

PROJECT:	Durham Meadows Waterline Remedial Design		
CONTRACT NO:	W912WJ19C0002	AECOM PROJECT NO.:	60494812
ENGINEER'S SUBMITTAL NO.:	02630-1	REVISION IDENTIFIER:	
CONTRACTOR'S SUBMITTAL NO.:	02630-1	REVISION IDENTIFIER:	
SUBJECT:	Storm Drainage Utilities		
REVIEW CODES: A – Approved as submitted. D – Will be returned by separate correspondence. X – Receipt acknowledged, does not comply with contract requirements, as noted. B – Approved, except as noted on drawings. Resubmission not required. E – Disapproved. Refer to attached comments. G – Other action required. C – Approved, except as noted on drawings. Refer to attached comments. Resubmission required. F – Receipt Acknowledged.			
The Engineer's review is for general conformance with the design concept and Contract Documents. Markings or comments shall not be construed as relieving the Contractor from compliance with the Contract plans and specifications or from departures there from. The Contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes, for techniques of assembly, and for performing work in a safe manner. AECOM Technical Services, Inc.			
DATE:	1 August 2019	REVIEWER:	R. Berlandy

The review is provided to assist the contractor in the management of construction. It should not be considered complete. In order to maintain continuity between submittals, the previous comment numbers have been retained. The shop drawing review comments follow:

COMMENT NUMBER	REFERENCE	CODE	COMMENT
1.	02630 2.01 C	A	Reinforced Concrete Pipe and rubber gasket.
2.	02630 2.02	B	Catch basin components: Provide Type A galvanized steel grates. Catch basin sump depths to conform to dimensions indicated on drawings.
3.	02630	B	Reinforced concrete culvert end sections: Conform to CT DOT standards.
4.	C-3	B	Contractor shall verify all dimensions.

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE				DATE 7/10/2019		TRANSMITTAL NO. 02630-1	
For use of this form, see ER 415-1-0; the proponent agency is CECW-CE							
SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS (This section will be initiated by the contractor)							
TO: WESTOVER RESIDENT OFFICE 570 Patriot Avenue Box 70 Chicopee, MA 01022-1634		FROM: Ludlow Construction Co., Inc. 19 Carmelina's Circle, Ludlow MA01056		CONTRACT NO. W912WJ19C0002		THIS IS A: NEW TRANSMITTAL	
SPECIFICATION SEC. NO. (Cover only one section with each transmittal) 02630-Storm-Drainage System		PROJECT TITLE AND LOCATION 01 Durham Meadows Waterline Remedial Design,		THIS TRANSMITTAL IS FOR: (Check one) ☐ FIO ☒ GA ☐ DA ☐ CR ☐ DA/CR ☐ DA/GA ☐ S			
ITEM NO. (See Note 3)	DESCRIPTION OF SUBMITTAL ITEM (Type size, model number/etc)	SUBMITTAL TYPE CODE (See Note 8)	NO. OF COPIES	CONTRACT REFERENCE DOCUMENT SPEC. PARA NO. e.	FOR CONTRACTOR USE g.	VARIATION (See Instruction No. 6) h.	FOR CE USE CODE (Note 9) i.
a.	b.	c.	d.	f.			
1	Precast Concrete Shop Drawing	02 - SHOP DRAWINGS	0	1.05-A.1	A	No	
6	Shop Drawings Cast in Place Structures	05 - DESIGN DATA	0	2.04	A	No	
Remarks from Contractor							
I certify that the above submitted items have been reviewed in detail and are correct and in the strict conformance with the contract drawings and specifications except as otherwise stated.							
NAME AND SIGNATURE OF CONTRACTOR							
SECTION II - APPROVAL ACTION							
ENCLOSURES RETURNED (List by item No.)				NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY			
				DATE			
ENG FORM 4025-R, JUL 2015							
REPLACES EDITION OF MAR 2012, WHICH IS OBSOLETE							



173 Church Street
Yalesville, CT 06492
(203) 269-3119 Fax (203) 265-4941

TO:

Ludlow Construction Co

19 Carmelina's Circle

Ludlow, MA 01056

Letter of Transmittal

Date: 7/9/19	Job # 33772
Attention: Mike Pio	
Project: Durham Meadows	
Waterline Rd	
Durham, CT	
Ph. - (413)-583-2522	
Fax- (413)-583-2039	
Email-	

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ the following items;

☒ Shop Drawings ☐ Prints ☐ Plans ☐ Samples ☒ Specifications

☐ Copy of Letter ☐ Change Order ☐ Sepias ☐ Calculations ☐ Other data _____

COPIES	DATE	NO	DESCRIPTION
1	7/9/19		RCP & GASKET

THESE ARE TRANSMITTED AS CHECKED BELOW:

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☐ For review and comment _____

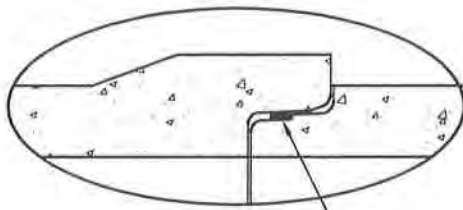
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James D. DeBarge

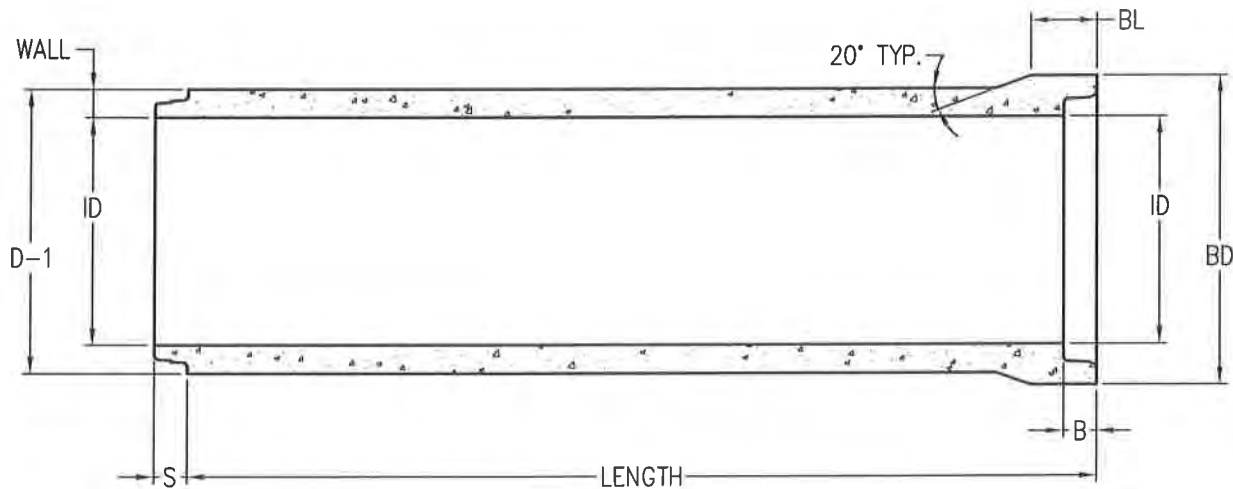
Reinforced Concrete Pipe

12" to 24" DIA., 8'-0" LONG,
WALL "B"

CLASS IV



PROFILE RUBBER GASKET



SIZE	ID	WALL	LENGTH	BL	B	S	D-1	BD	TONS/8' LG
12	12	2	8'-0"	6 1/2	3 1/2	3 1/2	16	19 5/8	.41
15	15	2 1/4	8'-0"	6 1/2	3 1/2	3 1/2	19 1/2	23 1/8	.61
18	18	2 1/2	8'-0"	6 1/2	3 1/2	3 1/2	23	26 5/8	.78
24	24	3	8'-0"	7	3 1/2	3 1/2	30	32 5/8	1.25

PIPE CONFORMS TO - ASTM C76 & AASHTO M170
RUBBER GASKET CONFORMS TO ASTM C443



UNITED CONCRETE PRODUCTS INC.

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WWW.UNITEDCONCRETE.COM



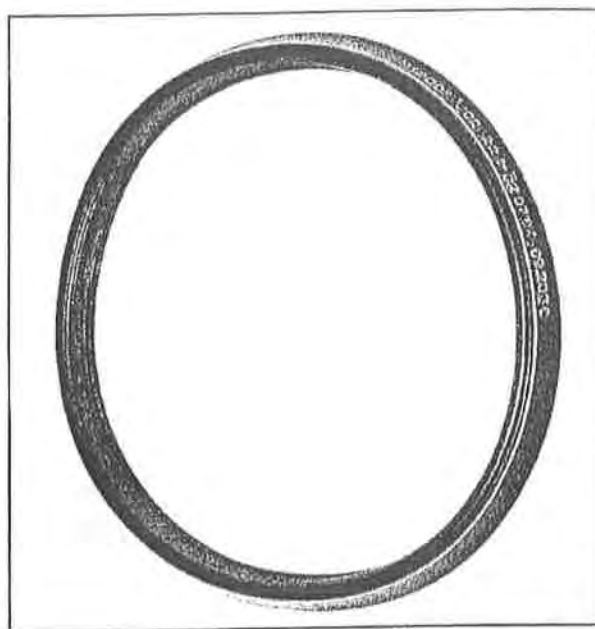
SOCL Series

Tylox™ Profile Gaskets for Single Offset Joints for Concrete Pipe and Manholes

Backed by over 50 years of experience in the watertight sealing of joints in concrete pipes and structures, the Tylox® "SOCL" profile gasket builds upon the success of the Tylox® Pre-lubricated SuperSeal™ gasket, to offer similar features at a more economical price.

Benefits of the Tylox® SOCL Profile Gaskets include:

- *Fool-proof installation.* The correct orientation of the gasket on the spigot is assured by the utilization of the colored stripe on the nose of the gasket. Simply install with the colored stripe facing out from, and located towards the end of, the spigot.
- *Easier equalization.* The incorporation of the unique "lamell" profile design allows for reduced gasket stretch requirements when compared to a conventional profile gasket. Reduced stretch means less equalization effort and a reduced potential for bell breakage due to unequal stresses in the rubber gasket.
- *No gasket "roll" or "twist".* Another benefit of the unique "lamell" design is the significant decrease in insertion force when compared to a conventional profile gasket. The reduction in homing force, coupled with the wide, flat base, virtually eliminates the potential for gasket roll and twist. Manual coupling of up to 24" pipe is possible.



Available Models			
Part	Gasket Dimensions		To Suit
	Height	Width	TAS
3SOCL	0.600	0.720	0.326 ± 0.030
7SOCL	0.790	0.900	0.446 ± 0.040
9SOCL	0.970	1.140	0.566 ± 0.050

PART 3SOCL FOR 12" to 36" PIPE

PART 7SOCL FOR 42" & LARGER



Making Infrastructure Water-Tight, TODAY!
For A Greener, Sustainable Tomorrow

Materials and Identification

Tylox® SOCL gaskets are manufactured from a variety of synthetic rubber compounds, to meet the material requirements of ASTM C361, ASTM C443, ASTM C1619, California Greenbook and CSA A257.

The applicable specification(s) and useage mode for a particular gasket are identified by a colored stripe around the periphery of the gasket:

Standard

C443, A257, C1619	White Stripe
C361, A257, C1619	Blue Stripe
California Greenbook	Green Stripe

Oil-Resistant

C361, C443, A257, C1619	Orange Stripe
California Greenbook	Yellow Stripe

The above listing covers the standard North American specifications. Gaskets materials are available to meet many other specifications. Please consult your Hamilton Kent representative regarding materials to meet your particular specifications.

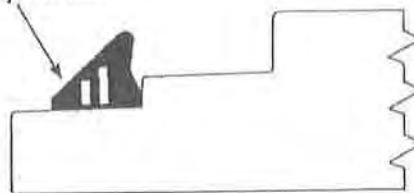
Pressure Rating

Tylox® SOCL gaskets are suitable for use in systems with up to 13 PSIG (30 ft Head) pressure requirements.

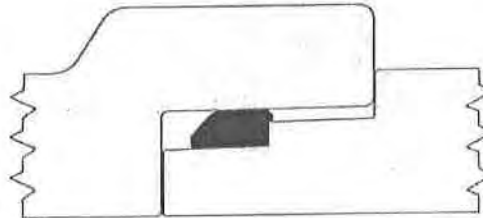
Installation

1. Ensure that bell and spigot are free from cracks, chips, or other defects.
2. Brush loose dirt, debris and foreign material from the inside surface of bell, the spigot and the gasket.
3. Stretch gasket over spigot and snap gasket into position, with the colored stripe facing toward the end of the spigot (away from the offset step).

Colored Stripe Location



4. Using a suitable tool, equalize tension in gasket around the full circumference of the spigot.
5. Ensure rear of gasket is seated firmly against the spigot step, around the full circumference of the spigot.
6. Thoroughly lubricate the gasket and the inner surface of the bell with an appropriate grade of Tylox® pipe gasket lubricant. *(For gaskets rated for "Standard" useage, Hydro-carbon based lubricants must not be used, as these have a detrimental effect on the gasket material and the joints watertight rating.)*
7. Align the spigot with the bell, ensuring that the gasket is in contact with the bell around the complete periphery, then thrust pipe home using suitable manual or mechanical means.



HK **Hamilton Kent**
Sealing Your Connection

TEL: (800) 268 8479

FAX: (888) 674 6960

WEB: www.hamiltonkent.com

E-MAIL: sales@hamiltonkent.com

Lit_SOCL_English_R5

Tylox® SOCL™ Gaskets are manufactured by Hamilton Kent Inc. and/or Hamilton Kent LLC. They are distributed worldwide by Hamilton Kent Inc., except for the U.S.A. where they are distributed by Hamilton Kent LLC. Tylox® is a registered trademark of Hamilton Kent Inc. All Tylox® SOCL Profile gaskets are warranted for 12 months from date of purchase (invoice date) in accordance with the details outlined in Hamilton Kent's Standard Terms and Conditions.



173 Church Street
Yalesville, CT 06492
(203) 269-3119 Fax (203) 265-4941

TO:

Ludlow Construction Co

19 Carmelina's Circle

Ludlow, MA 01056

Letter of Transmittal

Date: 7/9/19	Job # 33772
Attention: Mike Pio	
Project: Durham Meadows	
Waterline Rd	
Durham, CT	
Ph. - (413)-583-2522	
Fax- (413)-583-2039	
Email-	

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ the following items;

☒ Shop Drawings ☐ Prints ☐ Plans ☐ Samples ☒ Specifications

☐ Copy of Letter ☐ Change Order ☐ Sepias ☐ Calculations ☐ Other data _____

COPIES	DATE	NO	DESCRIPTION
1	7/9/19		CATCH BASIN COMPONENTS

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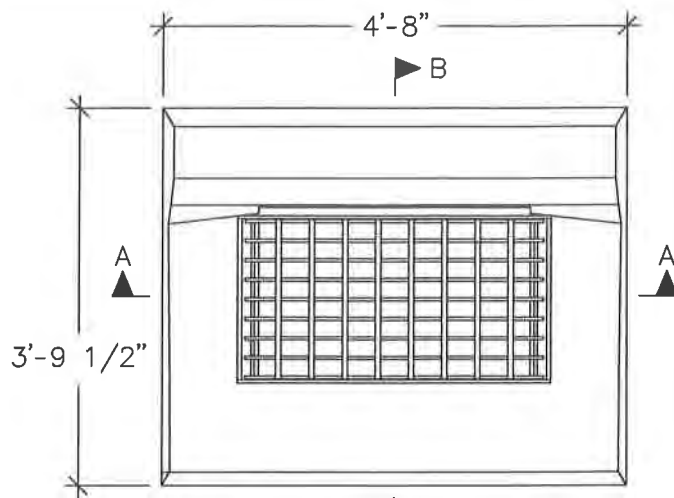
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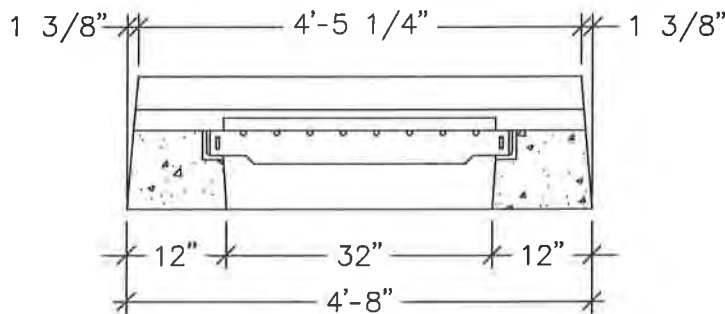
☐ For review and comment _____

☐ FOR BIDS DUE _____

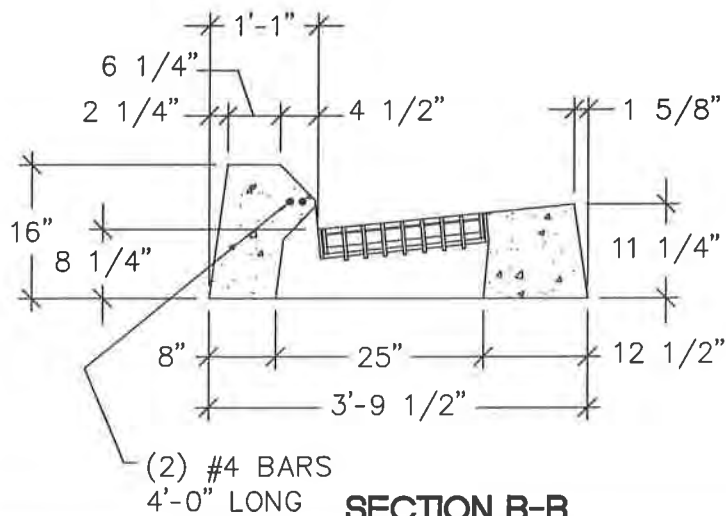
James D. DeBarge



TOP PLAN VIEW



SECTION A-A



SECTION B-B

TYPE "C" BITUMINOUS CURB CATCH BASIN TOP

CONFORMS TO CTDOT STANDARD

DESIGN NOTES:

1. REINFORCING STEEL DEFORMED BARS CONFORM TO LATEST ASTM SPECIFICATION A615, GRADE 60, MIN. COVER 2" UNLESS NOTED. (ADD'L BARS ADDED FOR HANDLING BARS NOT SHOWN).
2. CONCRETE COMPRESSIVE STRENGTH- 5,000 PSI AT 28 DAYS SELF COMPACTING CONCRETE MIX.
3. METHOD OF MANUFACTURE: WET CAST
4. SECTION IS MONOLITHIC.
5. GALVANIZED FRAME & GRATE.
6. GRATE- TYPE A

WEIGHT CHART

PRODUCT	APPROX WEIGHT
TYPE "C" TOP	1700 LBS

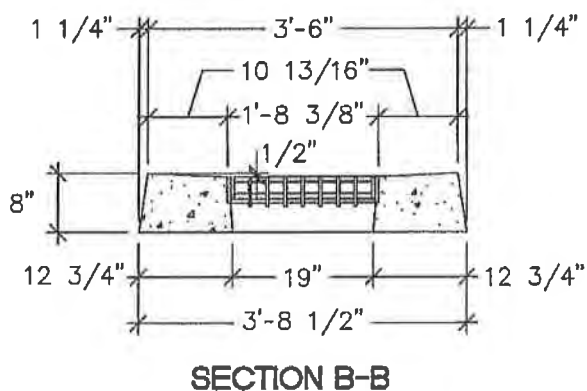
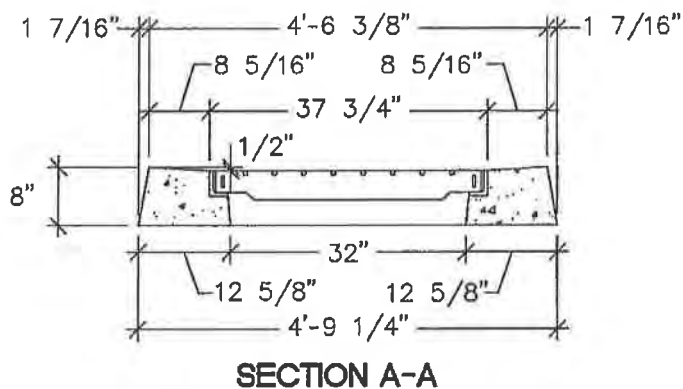
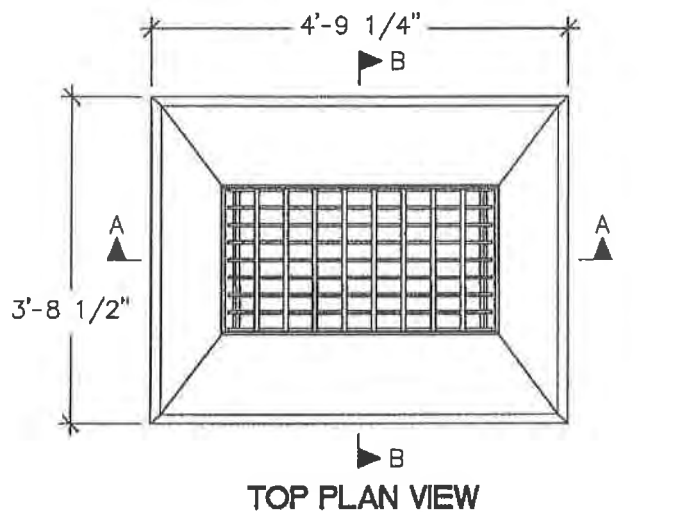


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TYPE "CL" CATCH BASIN TOP

CONFORMS TO CTDOT STANDARD

DESIGN NOTES:

1. REINFORCING STEEL DEFORMED BARS CONFORM TO LATEST ASTM SPECIFICATION A615, GRADE 60, MIN. COVER 2" UNLESS NOTED. (ADD'L BARS ADDED FOR HANDLING BARS NOT SHOWN).
2. CONCRETE COMPRESSIVE STRENGTH- 5,000 PSI AT 28 DAYS SELF COMPACTING CONCRETE MIX.
3. METHOD OF MANUFACTURE: WET CAST
4. SECTION IS MONOLITHIC.
5. GALVANIZED FRAME & GRATE.
6. GRATE- TYPE A

WEIGHT CHART

PRODUCT	APPROX WEIGHT
TYPE "CL" TOP	1100 LBS



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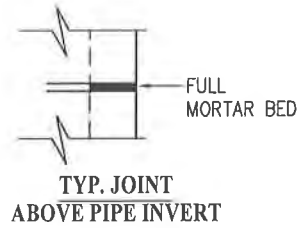
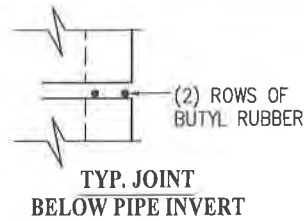
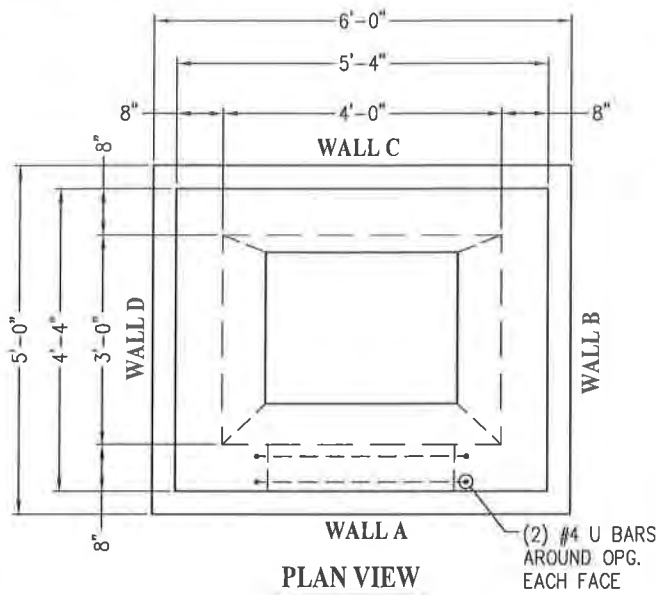
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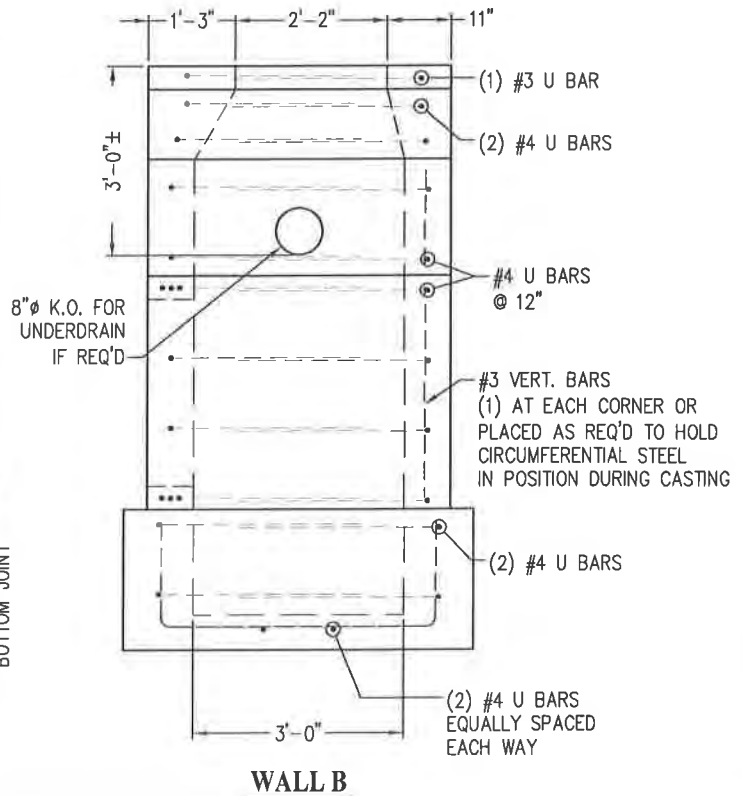
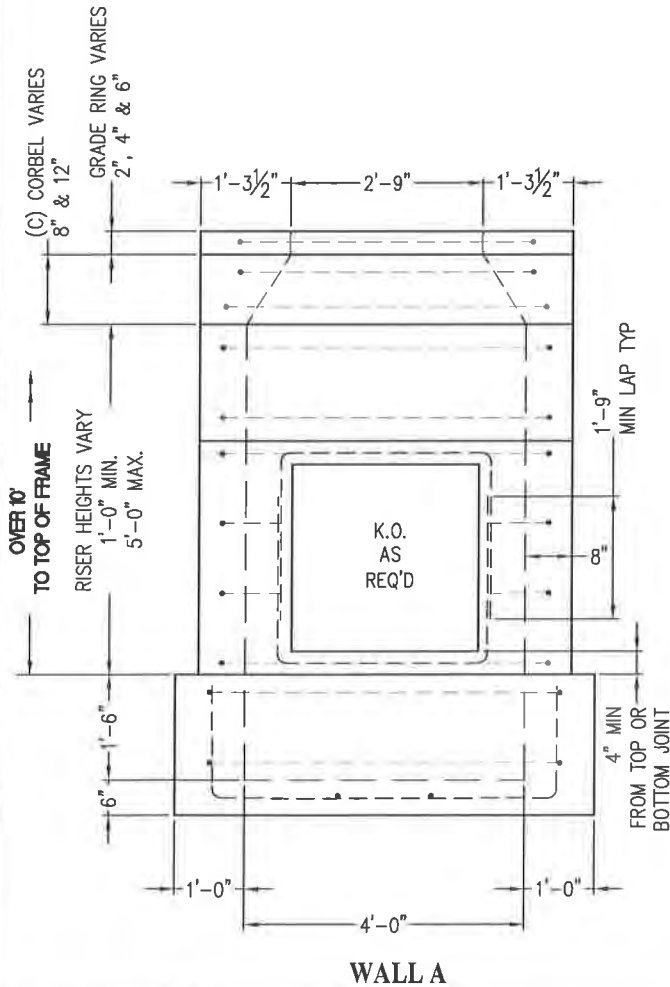
CTDOT TYPE C CATCH BASIN COMPONENTS OVER 10'

NOTES:

1. JOINT SEALANT IS BUTYL RUBBER MASTIC TYPE SEAL THAT CONFORMS TO LATEST AASHTO SPECIFICATION SS-S-0021(210-A).
2. REINFORCING STEEL DEFORMED BARS CONFORM TO LATEST ASTM SPECIFICATION A615, GRADE 60 MIN. COVER 2" UNLESS NOTED.
3. CONCRETE COMPRESSIVE STRENGTH-5,000 PSI AT 28 DAYS, SELF COMPACTING CONCRETE MIX.
4. METHOD OF MANUFACTURE: WET CAST.
5. SUMP SECTION IS MONOLITHIC.
6. CONFORMS TO CTDOT STANDARD



WEIGHT CHART	
PRODUCT	APPROX. WEIGHT
8" WALL RISER	1,700 LBS./LF
12" WALL RISER	2,800 LBS./LF
SUMP SECTION	6,600 LBS.

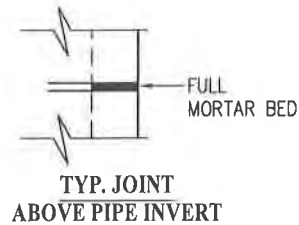
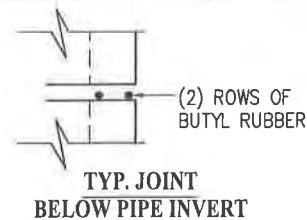
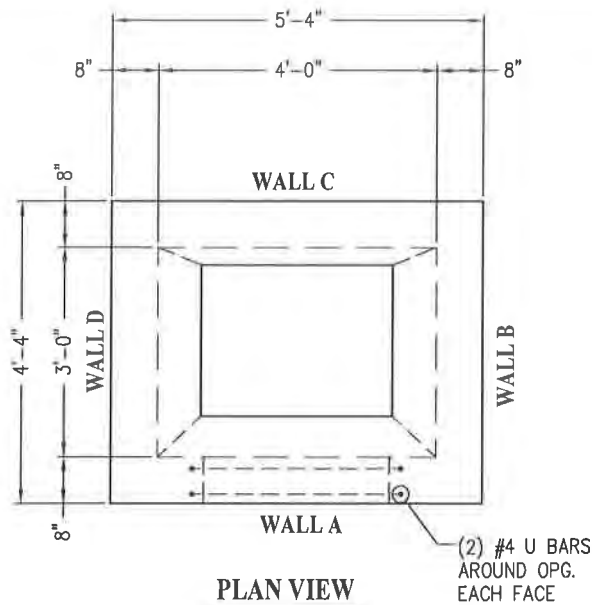


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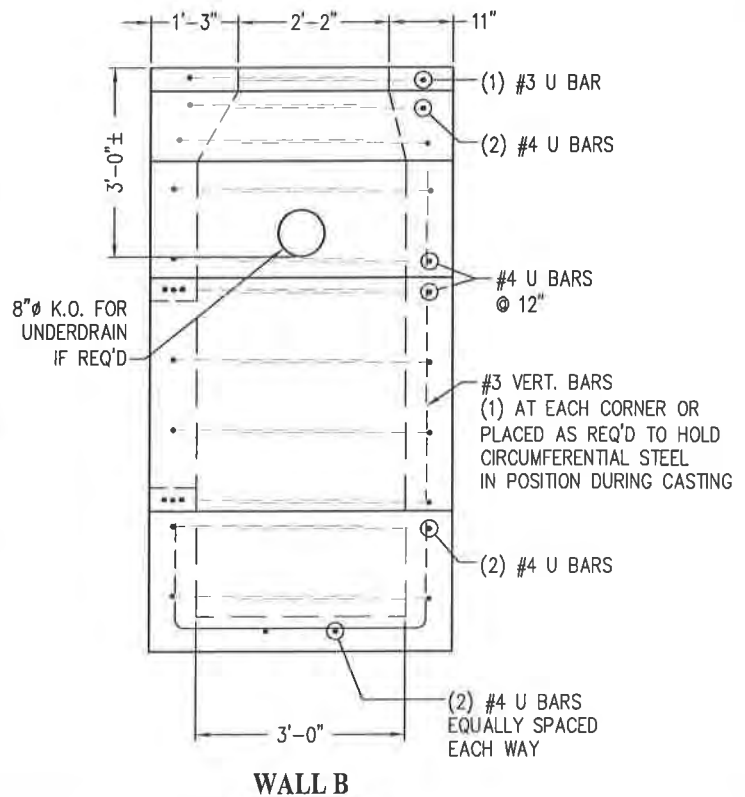
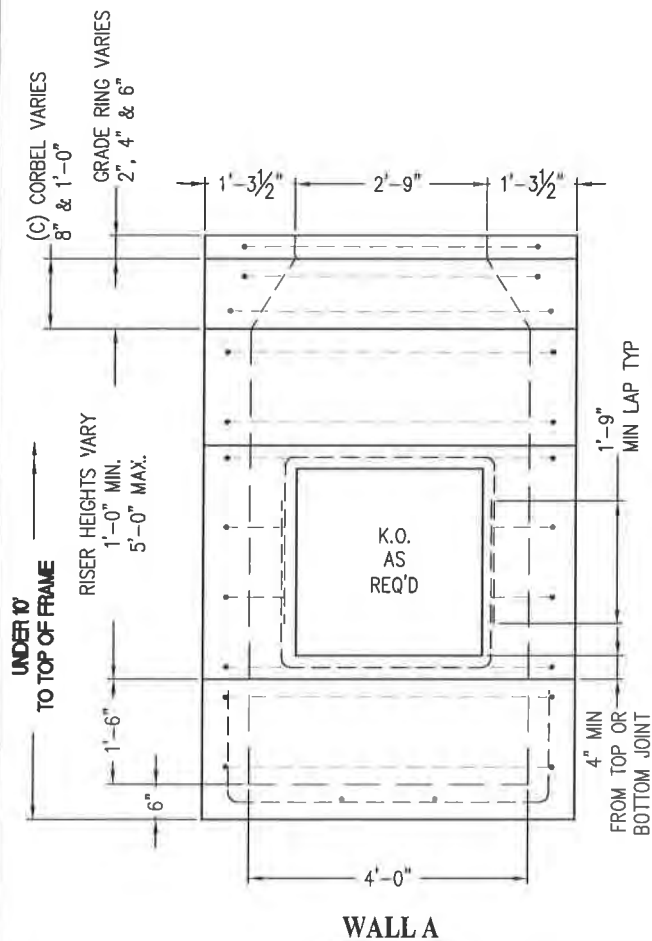


CTDOT TYPE C CATCH BASIN COMPONENTS UNDER 10'

NOTES:

1. JOINT SEALANT IS BUTYL RUBBER MASTIC TYPE SEAL THAT CONFORMS TO LATEST AASHTO SPECIFICATION SS-S-210(210-A).
2. REINFORCING STEEL DEFORMED BARS CONFORM TO LATEST ASTM SPECIFICATION A615, GRADE 60 MIN. COVER 2" UNLESS NOTED.
3. CONCRETE COMPRESSIVE STRENGTH—**5,000** PSI AT 28 DAYS, SELF COMPACTING CONCRETE MIX.
4. METHOD OF MANUFACTURE: WET CAST.
5. SUMP SECTION IS MONOLITHIC.
6. CONFORMS TO CTDOT STANDARD

WEIGHT CHART	
PRODUCT	APPROX. WEIGHT
RISER SECTION	1,700 LBS./LF
SUMP SECTION	4,300 LBS.



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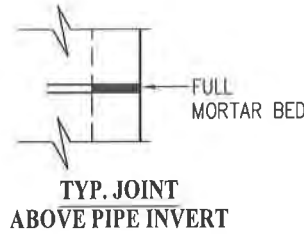
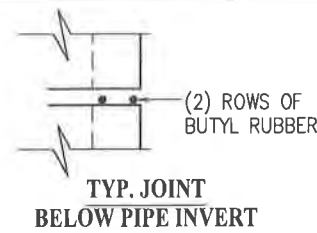
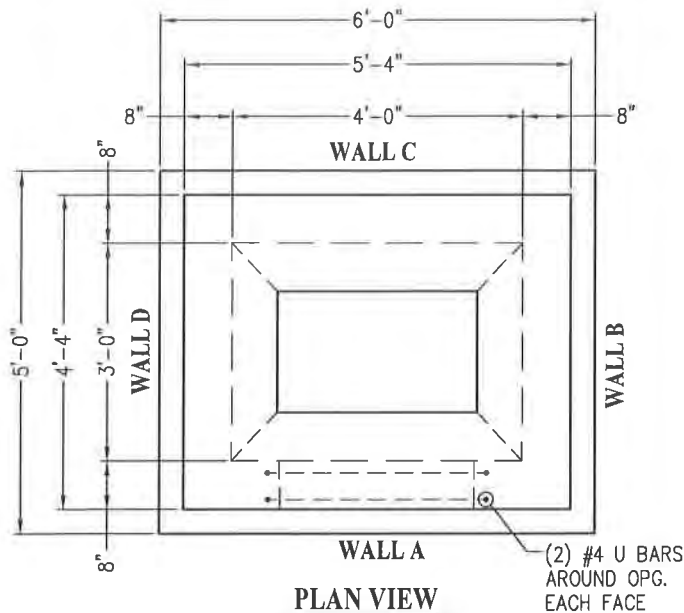
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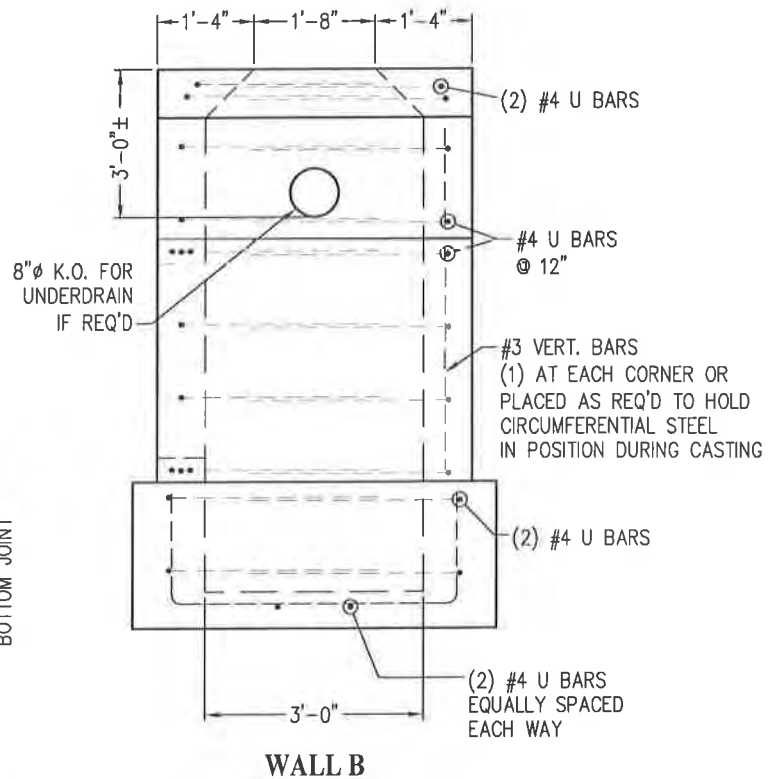
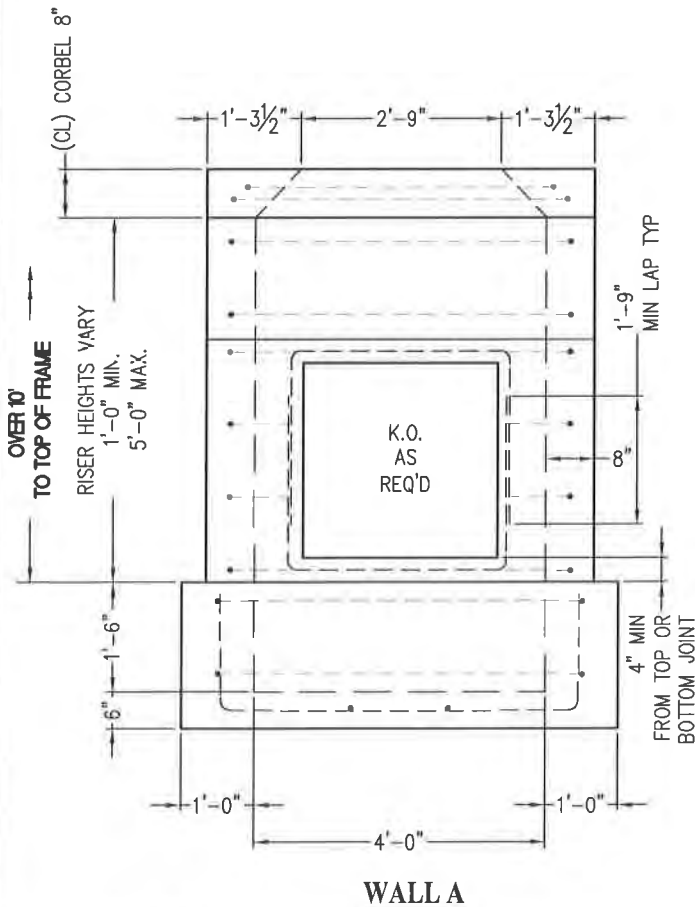
CTDOT TYPE CL CATCH BASIN COMPONENTS OVER 10'

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4. METHOD OF MANUFACTURE: WET CAST.
5. SUMP SECTION IS MONOLITHIC.
6. CONFORMS TO CTDOT STANDARD



WEIGHT CHART	
PRODUCT	APPROX. WEIGHT
8" WALL RISER	1,700 LBS./LF
12" WALL RISER	2,800 LBS./LF
SUMP SECTION	6,600 LBS.



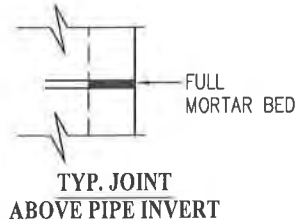
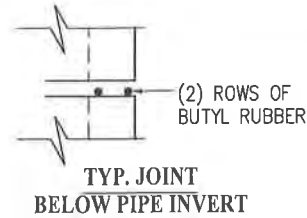
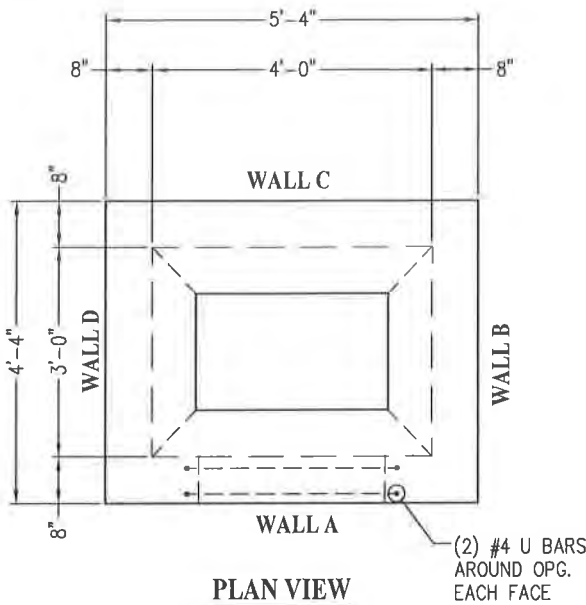
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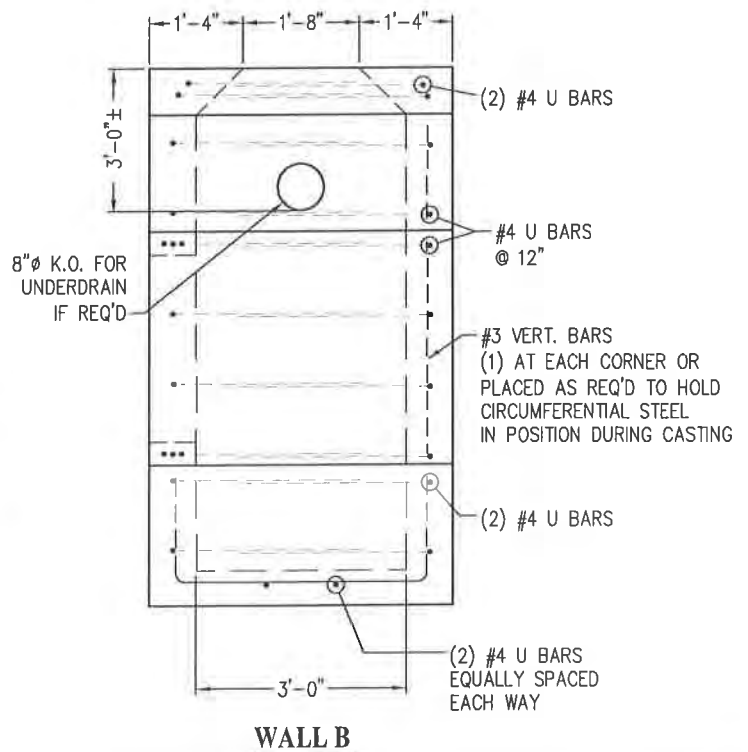
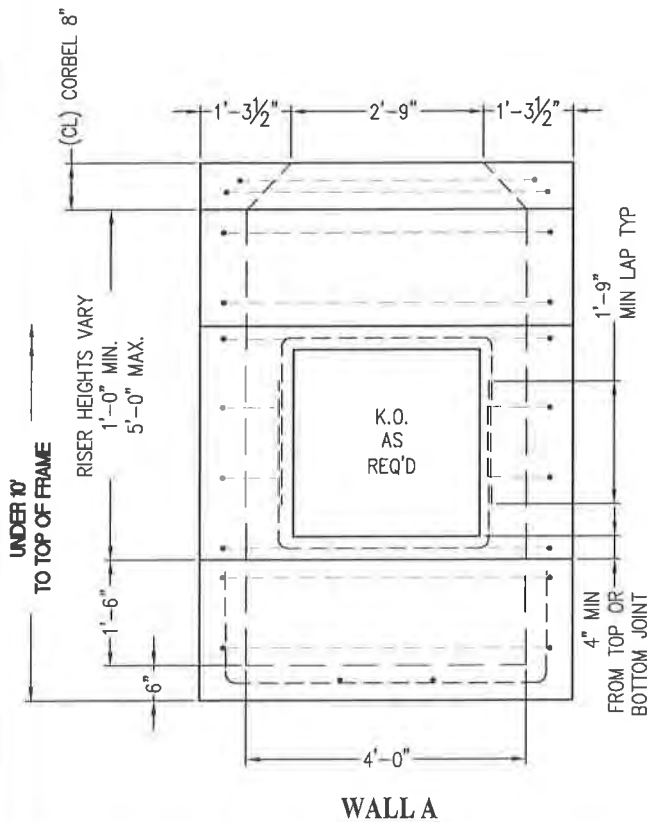
CTDOT TYPE CL CATCH BASIN COMPONENTS UNDER 10'



NOTES:

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WEIGHT CHART	
PRODUCT	APPROX. WEIGHT
RISER SECTION	1,700 LBS./LF
SUMP SECTION	4,300 LBS.



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CONSEAL™
Concrete Sealants INC.

CS102

**Butyl Rubber Sealant For All Precast Structures;
Meets Specs.**

APPLICATIONS

For self-sealing joints in: Manholes, Concrete Vaults, Septic Tanks, Concrete Pipe, Box Culverts, Utility Vaults, Burial Vaults, and Vertical Panel Structures.

SEALING PROPERTIES

- Provides permanently flexible watertight joints.
- Low to high temperature workability: 30°F to 120°F (-1°C to 48°C)
- Rugged service temperature: -30°F to +200°F (-34°C to +93°C)
- Excellent chemical and mechanical adhesion to clean, dry surfaces.
- Sealed Joints will not shrink, harden or oxide upon aging.
- No priming normally necessary. When confronted with difficult installation conditions, such as wet concrete or temperatures below 40°F (4°C), priming the concrete will improve the bonding action. Consult Concrete Sealants for the proper primer to meet your application.

HYDROSTATIC STRENGTH

ConSeal CS-102 meets the hydrostatic performance requirement as set forth in ASTM C-990 section 10.1 (Performance requirement: 10psi for 10 minutes in straight alignment – in plant, quality control test for joint materials.)

SPECIFICATIONS

ConSeal CS-102 meets or exceeds the requirements of Federal Specification SS-S-210 (210-A), AASHTO M-198B, and ASTM C-990-91.

PRODUCT SPECIFICATIONS



CONSEAL™
Concrete Sealants INC.

CS102

**Butyl Rubber Sealant For All Precast Structures;
Meets Specs.**

PHYSICAL PROPERTIES

	Spec	Required*	CS 102
Hydrocarbon blend content % by weight	ASTM D4 (mod.)	50% min.	51%
Inert mineral filler % by weight	AASHTO T111	30% min.	35%
Volatile Matter % by weight	ASTM D6	2% max.	1.2
Specific Gravity, 77°F	ASTM D71	1.15-1.50	1.25
Ductility, 77°F	ASTM D113	5.0 min.	10
Penetration, cone 77°F, 150 gm. 5 sec.	ASTM D217	50-100	55-60
Penetration, cone 32°F, 150 gm. 5 sec.	ASTM D217	40 mm	40-65
Flash Point, C.O.C., °F	ASTM D92	350°F min.	450°F
Fire point, C.O.C., °F	ASTM D92	375°F min.	475°F

IMMERSION TESTING

- 30-Day Immersion Testing: No visible deterioration when tested in 5% Caustic Potash, 5% Hydrochloric Acid, 5% Sulfuric Acid, and 5% saturated Hydrogen Sulfide. *
- One Year Immersion Testing: No visible deterioration when tested in 5% Formaldehyde, 5% Formic Acid, 5% Sulfuric Acid, 5% Hydrochloric Acid, 5% Sodium Hydroxide, 5% Hydrogen Sulfide and 5% Potassium Hydroxide.
- Requirements of ASTM C-990 Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.

LIMITED WARRANTY

This information is presented in good faith, but we cannot anticipate all conditions under which this information and our products, or the products of other manufacturers in combination with our products, may be used. We accept no responsibility for results obtained by the application of this information or the safety and suitability of our products, either alone or in combination with other products. Users are advised to make their own tests to determine the safety and suitability of each such product or product combinations for their own purposes. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for this own particular use. We sell this product without warranty, and buyers and users assume all responsibility and liability for loss or damage arising from the handling and use of this product, whether used alone or in combination with other products.



173 Church Street
Yalesville, CT 06492
(203) 269-3119 Fax (203) 265-4941

TO:

Ludlow Construction Co

19 Carmelina's Circle

Ludlow, MA 01056

Letter of Transmittal

Date: 7/9/19	Job # 33772
Attention: Mike Pio	
Project: Durham Meadows	
Waterline Rd	
Durham, CT	
Ph. - (413)-583-2522	
Fax- (413)-583-2039	
Email-	

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ the following items;

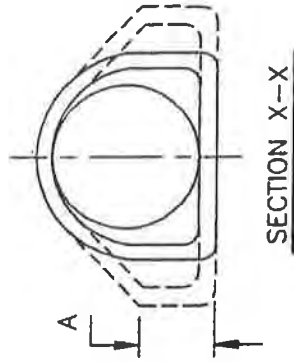
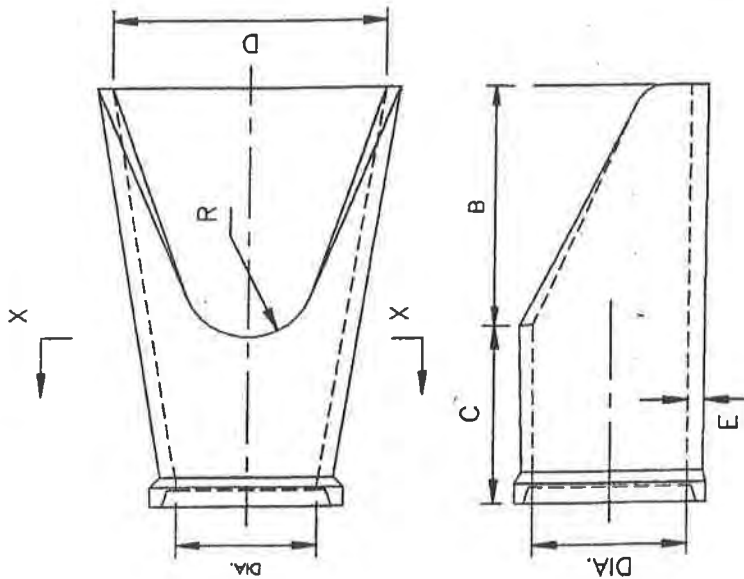
☒ Shop Drawings ☐ Prints ☐ Plans ☐ Samples ☒ Specifications
☐ Copy of Letter ☐ Change Order ☐ Sepias ☐ Calculations ☐ Other data _____

COPIES	DATE	NO	DESCRIPTION
1	7/9/19		FLARED END

THESE ARE TRANSMITTED AS CHECKED BELOW:

- ☒ For approval ☐ Approved as submitted Resubmit _____ copies for approval
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☒ As requested ☐ Returned for corrections **Please return one (1) set with comments/approval**
☐ For review and comment _____
☐ FOR BIDS DUE _____

James D. DeBarge



DIA.	A	B	C	D	E	R
12"	4"	2'-0"	4'-0 7/8"	2'-0"	3"	9"
15"	6"	2'-3"	3'-10"	2'-6"	3"	11"
18"	9"	2'-3"	3'-10"	3'-0"	3"	12"
24"	9 1/2"	3'-7 1/2"	2'-6"	4'-0"	3"	14"
30"	12"	4'-6"	1'-7 3/4"	5'-0"	3 1/2"	15"
36"	15"	5'-3"	2'-10 3/4"	6'-0"	4"	20"
42"	21"	5'-3"	2'-11"	6'-6"	4 1/2"	22"
48"	24"	6'-0"	2'-2"	7'-0"	5"	22"
54"	27"	5'-5"	2'-11"	7'-6"	5 1/2"	24"
60"	30"	5'-0"	3'-3"	8'-0"	6"	24"

CULVERT END SECTIONS CONFORM TO AASHTO-M170
CLASS III, MASSACHUSETTS STANDARD SPECIFICATIONS
FOR HIGHWAYS AND BRIDGES SECTION M5.02.2,
ASTM AND CONNECTICUT DEPARTMENT OF TRANSPORTATION
STANDARD SPECIFICATION M.08.01-22.

CULVERT END SECTIONS AVAILABLE WITH BELL JOINT (OUTLET)
OR SPIGOT JOINT (INLET).



**UNITED CONCRETE
PRODUCTS, Inc.**

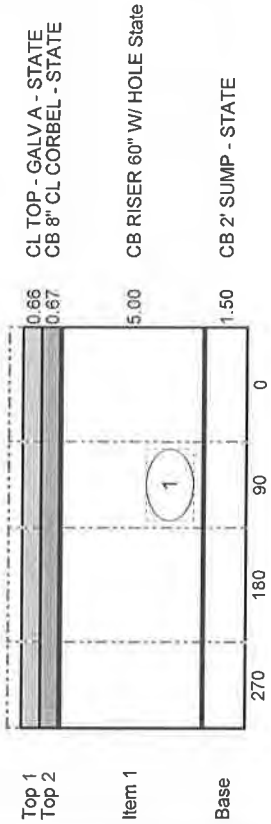
www.unitedconcrete.com
Phone - 1 203-269-3119
Fax - 1 203-265-4941

Structure Product Detail

Item	Product	Qty	Product Description	Yards	Weight
Top 1	CBSTCL	1	CL TOP - GALV A - STATE	0.29	1,300
Top 2	CBSCCL	1	CB 8" CL CORBEL - STATE	0.37	1,700
Item 1	CBSR60	1	CB RISER 60" W/ HOLE State	1.95	7,791
Base	CBSU2	1	CB 2' SUMP - STATE	1.19	4,750
Access	CBUNS	3	JOINT SEAL +/- (Three rolls per joint)	0.00	0
Structure Totals				3.80	15,541

Inside Area View

Rim to Invert	6.15'	Precast Height	7.83'	Wall	8.00"
Less Casting	6.15'	Floor	6.00"	Sump	2.16'
Invert to Floor	2.16'	Plus Floor	8.33'		
Adjustment (Brick/Mort.)	0.48				



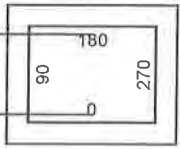
Elevations

Item	Elev	Angle	Pipe	Hole Type	Hole Height	Hole Width	Up"	Item
Rim	441.9							
(1)	435.75	90	12 RCP	WIDEHOLE	20	30	4	Item 1
(2)		0			0	0	0	
(3)		0			0	0	0	
(4)		0			0	0	0	
(5)		0			0	0	0	
(6)		0			0	0	0	
(7)		0			0	0	0	
(8)		0			0	0	0	

Description: CB RISER 60" W/ HOLE State
Product ID: CBSR60WHO
Item: Item 1

Step Location:

(1)WIDEHOLE
Up: 4" / Ang 90



--- Side 48.0" ---

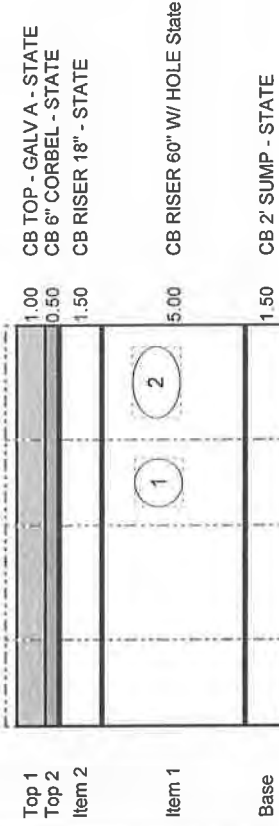
--- Side 36.0" ---

Structure Product Detail

Item	Product	Qty	Product Description	Yards	Weight
Top 1	CBSTGA	1	CB TOP - GALVA - STATE	0.41	1,820
Top 2	CBSC06	1	CB 6" CORBEL - STATE	0.29	1,000
Item 1	CBSR60	1	CB RISER 60" W/ HOLE State	1.89	7,570
Item 2	CBSR18	1	CB RISER 18" - STATE	1.27	5,100
Base	CBSSU2	1	CB 2' SUMP - STATE	1.19	4,750
Access	CBJNS	3	JOINT SEAL +/- (Three rolls per joint)	0.00	0
Structure Totals				5.05	20,240

Inside Area View

Rim to Invert	5.89'	Precast Height	9.50'	Wall	8.00"
Less Casting	5.89'	Floor	6.00"	Sump	4.00'
Invert to Floor	4.00'	Plus Floor	10.00'		
Adjustment (Brick/Mort.)	0.39				



Elevations

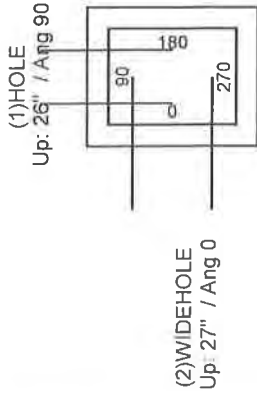
	Elev	Angle	Pipe	Hole Type	Hole Height	Hole Width	Up"	Item
Rim	440.97							
(1)	435.08	90	12 RCP	HOLE	20	20	26	Item 1
(2)	435.16	0	12 RCP	WIDEHOLE	20	30	27	Item 1
(3)		0			0	0	0	0
(4)		0			0	0	0	0
(5)		0			0	0	0	0
(6)		0			0	0	0	0
(7)		0			0	0	0	0
(8)		0			0	0	0	0

Description: CB RISER 60" W/ HOLE State

Product ID: CBSR60WHO

Item: Item 1

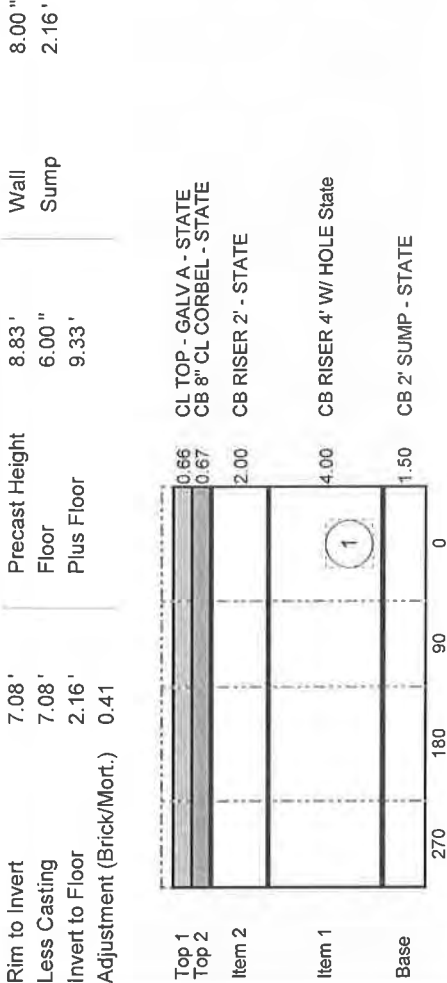
Step Location:



Structure Product Detail

Item	Product	Qty	Product Description	Yards	Weight
Top 1	CBSTCL	1	CL TOP - GALV A - STATE	0.29	1,300
Top 2	CBSCCL	1	CB 8" CL CORBEL - STATE	0.37	1,700
Item 1	CBSR48	1	CB RISER 4' W/ HOLE State	1.60	6,424
Item 2	CBSR24	1	CB RISER 2' - STATE	0.84	3,350
Base	CBSSU2	1	CB 2' SUMP - STATE	1.19	4,750
Access	CBJNS	3	JOINT SEAL +/- (Three rolls per joint)	0.00	0
Structure Totals				4.29	17,524

Inside Area View

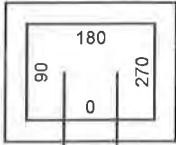


Elevations

Elev	Angle	Pipe	Hole Type	Hole Height	Hole Width	Up"	Item
Rim 419.5							
(1) 412.42	0	12 RCP	HOLE	20	20	4	Item 1
(2)	0			0	0	0	
(3)	0			0	0	0	
(4)	0			0	0	0	
(5)	0			0	0	0	
(6)	0			0	0	0	
(7)	0			0	0	0	
(8)	0			0	0	0	

Description: CB RISER 4' W/ HOLE State
Product ID: CBSR48WH
Item: Item 1

Step Location:



(1)HOLE
Up: 4" / Ang 0

--- Side 48.0" ---

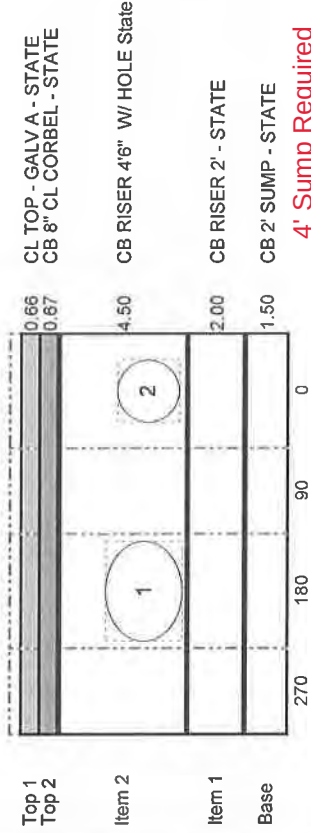
--- Side 36.0" ---

Structure Product Detail

Item	Product	Qty	Product Description	Yards	Weight
Top 1	CBSTCL	1	CL TOP - GALV A - STATE	0.29	1,300
Top 2	CBSCCL	1	CB 8" CL CORBEL - STATE	0.37	1,700
Item 1	CBSR24	1	CB RISER 2' - STATE	0.84	3,350
Item 2	CBSR54	1	CB RISER 4'6" W/ HOLE State	1.51	6,000
Base	CBSSU2	1	CB 2' SUMP - STATE	1.19	4,750
Access	CBJNS	3	JOINT SEAL +/- (Three rolls per joint)	0.00	0
Structure Totals				4.20	17,100

Inside Area View

Rim to Invert	5.72'	Precast Height	9.33'	Wall	8.00"
Less Casting	5.72'	Floor	6.00"	Sump	4.00'
Invert to Floor	4.00'	Plus Floor	9.83'		
Adjustment (Brick/Mort.)	0.39				



4' Sump Required

Elevations

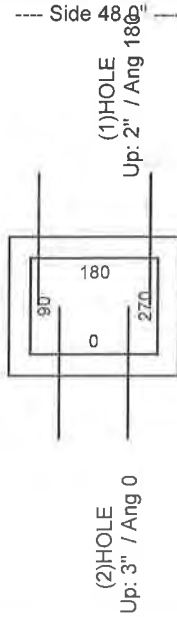
Elev	Angle	Pipe	Hole Type	Hole Height	Hole Width	Up"	Item
Rim 384.12							
(1) 378.4	180	24 RCP	HOLE	32	42	2	Item 2
(2) 378.5	0	18 RCP	HOLE	26	26	3	Item 2
(3)	0			0	0	0	
(4)	0			0	0	0	
(5)	0			0	0	0	
(6)	0			0	0	0	
(7)	0			0	0	0	
(8)	0			0	0	0	

Description: CB RISER 4'6" W/ HOLE State

Product ID: CBSR54WH

Item: Item 2

Step Location:



Side 36.0"

Structure Product Detail

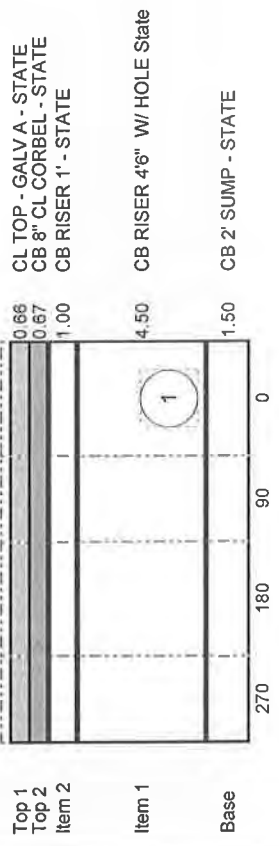
Item	Product	Qty	Product Description	Yards	Weight
Top 1	CBSTCL	1	CL TOP - GALVA - STATE	0.29	1.300
Top 2	CBSCCL	1	CB 8" CL CORBEL - STATE	0.37	1.700
Item 2	CBSR12	1	CB RISER 1' - STATE	0.42	1.665
Item 1	CBRS54	1	CB RISER 4'6" W/ HOLE STATE	1.79	7.154
Base	CBSSU2	1	CB 2' SUMP - STATE	1.19	4.750
Access	CBJNS	3	JOINT SEAL +/- (Three rolls per joint)	0.00	0
Structure Totals				4.06	16.569

Elevations

Elev	Angle	Pipe	Hole Type	Hole Height	Hole Width	Up"	Item
Rim	390.5						
(1)	384	0 15 RCP	HOLE	24	24	3.5	Item 1
(2)		0		0	0	0	
(3)		0		0	0	0	
(4)		0		0	0	0	
(5)		0		0	0	0	
(6)		0		0	0	0	
(7)		0		0	0	0	
(8)		0		0	0	0	

Inside Area View

Rim to Invert	6.50'	Precast Height	8.33'	Wall	8.00"
Less Casting	6.50'	Floor	6.00"	Sump	2.16'
Invert to Floor	2.16'	Plus Floor	8.83'		
Adjustment (Brick/Mort.)	0.33				

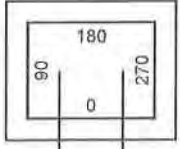


Description: CB RISER 4'6" W/ HOLE State

Product ID: CBR54WH

Item: Item 1

Step Location:



(1)HOLE
Up: 3.5" / Ang 0

---- Side 48.0" ----

----- Side 36.0" -----

Structure Product Detail

Item	Product	Qty	Product Description	Yards	Weight
Top 1	CBSTGA	1	CB TOP - GALV A - STATE	0.41	1,820
Top 2	CBSC06	1	CB 6" CORBEL - STATE	0.29	1,000
Item 2	CBSR54	1	CB RISER 4/8" W/ HOLE State	1.62	6,519
Item 3	CBSR12	1	CB RISER 1' - STATE	0.42	1,665
Item 1	CBSR24	1	CB RISER 2' - STATE	0.84	3,350
Base	CBS12S	1	12" WALL - 2' SUMP - STATE	1.58	6,320
Access	CBJNS	3	JOINT SEAL +/- (Three rolls per joint)	0.00	0
Structure Totals				5.16	20,674

Elevations

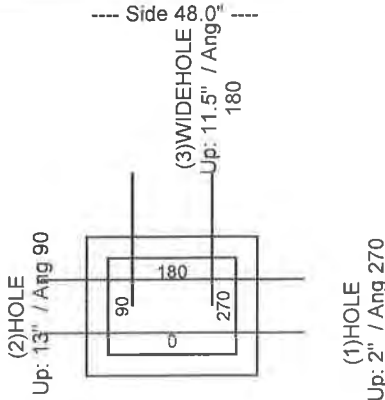
	Elev	Angle	Pipe	Hole Type	Hole Height	Hole Width	Up"	Item
Rim	396.79							
(1)	389.73	270	12 RCP	HOLE	20	20	20	Item 2
(2)	390.66	90	12 RCP	HOLE	20	20	13	Item 2
(3)	390.5	180	12 RCP	WIDEHOLE	20	30	11.5	Item 2
(4)		0			0	0	0	
(5)		0			0	0	0	
(6)		0			0	0	0	
(7)		0			0	0	0	
(8)		0			0	0	0	

Description: CB RISER 4/8" W/ HOLE State

Product ID: CBSR54WH

Item: Item 2

Step Location:



Inside Area View

Rim to Invert	7.06'	7.06'	4.00'	0.56						
Less Casting										
Invert to Floor										
Adjustment (Brick/Mort.)										
Top 1	1.00									
Top 2	0.50									
Item 3	1.00									
Item 2	4.50									
Item 1	2.00									
Base	1.50									
	0	90	180	270						

CB TOP - GALV A - STATE
CB 6" CORBEL - STATE
CB RISER 1' - STATE
CB RISER 4/8" W/ HOLE State
CB RISER 2' - STATE
12" WALL - 2' SUMP - STATE

4' Sump Required

Structure Product Detail

Item	Product	Qty	Product Description	Yards	Weight
Top 1	CBSTGA	1	CB TOP - GALV A - STATE	0.41	1,820
Top 2	CBSC06	1	CB 6" CORBEL - STATE	0.29	1,000
Item 2	CBSR36	1	CB RISER 3' - STATE	1.25	4,985
Item 1	CBSR60	1	CB RISER 60" W/ HOLE State	1.94	7,763
Base	CBSSU2	1	CB 2' SUMP - STATE	1.19	4,750
Access	CBJNS	3	JOINT SEAL +/- (Three rolls per joint)	0.00	0
Structure Totals				5.08	20,318

Elevations

	Elev	Angle	Pipe	Hole Type	Hole Height	Hole Width	Up"	Item
Rim	386.91							
(1)	379.55	270	15 RCP	HOLE	24	24	25.5	Item 1
(2)	379.78	90	12 RCP	HOLE	20	20	29	Item 1
(3)		0			0	0	0	
(4)		0			0	0	0	
(5)		0			0	0	0	
(6)		0			0	0	0	
(7)		0			0	0	0	
(8)		0			0	0	0	

Description: CB RISER 60" W/ HOLE State

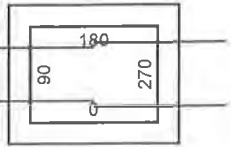
Product ID: CBSR60WHO

Item: Item 1

Step Location:

(2)HOLE

Up: 29" / Ang 90



---- Side 48.0" ----

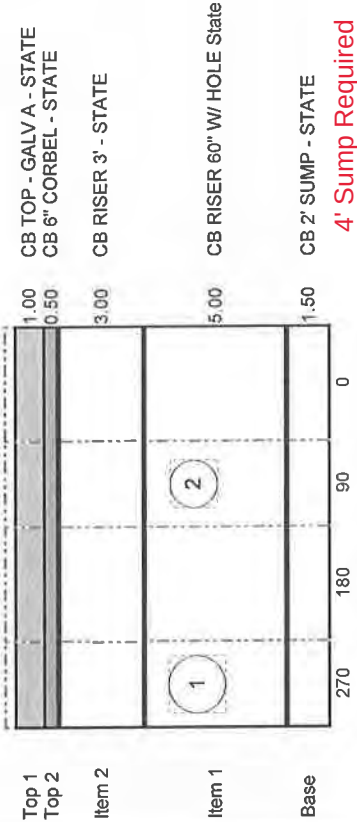
(1)HOLE

Up: 25.5" / Ang 270

---- Side 36.0" ----

Inside Area View

Rim to Invert	7.36'	Precast Height	11.00'	Wall	8.00"
Less Casting	7.36'	Floor	6.00"	Sump	4.00'
Invert to Floor	4.00'	Plus Floor	11.50'		
Adjustment (Brick/Mort.)	0.36				

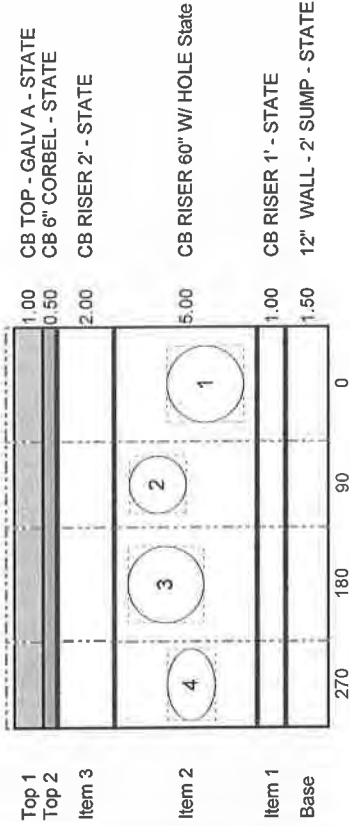


Structure Product Detail

Item	Product	Qty	Product Description	Yards	Weight
Top 2	CBSC06	1	CB 6" CORBEL - STATE	0.29	1,000
Top 1	CBSTGA	1	CB TOP - GALVA - STATE	0.41	1,820
Item 2	CBSR60	1	CB RISER 60" W/ HOLE State	1.57	6,290
Item 3	CBSR24	1	CB RISER 2' - STATE	0.84	3,350
Item 1	CBSR12	1	CB RISER 1' - STATE	0.42	1,665
Base	CBST2S	1	12" WALL - 2' SUMP - STATE	1.58	6,320
Access	CBJNS	3	JOINT SEAL +/- (Three rolls per joint)	0.00	0
Structure Totals				5.11	20,445

Inside Area View

Rim to Invert	8.00'	Precast Height	11.00'	Wall	8.00"
Less Casting	8.00'	Floor	6.00"	Sump	3.30'
Invert to Floor	3.30'	Plus Floor	11.50'		
Adjustment (Brick/Mort.)	0.30				



Elevations

Elev	Angle	Pipe	Hole Type	Hole Height	Hole Width	Up"	Item
Rim 384.5							
(1) 376.5	0	24 RCP	HOLE	32	32	5.5	Item 2
(2) 378.55	90	15 RCP	HOLE	24	24	29.5	Item 2
(3) 377.9	180	24 RCP	HOLE	32	32	22.5	Item 2
(4) 377.5	270	12 RCP	WIDEHOLE	20	30	17.5	Item 2
(5)	0			0	0	0	
(6)	0			0	0	0	
(7)	0			0	0	0	
(8)	0			0	0	0	

Description: CB RISER 60" W/ HOLE State

Product ID: CBSR60WHO

Item:

Step Location

Item 2

