VERMONT

State of Vermont
PDD/Structures Design Section
National Life Building – Drawer 33
Montpelier, VT 05633-5001
www.aot.state.vt.us

[phone] 802-828-01611
[fax] 802-828-3566
[ttd] 800-253-0191

Agency of Transportation

January 15, 2016

CCS Constructors, Inc.
138 Munson Avenue
Morrisville, VT 05661

Project Name: New Haven BRF 0183(1)

Structure Identification: TH 2, Bridge 10

The precast concrete fabrication drawings associated with Items 540.10 Precast Concrete Structure (Abutment #1), (Abutment #2), (Approach Slab #1) and (Approach Slab #2) and Item 900.645 Special Provision (Precast Concrete/Steel Composite Pier Cap), has been reviewed and is being returned herewith.

Please incorporate all review comments and resubmit.

Sincerely,

Todd A. Sumner P.E.
Project Manager

VTrans Working to Get You There
Vermont Agency of Transportation

Submittal Notes Rev #1 (To be used when reviewing shop drawing submittal)

New Haven – River Road Bridge #10 – Project BRF 0183 (1)

1. **Reference drawing PC1**
   We increased concrete strength to 5,000 psi to allow for a decrease in lap length. Note minimum lap length of 2'-6".

2. **Reference drawing WW1, Detail "B"**
   We have substituted a keyway for the "roughened surface" called out on the contract drawings.

3. **Reference drawings F5 & PC1 and RFI 002**
   Please note approved change to location of #11 rebar and #6 rebar.
   The current steel shop drawings do not reflect this change.
   Hole size for #11 bar increased to 2.5" dia. – rev. #1
   Location for (6) vertical # 6 bars changes – rev. #1

REVIEWED
By Jim Wild (jim.wild@state.vt.us) at 1:02 pm, Jan 14, 2016

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Mike Davis

From: Brian <Brian@ccscraneservice.com>
Sent: Wednesday, October 28, 2015 8:23 AM
To: Mike Davis
Cc: jake@arc-steel.com; WALTER@ARC-STEEL.COM
Subject: FW: New Haven RFI 2

Please see the attached reply to RFI #2, Please incorporate these changes into the project.

Thanks,

Brian Richardson
Project Manager
CCS Constructors
138 Munson Ave
Morrisville, VT
05661
Ph. 802-888-7701
Fax. 802-888-4746
Cell. 802-730-0444

From: Suckert, Bob [mailto:Bob.Suckert@vermont.gov]
Sent: Wednesday, October 28, 2015 7:51 AM
To: Brian
Cc: Williams, Chris
Subject: FW: New Haven RFI 2

Brian – Please see the response to RFI #2. Thanks - BOB

From: Sumner, Todd
Sent: Tuesday, October 27, 2015 3:52 PM
To: Suckert, Bob
Cc: Guyette, Aaron; Williams, Chris
Subject: FW: New Haven RFI 2

Hello Bob,
See the email below from the Designer Adam Stockin (PB).

I concur with his reply.

Although the 2 and 13/16" cover on the bottom is okay above the pier stem, the design expectation would be to maintain the 3" cover on the underside of the pier cap once you are outside the area of the pier stem.

From: Stockin, Adam [mailto:Stockin@pbworld.com]
Sent: Tuesday, October 27, 2015 10:47 AM
To: Sumner, Todd
Cc: Guyette, Aaron; Gaudreau, Rebekah J.
Subject: RE: New Haven RFI 2

Todd,

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Please see response below:

The changes to the horizontal positioning of #11 bars for the adjustment of side cover are acceptable. It should be noted that these changes need to be coordinated with the steel fabricator for placement of the holes in the webs, and that adjustments to the field placements of the shear studs and #11 bars in the deck will need to be made to account for the adjusted hoops.

The vertical location of the bottom bars shall be as indicated on the Contract Plans. A 2 13/16" clear cover (as noted in the RFI) is acceptable at this location.

Thanks,

Adam

From: Sumner, Todd [mailto:Todd.Sumner@vermont.gov]
Sent: Monday, October 26, 2015 1:37 PM
To: Stockin, Adam
Cc: Guyette, Aaron
Subject: FW: New Haven RFI 2

Hello Adam,

Attached is RFI #2 from the Contractor for the New Haven project. Would you look this over and determine if this change is consistent and acceptable with your design? Please provide VTrans with a recommendation as to whether you would approve/not approve this RFI and any other concerns that you feel VTrans should be considering.

Thank you.

Todd A Sumner, P.E.
Senior Project Manager
Structures Section
Vermont Agency of Transportation
One National Life Drive
Montpelier, VT 05633-5001
Desk phone: 802-828-0161
Cell phone: 802-917-2755
email: todd.sumner@vermont.gov

From: Suckert, Bob
Sent: Monday, October 26, 2015 1:27 PM
To: Sumner, Todd
Cc: Williams, Chris
Subject: Fwd: New Haven RFI 2

Todd - please review. Thanks - BOB

Sent from my iPhone

Begin forwarded message:

From: Brian <Brian@ccscraneservice.com>
Date: October 26, 2015 at 11:26:17 AM EDT

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To: "Suckert, Bob" <Bob.Suckert@vermont.gov>
Subject: New Haven RFI 2

Bob,

Please see the attached RFI 2 (Carrara rebar issue)

Thanks,

Brian Richardson
Project Manager
CCS Constructors
138 Munson Ave
Morrisville, VT
05661
Ph. 802-888-7701
Fax. 802-888-4746
Cell. 802-730-0444

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The following items need to be addressed:

1. Para 77 requires the aggregate properties and testing. This information has not been provided. Provide aggregate data in compliance with ASTM C33 including ASR testing.
2. Para 77 requires concrete strength data. None has been provided. Provide the required information.
3. Para 77 requires a rapid chloride permeability test. Data has not been provided. Provide the required documentation.

Mix Design Review
Comments
By Daryl Sargent
Parsons Brinckerhoff

PRECAST / READY-MIX CONCRETE

J. P. CARRARA & SONS, INC

CONCRETE CONTRACTORS
ARCHITECTURAL / STRUCTURAL PRECAST CONTRACTORS

2464 Case Street
MIDDLEBURY, VT 05753
TEL (802) 388-6363
FAX (802) 388-9010

CROWN POINT, NY 12928
TEL (518) 597-3660

RT 7 SO.
NO. CLARENDON, VT 05701
TEL (802) 775-2301
FAX (802) 775-1046

CONCRETE MIX DESIGN

DATE :	March 26, 2015				
PROJECT :	VAOT - Projects		STATE:	VT	
ENGINEER/ARCH :					
CONTRACTOR :					
CONCRETE SUPPLIER :	J.P. Carrara & Sons, Inc., Middlebury, VT				$G_{s,\ SSD}$
CEMENT SOURCE & TYPE :	Lafarge Type III				3.103
FLY ASH SOURCE & CLASS:	Headwaters Resources - Class F - Brayton Point				2.35
COARSE AGGREGATE(1):	J.P. Carrara & Sons, Inc., Middlebury, VT	P-stone (3/4")		ABS = 1.24%	2.58
FINE AGGREGATE :	J.P. Carrara & Sons, Inc., Middlebury, VT	JPC sand		ABS = 0.98%	2.613
AIR ENTRAINING AGENT :	Sika AEA-14				
RETARDING AGENT :	Sika Plastiment				
SELF-CONSOLIDATING ADMIX:	Sika Viscocrete 6100		HRWR + Superplasticizer		
VISCOSITY MODIFIER:	Sika Stabilizer 4R		Not Required; Dosed on an as needed basis		

QUANTITIES PER CUBIC YARD

Identification # : 445MSCC
Mix Description : Standard SCC - 5,000 & 6,000psi Design; 3,500 @ 18hrs

							Yield
SPECIFICATIONS REQUIREMENT,	28	Day Strength (psi)	5ksi & 6ksi	750 # Total Cementious (CM)			
Lafarge Type III		(lbs)	563				2.91
Fly Ash, Class F		(lbs)	188	25% by weight of CM			1.28
P-stone (3/4")		(lbs)(SSD)	1340	47% by weight of total agg.			8.32
JPC sand		(lbs)(SSD)	1520	53% by weight of total agg.			9.32
WATER (gallons) : (Maximum Water =	33.3	Gal.)	31.0				4.14
W/C RATIO (lbs/lb) : (Max W/C =	0.37	)	0.34				
Sika AEA-14	(0-20 range)	(oz/yd3)	5.0	7.0%	+ / --	2.0%	1.35
Sika Plastiment	(0-6 range)	(oz/cwt)	1.0				
Sika Viscocrete 6100	(6-11 range)	(oz/cwt)	8.8	24"	spread	+ / -- 4"	
Sika Stabilizer 4R	(0-7 range)	(oz/cwt)	0.0	Not Required; Dosed on an as needed basis			
							27.3

Mix Properties: Max unit wt (#/ft^3) 141.6

Prepared By: Benjamin L. Cota, Precast Production Engineer

Approved by James Wald, VAOT Composite Materials Engineer 4/2/15

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J.P. CARRARA & SONS, INC

ERNEST J. BROD
10-26-2015

1

RIVER ROAD BRIDGE
JPC #23475-015

△ REV SPACING OF LIFTERS IS CHANGED FROM 6'-6" TO 2'-0", SHT 10

LIFTER DESIGN CALCULATIONS

WORK W/ CARRARA SHOP DWGS

APPROACH SLABS $f'_c = 5000$ psi $f'_{ci} = 3500$ psi

GOVERNING WT $12.15^T = 24.30^k$

THERE ARE (4) LIFT POINTS

DESIGN LOAD/LIFT POINT $= 24.30/4 = 6.08^k$

FROM ATTACHED PRODUCT LITERATURE

USE $8^T \times 6\frac{3}{4}''$ S.L SWL = 11200 LB, OK

PLACE ℄ APPROX 1/5 POINT E.W.

WING WALLS $f'_c = 5000$ psi & $f'_{ci} = 3500$ psi

HEAVIEST WINGWALL IS WW 4 $= 15.86^T = 31.72^k$

PANEL IS STRIPPED VERTICALLY

DESIGN LOAD/LIFTER $= 31.72/2 = 15.86^k$

THICKNESS OF PANEL IS 1'-10"

FROM ATTACHED PRODUCT LITERATURE

USE $8^T \times 13\frac{3}{8}''$ S.L. SWL 16.0^k, OK

PLACE ℄ APPROX 1/5 POINTS ACROSS PANEL

BUT CHECK BASED ON ATTACHED PCI LITERATURE, FIG 6.15.7A

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$\phi P_{c1} = 0.85 \times 2.67 \sqrt{3500}\,(22)\left(0 + 2 \times 13\tfrac{3}{8}\right)/1000 = 79.0^k$

FOR S.F = 4:1

$SWL = 79.0/4 = 19.75^k > 15.86^k$, OK

FOR ROTATION ABOUT BOTTOM EDGE

SPAN IS APPROX 11' AND BENDING STRESSES

OK BY INSPECTION.

$V/\text{LIFTER CTOP} = 31.72/4 = 7.93^k$

MV BASED ON MECHANICAL STRENGTH IS $16.0^k > 7.93^k$, OK

(SEE PRODUCT LITERATURE)

ϕV_c BASED ON CONCRETE STRENGTH

ASSUME SIMILAR TO STUD AND USE

PCI FIG 6.15.8 ATTACHMENT

$\phi V_c = \phi V'_c C_w C_t C_c$

$\phi V'_c = \phi\, 12.5\, d_c^{1.5} \sqrt{f'_c}$

$= 0.85 \times 12.5 \times 11^{1.5} \sqrt{5000}/1000 = 27.4^k$

$C_w = 1.0$

$C_t = 1.0$

$C_c = 0.4 + 0.7 \frac{24}{11} = 1.93$ BUT < 1.0

$\therefore \phi V_c = 27.4 \times 1.0 \times 1.0 \times 1.0 = 27.4^k$

FOR S.F 4:1

$SWL = 27.4/4 = 6.85^k < 7.93^k$ & $S.F. = \frac{6.85 \times 4}{7.93}$

$= 3.46$

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THIS IS GREATER THAN 2 WHICH IS ACCEPTABLE FOR TILT-UP APPLICATIONS, OK. (ALSO A #5 X 2'-0" STORE BAR IS PLACED ABOVE LIFTER)

NOTE: IF LIFTERS ARE DESIRED TO BE PLACED IN TOP FACE FOR HANDLING, PLACE LIFTERS @ 1/4 POINTS E.W., CENTER ON C.G. OF PANEL, USE 4 LIFTERS

LOAD/LIFTER = 31.72/4 = 7.93 K

FROM ATTACHED PRODUCT LITERATURE

USE 8" X 6 3/4" S.L. SWL (4 L.S.F.) = 11,200 LB, OK

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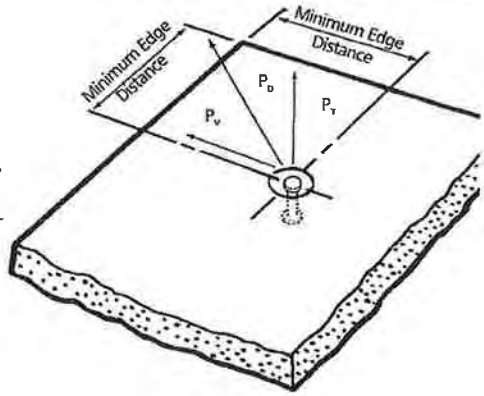
DAYTON SUPERIOR

P-52 Swift Lift® Anchor Tensile and Shear Capacity



When anchors are used in the face of thin concrete elements

The following table lists the P-52 Swift Lift Anchors that are currently manufactured. Other sizes and lengths are available on special order. However, the sizes and lengths of anchors shown will handle the majority of flat precast concrete elements.

When the P-52 Swift Lift Anchor is properly embedded in normal weight concrete, the tabulated working loads are applicable for any direction of load. This applies even if the direction of load is parallel to the axis of the anchor, perpendicular to it or at any other angle.

Minimum distance between anchors is twice the minimum edge distance.

It is critical to remember that in order to obtain the safe working loads listed in the table below, the normal weig concrete must have obtained the minimum concrete strength shown, prior to initial load application.

Swift Lift Anchor Ton x Length	Safe Working Load	Minimum Concrete Strength	Minimum Edge Distance
1 ton x 2-5/8"	1,700 lbs.	3,500 psi	8"
1 ton x 3-3/8"	2,000 lbs.	2,200 psi	10"
1 ton x 4-3/8"	2,000 lbs.	1,600 psi	10"
1 ton x 8"	2,000 lbs.	1,600 psi	10"
1 ton x 9-1/2"	2,000 lbs.	1,600 psi	10"
2 ton x 2-3/4"	2,100 lbs.	3,500 psi	8"
2 ton x 3-3/8"	2,900 lbs.	3,500 psi	10"
2 ton x 5-1/2"	4,000 lbs.	1,600 psi	13"
2 ton x 6"	4,000 lbs.	1,600 psi	13"
2 ton x 6-3/4"	4,000 lbs.	1,600 psi	13"
2 ton x 11"	4,000 lbs.	1,600 psi	14"
4 ton x 3-3/4"	4,000 lbs.	3,500 psi	12"
4 ton x 4-1/4"	4,900 lbs.	3,500 psi	13"
4 ton x 4-3/4"	5,800 lbs.	3,500 psi	14"
4 ton x 5-1/2"	7,400 lbs.	3,500 psi	17"
4 ton x 5-3/4"	7,900 lbs.	3,500 psi	17"
4 ton x 7-1/8"	8,000 lbs.	1,800 psi	20"
4 ton x 9-1/2"	8,000 lbs.	1,600 psi	17"
4 ton x 14"	8,000 lbs.	1,600 psi	18"
4 ton x 19"	8,000 lbs.	1,600 psi	20"
8 ton x 4-3/4"	6,400 lbs.	3,500 psi	16"
8 ton x 6-3/4"	11,200 lbs.	3,500 psi	21"
8 ton x 10"	16,000 lbs.	3,500 psi	19"
8 ton x 13-3/8"	16,000 lbs.	1,600 psi	23"
8 ton x 26-3/4"	16,000 lbs.	1,600 psi	27"
20 ton x 10"	25,000 lbs.	3,500 psi	24"
20 ton x 19-3/4"	40,000 lbs.	3,500 psi	3[illegible]

Safe Working Loads provide a factor of safety of approximately 4 to [illegible] in normal weight concrete. Safe Working Load is based on anchor setback from face of concrete "X" dimension, as shown on page 26.

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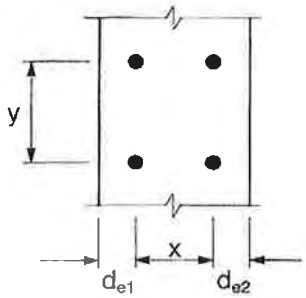
Figure 6.15.7A (continued) Design tensile strength for $h \geq h_{min}$, ϕP_{c1}—Case 3



x and y are the overall dimensions (width and length) of the stud group.

Case 3: Free edges on two opposite sides

$$\phi P_{c1} = \phi 2.67 \lambda \sqrt{f'_c}\,(x_1)(y_1 + 2\ell_e)$$

$$\phi = 0.85$$

where: x_1 and y_1 are the dimensions of the flat bottom of the part of the truncated pyramid.

For Case 3: $x_1 = x + d_{e1} + d_{e2}$ $\quad y_1 = y$

Note: Table values are based on $\lambda = 1.0$ and $f'_c = 5000$ psi; for different material properties, multiply table values by $\lambda\sqrt{f'_c/5000}$

y_1, in. \ x_1, in.	Design tensile strength, ϕP_{c1} (kips)														
	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
0	2	4	6	8	9	11	13	15	17	19	21	23	25	27	29
2	3	5	8	10	13	15	18	21	23	25	28	31	33	36	39
4	3	7	9	13	16	19	23	25	29	32	35	39	42	45	48
6	4	8	11	15	19	23	27	31	35	39	42	46	50	54	58
8	5	9	13	18	23	27	31	36	41	45	49	54	59	63	67
10	5	10	15	21	25	31	36	41	46	51	57	61	67	72	77
12	6	11	17	23	29	35	41	46	52	58	63	69	75	81	87
14	7	13	19	25	32	39	45	51	58	64	71	77	83	90	96
16	7	14	21	28	35	42	49	57	63	71	77	85	92	99	106
0	3	5	8	10	13	15	18	21	23	25	28	31	33	36	39
2	3	7	9	13	16	19	23	25	29	32	35	39	42	45	48
4	4	8	11	15	19	23	27	31	35	39	42	46	50	54	58
6	5	9	13	18	23	27	31	36	41	45	49	54	59	63	67
8	5	10	15	21	25	31	36	41	46	51	57	61	67	72	77
10	6	11	17	23	29	35	41	46	52	58	63	69	75	81	87
12	7	13	19	25	32	39	45	51	58	64	71	77	83	90	96
14	7	14	21	28	35	42	49	57	63	71	77	85	92	99	106
16	8	15	23	31	39	46	54	61	69	77	85	92	100	108	115
0	4	8	11	15	19	23	27	31	35	39	42	46	50	54	58
2	5	9	13	18	23	27	31	36	41	45	49	54	59	63	67
4	5	10	15	21	25	31	36	41	46	51	57	61	67	72	77
6	6	11	17	23	29	35	41	46	52	58	63	69	75	81	87
8	7	13	19	25	32	39	45	51	58	64	71	77	83	90	96
10	7	14	21	28	35	42	49	57	63	71	77	85	92	99	106
12	8	15	23	31	39	46	54	61	69	77	85	92	100	108	115
14	9	17	25	33	42	50	59	67	75	83	92	100	109	117	125
16	9	18	27	36	45	54	63	72	81	90	99	108	117	125	135
0	5	10	15	21	25	31	36	41	46	51	57	61	67	72	77
2	6	11	17	23	29	35	41	46	52	58	63	69	75	81	87
4	7	13	19	25	32	39	45	51	58	64	71	77	83	90	96
6	7	14	21	28	35	42	49	57	63	71	77	85	92	99	106
8	8	15	23	31	39	46	54	61	69	77	85	92	100	108	115
10	9	17	25	33	42	50	59	67	75	83	92	100	109	117	125
12	9	18	27	36	45	54	63	72	81	90	99	108	117	125	135
14	9	19	29	39	48	58	67	77	87	96	106	115	125	135	144
16	10	21	31	41	51	61	72	82	92	103	113	123	133	143	154

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Figure 6.15.8 Shear strength of welded headed studs

I—Design shear strength limited by concrete:

$$\phi V_c = \phi V_c' C_w C_t C_c \qquad \text{(Eq. 6.5.7)}$$

where:

$$\phi V_c' = \phi 12.5 d_e^{1.5} \lambda \sqrt{f_c'} \qquad \text{(Eq. 6.5.8)}$$

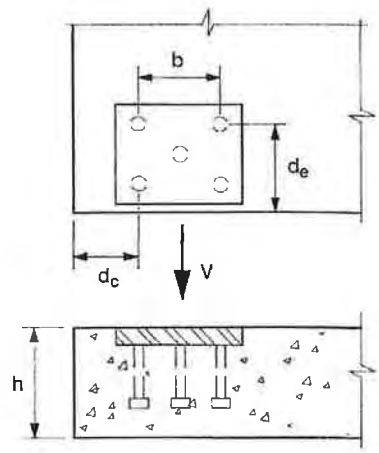
$$C_w = \left(1 + \frac{b}{3.5d_e}\right) \le n_s$$

$$C_t = \frac{h}{1.3d_e} \le 1.0$$

$$C_c = \left[0.4 + 0.7\left(\frac{d_c}{d_e}\right)\right] \le 1.0$$

Table A gives values for $\phi = 0.85$

Where: n_s = number of studs in back row; see figure for notation



II—Design shear strength limited by steel:

$$\phi V_y = (31{,}800 d_b^2)n \qquad \text{(Eq. 6.5.12a)}$$

Table B gives value for $n = 1, \phi = 0.9$

Table A—$\phi V_c'$, kips

f_c', psi	4000		5000		6000		7000		8000	
d_e, in. \ λ	1.0	0.85	1.0	0.85	1.0	0.85	1.0	0.85	1.0	0.85
2	1.90	1.62	2.12	1.81	2.33	1.98	2.51	2.14	2.69	2.29
3	3.49	2.97	3.90	3.31	4.26	3.63	4.62	3.82	4.94	4.20
4	5.38	4.57	6.00	5.11	6.58	5.59	7.11	6.04	7.60	6.46
5	7.51	6.38	8.39	7.14	9.19	7.82	9.94	8.45	10.62	9.03
6	9.88	8.40	11.04	9.39	12.09	10.29	13.08	11.11	13.97	11.87
7	12.45	10.58	13.91	11.82	15.24	12.95	16.46	13.99	17.60	14.96
8	15.20	12.82	16.99	14.44	18.61	15.81	20.12	17.08	21.50	18.27
9	18.14	15.44	20.28	17.24	22.21	18.88	23.99	20.40	25.65	21.80
10	21.25	18.06	23.75	20.18	26.01	22.11	28.11	23.88	30.04	25.53
11	24.52	20.84	27.41	23.30	30.03	25.52	32.43	27.57	34.67	29.47
12	27.94	23.74	31.22	26.53	34.20	29.07	36.94	31.40	39.49	33.67

Table B—ϕV_y, kips

Diameter, in.	¼	⅜	½	⅝	¾	⅞
ϕV_y	2.0	4.5	8.0	12.4	17.9	24.4

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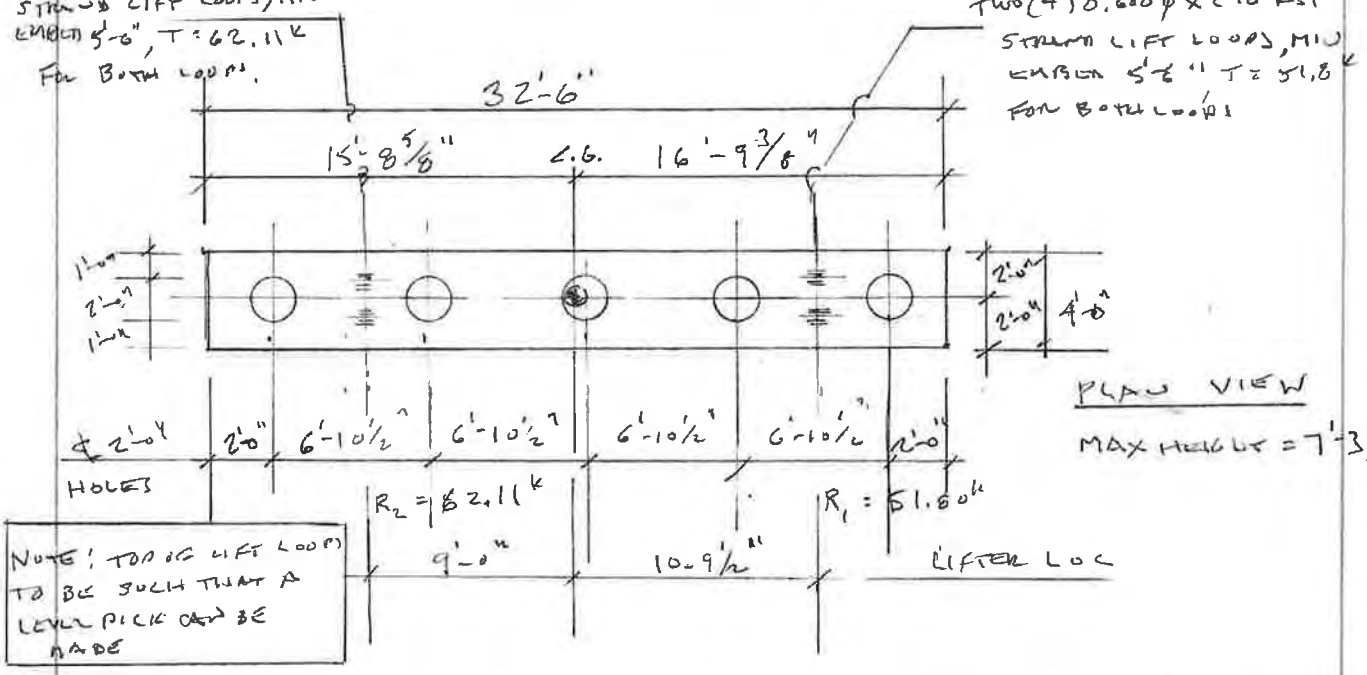
ABUTMENTS

$f'_c = 5000$ PSI $\quad f'_{ci} = 3500$ PSI

$WT = 56.96^T = 113.92^K$



PLAN VIEW

MAX HEIGHT = 7'-3 5/8"

IF LIFTERS ARE LOCATED AS SHOWN

$R_1 \times (9.0 + 10.79) = 113.92 \times 9.0$

$R_1 = 51.80^K$

$R_2 = 113.92 - 51.80 = 62.11^K$

THERE ARE (2) LIFT LOOPS @ R_2, COVERNING LOCATION

LOAD/LIFT LOOP $= 62.11^K/2 = 31.06^K$

FROM ATTACHED PRODUCT LITERATURE, TABLE 5.2.3

USE (4) 0.600" ϕ STRAND LIFT LOOP, MIN EMBEDMENT 5'-6"

SWL (4:1 S.F.) $= 1.1 \times 41 = 45.1^K > 31.06^K$, O.K

ALSO CHECK USING PCI FIGURE 6.15.7A CASE 6, ATTACHED

$\phi P_{c1} = 0.85 \times 2.67 \times \sqrt{3500(48)(58.5)}/1000 = 377.0^K$

FOR 4:1 S.F.

SWL $= 377/4 = 94.2^K > 62.11^K$, O.K

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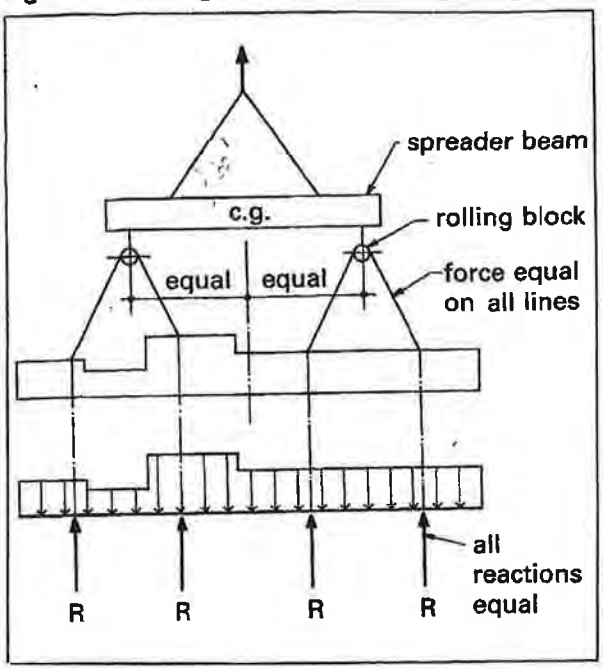
Fig. 5.2.10 Arrangement for equalizing lifting loads



lines equal. The member can then be analyzed as a beam with varying load supported by equal reactions.

The force in inclined lift lines can be determined from Fig. 5.2.7.

5.2.8 Handling devices

The most common lifting devices are prestressing strand or cable loops projecting from the concrete, threaded inserts, or special proprietary devices.

Since lifting devices are subject to dynamic loads, ductility of the material is part of the design requirement. Deformed reinforcing bars should not be used since the deformations result in stress concentrations from the shackle pin. Also, reinforcing bars are often hard-grade or re-rolled rail steel with little ductility and low impact strength at cold temperatures. Smooth bars of a known steel grade may be used if adequate embedment or mechanical anchorage is provided. The diameter must be such that localized failure will not occur by bearing on the shackle pin.

Prestressing strand is often used for lifting loops. The variables involved make it almost impossible to calculate a capacity which can be used for all situations. Generally, producers will establish standard criteria for use in handling the standard products manufactured by that plant. Table 5.2.3 is an example which has been used successfully.

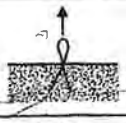
Reduced capacities for shorter embedment lengths may be suitable. In shallow products, providing a 90° bend can reduce the required embedment length significantly. Lightly rusted strand has better bond than bright strand.

The diameter of the bend of the loop should be at least 4 in. For smaller diameters, the loop capacities in Table 5.2.3 should be reduced to:

1 in. dia. — 70 %
2 in. dia. — 85 %
3 in. dia. — 90 %

The angle of incline of lifting has little effect on the strand lifting loop capacity if the angle from the horizontal is more than about 20°. Typical handling methods are usually such that this angle is no less than 60°.

Table 5.2.3 Capacity of ½ in. diameter, 270 ksi strands used as lifting loops

Lifting angle	Embedment length (in.)	Single loop (kips)	Double loop (kips)	Triple loop (kips)
45 degrees	16	5	8.5	11.5
	22	8	13	17.5
	28	10	18	23
	34	11	23	29
Vertical 	16	7.5	12.5	16.5
	22	11.5	19	24.5
	28	15.5	25.5	33
	34	16	32.5	41

1. These values are limited by slippage rather than strand strength, with a factor of safety of 4. For other strand diameters, multiply table values by 0.75 for ⅜ in. diameter, 0.85 for 7/16 in. diameter, and 1.1 for 0.6 in. diameter.
2. Minimum f'_c = 3000 psi.
3. Multiple strand loops must be fabricated to ensure equal force on each strand.

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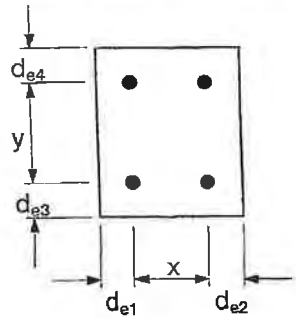
Figure 6.15.7A (continued) Design tensile strength for $h \geq h_{min}$, ϕP_{c1}—Case 6



x and y are the overall dimensions (width and length) of the stud group.

Case 6: Free edges on four adjacent sides

$\phi P_{c1} = \phi 2.67 \lambda \sqrt{f'_c}\,(x_1)(y_1)$

$\phi = 0.85$

where: x_1 and y_1 are the dimensions of the [illegible] of the part of the truncated pyramid.

For Case 6: $x_1 = x + d_{e1} + d_{e2}$ $\quad y_1 = y - [illegible]$

Note: Table values are based on $\lambda = 1.0$ and $f'_c = 5000$ psi;

for different material properties, multiply [illegible] values by $\lambda\sqrt{f'_c/5000}$

ℓ_e in.	y_1, in. \ x_1, in.	Design tensile strength, ϕP_{c1} (kips)												
		2	4	6	8	10	12	14	16	18	20	22	24	26
3	0	0	0	0	0	0	0	0	0	0	0	0	0	[illegible]
	2	1	1	2	3	3	4	5	5	6	7	7	8	[illegible]
	4	1	3	4	5	7	8	9	10	11	13	14	15	[illegible]
	6	2	4	6	8	9	11	13	15	17	19	21	23	[illegible]
	8	3	5	8	10	13	15	18	21	23	25	29	31	[illegible]
	10	3	7	9	13	16	19	23	25	29	32	35	39	[illegible]
	12	4	8	11	15	19	23	27	31	35	39	42	46	[illegible]
	14	5	9	13	18	23	27	31	36	41	45	49	54	[illegible]
	16	5	10	15	21	25	31	36	41	46	51	35	61	[illegible]
4	0	0	0	0	0	0	0	0	0	0	0	0	0	[illegible]
	2	1	1	2	3	3	4	5	5	6	7	7	8	[illegible]
	4	1	3	4	5	7	8	9	10	11	13	14	15	[illegible]
	6	2	4	6	8	9	11	13	15	17	19	21	23	[illegible]
	8	3	5	8	10	13	15	18	21	23	25	28	31	[illegible]
	10	3	7	9	13	16	19	23	25	29	32	35	39	[illegible]
	12	4	8	11	15	19	23	27	31	35	39	42	46	[illegible]
	14	5	9	13	18	23	27	31	36	41	45	49	54	[illegible]
	16	5	10	15	21	25	31	36	41	46	51	57	61	[illegible]
6	0	0	0	0	0	0	0	0	0	0	0	0	0	[illegible]
	2	1	1	2	3	3	4	5	5	6	7	7	8	[illegible]
	4	1	3	4	5	7	8	9	10	11	13	14	15	[illegible]
	6	2	4	6	8	9	11	13	15	17	19	21	23	[illegible]
	8	3	5	8	10	13	15	18	21	23	25	28	31	[illegible]
	10	3	7	9	13	16	19	23	25	29	32	35	39	[illegible]
	12	4	8	11	15	19	23	27	31	35	39	42	46	[illegible]
	14	5	9	13	18	23	27	31	36	41	45	49	54	[illegible]
	16	5	10	15	21	25	31	36	41	46	51	57	61	[illegible]
8	0	0	0	0	0	0	0	0	0	0	0	0	0	[illegible]
	2	1	1	2	3	3	4	5	5	6	7	7	8	[illegible]
	4	1	3	4	5	7	8	9	10	11	13	14	15	[illegible]
	6	2	4	6	8	9	11	13	15	17	19	21	23	[illegible]
	8	3	5	8	10	13	15	18	21	23	25	28	31	[illegible]
	10	3	7	9	13	16	19	23	25	29	32	35	39	[illegible]
	12	4	8	11	15	19	23	27	31	35	39	42	46	[illegible]
	14	5	9	13	18	23	27	31	36	41	45	49	54	[illegible]
	16	5	10	15	21	25	31	36	41	46	51	57	61	[illegible]

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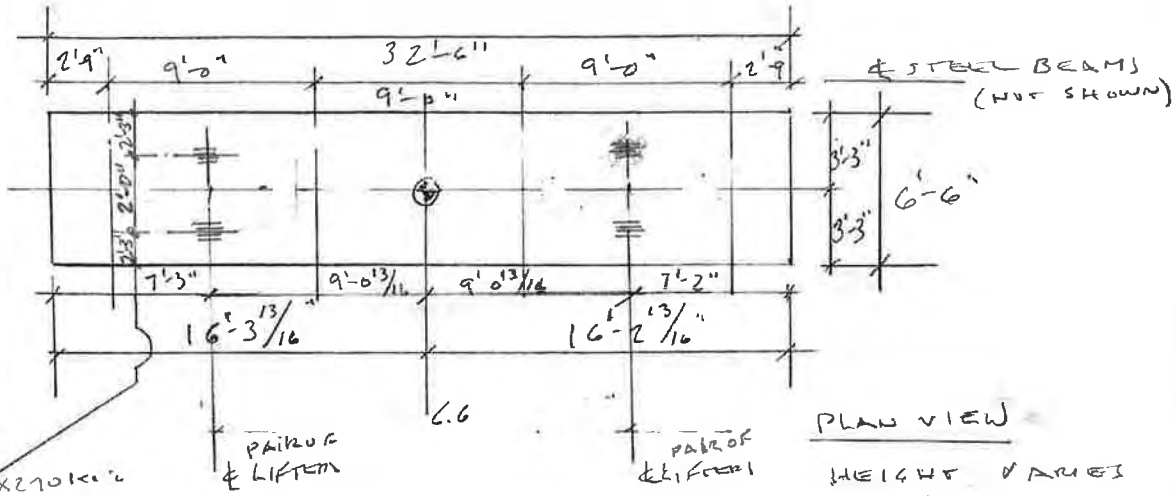
Has been revised to 5,000psi.
See notes first page of this submittal.

PILE CAP

$f'_c = 4000$ PSI $\quad f'_{cc} = 3000$ PSI

$WT = 67.96^T = 135.92^K$



PLAN VIEW

HEIGHT VARIES 4'-3" ± MAX

⚠ TWO (4) 0.600"φ X 270 KSI STRAND LIFT LOOPS MIN EMBED 3'-0", T = 33.98^K K/LOOP, TYP 4 LOC

THERE ARE TWO LIFT LOOPS @ EACH END

LOAD/LIFT LOOP = $135.92/2\times2 = 33.98^K$

FROM ATTACHED PRODUCT LITERATURE, TABLE 5.2.3 (SEE ABUTMENT CALCS)

USE (4) 0.600"φ STRAND LIFT LOOPS, MIN EMBEDMENT 3'-0"

SWL (4:1 S.F.) $= 1.1 \times 41 = 45.1^K > 33.98^K$, O.K.

NOTE: TOP OF LIFT LOOPS TO BE SUCH THAT A LEVEL PICK CAN BE MADE

ALSO CHECK USING PCI FIG 6.15.7A CASE 6, ATTACHED (SEE ABUTMENT CALCS)

$\phi P_{c1} = 0.85 \times 2.67 \times \sqrt{3000}\,(78)(92)/1000 = 892K$; 92" IS ON TANGENT BETWEEN FLANGES

FOR 4:1 SF.

SWL $= 892/4 = 223^K > 2 \times 33.98 = 68^K$, O.K.

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SUBMITTAL REVIEW

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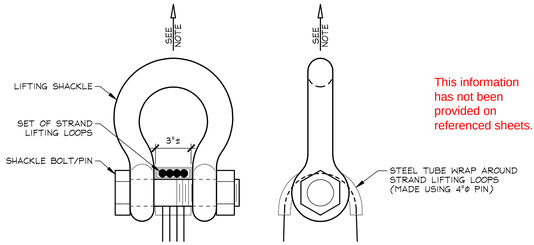
- ☐ NO EXCEPTIONS TAKEN
- ☐ MAKE CORRECTIONS NOTED
- RESUBMITTAL NOT REQUIRED
- ☑ AMEND AND RESUBMIT
- ☐ REJECTED - SEE REMARKS

PB AMERICAS, INC.

BY: Robert Gahn

DATE: 1/11/16



NOTE: PRECAST UNITS SHALL BE HANDLED AND ERECTED USING THE LIFTING LOOPS ONLY. RIGGING SHALL BE CONFIGURED SUCH THAT EQUAL FORCES ARE APPLIED TO EACH SET OF LIFTING LOOPS AT EACH END OF PRECAST UNITS. SHACKLE BOLT/PIN SHALL BE PLACED UNDER LIFT LOOPS AS SHOWN. DESIGN AND CONFIGURATION OF RIGGING BY PURCHASER.

LIFTING SHACKLE DETAILS

N.T.S.

2 Revise. Inconsistent with submittal notes and Sheet PC1

any type of roughness profile needed?

This information has not been provided on referenced sheets.

PIER CAP GENERAL NOTES

1. MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 4,000 PSI (UNLESS NOTED OTHERWISE).
2. MIN. CONCRETE STRENGTH AT STRIPPING SHALL BE 3,000 PSI (UNLESS NOTED OTHERWISE).
3. REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M31) LEVEL II (DUAL COATED) (AS NOTED ON SHOP DRAWINGS).
4. SEE INDIVIDUAL PIER CAP DRAWINGS FOR CONCRETE FINISHES AND EXTENT OF WATERPROOF SEALER APPLICATION.
5. PRECAST CONCRETE UNITS SHALL BE HANDLED AND ERECTED USING THE LIFTING INSERTS ONLY. THE MINIMUM SLING ANGLE FROM THE HORIZONTAL SHALL BE 60°. **THE PINS OF THE SHACKLES SHALL BE PLACED THROUGH THE LIFTING LOOPS. SEE DETAIL, THIS SHEET.** NON-PRESTRESSED UNITS SHALL BE STORED & TRANSPORTED WITH TIMBER SUPPORTS AT 5th POINTS, UNLESS APPROVED BY J.P. CARRARA & SONS, INC.
6. MATERIAL SPECIFICATION AND MIX DESIGN SHALL CONFORM TO VERMONT SPEC. P510.02 AND P510.05 RESPECTIVELY.

   DESIGN MIX: J.P.C. BRIDGE MIX #445MSCC
7. QUALITY CONTROL PROCEDURES ARE IN ACCORDANCE WITH PCI REQUIREMENTS. J.P. CARRARA & SONS, INC. IS A PCI CERTIFIED PLANT.
8. CURING METHOD: AS SOON AS THE TOP OF PRECAST CONCRETE UNITS ARE FINISHED, A COVER OF POLY WILL BE PLACED OVER THE UNIT. NATURAL CURE WITH NO EXTERNAL HEAT APPLIED. AMBIENT TEMPERATURE WITHIN THE ENCLOSURE SHALL BE RECORDED. CONCRETE TEMPERATURE WITHIN FORMS SHALL BE ABOVE 50°F AT ALL TIMES. AFTER FORM REMOVAL THE MAXIMUM TEMPERATURE DIFFERENTIAL BETWEEN THE CONCRETE AND AMBIENT SHALL BE 40°F.

APPROACH SLAB GENERAL NOTES

1. MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 5,000 PSI.
2. MIN. CONCRETE STRENGTH AT STRIPPING SHALL BE 3,500 PSI (UNLESS NOTED OTHERWISE).
3. REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M31) LEVEL II (DUAL COATED) (AS NOTED ON SHOP DRAWINGS).
4. THE TOP OF APPROACH SLABS SHALL RECEIVE A SMOOTH FLOAT FINISH (UNLESS NOTED OTHERWISE).
5. SHEAR KEY SURFACES SHALL BE POWER WASHED WITH WATER PRIOR TO PLACEMENT.
6. PRECAST CONCRETE UNITS SHALL BE HANDLED AND ERECTED USING THE LIFTING INSERTS ONLY. THE MINIMUM SLING ANGLE FROM THE HORIZONTAL SHALL BE 60°. NON-PRESTRESSED UNITS SHALL BE STORED & TRANSPORTED WITH TIMBER SUPPORTS AT 5th POINTS, UNLESS APPROVED BY J.P. CARRARA & SONS, INC.
7. MATERIAL SPECIFICATION AND MIX DESIGN SHALL CONFORM TO VERMONT SPEC. P510.02 AND P510.05 RESPECTIVELY.

   DESIGN MIX: J.P.C. BRIDGE MIX #445MSCC
8. QUALITY CONTROL PROCEDURES ARE IN ACCORDANCE WITH PCI REQUIREMENTS. J.P. CARRARA & SONS, INC. IS A PCI CERTIFIED PLANT.
9. CURING METHOD: AS SOON AS THE TOP OF PRECAST CONCRETE UNITS ARE FINISHED, A COVER OF RIGID INSULATION AND POLY WILL BE PLACED OVER THE UNIT. NATURAL CURE WITH NO EXTERNAL HEAT APPLIED. CONCRETE TEMPERATURE WITHIN FORMS SHALL BE ABOVE 50°F AT ALL TIMES. AFTER FORM REMOVAL THE MAXIMUM TEMPERATURE DIFFERENTIAL BETWEEN THE CONCRETE AND AMBIENT SHALL BE 40°F.

ABUTMENT & WING WALL GENERAL NOTES

1. MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 5,000 PSI.
2. MIN. CONCRETE STRENGTH AT STRIPPING SHALL BE 3,500 PSI (UNLESS NOTED OTHERWISE).
3. REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M31) LEVEL II (DUAL COATED) (AS NOTED ON SHOP DRAWINGS).
4. SEE INDIVIDUAL ABUTMENT DRAWINGS FOR CONCRETE FINISHES AND EXTENT OF WATERPROOF SEALER APPLICATION.
5. SEE INDIVIDUAL WING WALL DRAWINGS FOR CONCRETE FINISHES AND EXTENT OF WATERPROOF SEALER APPLICATION. CONCRETE MUST ACHIEVE 80% OF THE SPECIFIED DESIGN STRENGTH (4,000 PSI) PRIOR TO APPLICATION OF SEALER.
6. PRECAST CONCRETE UNITS SHALL BE HANDLED AND ERECTED USING THE LIFTING INSERTS ONLY. THE MINIMUM SLING ANGLE FROM THE HORIZONTAL SHALL BE 60°. **THE PINS OF THE SHACKLES SHALL BE PLACED THROUGH THE LIFTING LOOPS. SEE DETAIL, THIS SHEET.** NON-PRESTRESSED UNITS SHALL BE STORED & TRANSPORTED WITH TIMBER SUPPORTS AT 5th POINTS, UNLESS APPROVED BY J.P. CARRARA & SONS, INC.
7. MATERIAL SPECIFICATION AND MIX DESIGN SHALL CONFORM TO VERMONT SPEC. P510.02 AND P510.05 RESPECTIVELY.

   DESIGN MIX:

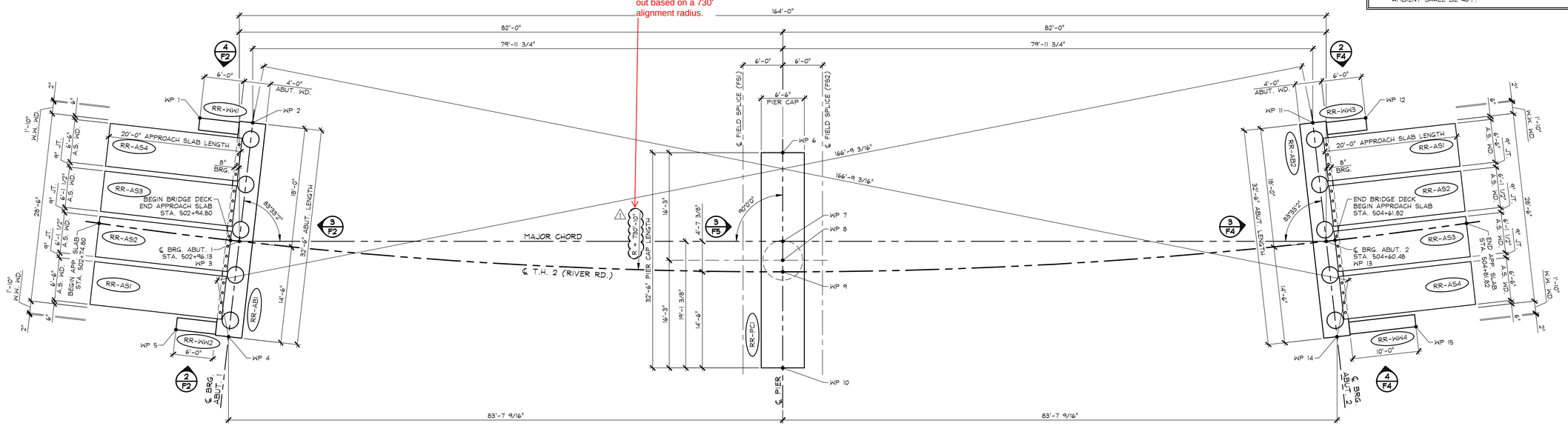
   WING WALLS: J.P.C. BRIDGE MIX #445MSCC

   ABUTMENTS: J.P.C. BRIDGE MIX #445MSCC
8. QUALITY CONTROL PROCEDURES ARE IN ACCORDANCE WITH PCI REQUIREMENTS. J.P. CARRARA & SONS, INC. IS A PCI CERTIFIED PLANT.
9. ABUTMENT CURING METHOD: AS SOON AS THE TOP OF PRECAST CONCRETE UNITS ARE FINISHED, A COVER OF POLY WILL BE PLACED OVER THE UNIT. NATURAL CURE WITH NO EXTERNAL HEAT APPLIED. AMBIENT TEMPERATURE WITHIN THE ENCLOSURE SHALL BE RECORDED. CONCRETE TEMPERATURE WITHIN FORMS SHALL BE ABOVE 50°F AT ALL TIMES. AFTER FORM REMOVAL THE MAXIMUM TEMPERATURE DIFFERENTIAL BETWEEN THE CONCRETE AND AMBIENT SHALL BE 40°F.
10. WING WALL CURING METHOD: AS SOON AS THE TOP OF PRECAST CONCRETE UNITS ARE FINISHED, A COVER OF RIGID INSULATION AND POLY WILL BE PLACED OVER THE UNIT. NATURAL CURE WITH NO EXTERNAL HEAT APPLIED. CONCRETE TEMPERATURE WITHIN FORMS SHALL BE ABOVE 50°F AT ALL TIMES. AFTER FORM REMOVAL THE MAXIMUM TEMPERATURE DIFFERENTIAL BETWEEN THE CONCRETE AND AMBIENT SHALL BE 40°F.

This information has not been provided on these sheets.

where is that concrete temperature measured?

2 Must be 730'-0". All steel shops are laid out based on a 730' alignment radius.



1/F1 PRECAST CONCRETE & SURVEY LAYOUT

1/8" = 1'-0"

2 1/11/16 Engineers Review Comments (RJG)

1 12-2-15 REVISED PER GENERAL CONTRACTOR'S ENGINEER REVIEW

Vermont Agency of Transportation
RECEIVED
ON: December 18, 2015
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CONFORMANCE
BY: Todd Sumner DATE: 01/15/2016

APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010	CCS CONSTRUCTORS, INC. CONTRACTOR MORRISVILLE, VERMONT
	STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF ADDISON	DATE: OCT. 15, 2015 SCALE: NOTED
	TOWN OF NEW HAVEN T.H. 2 (RIVER ROAD) (CLASS 2 - MAJOR COLLECTOR) BRIDGE NO.: 10 PROJECT NO.: BRF 0183 (1)	CHKD: A.S. DFTM: B.L. JOB NO: 23475-015
	PRECAST CONCRETE & SURVEY LAYOUT	DWG. NO: F1

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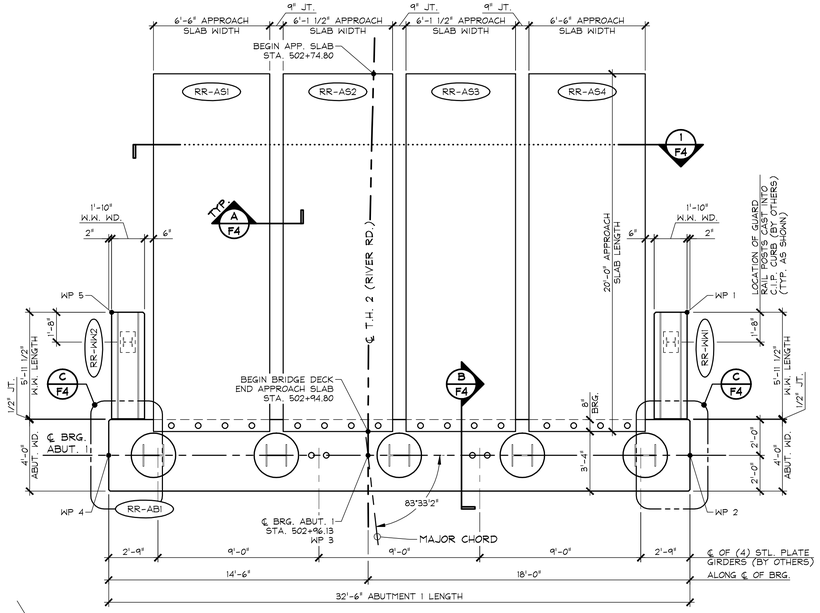
- [x] NO EXCEPTIONS TAKEN
- [ ] MAKE CORRECTIONS NOTED RESUBMITTAL NOT REQUIRED
- [ ] AMEND AND RESUBMIT
- [ ] REJECTED - SEE REMARKS

PB AMERICAS, INC.

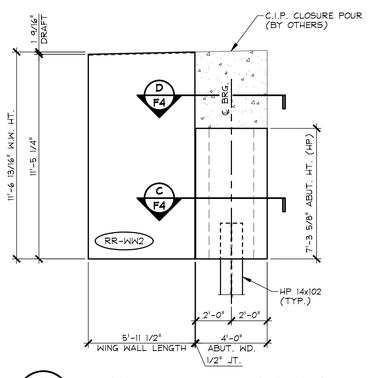
BY: Ashish Sanghe

DATE: 1/11/16



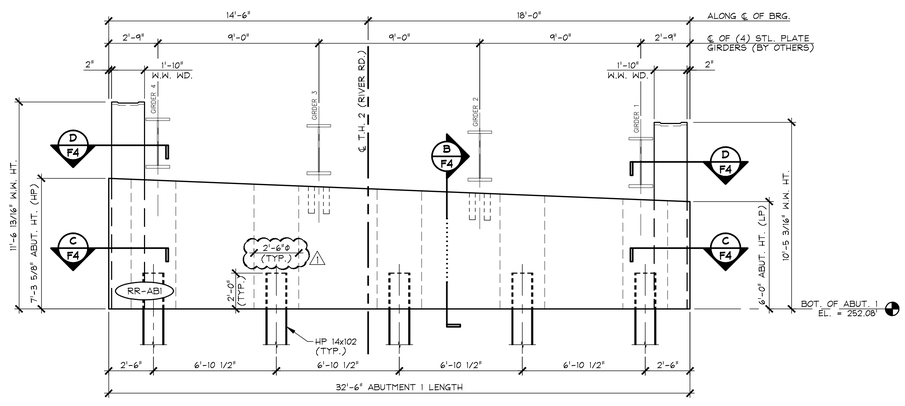
1/F2 PRECAST ABUTMENT 1 ℄ WING WALLS LAYOUT

1/4" = 1'-0"



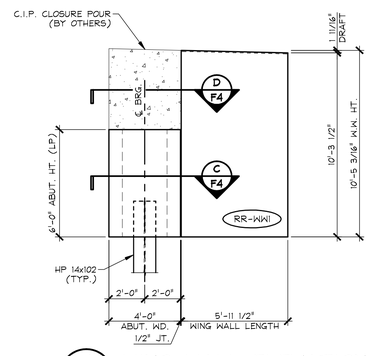
2/F2 WING WALL ELEVATION "RR-WW2"

1/4" = 1'-0"



3/F2 PRECAST ABUTMENT 1 ELEVATION "RR-AB1"

1/4" = 1'-0"



4/F2 WING WALL ELEVATION "RR-WW1"

1/4" = 1'-0"

⚠ 12-2-15 REVISED PER GENERAL CONTRACTOR'S ENGINEER REVIEW

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ON: December 18, 2015
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BY: Todd Sumner DATE: 01/15/2016

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J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

CCS CONSTRUCTORS, INC.
CONTRACTOR
MORRISVILLE, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF ADDISON

TOWN OF NEW HAVEN
T.H. 2 (RIVER ROAD) (CLASS 2 - MAJOR COLLECTOR)
BRIDGE NO.: 10 PROJECT NO.: BRF 0183 (1)

PRECAST ABUTMENT 1 ℄ WING WALLS LAYOUT & ELEVATIONS

DATE:	OCT. 15, 2015
SCALE:	NOTED
CHKD: A.S.	DFTM: B.L.
JOB NO:	23475-015
DWG. NO:	F2

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- [ ] AMEND AND RESUBMIT
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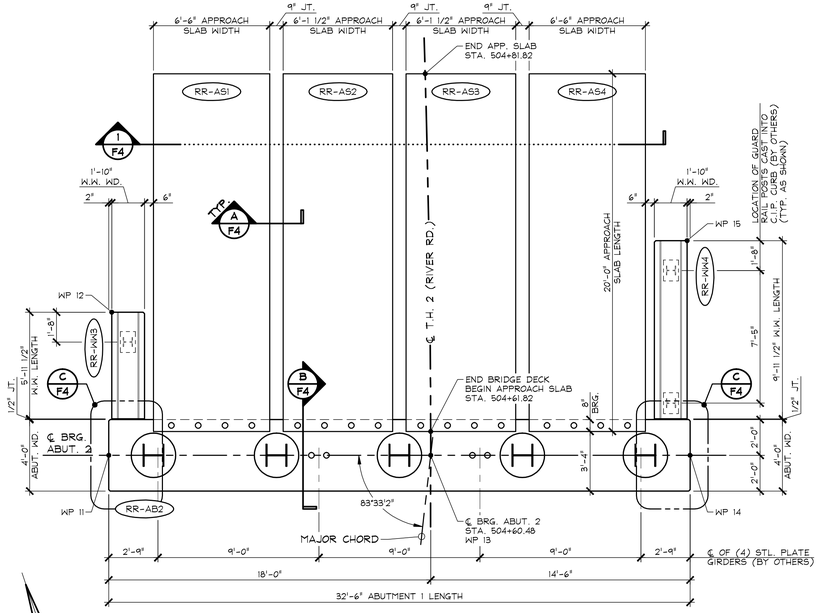
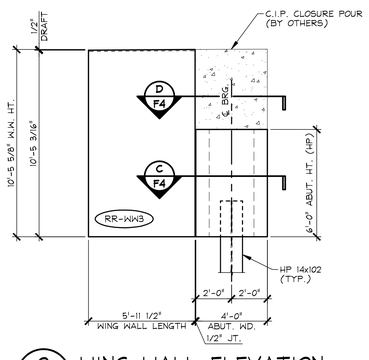
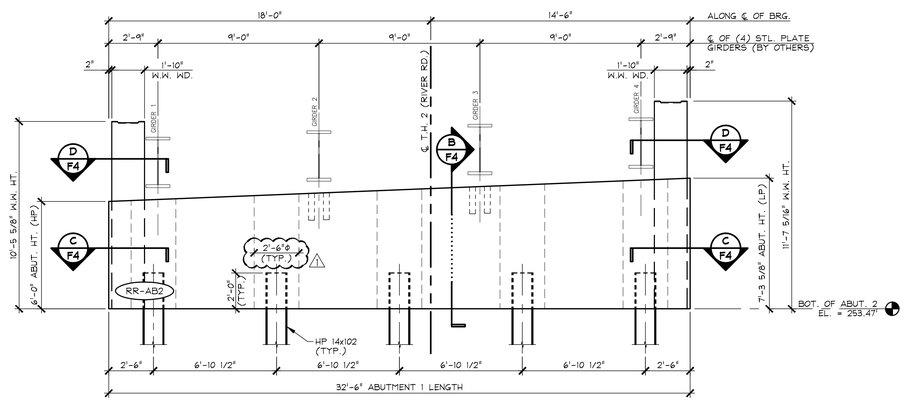
PB AMERICAS, INC.
BY: Ashish Sanghe
DATE: 1/11/16



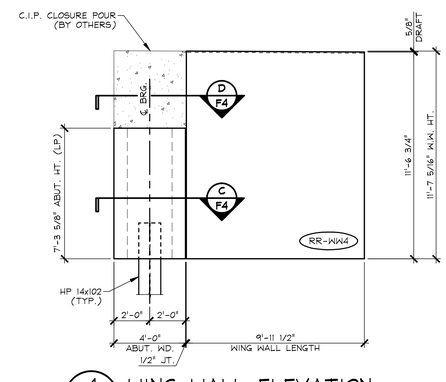
1 / F3 PRECAST ABUTMENT 2 & WING WALLS LAYOUT
1/4" = 1'-0"



2 / F3 WING WALL ELEVATION "RR-WW3"
1/4" = 1'-0"



3 / F3 PRECAST ABUTMENT 2 ELEVATION "RR-AB2"
1/4" = 1'-0"



4 / F3 WING WALL ELEVATION "RR-WW4"
1/4" = 1'-0"

1 12-2-15 REVISED PER GENERAL CONTRACTOR'S ENGINEER REVIEW

Vermont Agency of Transportation
RECEIVED
ON: December 18, 2015
and Checked for
CONFORMANCE
BY: Todd Sumner DATE: 01/15/2016

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

CCS CONSTRUCTORS, INC.
CONTRACTOR
MORRISVILLE, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF ADDISON	DATE: OCT. 15, 2015 SCALE: NOTED
TOWN OF NEW HAVEN T.H. 2 (RIVER ROAD) (CLASS 2 - MAJOR COLLECTOR) BRIDGE NO.: 10 PROJECT NO.: BRF 0183 (1)	CHKD: A.S. DFTM: B.L. JOB NO: 23475-015
PRECAST ABUTMENT 2 & WING WALLS LAYOUT & ELEVATIONS	DWG. NO: F3

F:\VT-Bridges\23475-15 River Road\23475-F3.dwg, 12/2/2015 6:52:50 PM

SUBMITTAL REVIEW

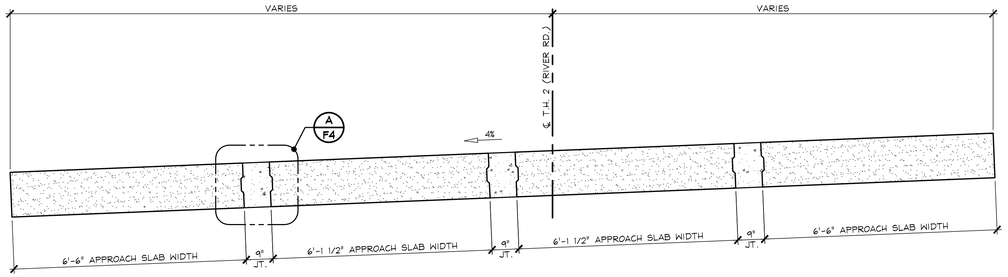
Review is only for general conformity to the contract drawings and specifications and shall not relieve the contractor of his entire responsibility under the contract, including among other things, dimensions to be confirmed and correlated at the job site, and information that pertains to the fabrication processes or to techniques of construction.

- ☐ NO EXCEPTIONS TAKEN
- ☐ MAKE CORRECTIONS NOTED
- RESUBMITTAL NOT REQUIRED
- ☑ AMEND AND RESUBMIT
- ☐ REJECTED - SEE REMARKS

PB AMERICAS, INC.

BY: Robert Bahr

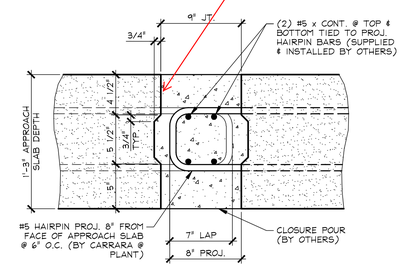
DATE: 1/11/16



1 / F4 APPROACH SLAB TRANSVERSE SECTION

1/2" = 1'-0"

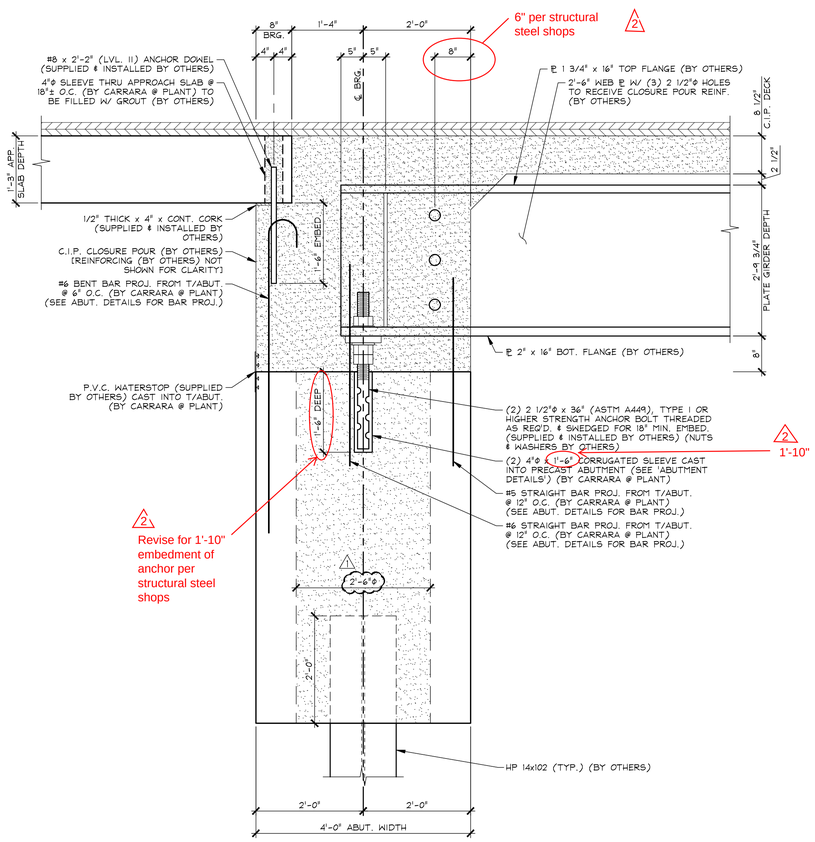
surface amplitude?



This joint detail does not match the standard details provided in the contract plans. However, similar details have been approved on recent VTrans Projects.

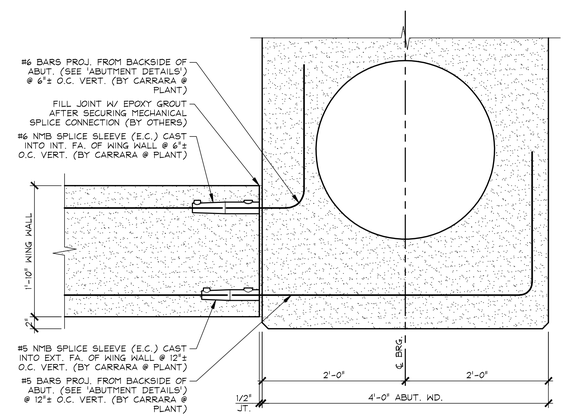
A / F4 SHEAR KEY SECTION @ APPROACH SLABS

1 1/2" = 1'-0"



B / F4 BEARING SECTION

3/4" = 1'-0"

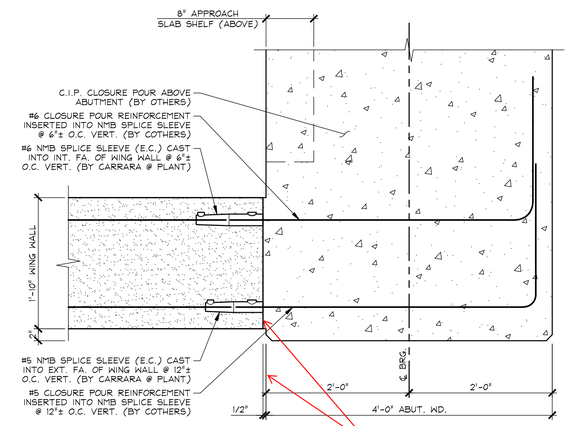


C / F4 WING WALL CONNECTION DETAIL

1" = 1'-0"

GENERAL NOTE:

ALL SPLICE SLEEVES TO BE GROUTED W/ NMB SS MORTAR PER MANUFACTURERS INSTRUCTION, (BY OTHERS)



D / F4 WING WALL CONNECTION DETAIL

1" = 1'-0"

GENERAL NOTE:

ALL SPLICE SLEEVES TO BE GROUTED W/ NMB SS MORTAR PER MANUFACTURERS INSTRUCTION, (BY OTHERS)

not showing 1/2' gap or is there one here?

2 1/11/16 Engineers Review Comments (RJG)

1 12-2-15 REVISED PER GENERAL CONTRACTOR'S ENGINEER REVIEW

Vermont Agency of Transportation
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APPROVAL STAMP:

J.P. CARRARA & SONS INC.
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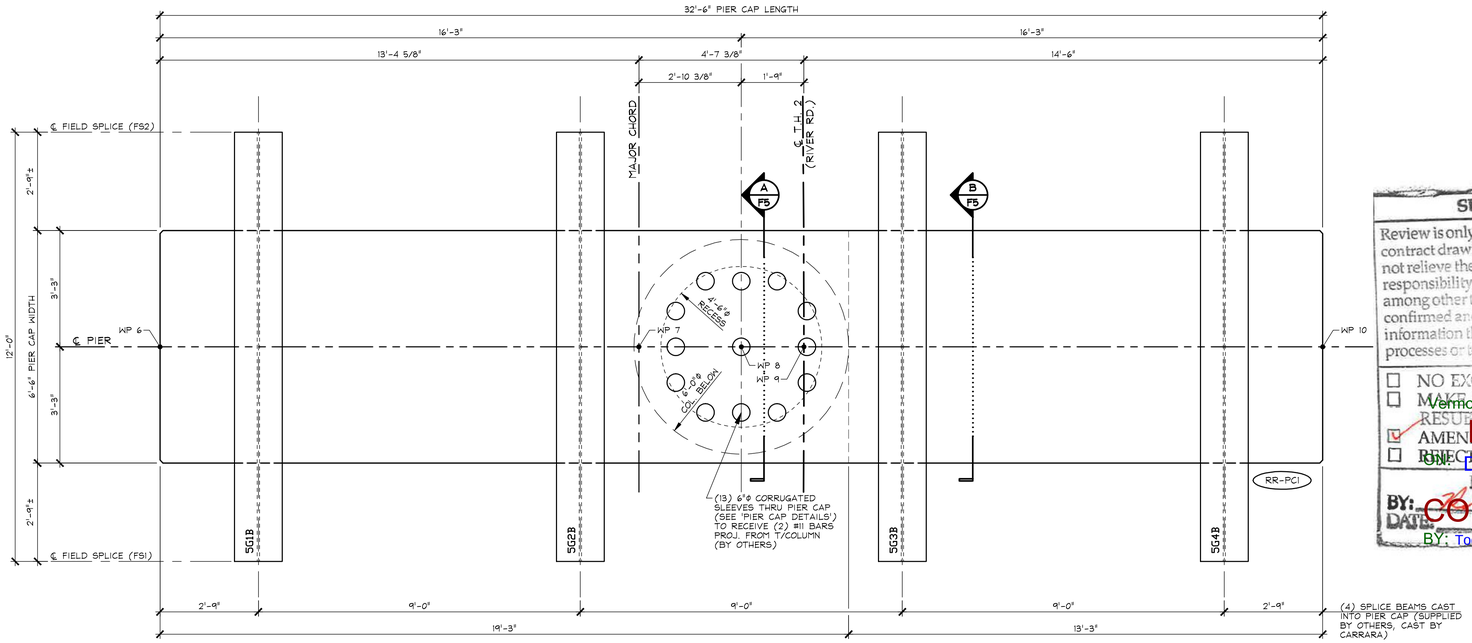
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

CCS CONSTRUCTORS, INC.
CONTRACTOR
MORRISVILLE, VERMONT

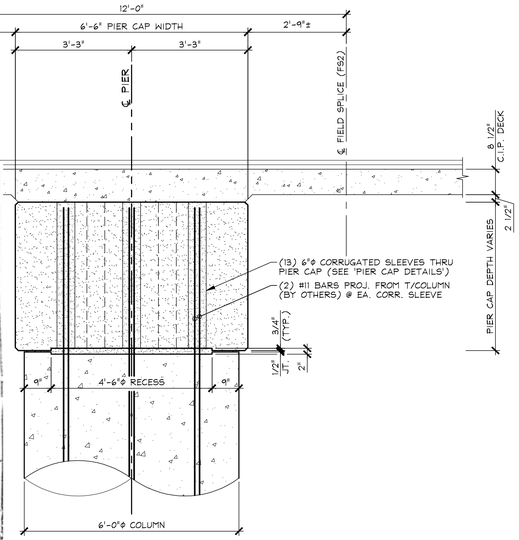
STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF ADDISON	DATE: OCT. 15, 2015 SCALE: NOTED
TOWN OF NEW HAVEN T.H. 2 (RIVER ROAD) (CLASS 2 - MAJOR COLLECTOR) BRIDGE NO.: 10 PROJECT NO.: BRF 0183 (1)	CHKD: A.S. DFTM: B.L. JOB NO: 23475-015
APPROACH SLAB TRANSVERSE SECTION ABUTMENT & WING WALL DETAILS	DWG. NO: F4

F:\VT-Bridges\23475-15 River Road\23475-F4.dwg, 12/2/2015 6:52:09 PM



1 F5 PRECAST CONCRETE PIER CAP PLAN

1/2" = 1'-0"



A F5 PIER CAP SECTION AT COLUMN

1/2" = 1'-0"

SUBMITTAL REVIEW

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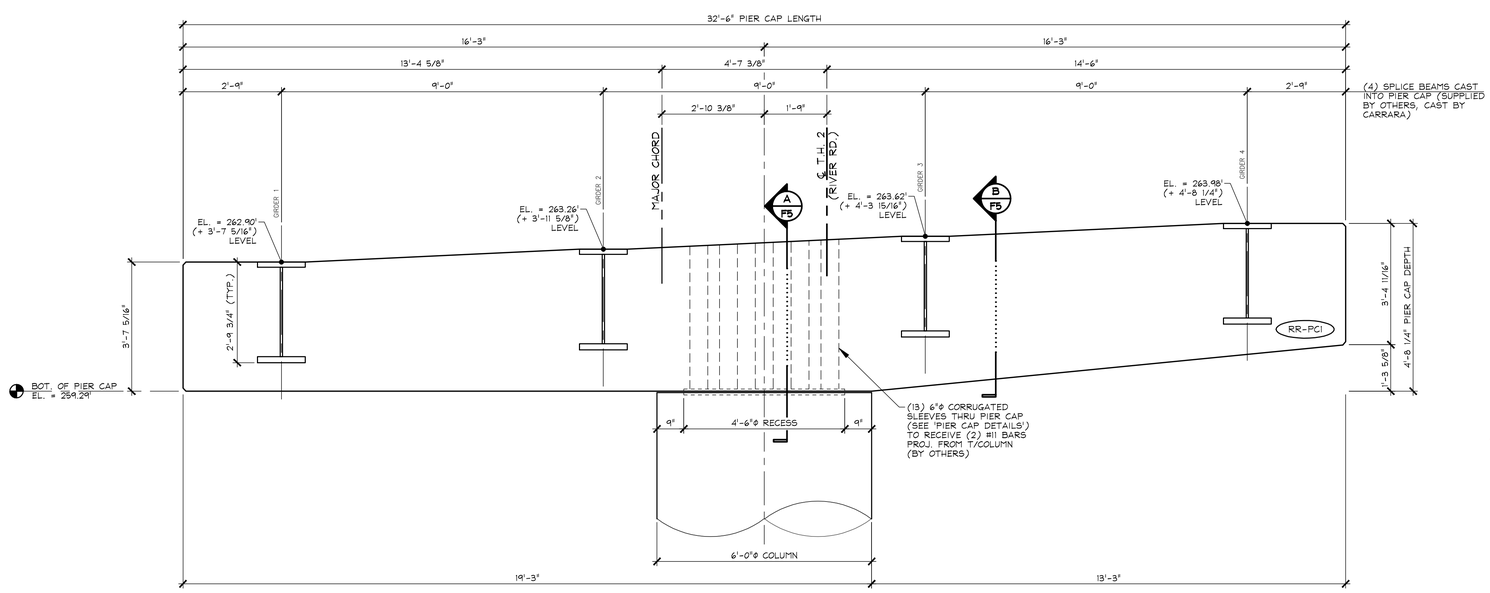
☐ NO EXCEPTIONS TAKEN
☐ MAKE CORRECTIONS NOTED
RESUBMITTAL NOT REQUIRED
☑ AMENDMENTS NOTED
☐ REJECTED - SEE REMARKS

PENNICHUCK CO. INC.

BY: DATE: CONFORMANCE

BY: Todd Sumner DATE: 01/15/2016

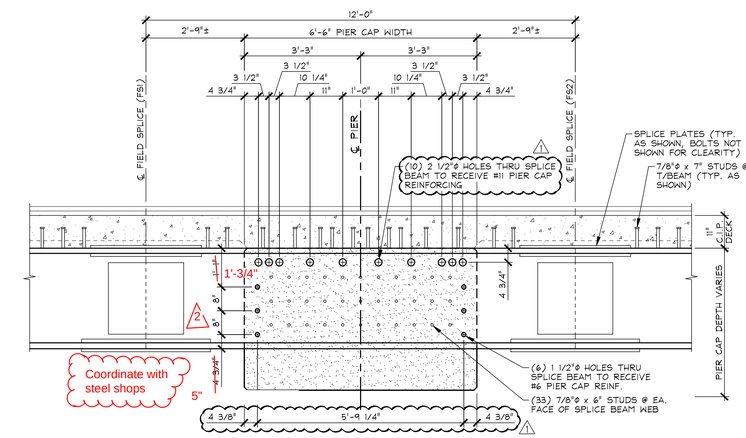
Vermont Agency of Transportation
RECEIVED
December 18, 2015
and Checked for



2 F5 PRECAST CONCRETE PIER CAP ELEVATION

ELEVATIONS NOTED ARE ALONG CENTERLINE OF PIER CAP

1/2" = 1'-0"



B F5 PIER CAP SECTION SPLICE BEAM

1/2" = 1'-0"

2 1/11/16 Engineers Review Comments (RJG)

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CCS CONSTRUCTORS, INC.
CONTRACTOR
MORRISVILLE, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF ADDISON

DATE: OCT. 15, 2015
SCALE: NOTED

TOWN OF NEW HAVEN
T.H. 2 (RIVER ROAD) (CLASS 2 - MAJOR COLLECTOR)
BRIDGE NO.: 10 PROJECT NO.: BRF 0183 (1)

CHKD: A.S. DFTM: B.L.
JOB NO: 23475-015

PRECAST PIER CAP LAYOUT, ELEVATIONS & SECTIONS

DWG. NO: F5

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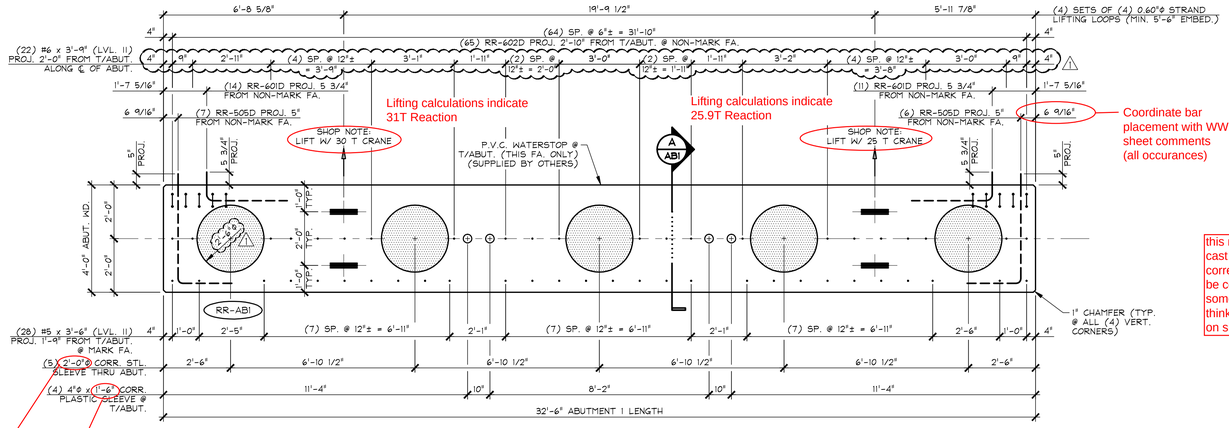
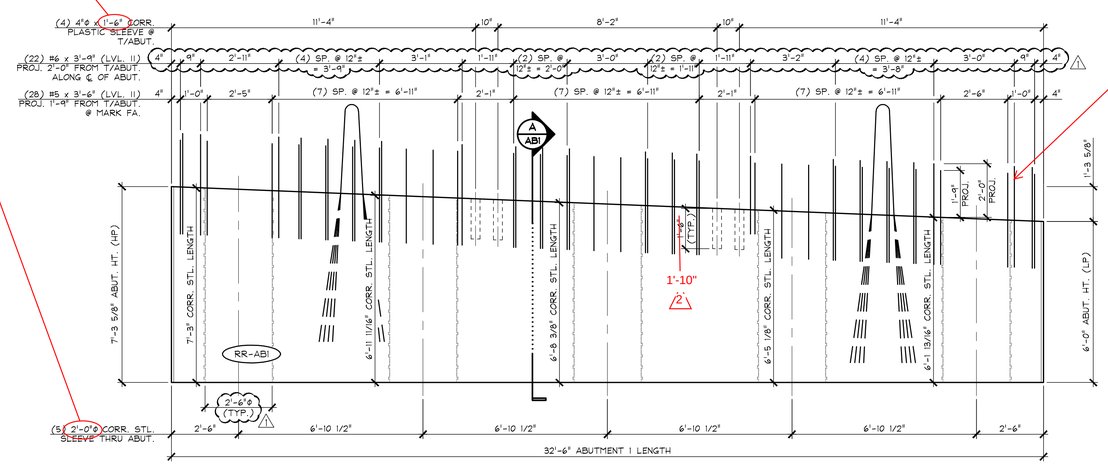


Lifting calculations indicate 31T Reaction

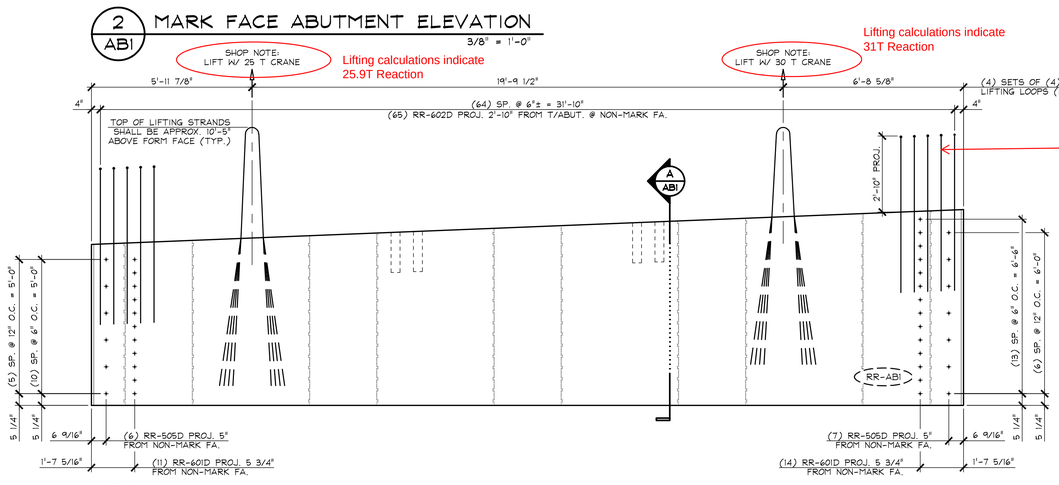
Lifting calculations indicate 25.9T Reaction

Coordinate bar placement with WW sheet comments (all occurances)

1 ABI PRECAST ABUTMENT PLAN VIEW IN FORM
3/8" = 1'-0"

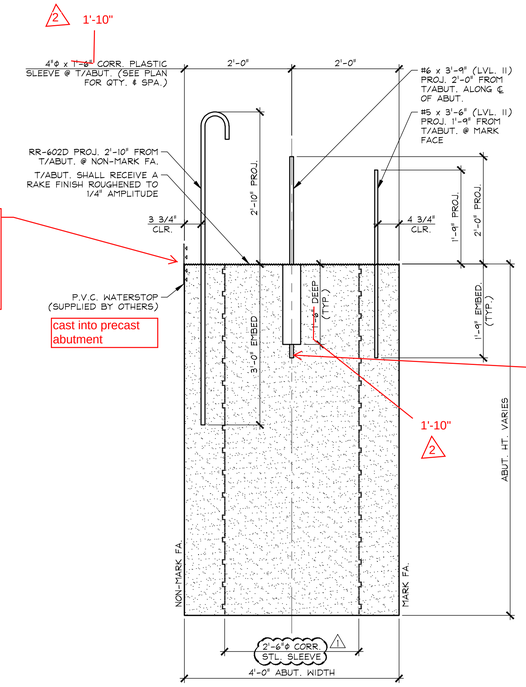


2 ABI MARK FACE ABUTMENT ELEVATION
3/8" = 1'-0"



Why are only the first 5 indicated? Generally show all or just first and last?

3 ABI NON-MARK FACE ABUTMENT ELEVATION
3/8" = 1'-0"



this needs to be cast into precast correct? note might be confusing as in someone might think it will be done on site.

cast into precast abutment

embedment also?

A ABI DIMENSIONAL SECTION
3/4" = 1'-0"

Finishes not noted

SUBMITTAL REVIEW

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- ☐ NO EXCEPTIONS TAKEN
- ☐ MAKE CORRECTIONS NOTED RESUBMITTAL NOT REQUIRED
- ☑ AMEND AND RESUBMIT
- ☐ REJECTED - SEE REMARKS

PB AMERICAS, INC.
BY: Robert Baker
DATE: 1/11/16

SHOP NOTE:
SEE DRAWING NO. "AB1.1" FOR ABUTMENT REINFORCING

SHOP NOTE:
f'c = 5,000 PSI
f'ci = 3,500 PSI
MIX #445MSCC

MARK: RR-AB1 | QTY.: 1 | WT.: 54.3 T | VOL.: 28.13 cy

MATERIAL LIST / ABUTMENT

ITEM	MARK	DESCRIPTION	QTY.
1	RR-505D	#5 BENT BAR (LEVEL II, DUAL COATED)	13
2		#5 x 3'-6" (LEVEL II, DUAL COATED)	28
3			
4			
5	RR-601D	#6 BENT BAR (LEVEL II, DUAL COATED)	25
6	RR-602D	#6 BENT BAR (LEVEL II, DUAL COATED)	65
7		#6 x 3'-9" (LEVEL II, DUAL COATED)	22
8			
9			
10			
11		P.V.C. WATERSTOP (SUPPLIED BY OTHERS)	32.3 LF
12		2'-6"ϕ x 7'-3" CORRUGATED STEEL SLEEVE	1
13		2'-6"ϕ x 6'-11 11/16" CORRUGATED STEEL SLEEVE	1
14		2'-6"ϕ x 6'-8 3/8" CORRUGATED STEEL SLEEVE	1
15		2'-6"ϕ x 6'-5 1/8" CORRUGATED STEEL SLEEVE	1
16		2'-6"ϕ x 6'-1 13/16" CORRUGATED STEEL SLEEVE	1
17		4"ϕ x 1'-6" CORRUGATED PLASTIC SLEEVE	4
18		SET OF (4) 0.60"ϕ STRAND LIFTING LOOPS	4
19			
20			

Vermont Agency of Transportation
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CONFORMANCE
BY: Todd Sumner DATE: 01/15/2016

2 1/11/16 Engineers Review Comments (RJG)

1 12-2-15 REVISED PER GENERAL CONTRACTOR'S ENGINEER REVIEW

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

CCS CONSTRUCTORS, INC.
CONTRACTOR
MORRISVILLE, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF ADDISON

DATE: OCT. 15, 2015
SCALE: NOTED

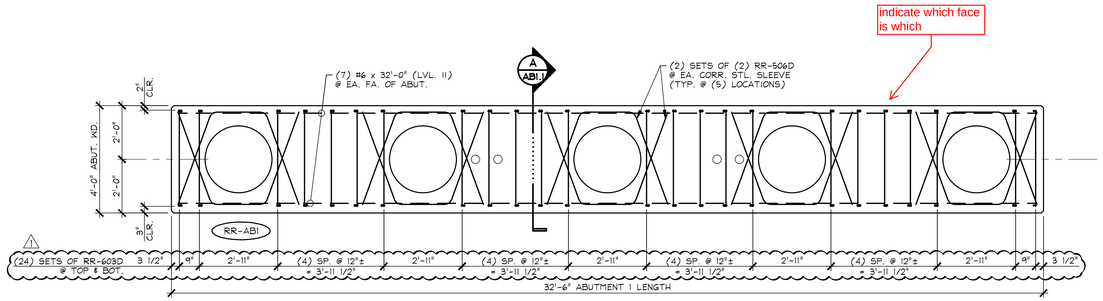
TOWN OF NEW HAVEN
T.H. 2 (RIVER ROAD) (CLASS 2 - MAJOR COLLECTOR)
BRIDGE NO.: 10 PROJECT NO.: BRF 0183 (1)

CHKD: A.S. DFTM: B.L.
JOB NO: 23475-015

PRECAST ABUTMENT DIMENSIONAL DETAILS

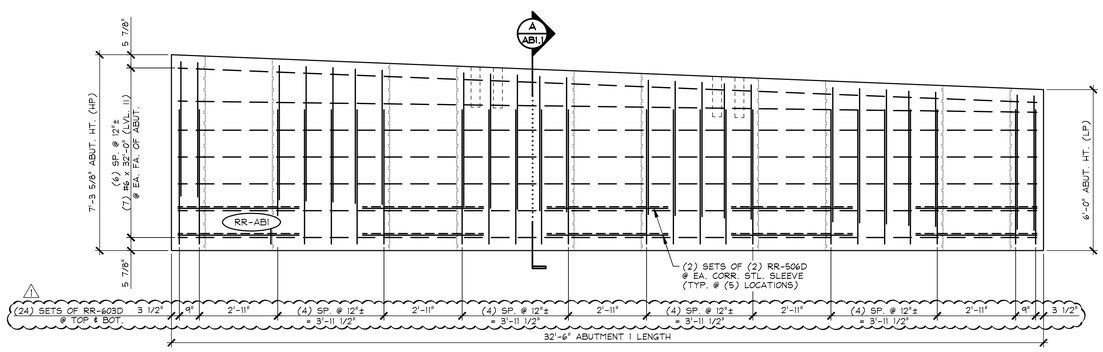
DWG. NO: AB1

F:\VT-Bridges\23475-15 River Road\23475-AB1.dwg, 12/2/2015 6:48:13 PM



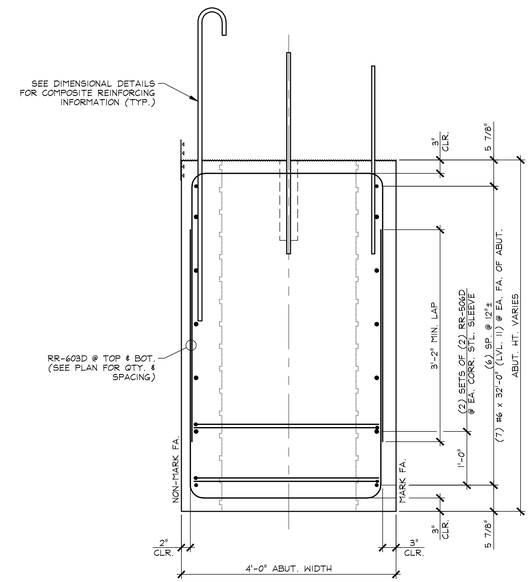
1 ABI.1 REINFORCING PLAN VIEW IN FORM

3/8" = 1'-0"



2 ABI.1 MARK FACE REINFORCING ELEVATION

3/8" = 1'-0"



A ABI.1 REINFORCING SECTION

3/4" = 1'-0"

SUBMITTAL REVIEW

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- [x] NO EXCEPTIONS TAKEN
- [ ] MAKE CORRECTIONS NOTED RESUBMITTAL NOT REQUIRED
- [ ] AMEND AND RESUBMIT
- [ ] REJECTED - SEE REMARKS

PB AMERICAS, INC.

BY: Ashell Sanchez

DATE: 1/11/16

Vermont Agency of Transportation

RECEIVED

ON: December 18, 2015

and Checked for

CONFORMANCE

BY: Todd Sumner DATE: 01/15/2016

△1 12-2-15 REVISED PER GENERAL CONTRACTOR'S ENGINEER REVIEW

MARK: RR-AB1 QTY.: 1

MATERIAL LIST / ABUTMENT

ITEM	MARK	DESCRIPTION	QTY.
1	RR-506D	#5 BENT BAR (LEVEL II, DUAL COATED)	20
2			
3	RR-603D	#6 BENT BAR (LEVEL II, DUAL COATED)	△1 48
4		#6 x 32'-0" (LEVEL II, DUAL COATED)	14
5			
6			
7			
8			
9			
10			

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

CCS CONSTRUCTORS, INC.
CONTRACTOR
MORRISVILLE, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF ADDISON

DATE: OCT. 15, 2015
SCALE: NOTED

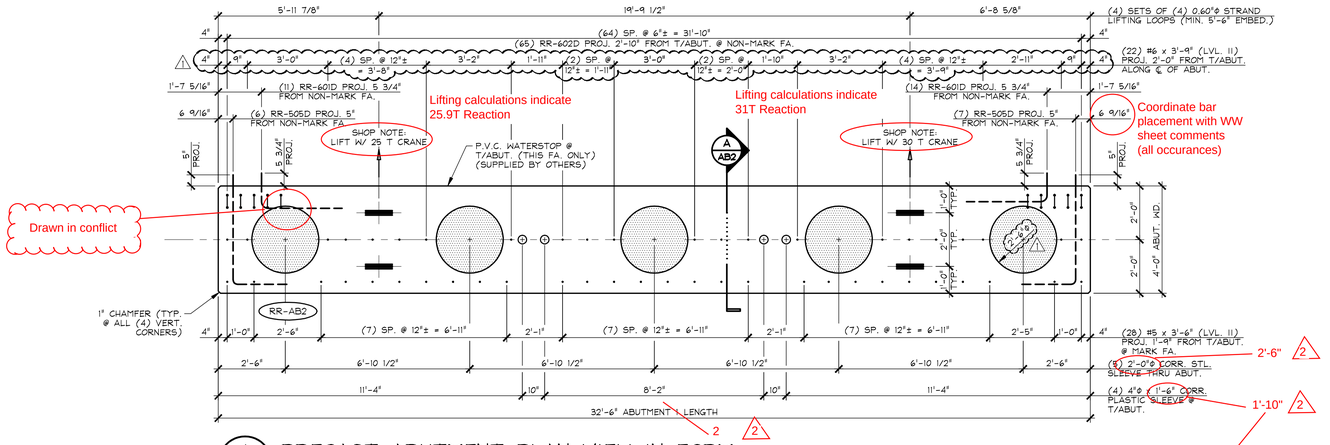
TOWN OF NEW HAVEN
T.H. 2 (RIVER ROAD) (CLASS 2 - MAJOR COLLECTOR)
BRIDGE NO.: 10 PROJECT NO.: BRF 0183 (1)

CHKD: A.S. DFTM: B.L.
JOB NO: 23475-015

PRECAST ABUTMENT REINFORCING DETAILS

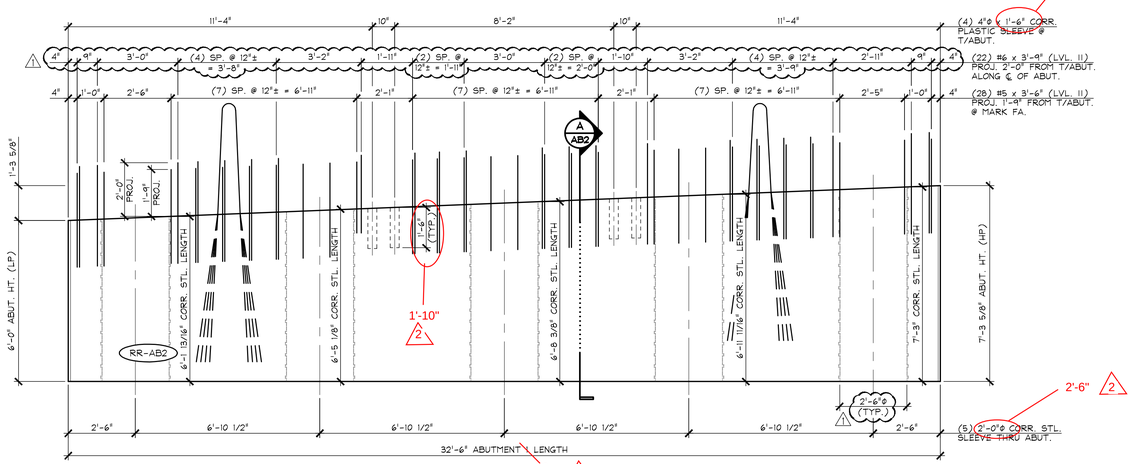
DWG. NO: AB1.1

F:\VT-Bridges\23475-15 River Road\23475-AB1-1.dwg, 12/2/2015 6:51:23 PM



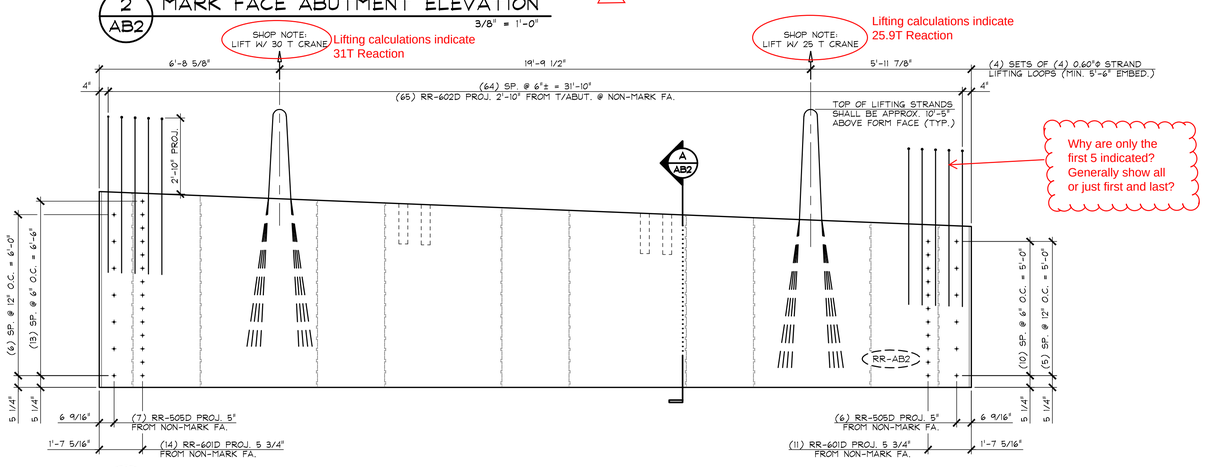
1 AB2 PRECAST ABUTMENT PLAN VIEW IN FORM

3/8" = 1'-0"



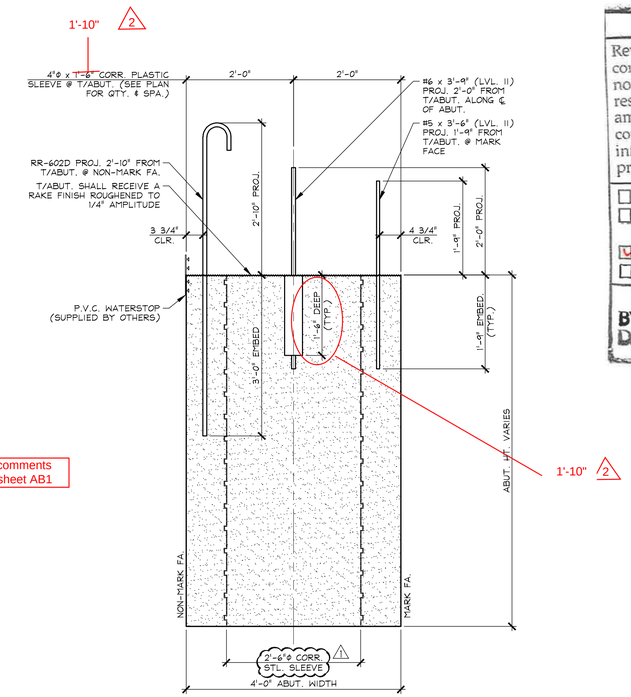
2 AB2 MARK FACE ABUTMENT ELEVATION

3/8" = 1'-0"



3 AB2 NON-MARK FACE ABUTMENT ELEVATION

3/8" = 1'-0"



A AB2 DIMENSIONAL SECTION

3/4" = 1'-0"

same comments as for sheet AB1

SUBMITTAL REVIEW

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- ☐ MAKE CORRECTIONS NOTED
- ☐ RESUBMITTAL NOT REQUIRED
- ☑ AMEND AND RESUBMIT
- ☐ REJECTED - SEE REMARKS

PB AMERICAS, INC.

BY: Rich Bah

DATE: 1/11/16

SHOP NOTE:
SEE DRAWING NO. "AB2.1" FOR ABUTMENT REINFORCING

SHOP NOTE:
f'c = 5,000 PSI
f'ci = 3,500 PSI
MIX #445MSCC

MARK: RR-AB2 | QTY.: 1 | WT.: 54.3 T | VOL.: 28.13 cy

MATERIAL LIST / ABUTMENT

ITEM	MARK	DESCRIPTION	QTY.
1	RR-505D	#5 BENT BAR (LEVEL II, DUAL COATED)	13
2		#5 x 3'-6" (LEVEL II, DUAL COATED)	28
3			
4			
5	RR-601D	#6 BENT BAR (LEVEL II, DUAL COATED)	25
6	RR-602D	#6 BENT BAR (LEVEL II, DUAL COATED)	65
7		#6 x 3'-9" (LEVEL II, DUAL COATED)	22
8			
9			
10			
11		P.V.C. WATERSTOP (SUPPLIED BY OTHERS)	32.3 LF
12		2'-6"ϕ x 7'-3" CORRUGATED STEEL SLEEVE	1
13		2'-6"ϕ x 6'-11 11/16" CORRUGATED STEEL SLEEVE	1
14		2'-6"ϕ x 6'-8 3/8" CORRUGATED STEEL SLEEVE	1
15		2'-6"ϕ x 6'-5 1/8" CORRUGATED STEEL SLEEVE	1
16		2'-6"ϕ x 6'-1 13/16" CORRUGATED STEEL SLEEVE	1
17		4"ϕ x 1'-6" CORRUGATED PLASTIC SLEEVE	4
18		SET OF (4) 0.60"ϕ STRAND LIFTING LOOPS	4
19			
20			

Finishes not noted

Vermont Agency of Transportation
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CONTRACTOR
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STATE OF VERMONT AGENCY OF TRANSPORTATION
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DATE: OCT. 15, 2015
SCALE: NOTED

TOWN OF NEW HAVEN
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BRIDGE NO.: 10 PROJECT NO.: BRF 0183 (1)

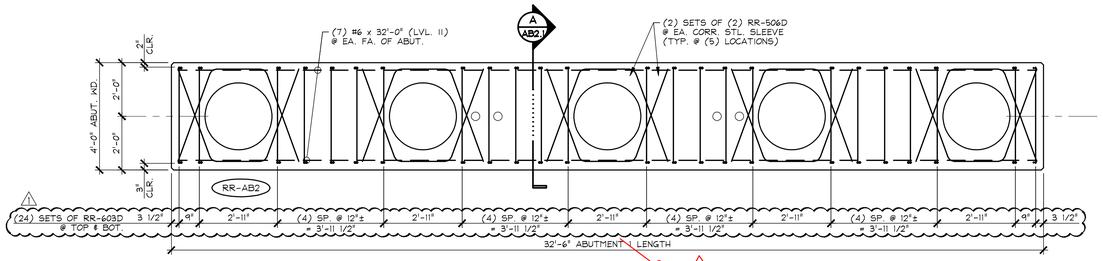
CHKD: A.S. DFTM: B.L.
JOB NO: 23475-015

PRECAST ABUTMENT DIMENSIONAL DETAILS

DWG. NO: AB2

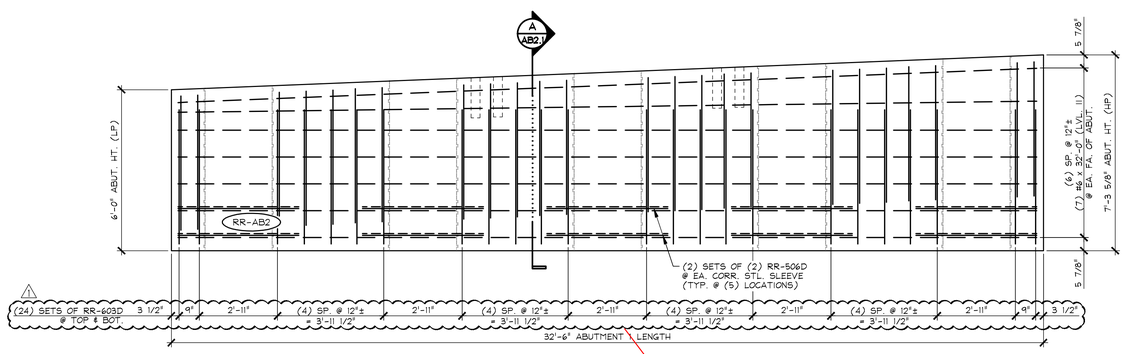
F:\VT-Bridges\23475-15 River Road\23475-AB2.dwg, 12/2/2015 6:51:00 PM

same comments as for AB1.1



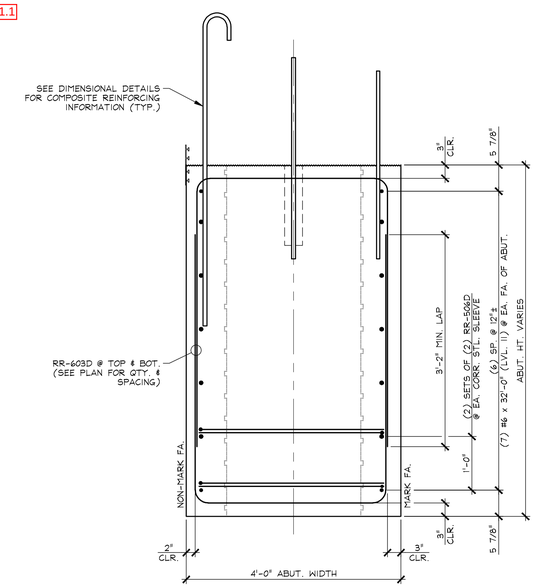
1 AB2.1 REINFORCING PLAN VIEW IN FORM

3/8" = 1'-0"



2 AB2.1 MARK FACE REINFORCING ELEVATION

3/8" = 1'-0"



A AB2.1 REINFORCING SECTION

3/4" = 1'-0"

SUBMITTAL REVIEW

Review is only for general conformity to the contract drawings and specifications and shall not relieve the contractor of his entire responsibility under the contract, including among other things, dimensions to be confirmed and correlated at the job site, and information that pertains to the fabrication processes or to techniques of construction.

- ☐ NO EXCEPTIONS TAKEN
- ☐ MAKE CORRECTIONS NOTED
- RESUBMITTAL NOT REQUIRED
- ☑ AMEND AND RESUBMIT
- ☐ REJECTED - SEE REMARKS

PB AMERICAS, INC.

BY: Robert Bach

DATE: 1/11/16

MARK: RR-AB2 QTY.: 1

MATERIAL LIST / ABUTMENT

ITEM	MARK	DESCRIPTION	QTY.
1	RR-506D	#5 BENT BAR (LEVEL II, DUAL COATED)	20
2			
3	RR-603D	#6 BENT BAR (LEVEL II, DUAL COATED)	45
4		#6 x 32'-0" (LEVEL II, DUAL COATED)	14
5			
6			
7			
8			
9			
10			

Vermont Agency of Transportation
RECEIVED
ON: December 18, 2015
and Checked for
CONFORMANCE
1/11/16 Engineers Review Comments (RJG)
BY: Todd Sumner DATE: 01/15/2016

1 12-2-15 REVISED PER GENERAL CONTRACTOR'S ENGINEER REVIEW

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

CCS CONSTRUCTORS, INC.
CONTRACTOR
MORRISVILLE, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF ADDISON

DATE: OCT. 15, 2015
SCALE: NOTED

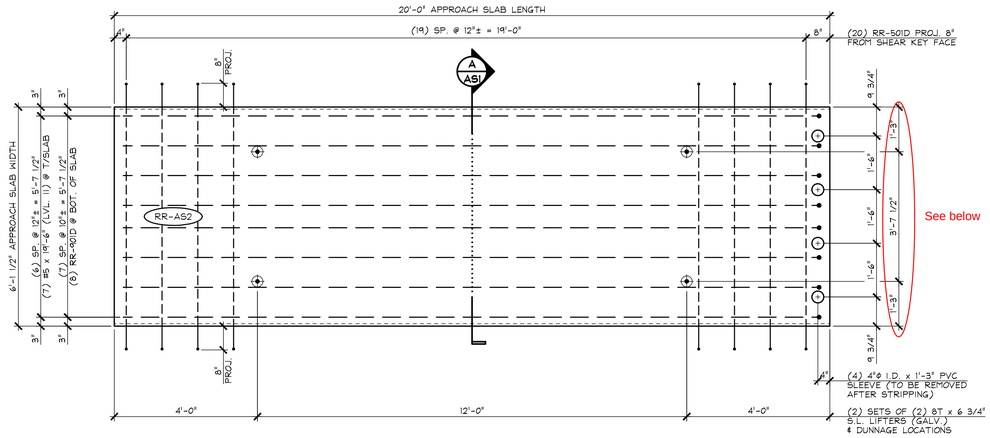
TOWN OF NEW HAVEN
T.H. 2 (RIVER ROAD) (CLASS 2 - MAJOR COLLECTOR)
BRIDGE NO.: 10 PROJECT NO.: BRF 0183 (1)

CHKD: A.S. DFTM: B.L.
JOB NO: 23475-015

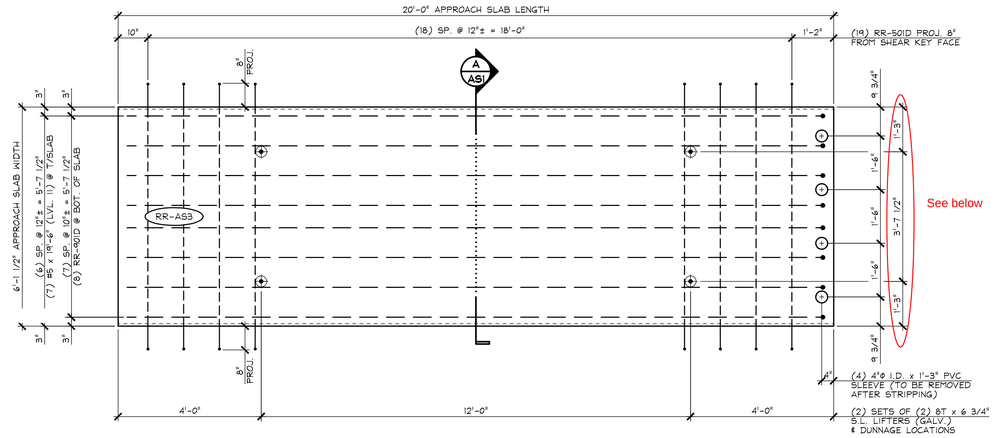
PRECAST ABUTMENT REINFORCING DETAILS

DWG. NO: AB2.1

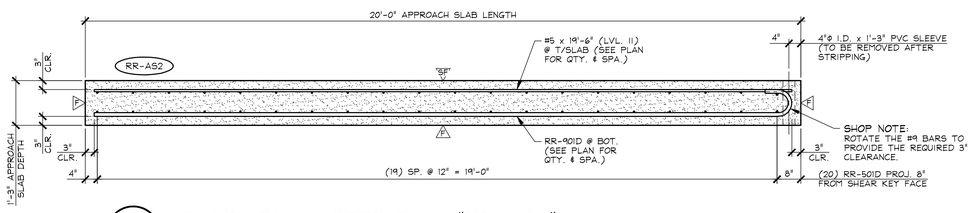
F:\VT-Bridges\23475-15 River Road\23475-AB2-1.dwg, 12/2/2015 6:50:16 PM



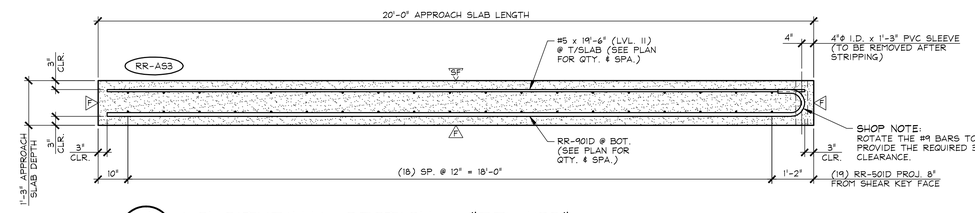
1 / AS1 DIMENSIONAL PLAN VIEW IN FORM - "RR-AS2"
1/2" = 1'-0"



3 / AS1 DIMENSIONAL PLAN VIEW IN FORM - "RR-AS3"
1/2" = 1'-0"

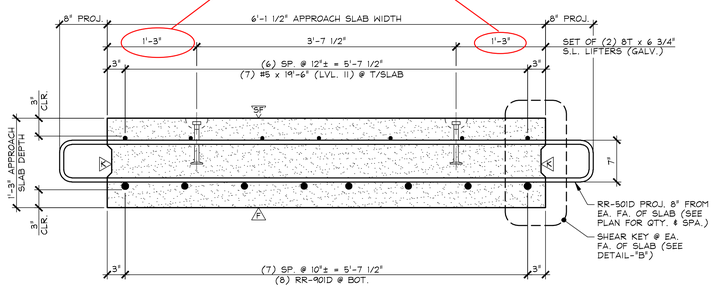


2 / AS1 LONGITUDINAL SECTION - "RR-AS2"
1/2" = 1'-0"

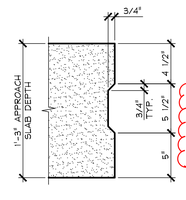


4 / AS1 LONGITUDINAL SECTION - "RR-AS3"
1/2" = 1'-0"

The minimum edge distance in the references provided in the lifting calcs is 21". This decreases to 16" for the 6400 lb lifter option. Recommend 1'-4" min. (all occurances)



A / AS1 LONGITUDINAL SECTION
1" = 1'-0"



DETAIL - "B"
1 1/2" = 1'-0"

See Note on Sheet F4 regarding this detail.

can't they name the sheet AS2 AS3 or something more relevant since that what the sheet is for. looking at sheets F1 - F3, AS1 is an outside approach slab. seems to make it more confusing

SUBMITTAL REVIEW

Review is only for general conformity to the contract drawings and specifications and shall not relieve the contractor of his entire responsibility under the contract, including among other things, dimensions to be confirmed and correlated at the job site, and information that pertains to the fabrication processes or to techniques of construction.

- ☐ NO EXCEPTIONS TAKEN
- ☐ MAKE CORRECTIONS NOTED
- ☐ RESUBMITTAL NOT REQUIRED
- ☑ AMEND AND RESUBMIT
- ☐ REJECTED - SEE REMARKS

PB AMERICAS, INC.
BY: KK
DATE: 1/11/16

Vermont Agency of Transportation
RECEIVED
On: December 18, 2015
and Checked for
CONFORMANCE
BY: Todd Sumner DATE: 01/15/2016

A DENOTES FORM FINISH
SF DENOTES SMOOTH FLOAT FINISH
R DENOTES ROUGHENED FINISH

SHOP NOTE:
f'c = 5,000 PSI
f'ci = 3,500 PSI
MIX #445MSCC

MARK:	QTY.:	WT.:	VOL.:
RR-AS2	2	11.41 T	5.64 cy
RR-AS3	2	11.41 T	5.64 cy

MATERIAL LIST / APPROACH SLAB

ITEM	MARK	DESCRIPTION	QTY./SLAB AS2	QTY./SLAB AS3
1	RR-501D	#5 BENT BAR (LEVEL II, DUAL COATED)	20	19
2		#5 x 19'-6" (LEVEL II, DUAL COATED)	7	7
3				
4	RR-901D	#9 BENT BAR (LEVEL II, DUAL COATED)	8	8
5				
6				
7				
8		4"ø I.D. x 1'-3" PVC SLEEVE	4	4
9		8T x 6 3/4" SWIFT LIFT LIFTER (GALV.)	4	4
10				

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

CCS CONSTRUCTORS, INC.
CONTRACTOR
MORRISVILLE, VERMONT

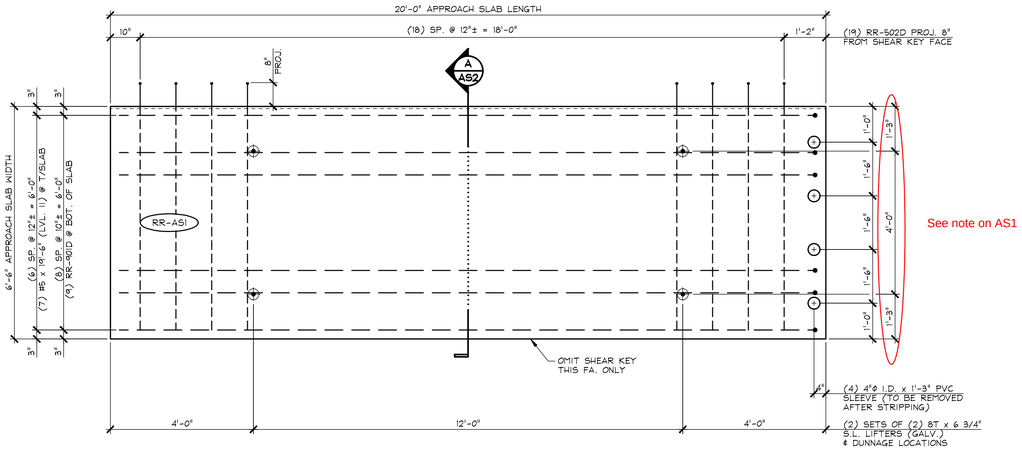
STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF ADDISON

TOWN OF NEW HAVEN
T.H. 2 (RIVER ROAD) (CLASS 2 - MAJOR COLLECTOR)
BRIDGE NO.: 10 PROJECT NO.: BRF 0183 (1)

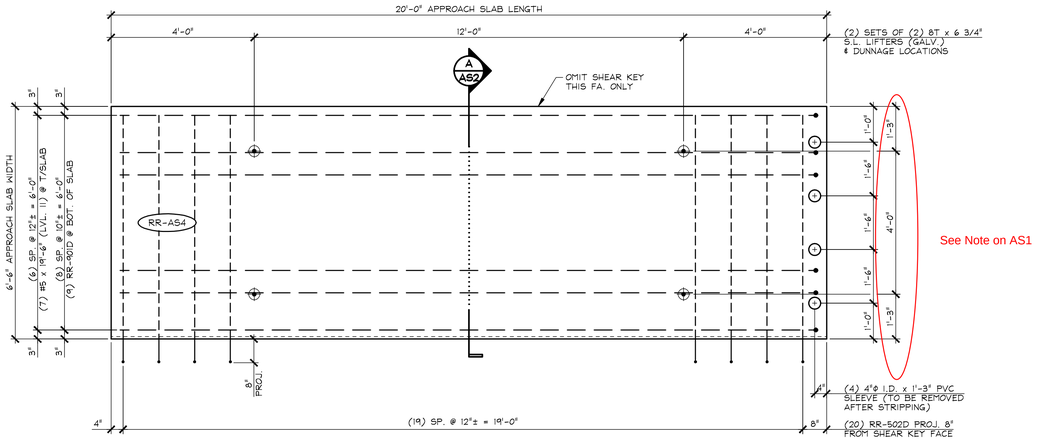
PRECAST APPROACH SLAB DETAILS

DATE: OCT. 15, 2015
SCALE: NOTED
CHKD: A.S. DFTM: B.L.
JOB NO: 23475-015
DWG. NO: AS1

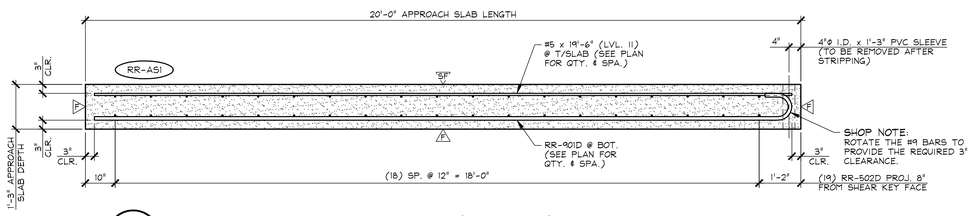
F:\VT-Bridges\23475-15 River Road\23475-AS1.dwg, 12/22/2015 6:49:40 PM



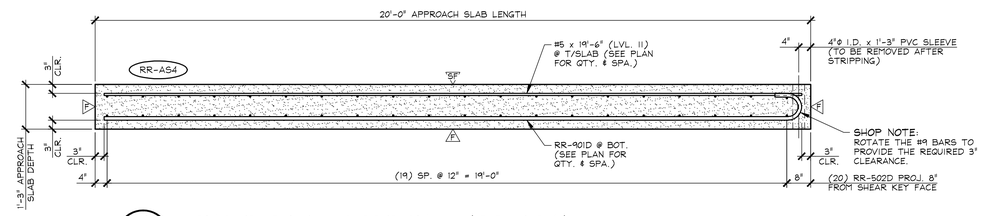
1 AS2 DIMENSIONAL PLAN VIEW IN FORM - "RR-AS1"
1/2" = 1'-0"



3 AS2 DIMENSIONAL PLAN VIEW IN FORM - "RR-AS4"
1/2" = 1'-0"



2 AS2 LONGITUDINAL SECTION - "RR-AS1"
1/2" = 1'-0"



4 AS2 LONGITUDINAL SECTION - "RR-AS4"
1/2" = 1'-0"

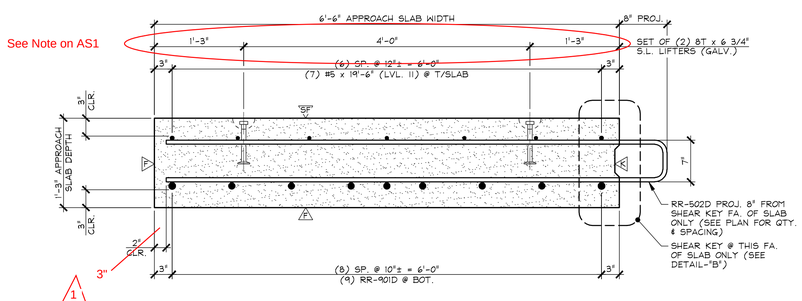
F DENOTES FORM FINISH
SF DENOTES SMOOTH FLOAT FINISH
R DENOTES ROUGHENED FINISH

SHOP NOTE:
f'c = 5,000 PSI
f'ci = 3,500 PSI
MIX #445MSCC

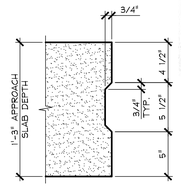
MARK: RR-AS1	QTY.: 2	WT.: 12.15 T	VOL.: 6.00 cy
MARK: RR-AS4	QTY.: 2	WT.: 12.15 T	VOL.: 6.00 cy

MATERIAL LIST / APPROACH SLAB

ITEM	MARK	DESCRIPTION	QTY./SLAB AS1	QTY./SLAB AS4
1	RR-502D	#5 BENT BAR (LEVEL II, DUAL COATED)	19	20
2		#5 x 19'-6" (LEVEL II, DUAL COATED)	7	7
3				
4	RR-901D	#9 BENT BAR (LEVEL II, DUAL COATED)	9	9
5				
6				
7				
8		4"ϕ I.D. x 1'-3" PVC SLEEVE	4	4
9		8T x 6 3/4" SWIFT LIFT LIFTER (GALV.)	4	4
10				



A AS2 LONGITUDINAL SECTION
1" = 1'-0"



DETAIL - "B"
1 1/2" = 1'-0"

See Note on Sheet F4 regarding this detail.

SUBMITTAL REVIEW

Review is only for general conformity to the contract drawings and specifications and shall not relieve the contractor of his entire responsibility under the contract, including among other things, dimensions to be confirmed and correlated at the job site, and information that pertains to the fabrication processes or to techniques of construction.

- ☐ NO EXCEPTIONS TAKEN
- ☐ MAKE CORRECTIONS NOTED
- RESUBMITTAL NOT REQUIRED
- ☑ AMEND AND RESUBMIT
- ☐ REJECTED - SEE REMARKS

PB AMERICAS, INC.
BY: [signature]
DATE: 1/11/16

Vermont Agency of Transportation
RECEIVED
December 18, 2015
and Checked for
CONFORMANCE
BY: Todd Sumner DATE: 01/15/2016

1 1/11/16 Engineer's Review Comments (RJC)

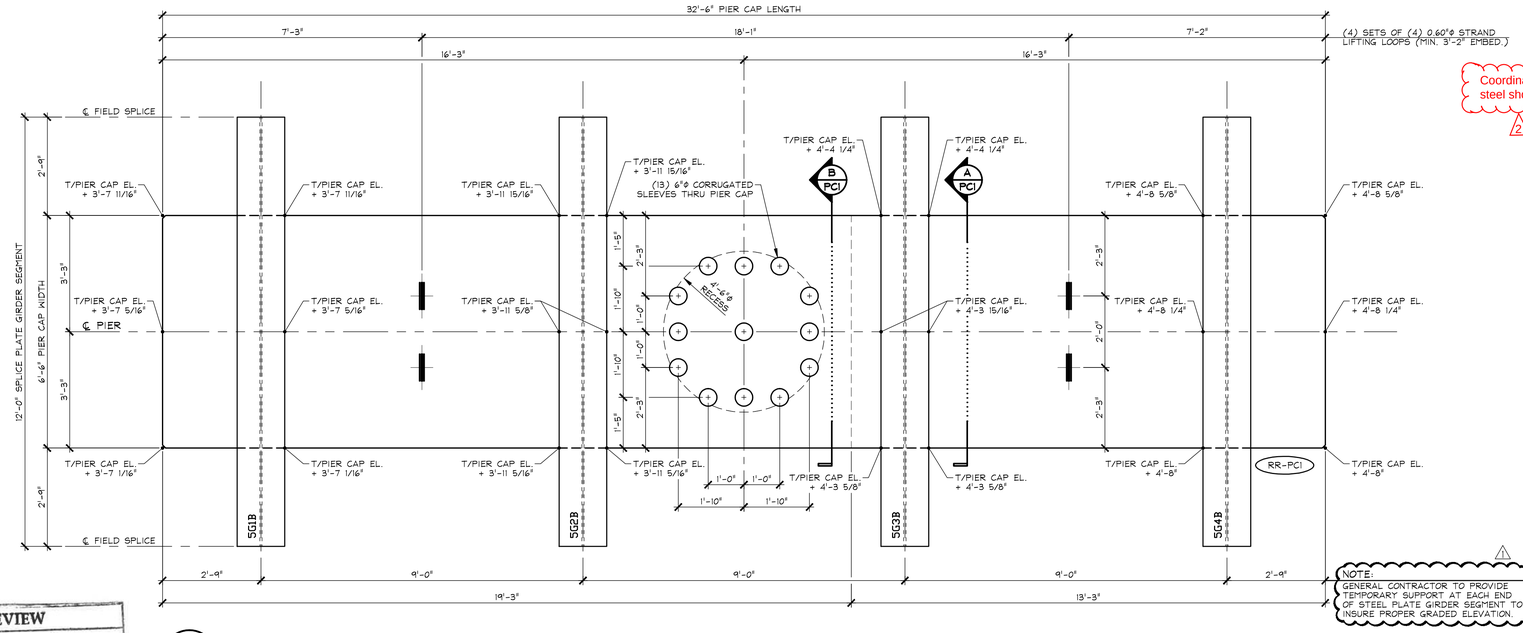
can't tell what the sheet is supposed to make it more confusing

Only something more relevant since that what the sheet is for, looking at the sheet it is one of the interior

APPROVAL S

J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9016	CCS CONSTRUCTORS, INC. CONTRACTOR MORRISVILLE, VERMONT
STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF ADDISON	DATE: OCT. 15, 2015 / SCALE: NOTED
TOWN OF NEW HAVEN T.H. 2 (RIVER ROAD) (CLASS 2 - MAJOR COLLECTOR) BRIDGE NO.: 10 PROJECT NO.: BRF 0183 (1)	CHKD: A.S. / DFTM: B.L. / JOB NO: 23475-015
PRECAST APPROACH SLAB DETAILS	DWG. NO: AS2

F:\VT-Bridges\23475-15 River Road\23475-AS2.dwg, 11/17/2015 10:08:05 AM

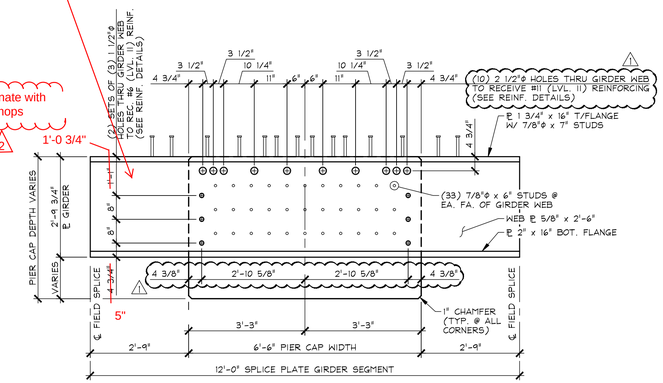


1 PC1 PRECAST CONCRETE PIER CAP PLAN VIEW IN FORM
1/2" = 1'-0"

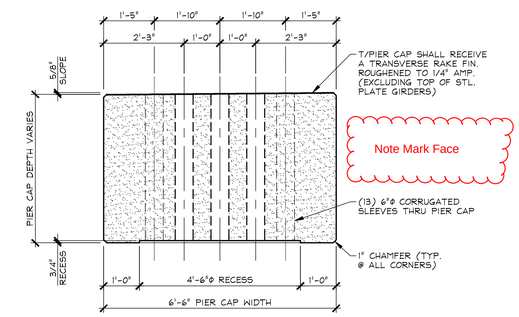
NOTE:
GENERAL CONTRACTOR TO PROVIDE TEMPORARY SUPPORT AT EACH END OF STEEL PLATE GIRDER SEGMENT TO INSURE PROPER GRADED ELEVATION.

beam at some 5/8" slope as top surface?

Coordinate with steel shops



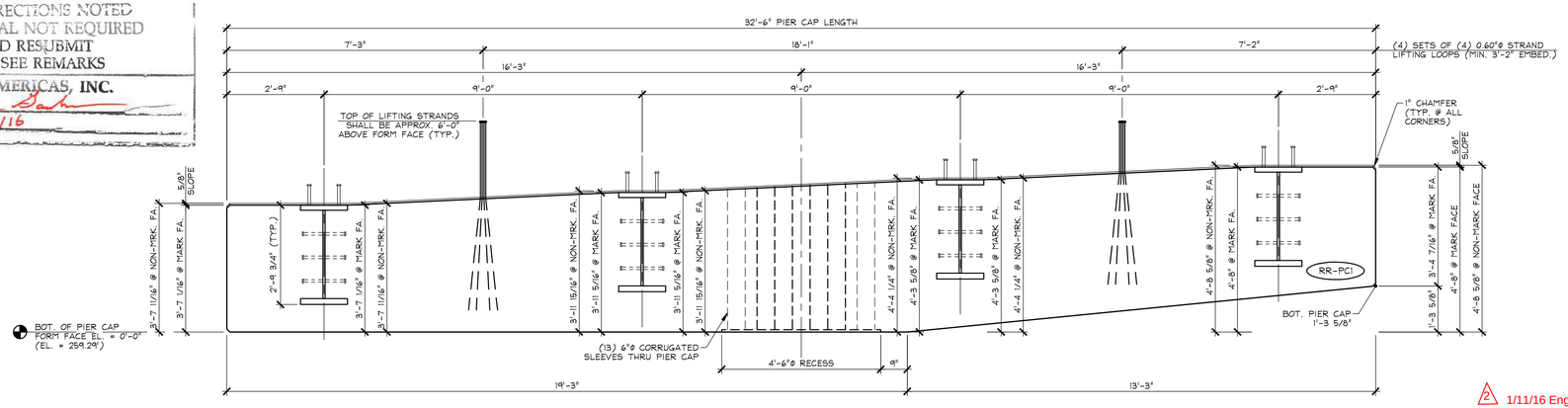
A PC1 PRECAST CONCRETE PIER CAP SECTION
1/2" = 1'-0"



Note Mark Face

B PC1 PRECAST CONCRETE PIER CAP SECTION
1/2" = 1'-0"

Finishes not indicated



2 PC1 PRECAST CONCRETE PIER CAP ELEVATION
1/2" = 1'-0"

SHOP NOTE:
SEE DRAWING NO. "PC1.1" FOR PIER CAP REINFORCING

SHOP NOTE:
f'c = 5,000 PSI
f'ci = 3,500 PSI
MIX #445MSCC

MARK: RR-PC1	QTY.: 1	WT.: 67.96 T INCLUDING STL. BM.	VOL.: 30.39 cy

MATERIAL LIST / PIER CAP

ITEM	MARK	DESCRIPTION	QTY.
1			
2			
3			
4			
5			
6			
7		6"Φ x 4'-2" CORRUGATED PLASTIC SLEEVE	13
8		SPLICE PLATE GIRDER SEGMENT (SUPPLIED BY OTHERS)	4
9		SET OF (4) 0.60"Φ STRAND LIFTING LOOPS	4
10			

2 1/11/16 Engineers Review Comments (RJG)

1 12-2-15 REVISED PER GENERAL CONTRACTOR'S ENGINEER REVIEW

SUBMITTAL REVIEW

Review is only for general conformity to the contract drawings and specifications and shall not relieve the contractor of his entire responsibility under the contract, including among other things, dimensions to be confirmed and correlated at the job site, and information that pertains to the fabrication processes or to techniques of construction.

- ☐ NO EXCEPTIONS TAKEN
- ☐ MAKE CORRECTIONS NOTED RESUBMITTAL NOT REQUIRED
- ☑ AMEND AND RESUBMIT
- ☐ REJECTED - SEE REMARKS

PB AMERICAS, INC.
BY: Kelsh Sah
DATE: 1/11/16

Vermont Agency of Transportation
RECEIVED
ON: December 18, 2015
and Checked for
CONFORMANCE
BY: Todd Sumner DATE: 01/15/2016

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

CCS CONSTRUCTORS, INC.
CONTRACTOR
MORRISVILLE, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF ADDISON

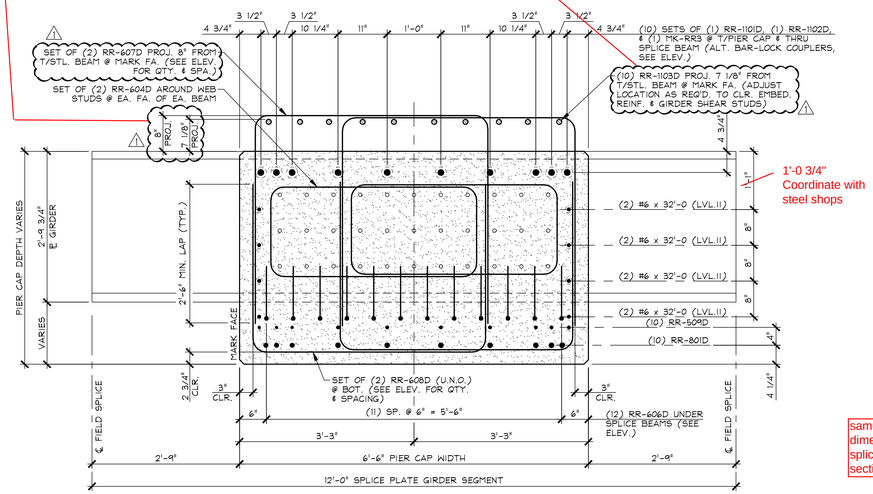
TOWN OF NEW HAVEN
T.H. 2 (RIVER ROAD) (CLASS 2 - MAJOR COLLECTOR)
BRIDGE NO.: 10 PROJECT NO.: BRF 0183 (1)

PRECAST PIER CAP
DIMENSIONAL DETAILS

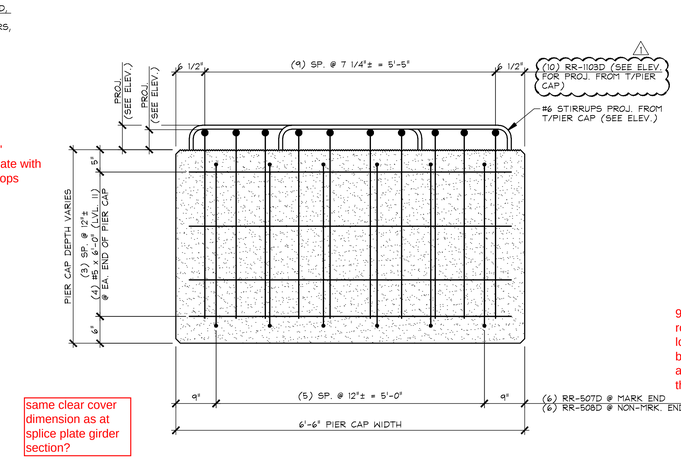
DATE: OCT. 15, 2015
SCALE: NOTED
CHKD: A.S. DFTM: B.L.
JOB NO: 23475-015
DWG. NO: PC1

F:\VT-Bridges\23475-15 River Road\23475-PC1.dwg, 12/22/2015 6:47:07 PM

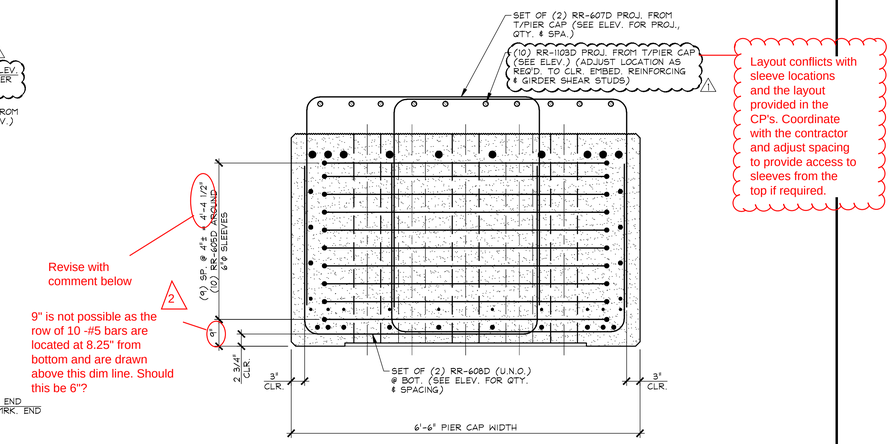
Revise. Assuming an 8" projection of #6 hoops: 8" - 1/2 (6/8) - 1/2(1.41in) = 6.92" projection to CL of #11 bar
Assuming calculation from top of deck: 11" - 2.5"clr - 6/8 - 0.5*1.41 = 7.0" projection to CL of #11 bar, with 8.125" to CL of #6 hoop



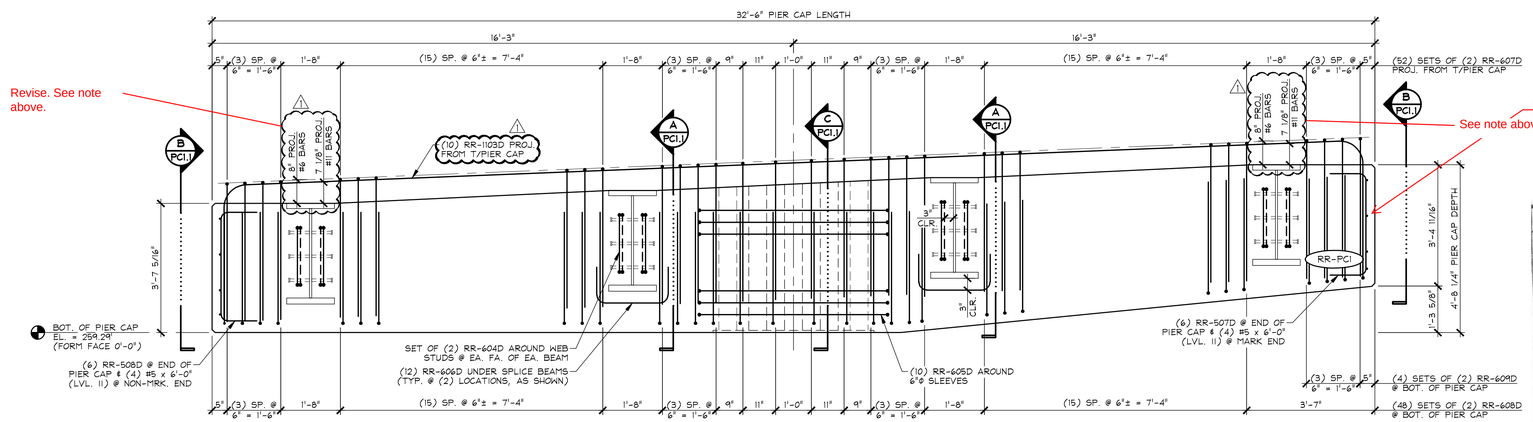
A PCI.1 PRECAST PIER CAP REINFORCING SECTION @ SPLICE PLATE GIRDER SEGMENT 3/4" = 1'-0"



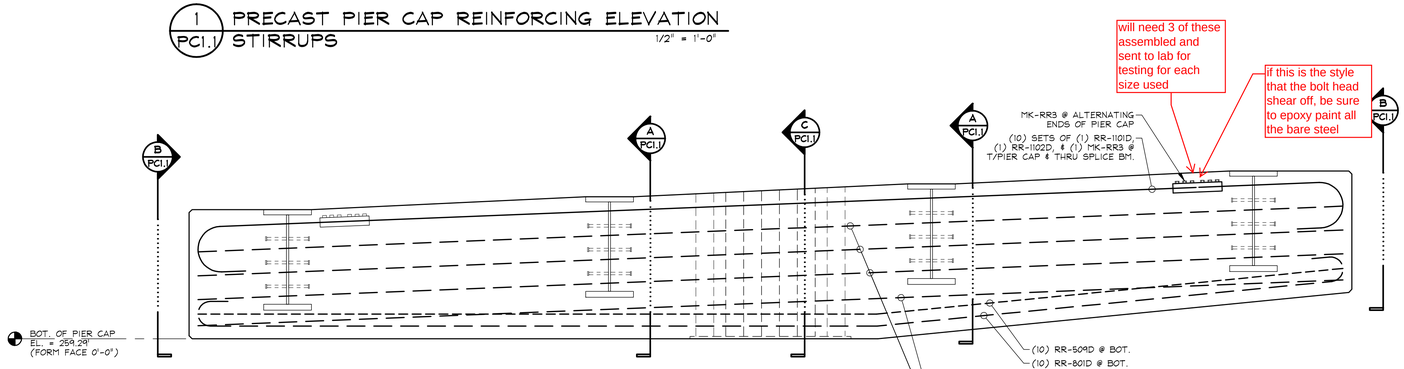
B PCI.1 PRECAST PIER CAP REINFORCING SECTION @ PIER CAP END 3/4" = 1'-0"



C PCI.1 PRECAST PIER CAP REINFORCING SECTION @ 6"Φ SLEEVES 3/4" = 1'-0"



1 PCI.1 PRECAST PIER CAP REINFORCING ELEVATION STIRRUPS 1/2" = 1'-0"



2 PCI.1 PRECAST PIER CAP REINFORCING ELEVATION LONGITUDINAL BARS 1/2" = 1'-0"

Vermont Agency of Transportation
RECEIVED
ON: December 18, 2015
and Checked for
CONFORMANCE
BY: Todd Sumner DATE: 01/15/2016

SUBMITTAL REVIEW

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- ☐ MAKE CORRECTIONS NOTED
- ☐ RESUBMITTAL NOT REQUIRED
- ☑ AMEND AND RESUBMIT
- ☐ REJECTED - SEE REMARKS

PB AMERICAS, INC.
BY: Robert Bahr
DATE: 1/11/16

2 1/11/16 Engineers Review Comments (RJG)

1 12-2-15 REVISED PER GENERAL CONTRACTOR'S ENGINEER REVIEW

MARK: RR-PC1 QTY.: 1

MATERIAL LIST / PIER CAP

ITEM	MARK	DESCRIPTION	QTY.
1	RR-507D	#5 BENT BAR (LEVEL II, DUAL COATED)	6
2	RR-508D	#5 BENT BAR (LEVEL II, DUAL COATED)	6
3	RR-509D	#5 BENT BAR (LEVEL II, DUAL COATED)	10
4		#5 x 6'-0" (LEVEL II, DUAL COATED)	8
5			
6	RR-604D	#6 BENT BAR (LEVEL II, DUAL COATED)	16
7	RR-605D	#6 BENT BAR (LEVEL II, DUAL COATED)	10
8	RR-606D	#6 BENT BAR (LEVEL II, DUAL COATED)	24
9	RR-607D	#6 BENT BAR (LEVEL II, DUAL COATED)	104
10	RR-608D	#6 BENT BAR (LEVEL II, DUAL COATED)	96
11	RR-609D	#6 BENT BAR (LEVEL II, DUAL COATED)	8
12		#6 x 32'-0" (LEVEL II, DUAL COATED)	8
13			
14	RR-801D	#8 BENT BAR (LEVEL II, DUAL COATED)	10
15			
16	MK-RR3	D-250 BAR-LOCK L-SERIES COUPLER, 11L (EPOXY COATED)	10
17	RR-1101D	#11 BENT BAR (LEVEL II, DUAL COATED)	10
18	RR-1102D	#11 BENT BAR (LEVEL II, DUAL COATED)	10
19	RR-1103D	#11 BENT BAR (LEVEL II, DUAL COATED)	10
20	~~RR-1104D~~	~~#11 BENT BAR (LEVEL II, DUAL COATED)~~	~~10~~

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

CCS CONSTRUCTORS, INC.
CONTRACTOR
MORRISVILLE, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF ADDISON

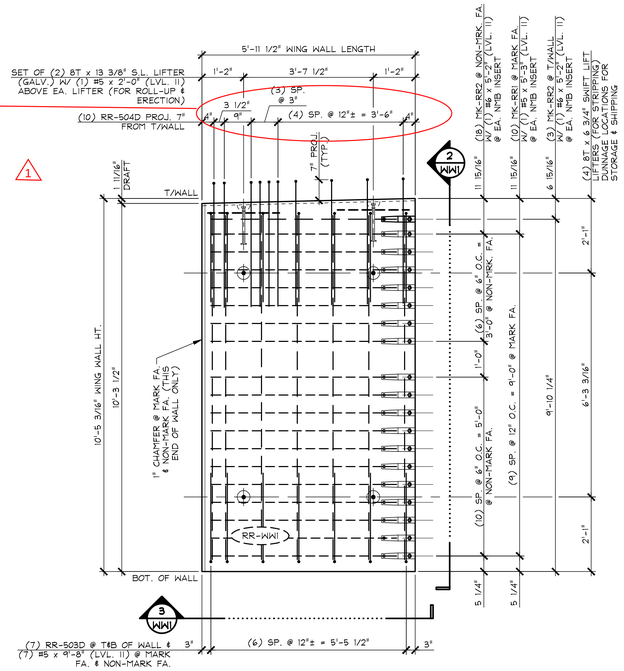
TOWN OF NEW HAVEN
T.H. 2 (RIVER ROAD) (CLASS 2 - MAJOR COLLECTOR)
BRIDGE NO.: 10 PROJECT NO.: BRF 0183 (1)

PRECAST PIER CAP REINFORCING DETAILS

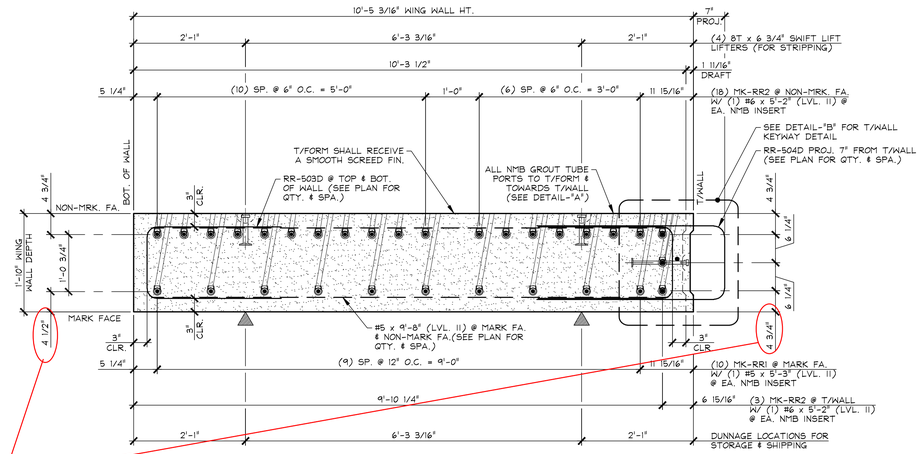
DATE: OCT. 15, 2015
SCALE: NOTED
CHKD: A.S. DFTM: B.L.
JOB NO: 23475-015
DWG. NO: PC1.1

F:\VT-Bridges\23475-15 River Road\23475-PC1-1.dwg, 12/22/2015 8:45:37 PM

Revise. The 3 additional at rail posts results in 6 spaces at 6" in these regions. See VTrans Standard VT S-360A for schematic.

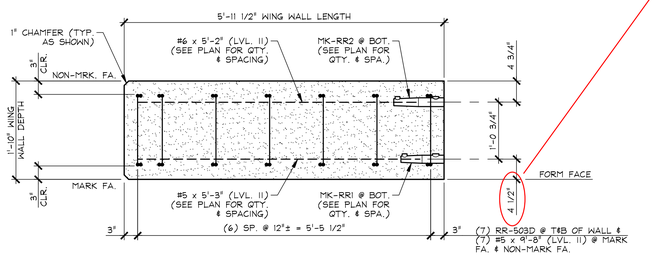


1 WW1 PLAN VIEW IN FORM
1/2" = 1'-0"

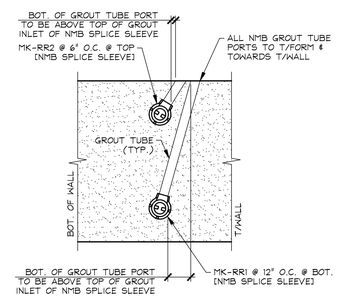


2 WW1 SIDE ELEVATION IN FORM
3/4" = 1'-0"

3 cover+6/8" + 0.5*1.89" = 4.695" > 4.5.
Adjust locations of bars in abutment caps to correspond with change.
Adjust dimension to grout tubes accordingly.

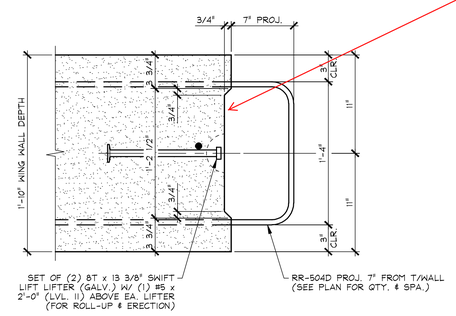


3 WW1 BOTTOM ELEVATION
3/4" = 1'-0"



DETAIL - "A"
N.T.S.

surface amplitude?



DETAIL - "B"
1 1/2" = 1'-0"

SUBMITTAL REVIEW

Review is only for general conformity to the contract drawings and specifications and shall not relieve the contractor of his entire responsibility under the contract, including among other things, dimensions to be confirmed and correlated at the job site, and information that pertains to the fabrication processes or to techniques of construction.

☐ NO EXCEPTIONS NOTED
☐ MAKE CORRECTIONS NOTED
RESUBMITTAL NOT REQUIRED
☑ AMEND AND RESUBMIT
☐ REJECTED - SEE REMARKS

BY: DATE:

Vermont Agency of Transportation
RECEIVED
December 18, 2015
and Checked for
CONFORMANCE
BY: Todd Sumner DATE: 01/15/2016

SHOP NOTE:
f'c = 5,000 PSI
f'ci = 3,500 PSI
MIX #445MSCC

MARK: RR-WW1	QTY.: 1	WT.: 8.49 T	VOL.: 4.19 cy

MATERIAL LIST / WING WALL

ITEM	MARK	DESCRIPTION	QTY.
1	RR-503D	#5 BENT BAR (LEVEL II, DUAL COATED)	14
2	RR-504D	#5 BENT BAR (LEVEL II, DUAL COATED)	10
3		#5 x 5'-3" (LEVEL II, DUAL COATED)	10
4		#5 x 9'-8" (LEVEL II, DUAL COATED)	14
5		#5 x 2'-0" (LEVEL II, DUAL COATED)	2
6			
7		#6 x 5'-2" (LEVEL II, DUAL COATED)	21
8			
9			
10			
11	MK-RR1	NMB SPLICE SLEEVE 5U-X(PG) (EPOXY COATED)	10
12	MK-RR2	NMB SPLICE SLEEVE 6U-X(PG) (EPOXY COATED)	21
13		8T x 13 3/8" SWIFT LIFT LIFTER (GALV.)	2
14		8T x 6 3/4" SWIFT LIFT LIFTER (GALV.)	4
15			

same comments as for ww2

Finishes not indicated

1 1/11/16 Engineers Review Comments (RJG)

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

CCS CONSTRUCTORS, INC.
CONTRACTOR
MORRISVILLE, VERMONT

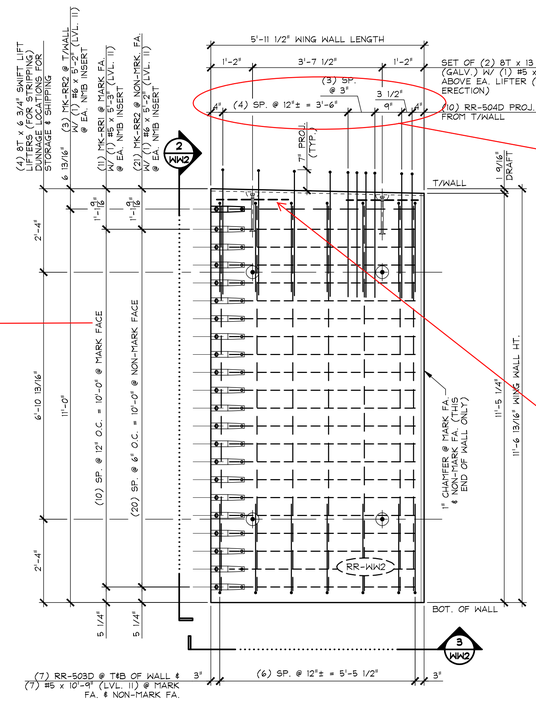
STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF ADDISON

TOWN OF NEW HAVEN
T.H. 2 (RIVER ROAD) (CLASS 2 - MAJOR COLLECTOR)
BRIDGE NO.: 10 PROJECT NO.: BRF 0183 (1)

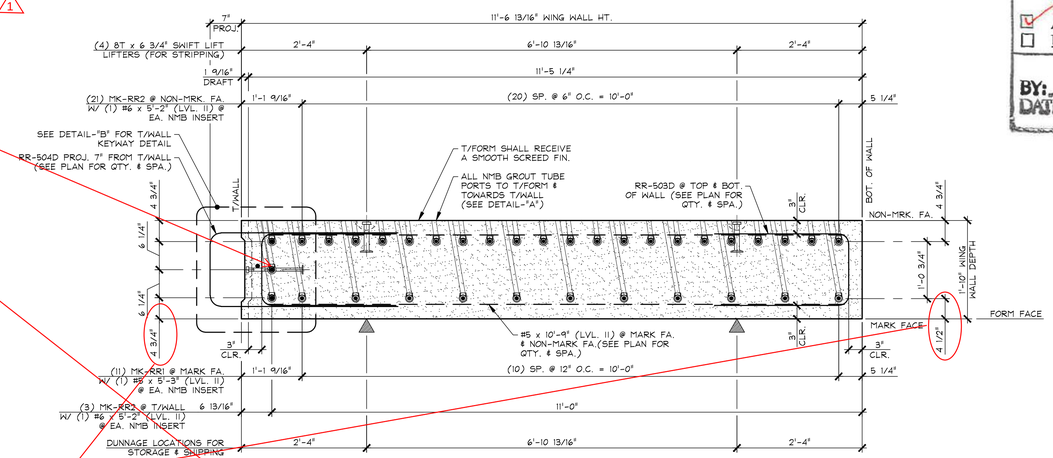
PRECAST WING WALL DETAILS

DATE: OCT. 15, 2015
SCALE: NOTED
CHKD: A.S. DFTM: B.L.
JOB NO: 23475-015
DWG. NO: WW1

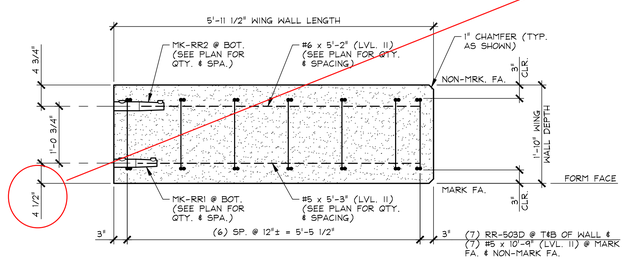
F:\VT-Bridges\23475-15 River Road\23475-WW1.dwg, 11/17/2015 9:37:17 AM



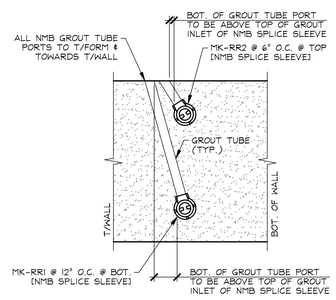
1 WW2 PLAN VIEW IN FORM
1/2" = 1'-0"



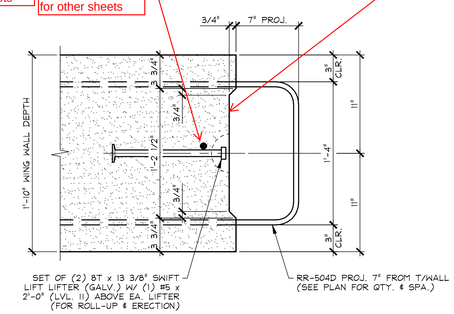
2 WW2 SIDE ELEVATION IN FORM
3/4" = 1'-0"



3 WW2 BOTTOM ELEVATION
3/4" = 1'-0"



DETAIL - "A"
N.T.S.



DETAIL - "B"
1 1/2" = 1'-0"

Spacing as is leaves 1.875" from CIP/PCU joint to centerline of 1st bar in CIP abutment section.

Revise. The 3 additional at rail posts results in 6 spaces at 6" in these regions. See VTrans Standard VT S-360A for schematic.

should this one be here? same for other sheets

3 cover+6/8" + 0.5*1.89" = 4.695" > 4.5. Adjust locations of bars in abutment caps to correspond with change. Adjust dimension to grout tubes accordingly.

is it this bar? same for other sheets

what is this? same for other sheets

surface amplitude

Finishes not indicated

1 1/11/16 Engineers Review Comments (RJG)

SUBMITTAL REVIEW

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- ☐ NO EXCEPTIONS TAKEN
- ☐ MAKE CORRECTIONS NOTED
- ☐ RESUBMITTAL NOT REQUIRED
- ☑ AMEND AND RESUBMIT
- ☐ REJECTED - SEE REMARKS

PB AMERICAS, INC.
BY: Rebecca Barber
DATE: 1/11/16

Vermont Agency of Transportation
RECEIVED
ON: December 18, 2015
and Checked for
CONFORMANCE
BY: Todd Sumner DATE: 01/15/2016

SHOP NOTE:
f'c = 5,000 PSI
f'ci = 3,500 PSI
MIX #445MSCC

MARK: RR-WW2	QTY.: 1	WT.: 9.43 T	VOL.: 4.65 cy

MATERIAL LIST / WING WALL

ITEM	MARK	DESCRIPTION	QTY.
1	RR-503D	#5 BENT BAR (LEVEL II, DUAL COATED)	14
2	RR-504D	#5 BENT BAR (LEVEL II, DUAL COATED)	10
3		#5 x 5'-3" (LEVEL II, DUAL COATED)	11
4		#5 x 10'-9" (LEVEL II, DUAL COATED)	14
5		#5 x 2'-0" (LEVEL II, DUAL COATED)	2
6			
7		#6 x 5'-2" (LEVEL II, DUAL COATED)	24
8			
9			
10			
11	MK-RR1	NMB SPLICE SLEEVE 5U-X(PG) (EPOXY COATED)	11
12	MK-RR2	NMB SPLICE SLEEVE 6U-X(PG) (EPOXY COATED)	24
13		8T x 13 3/8" SWIFT LIFT LIFTER (GALV.)	2
14		8T x 6 3/4" SWIFT LIFT LIFTER (GALV.)	4
15			

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

CCS CONSTRUCTORS, INC.
CONTRACTOR
MORRISVILLE, VERMONT

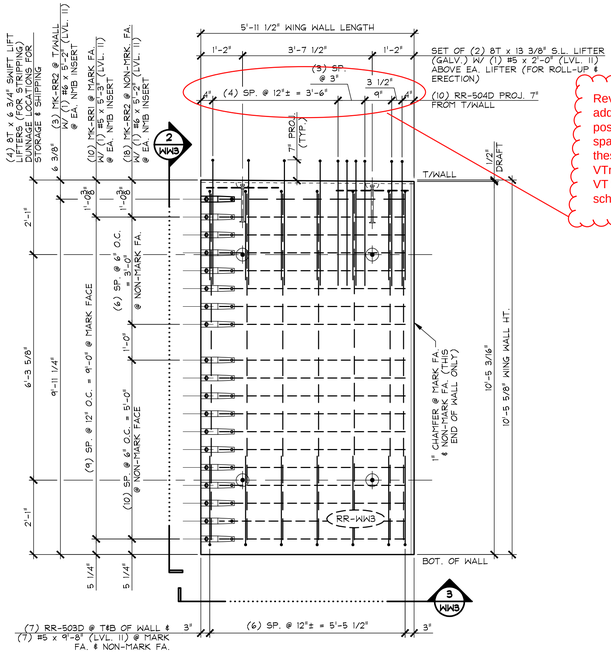
STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF ADDISON

TOWN OF NEW HAVEN
T.H. 2 (RIVER ROAD) (CLASS 2 - MAJOR COLLECTOR)
BRIDGE NO.: 10 PROJECT NO.: BRF 0183 (1)

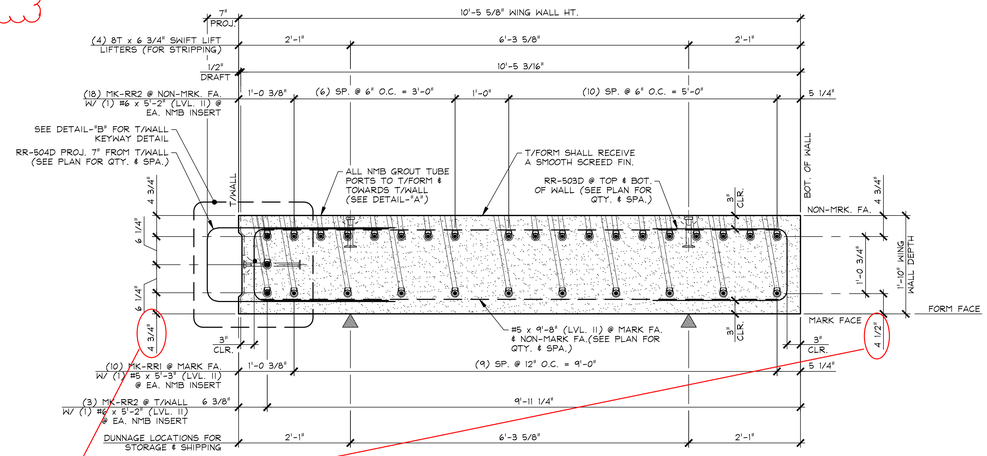
PRECAST WING WALL DETAILS

DATE: OCT. 15, 2015
SCALE: NOTED
CHKD: A.S. DFTM: B.L.
JOB NO: 23475-015
DWG. NO: WW2

F:\VT-Bridges\23475-15 River Road\23475-WW2.dwg, 11/17/2015 8:38:47 AM



1 WW3 PLAN VIEW IN FORM
1/2" = 1'-0"

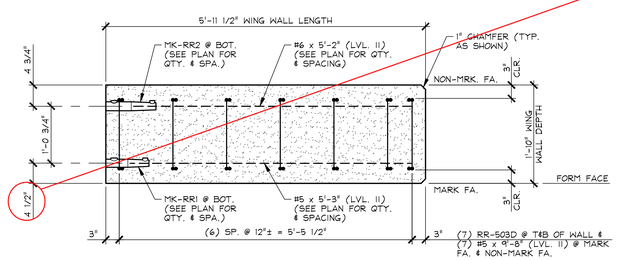


2 WW3 SIDE ELEVATION IN FORM
3/4" = 1'-0"

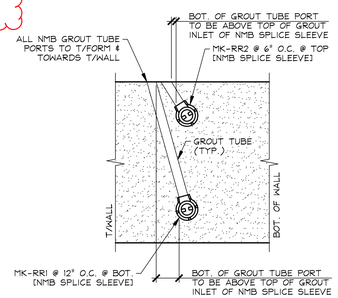
3 cover+6/8" + 0.5*1.89" = 4.695" > 4.5.
Adjust locations of bars in abutment caps to correspond with change.
Adjust dimension to grout tubes accordingly.

1

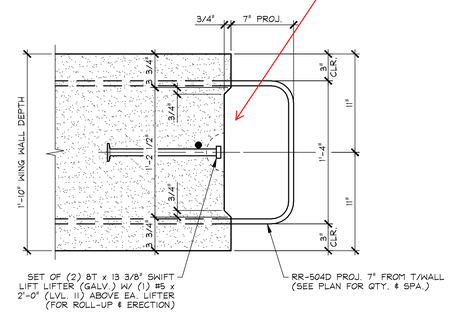
surface amplitude



3 WW3 BOTTOM ELEVATION
3/4" = 1'-0"



DETAIL - "A"
N.T.S.



DETAIL - "B"
1 1/2" = 1'-0"

Finishes not indicated

1 1/11/16 Engineers Review Comments (RJG)

SUBMITTAL REVIEW

Review is only for general conformity to the contract drawings and specifications and shall not relieve the contractor of his entire responsibility under the contract, including among other things, dimensions to be confirmed and correlated at the job site, and information that pertains to the fabrication processes or to techniques of construction.

- ☐ NO EXCEPTIONS TAKEN
- ☐ MAKE CORRECTIONS NOTED RESUBMITTAL NOT REQUIRED
- ☑ AMEND AND RESUBMIT
- ☐ REJECTED - SEE REMARKS

PB AMERICAS, INC.
BY: [signature]
DATE: 1/11/16

Vermont Agency of Transportation
RECEIVED
ON: December 18, 2015
and Checked for
CONFORMANCE
BY: Todd Sumner DATE: 01/15/2016

SHOP NOTE:
f'c = 5,000 PSI
f'ci = 3,500 PSI
MIX #4445MSCC

MARK: RR-WW3	QTY.: 1	WT.: 8.56 T	VOL.: 4.23 cy

MATERIAL LIST / WING WALL

ITEM	MARK	DESCRIPTION	QTY.
1	RR-503D	#5 BENT BAR (LEVEL II, DUAL COATED)	14
2	RR-504D	#5 BENT BAR (LEVEL II, DUAL COATED)	10
3		#5 x 5'-3" (LEVEL II, DUAL COATED)	10
4		#5 x 9'-8" (LEVEL II, DUAL COATED)	14
5		#5 x 2'-0" (LEVEL II, DUAL COATED)	2
6			
7		#6 x 5'-2" (LEVEL II, DUAL COATED)	21
8			
9			
10			
11	MK-RR1	NMB SPLICE SLEEVE 5U-X(PG) (EPOXY COATED)	10
12	MK-RR2	NMB SPLICE SLEEVE 6U-X(PG) (EPOXY COATED)	21
13		8T x 13 3/8" SWIFT LIFT LIFTER (GALV.)	2
14		8T x 6 3/4" SWIFT LIFT LIFTER (GALV.)	4
15			

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

CCS CONSTRUCTORS, INC.
CONTRACTOR
MORRISVILLE, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF ADDISON

TOWN OF NEW HAVEN
T.H. 2 (RIVER ROAD) (CLASS 2 - MAJOR COLLECTOR)
BRIDGE NO.: 10 PROJECT NO.: BRF 0183 (1)

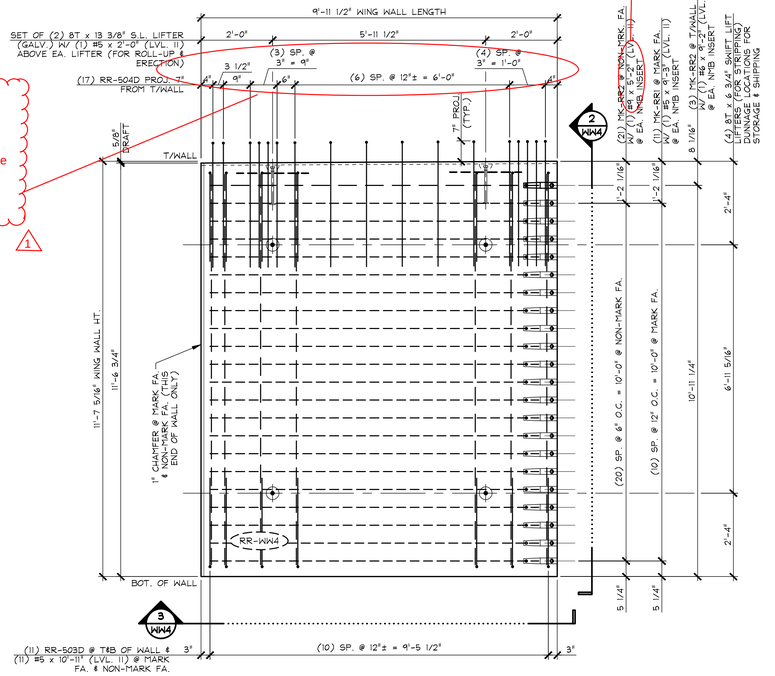
PRECAST WING WALL DETAILS

DATE: OCT. 15, 2015
SCALE: NOTED
CHKD: A.S. DFTM: B.L.
JOB NO: 23475-015
DWG. NO: WW3

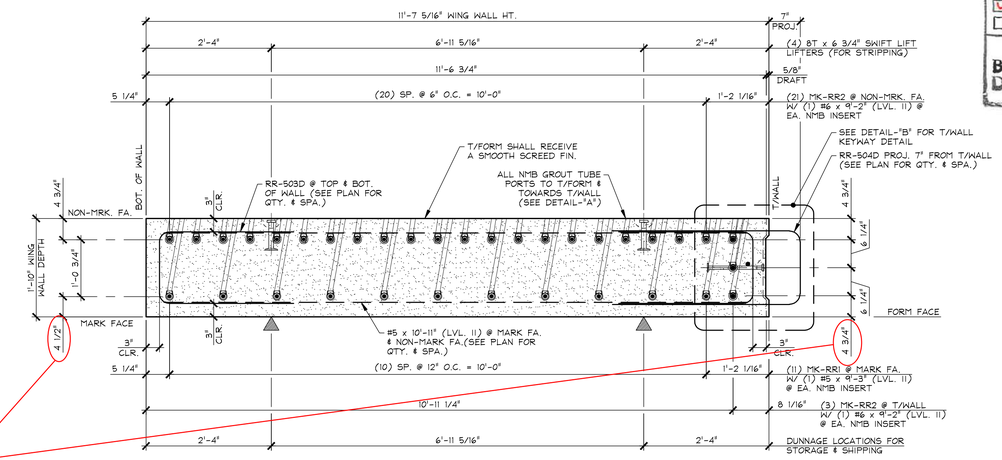
F:\VT-Bridges\23475-15 River Road\23475-WW3.dwg, 11/17/2015 9:36:12 AM

#6 @ 9'-2" 1

Revise. The 3 additional at rail posts results in 6 spaces at 6" in these regions. See VTrans Standard VT S-360A for schematic. 1

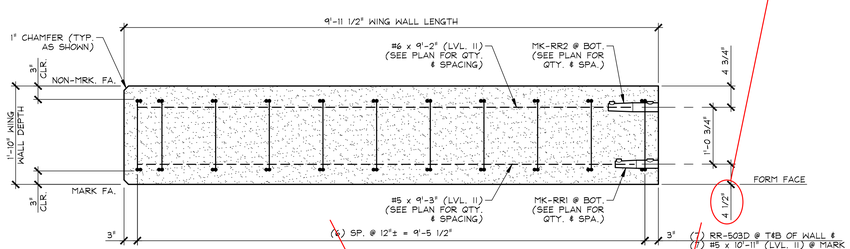


1 WW4 PLAN VIEW IN FORM
1/2" = 1'-0"



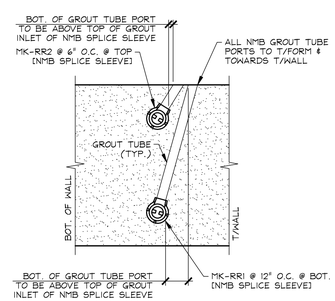
2 WW4 SIDE ELEVATION IN FORM
3/4" = 1'-0"

1 3 cover+6/8" + 0.5*1.89" = 4.695" > 4.5. Adjust locations of bars in abutment caps to correspond with change. Adjust dimension to grout tubes accordingly.

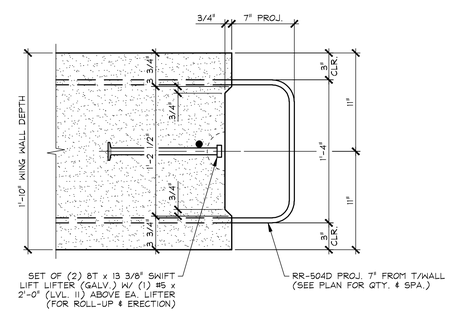


10 1 11 1

3 WW4 BOTTOM ELEVATION
3/4" = 1'-0"



DETAIL - "A"
N.T.S.



DETAIL - "B"
1 1/2" = 1'-0"

1 1/11/16 Engineers Review Comments (RJG)

same comments as for ww2

Finishes not indicated

SUBMITTAL REVIEW

Review is only for general conformity to the contract drawings and specifications and shall not relieve the contractor of his entire responsibility under the contract, including among other things, dimensions to be confirmed and correlated at the job site, and information that pertains to the fabrication processes or to techniques of construction.

- ☐ NO EXCEPTIONS TAKEN
- ☐ MAKE CORRECTIONS NOTED
- RESUBMITTAL NOT REQUIRED
- ☑ AMEND AND RESUBMIT
- ☐ REJECTED - SEE REMARKS

PB AMERICAS, INC.
BY: Rich Bak
DATE: 1/11/16

Vermont Agency of Transportation
RECEIVED
ON: December 18, 2015
and Checked for
CONFORMANCE
BY: Todd Sumner DATE: 01/15/2016

SHOP NOTE:
f'c = 5,000 PSI
f'ci = 3,500 PSI
MIX #445MSCC

MARK: RR-WW4	QTY.: 1	WT.: 15.86 T	VOL.: 7.83 cy

MATERIAL LIST / WING WALL

ITEM	MARK	DESCRIPTION	QTY.
1	RR-503D	#5 BENT BAR (LEVEL II, DUAL COATED)	22
2	RR-504D	#5 BENT BAR (LEVEL II, DUAL COATED)	17
3		#5 x 9'-3" (LEVEL II, DUAL COATED)	11
4		#5 x 10'-11" (LEVEL II, DUAL COATED)	22
5		#5 x 2'-0" (LEVEL II, DUAL COATED)	2
6			
7		#6 x 9'-2" (LEVEL II, DUAL COATED)	24
8			
9			
10			
11	MK-RR1	NMB SPLICE SLEEVE 5U-X(PG) (EPOXY COATED)	11
12	MK-RR2	NMB SPLICE SLEEVE 6U-X(PG) (EPOXY COATED)	24
13		8T x 13 3/8" SWIFT LIFT LIFTER (GALV.)	2
14		8T x 6 3/4" SWIFT LIFT LIFTER (GALV.)	4
15			

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

CCS CONSTRUCTORS, INC.
CONTRACTOR
MORRISVILLE, VERMONT

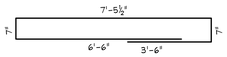
STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF ADDISON

TOWN OF NEW HAVEN
T.H. 2 (RIVER ROAD) (CLASS 2 - MAJOR COLLECTOR)
BRIDGE NO.: 10 PROJECT NO.: BRF 0183 (1)

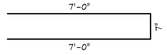
PRECAST WING WALL DETAILS

DATE: OCT. 15, 2015
SCALE: NOTED
CHKD: A.S. DFTM: B.L.
JOB NO: 23475-015
DWG. NO: WW4

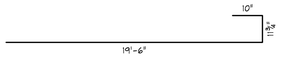
F:\VT-Bridges\23475-15 River Road\23475-WW4.dwg, 11/17/2015 9:33:01 AM



RR-501D
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3'ϕ PIN
(78) REQ'D.

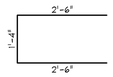


RR-502D
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3'ϕ PIN
(78) REQ'D.

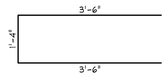


RR-901D
#4 BENT BAR
LEVEL II (DUAL COATED)
USE 9½'ϕ PIN
(68) REQ'D.

PRECAST APPROACH SLABS

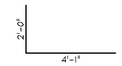


RR-503D
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3'ϕ PIN
(64) REQ'D.

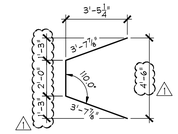


RR-504D
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3'ϕ PIN
(47) REQ'D.

PRECAST WING WALLS

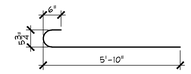


RR-505D
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3'ϕ PIN
(26) REQ'D.

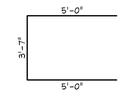


RR-506D
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3'ϕ PIN
(40) REQ'D.

RR-601D
#6 BENT BAR
LEVEL II (DUAL COATED)
USE 4'ϕ PIN
(50) REQ'D.



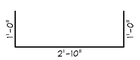
RR-602D
#6 BENT BAR
LEVEL II (DUAL COATED)
USE 4'ϕ PIN
(130) REQ'D.



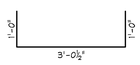
RR-603D
#6 BENT BAR
LEVEL II (DUAL COATED)
USE 4'ϕ PIN.
(96) REQ'D.

PRECAST ABUTMENTS

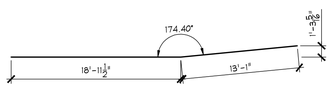
3 of each size needed to be assembled and sent to lab for testing



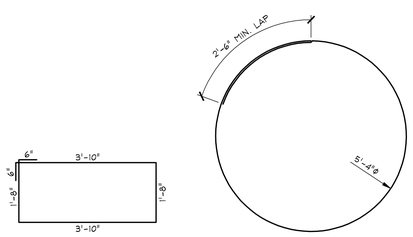
RR-507D
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3'ϕ PIN
(6) REQ'D.



RR-508D
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3'ϕ PIN
(6) REQ'D.

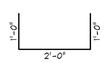


RR-509D
#5 x 32'-0 1/2"
LEVEL II (DUAL COATED)
USE 3'ϕ PIN
(10) REQ'D.

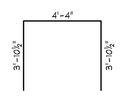


RR-604D
#6 BENT BAR
LEVEL II (DUAL COATED)
USE 4'ϕ PIN
(16) REQ'D.

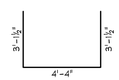
RR-605D
#6 BENT BAR
LEVEL II (DUAL COATED)
(10) REQ'D.



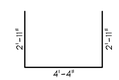
RR-606D
#6 BENT BAR
LEVEL II (DUAL COATED)
USE 4'ϕ PIN
(24) REQ'D.



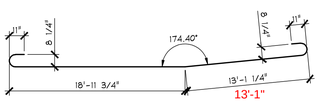
RR-607D
#6 BENT BAR
LEVEL II (DUAL COATED)
USE 4'ϕ PIN
(104) REQ'D.



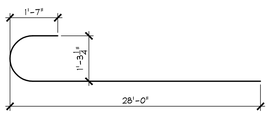
RR-608D
#6 BENT BAR
LEVEL II (DUAL COATED)
USE 4'ϕ PIN
(96) REQ'D.



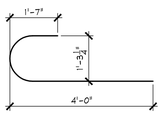
RR-609D
#6 BENT BAR
LEVEL II (DUAL COATED)
USE 4'ϕ PIN
(8) REQ'D.



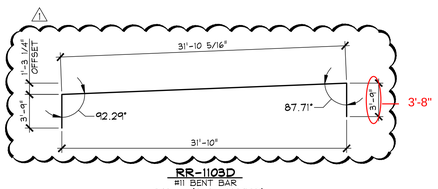
RR-801D
#8 BENT BAR
LEVEL II (DUAL COATED)
USE 6'ϕ PIN
(10) REQ'D.



RR-1101D
#11 BENT BAR
LEVEL II (DUAL COATED)
USE 12'ϕ PIN
(10) REQ'D.



RR-1102D
#11 BENT BAR
LEVEL II (DUAL COATED)
USE 12'ϕ PIN
(10) REQ'D.



RR-1103D
#11 BENT BAR
LEVEL II (DUAL COATED)
USE 12'ϕ PIN
(10) REQ'D.

1

THIS DETAILS HAS BEEN OMITTED

RR-1104D
#11 BENT BAR
LEVEL II (DUAL COATED)
USE 12'ϕ PIN

PRECAST PIER CAP

SUBMITTAL REVIEW

Review is only for general conformity to the contract drawings and specifications and shall not relieve the contractor of his entire responsibility under the contract, including among other things, dimensions to be confirmed and correlated at the job site, and information that pertains to the fabrication processes or to techniques of construction.

- ☐ NO EXCEPTIONS TAKEN
- ☐ MAKE CORRECTIONS NOTED
- RESUBMITTAL NOT REQUIRED
- ☑ AMEND AND RESUBMIT
- ☐ REJECTED - SEE REMARKS

PB AMERICAS, INC.
BY: [signature]
DATE: 1/11/16

2 1'-10"

MISCELLANEOUS MATERIALS

ITEM	MARK	QTY.	DESCRIPTION	REMARKS	
1					PRECAST APPROACH SLABS
2					
3		56	#5 x 19'-6" (LEVEL II, DUAL COATED)		
4					
5					
6		32	4"ϕ I.D. x 1'-3" PVC SLEEVE		
7		32	8T x 6 3/4" SWIFT LIFT LIFTER	GALVANIZED	
8					
9					
10					
11		8	#5 x 2'-0" (LEVEL II, DUAL COATED)		PRECAST WING WALLS
12		31	#5 x 5'-3" (LEVEL II, DUAL COATED)		
13		28	#5 x 9'-8" (LEVEL II, DUAL COATED)		
14		14	#5 x 10'-9" (LEVEL II, DUAL COATED)		
15		11	#5 x 9'-3" (LEVEL II, DUAL COATED)		
16		22	#5 x 10'-11" (LEVEL II, DUAL COATED)		
17					
18		66	#6 x 5'-2" (LEVEL II, DUAL COATED)		
19		24	#6 x 9'-2" (LEVEL II, DUAL COATED)		
20					
21	MK-RR1	42	NMB SPLICE SLEEVE 5U-X(PG)	EPOXY COATED	
22	MK-RR2	90	NMB SPLICE SLEEVE 6U-X(PG)	EPOXY COATED	
23		8	8T x 13 3/8" SWIFT LIFT LIFTER	GALVANIZED	
24		16	8T x 6 3/4" SWIFT LIFT LIFTER	GALVANIZED	
25					
26		56	#5 x 3'-6" (LEVEL II, DUAL COATED)		PRECAST ABUTMENTS
27					
28		44	#6 x 3'-9" (LEVEL II, DUAL COATED)		
29		28	#6 x 32'-0" (LEVEL II, DUAL COATED)		
30					
31		64.6 LF	P.V.C. WATERSTOP	SUPPLIED BY OTHERS	
32		2	2'-6"ϕ x 7'-3" CORRUGATED STEEL SLEEVE		
33		2	2'-6"ϕ x 6'-11 11/16" CORRUGATED STEEL SLEEVE		
34		2	2'-6"ϕ x 6'-8 3/8" CORRUGATED STEEL SLEEVE		
35		2	2'-6"ϕ x 6'-5 1/8" CORRUGATED STEEL SLEEVE		
36		2	2'-6"ϕ x 6'-1 13/16" CORRUGATED STEEL SLEEVE 1		
37		8	4"ϕ (1'-6") CORRUGATED PLASTIC SLEEVE		
38		8	SET OF (4) 0.60"ϕ STRAND LIFTING LOOPS		
39					
40					
41		13	6"ϕ x 4'-2" CORRUGATED PLASTIC SLEEVE		PRECAST PIER CAP
42		4	SPLICE PLATE GIRDER SEGMENT	SUPPLIED BY OTHERS	
43		4	SET OF (4) 0.60"ϕ STRAND LIFTING LOOPS		
44					
45	MK-RR3	10	D-250 BAR-LOCK L-SERIES COUPLER, 11L	EPOXY COATED	
46					
47		8	#5 x 6'-0" (LEVEL II, DUAL COATED)		
48					
49		8	#6 x 32'-0" (LEVEL II, DUAL COATED)		
50					
51	MK-RR1	3	NMB SPLICE SLEEVE 5U-X(PG)	EPOXY COATED	FOR TESTING
52	MK-RR2	3	NMB SPLICE SLEEVE 6U-X(PG)	EPOXY COATED	
53	MK-RR3	3	D-250 BAR-LOCK L-SERIES COUPLER, 11L	EPOXY COATED	
54					
55		3	#5 x 4'-0" (LEVEL II, DUAL COATED)		
56		3	#6 x 4'-0" (LEVEL II, DUAL COATED)		
57		3	#8 x 4'-0" (LEVEL II, DUAL COATED)		
58		3	#9 x 4'-0" (LEVEL II, DUAL COATED)		
59		3	#11 x 4'-0" (LEVEL II, DUAL COATED)		
60					

2 1/11/16 Engineers Review Comments (RJG)

1 12-2-15 REVISED PER GENERAL CONTRACTOR'S ENGINEER REVIEW

Vermont Agency of Transportation
RECEIVED
ON: December 18, 2015
and Checked for
CONFORMANCE
BY: Todd Sumner DATE: 01/15/2016

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

CCS CONSTRUCTORS, INC.
CONTRACTOR
MORRISVILLE, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF ADDISON

TOWN OF NEW HAVEN
T.H. 2 (RIVER ROAD) (CLASS 2 - MAJOR COLLECTOR)
BRIDGE NO.: 10 PROJECT NO.: BRF 0183 (1)

MATERIALS LIST

DATE: OCT. 15, 2015
SCALE: NOTED
CHKD: A.S. DFTM: B.L.
JOB NO: 23475-015
DWG. NO: M1

F:\VT-Bridges\23475-15 River Road\23475-M1.dwg, 12/22/2015 6:46:28 PM