Storm Details

City of Camas Storm Details ~ INDEX

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STORM CONSTRUCTION NOTES:

1. ALL TRENCH EXCAVATION AND PIPE INSTALLATION SHALL CONFORM TO THE MOST RECENTLY ADOPTED EDITION OF THE W.S.D.O.T. STANDARD SPECIFICATIONS SECTION 7-08.3(1) AND SECTION 7-08.3(2). ALL EXCESS MATERIAL FROM THE TRENCH EXCAVATION SHALL BE DISPOSED OF ON AN APPROVED SITE.

2. PIPE BEDDING AND PRE-COVER (PIPE ZONE) MATERIAL SHALL BE 5/8 INCH MINUS CRUSHED ROCK.

3. TRENCH BACKFILL MATERIAL SHALL BE 1-1/4 INCH MINUS CRUSHED ROCK.

4. TRENCH COMPACTION SHALL BE PER THE MOST RECENTLY ADOPTED EDITION OF THE W.S.D.O.T. STANDARD SPECIFICATIONS SECTION 7-08.3(3). CONTRACTOR TO DETERMINE THE TYPE OF EQUIPMENT AND METHOD TO USE TO ACHIEVE THE REQUIRED COMPACTION. EACH LIFT SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DENSITY AS DETERMINED BY THE A.A.S.H.T.O. T-180 TEST METHOD.

5. SETTLEMENT OF THE FINISHED SURFACE WITHIN THE WARRANTY PERIOD SHALL BE CONSIDERED TO BE A RESULT OF IMPROPER COMPACTION AND SHALL BE PROMPTLY REPAIRED BY THE CONTRACTOR AT NO EXPENSE TO THE CITY.

6. ALL STORM MAIN PIPE SHALL BE A MINIMUM 12 INCHES DIAMETER.

7. ALL STORM PIPE RUNS FROM CATCH BASIN TO MAIN SHALL BE A MINIMUM 10 INCHES DIAMETER.

8. ALL STORM LATERALS FROM HOUSE TO MAIN SHALL BE A MINIMUM 6 INCHES DIAMETER

9. STORM PIPE MATERIALS SHALL BE AS INDICATED IN CDSM SECTION III, STORM SYSTEM DESIGN STANDARDS TABLE 1.

10. STORM PIPE MINIMUM SLOPE SHALL BE AS INDICATED IN CDSM SECTION III, STORM SYSTEM DESIGN STANDARDS TABLE 2, AND MAXIMUM SLOPE SHALL BE AS INDICATED IN TABLE 3.

11. ALL MANHOLES LOCATED IN UNIMPROVED EASEMENTS AND RIGHT OF WAYS SHALL BE PROVIDED WITH TAMPER PROOF LIDS AND SHALL BE SET 6 INCHES ABOVE FINISHED GRADE.

12. VIDEO INSPECTION TAPES AND REPORTS MAY BE REQUIRED AT THE CITY'S DISCRETION. MANDREL TESTING MAY BE REQUIRED AT THE CITY'S DISCRETION.

13. INSTALL STORMWATER MEDALLION ON CURB AT EACH CATCH BASIN OR CURB INLET.

14. MINIMUM STORM SEWER SERVICE FROM MAIN TO HOUSE, PUBLIC OR PRIVATE, SHALL BE 6" DIAMETER PER DETAIL SD8.

City of Camas WASHINGTON

STORM SEWER DETAIL

STORM CONSTRUCTION NOTES

1-9-24

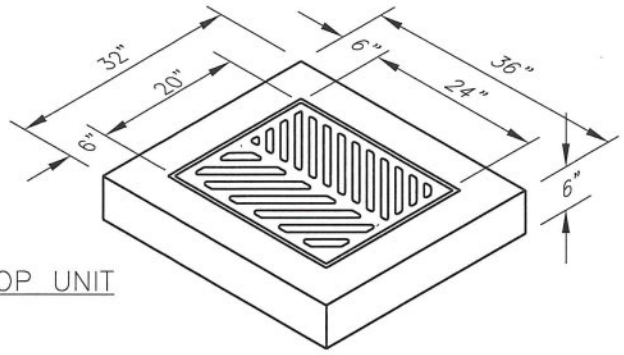
DETAIL APPROVED BY DATE

NOT TO SCALE

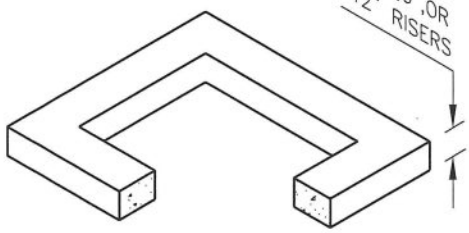
REVISION: 5 DATE: 1/9/2024

DETAIL NO. SD1

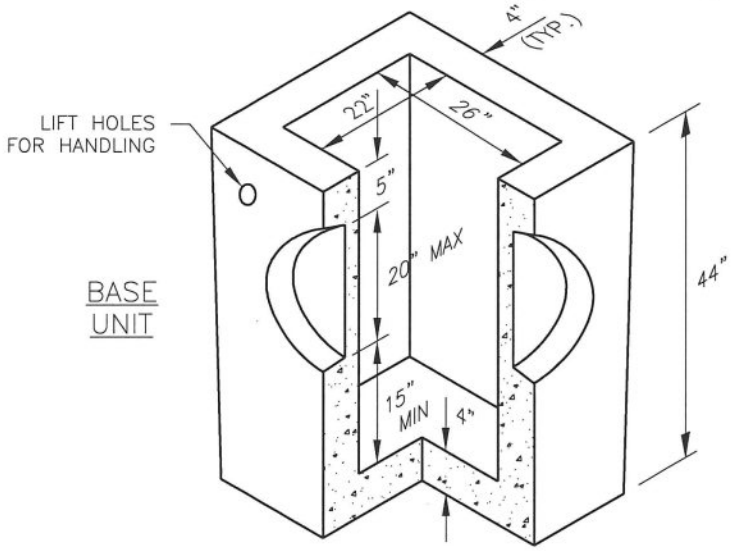
SD-NOTES.DWG



TOP UNIT

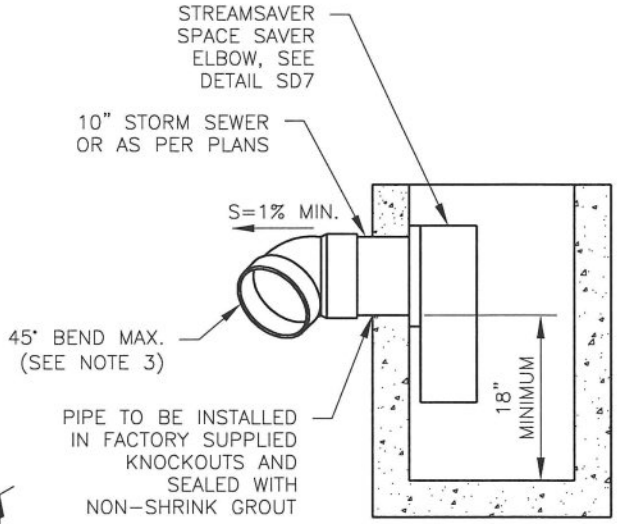


RISER



BASE
UNIT

CATCH BASIN TYPE I



TYPE 1 CATCH BASIN
SECTION

NOTES:

1. CATCH BASIN INLET SHALL CONSIST OF A PRECAST WSDOT TYPE 1 BASE AND A PRECAST TOP UNIT, OR APPROVED EQUAL
2. THE TOP UNIT SHALL CONSIST OF A SEPARATE CAST IRON FRAME AND GRATE OR A CAST IRON GRATE WITH THE FRAME CAST INTO 6" RISER.
3. THE PRECAST BASE SECTION MAY HAVE A ROUNDED FLOOR, AND THE WALLS MAY BE SLOPED AT A RATE OF 1:24 OR STEEPER.
4. LATERALS SHALL BE CONSTRUCTED TO ENTER THE BASIN PERPENDICULAR TO THE BASIN WALL. THE LATERAL SHALL ENTER ONLY AT THE FRONT OR SIDE OF THE BASIN WITH NO LATERALS ALLOWED TO ENTER THE CATCH BASIN AT THE CORNERS. IF NEEDED, A BEND MAY BE USED AS THE FIRST SECTION OF PIPE OUTSIDE THE BASIN WALL. THE MAXIMUM BEND ALLOWED SHALL BE 45 DEGREES.
5. ALL REINFORCED STEEL SHALL HAVE 1-1/2" CLEAR COVER UNLESS OTHERWISE NOTED, AND SHALL BE GRADE 40 OR GRADE 60 (ASTM A-615).
6. ANY PROTRUDING ENDS OF PIPES SHALL BE TRIMMED FLUSH WITH THE INSIDE WALLS AND SEALED WITH NON-SHRINK GROUT.
7. THE METAL FRAME AND GRATE SHALL BE SET TO A SLOPE TO CONFORM TO THE PARTICULAR DRAINAGE SLOPE. CAST IRON GRATE SHALL HAVE DIAGONAL VANES AS SHOWN. NO WELDING IS PERMITTED.
8. ZYMARK STREAMSAVER SPACE SAVER CATCH BASIN OUTFALL ELBOW OR APPROVED EQUAL SHALL BE USED IN ALL CATCH BASINS. TRAP SHALL BE INSTALLED FLUSH WITH INTERIOR WALL OF CATCH BASIN – SEE CATCH BASIN TRAP DETAIL.

REV. NO.	DATE	BY	APPR.
1	9/18/07	SCD	JC
2	1/1/11	SCD	JC

CITY OF CAMAS ~ STORM DETAIL

CATCH BASIN (TYPE 1)

Dan E. Carothers 1-4-11

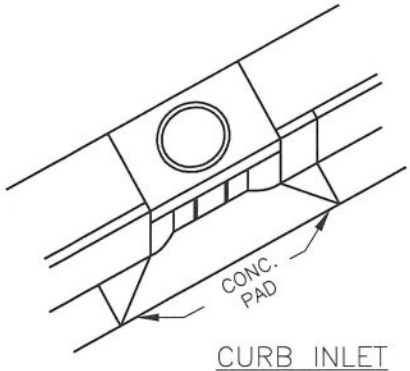
DETAIL APPROVED BY DATE

NOT TO SCALE

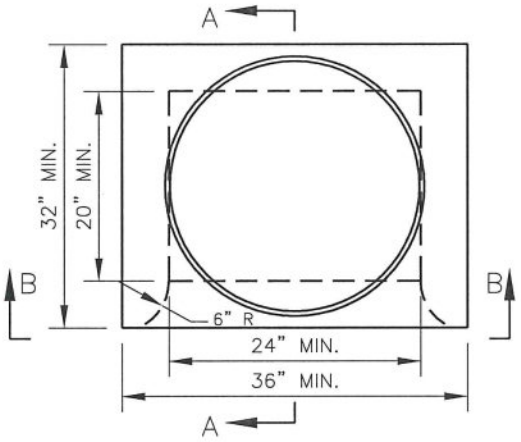
DETAIL NO.

SD2

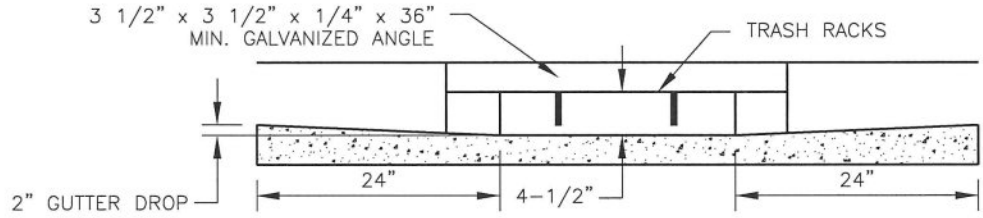
ST-CB.DWG



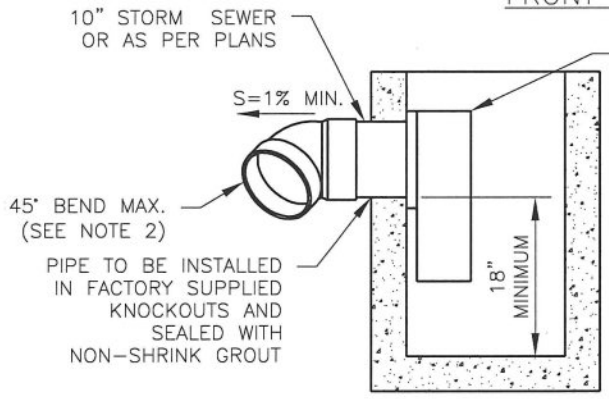
CURB INLET



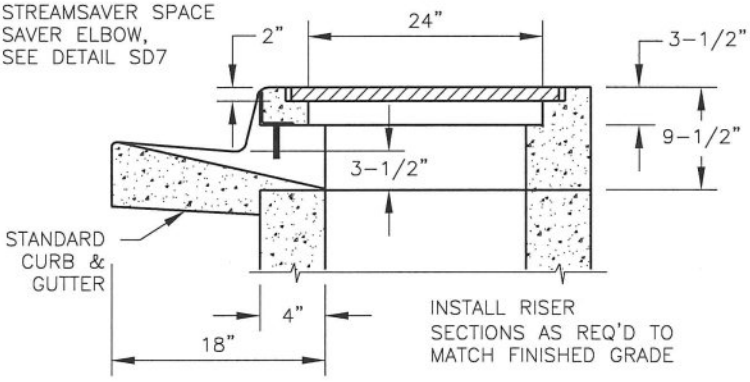
TOP VIEW



FRONT VIEW SECTION B–B



TYPE 1 CATCH BASIN
SECTION A–A



TOP UNIT
SECTION A–A

NOTES:

1. CURB INLET CATCH BASIN SHALL CONSIST OF A PRECAST WSDOT TYPE 1 BASE AND A PRECAST TOP UNIT, OR APPROVED EQUAL
2. LATERALS SHALL BE CONSTRUCTED TO ENTER THE BASIN PERPENDICULAR TO THE BASIN WALL. THE LATERAL SHALL ENTER ONLY AT THE FRONT OR SIDE OF THE BASIN WITH NO LATERALS ALLOWED TO ENTER THE CATCH BASIN AT THE CORNERS. IF NEEDED, A BEND MAY BE USED AS THE FIRST SECTION OF PIPE OUTSIDE THE BASIN WALL. THE MAXIMUM BEND ALLOWED SHALL BE 45 DEGREES.
3. ALL REINFORCED STEEL SHALL HAVE 1-1/2" CLEAR COVER UNLESS OTHERWISE NOTED, AND SHALL BE GRADE 40 OR GRADE 60 (ASTM A-615).
4. ANY PROTRUDING ENDS OF PIPES SHALL BE TRIMMED FLUSH WITH THE INSIDE WALLS AND SEALED WITH NON-SHRINK GROUT.
5. THE METAL FRAME AND GRATE SHALL BE SET TO A SLOPE TO CONFORM TO THE PARTICULAR DRAINAGE SLOPE.
6. ZYMARK STREAMSAVER SPACE SAVER CATCH BASIN OUTFALL ELBOW OR APPROVED EQUAL SHALL BE USED IN ALL CATCH BASINS. TRAP SHALL BE INSTALLED FLUSH WITH INTERIOR WALL OF CATCH BASIN – SEE CATCH BASIN TRAP DETAIL.
7. CURB & GUTTER TO BE INSTALLED PRIOR TO INSTALLATION OF CURB INLETS. CONTRACTOR IS RESPONSIBLE FOR BLOCKING OUT CURB & GUTTER FOR ADEQUATE SPACE IN INSTALLING CURB INLETS.

REV. NO.	DATE	BY	APPR.
1	9/18/07	SCD	JC
2	1/1/11	SCD	JC

CITY OF CAMAS ~ STORM DETAIL

CATCH BASIN (TYPE 2)

James E. Carothers 1-4-11

DETAIL APPROVED BY DATE

NOT TO SCALE

DETAIL NO. SD3

ST-CB.DWG

REV. NO.	DATE	BY	APPR.
1	9/18/07	SCD	JC
2	1/1/11	SCD	JC

CITY OF CAMAS ~ STORM DETAIL

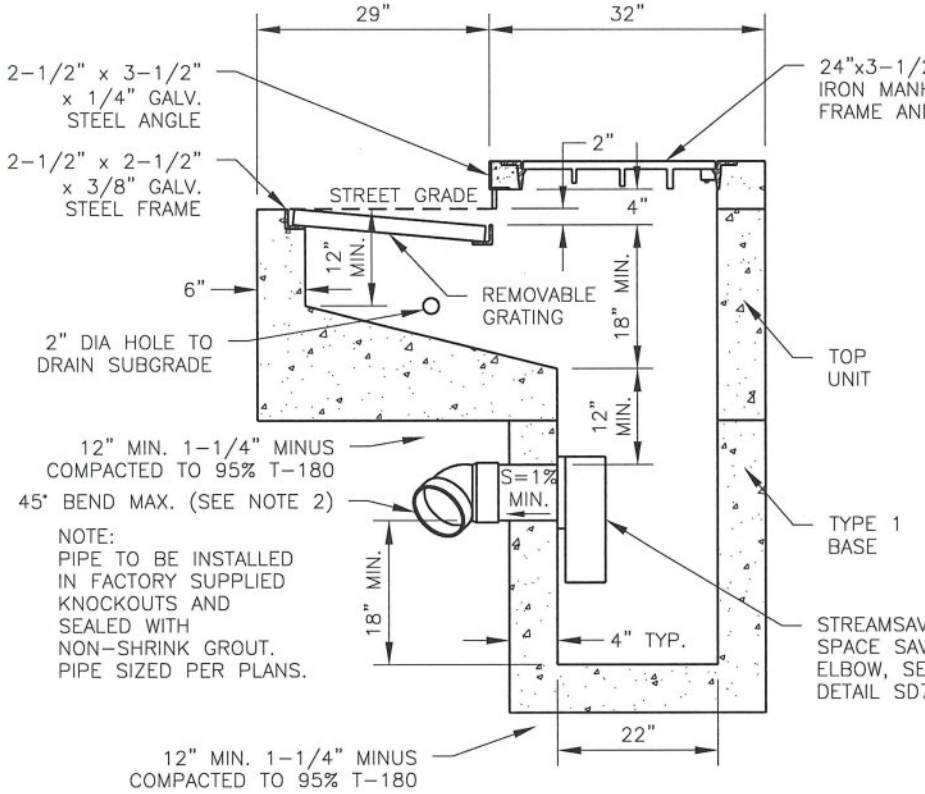
COMBINATION CURB INLET

DETAIL APPROVED BY

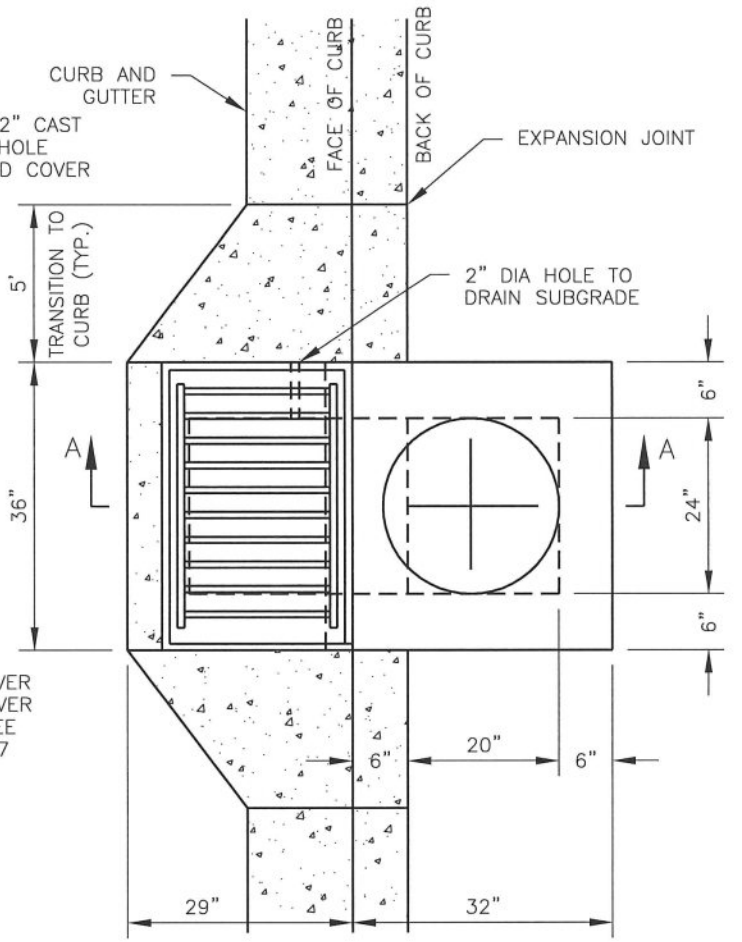
1-4-11
DATE

NOT TO SCALE

DETAIL NO. SD4



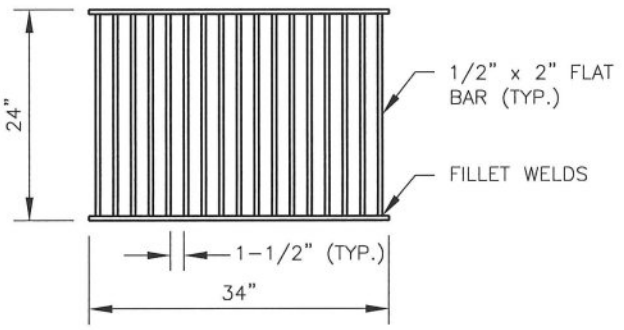
SECTION A-A



TOP VIEW

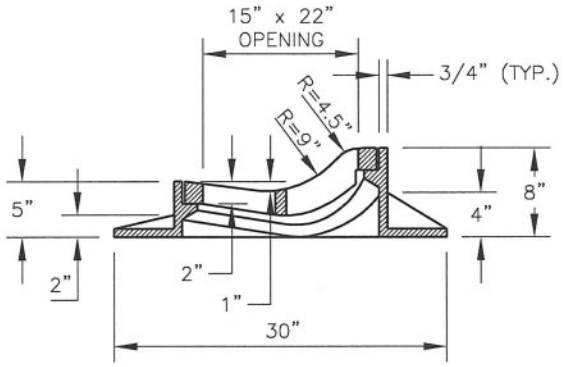
NOTES:

1. COMBINATION CURB INLET CATCH BASIN SHALL CONSIST OF A PRECAST WSDOT TYPE 1 BASE AND A PRECAST TOP UNIT, OR APPROVED EQUAL
2. LATERALS SHALL BE CONSTRUCTED TO ENTER THE BASIN PERPENDICULAR TO THE BASIN WALL. THE LATERAL SHALL ENTER ONLY AT THE FRONT OR SIDE OF THE BASIN WITH NO LATERALS ALLOWED TO ENTER THE CATCH BASIN AT THE CORNERS. IF NEEDED, A BEND MAY BE USED AS THE FIRST SECTION OF PIPE OUTSIDE THE BASIN WALL. THE MAXIMUM BEND ALLOWED SHALL BE 45 DEGREES.
3. ALL REINFORCED STEEL SHALL HAVE 1-1/2" CLEAR COVER UNLESS OTHERWISE NOTED, AND SHALL BE GRADE 40 OR GRADE 60 (ASTM A-615).
4. ANY PROTRUDING ENDS OF PIPES SHALL BE TRIMMED FLUSH WITH THE INSIDE WALLS AND SEALED WITH NON-SHRINK GROUT.
5. THE METAL GRATE SHALL HAVE VANES SET PERPENDICULAR TO THE CURB.
6. ZYMARK STREAMSAVER SPACE SAVER CATCH BASIN OUTFALL ELBOW OR APPROVED EQUAL SHALL BE USED IN ALL CATCH BASINS. TRAP SHALL BE INSTALLED FLUSH WITH INTERIOR WALL OF CATCH BASIN - SEE CATCH BASIN TRAP DETAIL.



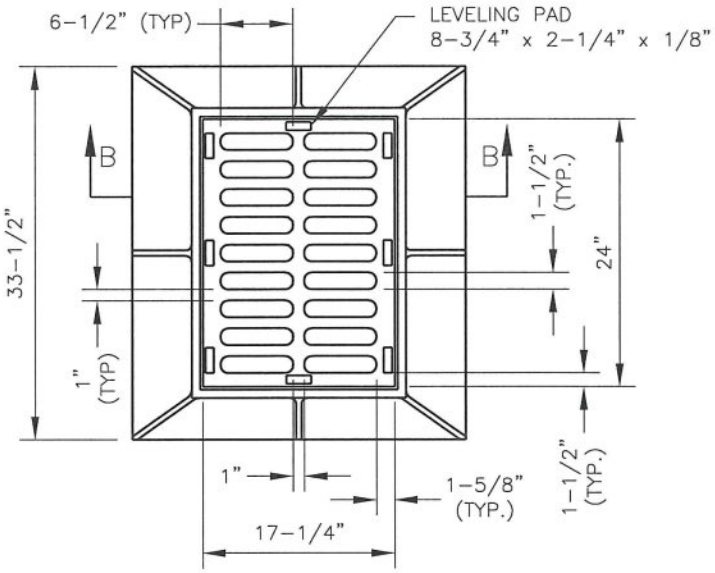
INLET GRATING

ST-CB.DWG

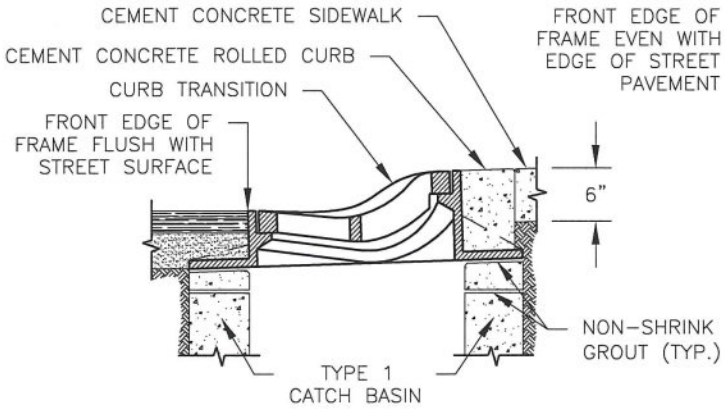


SECTION B–B

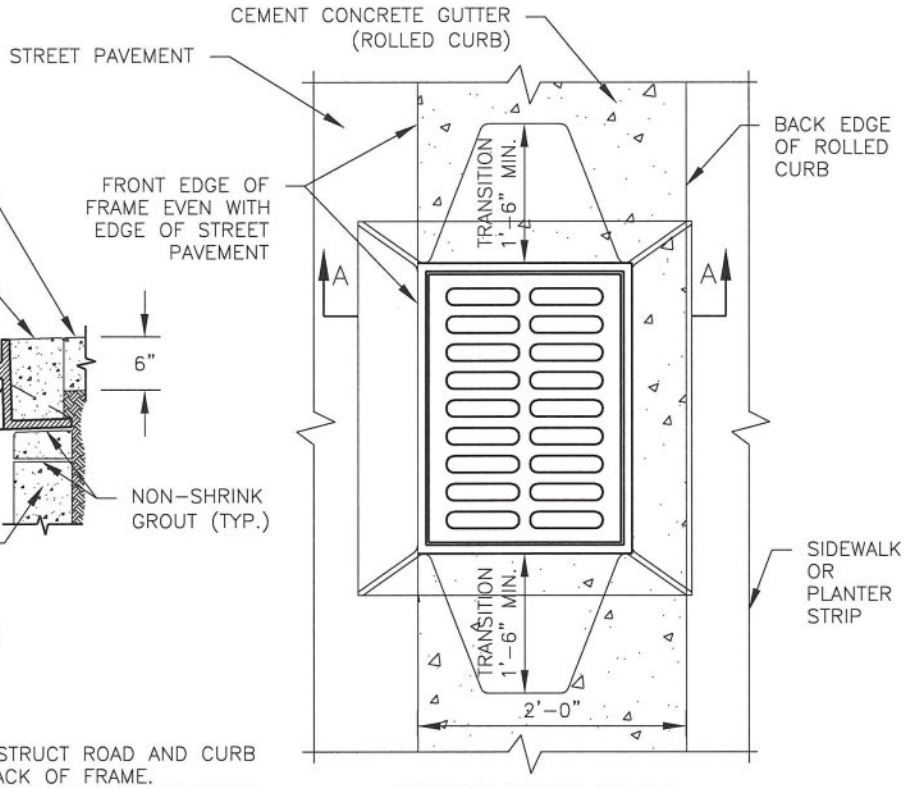
NOTES:
1. WELDING NOT PERMITTED
2. MATERIAL IS CAST IRON ASTM A48 CLASS 30.



FRAME & GRATE PLAN



SECTION A–A



INSTALLATION PLAN

NOTES:
1. WELDING NOT PERMITTED
2. SET FRAME TO GRADE AND CONSTRUCT ROAD AND CURB TO BE FLUSH AT FRONT AND BACK OF FRAME.
3. SEE TYPE 1 CATCH BASIN FOR PIPE INSTALLATION DETAIL.

REV. NO.	DATE	BY	APPR.
1	9/18/07	SCD	JC
2	1/1/11	SCD	JC

CITY OF CAMAS ~ STORM DETAIL

ROLLED CURB CATCH BASIN (TYPE 1)

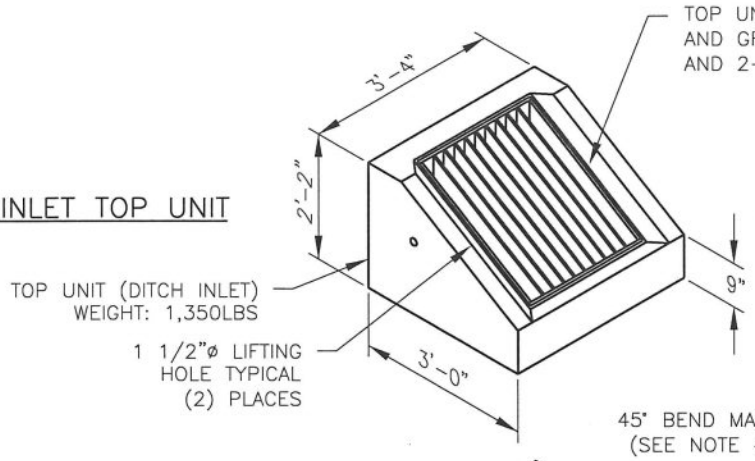
DETAIL APPROVED BY 1-4-11 DATE

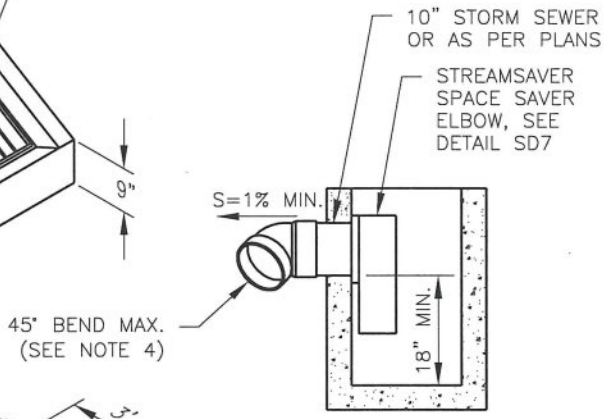
NOT TO SCALE

DETAIL NO. SD5

ST–CB.DWG

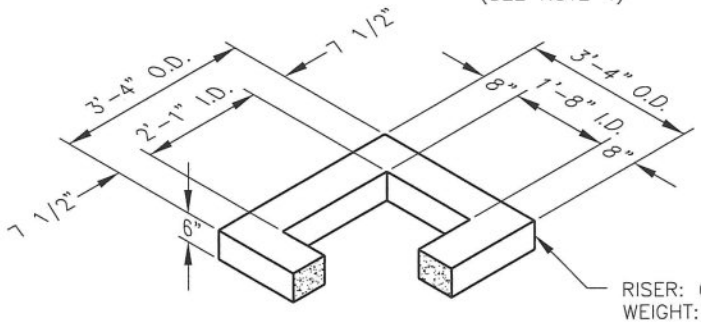
DITCH INLET TOP UNIT



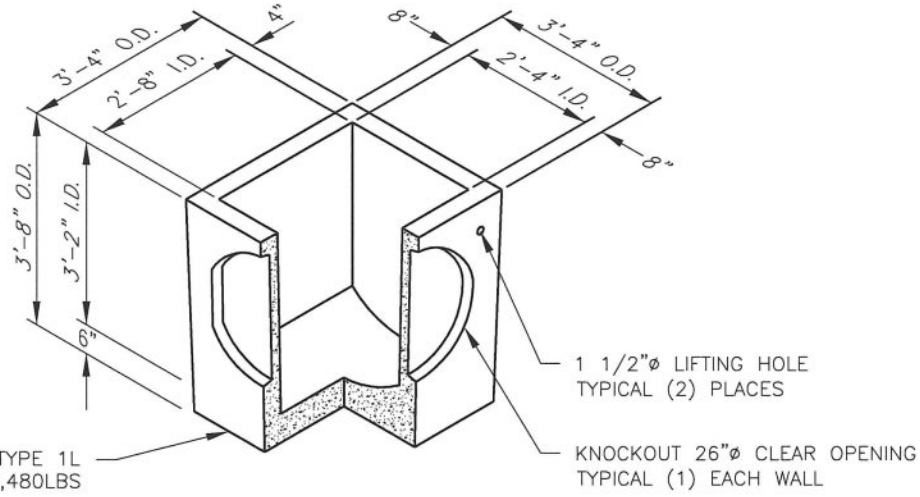


SECTION

RISER



BASE UNIT



NOTES:

1. CATCH BASIN INLET SHALL CONSIST OF A PRECAST WSDOT TYPE 1L BASE AND A PRECAST DITCH INLET TOP UNIT, OR APPROVED EQUAL
2. THE TOP UNIT SHALL CONSIST OF A SEPARATE GALVANIZED STEEL GRATE AND A GALVANIZED STEEL FRAME CAST INTO THE DITCH INLET TOP UNIT.
3. THE PRECAST BASE SECTION MAY HAVE A ROUNDED FLOOR, AND THE WALLS MAY BE SLOPED AT A RATE OF 1:24 OR STEEPER.
4. LATERALS SHALL BE CONSTRUCTED TO ENTER THE BASIN PERPENDICULAR TO THE BASIN WALL. THE LATERAL SHALL ENTER ONLY AT THE FRONT OR SIDE OF THE BASIN WITH NO LATERALS ALLOWED TO ENTER THE CATCH BASIN AT THE CORNERS. IF NEEDED, A BEND MAY BE USED AS THE FIRST SECTION OF PIPE OUTSIDE THE BASIN WALL. THE MAXIMUM BEND ALLOWED SHALL BE 45 DEGREES.
5. ALL REINFORCED STEEL SHALL HAVE 1-1/2" CLEAR COVER UNLESS OTHERWISE NOTED, AND SHALL BE GRADE 40 OR GRADE 60 (ASTM A-615).
6. ANY PROTRUDING ENDS OF PIPES SHALL BE TRIMMED FLUSH WITH THE INSIDE WALLS AND SEALED WITH NON-SHRINK GROUT.
7. ZYMARK STREAMSAVER SPACE SAVER CATCH BASIN OUTFALL ELBOW OR APPROVED EQUAL SHALL BE USED IN ALL CATCH BASINS. TRAP SHALL BE INSTALLED FLUSH WITH INTERIOR WALL OF CATCH BASIN – SEE CATCH BASIN TRAP DETAIL.

REV. NO.	DATE	BY	APPR.
1	9/18/07	SCD	JC
2	1/1/11	SCD	JC

CITY OF CAMAS ~ STORM DETAIL

DITCH INLET CATCH BASIN

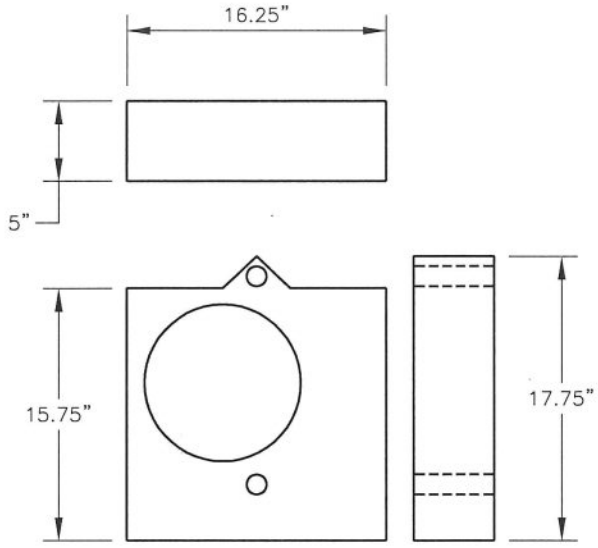
Steven E. Cantu 1-4-11

DETAIL APPROVED BY DATE

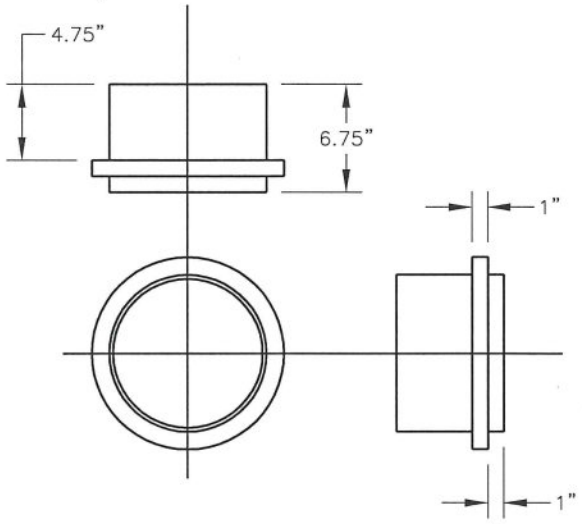
NOT TO SCALE

DETAIL NO. SD6

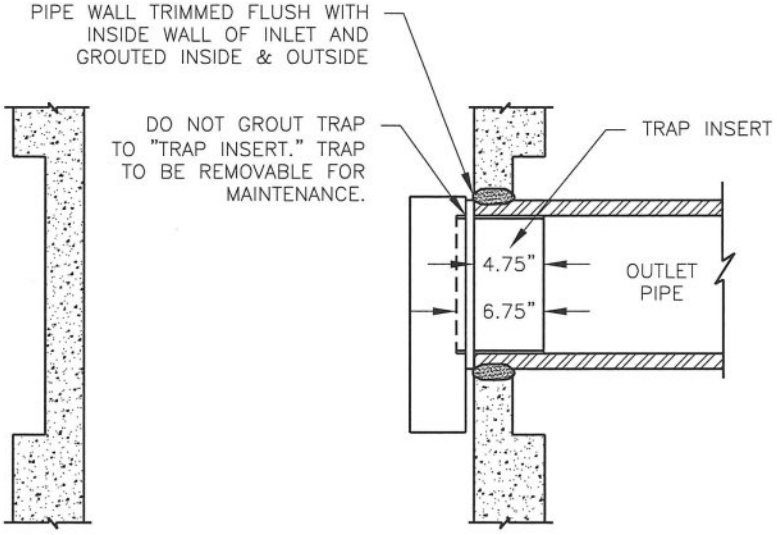
ST-CB.DWG



LOW PROFILE TRAP



TRAP INSERT



NOTES:

1. ZYMARK STREAMSAVER SPACE SAVER CATCH BASIN OUTFALL ELBOW OR APPROVED EQUAL SHALL BE USED IN ALL CATCH BASINS. TRAP SHALL BE INSTALLED FLUSH WITH INTERIOR WALL OF CATCH BASIN
2. "TRAP INSERT" SHALL BE ADHERED TO INSIDE WALL OF PIPE. CONSTRUCTION ADHESIVE DESIGNED FOR USE ON POLYETHYLENE SHALL BE USED. FACE OF "TRAP INSERT" SHALL BE FLUSH WITH WALL OF STRUCTURE
3. TRAP MATERIAL SHALL BE HDPE

REV. NO.	DATE	BY	APPR.
1	9/18/07	SCD	JC
2	1/1/11	SCD	JC

CITY OF CAMAS ~ STORM DETAIL

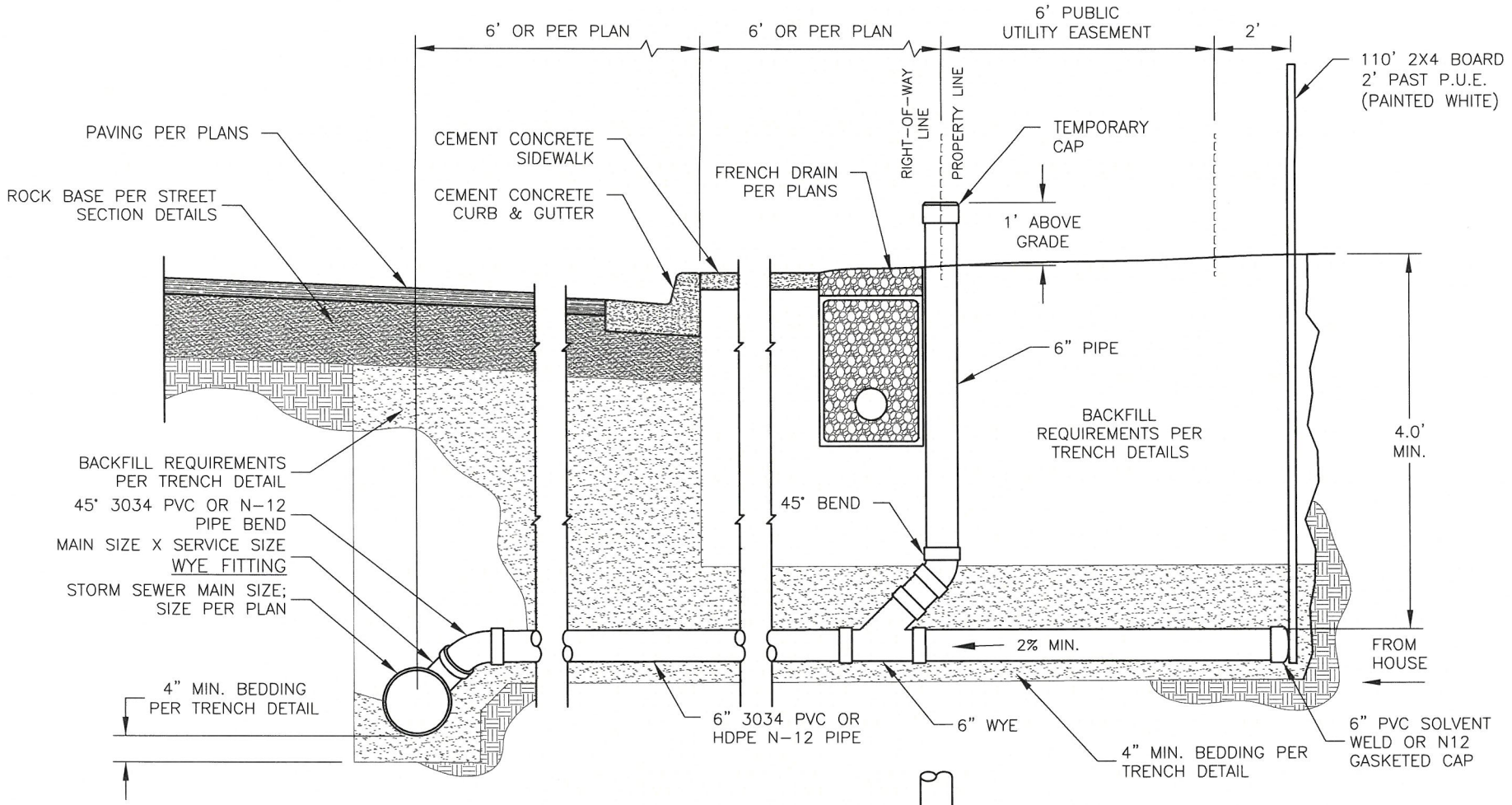
CATCH BASIN OUTFALL ELBOW

DETAIL APPROVED BY 1-4-11 DATE

NOT TO SCALE

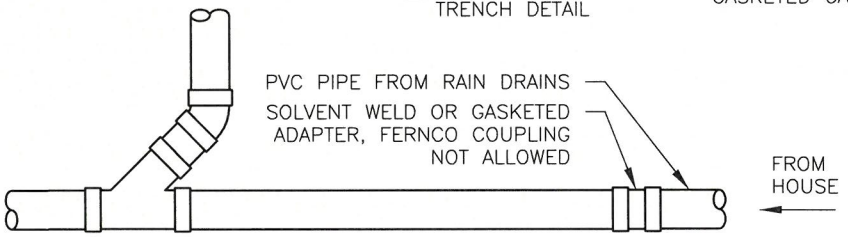
DETAIL NO. SD7

ST-CB.DWG



NOTES:

1. ALL PIPE SHALL BE HDPE DUAL WALL N-12 OR 3034 PVC EXCEPT WHERE NOTED ON PLANS.
2. HDPE N-12 SPLIT COUPLERS SHALL NOT BE USED TO JOIN N-12 PIPE SECTIONS OR FITTINGS.
3. ELEVATION OF SERVICE STUB OUT AND CONNECTION TO BE NOTED ON AS-BUILT DRAWINGS.
4. CLEANOUT SHALL REMAIN ABOVE GROUND UNTIL LANDSCAPING IS COMPLETED, THEN IT MAY BE CUT FLUSH WITH FINISH GRADE.



RAIN DRAIN CONNECTION AT BUILD-OUT

City of Camas WASHINGTON

STORM SEWER DETAIL

STORM SEWER SERVICE FROM MAIN TO BACK OF PUE

Jan C Gratton 1-10-24

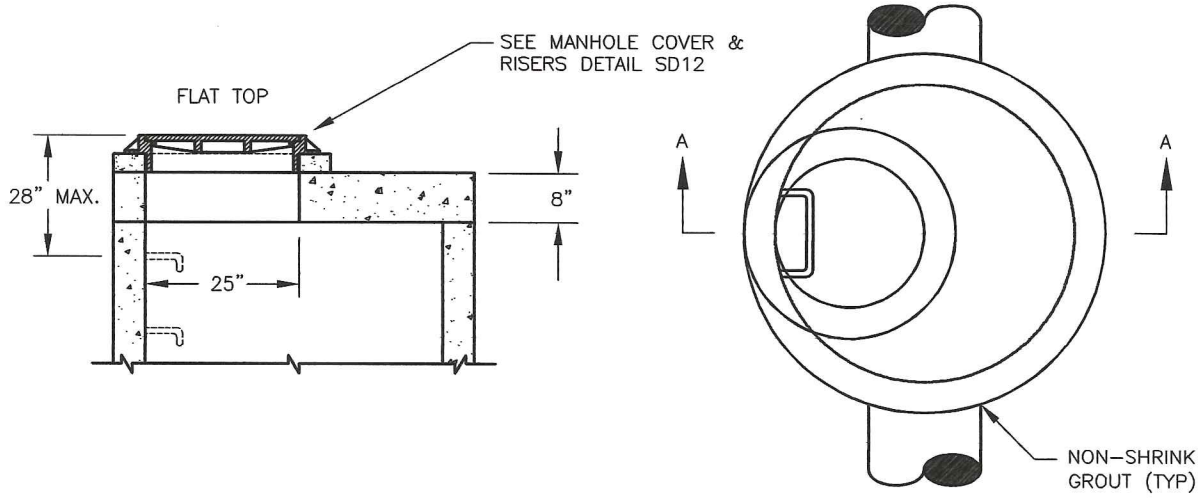
DETAIL APPROVED BY DATE

NOT TO SCALE

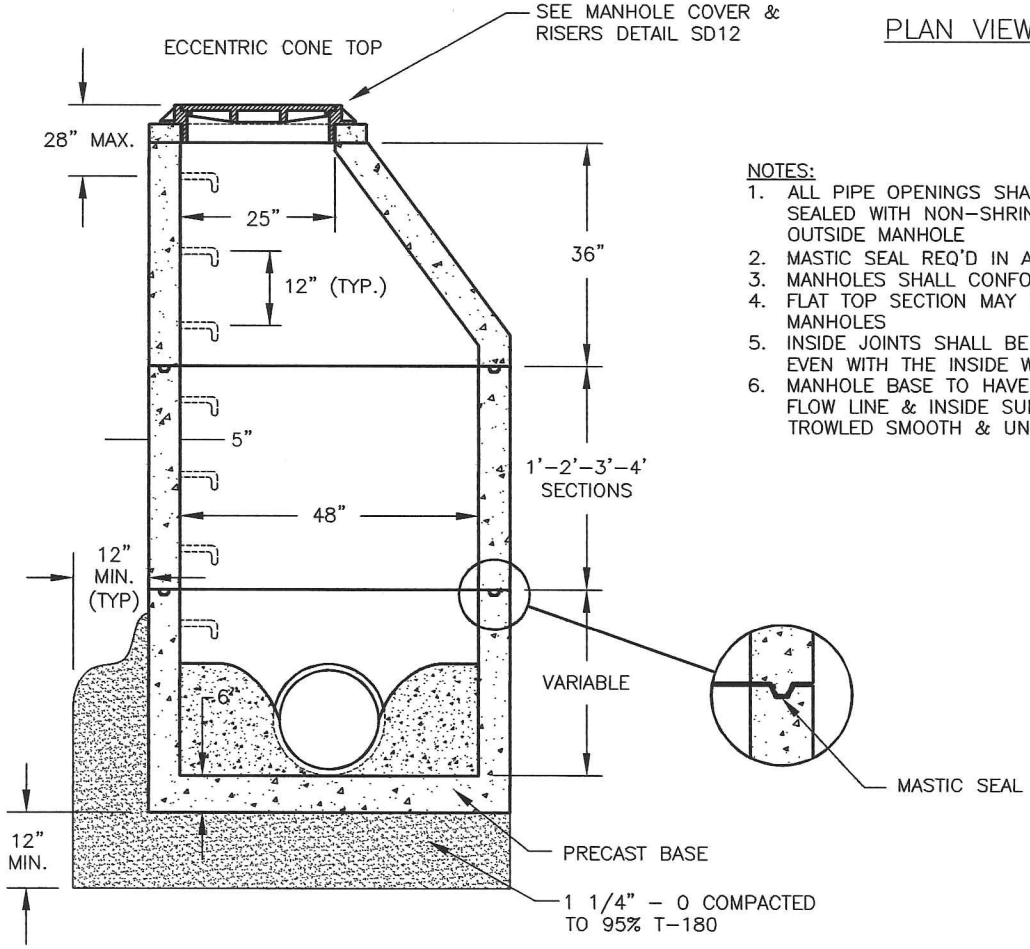
DETAIL NO. SD8

REVISION: 5 DATE: 01/09/2024

SD-SERV.DWG



PLAN VIEW



SECTION VIEW A-A

NOTES:
1. ALL PIPE OPENINGS SHALL BE CORED AND SEALED WITH NON-SHRINK GROUT INSIDE AND OUTSIDE MANHOLE
2. MASTIC SEAL REQ'D IN ALL KEYLOCK JOINTS
3. MANHOLES SHALL CONFORM TO ASTM C-478
4. FLAT TOP SECTION MAY BE USED FOR SHALLOW MANHOLES
5. INSIDE JOINTS SHALL BE STRUCK SMOOTH & EVEN WITH THE INSIDE WALLS
6. MANHOLE BASE TO HAVE SHAPED CHANNELS. FLOW LINE & INSIDE SURFACES SHALL BE TROWLED SMOOTH & UNIFORM

REV. NO.	DATE	BY	APPR.
1	9/18/07	SCD	JC
2	1/1/11	SCD	JC
3	8/11/21	ECD	JC

CITY OF CAMAS ~ STORM DETAIL

48" STORM SEWER MANHOLE

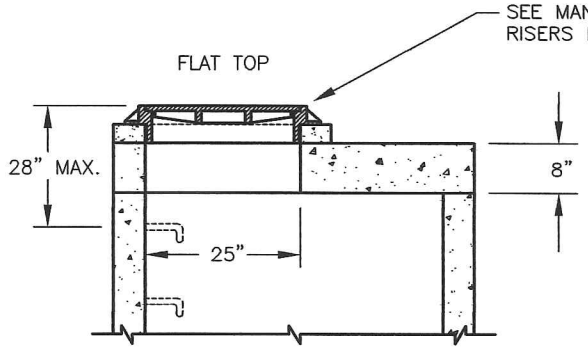
Jean P. Carter 8-12-21

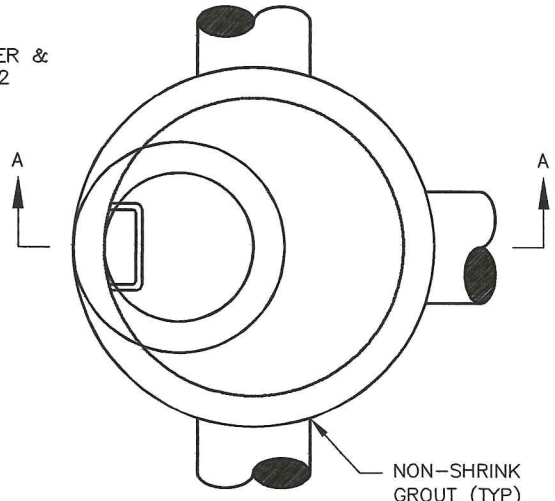
DETAIL APPROVED BY DATE

NOT TO SCALE

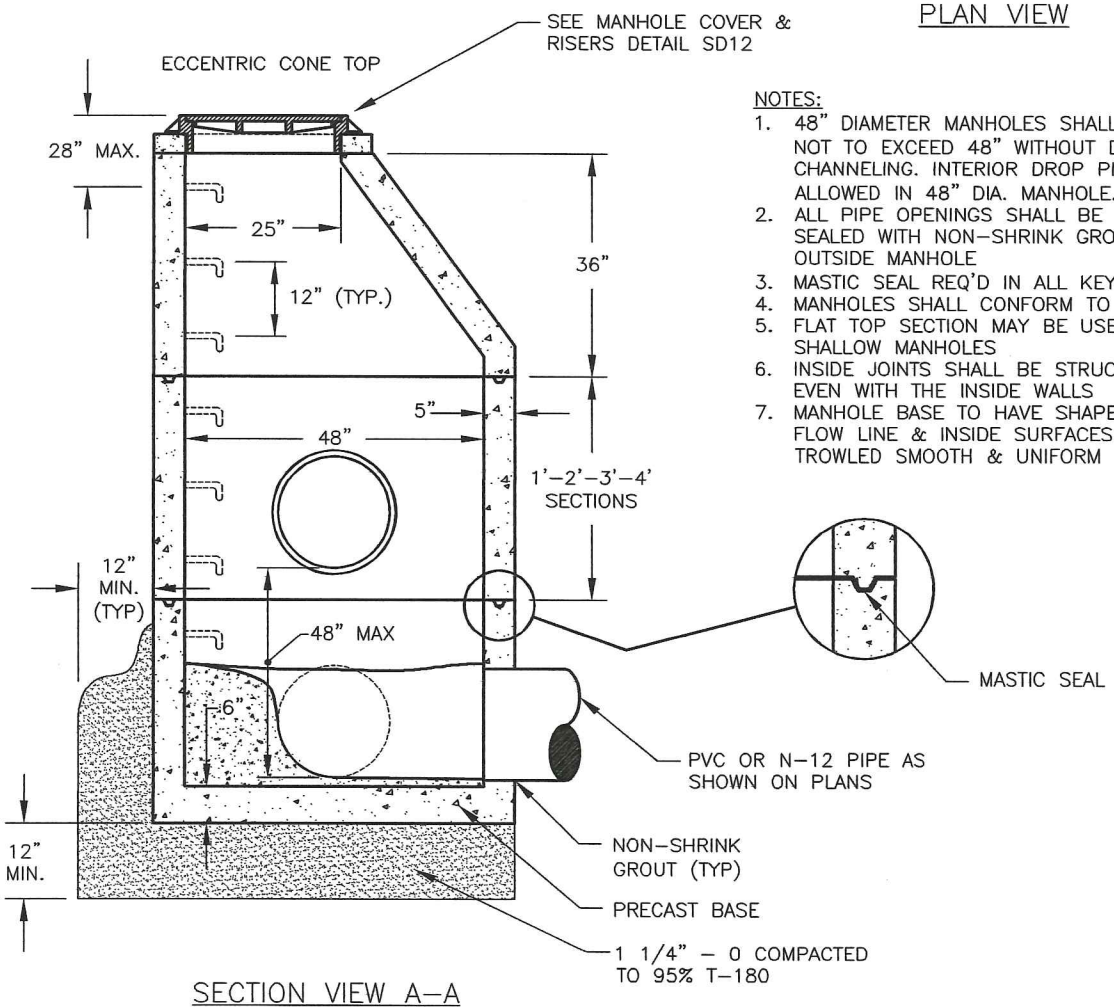
DETAIL NO. SD9

MANHOLES.DWG





PLAN VIEW



SECTION VIEW A-A

NOTES:

1. 48" DIAMETER MANHOLES SHALL HAVE DROPS NOT TO EXCEED 48" WITHOUT DROP CHANNELING. INTERIOR DROP PIPING NOT ALLOWED IN 48" DIA. MANHOLE.
2. ALL PIPE OPENINGS SHALL BE CORED AND SEALED WITH NON-SHRINK GROUT INSIDE AND OUTSIDE MANHOLE
3. MASTIC SEAL REQ'D IN ALL KEYLOCK JOINTS
4. MANHOLES SHALL CONFORM TO ASTM C-478
5. FLAT TOP SECTION MAY BE USED FOR SHALLOW MANHOLES
6. INSIDE JOINTS SHALL BE STRUCK SMOOTH & EVEN WITH THE INSIDE WALLS
7. MANHOLE BASE TO HAVE SHAPED CHANNELS. FLOW LINE & INSIDE SURFACES SHALL BE TROWLED SMOOTH & UNIFORM

REV. NO.	DATE	BY	APPR.
1	9/18/07	SCD	JC
2	1/1/11	SCD	JC
3	8/11/21	ECD	JC

CITY OF CAMAS ~ STORM DETAIL

48" STORM SEWER DROP MANHOLE

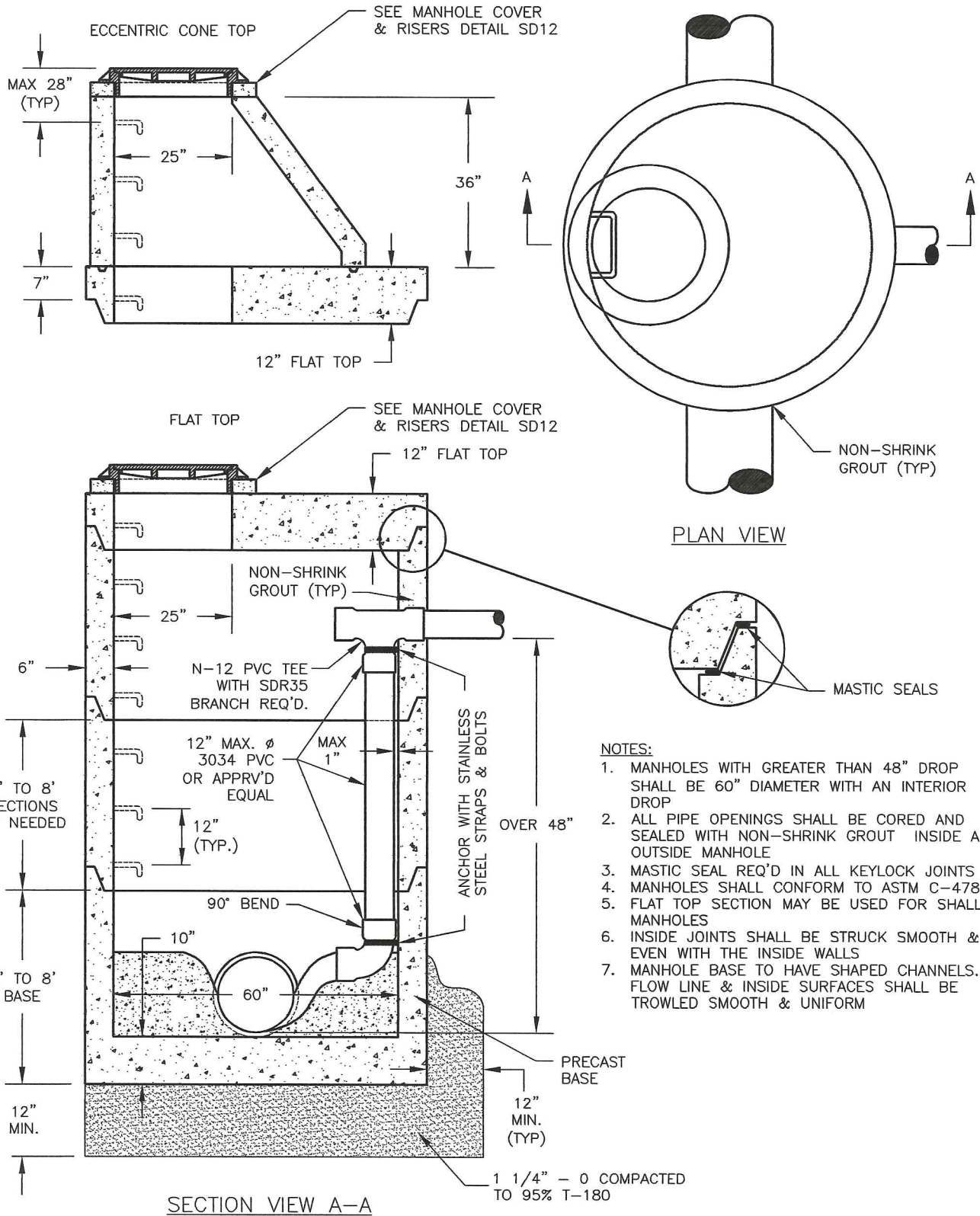
8-12-21

DETAIL APPROVED BY DATE

NOT TO SCALE

DETAIL NO. SD10

MANHOLES.DWG



NOTES:

1. MANHOLES WITH GREATER THAN 48" DROP SHALL BE 60" DIAMETER WITH AN INTERIOR DROP
2. ALL PIPE OPENINGS SHALL BE CORED AND SEALED WITH NON-SHRINK GROUT INSIDE AND OUTSIDE MANHOLE
3. MASTIC SEAL REQ'D IN ALL KEYLOCK JOINTS
4. MANHOLES SHALL CONFORM TO ASTM C-478
5. FLAT TOP SECTION MAY BE USED FOR SHALLOW MANHOLES
6. INSIDE JOINTS SHALL BE STRUCK SMOOTH & EVEN WITH THE INSIDE WALLS
7. MANHOLE BASE TO HAVE SHAPED CHANNELS. FLOW LINE & INSIDE SURFACES SHALL BE TROWLED SMOOTH & UNIFORM

REV. NO.	DATE	BY	APPR.
1	9/18/07	SCD	JC
2	1/1/11	SCD	JC
3	8/11/21	ECD	JC

CITY OF CAMAS ~ STORM DETAIL

60" STORM SEWER DROP MANHOLE

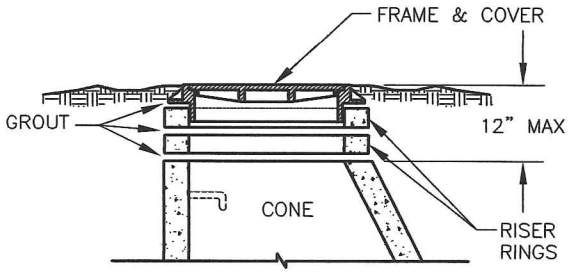
8-12-21

DETAIL APPROVED BY DATE

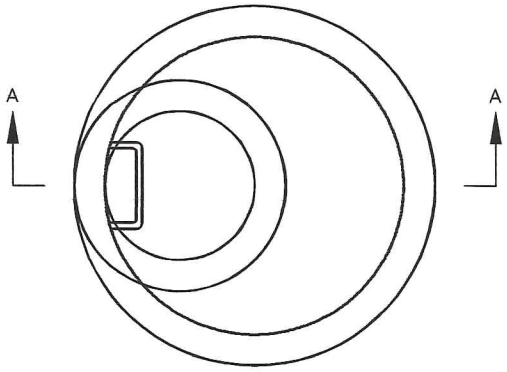
NOT TO SCALE

DETAIL NO. SD11

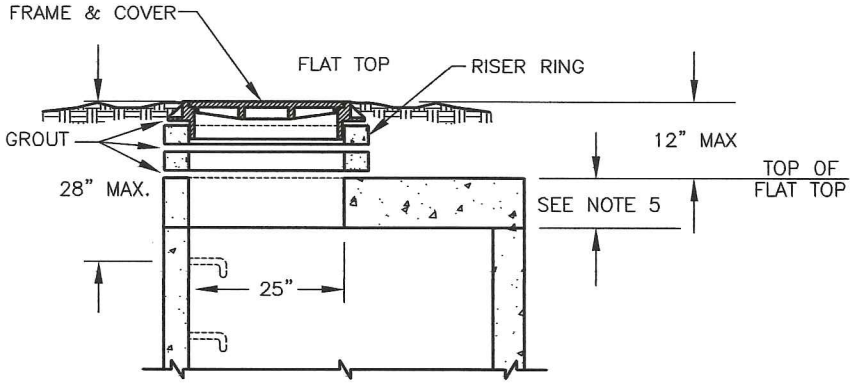
MANHOLES.DWG

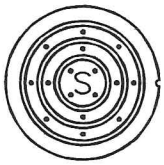


RISER RING & COLLAR DETAIL

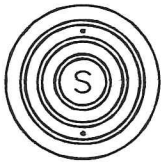


PLAN VIEW

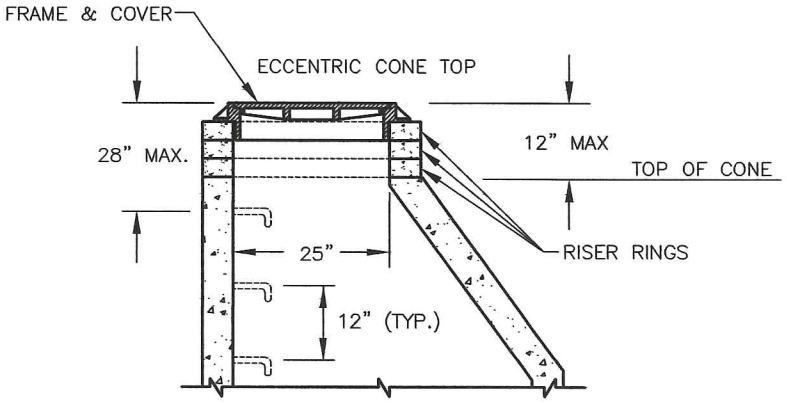




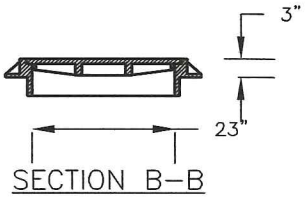
STORM COVER



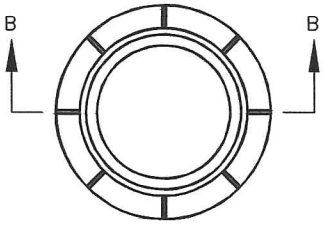
SANITARY COVER



SECTION VIEWS A–A



SECTION B–B



3" TALL FRAME

CAST IRON SUBURBAN
COVER & FRAME

NOTES:
1. MANHOLES SHALL CONFORM TO ASTM C–478.
2. NON–SHRINK GROUT SHALL BE USED BETWEEN FRAME, RISER RINGS, AND MANHOLE.
3. 3" TALL FRAME IS STANDARD, 7" TALL FRAME (NOT SHOWN) IS OPTIONAL.
4. ANY COMBINATION OF RISER RING THICKNESS, GROUT, AND FRAME SHALL BE USED TO ACHEIVE THE 12" MAXIMUM DEPTH FROM FINISH GRADE TO TOP OF CONE OR TOP OF FLAT TOP.
5. 8" THICK FLAT TOP FOR 48" MANHOLE
   12" THICK FLAT TOP FOR 60" MANHOLE

REV. NO.	DATE	BY	APPR.
1	9/18/07	SCD	JC
2	1/1/11	SCD	JC
3	8/11/21	ECD	JC

CITY OF CAMAS ~ STORM DETAIL

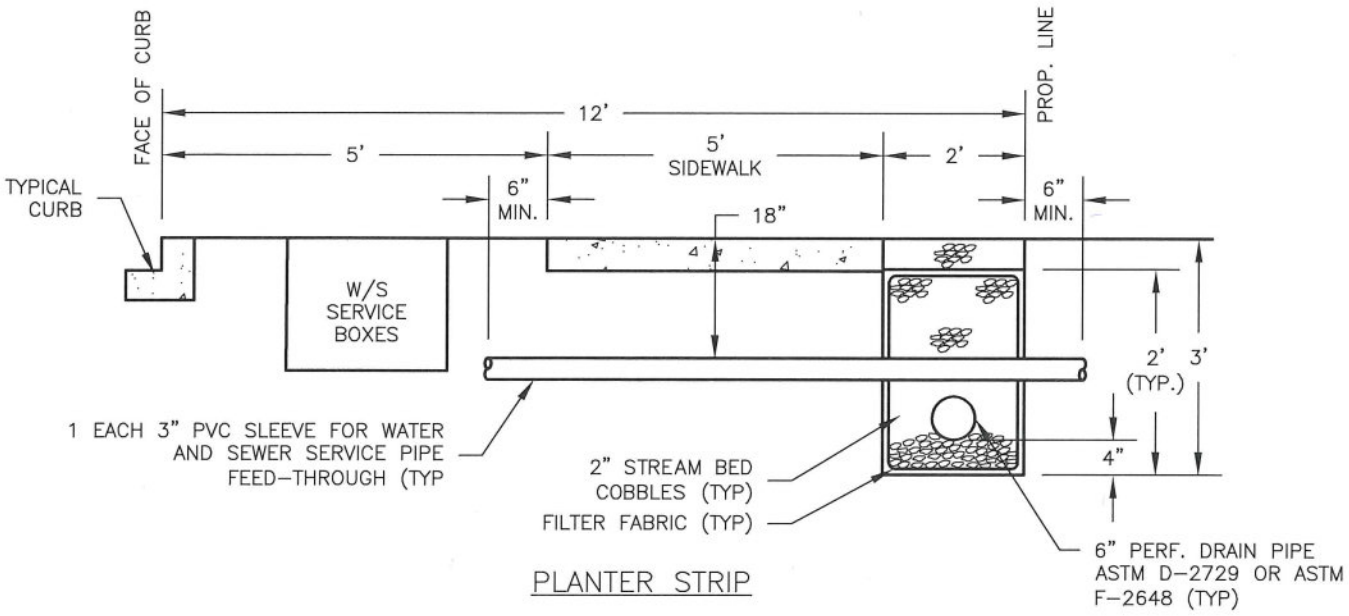
MANHOLE COVER & RISERS

DETAIL APPROVED BY 8-12-21 DATE

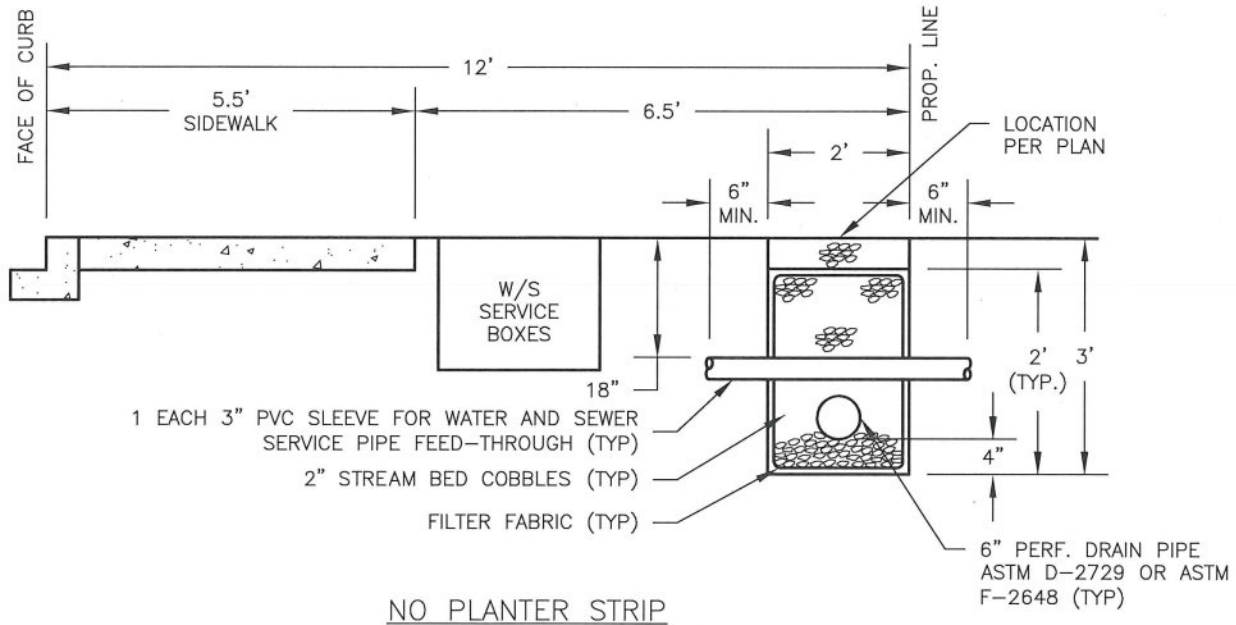
NOT TO SCALE

DETAIL NO. SD12

MANHOLES.DWG



PLANTER STRIP



NO PLANTER STRIP

NOTES:

1. PIPE SHALL BE PVC PERFORATED DRAIN PIPE (SHOWN) OR HDPE SMOOTHWALL PIPE (ASTM F810). NOT ALLOWED IS SINGLE WALL FLEXIBLE CORRUGATED POLYETHYLENE PIPE.
2. ALL FRENCH DRAIN FITTINGS SHALL BE PVC SOLVENT WELD TYPE OR SMOOTHWALL BELL AND SPIGOT TYPE.
3. SEE 'FRENCH DRAIN CLEANOUT' DETAIL DRAWING FOR CLEANOUT CONSTRUCTION.
4. 3" PVC UTILITY SLEEVE SHALL BE INSTALLED ACROSS FRENCH DRAIN TRENCH AS SHOWN, FOR EACH WATER AND PRESSURE SEWER SERVICE.
5. BASED ON 52' OR 60' R.O.W.

City of Camas WASHINGTON

STORM SEWER DETAIL

FRENCH DRAINS

Jon E Christensen 6-17-19

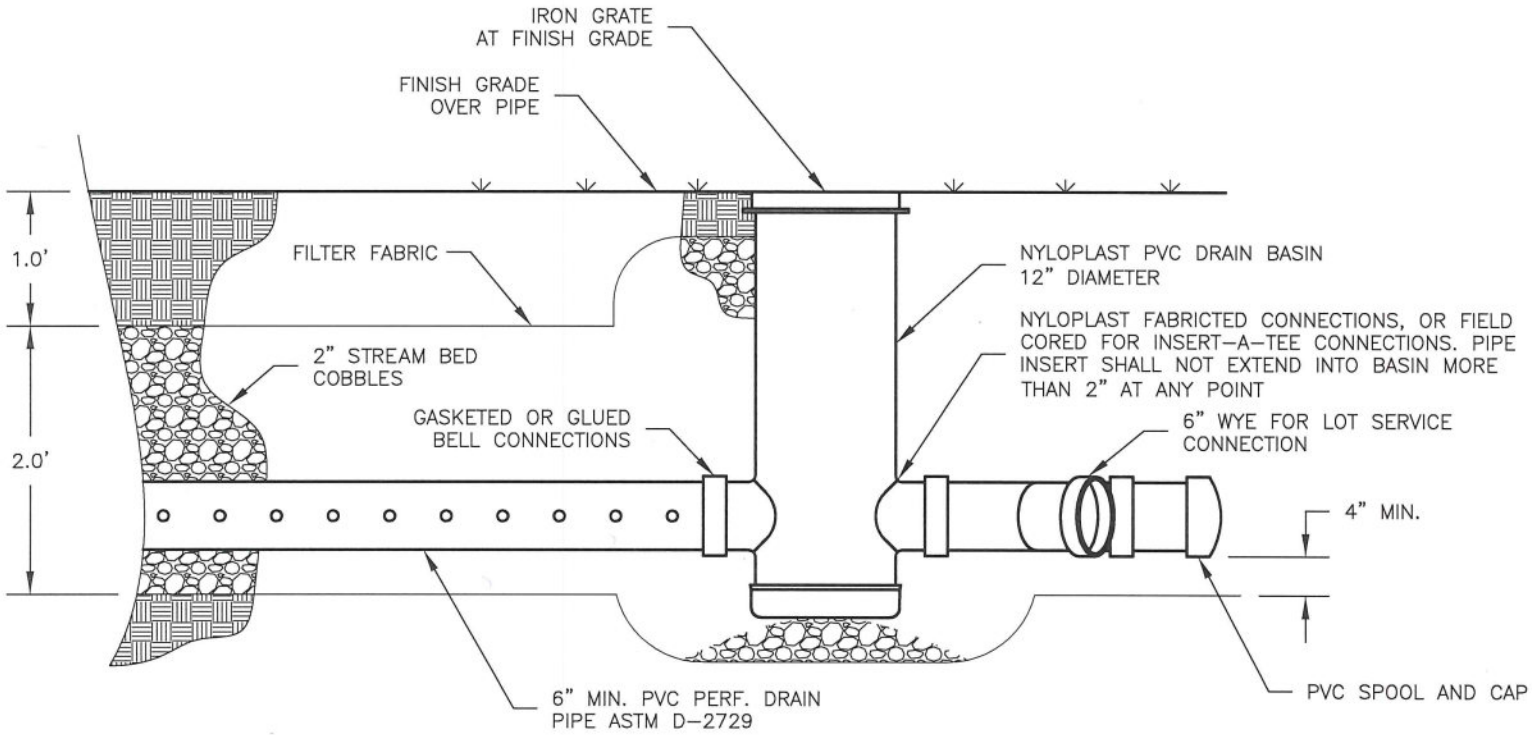
DETAIL APPROVED BY DATE

NOT TO SCALE

REVISION: 3 DATE: 5/29/2019

DETAIL NO. SD13

SD-FRDRN.DWG



NOTES:

1. PIPE SHALL BE PVC PERFORATED DRAIN PIPE (SHOWN) OR HDPE SMOOTHWALL PIPE (ASTM F810). NOT ALLOWED IS SINGLE WALL FLEXIBLE CORRUGATED POLYETHYLENE PIPE.
2. ALL FRENCH DRAIN FITTINGS SHALL BE PVC SOLVENT WELD TYPE OR SMOOTHWALL BELL AND SPIGOT TYPE.
3. SEE 'FRENCH DRAINS' DETAIL DRAWING SD13 FOR TRENCH CONSTRUCTION REQUIREMENTS.
4. CONNECT WYE FITTING TO STORM LATERAL USING APPROPRIATE ADAPTER.
5. CLEANOUTS SHALL BE LOCATED AT 200 FOOT MAXIMUM INTERVALS AND SHALL BE LOCATED AT THE RIGHT OF WAY LINE.

City of Camas WASHINGTON

STORM SEWER DETAIL

FRENCH DRAIN CLEAN OUT

Jon E. Carothers 6-17-19

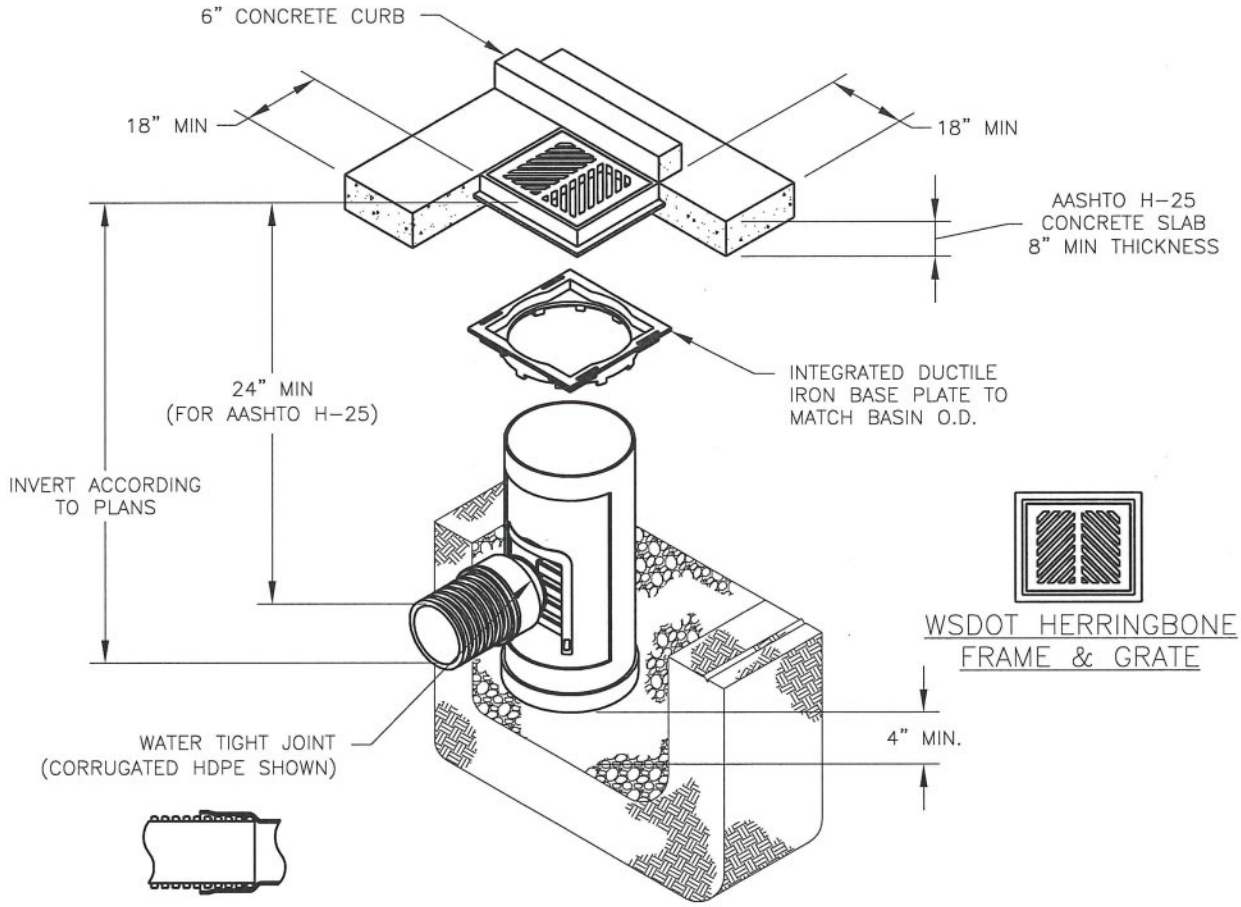
DETAIL APPROVED BY DATE

NOT TO SCALE

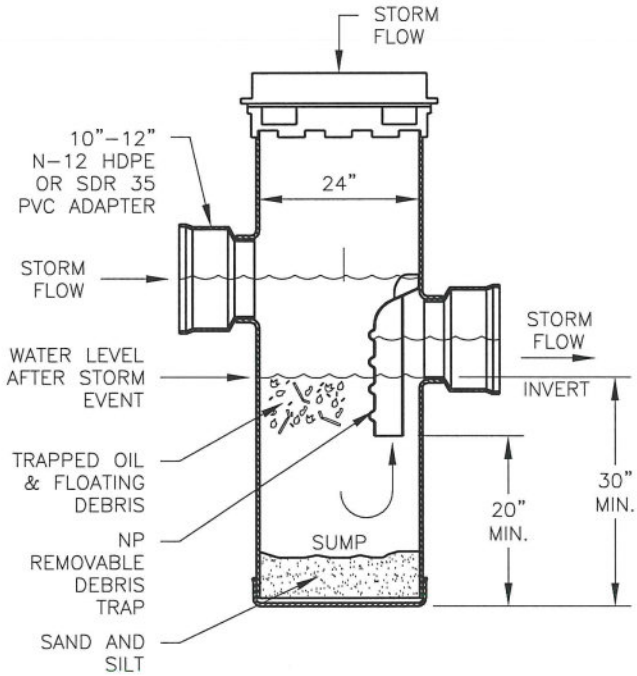
DETAIL NO. SD14

REVISION: 5 DATE: 5/29/2019

SD-FRDRN.DWG



1. DRAIN BASIN TO BE 24" DIAMETER NYLOPLAST OR EQUAL (ROUND) STRUCTURE.
2. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS.
3. USE APPROPRIATE TYPES OF INLET & OUTLET ADAPTERS TO MATCH PIPE AS SHOWN IN PLANS.
4. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE & SDR 35 PVC
5. THE MAX. DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5' – 0".
6. BACKFILL MATERIAL BELOW & TO SIDE OF STRUCTURE SHALL BE ASTM D2321 CLASS I OR II CRUSHED STONE OR GRAVEL, PLACED UNIFORMLY. BACKFILL TO MEET WSDOT M41-10 & T99 95% COMPACTION.
7. DRAIN BASIN FRAME & GRATE SHALL BE IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATIONS & MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
8. FRAME MUST BE INSTALLED WITH FLANGE DOWN.
9. BASE PLATE SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
10. ALL CAST-IN-PLACE CONCRETE SHALL BE CLASS 4,000.
11. FOR USE IN LOW VOLUME ROADWAYS AT THE CITY ENGINEER'S DISCRETION.



REV. NO.	DATE	BY	APPR.
1	9/18/07	SCD	JC
2	1/1/11	SCD	JC

CITY OF CAMAS ~ STORM DETAIL

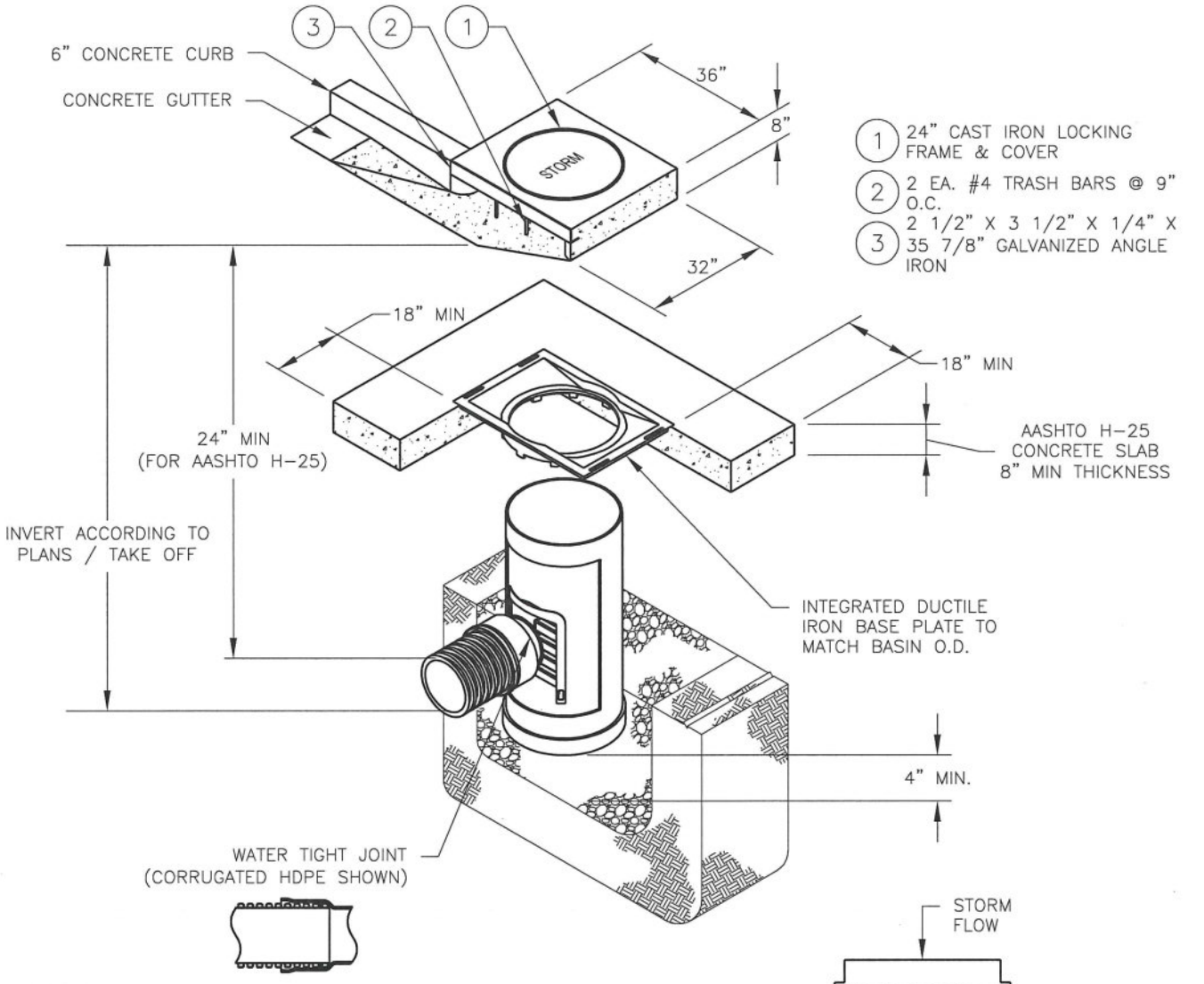
CATCH BASIN – PVC

DETAIL APPROVED BY 1-4-11 DATE

NOT TO SCALE

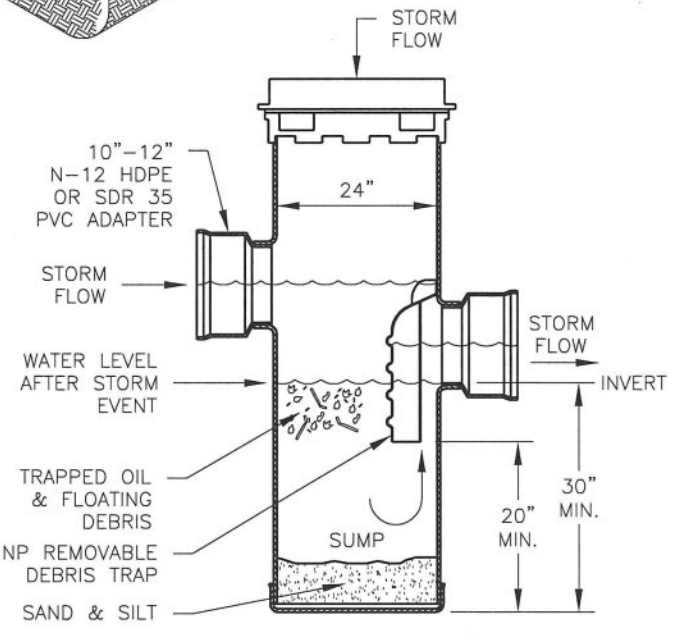
DETAIL NO. SD15

ST-CB.DWG



NOTES:

1. DRAIN BASIN TO BE 24" DIAMETER NYLOPLAST OR EQUAL (ROUND) STRUCTURE.
2. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS.
3. USE APPROPRIATE TYPES OF INLET & OUTLET ADAPTERS TO MATCH PIPE AS SHOWN IN PLANS.
4. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE & SDR 35 PVC
5. THE MAX. DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5' – 0".
6. BACKFILL MATERIAL BELOW & TO SIDE OF STRUCTURE SHALL BE ASTM D2321 CLASS I OR II CRUSHED STONE OR GRAVEL, PLACED UNIFORMLY. BACKFILL TO MEET WSDOT M41-10 & T99 95% COMPACTION.
7. BASE PLATE SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
8. GUTTER IS TAPERED DOWN TO INLET.
9. ALL CAST-IN-PLACE CONCRETE SHALL BE CLASS 4,000.
10. FOR USE IN LOW VOLUME ROADWAYS AT THE CITY ENGINEER'S DISCRETION.



REV. NO.	DATE	BY	APPR.
1	9/18/07	SCD	JC
2	1/1/11	SCD	JC

CITY OF CAMAS ~ STORM DETAIL

CURB INLET CATCH BASIN – PVC

Jan E. Cauthorn 1-4-11

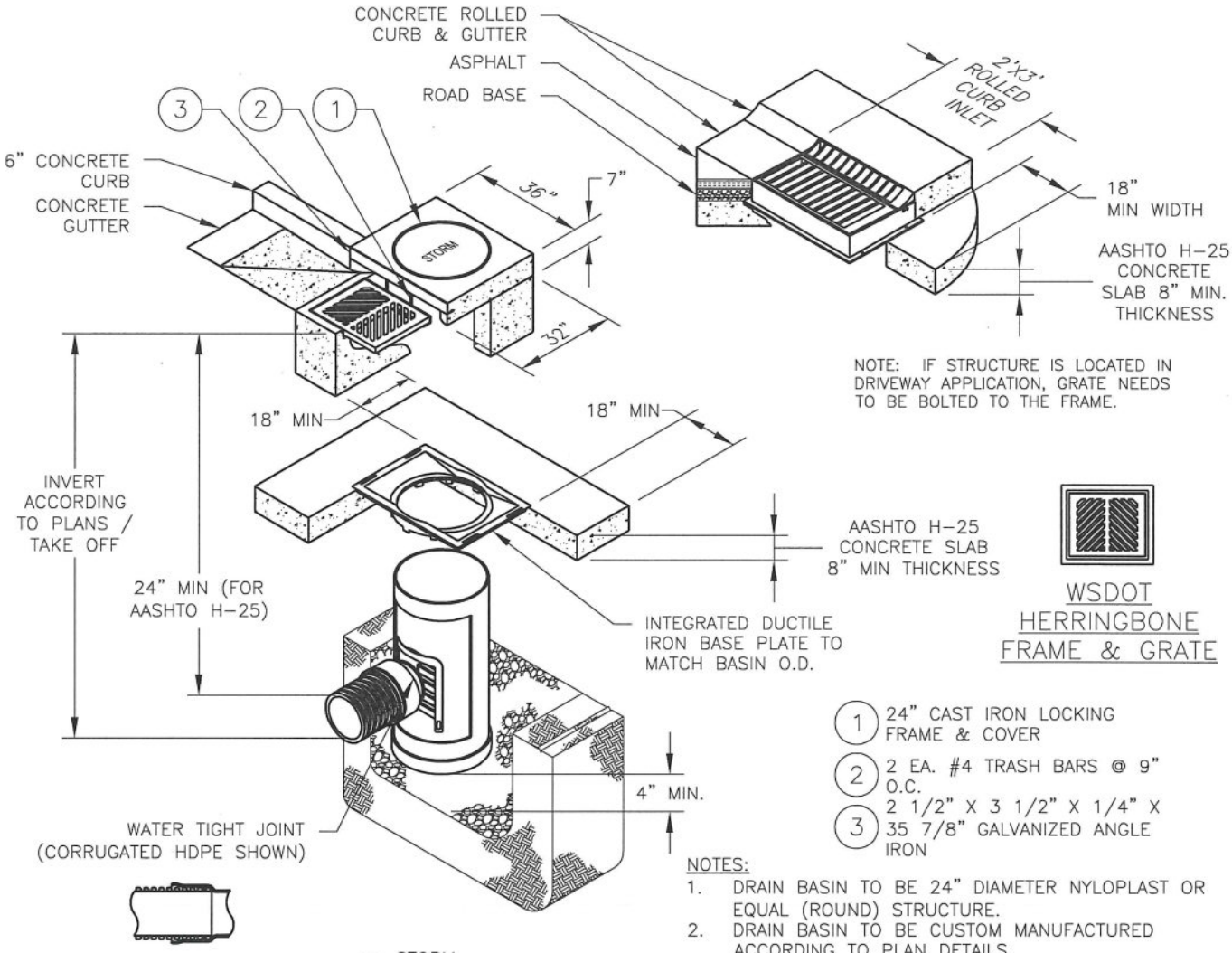
DETAIL APPROVED BY DATE

NOT TO SCALE

DETAIL NO.

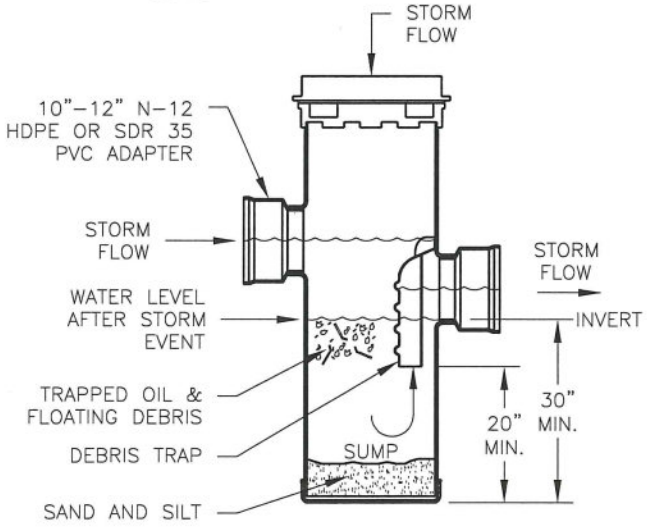
SD16

ST-CB.DWG



WSDOT HERRINGBONE FRAME & GRATE

1. 24" CAST IRON LOCKING FRAME & COVER
2. 2 EA. #4 TRASH BARS @ 9" O.C.
3. 2 1/2" X 3 1/2" X 1/4" X 35 7/8" GALVANIZED ANGLE IRON



NOTES:

1. DRAIN BASIN TO BE 24" DIAMETER NYLOPLAST OR EQUAL (ROUND) STRUCTURE.
2. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS.
3. USE APPROPRIATE TYPES OF INLET & OUTLET ADAPTERS TO MATCH PIPE AS SHOWN IN PLANS.
4. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE & SDR 35 PVC
5. THE MAX. DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5' - 0".
6. BACKFILL MATERIAL BELOW & TO SIDE OF STRUCTURE SHALL BE ASTM D2321 CLASS I OR II CRUSHED STONE OR GRAVEL, PLACED UNIFORMLY. BACKFILL TO MEET WSDOT M41-10 & T99 95% COMPACTION.
7. BASE PLATE SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
8. DRAIN BASIN FRAME & GRATE SHALL BE IN ACCORDANCE WITH WDOT STANDARD SPECIFICATIONS & MEET THE STRENGTH REQUIRMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
9. GUTTER IS TAPERED DOWN TO INLET.
10. ALL CAST-IN-PLACE CONCRETE SHALL BE CLASS 4,000.
11. FOR USE IN LOW VOLUME ROADWAYS AT THE CITY ENGINEER'S DISCRETION.

REV. NO.	DATE	BY	APPR.
1	9/18/07	SCD	JC
2	1/1/11	SCD	JC

CITY OF CAMAS ~ STORM DETAIL

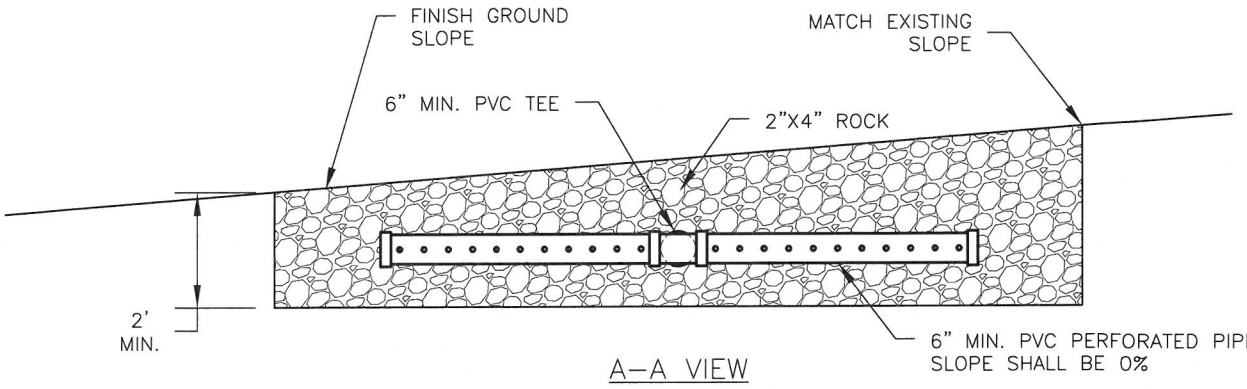
COMBINATION CURB INLET - PVC

DETAIL APPROVED BY 1-4-11 DATE

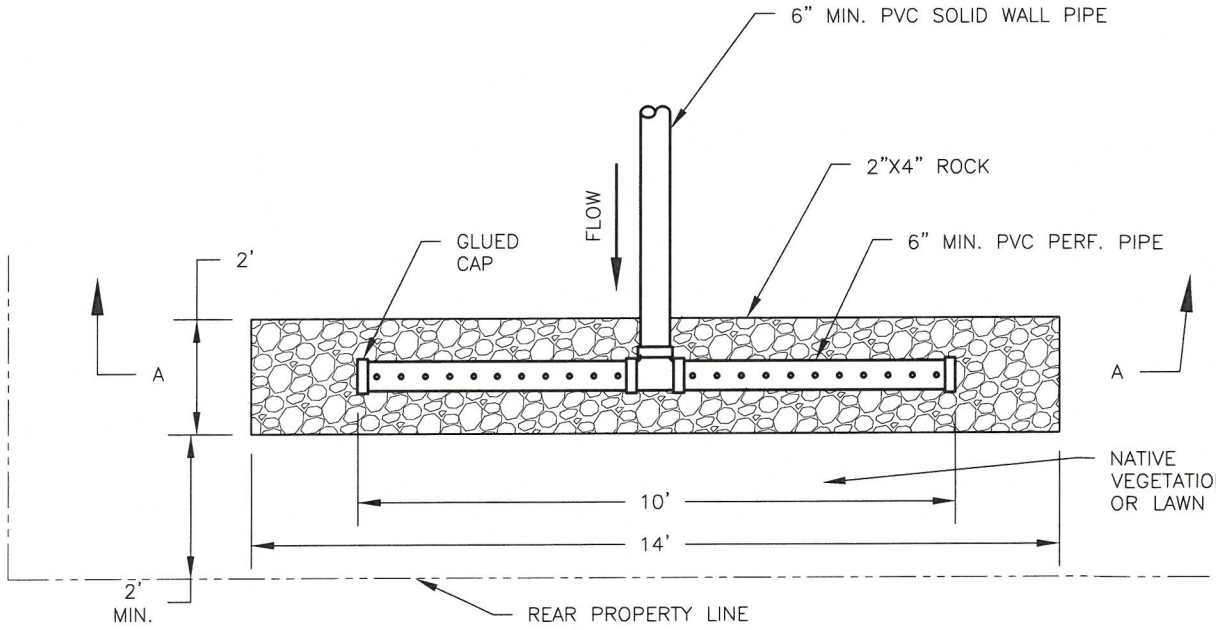
NOT TO SCALE

DETAIL NO. SD17

ST-CB.DWG



A–A VIEW



PLAN VIEW

NOTES:
1. PIPE SHALL BE PVC PERFORATED DRAIN PIPE AND SOLID WALL PIPE, OR RIGID N–12 HDPE DUAL WALL PERFORATED DRAIN PIPE AND SOLID WALL PIPE. USE OF SINGLE WALL FLEXIBLE CORRUGATED POLYETHYLENE PIPE IS NOT ALLOWED
2. TO BE CONSTRUCTED BY HOME BUILDER AT BACK OF LOT LINE.
3. LAY PERFORATED PIPE AND ROCK LEVEL FROM END TO END.

City of Camas WASHINGTON

STORM SEWER DETAIL

DRAIN OUTLET

Jan P. Cantrell 1-9-24

DETAIL APPROVED BY DATE

NOT TO SCALE

REVISION: 3 DATE: 01/04/2024

DETAIL NO. SD18

SD–FRDRN.DWG

STORM CONSTRUCTION NOTES:

1. STORM WATER MEDALLION SHALL BE PERMANENTLY FASTENED TO THE TOP OF THE CURB ADJACENT TO EVERY CATCH BASIN.
2. MEDALLION SHALL BE AN ALMETEK 4 INCH STORM DRAIN MARKER (AS SHOWN ABOVE), STAMPED STAINLESS STEEL, WITH BLUE BACKGROUND COLOR AND CENTER RIVET HOLE, OR APPROVED EQUAL.

REV. NO.	DATE	BY	APPR.
1	10/21/14	SCD	JC

CITY OF CAMAS ~ STORM DETAIL

STORM WATER MEDALLION

10-21-14

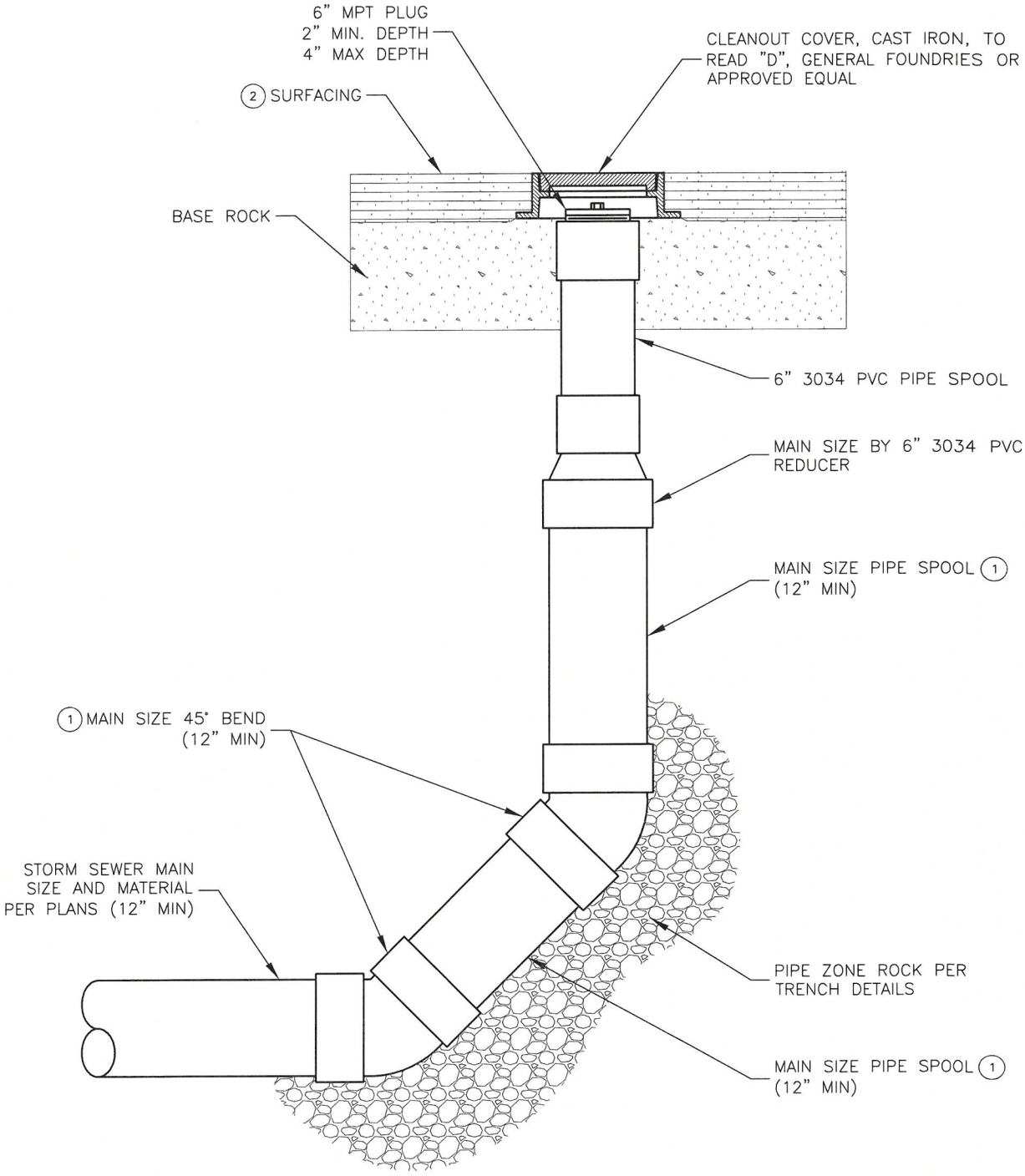
DETAIL APPROVED BY DATE

NOT TO SCALE

DETAIL NO.

SD19

SD-NOTES.DWG



NOTES:

1. CLEAN OUT PIPE AND FITTINGS MAY BE THE SAME AS THE MAIN PIPE, OR MAY BE ADAPTED TO CONNECT THE MAIN PIPE TO GASKETED 3034 SDR26 PVC FOR THE CLEAN OUT.
2. PROVIDE 3' SQ. x 6" DEEP CONCRETE COLLAR AROUND VALVE BOX FOR CLEANOUTS WHEN LOCATED OUT OF ROADWAY.
3. SEE TRENCH DETAIL FOR BACKFILL/BEDDING AND SEWER UTILITY MARKING TAPE REQUIREMENTS.

City of Camas WASHINGTON

STORM SEWER DETAIL

STORM SEWER MAIN CLEAN OUT

NOT TO SCALE

DETAIL NO. SD20

1-9-24

DETAIL APPROVED BY — DATE

REVISION: 2 — DATE: 01/04/2024

SD-SERV.DWG