

ROBERT M. SUTHERLAND, P.C.
ENGINEERS-SURVEYORS-MATERIAL TESTING
PLATTSBURGH NEW YORK

WARREN BRF 013-4(32) CONTRACTOR FABRICATED PBU UNITS

- SHEET 1: PBU PLAN
- SHEET 2: PBU PLAN UNITS 1 & 2
- SHEET 3: PBU PLAN UNITS 3 & 4
- SHEET 4: PBU TYPICAL DETAILS
- SHEET 5: CLOSURE POUR DETAILS
- SHEET 6: PBU INSERT-LAYOUT
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- SHEET 9: QC PROCEDURES / PLAN
- SHEET 10: PBU CASTING PLAN
- SHEET 11: CONCRETE MIX DESIGN
- SHEET 12: BRIDGE ANCHORAGE

REV	REVISION	DATE

REVISIONS

PROJECT

WARREN BRF
013-4(32)
VT ROUTE 100
WARREN, VT

CLIENT

LUCK BROTHERS, INC.
TRADE ROAD
PLATTSBURGH, NY 12901

SHEET TITLE

PRE-CAST BRIDGE UNIT
COVER SHEET / INDEX

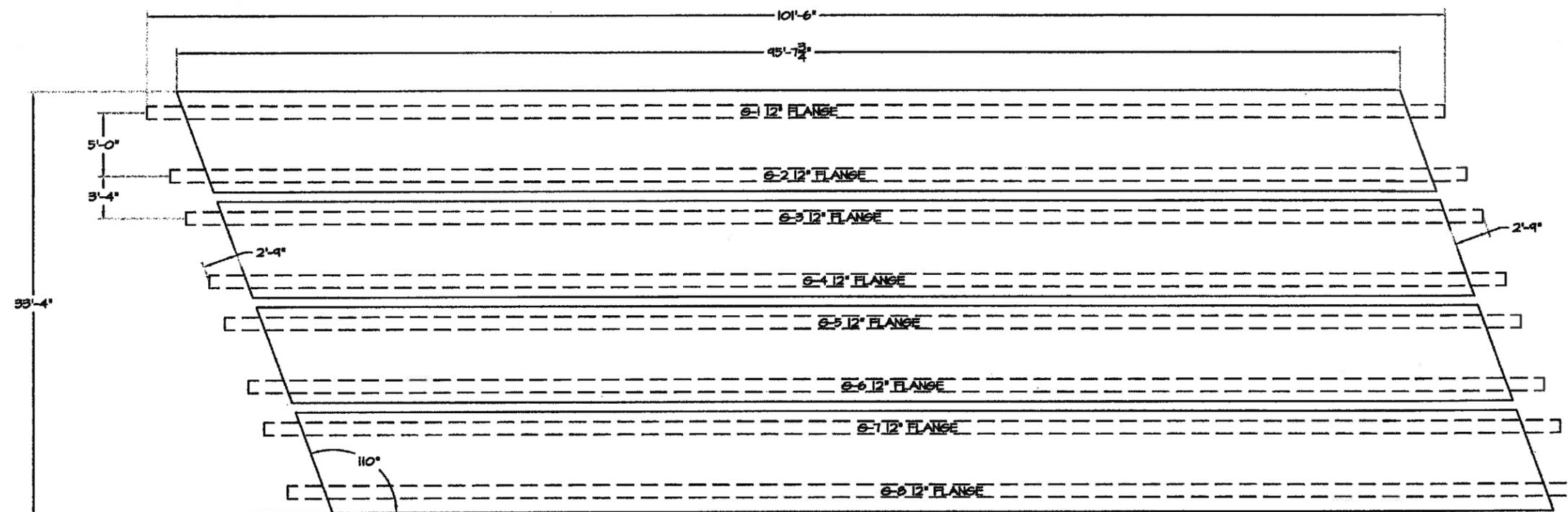
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CHECKED BY: TL

DATE: 04/28/14

SHEET NO:

COVER



REV	REVISION	DATE

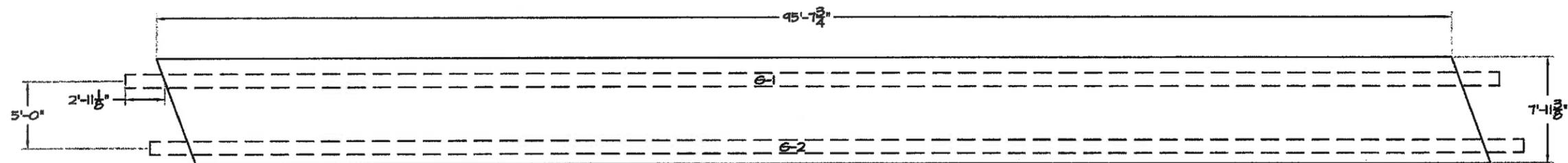
REVISIONS

PROJECT
 WARREN BRIDGE
 013-4(32)
 VT ROUTE 100
 WARREN, VT

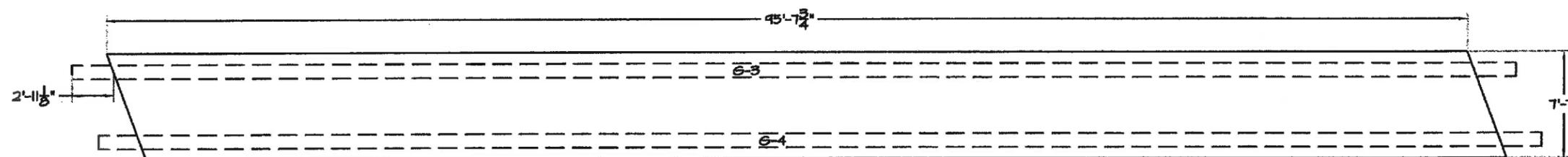
CLIENT
 LUCK BROTHERS, INC.
 TRADE ROAD
 PLATTSBURGH, NY 12901

SHEET TITLE
 PRE-CAST BRIDGE UNIT
 PLAN

DRAWN BY: KTW
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 DATE: 04/28/14
 SHEET NO:



PBU #1 EXTERIOR UNIT



PBU #2 INTERIOR UNIT

REV	REVISION	DATE

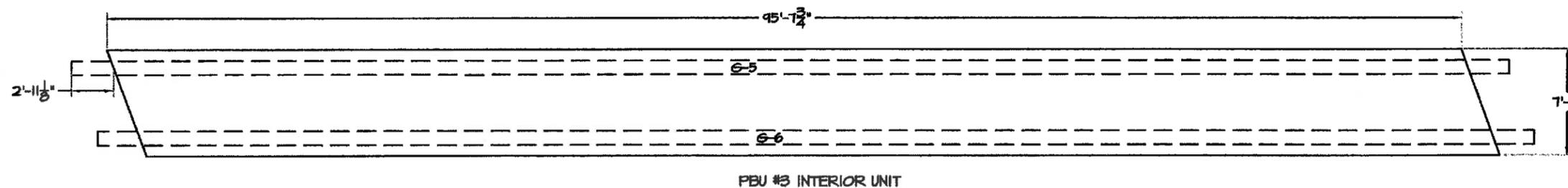
REVISIONS

PROJECT
 WARREN BRIDGE
 013-4(32)
 VT ROUTE 100
 WARREN, VT

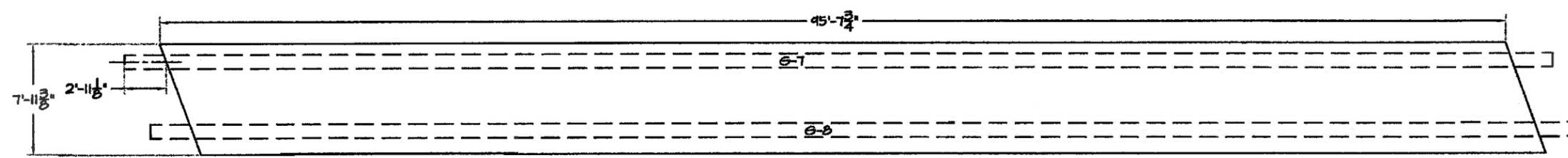
CLIENT
 LUCK BROTHERS, INC.
 TRADE ROAD
 PLATTSBURGH, NY 12901

SHEET TITLE
 PRE-CAST BRIDGE UNIT
 PBU #1 AND #2

DRAWN BY: KTW
 CHECKED BY: TL
 DATE: 04/28/14
 SHEET NO:



PBU #3 INTERIOR UNIT



PBU #4 EXTERIOR UNIT

REV	REVISION	DATE

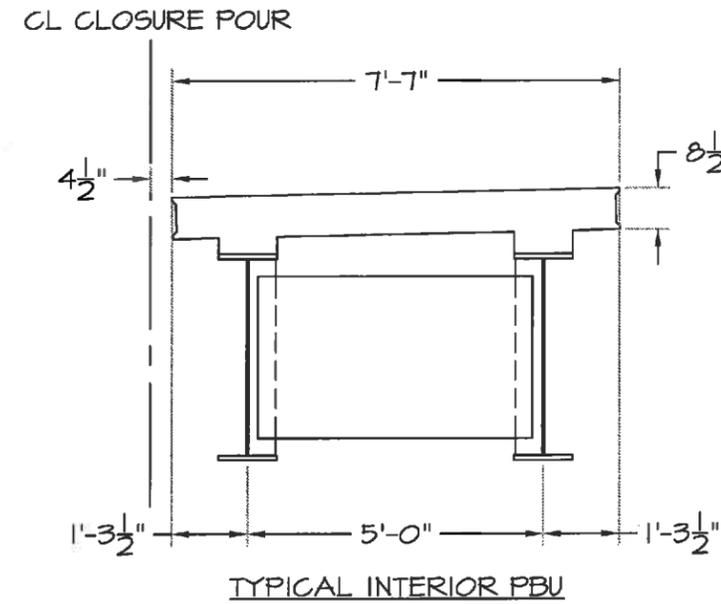
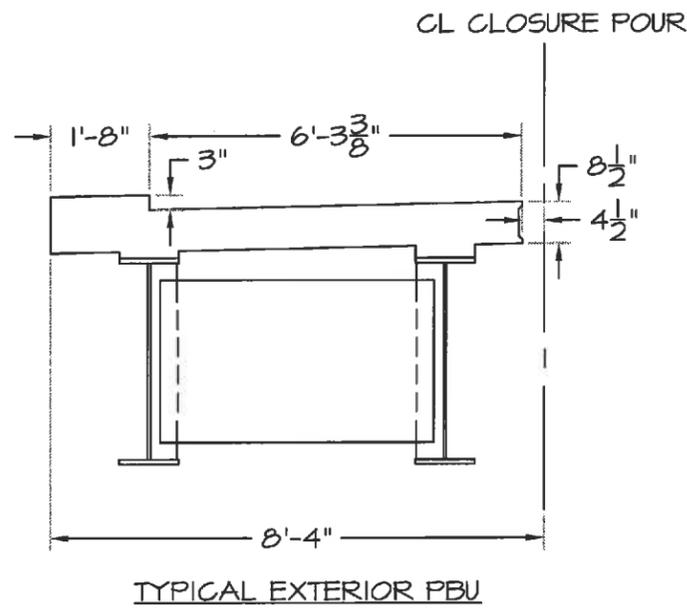
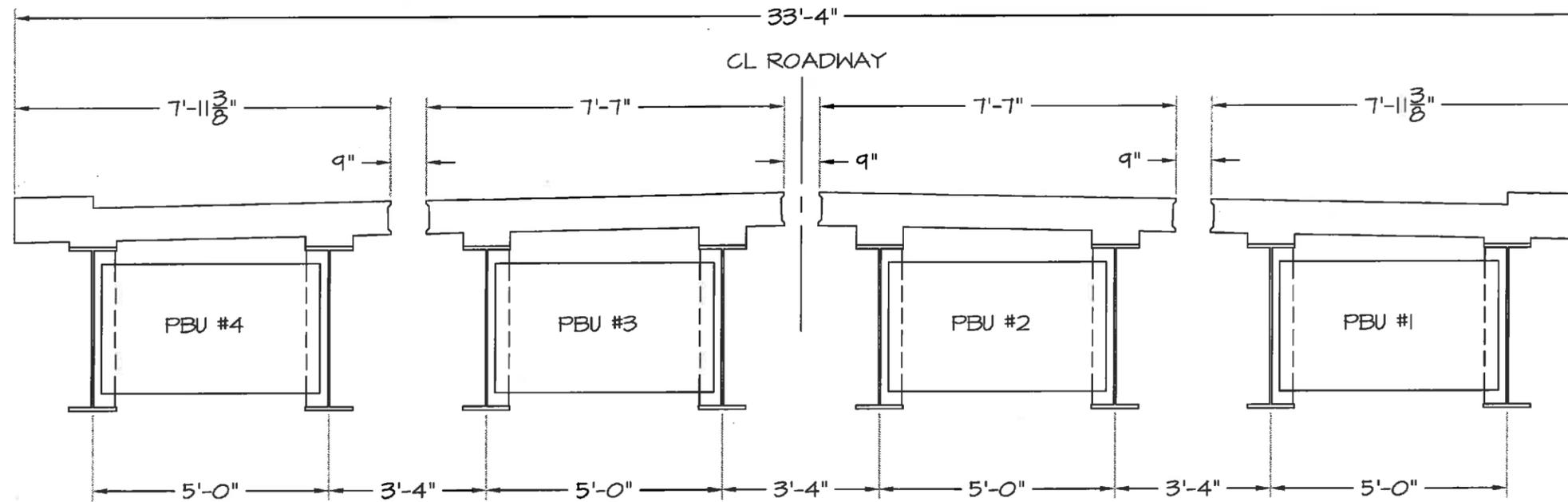
REVISIONS

PROJECT
 WARREN BRIDGE
 013-4(32)
 VT ROUTE 100
 WARREN, VT

CLIENT
 LUCK BROTHERS, INC.
 TRADE ROAD
 PLATTSBURGH, NY 12901

SHEET TITLE
 PRE-CAST BRIDGE UNIT
 PBU #3 AND #4

DRAWN BY: KTW
 CHECKED BY: TL
 DATE: 04/28/14
 SHEET NO:



REV	REVISION	DATE
I.	MISCELLANEOUS REVISIONS	05/02/14

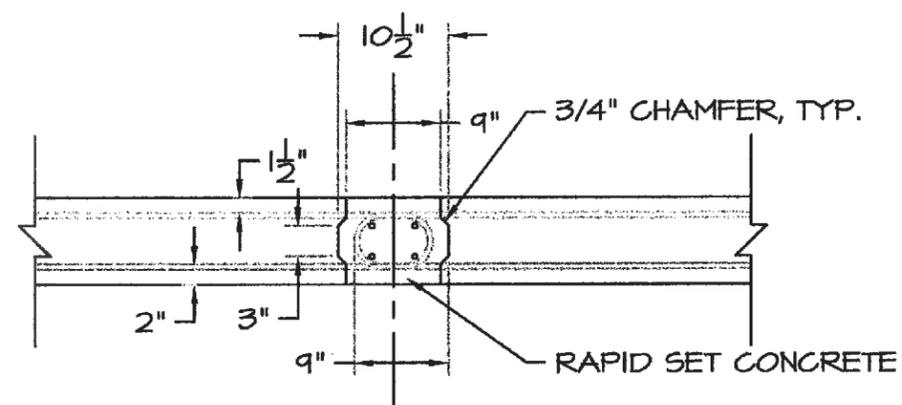
REVISIONS

PROJECT
 WARREN BRIDGE
 013-4(32)
 VT ROUTE 100
 WARREN, VT

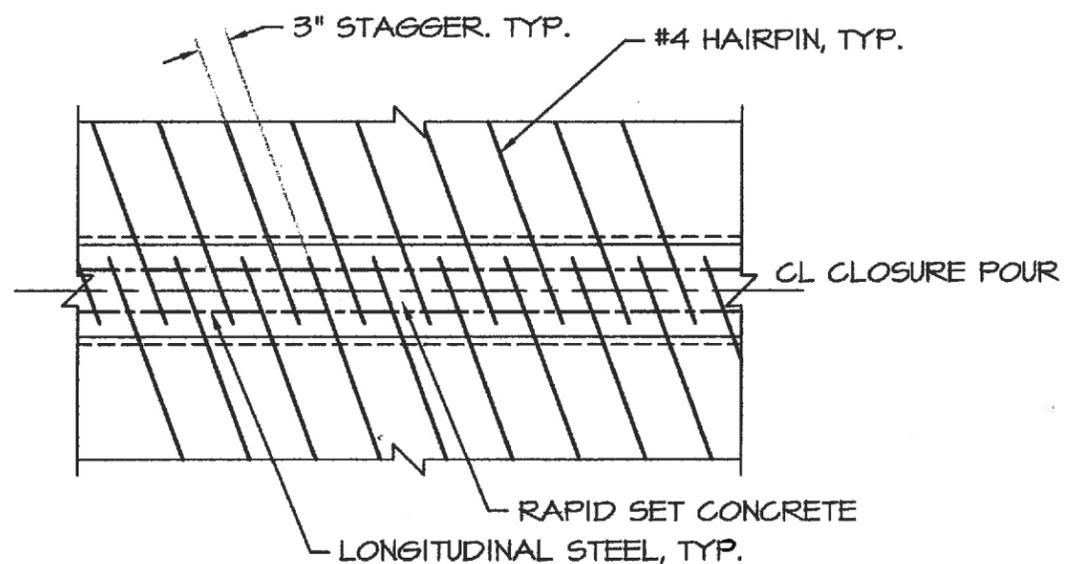
CLIENT
 LUCK BROTHERS, INC.
 TRADE ROAD
 PLATTSBURGH, NY 12901

SHEET TITLE
 PRE-CAST BRIDGE UNIT
 PBU DETAILS

DRAWN BY: KTW
 CHECKED BY: TL
 DATE: 04/28/14
 SHEET NO:



CLOSURE POUR SECTION



CLOSURE POUR PLAN

REV	REVISION	DATE

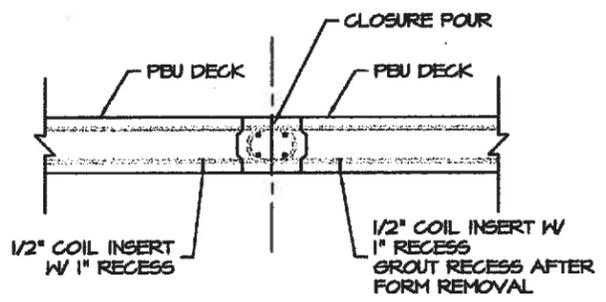
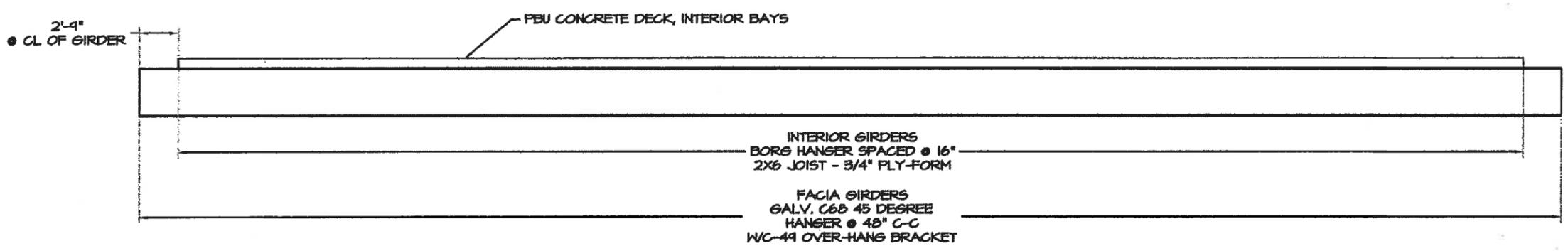
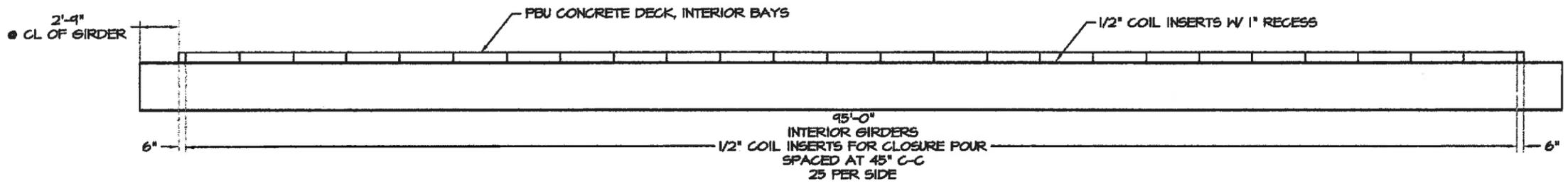
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 VT ROUTE 100
 WARREN, VT

CLIENT
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 TRADE ROAD
 PLATTSBURGH, NY 12901

SHEET TITLE
 PRE-CAST BRIDGE UNIT
 CLOSURE POUR DETAILS

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REV	REVISION	DATE

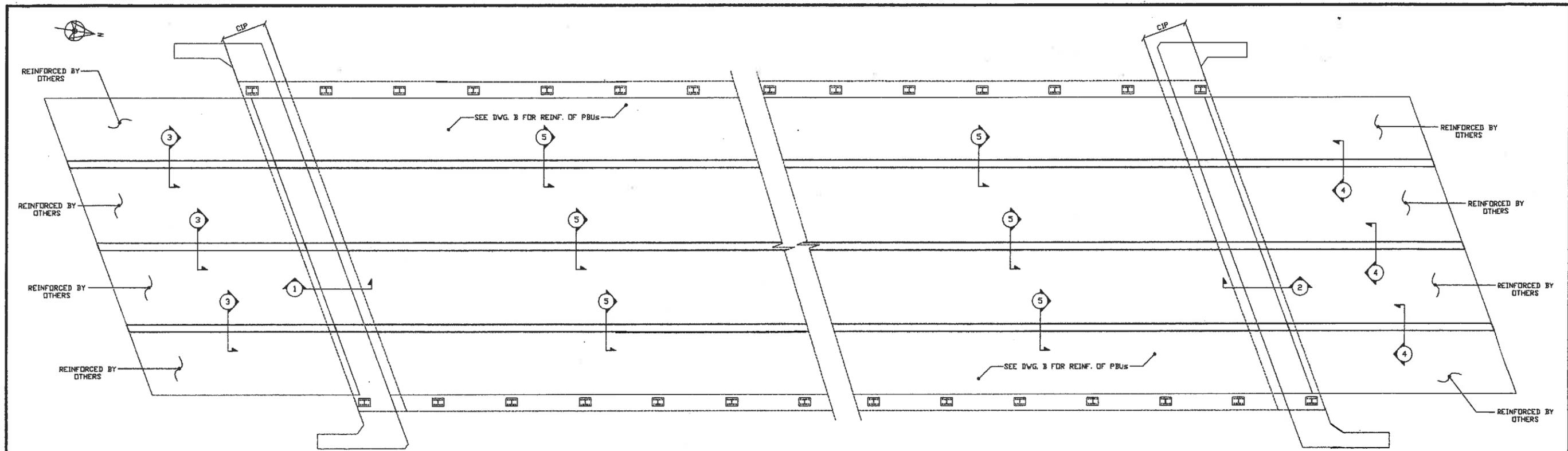
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PROJECT
 WARREN BRIDGE
 013-4(32)
 VT ROUTE 100
 WARREN, VT

CLIENT
 LUCK BROTHERS, INC.
 TRADE ROAD
 PLATTSBURGH, NY 12901

SHEET TITLE
 PBU CLOSURE POUR
 COIL INSERT LAYOUT

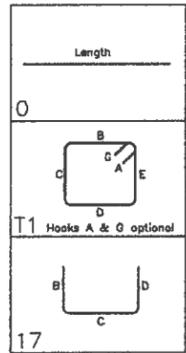
DRAWN BY: KTW
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 DATE: 04/28/14
 SHEET NO:



Drawing Sheet : A

BAR LIST															
Bar Mark	Qty	Size	Total Length	Type	A'	B'	C'	D'	E'	F'	G'	H'	I'	J'	K'
51A102	12	#5	19'-7"			19'-7"									
51A501	* 14	#5	35'-0"			35'-0"									
51A502	8	#5	35'-0"			35'-0"									
51A503	16	#5	7'-1"			7'-1"									
51A504	12	#5	3'-0"			3'-0"									
51A550	18	#5	14'-10"	T1	0'-5 1/2"	3'-4 1/2"	3'-7"	3'-4 1/2"	3'-7"		0'-5 1/2"				
51A551	18	#5	14'-6"	T1	0'-5 1/2"	3'-4 1/2"	3'-5"	3'-4 1/2"	3'-5"		0'-5 1/2"				
51A553	* 12	#5	30'-0"			30'-0"									
51A554	12	#5	19'-0"			19'-0"									
52A102	12	#5	19'-7"			19'-7"									
52A501	14	#5	35'-0"			35'-0"									
52A502	8	#5	35'-0"			35'-0"									
52A503	16	#5	7'-1"			7'-1"									
52A504	12	#5	3'-0"			3'-0"									
52A550	18	#5	14'-10"	T1	0'-5 1/2"	3'-4 1/2"	3'-7"	3'-4 1/2"	3'-7"		0'-5 1/2"				
52A551	18	#5	14'-6"	T1	0'-5 1/2"	3'-4 1/2"	3'-5"	3'-4 1/2"	3'-5"		0'-5 1/2"				
61A650	* 37	#6	7'-2"	17		3'-7"	3'-7"								
62A650	* 37	#6	7'-2"	17		3'-7"	3'-7"								
81A801	* 22	#8	2'-0"			2'-0"									
82A801	* 22	#8	2'-0"			2'-0"									

* BARS FOR TESTING PURPOSES INCLUDED



ALL DUAL COATED REINF. DENOTED (Z)

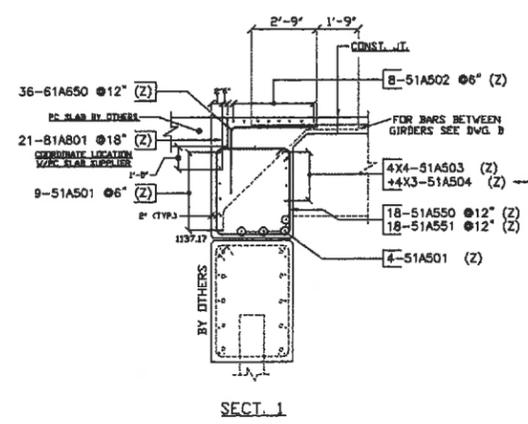
LEGEND:
 CONT-CONTINUOUS
 TRANS-TRANSVERSE
 DVLS-DOWELS
 VERTS-VERTICAL
 HORIZ-HORIZONTAL
 T&B -TOP & BOTTOM
 I.F.-INNER FACE
 O.F.-OUTER FACE
 E.E.-EACH END
 E.F.-EACH FACE
 F.F.-FRONT FACE
 R.F.-REAR FACE
 E.W.-EACH WAY
 D.C.-ON CENTER
 L.W.-LONG WAY
 S.W.-SHORT WAY

FOR APPROVAL

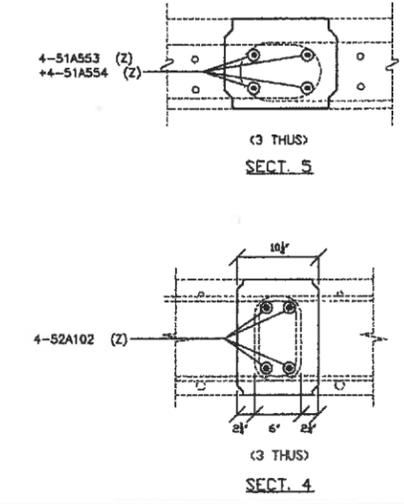
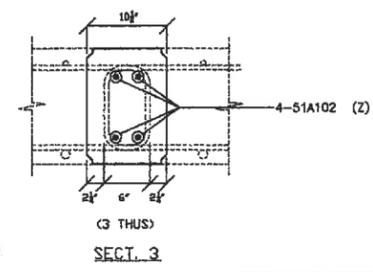
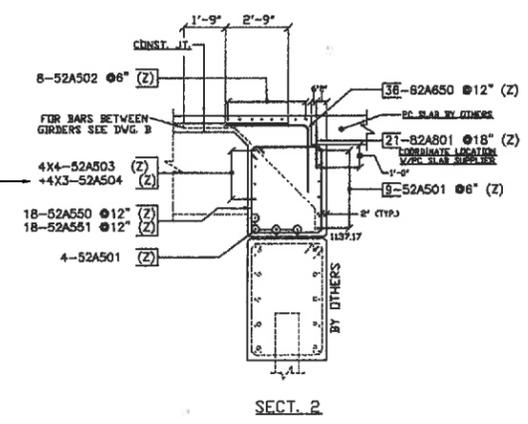
ELEVATIONS & DIMENSIONS SHOWN ON THIS DWG. ARE FOR REINF. DETAILING PURPOSES ONLY AND ARE NOT INTENDED FOR CONSTRUCTION.

REINF. BARS ASTM A615 GRADE 60 DUAL COATED

VERIFICATION OF UNCLEAR INFORMATION MAY BE REQUESTED ON THIS DRAWING. SHOULD VERIFICATION BE LEFT UN-ADDRESSED IT WILL REMAIN AS SHOWN AND ASSUME TO BE CORRECT.



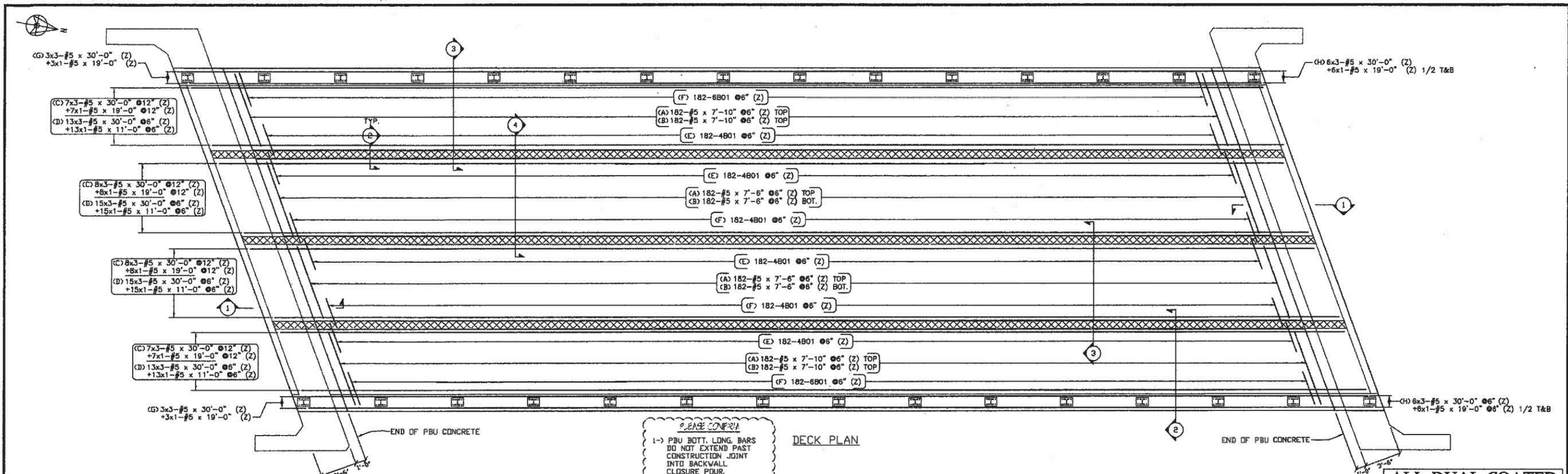
PLEASE CONFIRM WITH SUPPLIER



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DATE: 3-3-14
 REV.#:
 FOR APPROVAL
 SENT FOR:
DIMENSION
 DIMENSION FABRICATORS INC.
 3000 WYOMING STREET
 WARREN, VT 05670
 PH: 802 534-2200
 WWW.DIMENSIONVT.COM

PROJECT: VT/AT WARREN BRIDGE 166 ROUTE 100 (MINOR ARTERIAL) WARREN, VT
 CONTRACTOR: LUCK BROTHERS INC.
 DRAWN BY: ED
 DATE: 3/3/14
 SHEET # 8747
 DIMENSION # A



PLEASE CONFIRM

1-> PBU BOT. LONG BARS DO NOT EXTEND PAST CONSTRUCTION JOINT INTO BACKWALL CLOSURE POUR. SEE SHEET 25

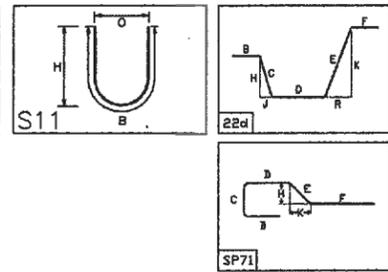
2-> PBU TRANSVERSE BARS DO NOT CONTINUE INTO ABUTMENT CLOSURE POUR. SEE SHEET 25

DECK PLAN

ALL DUAL COATED REINF. DENOTED (Z)

Release Number: 006

BAR LIST																
Bar Mark	Qty	Size	Total Length	Type	'A'	'B'	'C'	'D'	'E'	'F'	'G'	'H'	'J'	'K'	'O'	'R'
4B01	1092	#4	6'-8 1/2"	S11		6'-8 1/2"						3'-3"			0'-4 1/2"	
5B01	72	#5	9'-0"	22D			2'-0"	5'-9"	1'-3"			1'-5"	1'-5"	0'-10 1/4"		0'-10 1/4"
6B01	364	#6	6'-7 1/2"	SP71		1'-3"	0'-7 1/2"	1'-2 1/4"	0'-4 1/4"	3'-2"		0'-3"		0'-3"		



NOTES:
MIN LAP FOR LONGITUDINAL #5 BARS = 1'-9"

LEGEND:
CONT.-CONTINUOUS
TRANS.-TRANSVERSE
DWLS.-DOWELS
VERTS.-VERTICAL
HORIZ.-HORIZONTAL
T&B -TOP & BOTTOM
I.F.-INNER FACE
O.F.-OUTER FACE
E.E.-EACH END
E.F.-EACH FACE
F.F.-FRONT FACE
R.F.-REAR FACE
E.W.-EACH WAY
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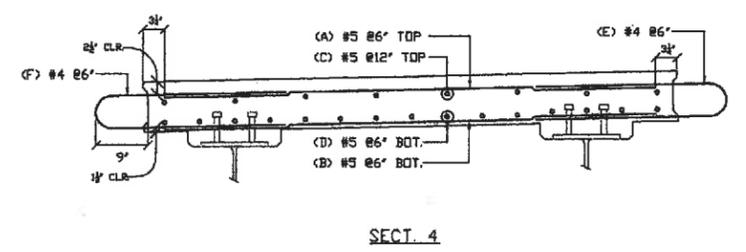
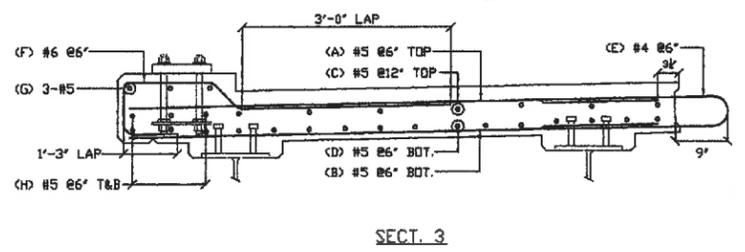
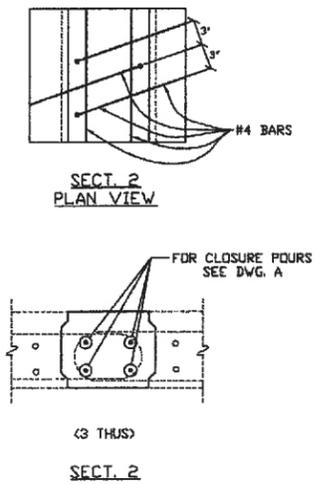
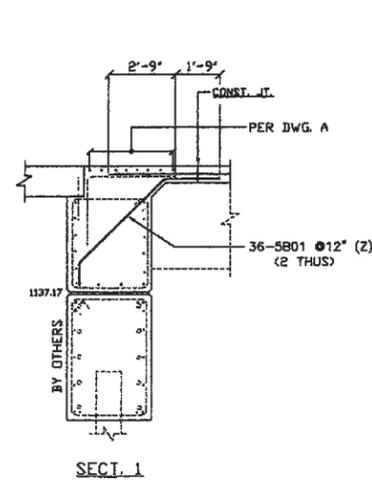
FOR APPROVAL

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REINF. BARS ASTM A615 GRADE 60 DUAL COATED

VERIFICATION OF UNCLEAR INFORMATION MAY BE REQUESTED ON THIS DRAWING. SHOULD VERIFICATION BE LEFT UN-ADDRESSED IT WILL REMAIN AS SHOWN AND ASSUME TO BE CORRECT.

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1	3-3-14	FOR APPROVAL	SENT FOR
	DATE	REV.#	SENT FOR
DIMENSION			
DIMENSION FABRICATORS INC.			
VT/QT WARREN BRG 013-4(32)			
BRIDGE 186 ROUTE 100 (MINOR ARTERIAL)			
WARREN, VT			
DRAWN BY: LUCK BROTHERS INC.			
ED	DATE: 3/3/14	BY: 8747	REV: B
PRE-FAB BRIDGE UNITS DUAL COATED REINFORCING			REV: B



QUALITY CONTROL PROCEDURES-PORTABLE BRIDGE UNITS.

1. S.D. IRELAND WILL BE RESPONSIBLE FOR THE CONTRACTOR/SUPPLIER QC TESTING DURING CONCRETE PLACEMENT. S.D. IRELAND WILL SUPPLY AN ON SITE TECHNICIAN TO MONITOR AND DOCUMENT AIR CONTENT, WATER CEMENT RATIO AND SLUMP OF EACH TRUCK. S. D. IRELAND WILL ALSO PRODUCE CONCRETE TEST CYLINDERS FOR 7, 14, 28 DAY STRENGTHS. S.D. IRELAND WILL BE RESPONSIBLE FOR ANY ADJUSTMENTS TO THE CONCRETE AT THE PLANT AND OR IN THE FIELD TO MEET THE REQUIRED SPECIFICATIONS.
2. A PRE-PRODUCTION MEETING SHALL BE HELD BETWEEN THE CONTRACTOR AND RESIDENT ENGINEER BEFORE CONCRETE PLACEMENT.
3. VTRANS WILL RETAIN THEIR RESPONSIBILITIES FOR QUALITY ACCEPTANCE TESTING.
4. FOUR EXTRA CYLINDER SETS PER CONCRETE PLACEMENT SHALL BE TAKEN FOR EARLY STRENGTH BREAKS.
5. ALL INSIDE FORM DIMENSION AND R-BAR SPACING AND CLEARANCES SHALL BE REVIEWED AND DOCUMENTED ON THE PRE-POUR INSPECTION SHEET BY THE CONTRACTOR AND RESIDENT ENGINEER BEFORE CASTING IS COMMENCED. ANY DEFICIENCIES SHALL BE CORRECTED TO MEET THE TOLERANCES BELOW.
6. BEFORE FORMS ARE ERECTED THE CONTRACTOR WILL PROFILE THE GIRDERS AT THE CASTING SITE THIS INFORMATION WILL BE USED TO DETERMINE BLOCKING DISTANCES AS DIRECTED BY THE ENGINEER.
7. FORMS SHALL HAVE A GENEROUS COATING OF FORM OIL APPLIED. CAUTION WILL BE TAKEN NOT TO HAVE PONDING OF FORM OIL IN THE BASE OF THE FORM OR ON ANY R-BAR.
8. ALL PRE-CAST WILL BE INSPECTED BY BOTH THE CONTRACTOR AND THE RESIDENT ENGINEER AND DOCUMENTED ON THE POST POUR INSPECTION SHEET.
9. CURE WILL MEET THE REQUIREMENTS OF SECTION 501.17
 PORTABLE BRIDGE UNIT DIMENSIONAL TOLERANCES
 +/- 1/4" - REINFORCING PLACEMENT +/- 1/4" COVER AND CLEARANCE 1" BAR SPACING.
 LENGTH (EACH UNIT) +/- 3/4" (LENGTH OF ADJACENT UNITS SHOULDN'T VARY BY MORE THAN 3/4")
 WIDTH +/- 3/8"
 DEVIATION FROM DIAGONALS +/- 3/4" (HORIZONTAL)
 DEVIATION SQUARENESS OR SKEW +/- 3/4"
 HORIZONTAL ALIGNMENT +/- 3/8"
10. FIELD INSTALLATION TOLERANCES:
 VERTICAL DEVIATION BETWEEN UNITS PRIOR TO GROUTING- +/- 1/4" (VERTICAL DEVIATIONS EXCEEDING 1/4" SHALL BE GROUND WITH DIAMOND CUP WHEELS OR OTHER MECHANICAL METHODS). THE CASTING OF ALL PBU UNITS WILL HAPPEN SIMULTANEOUSLY WITH A SINGLE SCREED MACHINE SPANNING THE ENTIRE WIDTH OF PBU 1-4. THIS SHOULD MINIMIZE ANY IRREGULARITIES IN THE JOINTS DEVIATION IN JOINT WITH- +/- 3/8".
11. EACH PIECE OF PRE-CAST SHALL BE MARKED WITH ITS UNIT NUMBER AND CASTING DATE.
12. CURING WILL MEET THE REQUIREMENTS OF SUBSECTION 501.17 (2) BURLAP CURE. PLACEMENT OF BURLAP WILL FOLLOW THE PROGRESS OF THE SCREED MACHINE FROM A WORK-PLATFORM WITH A LAG TIME NOT TO EXCEED 10 MINUTES. CRB WILL HAVE A POWER WASHER ON SITE FOR THE PURPOSE OF FOGGING AS NECESSARY. THE PROJECT SUPERINTENDENT WILL BE RESPONSIBLE FOR MONITORING THE CURE. ANY ADJUSTMENTS REQUIRED OR REQUESTED BY THE RESIDENT ENGINEER WILL BE MADE TO MAINTAIN THE PROPER CURING OF THE PBU UNITS. CRB WILL CHECK THE CURE DAILY INCLUDING WEEKENDS AND OTHER NON-WORKING DAYS. ALL CURING ACTIVITIES WILL BE DOCUMENTED ON THE CONTRACTORS DAILY REPORT.
13. CONCRETE FINISHING:
 PBU FINISH WILL BE VIBRATORY SCREED FINISH. THE MORRISON SCREED WILL SPAN THE ENTIRE WIDTH OF THE PBU UNITS AND WILL RESIDE ON THE FASCIA PANELS. DRY RUNS WILL BE PERFORMED AND ADJUSTMENTS WILL BE MADE TO THE SCREED TO THE SATISFACTION OF THE ENGINEER. TOLERANCE FOR SCREED MACHINE +/- 1/4". HAND FINISHING WILL BE ALLOWED ONLY WERE IT IS NOT POSSIBLE TO USE THE SCREED MACHINE. MAGNESIUM BULL FLOATS IF NECESSARY WILL BE USED FROM A WORK BRIDGE POSITIONED BEHIND THE SCREED TO REMOVE ANY IRREGULARITIES IN THE CONCRETES SURFACE.

REPAIR OF UNITS

1. MINOR DEFECTS IN THE PBU UNITS SHALL BE FIXED USING AN OVERHEAD AND VERTICAL REPAIR MATERIAL FROM THE VERMONT AGENCY OF TRANSPORTATION APPROVED PRODUCTS LIST.
2. CRACKING .01" OR LESS SHALL BE SEALED WITH A PENETRATING SEALING FROM THE VERMONT AGENCY OF TRANSPORTATION APPROVED PRODUCTS LIST.
3. CRACK WIDTHS MEASURING .01"-.08" SHALL BE FILLED WITH AN EPOXY INJECTED CRACK FILLER FROM VERMONT AGENCY OF TRANSPORTATION APPROVED PRODUCT LIST.
4. PRODUCTION SITE HANDLING UNITS SHALL NOT BE LIFTED OR MOVED UNTIL DESIGN STRENGTH HAS BEEN MET.

PRE-ASSEMBLY:

LUCK BROTHERS, INC. WILL BE CASTING THE PBU UNITS OFF SITE. EACH UNIT WILL BE CONSTRUCTED IN A CASTING YARD APPROXIMATELY 2 MILES FROM THE SITE. PBU UNITS WILL BE CAST SIMULTANEOUSLY. THE UNIT WILL BE CAST AT THE SAME TIME WITH ONLY 19" BETWEEN BULK-HEADS. PRE-ASSEMBLY WILL NOT BE REQUIRED.

SHIPPING AND HANDLING:

PBU UNITS WILL BE CONSTRUCTED OFF SITE AND MOVED INTO PLACE ON TRAILERS. THE PBU UNITS WILL BE INSTALLED WITH CRANES AS PER ERECTION PLAN UNDER SEPARATE COVER. DO TO TIME RESTRICTIONS DURING THE BCP ANY REPAIR WORK (IF NEEDED) WILL BE REPAIRED BEFORE THE PBU UNIT ARE IN FINAL PLACEMENT. REPAIRS PRIOR TO FINAL PLACEMENT OF PBU'S DOES NOT RELIEVE THE CONTRACTOR FROM REPAIRING DEFECTS OR DAMAGE (IF NECESSARY) TO THE PBU'S DURING PLACEMENT AND SUBSEQUENT CONSTRUCTION ACTIVITIES.

ROBERT M. SUTHERLAND, P.C.
 ENGINEERS-SURVEYORS-MATERIAL TESTING
 PLATTSBURGH NEW YORK

REV	REVISION	DATE

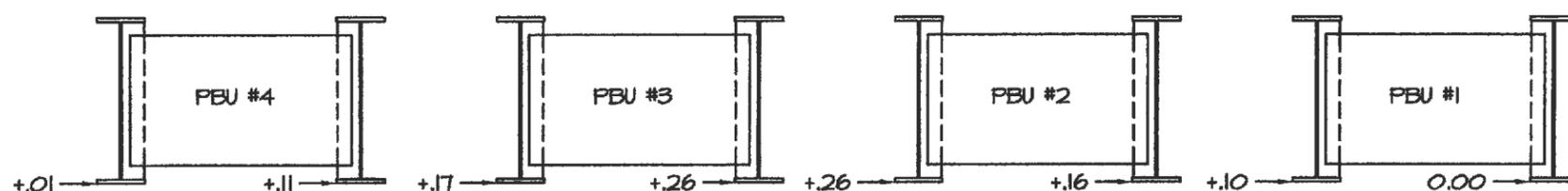
REVISIONS

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 013-4(32)
 VT ROUTE 100
 WARREN, VT

CLIENT
 LUCK BROTHERS, INC.
 TRADE ROAD
 PLATTSBURGH, NY 12901

SHEET TITLE
 QUALITY CONTROL
 PROCEDURES/PLAN

DRAWN BY: KTW
 CHECKED BY: TL
 DATE: 04/28/14
 SHEET NO:



BEARING ADJUSTMENT FOR CASTING BED

- CASTING SEQUENCE:
1. POUR 6" THICK BY 4' WIDE CONCRETE PAD AT ENDS ON COMPACTED SUBGRADE
 2. PLACE 12" H-PILE ON CONCRETE PAD
 3. SET INDIVIDUAL PLATE GIRDERS, SHIM TO GRADE.
 4. BOLT AND TORQUE INDIVIDUAL PBU SECTIONS
 5. PROFILE INDIVIDUAL GIRDERS
 6. TIE R-BAR, BUILD BULKHEADS PBU-UNITS 1-4
 7. SET SCREED, TEST RUN
 8. CAST PBU DECK SECTIONS 1-4 SIMULTANEOUSLY

REV	REVISION	DATE

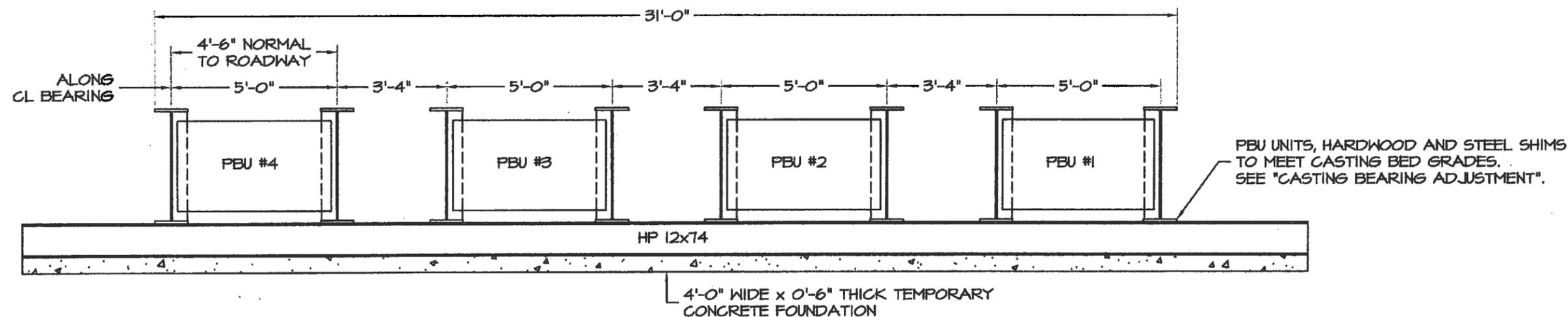
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 WARREN BRIDGE
 013-4(32)
 VT ROUTE 100
 WARREN, VT

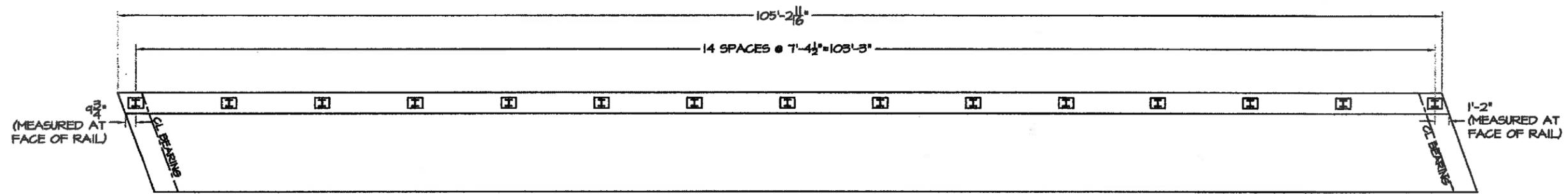
CLIENT
 LUCK BROTHERS, INC.
 TRADE ROAD
 PLATTSBURGH, NY 12901

SHEET TITLE
 PRE-CAST BRIDGE UNIT
 PBU-CASTING PLAN

DRAWN BY: KTW
 CHECKED BY: TL
 DATE: 04/28/14
 SHEET NO:



ROBERT M. SUTHERLAND, P.C.
 ENGINEERS-SURVEYORS-MATERIAL TESTING
 PLATTSBURGH NEW YORK



REV	REVISION	DATE

REVISIONS

PROJECT
 WARREN BR
 013-4(32)
 VT ROUTE 100
 WARREN, VT

CLIENT
 LUCK BROTHERS, INC.
 TRADE ROAD
 PLATTSBURGH, NY 12901

SHEET TITLE
 PRE-CAST BRIDGE UNIT
 ANCHORAGE LAYOUT

DRAWN BY: KTW
 CHECKED BY: TL
 DATE: 04/28/14
 SHEET NO: