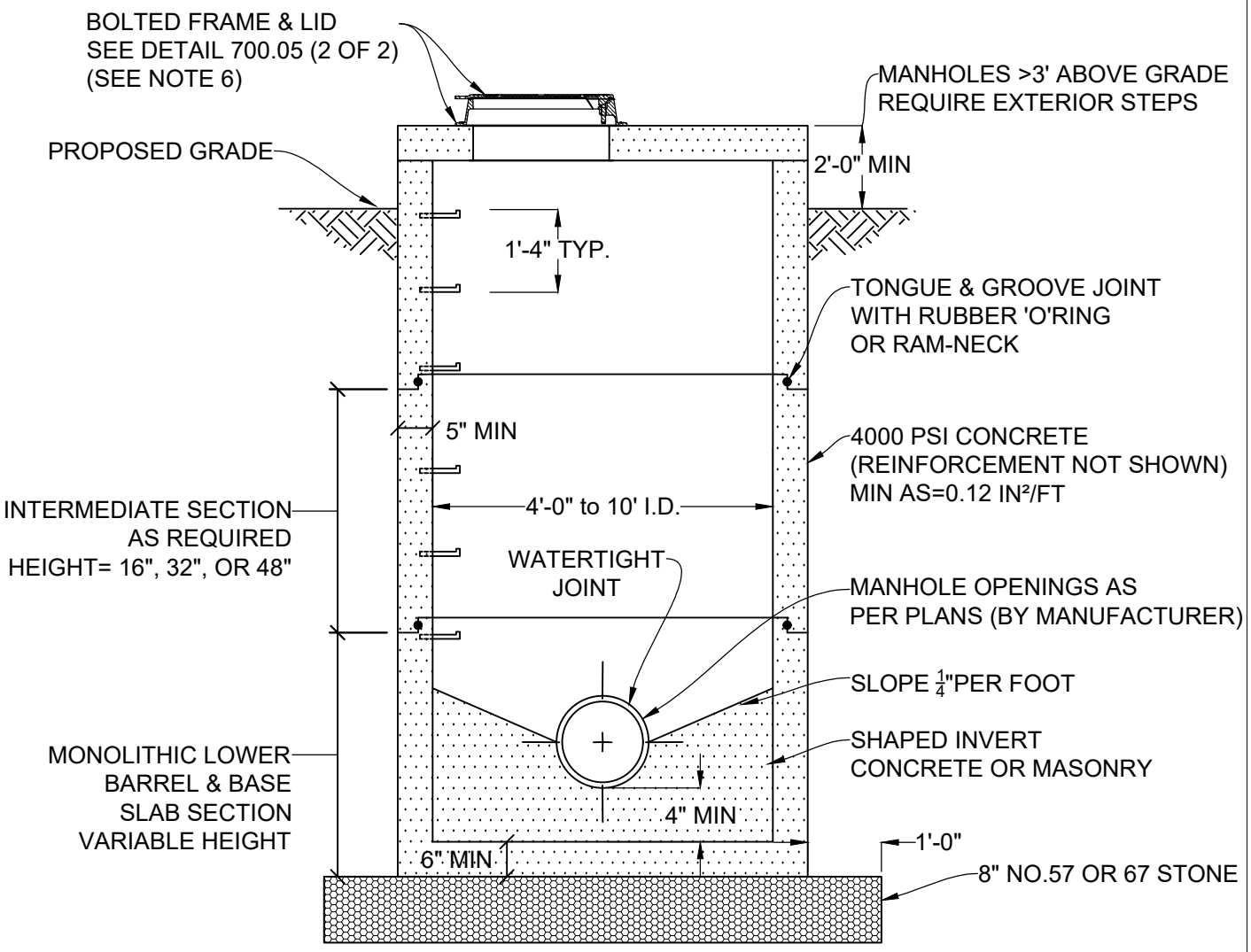
1. FOR DEAD-END MANHOLES, THE INVERT SHALL BE EXTENDED THROUGH THE MANHOLE.
2. ON THE INTERIOR OF THE MANHOLE, ALL JOINTS BETWEEN SECTIONS SHALL BE PARGED WITH NON-SHRINK GROUT.
3. ON THE INTERIOR OF ALL MANHOLES, ALL JOINTS BETWEEN SECTIONS SHALL BE PARGED WITH PRECO-PLUG QUICK SETTING GROUT.
4. ON THE EXTERIOR OF ALL MANHOLES, ALL JOINTS BETWEEN SECTIONS SHALL BE CONTINUOUSLY WRAPPED WITH 12" WIDE WATERPROOF BITUMINOUS TAPE.
5. SEWER MANHOLES WITHIN 1200 FEET OF FORCE MAIN CONNECTION SHALL HAVE INTERIOR EPOXY COATED.



TOWN OF APEX STANDARDS	PRECAST MANHOLE TRAFFIC RATED	STD. NO. 700.04
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 3

NOTES:

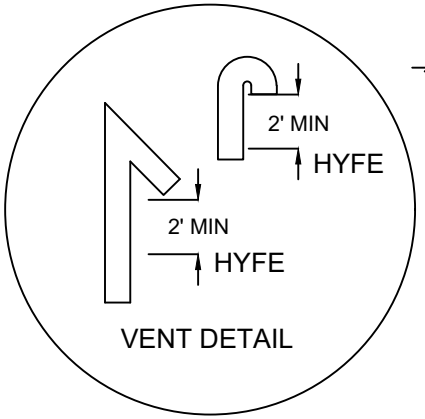
1. FOR DEAD-END MANHOLES, THE INVERT SHALL BE EXTENDED THROUGH THE MANHOLE.
2. ON THE INTERIOR OF THE MANHOLE, ALL JOINTS BETWEEN SECTIONS SHALL BE PARGED WITH NON-SHRINK GROUT.
3. ON THE INTERIOR OF ALL MANHOLES, ALL JOINTS BETWEEN SECTIONS SHALL BE PARGED WITH PRECO-PLUG QUICK SETTING GROUT.
4. ON THE EXTERIOR OF ALL MANHOLES, ALL JOINTS BETWEEN SECTIONS SHALL BE CONTINUOUSLY WRAPPED WITH 12" WIDE WATERPROOF BITUMINOUS TAPE.
5. SEWER MANHOLES WITHIN 1200 FEET OF FORCE MAIN CONNECTION SHALL HAVE INTERIOR EPOXY COATED.
6. SWING LIDS ONLY ALLOWED ON MANHOLES ELEVATED GREATER THAN 24"OR WATERTIGHT INSTALLATIONS.

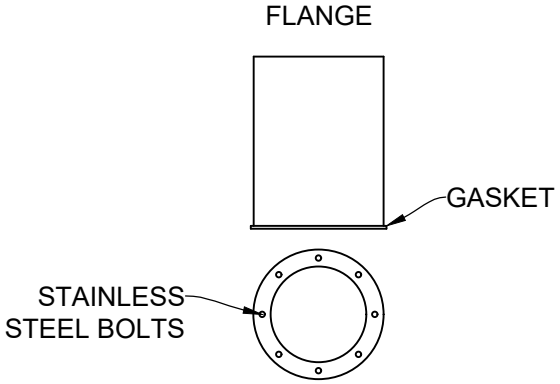


TOWN OF APEX STANDARDS	PRECAST MANHOLE (OUTFALLS)	STD. NO. 700.04
EFFECTIVE: MARCH 23, 2021		SHEET 2 OF 3

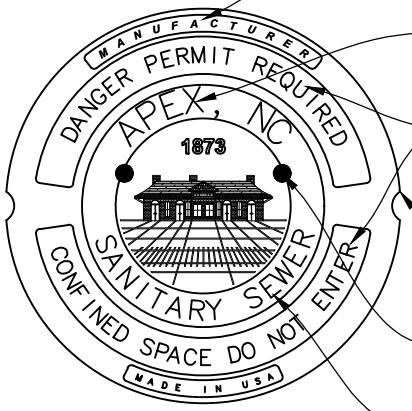
NOTES:

1. FOR DEAD-END MANHOLES, THE INVERT SHALL BE EXTENDED THROUGH THE MANHOLE.
2. ON THE INTERIOR OF THE MANHOLE, ALL JOINTS BETWEEN SECTIONS SHALL BE PARGED WITH NON-SHRINK GROUT.
3. ON THE INTERIOR OF ALL OUTFALL MANHOLES, ALL JOINTS BETWEEN SECTIONS SHALL BE PARGED WITH PRECO-PLUG QUICK SETTING GROUT.
4. ON THE EXTERIOR OF ALL MANHOLES, ALL JOINTS BETWEEN SECTIONS SHALL BE CONTINUOUSLY WRAPPED WITH 12" WIDE WATERPROOF BITUMINOUS TAPE.
5. SEWER MANHOLES WITHIN 1200 FEET OF FORCE MAIN CONNECTION SHALL HAVE INTERIOR EPOXY COATED.





TOWN OF APEX STANDARDS	PRECAST MANHOLE	STD. NO. 700.04
EFFECTIVE: MARCH 23, 2021		SHEET 3 OF 3



NAME OF MANUFACTURER

$1\frac{1}{4}$" LETTERING RECESSED

$\frac{3}{4}$" LETTERING RECESSED

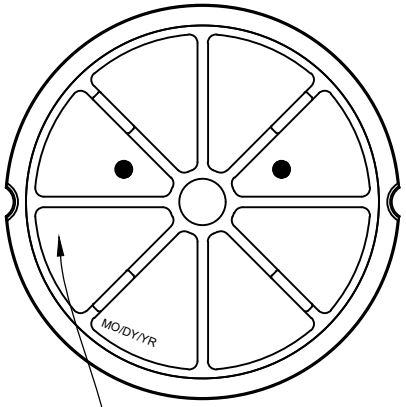
(2) OPEN PICKHOLES

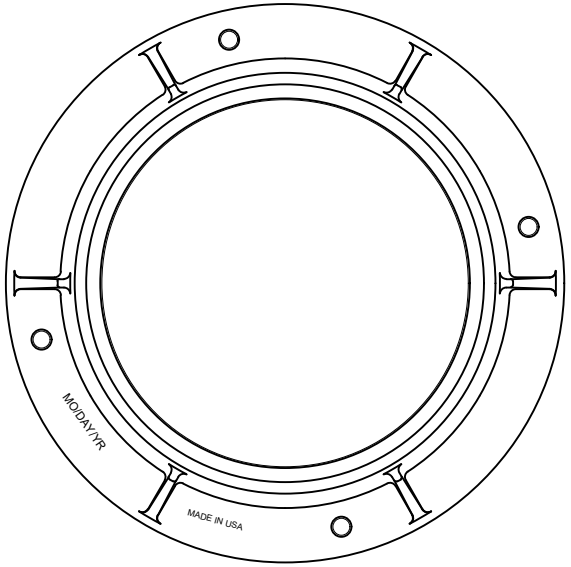
(2) 1" DIA. VENT HOLES

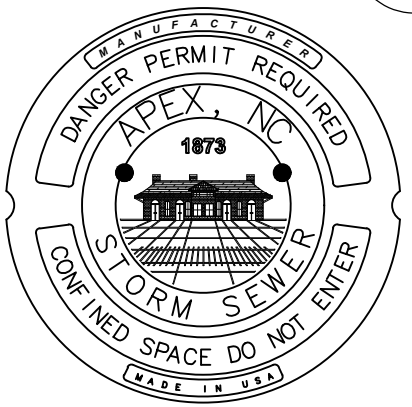
1" LETTERING RECESSED

NAME OF MANUFACTORER

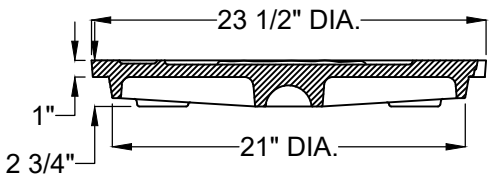
BOTTOM VIEW



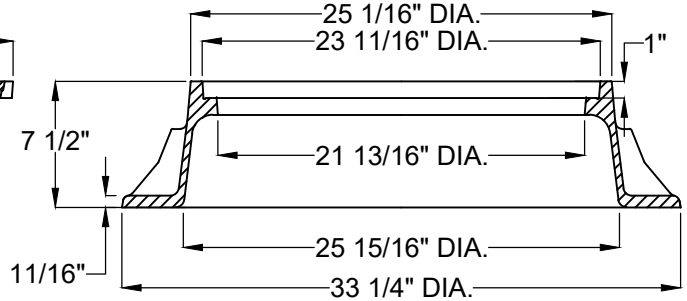




COVER SECTION



FRAME SECTION



THE FOLLOWING MANHOLE COVERS **SHALL HAVE** VENT HOLES:

- SANITARY SEWER
- STORM SEWER

THE FOLLOWING MANHOLE COVERS SHALL **NOT** HAVE VENT HOLES:

- WATER VALVES
- WATER AIR-RELEASE VALVES
- FORCEMAIN AIR-RELEASE VALVES

MIN. AVG. WT.	
FRAME	150 LBS
COVER	130 LBS
TOTAL	280 LBS

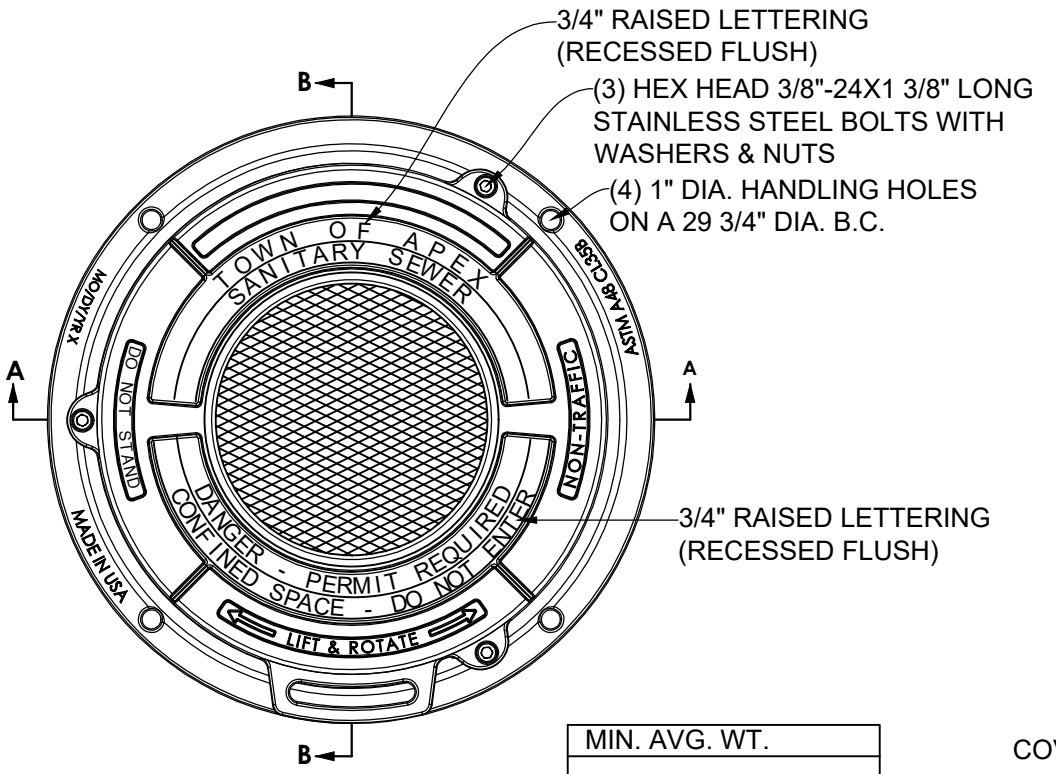
TOWN OF APEX STANDARDS

EFFECTIVE: MARCH 23, 2021

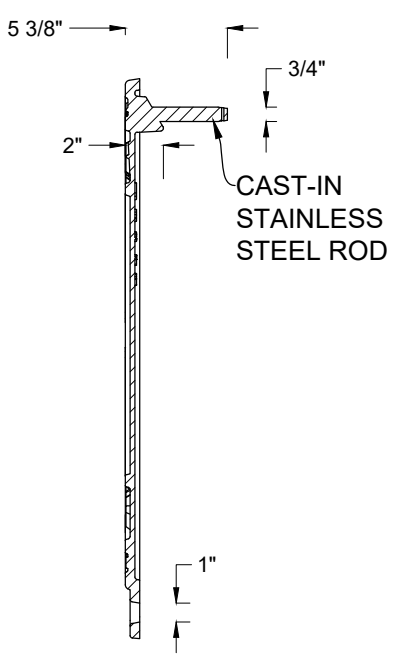
MANHOLE RING & COVER (TYPE 1 - PAVED AREAS, H-20 RATED)

STD. NO.

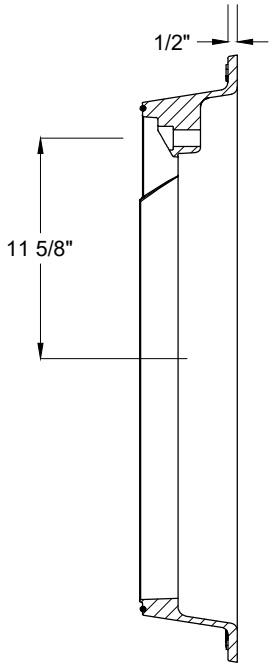
700.05



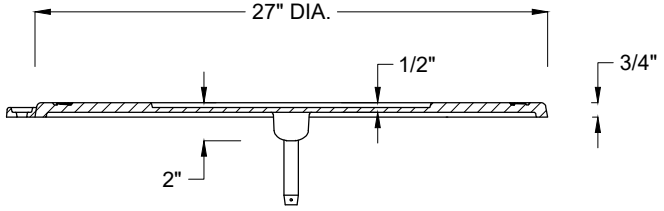
MIN. AVG. WT.	
FRAME	85 LBS
COVER	65 LBS
TOTAL	150 LBS



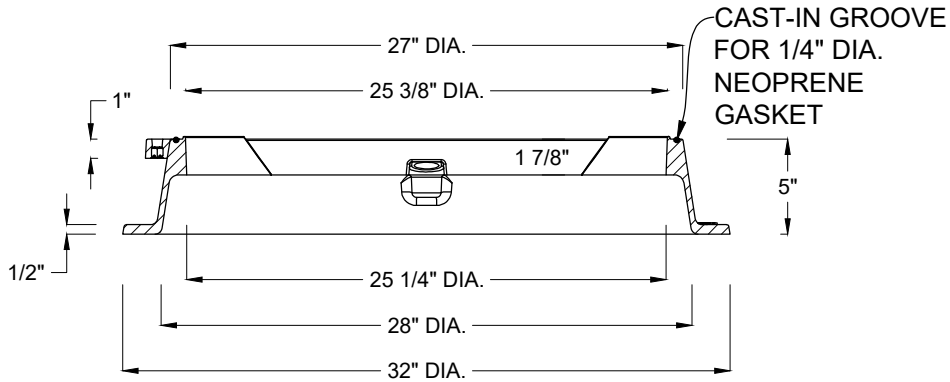
COVER SECTION B-B



FRAME SECTION B-B



COVER SECTION A-A

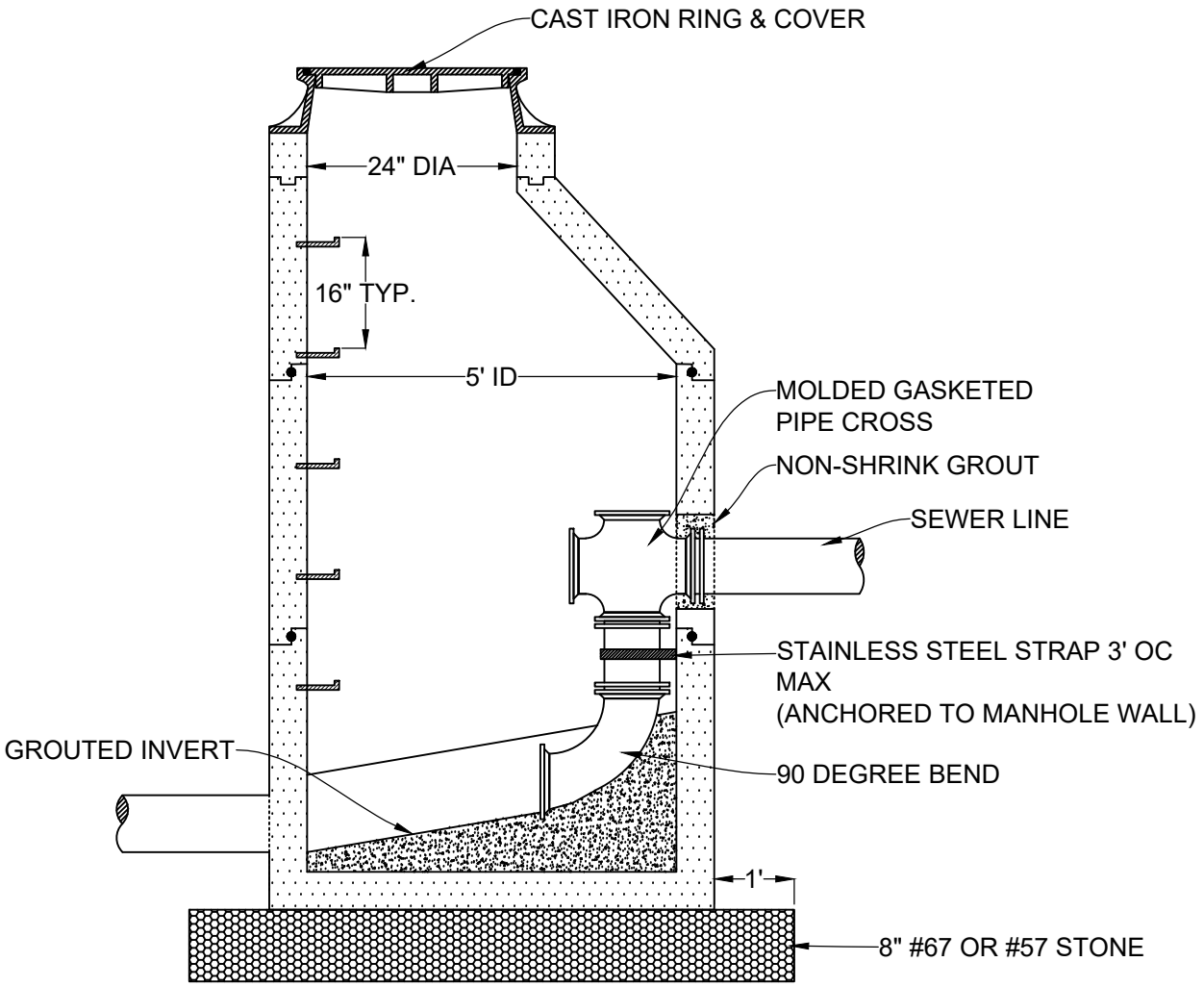


FRAME SECTION A-A

TOWN OF APEX STANDARDS	MANHOLE RING & ROTATING COVER FOR WATERTIGHT MANHOLES (TYPE 2 - NON-TRAFFIC ONLY)	STD. NO. 700.05
EFFECTIVE: MARCH 23, 2021		SHEET 2 OF 2

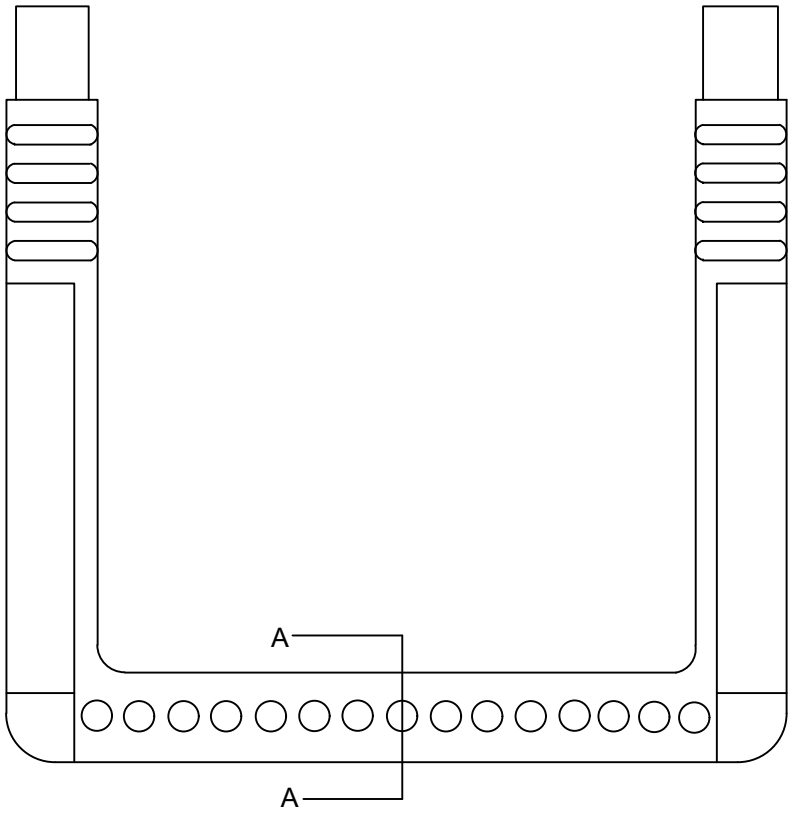
NOTES:

1. THE SEWER LINE ENTERING A DROP MANHOLE SHALL BE CONTINUOUS MATERIAL FROM THE UPSTREAM MANHOLE.
2. ONE INSIDE DROP PERMITTED WITHIN A 5 'Ø MANHOLE. TWO INSIDE DROPS PERMITTED WITHIN A 6' Ø MANHOLE.
3. A DROP MANHOLE IS REQUIRED WHEN THE DIFFERENCE BETWEEN INVERTS EXCEEDS 24".
4. ALL JOINTS WITHIN THE MANHOLE SHALL BE OF THE MECHANICAL JOINT TYPE.
5. INSIDE DROP PIPE DIAMETER SHALL BE THE SAME AS THE INFLOW SEWER LINE DIAMETER.
6. STAINLESS STEEL STRAPPING SHALL BE 1" WIDE BY $\frac{1}{8}$" THICK AND ATTACHED TO THE MANHOLE WALL WITH MASONRY ANCHORS.
7. WHERE DROP EXCEEDS 24", A SERVICE DROP CONNECTION WITH CLEANOUT SHALL BE PROVIDED IN ACCORDANCE WITH THE STANDARD DETAIL.

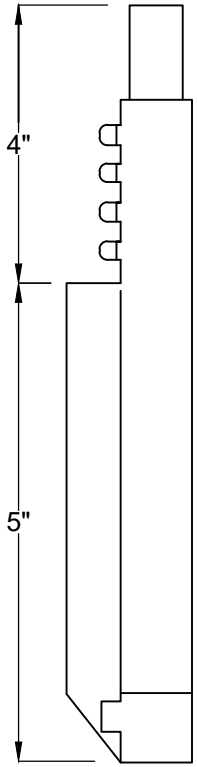


ELEVATION

TOWN OF APEX STANDARDS	DROP MANHOLE	STD. NO.
EFFECTIVE: MARCH 23, 2021		700.07
		SHEET 1 OF 1



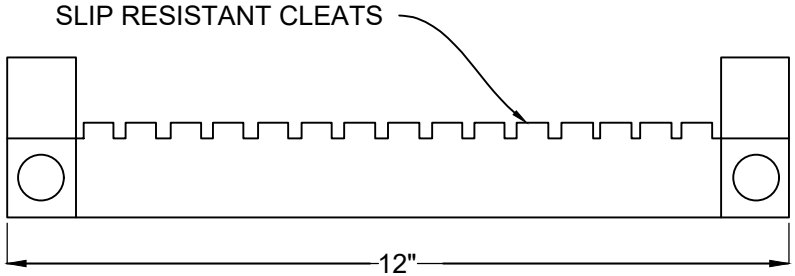
PLAN



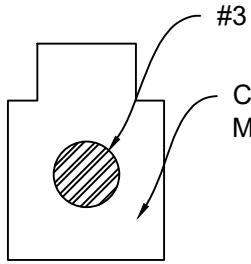
SIDE ELEVATION

NOTES:

1. VERTICAL SPACING = 16 INCHES ON CENTER, ON VERTICAL WALL ONLY.
2. STEPS TO PROTRUDE MINIMUM 5 INCHES FROM FACE OF STRUCTURE WALL.
3. STEPS SHALL MEET THE REQUIREMENTS OF ASTM C478 IN ADDITION TO A HORIZONTAL PULL-OUT LOAD OF 1000 LBS. WHEN INSTALLED.
4. ALL STEPS SHALL BE VERTICALLY ALIGNED IN A STRAIGHT LINE.
5. NO STEPS LOCATED INSIDE MANHOLE CHIMNEY.
6. ONLY THE FIRST AND LAST STEP SHALL BE PROVIDED IN SANITARY SEWER MANHOLES.

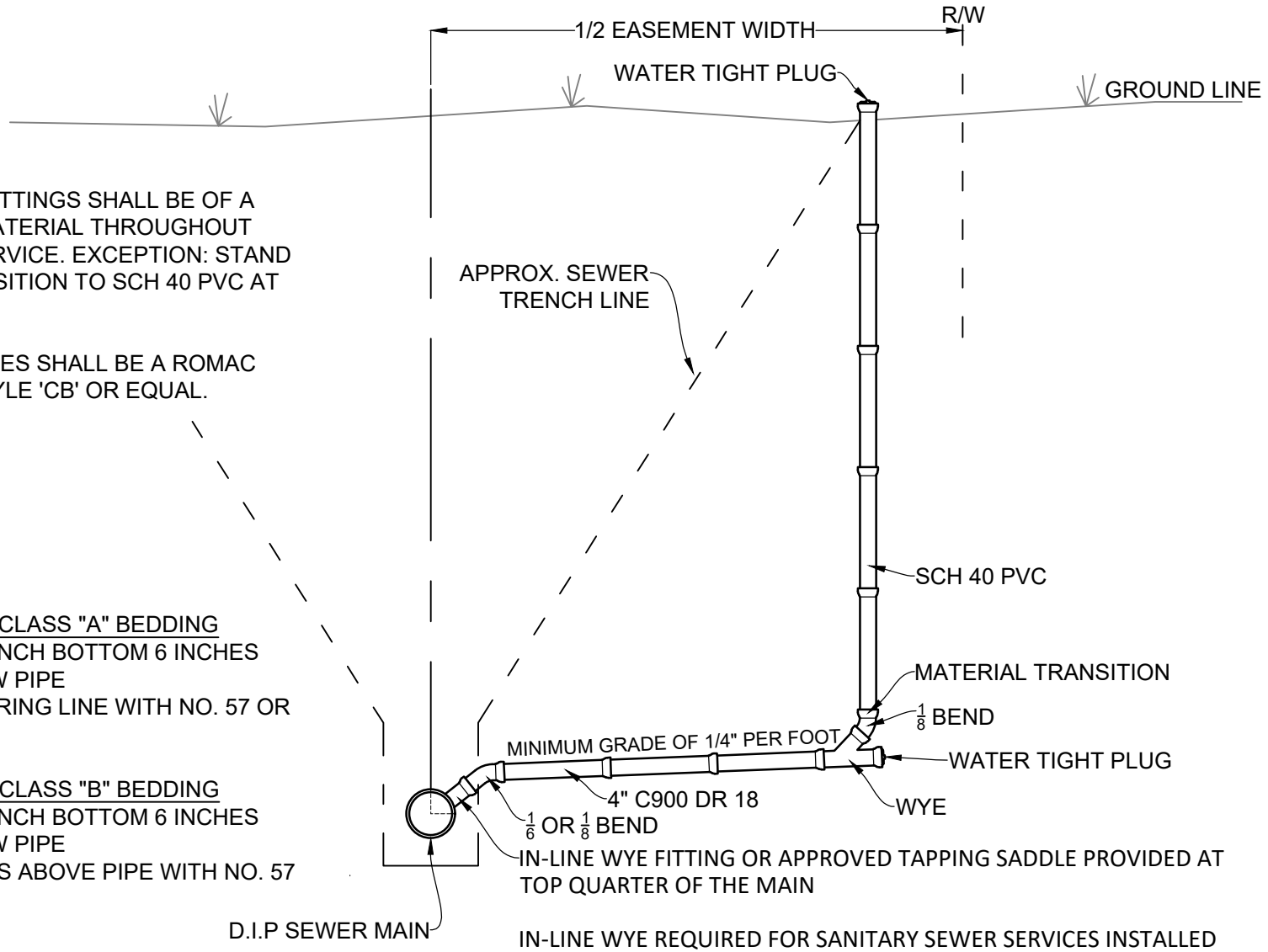


ELEVATION



SECTION A-A

TOWN OF APEX STANDARDS	MANHOLE STEP	STD. NO.
EFFECTIVE: MARCH 23, 2021		700.09
		SHEET 1 OF 1



NOTES:

1. ALL PIPE AND FITTINGS SHALL BE OF A CONSISTENT MATERIAL THROUGHOUT THE ENTIRE SERVICE. EXCEPTION: STAND PIPE MAY TRANSITION TO SCH 40 PVC AT TOP OF WYE.

2. SERVICE SADDLES SHALL BE A ROMAC INDUSTRIES STYLE 'CB' OR EQUAL.

DEPTH ≤ 16 FEET - CLASS "A" BEDDING

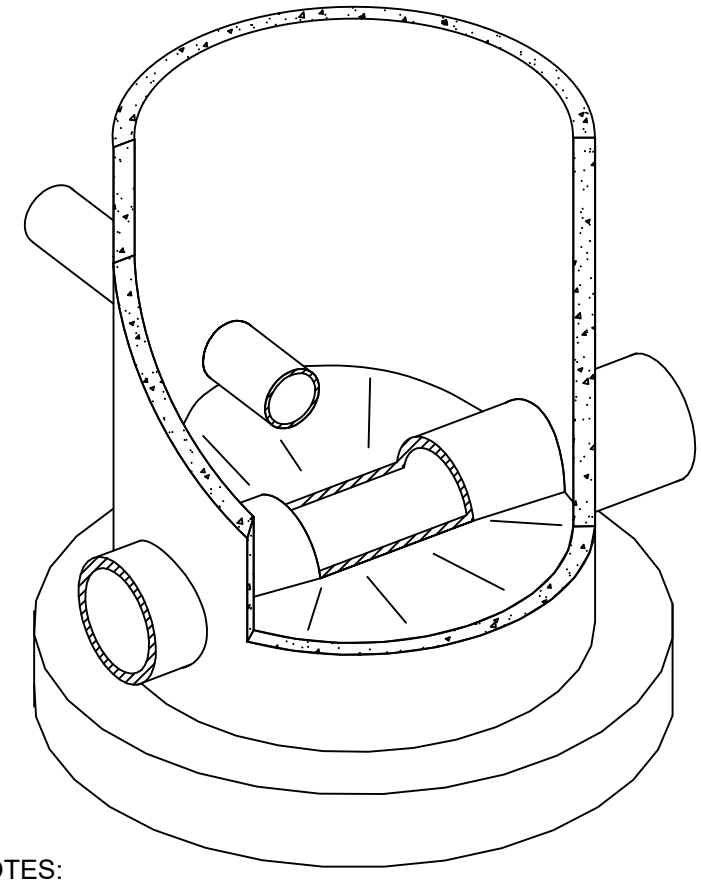
- UNDERCUT TRENCH BOTTOM 6 INCHES MINIMUM BELOW PIPE
- FILL PIPE TO SPRING LINE WITH NO. 57 OR 67 STONE

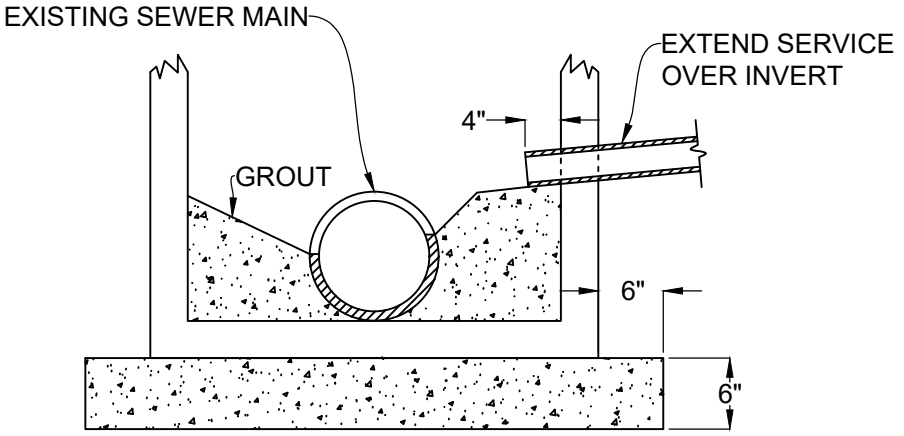
DEPTH > 16 FEET - CLASS "B" BEDDING

- UNDERCUT TRENCH BOTTOM 6 INCHES MINIMUM BELOW PIPE
- FILL TO 6 INCHES ABOVE PIPE WITH NO. 57 OR 67 STONE

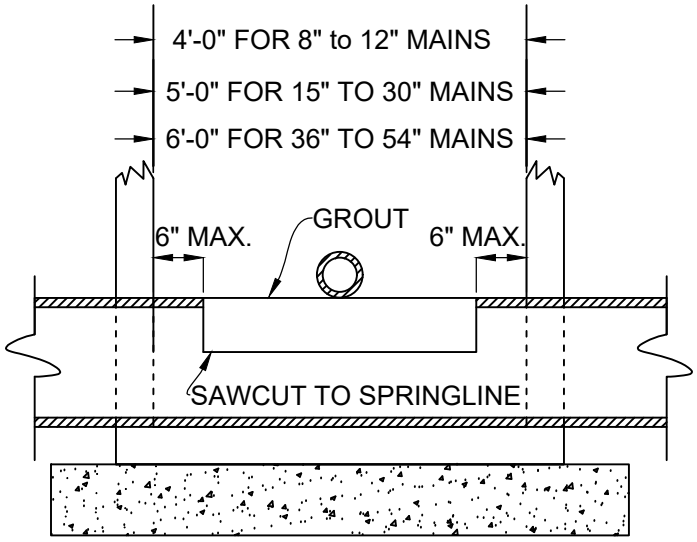
IN-LINE WYE REQUIRED FOR SANITARY SEWER SERVICES INSTALLED WITH NEW CONSTRUCTION WHEN PARCEL AND SERVICE LOCATIONS ARE KNOWN AND IDENTIFIED ON APPROVED PLANS

TOWN OF APEX STANDARDS	4" SANITARY SEWER TAP & SERVICE FOR SEWER MAINS OVER 13' DEEP	STD. NO. 700.10
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1





CROSS SECTION AT EXISTING MAIN

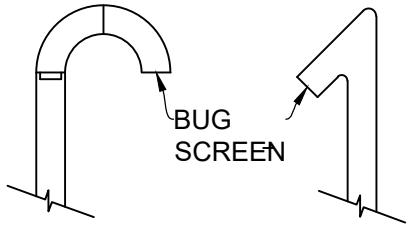


SECTION ALONG CENTERLINE OF MAIN

NOTES:

1. FLOW SHALL BE MAINTAINED DURING CONSTRUCTION.
2. THIS DETAIL TO BE USED WHEN A 6" OR LARGER LATERAL NECESSITATES CONSTRUCTION OF A NEW MANHOLE.
3. MANHOLE PAD TO REST UPON A MINIMUM 6" COMPACTED #67 OR 57 STONE BASE.
4. DOGHOUSE MANHOLES SHALL BE USED WHERE REQUIREMENTS FOR TIE-INS TO EXISTING SEWERS.

TOWN OF APEX STANDARDS	DOGHOUSE MANHOLE INSTALLATION OVER EXISTING SEWER MAIN	STD. NO. 700.12
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1



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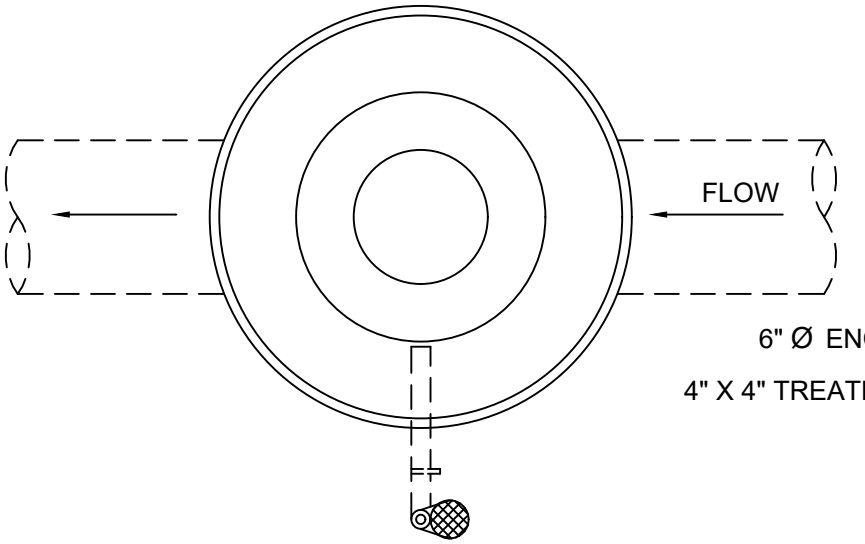
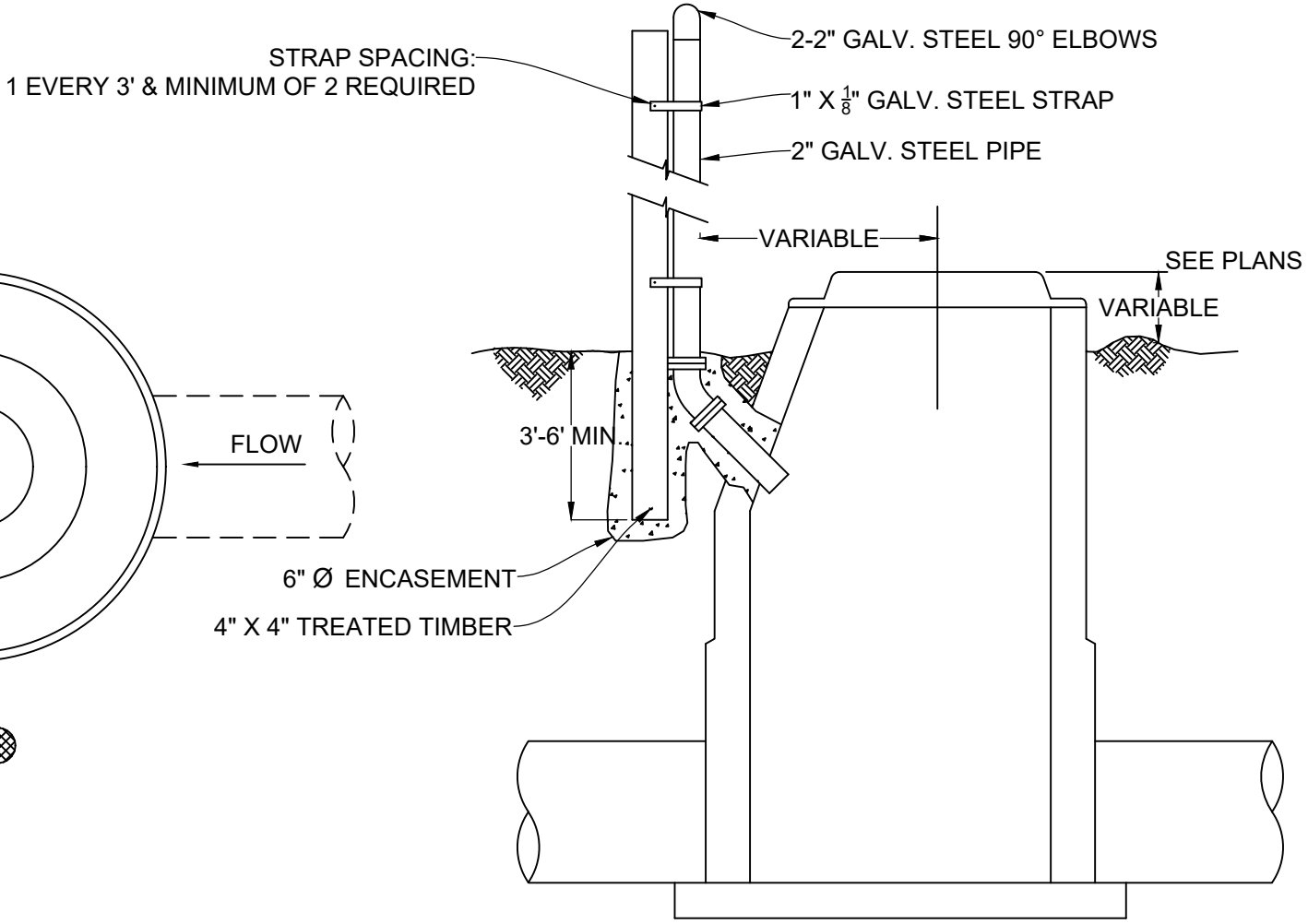


PLAN

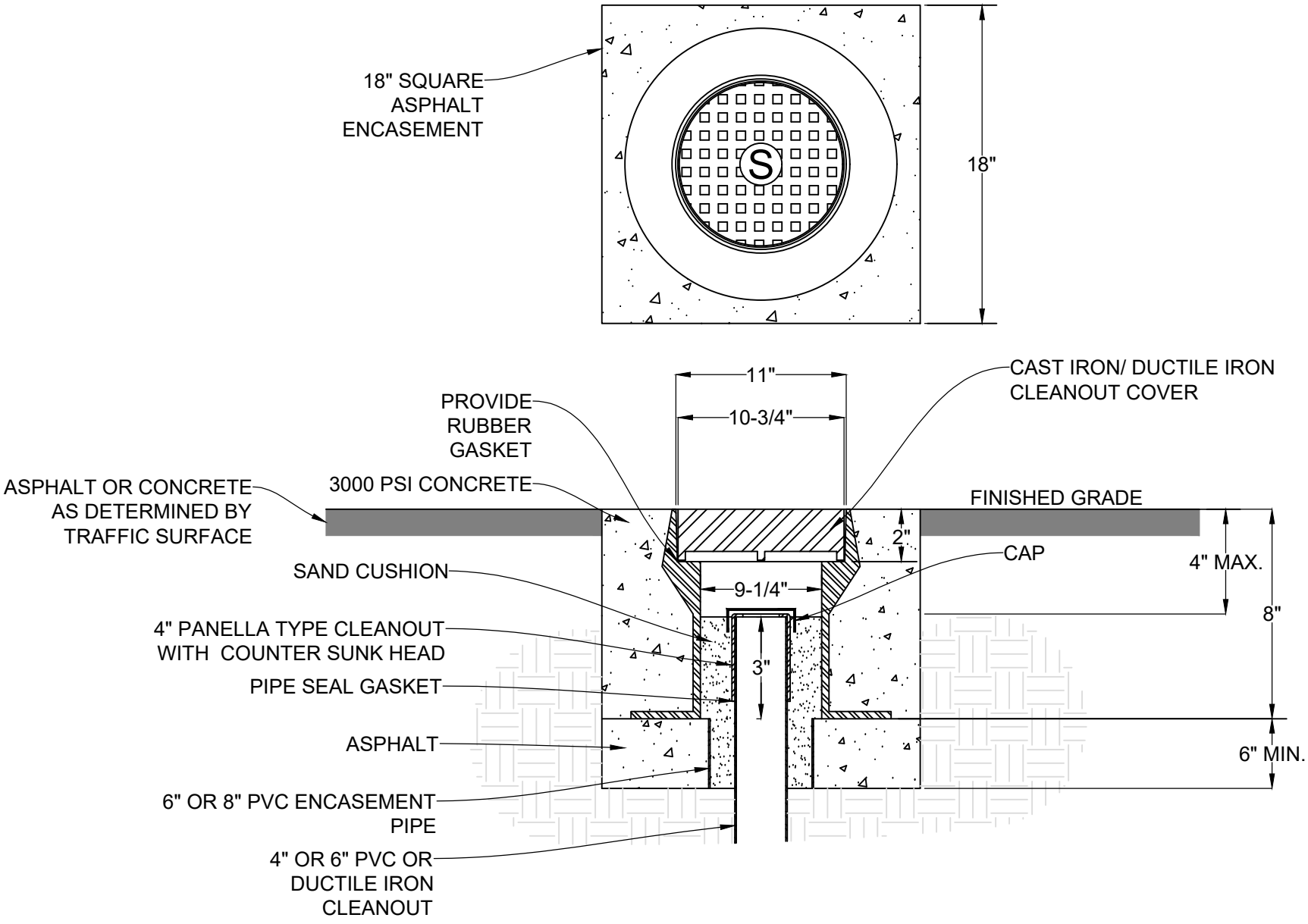


ELEVATION

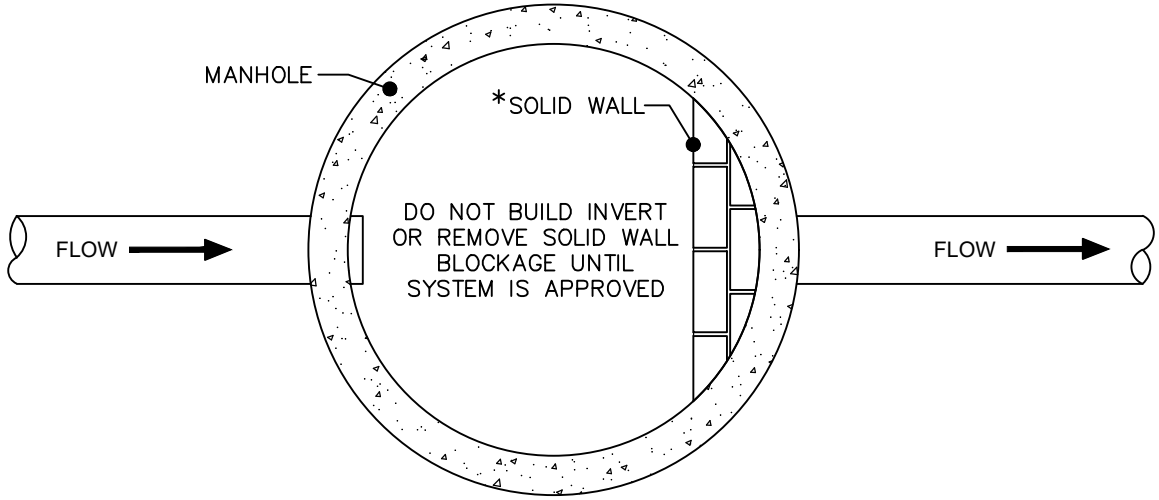
NOTES:

1. LOCATION OF VENT PIPE SHALL BE AS DIRECTED BY THE CONSTRUCTION INSPECTOR.
2. WATERTIGHT RING AND COVER VENT TOP TO BE A MINIMUM OF 2FT. ABOVE 100 YEAR FLOOD PLAIN ELEVATION.

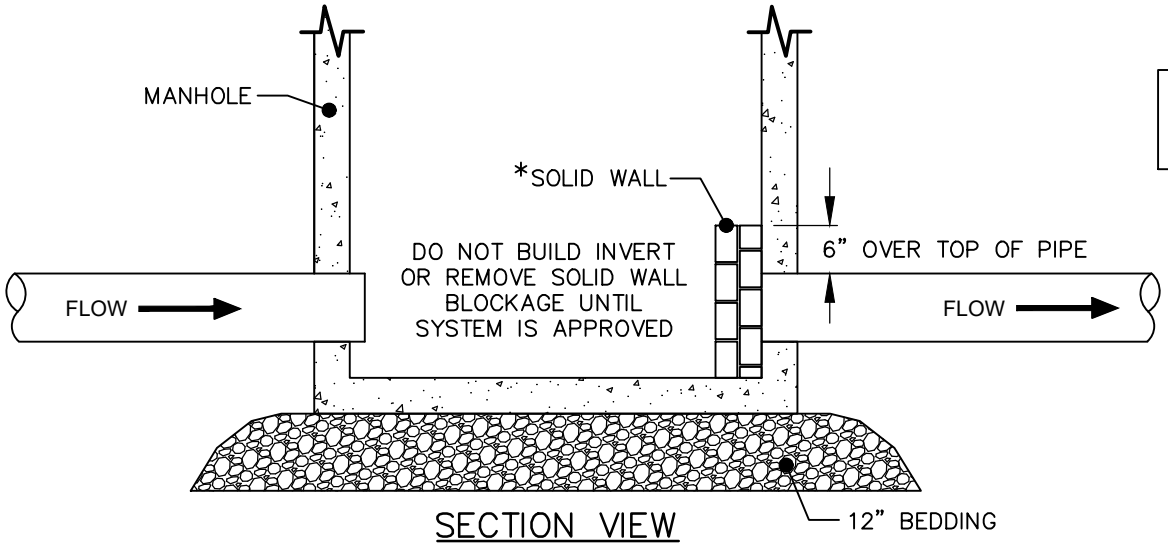
TOWN OF APEX STANDARDS	MANHOLE VENT	STD. NO.
EFFECTIVE: MARCH 23, 2021		700.13
		SHEET 1 OF 1



TOWN OF APEX STANDARDS	CLEANOUT COVER FOR VEHICLE TRAFFIC AREAS	STD. NO. 700.14
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1



PLAN VIEW



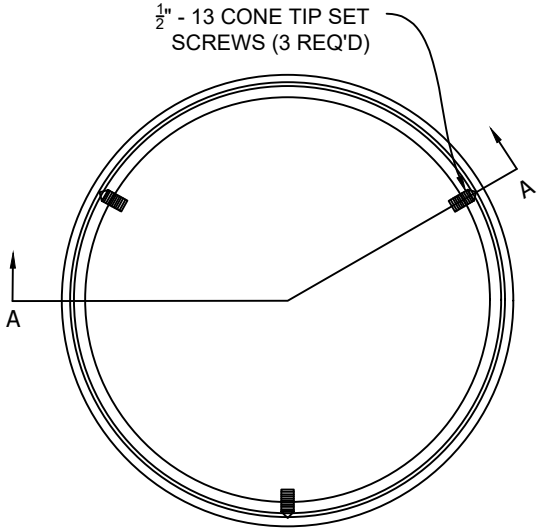
SECTION VIEW

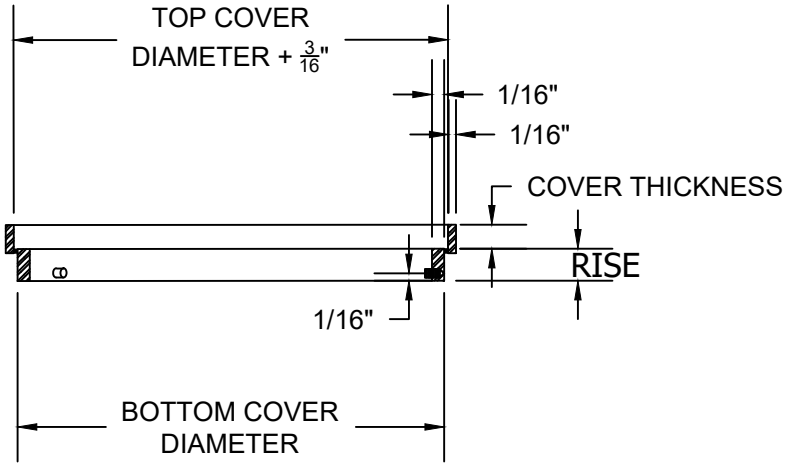
USE SOLID BRICK/BLOCK & MORTAR

PIPE DIAMETER	MINIMUM WALL THICKNESS
8" – 12"	4"
16" OR GREATER	8"

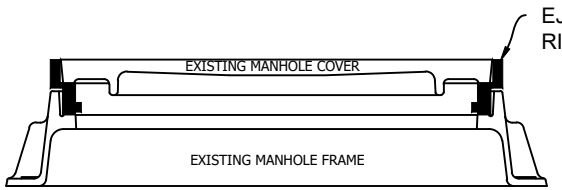
*LOCATED IN FIRST MANHOLE FROM TIE–IN. SOLID WALL MUST BE BUILT BEFORE LAYING NEXT RUN OF PIPE.

TOWN OF APEX STANDARDS	SANITARY SEWER PROTECTION DURING CONSTRUCTION	STD. NO. 700.16
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1





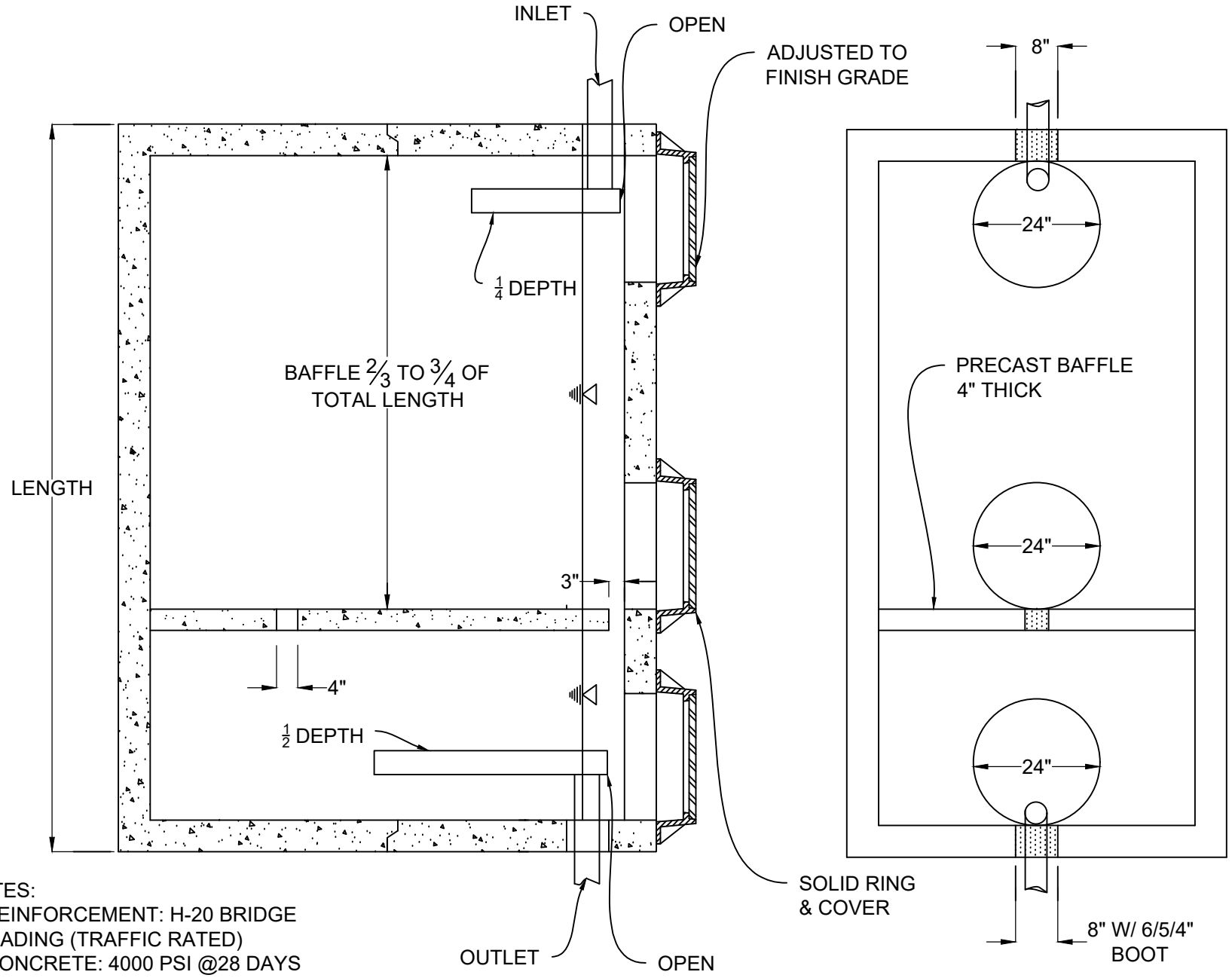
SECTION "A-A"



TYPICAL INSTALLATION
SHOWING IN RAISED POSITION

1. MATERIAL SHALL MEET OR EXCEED MINIMUM REQUIREMENTS OF ASTM A36 CARBON STEEL.
2. TOP AND BOTTOM RINGS SHALL HAVE A CONTINUOUS WELD.
3. ALL STYLE RISERS SHALL HAVE A MINIMUM HEIGHT OF ADJUSTMENT EQUAL TO THE MANHOLE COVER THICKNESS PLUS ¼".
4. EACH RISER IS CUSTOM FABRICATED FROM MEASUREMENTS PROVIDED WITH EACH OTHER. REQUIRED MEASUREMENTS INCLUDE THE FOLLOWING:
   A. EXIST. MANHOLE COVER DIAMETER - TOP & BOTTOM
   B. EXIST. MANHOLE COVER THICKNESS
   C. REQUIRED HEIGHT OF ADJUSTMENT
5. MAXIMUM RECOMMENDED HEIGHT OF ADJUSTMENT FOR REPAVING PROJECTS IS 6".
6. HEIGHT ADJUSTMENTS ARE AVAILABLE IN ¼" INCREMENTS.
7. DURING INSTALLATION CHECK FOR FULL BEARING OF LOWER FRAME SECTION ON EXISTING CASTING.
8. DIMENSIONS MAY VARY TO MEET EXISTING FIELD CONDITIONS. ANY CHANGE IN DIMENSIONS SHALL BE APPROVED BY THE OWNER.
9. AFTER FABRICATION, RISERS ARE COATED WITH EITHER A WATER BASED BITUMINOUS ASPHALT EMULSION PAINT OR BASE F-COAT W/ CHARCOAL BLACK TOPCOAT.
10. AVAILABLE OPTIONS IN LIEU OF CONE POINT SET SCREWS INCLUDE "L" CLIPS WITH HEX HEAD BOLTS.
11. IT IS PREFERABLE THAT THESE RISERS ONLY BE USED AS A LAST RESORT WHEN THE MANHOLE CAN'T BE RAISED IN ITS ENTIRETY

TOWN OF APEX STANDARDS	SOLID STEEL RISER ASSEMBLY	STD. NO. 700.18
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1



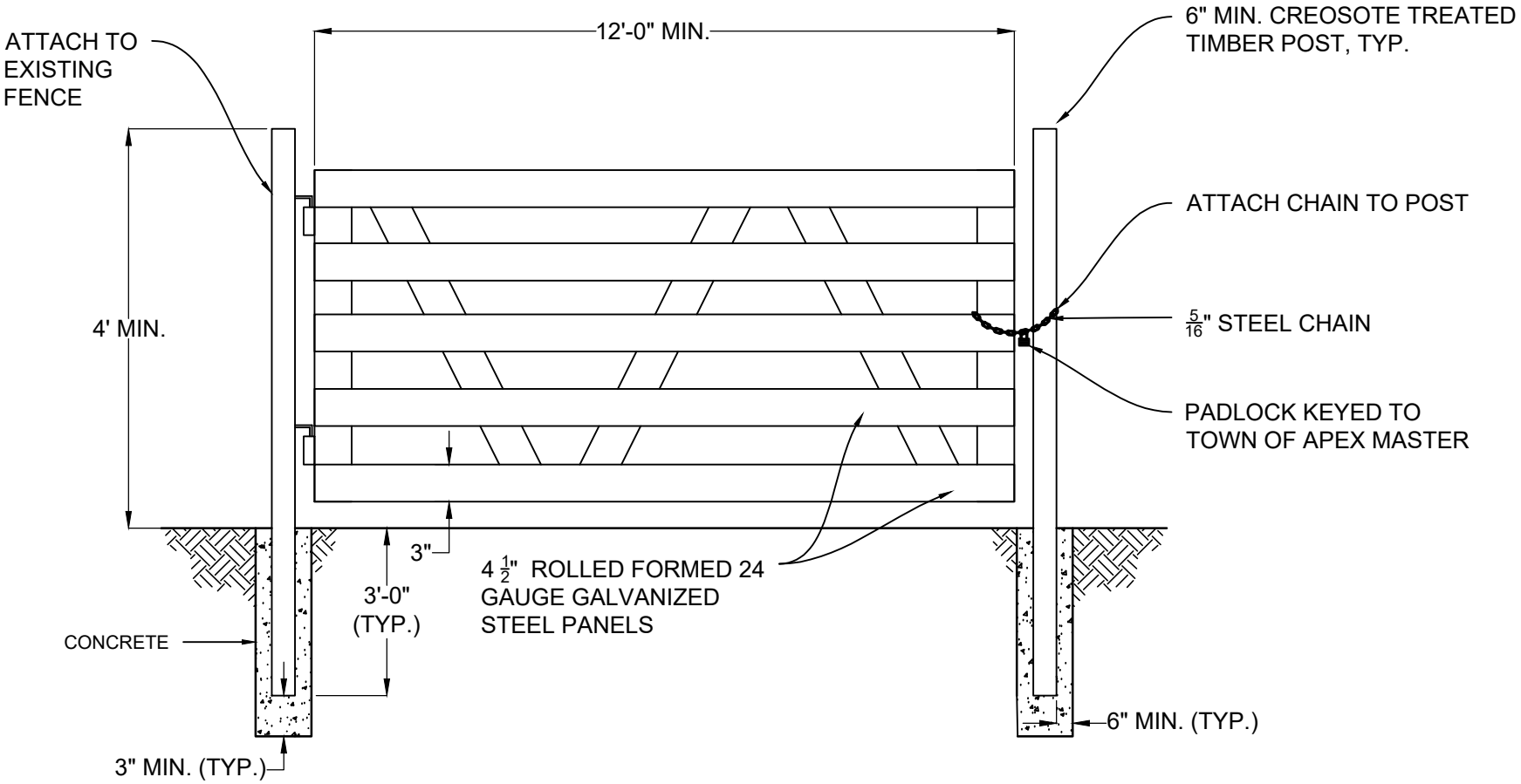
NOTES:
1. REINFORCEMENT: H-20 BRIDGE LOADING (TRAFFIC RATED)
2. CONCRETE: 4000 PSI @28 DAYS
3. EARTHCOVER: 0' TO 5' MAX.

TOWN OF APEX STANDARDS	OIL AND GREASE STRUCTURES	STD. NO.
EFFECTIVE: MARCH 23, 2021		700.19
		SHEET 1 OF 2

LOCALLY AVAILABLE SIZES	
INTERCEPTOR CAPACITY (GAL.)	SEPARATOR CAPACITY (GAL.)
300	1000
550	1200
750	1600
1000	
1200	
1500	
2000	
2500	
3000	
4000	
5000	
6000	
8000	

NOTES:

1. BAFFLE WALL LOCATED AT A DISTANCE FROM INLET WALL $\frac{2}{3}$ TO $\frac{3}{4}$ OF THE TOTAL LENGTH OF THE INTERCEPTOR OR SEPARATOR AS SHOWN ON DETAIL S-40. BAFFLE WALLS LOCATED AT A DISTANCE APPROXIMATELY OF $\frac{1}{3}$ OF THE TOTAL LENGTH OF THE SEPARATOR AS SHOWN ON DETAIL S-40.01.
2. EACH INTERCEPTOR OR SEPARATOR SHALL HAVE INLET AND OUTLET TEES. THE OUTLET TEE SHALL EXTEND 50% INTO THE LIQUID DEPTH. THE INLET TEE SHALL EXTEND 25% INTO THE LIQUID DEPTH. INLET AND OUTLET TEES MUST BE OPEN TO ALLOW THE COLLECTION OF F.O.G.
3. ACCESS OPENINGS OVER EACH COMPARTMENT WITHIN THE INTERCEPTOR OR SEPARATOR SHALL BE 24 INCHES IN DIAMETER AND CONTAIN PICK HOLES. ALL COVERS SHALL BE CONSTRUCTED OF CAST IRON OR EQUIVALENT TRAFFIC BEARING MATERIAL. MANHOLE COVERS MUST EXTEND TO FINISH GRADE AND BE INSTALLED TO EXCLUDE THE ENTRANCE OF STORMWATER INTO THE INTERCEPTOR OR SEPARATOR.
4. FULL SIZE DUAL SWEEP CLEANOUTS SHALL BE INSTALLED ON THE INLET AND OUTLET SIDES OF THE INTERCEPTOR OR SEPARATOR.
5. INTERCEPTORS AND SEPARATORS MUST BE VENTED IN ACCORDANCE WITH THE NC STATE PLUMBING CODE.
6. CONCRETE: 4000 PSI @ 28 DAYS
7. DESIGN: ACI 318 BUILDING CODE
   ASTM C1613-06 FOR GREASE INTERCEPTORS
   ASTM C913-02 FOR WATER AND WASTEWATER STRUCTURES
   ASTM C890-06 FOR MINIMAL STRUCTURAL DESIGN LOADING
8. INTERCEPTORS AND SEPARATORS SHALL BE DESIGNED TO WITHSTAND AN H-20 WHEEL LOAD
9. INTERCEPTORS OR SEPARATORS MADE OF POLYETHYLENE OR FIBERGLASS SHALL INCLUDE A MINIMUM 12,000 PSI TENSILE STRENGTH, 19,000 PSI FLEXURAL STRENGTH, AND 800,000 PSI FEXURAL MODULUS.
10. ALL INTERCEPTORS AND SEPARATORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS.



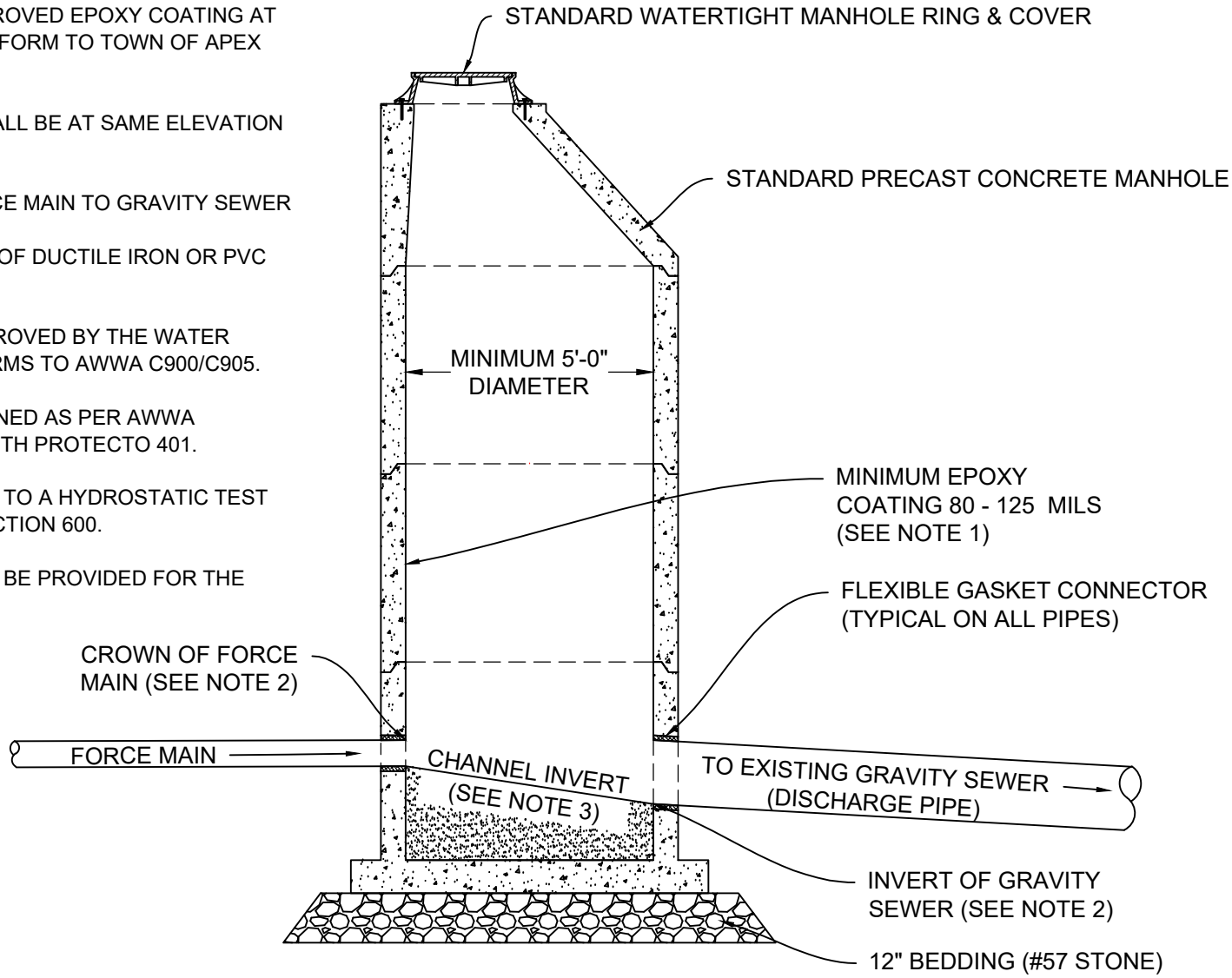
NOTE:

1. A FENCE GATE IS REQUIRED AT THE LOCATION WHERE IT CROSSES THE SANITARY SEWER EASEMENT. GATE MUST BE CENTERED ON THE SEWER PIPE. OWNER MUST APPLY FOR ENCROACHMENT AGREEMENT PRIOR TO INSTALLATION.
2. IN RESIDENTIAL AREAS, ALTERNATE FENCE GATES MATCHING EXISTING FENCES MAY BE USED AS APPROVED BY THE WATER RESOURCES DIRECTOR.

TOWN OF APEX STANDARDS	TYPICAL EASEMENT FENCE GATE	STD. NO.
EFFECTIVE: MARCH 23, 2021		700.20
		SHEET 1 OF 1

NOTES:

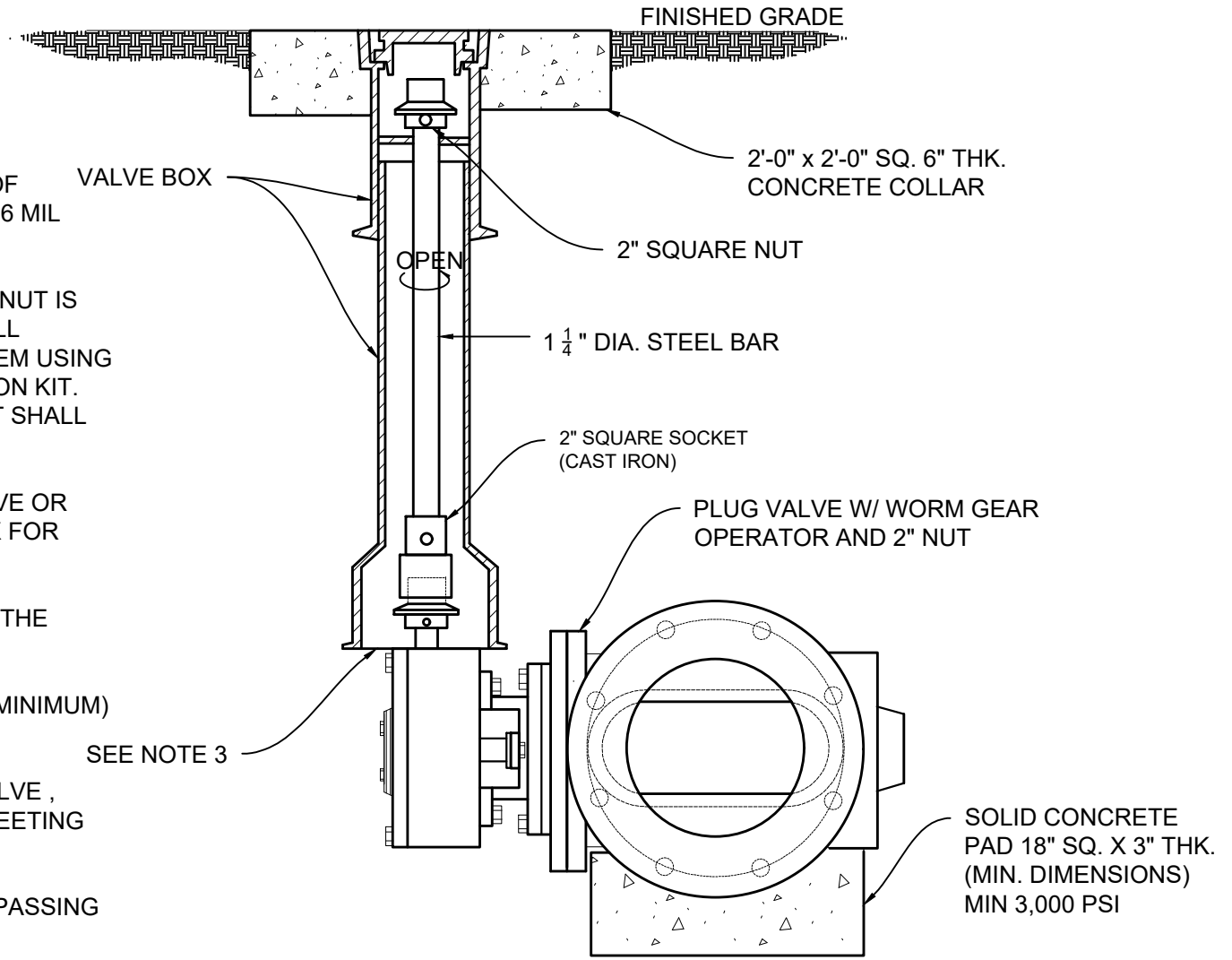
1. COAT INTERIOR OF MANHOLE WITH APPROVED EPOXY COATING AT MINIMUM 80 MILS. COATINGS SHALL CONFORM TO TOWN OF APEX SPECIFICATION SECTION 800.
2. ELEVATION OF FORCE MAIN CROWN SHALL BE AT SAME ELEVATION AS THE GRAVITY SEWER CROWN.
3. PROVIDE SMOOTH CHANNEL FROM FORCE MAIN TO GRAVITY SEWER
4. FORCE MAINS SHALL BE CONSTRUCTED OF DUCTILE IRON OR PVC PIPE.
5. C900 PVC PIPE MAY BE USED WHEN APPROVED BY THE WATER RESOURCES DEPARTMENT AND CONFORMS TO AWWA C900/C905.
6. ALL DUCTILE IRON PIPE SHALL BE DESIGNED AS PER AWWA STANDARD C150 AND SHALL BE LINED WITH PROTECTO 401.
7. ALL FORCE MAINS SHALL BE SUBJECTED TO A HYDROSTATIC TEST ACCORDING TO THE PROVISIONS OF SECTION 600.
8. A CHECK VALVE AND PLUG VALVE SHALL BE PROVIDED FOR THE DISCHARGE LINE OF EACH PUMP.



TOWN OF APEX STANDARDS	FORCE MAIN DISCHARGE MANHOLE	STD. NO. 800.01
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1

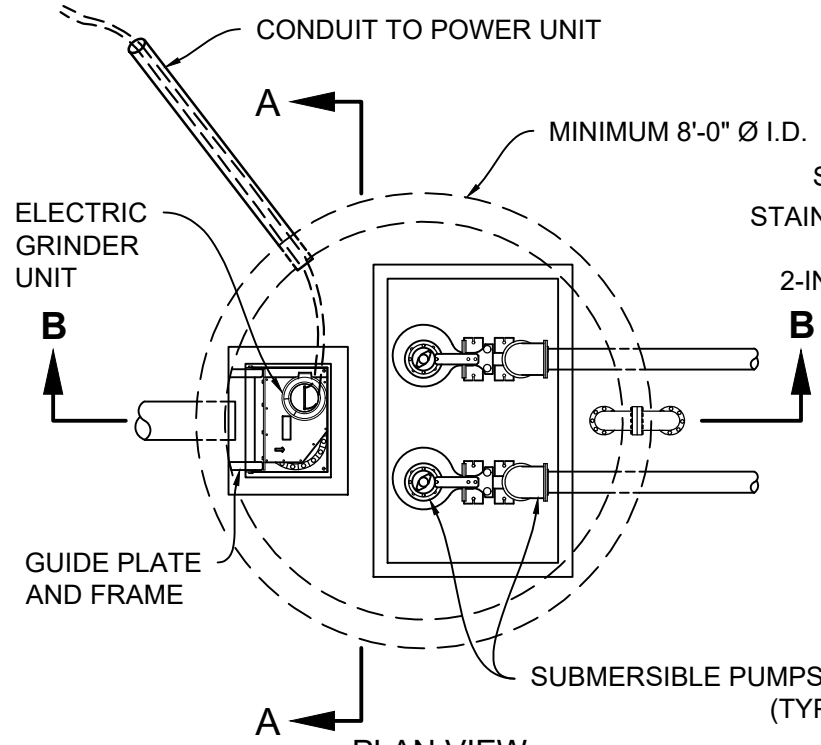
NOTES:

1. NO CONCRETE SHALL TOUCH BOLTS OF GLANDS. WRAP BOLTS AND GLAND W/ 6 MIL POLYETHYLENE SHEETING.
2. WHERE DEPTH OF VALVE OPERATING NUT IS GREATER THAN 5', CONTRACTOR SHALL PROVIDE AND INSTALL EXTENSION STEM USING MANUFACTURER APPROVED EXTENSION KIT. DEPTH OF EXTENDED OPERATING NUT SHALL BE NO GREATER THAN 2'.
3. VALVE BOX SHALL NOT CONTACT VALVE OR MAIN. PLACE PEA GRAVEL UNDER BOX FOR SUPPORT.
4. PLUG VALVE MUST BE PROVIDED FOR THE DISCHARGE LINE OF EACH PUMP.
5. VALVES SHALL BE RATED TO 175 PSI (MINIMUM) WORKING PRESSURE.
6. ALL PIPING, COUPLINGS, FITTINGS, VALVE , ETC. SHALL BE CLASS 125 FLANGES MEETING ANSI B18.7 SPECIFICATIONS.
7. PLUG VALVES SHALL BE CAPABLE OF PASSING 3-INCH SOLIDS.



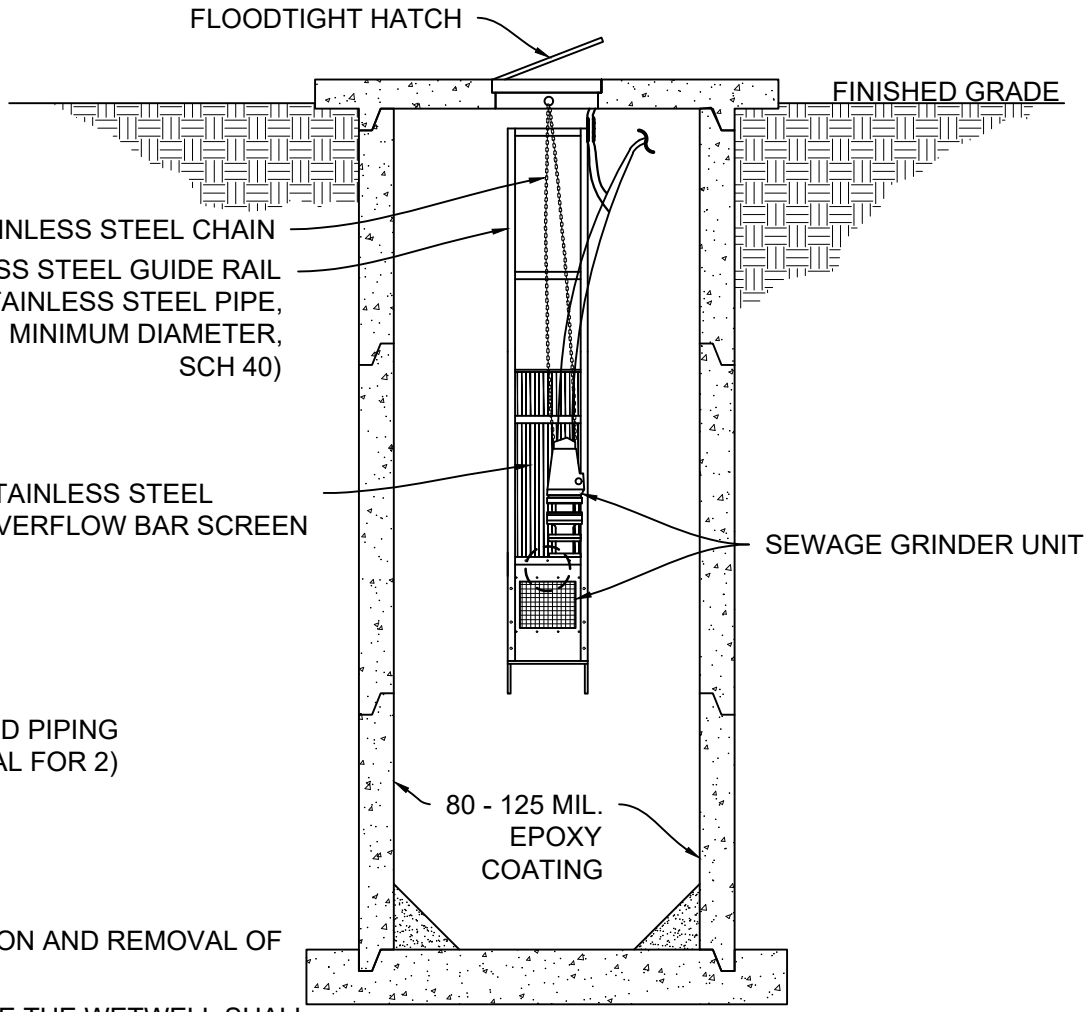
NOT TO SCALE

TOWN OF APEX STANDARDS	PLUG VALVE BOX INSTALLATION	STD. NO. 800.02
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1



PLAN VIEW

SEE SHEET 2 OF 2 FOR SECTION "B-B"



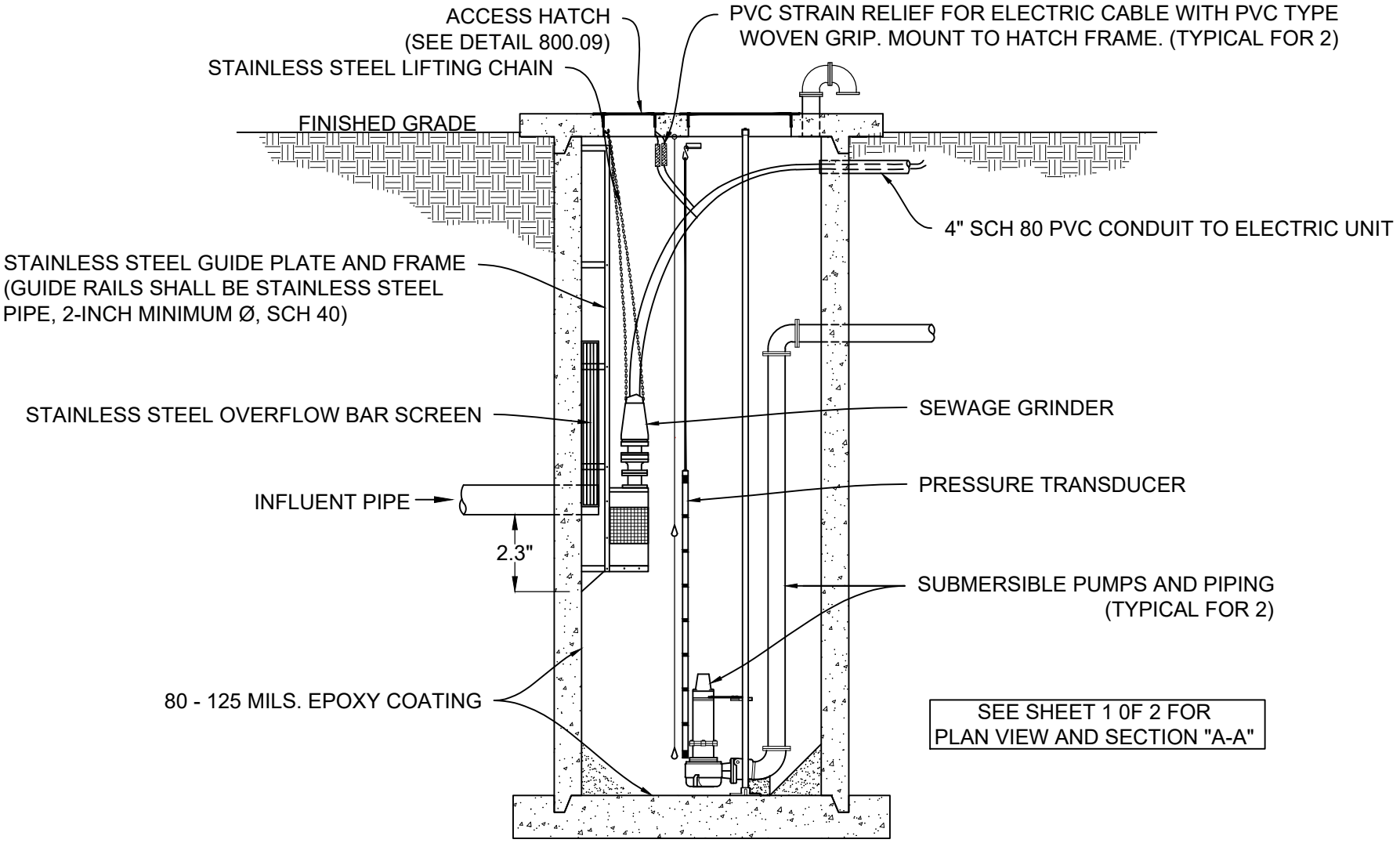
SECTION "A-A"

SEE PLAN VIEW & SECTION "B-B" FOR SUBMERSIBLE PUMPS AND PIPING.

NOTE:

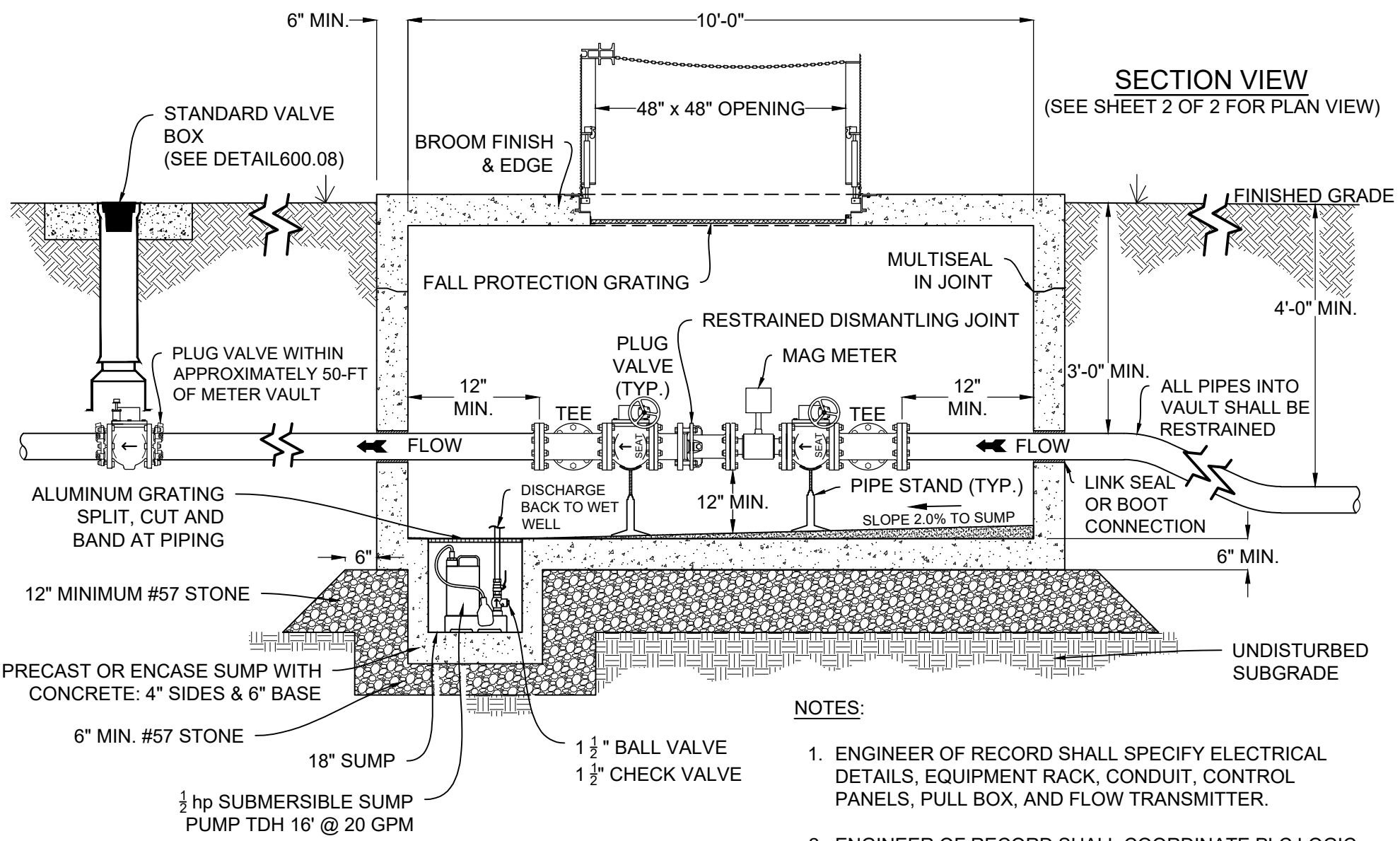
1. ACCESS HATCH SHALL BE SIZED TO ALLOW FOR INSTALLATION AND REMOVAL OF GRINDER UNIT.
2. ALL BOLTED CONNECTION (INCLUDING PIPE FLANGES) INSIDE THE WETWELL SHALL BE MADE USING STAINLESS STELL BLOTS, NUTS, AND WASHERS.
3. ALL WETWELLS MUST BE CONCENTRIC.
4. ENGINEER SHALL ENSURE WETWELL HAS SUFFICIENT CONCRETE FOR ANCHORING. BUOYANCY CALCULATIONS SHALL BE SUBMITTED IF REQUIRED OR REQUESTED BY THE TOWN.
5. STATION SHALL MEET REQUIREMENTS FROM NCDEQ INCLUDING ELEVATION AND/OR PROTECTION FROM FLOODING.

TOWN OF APEX STANDARDS	SEWAGE GRINDER UNIT (WET WELL INSTALLATION)	STD. NO. 800.03
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 2



SECTION "B-B"

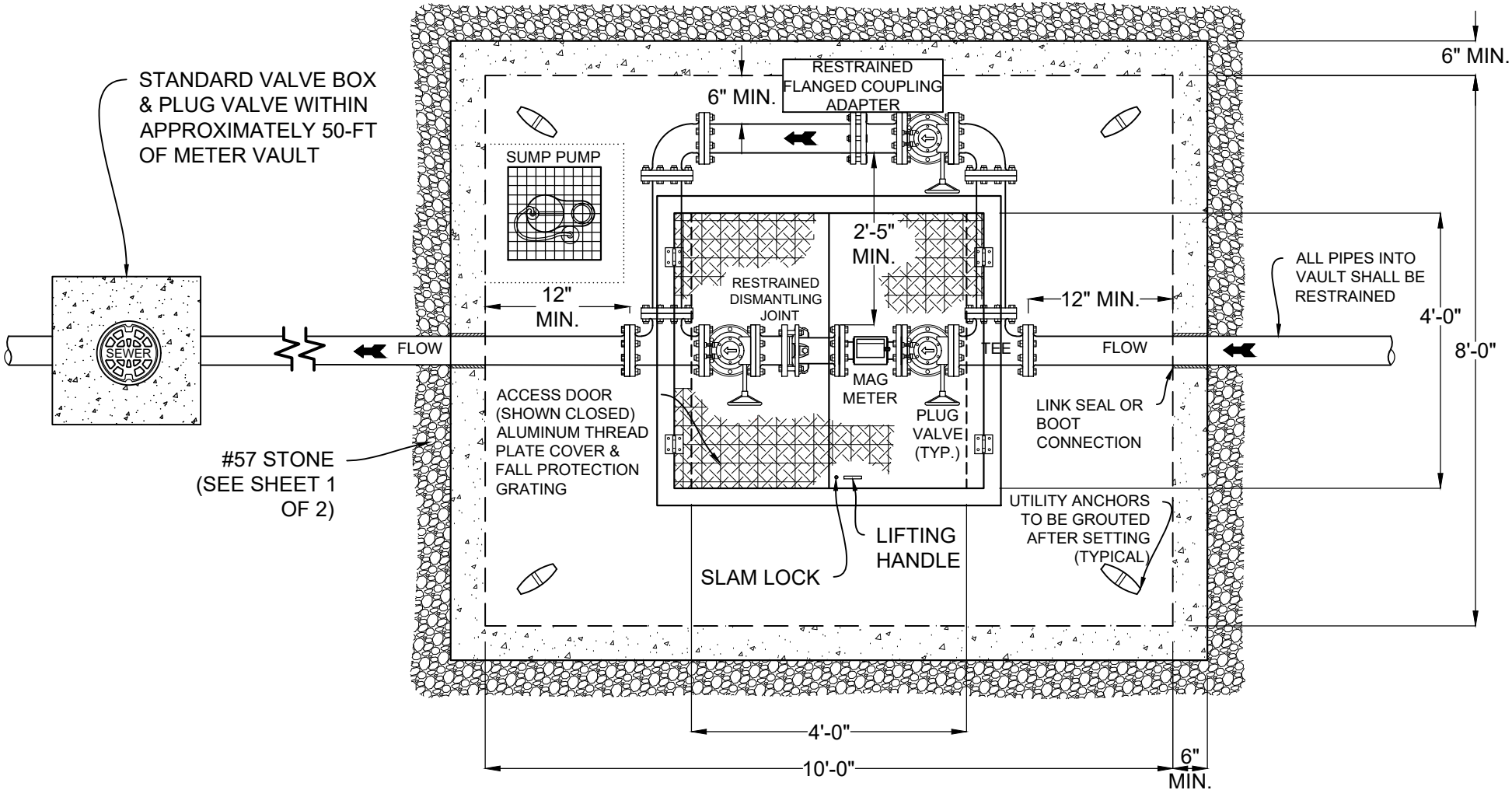
TOWN OF APEX STANDARDS	SEWAGE GRINDER UNIT (WET WELL INSTALLATION)	STD. NO. 800.03
EFFECTIVE: MARCH 23, 2021		SHEET 2 OF 2



NOTES:

1. ENGINEER OF RECORD SHALL SPECIFY ELECTRICAL DETAILS, EQUIPMENT RACK, CONDUIT, CONTROL PANELS, PULL BOX, AND FLOW TRANSMITTER.
2. ENGINEER OF RECORD SHALL COORDINATE PLC LOGIC WITH OWNER.
3. ACCESS HATCH SHALL BE CENTERED OVER METER.

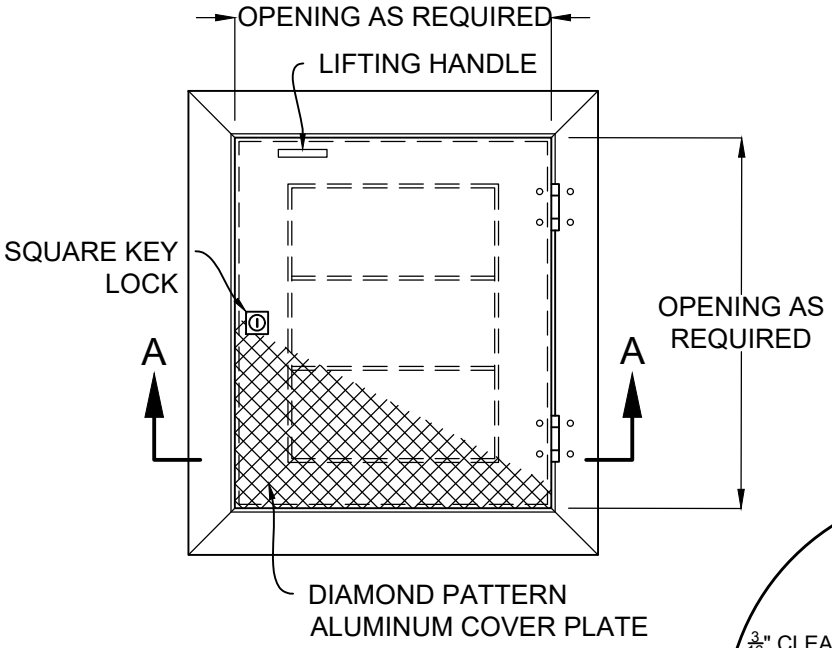
TOWN OF APEX STANDARDS	STANDARD MAG METER INSTALLATION	STD. NO. 800.04
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 2



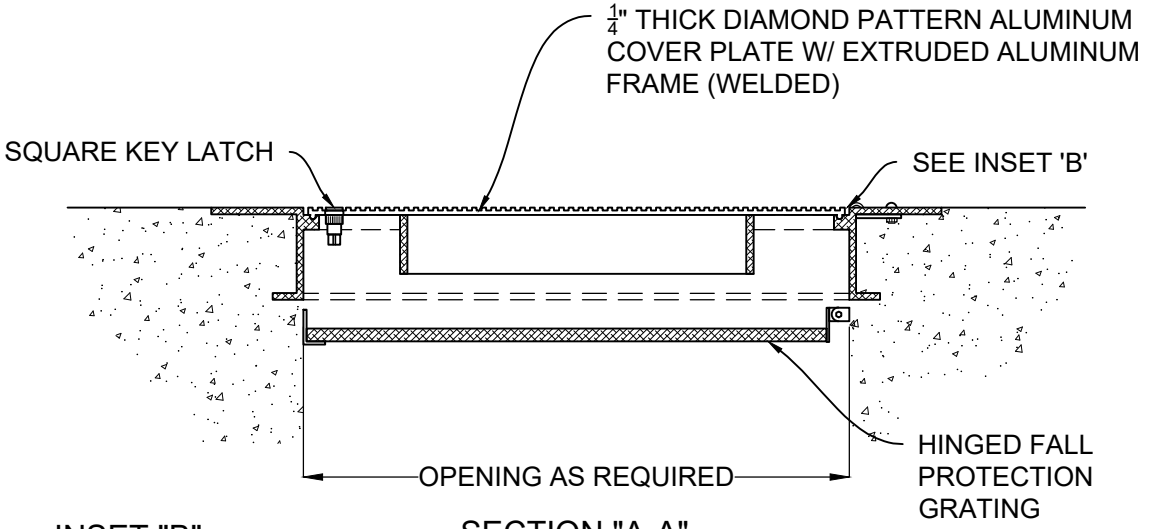
PLAN VIEW

(SEE SHEET 1 OF 2 FOR SECTION VIEW)

TOWN OF APEX STANDARDS	STANDARD MAG METER INSTALLATION	STD. NO. 800.04
EFFECTIVE: MARCH 23, 2021		SHEET 2 OF 2

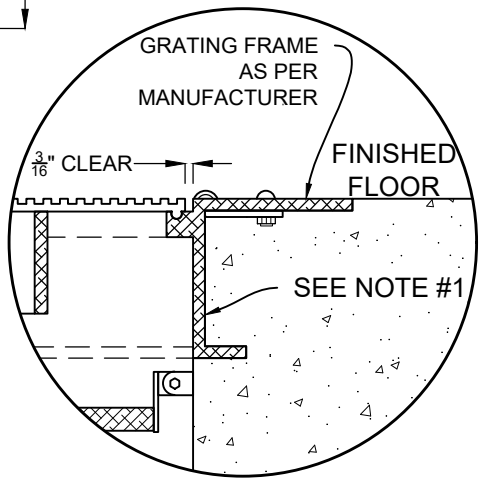


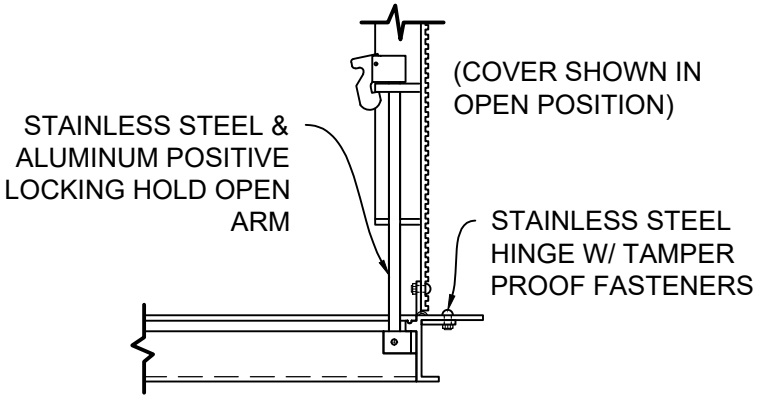
PLAN VIEW



SECTION "A-A"

INSET "B"





DETAIL

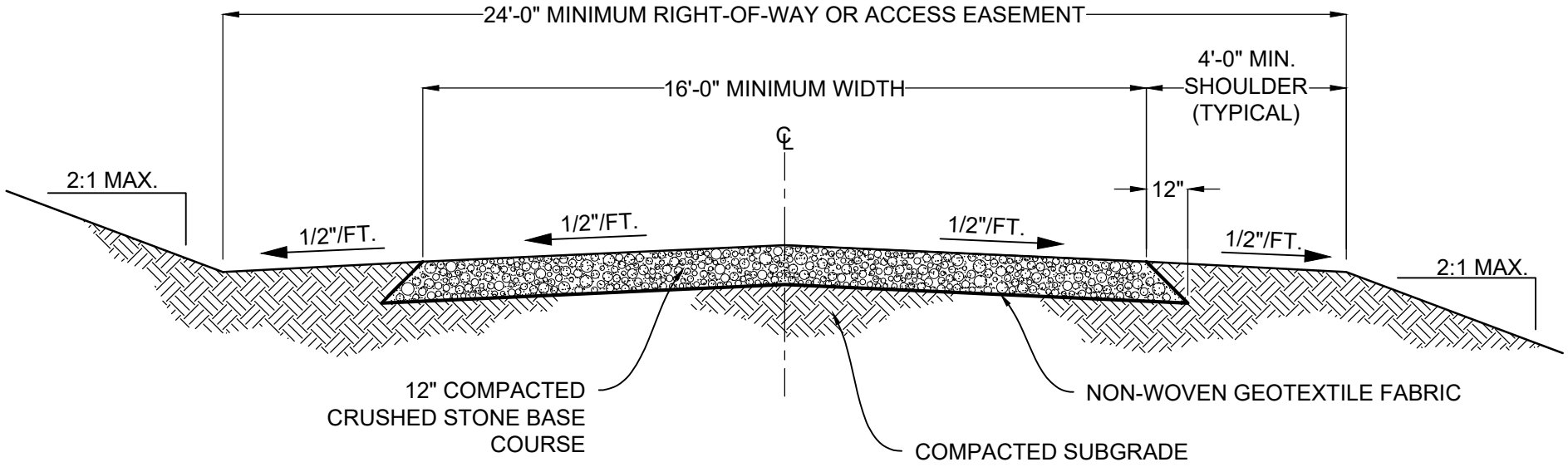
NOTES:

1. ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE OR GROUT SHALL BE COATED WITH BITUMINOUS MATERIAL FOR PROTECTION.

2. HATCHES SHALL BE SINGLE OR DOUBLE HATCH DEPENDING ON OPENING SIZE AND MANUFACTURER'S RECOMMENDATIONS.

3. HANDRAIL AROUND HATCH OPENING (SEE SECTION 802-G.5)

TOWN OF APEX STANDARDS	WETWELL HATCH	STD. NO. 800.05
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1



NOTES:

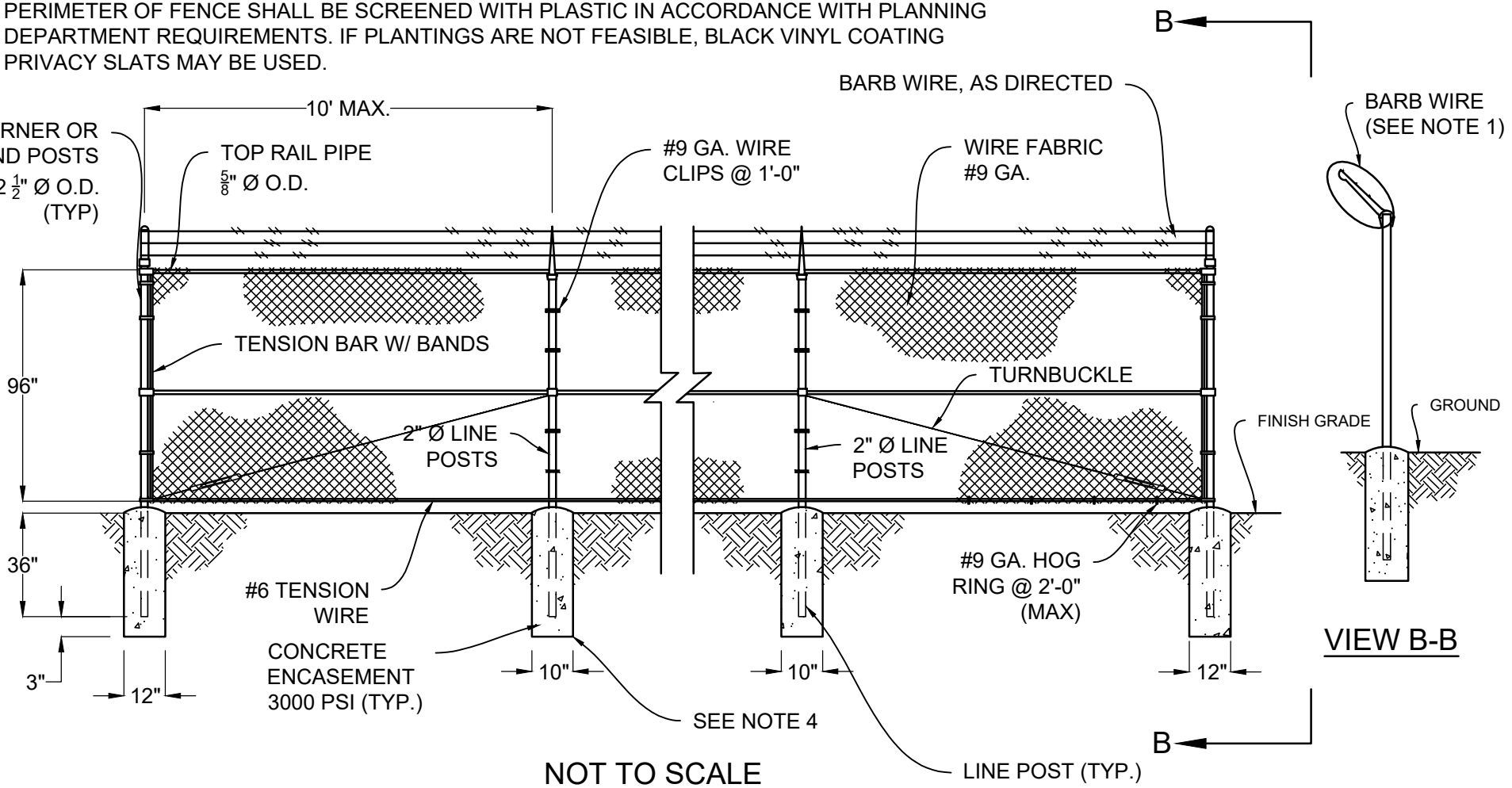
1. MAXIMUM ROADWAY SHALL BE 10%.

2. THE SITE SHALL FEATURE ADEQUATE TURN AROUND AREAS FOR SERVICE VEHICLES IN ACCORDANCE WITH SPECIFICATION SECTION 800.

TOWN OF APEX STANDARDS	PUMP STATION ACCESS ROAD	STD. NO.
EFFECTIVE: MARCH 23, 2021		800.06
		SHEET 1 OF 1

NOTES:

1. ADD 3 STRANDS OF BARB WIRE ALONG THE TOP OF FENCE AS DIRECTED (SEE SPECS).
2. ALL RAILS AND POSTS TO BE SCH. 40 GALV. STEEL PIPE WITH BLACK VINYL COATING.
3. POSTS TO BE SET IN CONCRETE.
4. IF ROCK IS ENCOUNTERED WHEN SETTING POSTS, DRILL HOLES 4-INCHES LARGER IN DIAMETER THAN POSTS AND BACKFILL TO GRADE WITH CLASS "B" CONCRETE.
5. PERIMETER OF FENCE SHALL BE SCREENED WITH PLASTIC IN ACCORDANCE WITH PLANNING DEPARTMENT REQUIREMENTS. IF PLANTINGS ARE NOT FEASIBLE, BLACK VINYL COATING PRIVACY SLATS MAY BE USED.

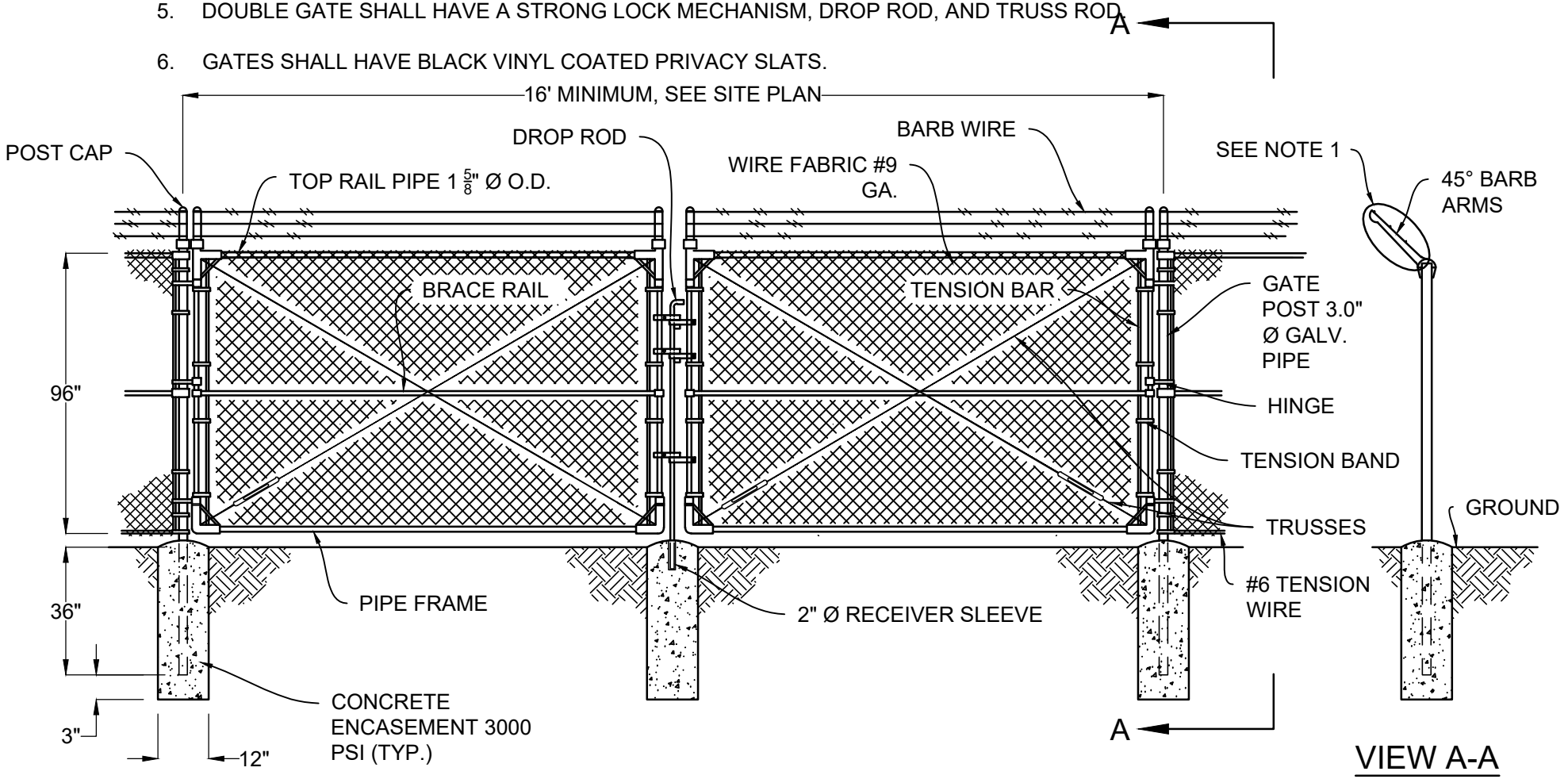


NOT TO SCALE

TOWN OF APEX STANDARDS	TYPICAL CHAIN LINK FENCE	STD. NO. 800.07
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1

NOTES:

1. ADD 3 STRANDS OF BARB WIRE ALONG THE TOP OF FENCE AS DIRECTED (SEE SPECS).
2. ALL RAILS AND POSTS TO BE SCH. 40 GALV. STEEL PIPE WITH BLACK VINYL COATING.
3. POSTS TO BE SET IN CONCRETE
4. IF ROCK IS ENCOUNTERED WHEN SETTING POSTS, DRILL HOLES 4-INCHES LARGER IN DIAMETER THAN POSTS AND BACKFILL TO GRADE WITH CLASS "B" CONCRETE.
5. DOUBLE GATE SHALL HAVE A STRONG LOCK MECHANISM, DROP ROD, AND TRUSS ROD.
6. GATES SHALL HAVE BLACK VINYL COATED PRIVACY SLATS.

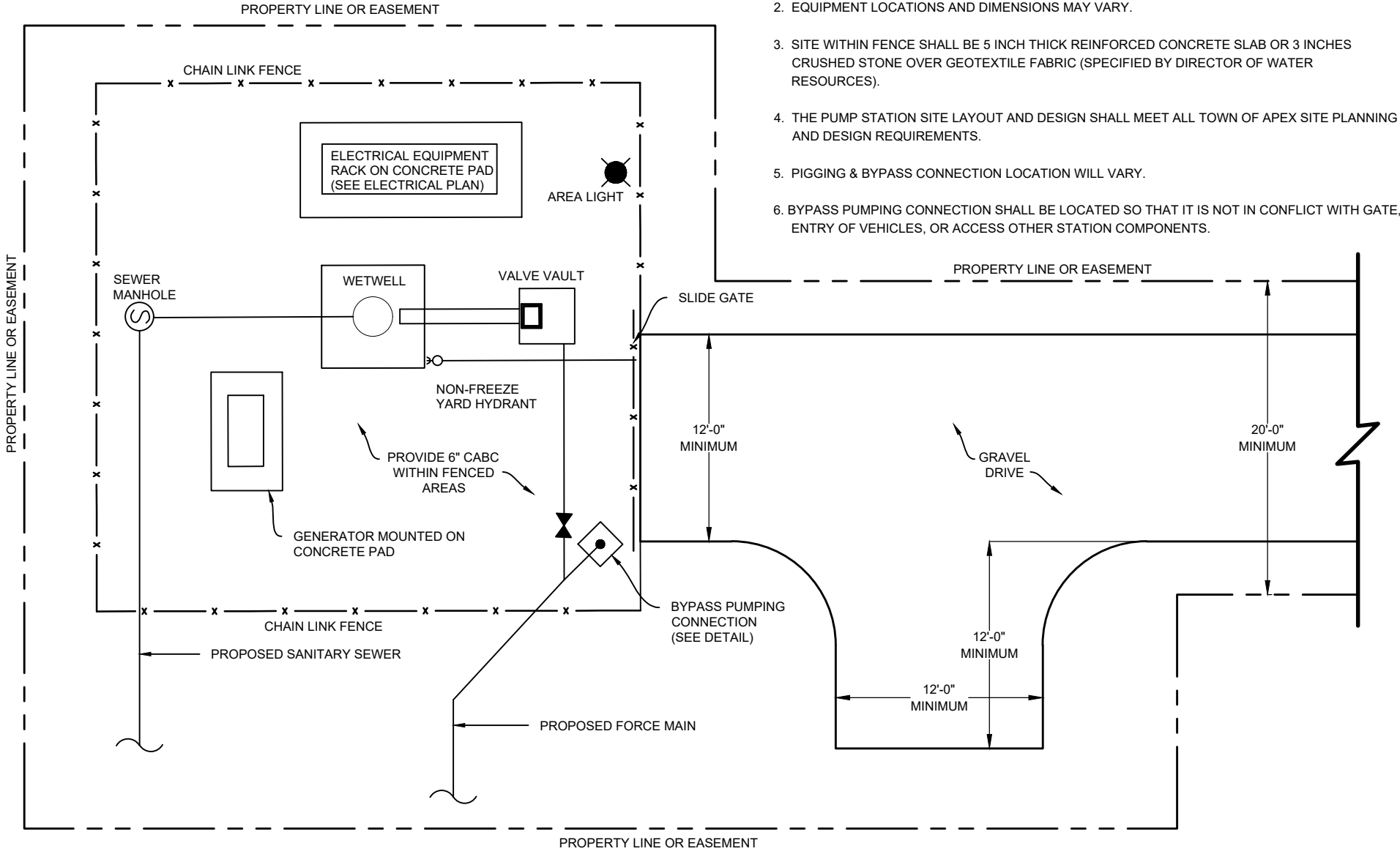


VIEW A-A

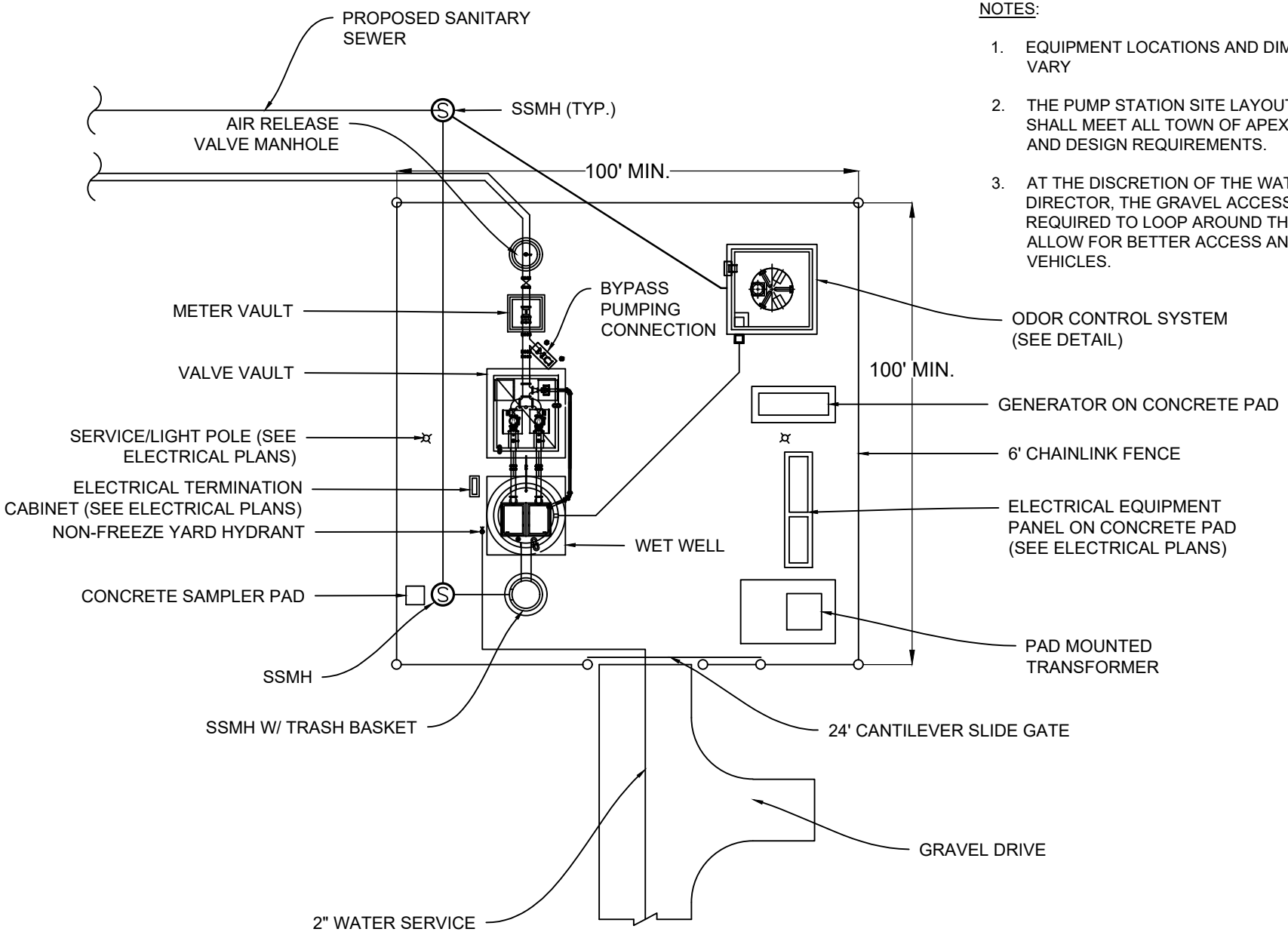
TOWN OF APEX STANDARDS	TYPICAL SECURITY DOUBLE GATE	STD. NO. 800.08
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1

NOTES:

1. PUMP STATION PROPERTY OR EASEMENT SHALL BE 50' x 50' (ft.) MINIMUM.
2. EQUIPMENT LOCATIONS AND DIMENSIONS MAY VARY.
3. SITE WITHIN FENCE SHALL BE 5 INCH THICK REINFORCED CONCRETE SLAB OR 3 INCHES CRUSHED STONE OVER GEOTEXTILE FABRIC (SPECIFIED BY DIRECTOR OF WATER RESOURCES).
4. THE PUMP STATION SITE LAYOUT AND DESIGN SHALL MEET ALL TOWN OF APEX SITE PLANNING AND DESIGN REQUIREMENTS.
5. PIGGING & BYPASS CONNECTION LOCATION WILL VARY.
6. BYPASS PUMPING CONNECTION SHALL BE LOCATED SO THAT IT IS NOT IN CONFLICT WITH GATE, ENTRY OF VEHICLES, OR ACCESS OTHER STATION COMPONENTS.



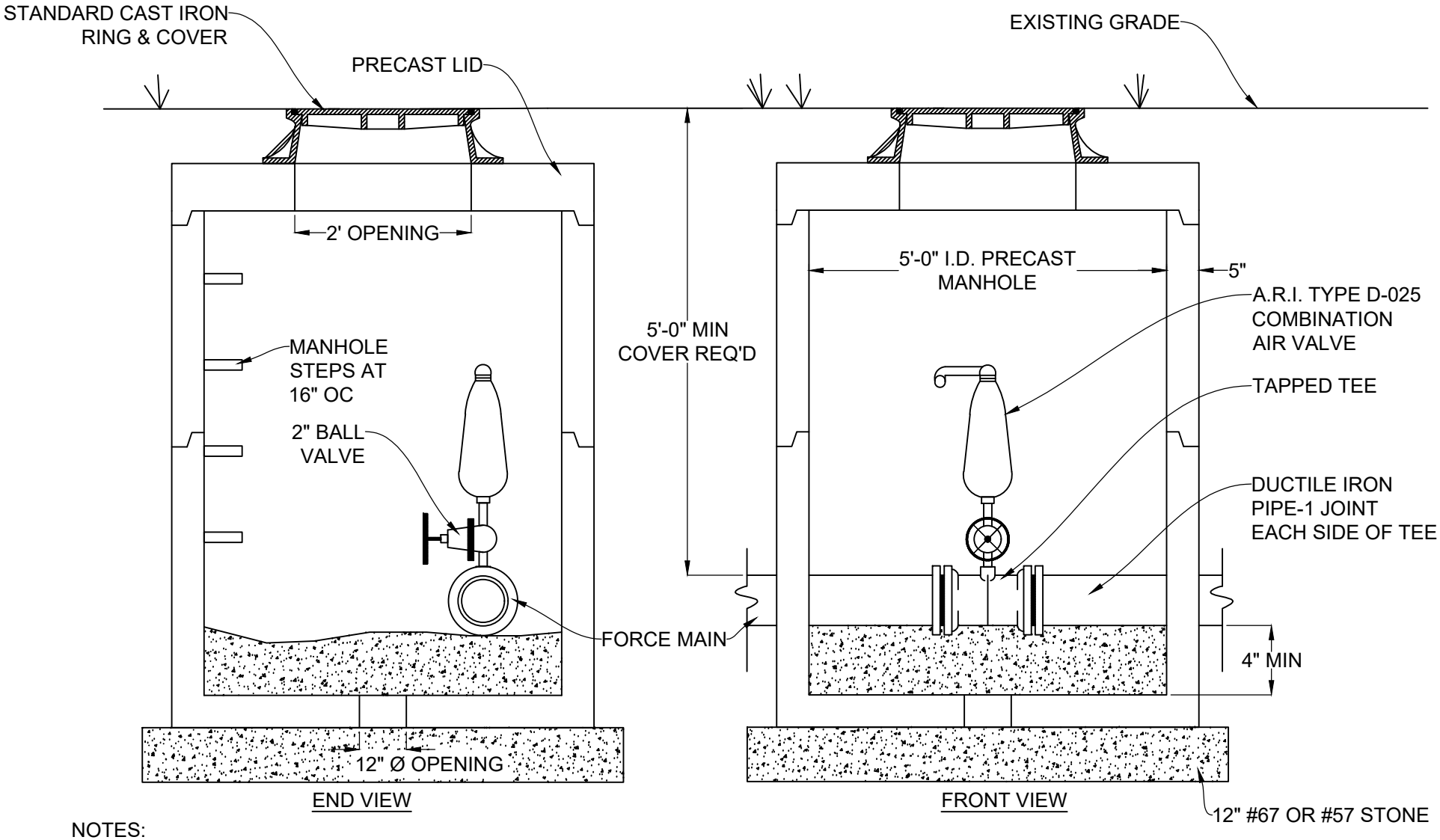
TOWN OF APEX STANDARDS	TYPICAL PUMP STATION LAYOUT < 500 gpm	STD. NO. 800.09
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1



NOTES:

1. EQUIPMENT LOCATIONS AND DIMENSIONS MAY VARY
2. THE PUMP STATION SITE LAYOUT AND DESIGN SHALL MEET ALL TOWN OF APEX SITE PLANNING AND DESIGN REQUIREMENTS.
3. AT THE DISCRETION OF THE WATER RESOURCES DIRECTOR, THE GRAVEL ACCESS DRIVE MAY BE REQUIRED TO LOOP AROUND THE SITE TO ALLOW FOR BETTER ACCESS AND /OR LARGE VEHICLES.

TOWN OF APEX STANDARDS	TYPICAL PUMP STATION LAYOUT > 500 GPM	STD. NO. 800.10
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1



NOTES:

1. ALL THREADED PIPING SHALL BE BRASS W/ BRONZE FITTINGS AND VALVES.

2. MANHOLE INTERIOR SHALL RECEIVE 2 COATS SHERWIN WILLIAMS SHER-FLEX OR EQUIVALENT WITH A TOTAL DRY FILM THICKNESS OF 80-125 MILS.

TOWN OF APEX STANDARDS	AIR RELEASE MANHOLE FOR SANITARY SEWER FORCE MAINS	STD. NO. 800.11
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1