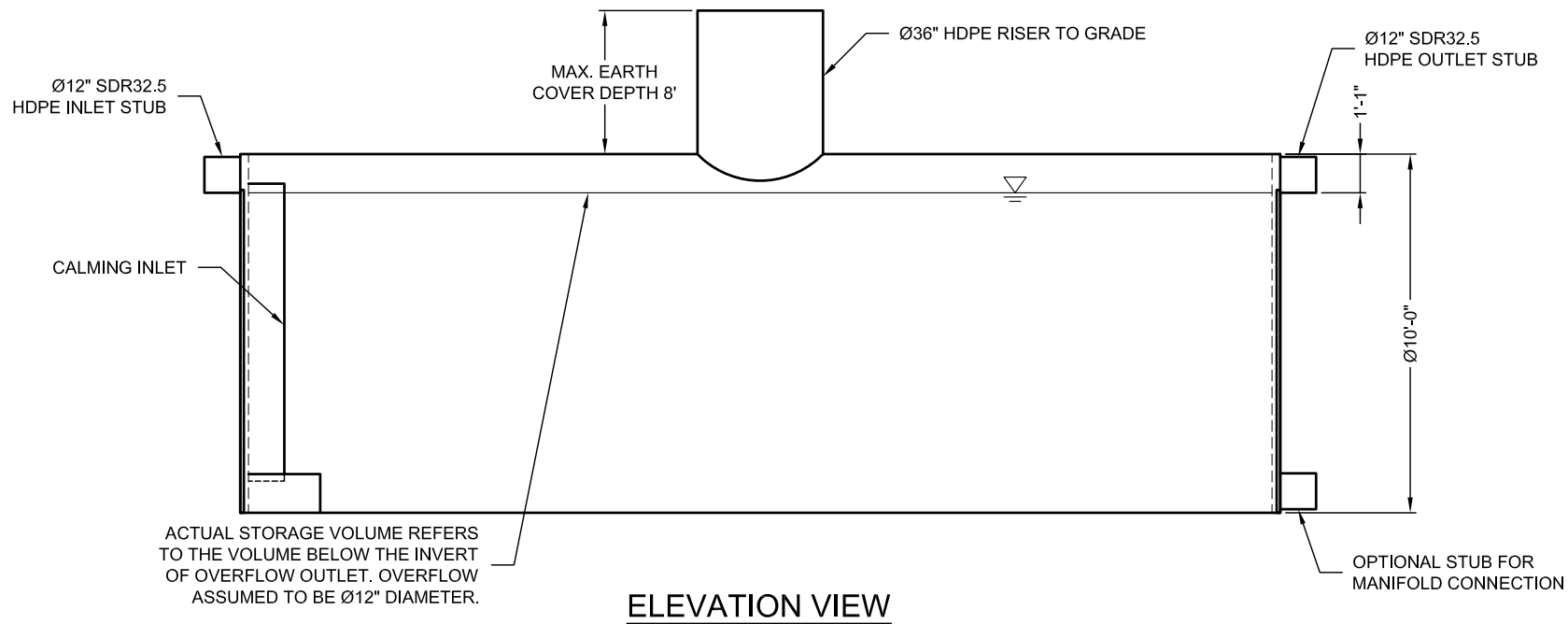
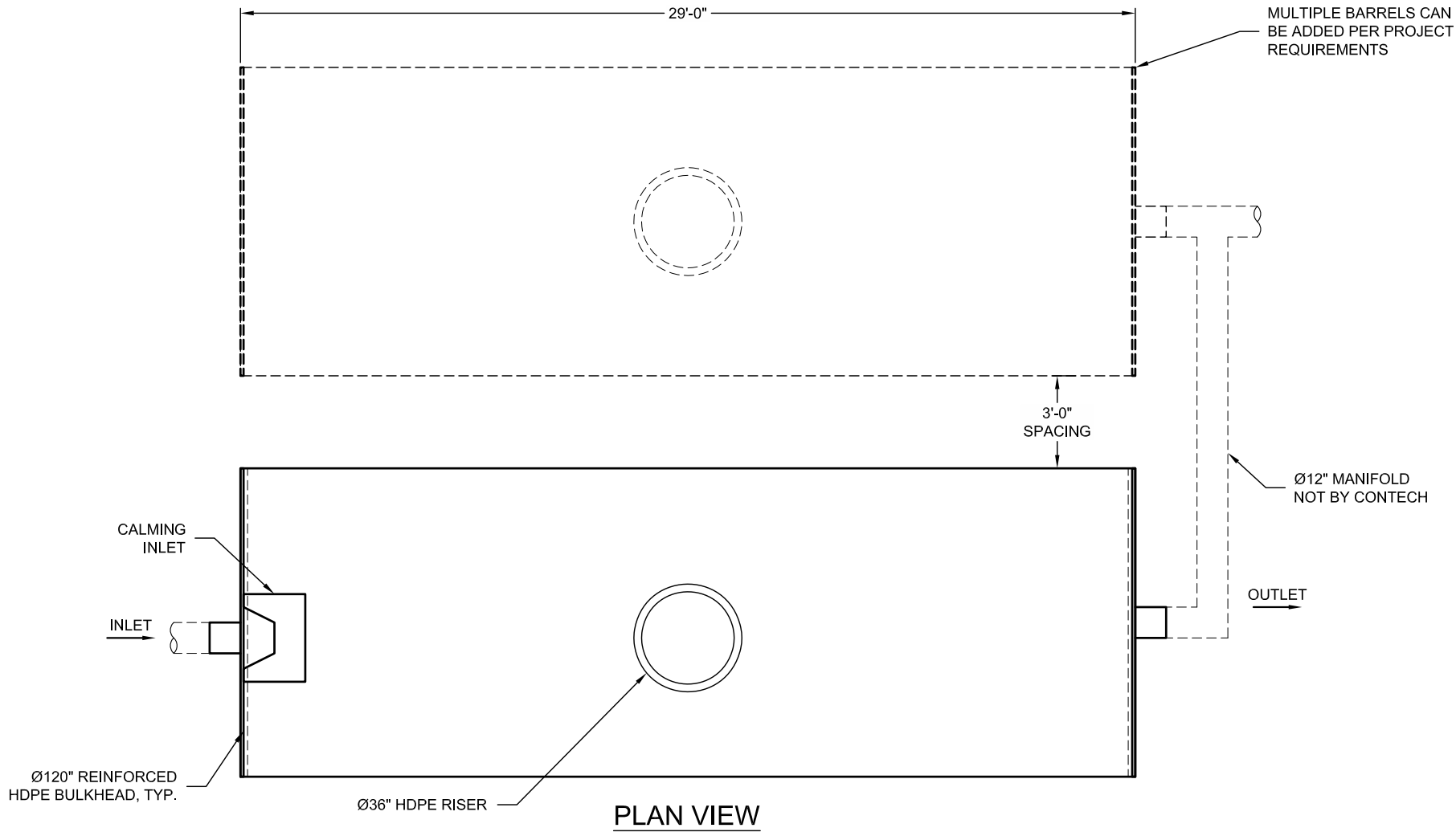


\\COMMONCAD\TREATMENT\68_URBANGREEN_RAINWATER_HARVESTING\40_STANDARD_DRAWINGS\SRPE\INDIVIDUAL_STANDARD_DETAILS\DWG\URWH SRPE 120 INCH 16500 GAL CISTER.DWG 7/27/2016 2:07 PM



ASSEMBLY

SCALE: 1" = 5'

TOTAL CISTERN VOLUME: 16,503 GAL. (2,206 C.F.)

ACTUAL STORAGE VOLUME: 15,492 GAL.

ESTIMATED HEAVIEST PICK WEIGHT = 4,750 LBS.

LOADING: H20/H25

NOTES

- MULTIPLE TANK LAYOUTS AVAILABLE.
- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM D3350.
- ALL RISERS AND STUBS ARE HIGH DENSITY POLYETHYLENE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE.
- FLOTATION CONTROL IS CRITICAL AND THE RESPONSIBILITY OF THE INSTALLER. THE INFORMATION IS SUBMITTED AS A GUIDELINE ONLY. CONTECH IS NOT RESPONSIBLE FOR THE USE AND INTERPRETATION OF THIS INFORMATION.
- ALL TANKS ARE TESTED FOR WATERTIGHTNESS PRIOR TO SHIPMENT.

The design and information shown on this drawing is provided as a service to the project owner, engineer and contractor by Contech Engineered Solutions LLC ("Contech"). Neither this drawing, nor any part thereof, may be used, reproduced or modified in any manner without the prior written consent of Contech. Failure to comply is done at the user's own risk and Contech expressly disclaims any liability or responsibility for such use.

If discrepancies between the supplied information upon which the drawing is based and actual field conditions are encountered as site work progresses, these discrepancies must be reported to Contech immediately for re-evaluation of the design. Contech accepts no liability for designs based on missing, incomplete or inaccurate information supplied by others.

MARK	DATE	REVISION DESCRIPTION	BY

CONTECH

ENGINEERED SOLUTIONS LLC

www.ContechES.com

9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069

800-338-1122 513-645-7000 513-645-7993 FAX

URBANGREEN

Ø120" URBANGREEN RWH SRPE CISTERN

Ø120" X 29' LONG

16,500 GAL

PROJECT No.: ----	SEQ. No.: ----	DATE: 2/10/16
DESIGNED: DRA	DRAWN: ASB	
CHECKED:	APPROVED:	
SHEET NO.: 1	OF 4	

\\COMMONCAD\TREATMENT\58_URBANGREEN_RAINWATER_HARVESTING\40_STANDARD_DRAWINGS\SRPE\INDIVIDUAL_STANDARD_DETAILS\DWG\URWH_SRPE_120_INCH_16500_GAL_CISTER.DWG 7/27/2016 2:07 PM

SPECIFICATION FOR STEEL REINFORCED POLYETHYLENE PIPE

SCOPE

THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE STEEL REINFORCED POLYETHYLENE PIPE DETAILED IN THE PROJECT PLANS.

DESCRIPTION

DUROMAXX IS A REINFORCED POLYETHYLENE PIPE WITH A SMOOTH WATERWAY WALL AND EXTERIOR PROFILE THAT IS REINFORCED WITH HIGH STRENGTH GALVANIZED STEEL RIBS. THE CONTINUOUS REINFORCING RIBS ARE COMPLETELY ENCASED WITHIN THE POLYETHYLENE PROFILE. DUROMAXX IS MANUFACTURED USING A HELICAL WINDING PROCESS THAT RESULTS IN A CONTINUOUSLY FUSION WELDED CIRCUMFERENTIAL LAP SEAM. THE PIPE PROFILE IS MANUFACTURED USING A HIGH QUALITY PRESSURE-RATED THERMOPLASTIC MEETING THE REQUIREMENTS OF ASTM F2562 "STANDARD SPECIFICATION FOR STEEL REINFORCED THERMOPLASTIC RIBBED PIPE AND FITTINGS FOR NON-PRESSURE DRAINAGE AND SEWERAGE". FOR THE PURPOSE OF HYDRAULIC DESIGN, THE RECOMMENDED MANNING'S "N" VALUE SHALL BE 0.012 FOR PIPE DIAMETERS INCLUDED WITHIN THIS SPECIFICATION. PIPE LENGTH & ALL DIMENSIONS SHOWN ARE SUBJECT TO MANUFACTURERS TOLERANCES OF ±1% ACCORDING TO ASTM F2562.

MATERIAL PROPERTIES

VIRGIN HIGH DENSITY POLYETHYLENE PRESSURE-RATED RESINS ARE USED TO MANUFACTURE DUROMAXX PIPE. RESINS SHALL CONFORM TO THE MINIMUM REQUIREMENTS OF CELL CLASSIFICATION 345464 C AS DEFINED AND DESCRIBED IN THE LATEST VERSION OF ASTM D3350 "STANDARD SPECIFICATION FOR POLYETHYLENE PLASTICS PIPE AND FITTINGS MATERIALS".

FITTINGS

ALL FITTINGS SHALL BE FABRICATED FROM DUROMAXX PIPE. ANY FITTINGS 30"Ø AND BELOW WILL BE HDPE PIPE.

ALL FABRICATION OF THE PRODUCT SHALL OCCUR WITHIN THE UNITED STATES.

INSTALLATION

INSTALLATION SHALL BE IN ACCORDANCE WITH ASTM D2321 "PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS" ALONG WITH PRODUCT-SPECIFIC RECOMMENDATIONS CONTAINED IN CONTECH INSTALLATION GUIDELINES FOR DUROMAXX PIPE.

INSTALLATION

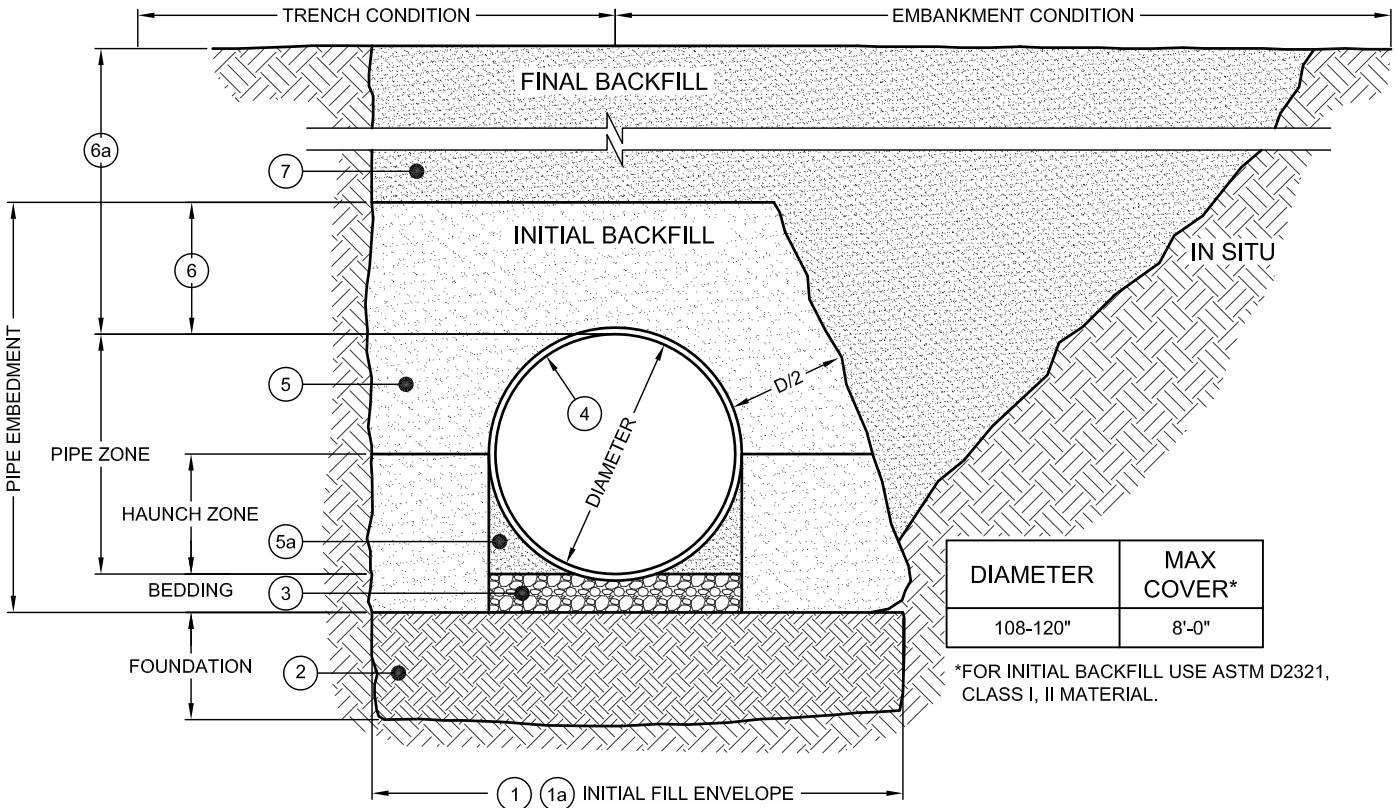
PRE-CONSTRUCTION MEETING

PRIOR TO INSTALLATION OF THE DRAINAGE SYSTEM A PRE-CONSTRUCTION MEETING SHALL BE CONDUCTED. THOSE REQUIRED TO ATTEND ARE THE SUPPLIER OF THE DRAINAGE SYSTEM, THE GENERAL CONTRACTOR, SUB CONTRACTORS AND THE ENGINEER.

INSTALLATION OF PIPE:

IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND/OR PROJECT ENGINEER TO ENSURE THAT ALL QUESTIONS ABOUT INSTALLATION ARE ADDRESSED PRIOR TO APPROVAL OF SYSTEM. ALL DETAILS FOR INSTALLATION ARE LOCATED IN THIS DRAWING PACKAGE ANY QUESTIONS CONCERNING THESE STANDARD DETAILS CAN BE ADDRESSED BY YOUR CONTECH REPRESENTATIVE PRIOR TO APPROVAL.

BACKFILL SHALL BE PLACED TO THE PROPER ELEVATION OVER THE SYSTEM AS OUTLINED IN THE PLANS. MINIMUM COVER FOR CONSTRUCTION LOADING NEEDS TO BE DETERMINED BASED ON THE TYPE OF EQUIPMENT THAT IS PLANNED FOR CONSTRUCTION. PROPER COVER FOR CONSTRUCTION EQUIPMENT SHALL BE DETERMINED PRIOR TO THE PRE-CONSTRUCTION MEETING BY THE ENGINEER.



- 1 MINIMUM TRENCH WIDTH MUST ALLOW ROOM FOR PROPER COMPACTION OF HAUNCH MATERIALS UNDER PIPE. MIN. WIDTH = (1.25 x DIAMETER) + 12" (FOLLOW ASTM D2321)
- 1a MINIMUM EMBANKMENT WIDTH IS 3 PIPE DIAMETERS.
- 2 FOUNDATION SHALL BE WELL CONSOLIDATED & STABLE.
- 3 BEDDING MATERIAL SHALL BE A RELATIVELY LOOSE MATERIAL THAT IS ROUGHLY SHAPED TO FIT THE BOTTOM OF THE PIPE, 4" TO 6" IN DEPTH.
- 4 DUROMAXX STEEL REINFORCED (SRPE) PIPE.
- 5 INITIAL BACKFILL FOR PIPE EMBEDMENT MATERIAL TO MEET ASTM D2321 CLASS I OR APPROVED EQUAL, COMPACTED TO 90% STANDARD PROCTOR (NATIVE MATERIAL CAN BE UTILIZED THAT MEETS ASTM D2321 OR APPROVED EQUAL).
- ALL LIFTS PLACED IN CONTROLLED MANNER. TO PREVENT UNEVEN LOADING, IT IS RECOMMENDED THAT LIFTS NOT EXCEED 8" UNCOMPACTED LIFT HEIGHTS.
- 5a HAUNCH ZONE MATERIAL SHALL BE HAND SHOVELED OR SHOVEL SLICED INTO PLACE TO ALLOW FOR PROPER COMPACTION.
- 6 INITIAL BACKFILL ABOVE PIPE MAY INCLUDE ROAD BASE MATERIAL AND RIGID PAVEMENT, MINIMUM COVER STILL APPLIES, OTHERWISE: 18" MINIMUM FOR PIPE DIAMETERS 108" - 120"
- 6a HEIGHT OF COMPACTED COVER PER DIAMETER FOR CONVENTIONAL HIGHWAY LOADS (DISTANCE MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TOP OF RIGID PAVEMENT): 36" MINIMUM FOR PIPE DIAMETERS 120"
- 7 FINAL BACKFILL MATERIAL SELECTION AND COMPACTION REQUIREMENTS PER THE PROJECT PLANS, SPECIFICATIONS. ENGINEER OF RECORD.

NOTES:

- GEOTEXTILE SHALL BE USED AS REQUIRED TO PREVENT SOIL MIGRATION.
- FOR MULTIPLE BARREL INSTALLATION THE RECOMMENDED STANDARD SPACING BETWEEN PARALLEL PIPE RUNS SHALL BE = PIPE DIA./2 OR 3' FOR PIPE DIAMETERS 72" AND LARGER. CONTACT YOUR CONTECH REPRESENTATIVE FOR NONSTANDARD SPACING.
- BACKFILL REQUIREMENTS SHALL FOLLOW ASTM D2321. IN THE EVENT OF DISCREPANCIES, ASTM D2321 SHALL SUPERCEDE THIS DETAIL.

1 BACKFILL DETAIL
2 SCALE: N.T.S.

The design and Information shown on this drawing is provided as a service to the project owner, engineer and contractor by Contech Engineered Solutions LLC ("Contech"). Neither this drawing, nor any part thereof, may be used, reproduced or modified in any manner without the prior written consent of Contech. Failure to comply is done at the user's own risk and Contech expressly disclaims any liability or responsibility for such use.

If discrepancies between the supplied information upon which the drawing is based and actual field conditions are encountered as site work progresses, these discrepancies must be reported to Contech immediately for re-evaluation of the design. Contech accepts no liability for designs based on missing, incomplete or inaccurate information supplied by others.

MARK	DATE	REVISION DESCRIPTION	BY

CONTECH

ENGINEERED SOLUTIONS LLC

www.ContechES.com

200 Enterprise Drive, Scarborough, ME 04074

877-907-8676 207-885-9830 207-885-9825 FAX

URBANGREEN

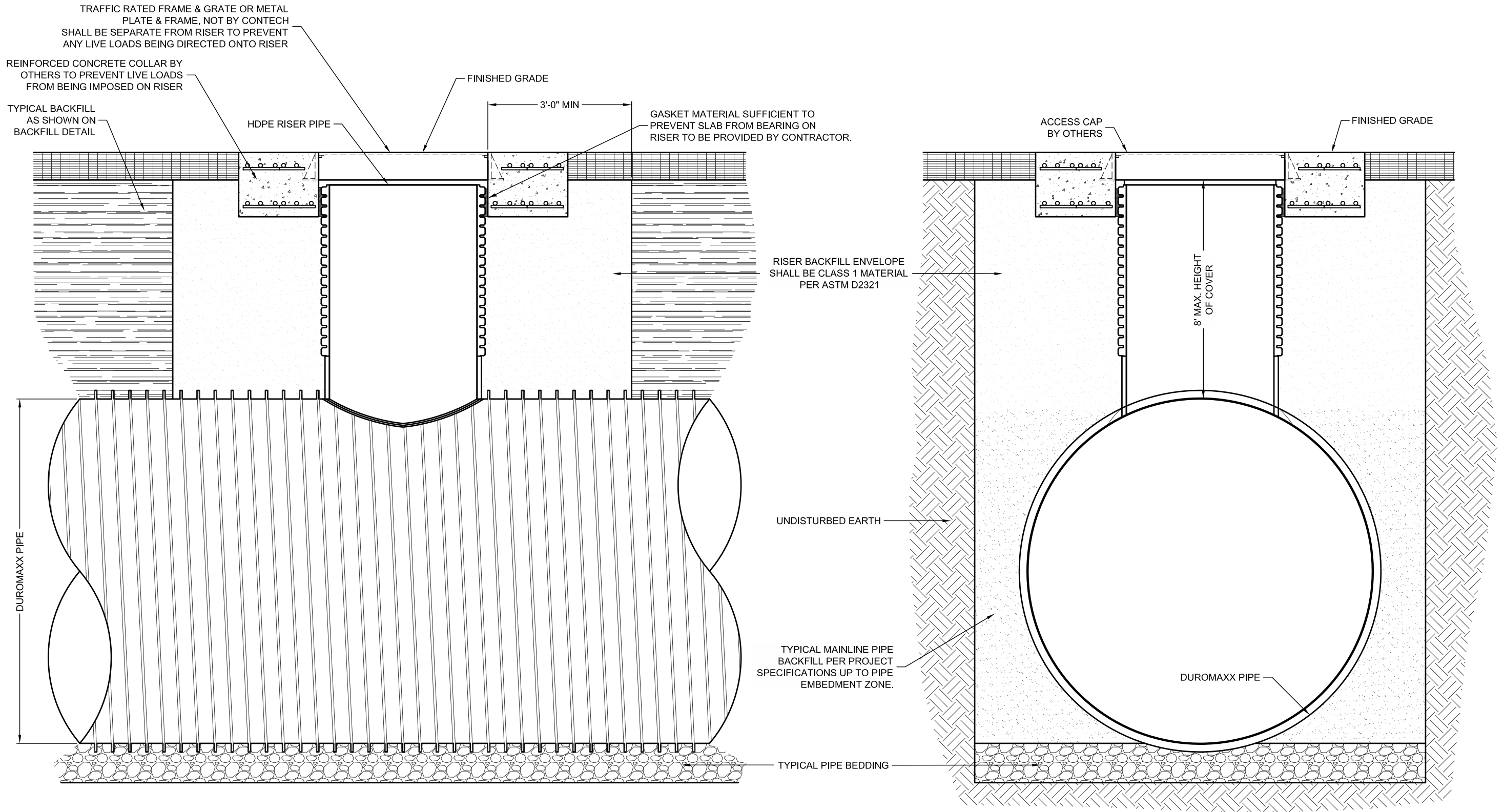
Ø120" URBANGREEN RWH SRPE CISTERN

Ø120" X 29' LONG

16,500 GAL

PROJECT No.: ----	SEQ. No.: ----	DATE: 2/10/16
DESIGNED: DRA	DRAWN: ASB	
CHECKED:	APPROVED:	
SHEET NO.: 2	OF 4	

H:\COMMON\CAD\TREATMENT\68_URBANGREEN RAINWATER HARVESTING\40 STANDARD DRAWINGS\SRPE\INDIVIDUAL STANDARD DETAILS\DWG\URWH SRPE 120 INCH 16500 GAL CISTER.DWG 7/27/2016 2:07 PM



2 STANDARD RISER INSTALLATION DETAIL
3 SCALE: N.T.S.

The design and information shown on this drawing is provided as a service to the project owner, engineer and contractor by Contech Engineered Solutions LLC ("Contech"). Neither this drawing, nor any part thereof, may be used, reproduced or modified in any manner without the prior written consent of Contech. Failure to comply is done at the user's own risk and Contech expressly disclaims any liability or responsibility for such use.

If discrepancies between the supplied information upon which the drawing is based and actual field conditions are encountered as site work progresses, these discrepancies must be reported to Contech immediately for re-evaluation of the design. Contech accepts no liability for designs based on missing, incomplete or inaccurate information supplied by others.

MARK	DATE	REVISION DESCRIPTION	BY

CONTECH
ENGINEERED SOLUTIONS LLC
www.ContechES.com
11815 NE Glenn Widing Drive, Portland, OR 97220
800-548-4667 503-240-3393 800-561-1271 FAX

URBANGREEN
RAINWATER HARVESTING

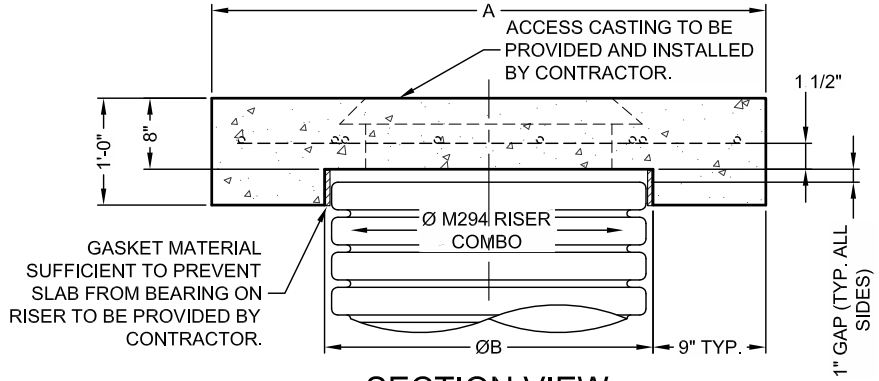
Ø120" URBANGREEN RWH SRPE CISTERN
Ø120" X 29' LONG
16,500 GAL

PROJECT No.: ----	SEQ. No.: ----	DATE: 2/10/16
DESIGNED: DRA	DRAWN: ASB	APPROVED:
CHECKED:	APPROVED:	
SHEET NO.: 3	OF 4	

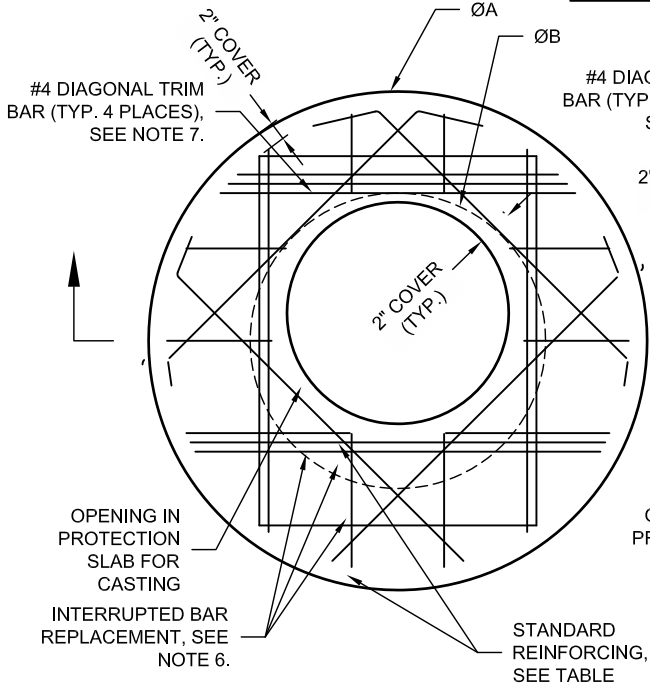
\\COMMONCADD\TREATMENT\68_URBANGREEN RAINWATER HARVESTING\40 STANDARD DRAWINGS\SRPE\INDIVIDUAL STANDARD DETAILS\DWG\URWH SRPE 120 INCH 16500 GAL CISTER.DWG 7/27/2016 2:07 PM

REINFORCING TABLE				
RISER Ø	A	Ø B	REINFORCING	**BEARING PRESSURE (PSF)
36"	Ø 5'-0" 5'-0" X 5'-0"	42"	#4 @ 9" OCEW #4 @ 7" OCEW	2,410 1,660

** ASSUMED SOIL BEARING CAPACITY



SECTION VIEW

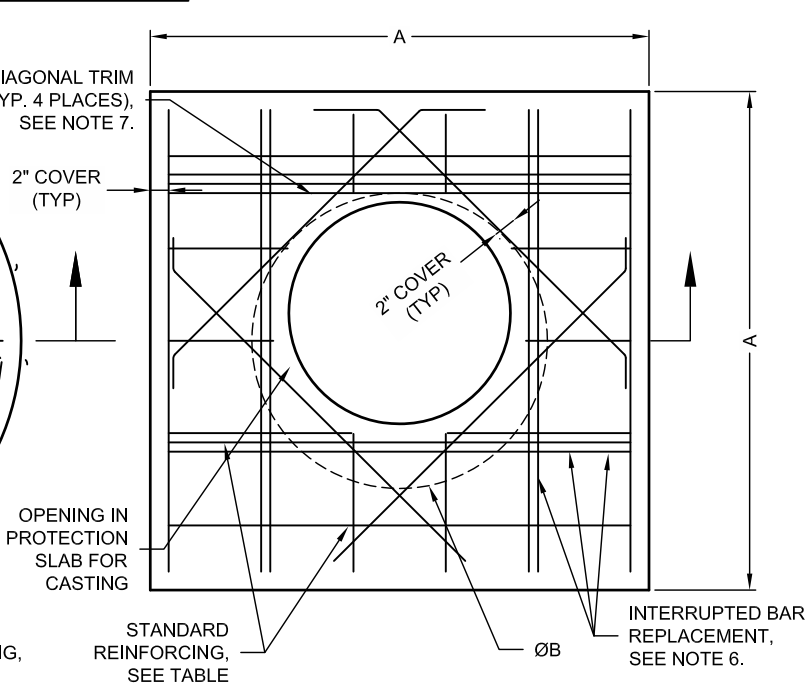


ROUND OPTION PLAN VIEW

NOTES:

- DESIGN IN ACCORDANCE WITH AASHTO, 17th EDITION.
- DESIGN LOAD HS25.
- EARTH COVER = 1' MAX.
- CONCRETE STRENGTH = 3,500 psi
- REINFORCING STEEL = ASTM A615, GRADE 60.

3 MANHOLE CAP DETAIL
4 SCALE: N.T.S.



SQUARE OPTION PLAN VIEW

- PROVIDE ADDITIONAL REINFORCING AROUND OPENINGS EQUAL TO THE BARS INTERRUPTED, HALF EACH SIDE. ADDITIONAL BARS TO BE IN THE SAME PLANE.
- TRIM OPENING WITH DIAGONAL #4 BARS, EXTEND BARS A MINIMUM OF 12" BEYOND OPENING, BEND BARS AS REQUIRED TO MAINTAIN BAR COVER.
- PROTECTION SLAB AND ALL MATERIALS TO BE PROVIDED AND INSTALLED BY CONTRACTOR.
- DETAIL DESIGN BY DELTA ENGINEERING, BINGHAMTON NY.

The design and Information shown on this drawing is provided as a service to the project owner, engineer and contractor by Contech Engineered Solutions LLC ("Contech"). Neither this drawing, nor any part thereof, may be used, reproduced or modified in any manner without the prior written consent of Contech. Failure to comply is done at the user's own risk and Contech expressly disclaims any liability or responsibility for such use.

If discrepancies between the supplied information upon which the drawing is based and actual field conditions are encountered as site work progresses, these discrepancies must be reported to Contech immediately for re-evaluation of the design. Contech accepts no liability for designs based on missing, incomplete or inaccurate information supplied by others.

MARK	DATE	REVISION DESCRIPTION	BY

CONTECH
ENGINEERED SOLUTIONS LLC
www.ContechES.com
11815 NE Glenn Widing Drive, Portland, OR 97220
800-548-4667 503-240-3393 800-561-1271 FAX

URBANGREEN
URBANGREEN RAINWATER HARVESTING

Ø120" URBANGREEN RWH SRPE CISTERN
Ø120" X 29' LONG
16,500 GAL

PROJECT No.: ----	SEQ. No.: ----	DATE: 2/10/16
DESIGNED: DRA	DRAWN: ASB	
CHECKED:	APPROVED:	
SHEET NO.: 4 OF 4		