

**A OVERVIEW**

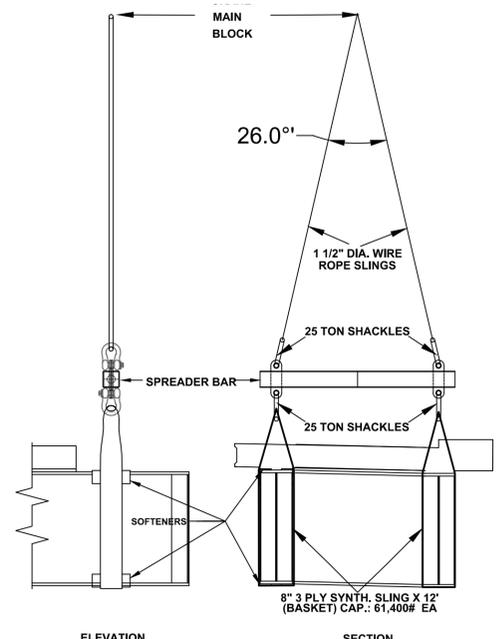
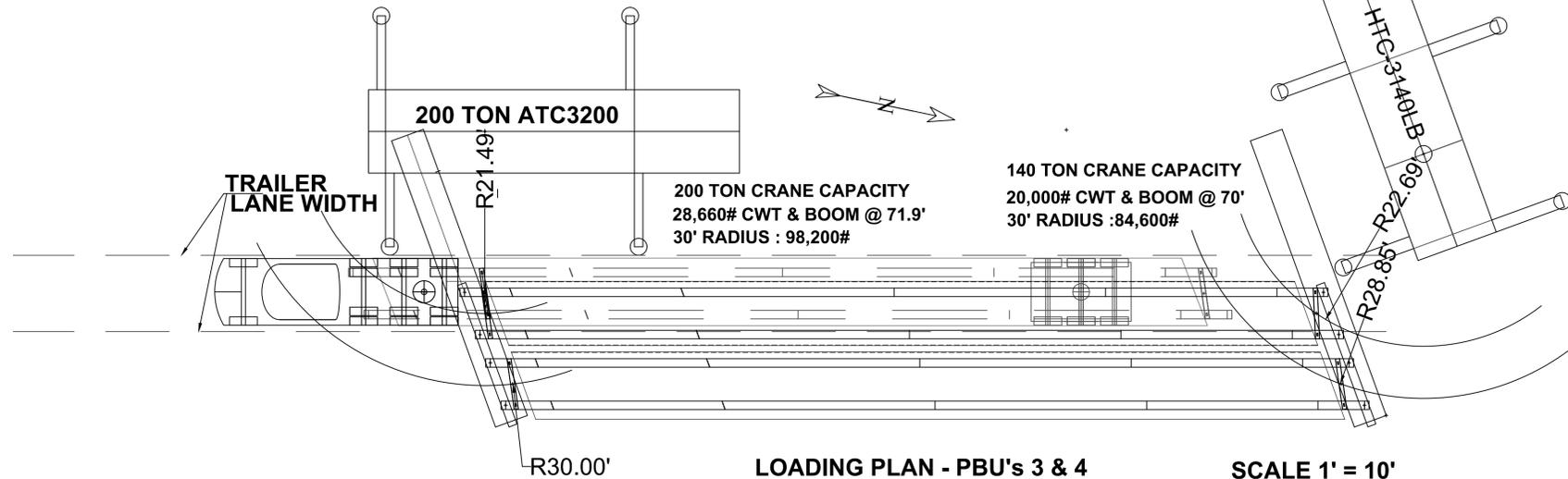
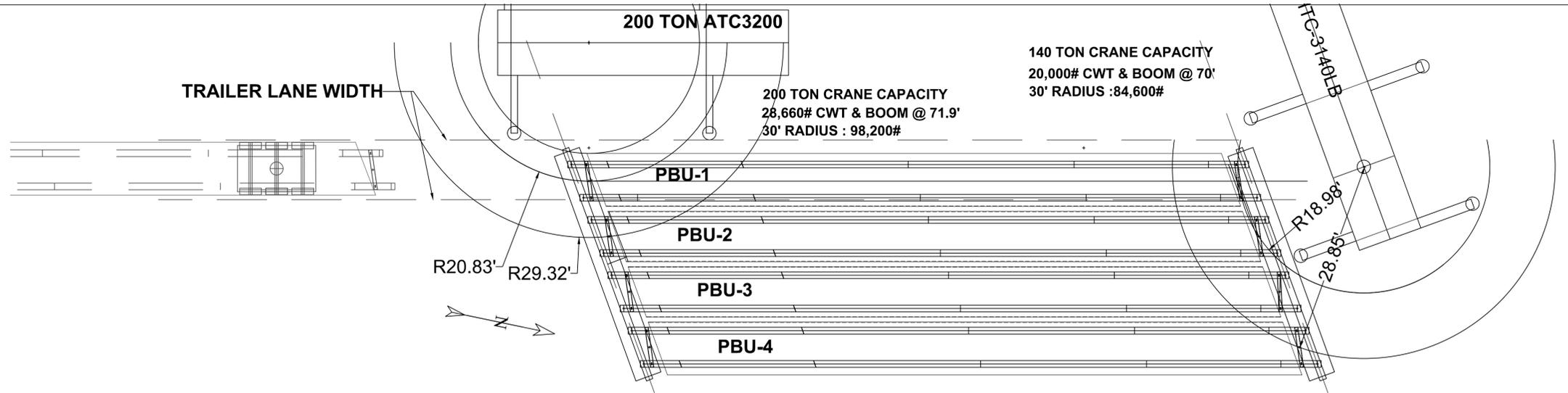
- THIS PLAN DEPICTS ERECTION PRECAST BRIDGE UNITS (PBU) FOR WARREN BR# 013-4(32) ON US ROUTE 100 OVER MAD RIVER IN TOWN OF WARREN VT. THE STRUCTURE CONSISTS OF A SINGLE SPAN AND INCLUDES 4 PREFABRICATED UNIT SECTIONS.
- 2 CRANES WILL BE USED FOR THE ERECTION. AN HTC-3140LB LINK-BELT 140 TON HYDRAULIC CRANE WITH 60,000# COUNTERWEIGHT AND BOOM LENGTH SET AT 55 FT. WILL BE SET-UP ON THE SOUTH APPROACH AS SHOWN ON THE PLAN. AN ACT 3200 LINK-BELT 200 TON CRANE WITH 55,115# COUNTERWEIGHT AND BOOM LENGTH SET AT 71.9 FT. WILL BE SET UP ON THE NORTH APPROACH AS SHOWN ON THE PLAN. PBU'S WILL BE DELIVERED FROM THE NORTH WITH PIECE MARKS ON THE DOLLY END OF THE DELIVERY TRANSPORTS.
- RIGGING FOR ALL GIRDERS WILL BE THE SAME FOR ALL CRANES AND ALL LIFTS AS DEPICTED IN THE RIGGING DETAILS ON SHEET EP-1.

**B MISCELLANEOUS NOTES:**

- ALL WORK WILL BE DONE IN ACCORDANCE WITH OSHA REGULATIONS
- DON DROLLETTE, THE CONTRACTOR'S M&P PERSON WILL HAVE THE RESPONSIBILITY TO ASSURE THAT ALL CONDITIONS OF THE MUTCD AND PROJECT SPECIFICATIONS ARE MAINTAINED DURING THE ERECTION PROCEDURE
- ALL PERSONNEL WILL WEAR APPROPRIATE PROTECTION EQUIPMENT.
- FALL PROTECTION:
  - ALL PERSONNEL WILL BE TIED OFF WITH FULL SAFETY GEAR PER LATEST OSHA STANDARDS AT ANY POINT OF EXPOSURE DURING THE ERECTION PROCEDURE
  - AFTER ERECTION OF THE STRUCTURE, ANY TEMPORARY WALKWAY FOR WORKERS WILL HAVE OSHA APPROVED HANDRAILS. SUCH WALKWAYS WILL BE CLOSED TO THE GENERAL PUBLIC.
- ALL RIGGING (SHACKLES, SLINGS AND CLAMPS) SHALL BE OF AN APPROPRIATE RATING FOR THE PICKS BEING MADE.
- PRIOR TO THE ERECTION, A PRE-LIFT MEETING WILL BE HELD BY LUCK BROS SAFETY OFFICER GARY MORROW.
- BEFORE HOISTING OPERATIONS, ONE PERSON SHALL BE APPOINTED "GROUND DIRECTOR" (GD) AND ONLY HE SHALL BE RESPONSIBLE FOR OVERALL DIRECTION AND COMMUNICATION WITH THE CRANE OPERATORS. ALL EMPLOYEES SHALL BE MADE AWARE THAT THIS PERSON IS DON DROLLETTE OF LUCK BROS..
- THE GROUND DIRECTOR (GD) WILL HOLD SAFETY MEETINGS AT EVERY POINT OF A NEW ITEM OF WORK DURING THE ERECTION PROCEDURE.
- NO CRANE SHALL BE OPERATED IN A MANNER THAT WILL EXCEED ITS RATED CAPACITY AT A RADIUS AS SHOWN BY THE MANUFACTURER. BOTH CRANES USED FOR THIS ERECTION HAVE OPERATIONAL SAFETY DEVICES INCLUDING A: "LOAD AND RADIUS MEASURING DEVICES PRE-PROGRAMMED TO CONTINUOUSLY RELATE THE MEASURED DATA TO THE LOAD RADIUS CHART AS A DIRECT READING OF LOAD OR PERCENTAGE OF THE RATED LOAD, AND CONNECTED TO A WARNING LIGHT AND AN ACOUSTICAL SIGNAL LOCATED AT THE OPERATOR'S POSITION OR IN THE CAB TO INDICATE OVERLOAD", AND B: DEVICES "THAT CONTINUOUSLY INDICATE THE LEVELNESS OF THE MACHINE AND IS VISIBLE FROM THE OPERATOR'S CONTROLS."

**C ERECTION SEQUENCE**

- PBU WILL BE LOADED ONTO TRANSPORTS AT THE CASTING BED AREA AS DEPICTED ON SHEET EP-1
- CRANES WILL PBU TO CLEAR DOLLIES AND TRACTOR BED AND TRANSPORT WILL BE BACKED UNDER THE PBU AND LOWERED ON THE TRANSPORT. RESTRAINTS WILL BE ATTACHED TO EACH END OF THE PBU, USING SOFTENERS TO PROTECT EDGES OF THE CONCRETE DECK.
- PBU UNITS WILL BE TRANSPORTED TO RT 100 AND BACKED SOUTHERLY TO THE PROJECT SITE.
- A SLIDER BEAM WILL BE USED TO MOVE THE PBU'S ACROSS THE NEW SPAN AND WILL BE LOCATED AS SHOWN ON EP-2
- THE FIRST UNIT TO BE ERECTED WILL BE PBU-1. UNIT WILL BE BACKED TO THE EAST SIDE OF THE NORTH CRANE. RIGGING WILL BE ATTACHED TO SOUTH END BEARING LOCATIONS AND CRANE WILL BE HOOKED. NORTH CRANE WILL LIFT THE SOUTH END OF THE BEAM CLEAR OF THE DOLLY, AND CONCURRENTLY WITH THE TRACTOR, MOVE THE BEAM SOUTHERLY TO THE CARRAGE OF THE SLIDER BEAM. THE PBU WILL BE LOWERED ONTO AND BOUND TO THE SLIDER CARRAGE AND THE CRANE WILL BE RELEASED. TRACTOR WILL ADVANCE THE PBU SOUTHERLY APPROXIMATELY HALF WAY ACROSS THE SLIDER. NORTH CRANE WILL BE HOOKED TO THE NORTH END OF THE PBU AND THE UNIT WILL BE LIFTED CLEAR OF THE TRACTOR. TRACTOR HOOK TO THE DOLLY UNIT AND BE DISPATCHED FROM THE SITE.
- NORTH CRANE WILL ADVANCE PBU TOWARDS THE SOUTH CRANE RIGGING LOCATION. SOUTH CRANE WILL BE RIGGED TO THE SOUTH END AND ASSUME THE LOAD. RESTRAINTS TO CARRIAGE WILL BE REMOVED.
- SOUTH CRANE WILL HOIST SOUTH END OF PBU AND BOTH CRANES WILL SIMULTANEOUSLY SWING THE UNIT WESTERLY TO ITS INTENDED LOCATION AND LOWERED ONTO ITS RESPECTIVE LEVELING SUPPORT PLATES.
- SEQUENCE WILL BE REPEATED FOR PBU-2 AND PBU-3.
- PBU-4 WILL USE SAME SEQUENCE EXCEPT THAT IT WILL BE TEMPORARY RESTED ON BLOCKING PLACED ON PREVIOUSLY SET UNITS.
- SLIDER BEAM WILL BE REMOVED.
- PBU-4 WILL BE RE-RIGGED, HOISTED AND PLACED ON ITS BEARING LOCATIONS.



Boom Radius FT	Lifting Capacities (x 1000 lbs) on fully extended outriggers, 360° rotation											
	BOOM LENGTH (FEET)											
	43.3	57.7	71.9	86.3	100.4	114.0	128.9	143.3	157.5	171.9	186.0	196.9
10.0	306.0	364.5	255.0	196.5								
12.0	277.5	384.5	255.0	196.5	162.5							
14.0	258.5	256.0	252.5	196.5	156.0							
16.0	233.0	233.5	231.5	196.5	145.5	121.5						
18.0	208.5	208.5	207.0	192.5	136.5	119.5						
20.0	186.5	186.0	187.0	185.5	128.0	117.0	91.3	73.6				
25.0	148.0	147.5	148.5	147.0	111.0	102.0	91.3	73.6	59.3			
30.0	120.4	120.0	122.0	117.5	97.5	96.5	83.9	73.3	59.3	47.8	37.5	
35.0	93.8	95.0	91.5	85.2	80.8	75.3	68.3	58.0	47.0	37.5	30.9	
40.0	74.8	77.0	75.2	77.2	76.3	67.8	61.7	54.9	45.7	37.4	30.9	
45.0	61.2	63.2	64.1	67.1	65.7	59.7	56.5	51.2	42.9	36.3	30.9	
50.0	53.0	56.8	57.2	55.6	51.8	49.4	47.9	40.1	34.4	30.9	30.9	
55.0		47.6	49.5	48.7	47.1	44.7	42.8	42.8	37.7	32.4	30.9	
60.0		42.2	42.6	41.9	40.2	39.5	37.2	36.3	35.4	30.5	28.4	
65.0		37.1	36.4	35.0	36.1	33.1	32.9	32.3	28.9	27.1		
70.0		32.7	32.2	30.7	32.2	28.9	29.1	29.0	27.5	25.7		
75.0		28.5	28.5	27.0	28.5	26.7	26.0	25.9	25.3	24.3		
80.0			25.3	23.8	25.3	24.8	23.7	23.8	22.5	22.7		
85.0			22.4	20.9	22.4	22.8	22.3	22.1	19.8	21.6		
90.0			19.6	19.9	20.1	20.8	20.7	20.3	18.0	18.9		
95.0			19.1	17.9	18.8	18.9	18.5	18.5	16.5	16.8		
100.0			18.3	16.4	14.5	17.2	16.6	15.0	15.2			
110.0					14.3	12.0	14.4	13.3	12.1	12.2		
120.0						12.4	11.5	10.7	9.5	9.5		
130.0							10.2	9.3	8.4	7.3	7.3	
140.0								7.4	6.6	5.4	5.4	
150.0									5.0	4.1	4.1	
160.0										3.9	2.4	2.4

Boom Radius FT	Lifting Capacities (lbs) on fully extended outriggers, 360° rotation																						
	BOOM LENGTH (FEET)																						
	42	55	70	85	100	115	130	145	160														
9.0	280,000																						
10.0	264,900	157,100	151,700																				
12.0	240,000	157,100	144,800																				
15.0	204,500	157,100	137,400	110,100																			
20.0	151,600	152,200	118,300	106,500	80,700	61,300																	
25.0	118,800	122,200	103,700	93,500	77,100	61,300	49,400																
30.0	96,400	99,900	92,100	73,200	67,900	61,300	47,400	41,000	35,500														
35.0		83,800	82,900	74,700	65,000	61,300	45,500	41,000	35,500														
40.0			72,200	67,700	62,400	52,000	40,800	10,300	35,500														
45.0				62,600	64,600	61,900	57,000	47,500	36,800	33,000													
50.0					56,400	54,800	52,400	43,500	33,300	33,700	30,000												
55.0						48,500	49,000	48,400	40,200	30,300	31,000	27,300											
60.0							42,700	42,200	36,000	27,600	28,600	24,900											
65.0								37,500	37,100	32,000	25,400	23,100											
70.0									33,300	33,000	28,500	23,600	24,500	21,500									
75.0										29,800	29,400	25,400	22,000	22,800	20,100								
80.0											26,300	22,800	20,600	21,200	18,800								
85.0												21,400	20,500	19,300	19,800	17,700							
90.0													18,500	18,000	18,400	16,600							
95.0														17,300	16,900	17,100	15,600						
100.0															16,300	15,900	16,000	14,700					
105.0																15,000	14,900	13,800					
110.0																	14,100	13,800	13,000				
115.0																		13,400	12,500	12,300			
120.0																			12,800	11,900	11,600		
125.0																				11,300	11,000		
130.0																					10,700	10,400	
135.0																						10,100	9,900
140.0																							9,300
145.0																							8,600
150.0																							7,900

UNIT ID	UNIT WT (#)*	PER CRANE RIGGED WT.** (#)	SOUTH CRANE MAX. LIFT RADIUS	SOUTH CRANE CAPACITY @ MAX LIFT RADIUS	SOUTH CRANE FACTOR OF SAFETY	NORTH CRANE MAX. LIFT RADIUS	NORTH CRANE CAPACITY @ MAX. LIFT RADIUS	NORTH CRANE FACTOR OF SAFETY
PBU-1	125984	67992	35	83800	1.23	35	96000	1.41
PBU-2	116317	63158	35	83800	1.33	35	96000	1.52
PBU-3	116317	63158	35	83800	1.33	35	96000	1.52
PBU-4	125984	67992	35	83800	1.23	35	96000	1.41

\*INCLUDES GIRDER ASSEMBLIES, CONCRETE, REINFORCEMENT, STUD SHEARS + 1000 LB MISC ACCESSORIES  
 \*\* 1/2 TOTAL UNIT WEIGHT + 5000 RIGGING ALLOWANCE

No.	Date	Description
Revisions		



Contractor: Luck Bros., Inc. 73 Trade Rd. Plattsburgh, NY 12901

Erecting Contractor: Luck Bros., Inc. 73 Trade Rd. Plattsburgh, NY 12901

Steel Fabricator: Casco Bay Steel Structures Inc. 1 Wallace Ave. S. Portland ME 04106

Project: Warren BR# 013-4(32)

BRIDGE NO. 166

Designed by: DFB Date: 06/05/2014

Scale: AS NOTED

Checked by: TL

Approved by: TL

Drawing No.: EP-1

PBU ERECTION PROCEDURE