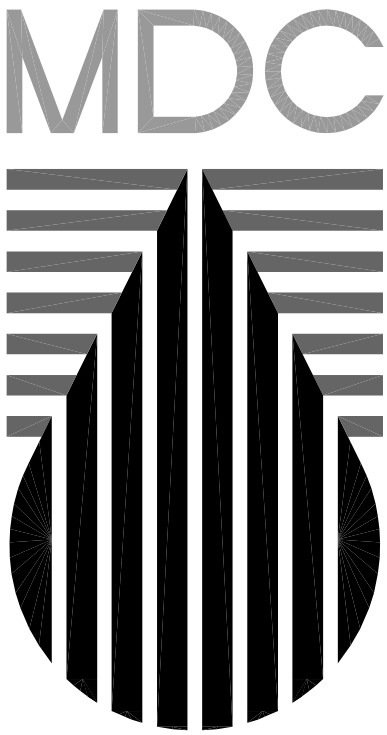
STANDARD DETAILS MANUAL



THE METROPOLITAN DISTRICT

555 MAIN STREET
P.O. BOX 800
HARTFORD, CONNECTICUT

JANUARY 2017

THE METROPOLITAN DISTRICT

STANDARD DETAILS MANUAL

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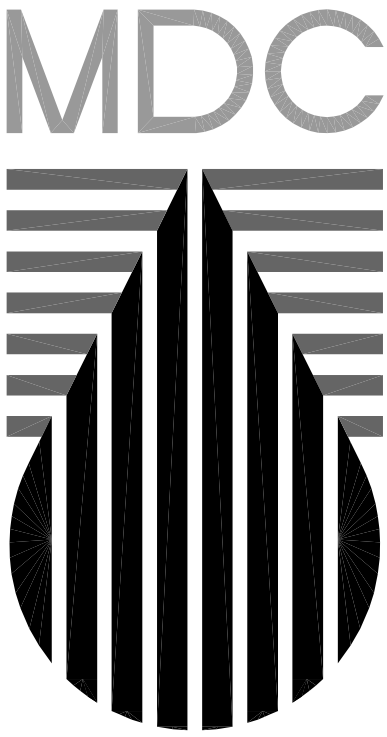
SEWER
STANDARD DETAILS



THE METROPOLITAN DISTRICT

JANUARY 2017

THE METROPOLITAN DISTRICT

SEWER STANDARD DETAILS

PIPE AND FITTINGS DESIGNATION	MINIMUM COVER
ASTM D3034 POLYVINYL CHLORIDE (PVC) (SDR–35) (TYPE PSM) 6" THROUGH 15"	3.5'
ASTM F679 PVC (LARGE DIAMETER) (TYPE PS–46) 18" THROUGH 27"	
ASTM F949 CORRUGATED PVC (SMOOTH INTERIOR) 6" THROUGH 36"	
ASTM F1803 CLOSED PROFILE PVC 30" THROUGH 48"	
ASTM F794 CLOSED PROFILE PVC (CONTROLLED I.D.) 30" THROUGH 48"	3.0'
ASTM F714, AWWA C906 HIGH DENSITY POLYETHYLENE (HDPE) (SOLID WALL)	
ASTM C76 REINFORCED CONCRETE PIPE (RCP) (CLASS IV) 12" AND LARGER	
ASTM C76 REINFORCED CONCRETE PIPE (RCP) (CLASS V) 12" AND LARGER	2.5'
ASTM A476, AWWA/ANSI DUCTILE IRON (DI) CLASS 52 8" THROUGH 24"	2.0'
ASTM D1794, AWWA C900 C900/C905 PVC (SDR–18) 6" THROUGH 12" (C900), 18" AND 24" (C905)	

NOTE:

1. THE CONTRACTOR SHALL LOCATE PIPELINES SUBSTANTIALLY AT THE DEPTHS SHOWN ON THE CONTRACT DRAWINGS. THE ENGINEER RESERVES THE RIGHT TO MAKE MODIFICATIONS TO THE PIPELINE LOCATIONS OR DEPTHS TO AVOID INTERFERENCE WITH EXISTING STRUCTURES, UTILITIES OR FOR ANY OTHER APPROVED REASONS.

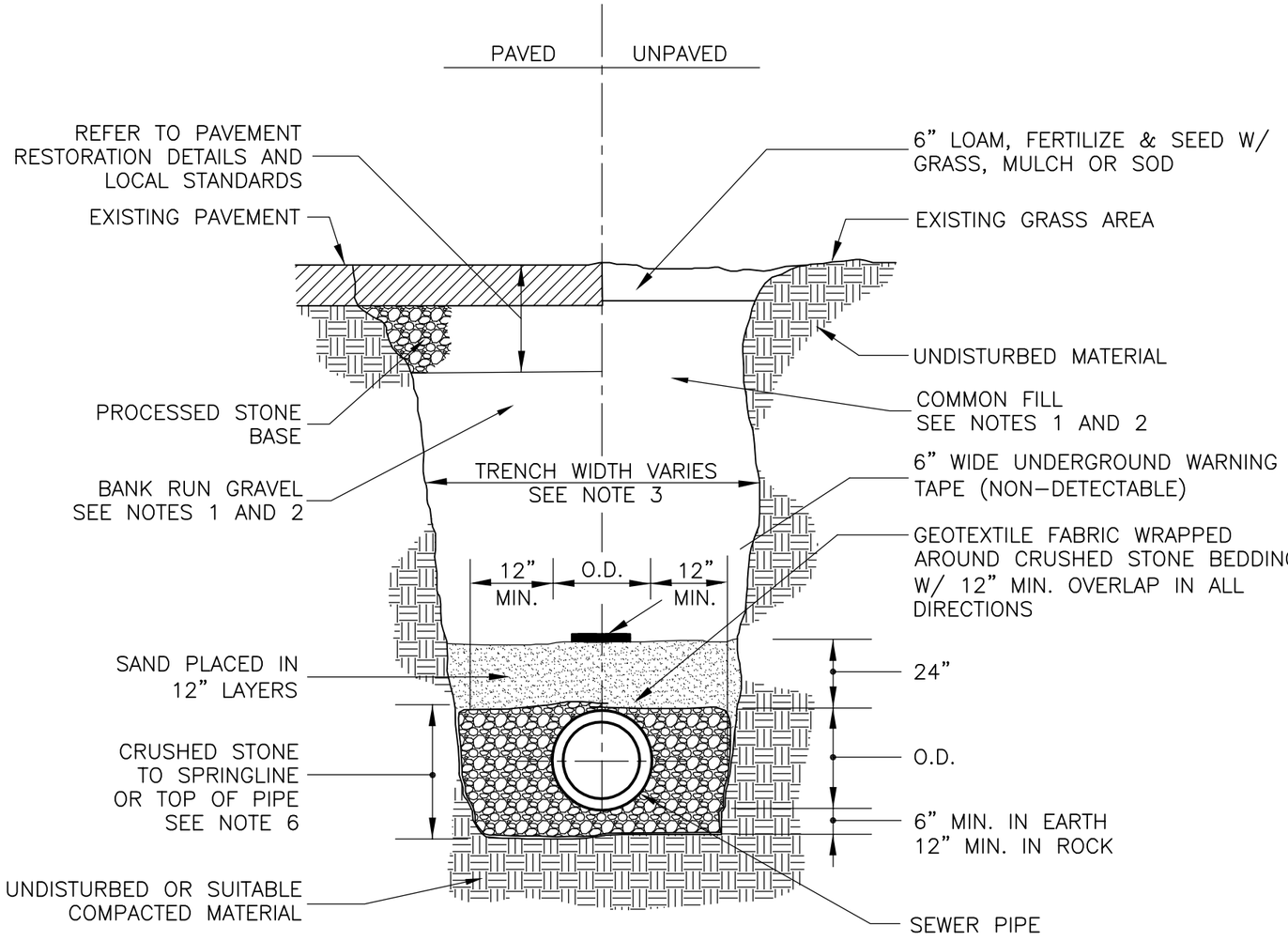
MINIMUM DEPTH OF COVER OVER PIPE

DETAIL S-1

NTS

THE METROPOLITAN DISTRICT

SEWER STANDARD DETAILS



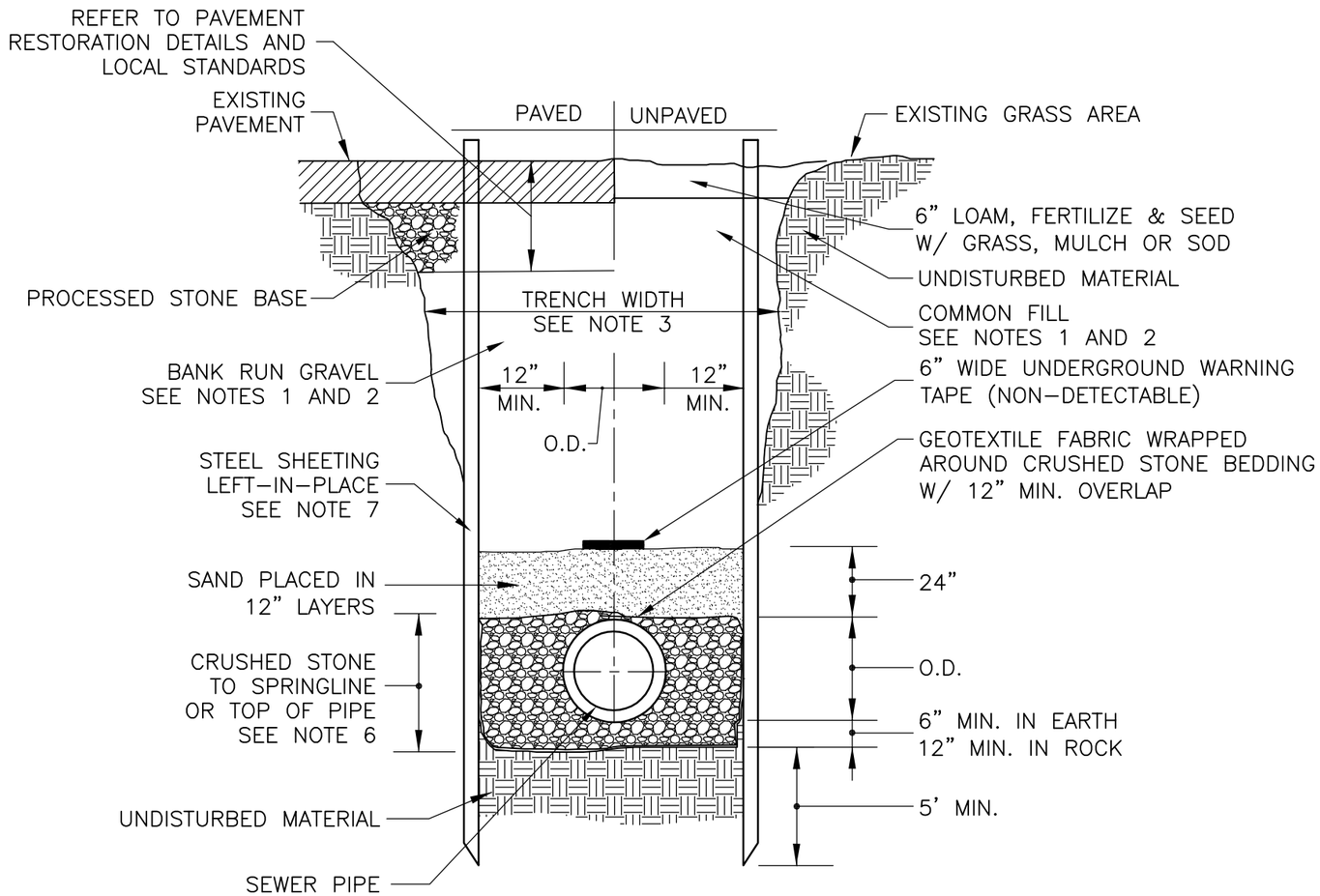
NOTES:

1. ALL EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE AND DISPOSED.
2. BACKFILL MATERIAL SHALL BE APPROVED BANK RUN GRAVEL IN PAVED AREAS (INCLUDING DRIVEWAYS AND SIDEWALKS) OR COMMON FILL IN UNPAVED AREAS.
3. TRENCH WIDTH VARIES BASED ON PIPE SIZE AND DEPTH.
4. TRENCHES LOCATED IN THE ROAD SHOULDER SHALL BE TREATED THE SAME AS TRENCHES IN THE PAVED ROADWAY EXCEPT FOR PAVEMENT AND SURFACE RESTORATION WORK.
5. PROVIDE IMPERVIOUS TRENCH DAM(S) IN STONE BEDDING AS DIRECTED BY THE ENGINEER. SEE PIPE TRENCH DAM DETAIL.
6. CRUSHED STONE SHALL BE INSTALLED TO TOP OF PIPE FOR PVC AND DI PIPE AND TO SPRINGLINE FOR RC PIPE.

SEWER TRENCH

DETAIL S 2

NTS



NOTES:

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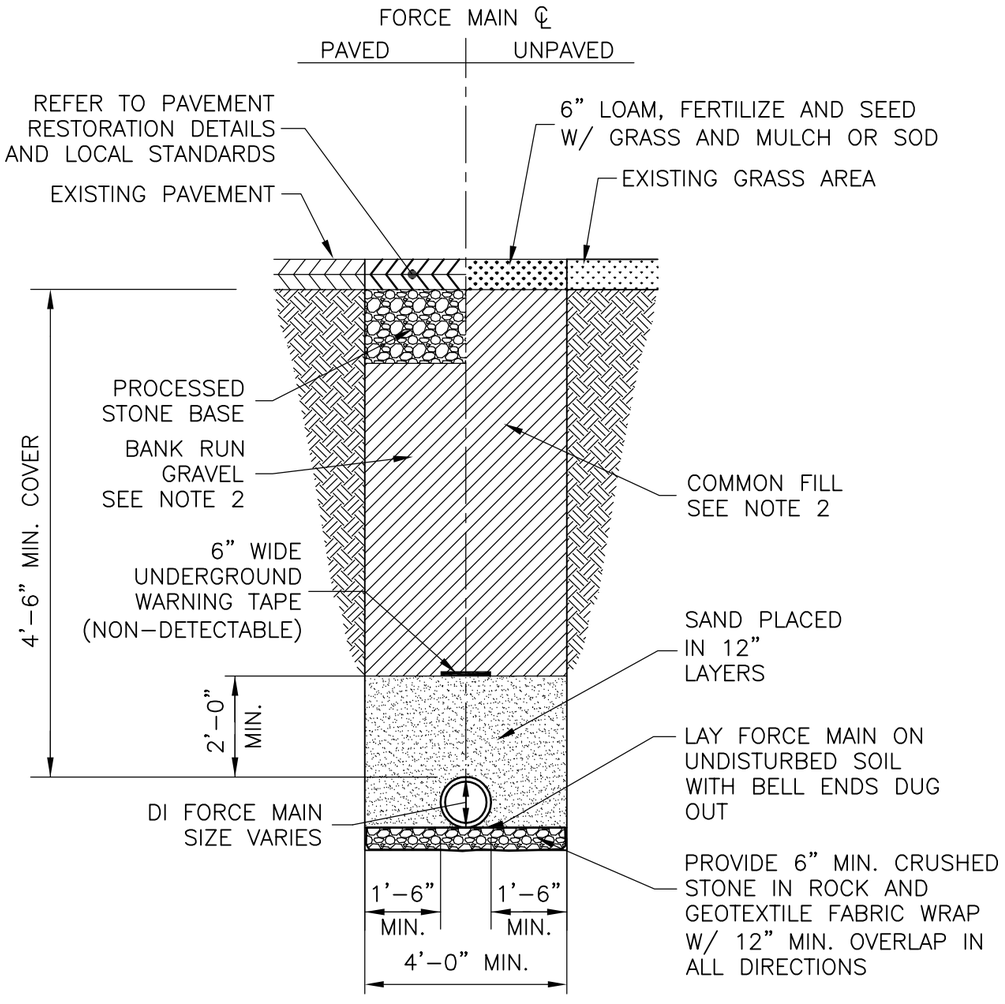
2. BACKFILL MATERIAL SHALL BE APPROVED BANK RUN GRAVEL IN PAVED AREAS (INCLUDING DRIVEWAYS AND SIDEWALKS) OR COMMON FILL IN UNPAVED AREAS.
3. TRENCH WIDTH VARIES BASED ON PIPE SIZE AND DEPTH.
4. TRENCHES LOCATED IN THE ROAD SHOULDER SHALL BE TREATED THE SAME AS TRENCHES IN THE PAVED ROADWAY EXCEPT FOR PAVEMENT AND SURFACE RESTORATION WORK.
5. PROVIDE IMPERVIOUS TRENCH DAM(S) IN STONE BEDDING AS DIRECTED BY ENGINEER. SEE PIPE TRENCH DAM DETAIL.
6. CRUSHED STONE SHALL BE INSTALLED TO TOP OF PIPE FOR PVC AND DI PIPE PIPE. CRUSHED STONE SHALL BE INSTALLED TO SPRINGLINE FOR RC PIPE.
7. CUT OFF DEPTH FOR STEEL SHEETING LEFT-IN-PLACE SHALL BE 4 FEET BELOW FINISHED GRADE.

SEWER TRENCH WITH STEEL SHEETING LEFT-IN-PLACE

DETAIL S
NTS 3



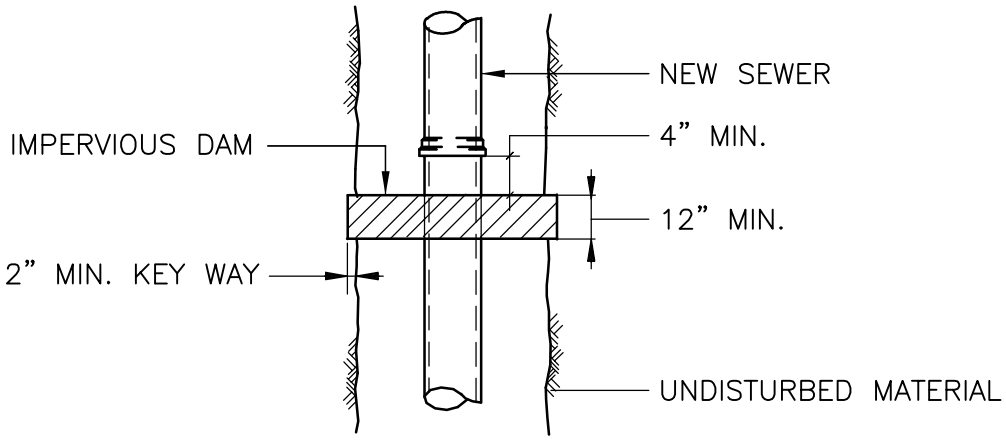
NOTES:

1. ALL EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE AND DISPOSED.
2. BACKFILL MATERIAL SHALL BE APPROVED BANK RUN GRAVEL IN PAVED AREAS (INCLUDING DRIVEWAYS AND SIDEWALKS) OR COMMON FILL IN UNPAVED AREAS.
3. TRENCH WIDTH VARIES BASED ON PIPE SIZE AND DEPTH.
4. TRENCHES LOCATED IN THE ROAD SHOULDER SHALL BE TREATED THE SAME AS TRENCHES IN THE PAVED ROADWAY EXCEPT FOR PAVEMENT AND SURFACE RESTORATION WORK.
5. PROVIDE IMPERVIOUS TRENCH DAM(S) IN STONE BEDDING AS DIRECTED BY THE ENGINEER. SEE PIPE TRENCH DAM DETAIL.
6. MAINTAIN MIN. 18" HORIZONTAL SEPARATION BETWEEN FORCE MAIN AND EXISTING PARALLEL UTILITIES (OUTSIDE WALL TO OUTSIDE WALL).

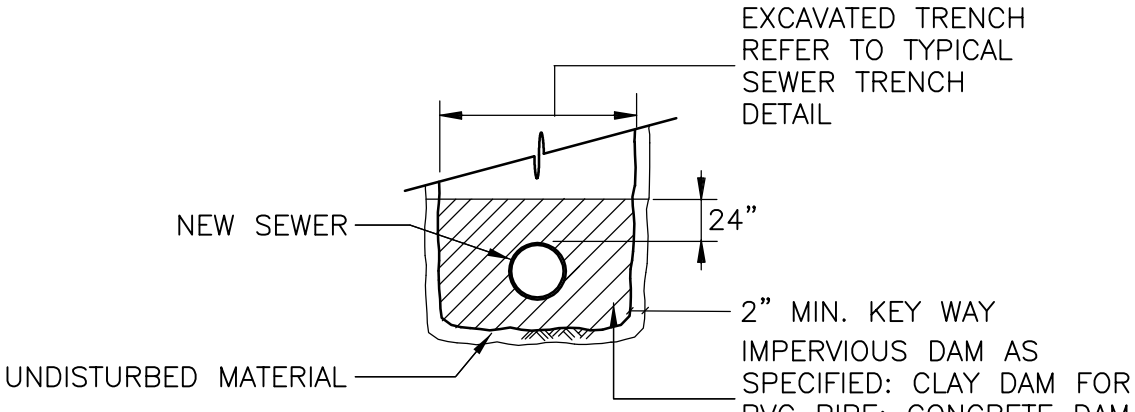
SEWER FORCE MAIN TRENCH

DETAIL S-4

NTS



PLAN

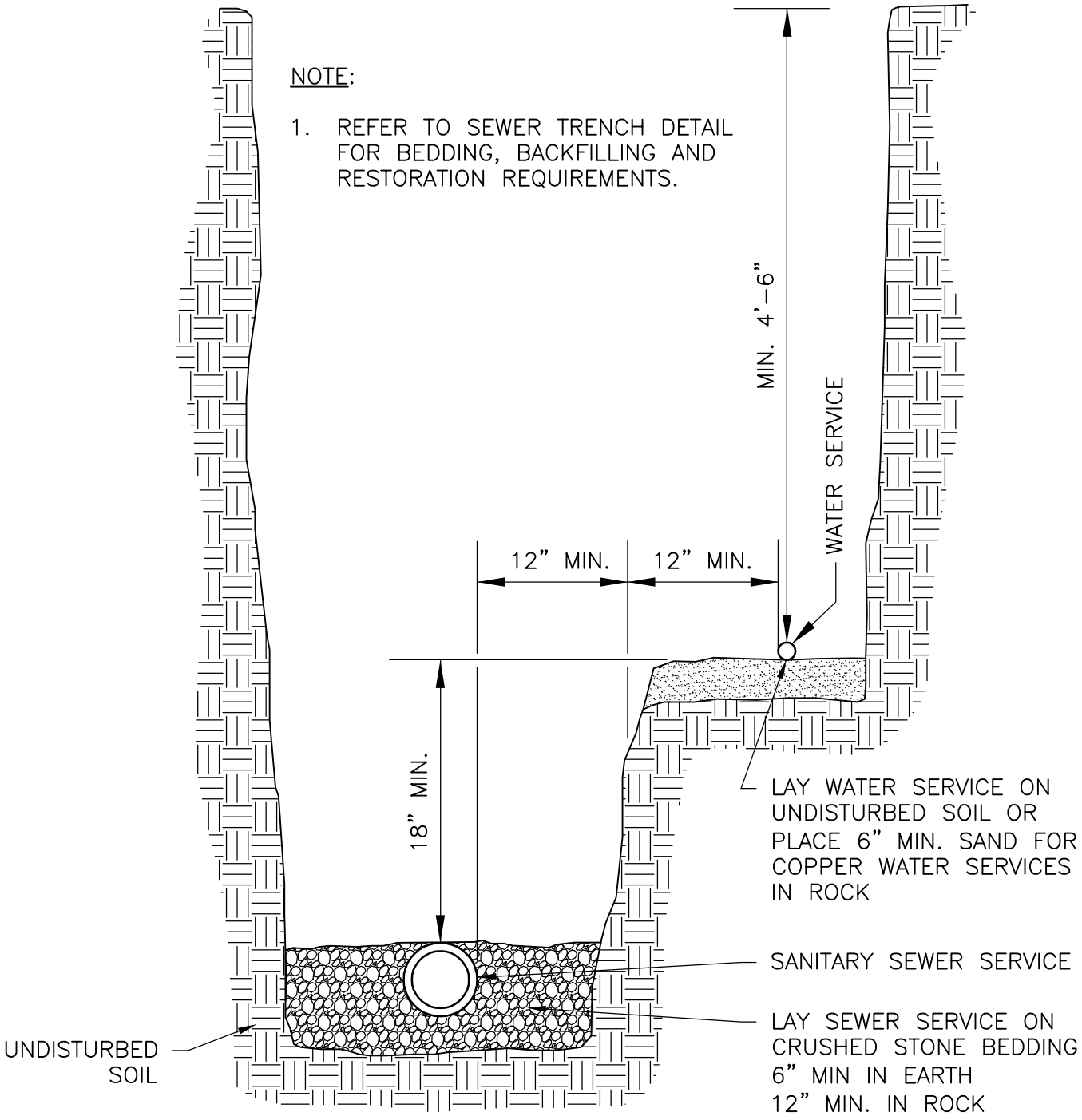


SECTION

PIPE TRENCH DAM

DETAIL S 5

NTS



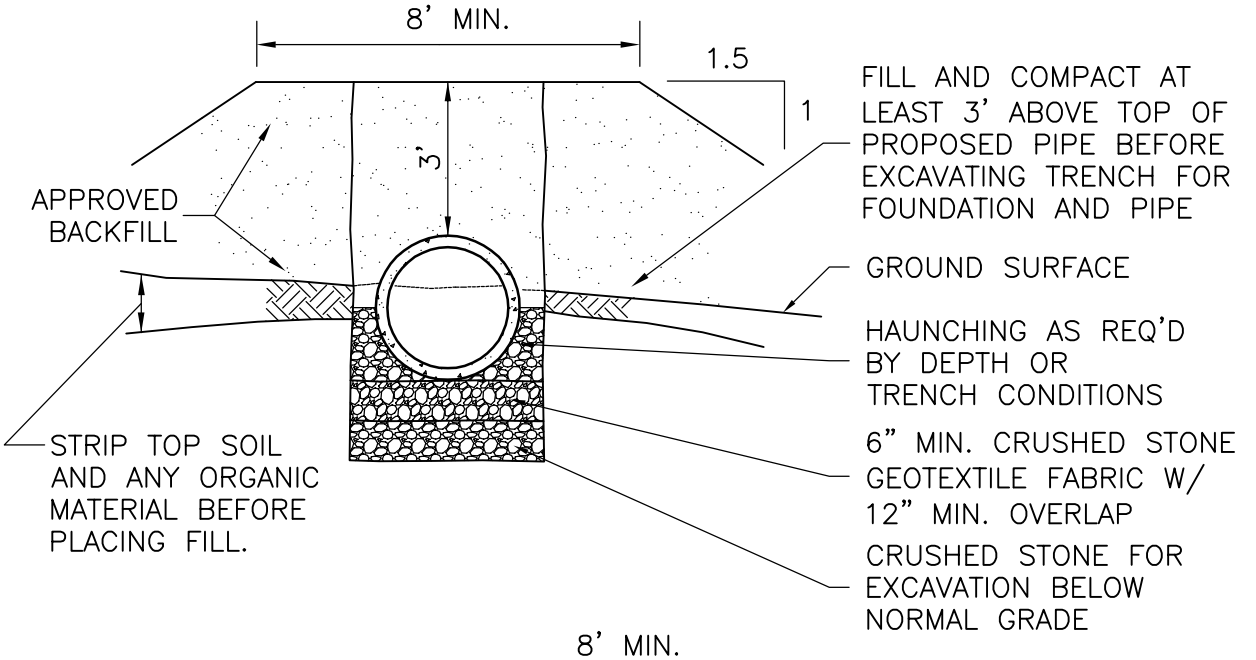
SEWER SERVICE AND WATER SERVICE IN COMMON TRENCH

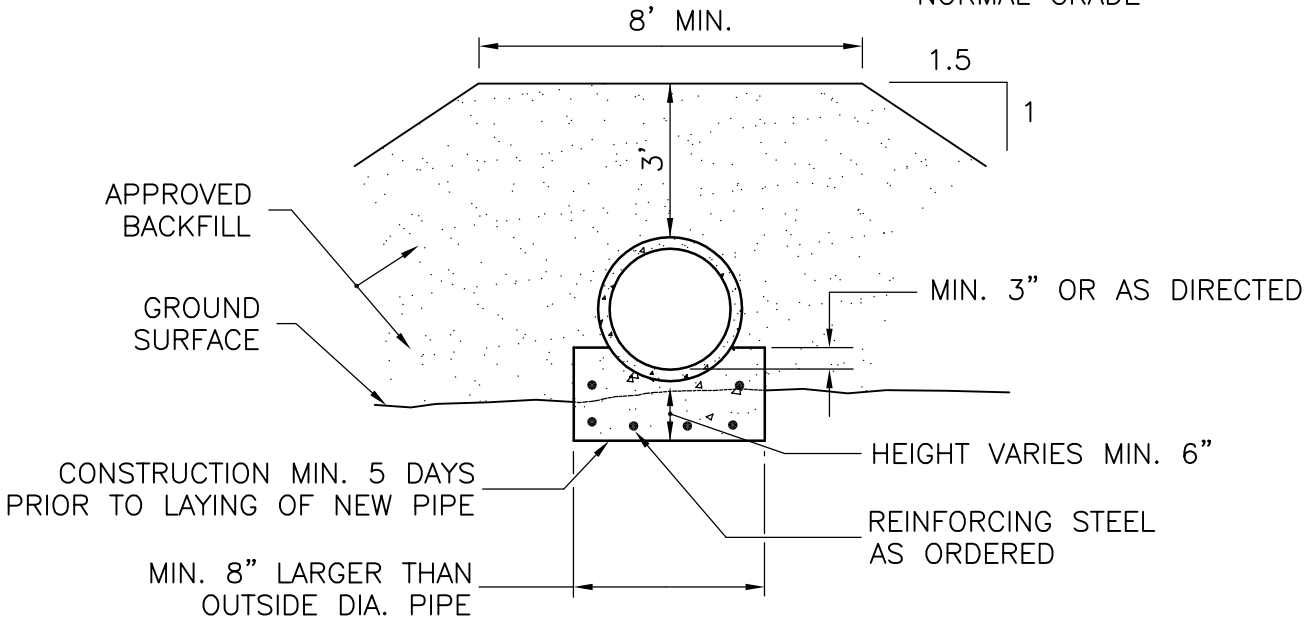
DETAIL S 6

NTS

NOTE:

1. REFER TO SEWER TRENCH DETAIL FOR BACKFILLING AND RESTORATION REQUIREMENTS.

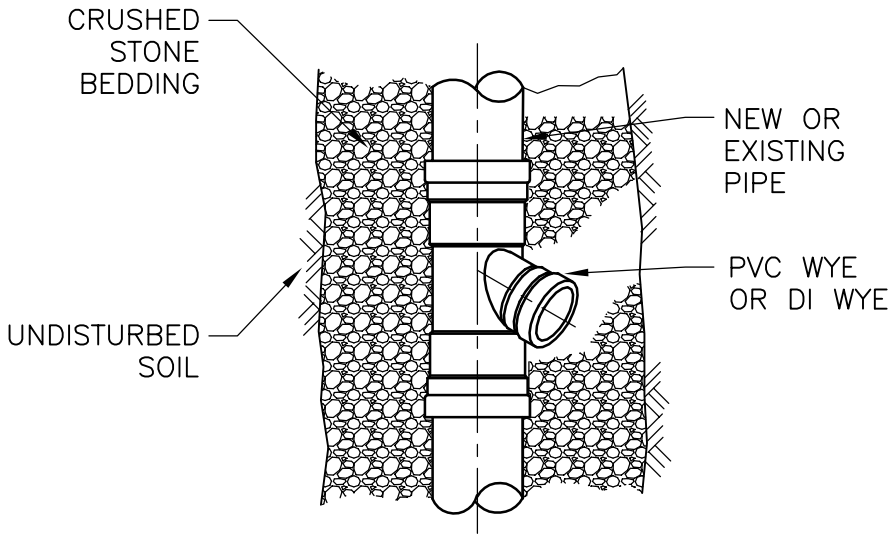




FOUNDATION SECTIONS IN LOWLANDS

DETAIL S

NTS 7



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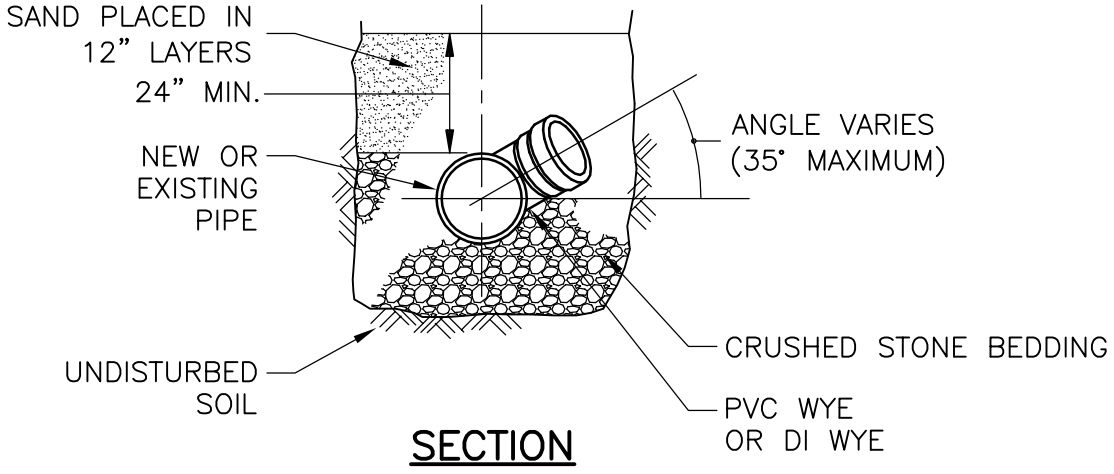


SECTION

NOTE:

1. REFER TO SEWER TRENCH DETAIL FOR BEDDING, BACKFILLING AND RESTORATION REQUIRMENTS.

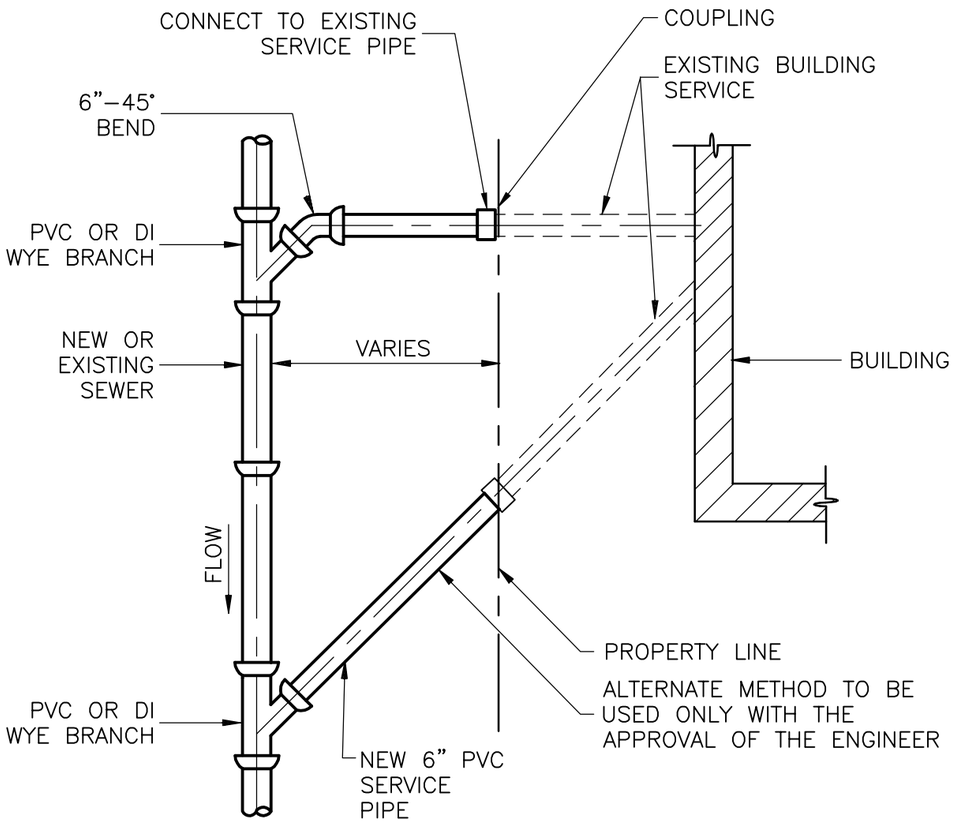
PVC OR DI WYE BRANCH

DETAIL S 8

NTS

THE METROPOLITAN DISTRICT

SEWER STANDARD DETAILS



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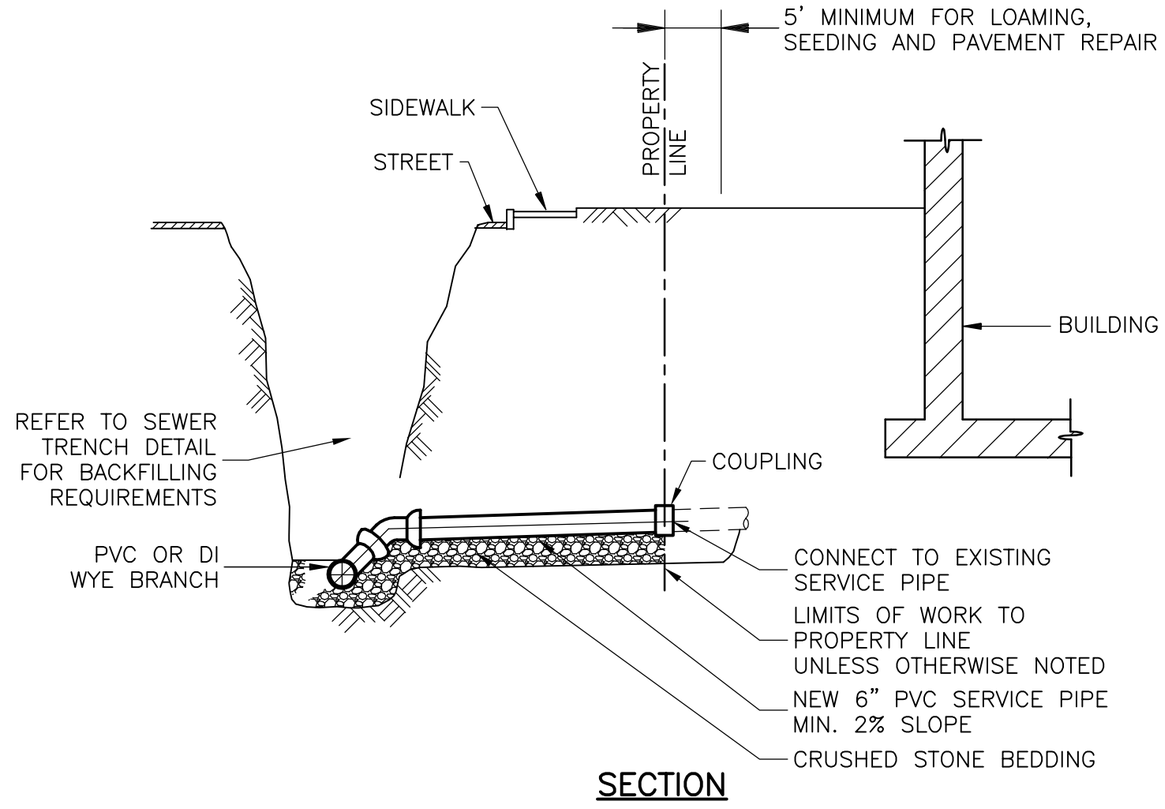


SECTION

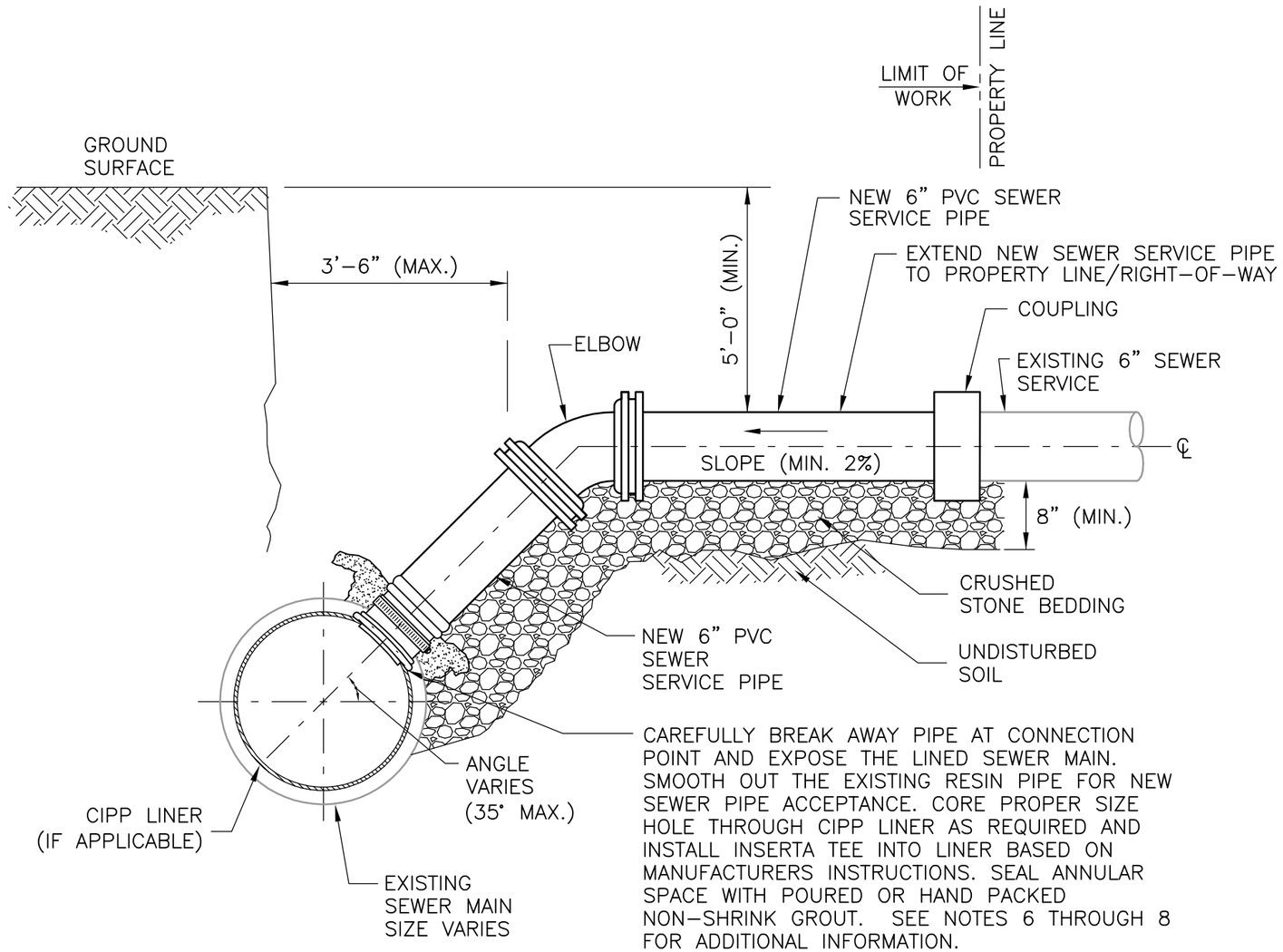
SEWER SERVICE REPLACEMENT

DETAIL S-9

NTS

THE METROPOLITAN DISTRICT

SEWER STANDARD DETAILS



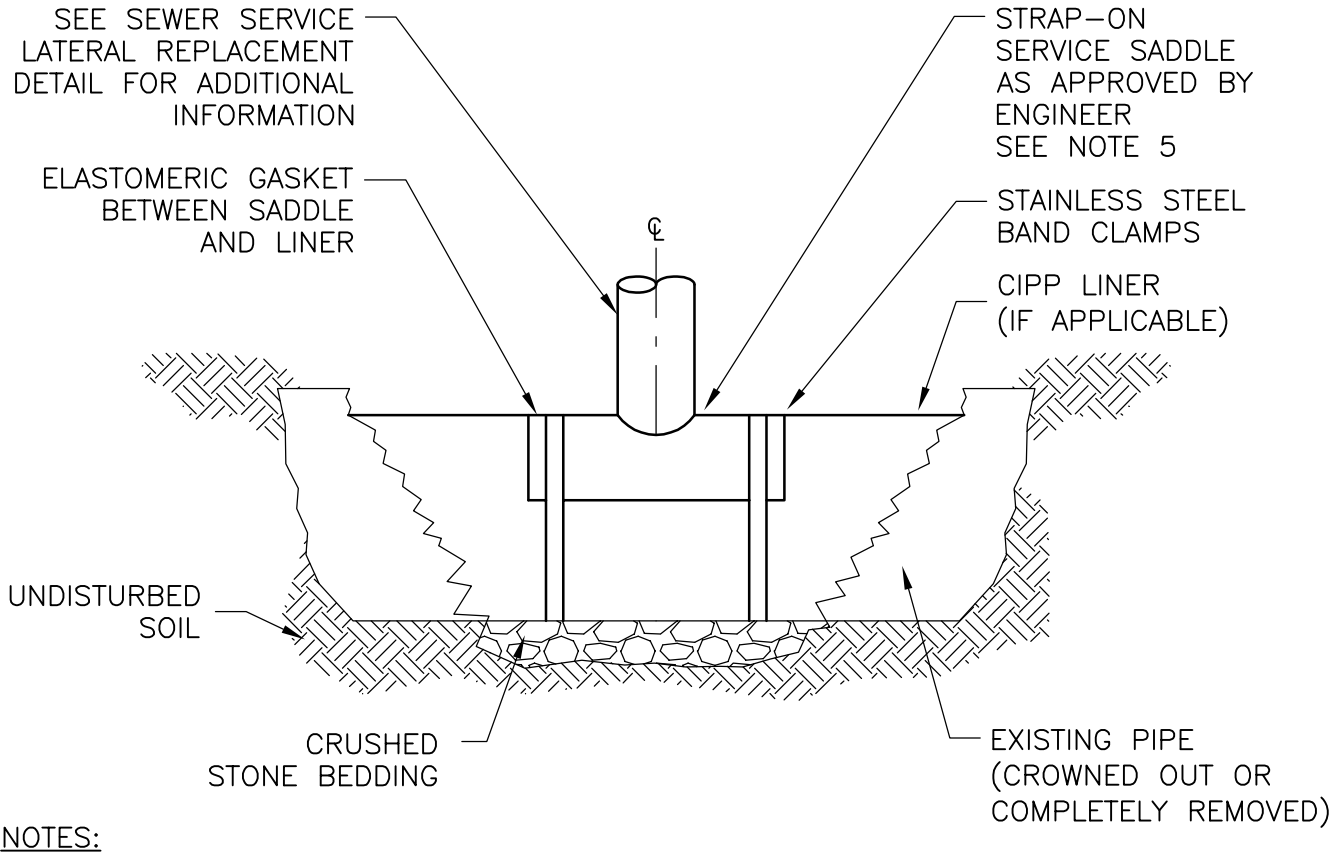
NOTES:

1. THIS DETAIL SHALL APPLY TO EXISTING OR NEW SERVICE LATERALS THAT WILL BE CONNECTED TO A CIPP LINED SEWER MAIN AT THE EXISTING WYE OR AT A RELOCATED LOCATION AS SHOWN ON THE DRAWINGS. MAINLINE SEWER CIPP LINING WORK SHALL BE COMPLETED PRIOR TO SERVICE LATERAL REPLACEMENT.
2. CONNECTIONS FOR SERVICES THAT ARE SCHEDULED FOR RELOCATION SHALL BE MADE AT A 5' MIN. DISTANCE AWAY FROM THE EXISTING SERVICE CONNECTION. THE EXISTING SERVICE PIPE THAT REMAINS SHALL BE FILLED AND ABANDONED USING GROUT, SAND OR FLOWABLE FILL, OR ABANDONED IN PLACE AS DIRECTED BY THE ENGINEER. THE EXISTING CONNECTION TO THE MAIN SHALL BE PLUGGED, SEALED AND ABANDONED AS REQUIRED.
3. CONNECT NEW PVC SERVICE LATERAL PIPE DIRECTLY TO THE EXISTING SERVICE LATERAL PIPE AT THE PROPERTY LINE AS SHOWN ON THE PLANS.
4. WHEN BREAKING AWAY EXISTING PIPE, DO NOT ALLOW DEBRIS TO ENTER SEWER.
5. REFER TO SEWER TRENCH DETAIL FOR BACKFILLING AND RESTORATION REQUIREMENTS.
6. CONTRACTOR TO PROVIDE ALL FITTINGS FOR NEW SERVICE CONNECTIONS AS REQUIRED.
7. FOR CURED–IN–PLACE LINER, VERIFY THAT THE LINER IS COMPLETELY CURED AND ALLOW THE LINER TO NORMALIZE TO AMBIENT TEMPERATURE AND RECOVER FROM IMPOSED STRETCH PRIOR TO NEW SERVICE LATERAL CONNECTION WORK.
8. IMMEDIATELY FOLLOWING LINER INSTALLATION AND CURING, THE CONTRACTOR SHALL CUT A RELIEF HOLE AT EACH SERVICE LATERAL. THE RELIEF HOLE SHALL BE CUT AS REQUIRED TO ALLOW FOR A 6–INCH INSERTA TEE PER MANUFACTURER'S RECOMMENDATIONS.
9. THE CONTRACTOR SHALL PROVIDE SUFFICIENT WORKING SPACE TO INSTALL A 6–INCH INSERTA TEE PER MANUFACTURER'S RECOMMENDATIONS.
10. NOT TO BE USED FOR HOUSE CONNECTION PERMIT WORK.

SERVICE LATERAL INSERTA TEE CONNECTION

DETAIL S 10

NTS



NOTES:

1. THIS DETAIL APPLIES WHENEVER AN EXISTING SERVICE LATERAL MUST BE CONNECTED TO A CIPP LINED SEWER MAIN AND SERVICE LATERAL INSERTA TEE CONNECTION CANNOT BE INSTALLED.

2. WHEN BREAKING OUT EXISTING PIPE CROWN, DO NOT ALLOW DEBRIS TO ENTER SEWER. INSTALL AND COMPACT CRUSHED STONE TO 1–FOOT ABOVE TOP OF PIPE AND/OR SERVICE.

3. REFER TO SEWER TRENCH DETAIL FOR BEDDING, BACKFILLING AND RESTORATION REQUIREMENTS.

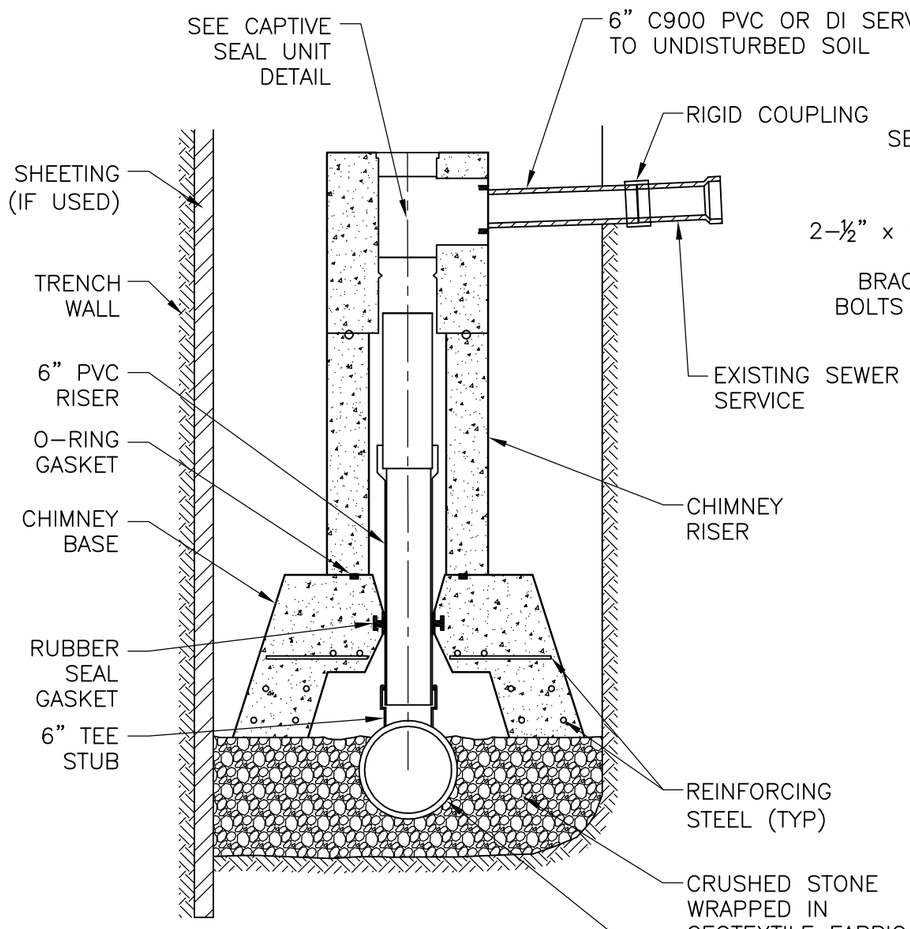
4. INSTALL FITTINGS, ADAPTERS, AND RUBBER SLEEVE COUPLINGS AS NECESSARY, TO MAKE CONNECTION BETWEEN NEW AND EXISTING SERVICE LATERAL PIPING.

5. NOT ALL LATERAL SIZES ARE KNOWN. CONTRACTOR TO FIELD VERIFY THE SIZE AND TYPE OF THE EXISTING SERVICE LATERAL. EXISTING LATERALS ARE ASSUMED TO BE 6" DIAMETER.

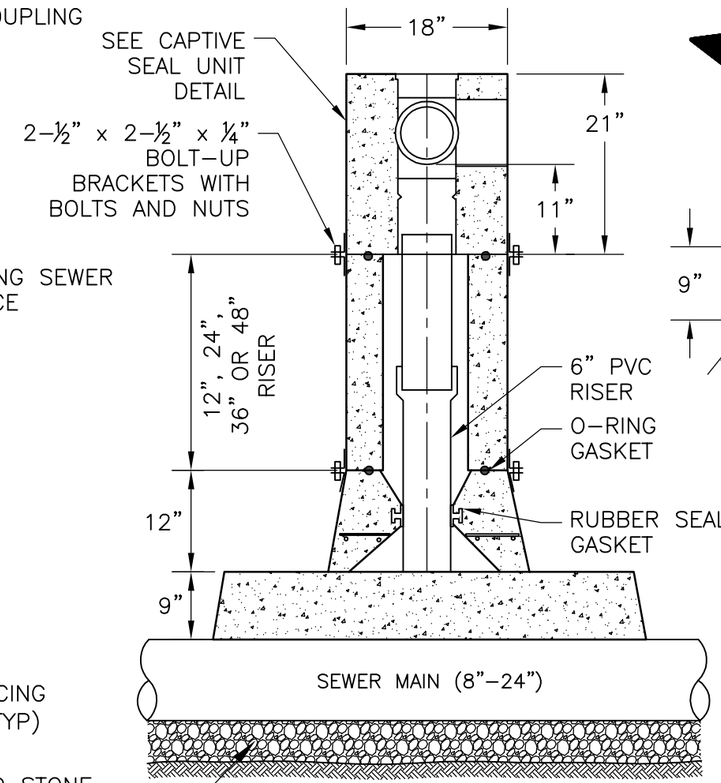
SERVICE LATERAL SADDLE CONNECTION

DETAIL S 11

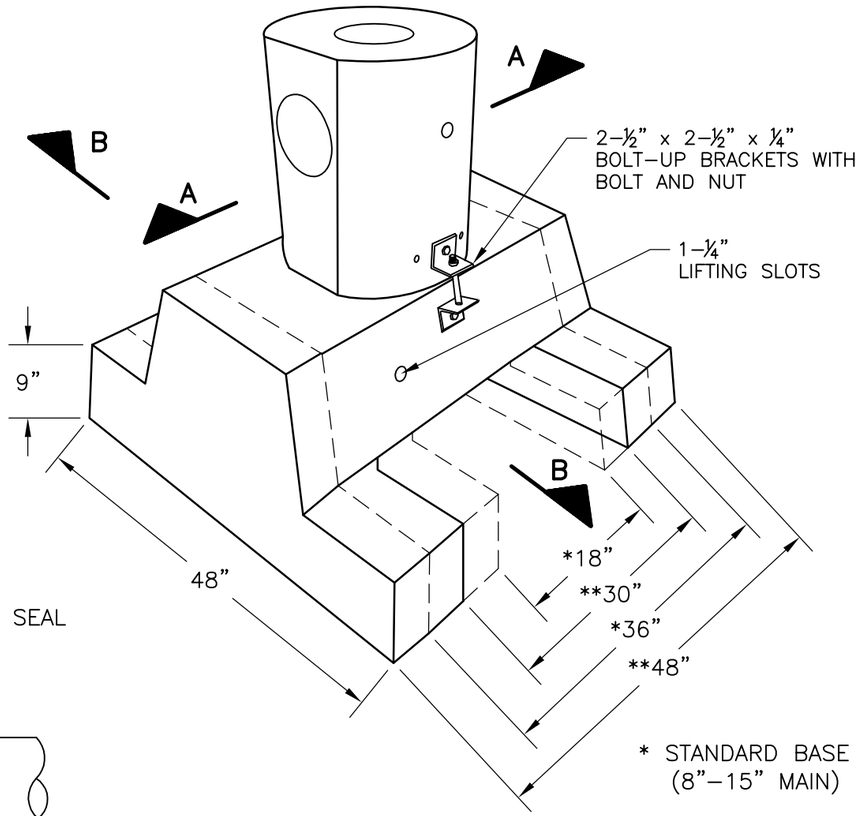
NTS



SECTION A-A

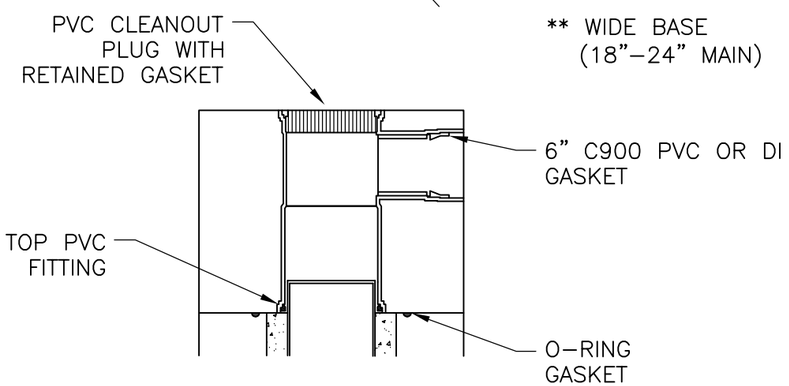


SECTION B-B



* STANDARD BASE (8"-15" MAIN)

** WIDE BASE (18"-24" MAIN)



CAPTIVE SEAL UNIT

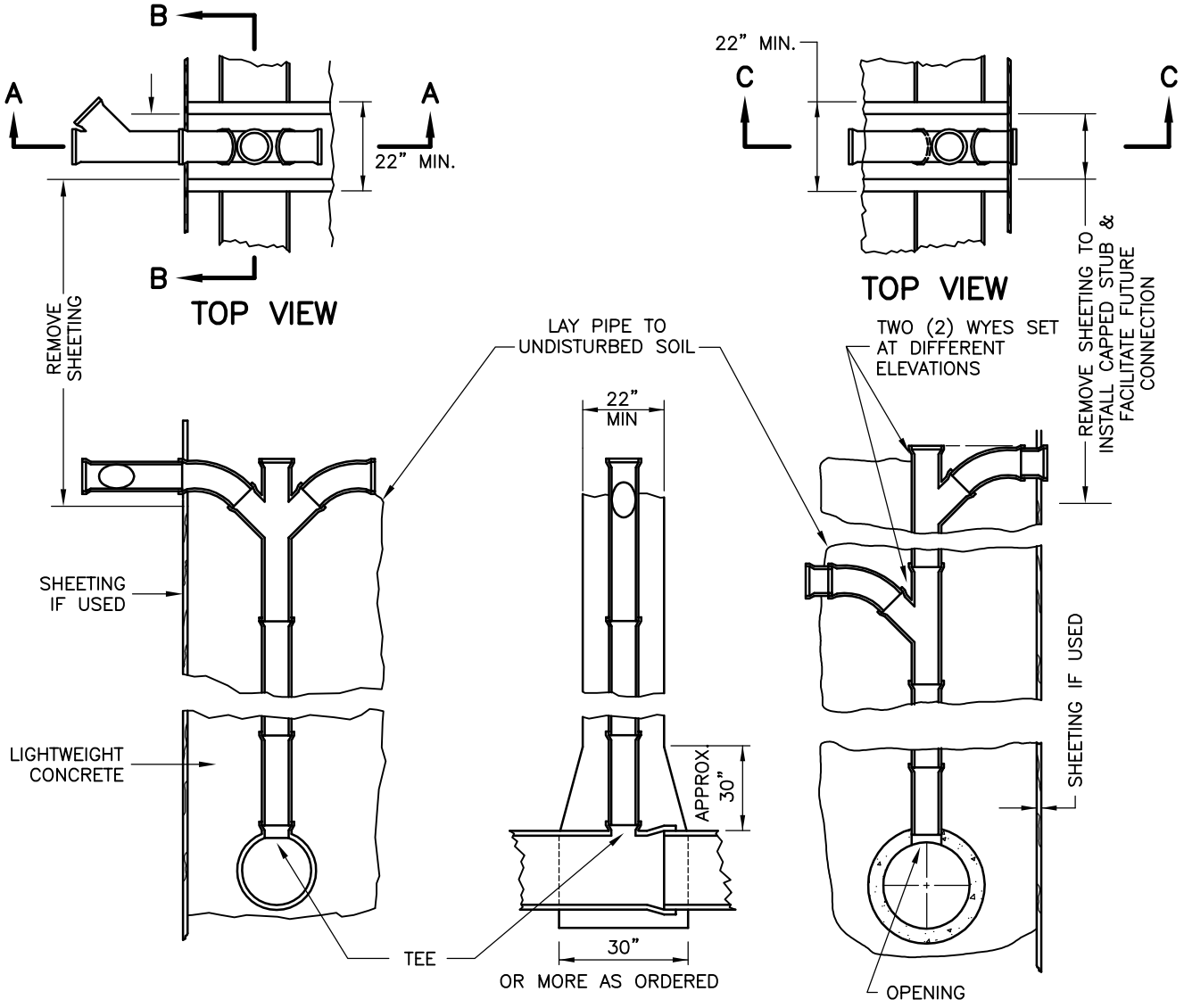
NOTE:

1. REFER TO SEWER TRENCH DETAIL FOR BACKFILL AND SURFACE RESTORATION REQUIREMENTS.

SEWER SERVICE PRECAST CONCRETE CHIMNEY

DETAIL S 12

NTS



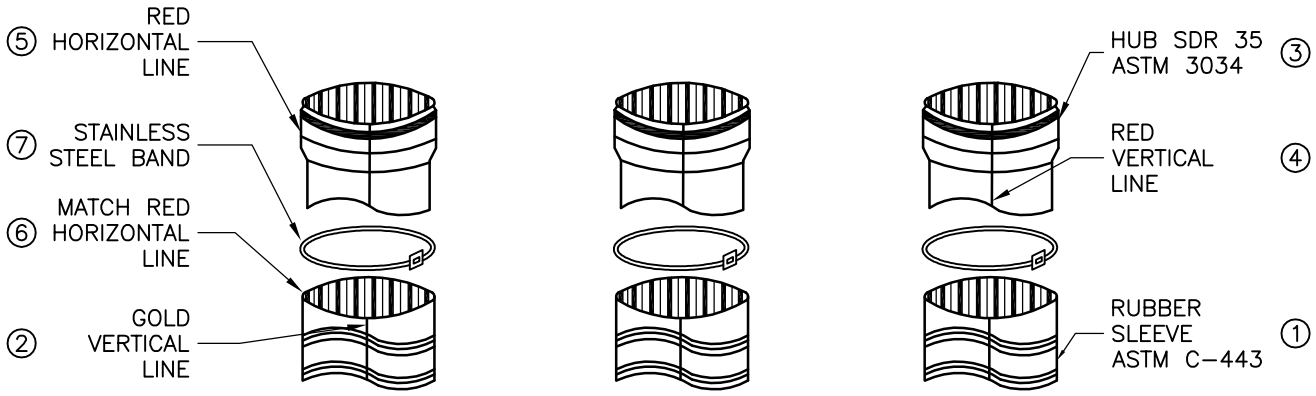
NOTES:

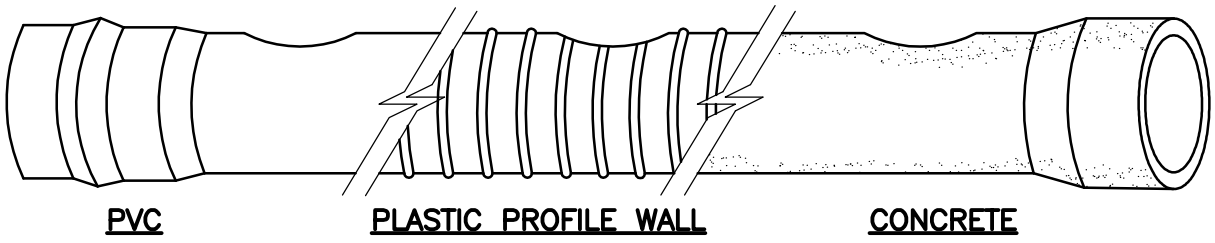
1. WHERE SHEETING IS NOT USED CONCRETE FULL WIDTH OF TRENCH TO SOLID GROUND. WHERE SO ORDERED OR INDICATED SET WYE HORIZONTALLY TO SERVE TWO CONNECTIONS.
2. ALL OPENINGS AT TOP OF CHIMNEYS TO BE CAPPED AT TIME OF CONSTRUCTION.
3. TO BE USED WHEN PRECAST CONCRETE CHIMNEYS ARE NOT APPLICABLE OR AS DIRECTED BY ENGINEER.

SEWER SERVICE CHIMNEY CONNECTION

DETAIL S 13

NTS





TEE SIZE	4"	6"	8"	10"	12"	15"
BIT SIZE	4–½"	6–½"	8–¾"	10–⅞"	12–⅞"	15–13⁄16"

INSTALLATION PROCEDURE:

① CORE THE PROPER SIZED HOLE.

② INSERT THE RUBBER SLEEVE IN THE CORED HOLE WITH THE GOLD VERTICAL LINE ON THE RUBBER SLEEVE FACING THE SIDE OF THE MAIN LINE. THE UPPER SEGMENT SHOULD BE ON TOP OF THE WALL/RIB AND THE LOWER SEGMENT SHOULD BE ON THE INSIDE OF THE PIPE (PLASTIC PIPE ONLY).

③ APPLY THE MANUFACTURER SPECIFIED TEE INSERT SOLUTION TO THE INSIDE OF THE RUBBER SLEEVE AND TO THE OUTSIDE OF THE PVC HUB ADAPTER. DO NOT USE AN OIL–BASED LUBRICANT.

④ PLACE THE PVC HUB ADAPTER INTO THE RUBBER SLEEVE. MAKE SURE THAT THE RED VERTICAL LINE ON THE PVC HUB ADAPTER IS IN LINE WITH THE GOLD VERTICAL LINE ON THE RUBBER SLEEVE.

⑤ PLACE A 2"x4" BOARD ONTO THE TOP OF THE PVC HUB ADAPTOR.

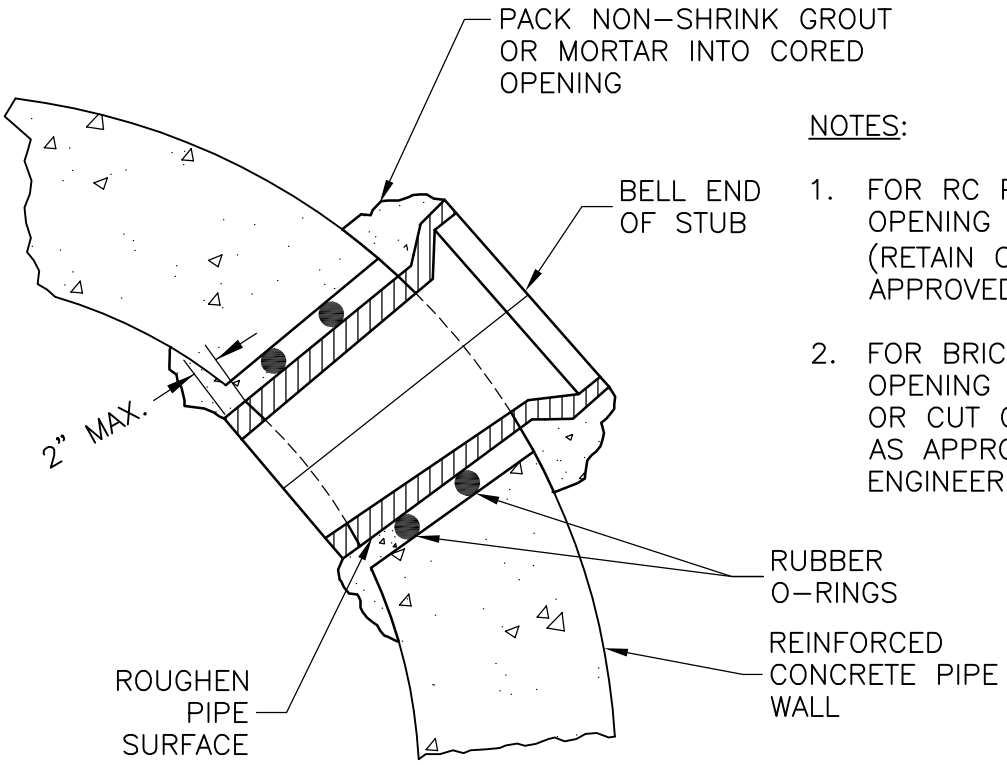
⑥ THE RED HORIZONTAL LINE AT THE TOP OF THE HUB ADAPTER IS A DEPTH MARK TO INDICATE HOW FAR TO DRIVE THE ADAPTER INTO THE RUBBER SLEEVE. DRIVE THE PVC HUB ADAPTER INTO THE RUBBER SLEEVE TO WHERE THE HORIZONTAL RED LINE ON THE PVC HUB ADAPTER MEETS THE TOP OF THE RUBBER SLEEVE.

⑦ PLACE THE STAINLESS STEEL BAND AROUND THE TOP OF THE RUBBER SLEEVE AND TIGHTEN DOWN. INSTALL PIPE IN NORMAL MANNER.

TEE INSERT CONNECTIONS

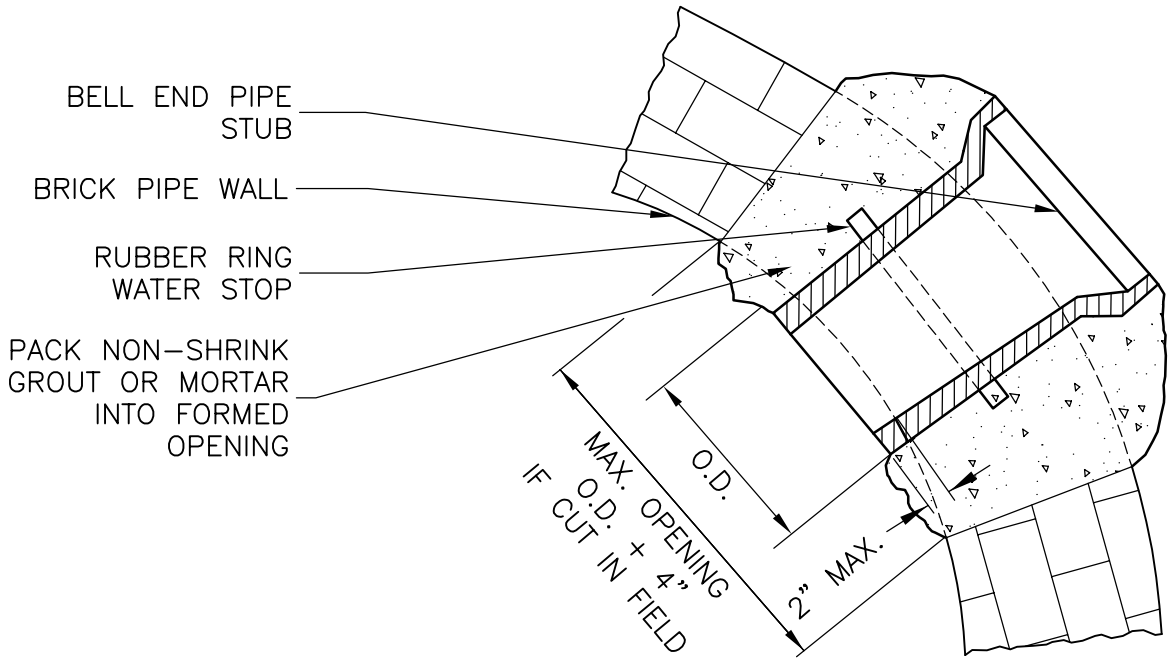
DETAIL S 14

NTS



NOTES:

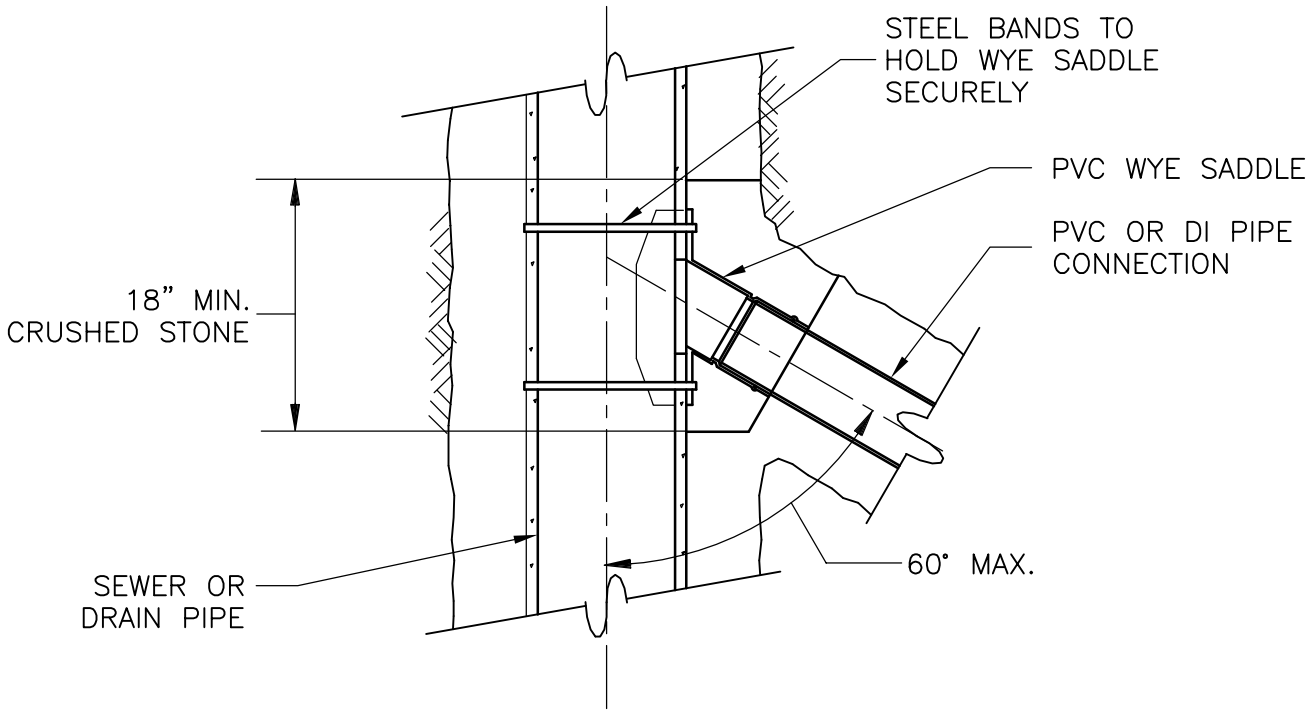
1. FOR RC PIPE, FORM OPENING USING CORE DRILL (RETAIN CORE) OR OTHER APPROVED METHOD.
2. FOR BRICK PIPE, FORM OPENING USING CORE DRILL OR CUT OPENING IN FIELD AS APPROVED BY THE ENGINEER.



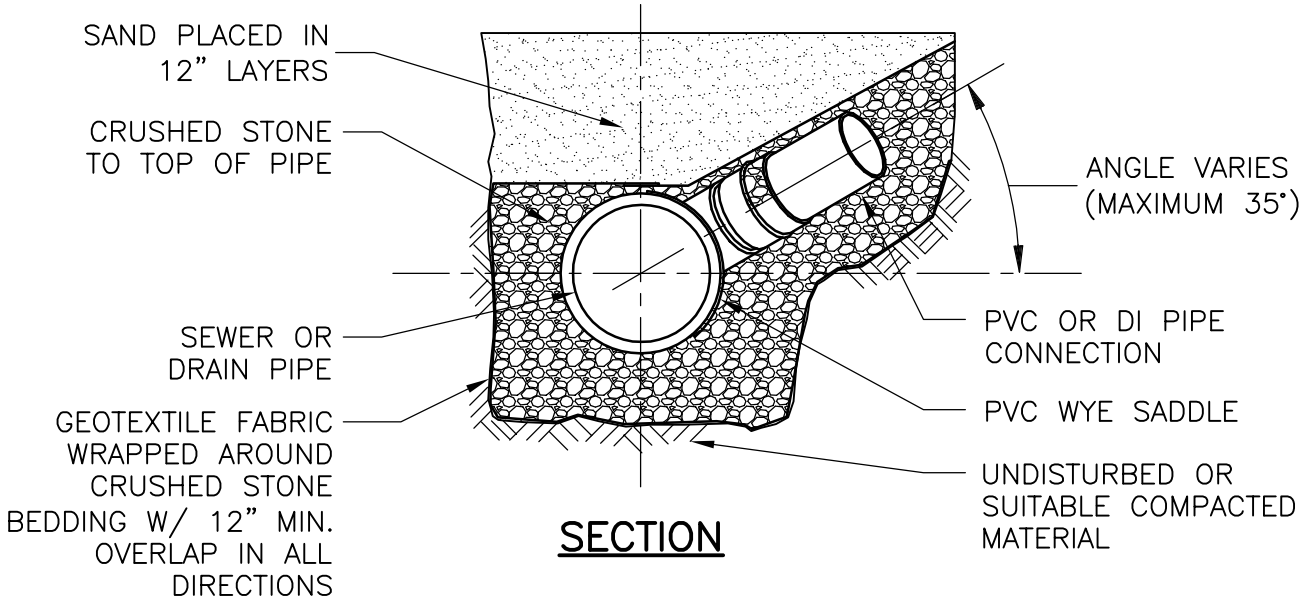
STUB CONNECTION IN PIPE

DETAIL S 15

NTS



PLAN

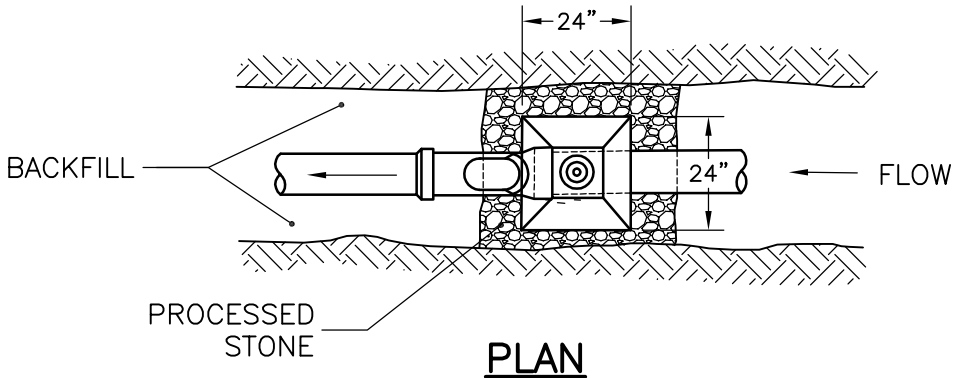


SECTION

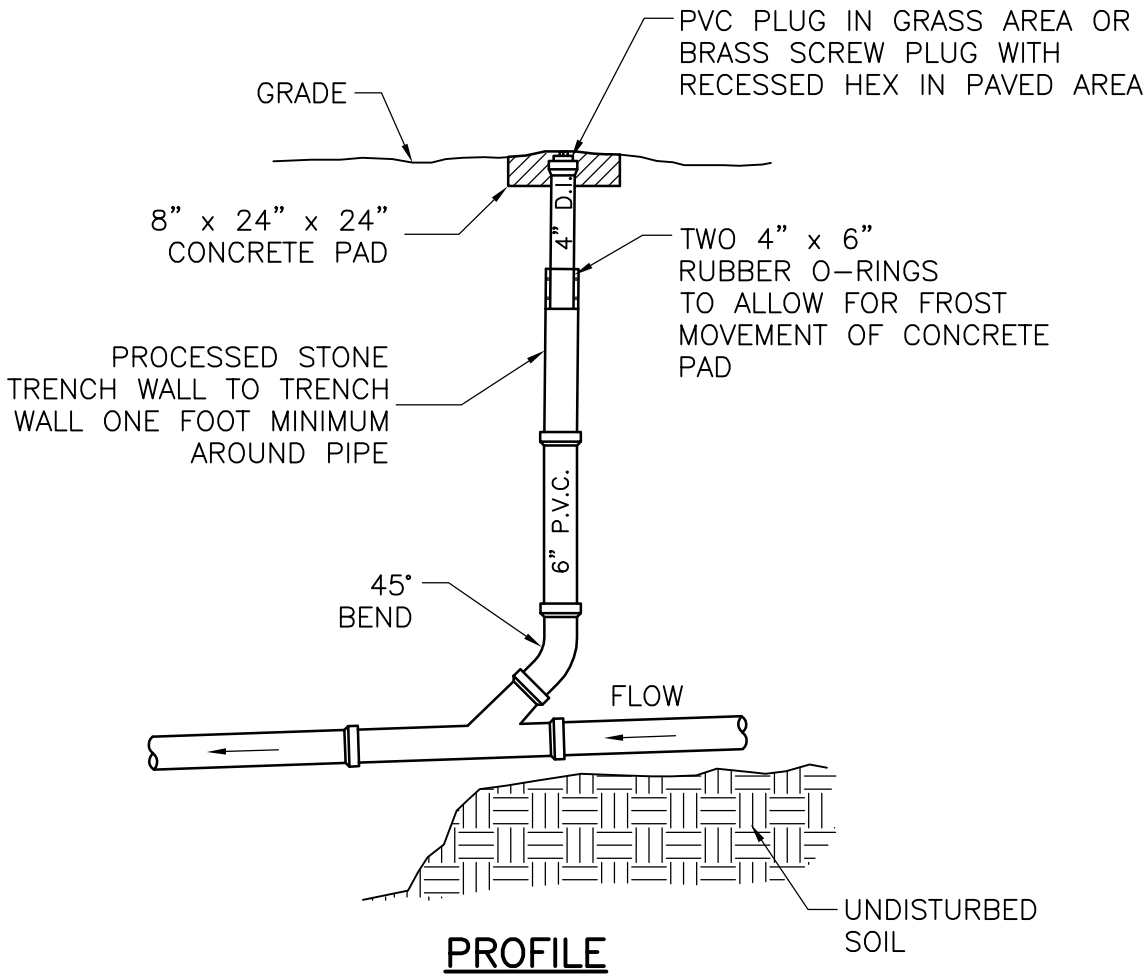
WYE SADDLE CONNECTION TO EXISTING PIPE

DETAIL S 16

NTS



PLAN

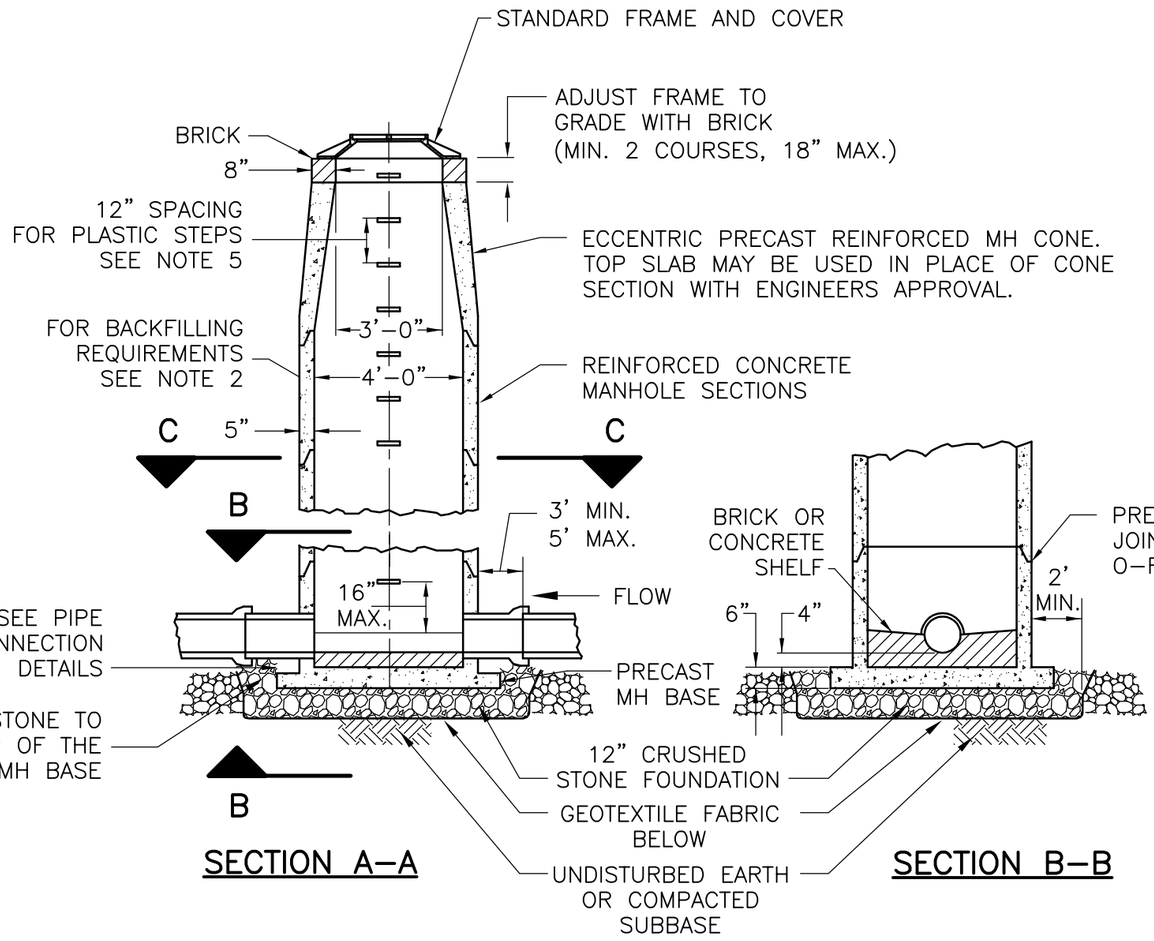


PROFILE

CLEANOUT AT GRADE

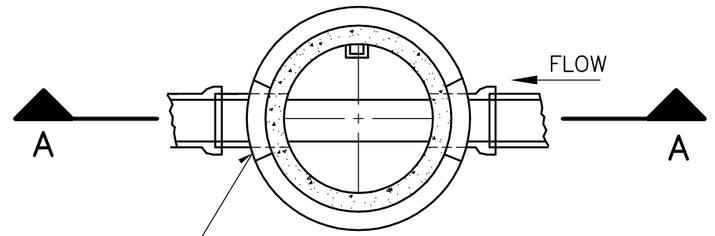
DETAIL S 17

NTS



SECTION A–A

SECTION B–B



SECTION C–C

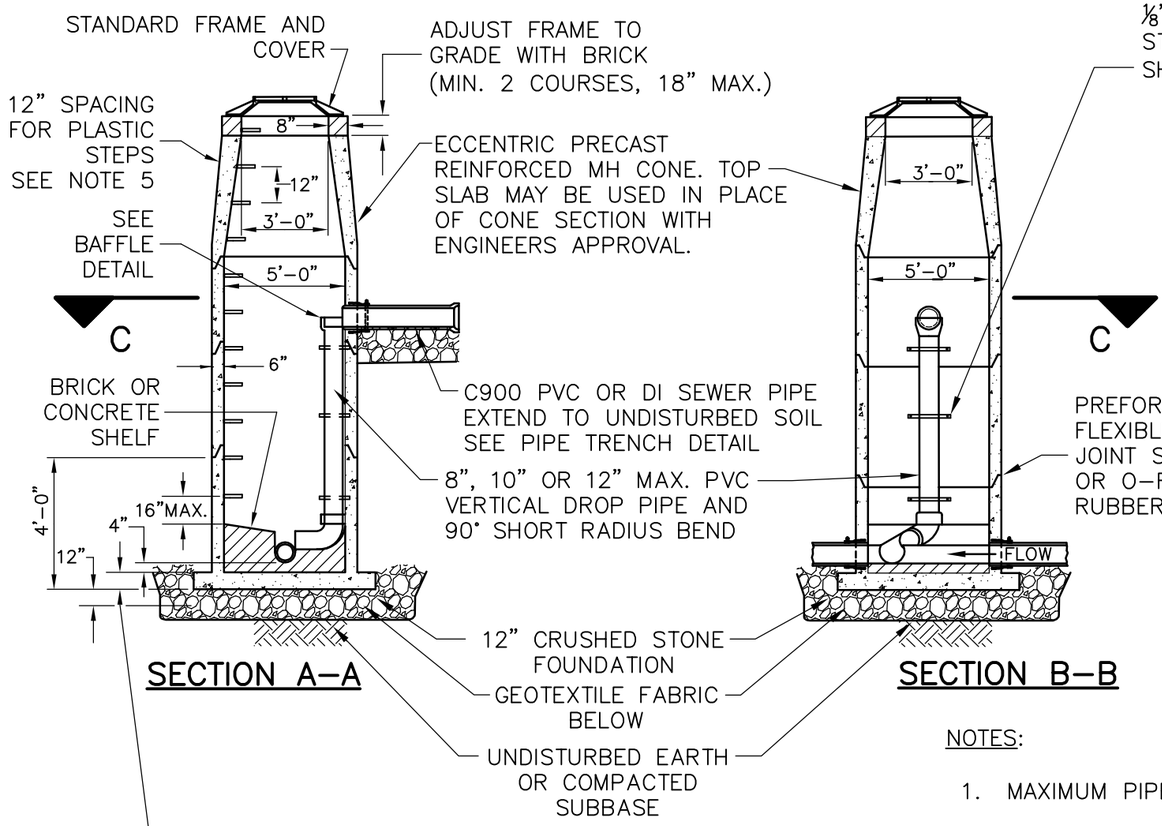
NOTES:

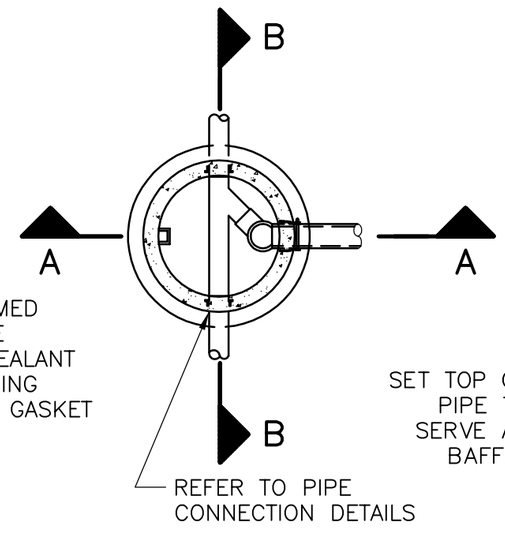
1. MAXIMUM PIPE SIZE TO BE INSTALLED IN 48" MANHOLE BASE SHALL BE 18".
2. REFER TO SEWER TRENCH DETAIL FOR BACKFILLING AND COMPACTION REQUIREMENTS AROUND SEWER MANHOLES.
3. INVERT THROUGH THE MANHOLE SHALL HAVE A UNIFORM GRADE OF MINIMUM 0.10 FEET BETWEEN THE INVERTS OF THE INLET AND OUTLET PIPES. INVERTS SHALL BE FIELD FORMED AND NOT FORMED IN SHOP/YARD.
4. MAXIMUM DIFFERENCE IN ELEVATION BETWEEN THE INVERT OF THE TRIBUTARY INLET AND THE MANHOLE INVERT SHALL BE 18 INCHES. ELEVATION DIFFERENCES GREATER THAN 18 INCHES WILL REQUIRE A DROP CONNECTION.
5. DISTANCE FROM TOP OF MANHOLE COVER TO FIRST PLASTIC STEP SHALL BE BETWEEN 12" AND 16".

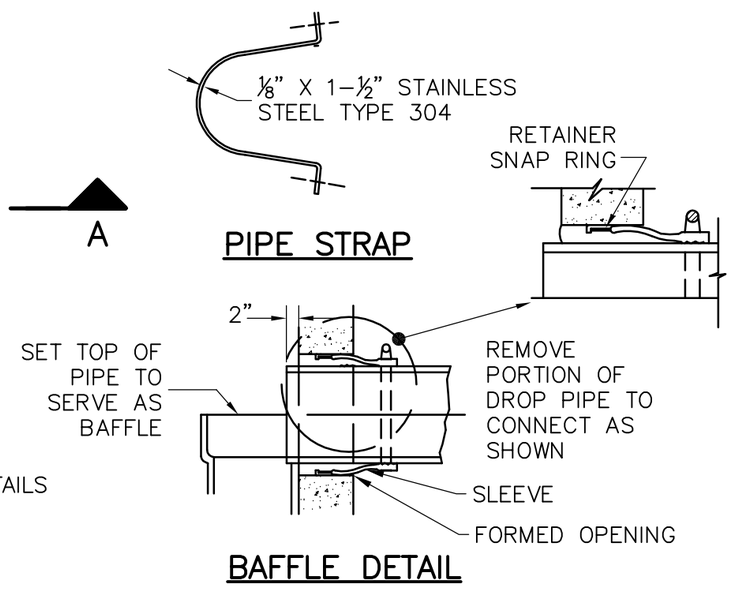
TYPE II PRECAST CONCRETE MANHOLE

DETAIL S 18

NTS





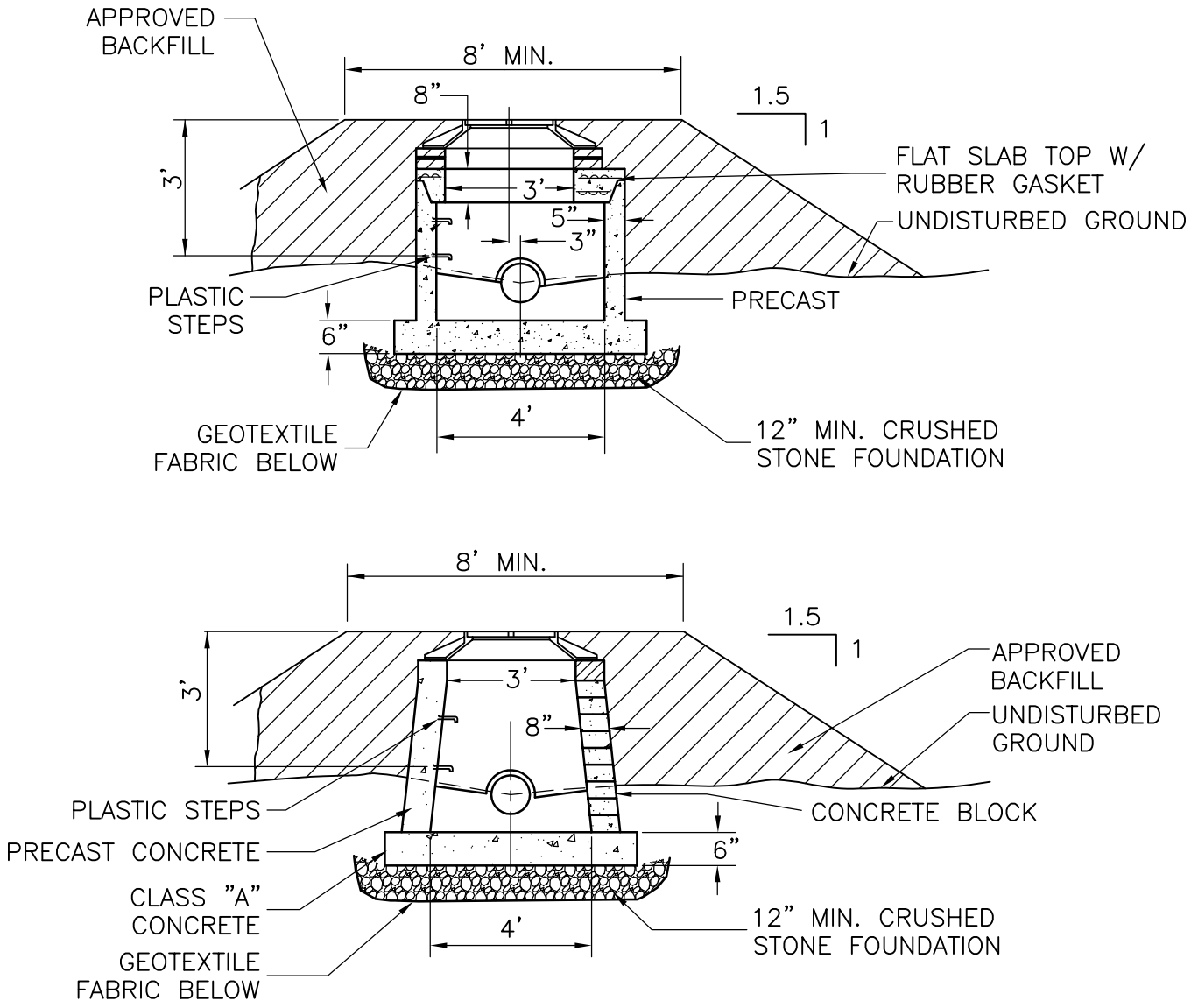


NOTES:

1. MAXIMUM PIPE SIZE TO BE INSTALLED IN 60" PRECAST MANHOLE BASE SHALL BE 24".
2. REFER TO SEWER TRENCH DETAIL FOR BACKFILLING AND COMPACTION REQUIREMENTS AROUND SEWER MANHOLES.
3. INVERT THROUGH THE MANHOLE SHALL HAVE A UNIFORM GRADE OF MINIMUM 0.10 FEET BETWEEN THE INVERTS OF THE INLET AND OUTLET PIPES. INVERTS SHALL BE FIELD FORMED AND NOT FORMED IN SHOP/YARD.
4. MAXIMUM DIFFERENCE IN ELEVATION BETWEEN THE INVERT OF THE TRIBUTARY INLET AND THE MANHOLE INVERT SHALL BE 18 INCHES. ELEVATION DIFFERENCES GREATER THAN 18 INCHES WILL REQUIRE A DROP CONNECTION.
5. DISTANCE FROM TOP OF MANHOLE COVER TO FIRST PLASTIC STEP SHALL BE BETWEEN 12" AND 16".

TYPE IV PRECAST CONCRETE DROP MANHOLE

DETAIL S
NTS 19



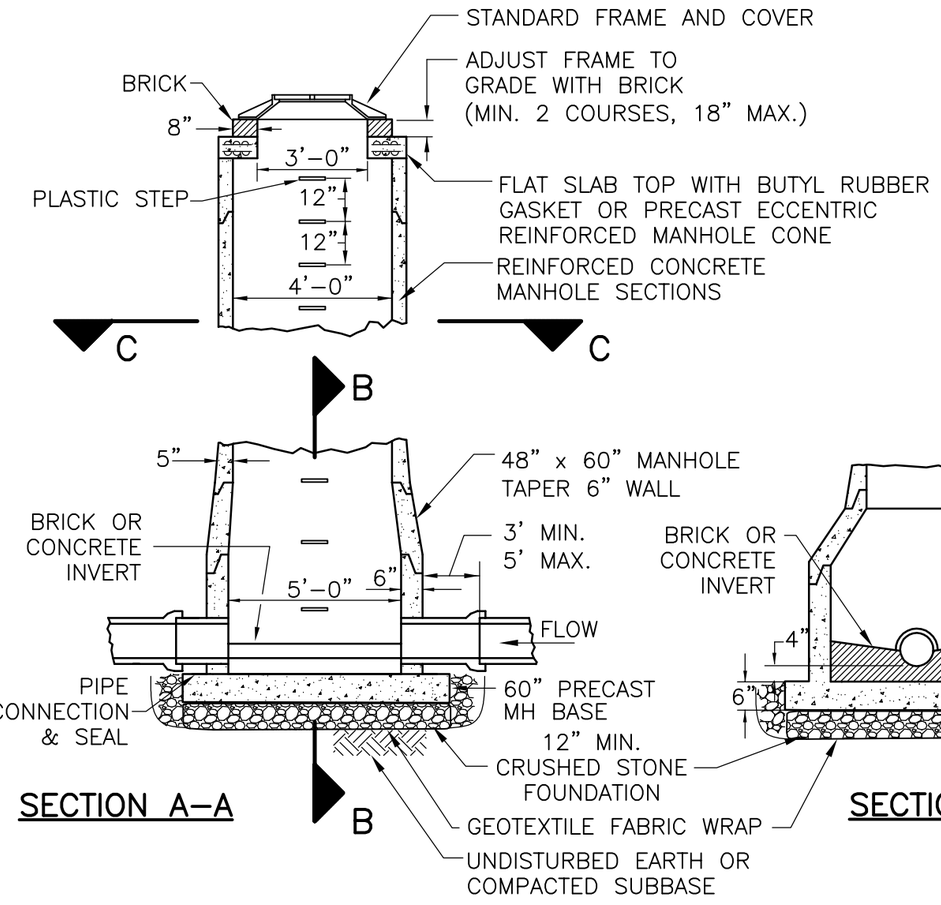
NOTES:

1. STANDARD FRAME AND COVER UNLESS OTHERWISE SPECIFIED.
2. MANHOLE SHELF TO BE CONCRETE OR BRICK MASONRY. OUTSIDE OF BLOCK MH TO BE PARGED WITH ¼" MORTAR. ADJUST FRAME TO GRADE WITH BRICK (MIN. 2 COURSES, 18" MAX.).

TYPE V SHALLOW MANHOLE WITH OR WITHOUT EMBANKMENT

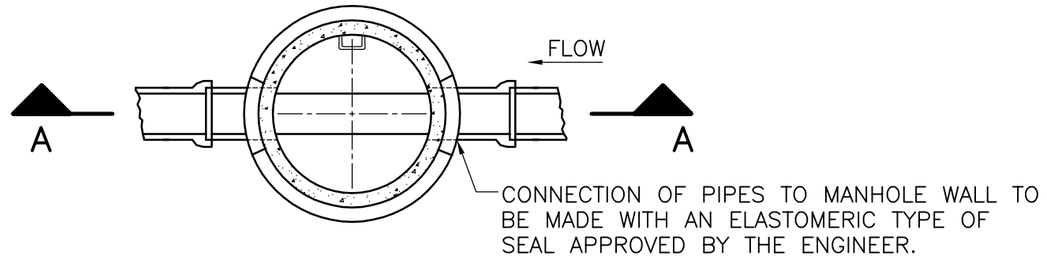
DETAIL S 20

NTS



NOTES:

1. MAXIMUM PIPE SIZE TO BE INSTALLED IN 60" PRECAST MANHOLE BASE SHALL BE 24".
2. REFER TO SEWER TRENCH DETAIL FOR BACKFILLING AND COMPACTION REQUIREMENTS AROUND SEWER MANHOLES.
3. INVERT THROUGH THE MANHOLE SHALL HAVE A UNIFORM GRADE OF MINIMUM 0.10 FEET BETWEEN THE INVERTS OF THE INLET AND OUTLET PIPES. INVERTS SHALL BE FIELD FORMED AND NOT FORMED IN SHOP/YARD.
4. MAXIMUM DIFFERENCE IN ELEVATION BETWEEN THE INVERT OF THE TRIBUTARY INLET AND THE MANHOLE INVERT SHALL BE 18 INCHES. ELEVATION DIFFERENCES GREATER THAN 18 INCHES WILL REQUIRE A DROP CONNECTION.
5. DISTANCE FROM TOP OF MANHOLE COVER TO FIRST PLASTIC STEP SHALL BE BETWEEN 12" AND 16".

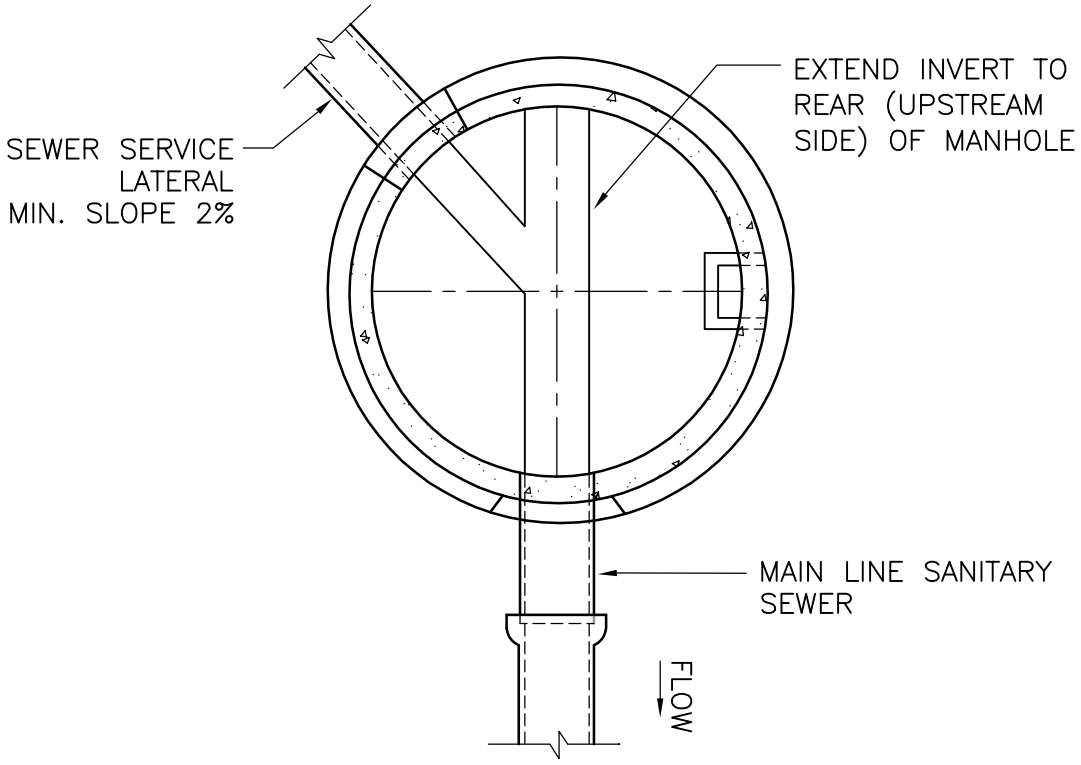


SECTION C–C

TYPE VI PRECAST CONCRETE MANHOLE

DETAIL S 21

NTS



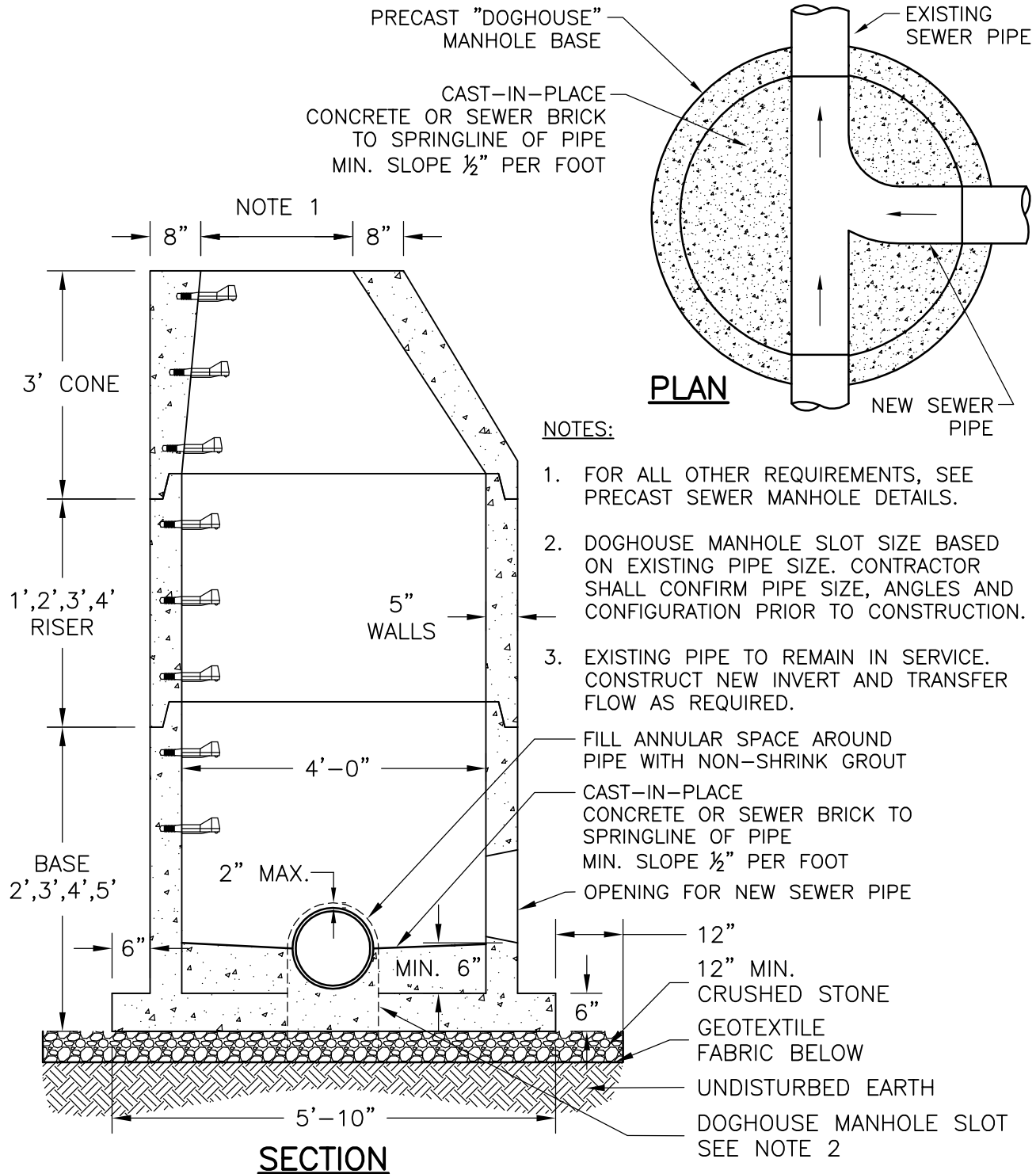
NOTE:

1. CONNECTION OF SEWER SERVICE LATERAL TO MANHOLE SHALL BE MADE WITH AN ELASTOMERIC TYPE OF SEAL.

END MANHOLE

DETAIL S 22

NTS



NOTES:

1. FOR ALL OTHER REQUIREMENTS, SEE PRECAST SEWER MANHOLE DETAILS.
2. DOGHOUSE MANHOLE SLOT SIZE BASED ON EXISTING PIPE SIZE. CONTRACTOR SHALL CONFIRM PIPE SIZE, ANGLES AND CONFIGURATION PRIOR TO CONSTRUCTION.
3. EXISTING PIPE TO REMAIN IN SERVICE. CONSTRUCT NEW INVERT AND TRANSFER FLOW AS REQUIRED.

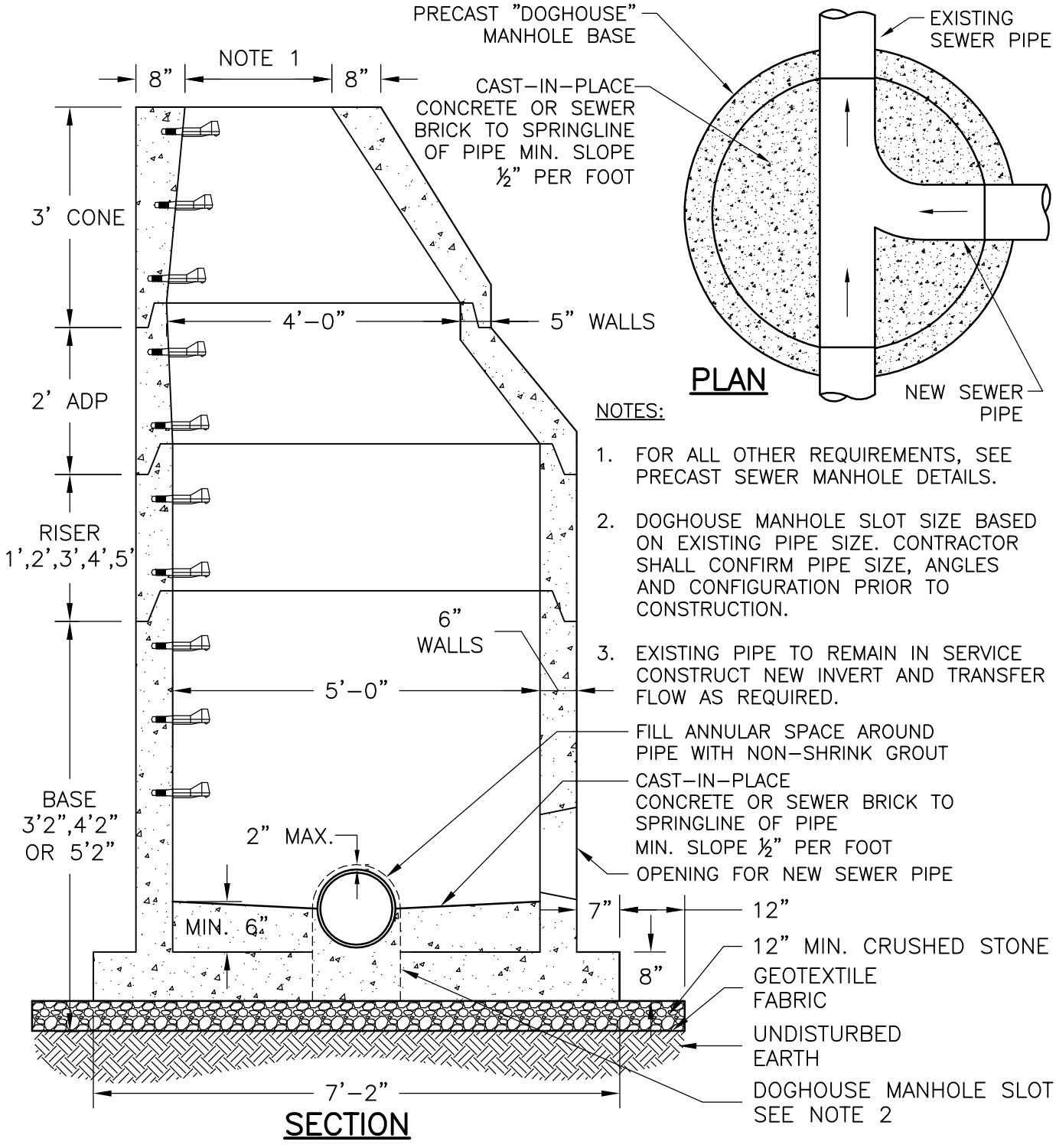
PRECAST DOGHOUSE MANHOLE (48–INCH ø EXTENDED BASE)

DETAIL S 23

NTS

THE METROPOLITAN DISTRICT

SEWER STANDARD DETAILS



NOTES:

1. FOR ALL OTHER REQUIREMENTS, SEE PRECAST SEWER MANHOLE DETAILS.
2. DOGHOUSE MANHOLE SLOT SIZE BASED ON EXISTING PIPE SIZE. CONTRACTOR SHALL CONFIRM PIPE SIZE, ANGLES AND CONFIGURATION PRIOR TO CONSTRUCTION.
3. EXISTING PIPE TO REMAIN IN SERVICE CONSTRUCT NEW INVERT AND TRANSFER FLOW AS REQUIRED.

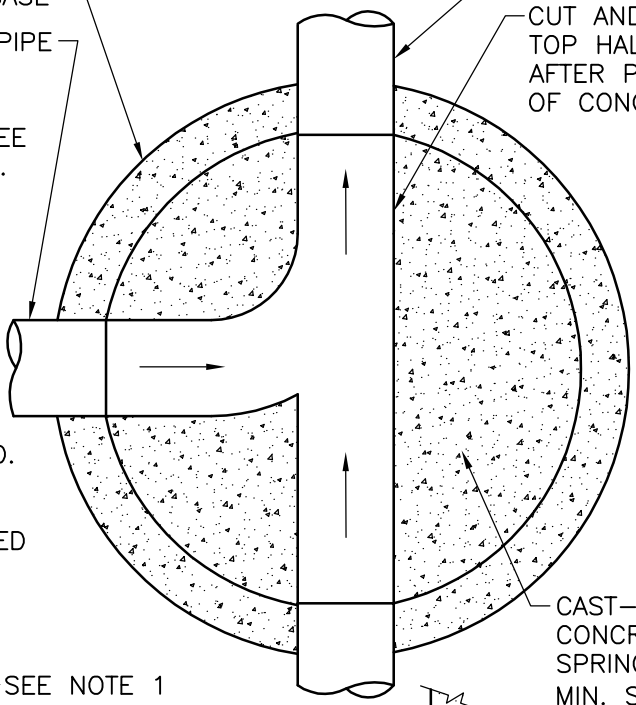
PRECAST DOGHOUSE MANHOLE (60-INCH ø EXTENDED BASE)

DETAIL S 24

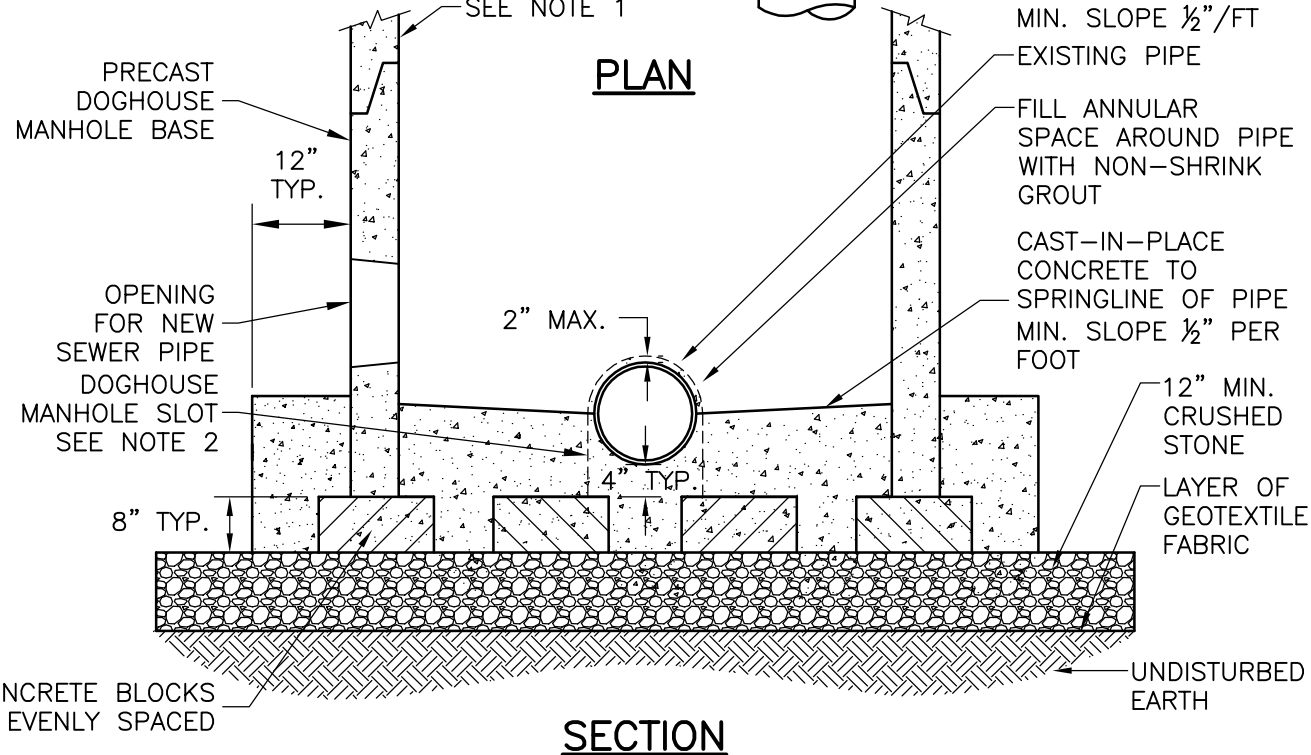
NTS

NOTES:

1. FOR ALL OTHER REQUIREMENTS, SEE PRECAST SEWER MANHOLE DETAILS.
2. DOGHOUSE MANHOLE SLOT SIZE BASED ON EXISTING PIPE SIZE. CONTRACTOR SHALL CONFIRM PIPE SIZE, ANGLES AND CONFIGURATION PRIOR TO CONSTRUCTION.
3. EXISTING PIPE TO REMAIN IN SERVICE. CONSTRUCT NEW INVERT AND TRANSFER FLOW AS REQUIRED.
4. CAST–IN–PLACE DOGHOUSE MANHOLE BASE SHALL BE INSTALLED ONLY WHEN AUTHORIZED BY ENGINEER.



PLAN

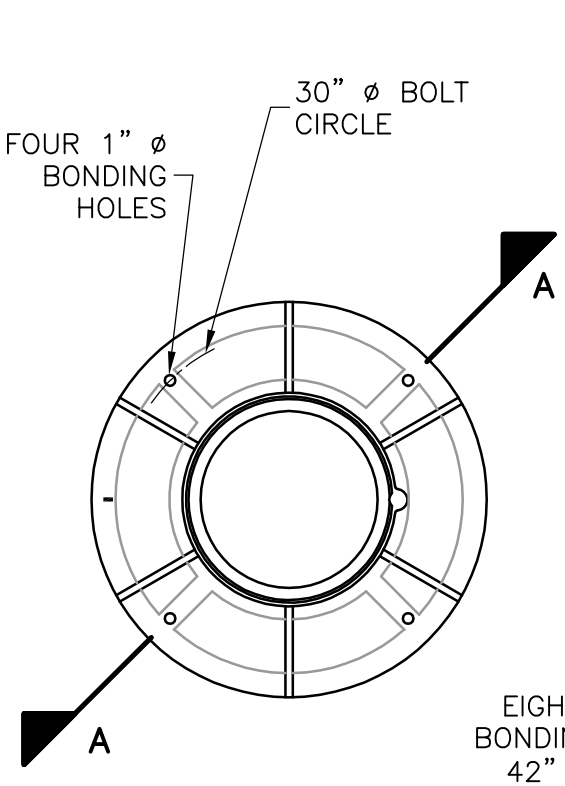


SECTION

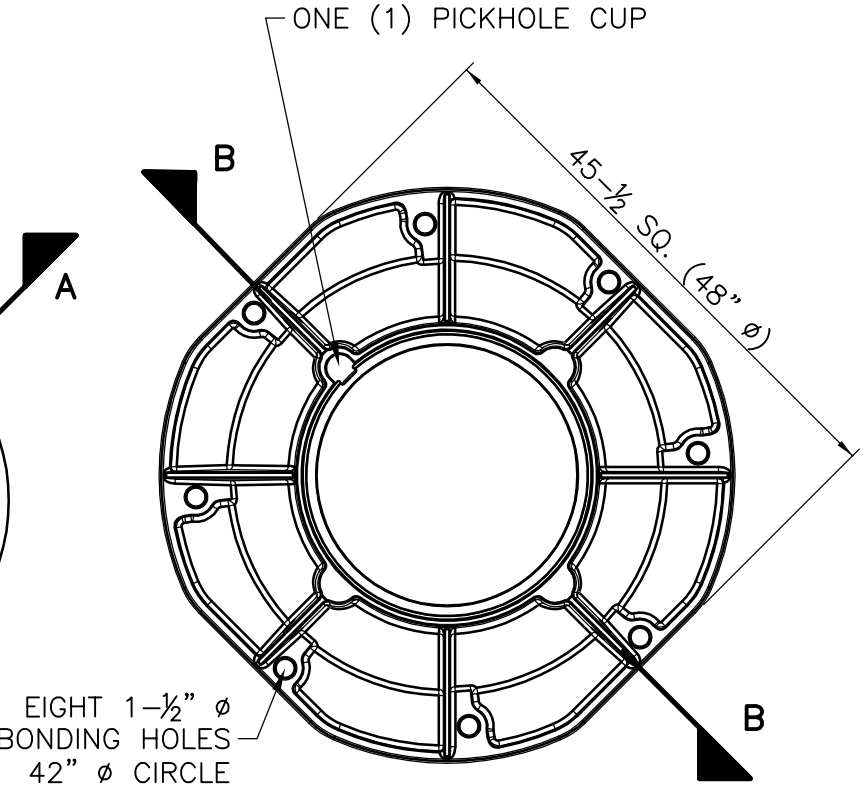
DOGHOUSE MANHOLE WITH CAST–IN–PLACE BASE

DETAIL S 25

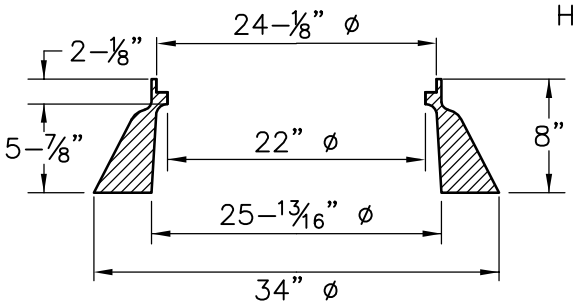
NTS



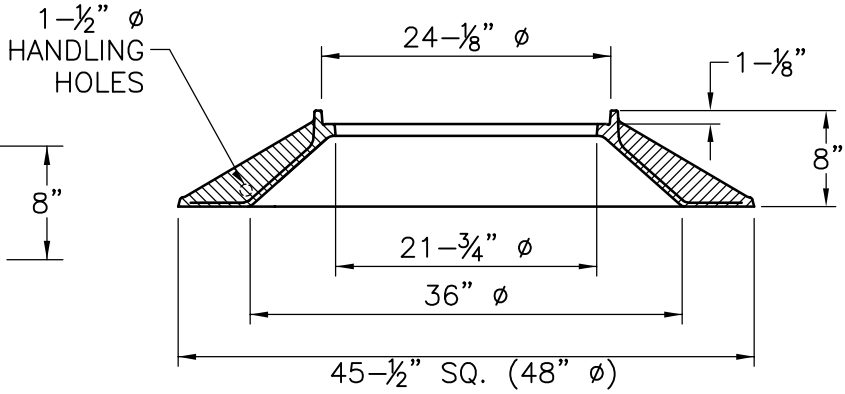
STANDARD FRAME FOR EXISTING MANHOLES



STANDARD FRAME FOR NEW MANHOLES



SECTION A–A

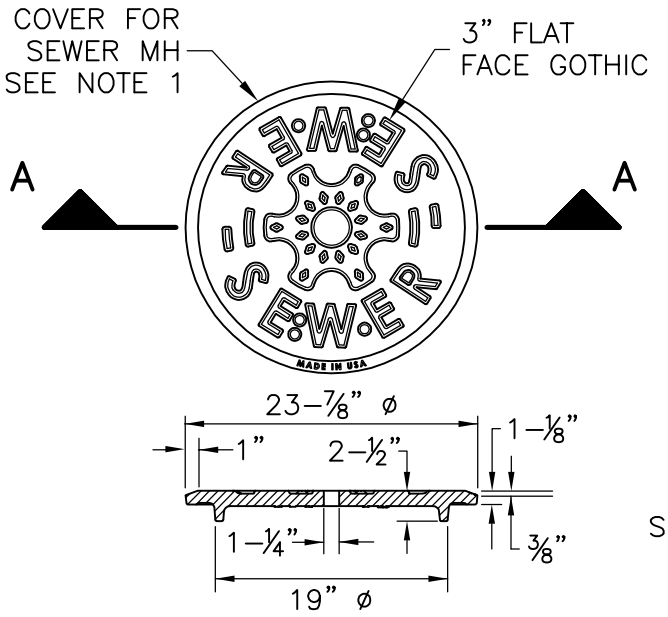


SECTION B–B

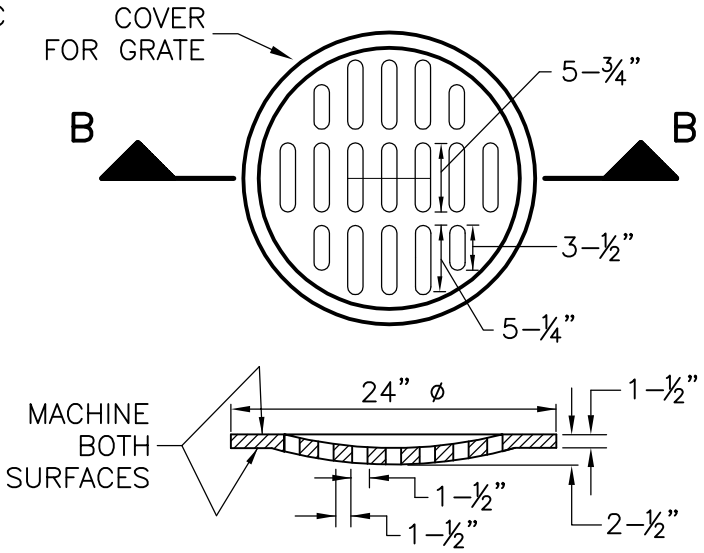
STANDARD MANHOLE FRAMES

DETAIL S 26

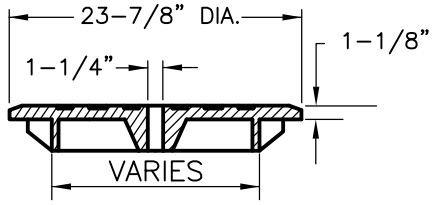
NTS



SECTION A–A
(PLATEN COVER)



SECTION B–B



SECTION A–A
(RIBBED COVER)

NOTES:

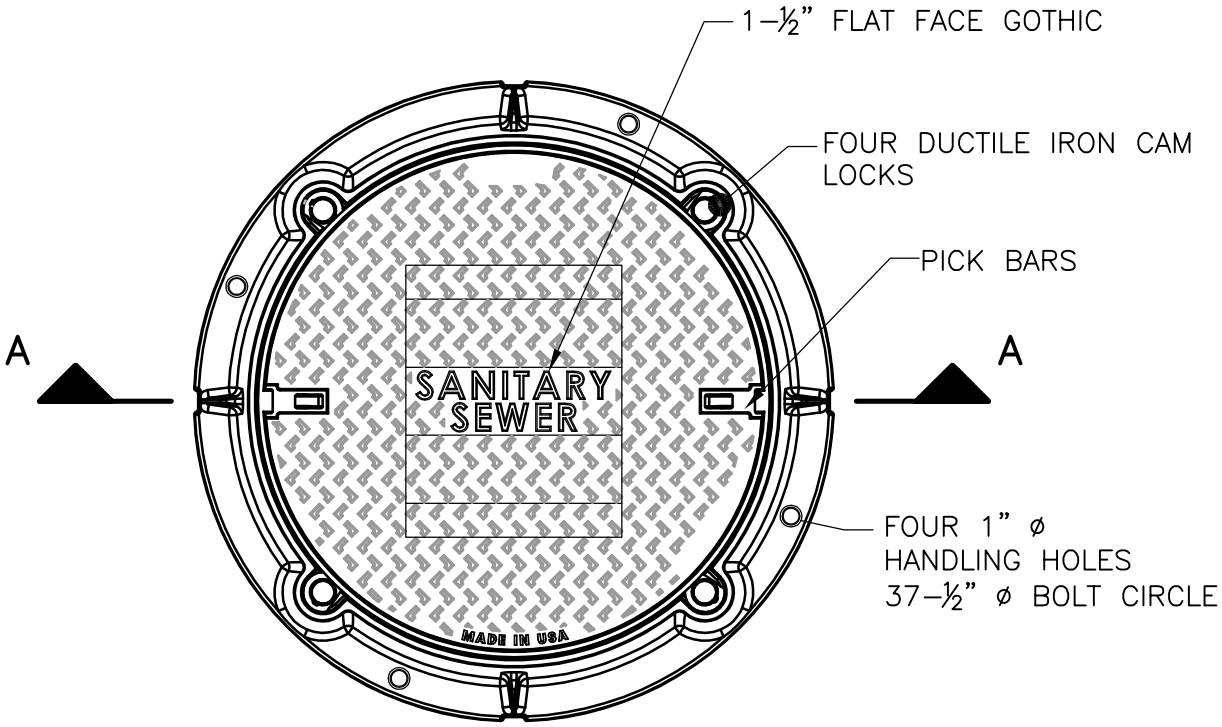
1. MANHOLES COVERS MAY BE DESIGN WITH OR WITHOUT RIBS. THE TOP SURFACE OF THE MANHOLE COVER SHALL BE FLAT. THE BOTTOM SURFACE MAY OR MAY NOT BE FLAT.

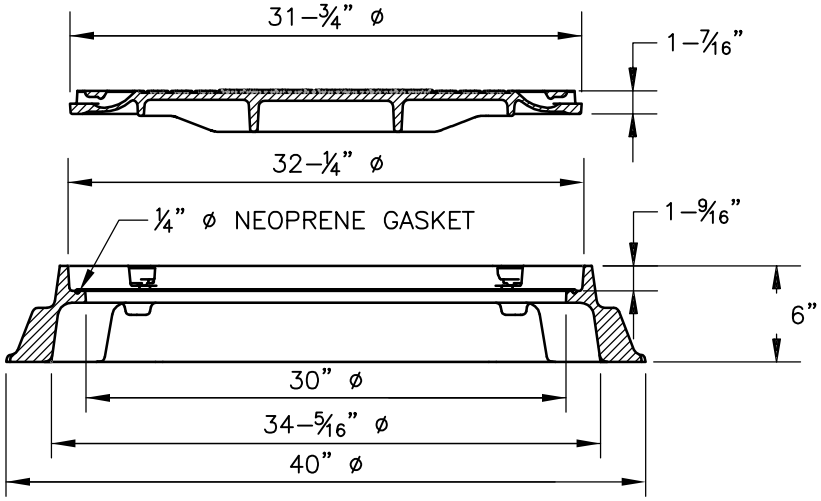
2. PROVIDE ALTERNATIVE INSCRIPTION 'STORM DRAIN' WHEN SPECIFIED.

3. THE LOWER SURFACE OF THE COVER AND THE CORRESPONDING UPPER SURFACE OF THE FRAME SHALL BE MACHINE FINISHED TO PROVIDE A SMOOTH FLAT CONTACT OR FIT WITHOUT ANY TENDENCY FOR THE COVER OR GRATE TO ROCK OR RATTLE. THE GAP BETWEEN THE COVER/GRATE AND FRAME SHALL BE NO MORE THAN ⅛" ALL AROUND.

STANDARD MANHOLE COVERS

DETAIL S
NTS 27



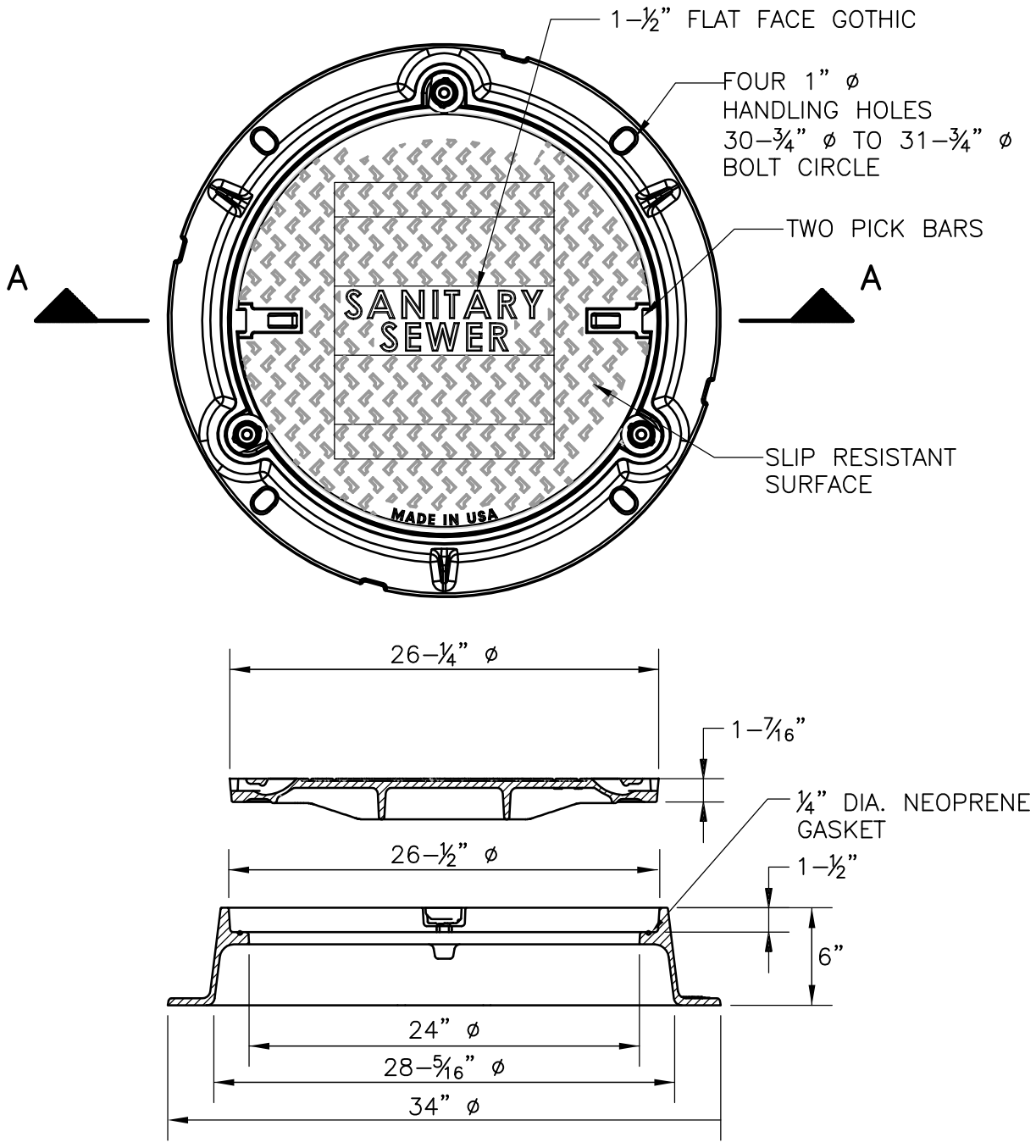


SECTION A–A

STANDARD 32–INCH WATERTIGHT MANHOLE FRAME AND COVER

DETAIL S 28

NTS

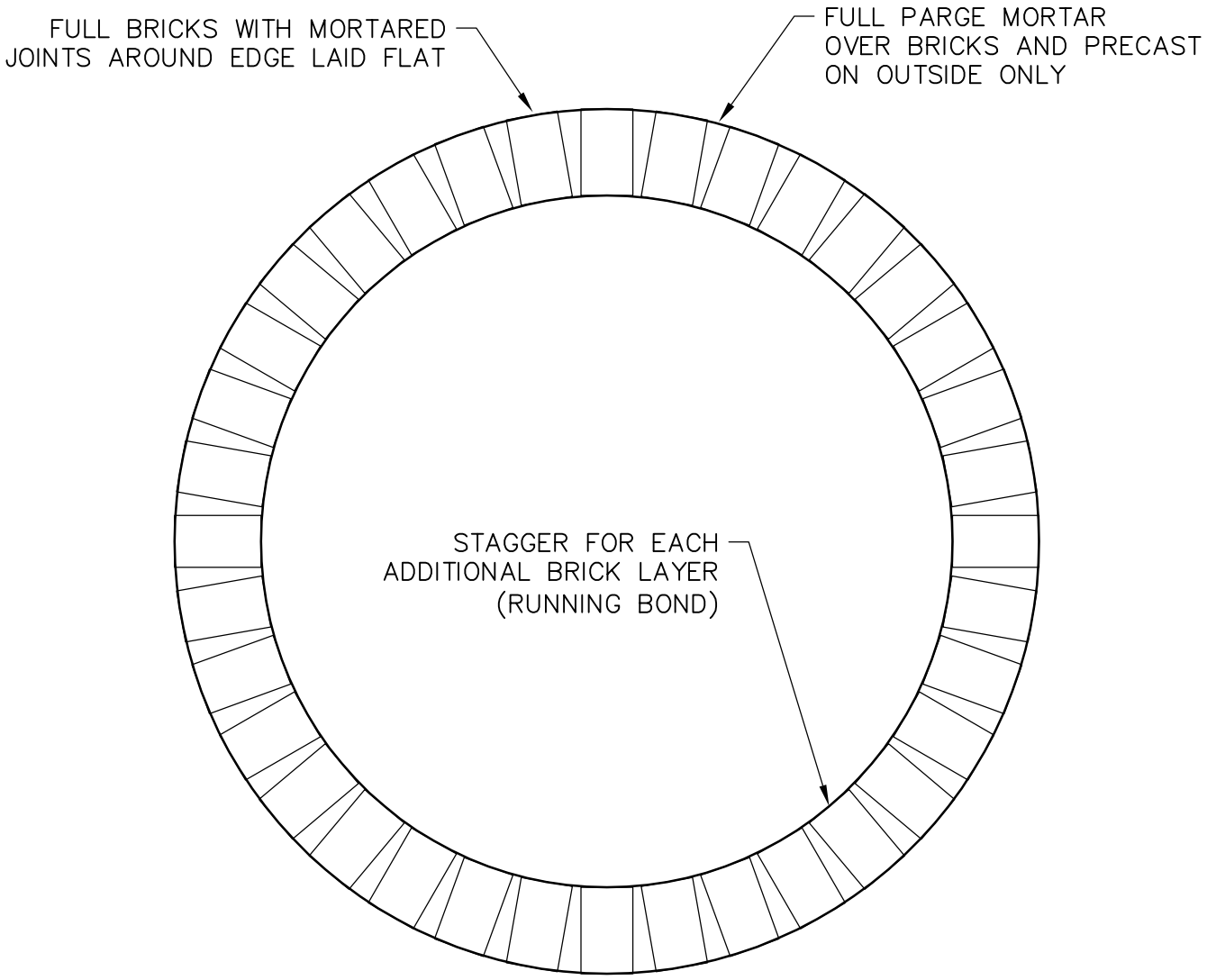


SECTION A–A

STANDARD 26–INCH WATERTIGHT MANHOLE FRAME AND COVER

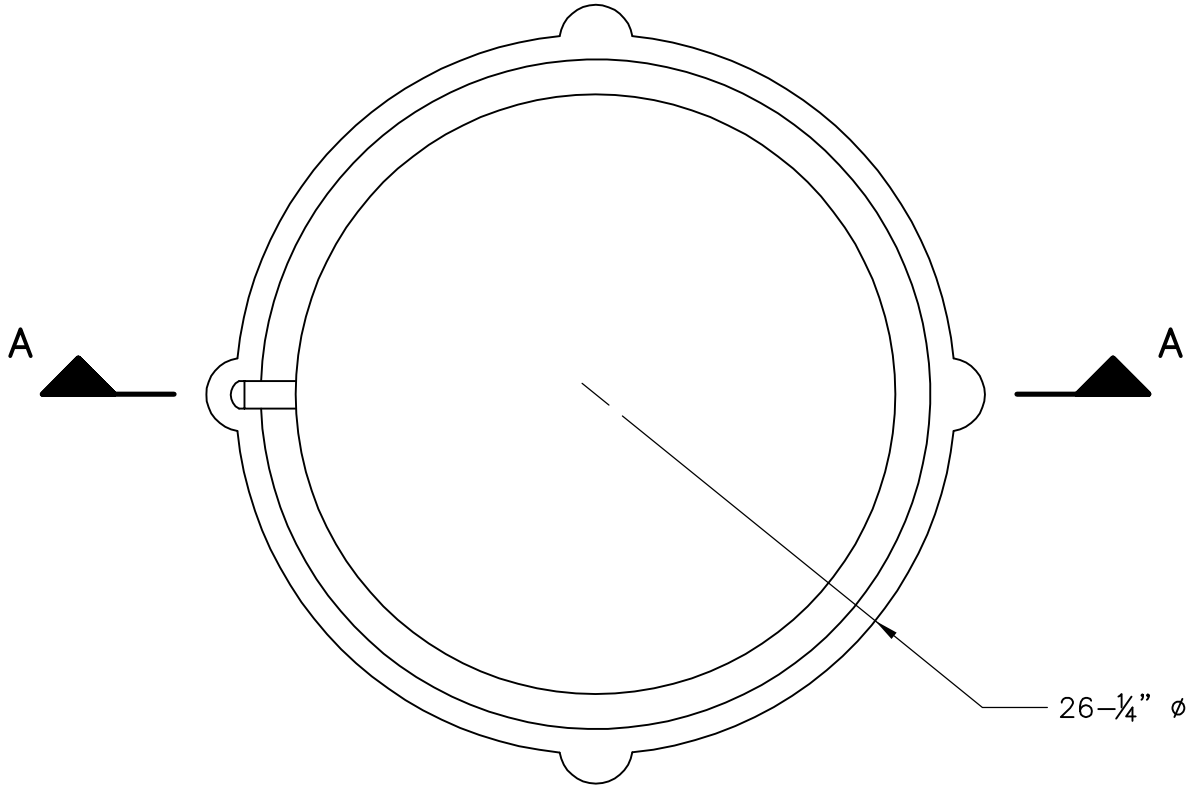
DETAIL S 29

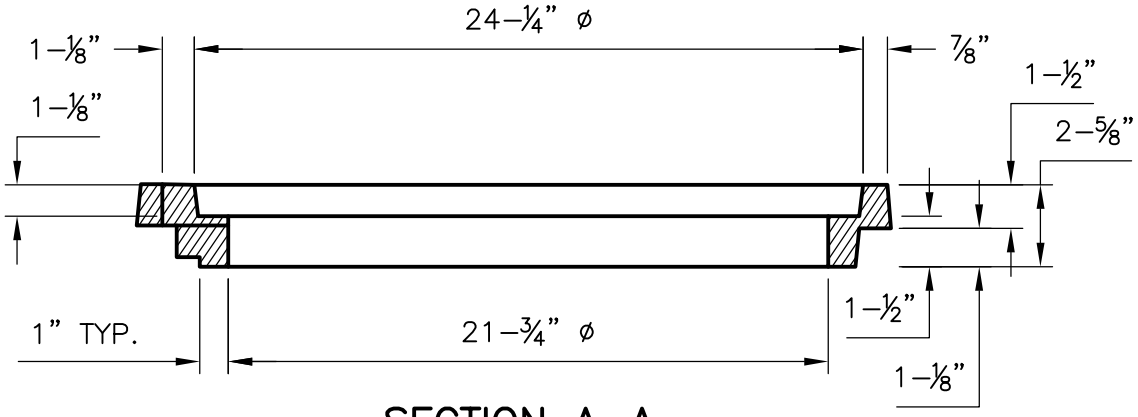
NTS



BRICK LEVELING COURSE FOR NEW MANHOLES

DETAIL S
NTS 30

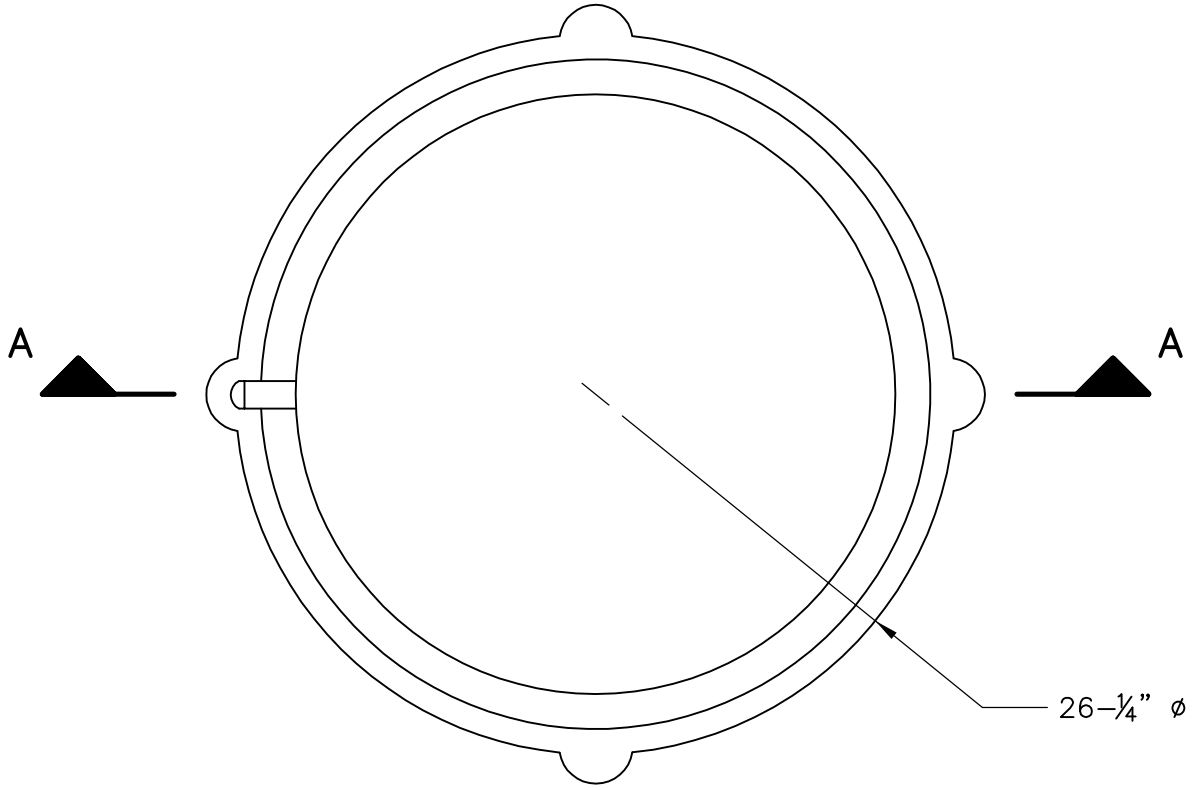


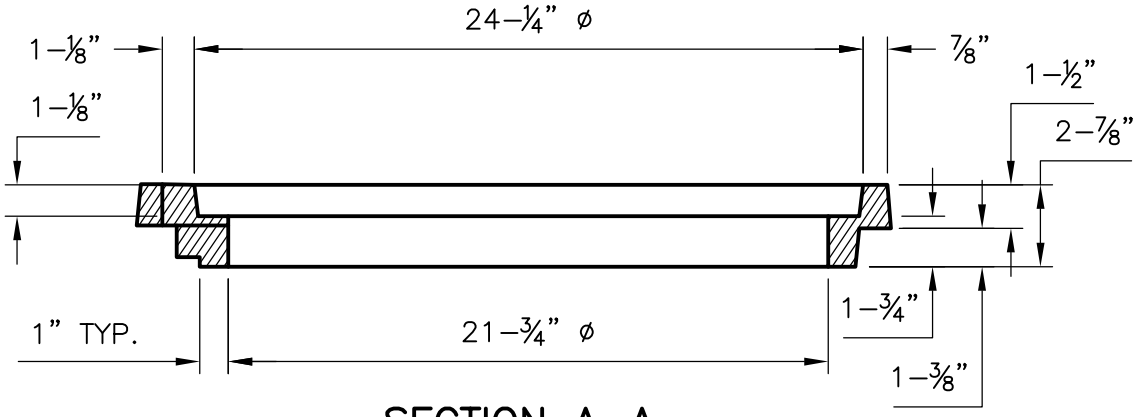


SECTION A–A

EXTENSION RING FOR SEWER MANHOLES (1–1/2 INCH)

DETAIL S
NTS 31



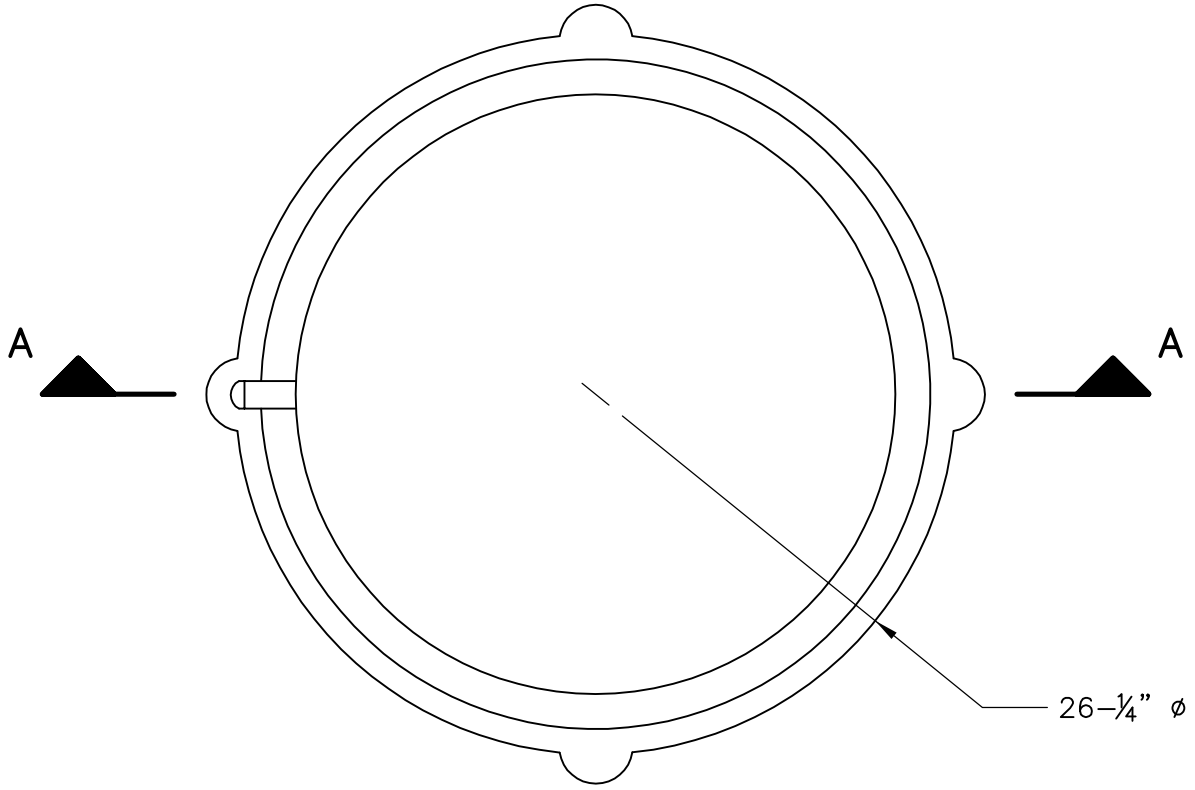


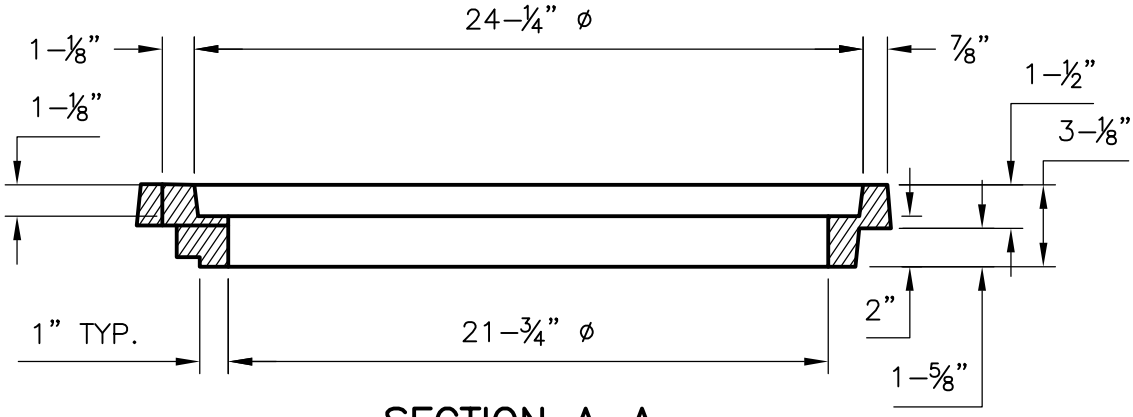
SECTION A–A

EXTENSION RING FOR SEWER MANHOLES (1–3/4 INCH)

DETAIL S 32

NTS



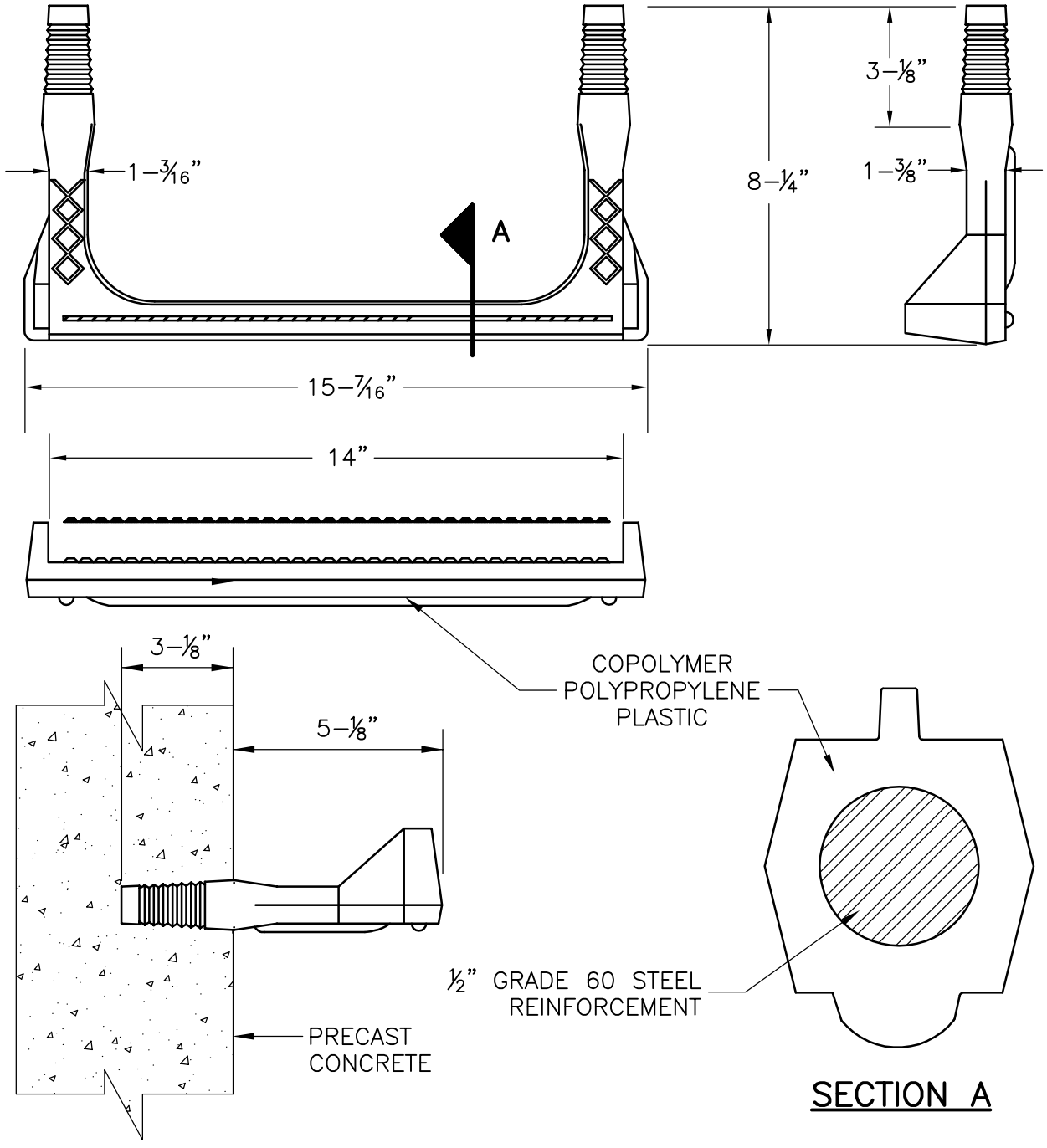


SECTION A–A

EXTENSION RING FOR SEWER MANHOLES (2 INCH)

DETAIL S 33

NTS

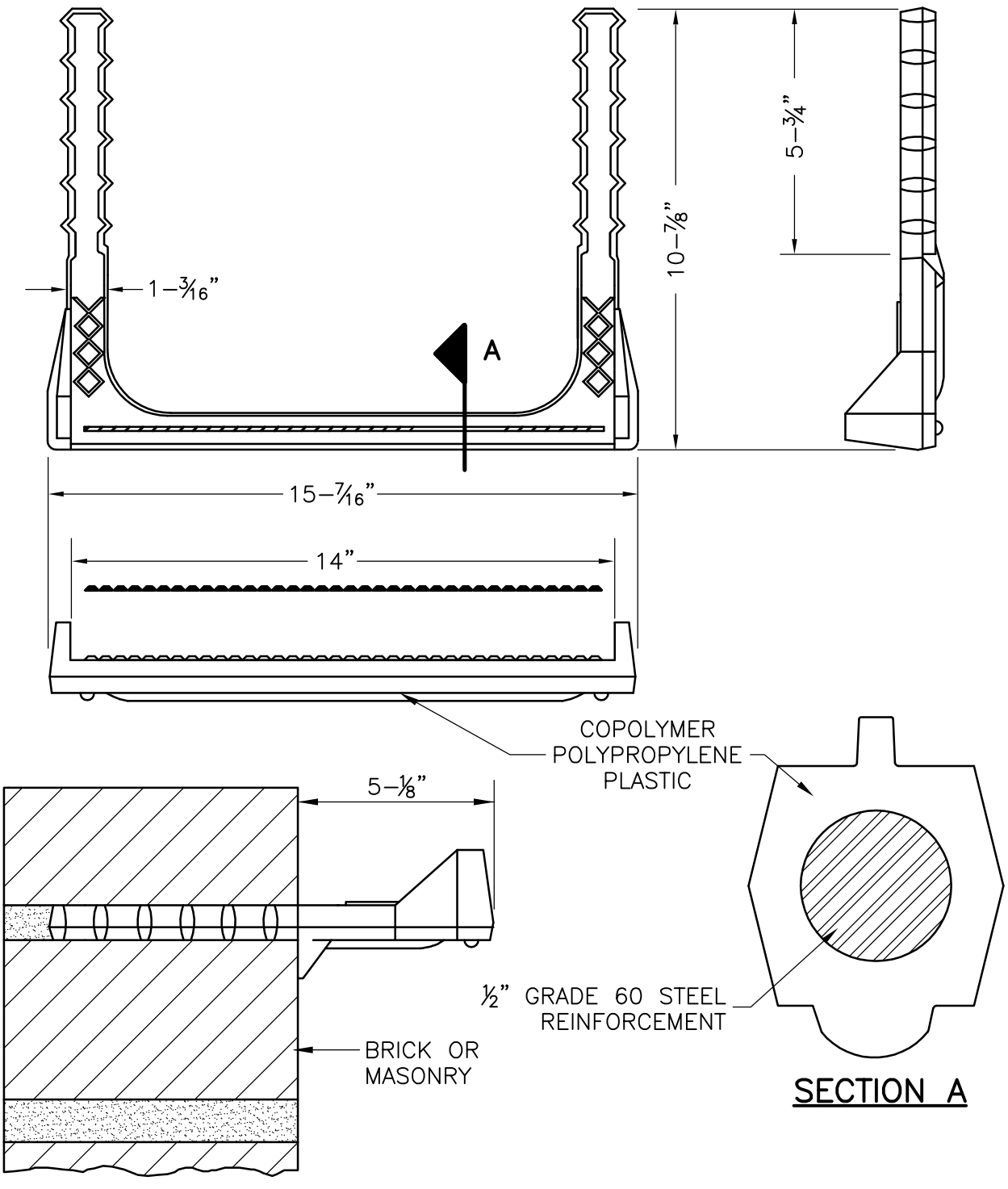


SECTION A

PLASTIC STEP FOR PRECAST CONCRETE MANHOLE

DETAIL S 34

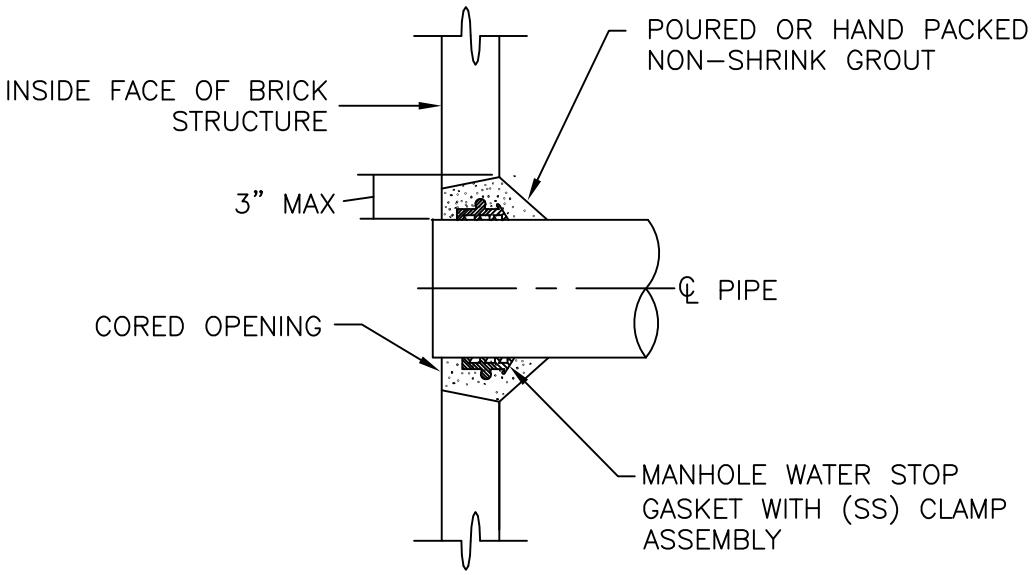
NTS



PLASTIC STEP FOR BRICK OR MASONRY MANHOLE

DETAIL S 35

NTS



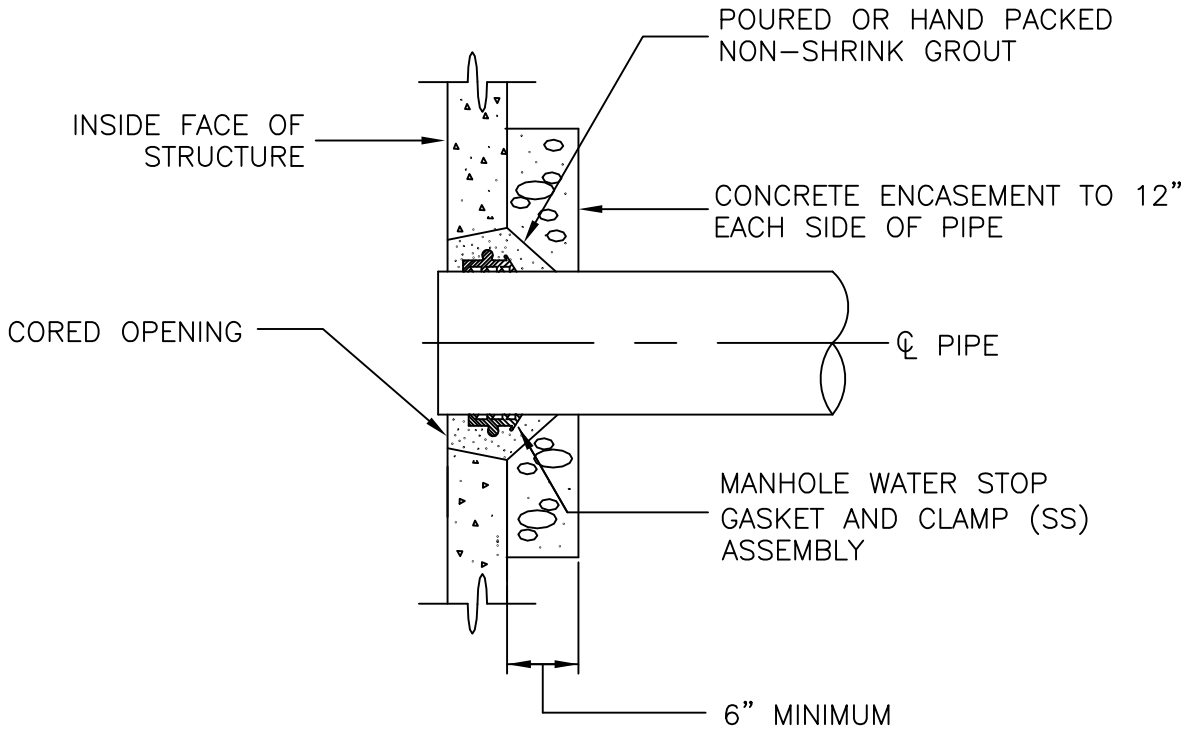
NOTES:

1. REFER TO OTHER PIPE CONNECTION DETAILS FOR OTHER APPROVED CONNECTION METHODS.
2. PROVIDE WATER STOP WITH STAINLESS STEEL CLAMP AROUND NEW PIPE FOR SANITARY SEWER FLOWS.
3. REWORK EXISTING MANHOLE INVERT TO ACCOMMODATE NEW FLOWS, IF NECESSARY.

PIPE CONNECTION TO EXISTING BRICK STRUCTURE

DETAIL S 36

NTS



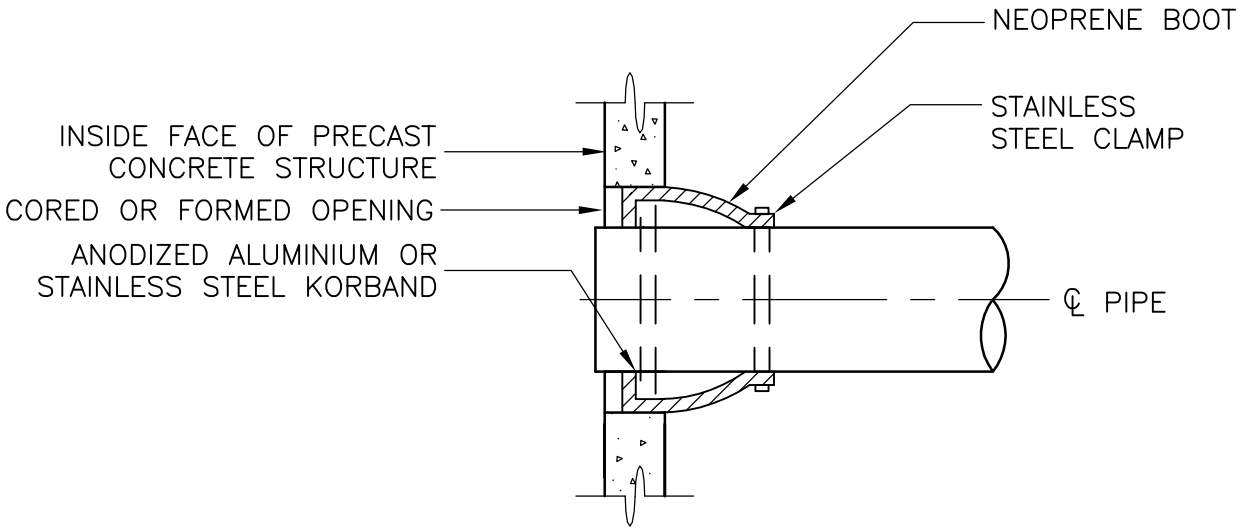
NOTE:

1. FORM CONCRETE ENCASEMENT ON UNDISTURBED MATERIAL OR STRUCTURALLY FIRM FOUNDATION.
2. PROVIDE WATER STOP WITH STAINLESS STEEL CLAMP AROUND NEW PIPE FOR SANITARY SEWER FLOWS.
3. REWORK EXISTING MANHOLE INVERT TO ACCOMMODATE NEW FLOWS, IF NECESSARY.

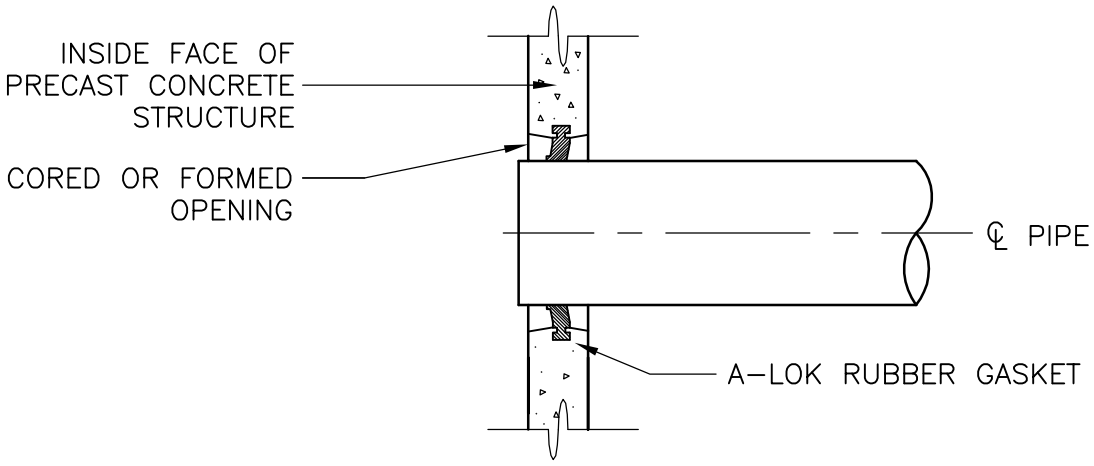
PIPE CONNECTION TO EXISTING STRUCTURE WITH CONCRETE ENCASEMENT

DETAIL S 37

NTS



KOR–N–SEAL BOOT



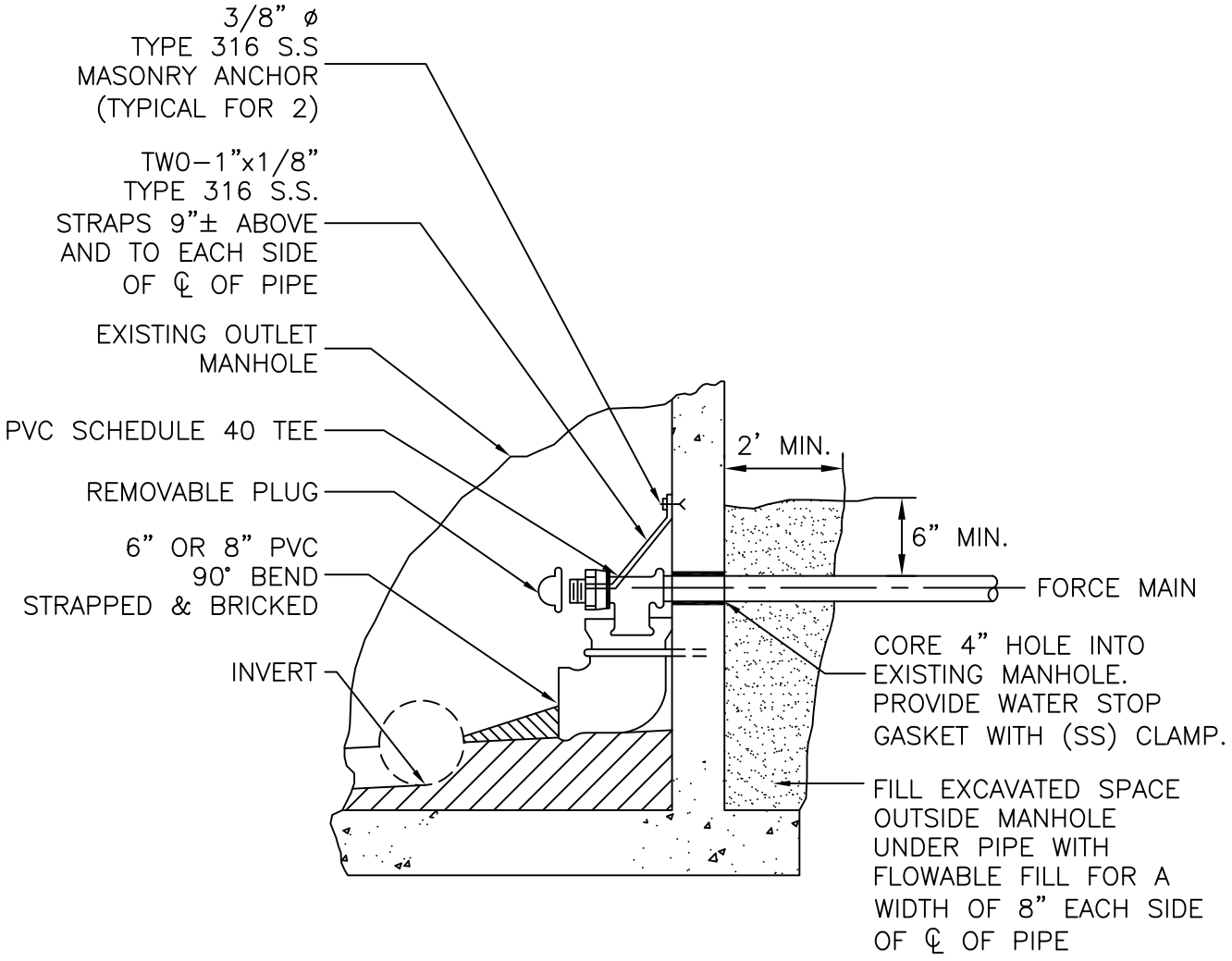
A–LOK SYSTEM

NOTE:

1. PACK NON–SHRINK GROUT AROUND ANNULAR AREA OF PIPE ON OUTSIDE OF STRUCTURE PRIOR TO BACKFILLING.

PIPE CONNECTIONS TO PRECAST CONCRETE STRUCTURES

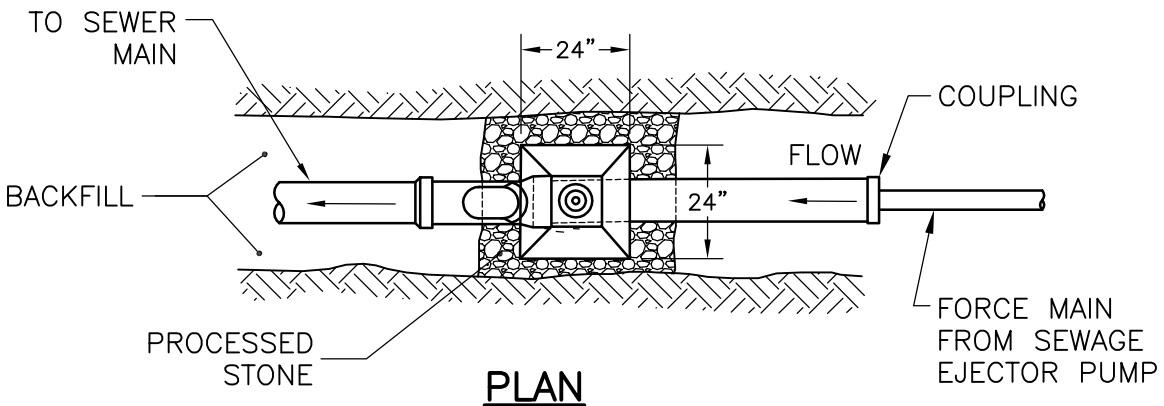
DETAIL S
NTS 38



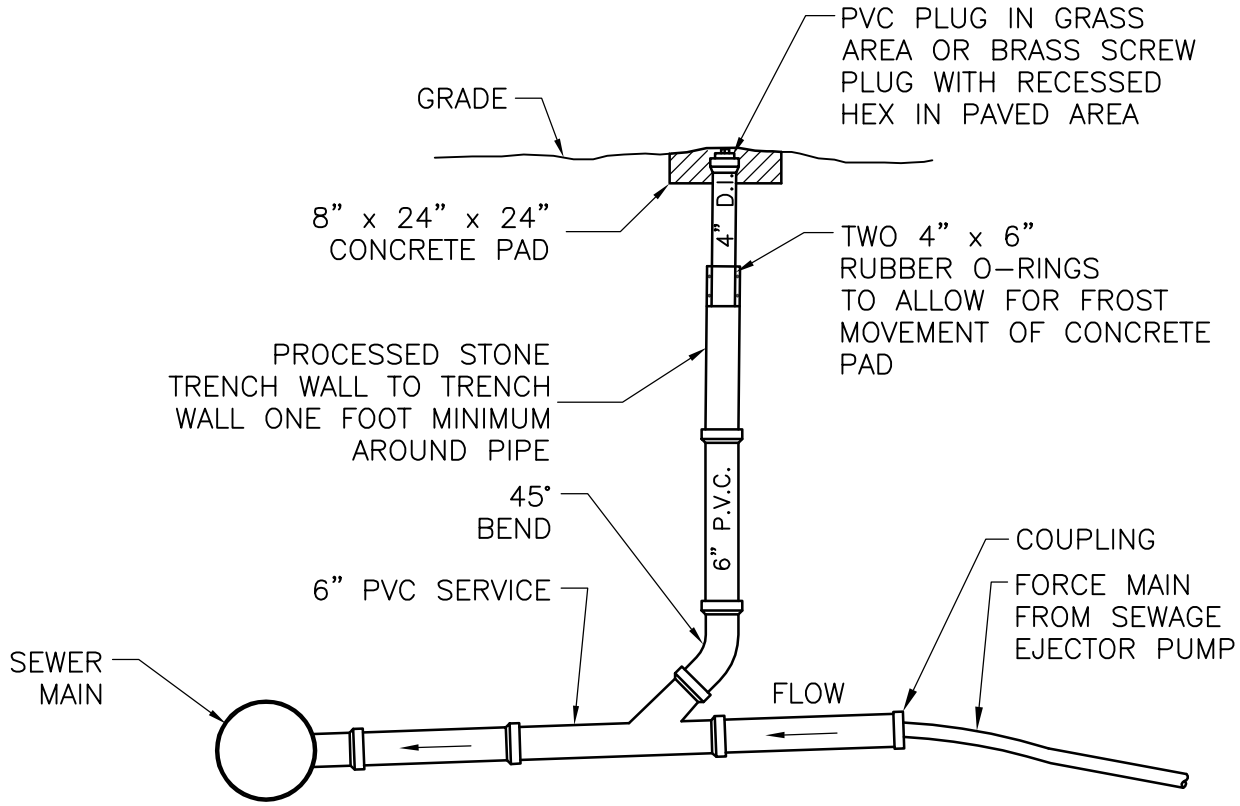
FORCE MAIN OUTLET CONNECTION AT MANHOLE

DETAIL S 39

NTS



PLAN

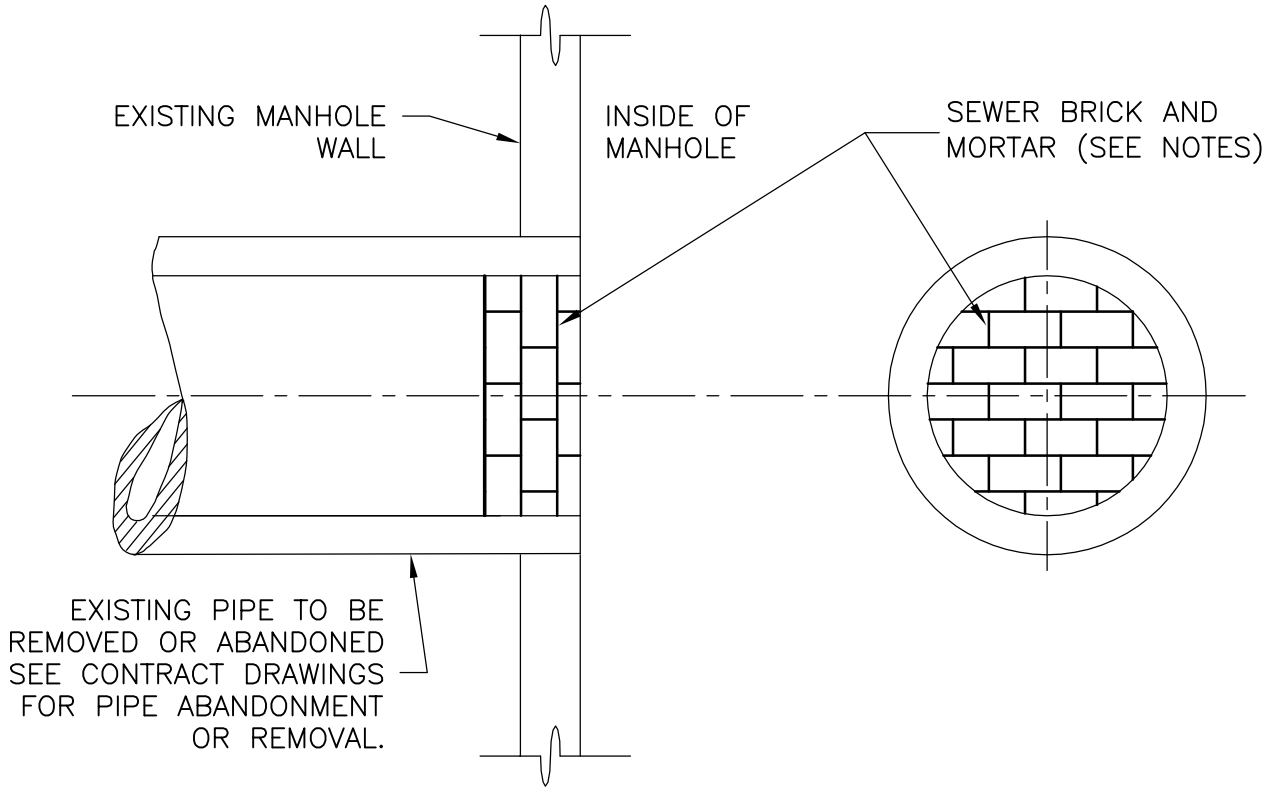


PROFILE

CONNECTION TO SEWER FROM SEWAGE EJECTOR PUMP

DETAIL S 40

NTS



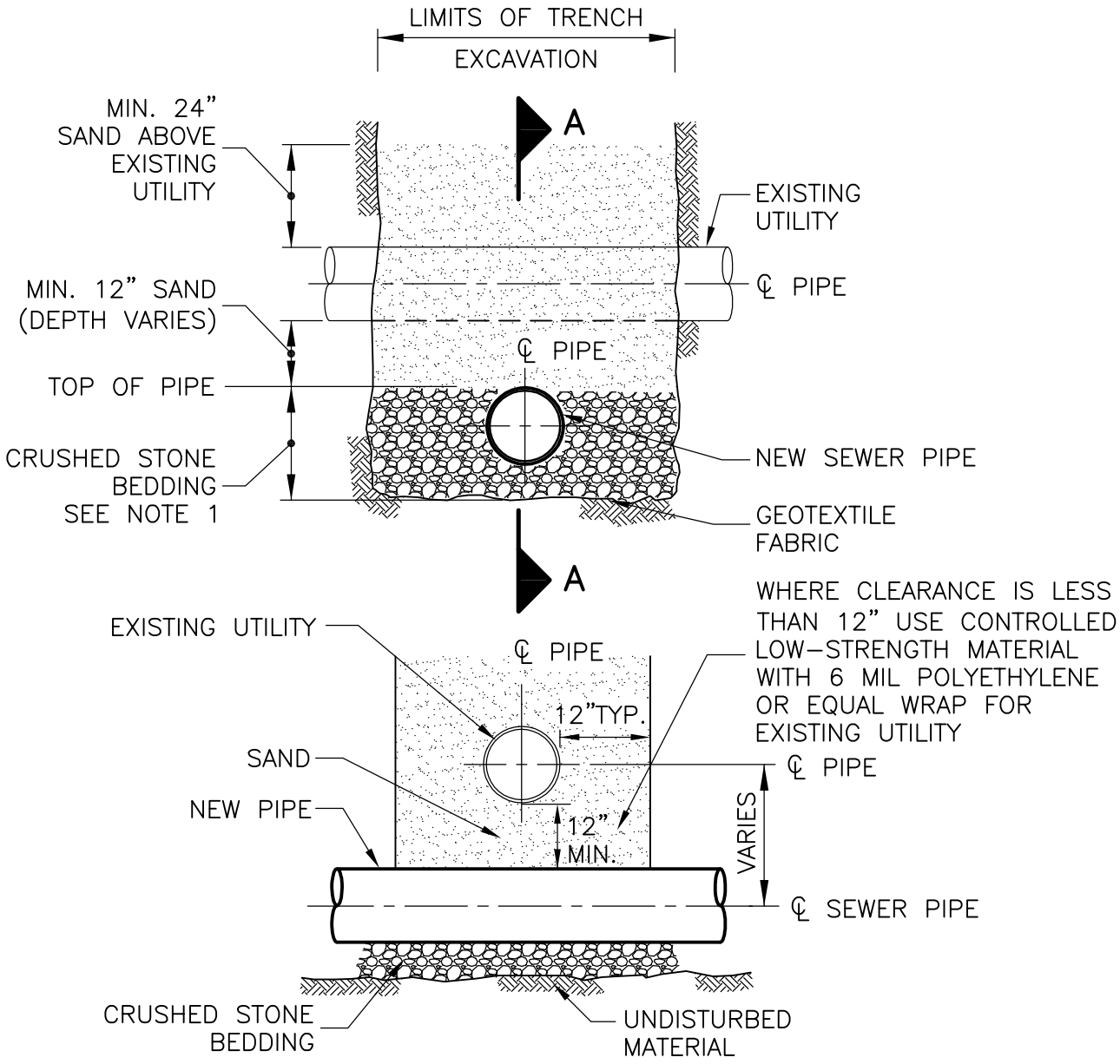
NOTES:

1. MIN. 6" THICKNESS FOR PIPE SIZES 4" THROUGH 10".
2. MIN. 8" THICKNESS FOR PIPE SIZES 12" AND 15".
3. MIN. 12" THICKNESS FOR PIPE SIZES 15" AND GREATER.
4. SEWER PIPE 36" OR GREATER MAY UTILIZE CONCRETE BLOCK INSTEAD OF SEWER BRICK.

PIPE PLUG AT MANHOLE

DETAIL S 41

NTS



SECTION A–A

NOTES:

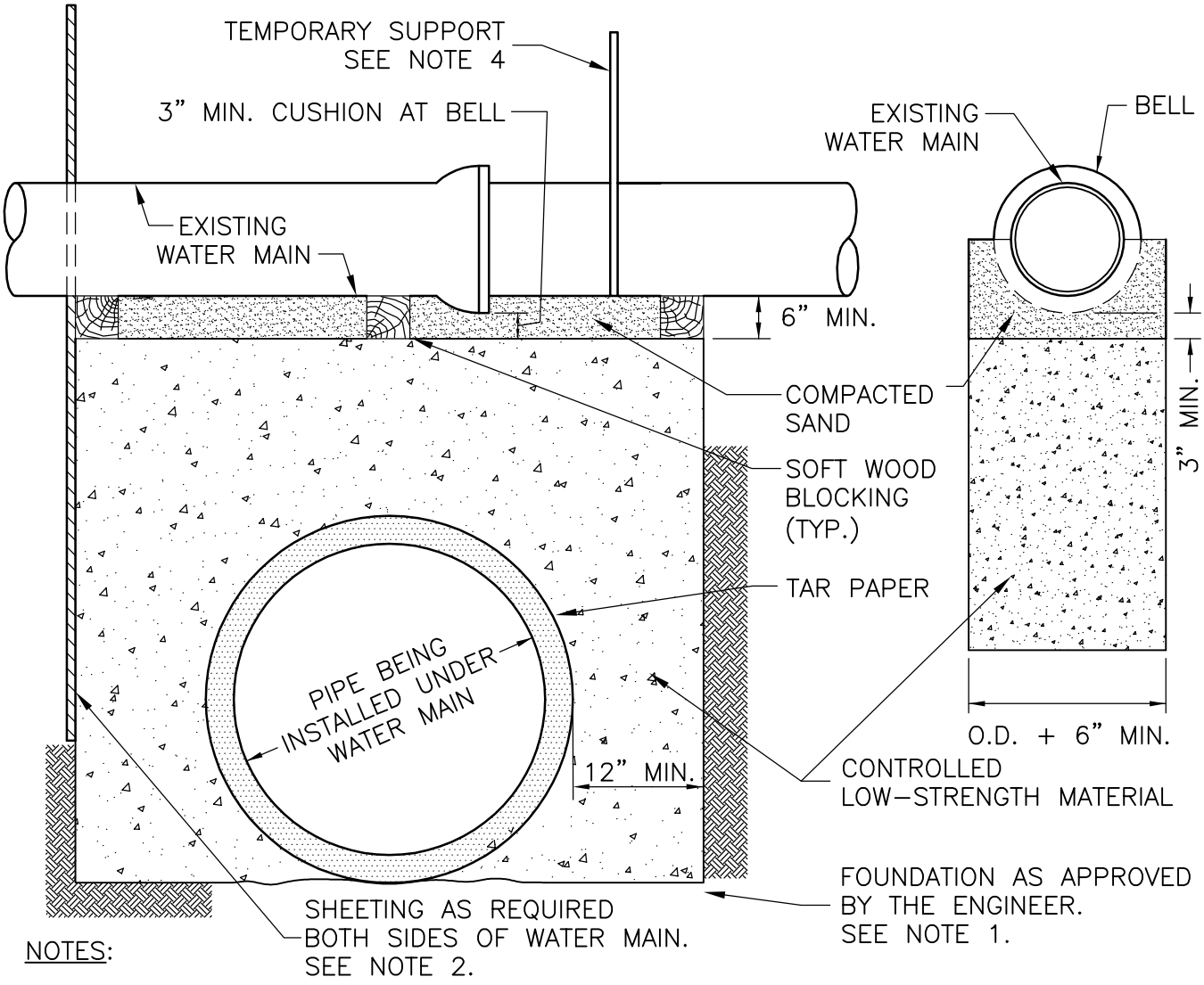
1. CRUSHED STONE SHALL BE INSTALLED TO TOP OF PIPE FOR PVC AND DI PIPE AND TO SPRINGLINE FOR RC PIPE.

2. REFER TO SEWER TRENCH DETAIL FOR BACKFILLING AND RESTORATION REQUIREMENTS.

EXISTING GAS OR WATER UTILITY CROSSING

DETAIL S 42

NTS



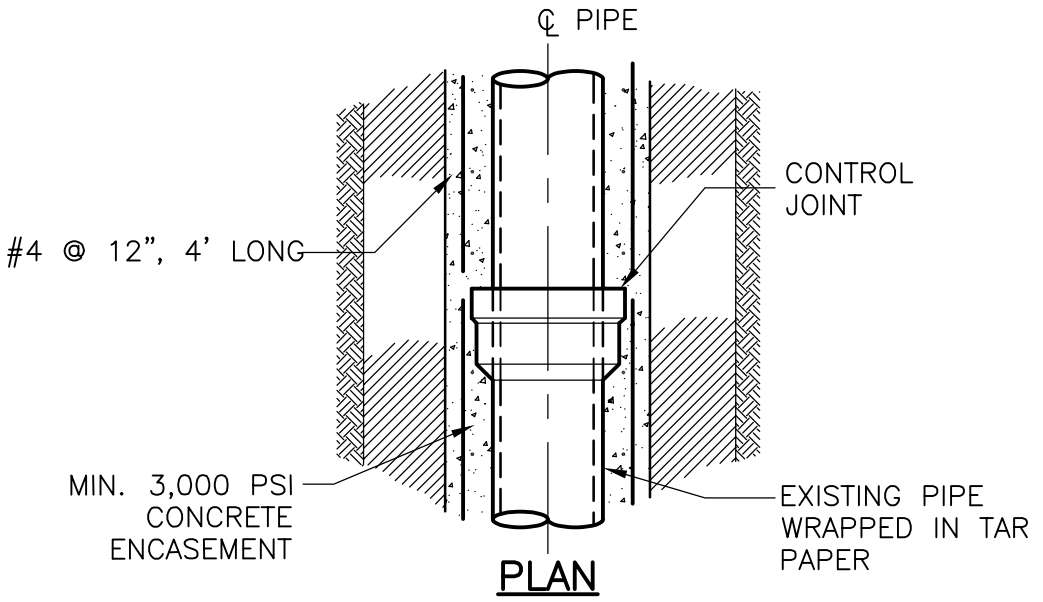
NOTES:

1. REFER TO SEWER TRENCH DETAIL FOR BEDDING OF PIPE BEING INSTALLED UNDER WATER MAIN.
2. CONTRACTOR TO SUBMIT DETAILS OF TRENCH SHORING AND PIPE SUPPORT TO THE ENGINEER FOR APPROVAL.
3. CONTRACTOR TO EXCAVATE TO HORIZONTAL CENTER OF EXISTING WATER PIPE PRIOR TO DRIVING SHEETING, SOLDIER PILES OR OTHER SHORING SUPPORTS.
4. PROVIDE TEMPORARY SUPPORT FOR THE EXISTING WATER MAIN WHILE EXCAVATING UNDER THE WATER MAIN. ALL DESIGNS MUST BE CERTIFIED BY A CT REGISTERED PROFESSIONAL ENGINEER.

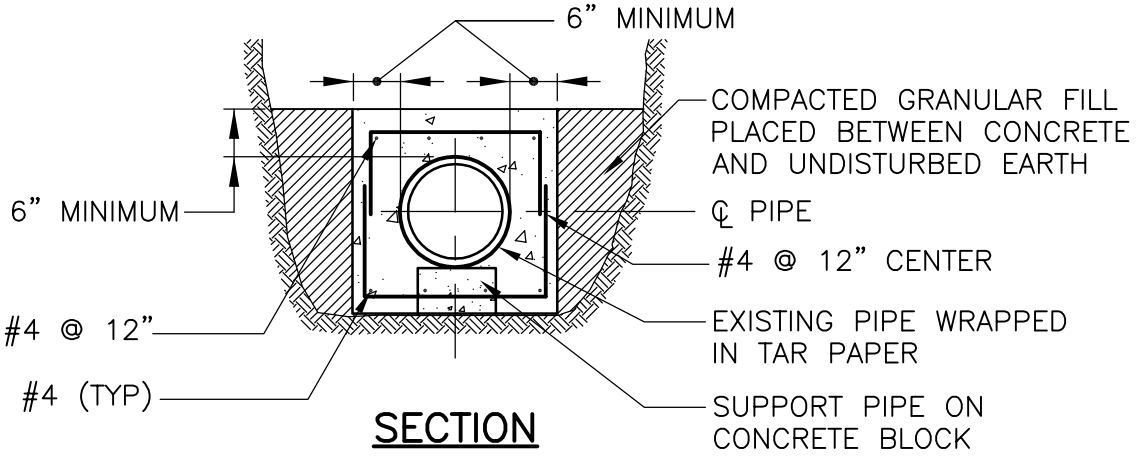
PERMANENT WATER PIPE SUPPORT

DETAIL S 43

NTS



PLAN



SECTION

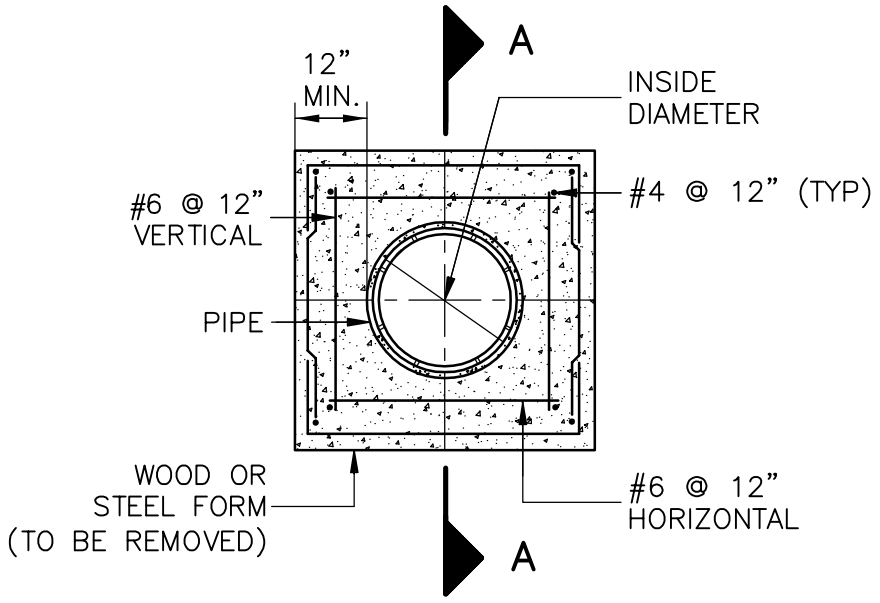
NOTES:

1. CONTROL JOINTS AND PIPE JOINTS FOR ARCHES, AND ENCASEMENT SHALL COINCIDE FOR SPACING. MAXIMUM DISTANCE BETWEEN CONTROL JOINTS SHALL BE 24'±.
2. REINFORCING STEEL TO BE USED ONLY WHEN DEPTH OF COVER TO TOP OF SURFACE OF CONCRETE IS 5'–0" OR LESS.
3. REFER TO SEWER TRENCH DETAIL FOR BACKFILLING AND BEDDING REQUIREMENTS.
4. LIMITS OF CONCRETE ENCASEMENT SHALL BE SHOWN ON CONTRACT DRAWINGS OR AS DIRECTED BY ENGINEER.

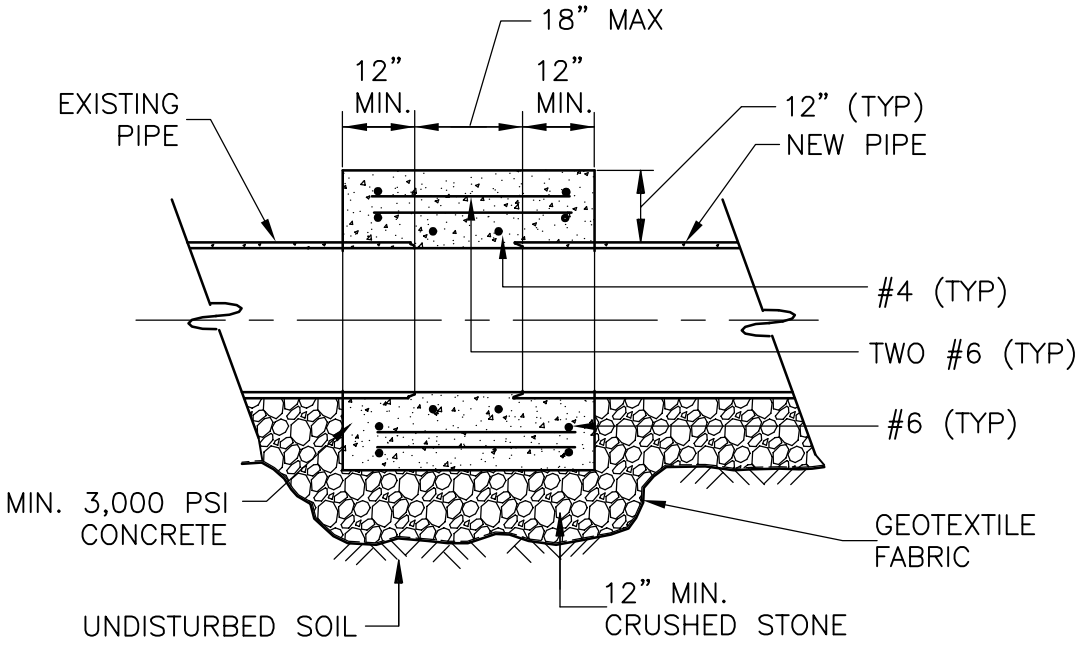
CONCRETE ENCASEMENT

DETAIL S 44

NTS



PLAN

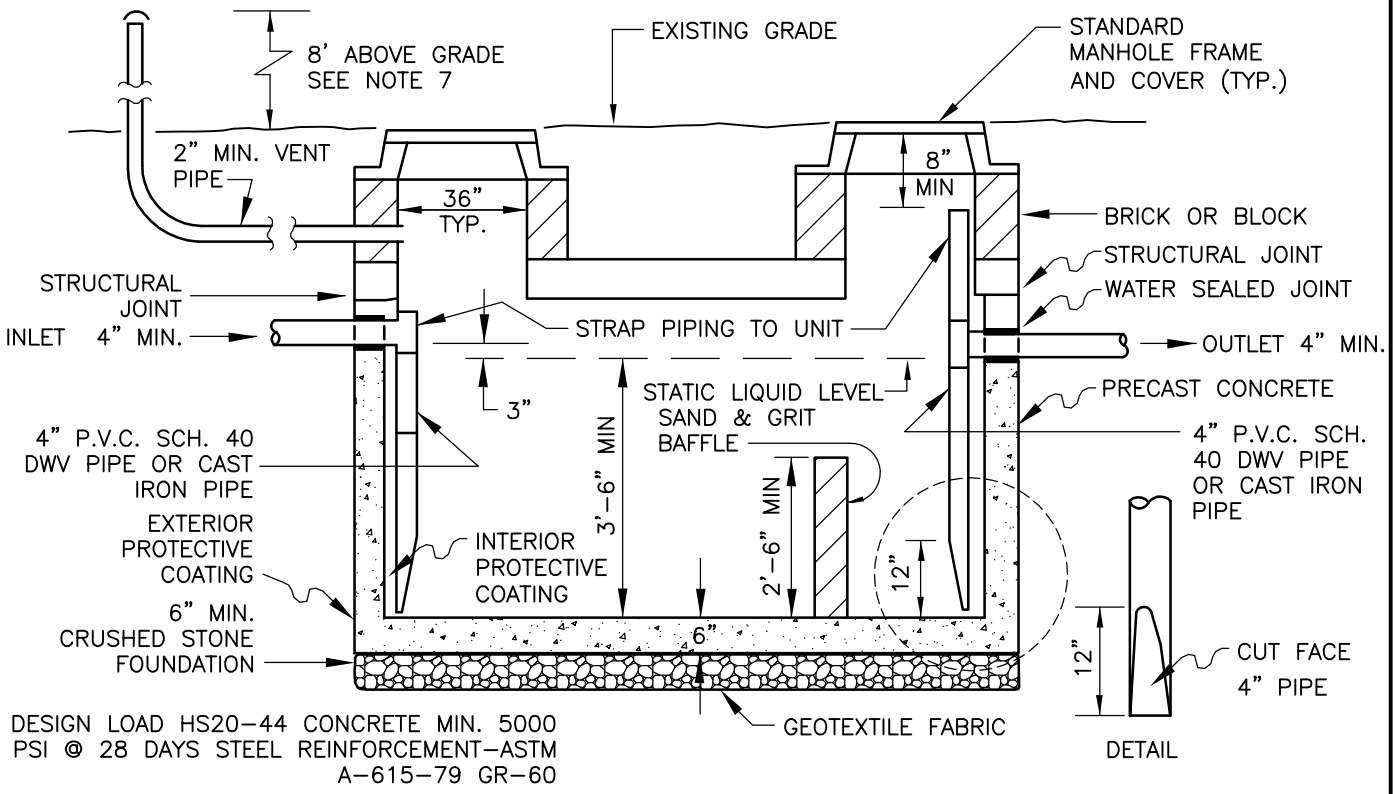


SECTION A–A

REINFORCED CONCRETE PIPE COLLAR

DETAIL S 45

NTS



DESIGN LOAD HS20-44 CONCRETE MIN. 5000 PSI @ 28 DAYS STEEL REINFORCEMENT-ASTM A-615-79 GR-60

OIL WATER SEPARATOR TANK SPECIFICATIONS

1. TANK SHALL HAVE A MINIMUM CAPACITY SUFFICIENT TO PRE-TREAT THE MAXIMUM DAILY FLOW PROPOSED AND NO LESS THAN 1000 GALLONS. TANK SHALL BE CONSTRUCTED OF PRECAST CONCRETE.
2. INTERIOR OF THE TANK AND EXTENSION TO GRADE MANHOLES SHALL BE COATED WITH AN EPOXY PETROLEUM RESISTANT SEALANT. EXTERIOR OF THE TANK AND EXTENSION GRADE MANHOLES SHALL BE COATED WITH A WATERPROOF FOUNDATION SEALANT. THIS INCLUDES THE TANK EXTERIORS TOP AND BOTTOM.
3. STRUCTURAL SEAM OF THE TANK SHALL BE FILLED IN WITH NON-SHRINKING GROUT OR WATER PLUG AND COATED WITH A WATERPROOF SEALANT.
4. VOIDS BETWEEN INLET AND OUTLET PIPING OF THE TANK SHALL BE FILLED WITH NON-SHRINKING GROUT AND COATED WITH A WATERPROOF SEALANT.
5. THE TANK SHALL HAVE EXTENSIONS TO GRADE ABOVE THE INLET AND OUTLET PIPING. THE EXTENSION SHALL HAVE FRAMES AND MANHOLE COVERS.
6. THE OUTLET PIPING SHALL UTILIZE A TEE-PIPE ON THE INTERIOR OF THE TANK. THE TEE-PIPE SHALL BE EQUIPPED WITH A STAND PIPE RISER EXTENDING UP THE EXTENSION TO GRADE BUT NO CLOSER THAN EIGHT (8) INCHES FROM THE MANHOLE COVER. THE TEE-PIPE SHALL EXTEND SIX (6) TO TWELVE (12) INCHES FROM THE BOTTOM OF THE TANK.
7. THE INLET EXTENSION TO GRADE SHALL BE PROVIDED WITH A VENT LINE WHICH EXTENDS EIGHT (8) FEET ABOVE FINISHED GRADE AND PROPERLY SECURED TO THE BUILDING. THE SIZE OF THE VENT SHALL BE HALF THE SIZE OF THE OUTLET DISCHARGE LINE.
8. THE HORIZONTAL STRUCTURAL SEAM OF THE TANK SHALL BE LOCATED ABOVE THE STATIC LIQUID LEVEL OF THE TANK.
9. THE INCOMING PIPE SHALL NOT INCLUDE ANY SOURCES OF DOMESTIC WASTEWATER OR STORMWATER.
10. THE OUTLET PIPE SHALL BE CONNECTED TO THE SANITARY SEWER.
11. THE OUTLET PIPE SHALL BE AT LEAST THE SIZE OF THE INLET PIPE OR GREATER AND AT A MINIMUM SHOULD BE 4.0 INCHES IN DIAMETER.
12. IF HEAVY PIPING, SUCH AS CAST IRON IS USED, ALL PIPING MUST BE STRUCTURALLY SECURED.
13. THE CONCRETE COVERS PROVIDED BY THE OIL SEPARATOR MANUFACTURES MUST BE REMOVED AND DISCARDED.

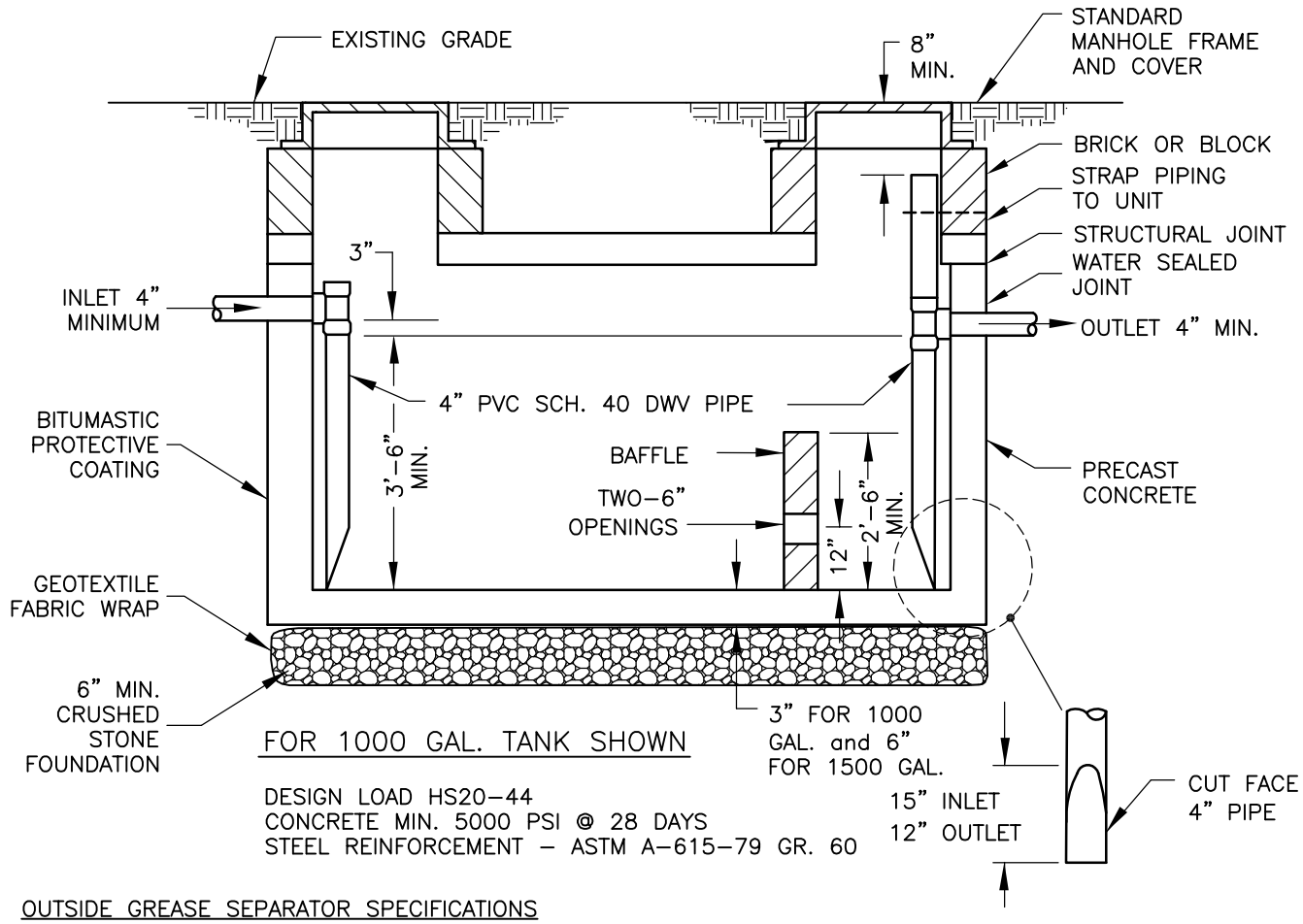
OIL WATER SEPARATOR

DETAIL S

NTS 46

THE METROPOLITAN DISTRICT

SEWER STANDARD DETAILS



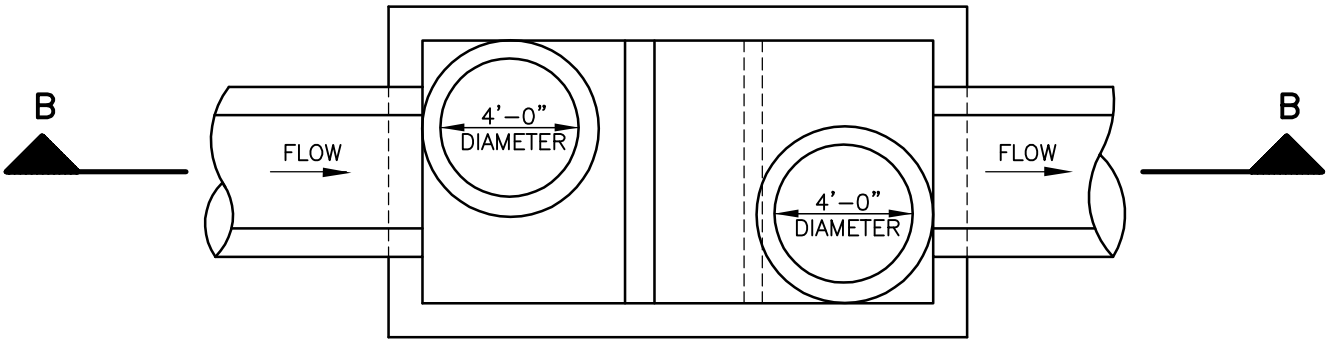
OUTSIDE GREASE SEPARATOR SPECIFICATIONS

1. TANK SHALL HAVE A MINIMUM CAPACITY SUFFICIENT TO PRE-TREAT THE MAXIMUM DAILY FLOW PROPOSED AND NO LESS THAN 1,000 GALLONS. TANK SHALL BE CONSTRUCTED OF PRECAST CONCRETE.
2. EXTERIOR OF THE TANK AND EXTENSION GRADE MANHOLES SHALL BE COATED WITH A WATERPROOF FOUNDATION SEALANT. THIS INCLUDES THE TANK EXTERIORS TOP AND BOTTOM.
3. STRUCTURAL SEAM OF THE TANK SHALL BE FILLED IN WITH NON-SHRINKING GROUT OR WATER PLUG AND COATED WITH A WATERPROOF SEALANT.
4. VOIDS BETWEEN INLET AND OUTLET PIPING OF THE TANK SHALL BE FILLED WITH NON-SHRINKING GROUT AND COATED WITH A WATERPROOF SEALANT.
5. THE TANK SHALL HAVE EXTENSIONS TO GRADE ABOVE THE INLET AND OUTLET PIPING. THE EXTENSION SHALL HAVE FRAMES AND MANHOLE COVERS.
6. THE OUTLET PIPING SHALL UTILIZE A TEE-PIPE ON THE INTERIOR OF THE TANK. THE TEE-PIPE SHALL BE EQUIPPED WITH A STAND PIPE RISER EXTENDING UP THE EXTENSION TO GRADE BUT NO CLOSER THAN EIGHT (8) INCHES FROM THE MANHOLE COVER. THE TEE-PIPE SHALL EXTEND SIX (6) TO TWELVE (12) INCHES FROM THE BOTTOM OF THE TANK.
7. THE HORIZONTAL STRUCTURAL SEAM OF THE TANK SHALL BE LOCATED ABOVE THE STATIC LIQUID LEVEL OF THE TANK.
8. THE INCOMING PIPE SHALL NOT INCLUDE ANY SOURCES OF DOMESTIC WASTEWATER OR STORMWATER. THE OUTLET PIPE SHALL BE CONNECTED TO THE SANITARY SEWER. THE OUTLET PIPE SHALL BE AT LEAST THE SIZE OF THE INLET PIPE OR GREATER AND AT A MINIMUM SHOULD BE 4.0 INCHES IN DIAMETER.
9. IF HEAVY PIPING, SUCH AS CAST IRON IS USED, ALL PIPING MUST BE STRUCTURALLY SECURED.

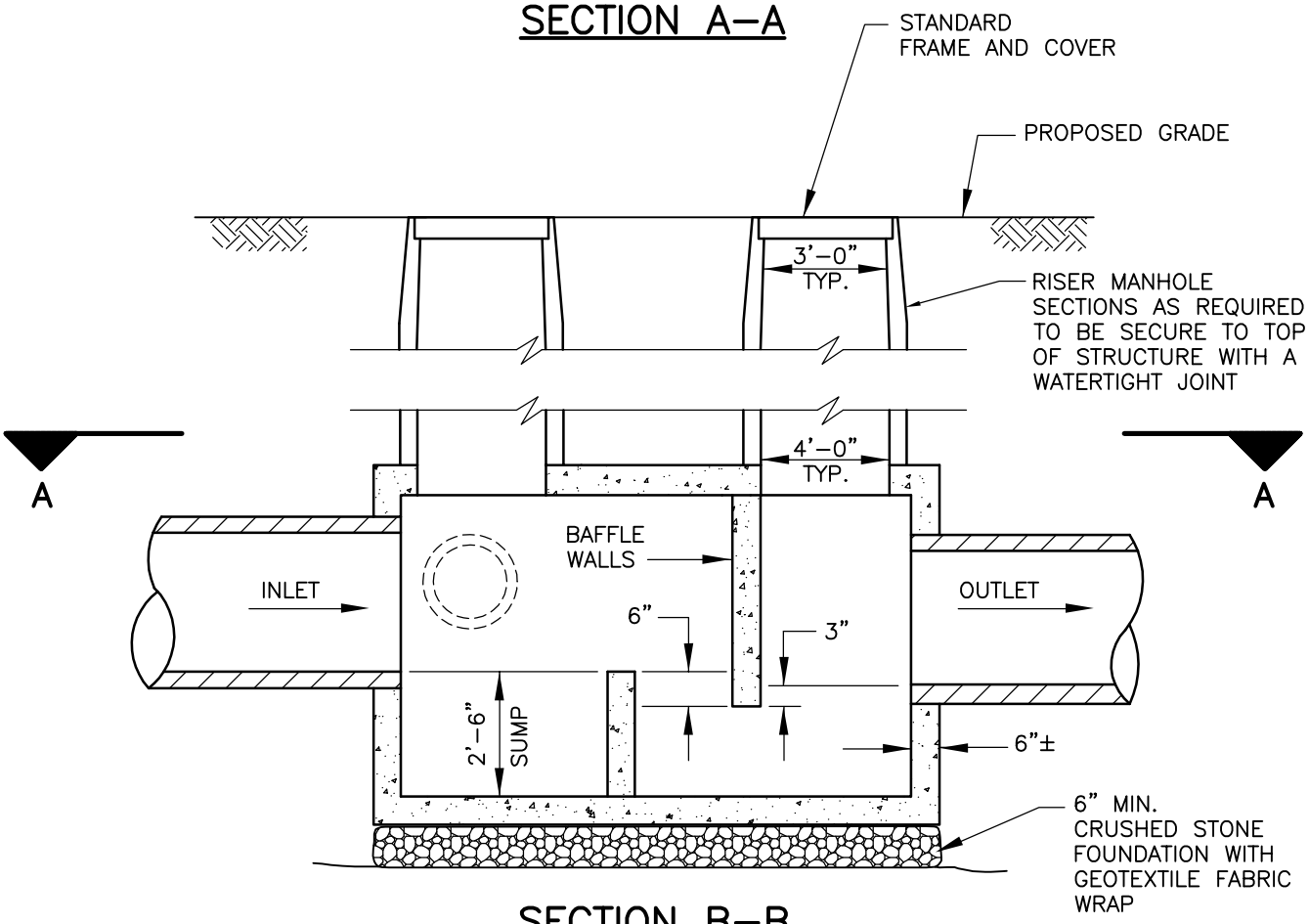
OUTSIDE GREASE SEPARATOR FOR KITCHEN WASTE LINES

DETAIL S

NTS 47



SECTION A–A



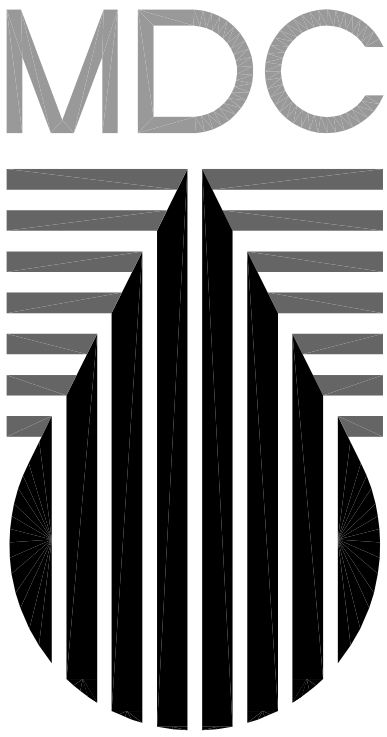
SECTION B–B

GRIT COLLECTOR

DETAIL S 48

NTS

WATER
STANDARD DETAILS

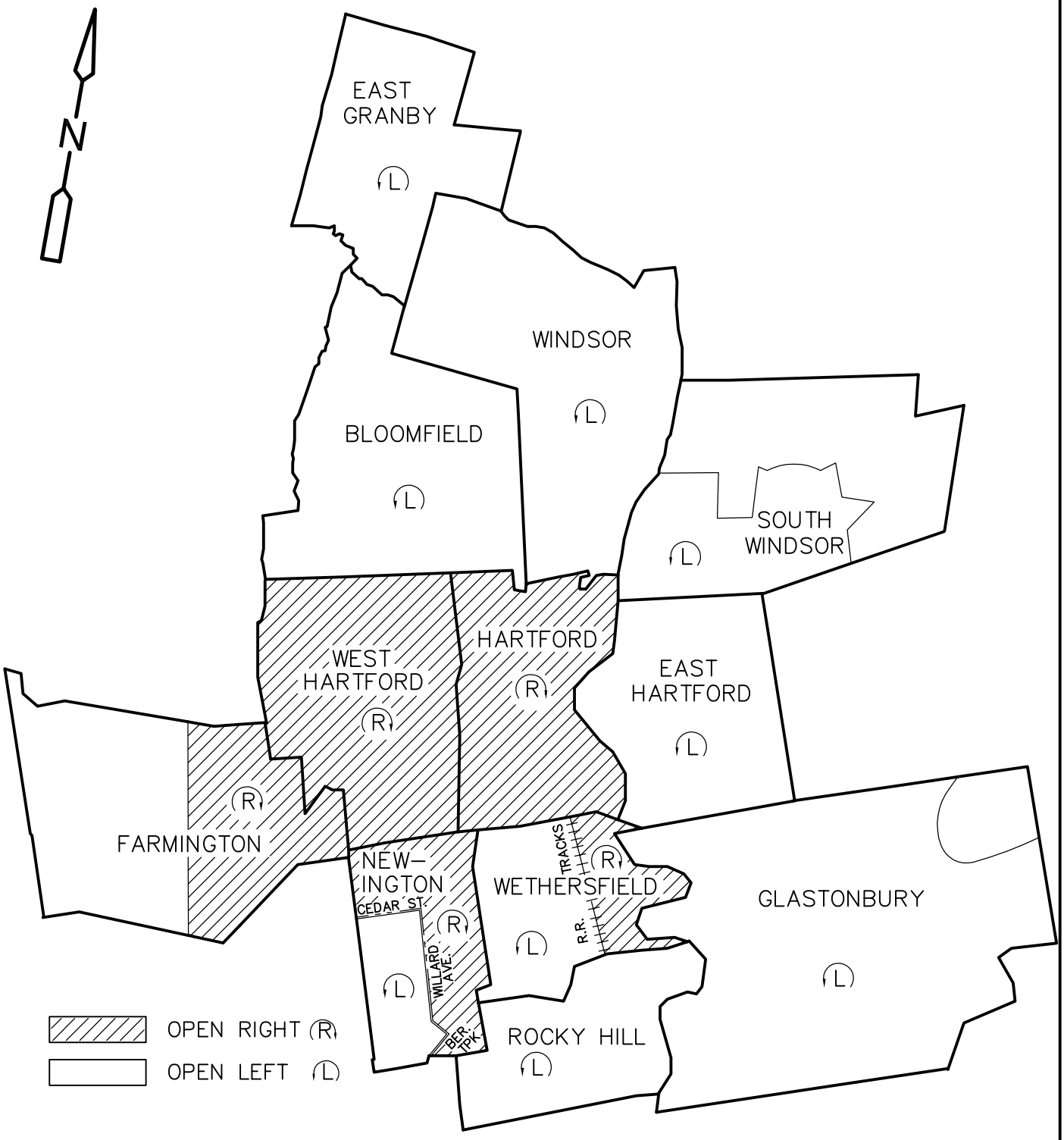


THE METROPOLITAN DISTRICT

JANUARY 2017

THE METROPOLITAN DISTRICT

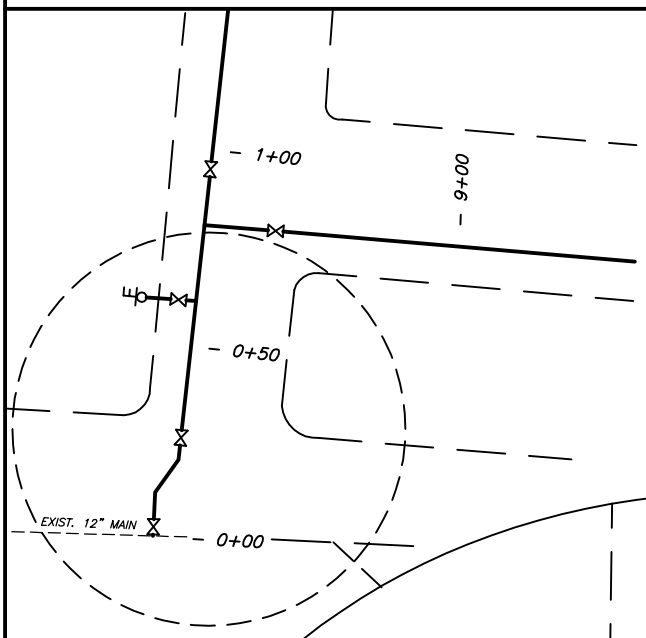
WATER STANDARD DETAILS



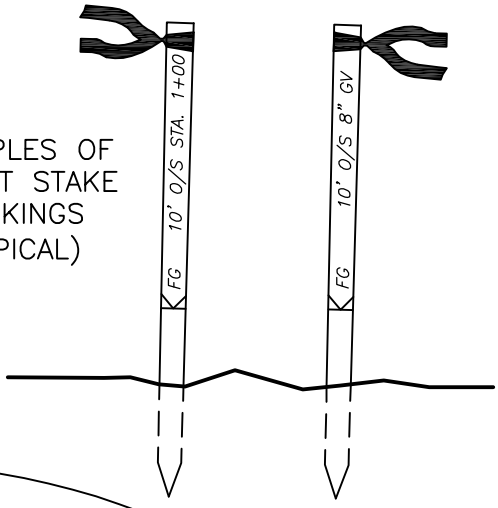
GATE OPERATION INDEX

DETAIL W-1

NTS

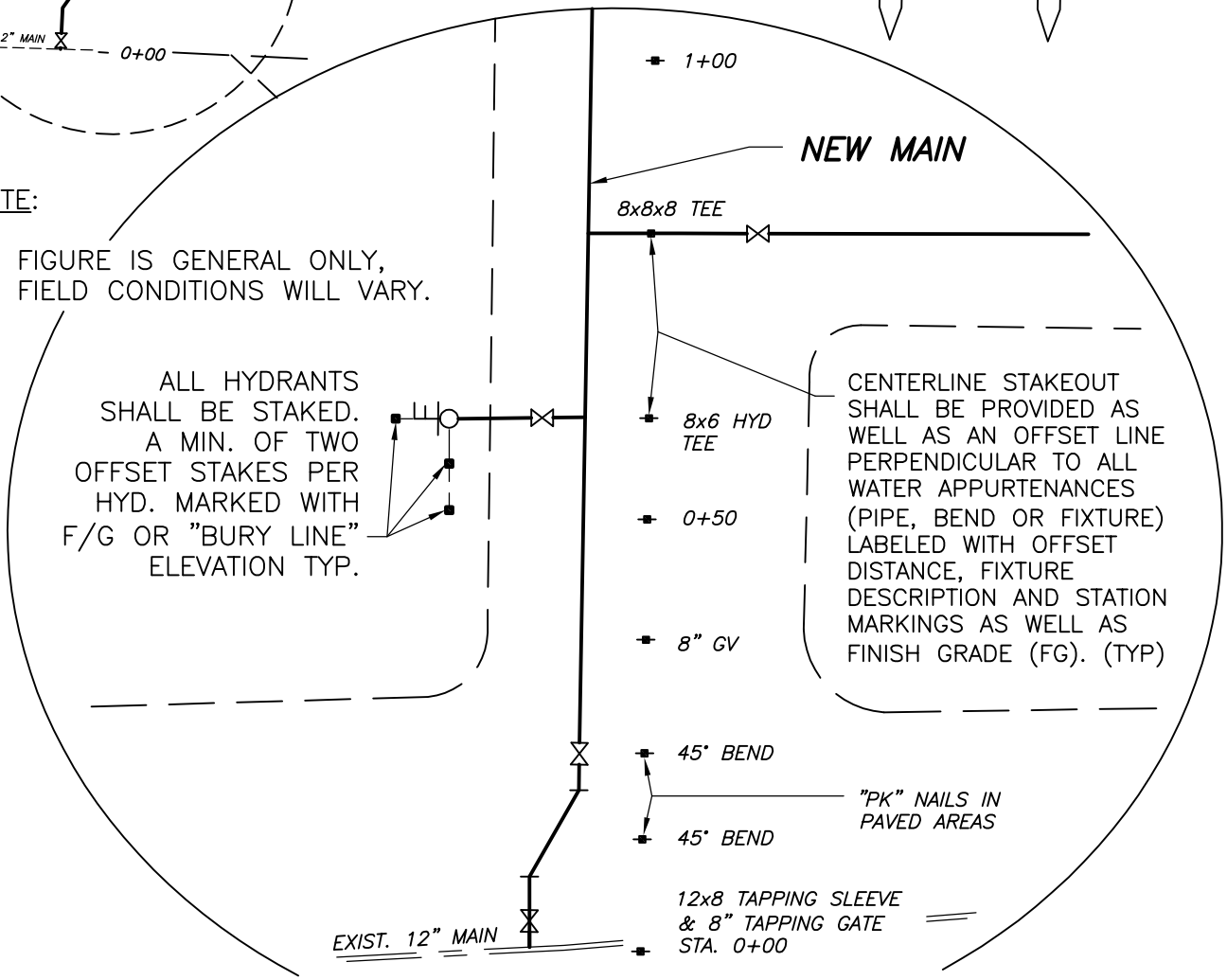


EXAMPLES OF OFFSET STAKE MARKINGS (TYPICAL)



NOTE:

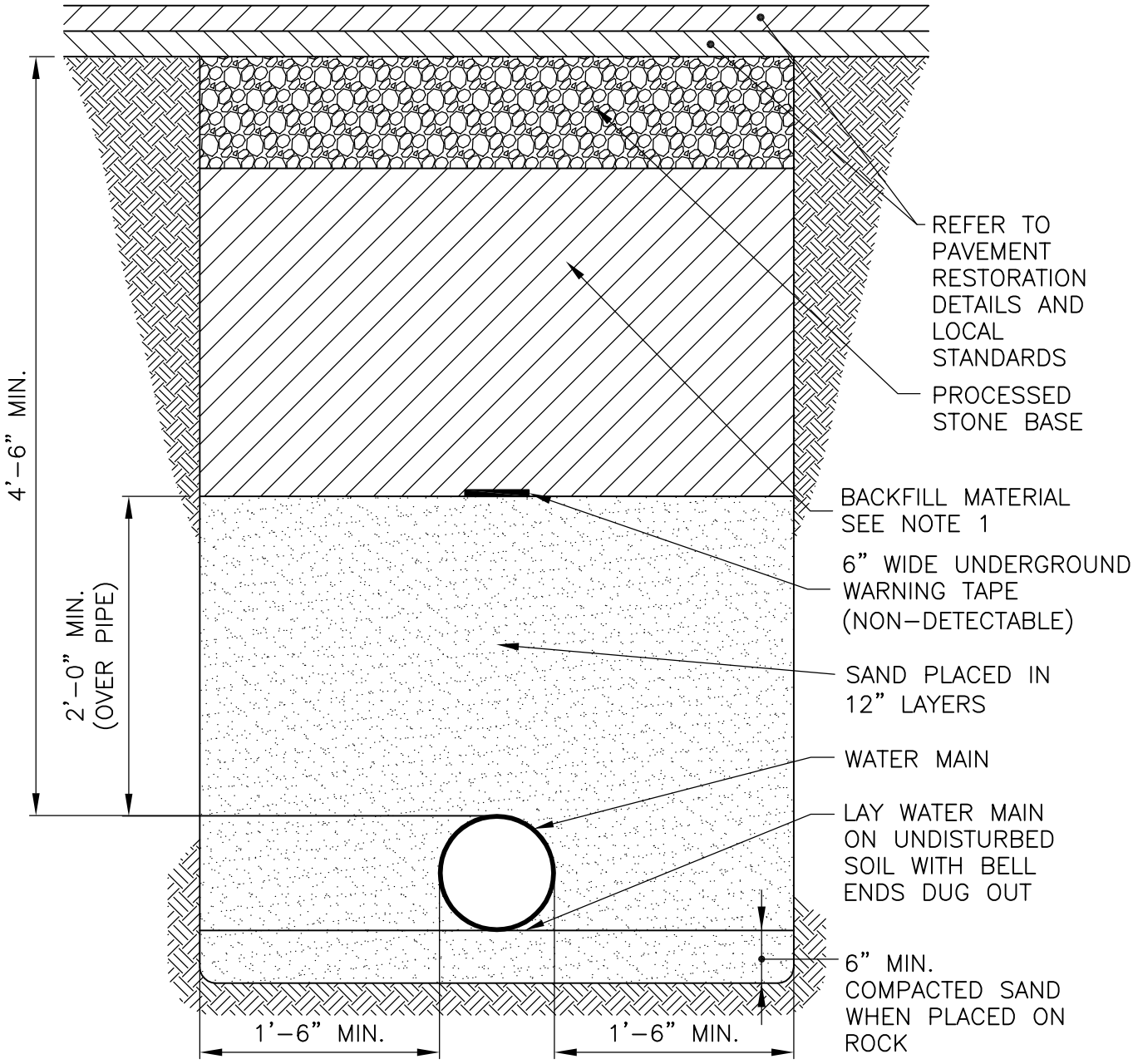
1. FIGURE IS GENERAL ONLY, FIELD CONDITIONS WILL VARY.



STANDARD WATER LAYOUT

DETAIL W 2

NTS



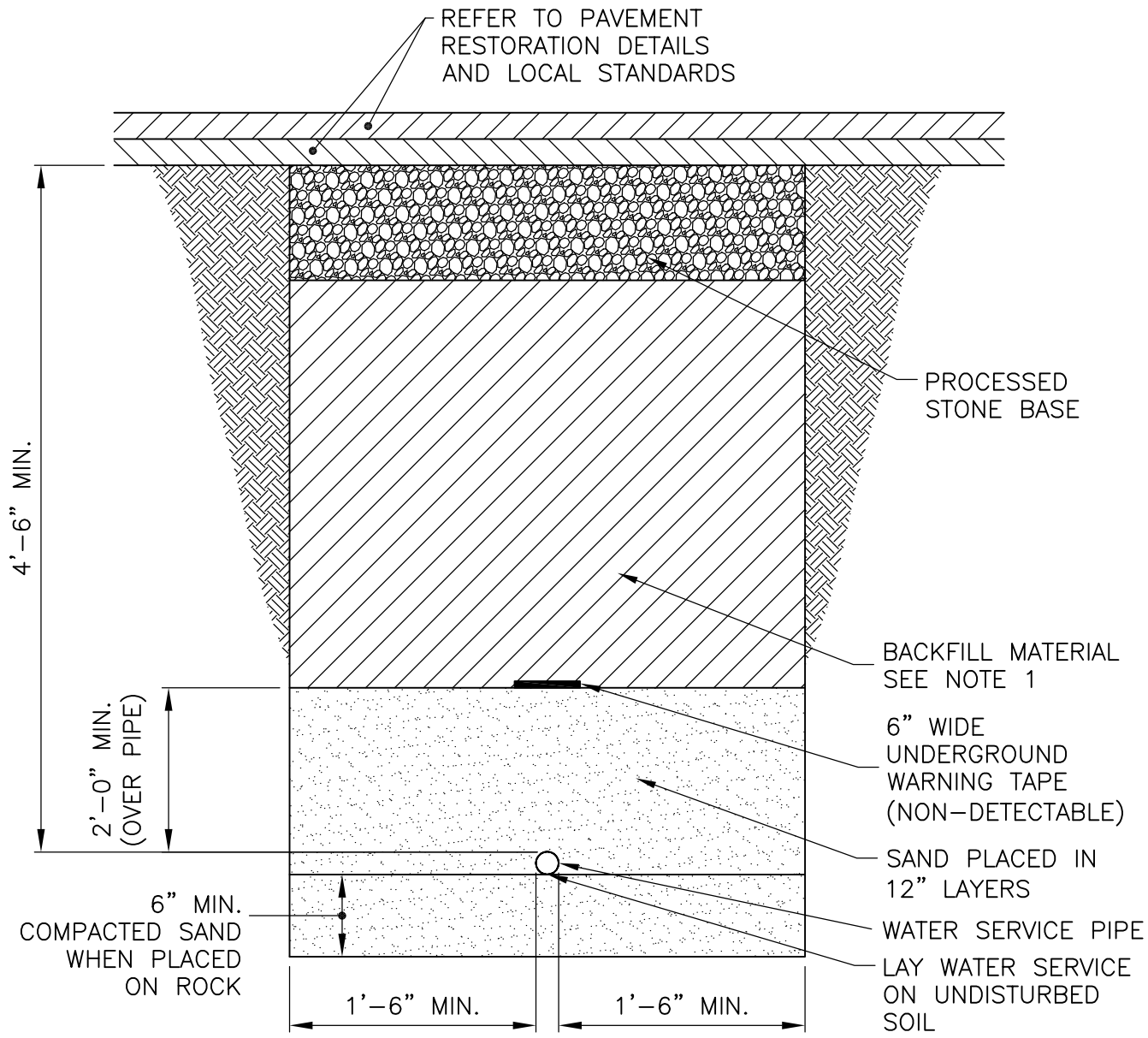
NOTE:

1. BACKFILL MATERIAL SHALL BE BANK–RUN GRAVEL IN PAVED AREAS (INCLUDING SIDEWALKS AND DRIVEWAYS) OR COMMON FILL IN NON–PAVED AREAS.

WATER MAIN TRENCH

DETAIL W 3

NTS



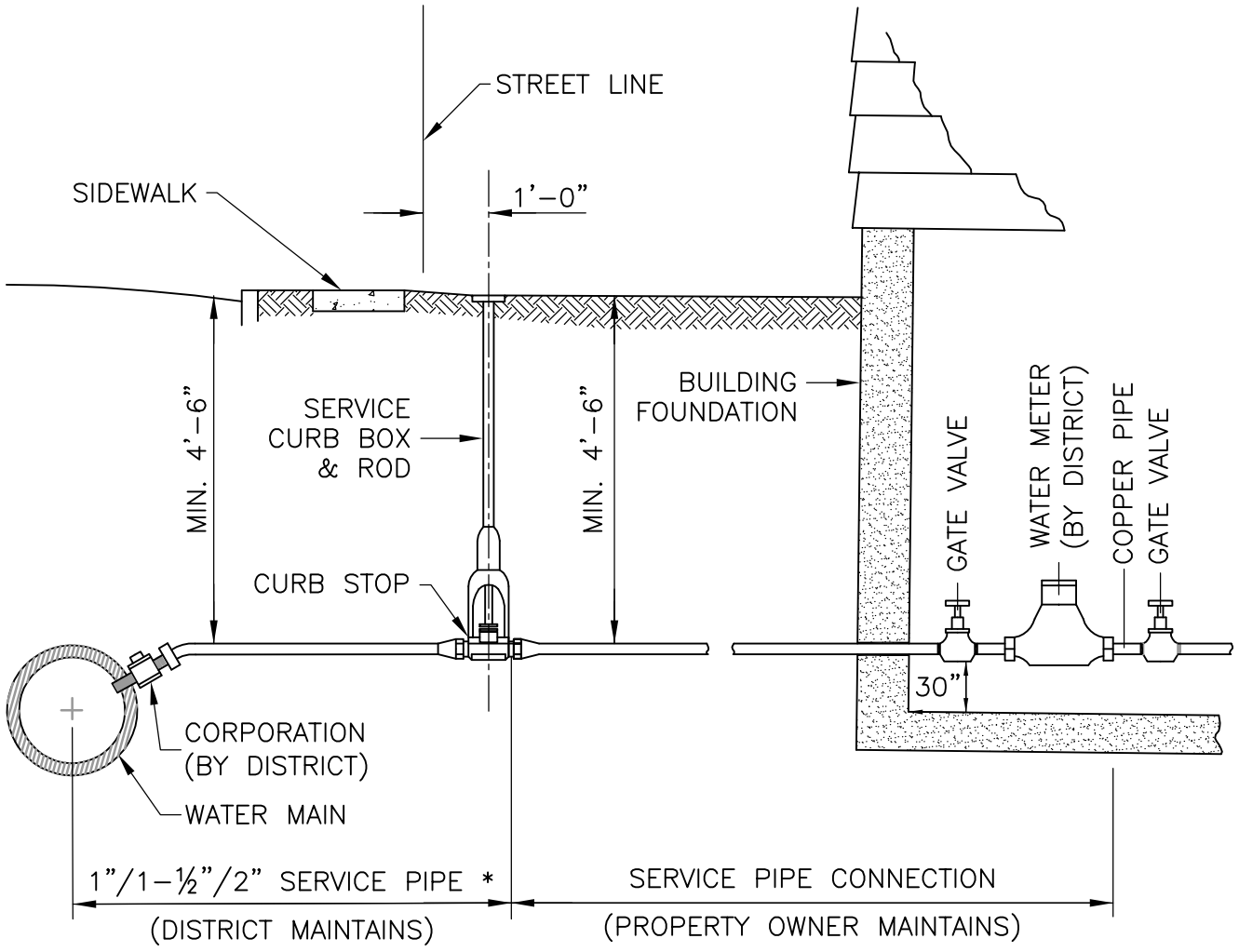
NOTE:

1. BACKFILL MATERIAL SHALL BE BANK–RUN GRAVEL IN PAVED AREAS (INCLUDING SIDEWALKS AND DRIVEWAYS) OR COMMON FILL IN NON–PAVED AREAS.

WATER SERVICE TRENCH

DETAIL W 4

NTS

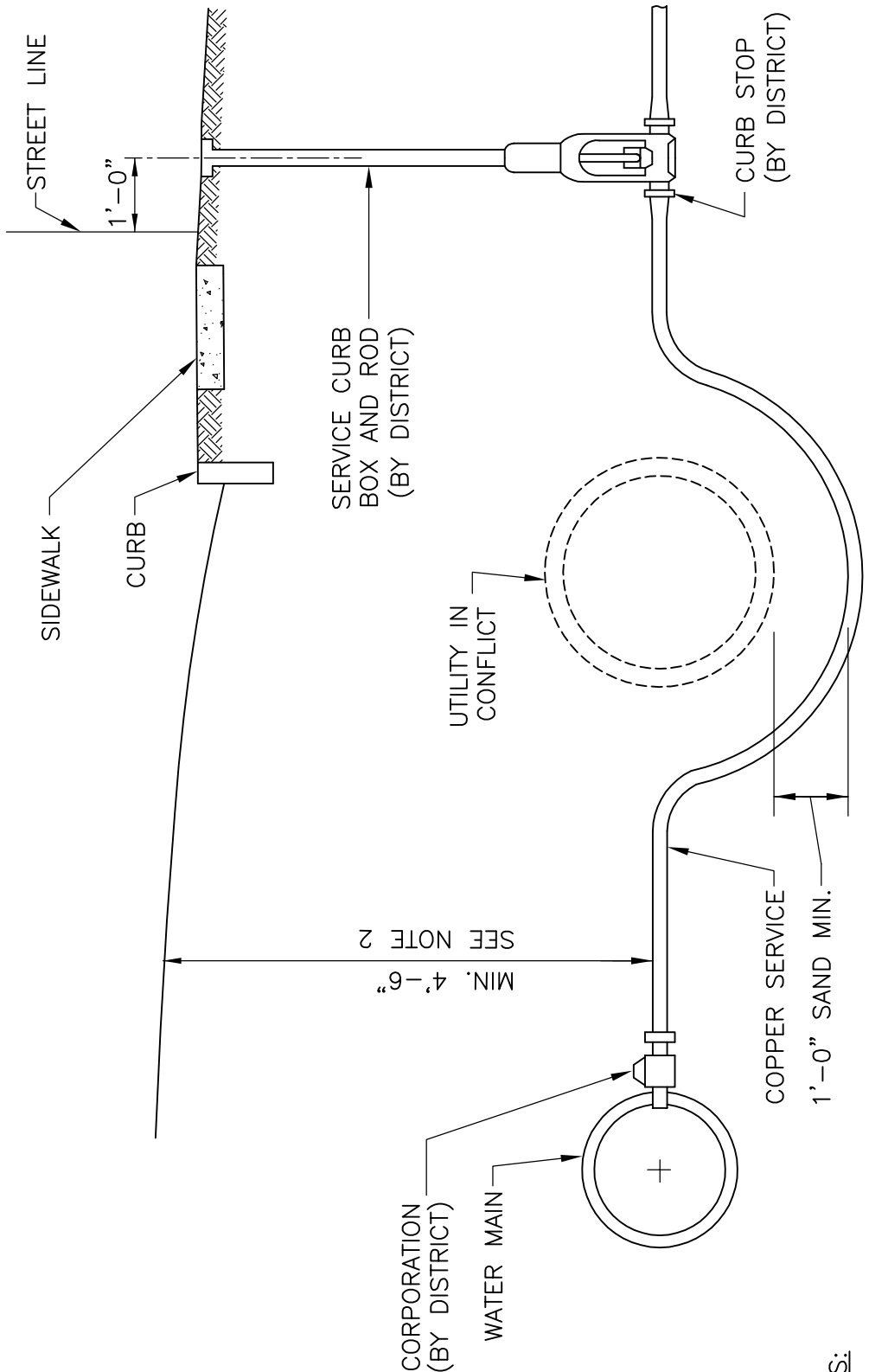


* 1–¼" PIPE IS NOT PERMITTED

TYPE K COPPER WATER SERVICE

DETAIL W-5

NTS



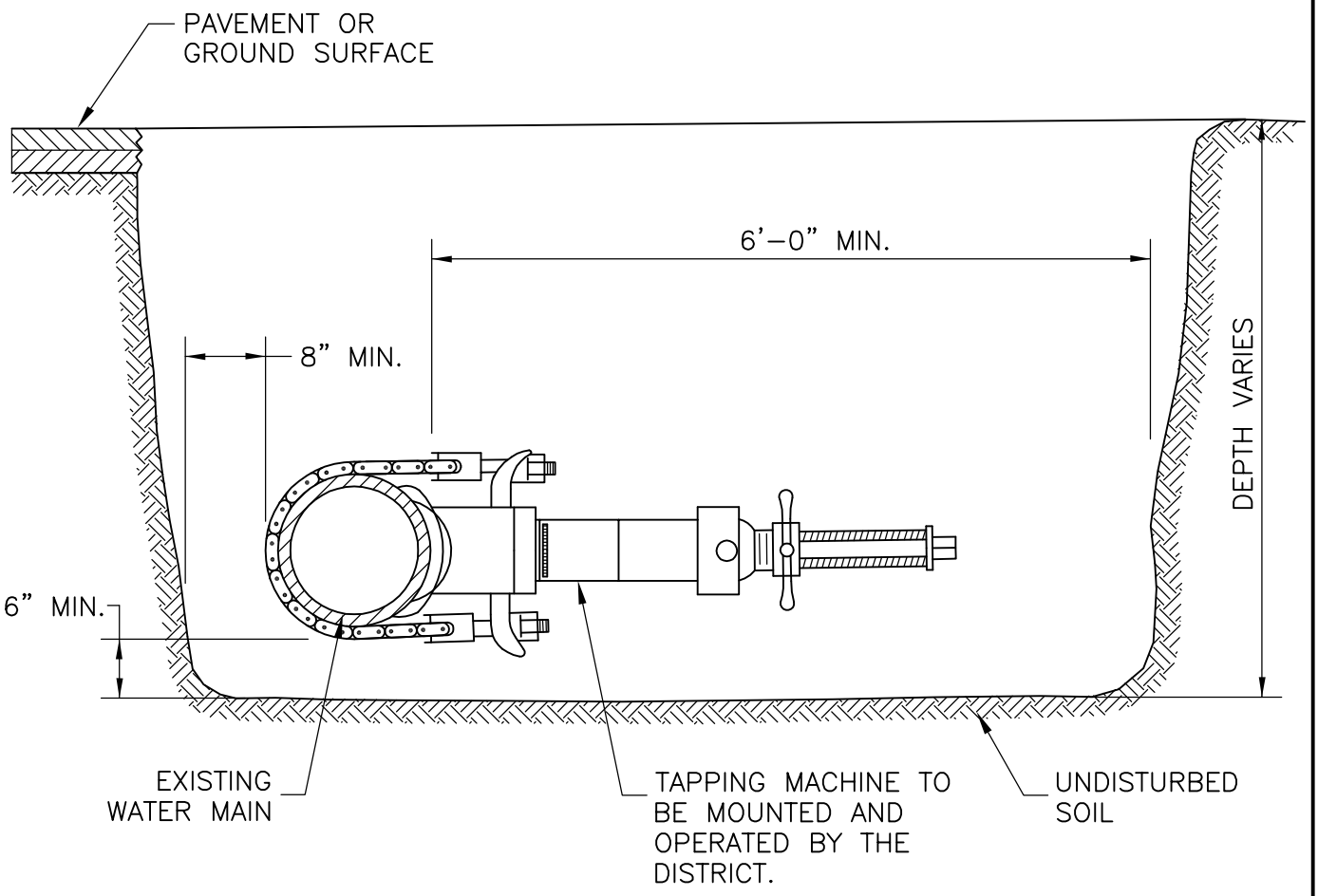
NOTES:

1. MAINTAIN 18" MINIMUM CLEARANCE WITH SANITARY SEWER.
2. INSULATION OF COPPER WATER SERVICE REQUIRED WITH LESS THAN 4'-6" COVER.

COPPER WATER SERVICE OFFSET

DETAIL W-6

NTS



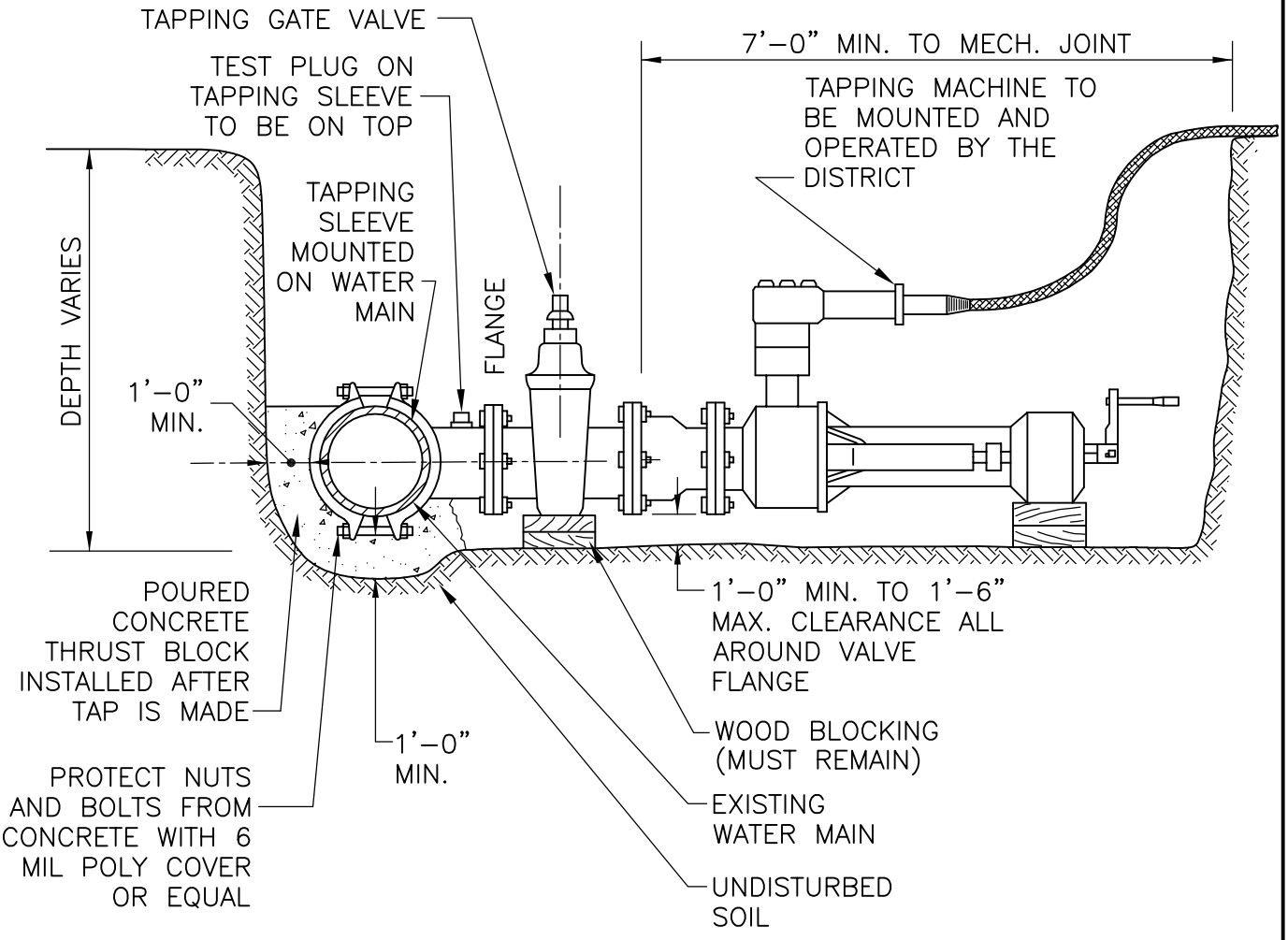
NOTE:

1. CONTRACTOR SHALL COORDINATE WITH THE DISTRICT AND THE PROPERTY OWNER PRIOR TO TRENCH EXCAVATION. THE TRENCH SHALL BE PROPERLY DEWATERED, SUPPORTED AND SHALL COMPLY WITH OSHA REQUIREMENTS FOR TRENCH EXCAVATION.

TRENCH REQUIREMENTS FOR 1–INCH TO 2–INCH SERVICE TAPS

DETAIL W 7

NTS



NOTES:

1. TAPPING SLEEVE & TAPPING GATE VALVE TO BE INSTALLED ON WATER MAIN BY THE CONTRACTOR. THE DISTRICT WILL TEST INSTALLATION PRIOR TO MAKING TAP. NO TAP WILL BE MADE IF THERE IS NO TEST PLUG.

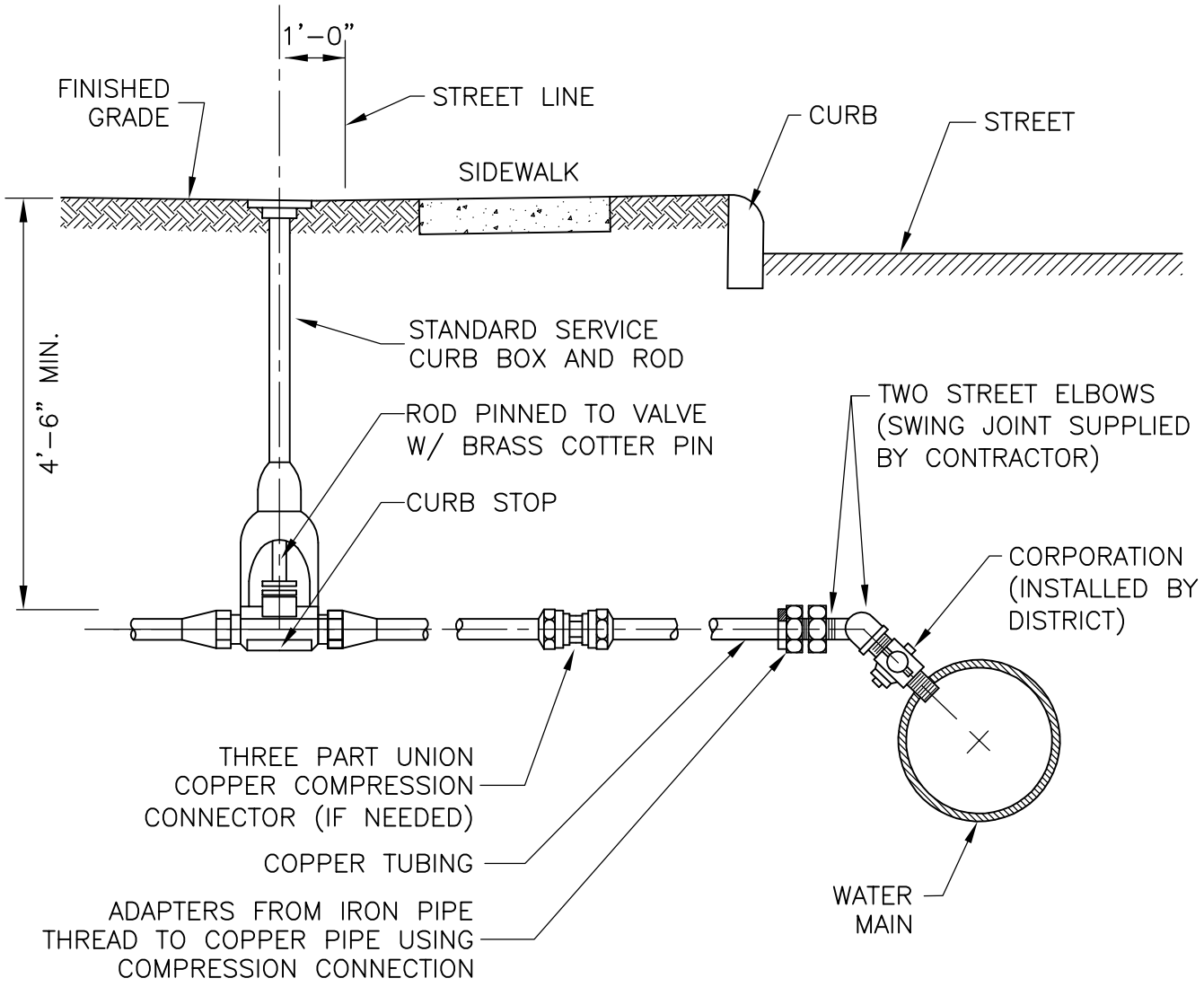
2. TAPPING GATE VALVE TO HAVE HAND OF OPERATION AS DIRECTED BY THE DISTRICT. IF VALVE HAND OF OPERATION IS NOT CORRECT, NO TAP WILL BE MADE.

3. CONTRACTOR SHALL COORDINATE WITH THE DISTRICT AND THE PROPERTY OWNER PRIOR TO TRENCH EXCAVATION. THE TRENCH SHALL BE PROPERLY DEWATERED, SUPPORTED AND SHALL COMPLY WITH OSHA REQUIREMENTS FOR TRENCH EXCAVATION.

TRENCH REQUIREMENTS FOR 4–INCH TO 12–INCH TAP ON WATER MAIN

DETAIL W 8

NTS



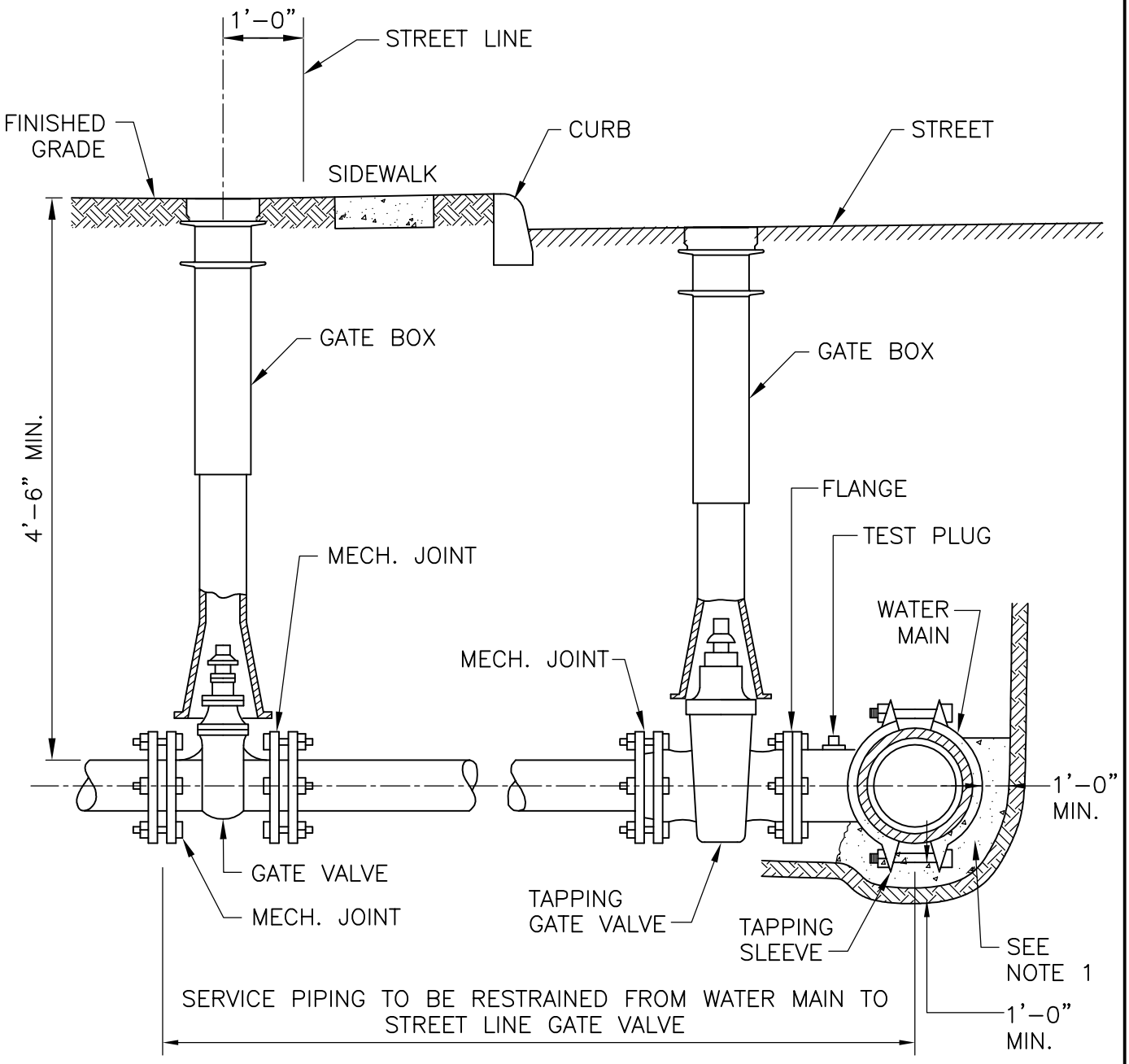
NOTE:

1. IF THE WATER SERVICE PIPE IS IRON OR BRASS ON THE PRIVATE PROPERTY SIDE, PROVIDE SHORT LENGTH OF COPPER PIPE AND PACK JOINT ADAPTER COUPLING OR EQUIVALENT.

1–INCH SERVICE TAP OFF HORIZONTAL CENTER LINE

DETAIL W 9

NTS



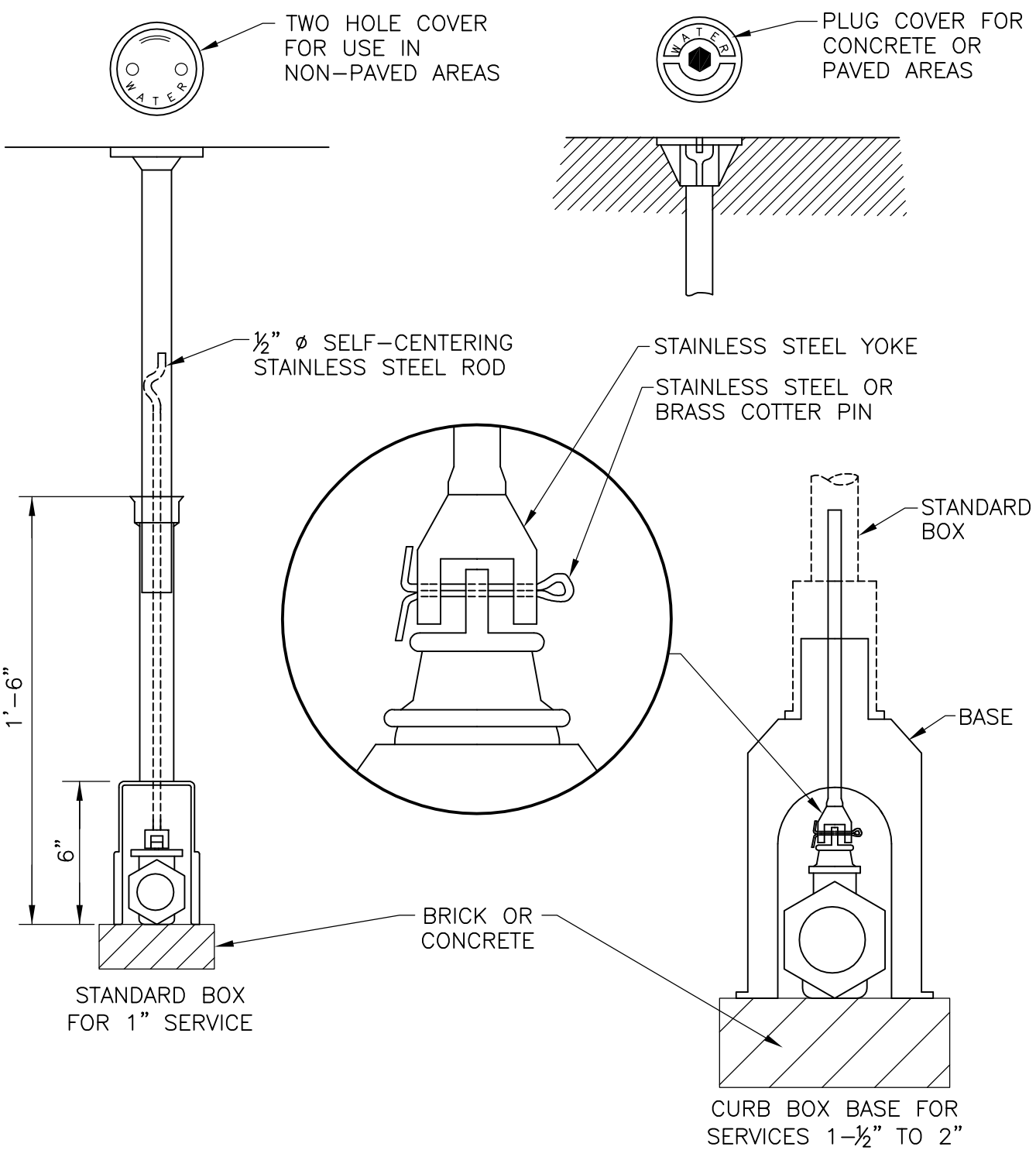
NOTES:

1. POURED CONCRETE THRUST BLOCK TO BE INSTALLED AFTER TAP IS MADE. PROTECT NUTS FROM CONCRETE WITH 6 MIL POLY COVER OR EQUAL.

SERVICES 4–INCH THROUGH 8–INCH

DETAIL W 10

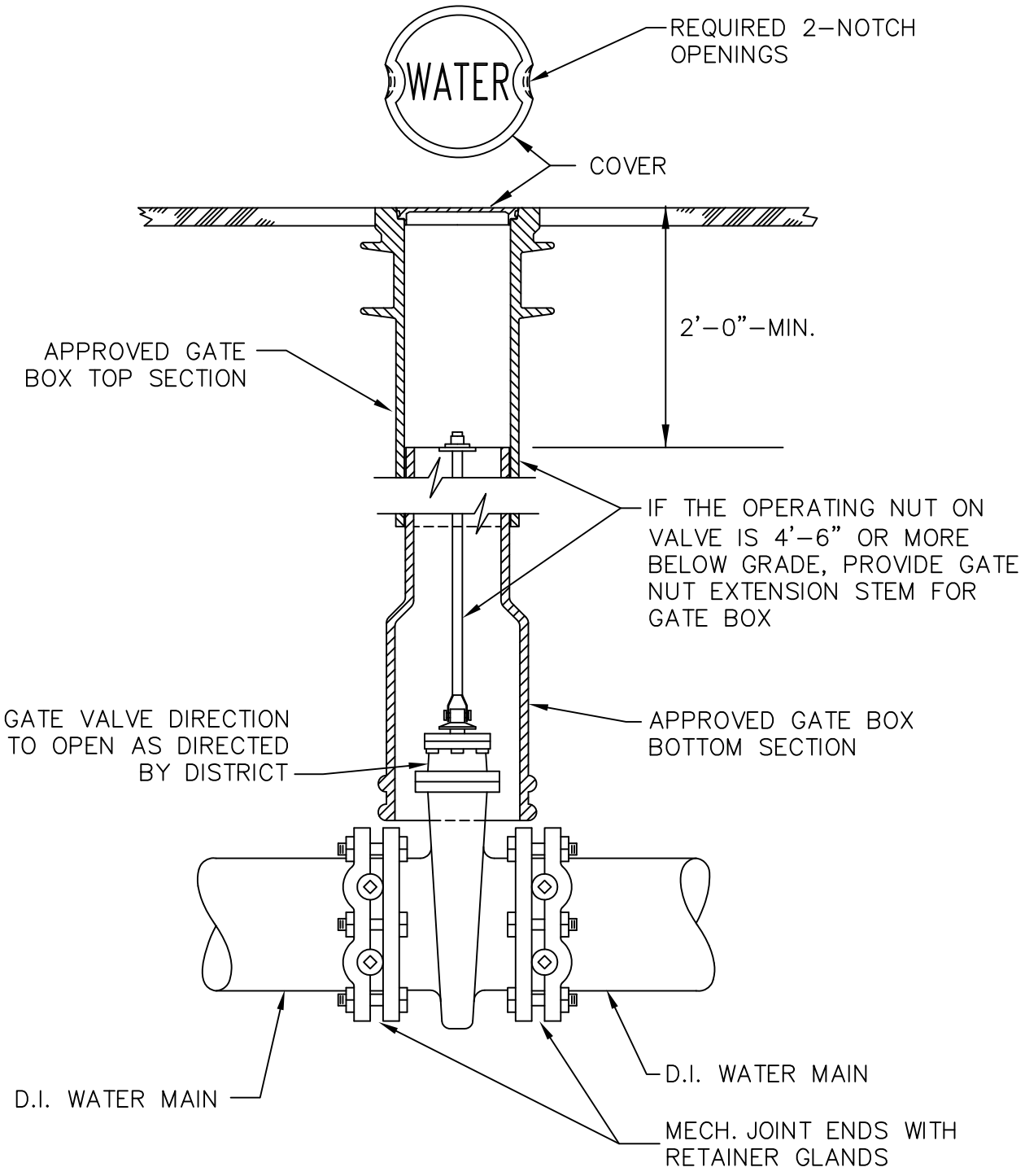
NTS



STANDARD SERVICE CURB BOX

DETAIL W 11

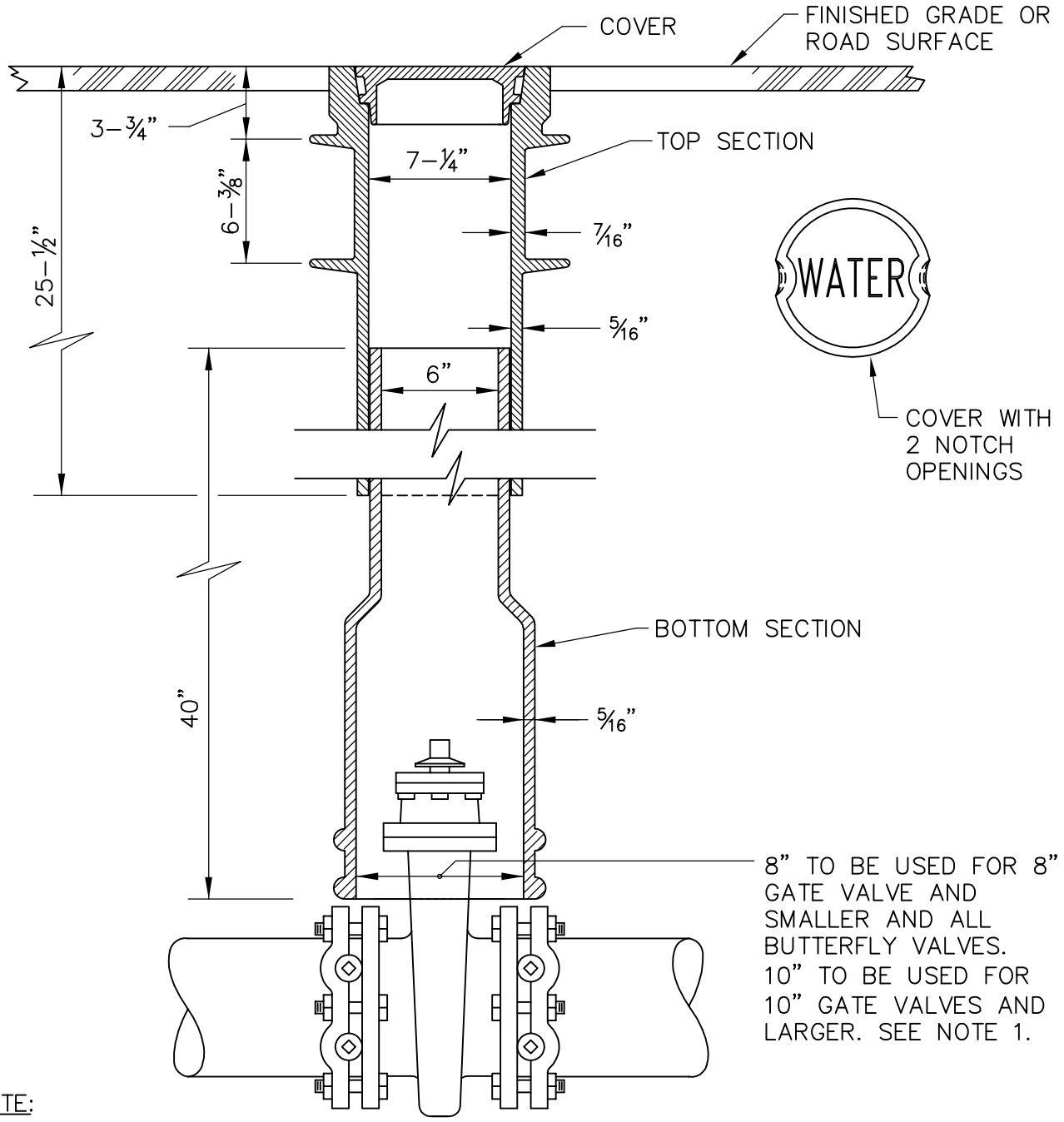
NTS



STANDARD GATE VALVE 12–INCH AND SMALLER

DETAIL W 12

NTS



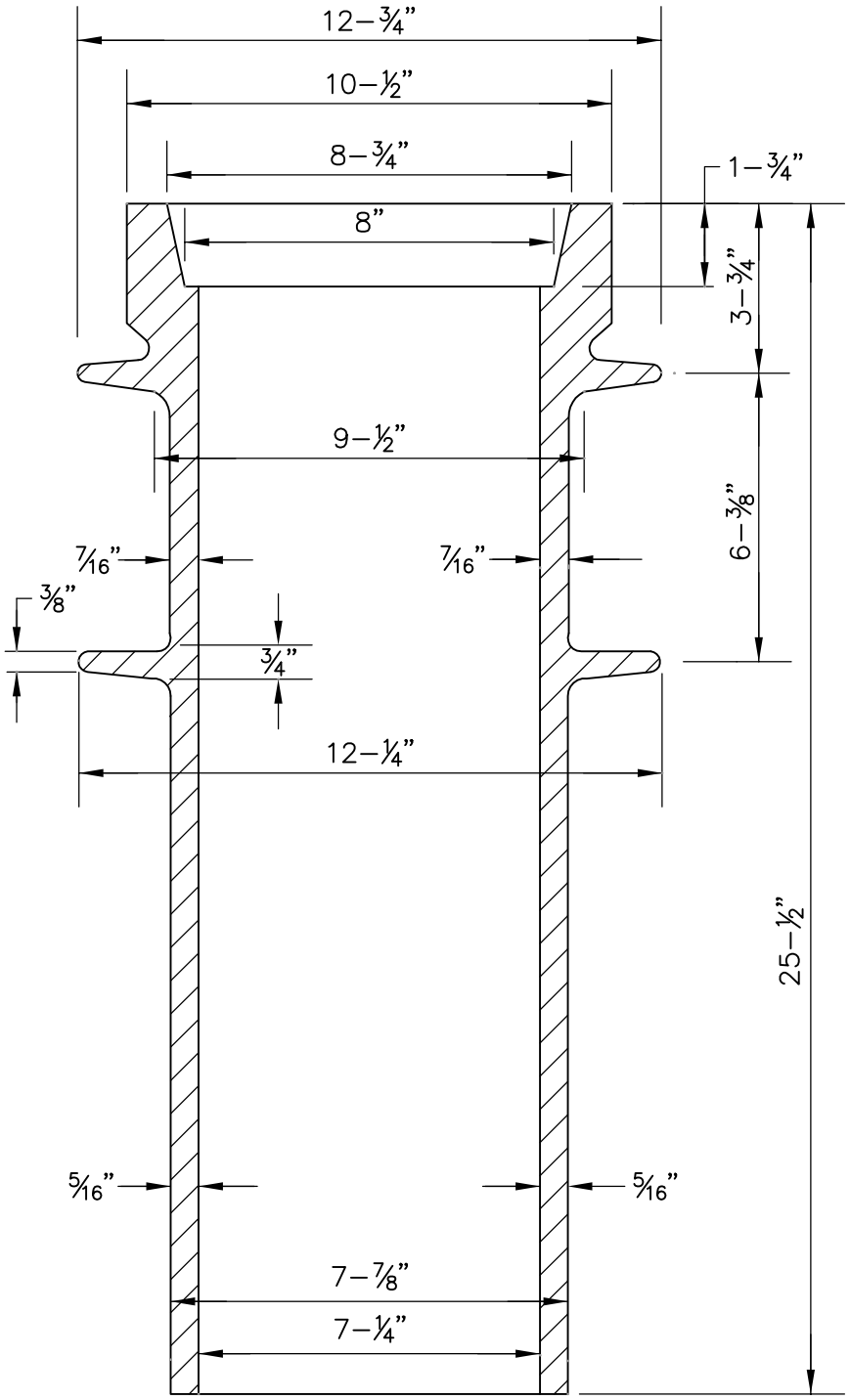
NOTE:

1. THE GATE BOX SHALL BE SET PLUMB AND CENTERED DIRECTLY OVER THE OPERATING NUT OF THE VALVE. THE CONTRACTOR SHALL USE A COMMERCIALLY AVAILABLE CENTERING DEVICE TO PREVENT DAMAGE TO THE TOP OF THE VALVE AND MAINTAIN ALIGNMENT.

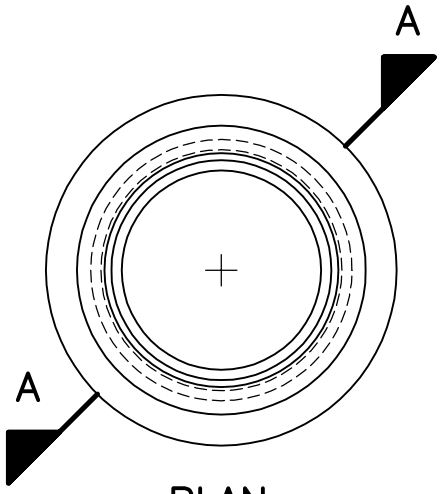
STANDARD GATE BOX ASSEMBLY (DWYER TYPE)

DETAIL W 13

NTS



SECTION A–A

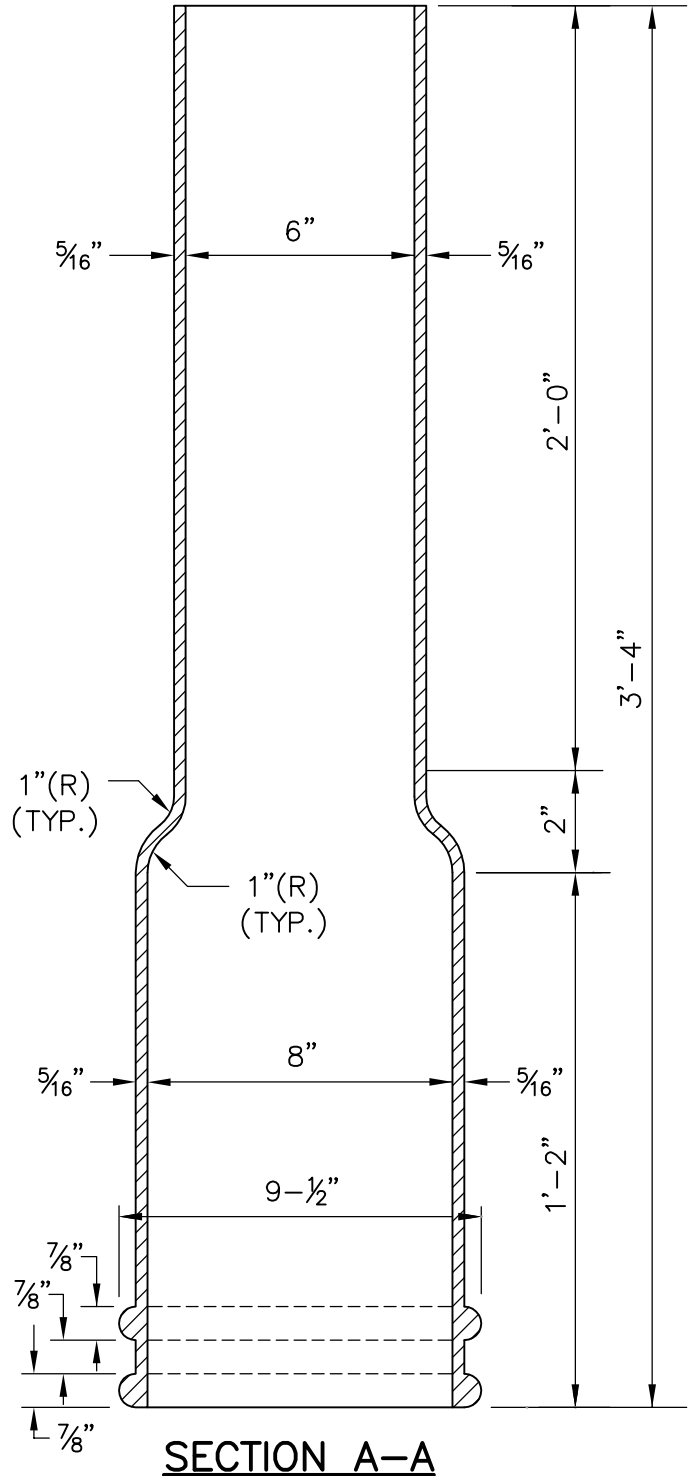


PLAN

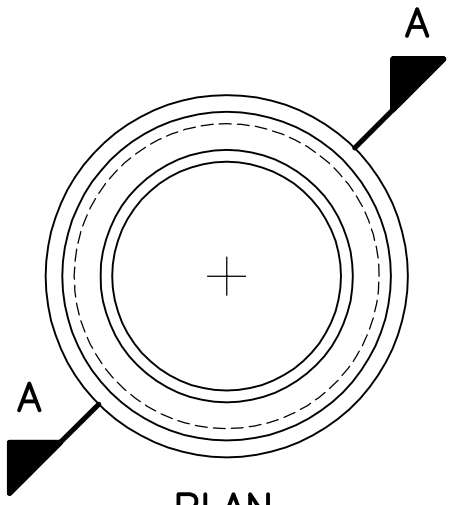
CAST IRON GATE BOX TOP SECTION (DWYER TYPE)

DETAIL W 14

NTS



SECTION A–A



PLAN

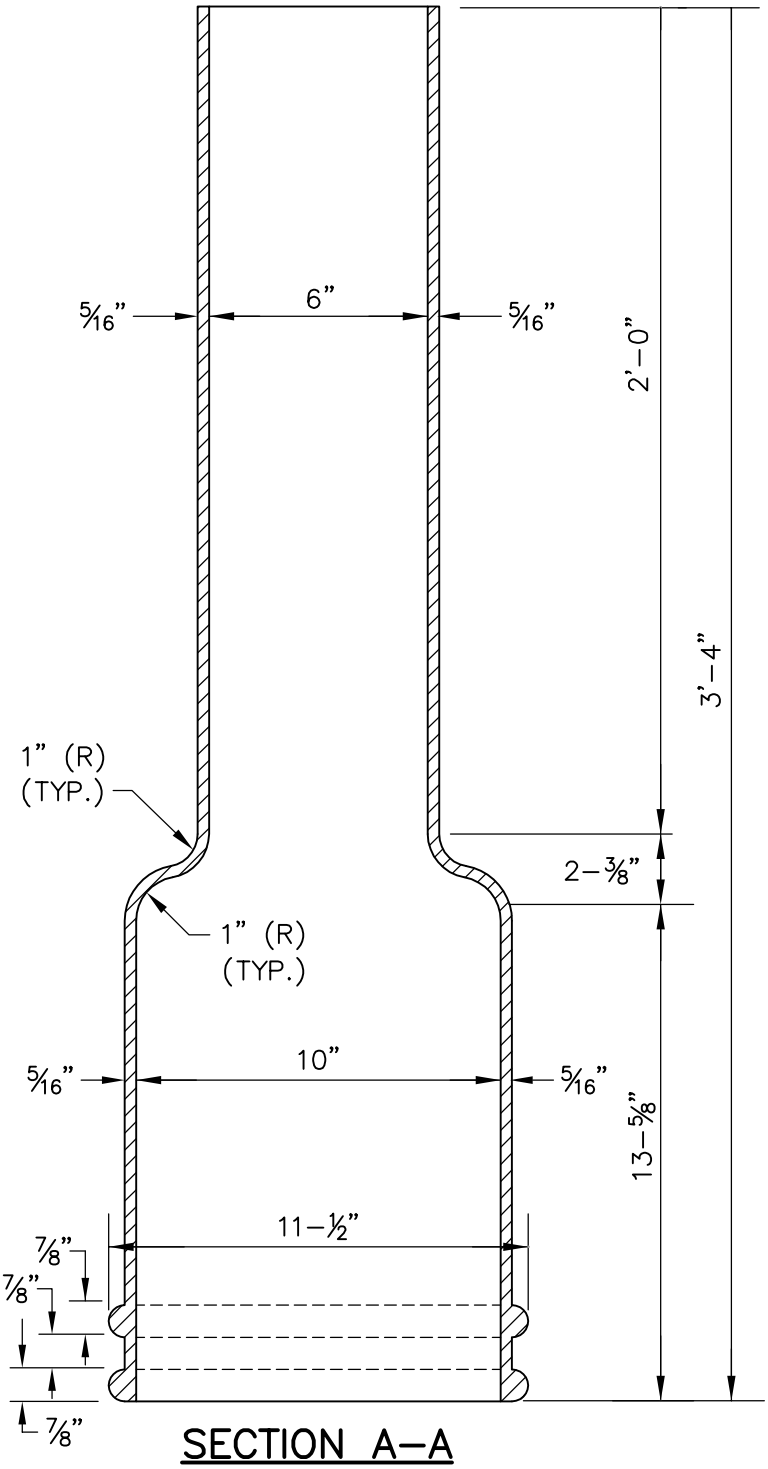
NOTE:

1. FOR USE ON 8" AND SMALLER GATE VALVES AND ALL BUTTERFLY VALVES.

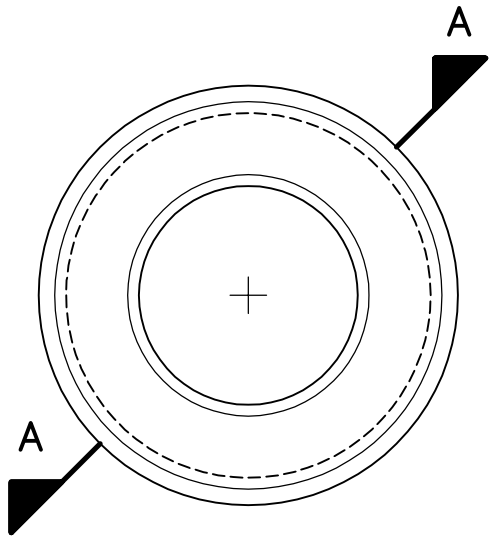
CAST IRON GATE BOX BOTTOM SECTION 8–INCH (DWYER TYPE)

DETAIL W 15

NTS



SECTION A–A



PLAN

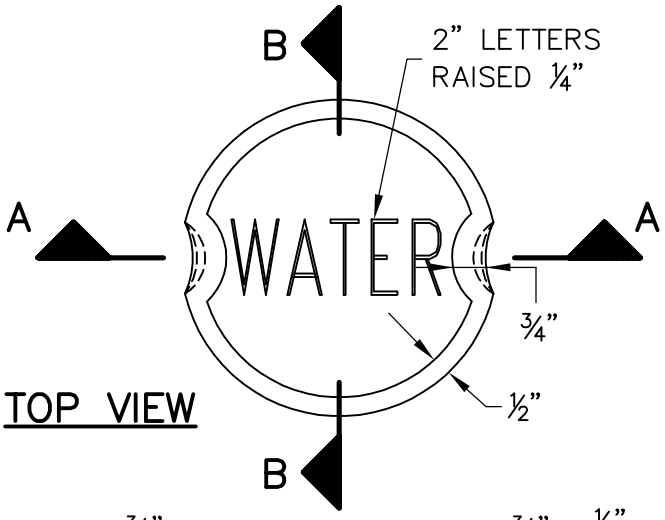
NOTE:

1. FOR USE ON 10" AND LARGER GATE VALVES.

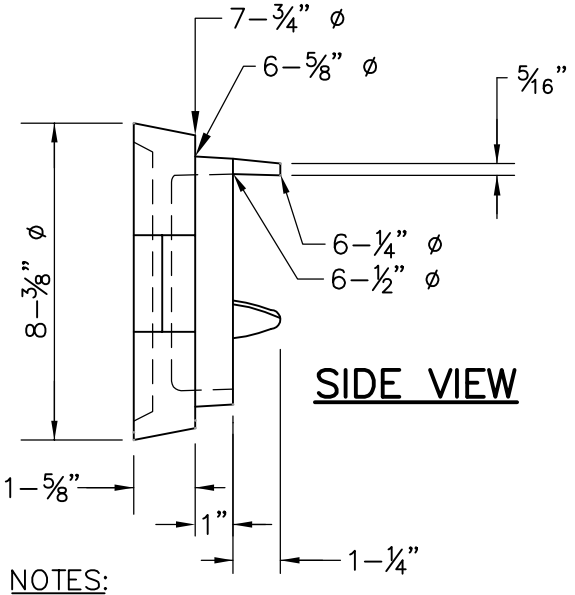
CAST IRON GATE BOX BOTTOM SECTION 10–INCH (DWYER TYPE)

DETAIL W 16

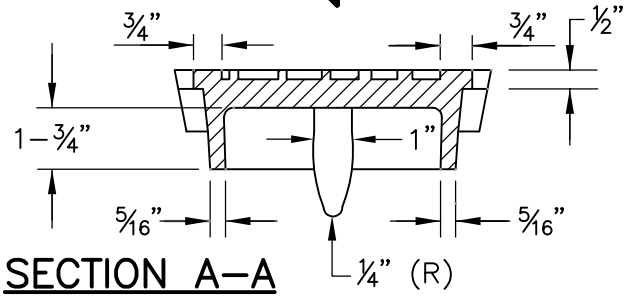
NTS



TOP VIEW



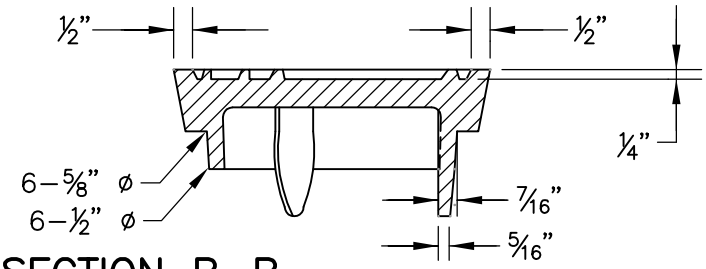
SIDE VIEW



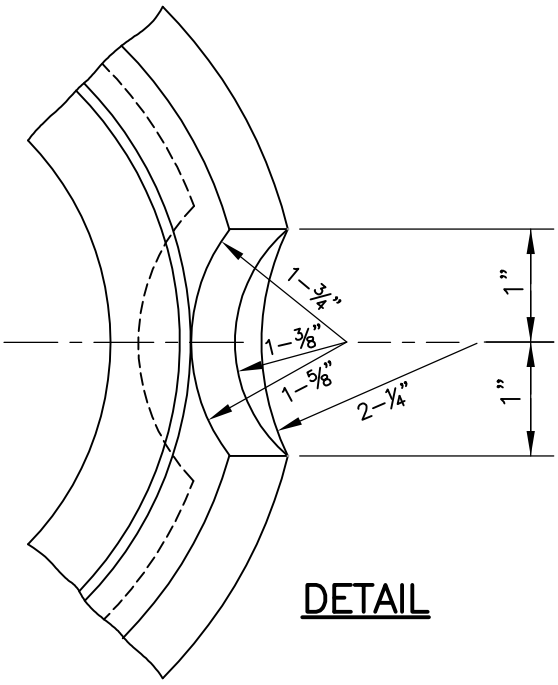
SECTION A–A

NOTES:

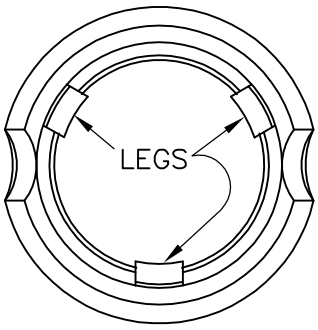
1. APPROXIMATE WEIGHT 20 LBS.
2. FOR NEW CONSTRUCTION.



SECTION B–B



DETAIL

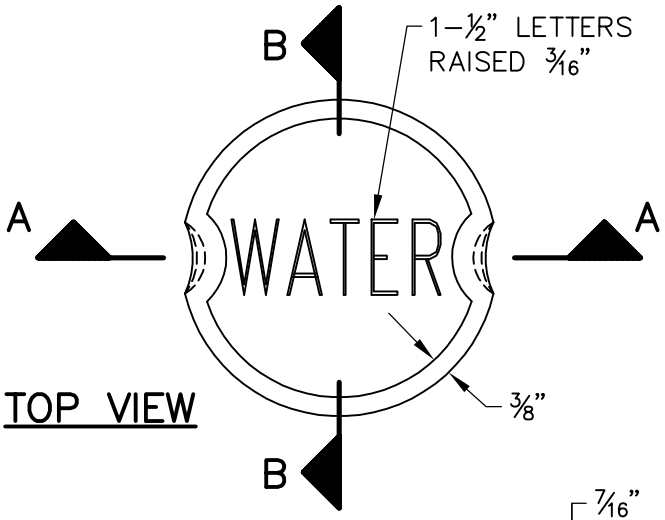


BOTTOM VIEW

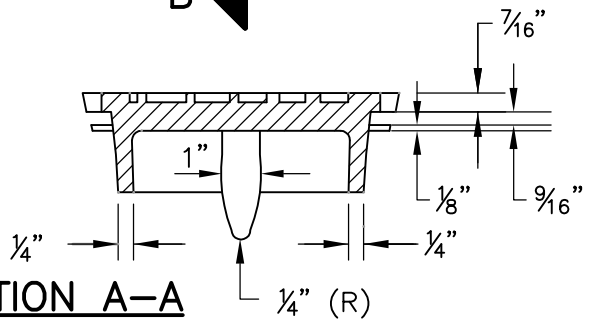
CAST IRON GATE BOX COVER (DWYER TYPE)

DETAIL W 17

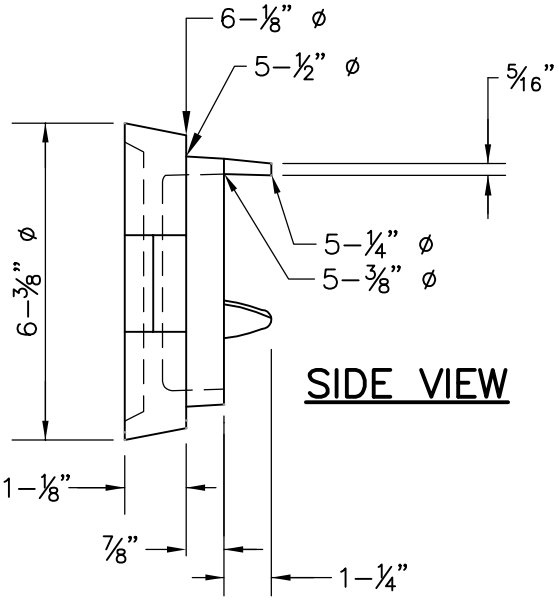
NTS



TOP VIEW



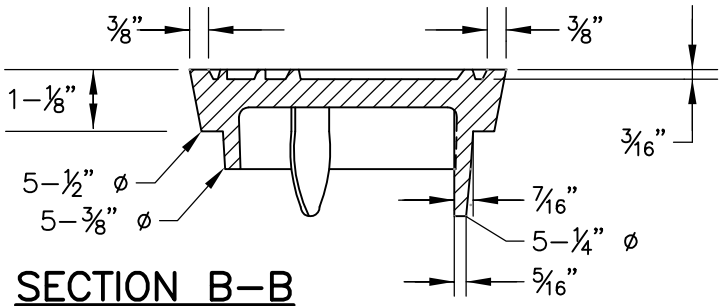
SECTION A–A



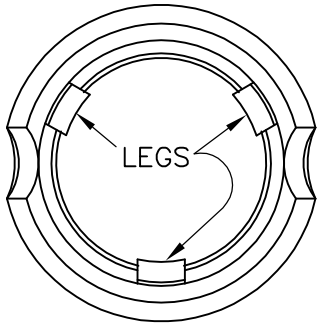
SIDE VIEW

NOTE:

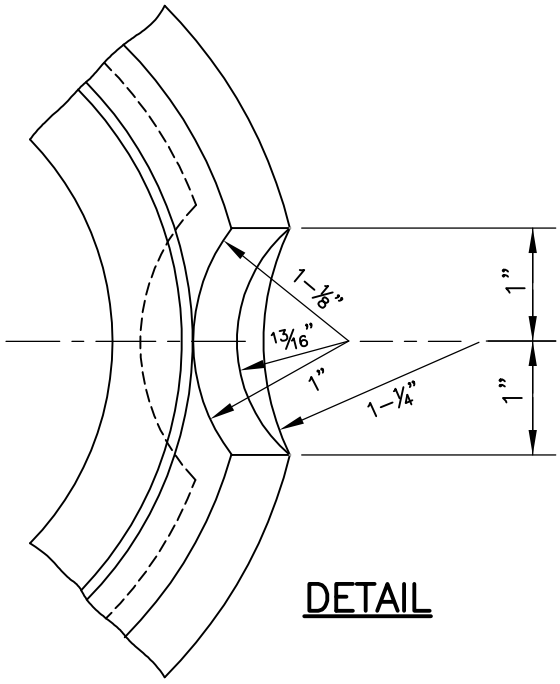
1. APPROXIMATE WEIGHT 20 LBS.



SECTION B–B



BOTTOM VIEW



DETAIL

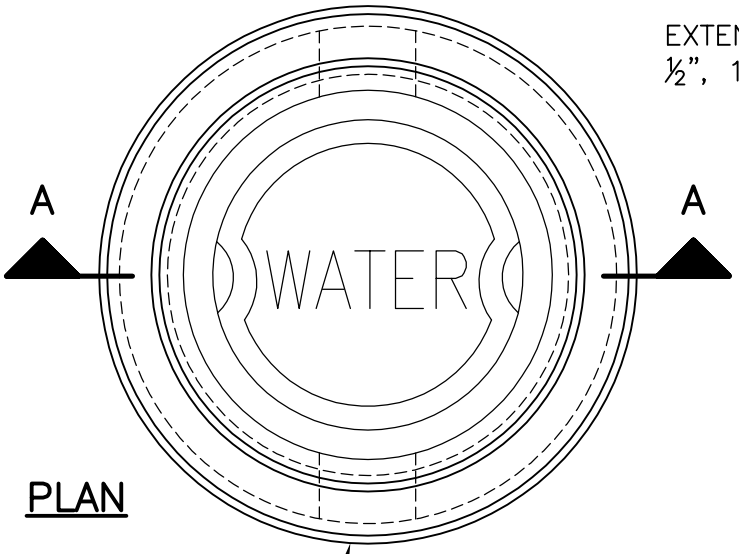
CAST IRON GATE BOX EXTENSION COVER 6–INCH (DWYER TYPE)

DETAIL W
NTS 18

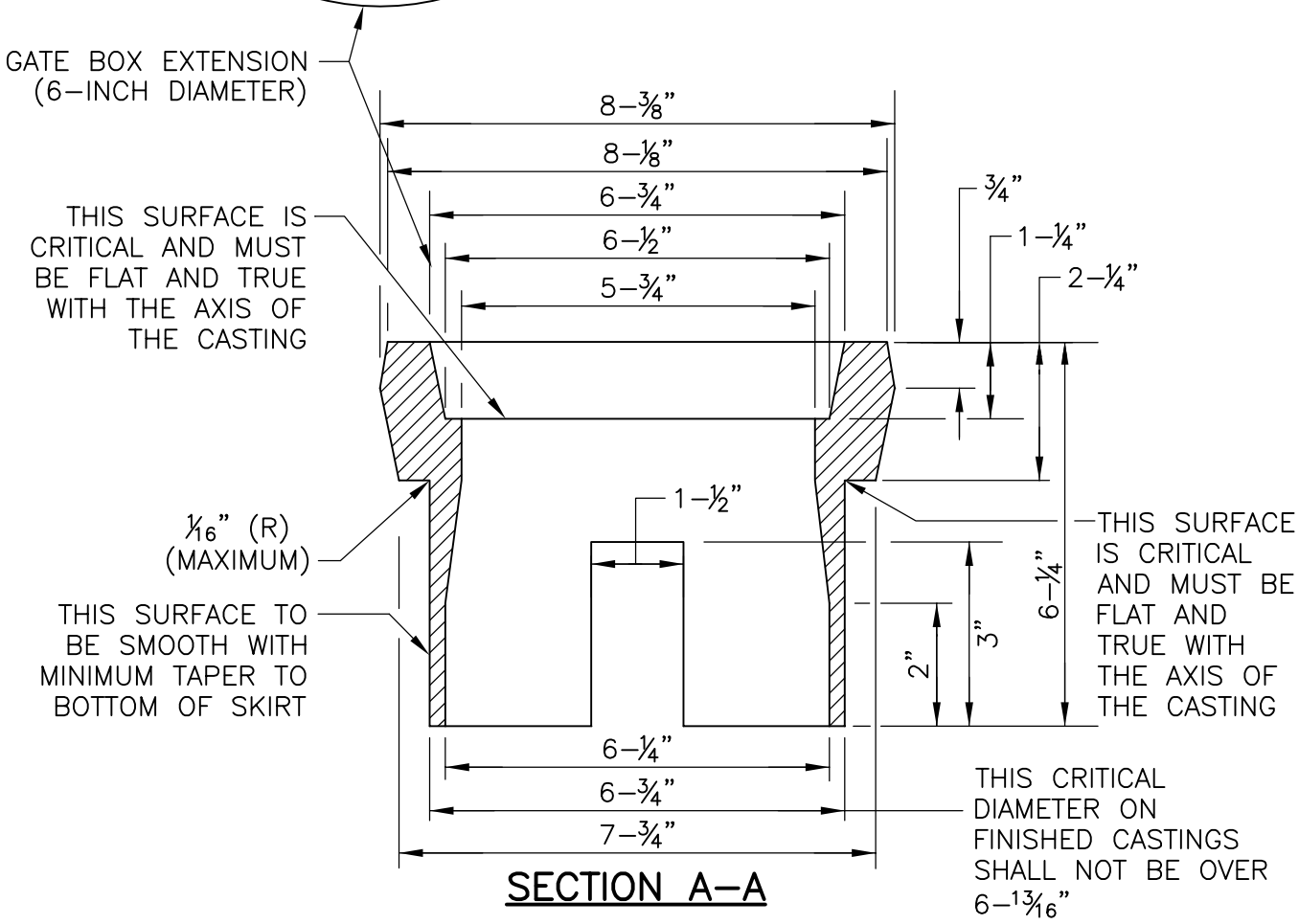
EXTENSION RING HEIGHTS
½", 1", 1–½" & 2"

NOTES:

1. A MAXIMUM OF THREE EXTENSION RINGS CAN BE USED PER GATE BOX.
2. ALL DIMENSION AREA TO BE ± 1/16" UNLESS INDICATED OTHERWISE.
3. NOT TO BE USED FOR NEW WATER MAIN INSTALLATIONS.



PLAN

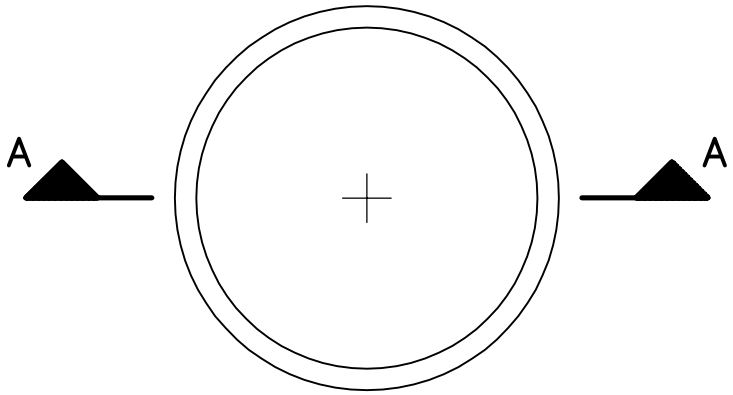


SECTION A–A

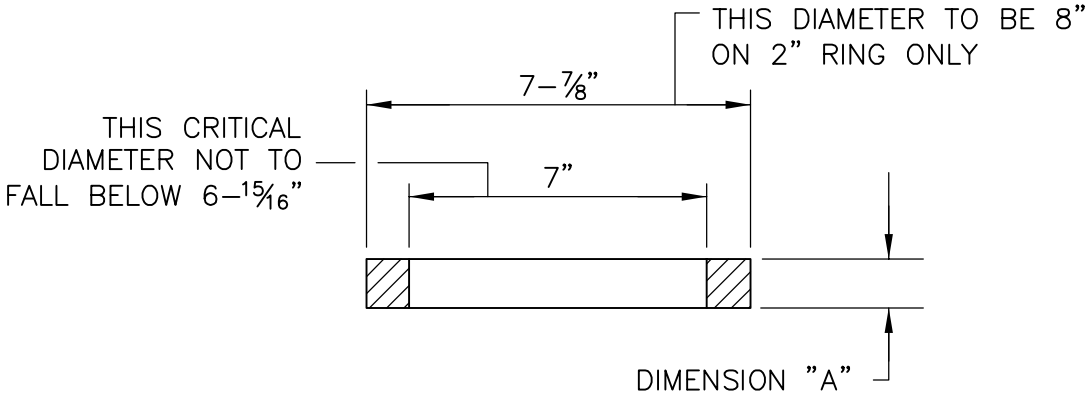
GATE BOX EXTENSION

DETAIL W 19

NTS



PLAN



SECTION A–A

DIMENSION "A"	APRROXIMATE WEIGHT
½"	1.50 LBS
1"	2.75 LBS
1–½"	3.75 LBS
2"	6.00 LBS

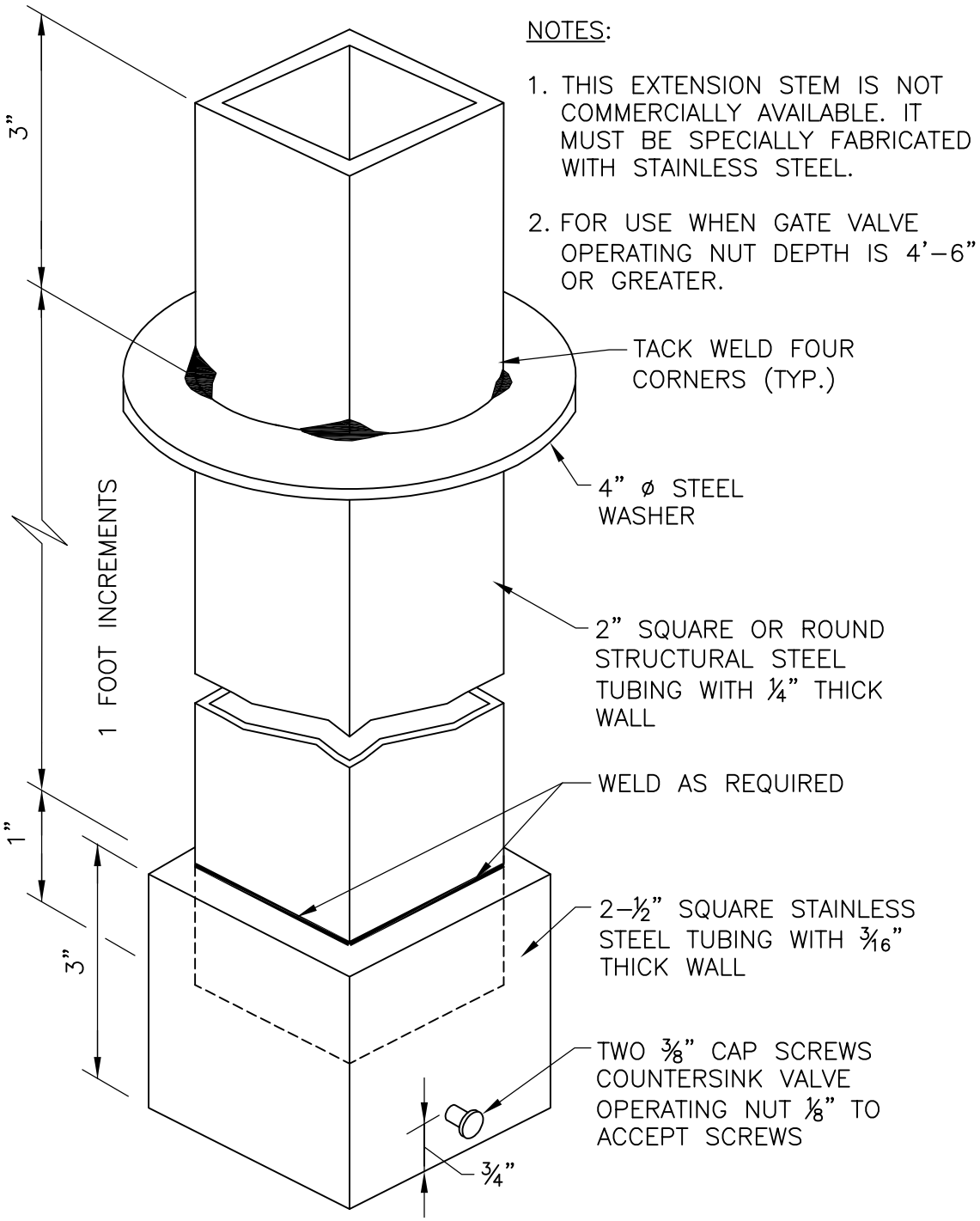
NOTE:

1. ALL DIMENSIONS ARE TO BE ±1/16" UNLESS INDICATED OTHERWISE.

GATE BOX EXTENSION SPACER RINGS

DETAIL W 20

NTS



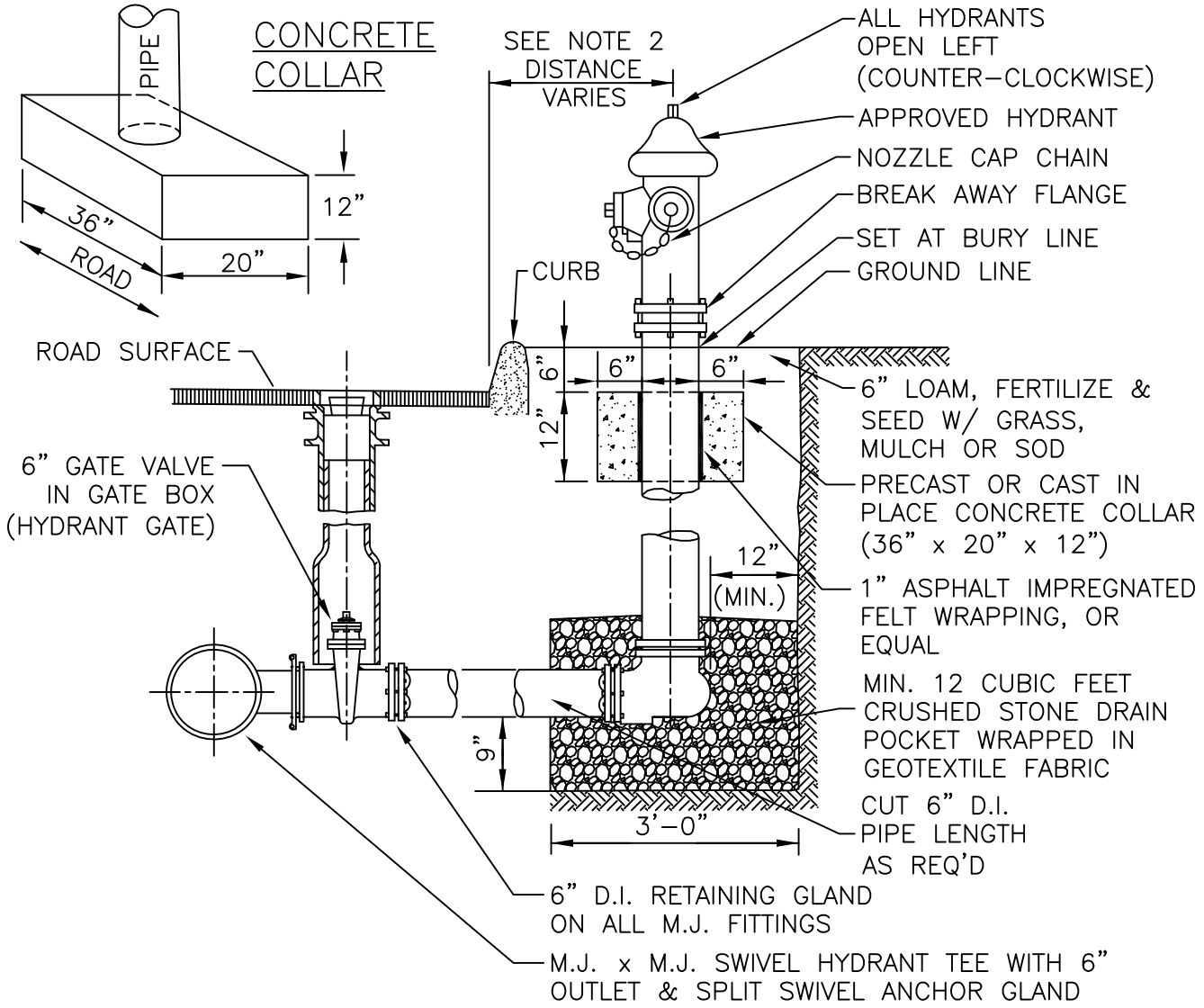
NOTES:

1. THIS EXTENSION STEM IS NOT COMMERCIALLY AVAILABLE. IT MUST BE SPECIALLY FABRICATED WITH STAINLESS STEEL.
2. FOR USE WHEN GATE VALVE OPERATING NUT DEPTH IS 4'–6" OR GREATER.

GATE NUT EXTENSION STEM FOR GATE BOX

DETAIL W 21

NTS



NOTES:

1. INSTALL 6" WIDE UNDERGROUND WARNING TAPE (NON-DETECTABLE) 2-FT ABOVE LENGTH OF HYDRANT BRANCH.

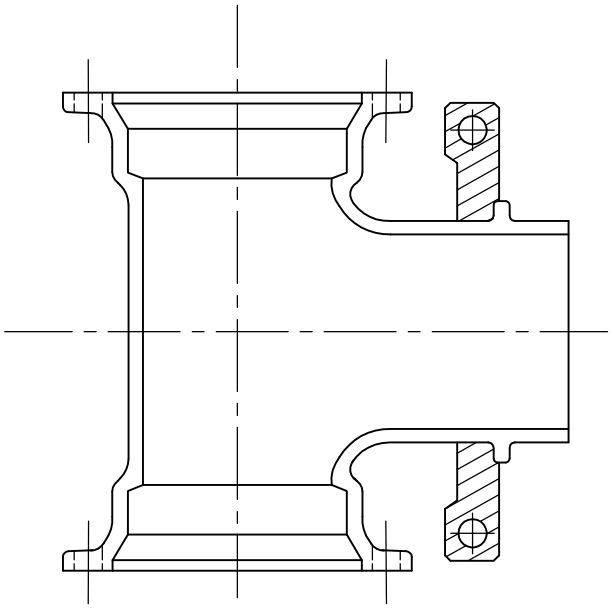
2. DISTANCE SHALL BE 3'± IN BLOOMFIELD, FARMINGTON AND GLASTONBURY AND 2'± IN OTHER MEMBER TOWNS.

3. OFFSET HYDRANT LATERAL AS NECESSARY WHILE MAINTAINING MINIMUM 4.5 FEET OF COVER TO SET FIRE HYDRANT BURY LINE AT GRADE. FURNISH AND INSTALL EXTENSIONS AS NECESSARY ONLY IF A LATERAL OFFSET IS NOT POSSIBLE.

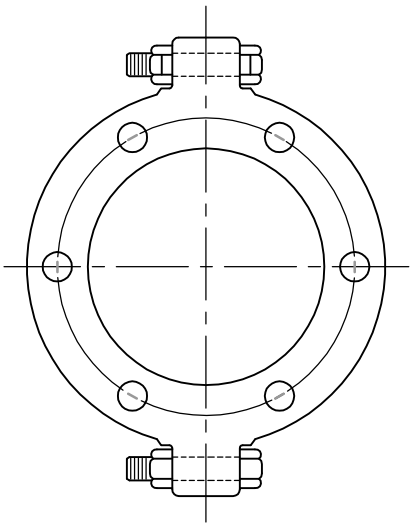
STANDARD FIRE HYDRANT ASSEMBLY

DETAIL W 22

NTS



SECTION



SPLIT GLAND

NOTE:

1. THE SWIVEL HYDRANT TEE IS A COMPACT MECHANICAL JOINT TEE EXCEPT THE BRANCH IS PLAIN END WITH AN INTEGRAL RING AND A ROTATABLE SPLIT GLAND. THE SPLIT GLAND ANCHORS THE PLAIN END TO ANY MECHANICAL JOINT BELL AND ELIMINATES THE NEED FOR THE RODS AND BLOCKING. THIS TEE SHALL BE USED FOR HYDRANT LEADS AND FOR ANCHORING A VALVE TO THE TEE SHOULD A FUTURE BRANCH LINE BE ANTICIPATED.

SWIVEL MECHANICAL JOINT HYDRANT TEE

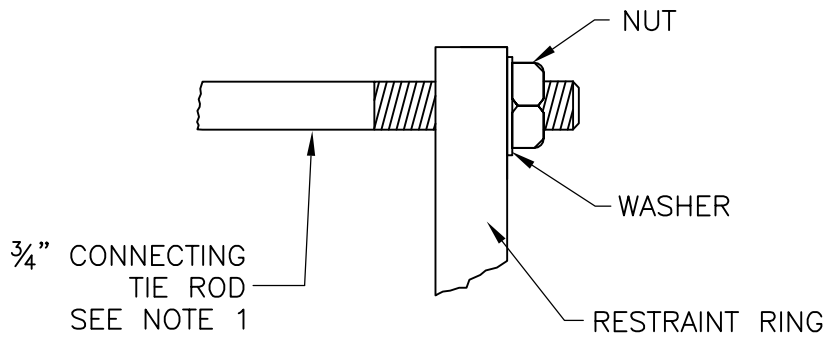
DETAIL W 23

NTS

JOINT METHOD NOTES:

① MECHANICAL JOINT RETAINER GLANDS

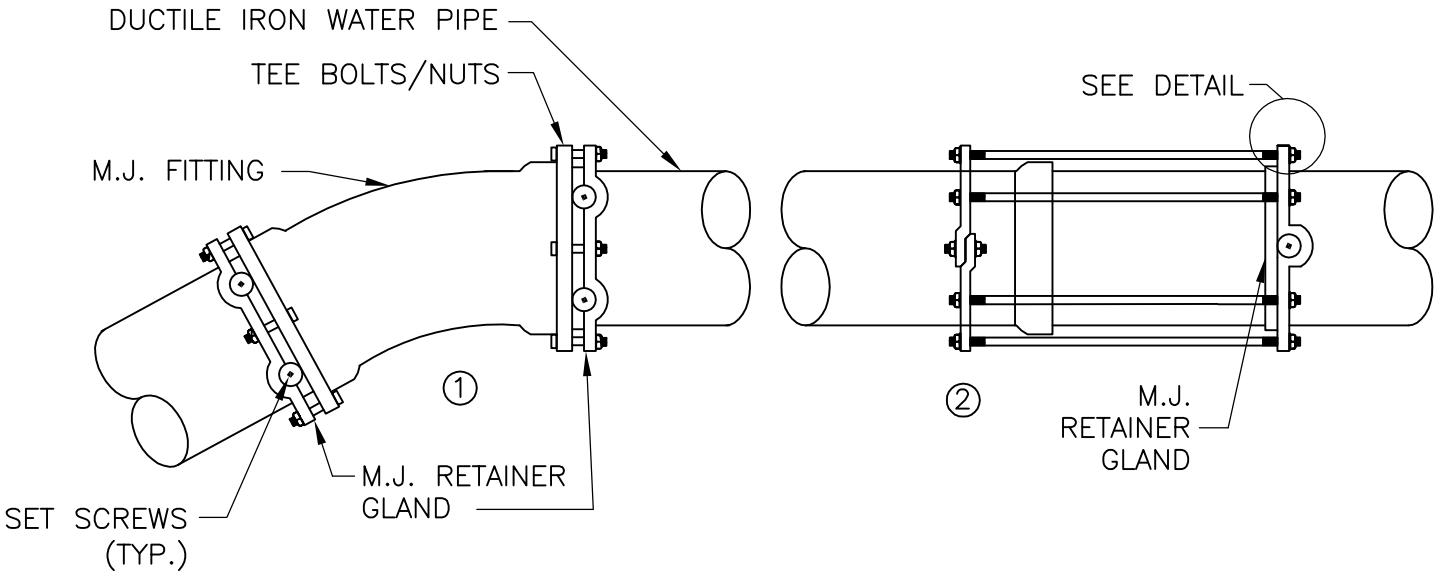
② PUSH–ON JOINT RESTRAINT USING MECHANICAL JOINT RETAINER GLANDS



DETAIL

NOTE:

1. PROVIDE 12" MIN. LENGTH TIE RODS W/ NUTS AND WASHERS. TYPICAL TIE ROD LENGTH IS 24".



STANDARD RESTRAINED JOINTS

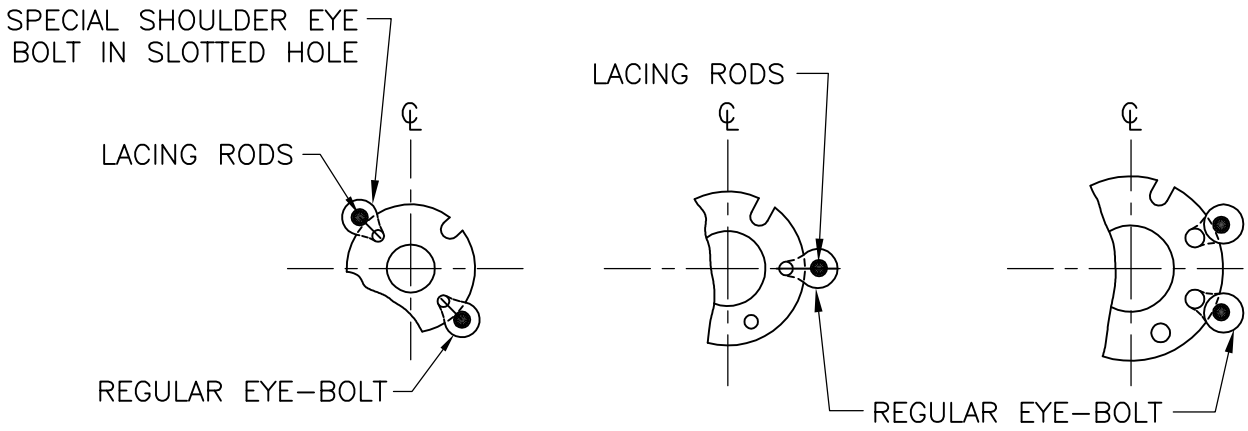
DETAIL W 24

NTS

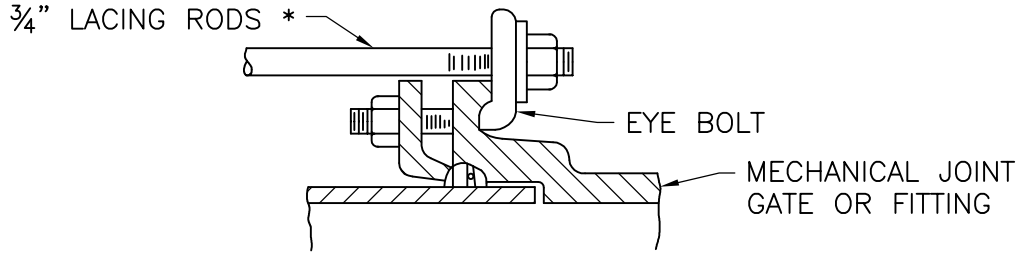
THE METROPOLITAN DISTRICT

WATER STANDARD DETAILS

MDC



4" JOINTS | **6" & 8" JOINTS** | **10" & 12" JOINTS**



PIPE SIZE	LACING RODS
4", 6" & 8"	2 – ¾" ø
10" & 12"	4 – ¾" ø

* STANDARD LENGTHS ARE 6' & 10'.
COUPLINGS MAY BE USED FOR LONGER LENGTHS.

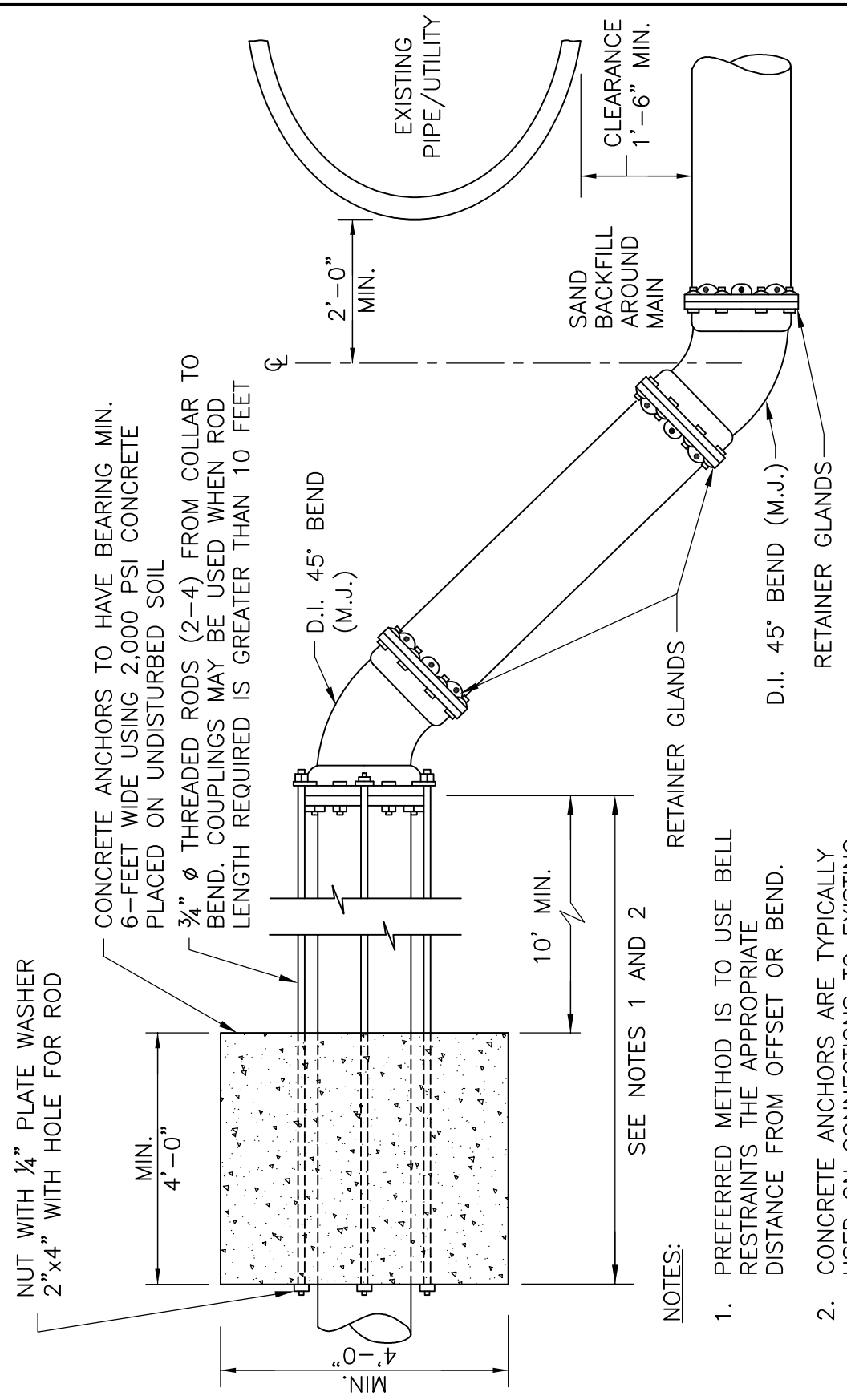
NOTES:

1. NUMBER OF LACING RODS IS BASED ON MAXIMUM PRESSURE OF 150 P.S.I. IN MAIN.
2. STEEL LACING RODS SHALL HAVE A YIELD STRESS OF NOT LESS THAN 36,000 P.S.I.
3. EYE–BOLTS SHALL HAVE A MINIMUM TENSILE STRENGTH OF 7,000 LBS. EACH.
4. ¾" LACING RODS AND EYEBOLTS ARE UNSUITABLE FOR PIPELINES 16 INCHES IN DIAMETER AND LARGER. RESTRAINT FOR 16 INCHES AND LARGER PIPES MUST BE DESIGNED ON A CASE–BY–CASE BASIS AND APPROVED BY THE DISTRICT.
5. ALL COMPONENTS SHALL BE HOT–DIPPED GALVANIZED.

MECHANICAL JOINT LACING METHOD

DETAIL W 25

NTS



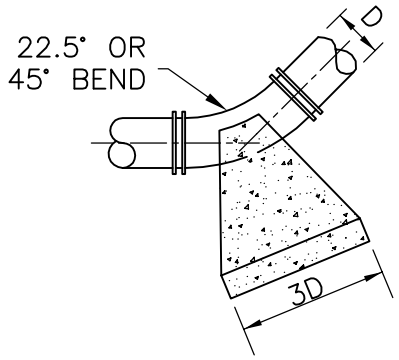
RESTRAINED OFFSET WITH CONCRETE ANCHOR

DETAIL W 26

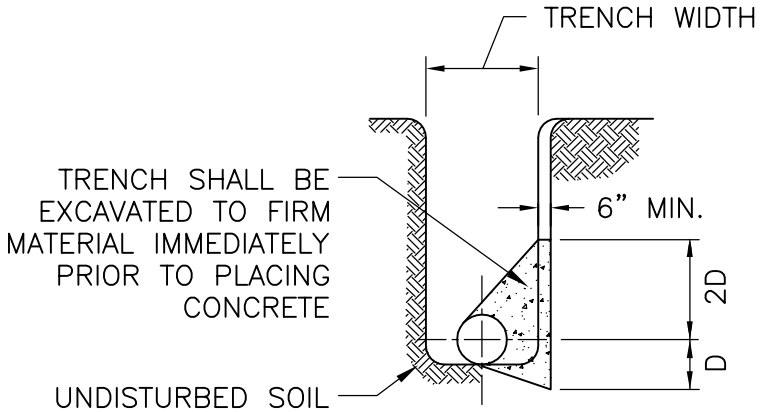
NTS

NOTES:

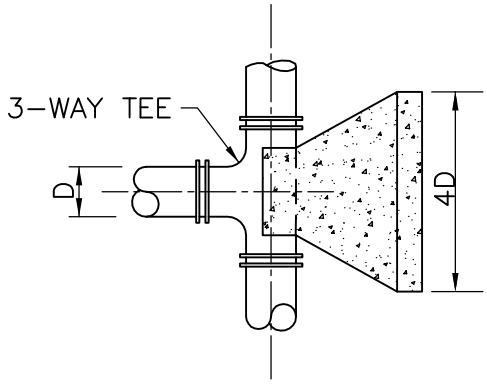
1. PREFERRED METHOD IS TO USE BELL RESTRAINTS THE APPROPRIATE DISTANCE FROM OFFSET OR BEND.
2. CONCRETE ANCHORS ARE TYPICALLY USED ON CONNECTIONS TO EXISTING WATER MAINS ONLY.



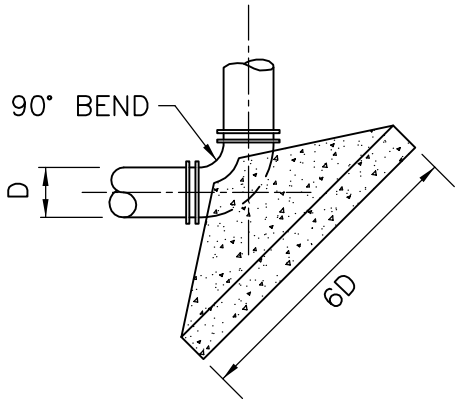
PLAN



SECTION



PLAN



PLAN

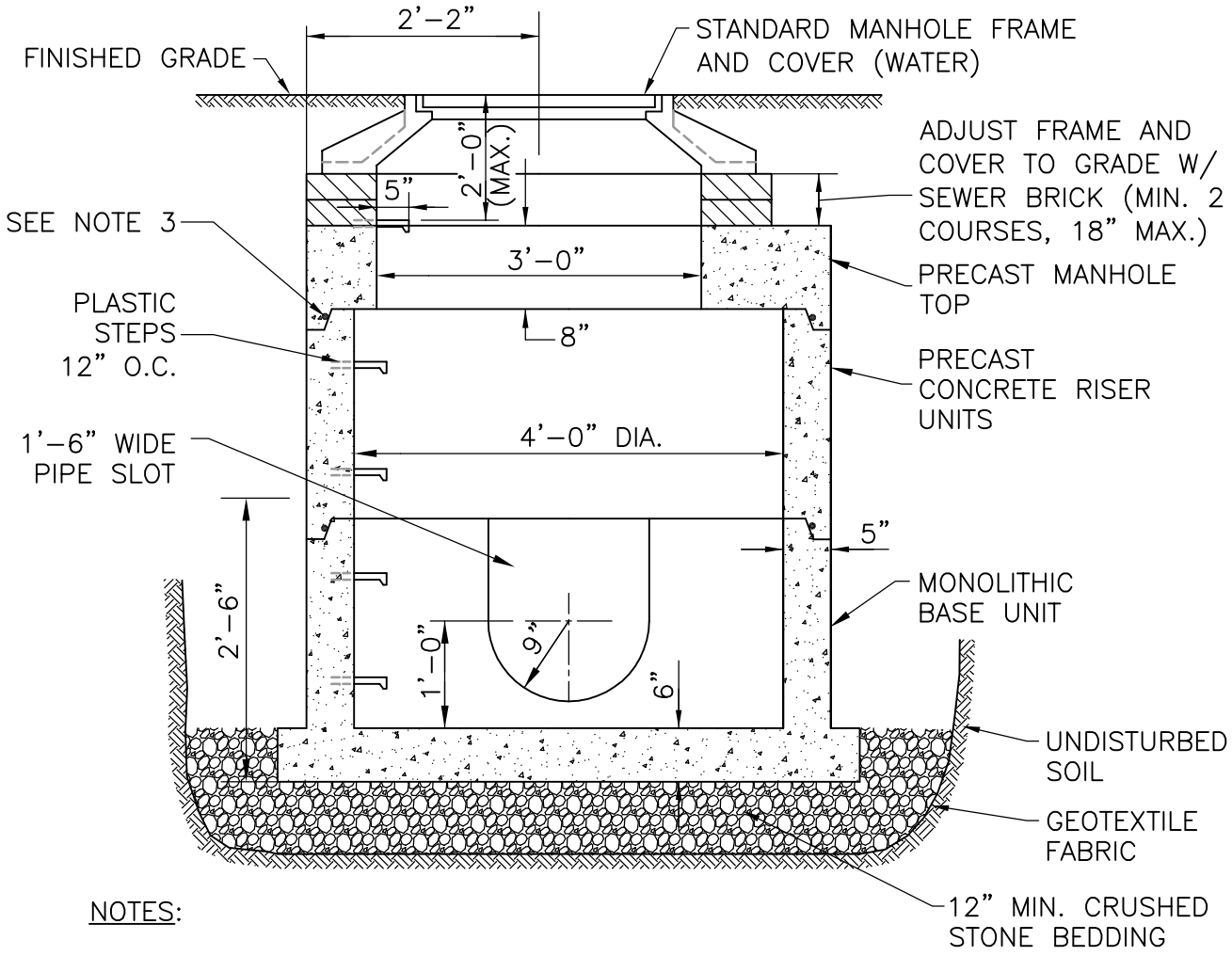
NOTES:

1. THRUST RESTRAINTS SHALL BE EITHER RESTRAINED JOINTS FOR DUCTILE IRON PIPE OR THRUST BLOCKS. THRUST BLOCKS ARE NOT THE PREFERRED METHOD OF THRUST RESTRAINT AND WILL ONLY BE PERMITTED IN SPECIAL CASES AS DIRECTED BY THE ENGINEER OR BY THE DISTRICT.
2. THRUST BLOCKS SHOULD ONLY BE USED WHEN SOIL CONDITIONS ARE STABLE.
3. ANCHORS SHALL BE BASED ON MAXIMUM ALLOWABLE WATER PRESSURE OF 150 PSI.

CONCRETE THRUST BLOCKS FOR 12-INCH AND SMALLER MAINS

DETAIL W 27

NTS



NOTES:

1. BACKFILL MATERIAL SHALL BE BANK–RUN GRAVEL IN PAVED AREAS OR COMMON FILL IN UNPAVED AREAS.

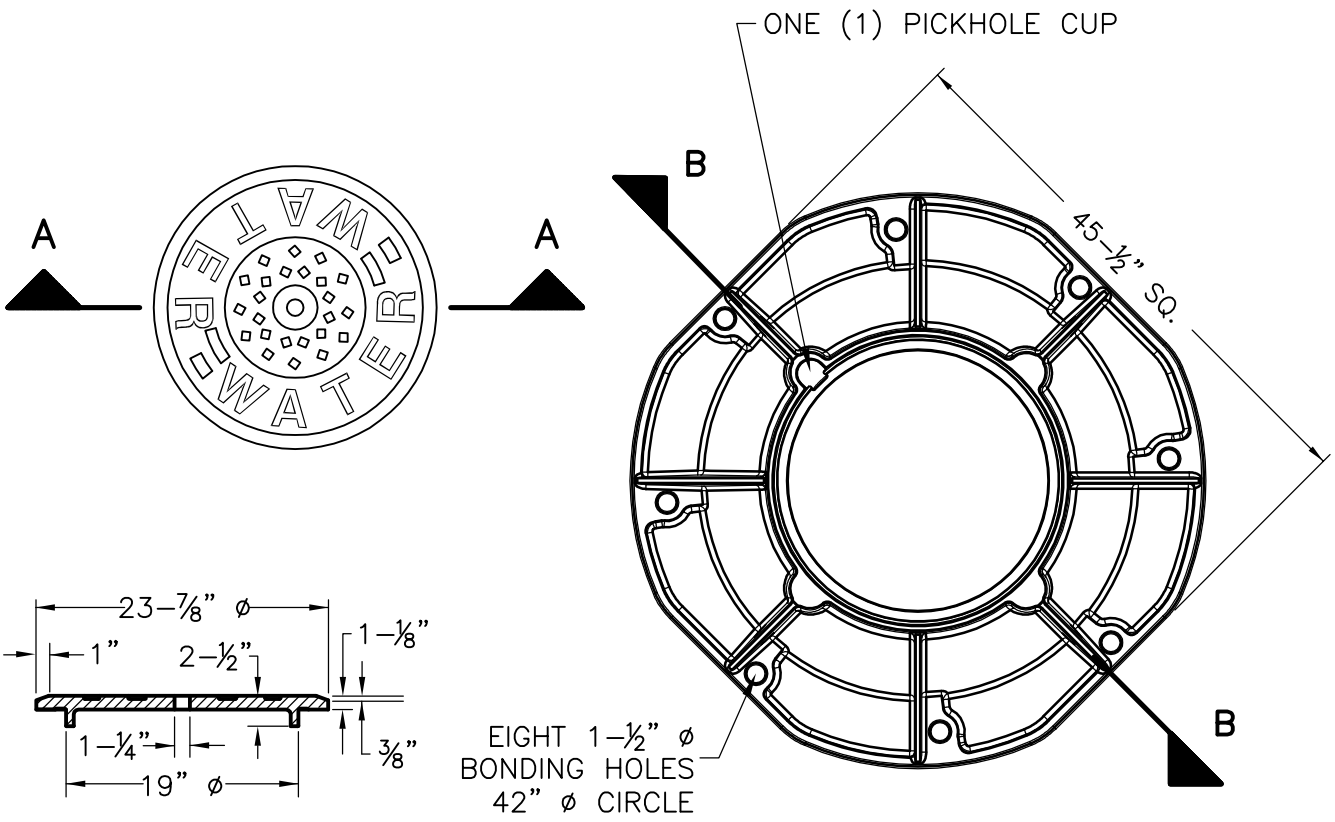
2. CONCRETE STRENGTH SHALL BE MIN. 4,000 P.S.I (28 DAYS). REINFORCING STEEL NOT SHOWN.

3. INSTALL REINFORCED CONCRETE MANHOLE SECTIONS WITH PREFORMED FLEXIBLE JOINT SEALANT OR O–RING RUBBER GASKET.

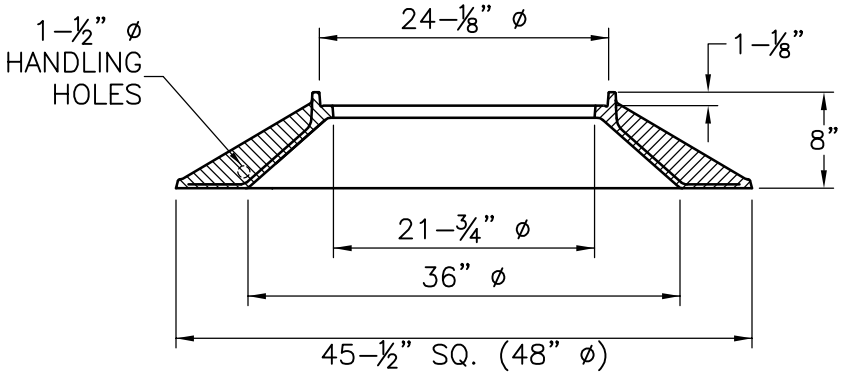
STANDARD WATER MANHOLE

DETAIL W 28

NTS



SECTION A–A



SECTION B–B

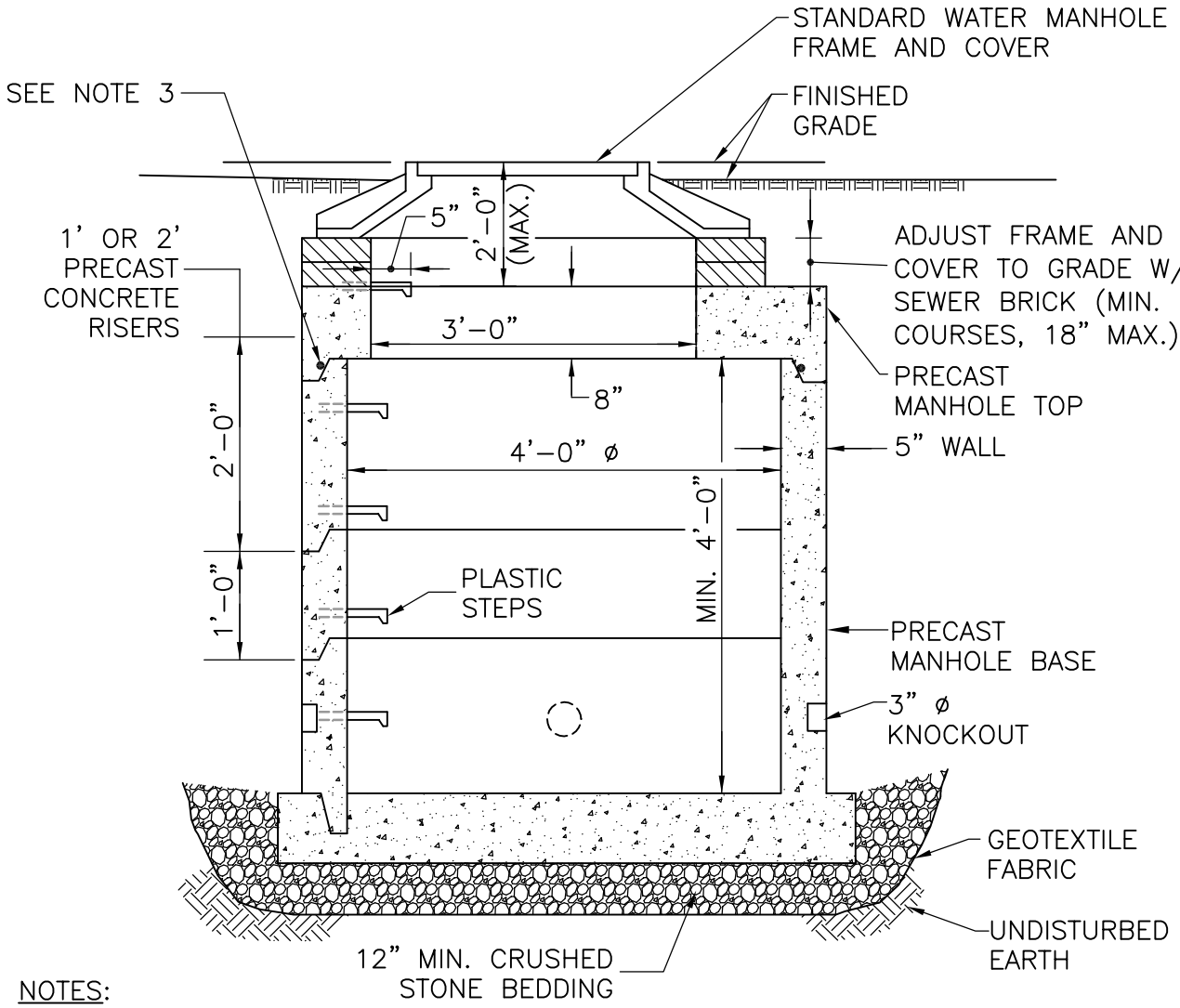
NOTE:

1. THE LOWER SURFACE OF THE COVER AND THE CORRESPONDING UPPER SURFACE OF THE FRAME SHALL BE MACHINE FINISHED TO PROVIDE A SMOOTH FLAT CONTACT OR FIT WITHOUT ANY TENDENCY FOR THE COVER OR GRATE TO ROCK OR RATTLE.

STANDARD WATER MANHOLE FRAME AND COVER

DETAIL W

NTS 29



NOTES:

1. BACKFILL MATERIAL SHALL BE BANK–RUN GRAVEL IN PAVED AREAS OR COMMON FILL IN UNPAVED AREAS.

2. CONCRETE STRENGTH SHALL BE MIN. 4,000 P.S.I (28 DAYS). REINFORCING STEEL NOT SHOWN.

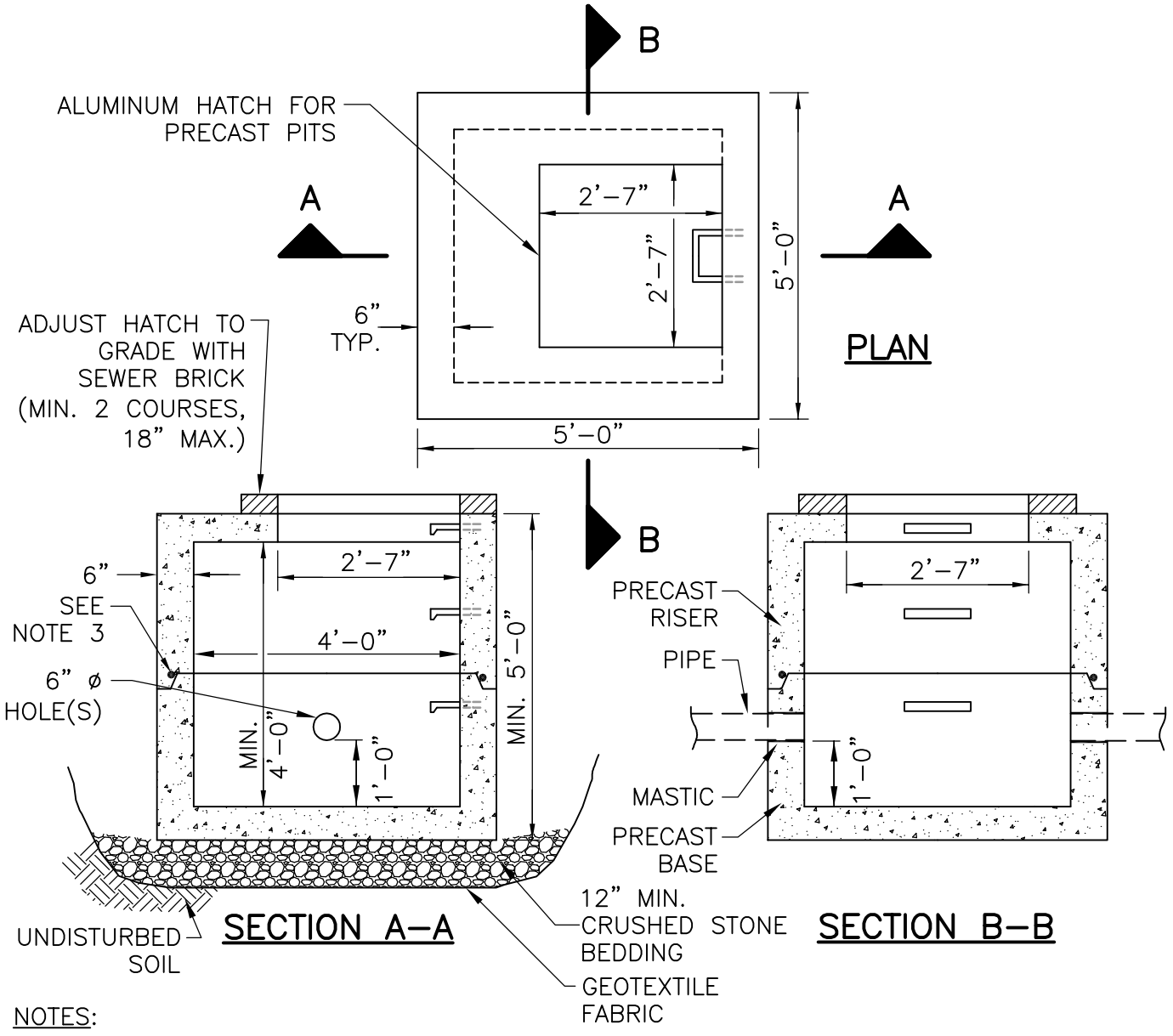
3. INSTALL REINFORCED CONCRETE MANHOLE SECTIONS WITH PREFORMED FLEXIBLE JOINT SEALANT OR O–RING RUBBER GASKET.

4. ALL PRE–PLUMBED STRUCTURES SHALL BE APPROVED BY ENGINEER AND OWNER.

PRECAST METER PIT FOR 1½–INCH TO 2–INCH SERVICE

DETAIL W 30

NTS



NOTES:

1. BACKFILL MATERIAL SHALL BE BANK–RUN GRAVEL IN PAVED AREAS OR COMMON FILL IN UNPAVED AREAS.

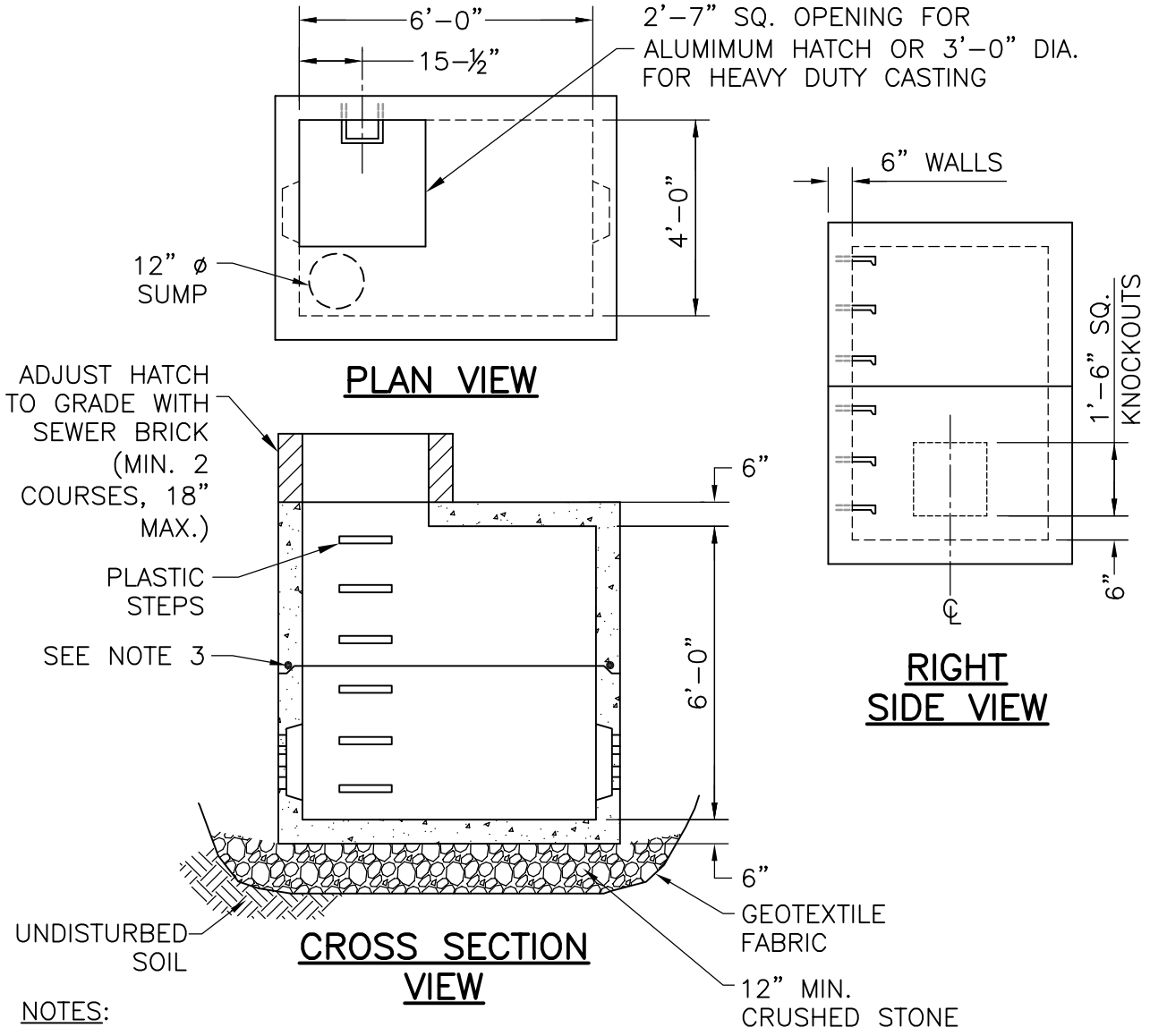
2. CONCRETE STRENGTH SHALL BE MIN. 4,000 P.S.I (28 DAYS). REINFORCING STEEL NOT SHOWN.

3. INSTALL REINFORCED CONCRETE MANHOLE SECTIONS WITH PREFORMED FLEXIBLE JOINT SEALANT OR O–RING RUBBER GASKET.

4' x 4' PRECAST METER PIT FOR 1½–INCH TO 2–INCH SERVICE

DETAIL W 31

NTS



NOTES:

1. BACKFILL MATERIAL SHALL BE BANK–RUN GRAVEL IN PAVED AREAS OR COMMON FILL IN UNPAVED AREAS.

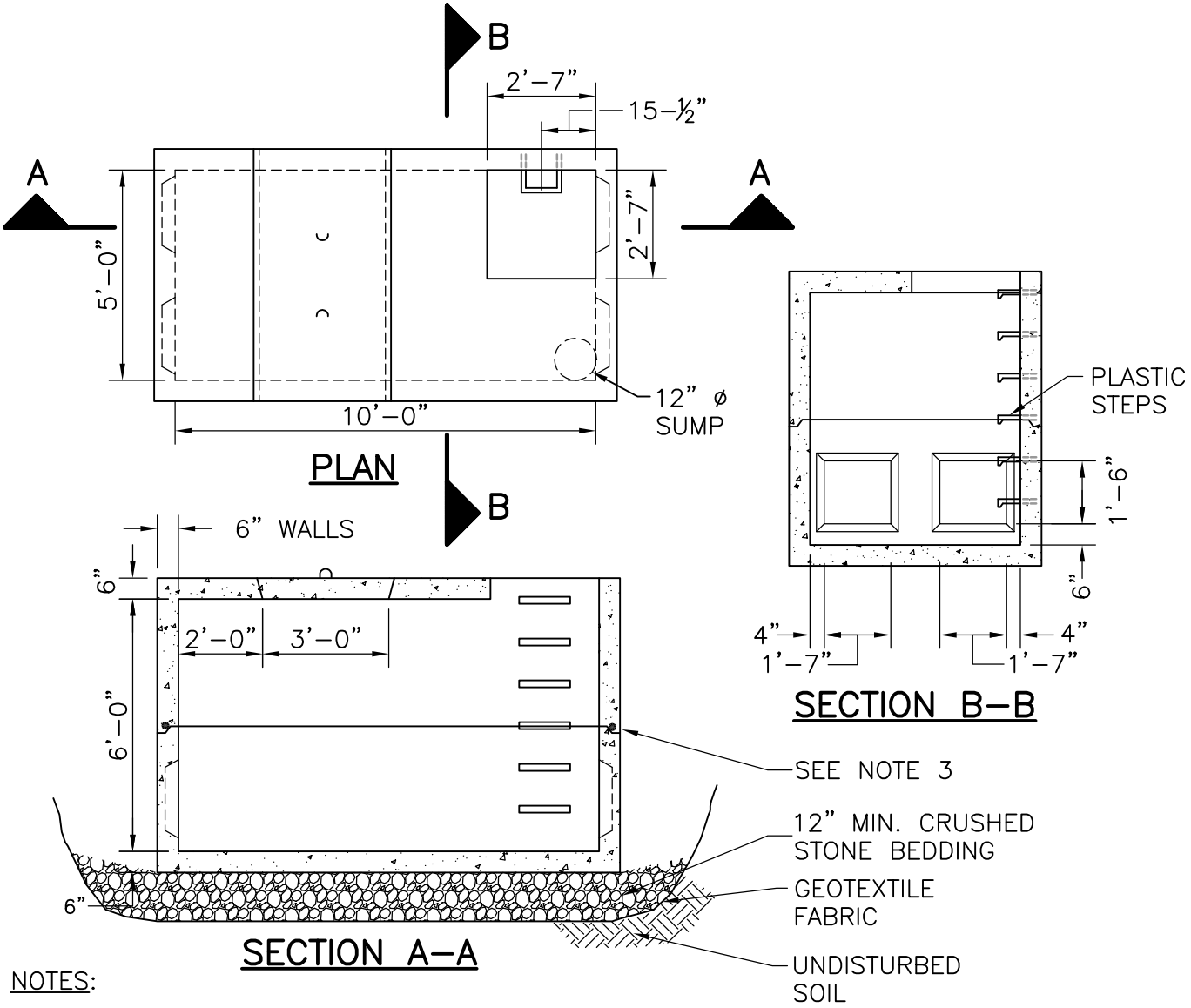
2. CONCRETE STRENGTH SHALL BE MIN. 4,000 P.S.I (28 DAYS). REINFORCING STEEL NOT SHOWN.

3. INSTALL REINFORCED CONCRETE MANHOLE SECTIONS WITH PREFORMED FLEXIBLE JOINT SEALANT OR O–RING RUBBER GASKET.

6' x 4' x 6' PRECAST METER PIT FOR 2–INCH THROUGH 4–INCH METERS

DETAIL W 32

NTS



NOTES:

1. BACKFILL MATERIAL SHALL BE BANK–RUN GRAVEL IN PAVED AREAS OR COMMON FILL IN UNPAVED AREAS.

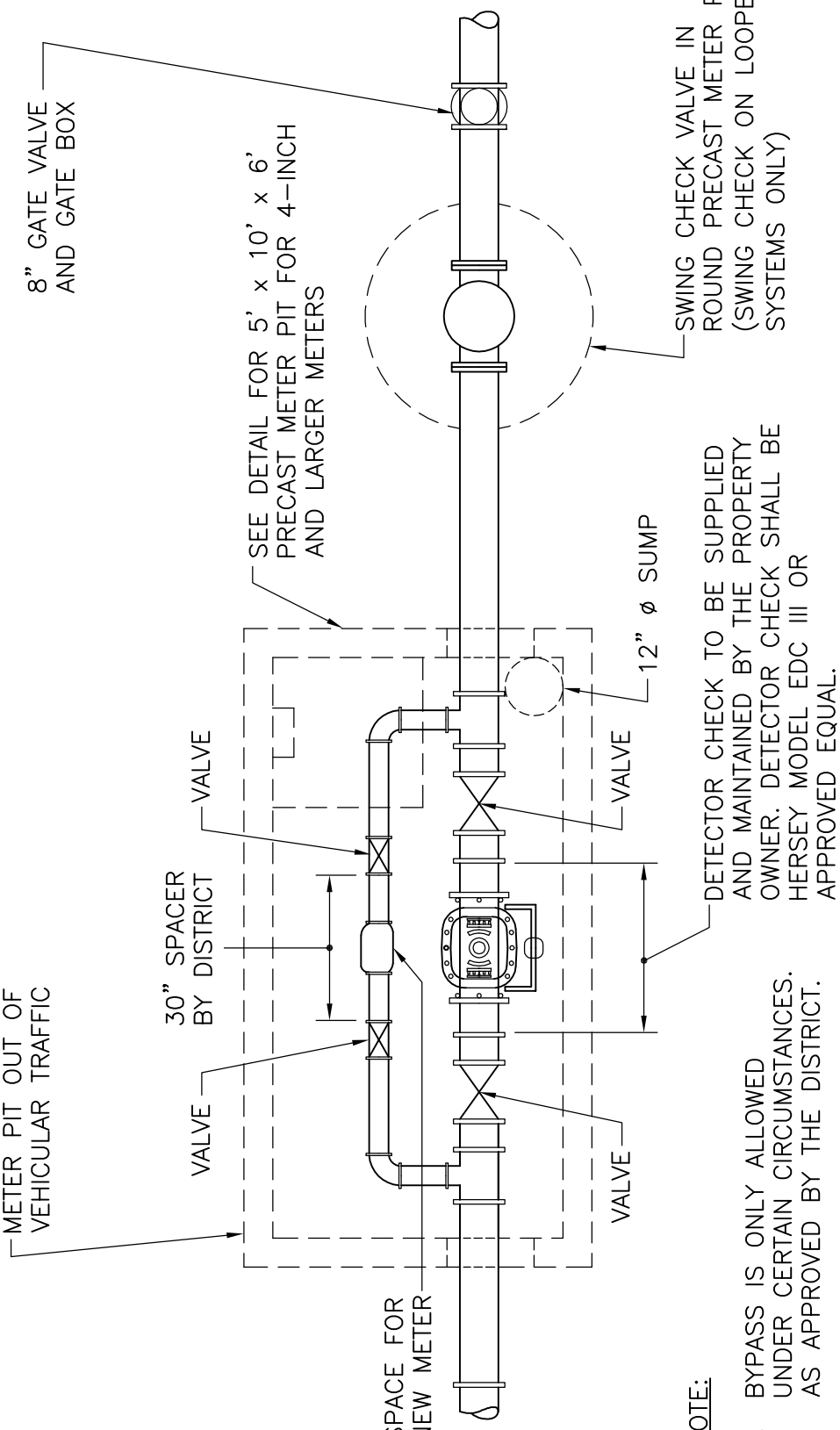
2. CONCRETE STRENGTH SHALL BE MIN. 4,000 P.S.I (28 DAYS). REINFORCING STEEL NOT SHOWN.

3. INSTALL REINFORCED CONCRETE MANHOLE SECTIONS WITH PREFORMED FLEXIBLE JOINT SEALANT OR O–RING RUBBER GASKET.

5' x 10' x 6' PRECAST METER PIT FOR 4–INCH AND LARGER METERS

DETAIL W 33

NTS



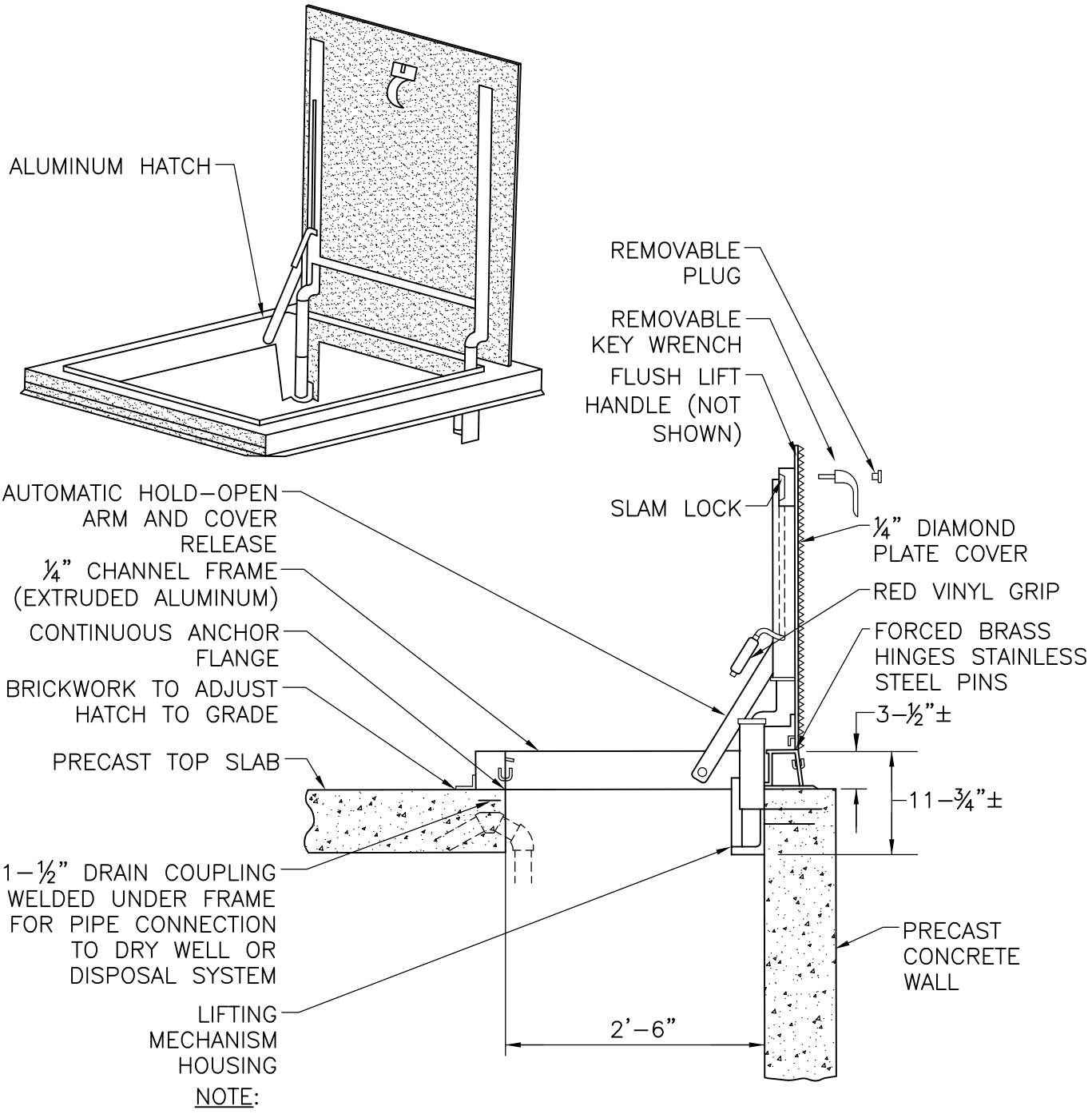
NOTE:

1. BYPASS IS ONLY ALLOWED UNDER CERTAIN CIRCUMSTANCES. AS APPROVED BY THE DISTRICT.

5' x 10' x 6' COMBINED METER LAYOUT

DETAIL W 34

NTS



NOTE:

1. ALUMINUM HATCH SHALL BE 2'–6" x 2'–6" BILCO TYPE "J–ALH20" OR EQUAL.

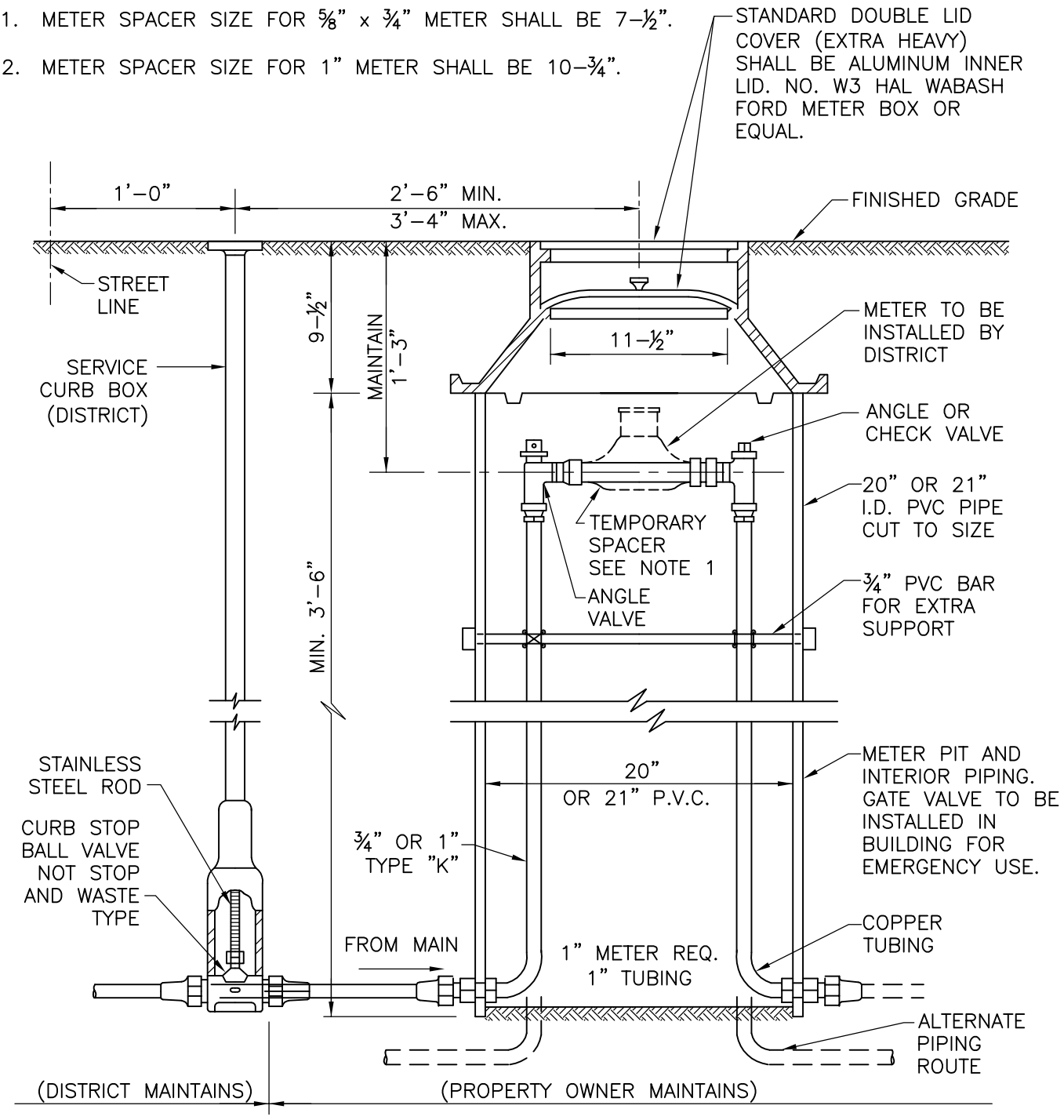
ALUMINUM HATCH FOR PRECAST METER PITS

DETAIL W 35

NTS

NOTES:

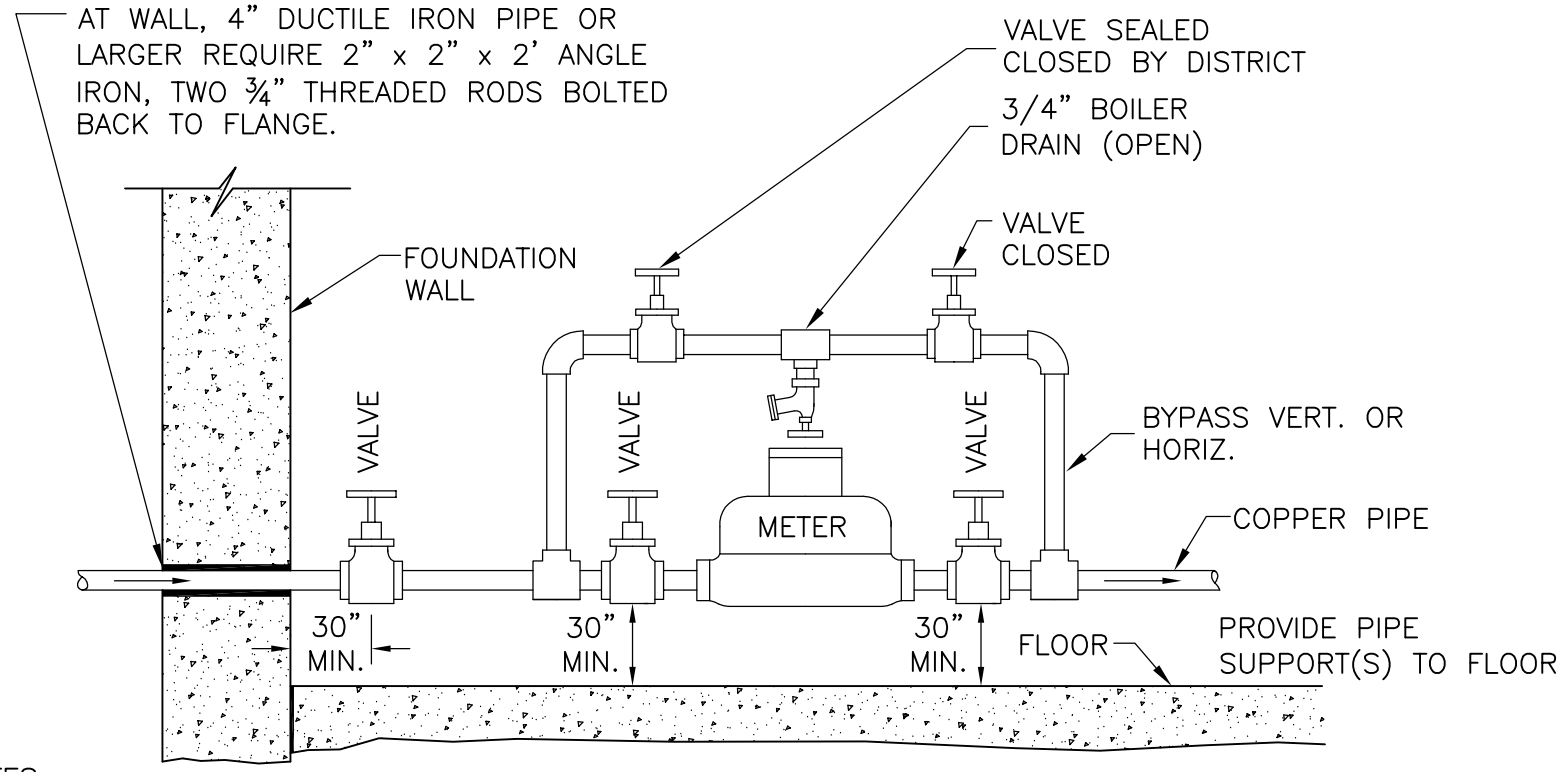
1. METER SPACER SIZE FOR ⅝" x ¾" METER SHALL BE 7–½".
2. METER SPACER SIZE FOR 1" METER SHALL BE 10–¾".



METER BOX FOR 1" SERVICE AND ⅝" x ¾" TO 1" METER

DETAIL W 36

NTS



NOTES:

1. ALL PIPING AND FITTINGS BY PROPERTY OWNER. COPPER SETTERS ARE ACCEPTABLE.
2. VALVES CAN BE EITHER GATE VALVES OR BALL VALVES.
3. BYPASS IS ONLY ALLOWED UNDER CERTAIN CIRCUMSTANCES. CONTACT DISTRICT TO DETERMINE IF A BYPASS IS NECESSARY. BYPASS SHOULD BE SAME SIZE AS METER.

STANDARD METER INSTALLATION WITH BYPASS ON 1½-INCH SERVICES AND LARGER WITHIN BUILDINGS

DETAIL W 37

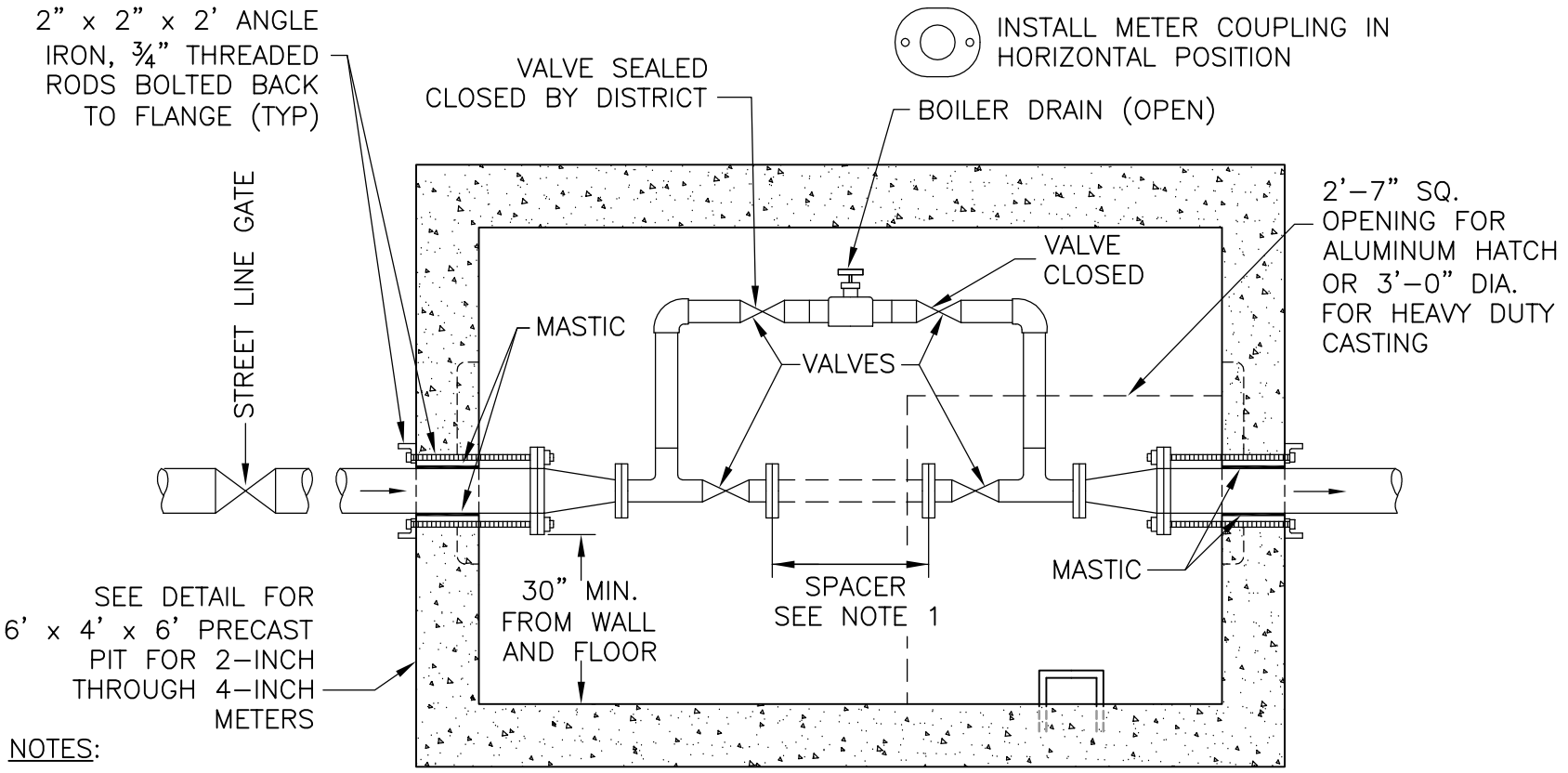
NTS

THE METROPOLITAN DISTRICT

WATER STANDARD DETAILS

MDC

Latest Revision: JANUARY 2017



NOTES:

1. SPACER FURNISHED BY THE DISTRICT. SPACER FOR 1½" METER SHALL BE 13". SPACER FOR 2" METER SHALL BE 17". BYPASS SHOULD BE SAME SIZE AS METER.
2. VALVES CAN BE EITHER GATE OR BALL VALVE TYPE. GATE VALVES SHALL HAVE NON-RISING STEMS.
3. BYPASS IS ONLY ALLOWED UNDER CERTAIN CIRCUMSTANCES. CONTACT DISTRICT TO DETERMINE IF A BYPASS IS NECESSARY. BYPASS SHOULD BE SAME SIZE AS METER.

STANDARD METER INSTALLATION WITH BYPASS FOR 1½-INCH AND 2-INCH METERS WITHIN PIT

DETAIL W 38

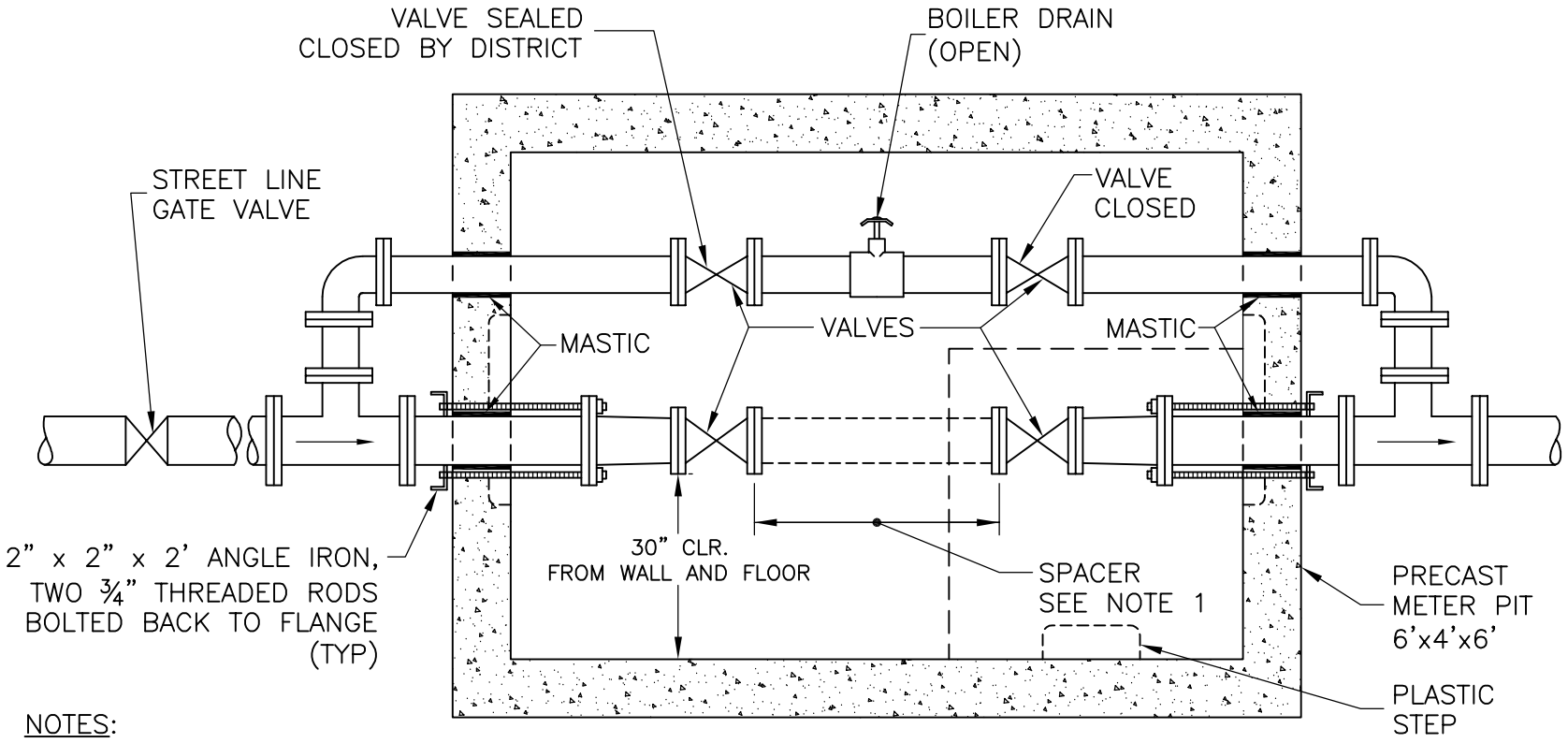
NTS

Latest Revision: JANUARY 2017

THE METROPOLITAN DISTRICT

WATER STANDARD DETAILS

MDC



NOTES:

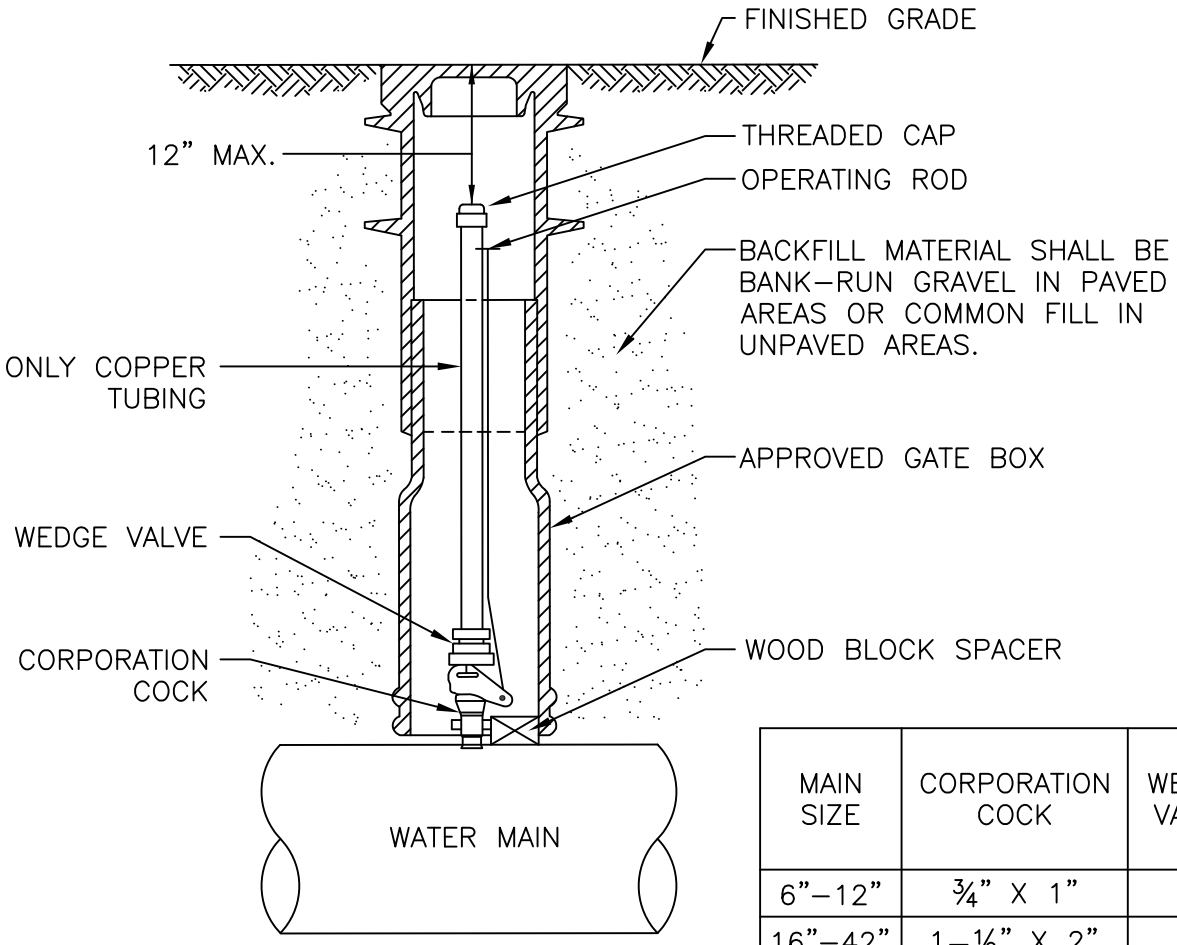
1. SPACER FURNISHED BY THE OWNER. SPACER SIZE FOR 3" METER SHALL BE 18". SPACER FOR 4" METER SHALL BE 20".
2. GATE VALVES SHALL HAVE NON-RISING STEMS.
3. BYPASS IS ONLY ALLOWED UNDER CERTAIN CIRCUMSTANCES. CONTACT OWNER TO DETERMINE IF A BYPASS IS NECESSARY. BYPASS SHOULD BE SAME SIZE AS METER.

STANDARD METER INSTALLATION WITH BYPASS FOR 3-INCH AND 4-INCH METERS WITHIN PIT

DETAIL W 39

NTS

File: W-39 Standard Meter with By-Pass for 3-inch and 4-inch Meters within Pit.dwg
Latest Revision: JANUARY 2017



MAIN SIZE	CORPORATION COCK	WEDGE VALVE
6"–12"	¾" X 1"	1"
16"–42"	1–½" X 2"	2"

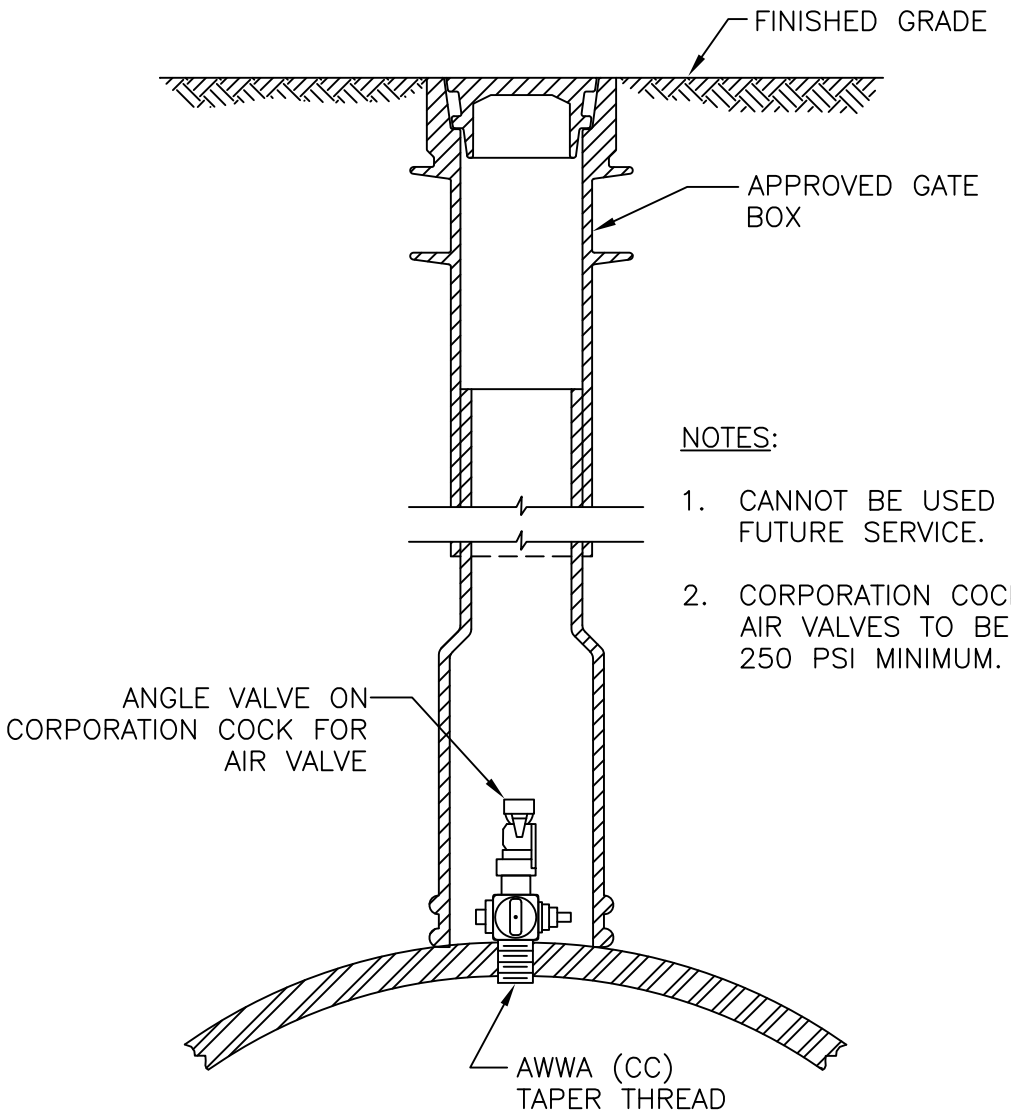
NOTES:

1. CANNOT BE USED FOR FUTURE SERVICE.
2. A CHLORINATION/SAMPLING ASSEMBLY SHALL BE REMOVED ONCE WATER MAIN PASSES SAMPLING. CORPORATION SHALL EITHER BE CONVERTED TO AIR VALVE OR ABANDONED PRIOR TO FINAL PAVEMENT RESTORATION.

CHLORINATION INLET / BLOW-OFF

DETAIL W

NTS 40



NOTES:

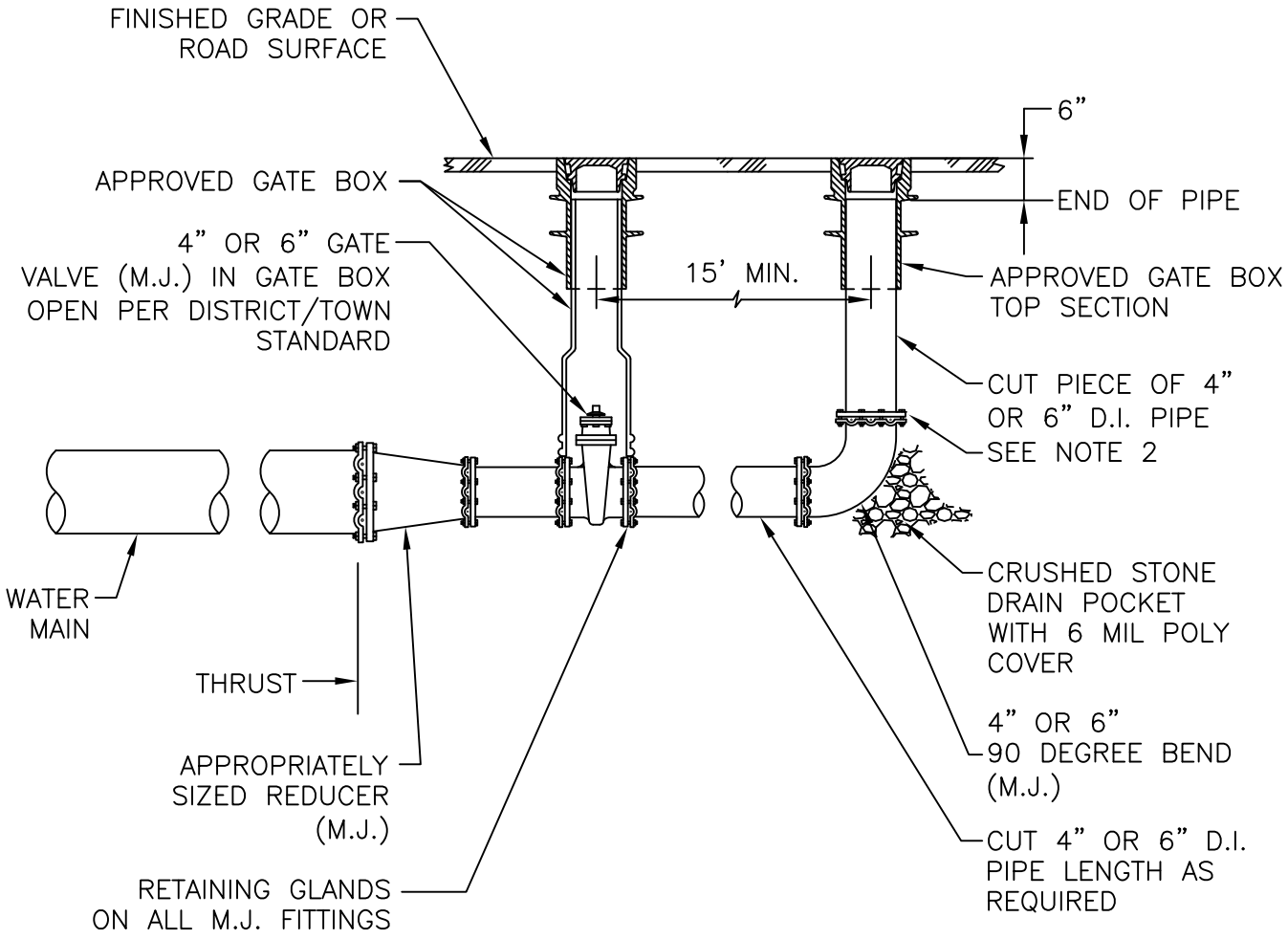
1. CANNOT BE USED AS FUTURE SERVICE.
2. CORPORATION COCKS FOR AIR VALVES TO BE RATED 250 PSI MINIMUM.

MAIN SIZE	MIN. SIZE AIR VALVE	CORPORATION COCK	ANGLE VALVE SIZE
6"–12"	¾"	¾" x 1"	1"
16" & 20"	1"	1" x 1"	1"
24" & 30"	1–¼"	1–¼" x 1–½"	1–½"
36" & 42"	1–½"	1–½" x 2"	2"
48" & 54"	2"	2" x 2"	2"

STANDARD AIR VALVE

DETAIL W 41

NTS



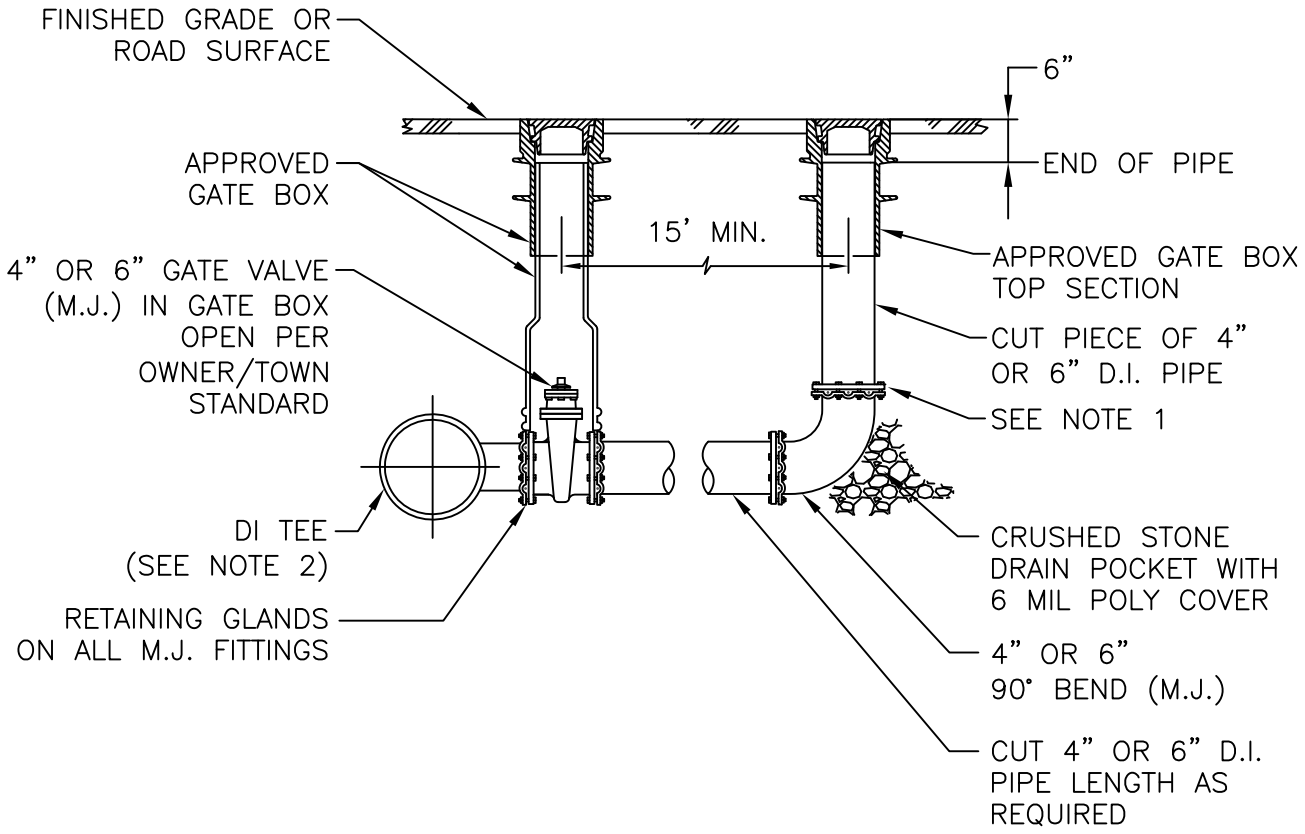
NOTE:

1. TO BE USED AT END OF MAIN ONLY WHEN THERE IS NO PROBABILITY OF FUTURE MAIN EXTENSION.
2. CUT AND REMOVE ½" OR ¾" SECTION OF GASKET SO WATER WILL DRAIN FROM STANDPIPE

4–INCH OR 6–INCH BLOW–OFF ASSEMBLY (END OF MAIN)

DETAIL W

NTS 42



NOTES:

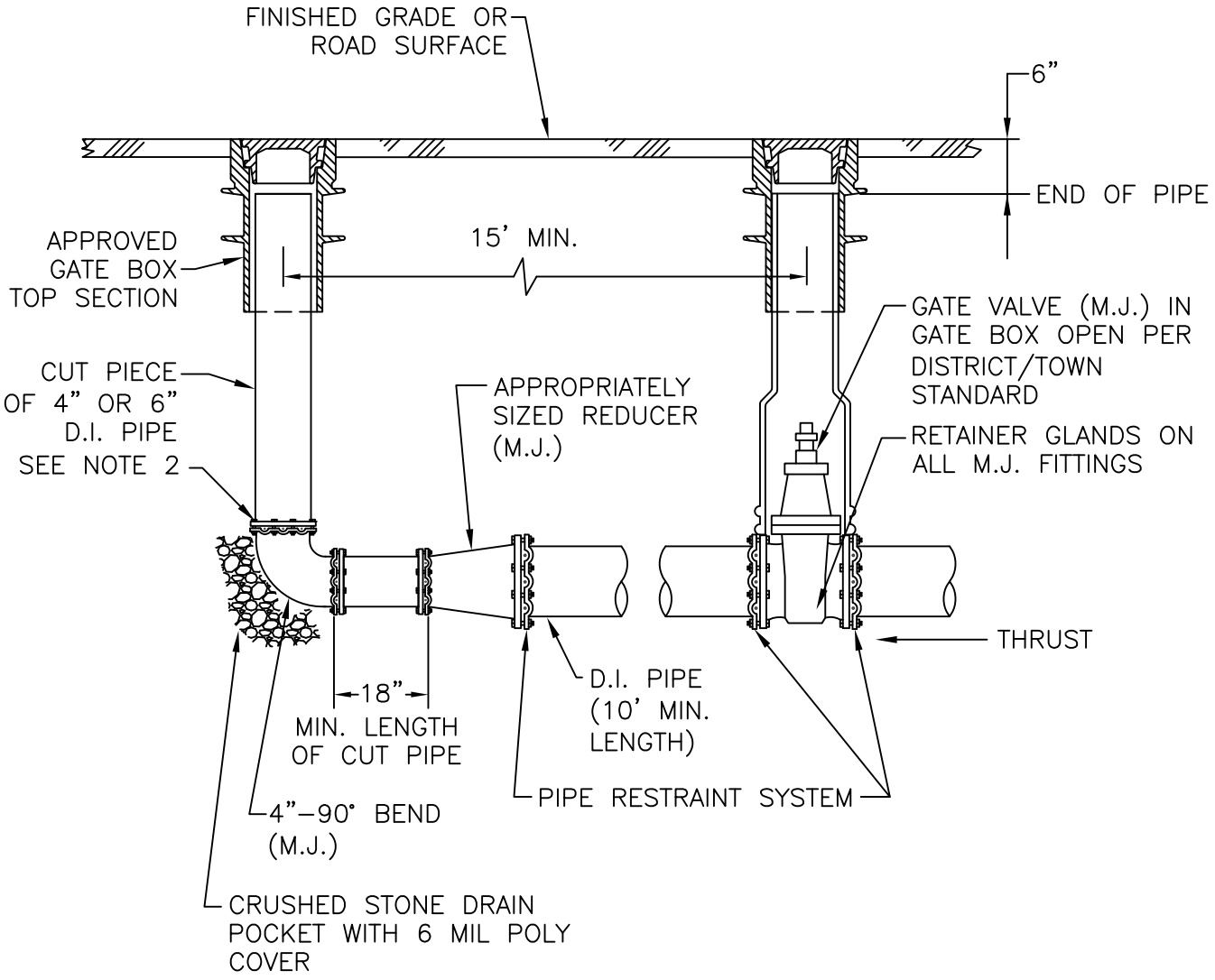
1. CUT AND REMOVE ½" OR ¾" SECTION OF GASKET SO WATER WILL DRAIN FROM STANDPIPE.

2. PROVIDE M.J. x M.J. SWIVEL HYDRANT TEE FOR 6" BLOW-OFF ASSEMBLY AS DIRECTED BY THE DISTRICT.

4-INCH OR 6-INCH BLOW-OFF ASSEMBLY (BRANCH TYPE)

DETAIL W 43

NTS



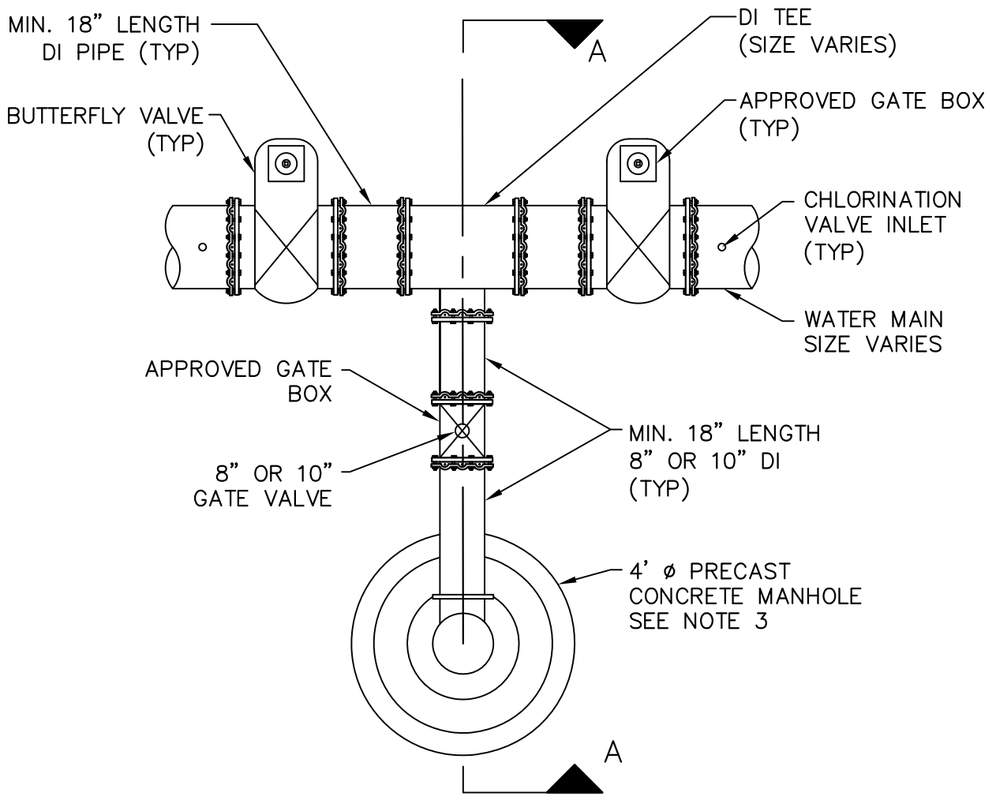
NOTES:

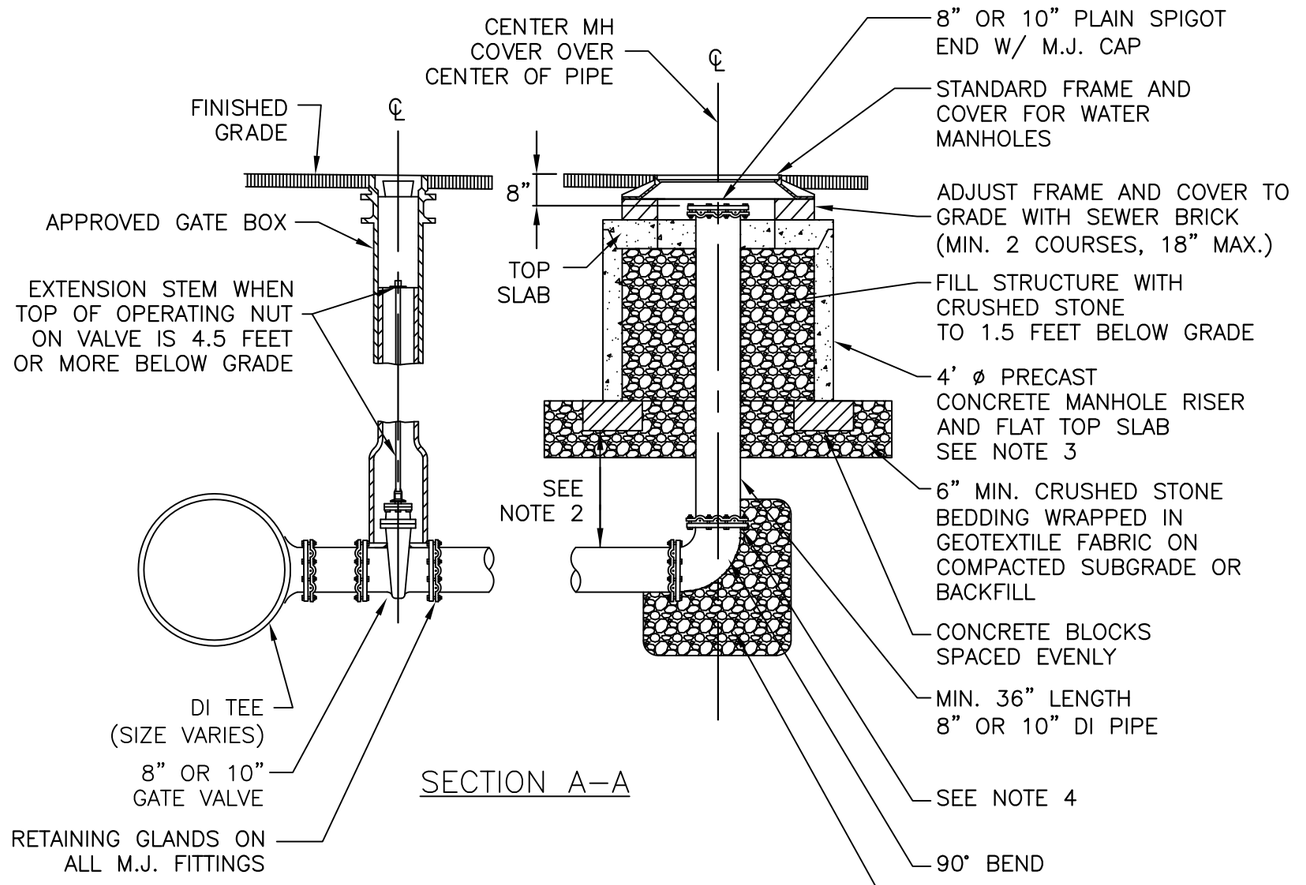
1. THIS BLOW-OFF SHALL BE USED IF THE MAIN MAY BE EXTENDED IN THE FUTURE.

2. CUT AND REMOVE ½" OR ¾" SECTION OF GASKET SO WATER WILL DRAIN FROM STANDPIPE.

4-INCH OR 6-INCH BLOW OFF ASSEMBLY W/ FULL SIZE MAIN GATE VALVE

DETAIL	W
NTS	44



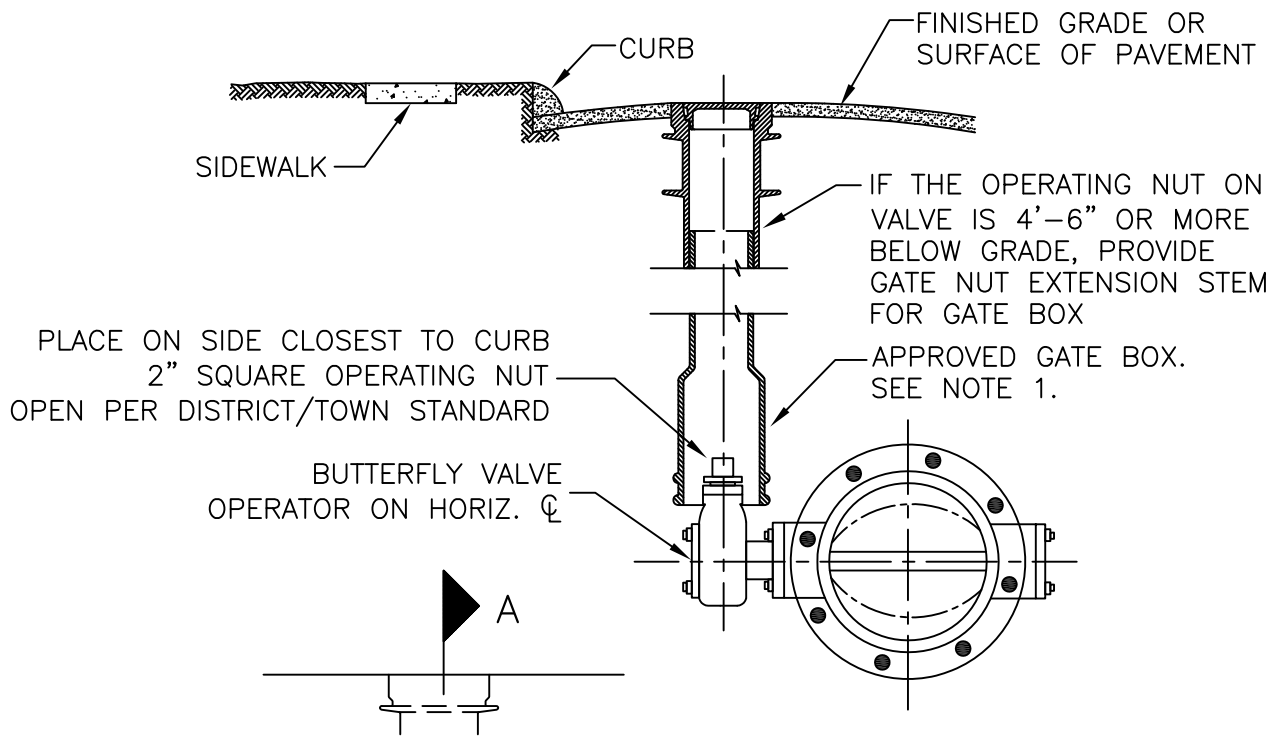


NOTES:

1. ALL PIPING, FITTINGS AND VALVES SHALL BE RESTRAINED JOINTS.
2. MINIMUM DIMENSION FROM BOTTOM OF CONCRETE BLOCKS TO TOP OF 8" OR 10" DI SHALL BE 18 INCHES.
3. MANHOLE RISER SHALL MEET THE REQUIREMENTS OF TYPE II PRECAST CONCRETE RISER SECTIONS. MANHOLE STEPS ARE NOT REQUIRED.
4. CUT AND REMOVE ½" OR ¾" SECTION OF GASKET SO WATER WILL DRAIN FROM STANDPIPE.

8–INCH OR 10–INCH BLOW–OFF ASSEMBLY

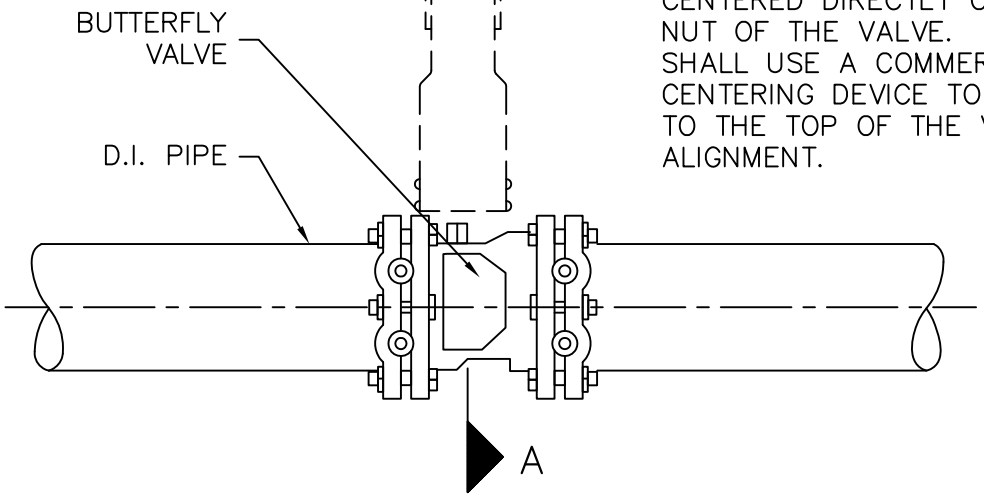
DETAIL W
NTS 45



SECTION A–A

NOTE:

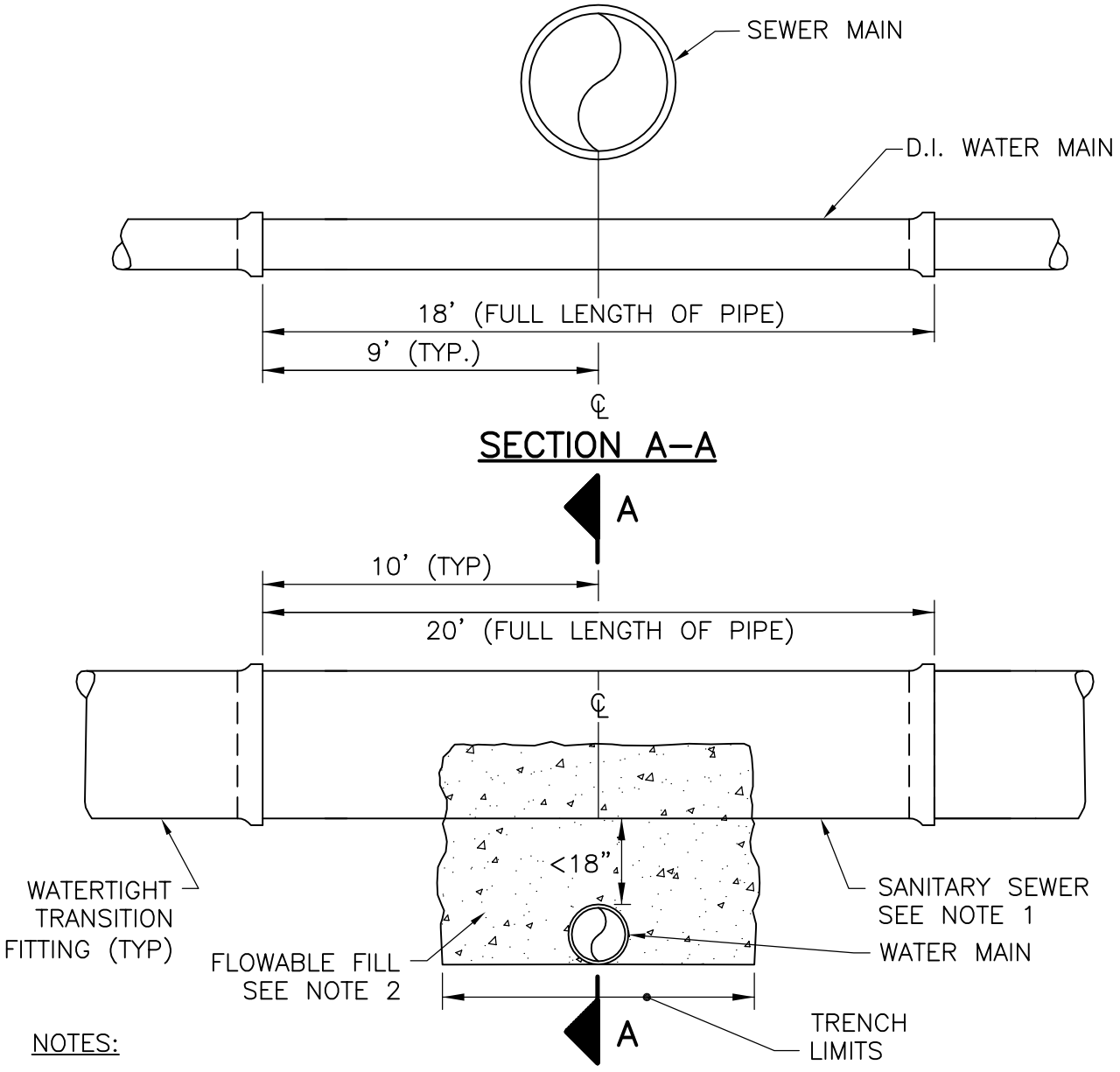
1. THE GATE BOX SHALL BE SET PLUMB AND CENTERED DIRECTLY OVER THE OPERATING NUT OF THE VALVE. THE CONTRACTOR SHALL USE A COMMERCIALLY AVAILABLE CENTERING DEVICE TO PREVENT DAMAGE TO THE TOP OF THE VALVE AND MAINTAIN ALIGNMENT.



STANDARD BUTTERFLY VALVE

DETAIL W

NTS 46



NOTES:

1. SEWER PIPE WITHIN CROSSING LIMITS SHALL BE THE SAME MATERIALS AND WATERTIGHT JOINTS AS NEW WATER MAIN PIPE, CONSTRUCTED IN ACCORDANCE WITH WATER MAIN STANDARDS OF CONSTRUCTION AND PRESSURE TESTED TO ENSURE WATER TIGHTNESS.

2. IF A FULL LENGTH OF WATER PIPE OR SEWER PIPE IS NOT USED, ENCASE SEWER MAIN OR WATER MAIN WITH FLOWABLE FILL WITHIN THE TRENCH LIMITS.

WATER CROSSING BELOW SEWER
LESS THAN 18–INCH VERTICAL SEPARATION

DETAIL W 47

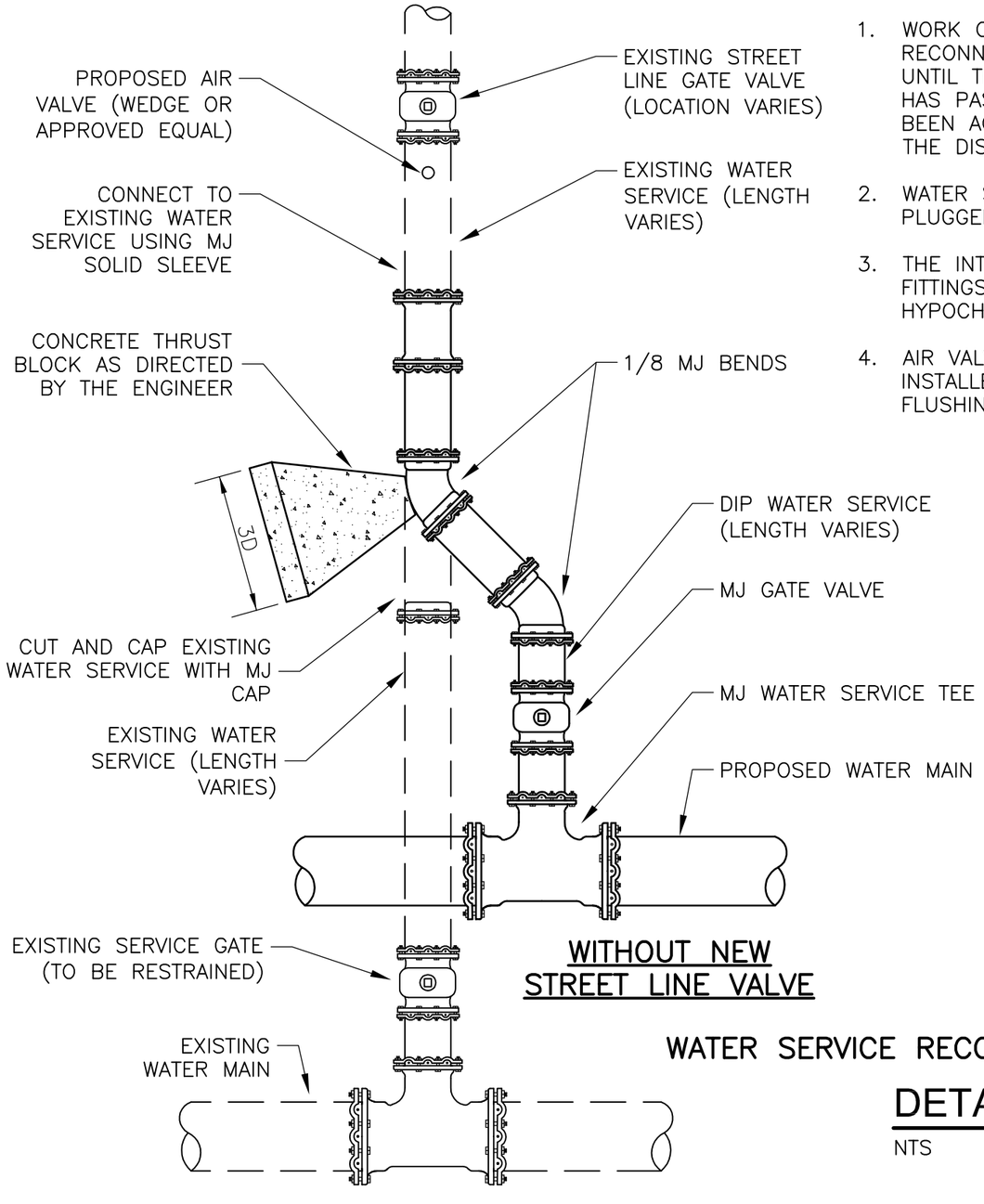
NTS

THE METROPOLITAN DISTRICT

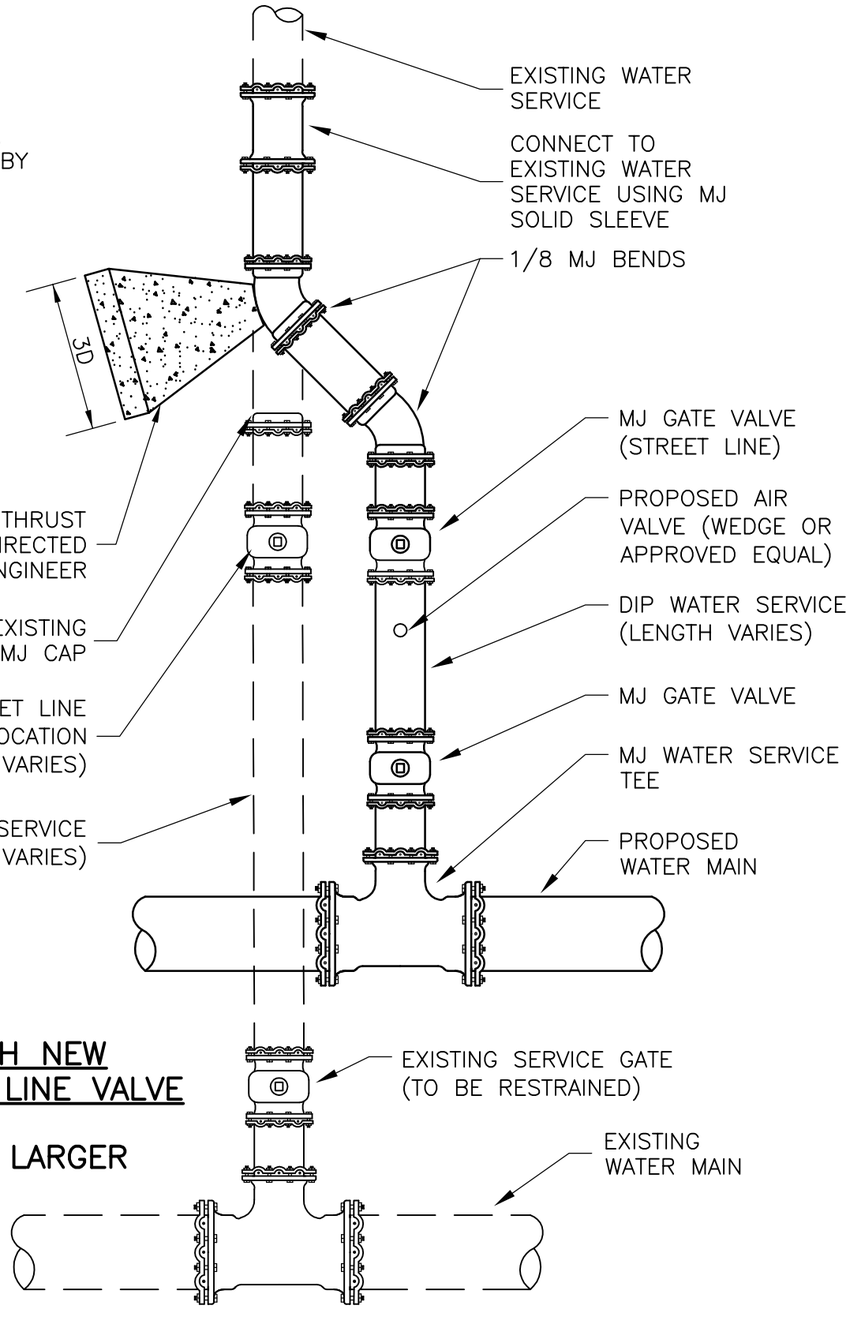
WATER STANDARD DETAILS

NOTES:

1. WORK ON WATER SERVICE PIPING AND RECONNECTIONS SHALL NOT COMMENCE UNTIL THE NEWLY INSTALLED WATER MAIN HAS PASSED ALL TESTING REQUIREMENTS, BEEN ACCEPTED AND PUT INTO SERVICE BY THE DISTRICT.
2. WATER SERVICE VALVE AT TEE IS TO BE PLUGGED DURING TESTING PROCEDURES.
3. THE INTERIOR OF ALL SERVICE PIPE AND FITTINGS SHALL BE SWABBED WITH A 1% HYPOCHLORITE SOLUTION.
4. AIR VALVES ON WATER SERVICES TO BE INSTALLED PRIOR TO RECONNECTION FOR FLUSHING PURPOSES.



WITHOUT NEW STREET LINE VALVE

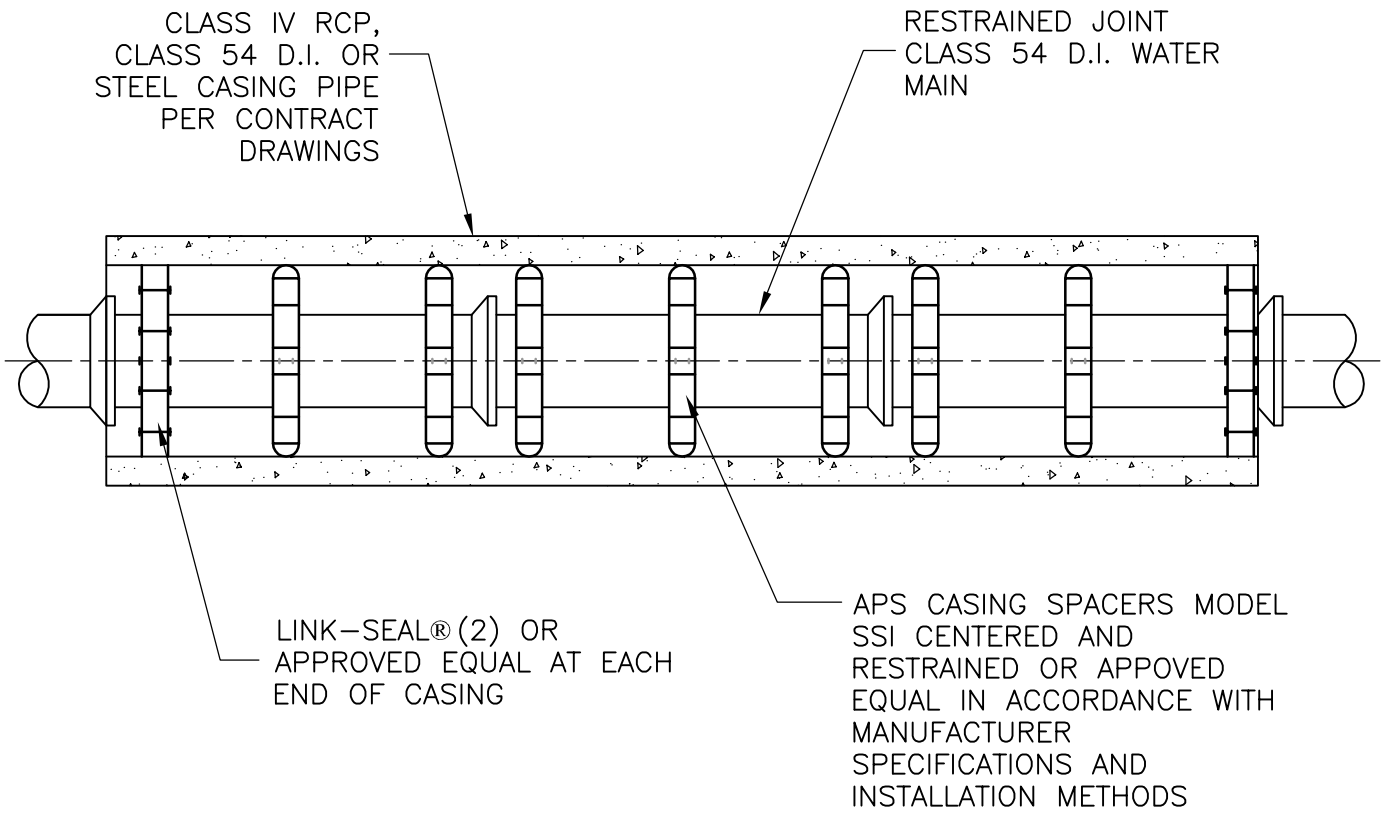


WITH NEW STREET LINE VALVE

WATER SERVICE RECONNECTION 4–INCH AND LARGER

DETAIL W 48

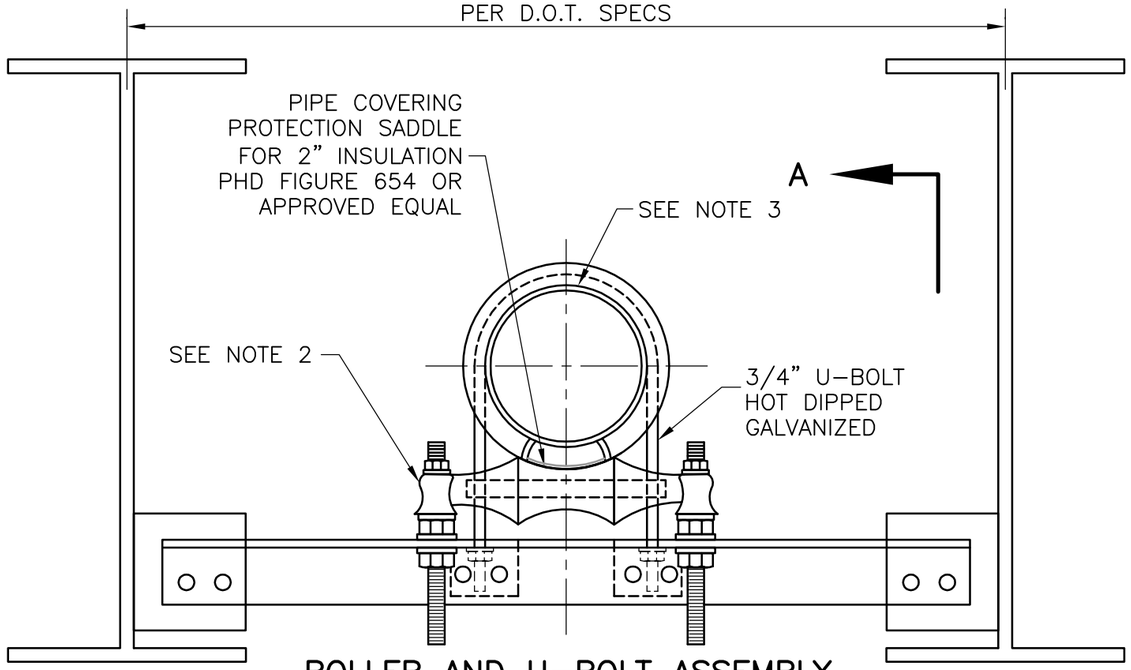
NTS



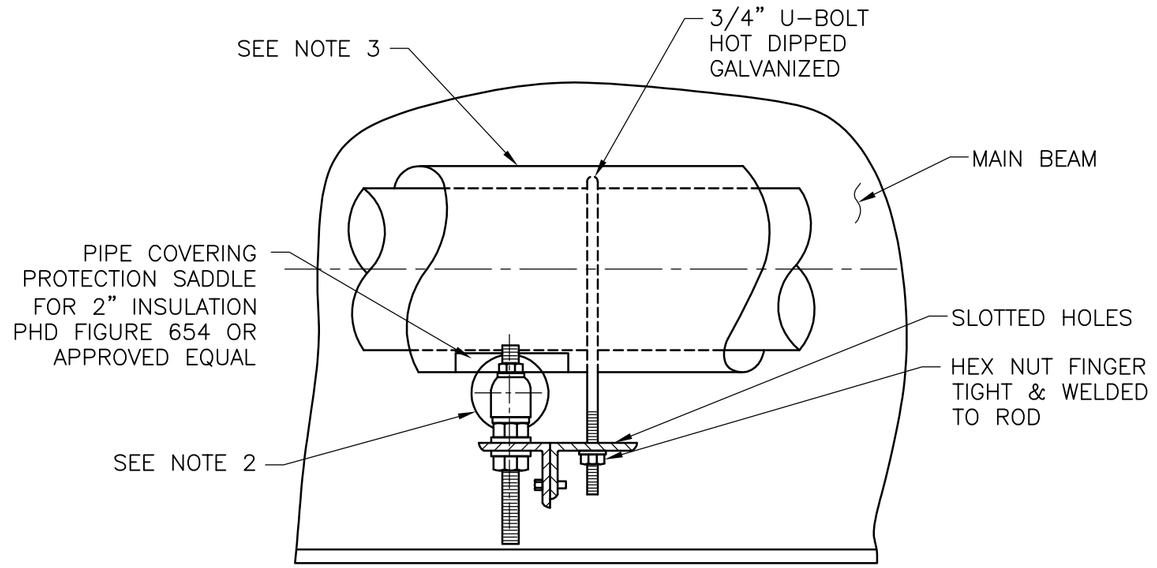
WATER MAIN IN CASING PIPE

DETAIL W 49

NTS



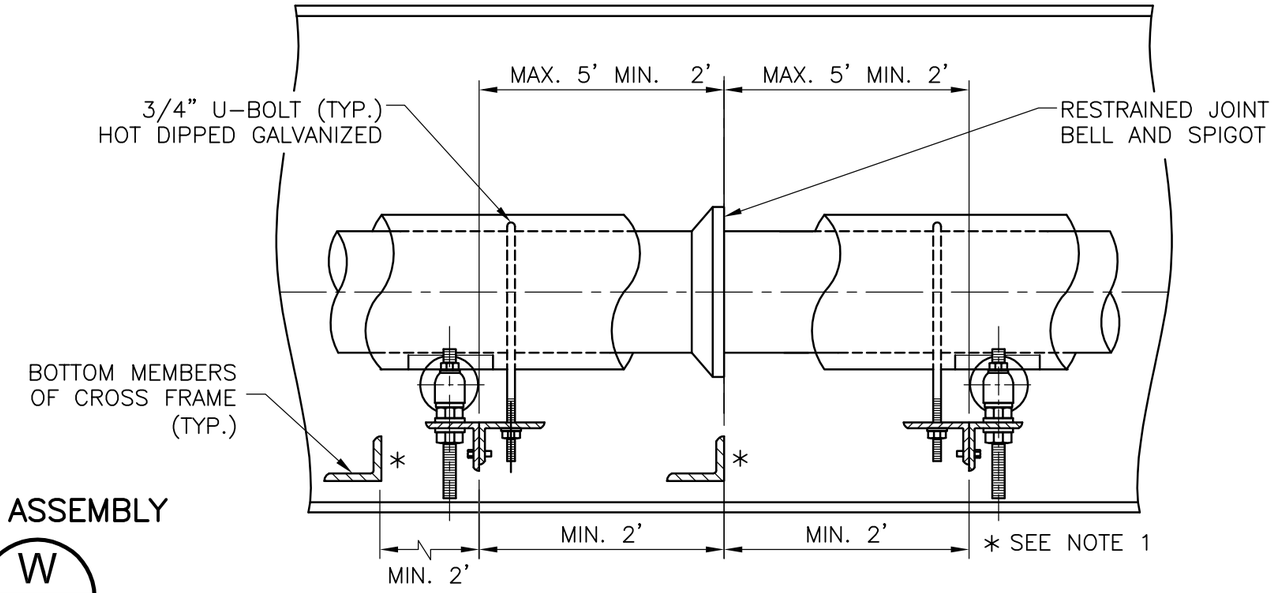
ROLLER AND U-BOLT ASSEMBLY



SECTION A-A

NOTES:

1. THE POSITION SHOWN IS GENERIC ONLY. THE NEW WATER MAIN SUPPORTS SHOULD BE PLACED AT A MIN. OF 2' FROM ANY ANGLES OF THE CROSS FRAME.
2. ADJUSTABLE UTILITY SUPPORT ROLLER SYSTEM PHD FIGURE 480 OR APPROVED EQUAL. ALL COMPONENTS TO BE HOT DIPPED GALVANIZED.
3. RESTRAINED JOINT CLASS 54 WATER MAIN WITH 2 INCH RIGID INERT FOAM INSULATION WITH METAL FIBER REINFORCED MASTIC OR NON-CORROSIVE METAL JACKET (TYP.)

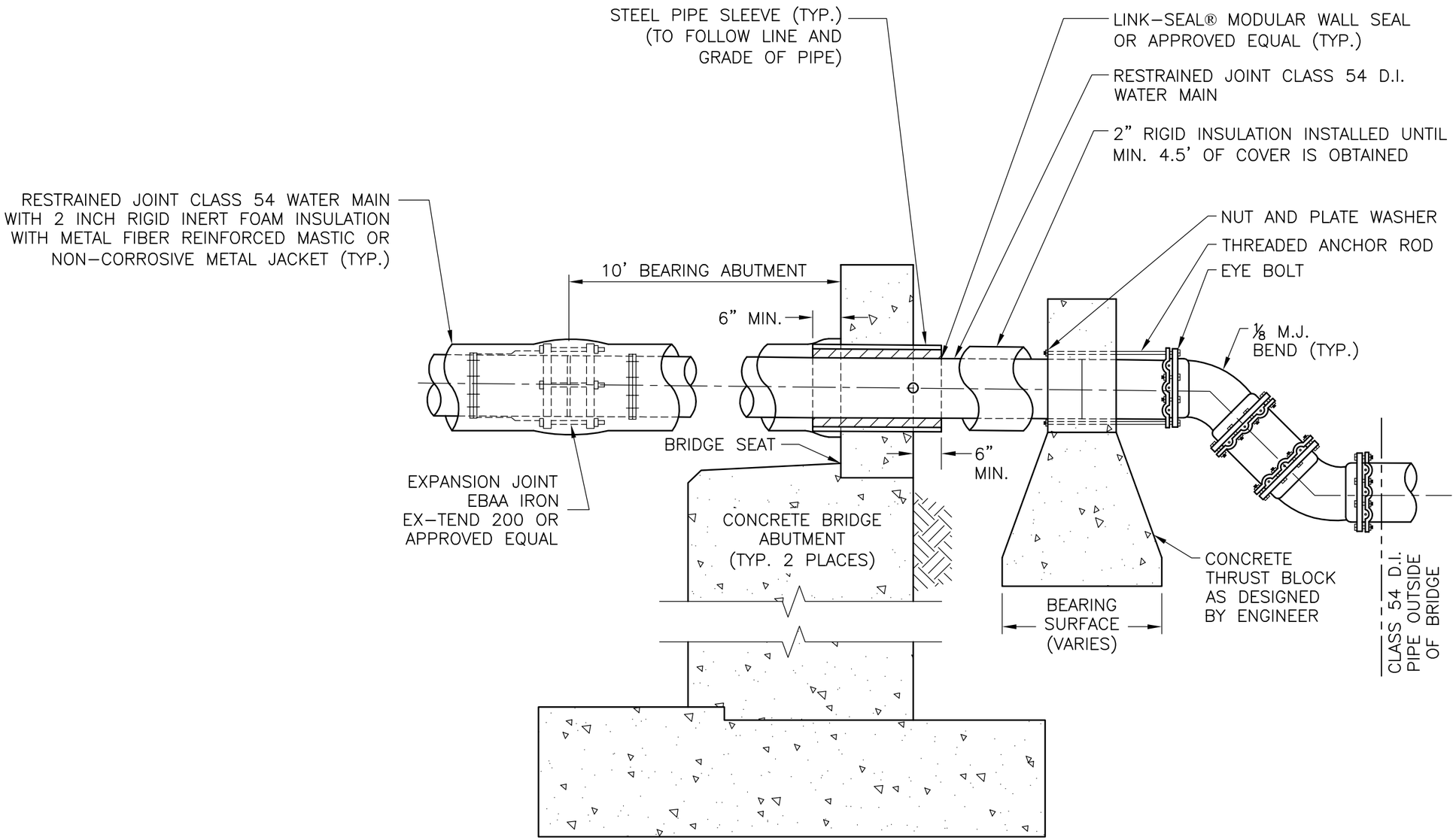


NEW WATER MAIN SUPPORTS INSTALLATION (TYP.)

ROLLER AND U-BOLT ASSEMBLY

DETAIL W 50

NTS

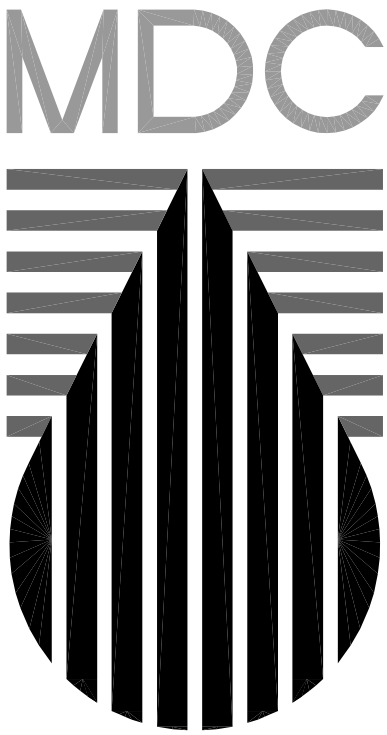


BRIDGE BEARING ABUTMENT PENETRATION

DETAIL W 51

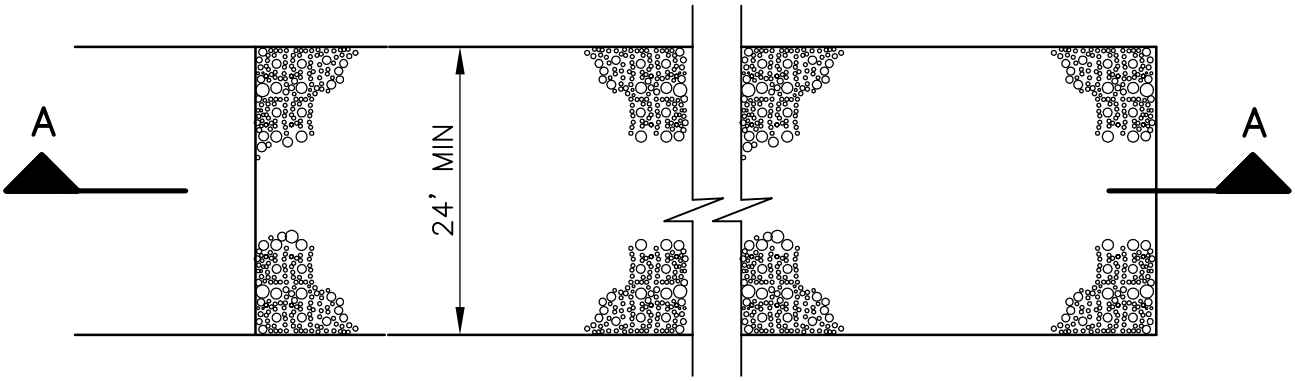
NTS

EROSION AND SEDIMENTATION CONTROL STANDARD DETAILS

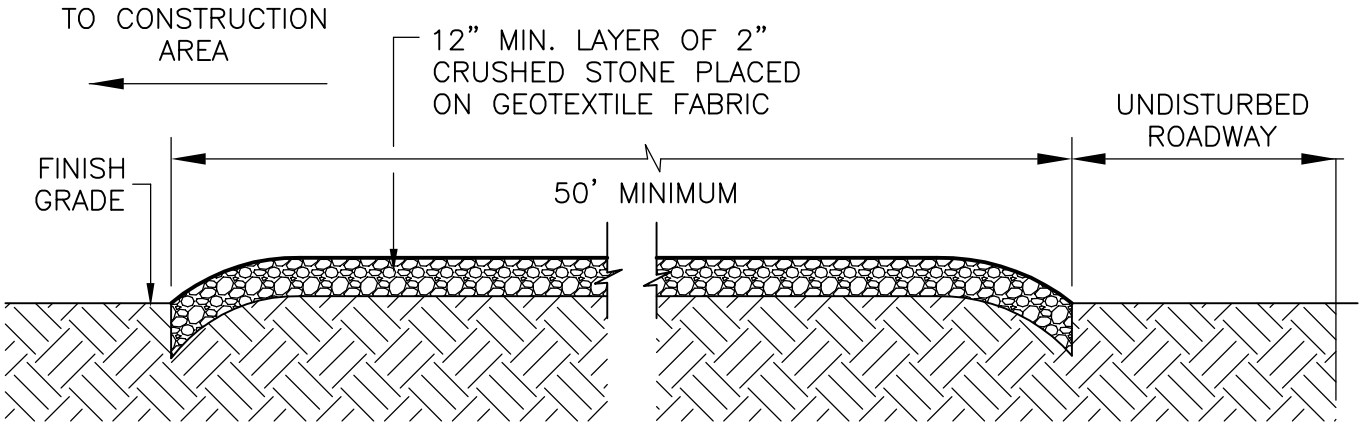


THE METROPOLITAN DISTRICT

JANUARY 2017



PLAN



SECTION A–A

NOTES:

1. PROVIDE FOR SMOOTH, CONTINUOUS TRANSITION BETWEEN STABILIZED CONSTRUCTION ENTRANCE AND UNDISTURBED ROADWAY.

2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO UNDISTURBED ROADWAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDING STONE TO THE LENGTH OF THE ENTRANCE.

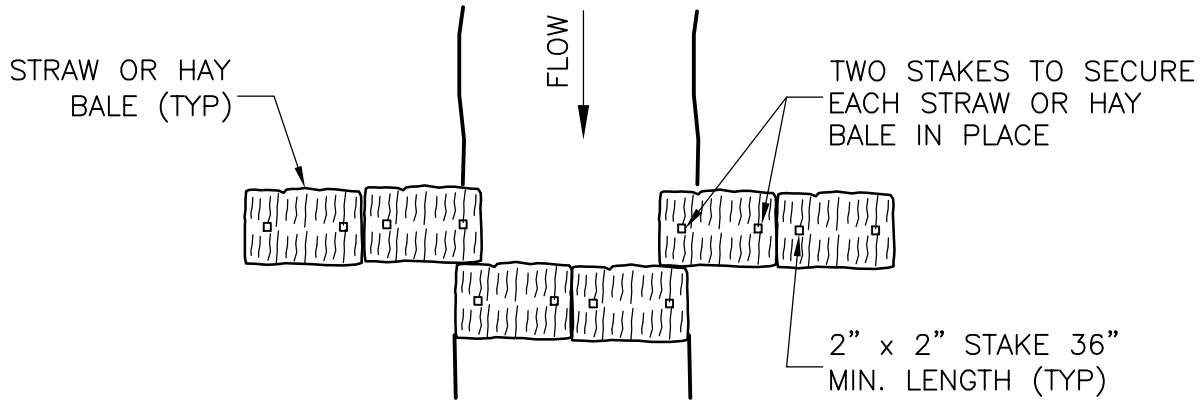
3. REPAIR AND CLEAN OUT ANY MEASURES USED TO TRAP SEDIMENT.

4. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO UNDISTURBED ROADWAY MUST BE REMOVED IMMEDIATELY.

STABILIZED CONSTRUCTION ENTRANCE

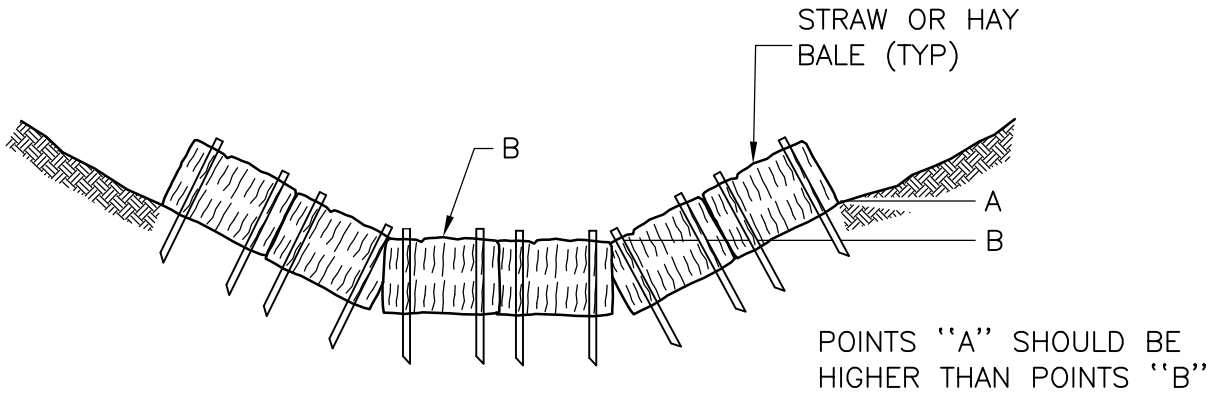
DETAIL ES

NTS 1



PLAN

TO BE INSTALLED AT DRAINAGE DITCH

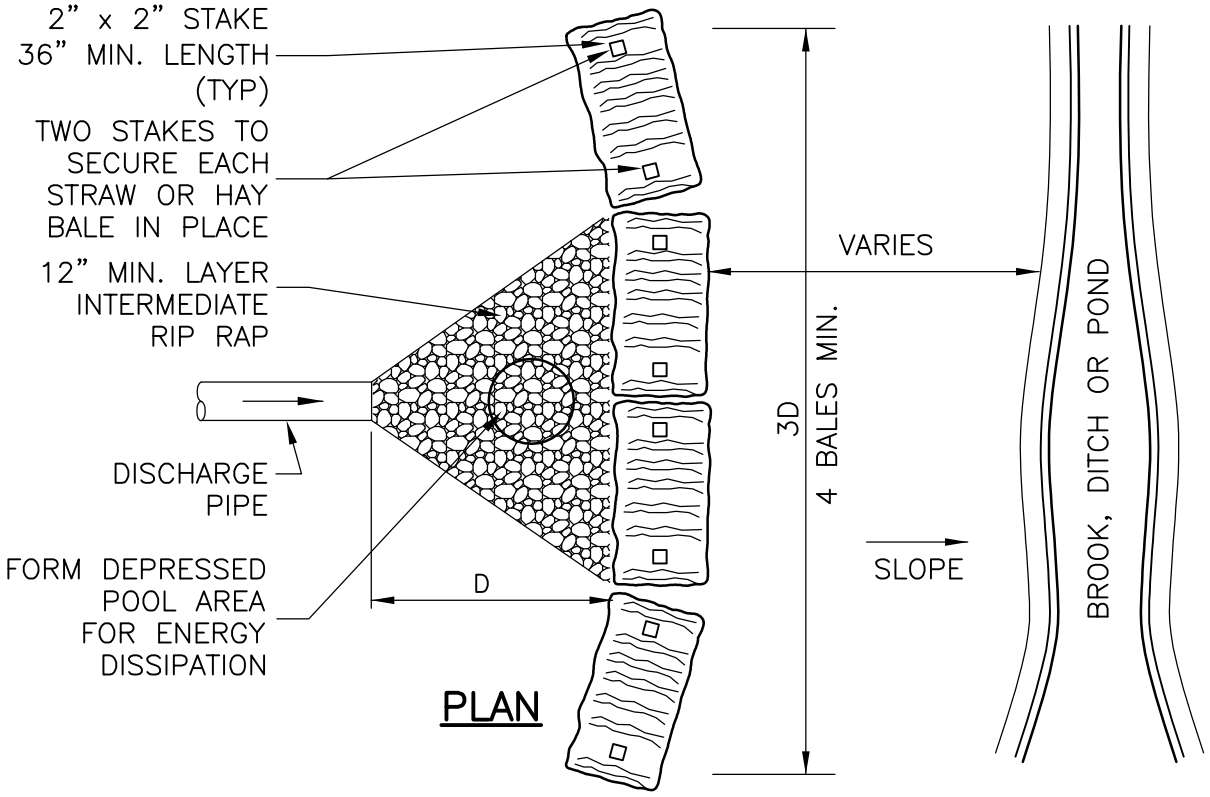


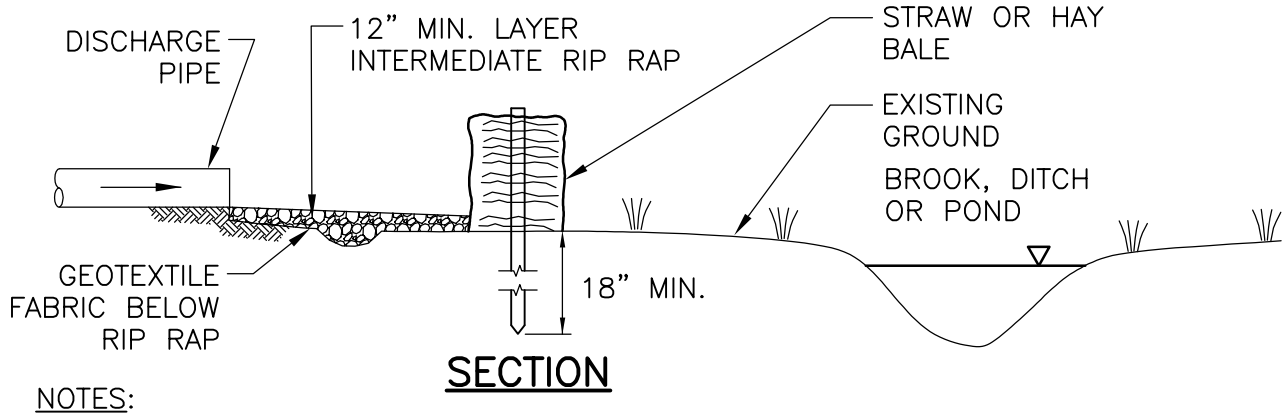
ELEVATION

STRAW OR HAY BALE SEDIMENTATION CHECK

DETAIL ES 2

NTS





NOTES:

1. TO BE USED WHERE A DEWATERING DISCHARGE LINE IS LOCATED AS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER. DESIGN OF RIP RAP AREA MUST BE CERTIFIED BY A CT REGISTERED PROFESSIONAL ENGINEER.

2. HOOK END BALES TO KEEP SEDIMENT FROM MIGRATING AROUND ENDS.

STRAW OR HAY BALE EROSION DAM

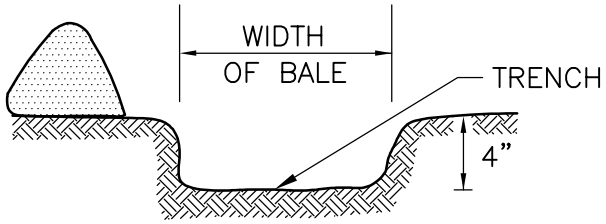
DETAIL ES

NTS 3

THE METROPOLITAN DISTRICT

EROSION AND SEDIMENTATION CONTROL STANDARD DETAILS

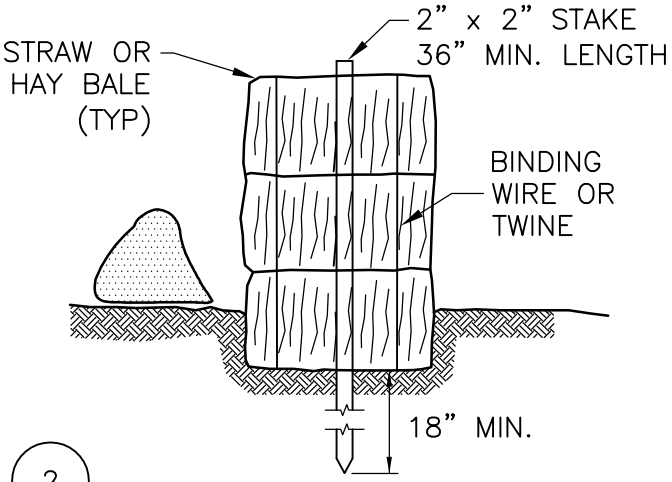
1. EXCAVATE A TRENCH 4" DEEP AND THE WIDTH OF A STRAW OR HAY BALE.



SECTION

1

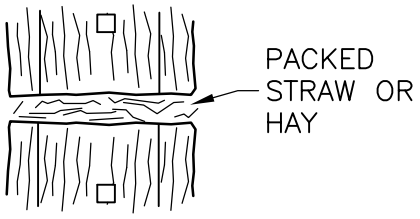
2. PLACE AND STAKE STRAW OR HAY BALES USING TWO STAKES TO SECURE EACH BALE.



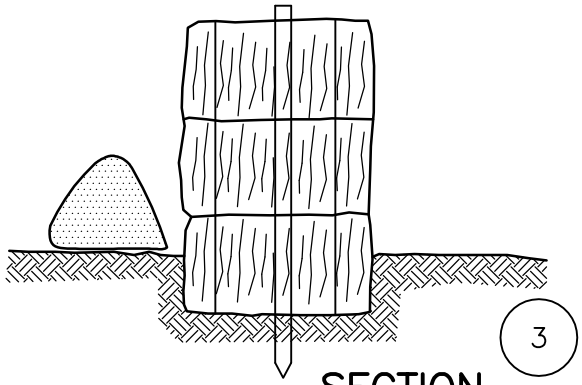
2

SECTION

3. WEDGE LOOSE STRAW OR HAY BETWEEN BALES TO CREATE A CONTINUOUS BARRIER.



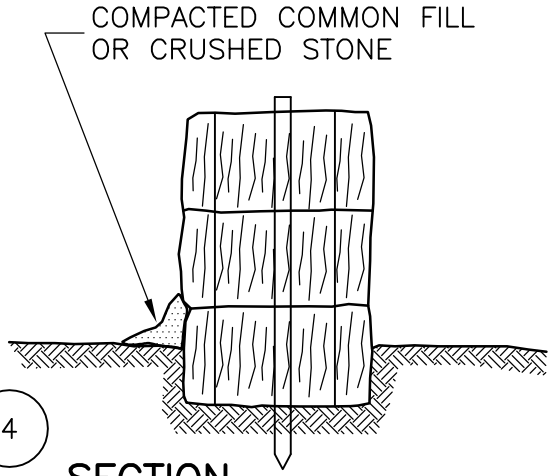
PLAN



3

SECTION

4. BACKFILL AND COMPACT THE EXCAVATED SOIL AS SHOWN ON THE UPHILL SIDE OF THE BARRIER TO PREVENT EROSION.



4

SECTION

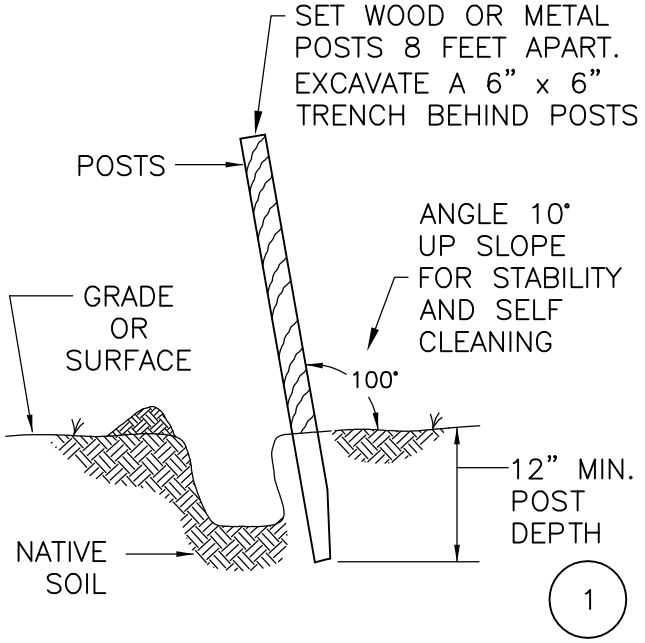
STRAW OR HAY BALE BARRIER INSTALLATION

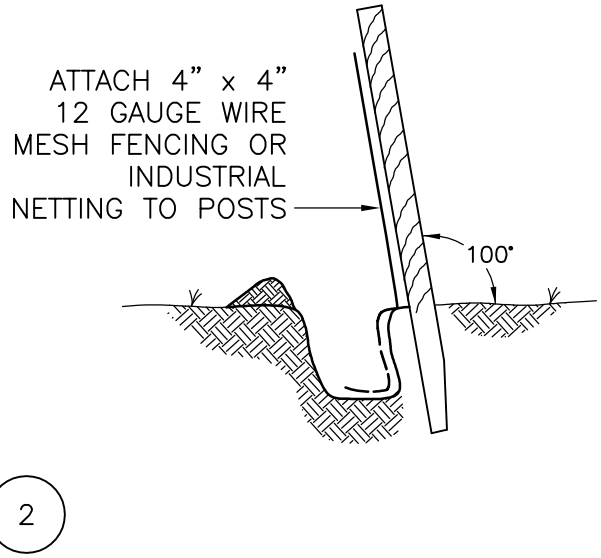
DETAIL ES 4

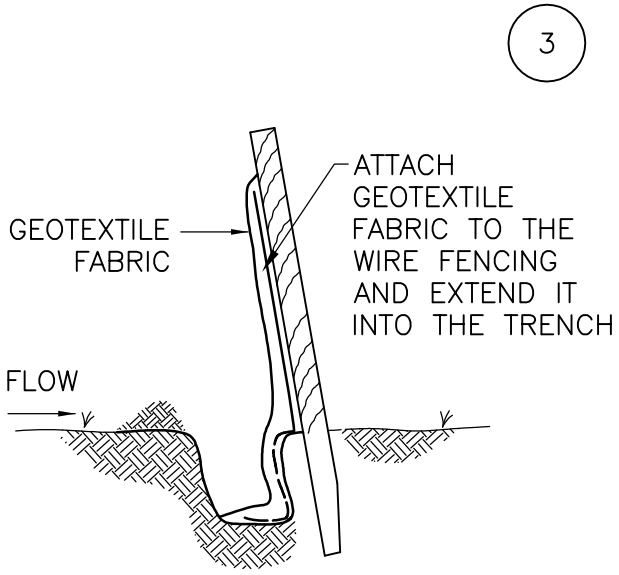
NTS

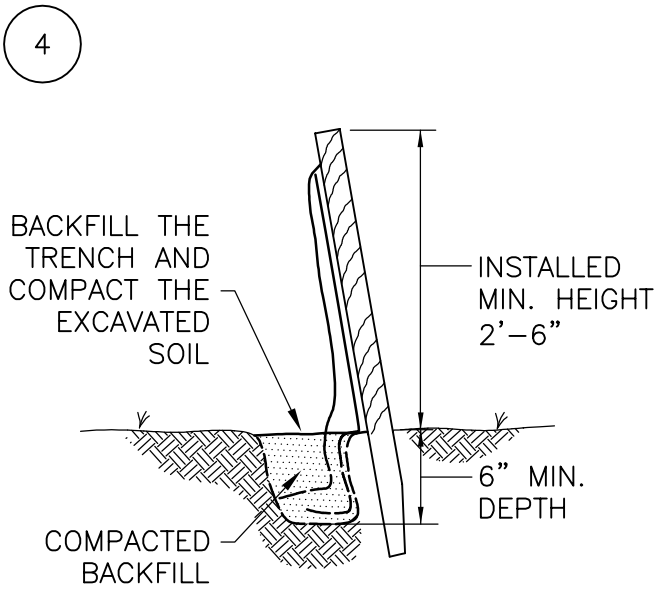
THE METROPOLITAN DISTRICT

EROSION AND SEDIMENTATION CONTROL STANDARD DETAILS









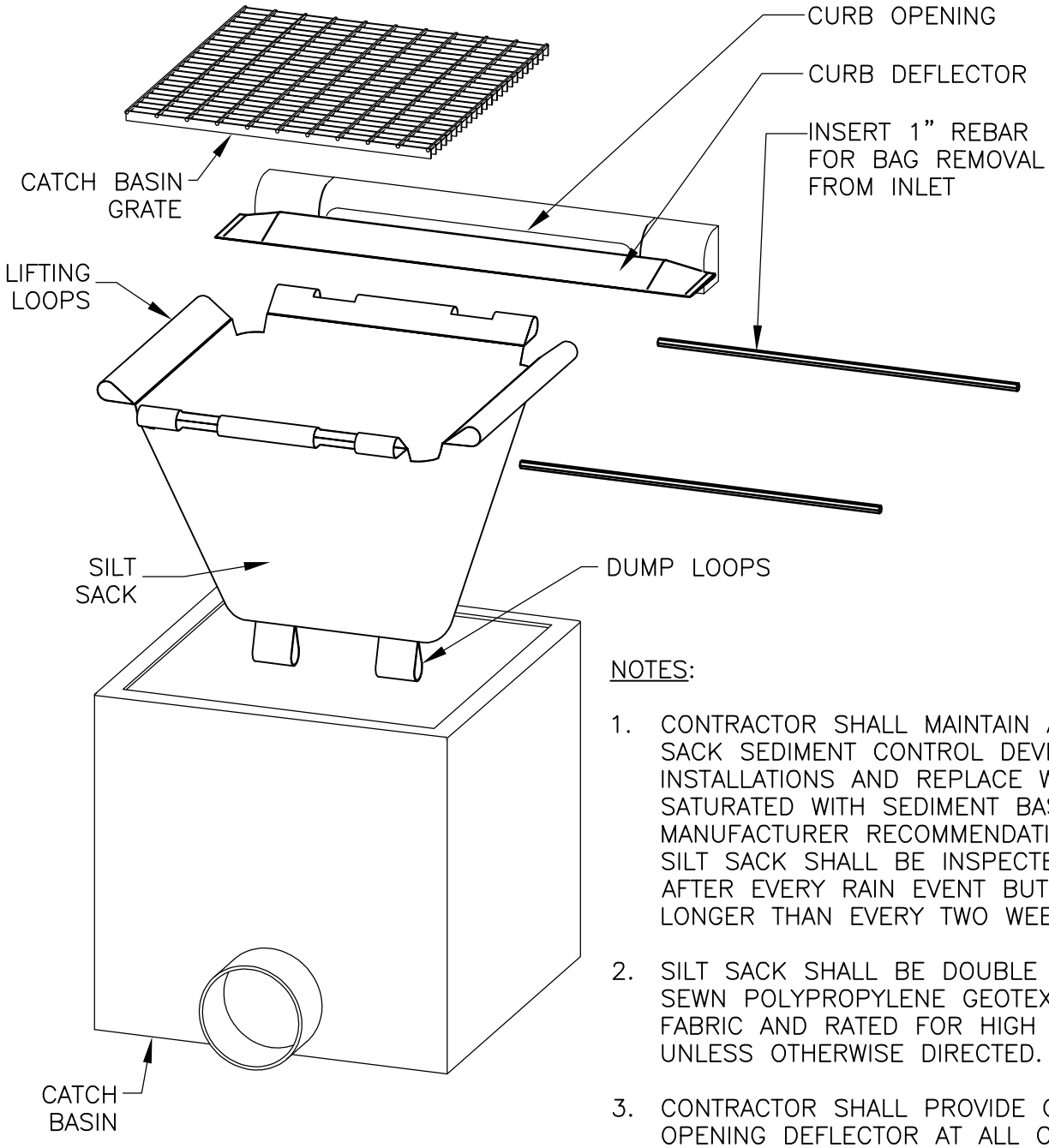
NOTE:

1. FENCE TO BE INSTALLED PRIOR TO CONSTRUCTION. PRE–ASSEMBLED UNITS ALSO MAY BE USED AND INSTALLED AS INDICATED.

SILT FENCE INSTALLATION

DETAIL ES

NTS 5



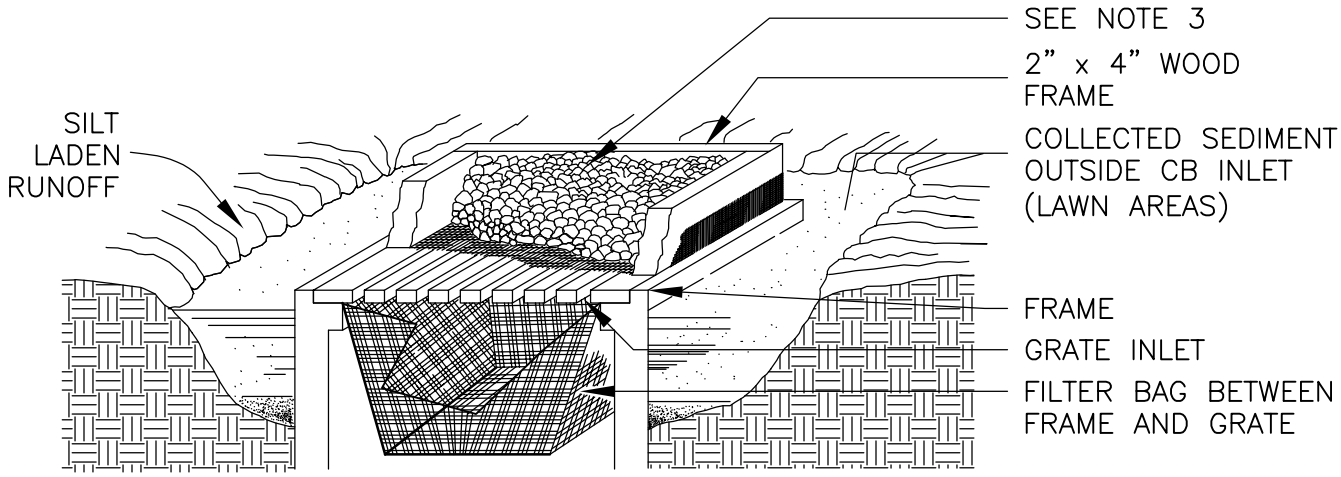
NOTES:

1. CONTRACTOR SHALL MAINTAIN ALL SILT SACK SEDIMENT CONTROL DEVICE INSTALLATIONS AND REPLACE WHEN SATURATED WITH SEDIMENT BASED ON MANUFACTURER RECOMMENDATIONS. SILT SACK SHALL BE INSPECTED AFTER EVERY RAIN EVENT BUT NO LONGER THAN EVERY TWO WEEKS.
2. SILT SACK SHALL BE DOUBLE NEEDLE SEWN POLYPROPYLENE GEOTEXTILE FABRIC AND RATED FOR HIGH FLOW UNLESS OTHERWISE DIRECTED.
3. CONTRACTOR SHALL PROVIDE CURB OPENING DEFLECTOR AT ALL CATCH BASINS AS NECESSARY.

CATCH BASIN SILT SACK

DETAIL ES 6

NTS



NOTES:

1. IN LAWN AREAS, USE MESH, WOOD FRAME BOX, AND STONE FOR INLET PROTECTION (NO BAG REQUIRED)

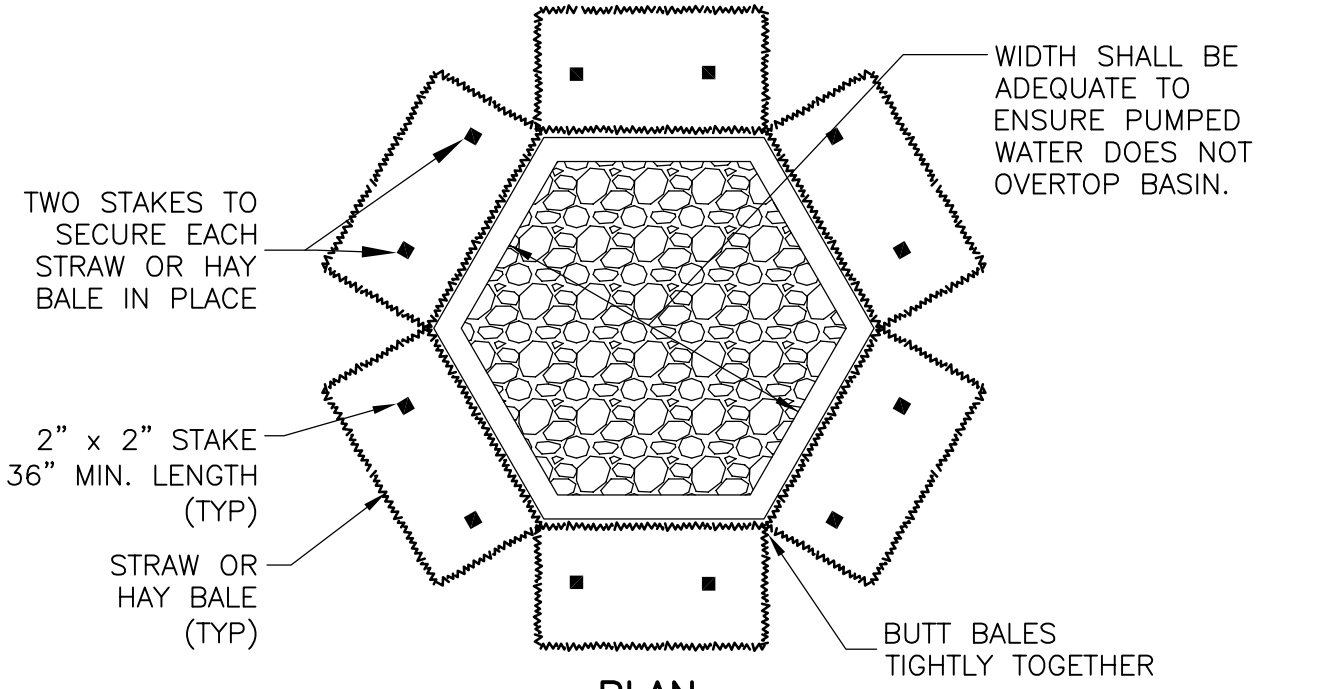
2. IN PAVED AREAS, USE FILTER BAG FOR INLET PROTECTION (NO MESH, BOX STONE REQUIRED)

3. WRAP ¼" WIRE MESH AROUND SIDES OF BOX AND ATTACH TO FRAME. FILL WITH ½"–1" DIAMETER WASHED STONE. REPLACE WHEN SATURATED WITH SEDIMENT.

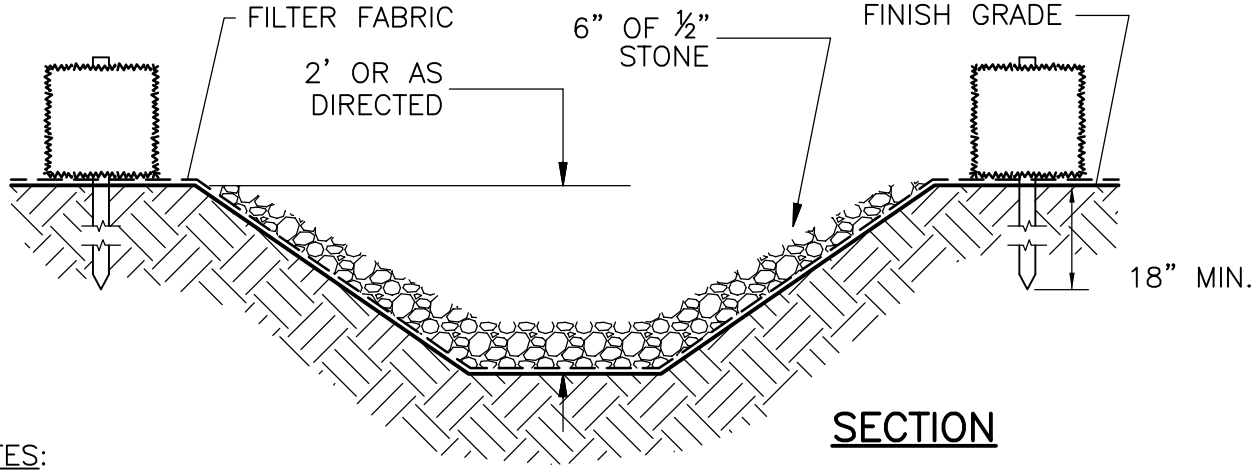
CATCH BASIN FILTER

DETAIL ES

NTS 7



PLAN



SECTION

NOTES:

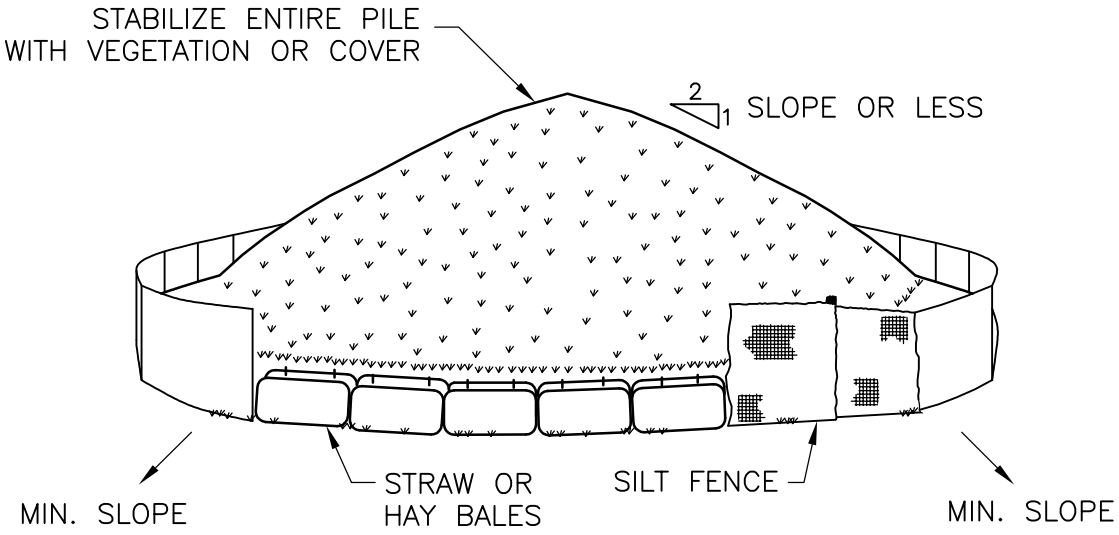
1. DESIGN OF DEWATERING AND DRAINAGE SYSTEMS MUST BE CERTIFIED BY A CT REGISTERED PROFESSIONAL ENGINEER.

2. BASIN DIMENSIONS AND MATERIAL SPECIFICATIONS ARE SITE SPECIFIC FOR USE IN WORK WITHIN THE WETLAND. AFTER DEWATERING ACTIVITIES ARE COMPLETE, CONTRACTOR SHALL REMOVE AND RESTORE AREA WITH TOPSOIL AND SEED. LOCATION TO BE APPROVED BY ENGINEER.

DEWATERING BASIN

DETAIL ES

NTS 8



NOTES:

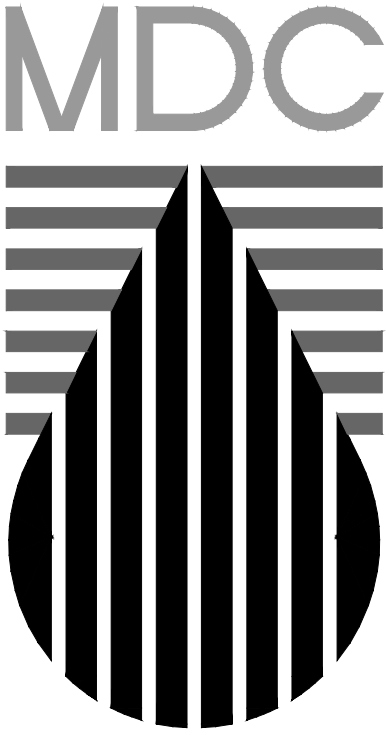
1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 2:1.
3. EACH PILE SHALL BE SURROUNDED WITH EITHER SILT FENCING, STRAW BALES OR HAY BALES, THEN STABILIZED WITH VEGETATION OR COVERED.
4. UPON COMPLETION OF SOIL STOCKPILING, RESTORE STOCKPILING AREA TO EXISTING CONDITIONS PRIOR TO CONSTRUCTION.

STOCKPILING AREA

DETAIL ES

NTS 9

SURFACE RESTORATION STANDARD DETAILS



THE METROPOLITAN DISTRICT

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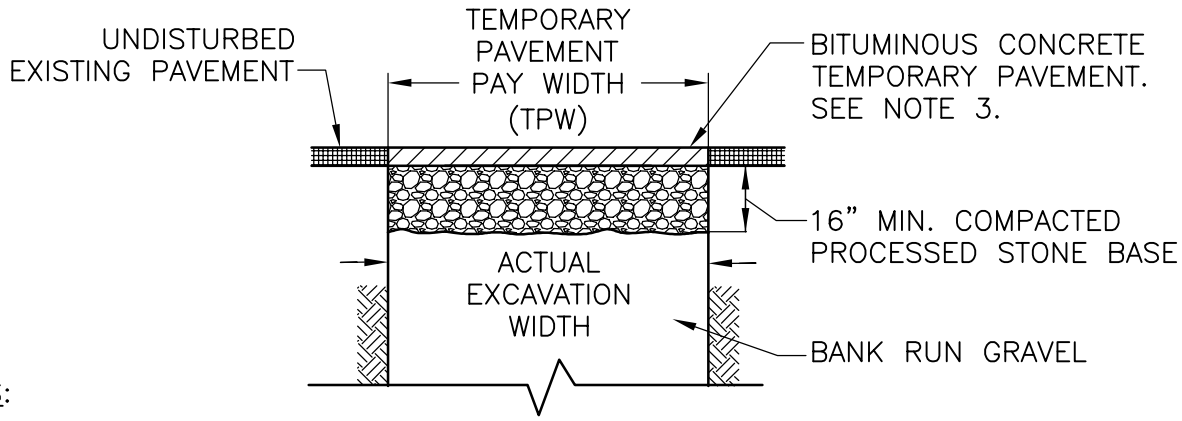


NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EMERGENCY AND GENERAL MAINTENANCE OF TEMPORARY TRENCH PAVEMENT.

2. TEMPORARY TRENCH REPAIR SHALL BE COMPLETED AT THE END OF EACH WORK DAY. TEMPORARY PAVEMENT SHALL BE MAINTAINED IN A CONDITION SUITABLE FOR TRAFFIC UNTIL REPLACED OR OVERLAID BY FINAL PAVEMENT. DEFECTS SHALL BE REPAIRED WITHIN 1 DAY OF NOTIFICATION OF SUCH DEFECTS.

3. MINIMUM THICKNESS FOR PERMANENT FINISH AND BINDER COURSES SHALL BE THICKNESS AND PAVEMENT CLASS AS STATED IN THE SPECIFICATIONS. IF THE THICKNESS OF TEMPORARY PAVEMENT ORDERED AND PLACED IS GREATER THAN SPECIFIED, PAYMENT SHALL BE PRORATED ON THE BASIS OF THE THICKNESS OF THE MATERIAL ACTUALLY ORDERED AND PLACED.

4. THE PAY WIDTH DIMENSIONS SHOWN REPRESENT THE MAXIMUM PAY WIDTHS TO BE PAID. WHEN THE ACTUAL SURFACE REPAIR OR TRENCH WIDTH IS LESS, THE ACTUAL WIDTH SHALL BE PAID FOR AT THE APPLICABLE UNIT PRICE.

5. THE MAXIMUM TEMPORARY PAVEMENT PAY WIDTH AT MANHOLES IS 12" OUTSIDE THE BASE.

6. FOR WORK ON STATE HIGHWAYS, SEE CT DOT TRENCH DETAILS.

MAXIMUM TEMPORARY TRENCH PAVEMENT PAY WIDTHS (TPW)		
DEPTH TO PIPE INVERT (FT)	0–12" PIPE TPW (FT)	>12" PIPE TPW (FT)
0–8	6.0	PIPE I.D. + 5
8–12	7.0	PIPE I.D. + 6
12–16	8.0	PIPE I.D. + 7
>16	9.0	PIPE I.D. + 8

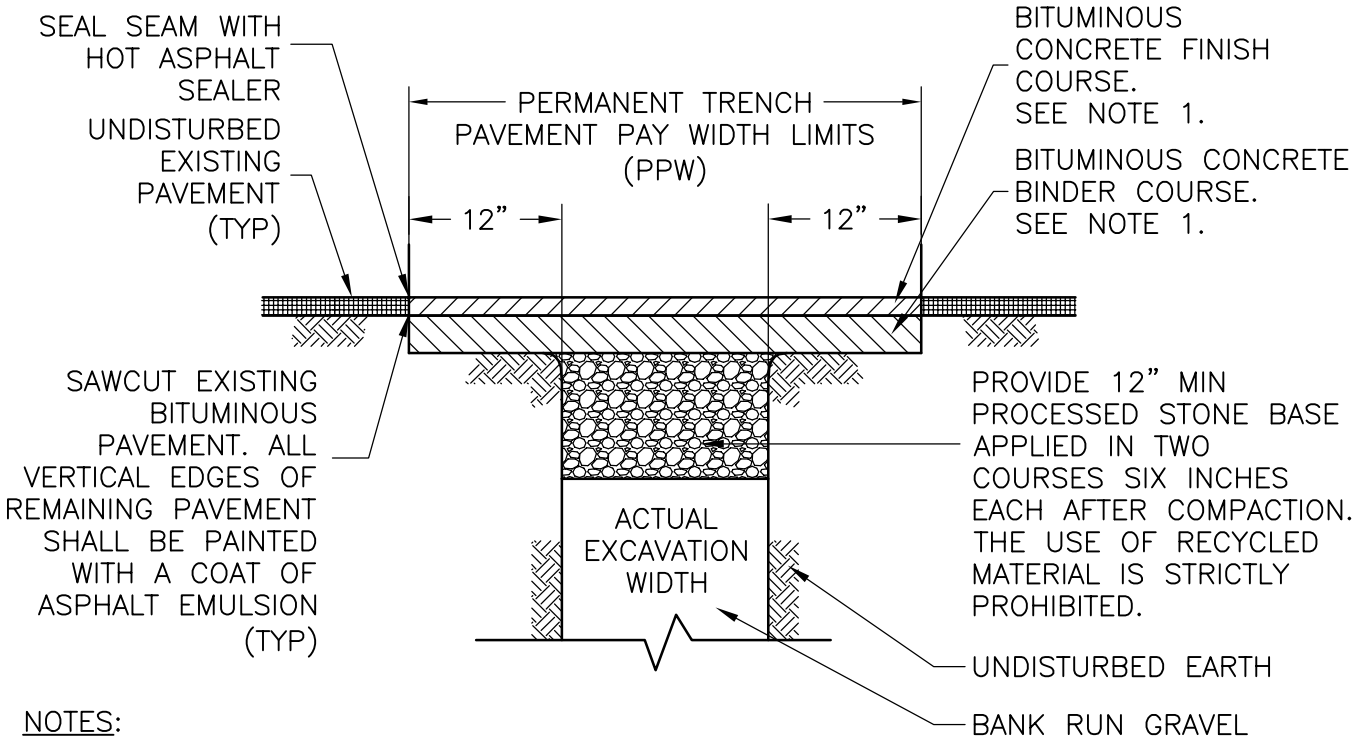
TEMPORARY TRENCH PAVEMENT REPAIR

DETAIL SR 1

NTS

THE METROPOLITAN DISTRICT

SURFACE RESTORATION STANDARD DETAILS



NOTES:

1. MINIMUM THICKNESS FOR PERMANENT FINISH AND BINDER COURSES SHALL BE THICKNESS AND PAVEMENT CLASS AS STATED IN THE SPECIFICATIONS.

2. THE PAY WIDTH DIMENSIONS SHOWN REPRESENT THE MAXIMUM PAY WIDTHS TO BE PAID. WHEN THE ACTUAL SURFACE REPAIR OR TRENCH WIDTH IS LESS, THE ACTUAL WIDTH SHALL BE PAID FOR AT THE APPLICABLE UNIT PRICE.

3. THE MAXIMUM PERMANENT PAVEMENT PAY WIDTH AT MANHOLES IS 24" OUTSIDE THE BASE.

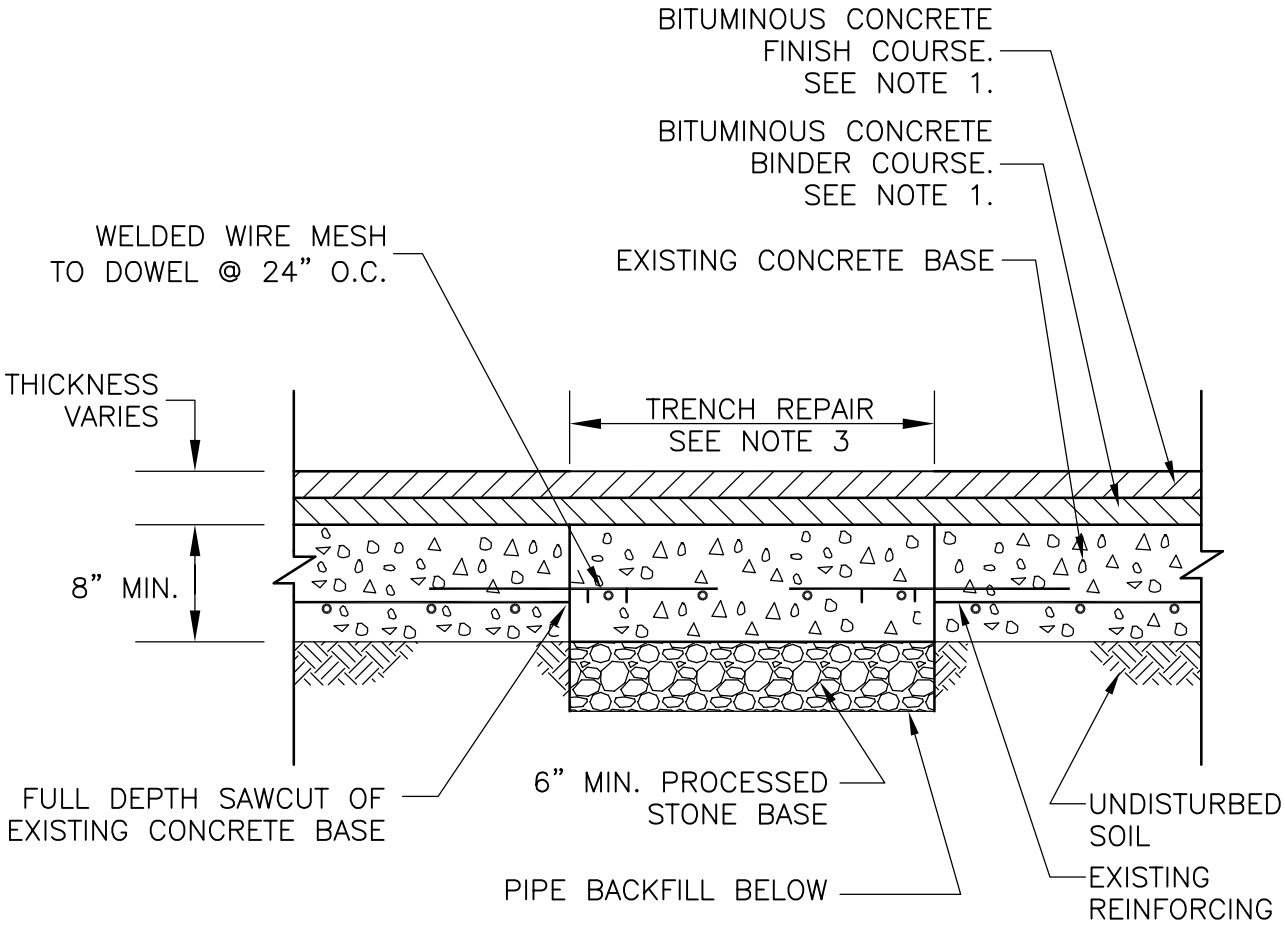
4. FOR WORK ON STATE HIGHWAYS, SEE CT DOT TRENCH DETAILS.

MAXIMUM PERMANENT TRENCH PAVEMENT PAY WIDTH (PPW)		
DEPTH TO PIPE INVERT	0–12" PIPE PPW (FT)	>12" PIPE PPW (FT)
0–8	8.0	PIPE I.D. + 7
8–12	9.0	PIPE I.D. + 8
12–16	10.0	PIPE I.D. + 9
>16	11.0	PIPE I.D. + 10

PERMANENT TRENCH PAVEMENT RESTORATION

DETAIL SR 2

NTS



NOTES:

1. MINIMUM THICKNESS FOR PERMANENT FINISH AND BINDER COURSES SHALL BE THICKNESS AND PAVEMENT CLASS AS STATED IN THE SPECIFICATIONS.

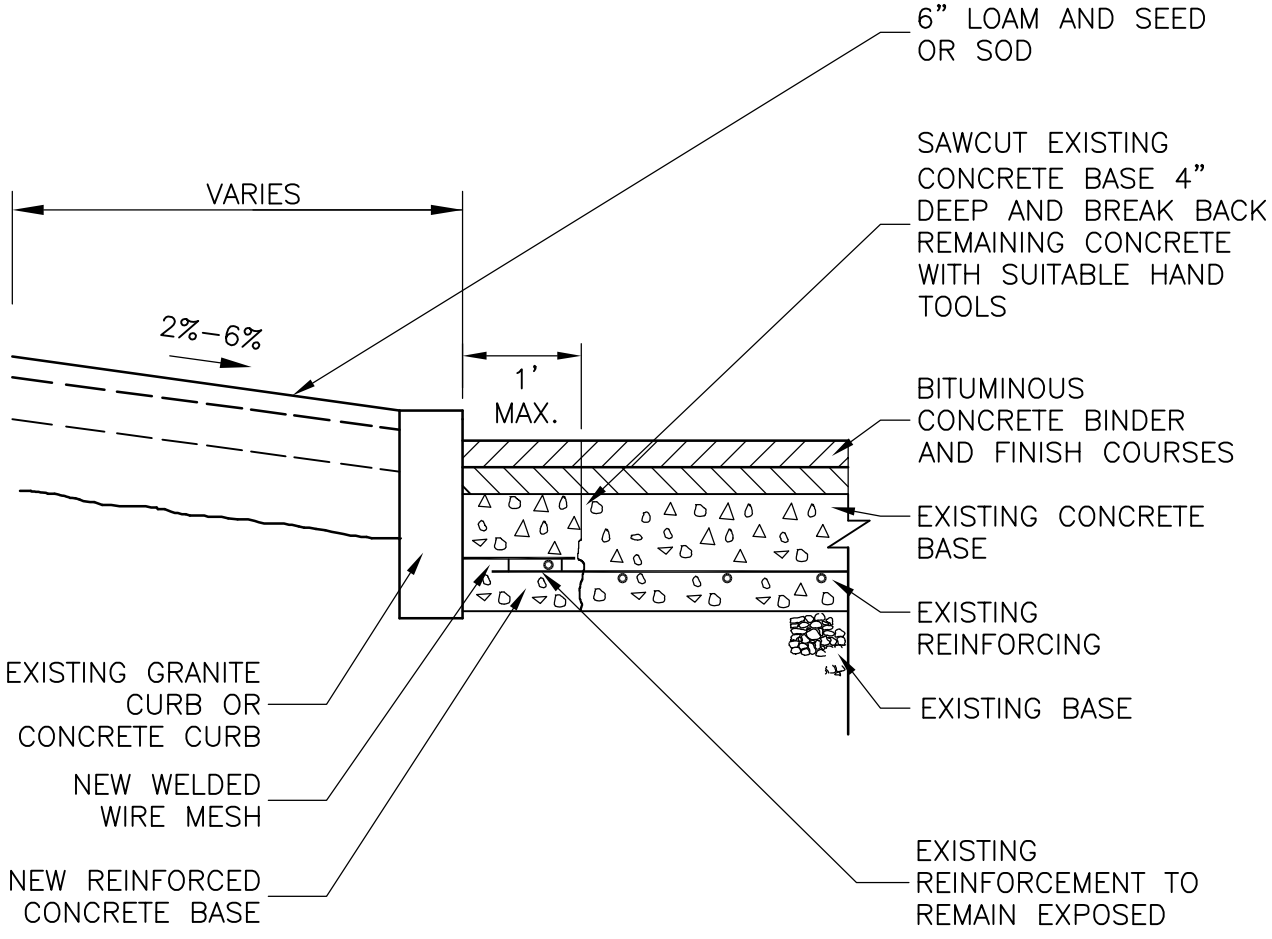
2. PROVIDE 18" LONG SMOOTH DOWELS ⅝" @ 24" O.C. DRILL HOLE SHALL BE OVERSIZED BY ⅛".

3. SEE TEMPORARY TRENCH PAVEMENT REPAIR DETAIL FOR PAY WIDTHS.

REINFORCED CONCRETE BASE TRENCH REPAIR

DETAIL SR 3

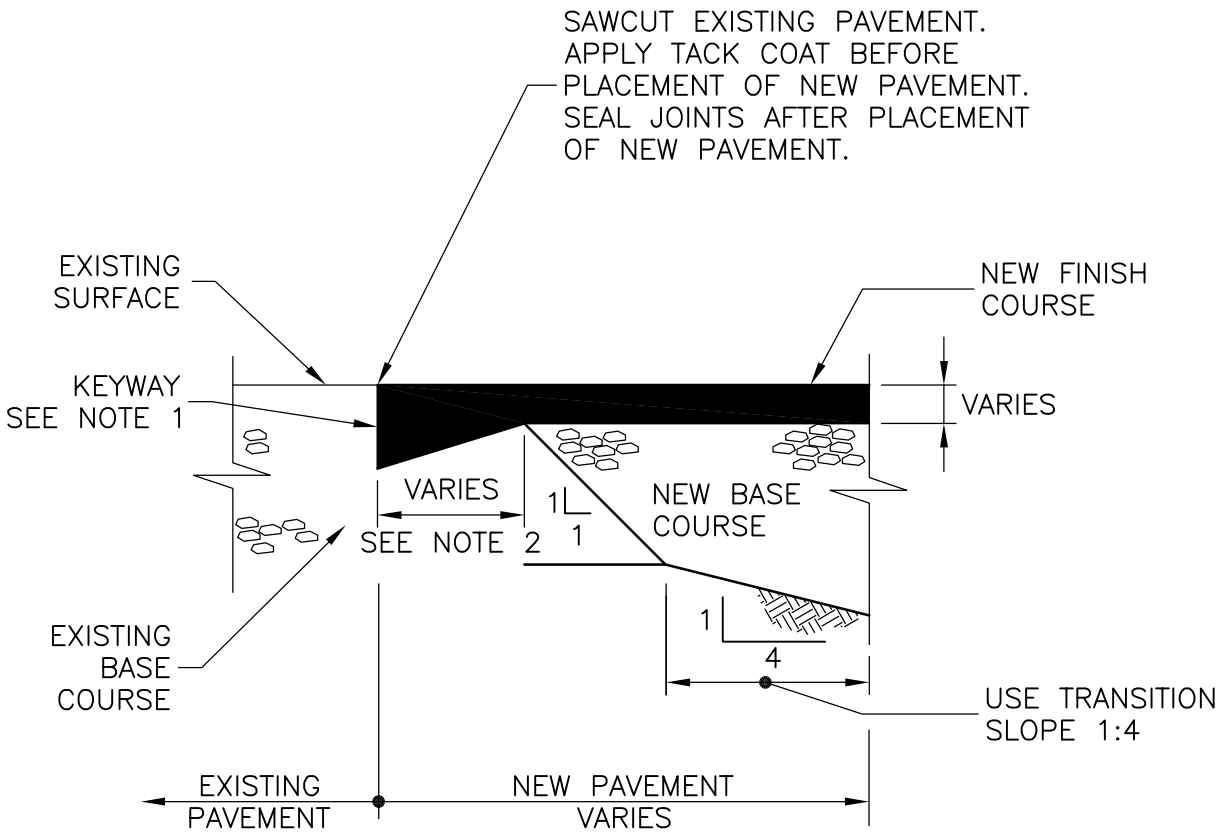
NTS



REINFORCED CONCRETE BASE REPAIR AT EXISTING CURB

DETAIL SR 4

NTS



NOTES:

1. KEYWAYS MUST BE MILLED INTO EXISTING PAVEMENT FOR FINAL PAVEMENT COURSE TO PROVIDE A TIGHT, SMOOTH JOINT. THE DEPTH OF THE KEYWAY BELOW THE FINAL COURSE SHALL EQUAL THE THICKNESS OF THE FINAL COURSE.

2. ALL PERMANENT TRANSITIONS SHALL MEET CTDOT LENGTH REQUIREMENTS UNLESS OTHERWISE APPROVED.

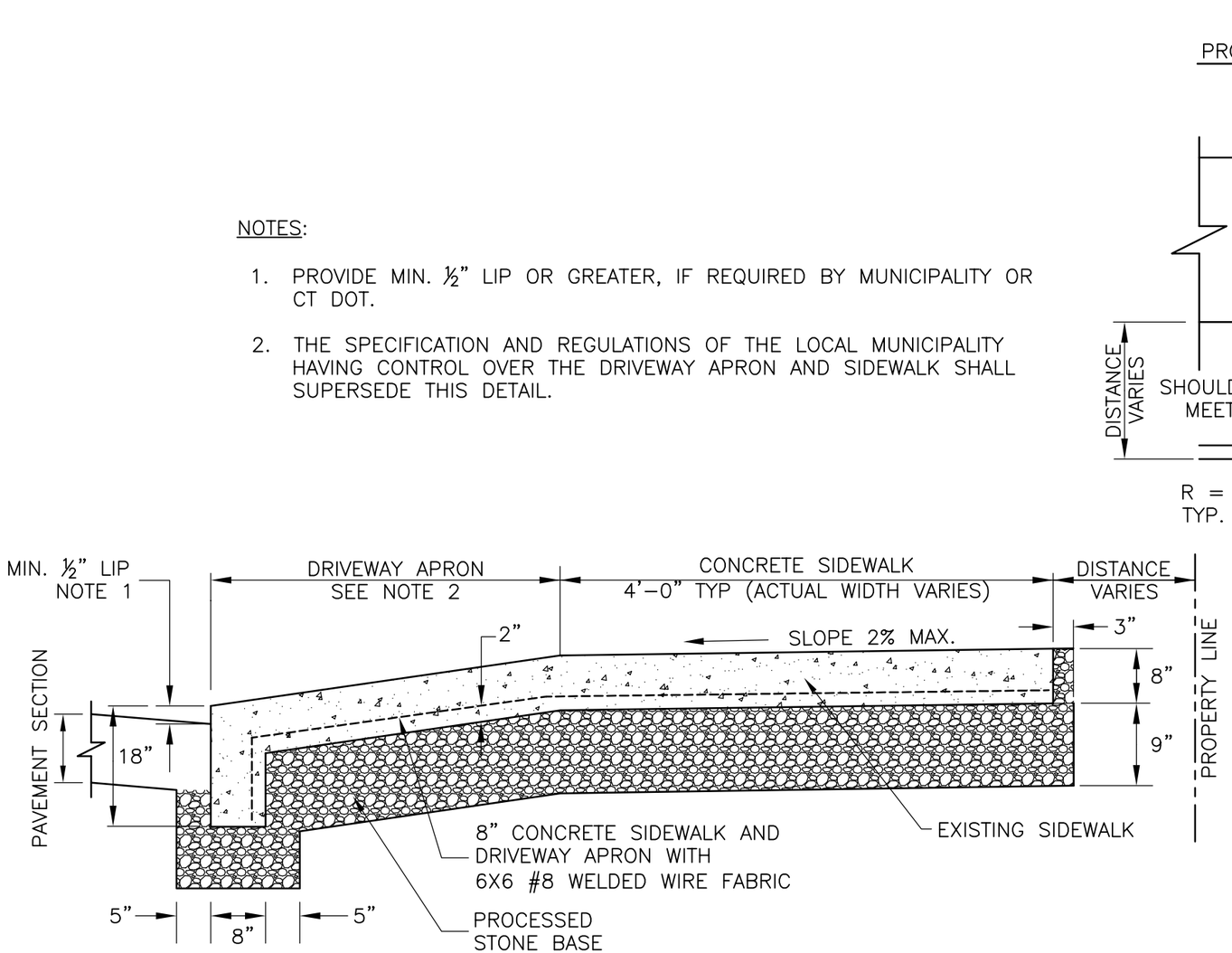
TRANSITION BETWEEN NEW AND EXISTING PAVEMENT

DETAIL SR 5

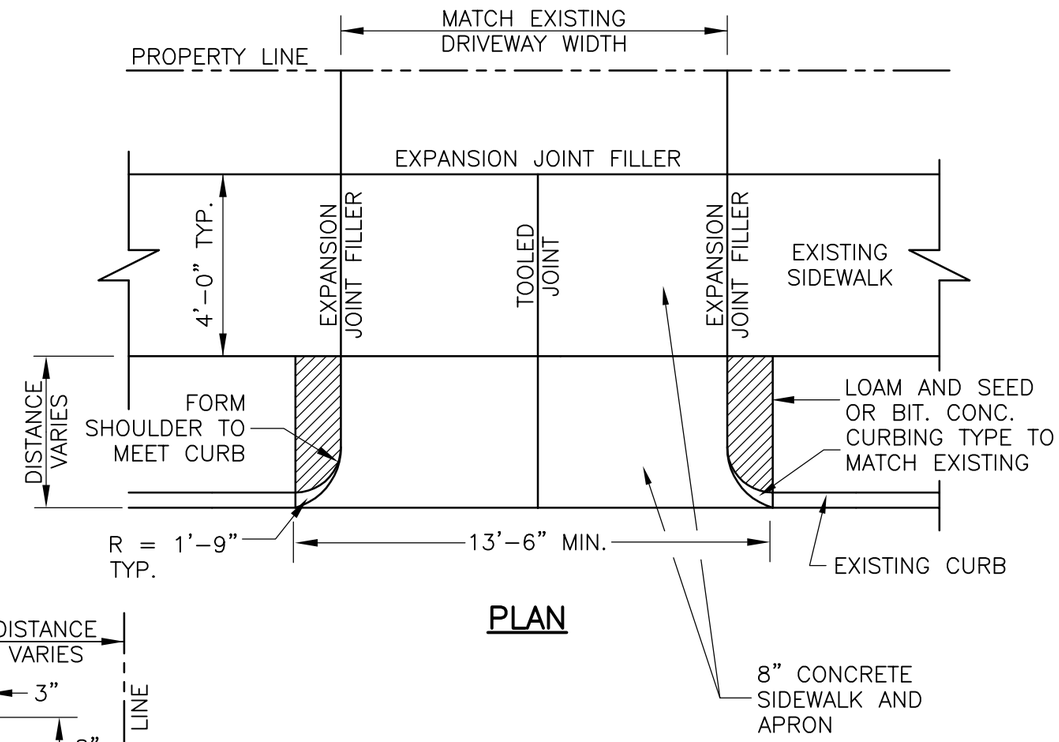
NTS

NOTES:

1. PROVIDE MIN. ½" LIP OR GREATER, IF REQUIRED BY MUNICIPALITY OR CT DOT.
2. THE SPECIFICATION AND REGULATIONS OF THE LOCAL MUNICIPALITY HAVING CONTROL OVER THE DRIVEWAY APRON AND SIDEWALK SHALL SUPERSEDE THIS DETAIL.



SECTION

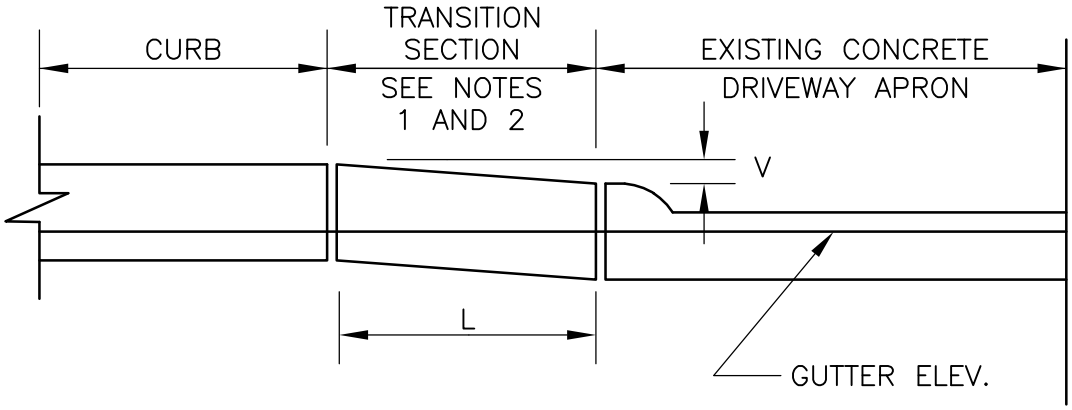


PLAN

CONCRETE DRIVEWAY APRON RESTORATION

DETAIL SR 6

NTS



TRANSITION TABLE

VERTICAL (V)	CURB LENGTH (L)
1"	4 FEET MIN.
2"	5 FEET MIN.
3"	6 FEET MIN.

NOTES:

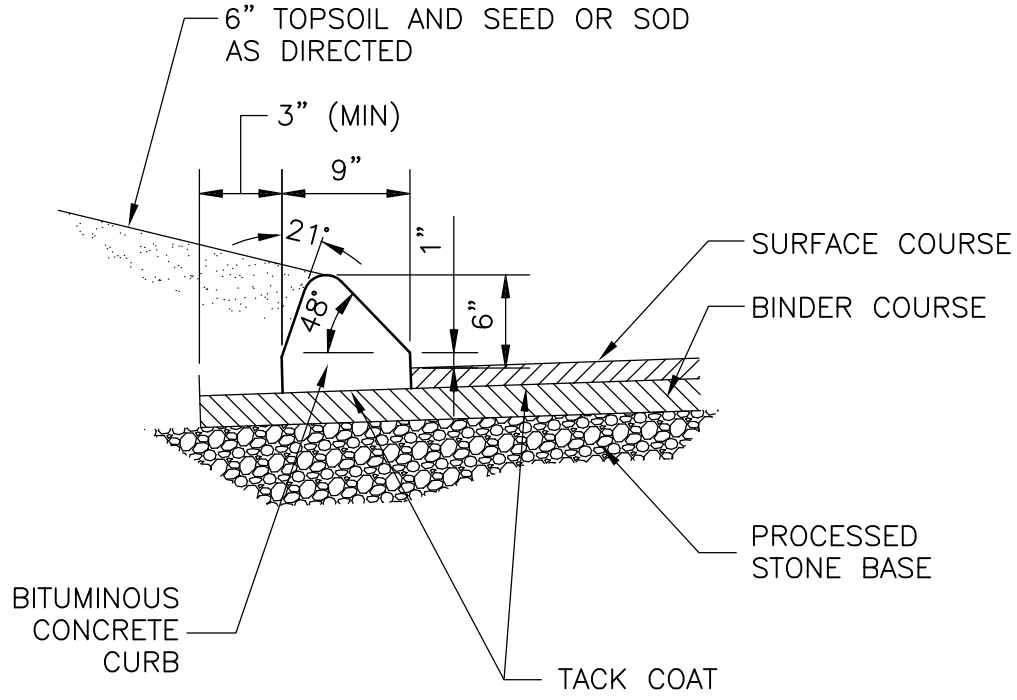
1. FOR GRANITE CURB SET THE LAST SECTION TO MATCH EXISTING DRIVE SHOULDER ELEVATION. MINIMUM CLOSURE SECTION SHALL BE 4 FEET.

2. FOR BITUMINOUS OR CONCRETE CURB, DEPRESS CURB TO MEET EXISTING DRIVE SHOULDER. MINIMUM SECTION SHALL BE 10 INCHES.

CURBING TRANSITION AT EXISTING DRIVEWAY

DETAIL SR 7

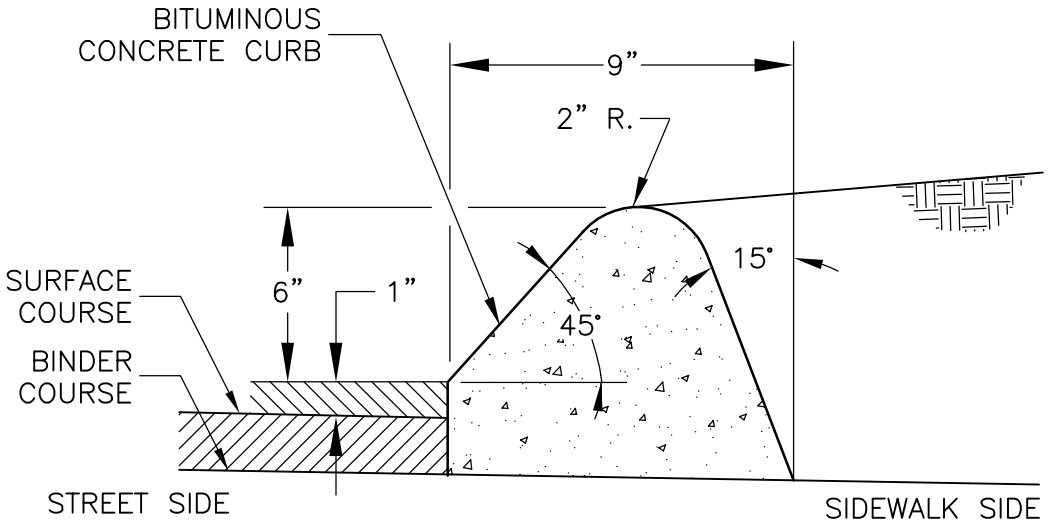
NTS



BITUMINOUS CONCRETE CURB 6–INCH REVEAL (TYPE I)

DETAIL SR 8

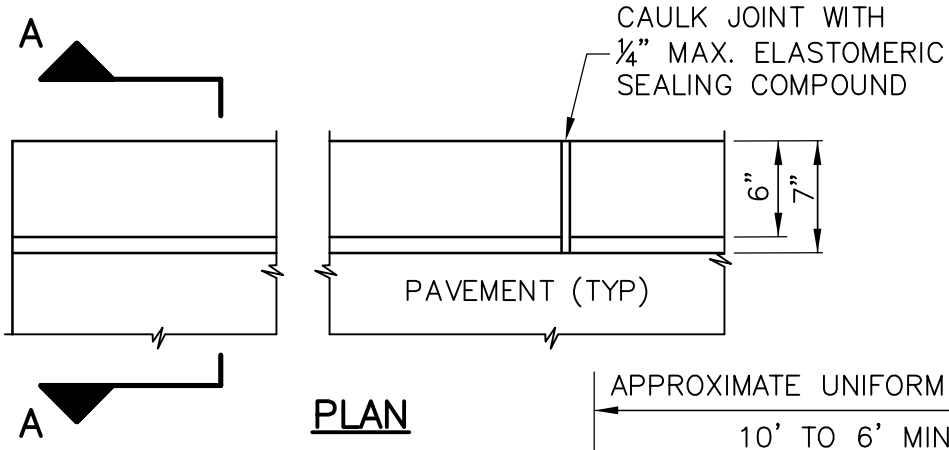
NTS



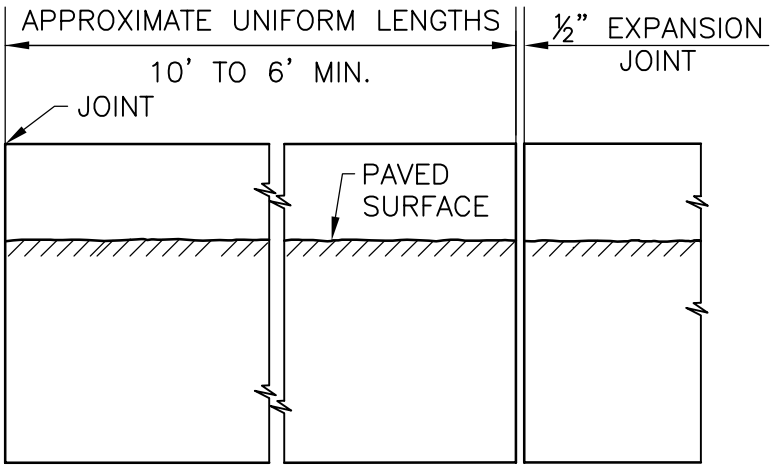
BITUMINOUS CONCRETE CURB 6–INCH REVEAL (TYPE II)

DETAIL SR 9

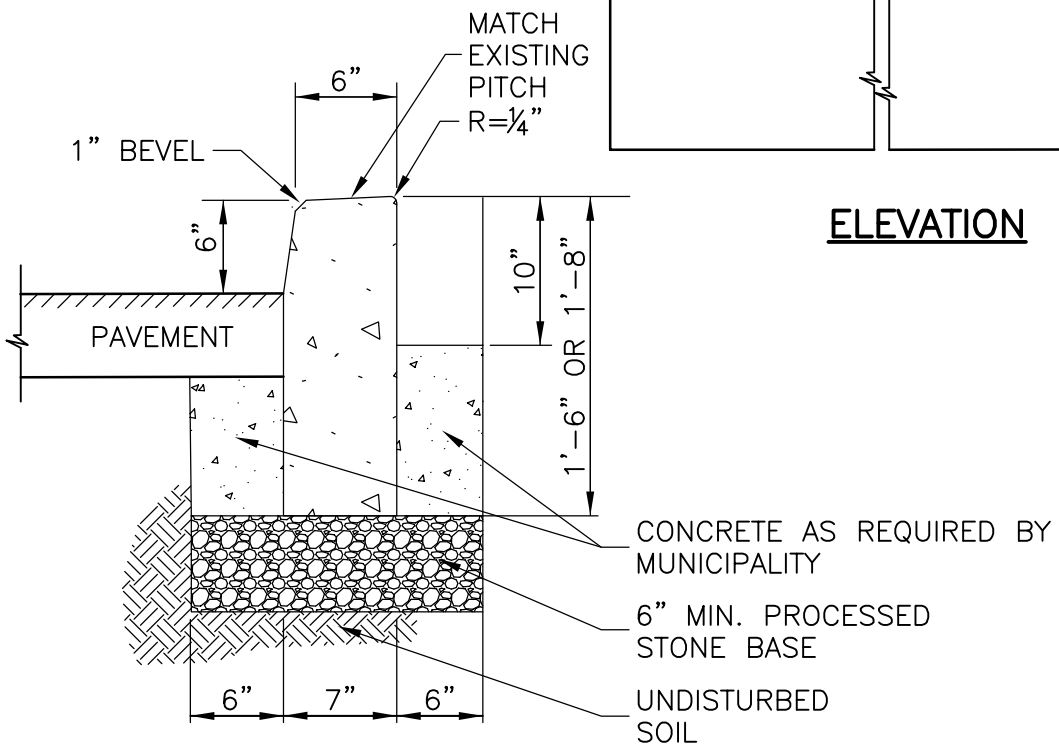
NTS



PLAN



ELEVATION

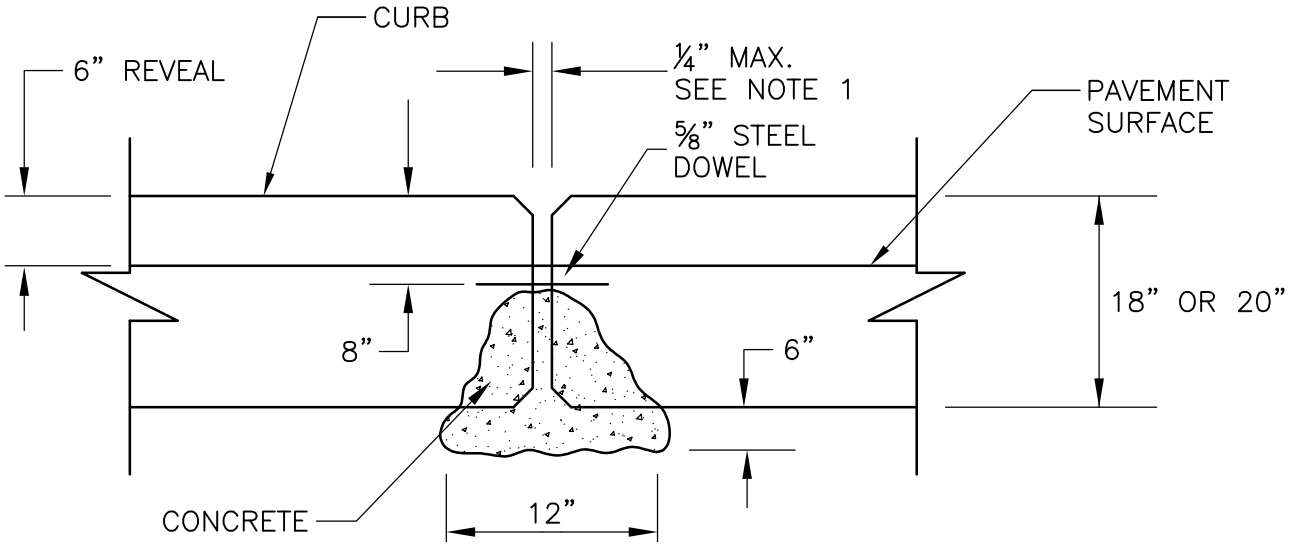


SECTION A–A

PRECAST CONCRETE CURB RESTORATION

DETAIL SR 10

NTS



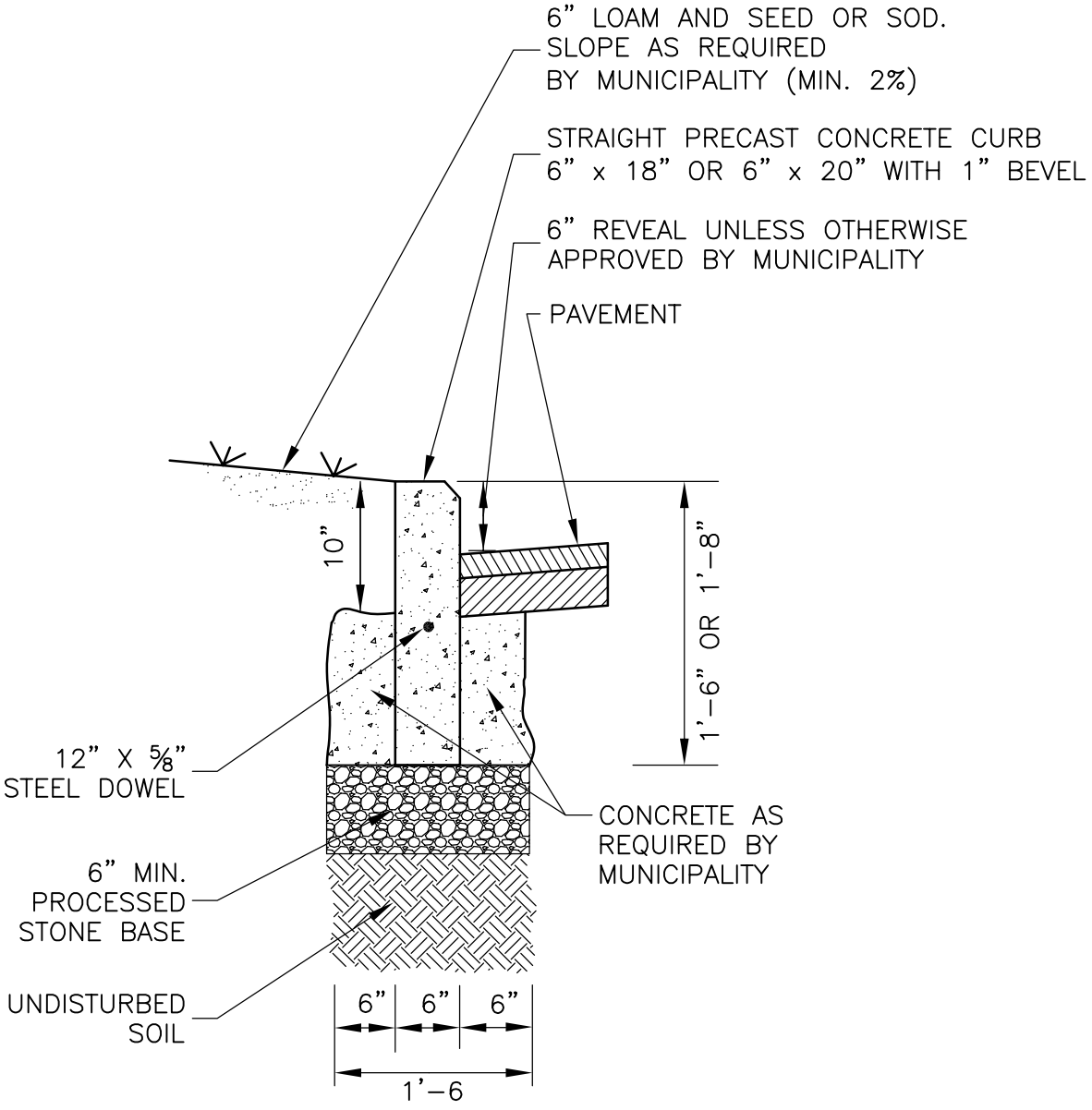
NOTE:

1. CURB JOINT TO BE CAULKED WITH ELASTOMERIC SEALING COMPOUND.

PRECAST CONCRETE CURB JOINT

DETAIL SR 11

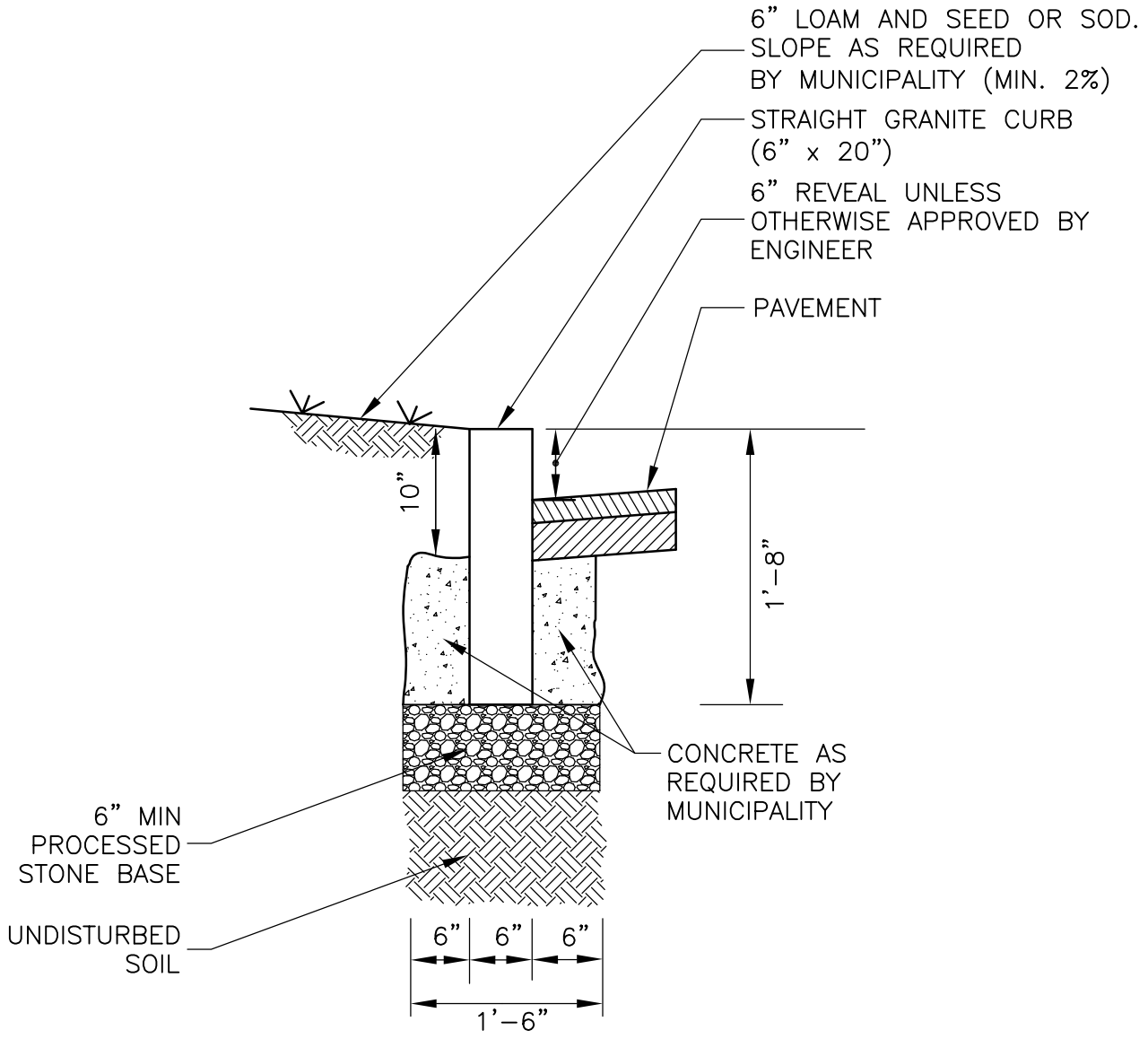
NTS



STRAIGHT CONCRETE CURB SECTION

DETAIL SR 12

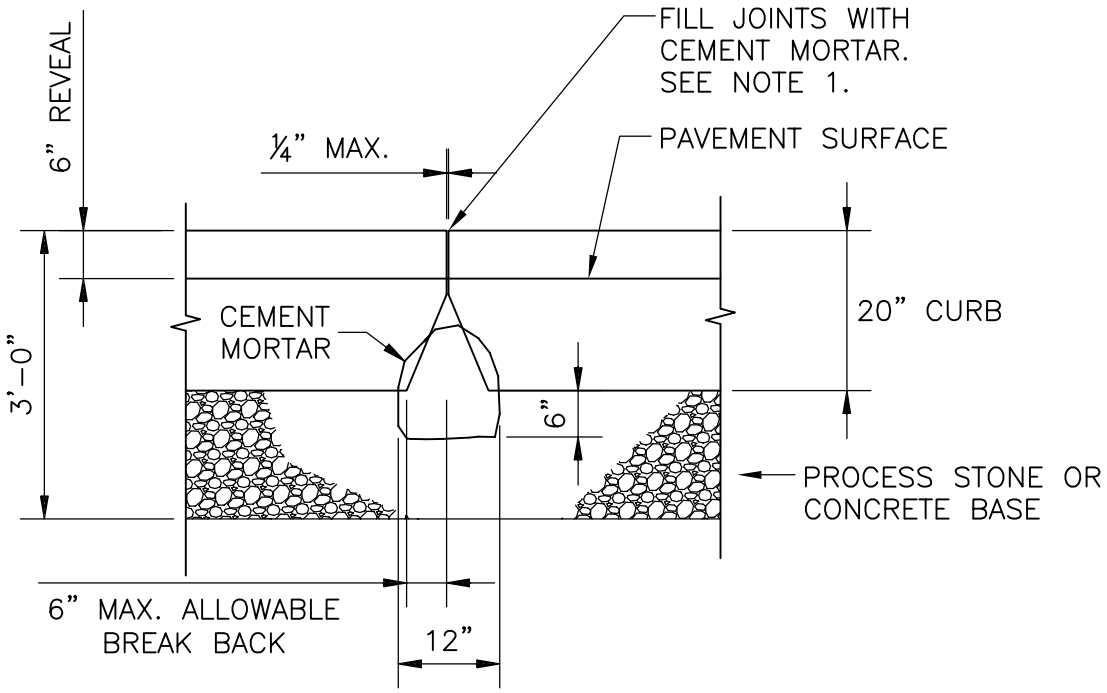
NTS



STRAIGHT GRANITE CURB SECTION

DETAIL SR 13

NTS



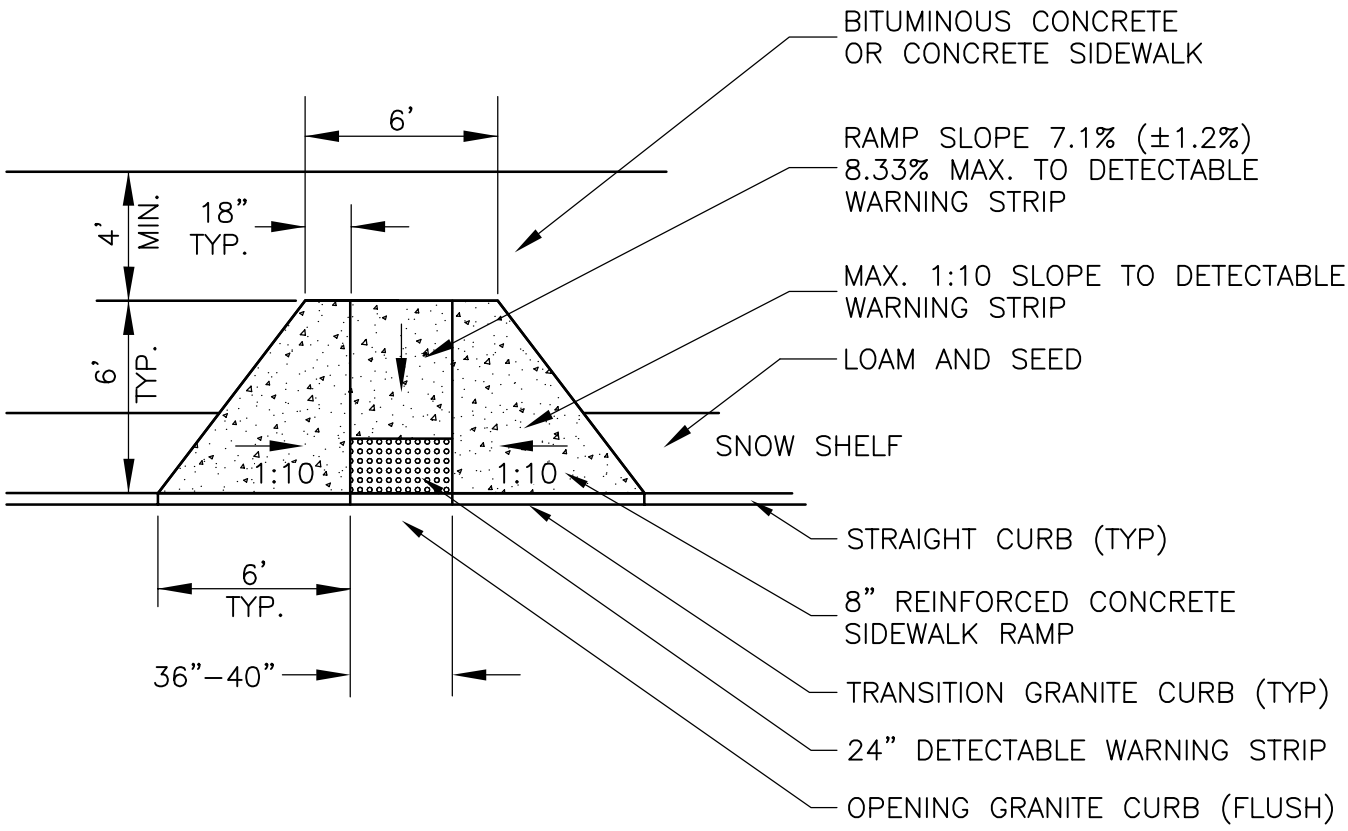
NOTE:

1. AT APPROXIMATELY 50-FOOT INTERVALS, A ½" JOINT SHALL NOT BE FILLED WITH MORTAR TO ALLOW FOR CURB EXPANSION. THE JOINTS OF ALL GRANITE CURBING SHALL BE FILLED WITH CEMENT MORTAR AND NEATLY POINTED ON EXPOSED SURFACES. EXCESS MORTAR SHALL BE SATISFACTORILY CLEANED FROM THE CURB.

GRANITE CURB JOINT

DETAIL SR 14

NTS



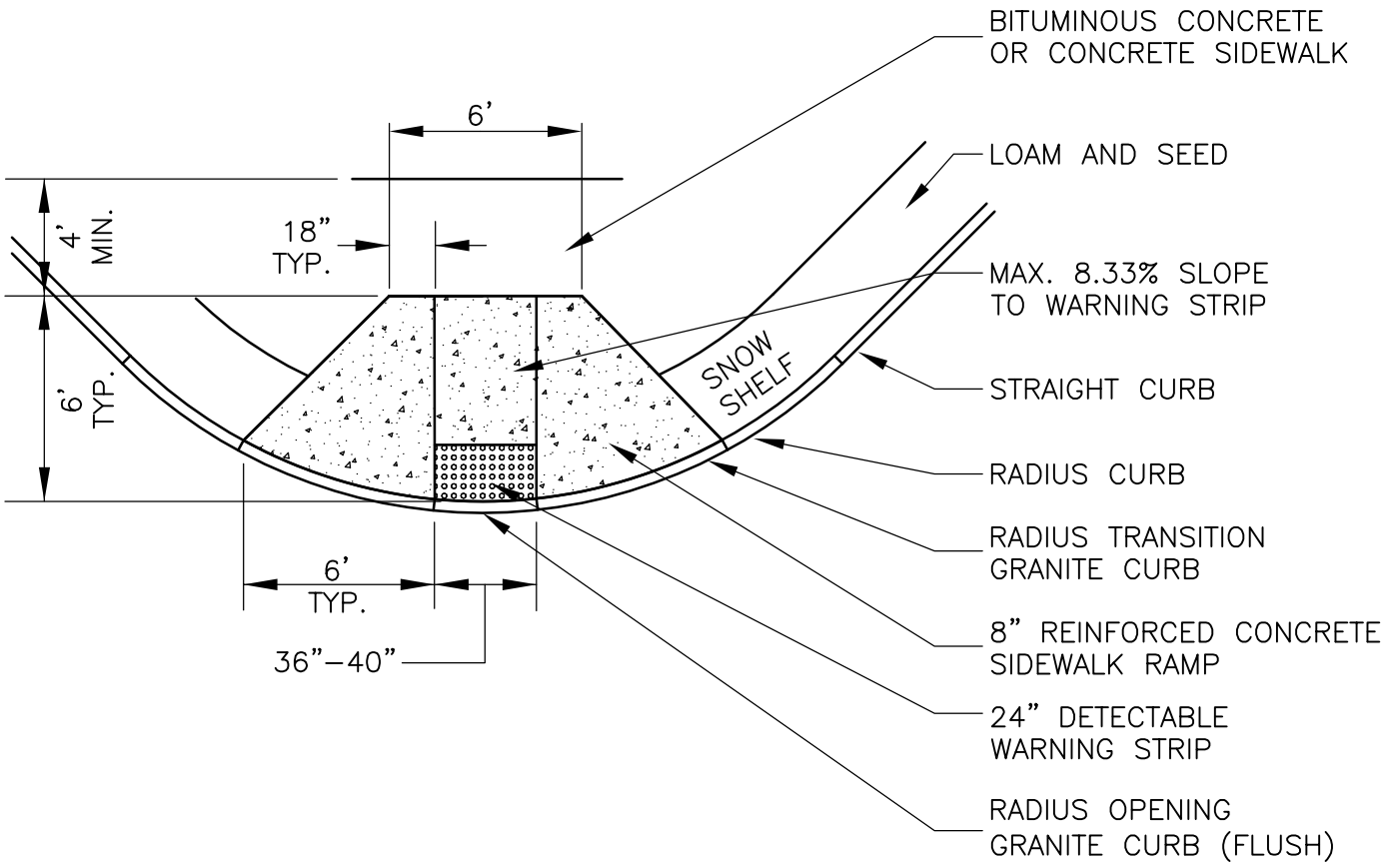
NOTES:

1. TRANSITION GRANITE CURB TO BE ONE CONTINUOUS 6' LENGTH.
2. OPENING GRANITE CURB TO ALSO BE ONE CONTINUOUS LENGTH.
3. SEE SIDEWALK RAMP SECTION DETAIL FOR ADDITIIONAL INFORMATION.

SIDEWALK RAMP (TYPE I)

DETAIL SR 15

NTS



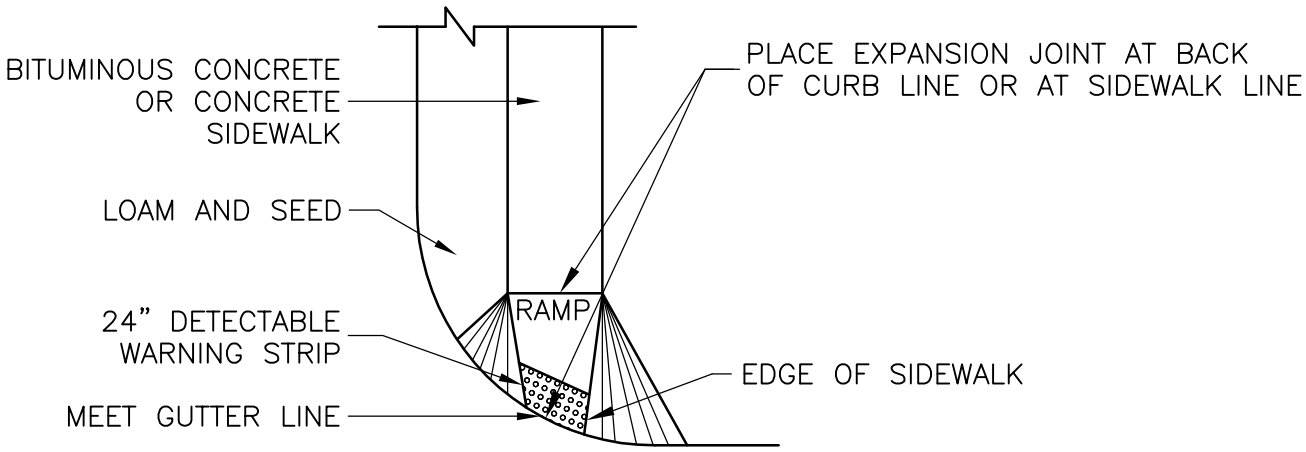
NOTES:

1. RADIUS TRANSITION CURB TO BE ONE CONTINUOUS 6' LENGTH.
2. RADIUS OPENING TO ALSO BE ONE CONTINUOUS LENGTH.
3. SEE SIDEWALK RAMP SECTION DETAIL FOR ADDITIONAL INFORMATION.

SIDEWALK RAMP (TYPE II)

DETAIL SR 16

NTS



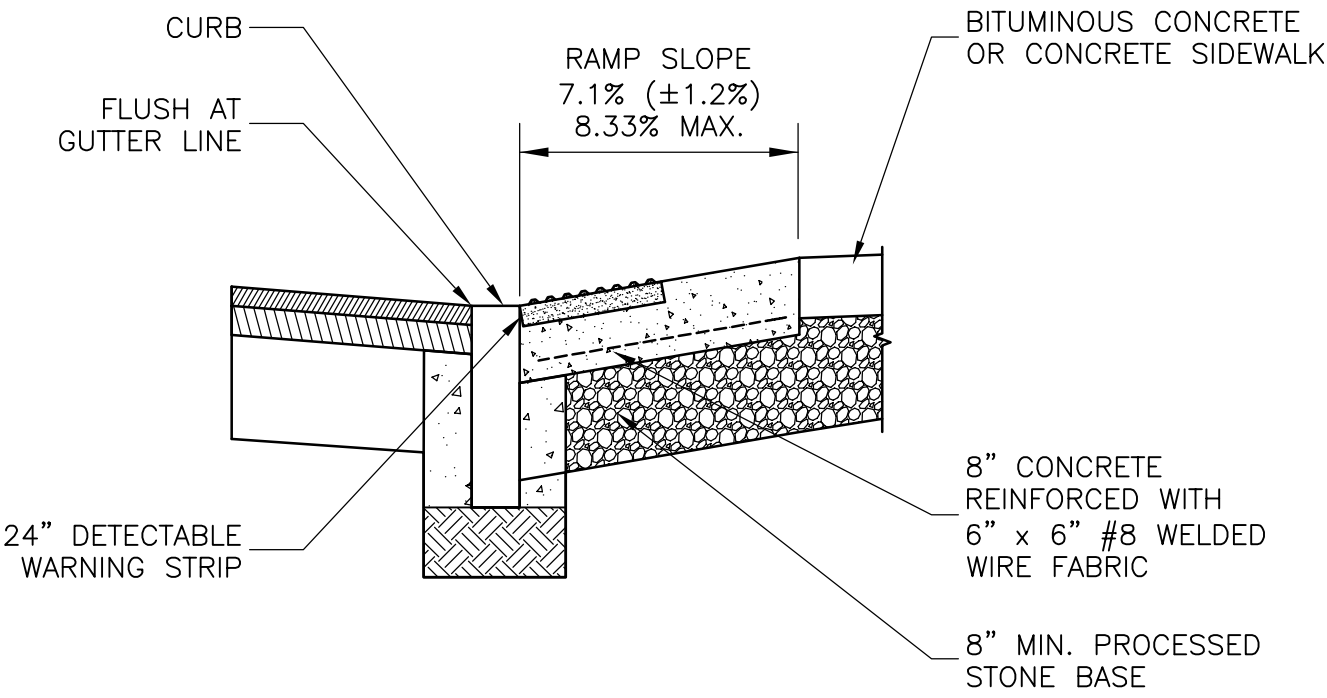
NOTE:

1. SEE SIDEWALK RAMP SECTION DETAIL FOR ADDITIIONAL INFORMATION.

SIDEWALK RAMP (TYPE III)

DETAIL SR 17

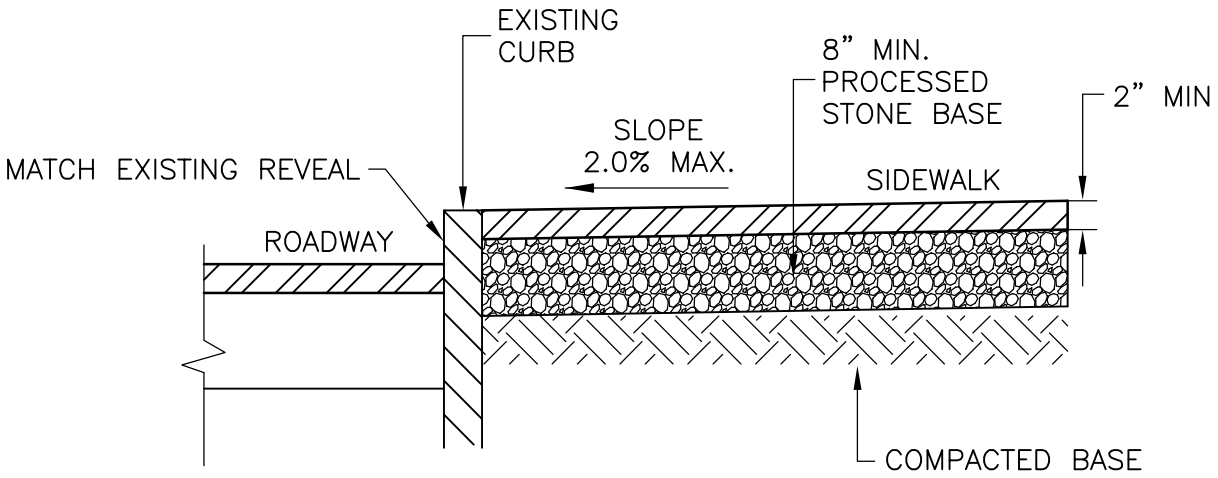
NTS



SIDEWALK RAMP SECTION

DETAIL SR 18

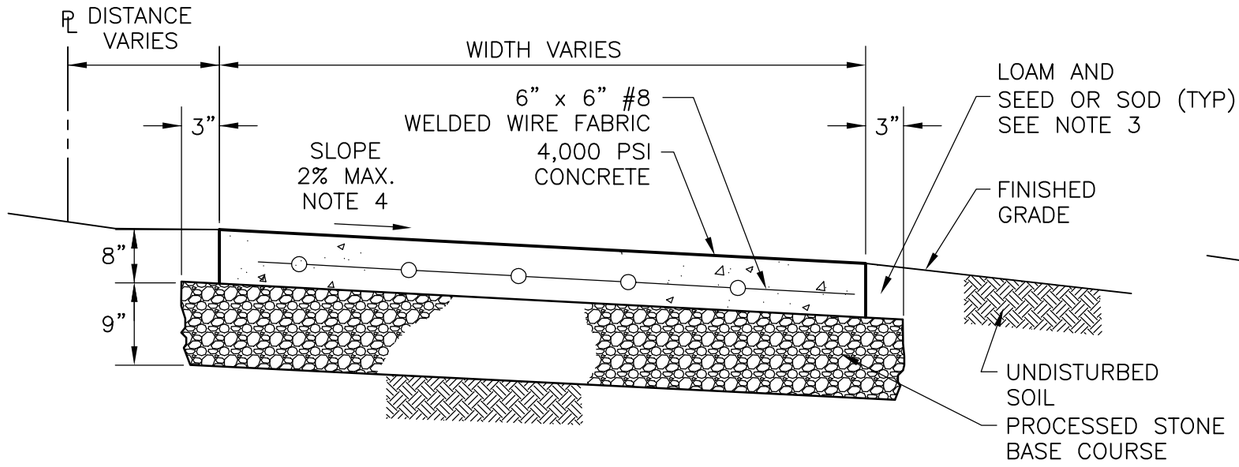
NTS



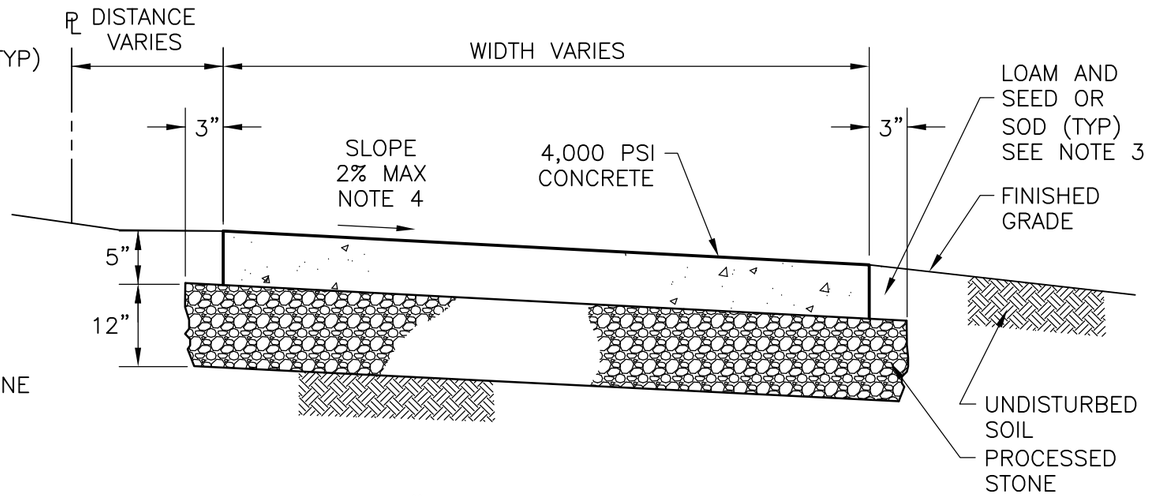
BITUMINOUS CONCRETE SIDEWALK RESTORATION

DETAIL SR 19

NTS



8" THICK SIDEWALK



5" THICK SIDEWALK

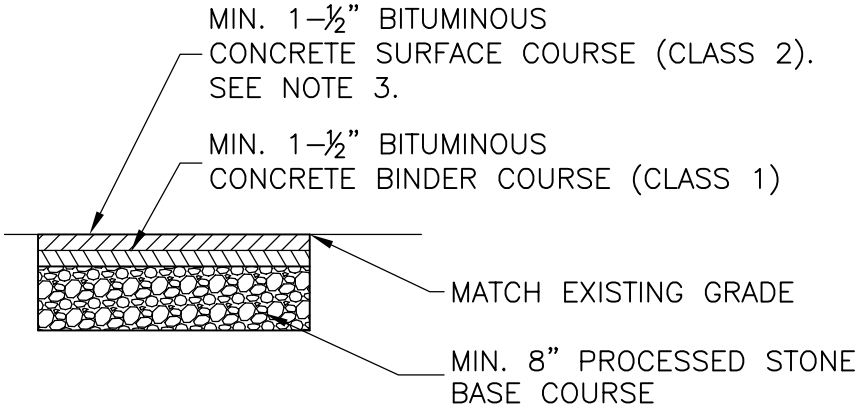
NOTES:

1. 8" THICK REINFORCED SIDEWALK TO BE USED AT ALL DRIVEWAY CROSSINGS UNLESS OTHERWISE REQUIRED BY THE MUNICIPALITY.
2. ½" PRE-MOLDED NON-EXTENABLE BITUMINOUS JOINT MATERIAL AND ⅝" x 24" DOWELS TO BE INSTALLED ON EITHER SIDE OF ALL DRIVEWAY CROSSINGS. TOOLED JOINT PATTERN TO BE VARIED AS DIRECTED TO CONFORM TO ADJACENT MARKINGS.
3. ANY PEDESTRIAN RAMPS THAT ARE DISTURBED SHALL BE REPLACED IN-KIND. GRADE THEN 6" LOAM AND SEED OR SOD ALL AREAS NOT COVERED BY SIDEWALK OR PAVEMENT THAT ARE DISTURBED DURING SIDEWALK REMOVAL AND REPLACEMENT.
4. MATCH SLOPE OF EXISTING SIDEWALK OR PROVIDE MAXIMUM 2% SLOPE.
5. THE SPECIFICATION AND REGULATIONS OF THE LOCAL MUNICIPALITY HAVING CONTROL OVER THE SIDEWALK SHALL SUPERSEDE THIS DETAIL.

CONCRETE SIDEWALK RESTORATION

DETAIL SR 20

NTS



NOTES:

1. RESTORE SURFACE OF DISTURBED BITUMINOUS CONCRETE DRIVEWAYS OR DRIVEWAY APRONS TO MATCH EXISTING DEPTH AND DIMENSIONS.

2. SAW CUT EDGES OF EXISTING DRIVEWAY AND DISPOSE OF ALL CUTBACK MATERIALS.

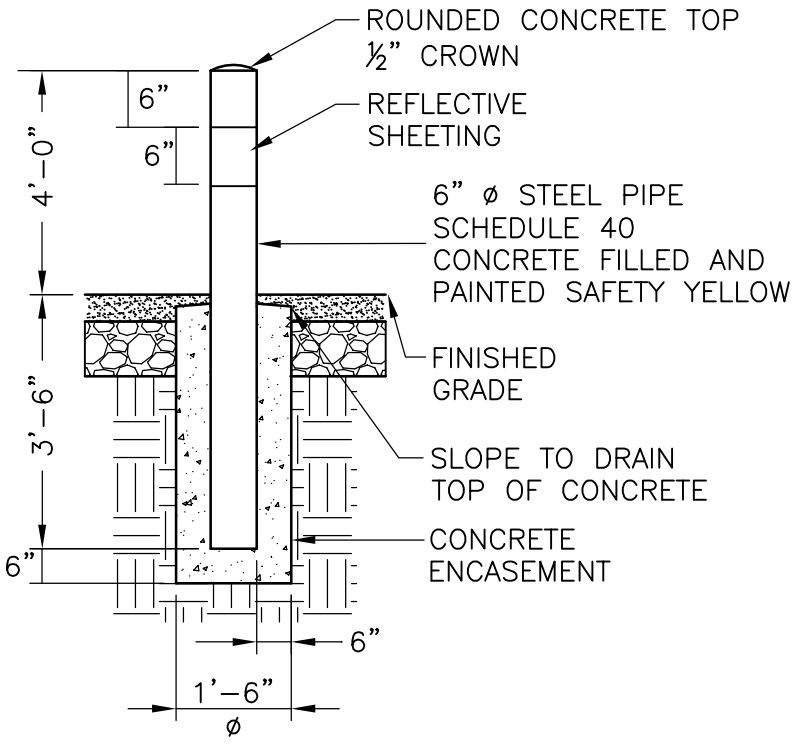
3. PRIOR TO PLACEMENT OF THE OVERLAY, THE ENTIRE ROAD WIDTH WHERE OVERLAY IS TO BE PLACED SHALL BE BROOM CLEANED AND TACK COATED.

4. IMMEDIATELY AFTER PLACEMENT OF BITUMINOUS CONCRETE DRIVEWAY, ALL JOINTS BETWEEN THE EXISTING AND NEW DRIVEWAY AND SIDEWALK SHALL BE SEALED WITH HOT ASPHALT SEALER.

BITUMINOUS CONCRETE DRIVEWAY

DETAIL SR 21

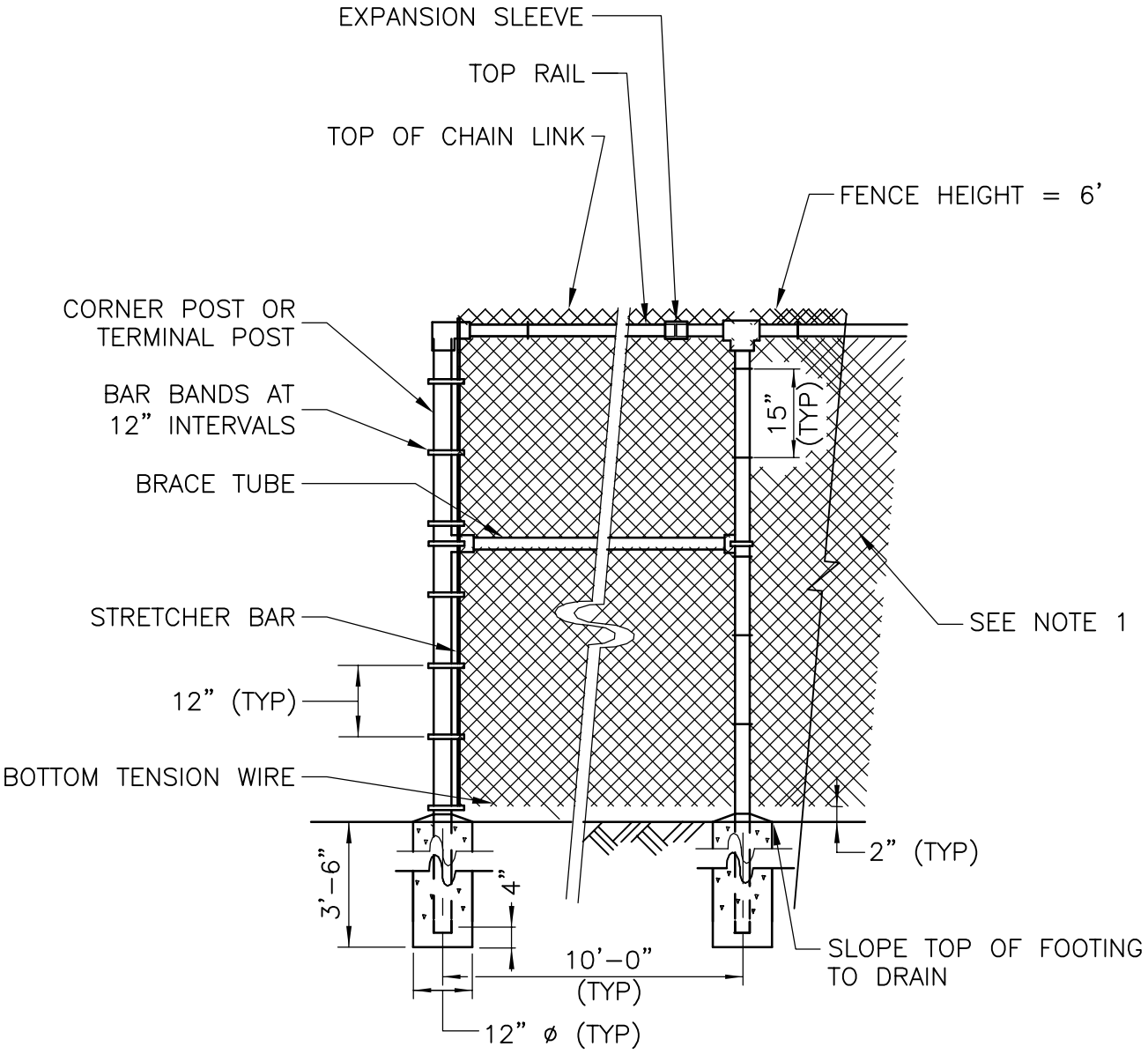
NTS



STEEL BOLLARD

DETAIL SR 22

NTS



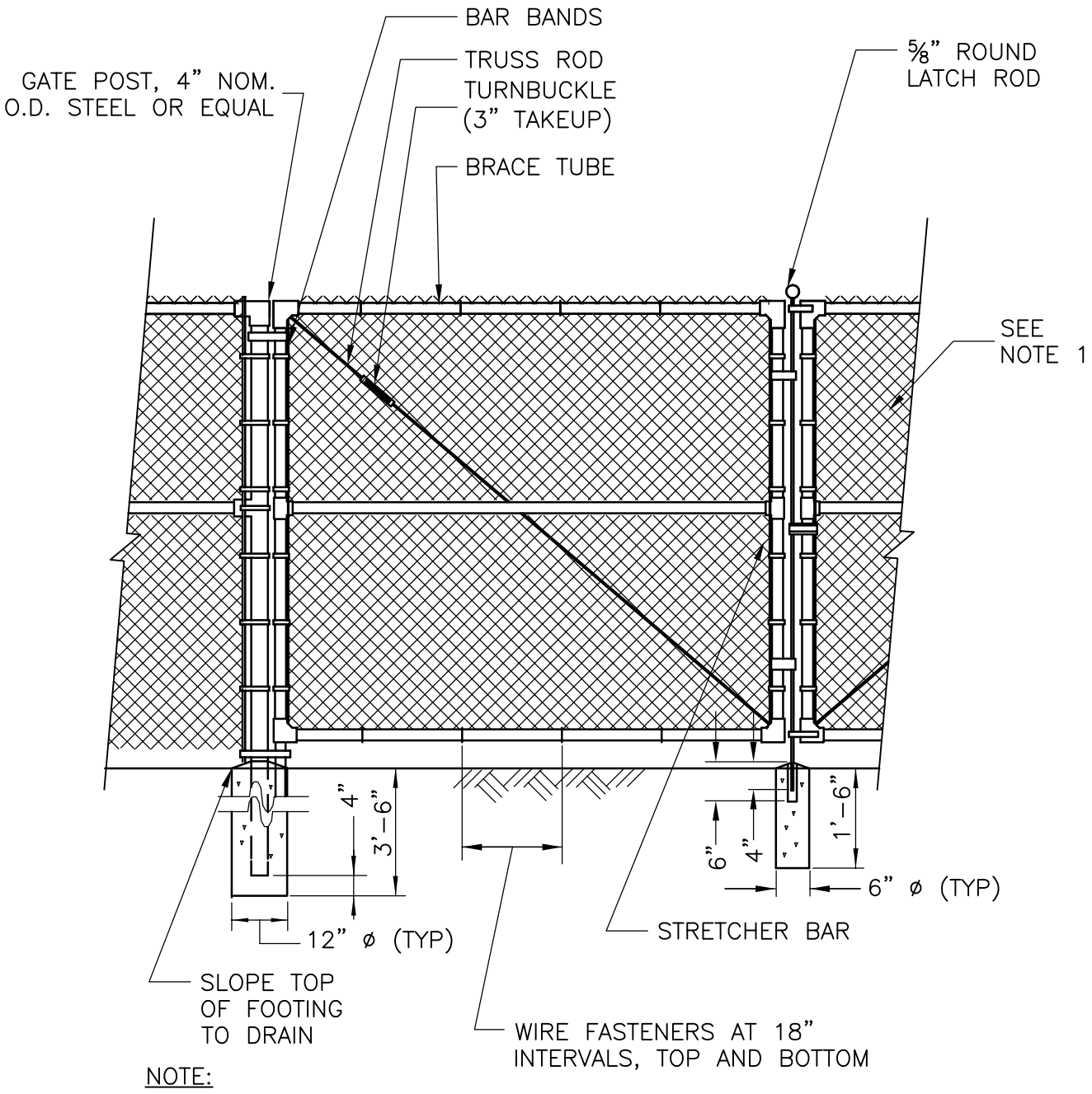
NOTE:

1. PROVIDE SHIELDING PRIVACY STRIPS IN CHAIN LINK MESH IF REQUIRED.

CHAIN LINK FENCE (6-FEET HIGH)

DETAIL SR 23

NTS



NOTE:

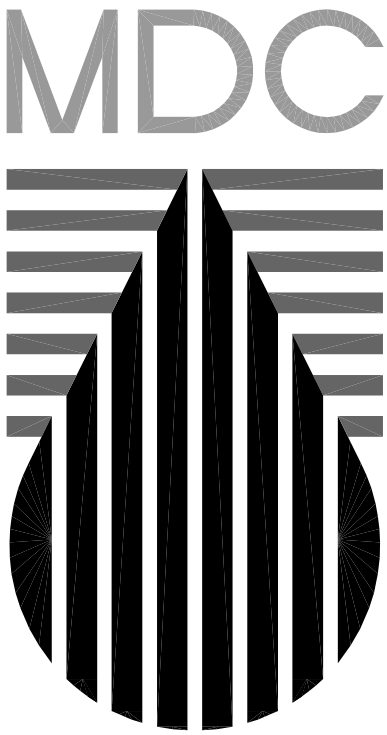
1. PROVIDE SHIELDING PRIVACY STRIPS IN CHAIN LINK MESH IF REQUIRED.

CHAIN LINK FENCE GATE (6–FEET HIGH)

DETAIL SR 24

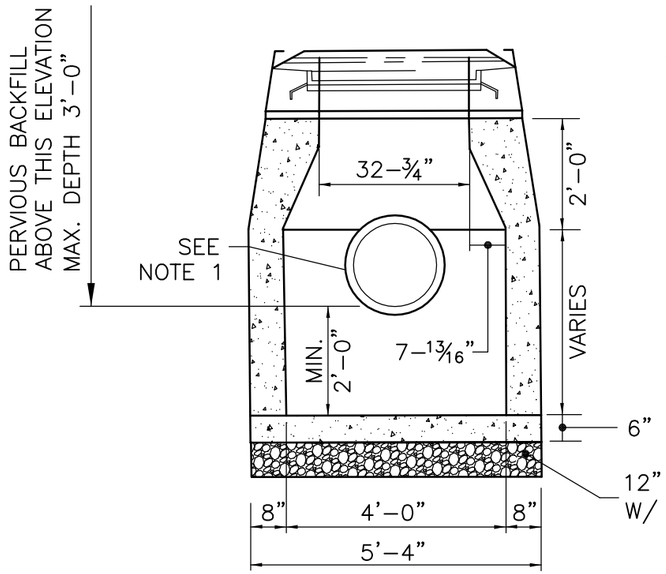
NTS

STORM DRAIN STANDARD DETAILS



THE METROPOLITAN DISTRICT

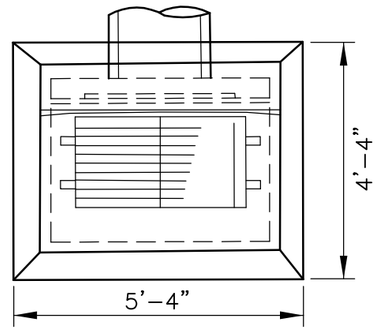
JANUARY 2017



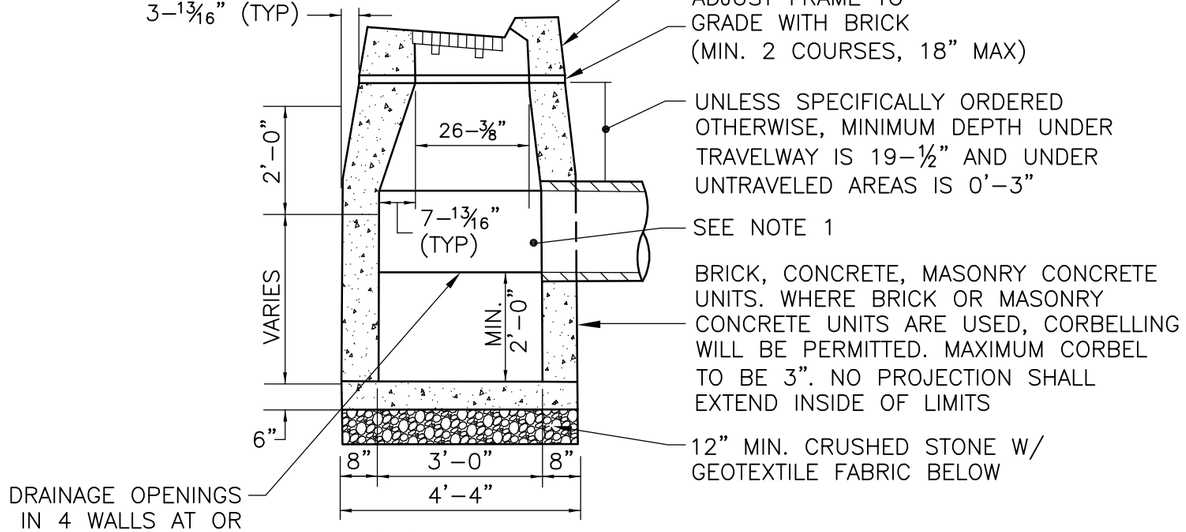
SECTION

NOTES:

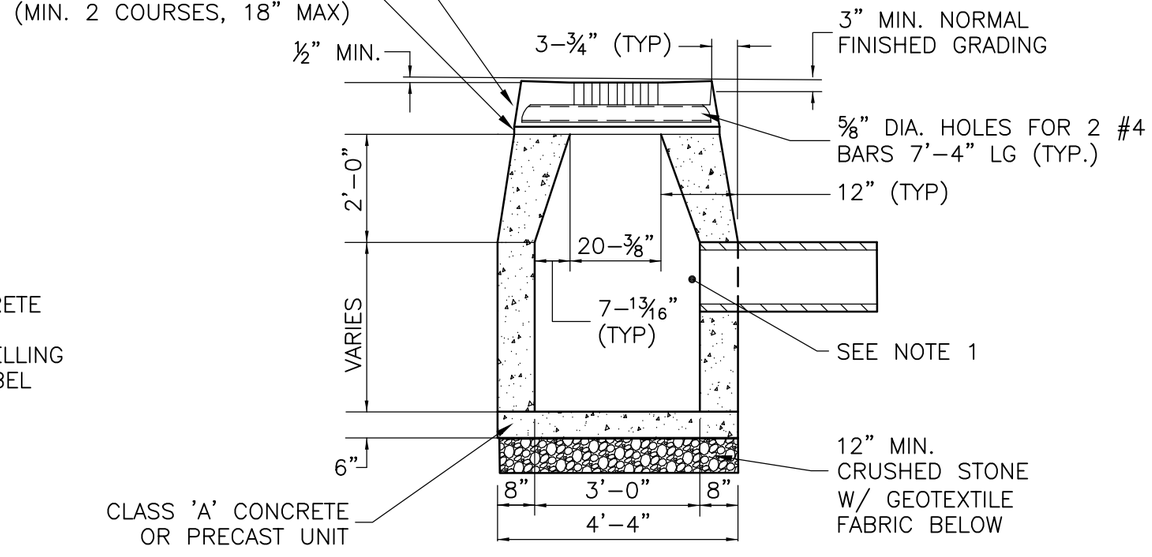
1. TRAP HOOD REQUIRED ON ALL CATCH BASINS EXCEPT THOSE USED ON MAIN LINE DRAIN (FLOW THROUGH). TRAP HOOD REQUIRED ON DOWNSTREAM CONNECTION BEFORE COMBINED SEWER. REFER TO CATCH BASIN TRAP AND TRAP HOOD DETAILS.
2. ALL CATCH BASINS SHALL BE PRECAST CONCRETE. USE OF CONCRETE BLOCK CATCH BASINS WILL BE BASED ON DISTRICT, MUNICIPALITY OR CT DOT APPROVAL.
3. THICKNESS OF ALL CATCH BASINS OVER 10 FEET SHALL BE INCREASED TO 12 INCHES STARTING AFTER THE FIRST 10 FEET. INSIDE DIMENSION SHALL REMAIN THE SAME.



PLAN



TYPE 'C' CATCH BASIN



TYPE 'C–L' CATCH BASIN

CTDOT STANDARD CATCH BASIN

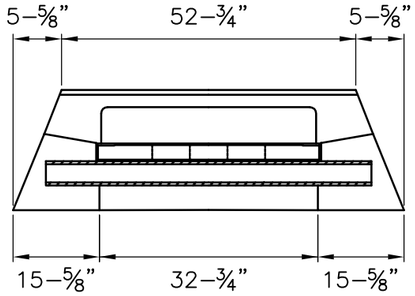
DETAIL SD 1

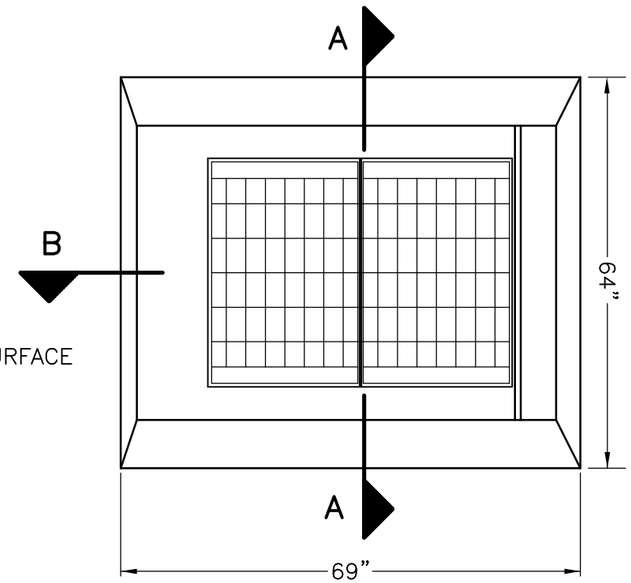
NTS

THE METROPOLITAN DISTRICT

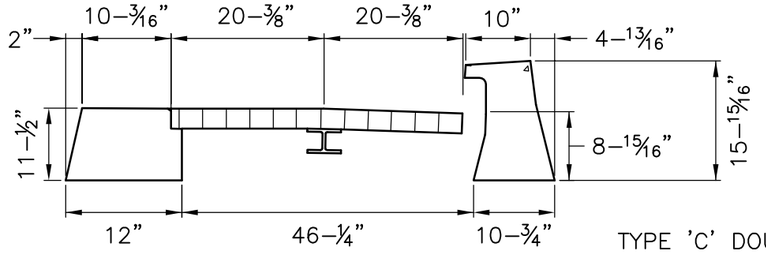
STORM DRAIN STANDARD DETAILS

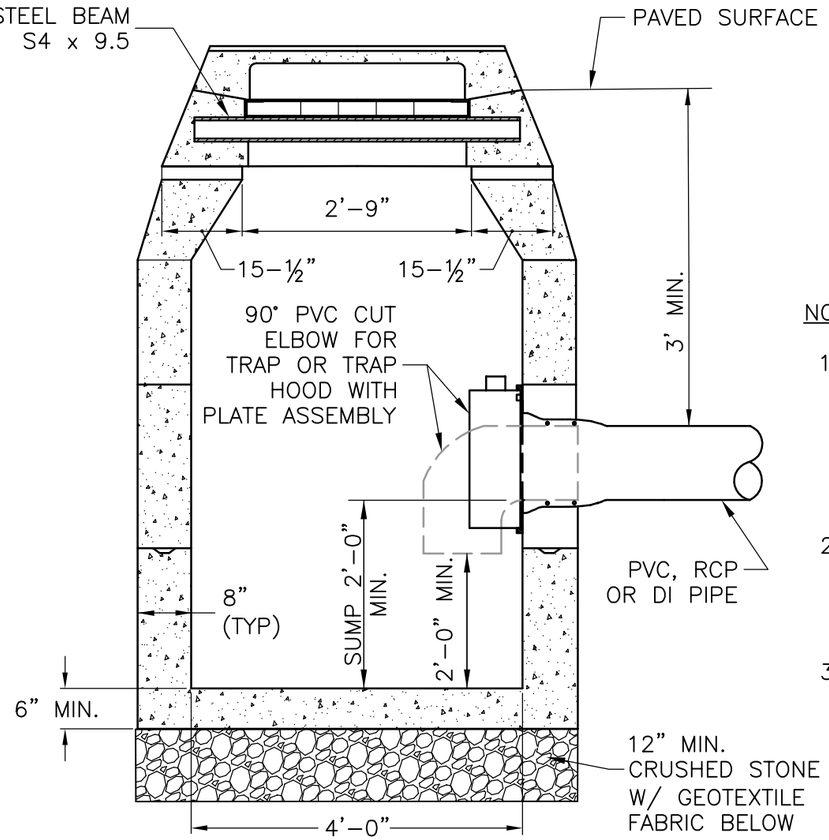
MDC





PLAN

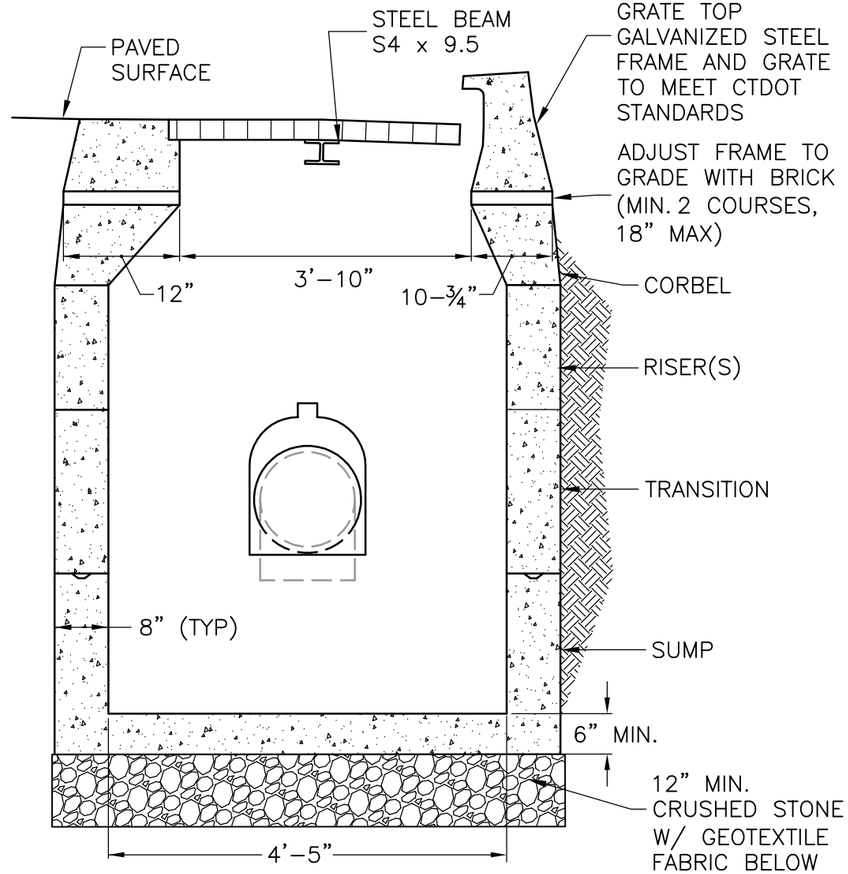




SECTION A–A

NOTES:

1. TRAP HOOD REQUIRED ON ALL CATCH BASINS EXCEPT THOSE USED ON MAIN LINE DRAIN (FLOW THROUGH). TRAP HOOD REQUIRED ON DOWNSTREAM CONNECTION BEFORE COMBINED SEWER. REFER TO CATCH BASIN TRAP AND TRAP HOOD DETAILS.
2. ALL CATCH BASINS SHALL BE PRECAST CONCRETE. USE OF CONCRETE BLOCK CATCH BASINS WILL BE BASED ON DISTRICT, MUNICIPALITY OR CT DOT APPROVAL.
3. THICKNESS OF ALL CATCH BASINS OVER 10 FEET SHALL BE INCREASED TO 12 INCHES STARTING AFTER THE FIRST 10 FEET. INSIDE DIMENSION SHALL REMAIN THE SAME.



SECTION B–B

CTDOT DOUBLE GRATE PRECAST CONCRETE CATCH BASIN (TYPE I)

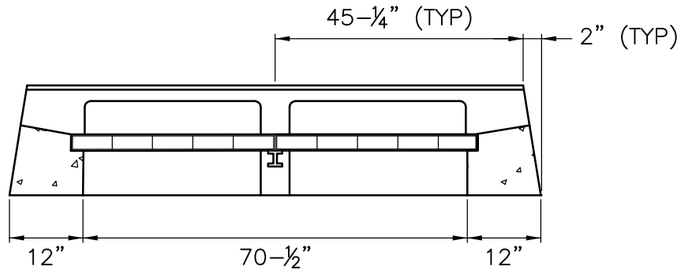
DETAIL SD 2

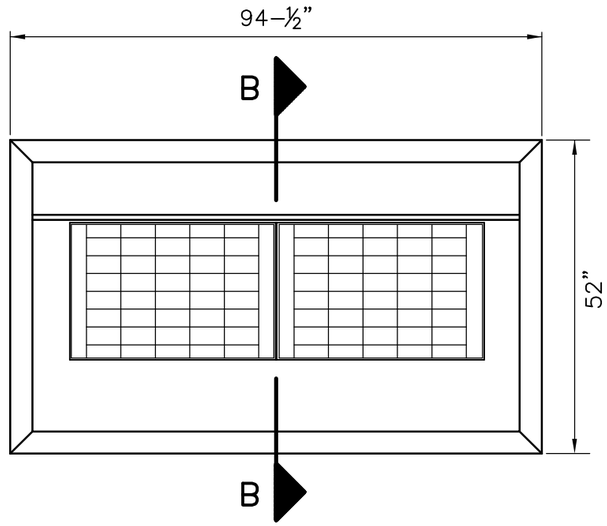
NTS

THE METROPOLITAN DISTRICT

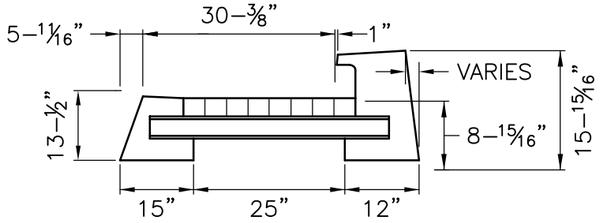
STORM DRAIN STANDARD DETAILS

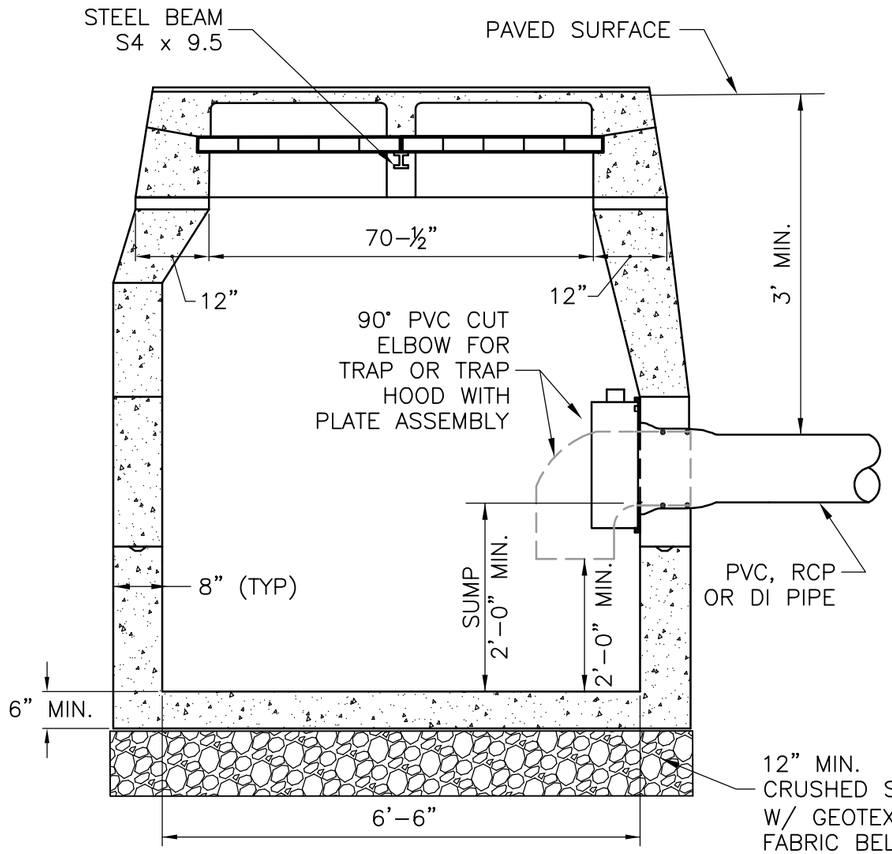
MDC





PLAN

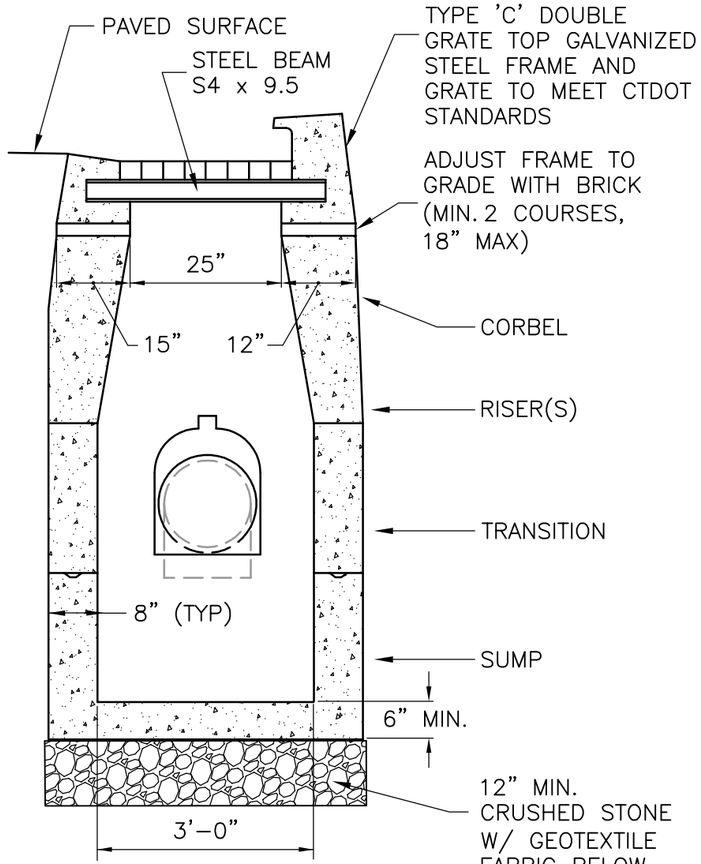




SECTION A–A

NOTES:

1. TRAP HOOD REQUIRED ON ALL CATCH BASINS EXCEPT THOSE USED ON MAIN LINE DRAIN (FLOW THROUGH). TRAP HOOD REQUIRED ON DOWNSTREAM CONNECTION BEFORE COMBINED SEWER. REFER TO CATCH BASIN TRAP AND TRAP HOOD DETAILS.
2. ALL CATCH BASINS SHALL BE PRECAST CONCRETE. USE OF CONCRETE BLOCK CATCH BASINS WILL BE BASED ON DISTRICT, MUNICIPALITY OR CT DOT APPROVAL.
3. THICKNESS OF ALL CATCH BASINS OVER 10 FEET SHALL BE INCREASED TO 12 INCHES STARTING AFTER THE FIRST 10 FEET. INSIDE DIMENSION SHALL REMAIN THE SAME.

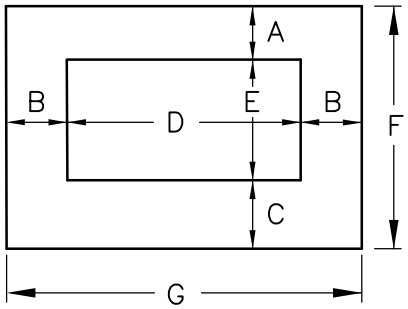


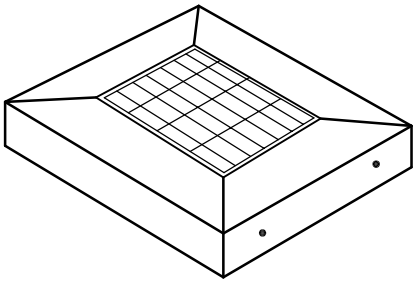
SECTION B–B

CTDOT DOUBLE GRATE PRECAST CONCRETE CATCH BASIN (TYPE II)

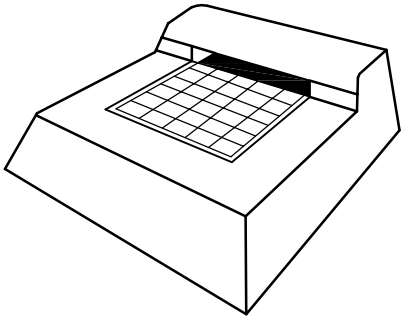
DETAIL SD 3

NTS



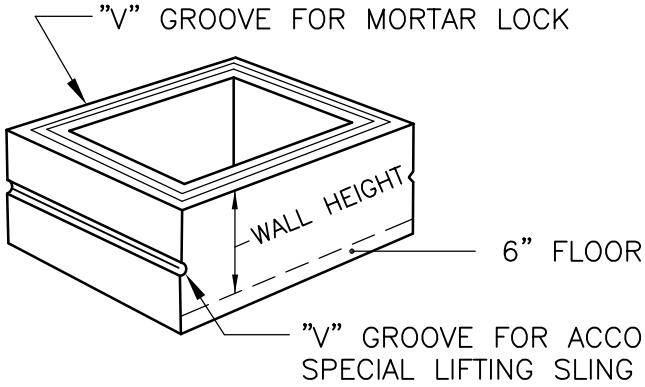


TYPE C–L



TYPE C

TYPE	A	B	C	D	E	F	G
C	8"	12"	12"	32 3/4"	25 3/8"	45 3/8"	56 3/4"
C–L	12"	12"	12"	32 1/2"	21 1/2"	44 1/2"	56 1/2"



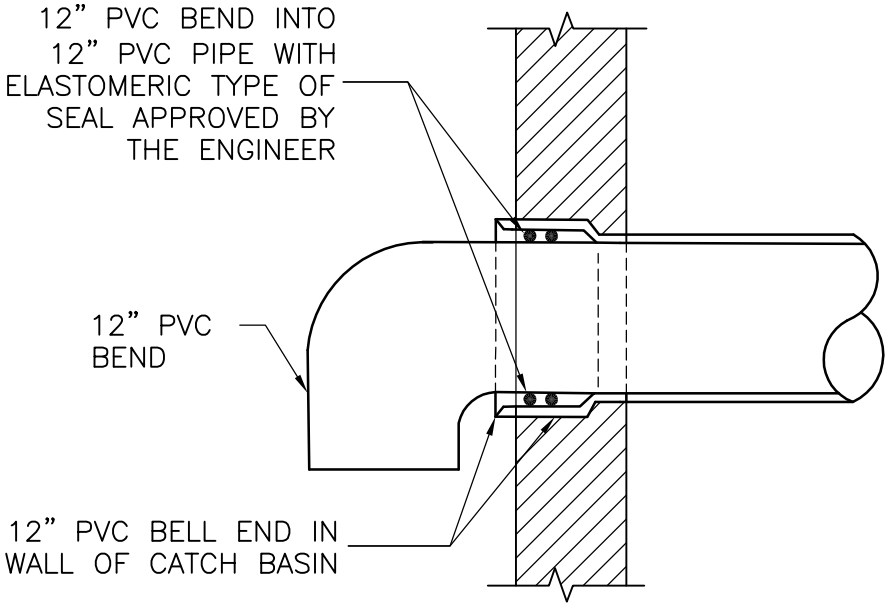
NOTE:

1. DIMENSIONS FOR TOP OF SUBSTRUCTURE BUILT OF BLOCKS, OR CAST IN PLACE.

CTDOT PRECAST CONCRETE CATCH BASIN TOPS AND SUMPS

DETAIL SD 4

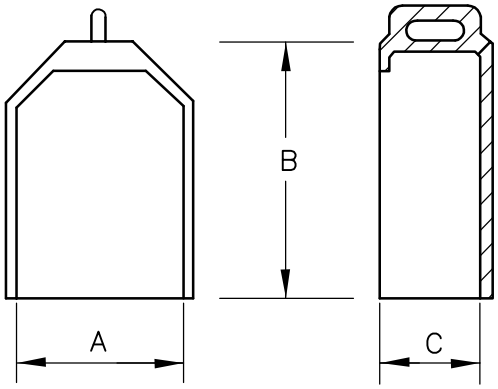
NTS



ELBOW TRAP FOR CATCH BASIN

DETAIL SD 5

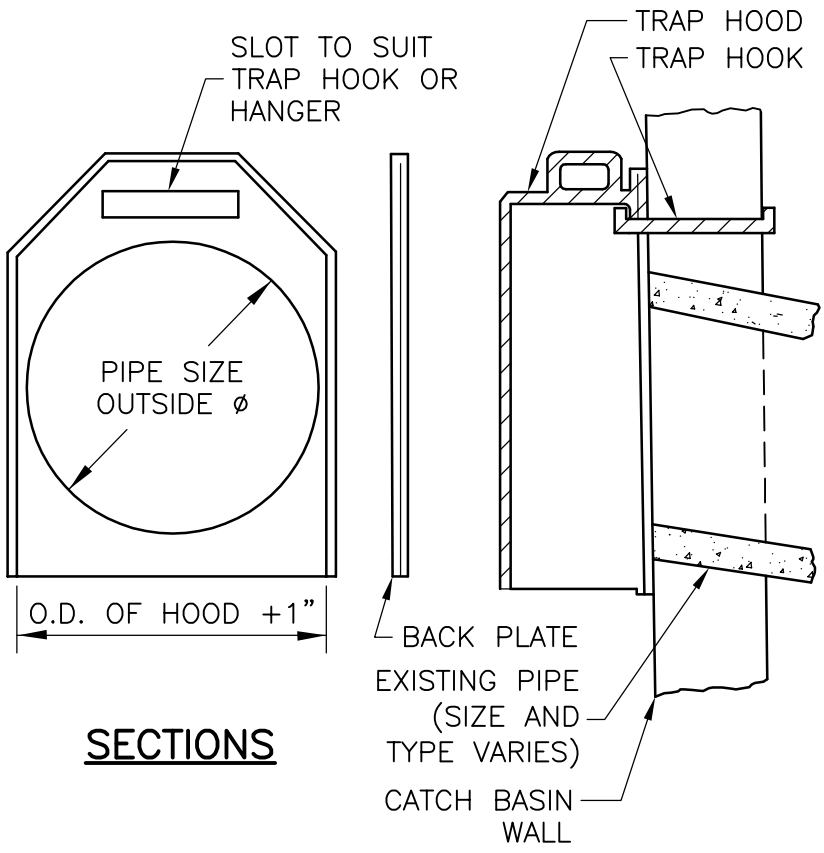
NTS



TRAP HOOD MINIMUM DIMENSIONS

PIPE SIZE	A	B	C
10	12	20	6–½
12	15–¾	22	7–½
15	18	25	9
18	20	27	10

* ALL VALUES IN INCHES



SECTIONS

NOTES:

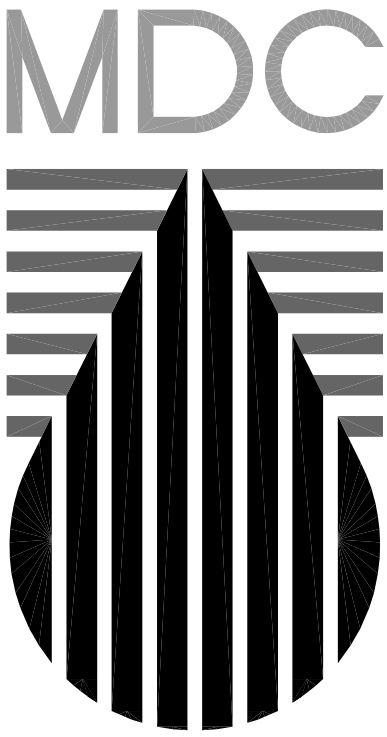
1. TRAP HOODS SHALL BE CAST IRON FOR 10", 12", 15" AND 18" PIPE SIZES AND FABRICATED ALUMINUM FOR PIPES 21" AND GREATER.
2. ALL TRAP HOODS SHALL INCLUDE STAINLESS STEEL HOOKS OR HANGERS FOR MOUNTING TO THE CATCH BASIN WALL. BACK PLATES SHALL BE FURNISHED ONLY WHEN REQUESTED.
3. TRAP HOODS SHALL BE FROM CAMPBELL FOUNDRY, NEENAH FOUNDRY, EAST JORDAN IRON WORKS OR APPROVED EQUAL. DIMENSIONS AND MODEL NUMBERS VARY BASED ON DISCHARGE PIPE SIZE AND MANUFACTURER.
4. SEE MANUFACTURER FOR INSTALLATION INSTRUCTIONS.

CATCH BASIN TRAP HOODS

DETAIL SD 6

NTS

REHABILITATION STANDARD DETAILS



THE METROPOLITAN DISTRICT

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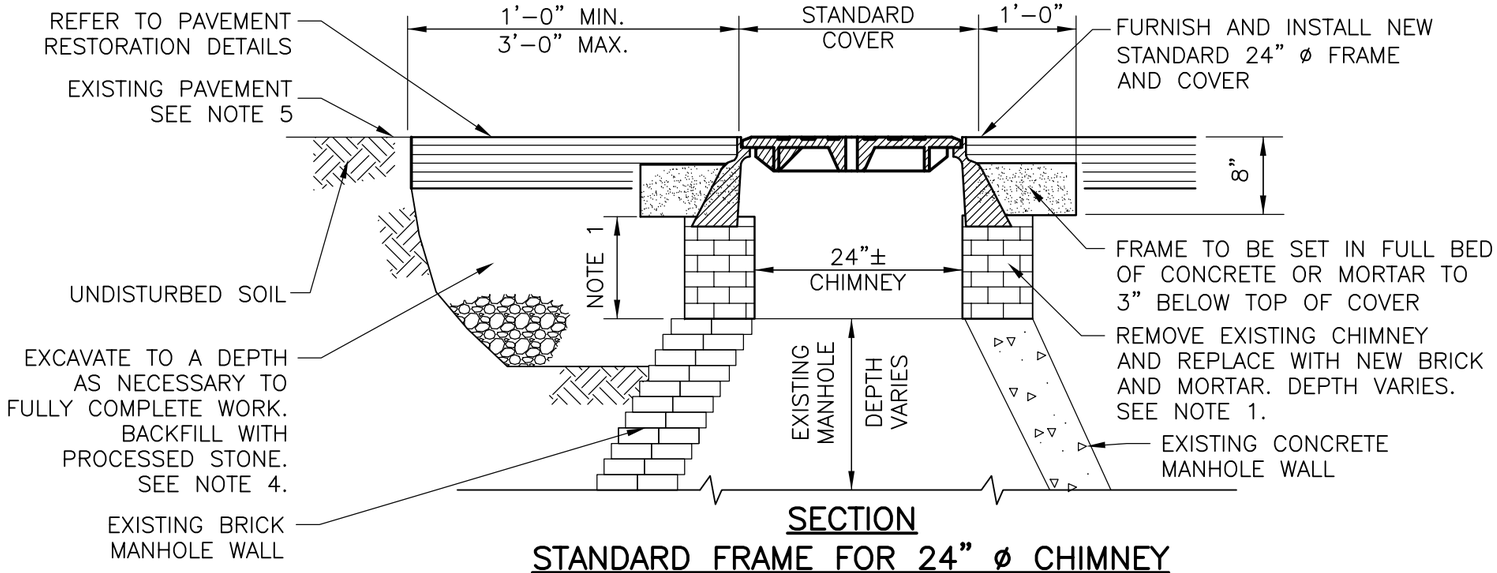
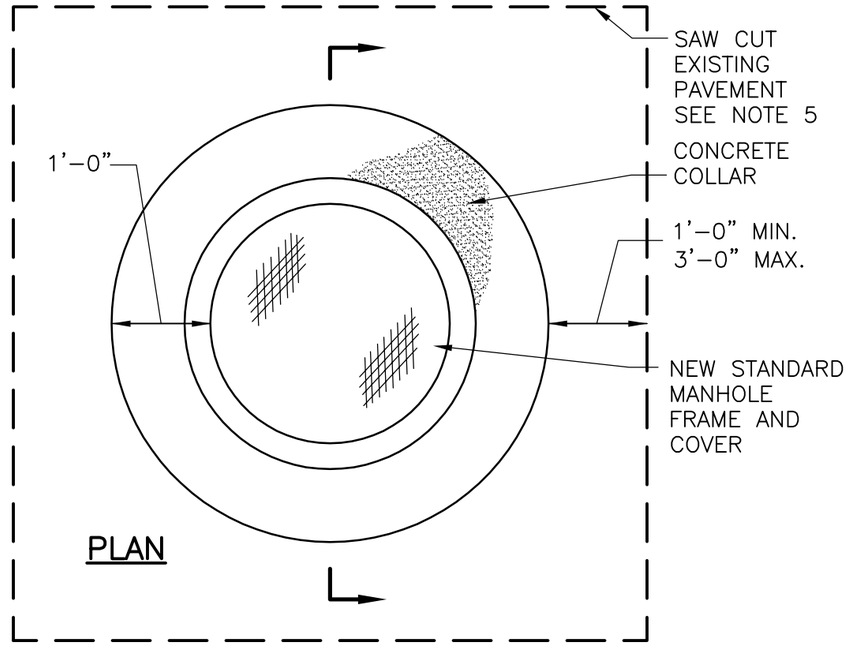
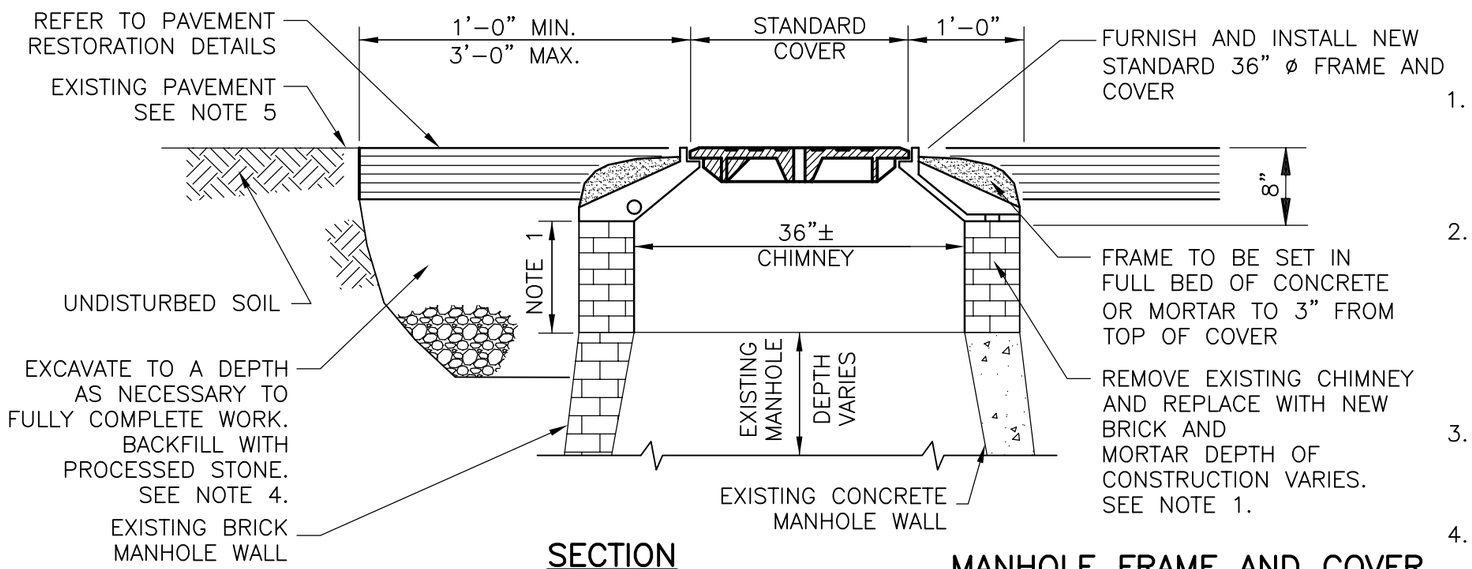


SECTION
STANDARD FRAME FOR 24" ø CHIMNEY



PLAN



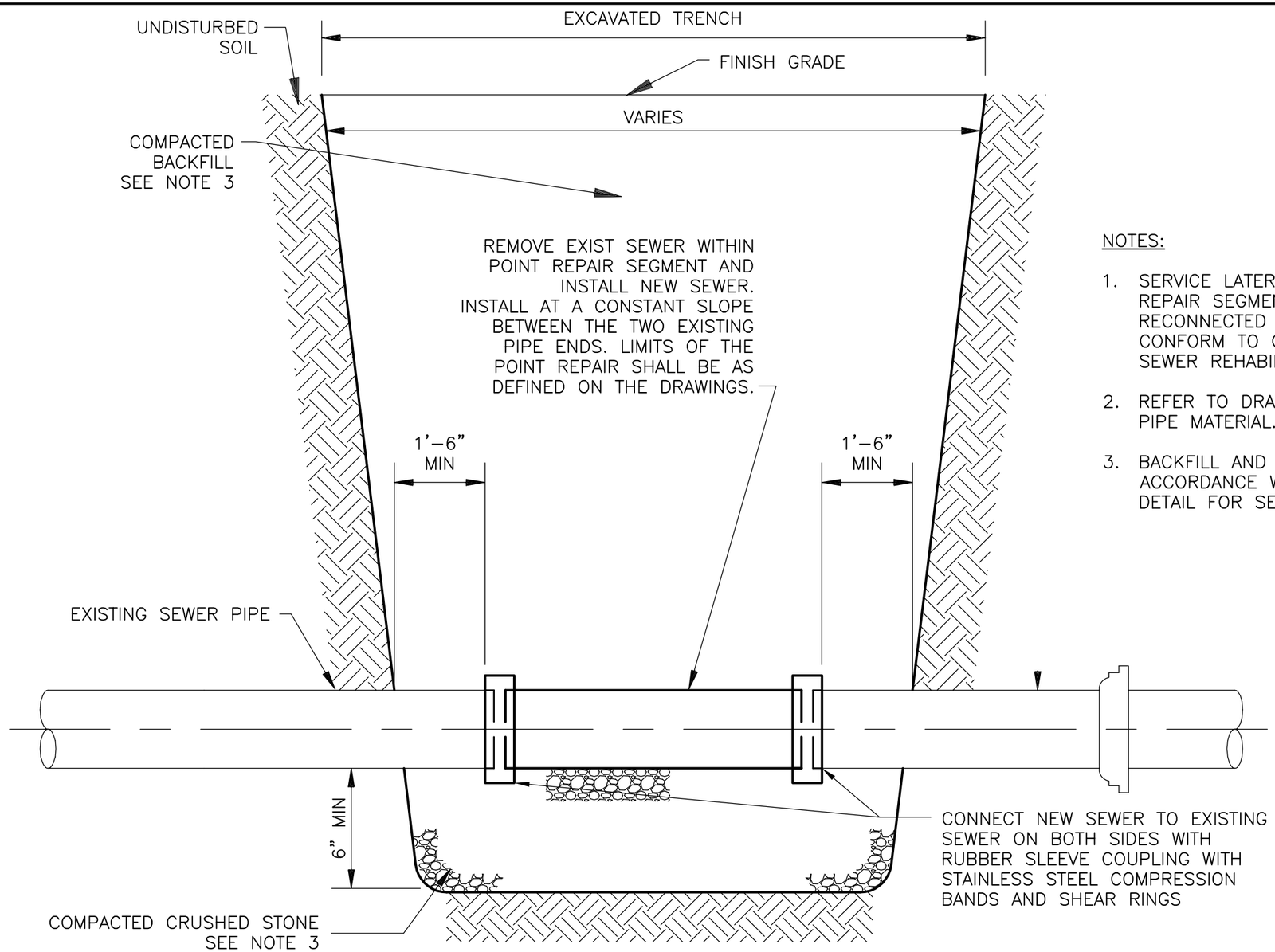
SECTION
STANDARD FRAME FOR 36" ø CHIMNEY

MANHOLE FRAME AND COVER REPLACEMENT

DETAIL R-1
NTS

NOTES:

1. CONTRACTOR SHALL REMOVE EXISTING FRAME, COVER, AND CHIMNEY AND REBUILD CHIMNEY PRIOR TO PLACING NEW FRAME AND COVER. ADJUST NEW FRAME AND COVER TO GRADE WITH SEWER BRICK (MIN. 2 COURSES, 18" MAX).
2. CONTRACTOR SHALL CONFIRM MANHOLE COVER DIMENSIONS IN THE FIELD PRIOR TO ORDERING NEW FRAME AND COVER. CLEAN AND INSPECT FOR LOOSE OR MISSING BRICKS, LOOSE MORTAR, HOLES, ETC. THESE DEFICIENCIES SHALL BE CORRECTED BEFORE ANY WORK IS CONDUCTED. THE CONTRACTOR SHALL PLACE COVERS OVER THE INVERT DURING CONSTRUCTION TO PREVENT EXTRANEOUS MATERIAL FROM ENTERING THE SEWER SYSTEM.
3. PREPARE EXISTING SURFACE PRIOR TO INSTALLING NEW MASONRY OR MORTAR, INCLUDING REMOVING EXISTING MORTAR AND LOOSE MATERIAL, TO FORM A SMOOTH, LEVEL SURFACE.
4. RESTORE SURFACE TO MATCH EXISTING GRADE. THIS DETAIL ILLUSTRATES RESTORATION OF PAVED SURFACES. FOR UNPAVED OR CROSS COUNTRY AREAS, BACKFILL WITH COMPACTED COMMON FILL, THEN APPLY LOAM AND SEED OR SOD.
5. PAVEMENT SHALL BE SAWCUT NEATLY IN A SQUARE OR CIRCLE AROUND MANHOLES TO RESET OR RAISE FRAMES AND COVERS. CIRCULAR CUTS MAY BE UTILIZED WHERE APPROVED BY DISTRICT OR ENGINEER.



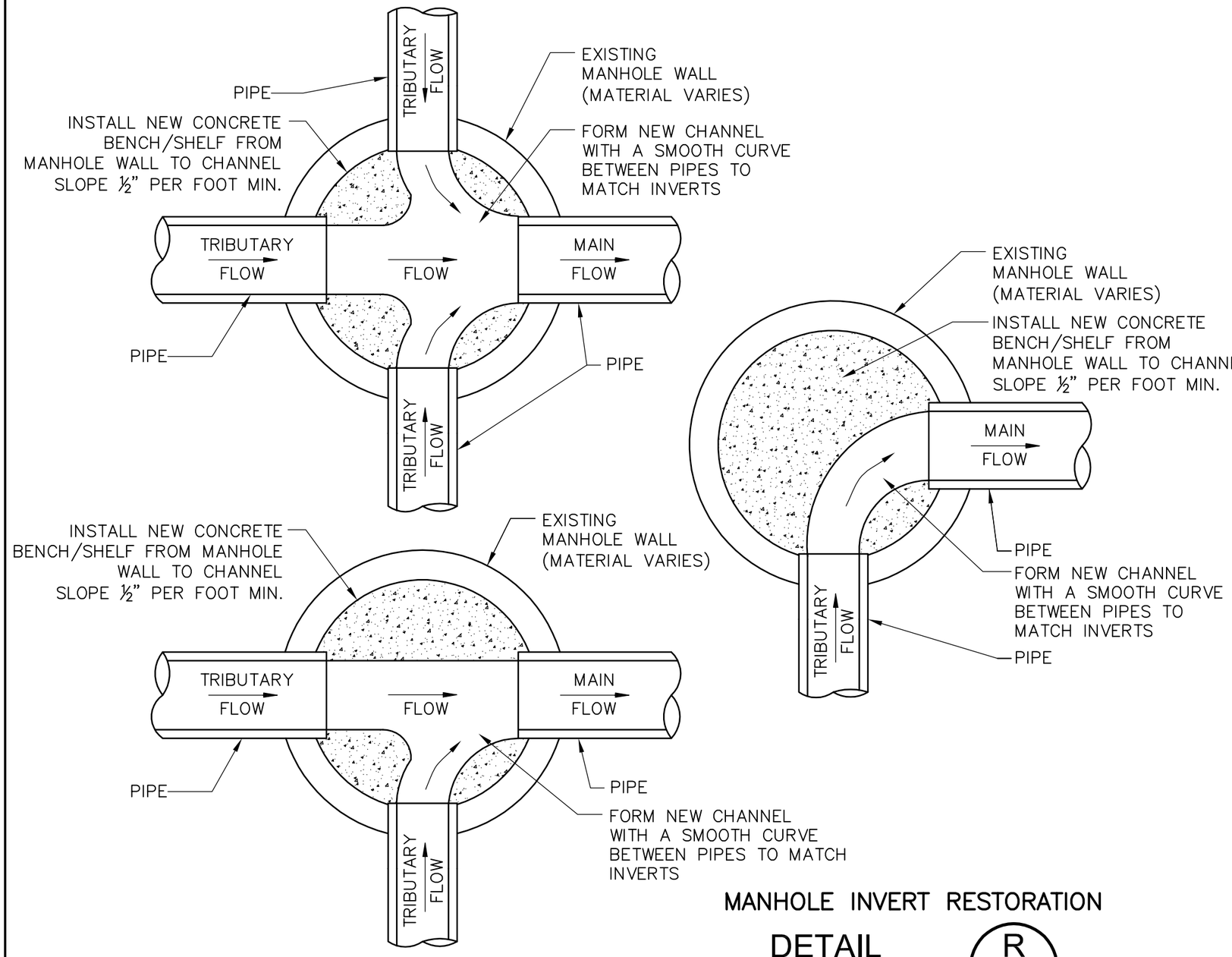
NOTES:

1. SERVICE LATERALS LOCATED WITHIN POINT REPAIR SEGMENTS SHALL BE RECONNECTED AS REQUIRED TO CONFORM TO CHOSEN SERVICE AND MAIN SEWER REHABILITATION METHOD.
2. REFER TO DRAWINGS FOR NEW SEWER PIPE MATERIAL.
3. BACKFILL AND COMPACTION SHALL BE IN ACCORDANCE WITH TYPICAL TRENCH DETAIL FOR SEWER MAINS.

SEWER POINT REPAIR

DETAIL R-2

NTS



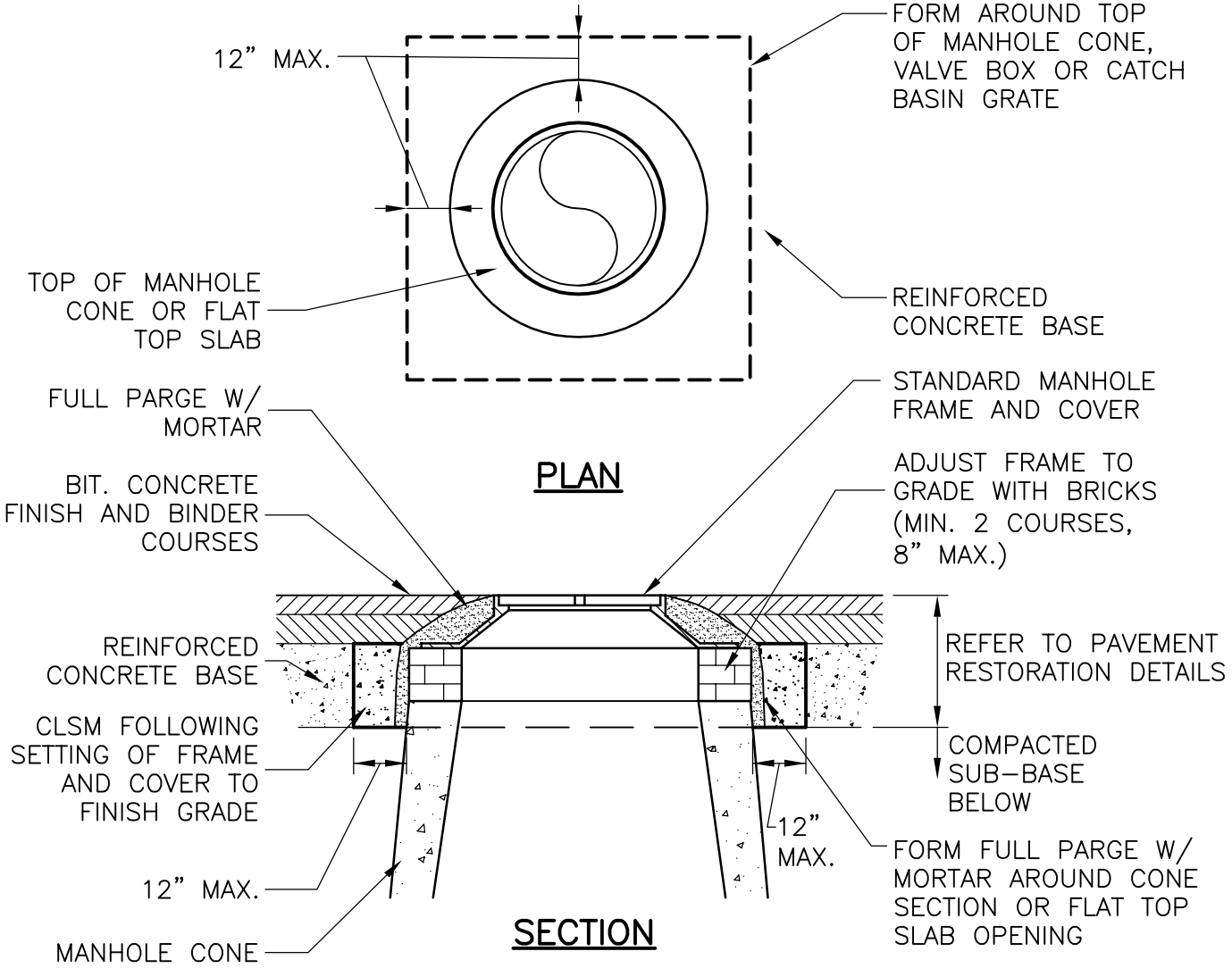
MANHOLE INVERT RESTORATION

DETAIL R-3

NTS

NOTES:

1. THE CONTRACTOR SHALL REPAIR OR REBUILD INVERT CHANNELS IN EXISTING SEWER MANHOLES WHERE NO DEFINED INVERT CHANNELS OR MANHOLE SHELF CURRENTLY EXIST, AS DIRECTED BY THE ENGINEER.
2. THE NEW INVERT CHANNEL SHALL CONFORM AS CLOSELY AS POSSIBLE TO THE SHAPE OF THE CONNECTING SEWERS AND SHALL FORM A SMOOTH TRANSITION BETWEEN THE INLET TRIBUTARY AND THE MAIN OUTLET PIPE.
3. THE INVERT OF THE PIPE SHALL BE EQUAL TO THE INVERT OF THE NEW CHANNEL AT THE CONNECTING SEWERS.
4. THE NEW CHANNEL WALLS SHALL BE FORMED OR SHAPED TO THE FULL HEIGHT OR CROWN OF THE MAIN OUTLET PIPE IN SUCH A MANNER TO NOT OBSTRUCT MAINTENANCE, INSPECTION OR FLOW IN THE SEWERS AND TO PREVENT SOLIDS DEPOSITION.
5. CURVED FLOW CHANNELS MAY REQUIRE INCREASED CHANNEL SLOPE TO MAINTAIN ACCEPTABLE FLOW VELOCITY.
6. MAXIMUM DIFFERENCE IN ELEVATION BETWEEN THE INVERT OF THE TRIBUTARY INLET AND THE MANHOLE INVERT SHALL BE 18 INCHES. ELEVATION DIFFERENCES GREATER THAN 18 INCHES WILL REQUIRE A DROP CONNECTION.
7. NO TRIBUTARY INLET, INCLUDING SERVICE CONNECTIONS OR MANHOLE DROP CONNECTIONS, SHALL DISCHARGE DIRECTLY TO THE SURFACE OF THE NEW MANHOLE BENCH OR SHELF.
8. NEW BENCH, SHELF AND CHANNELS SHALL BE FORMED USING CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI OR SEWER BRICK.
9. NEW CONCRETE SURFACES SHALL BE TROWELED TO A SMOOTH FINISH.



NOTE:

1. PAVEMENT SHALL BE SAWCUT NEATLY IN A SQUARE AROUND MANHOLES TO RESET OR RAISE FRAMES AND COVERS.

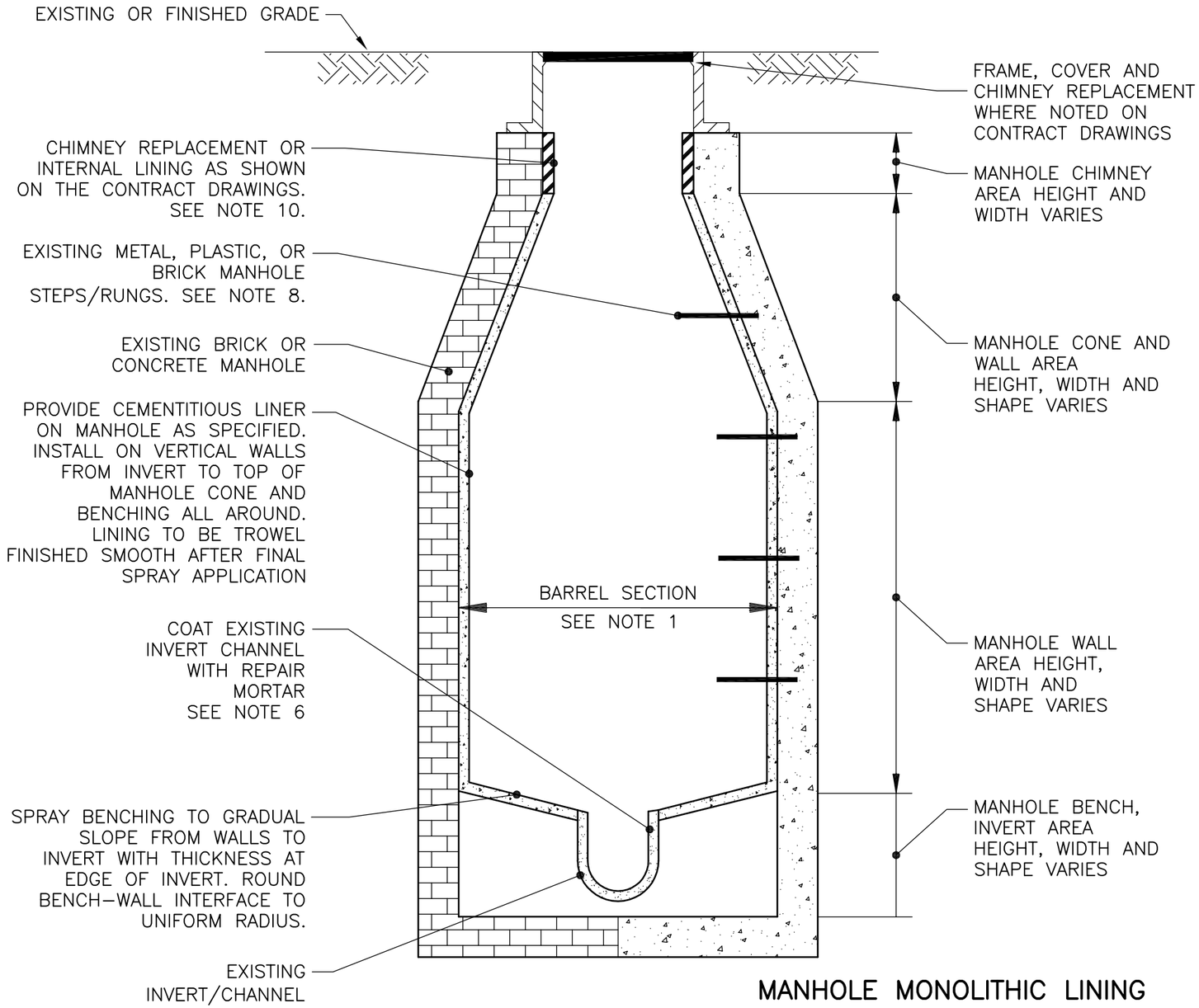
MANHOLE FRAME AND COVER REPLACEMENT IN REINFORCED CONCRETE BASE

DETAIL R

NTS 4

THE METROPOLITAN DISTRICT

REHABILITATION STANDARD DETAILS



MANHOLE MONOLITHIC LINING

DETAIL R-5

NTS

NOTES:

1. MANHOLES ARE APPROXIMATELY 4' IN DIAMETER AT BARREL SECTION UNLESS NOTED OTHERWISE. INSIDE DIAMETERS OF FRAMES TYPICALLY RANGE FROM 24" TO 36". CORBEL, WALL, FLOOR AND INVERT MATERIALS ARE LISTED ON CONTRACT DRAWINGS, AND ARE BASED ON COMPLETED MANHOLE INSPECTIONS. CONTRACTOR SHALL FIELD MEASURE FOR ACTUAL DIMENSIONS AND VERIFY MANHOLE MATERIALS.
2. MANHOLE SHAPES WILL VARY FROM MANHOLE TO MANHOLE. CONTRACTOR IS RESPONSIBLE FOR DETERMINING ACTUAL SHAPES.
3. CONTRACTOR SHALL PROPERLY PREPARE SURFACE PRIOR TO LINING IN STRICT ACCORDANCE WITH THE LINING MANUFACTURER'S RECOMMENDATIONS. THE CONTRACTOR IS RESPONSIBLE FOR STOPPING ALL ACTIVE LEAKS PRIOR TO THE INSTALLATION OF THE MANHOLE OR CHIMNEY LINING SYSTEMS.
4. SLOPE BENCHING TO INVERT CHANNEL. PROVIDE CHANNEL IN BENCHING FOR SEWERS ENTERING MANHOLES ABOVE BENCHING.
5. FOR END MANHOLES OF SEWER LINE SEGMENTS WITH NO DEFINED INVERT CHANNELS, CREATE A DEFINED CHANNEL AS SHOWN IN "END MANHOLE" DETAIL.
6. REPAIR MORTAR SHALL BE USED TO COAT INVERT CHANNELS. THERE SHALL BE A CONSTANT SLOPE BETWEEN INLET AND OUTLET SEWERS. FINISHED INVERT SURFACES SHALL BE SMOOTH AND FREE OF EDGES.
7. MONOLITHIC LINER SHALL NOT BE INSTALLED UNTIL ALL SEWER MAIN, SERVICE LATERAL AND OTHER MANHOLE REHABILITATION WORK IS COMPLETED, UNLESS APPROVED BY THE ENGINEER.
8. REMOVE ALL EXISTING MANHOLE STEPS/RUNGS PRIOR TO LINING – DO NOT REPLACE. PATCH VOIDS WITH REPAIR MORTAR AS RECOMMENDED BY CEMENTITIOUS LINING MANUFACTURER.
9. CONTRACTOR SHALL PROVIDE BYPASS PUMPING AS REQUIRED WHILE REHABILITATING MANHOLES.
10. PERFORM FRAME, COVER AND CHIMNEY REPLACEMENT ON DESIGNATED MANHOLES AS SHOWN ON THE CONTRACT DRAWINGS PRIOR TO MANHOLE MONOLITHIC LINING WORK. PERFORM INTERNAL CHIMNEY LINING, AS SPECIFIED, ON DESIGNATED MANHOLES AS SHOWN ON THE DRAWINGS AFTER MANHOLE MONOLITHIC LINING WORK IS COMPLETED.