

Proposed Bridge Improvement Project

Bridport STP CULV(29)

Bridge #5

Vermont Agency of Transportation
Bridport, BR5, Precast, Resubmittal, Review, 05.15.15.pdf

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ON: **May 14, 2015**

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CONFORMANCE

BY: **Mark Sargent** DATE: **5/20/2015**

Concrete:

Mix Designation: P60TER

1. Specified Mix Design - 5000 PSI
2. Proposed Mix Design - 6000 PSI
3. Striping Strength - 3000 PSI
4. Handling Strength - 3000 PSI
5. Shipping Strength - 5000 PSI
6. Install Strength - 5000 PSI
7. Traffic Loading - 5000 PSI

Fabrication Tolerances:

1. Width ±1/4"
2. Height ±1/4"
3. Length ±1/2"
4. Rebar Cover 2" Min. (Unless Noted Otherwise)
5. Rebar Spacing ±1"
6. Rebar Clearance ±1/4"
7. Insert Placement ±1/4"

Design Notes:

1. Design is in accordance w/ ASTM C1577, PCI MNL135, VAOT540 & AASHTO 2012 LRFD bridge design specs fifth edition
2. Any conflict between tolerances listed above shall result in the usage of the stricter tolerance
3. Design live load = HL-93
4. Materials and manufacturing shall conform to ASTM C1433
5. Earth Cover: ±1'-9" Soil Cover

Installation:

1. Sub Base for Box Culvert / Cut Off Walls to be Compacted and Level
2. Precast Cut Off Walls + Wing Walls to be installed
3. All Elevations are to be Checked and Verified they Match Those of Plan Set
4. Begin Sequence of Installing All Box Culvert Sections
5. Clean Granular Backfill for structures used for Backfill of Footers & of Box Culvert so water can reach weep holes if applicable
6. Fill all Lifting Holes, Bolt Pockets and Box Culvert grooves and seams w/ non-shrink grout. Applied by Site Contractor.
7. ASTM C1675-11 Box culvert installation guidelines shall be followed.

Reinforcing:

General Notes:

1. Reinforcing Steel -
 - a. Precast box sections, headwalls, wing walls, & cut off walls shall be level I uncoated bar ASTM A615
2. Materials and manufacturing shall conform to ASTM C1433

Tolerances:

1. Spacing ±1"
2. Clearance +1/4"

Lap Lengths:

1. Per AASHTO 5.11.2.1.1 & 5.11.5.3.1

Joint Treatment:

Vertical Seams:

- Per VTrans approved product list 780.02
Overhead & vertical concrete repair mortar
Applied by site contractor

Horizontal Seams / Grout:

- Per VTrans approved product list 707.03
Mortar, type IV
Applied by site contractor

Waterproofing:

1. Silane sealer applied in precast yard on all exposed surfaces (headwalls and top of wingwalls.)

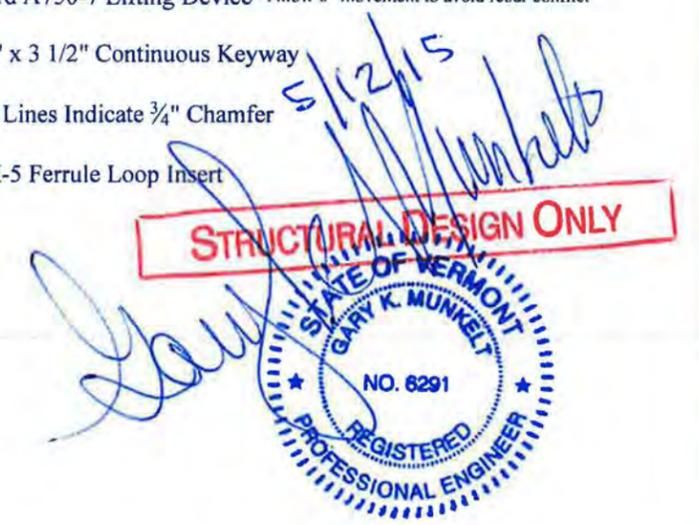
Miscellaneous:

1. All bolt pocket hardware & wingwall hardware to be uncoated, black steel & shall remain in place.
2. All exposed edges of concrete shall be chamfered.
3. Concrete leveling pad for the cutoff walls is to be poured on site by the site contractor.
4. All lift anchors and embedded items will be made in America.

Legend:

- (A) 3"Ø PVC Sleeve
- (B) 4"Ø PVC Sleeve
- (C) Mechanical Bolt Pocket (w/ 1"Ø Coil Rod)
- (D) Oxford A750-7 Lifting Device - Allow 6" movement to avoid rebar conflict
- (E) 1 1/2" x 3 1/2" Continuous Keyway
- (F) Solid Lines Indicate 3/4" Chamfer
- (G) 1/2" FX-5 Ferrule Loop Insert

REVIEWED	x	
REVIEWED AS MODIFIED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 5/15/15		
By: Michael J. Chenette		
<small>This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.</small>		



CONTRACTORS VTSPE:		Rev.	Date	By	Description	PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #15428)	Peckham Road Corp. 1557 St. Rt. 9, #3 Lake George, NY 12845 Ph: (518) 747-3353	FABRICATOR: 193 INDUSTRIAL AVE. WILLISTON, VT 05495 Ph: (802) 658-0201	
		1	05/06/15	IBA	Changes per Redesign	SUPERVISOR: E. Barendse	PROJECT NAME: Bridport		
		2	05/11/15	IBA	Inlet/Outlet BC Change	DETAILER: I. ADAMS	PROJECT #: CULV(29) Br.#5		
						CHECKER: E. Barendse	LOCATION: Bridport, VT		
						ENGINEER: G. K. Munkelt			
							04/20/15	COVER_PAGE	1_OF_6

Plan View

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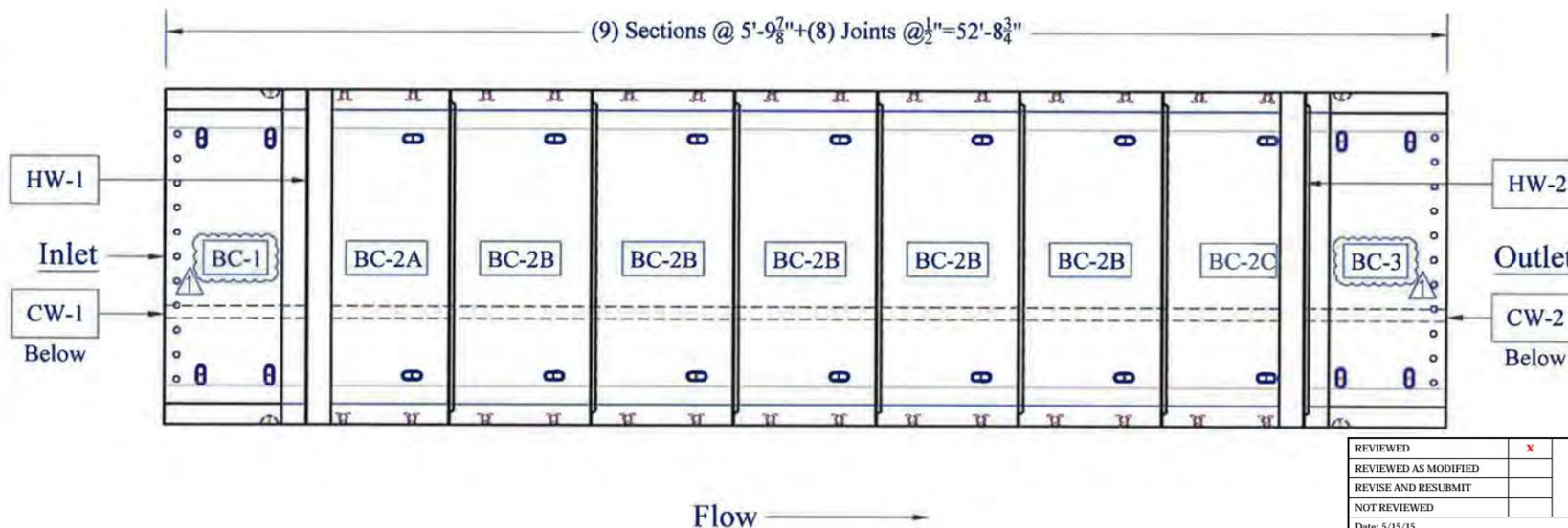
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Table of Units				
Name	Qty	Length	Vol.(CY)	Wt.(lbs.)*
BC-1	1	5'-9 ⁷ / ₈ "	7.73	30,930
BC-2A*	1	5'-9 ⁷ / ₈ "	9.38	37,510
BC-2B	5	5'-9 ⁷ / ₈ "	8.82	35,285
BC-2C*	1	5'-9 ⁷ / ₈ "	9.38	37,510
BC-3	1	5'-9 ⁷ / ₈ "	7.73	30,930
CW-1	1	13'-8"	1.60	6,410
CW-2	1	13'-8"	1.60	6,410



Culvert Specifications	
Inside Dimensions	12'-0" W x 9'-0" H
Waterway Area	76 Sq. Ft.
Top Slab Thickness	10"
Side Wall Thickness	10"
Bottom Slab Thickness	10"

* Headwall Included in BC-2A and BC-2C

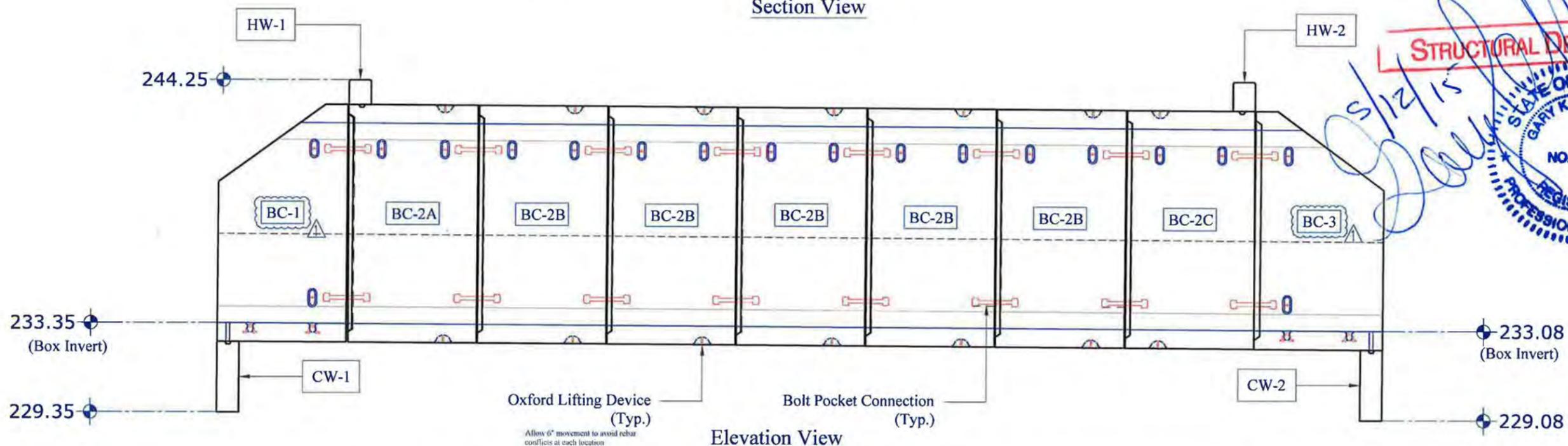
Note: Baffle weight included in all BC sections

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Section View

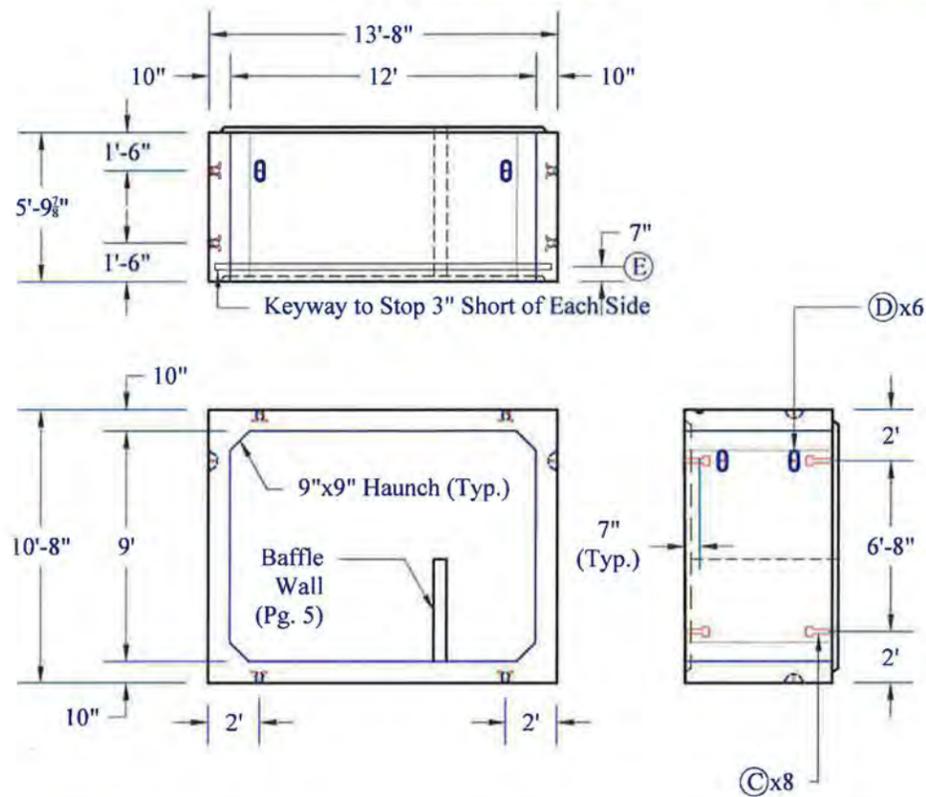


Elevation View

CONTRACTORS VISPE:	Rev.	Date	By	Description	PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #15428) SUPERVISOR: E. Barendse DETAILER: I. ADAMS CHECKER: E. Barendse ENGINEER: G. K. Munkelt	PROJECT NAME: Bridport PROJECT #: CULV(29) Br.#5 LOCATION: Bridport, VT	Peckham Road Corp. 1557 St. Rt. 9, #3 Lake George, NY 12845 Ph: (518) 747-3353	FABRICATOR: 193 INDUSTRIAL AVE. WILLISTON, VT 05495 Ph: (802) 658-0201	SD Ireland PRECAST
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	2	05/11/15	IBA	Inlet/Outlet BC Change					
							04/20/15	PLAN_ELEVATION	2_OF_6

BC-2A Detail

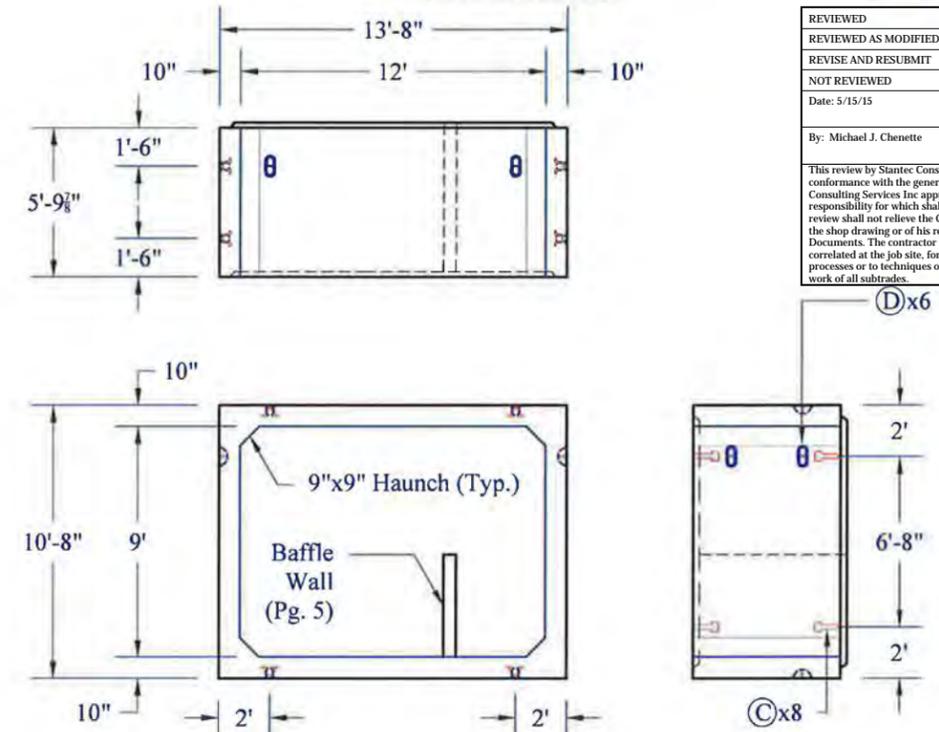
Note: See Sh. 8 for Additional Details



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BC-2B Detail

Note: See Sh. 8 for Additional Details



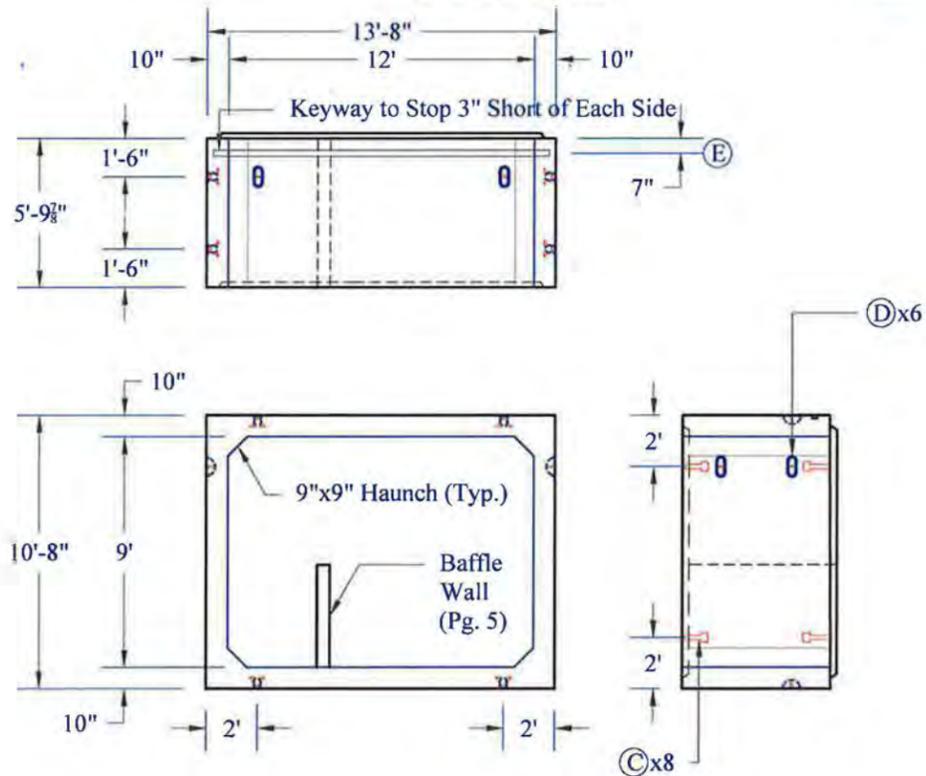
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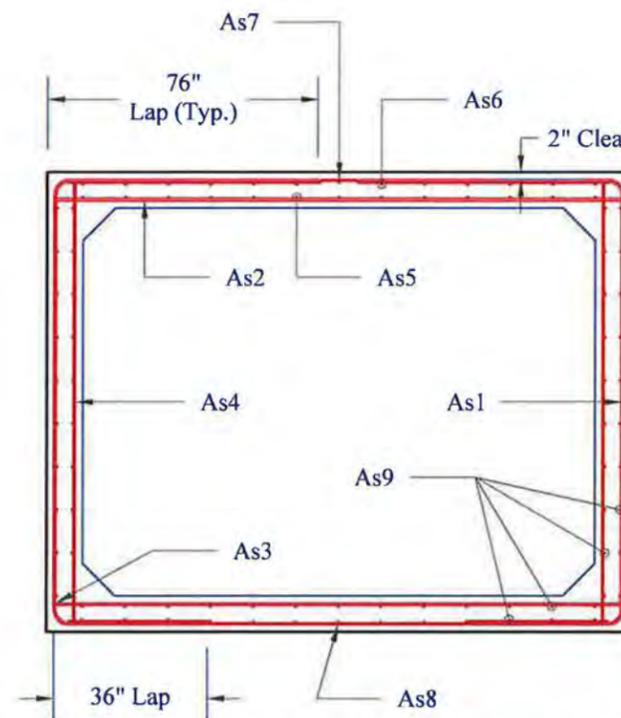


BC-2C Detail

Note: See Sh. 8 for Additional Details



Box Section Reinforcement Detail



Rebar Schedule						
Mark	Size	Max Spacing	Length	Type	A	B
As1	#5	6"	236"	Bent	36"	124" 76"
As2	#5	5"	160"	Str	160"	
As3	#5	6"	160"	Str	160"	
As4	#4	9"	124"	Str	124"	
As5	#5	10"	65"	Str	65"	
As6	#4	9"	65"	Str	65"	
As7	#4	9"	160"	Str	160"	
As8	#4	9"	160"	Str	160"	
As9	#4	12"	65"	Str	65"	

Notes: 2" Clear Typical Unless Noted Otherwise
STRUCTURAL DESIGN ONLY



CONTRACTORS VISPE:	Rev.	Date	By	Description
(A) 3"Ø PVC Sleeve	1	05/06/15	IBA	Changes per Redesign
(B) 4"Ø PVC Sleeve	2	05/11/15	IBA	Inlet/Outlet BC Change
(C) Mechanical Bolt Pocket (w/ 1"Ø Coil Rod)				
(D) Oxford A750-7 Lifting Device				
(E) 1 1/2" x 3 1/2" Continuous Keyway				
(F) Solid Lines Indicate 1/4" Chamfer				
(G) 1/2" FX-5 Ferrule Loop Insert				

PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #15428)

SUPERVISOR: E. Barendse
 DETAILER: I. ADAMS
 CHECKER: E. Barendse
 ENGINEER: G. K. Munkelt

PROJECT NAME: Bridport
 PROJECT #: CULV(29) Br.#5
 LOCATION: Bridport, VT

Peckham Road Corp.
 1557 St. Rt. 9, #3
 Lake George, NY 12845
 Ph: (518) 747-3353

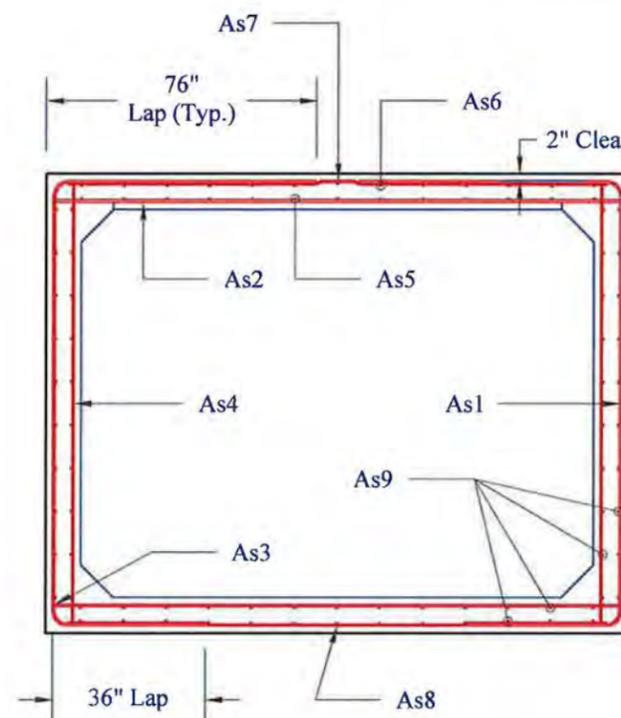
FABRICATOR:
 193 INDUSTRIAL AVE.
 WILLISTON, VT 05495
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04/20/15 BOX_SECTIONS_1 3_OF_6

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End Box Section Reinforcement Detail



Rebar Schedule						
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As1	#5	6"	Varies	Bent	36"	Vrs 76"
As2	#5	5"	160"	Str	160"	
As3	#5	6"	160"	Str	160"	
As4	#4	9"	Varies	Str	Vrs	
As5	#5	10"	Varies	Str	Vrs	
As6	#4	9"	Varies	Str	Vrs	
As7	#4	9"	160"	Str	160"	
As8	#4	9"	160"	Str	160"	
As9	#4	12"	Varies	Str	Vrs	

Notes: 2" Clear Typical Unless Noted Otherwise

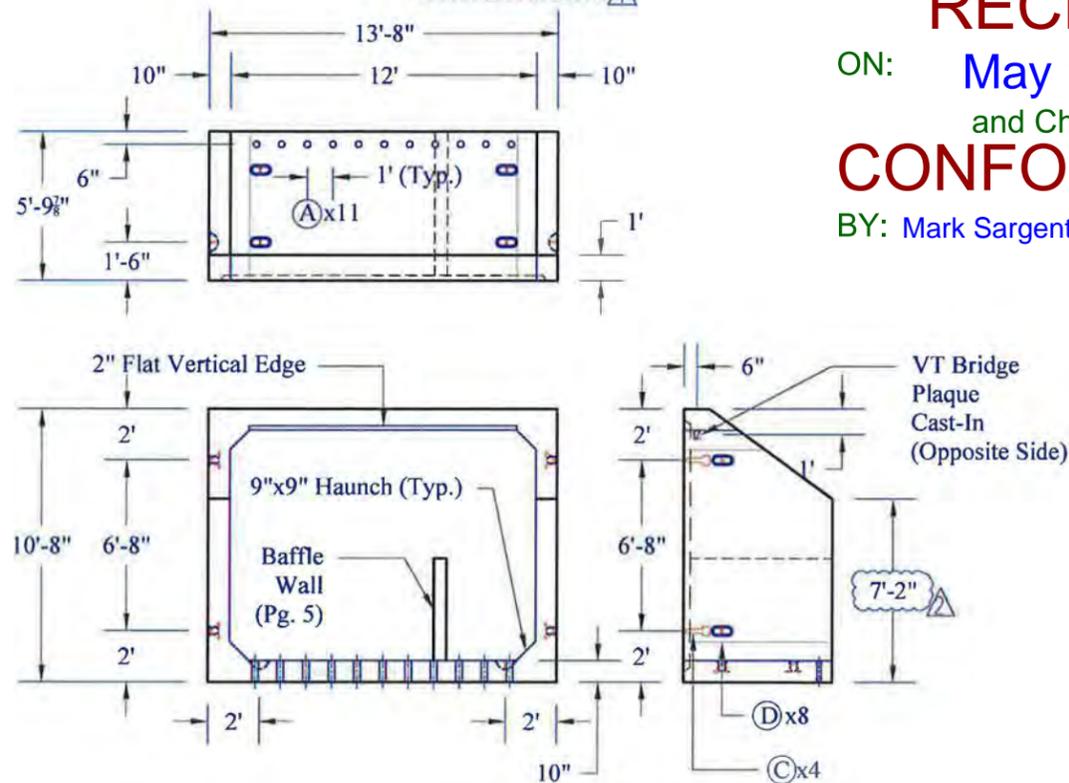
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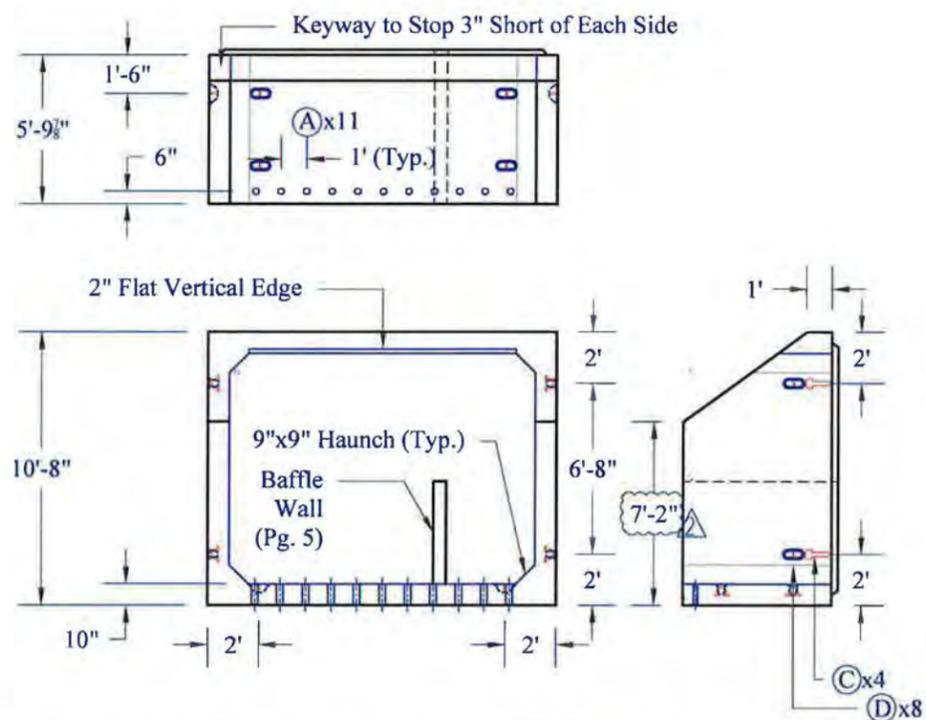
By: Michael J. Chenette

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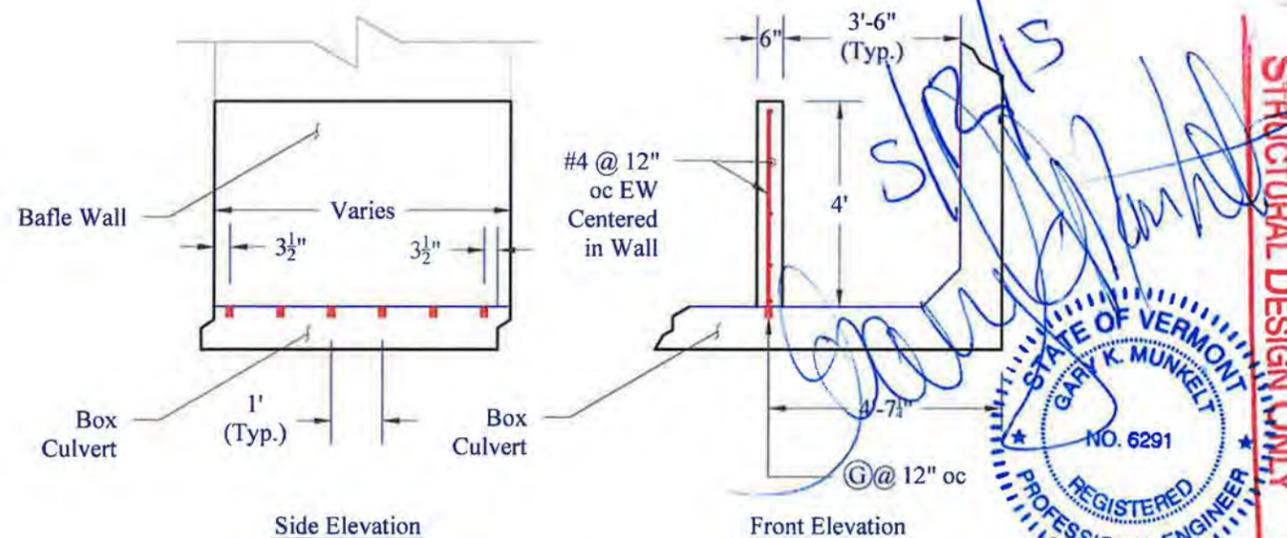
BC-1 Detail



BC-3 Detail



Baffle Wall Detail



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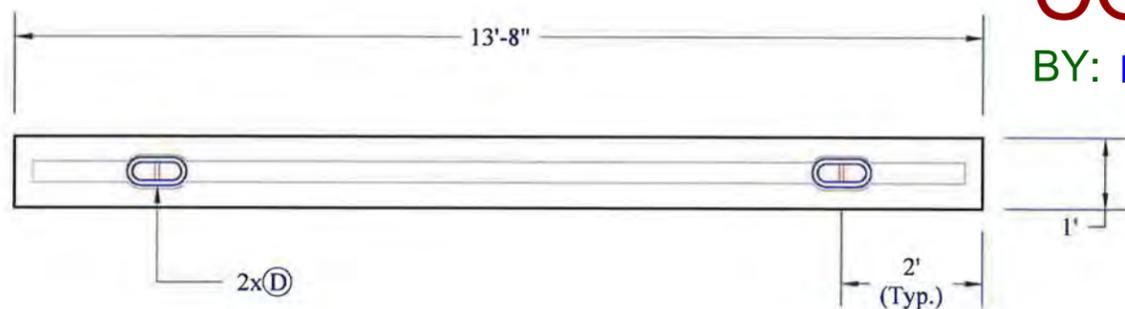
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CW-1/2 Detail



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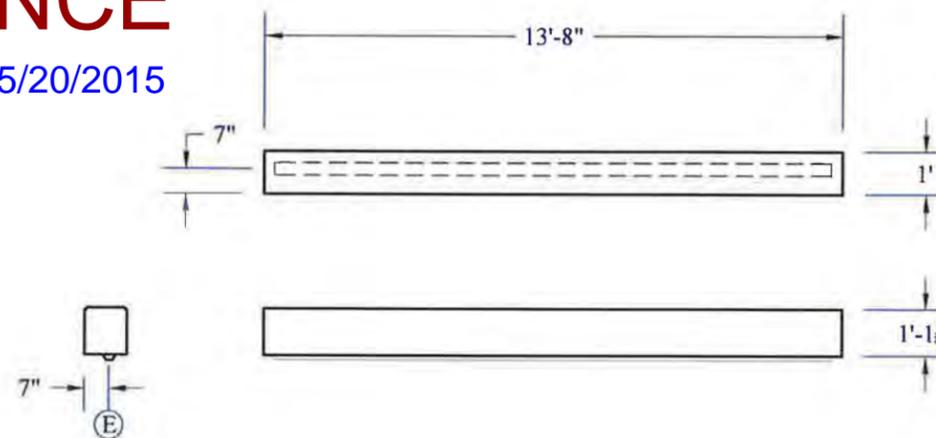
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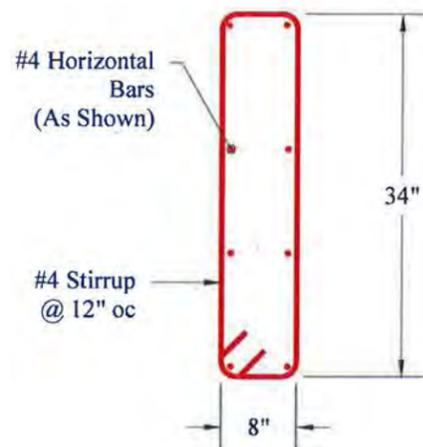
Headwall 1 Detail

(See Reinforcing Details on Sheet 7)

Note: - Secondary Pour
- Not Battered

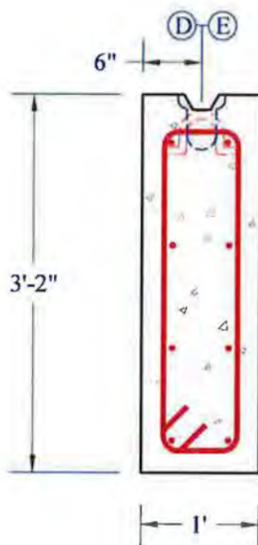


Cutoff Wall Reinforcement Detail



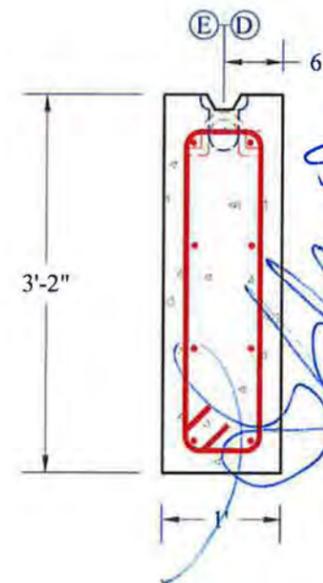
CW-1 Detail

Note: 2" Clear Cover



CW-2 Detail

Note: 2" Clear Cover



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Handwritten signature and date: 5/12/15

STATE OF VERMONT
GARY K. MUNKELT
 NO. 6291
 REGISTERED PROFESSIONAL ENGINEER

STRUCTURAL DESIGN ONLY

CONTRACTORS VISPE:	Rev.	Date	By	Description
(A) 3"Ø PVC Sleeve (B) 4"Ø PVC Sleeve (C) Mechanical Bolt Pocket (w/ 1"Ø Coil Rod) (D) Oxford A750-7 Lifting Device (E) 1 1/2" x 3 1/2" Continuous Keyway (F) Solid Lines Indicate 3/4" Chamfer (G) 1/2" FX-5 Ferrule Loop Insert	1	05/06/15	IBA	Changes per Redesign
	2	05/11/15	IBA	Inlet/Outlet BC Change

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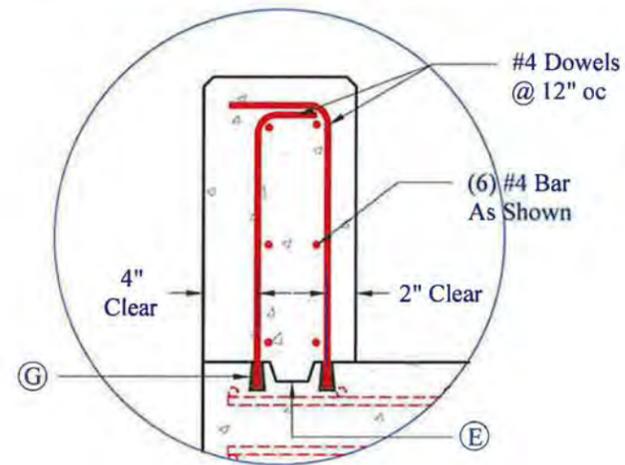
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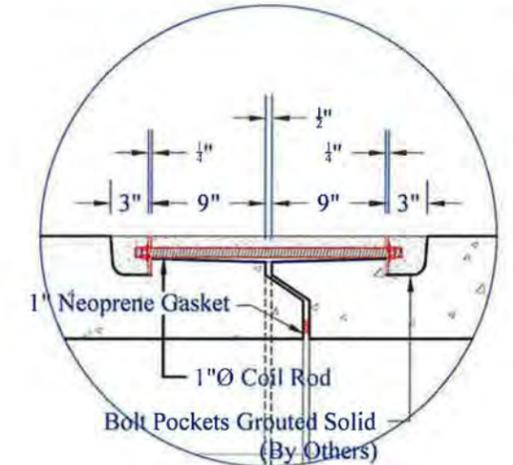
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HW - Rebar Schedule						
Mark	Size	Max Spacing	Length	Type	A	B
As1	#4	12"	14"	Bent	5"	9"
As2	#4	12"	17"	Bent	8"	9"
As3	#4	12"	17"	Bent	5"	12"
As4	#4	12"	20"	Bent	8"	12"

HW to BC Connection Detail

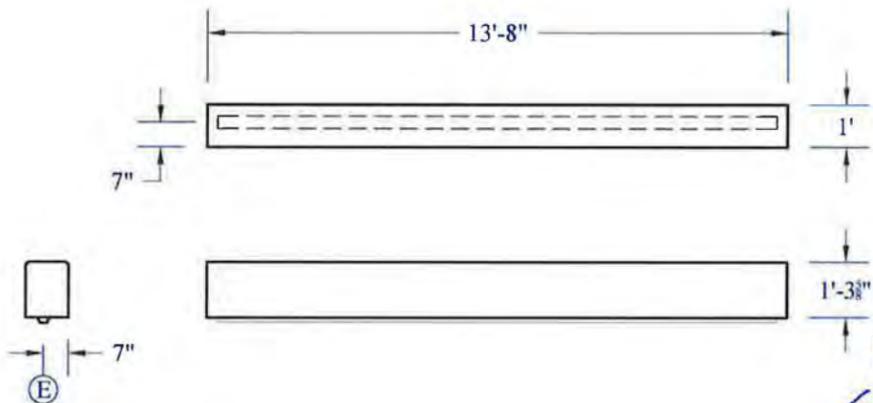


Bolt Pocket Connection Detail - C

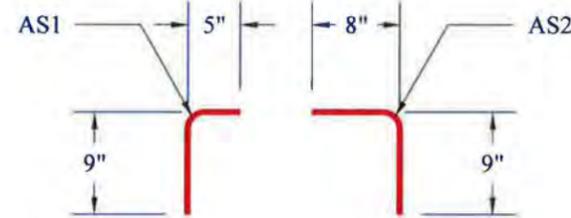


Headwall 2 Detail
 (See Reinforcing Details on Sheet 7)

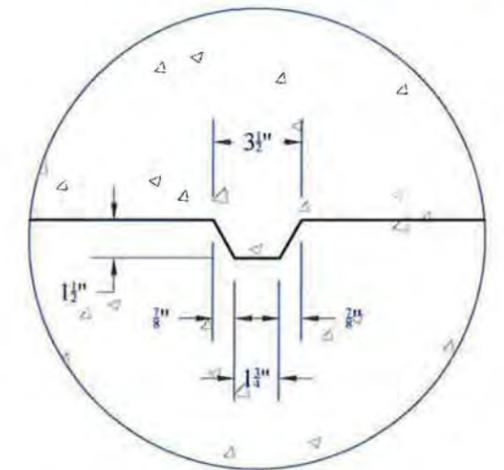
Note: - Secondary Pour
 - Not Battered



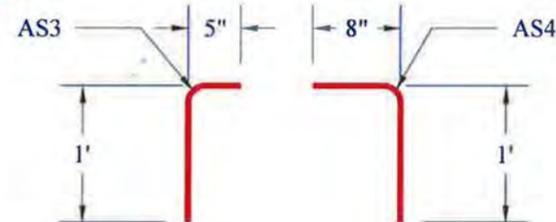
HW-1 Reinforcement Detail



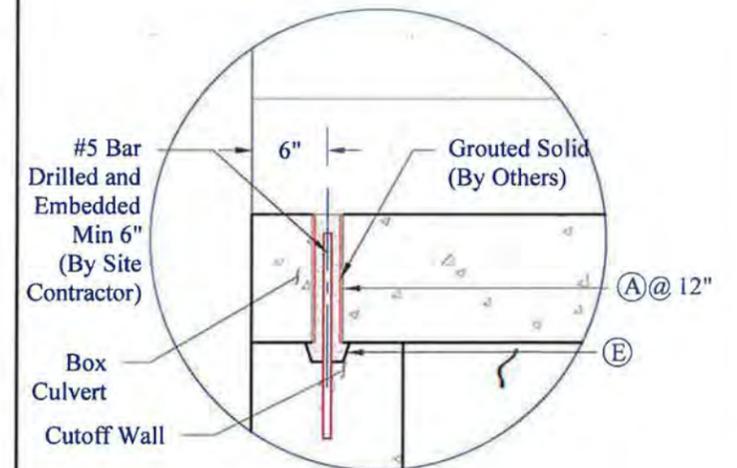
Keyway Connection Detail - E



HW-2 Reinforcement Detail



CW to BC Connection Detail

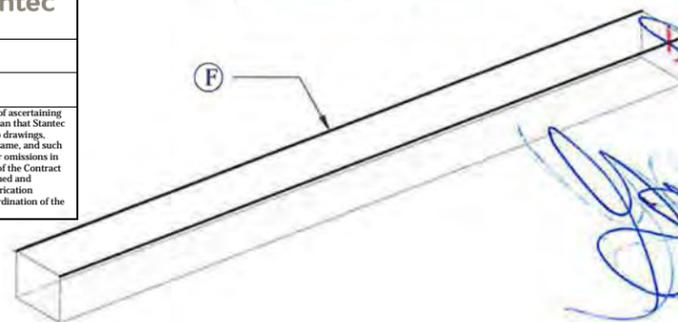


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Headwall 2 Detail



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