

CONSTRUCTION NOTES & STANDARDS
FOR STORM SEWER INSTALLATION

1. STORM SEWER INSTALLED WITHIN THE CITY RIGHT-OF-WAY OR WHICH THE CITY IS TO MAINTAIN SHALL BE COMPRISED OF THE FOLLOWING KINDS OF PIPES:

a. CIRCULAR REINFORCED CONCRETE PIPE – ASTM C76 WITH PREMIUM JOINT PER ASTM C443.
b. ELLIPTICAL REINFORCED CONCRETE PIPE – ASTM C507 WITH PREMIUM JOINT PER ASTM C443.
c. PVC PIPE – ASTM D3034 (SDR 35 MINIMUM OR AS RECOMMENDED BY THE CITY ENGINEER), TWENTY-FOUR INCH DIAMETER MAXIMUM WITH PREMIUM JOINT PER ASTM D3212.
d. CORRUGATED SMOOTH INTERIOR HDPE PIPE WITH APPROVED COVER AND BEDDING PER STM-3.
2. STORM SEWER LOCATED OUTSIDE THE CITY RIGHT-OF-WAY OR WHICH THE CITY WILL NOT MAINTAIN THE FOLLOWING PIPES MAY BE USED WITH THE APPROVAL OF THE CITY ENGINEER IN ADDITION TO THOSE PREVIOUSLY STATED IN ITEM 1:

a. ALUMINIZED TYPE-2 METAL PIPE WITH SMOOTH INTERIOR.
b. ADS N-12 CORRUGATED SMOOTH BORE PIPE.
3. RCP FOR 12” AND 15” SHALL BE A CLASS IV TYPE. CLASS III FOR 18” AND LARGER PIPE SHALL BE CLASS III WITH LOAD BEARING QUALIFICATION APPROVED BY THE CITY ENGINEER. CLASS IV PIPE SHALL BE USED IN CASES OF DEEP SEWERS OR HEAVY LOADS.
4. THE CITY MAY CONSIDER THE ON SITE USE OF CORRUGATED SMOOTH INTERIOR HDPE PIPE FOR STORM SEWERS AS SPECIFIED ON SHEET STM-3.
5. MANHOLE TO MANHOLE DISTANCE SHALL NOT EXCEED 400 FEET.
6. FLEXIBLE GASKETS ON ALL SEWER LINE CONNECTIONS AND ALL PRECAST MANHOLE COLLARS SHALL BE ASTM C-923
7. A MANHOLE SHALL ALSO BE INSTALLED AT ALL PIPE SIZE CHANGES AND DIRECTION CHANGES.
8. ALL ADJUSTMENTS TO CASTINGS SHALL BE MADE WITH PRECAST CONCRETE GRADE RINGS.

9. ALL PAVEMENT BASINS (i.e. CATCH & INLET) SHALL BE BROUGHT TO GRADE WITH PRECAST CITY WILL CONSIDER EQUAL TO PRECAST ONLY IN WRITING. BRICK WILL NOT BE ALLOWED.
10. FLOW LINES SHALL BE FORMED SO AS TO MATCH ALL PIPE PENETRATION INVERTS.
11. STORM SEWER MANHOLE CONNECTIONS SHALL BE THE ALOK OR ZLOK TYPE.
12. STORM LINE EASEMENTS SHALL BE PROVIDED WITH CITY ACCESS FOR THE PURPOSE OF MAINTENANCE OF UTILITIES. ACCESS DRIVE SHALL BE PER THE DETAIL ON G-8. OTHER MATERIALS MAY BE APPROVED BY THE CITY. SAID EASEMENTS SHALL BE DESIGNATED AS BLOCKS.
13. CLAY DAM IS TO BE PROVIDED 6 FT. FROM THE LATERAL TERMINUS PER G-10
14. CROSSING AS HEREIN DEFINED SHALL BE EITHER PERPENDICULAR TO ANY PART OF A SKEW OR ANGLE AT THE CROSSING.
15. WHERE MINIMUM CLEARANCES ARE NOT MAINTAINED PER DRAWING G-7 DIP CLASS 52 SHALL BE USED.
16. SHOULD EXCAVATION ENCOUNTER EXISTING DRAINLINES, REPAIR SHALL BE MADE VIA A MINIMUM (6”) SIX INCH TEE OR KOR-N-TEE BOOT INTO THE STORM SYSTEM. (6”) SIX INCH PVC SDR 35 PIPE TO RIGHT-OF-WAY LINE, USING A REDUCER AND/OR VARIOUS BENDS TO MAKE THE CONNECTION. FERNCOS MAY BE USED IN THIS APPLICATION. SEE SHEET STM-8 FOR INSTALLATION DETAIL.

17. WHEN A WATER SERVICE AND/OR GAS SERVICE IS DISTURBED OR DISCONNECTED DURING TRENCH OR SHEETING EXCAVATION, SUCH SERVICE SHALL BE PLANKED USING 2”X8” HARDWOOD MINIMUM, 18” INTO VIRGIN SOIL, EACH END.
18. UPON REVIEW OF THE CITY ENGINEER, IF AN ATTRACTIVE NUISANCE OR ANY OTHER SAFETY HAZARD IS DEEMED TO EXIST, THE USE OF A STEEL SAFETY RACK OR ” CHILD PROOF BARS” WILL BE REQUIRED. SUBMIT SPECIFICATIONS FOR CITY APPROVAL.
19. WHERE A STORM SYSTEM IS PROPOSED ALONG AN EXISTING ROADWAY, AREA DRAINS SHALL BE PROVIDED FOR EACH PROPERTY. LOCATION, SIZE AND MANNER OF CONNECTION TO THE STORM SYSTEM SHALL BE DETERMINED AT THE PLAN REVIEW STAGE.
20. EACH SUBLOT IS TO BE PROVIDED WITH ITS OWN STORM CONNECTIONS TO BE USED BY THAT SUBLOT ONLY. STORM CONNECTIONS SHALL NOT BE PERMITTED TO BE SHARED BY ADJACENT PROPERTIES.
21. STORM SEWER PVC PIPE CONNECTIONS INTO RCP STORM SHALL BE THE KOR-N-TEE TYPE.
22. RCP STORM SEWER CONNECTIONS INTO RCP STORM SHALL BE WITH AN INSTALLED TEE OR SOLID CONCRETE BRICK AND MORTAR.
23. WHERE THE STORM LATERAL IS LESS THAN 3 FT. IN DEPTH D.I.P. CLASS 52 SHALL BE USED.
24. PVC STORM SEWER REPAIRS SHALL BE MADE USING SOLID SLEEVE COUPLINGS OR FERNCO FITTINGS.
25. DUAL BARREL CULVERTS SHALL NOT BE ALLOWED.
26. RECYCLED STONE IS NOT ALLOWABLE IN THE CITY OF AVON.

CITY OF AVON CONSTRUCTION STANDARDS AND SPECIFICATIONS		
CONSTRUCTION NOTES FOR STORM SEWER INSTALLATION	ADOPTION ORDINANCE	DATE
STANDARD CONSTRUCTION DRAWING STM-1	61-24	5/29/24

DEFLECTION TEST

ALL PLASTIC PIPE SHALL BE TESTED FOR PROPER INSTALLATION BY MEANS OF DEFLECTION ATTAINMENT. IN ADDITION TO MATERIAL TESTS, CONSTRUCTION COMPACTION AND LEAKAGE TESTS REQUIRED ELSEWHERE IN THESE REGULATIONS, THE CONTRACTOR IS REQUIRED TO INSTALL THE PIPE IN SUCH A MANNER THAT THE DIAMETRIC DEFLECTION SHALL NOT EXCEED FIVE PERCENT (5%). TO ATTAIN THIS REQUIREMENT, THE BACKFILL MATERIALS SURROUNDING THE PIPE SHALL BE COMPACTED TO THE REQUIRED STANDARD DENSITIES CALLED OUT IN ASTM D 2321. THE SECTORS REQUIRING COMPACTION SHALL INCLUDE THE BED AND SIDE FILL MATERIAL, AS WELL AS THE MATERIAL PLACED ABOVE THE PIPE FOR A DISTANCE OF EIGHTEEN (18) INCHES.

DEFLECTION TESTS SHALL BE PERFORMED NO SOONER THAN 30 DAYS FOLLOWING COMPLETION OF BACKFILL, AND AGAIN ONE YEAR AFTER ACCEPTANCE. DEFLECTION TESTS SHALL BE PERFORMED BY AN ACCREDITED, INDEPENDENT TESTING LABORATORY THAT SHALL SUBMIT VERIFICATION RECORDS OF RESULTS AND DATES TESTED. MAXIMUM RING DEFLECTION OF THE PIPE UNDER LOAD SHALL BE LIMITED TO 5% OF THE INSIDE DIAMETER.

DEFLECTION LIMITS TABLE
ASTM D3034

NOM. PIPE DIA. (IN.)	MANDRELL SIZE	
	SDR 35	SDR 26
6	5.45	5.33
8	7.28	7.12
10	9.08	8.87
12	10.79	10.54
15	13.20	12.90
18	16.13	15.76
21	19.01	18.57
24	21.36	20.87

ALL PIPE FAILING TO MAINTAIN THE MINIMUM DEFLECTION DIAMETER OR LARGER LISTED FOR THE APPLICABLE TYPE OF PIPE SHALL BE CONSIDERED TO HAVE BEEN IMPROPERLY INSTALLED AND SHALL BE RE-LAID OR REPLACED BY THE CONTRACTOR.

DEFLECTION TESTING SHALL BE ACCOMPLISHED BY USING AN ELECTRONIC DEFLECTOMETER WHICH PRODUCES A CONTINUOUS RECORD OF DIAMETER READINGS OR BY PULLING A SLED TYPE – FULL CIRCLE GAGE THROUGH THE PIPE. SLED TYPE – FULL CIRCLE GAGES SHALL BE A MANDREL TYPE. THE DIAMETER OR MINIMUM DIMENSION OF THE SLED TYPE – FULL CIRCLE GAGE SHALL BE AS LISTED IN THE DEFLECTION LIMITS TABLE FOR THE TYPE AND NOMINAL DIAMETER OF THE PIPE BEING TESTED.

SEWER PHOTOGRAPHY (CCTC)

ALL SEWERS SHALL BE PRESSURE JET AND VACUUMED BY THE CONTRACTOR BEFORE VIDEO PHOTOGRAPHY. ALL SEWER INTERIORS SHALL BE VIDEOTAPED BY AN APPROVED TESTING COMPANY AT THE DIRECTION OF THE UTILITY DEPT. AND TWO COPIES OF DVD AND THE ACCOMPANYING REPORT SHALL BE DELIVERED TO THE UTILITY DEPT. PRIOR TO ACCEPTANCE OF THE SEWER.

- A) ALL VIDEO TAPING SHALL BE FROM CENTER OF MANHOLE TO CENTER OF MANHOLE.
- B) VIDEO TAPING SHALL BE MADE UPSTREAM ONLY.

CITY OF AVON CONSTRUCTION STANDARDS AND SPECIFICATIONS		
STORM SEWER ACCEPTANCE TESTING	ADOPTION ORDINANCE	DATE
STANDARD CONSTRUCTION DRAWING STM-2	61-24	5/29/24

CORRUGATED SMOOTH INTERIOR HDPE STORM PIPE SPECIFICATIONS

- 1. THE CITY OF AVON SHALL CONSIDER THE USE OF HDPE IN AREAS OF DEDICATED RIGHT-OF-WAY ON A CASE-BY-CASE BASIS. ONLY PIPE DIAMETERS OF 12” OR GREATER SHALL BE CONSIDERED.
- 2. PIPE TYPE IS TO BE THE HANCOR SURE-LOK OR ADS N-12 WT TYPE OR EQUAL (AASHTO M294, TYPE S OR ASTM F2306) WITH SMOOTH INTERIOR AND ANNULAR EXTERIOR CORRUGATIONS. PIPE SHALL BE BELL AND SPIGOT TYPE WITH WATERTIGHT GASKET JOINING SYSTEM ACCORDING TO ASTM D3212.
- 3. FITTINGS SHALL BE PREFABRICATED AND CONFORM TO AASHTO M252, AASHTO M294, OR ASTM F2306.
- 4. TRANSITIONS FROM ONE TYPE OF PIPE TO ANOTHER OR FROM ONE SIZE TO ANOTHER SHALL BE DONE WITH PREFABRICATED FITTINGS OR FERNCOS. CONCRETE COLLARS SHALL ONLY BE USED WITH THE APPROVAL OF THE CITY ENGINEER.
- 5. STORM LATERAL CONNECTIONS SHALL BE MADE USING A FACTORY TEE WITH A 6” ADAPT WITH SDR 35 BELL AND 6” N-12 GASKET (NYLOPLAST ADS N-12 X SWR SDR35 BXB ADAPTER). STORM LATERAL CONNECTIONS MAY ALSO BE MADE USING AN INSERT TEE MANUFACTURED SPECIFICALLY FOR HDPE TYPE PIPE, AS MAY BE APPROVED BY THE CITY ENGINEER, PRIOR TO ANY CONSTRUCTION.
- 6. INSTALLATION SHALL REQUIRE THE FOLLOWING MINIMUM PIPE COVER:

NOMINAL DIAMETER (IN)	MINIMUM COVER (IN)
12	12
15	12
18	13
24	17
30	22
36	25
42	29
48	33
60	40

TOTAL MINIMUM COVER IS MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OR RIGID PAVEMENT.

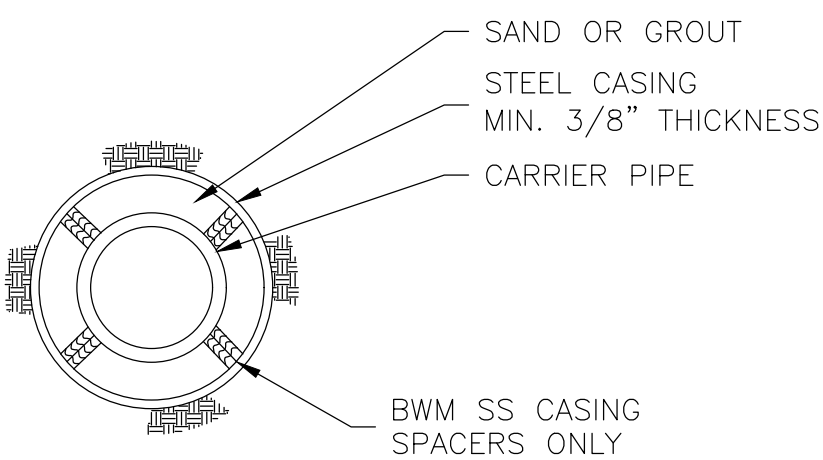
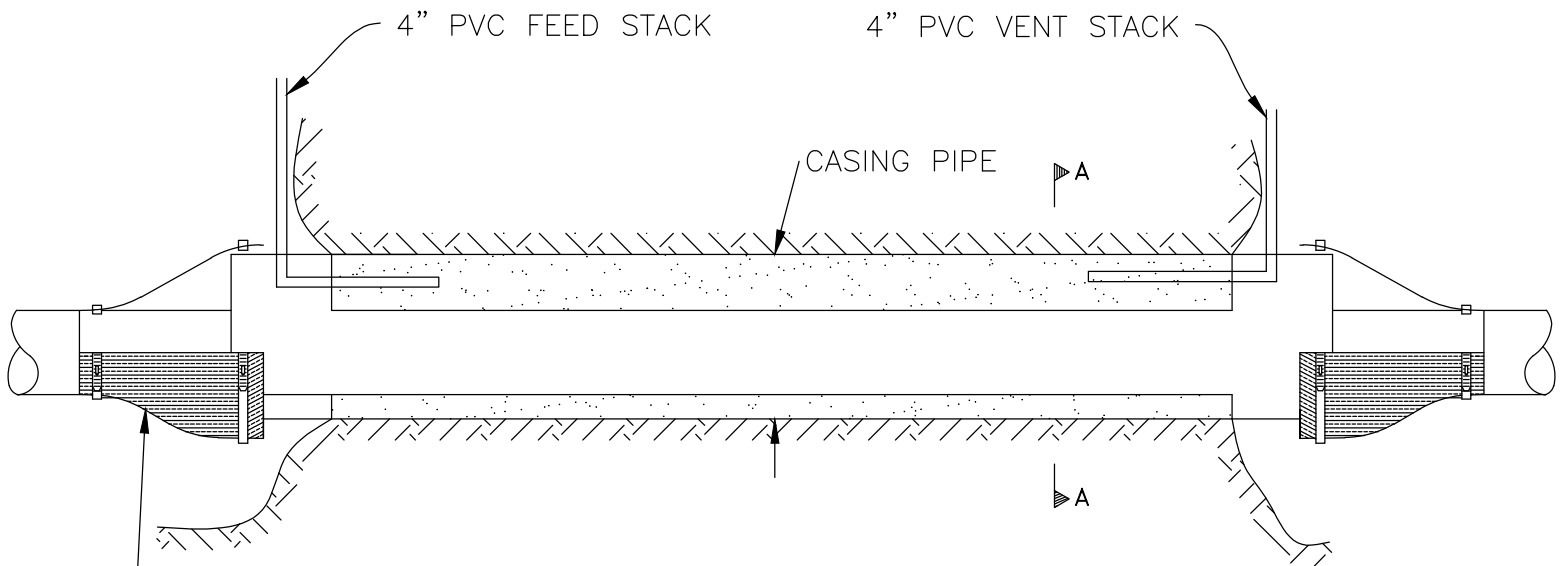
- 7. IF THE DESIGN ENGINEER CAN PROVIDE CALCULATIONS THAT PROVE FLOTATION WILL NOT BE A FACTOR THE FOLLOWING MINIMUM PIPE COVER MAY BE ACCEPTABLE:
 - A.) INSTALLATION IN TRAFFICKED AREAS SHALL REQUIRE A MINIMUM OF ONE (1) FOOT OF COVER FOR PIPE UP TO AND INCLUDING 48” DIAMETER. 54” AND 60” DIAMETER PIPE SHALL REQUIRE A MINIMUM OF TWO (2) FEET OF COVER.
 - B.) INSTALLATION IN GREEN SPACE AREAS SHALL REQUIRE A MINIMUM OF ONE (1) FOOT OF COVER FOR ALL DIAMETERS.
 - C.) WHEN NO PAVEMENT WILL BE INSTALLED, BUT VEHICLE TRAFFIC IS EXPECTED (GRAVEL DRIVEWAY) A TOTAL MINIMUM COVER OF 18 INCHES FOR PIPE SIZES UP TO AND INCLUDING 48” DIAMETER IS REQUIRED. 54” AND 60” DIAMETER PIPE SHALL REQUIRE A MINIMUM 30 INCHES OF COVER TO MINIMIZE RUTTING.
- 8. TEMPORARY MINIMUM PIPE COVER REQUIREMENTS FOR CONSTRUCTION EQUIPMENT LOADING SHALL BE PER THE MANUFACTURER’S RECOMMENDATION.
- 9. TRENCH DETAIL SHALL CONFORM TO DRAWING G-6 WITH THE FOLLOWING EXCEPTIONS:

NOMINAL PIPE DIAMETER (IN)	MINIMUM TRENCH WIDTH (IN)
48	80
54	88
60	96

PIPE COVER FOR HDPE PIPE SHALL BE AS DISCUSSED ABOVE AND APPROVED BY THE CITY.

CITY OF AVON CONSTRUCTION STANDARDS AND SPECIFICATIONS		
HDPE NOTES	ADOPTION ORDINANCE	DATE
STANDARD CONSTRUCTION DRAWING STM-3	61-24	5/29/24

WOOD SKID DETAIL



SECTION A-A

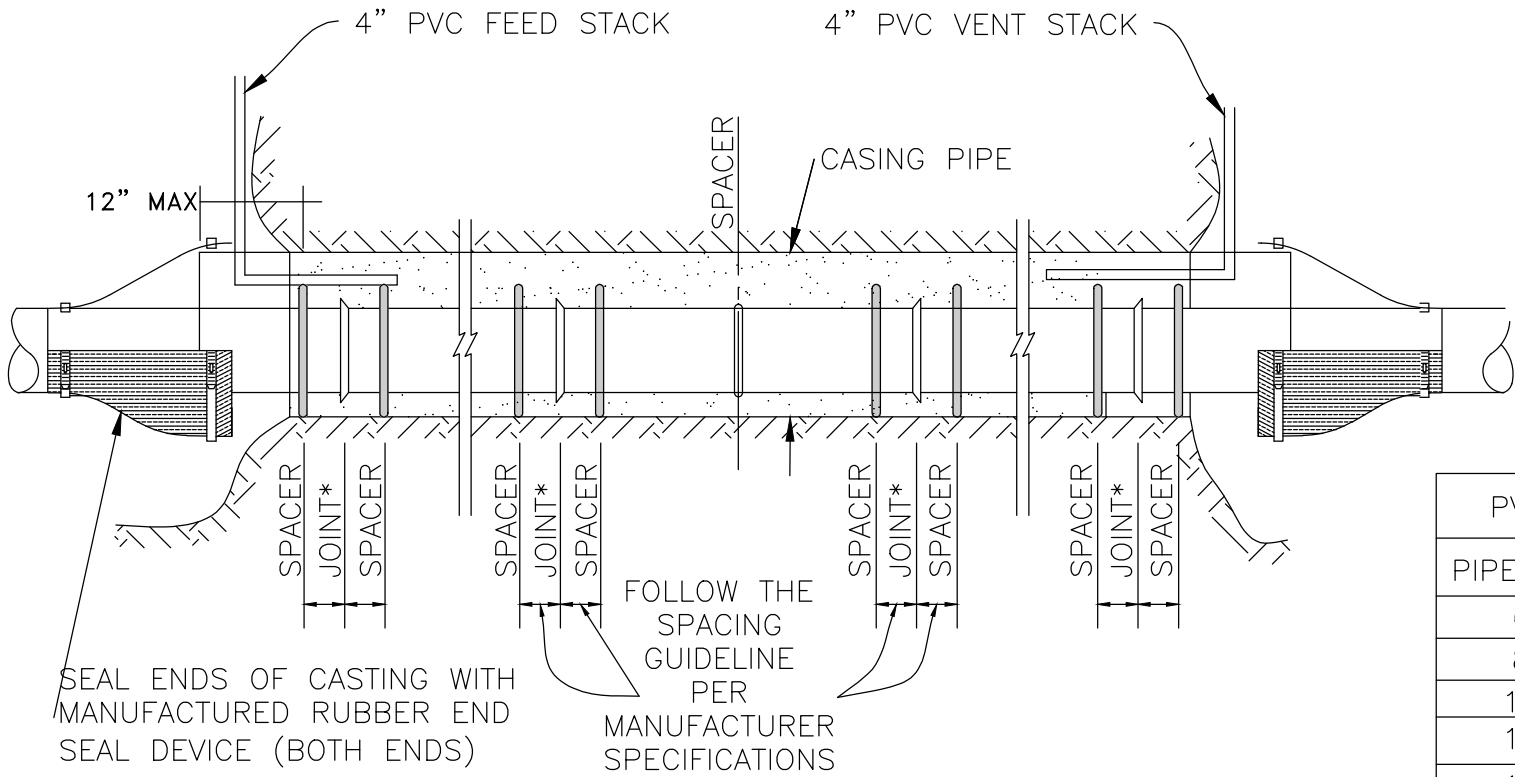
SEAL ENDS OF CASTING WITH
MANUFACTURED RUBBER END
SEAL DEVICE (BOTH ENDS)

BORE DETAIL

BORE NOTES:

- 1) PVC STACKS ARE TO BE FILLED TO WITHIN 2 FT. OF GRADE AND CUT AND CAPPED 2 FT. BELOW GRADE.
- 2) EACH END SHALL BE SEALED WITH A MANUFACTURED RUBBER END SEAL DEVICE.
- 3) GRANULAR BEDDING IN BORE PIT AND RECEIVING PIT SHALL BE PLACED TO A MINIMUM OF 1 FOOT ABOVE THE PIPE.
- 4) BONDED SKIDS MAY BE PERMITTED IN LIEU OF RETAINING GLANDS, AS APPROVED BY THE CITY UTILITY DEPARTMENT.
- 5) SANITARY PIPE THROUGH THE CASING SHALL BE PVC SDR-35 ASTM D3034 OR SDR 26 IF 17FT DEEP OR DEEPER.
- 6) ANY TRANSITION OF PIPE FROM DIP TO PVC, SHALL BE DONE WITH A TRANSITIONAL ADAPTER AS DETAILED ON SHEET S-1.
- 7) MINIMUM CASING WALL THICKNESS IS TO BE 3/8"
- 8) CASING SIZE FOR PIPE IN EXCESS OF 16" SHALL BE REVIEWED AND DETERMINED BY THE ENGINEER AT THE TIME OF PLAN REVIEW AND PRIOR TO ANY CONSTRUCTION.
- 9) NO CASING SHALL BE REQUIRED UNDER THE ROAD IF OPEN CUT TRENCHING. THIS SHALL BE AT THE UTILITY DEPARTMENT'S DISCRETIONS.
- 10) CASING TO BE GROUT FILLED BY USING A GROUT PUMP.
- 11) MIXTURE:

FLOWABLE FILL CEMENT – 50 LBS.
FLY ASH – 850 LBS.
FINE AGGREGATE – 2,100 LBS.
WATER – 625 LBS.



SEAL ENDS OF CASTING WITH
MANUFACTURED RUBBER END
SEAL DEVICE (BOTH ENDS)

SPACER DETAIL

PVC CASING SIZE REQUIREMENTS		
PIPE SIZE	BELL SIZE	CASING SIZE
6"	7.23"	12"
8"	9.50"	16"
10"	11.86"	18'
12"	14.06"	24"
15"	17.93"	24"

CITY OF AVON CONSTRUCTION STANDARDS AND SPECIFICATIONS		
STORM PIPE BORE DETAIL	ADOPTION ORDINANCE	DATE
STANDARD CONSTRUCTION DRAWING	61-24	5/29/24

STM-4

CONSTRUCTION NOTES AND STANDARDS FOR PRECAST STORM MANHOLES

1. SECTIONS OF THE PRECAST MANHOLE SHALL BE CAST AND ASSEMBLED WITH EITHER ALL TONGUE AND ALL GROOVE ENDS UP. LIFT HOLES MAY BE PROVIDED IN EACH SECTION FOR HANDLING.

2. TOP AND TRANSITION (OR REDUCER) SECTIONS MAY BE EITHER ECCENTRIC CONE, CONCENTRIC CONE OR FLAT SLAB.

3. BASES FOR MANHOLES ARE SHOWN WITH MONOLITHIC FLOOR AND RISER WHICH MAY BE CAST IN ONE OR TWO OPERATIONS. OPENINGS FOR INLET AND OUTLET PIPES SHALL BE PRECAST FOR A NEW MANHOLE TO MEET PROJECT REQUIREMENTS. A FIELD CORE IS PERMISSIBLE ON AN EXISTING STRUCTURE. BOTTOM CHANNELS MAY BE FORMED OF CONCRETE PRECAST IN THE BASE OR BY FIELD CONSTRUCTION. FOR FIELD CONSTRUCTION THE CHANNEL MUST BE FORMED W/PIPE THRU AS THE FORM. FLOOR AND BARREL SHALL BE A MONOLITHIC POUR TYPE.

4. FLEXIBLE CONNECTIONS SHALL BE PROVIDED FOR STORM SEWERS PER ASTM C-923.

5. JOINT SEAL BETWEEN PRECAST MANHOLE SECTIONS SHALL BE THE COMBINATION OF AN O-RING & ASPHALTIC STRIP. IN ADDITION, THE EXTERIOR JOINT AREA SHALL BE COATED WITH AN ASPHALTIC MASTIC TO A WIDTH OF 1 FT. ALL JOINT SEAL SHALL MEET ASTM C-443.

6. MATERIALS FOR BASES AND OTHER PRECAST SECTIONS, INCLUDING REINFORCEMENT NOT SPECIFIED HEREON, SHALL COMPLY WITH ODOT SPECIFICATIONS, SECTION 706.13.

7. PRECAST MANHOLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM C478.

8. SEAL LIFT HOLES WITH APPROVED WATER PLUG AND MORTAR, EXCEPTING WHERE THE LIFT HOLE INSERTS ARE PLASTISIZED.

9. PRECAST REINFORCED CONCRETE GRADE RINGS SHALL BE USED IN ALL CASES. BRICK FOR THIS PURPOSE WILL NOT BE PERMITTED. INTERIOR AND EXTERIOR TO BE SEALED WITH 1” THICK MINIMUM COMBINATION OF 10 LBS. WATER PLUG AND 80 LBS. MORTAR MIX. PROVIDE MINIMUM OF ONE GRADE RING. ASPHALTIC MASTIC STRIPS SHALL BE USED BETWEEN ALL GRADE RINGS AND CASTINGS, IN ADDITION TO THE PORRIDGING OF THE INTERIOR AND EXTERIOR AREAS WITH THE WATER PLUG MIX EXCEPT IN CONCRETE ROADWAYS. 12” MAX HEIGHT OF GRADE RINGS.

10. ALL MANHOLE CASTINGS ARE TO BE E.J.I.W. 1040 SERIES HEAVY DUTY CASTING OR EQUAL. HEAVY DUTY BOLT DOWN CASTING AND COVER (E.J.I.W. 1040-WT) OR EQUAL SHALL BE USED WHENEVER A STORM MANHOLE IS IN AN OFF-SITE EASEMENT OR NEAR A WATERWAY OR WITHIN ROADWAY AREAS.

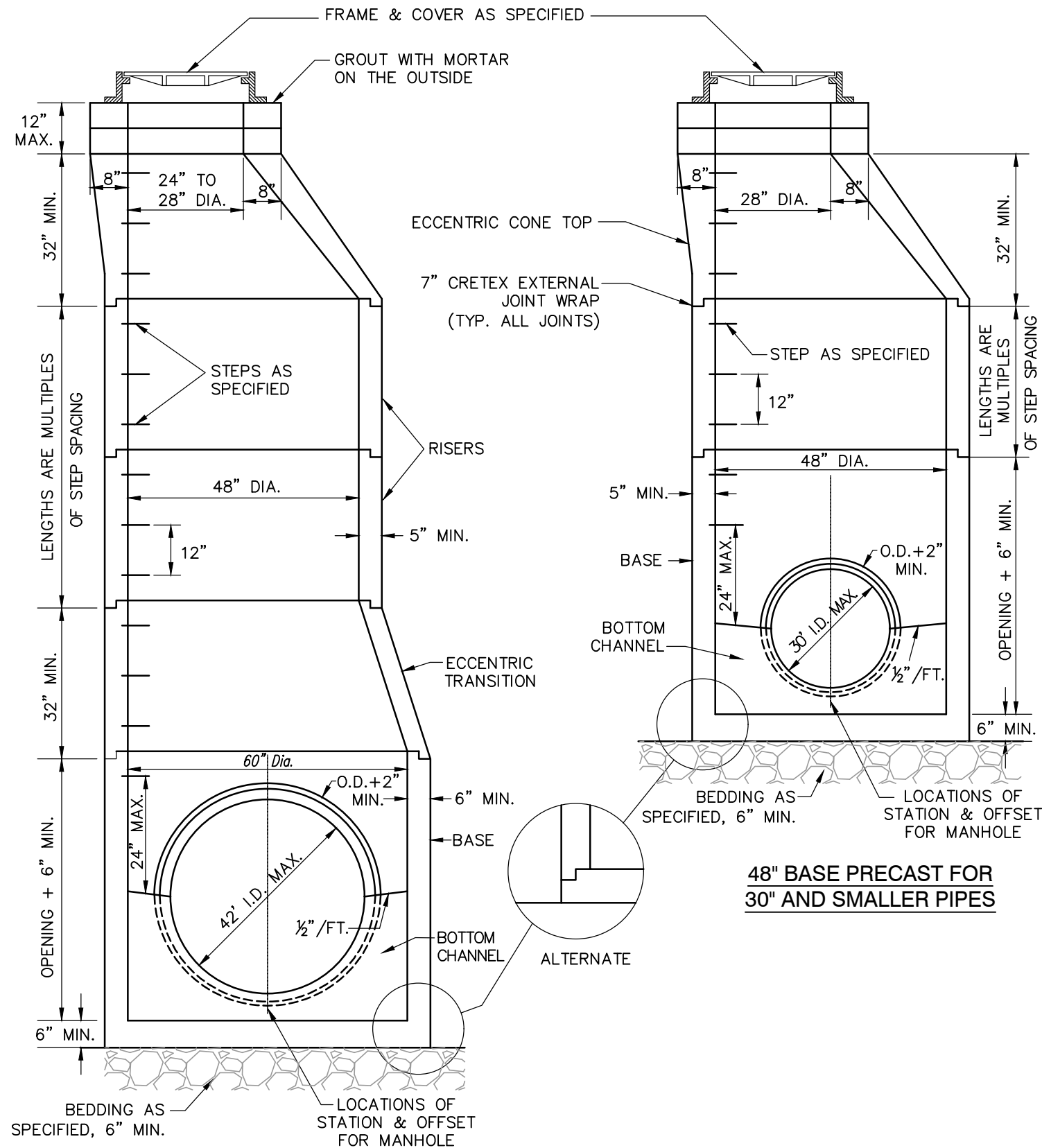
11. CASTING & GRADE RINGS SHALL BE SET WITH AN ASPHALTIC STRIP BETWEEN CONE, GRADE RING, AND CASTING IN A HYDROCRETE OR REINFORCED FRAME CASTING IN A 5’ SQ. X 6” THICK CONCRETE PAD IN PAVED ASPHALT AREAS.
12. STEPS SHALL BE CO-POLYMER POLYPROPYLENE ASTM D-4101-82. THE RISER HOLE SHALL BE ALIGNED WITH THE STEPS.

13. BEDDING SHALL BE 6” MIN. #57 LIMESTONE. BACKFILL SHALL CONFORM TO PIPE TRENCH DETAIL.

14. MANHOLES SHALL NOT BE INSTALLED IN SIDEWALKS OR ROADWAY AREAS WHENEVER POSSIBLE.

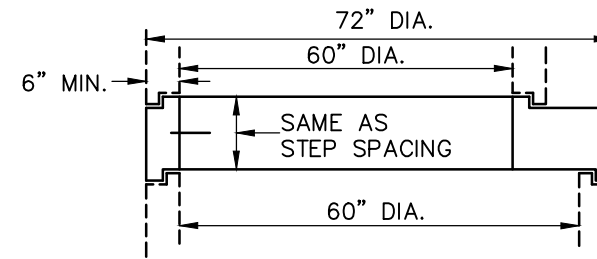
15. FOR 60” MANHOLES, E.J.I.W. #2075 52” RING WITH 36” OPENING IS REQUIRED

CITY OF AVON CONSTRUCTION STANDARDS AND SPECIFICATIONS		
CONSTRUCTION NOTES & STANDARD FOR PRECAST STORM MANHOLES	ADOPTION ORDINANCE	DATE
STANDARD CONSTRUCTION DRAWINGSTM-5	61-24	5/29/24

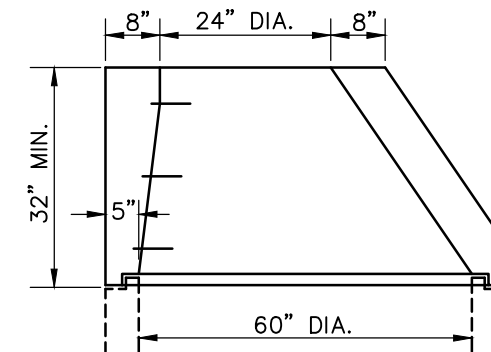


60" BASE PRECAST FOR 42" AND SMALLER PIPES

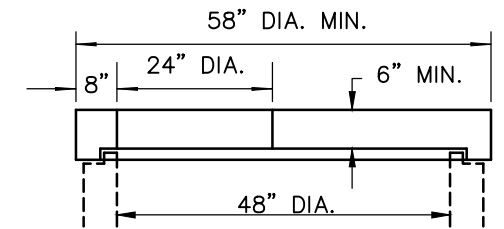
48" BASE PRECAST FOR 30" AND SMALLER PIPES



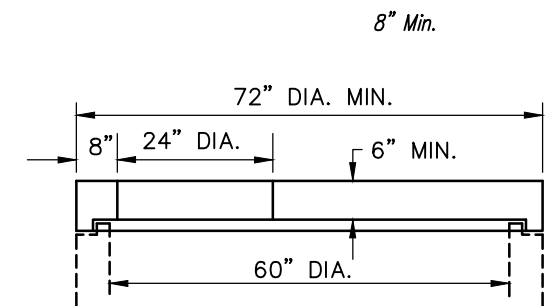
FLAT SLAB TRANSITION



ALTERNATE ECCENTRIC CONE TOP

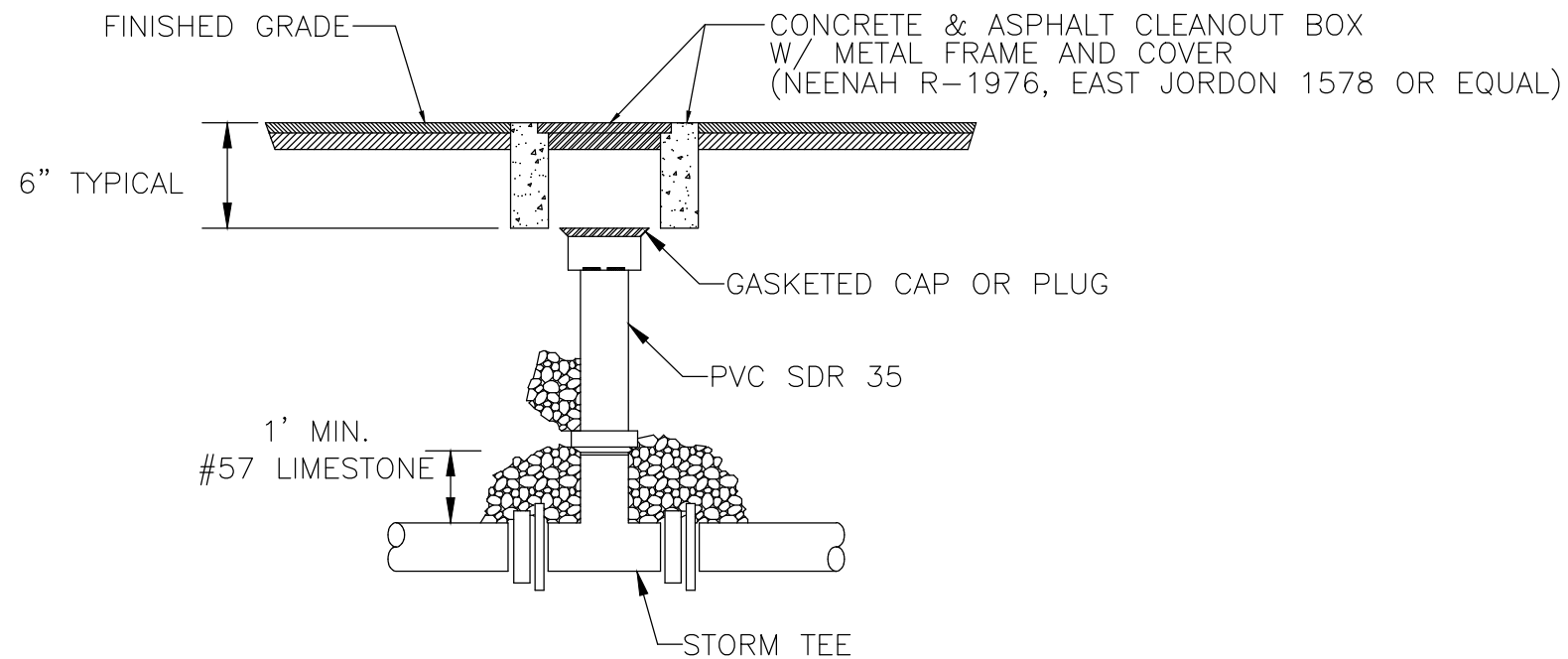


FLAT SLAB TOP

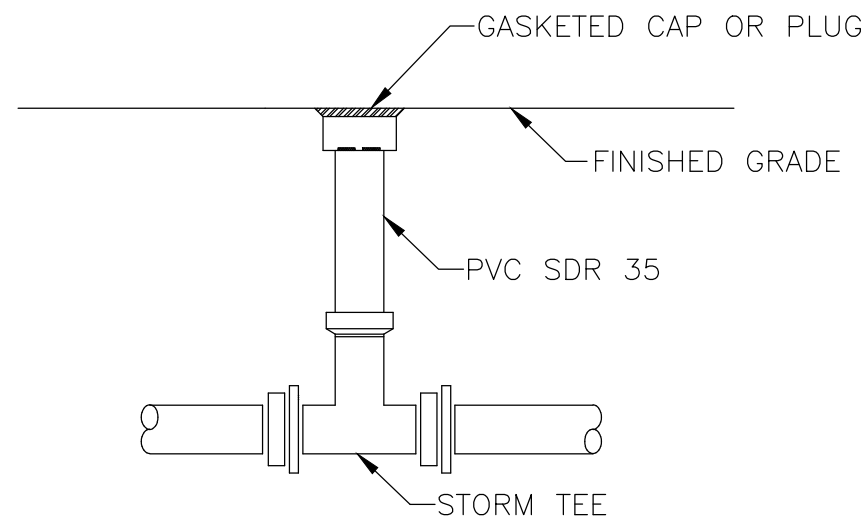


FLAT SLAB TOP

CITY OF AVON CONSTRUCTION STANDARDS AND SPECIFICATIONS		
PRECAST STORM MANHOLE	ADOPTION ORDINANCE	DATE
STANDARD CONSTRUCTION DRAWING STM-6	61-24	5/29/24



**TYPICAL SANITARY
CLEANOUT IN PAVED AREAS**

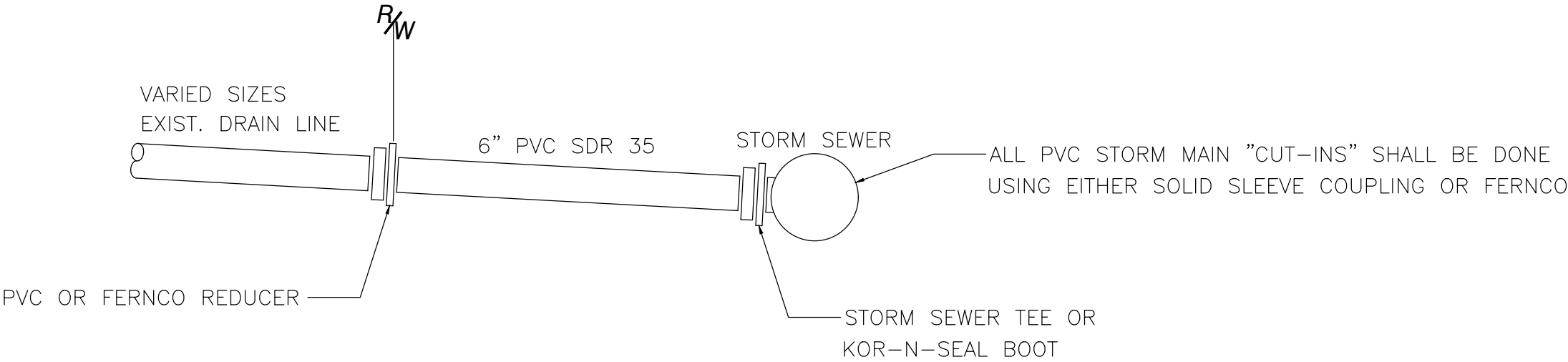


**TYPICAL SANITARY CLEANOUT
IN UNPAVED AREAS**

NOTES:

1. ALL CLEANOUT'S & WATER CURB BOXES LOCATED IN DRIVEWAY OR SIDEWALK ARE TO BE PROVIDED WITH A METAL FRAME AND COVER.
2. A TEE OR WYE IS ACCEPTABLE FOR STORM CLEANOUTS.
3. G.C. TO INSTALL CLEANOUTS AT ANY PIPING ANGLE CHANGES AND EVERY 100' C.O. TO BE INSTALLED ON ALL ROOF DRAINS.

CITY OF AVON CONSTRUCTION STANDARDS AND SPECIFICATIONS		
STORM SEWER CLEANOUT DETAILS	ADOPTION ORDINANCE	DATE
STANDARD CONSTRUCTION DRAWING STM-7	61-24	5/29/24

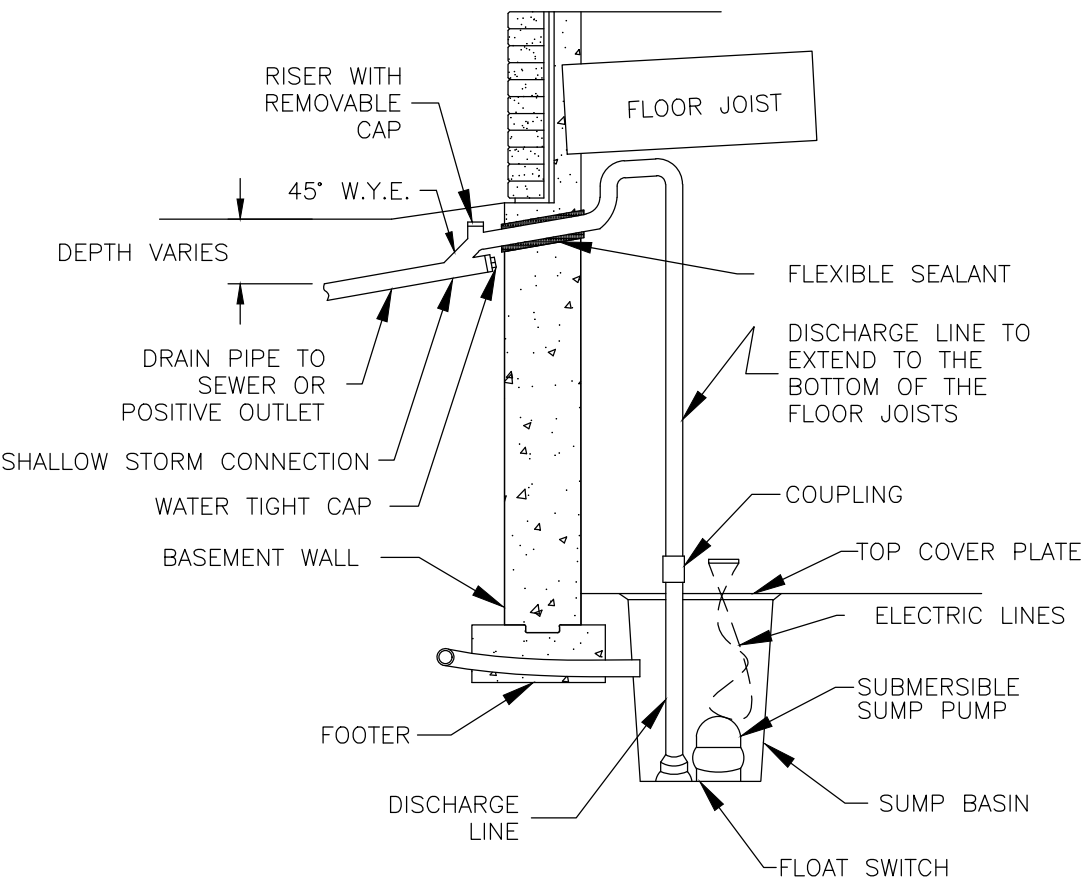


NOTE: VARIED BENDS ARE TO BE USED AS
NEEDED TO ESTABLISH ACCEPTABLE GRADE.

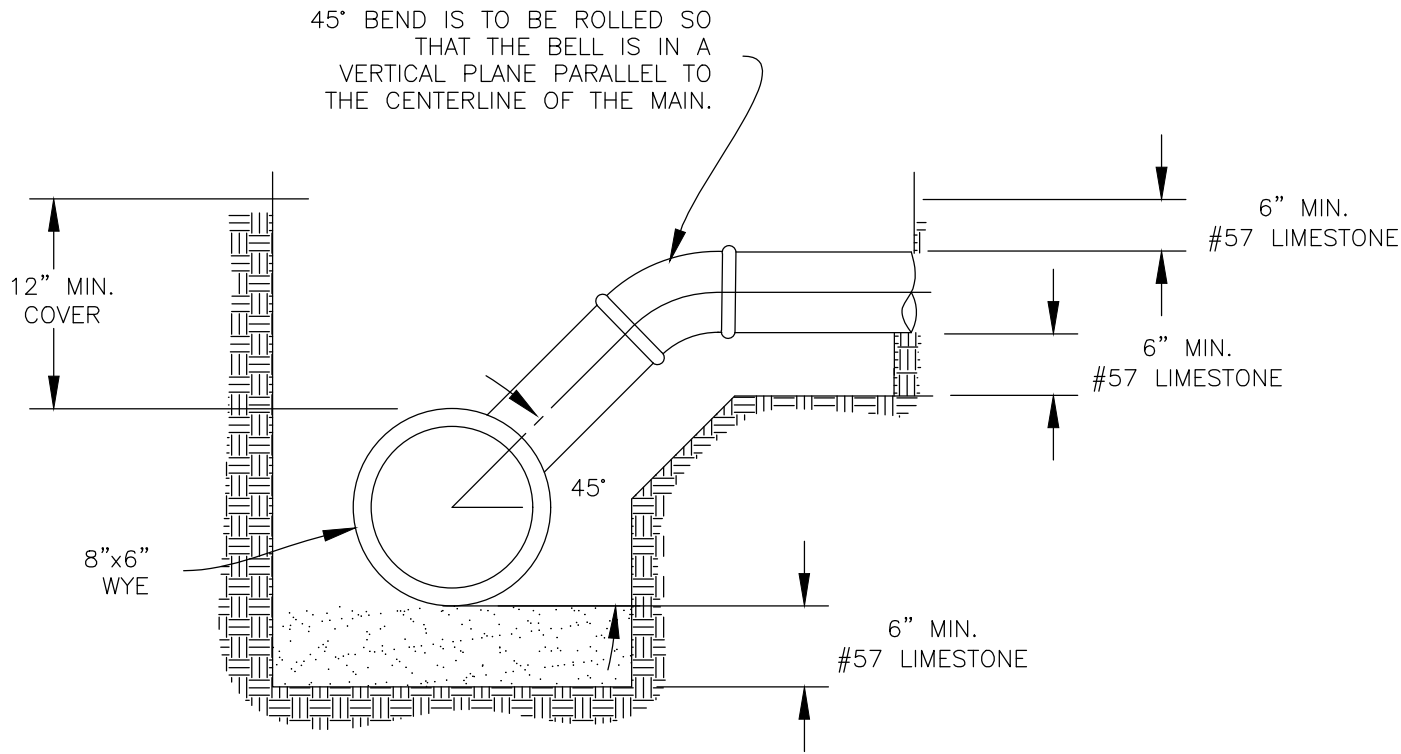
STORM SEWER EXIST. DRAIN LINE REPAIR

CITY OF AVON CONSTRUCTION STANDARDS AND SPECIFICATIONS		
STORM SEWER DRAIN LINE REPAIR	ADOPTION ORDINANCE	DATE
STANDARD CONSTRUCTION DRAWING STM-8	61-24	5/29/24

- A) STORM SEWERS MUST STOP A MINIMUM OF FIVE FEET (5') FROM THE BUILDING WALL AND ALSO BE A MINIMUM OF TWO (2') FEET ABOVE A FOOTER. THERE SHALL NOT BE A DIRECT CONNECTION OF THE STORM SEWER TO FOOTER TILE. SEE DETAIL.
- B) IF WHEN INSTALLING A NEW STORM SEWER LATERAL, A REAR YARD DRAIN IS NECESSARY, THIS CONNECTION WILL BE MADE IMMEDIATELY AT THE STREET CONNECTION. AN INDIVIDUAL INSPECTION TEE SHALL BE INSTALLED AND A COMPLETELY SEPARATE SIX INCH (6") LATERAL SHALL BE INSTALLED FOR THE REAR YARD DRAIN. ALSO, THERE SHALL NOT BE DOWN SPOUT OR SUMP PUMP DRAINS CONNECTED TO REAR YARD DRAINS.
- C) STORM SEWER LATERAL SHALL BE A MINIMUM SIZE OF 6" P.V.C. GASKETED PIPE (SDR35 - 3034).
- D) BACKFILL AND BEDDING SHALL BE A MINIMUM 4" UNDER AND 6" OVER ALL PIPE. STONE SHALL BE #8 OR #57 LIMESTONE.
- E) INSPECTION AND CLEAN OUT TEES SHALL BE PER AVON STORM STANDARD STM-7. TEES SHALL BE LOCATED EVERY 100 LINEAR FEET AND AT THE STREET RIGHT OF WAY.
- F) THERE SHALL NOT BE ANY INSPECTOR OR CLEAN OUT TEES WITHIN DRIVEWAYS OR ROADWAY. SHOULD THIS APPEAR, TEES SHALL BE RELOCATED OUT OF THESE AREAS.
- G) THE FOLLOWING MINIMUM BARREL TO BARREL CLEARANCE SHALL BE MAINTAINED BETWEEN LATERALS:
SANITARY AND WATER = 10FT
STORM AND WATER = 10FT
SANITARY AND STORM = 5FT
- H) ALL PIPE REQUIREMENTS SHALL BE SHOWN ON STORM SEWER PLAN NOTES.
- I) YARD DRAINS ARE TO BE SIZED APPROPRIATELY TO THE SIZE OF THE STORM DRAIN LINE. EXAMPLE: 18" YARD DRAIN TO BE USED WITH A 12" STORM DRAIN LINE. SIZING CALCULATIONS MAY BE REQUIRED.

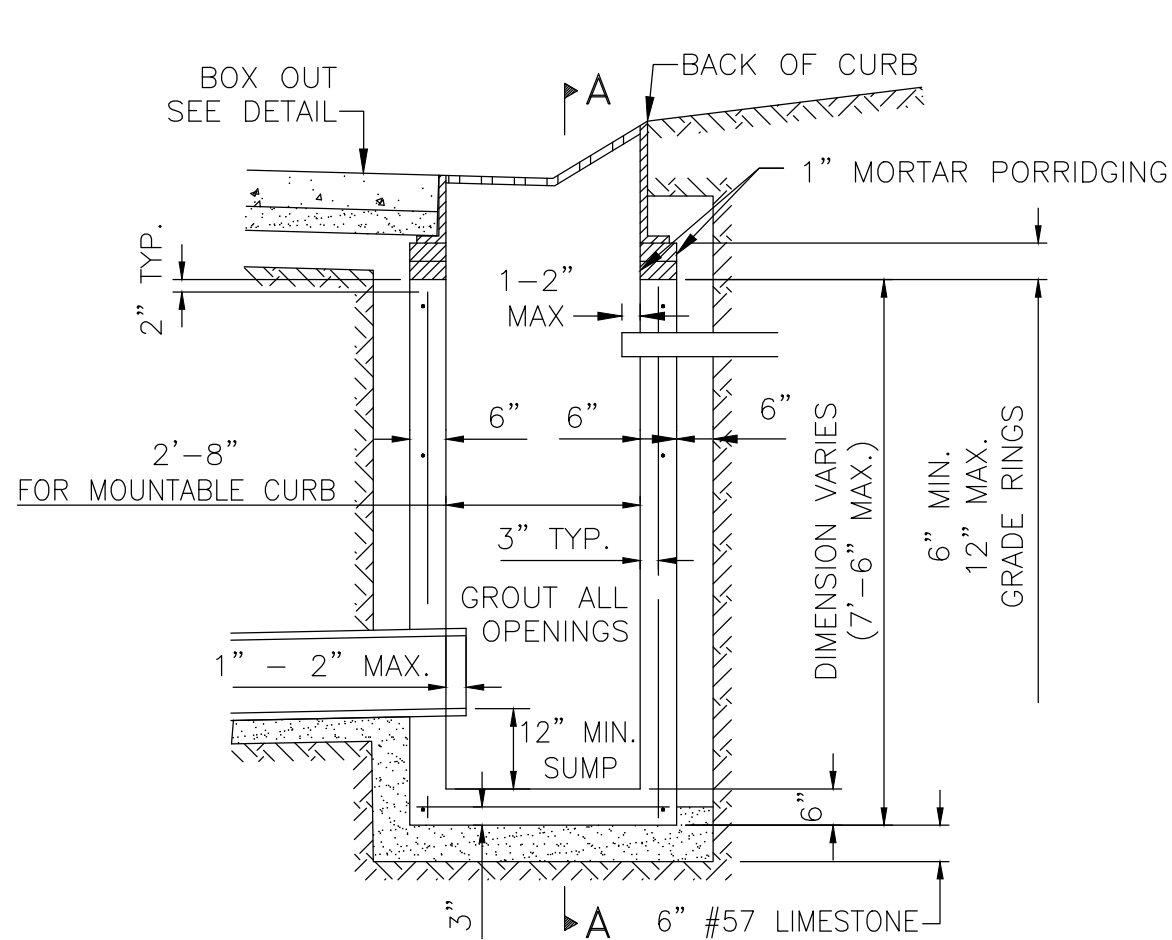


SUMP PUMP CONNECTION DETAIL

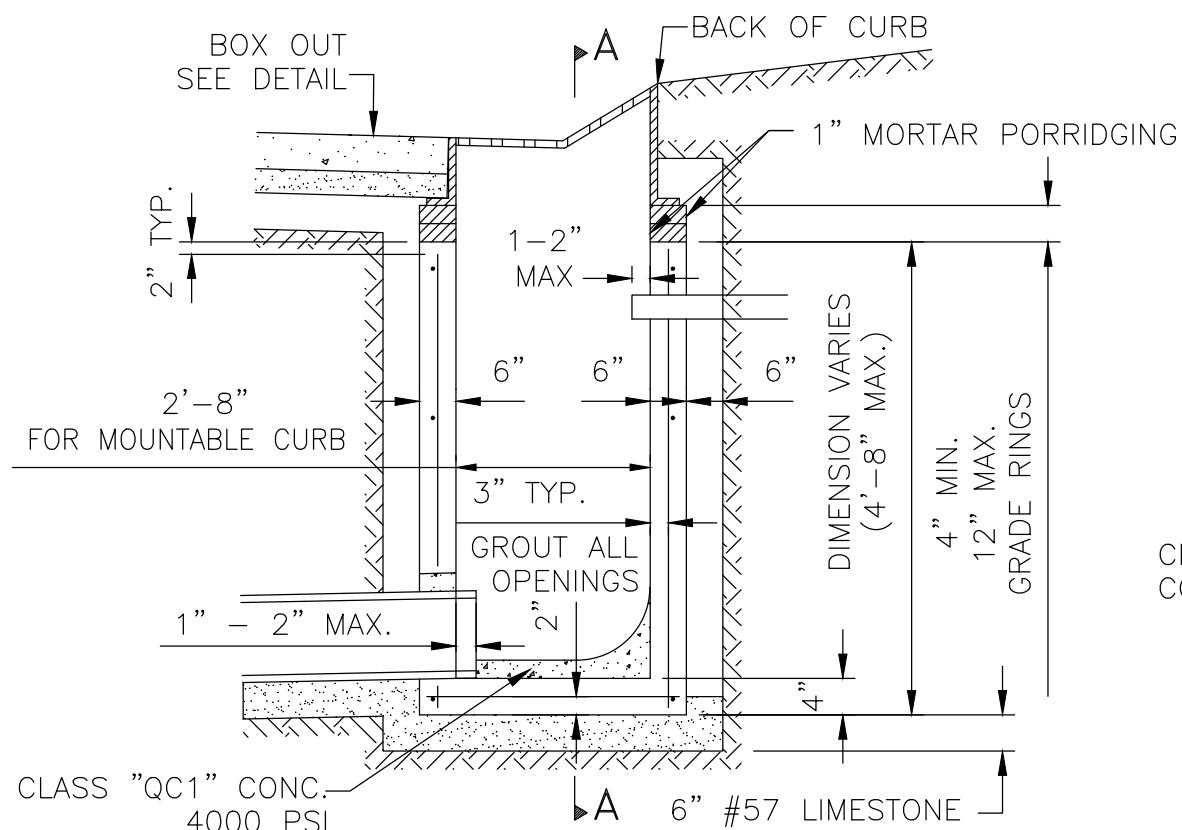


TYPICAL STORM CONNECTION

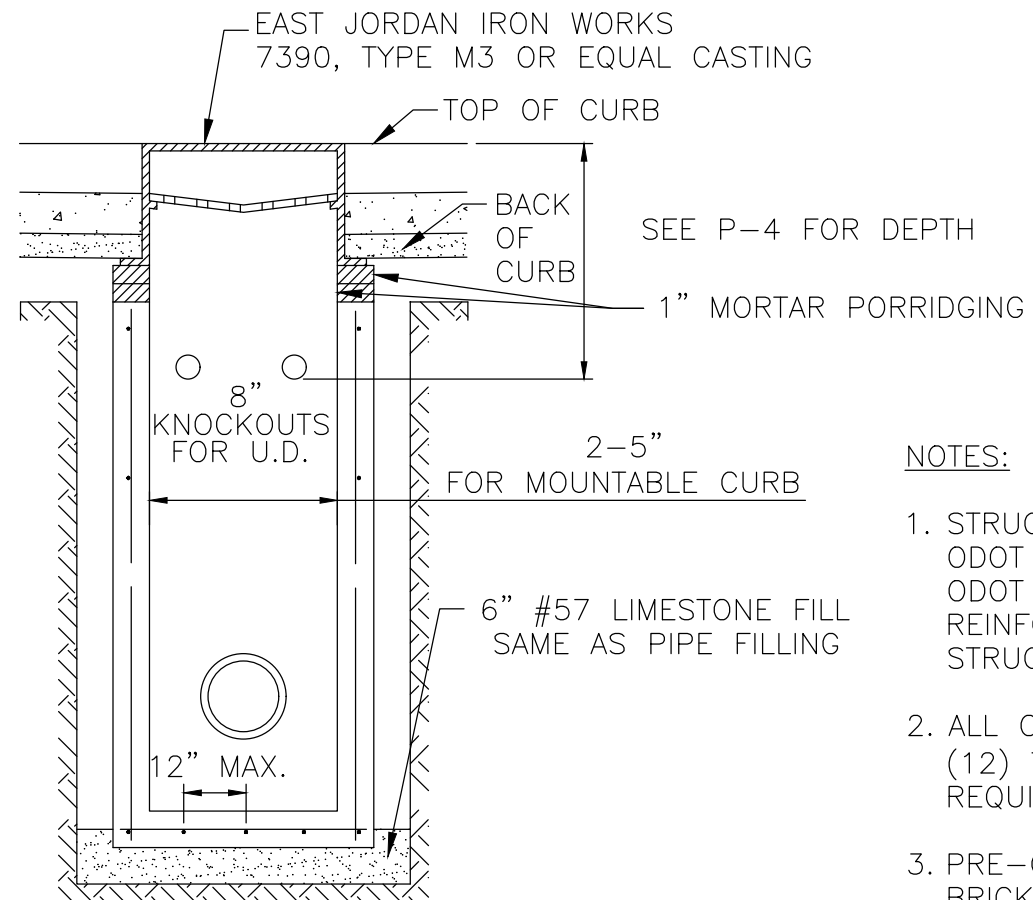
CITY OF AVON CONSTRUCTION STANDARDS AND SPECIFICATIONS		
STORM SEWER LATERAL DETAILS & SPECIFICATIONS	ADOPTION ORDINANCE	DATE
STANDARD CONSTRUCTION DRAWING STM-9	61-24	5/29/24



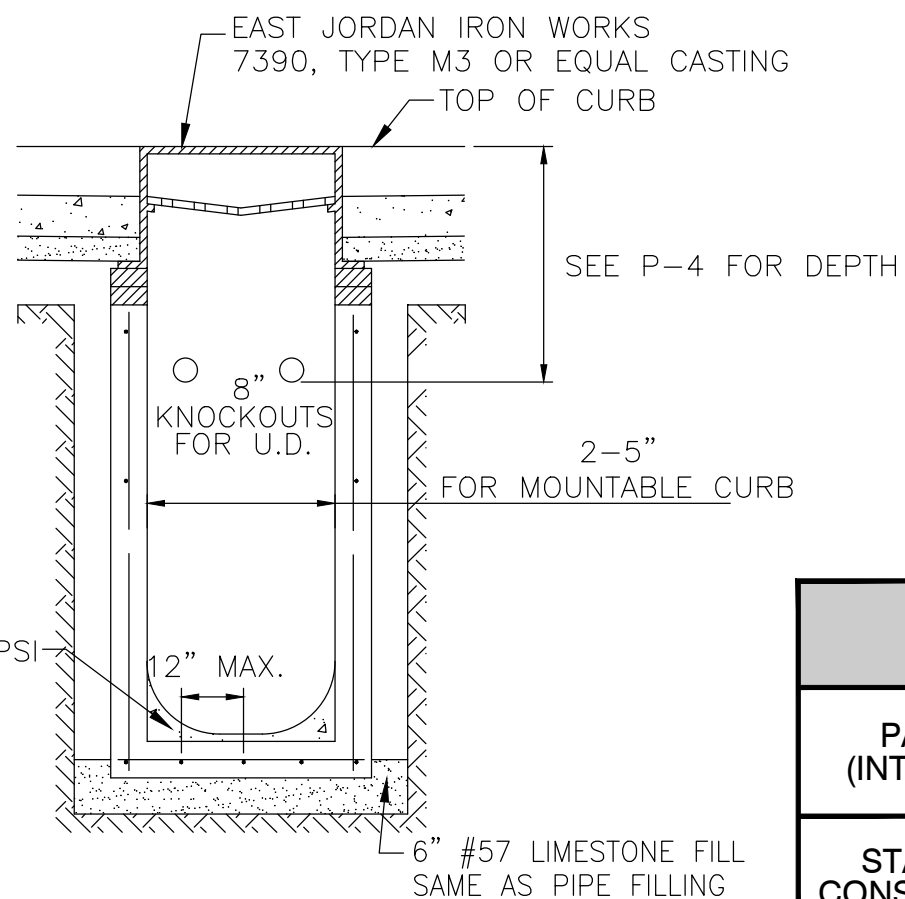
CATCH BASIN - TYPE "A" (PREFERRED)



CATCH BASIN - TYPE "B"



SECTION A-A

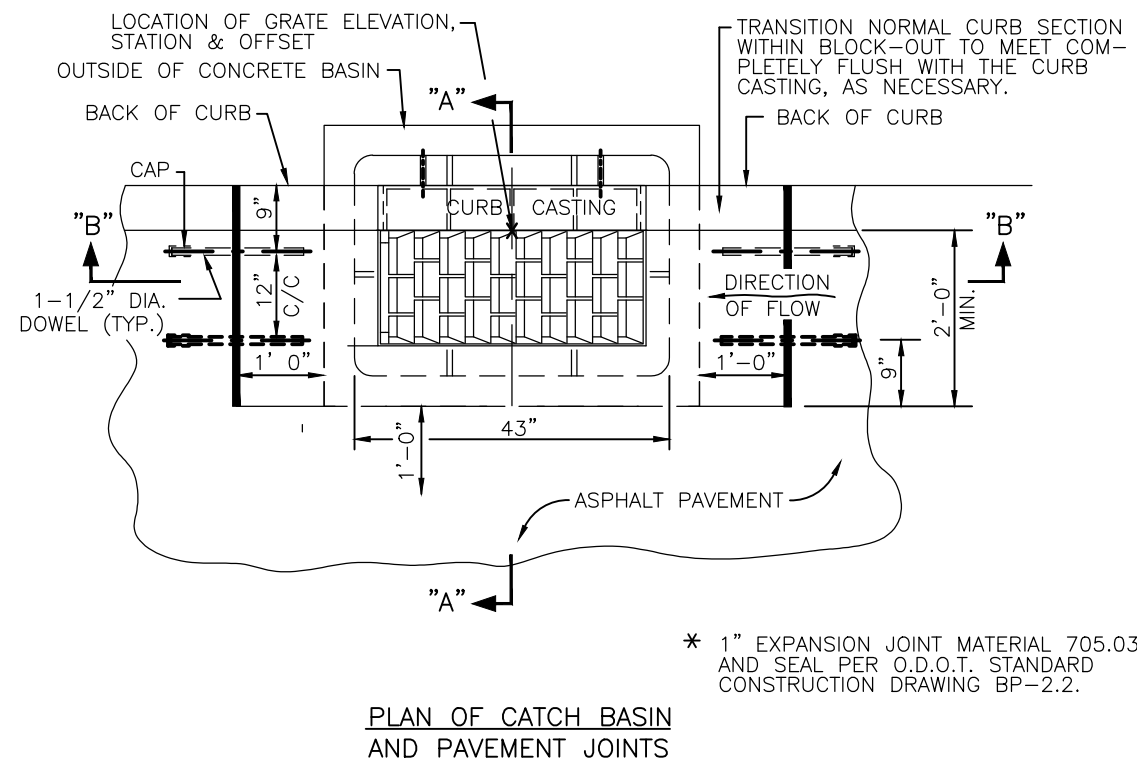
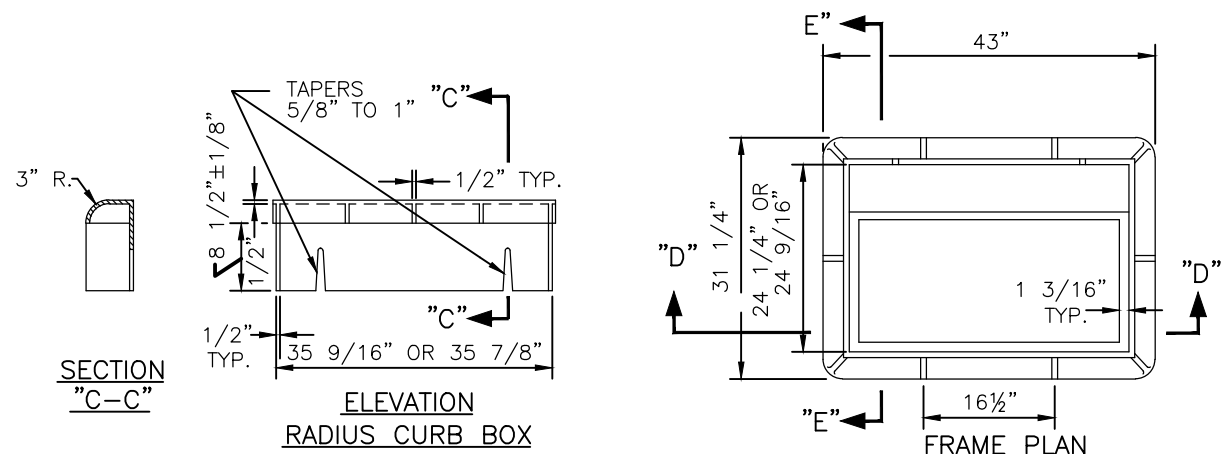
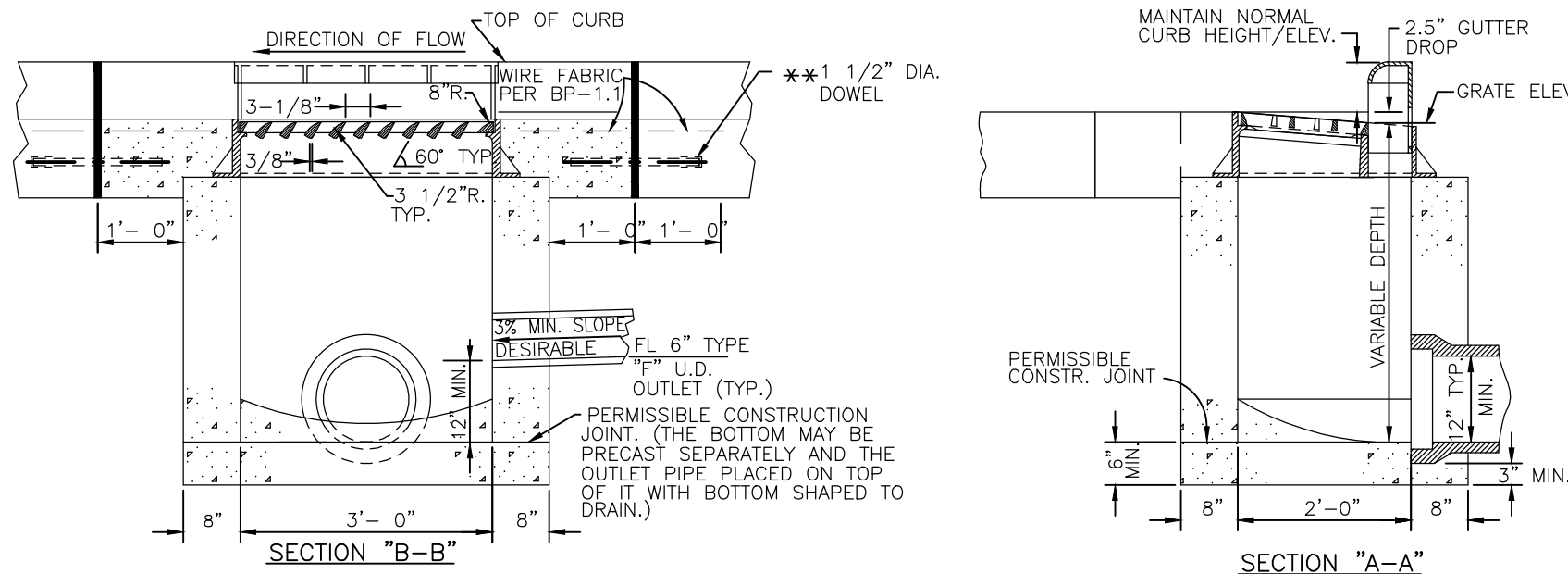


SECTION A-A

NOTES:

1. STRUCTURES SHALL BE PRECAST PER ODOT CMS 706.13. CONCRETE SHALL BE ODOT CLASS QC1 4000 PSI IN 28 DAYS. REINFORCING SHALL BE PER CMS 706.13. STRUCTURE SHALL BE TRAFFIC BEARING.
2. ALL CATCH BASIN INVERTS LESS THAN (12) TWELVE INCHES IN DEPTH SHALL REQUIRE THE INVERT TO BE POURED.
3. PRE-CAST RINGS ARE PREFERRED. BRICK SHALL NOT BE PERMITTED IN ANY CIRCUMSTANCE. CAST-IN-PLACE CONCRETE IS ALLOWABLE.
4. ALL CB/IB INSTALLATIONS WILL REQUIRE THE USE OF A 12" SUMP.

CITY OF AVON CONSTRUCTION STANDARDS AND SPECIFICATIONS		
PAVEMENT CATCH BASIN (INTEGRAL CONCRETE CURB)	ADOPTION ORDINANCE	DATE
STANDARD CONSTRUCTION DRAWING STM-10	61-24	5/29/24



* 1" EXPANSION JOINT MATERIAL 705.03 AND SEAL PER O.D.O.T. STANDARD CONSTRUCTION DRAWING BP-2.2.

NOTES

CASTINGS SHALL MINIMALLY MEET THE REQUIREMENTS OF 604-711.12, A.S.T.M. A 48, CLASS 35B GRAY IRON.

SUBJECT TO THE ABOVE, THE FOLLOWING OR APPROVED EQUAL CASTINGS ARE ACCEPTED:

EAST JORDAN No. 7035 WITH TYPE M6 GRATE AND TYPE T6 CURB CASTING.

THE FOLLOWING TEXT SHALL BE CAST INTO THE TOP OF THE CURB CASTING: "DUMP NO WASTE" AND "DRAIN TO WATERWAY"

TEXT SHALL BE PRINTED IN BOLD, CAPITAL LETTERS WITH A MINIMUM HEIGHT OF 3/4". "WATERWAY" MAY BE SUBSTITUTED WITH "STREAM", "RIVER", "LAKE", ETC. ACTUAL PLACEMENT AND LOGO MAY VARY PER MANUFACTURER.

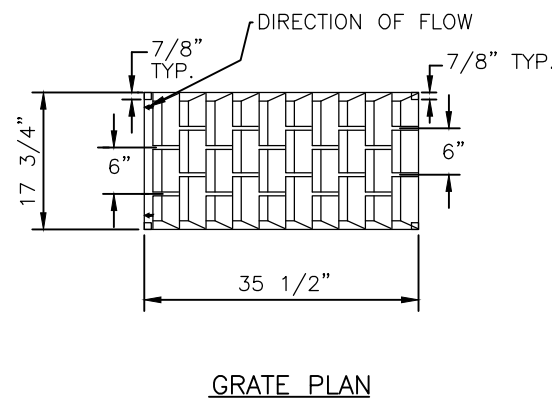
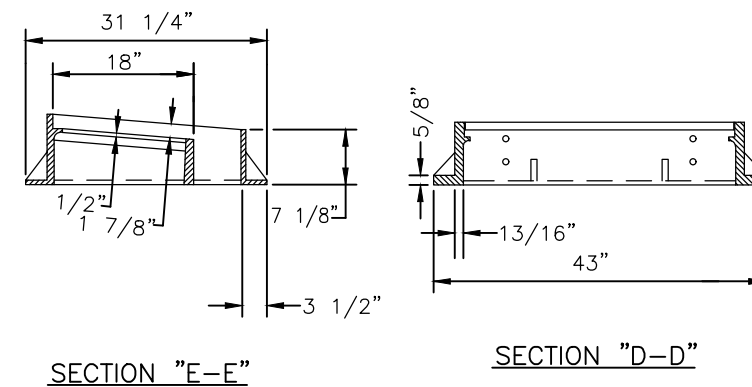
BEARING AREAS OF FRAME AND GRATE SHALL BE SO FITTED AND FINISHED AS TO PROVIDE A FIRM AND EVEN SEAT FOR ALL PORTIONS OF THE GRATE IN THE FRAME. NO PROJECTIONS SHALL EXIST ON BEARING AREAS OF EITHER CASTING AND THE GRATE SHALL SEAT IN ITS FRAME WITHOUT ROCKING. EACH FRAME AND GRATE SHALL BE FITTED, MATCHED AND MARKED BEFORE DELIVERY TO THE PROJECT.

PRECAST CONSTRUCTION IS PERMITTED, (EXCEPT FOR THE BLOCK-OUT PAVEMENT) AND CONCRETE SHALL MEET THE REQUIREMENTS OF 706.13. PRECAST WALLS SHALL HAVE A MINIMUM THICKNESS OF SIX (6) INCHES AND REINFORCING SHALL BE SUFFICIENT TO PERMIT SHIPPING AND PLACEMENT WITHOUT DAMAGE. THE WALL THICKNESS REDUCTION SHALL BE FROM THE OUTSIDE.

OPENINGS: PIPE OPENINGS SHALL BE THE O.D. OF PIPE BEING CONNECTED PLUS TWO (2) INCHES WHEN FABRICATED OR FIELD CUT. THE INTERSTITIAL SPACE SHALL BE FILLED WITH GROUT PER CMS 705.20.

ANY/ALL CONSTRUCT THE PAVEMENT, CURB, SUBBASE, SUBGRADE AND BACKFILL WITHIN THE BLOCKOUT AREAS, IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS, SHALL BE INCLUDED IN THE UNIT PRICE BID, PER EACH, FOR THE ITEM 2'x3' CATCH BASIN.

THIS CATCH BASIN IS NOT INTENDED FOR USE WITH MOUNTABLE TYPE CURBS NOR SHOULD IT BE LOCATED WITHIN A DRIVE APRON.



CITY OF AVON CONSTRUCTION STANDARDS AND SPECIFICATIONS

PAVEMENT CATCH BASIN
(CURB AND GUTTER, TYPE 2)

ADOPTION
ORDINANCE

DATE

STANDARD
CONSTRUCTION
DRAWING

STM-11

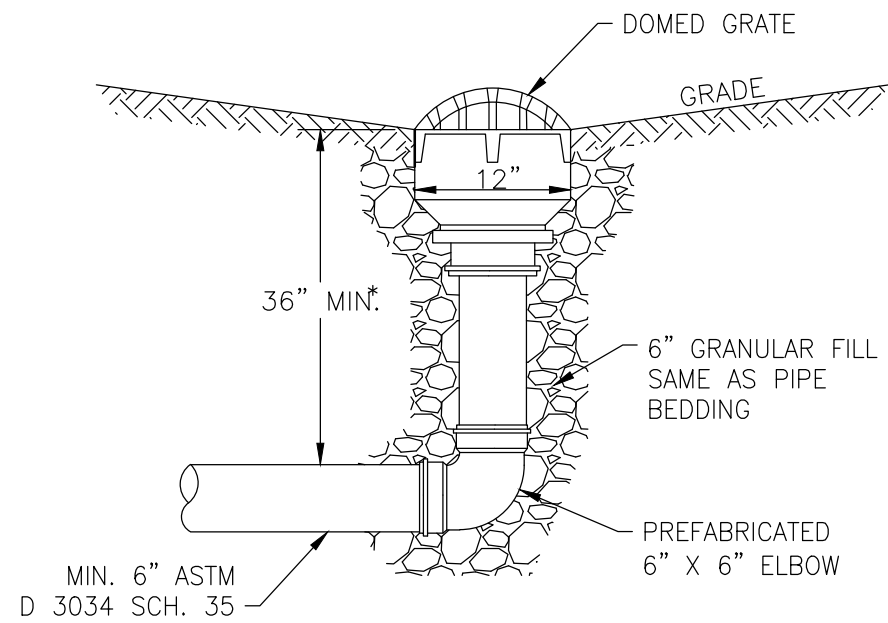
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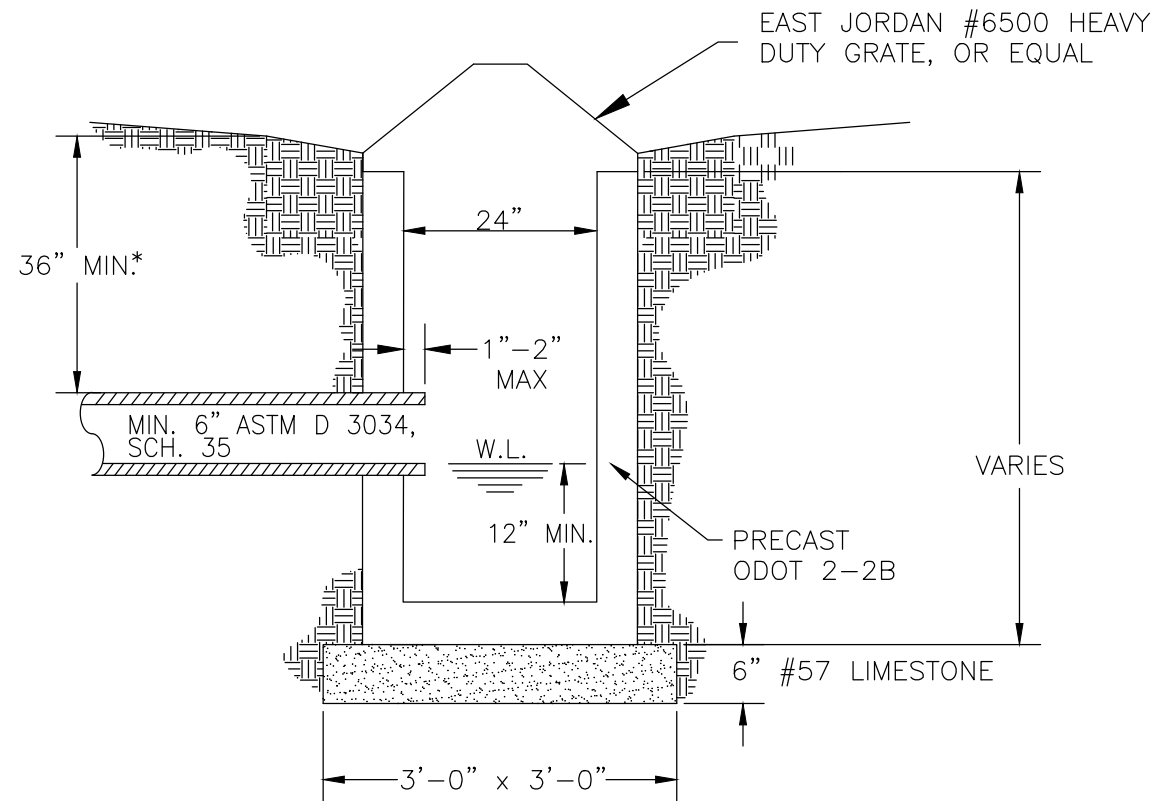
STORM SEWER DITCH ENCLOSURE STANDARDS

- 1. DITCH AREAS WITHIN RIGHT-OF-WAYS ALONG EXISTING ROADWAYS SHALL BE ENCLOSED AS DIRECTED BY THE CITY.
- 2. ALL PROPOSED DEVELOPMENT AREAS ABUTTING AN EXISTING DITCH ALONG EXISTING ROADWAYS SHALL BE ENCLOSED AS DIRECTED BY THE CITY.
- 3. MINIMUM PIPE SIZE FOR DITCH ENCLOSURES SHALL BE 12”.
- 4. PIPE TYPE PERMITTED INCLUDES PVC SDR. 35 ASTM 3034, RCP CLASS 3, AND HDPE.
- 5. PIPE TYPE UNDER EXISTING AND/OR PROPOSED DRIVE APRONS SHALL BE RCP CLASS 3, PVC SDR35 OR HDPE WITH APPROVED COVER AND BEDDING.
- 6. A TRANSITION OF RCP TO PVC AT MID POINT SHALL NOT BE PERMITTED. APPROVED PIPE MATERIAL UNDER DRIVE APRONS SHALL EXTEND FROM STRUCTURE TO STRUCTURE, SUCH AS MANHOLE TO MANHOLE OR BASIN TO BASIN.
- 7. STORM SEWER MANHOLES SHALL ADHERE TO SHEET STM-6, EXCEPTING THAT A GRATE TYPE LID MAY BE REQUIRED BY THE CITY UNDER CERTAIN CONDITIONS.
- 8. STORM SEWER MANHOLES SHALL BE SPACED NO FURTHER THAN 400 FEET APART.
- 9. STORM SEWER BASINS SHALL BE SPACED NO FURTHER THAN 150 FEET APART, EXCEPTING AS PERMITTED BY THE CITY. (SEE SHEET STM-13, OPTION ”B” FOR DETAIL)
- 10. AREA DRAINS SHALL BE SPACED NO FURTHER THAN 100 FEET APART, EXCEPTING THAT SPACING MAY VARY, AS PERMITTED BY THE CITY, TO DRAIN ADJACENT PROPERTY LOW AREAS.
- 11. AREA DRAIN CONNECTIONS TO THE STORM SYSTEM SHALL BE MADE VIA KOR-N-BOOT IN THE CASE OF RCP AND TEE OR INSERTA TEE IN THE CASE OF PVC AND HDPE STORM SYSTEMS.
- 12. THE GRADING AT THE ENCLOSED DITCH SHALL HAVE A MODERATE SWALE AREA WITH A MAXIMUM GRADE OF 1.00%± FROM STRUCTURE TO STRUCTURE.
- 13. AREA DRAINS MAY BE INSTALLED WITH OR WITHOUT A SUMP, AS PERMITTED BY THE CITY.
- 14. ENCLOSED DITCH AREAS SHALL BE FINE GRADED, SEEDED AND MULCHED.
- 15. ALL STORM TYPE DRAIN LINES ENCOUNTERED ALONG THE DITCH ENCLOSURE ACTIVITIES SHALL BE CONNECTED TO THE STORM SYSTEM BEING INSTALLED IN ACCORDANCE WITH STM-8.
- 16. STRUCTURES SHALL BE TRAFFIC BEARING IF REQUIRED BY THE CITY ENGINEER.

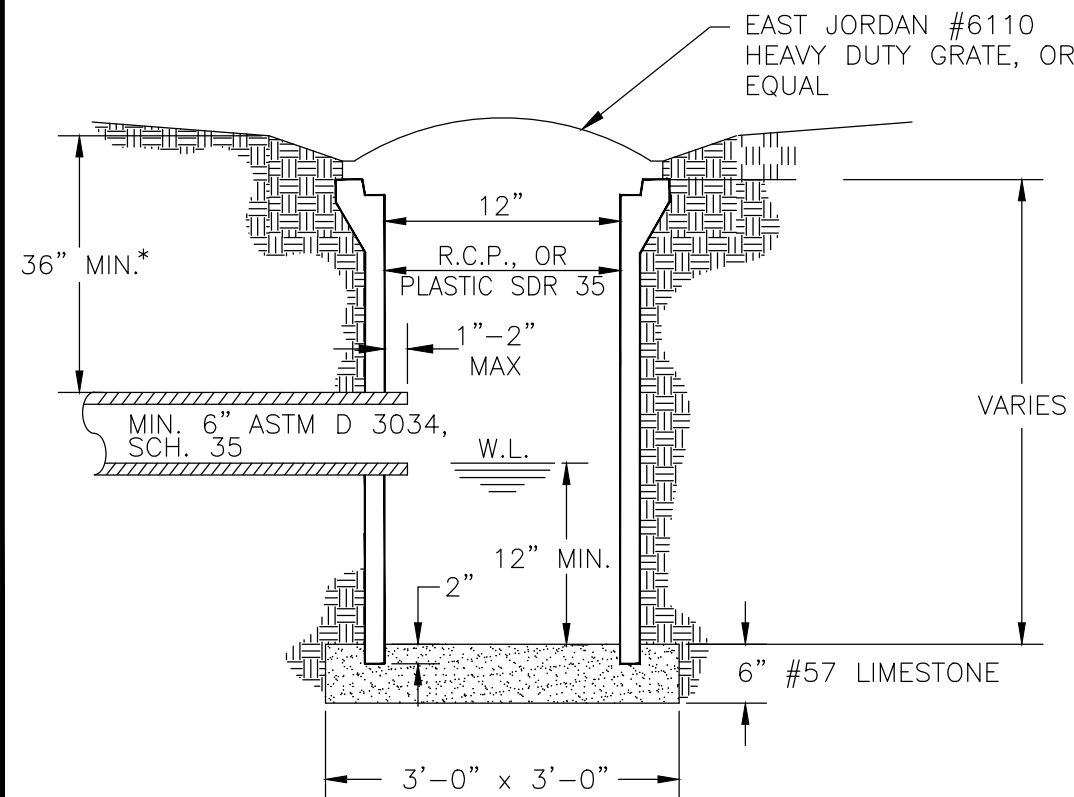
CITY OF AVON CONSTRUCTION STANDARDS AND SPECIFICATIONS		
DITCH ENCLOSURE STANDARDS	ADOPTION ORDINANCE	DATE
STANDARD CONSTRUCTION DRAWINGSTM-12	61-24	5/29/24



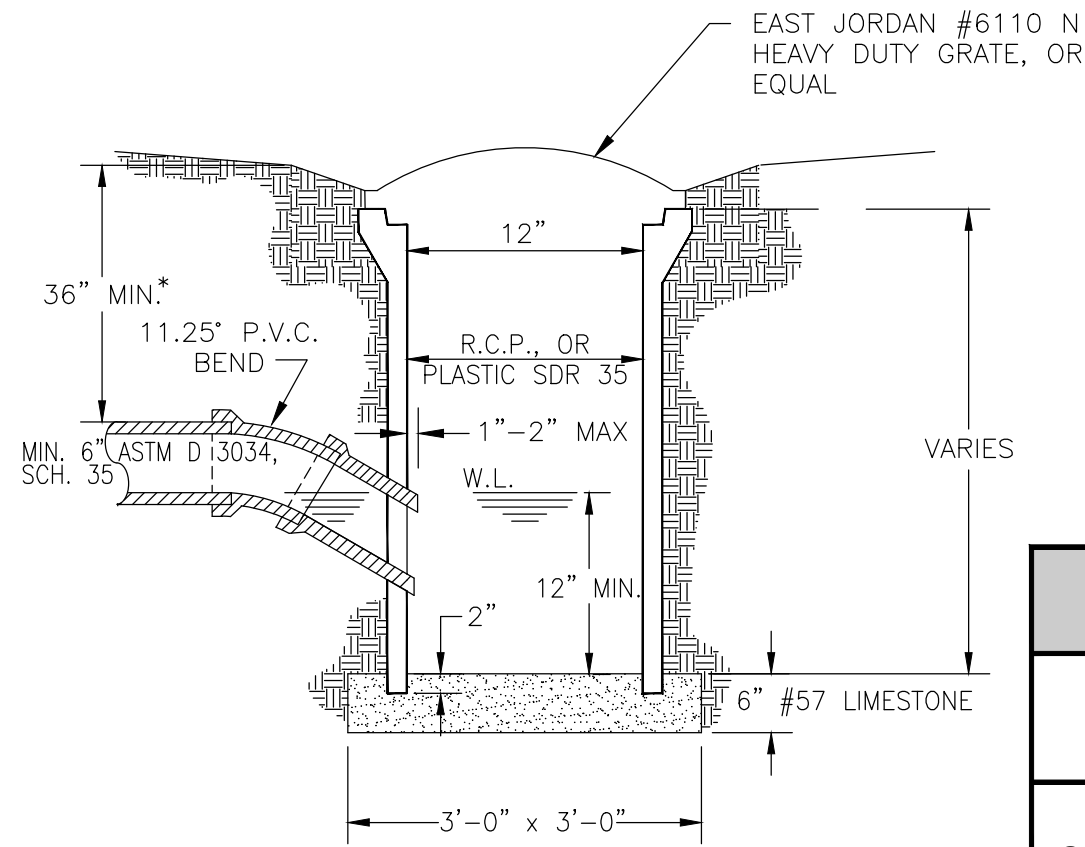
OPTION "A"



OPTION "B"



OPTION "C"



OPTION "D"

*UNLESS OTHERWISE APPROVED
BY THE CITY OF AVON ENGINEER.

CITY OF AVON CONSTRUCTION STANDARDS AND SPECIFICATIONS		
AREA DRAIN DETAILS	ADOPTION ORDINANCE	DATE
STANDARD CONSTRUCTION DRAWING	61-24	5/29/24

STM-13