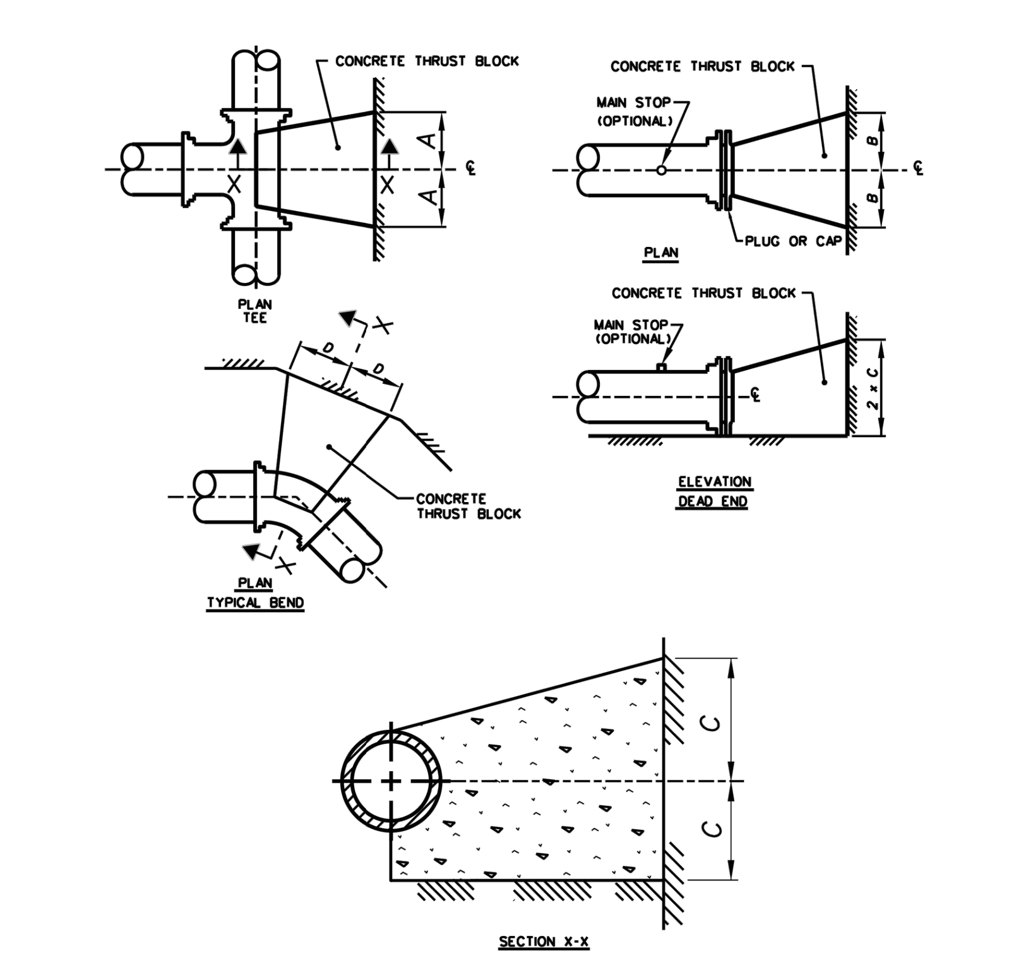
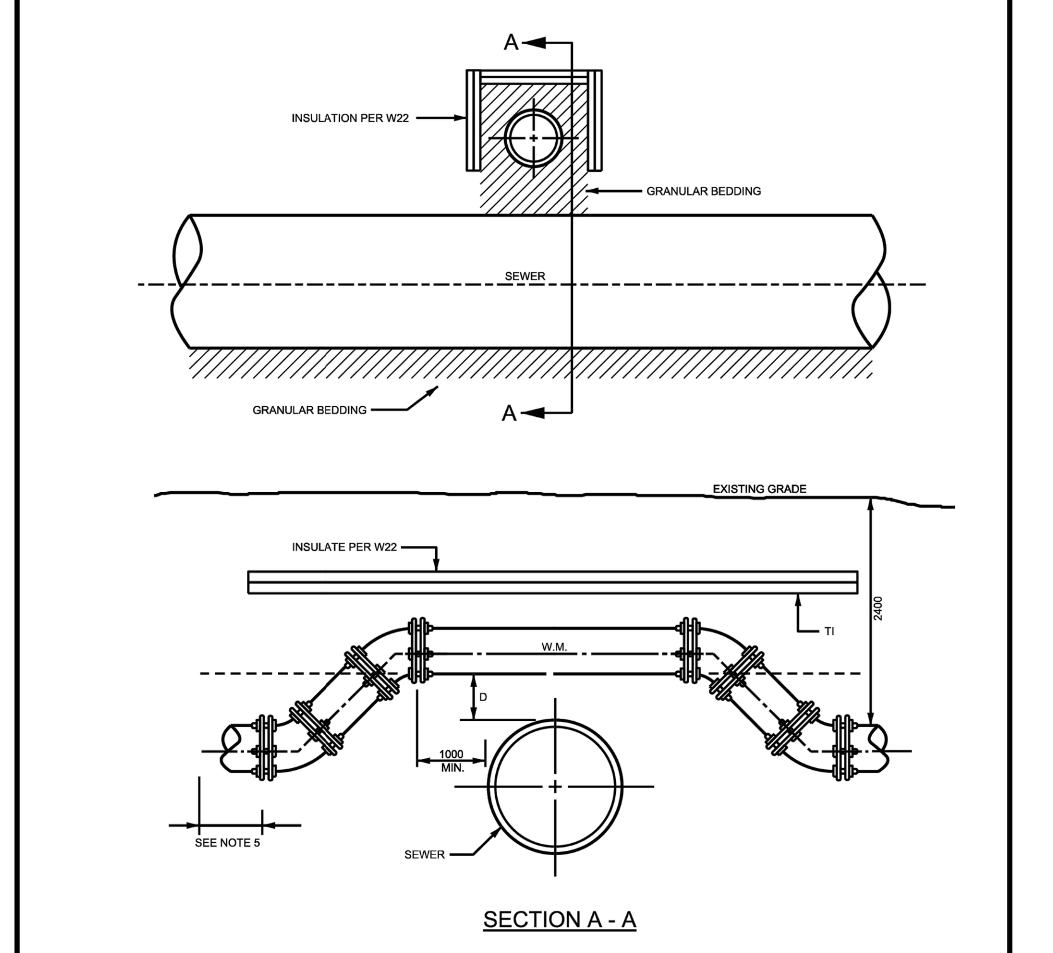


NOTES:

1. CONCRETE SHALL BE PLACED TO WITHIN 50mm OF FACE OF THE BELL.
2. BOND BREAKER TO BE USED BETWEEN CONCRETE AND FITTINGS.
3. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.
4. REFER TO W25.4 FOR ADDITIONAL REQUIREMENTS.
5. THRUST BLOCKS SHALL BE 20 MPa. CONCRETE AND AS SHOWN ON ABOVE DRAWINGS UNLESS OTHERWISE DIRECTED BY THE CONTRACT ADMINISTRATOR. THE BLOCK SHALL BE CENTERED ON THE THRUST FORCE AND SHALL ALSO PARTIALLY CRADLE THE FITTING TO DISTRIBUTE THE FORCE. THE SIDES OF THE BLOCK SHALL BE 80mm FROM THE JOINT ON EITHER SIDE OF THE BEND OR TEE.
6. THE CONCRETE WHERE POSSIBLE SHALL BE PLACED AGAINST UNDISTURBED SOIL AT THE BOTTOM AND SIDE OF THE TRENCH. WHERE IT IS NOT POSSIBLE, THE FILL BETWEEN THE BEARING SURFACE AND THE UNDISTURBED SOIL MUST BE COMPACTED IN ACCORDANCE WITH D-029.
7. EXCEPT FOR THE ADDITION OF WATER, CONCRETE FOR THRUST BLOCKS SHALL COME PREMIXED FROM CONCRETE SUPPLIER, AS 'READY MIX' FROM A CONCRETE TRUCK. ON-SITE MIXING OF CEMENT, SAND AND AGGREGATE ETC. BY THE CONTRACTOR, FOR THE PURPOSE OF MAKING CONCRETE THRUST BLOCKS/ ANCHORS WILL NOT BE ACCEPTED.

Ottawa	CONCRETE THRUST BLOCKS FOR PVC AND DI PIPE 400mm AND UNDER	DATE: MAY 2001 REV. DATE: MARCH 2016 DWG. No.: W25.3

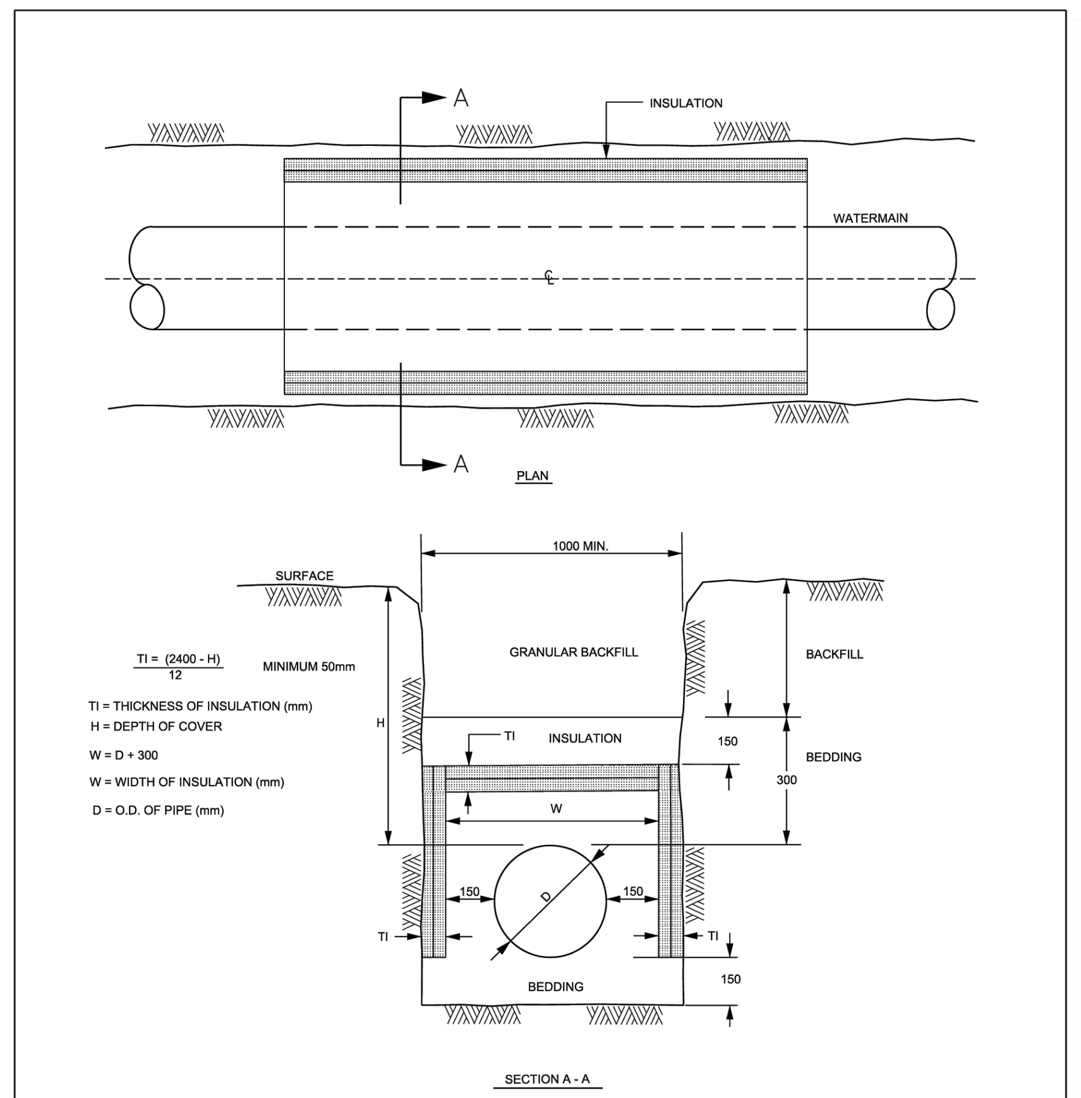


NOTES:

FOR WATERMAIN 100mm (NOMINAL) TO 400mm (NOMINAL)

1. BARREL TO BARREL SEPARATION (D) SHALL BE 250mm MINIMUM.
2. THRUST BLOCKS FOR MAINS LARGER THAN 400mm (NOMINAL) SHALL BE PER SPECIAL DESIGN.
3. FOR 300mm (NOMINAL) AND 400mm (NOMINAL) MAINS, BENDS SHALL BE MAX. 22° 30'.
4. CONCRETE FOR THRUST BLOCKS SHALL BE 20 MPa.
5. REFER TO W25.6 FOR RESTRAINED LENGTH REQUIREMENTS.
6. REFER TO W25.3 AND W25.4 FOR THRUST BLOCK REQUIREMENTS.
7. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
8. DESIGNED TO MEET THE INTENT OF THE MOE WATERMAIN DESIGN CRITERIA JUNE 2012.
9. CATHODIC PROTECTION MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH W39, W40, AND W42.
10. TRACER WIRE REQUIRED FOR PVC, PEX AND HDPE WATERMAIN PIPE ONLY AS PER W36.

Ottawa	WATERMAIN CROSSING OVER SEWER	DATE: MAY 2001 REV. DATE: MARCH 2021 DWG. No.: W25.2

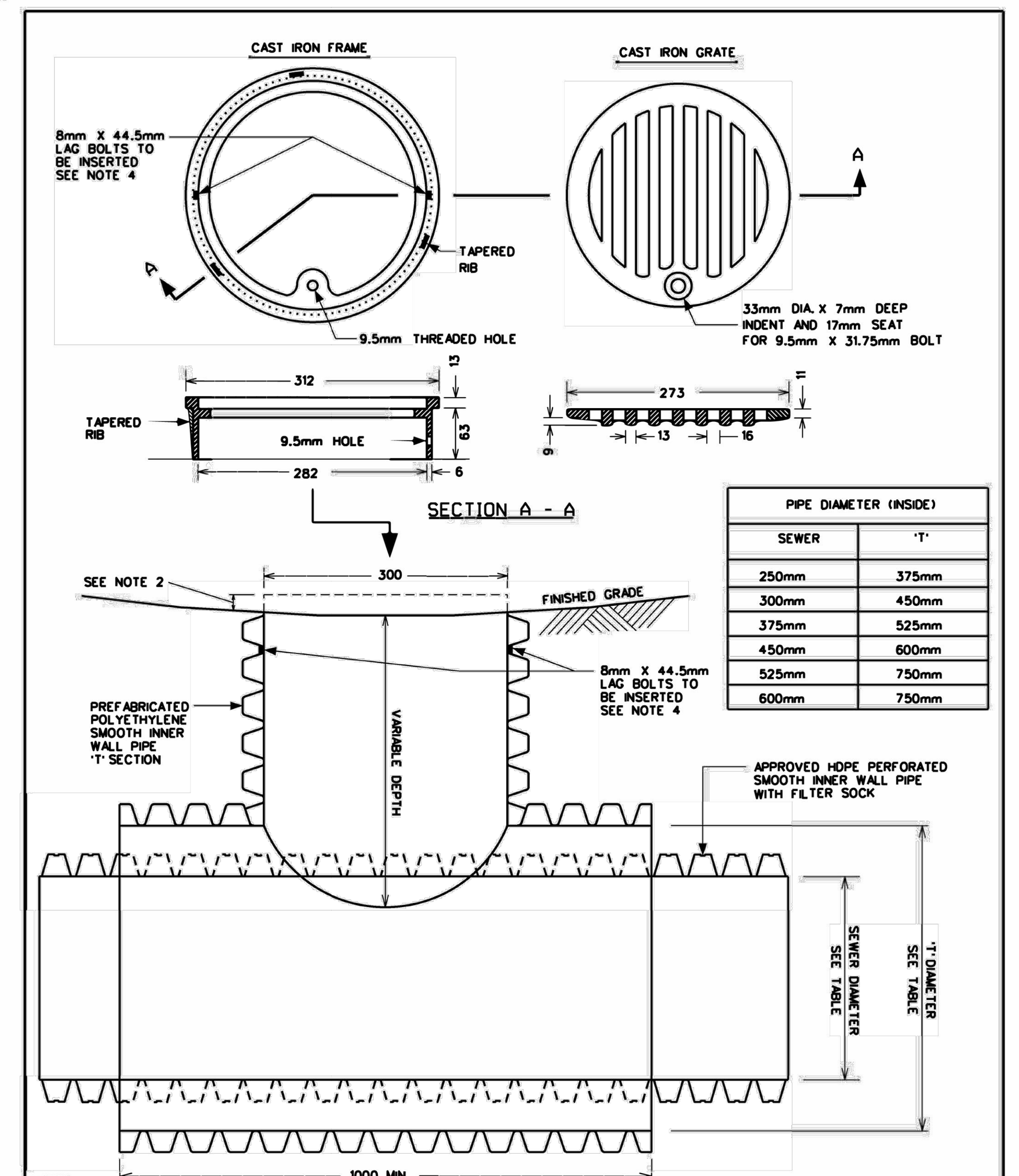


NOTES

FOR 150 - 400mm (NOMINAL DIAMETER) WATERMAINS, WHERE THE DEPTH OF COVER IS LESS THAN 2400mm

1. INCREMENTS OF THICKNESS SHALL BE ADJUSTABLE TO 25mm.
2. IN PROXIMITY OF MAINTENANCE HOLES, CULVERTS, CATCHBASINS, ETC., INSULATION SHALL BE PLACED PER DETAIL W23
3. DEPTH OF COVER LESS THAN 1200mm REQUIRES SPECIAL DESIGN
4. STAGGER JOINTS OF MULTIPLE SHEETS.
5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.

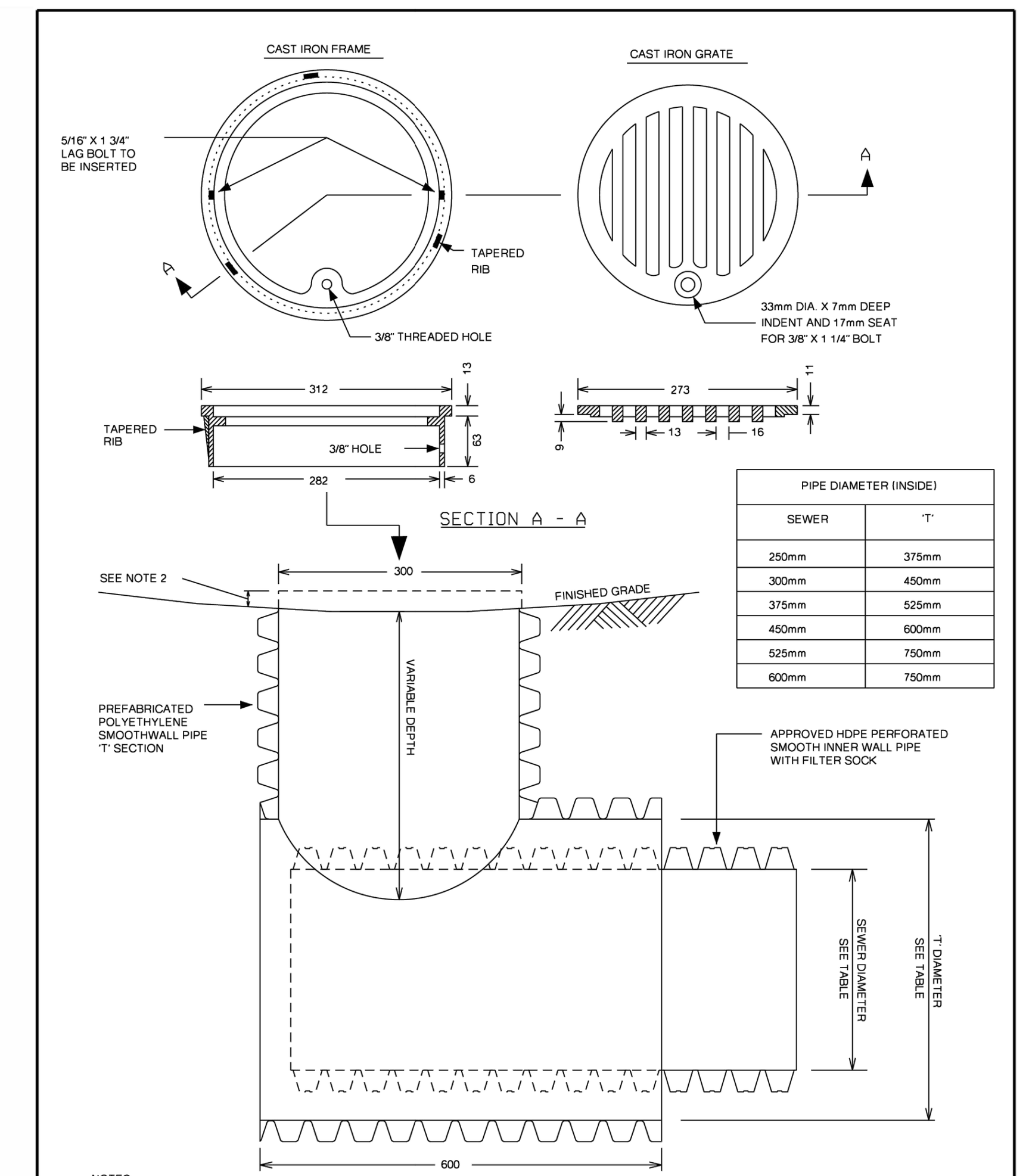
Ottawa	THERMAL INSULATION FOR WATERMAINS IN SHALLOW TRENCHES	DATE: MAY 2001 REV. DATE: MARCH 2013 DWG. No.: W22



PIPE DIAMETER (INSIDE)	
SEWER	'T'
250mm	375mm
300mm	450mm
375mm	525mm
450mm	600mm
525mm	750mm
600mm	750mm

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
2. FOR DITCHED PIPE APPLICATIONS, TOP OF CB SHALL BE MIN. 5cm ABOVE BOTTOM OF THE DITCH/SWALE AND BE LOCATED MIN. 2m FROM EDGE OF PAVEMENT.
3. WHEN NON PERFORATED PIPE IS USED, MATCH THE 'T's HORIZONTAL OPENING DIAMETERS TO THE PIPE DIAMETER AND CONNECT WITH MANUFACTURER RECOMMENDED CONNECTION SLEEVE.
4. CAST IRON FRAME TO BE SECURED TO PIPE WITH 2 LAG BOLTS AS SHOWN.

Ottawa	CATCH BASIN - 'T' FOR REAR YARD, DITCHED PIPE AND LANDSCAPING APPLICATIONS	DATE: MARCH 2007 REV. DATE: MARCH 2021 DWG. No.: S30



PIPE DIAMETER (INSIDE)	
SEWER	'T'
250mm	375mm
300mm	450mm
375mm	525mm
450mm	600mm
525mm	750mm
600mm	750mm

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
2. FOR DITCHED PIPE APPLICATIONS, TOP OF CB SHALL BE MIN. 5cm ABOVE BOTTOM OF THE DITCH/SWALE AND BE LOCATED MIN. 2m FROM EDGE OF PAVEMENT.
3. WHEN NON PERFORATED PIPE IS USED, MATCH THE 'T's HORIZONTAL OPENING DIAMETERS TO THE PIPE DIAMETER AND CONNECT WITH MANUFACTURER RECOMMENDED CONNECTION SLEEVE.
4. SEE MS-22.15 FOR ALTERNATE APPROVED FITTING MANUFACTUERS.

Ottawa	CATCH BASIN - ELBOW FOR REAR YARD, DITCHED PIPE AND LANDSCAPING APPLICATIONS	DATE: MARCH 2007 REV. DATE: MARCH 2019 DWG. No.: S31

GENERAL NOTES

CULTEC CONTACTOR® 100HD CHAMBER PRODUCT SPECIFICATIONS

GENERAL
CULTEC CONTACTOR 100HD CHAMBERS ARE DESIGNED FOR UNDERGROUND STORMWATER MANAGEMENT. THE CHAMBERS MAY BE USED FOR RETENTION, RECHARGING, DETENTION OR CONTROLLING THE FLOW OF ON-SITE STORMWATER RUNOFF.

CHAMBER PARAMETERS
1. THE CHAMBERS SHALL BE MANUFACTURED BY CULTEC, OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBERS SHALL BE DESIGNED AND TESTED VIA FINITE ELEMENT ANALYSIS IN ACCORDANCE WITH THE ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". THE LOAD CONFIGURATION SHALL INCLUDE:
   a. INSTANTANEOUS AASHTO DESIGN TRUCK LIVE LOAD AT MINIMUM COVER.
   b. MAXIMUM PERMANENT (50-YEAR) COVER LOAD.
   c.1-WEEK PARKED AASHTO DESIGN TRUCK LOAD.
3. THE INSTALLED CHAMBER SYSTEM SHALL PROVIDE RESISTANCE TO THE LOADS AND LOAD FACTORS AS DEFINED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12, WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS. THE STRUCTURAL DESIGN OF THE CHAMBERS SHALL INCLUDE THE FOLLOWING:
   a. THE MINIMUM SAFETY FACTOR FOR LIVE LOADS SHALL BE 1.75
   b. THE MINIMUM SAFETY FACTOR FOR DEAD LOADS SHALL BE 1.95.
4. THE CHAMBER SHALL BE VACUUM THERMOFORMED OF HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE) WITH A BLACK INTERIOR AND BLUE EXTERIOR.
5. THE CHAMBER SHALL BE ARCHED IN SHAPE.
6. THE CHAMBER SHALL BE OPEN-BOTTOMED.
7. THE CHAMBER SHALL BE JOINED USING AN INTERLOCKING OVERLAPPING RIB METHOD. CONNECTIONS MUST BE FULLY SHOULDERED OVERLAPPING RIBS, HAVING NO SEPARATE COUPLINGS OR SEPARATE END WALLS.
8. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC CONTACTOR 100HD SHALL BE 12.5 INCHES (318 mm) TALL, 36 INCHES (914 mm) WIDE AND 8 FEET (2.44 m) LONG. THE INSTALLED LENGTH OF A JOINED CONTACTOR 100HD SHALL BE 7.5 FEET (2.29 m).
9. MAXIMUM INLET OPENING ON THE CHAMBER ENDWALL IS 10 INCHES (250 mm).
10. THE CHAMBER SHALL HAVE TWO SIDE PORTALS TO ACCEPT CULTEC HVLV® SFCX2 FEED CONNECTORS TO CREATE AN INTERNAL MANIFOLD. THE NOMINAL INSIDE DIMENSIONS OF EACH SIDE PORTAL SHALL BE 5.75 INCHES (146 mm) HIGH BY 7.5 INCHES (191 mm) WIDE. MAXIMUM ALLOWABLE OUTER DIAMETER (O.D.) PIPE SIZE IN THE SIDE PORTAL IS 6.9 INCHES (175 mm).
11. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV SFCX2 FEED CONNECTOR SHALL BE 7.6 INCHES (194 mm) TALL, 12 INCHES (305 mm) WIDE AND 19.7 INCHES (500 mm) LONG.
12. THE NOMINAL STORAGE VOLUME OF THE CONTACTOR 100HD CHAMBER SHALL BE 1.866 FT³ / FT (0.173 m³ / m) - WITHOUT STONE. THE NOMINAL STORAGE VOLUME OF A JOINED CONTACTOR 100HD SHALL BE 13.995 FT³ / UNIT (0.396 m³ / UNIT) - WITHOUT STONE.
13. THE NOMINAL STORAGE VOLUME OF THE HVLV SFCX2 FEED CONNECTOR SHALL BE 0.294 FT³ / FT (0.027 m³ / m) - WITHOUT STONE.
14. THE CONTACTOR 100HD CHAMBER SHALL HAVE TWENTY-FOUR DISCHARGE HOLES BORED INTO THE SIDEWALLS OF THE UNIT'S CORE TO PROMOTE LATERAL CONVEYANCE OF WATER.
15. THE CONTACTOR 100HD CHAMBER SHALL HAVE 16 CORRUGATIONS.
16. THE ENDWALL OF THE CHAMBER, WHEN PRESENT, SHALL BE AN INTEGRAL PART OF THE CONTINUOUSLY FORMED UNIT. SEPARATE END PLATES CANNOT BE USED WITH THIS UNIT.
17. THE CONTACTOR 100RHD STARTER UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO FULLY FORMED INTEGRAL ENDWALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS.
18. THE CONTACTOR 100EHD MIDDLE/END UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE FULLY OPEN END WALL AND HAVING NO SEPARATE END PLATES OR END WALLS.
19. THE HVLV SFCX2 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT SHALL FIT INTO THE SIDE PORTALS OF THE CONTACTOR 100HD AND ACT AS CROSS FEED CONNECTIONS.
20. CHAMBERS MUST HAVE HORIZONTAL STIFFENING FLEX REDUCTION STEPS BETWEEN THE RIBS.
21. THE CHAMBER SHALL HAVE A RAISED INTEGRAL CAP AT THE TOP OF THE ARCH IN THE CENTER OF EACH UNIT TO BE USED AS AN OPTIONAL INSPECTION PORT OR CLEAN-OUT.
22. THE UNITS MAY BE TRIMMED TO CUSTOM LENGTHS BY CUTTING BACK TO ANY CORRUGATION.
23. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2015 CERTIFIED FACILITY.
24. MAXIMUM ALLOWED COVER ON TOP OF UNIT SHALL BE 10.0 FEET [3.04 m]
25. THE INSTALLED CHAMBER SYSTEM SHALL BE STRUCTURALLY DESIGNED TO PROVIDE RESISTANCE TO LIVE LOADS AS DEFINED BY THE AASHTO H-20/HL-93 SPECIFICATION WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.

CULTEC HVLV® SFCx2 FEED CONNECTOR

GENERAL
CULTEC HVLV SFCx2 FEED CONNECTORS ARE DESIGNED TO CREATE AN INTERNAL MANIFOLD FOR CULTEC CONTACTOR 100HD STORMWATER CHAMBERS.

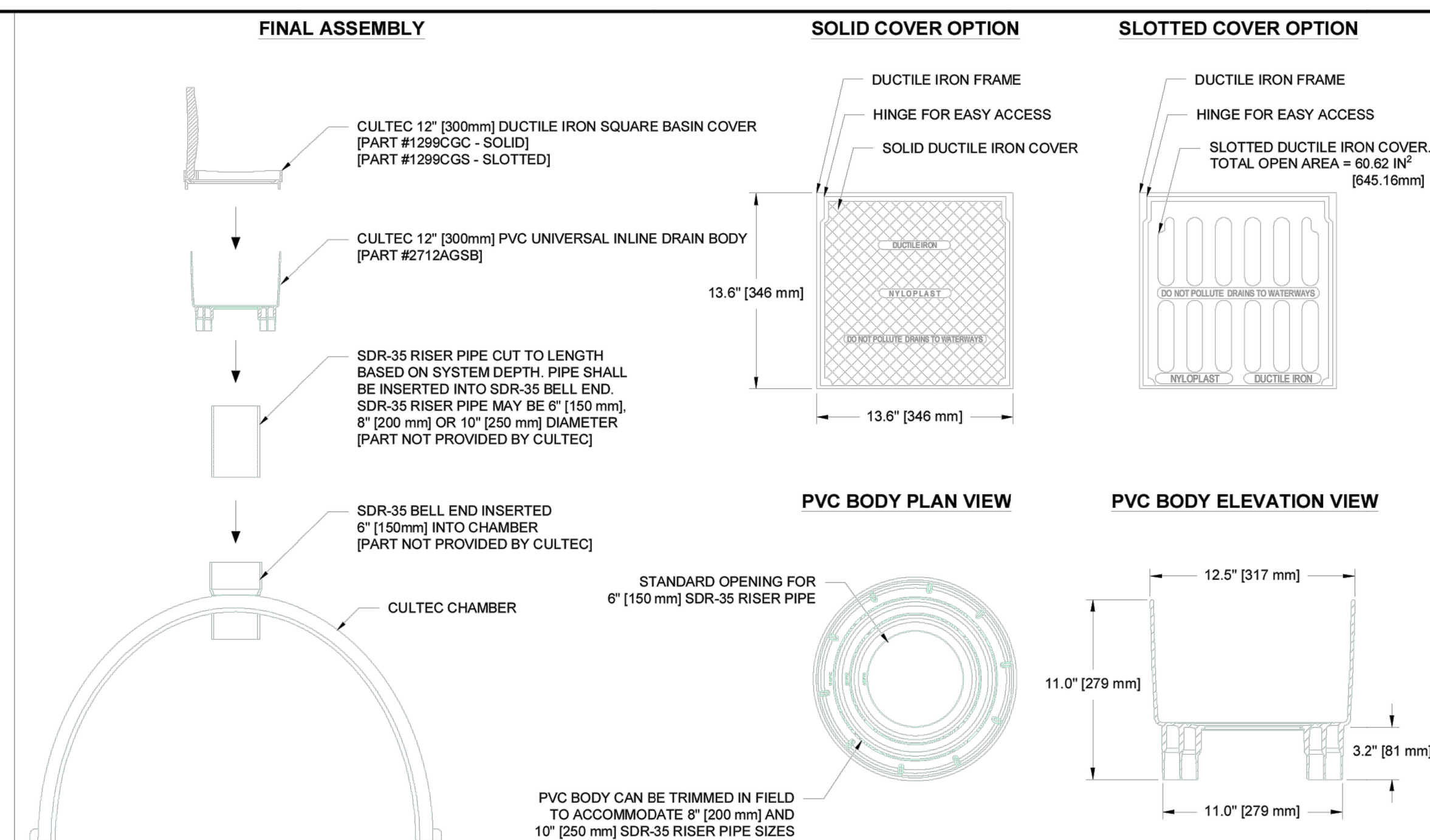
CHAMBER PARAMETERS
1. THE CHAMBERS SHALL BE MANUFACTURED BY CULTEC, OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER SHALL BE VACUUM THERMOFORMED OF HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE) WITH A BLACK INTERIOR AND BLUE EXTERIOR.
3. THE CHAMBER SHALL BE ARCHED IN SHAPE.
4. THE CHAMBER SHALL BE OPEN-BOTTOMED.
5. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV SFCX2 FEED CONNECTOR SHALL BE 7.6 INCHES (194 mm) TALL, 12 INCHES (305 mm) WIDE AND 19.7 INCHES (500 mm) LONG.
6. THE NOMINAL STORAGE VOLUME OF THE HVLV SFCX2 FEED CONNECTOR SHALL BE 0.294 FT3 / FT (0.027 m3 / m) - WITHOUT STONE.
7. THE HVLV SFCX2 FEED CONNECTOR CHAMBER SHALL HAVE 3 CORRUGATIONS.
8. THE HVLV SFCX2 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT SHALL FIT INTO THE SIDE PORTALS OF THE CONTACTOR 100HD STORMWATER CHAMBER AND ACT AS CROSS FEED CONNECTIONS CREATING AN INTERNAL MANIFOLD.
9. THE CHAMBER SHALL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
10. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2008 CERTIFIED FACILITY.

CULTEC NO. 410™ NON-WOVEN GEOTEXTILE
CULTEC NO. 410™ NON-WOVEN GEOTEXTILE MAY BE USED WITH CULTEC CONTACTOR® AND CONTACTOR® STORMWATER INSTALLATIONS TO PROVIDE A BARRIER THAT PREVENTS SOIL INTRUSION INTO THE STONE.

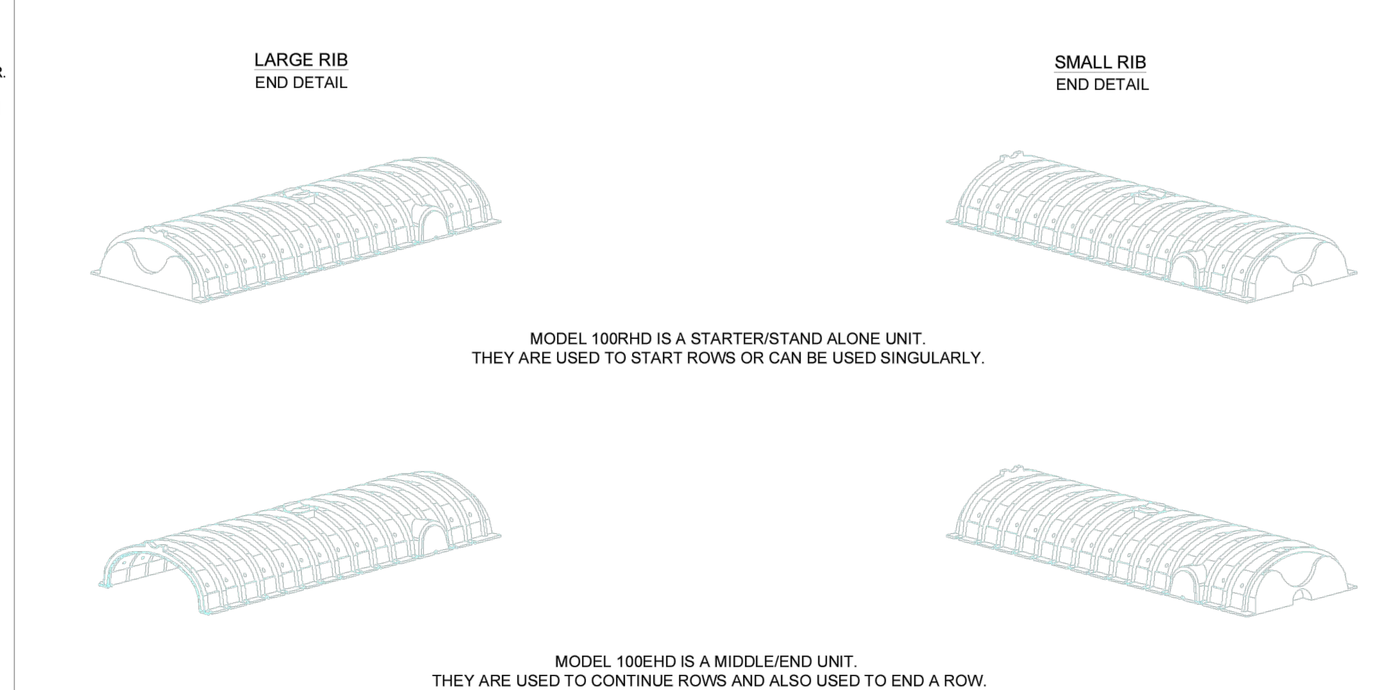
GEOTEXTILE PARAMETERS
1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TYPICAL WEIGHT OF 4.5 OZ/SY (142 G/M).
4. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH VALUE OF 120 LBS (533 N) PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE AN ELONGATION @ BREAK VALUE OF 50% PER ASTM D4632 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A MULLEN BURST VALUE OF 225 PSI (1551 KPA) PER ASTM D3786 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A PUNCTURE STRENGTH VALUE OF 65 LBS (289 N) PER ASTM D4833 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE VALUE OF 340 LBS (1513 N) PER ASTM D6241 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A TRAPEZOID TEAR VALUE OF 50 LBS (222 N) PER ASTM D4533 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A AOS VALUE OF 70 U.S. SIEVE (0.212 MM) PER ASTM D4751 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY VALUE OF 1.7 SEC-1 PER ASTM D4491 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATE VALUE OF 135 GAL/MIN/SF (5500 L/MIN/SM) PER ASTM D4491 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE A UV STABILITY @ 500 HOURS VALUE OF 70% PER ASTM D4355 TESTING METHOD.

ADS PLUS-US WOVEN GEOTEXTILE
ADS PLUS-US WOVEN GEOTEXTILE IS DESIGNED AS A UNDERLAYMENT TO PREVENT SCOURING CAUSED BY WATER MOVEMENT WITHIN THE CULTEC CHAMBERS AND FEED CONNECTORS UTILIZING THE CULTEC MANIFOLD FEATURE. IT MAY ALSO BE USED AS A COMPONENT OF THE CULTEC SEPARATOR ROW/ADS ISOLATOR ROW PLUS TO ACT AS A BARRIER TO PREVENT SOIL/CONTAMINANT INTRUSION INTO THE STONE WHILE ALLOWING FOR MAINTENANCE.

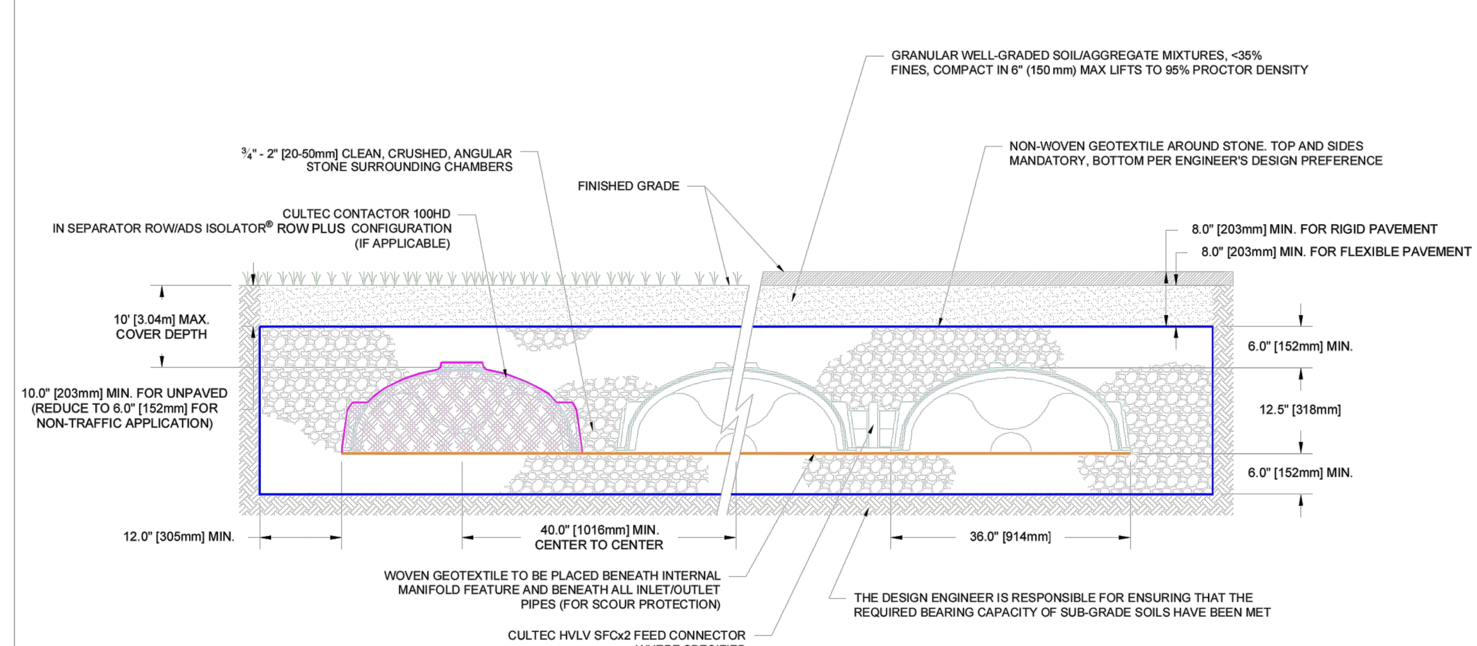
GEOTEXTILE PARAMETERS
1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK AND WHITE IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A MARV WEIGHT OF 8.0 OZ/YD² PER ASTM D5261 TESTING METHOD.
4. THE GEOTEXTILE SHALL HAVE A GRAB TENSILE STRENGTH OF 325 X 325 LBS (1,445 X 1,445 N) PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE A ELONGATION @ BREAK RESISTANCE OF 15 X 15% PER ASTM D4632 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE RESISTANCE OF 1,124 LBS (5,000 N) PER ASTM D6241 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A TRAPEZOIDAL TEAR RESISTANCE OF 125 X 125 LBS (556 X 556 N) PER ASTM D4533 TESTING METHOD.



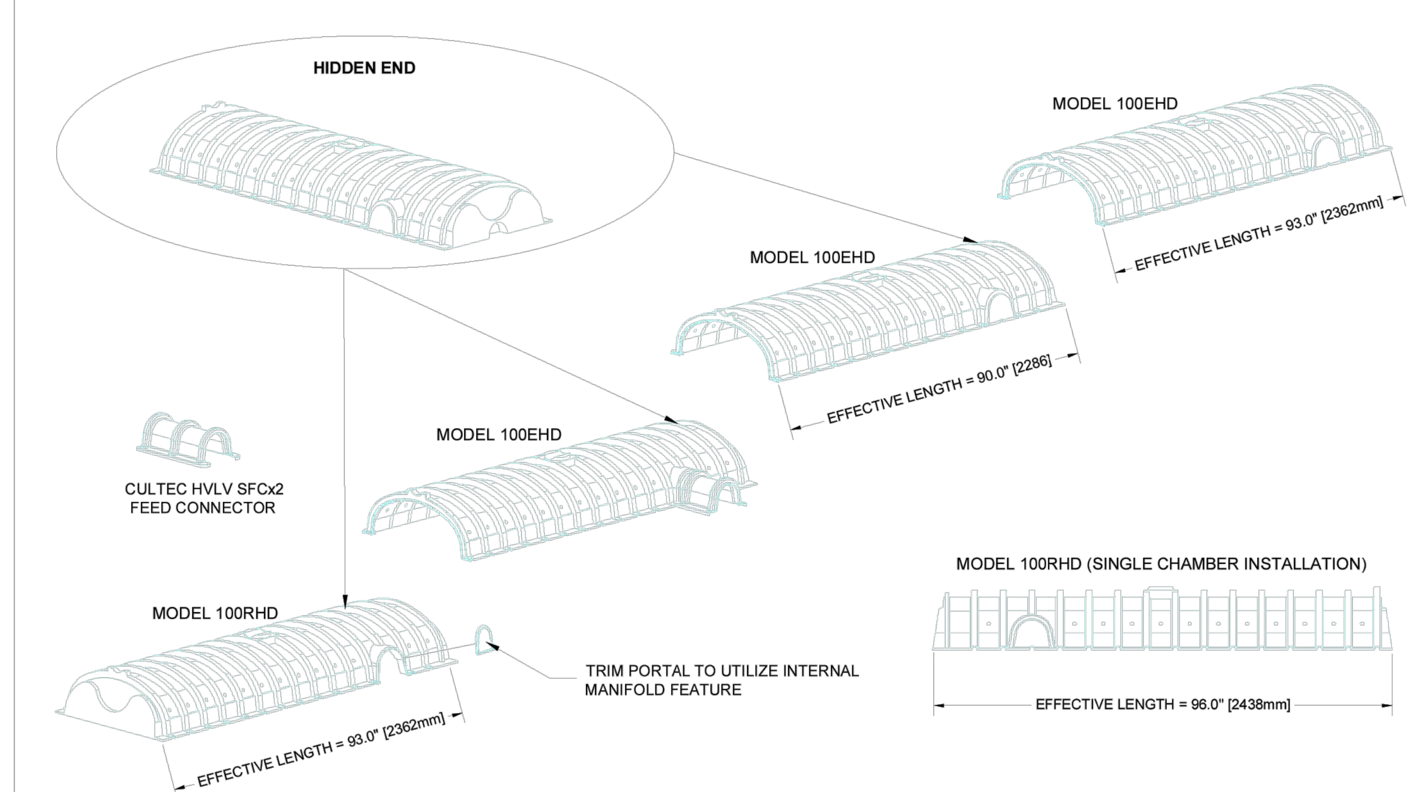
CULTEC UNIVERSAL INSPECTION PORT KIT DETAIL



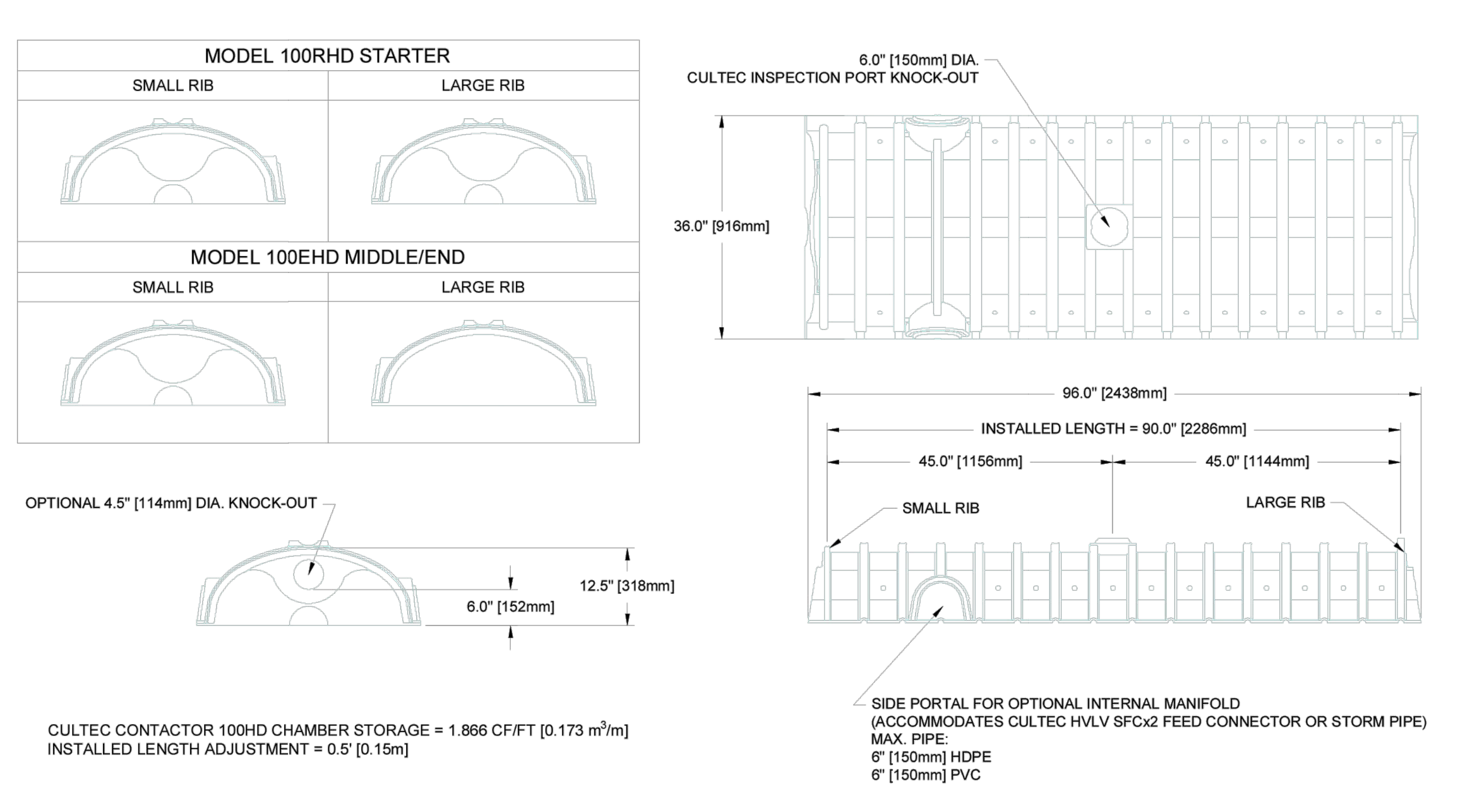
CULTEC CONTACTOR 100HD HEAVY DUTY END DETAIL INFORMATION



CULTEC CONTACTOR 100HD CROSS SECTION

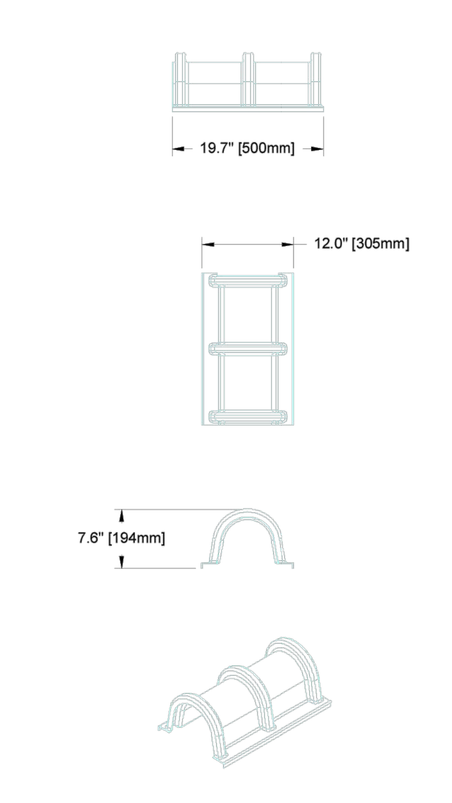


CULTEC CONTACTOR 100HD HEAVY DUTY TYPICAL INTERLOCK

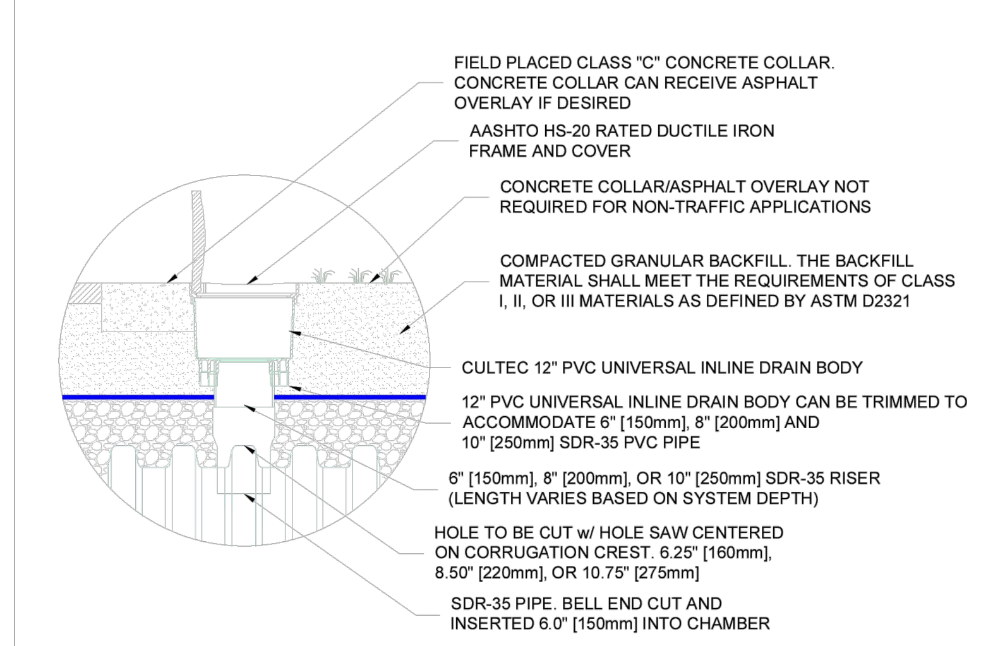


CULTEC CONTACTOR 100HD CHAMBER STORAGE = 1.866 CF/FT [0.173 m³/m]
INSTALLED LENGTH ADJUSTMENT = 0.5' [0.15m]

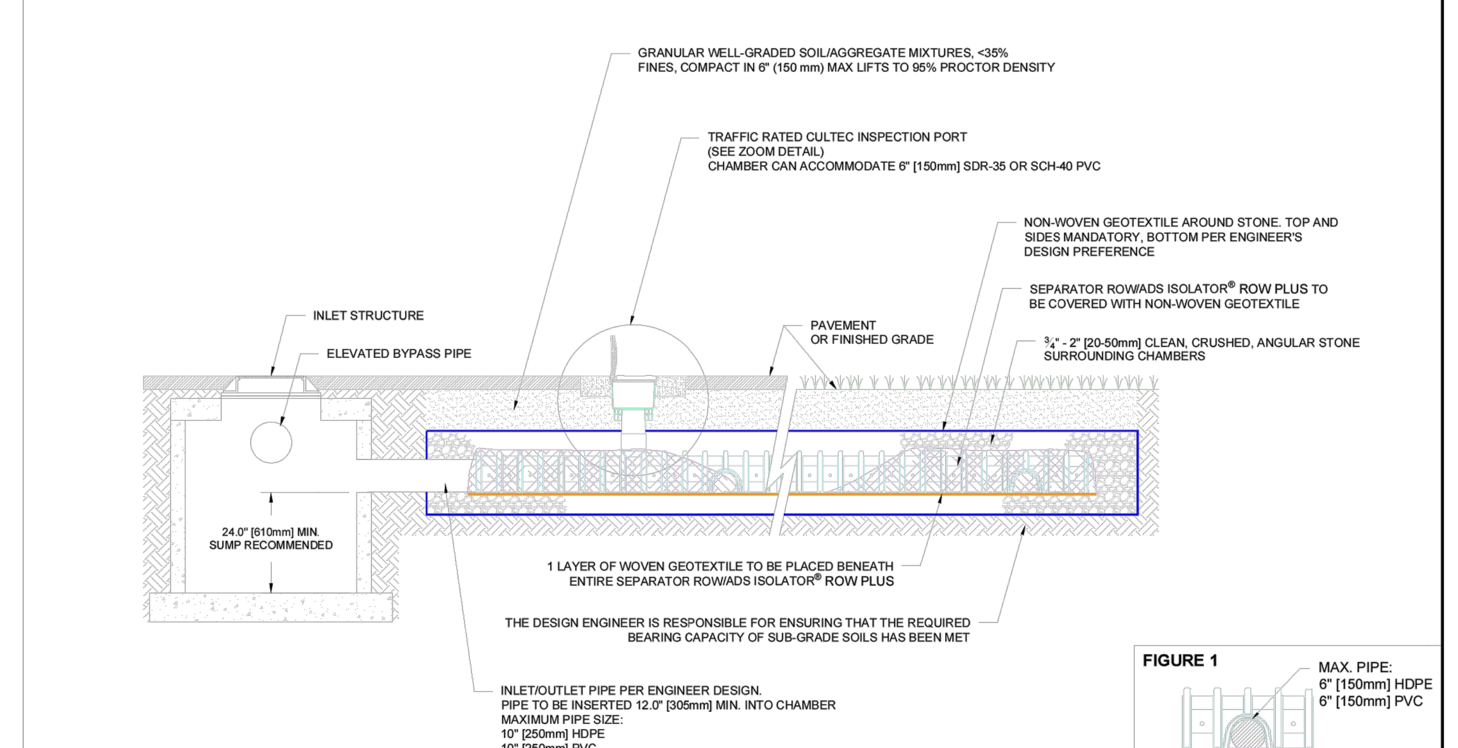
CULTEC CONTACTOR 100HD HEAVY DUTY THREE VIEW



CULTEC HVLV SFCx2 FEED CONNECTOR THREE VIEW



OPTIONAL CULTEC INSPECTION PORT - ZOOM DETAIL



CULTEC SEPARATOR ROW - CULTEC INSPECTION PORT DETAIL (IF APPLICABLE)

CULTEC STORMWATER CHAMBER			
PROJECT NO:	-	DATE:	11/25
DESIGNED BY:	TECH	CHECKED BY:	DPG
SCALE:	N.T.S.	SHEET NO:	1 OF 1

CONTACTOR 100HD
DETAIL SHEET

CULTEC
Subsurface Stormwater Management Systems
878 Federal Road
Brookfield, CT 06804
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1.02

Stantec

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Legend

Revision	By	Appd.	YY.MM.DD
1 ISSUED FOR CITY REVIEW	JP	PM	26.03.23

File Name: 160402276-DB	JP	PM	JP	26.02.05
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Seal

LICENSED PROFESSIONAL ENGINEER
P. MOROZ
90493552
2026-03-24
PROVINCE OF ONTARIO

Client/Project
MATTAMY HOMES

WATERIDGE VILLAGE
BLOCK 23
OTTAWA, ON, CANADA

Title
DETAILs SHEET

Project No.	Scale	
160402276		
Drawing No.	**Sheet**	**Revision**
DS-1	6 of 14	1

PLAN # XXXXX

D07-XX-XX-XXXX

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ORIGINAL SHEET - ARCH D