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Submittal Data Sheet

Submittal #: 7

Submission #: 1

Date: 4/28/2015

Project Name: Randolph BRO (1444) Bridge Replacement

Owner: Town of Randolph, VT

Engineer: VTrans

Contractor: J.P. Sicard, Inc.

Item Number: 900.64 Special Provision (Prestressed Concrete NEXT D Beams), 540.10 Precast Concrete Structure (Abutments)

Supplier: CCS Constructors, Inc.

Description of Item: Erection Plan

Substitution: NO

Engineers Review Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Submitted By: Brad Drake

Title: Project Manager

Company: JP Sicard, Inc.



# CCS Constructors Inc.

Supply & Erect Structural Steel and Precast  
Crane Service Rigging Pile Driving Heavy Hauling



**Erection Plan for Precast Concrete NEXT BEAMS and**  
**Abutments**  
**Randolph, VT**  
**BRO 1444(16)**  
**April 27, 2015**



### **General Requirements:**

The erection shall not be performed during windy or heavy rain conditions. A Grove GMK5275 truck crane will be used for the erection.

The units shall be picked from the locations and lifting apparatus shown in the J.P. Carrara & Sons Inc. shop drawings, and shall be installed according to the manufacturer's requirements and project specifications. Each Next Beam unit is to be picked from (4) locations. See below for rigging sizes, which are minimum; slightly larger rigging is permissible.

The maximum permissible crane radius for unloading and setting the Next Beam units is shown on layout drawing, and shall not be exceeded.

The Grove GMK5275 shall setup with 169,700 lbs. counterweights. See the attached layout drawing for crane setup location information and additional requirements. The sub-base beneath the cranes shall be firmly compacted structural backfill.

Cranes shall have operators in them at all times while lifting NEXT beams (beams shall not be left supported by cranes during breaks or overnight).

### **Abutment and Wing Wall Placement:**

Abutment 1 precast abutment erection will be done using the Grove GMK5275 crane with 169,700 lbs. counterweights, sitting east of abutment 2. Trucks with precast units are to approach from the east. The maximum crane radius shall be 75'. The maximum pick weight is 47,920 lbs. The setting sequence and procedure are to be the same as used at Abutment 2. JP Sicard will have the option to set the wingalls with their excavator.



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Supply & Erect Structural Steel and Precast  
Crane Service Rigging Pile Driving Heavy Hauling



- Sequence:  
 Set PR-AB2.  
 Set PR-AB1,  
 Set PR-WW1.  
 Set PR-WW2.

Abutment 2 precast abutment erection will be done using a Grove GMK5275 with 169,700 lbs. counterweights sitting behind (east of) the abutment. Trucks carrying the precast units will approach from the east. The maximum crane radius shall be 45'. The maximum abutment piece pick weight is 47,920 lbs. JP Sicard will have the option to set the wingalls with their excavator.

- Sequence:  
 Set PR-AB 3.  
 Set PR-AB 4.  
 Set PR-WW3.  
 Set P R-WW4.

Unload PR-WW 3 and place on the ground to be set using Grove GMK5275

### GMK5275, single crane pick:

#### NEXT BEAMS

- Four (4) 53 Kip round slings x 40' long from crane hook
- To (4) 25 Ton screw type shackles
- To (4) 1.5" 42 Kip 6 x 19 Steel chokers 12'  
(for forming 52' long rigging, spanning from the crane hook to the Next Beam lifter pick points)
- To (4) 25 Ton Shackles to attach to Next Beam lifters (by NEXT beam manufacturer)

#### Abutments and Wingwalls

- (2) 1.5" 42 Kip 6 x 19 Steel chokers 12'
- To (2) 17 Ton screw type shackles

Digitally signed by Andrew  
White  
Date: 2015.04.28 07:29:53 -04'00'



# CCS Constructors, Inc.

Munson Avenue  
Morrisville, Vermont 05661  
(802) 888-7701

JOB NAME Randolph BRO 1444 (57)

SHEET NO. 1 of 1

DATE April 27, 2015

BY Sam Davis

## NB 1, 2

Item:	<u>QTY</u>	<u>Wt Each</u>	<u>Total Wt.</u>
Precast Next Beam 1 & 2	1	98.32 k	98.320 k
35T Shackles	4	0.05 k	0.200 k
40' - FG3150 Round Slings	4	0.144 k	0.576 k
12' -1.5" Steel Chokers	4	0.05 k	0.200 k
Load Line	1	0.6 k	0.600 k
Load Block	1	5 k	5.000 k
Total Weight:			<b>104.896 k</b>

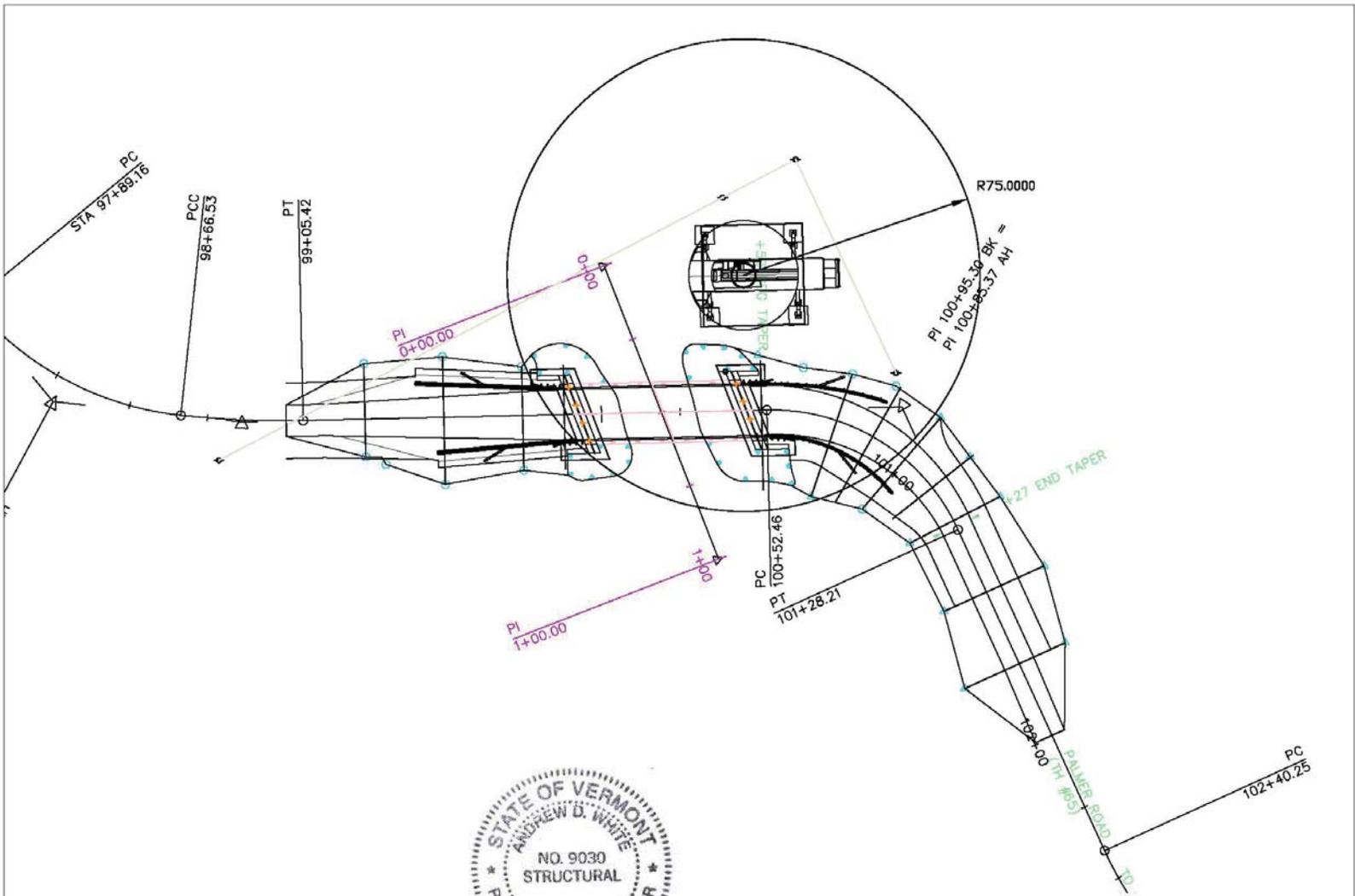
**GMK5275 RADIUS= 45', 106.0 K CAPACITY, 104' BOOM**

## ABUTMENTS & WING WALLS

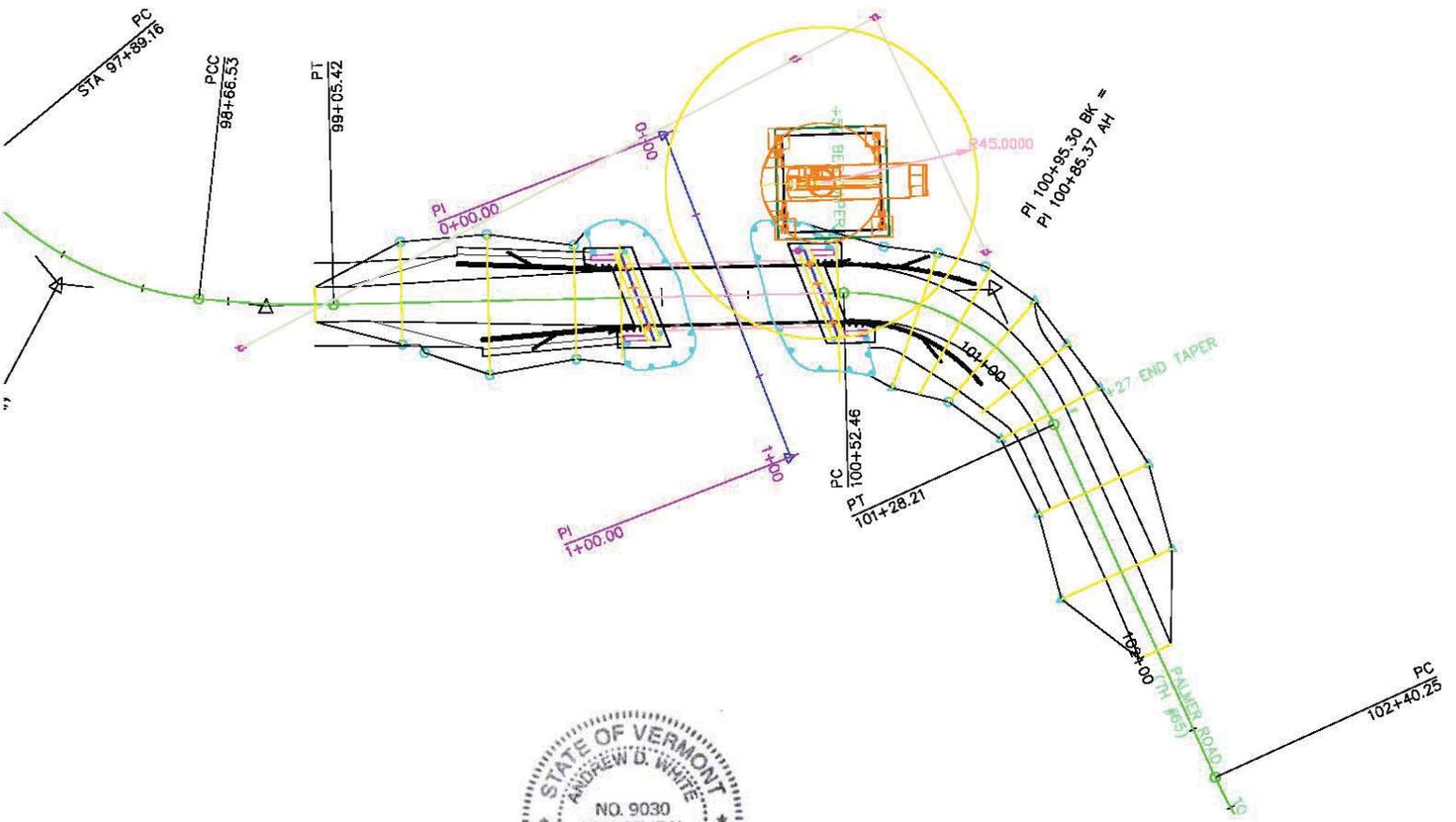
Item:	<u>QTY</u>	<u>Wt Each</u>	<u>Total Wt.</u>
PR AB2 (heaviest)	1	47.92 k	47.920 k
17t Shackles	4	0.172 k	0.688 k
12' -1.5" Steel Chokers	4	0.05 k	0.200 k
Load Line	1	0.6 k	0.600 k
Load Block	1	2.5 k	2.500 k
Total Weight:			<b>51.908 k</b>

**GMK5275 RADIUS= 75', 61.0K CAPACITY, 119' BOOM**

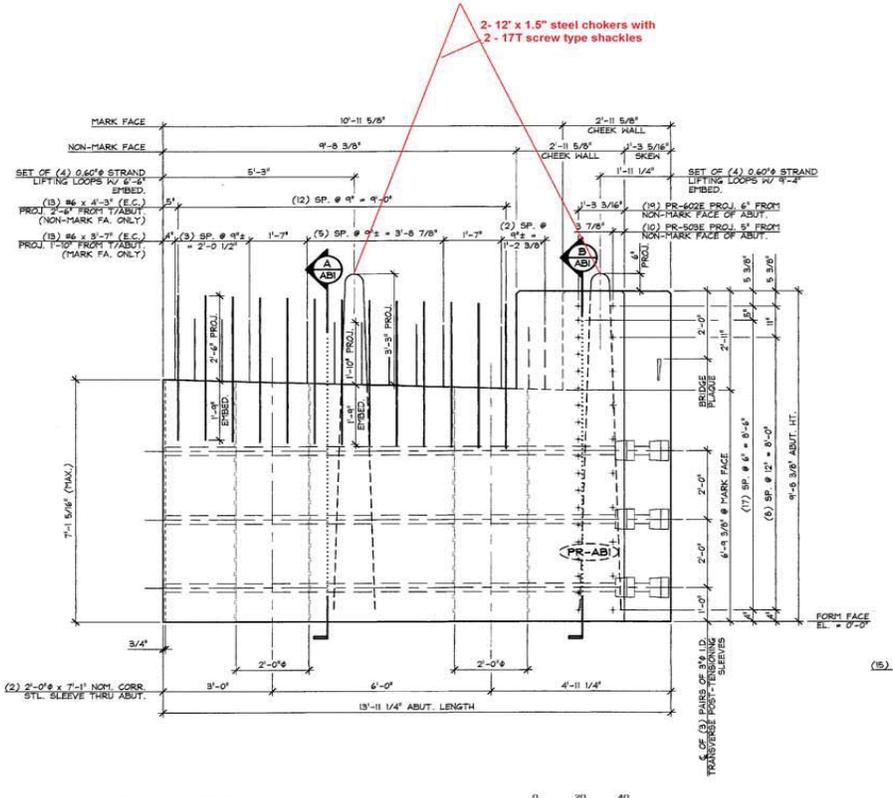




CCS CONSTRUCTORS, INC 138 MUNSON AVE MORRISVILLE, VT 05661 PH 802-888-7701 FX 802-888-4746	PROJECT NAME RANDOLPH	PROJECT NO. BRO1444(57)
	ABUTMENT CRANE LAYOUT SCALE: NTS	DATE: APRIL 24, 2015



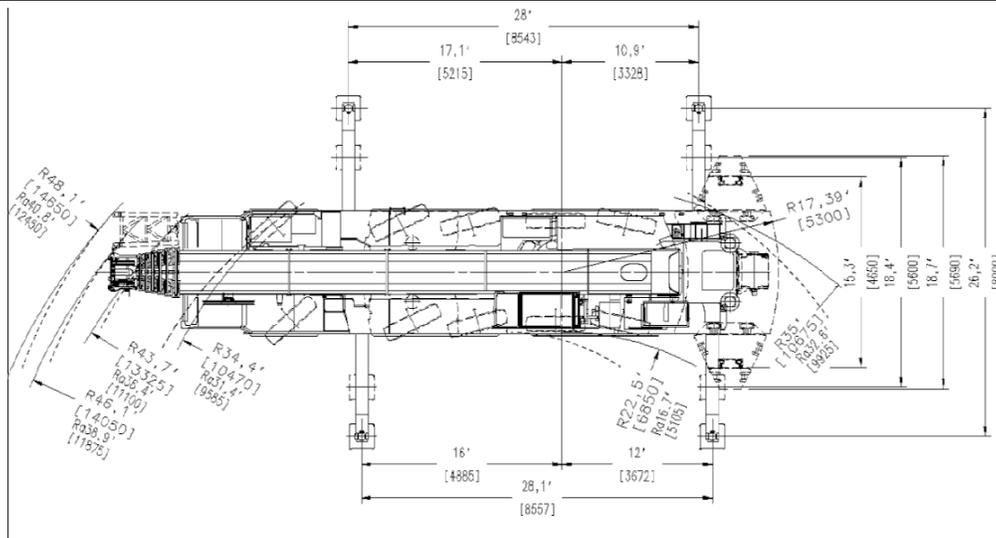
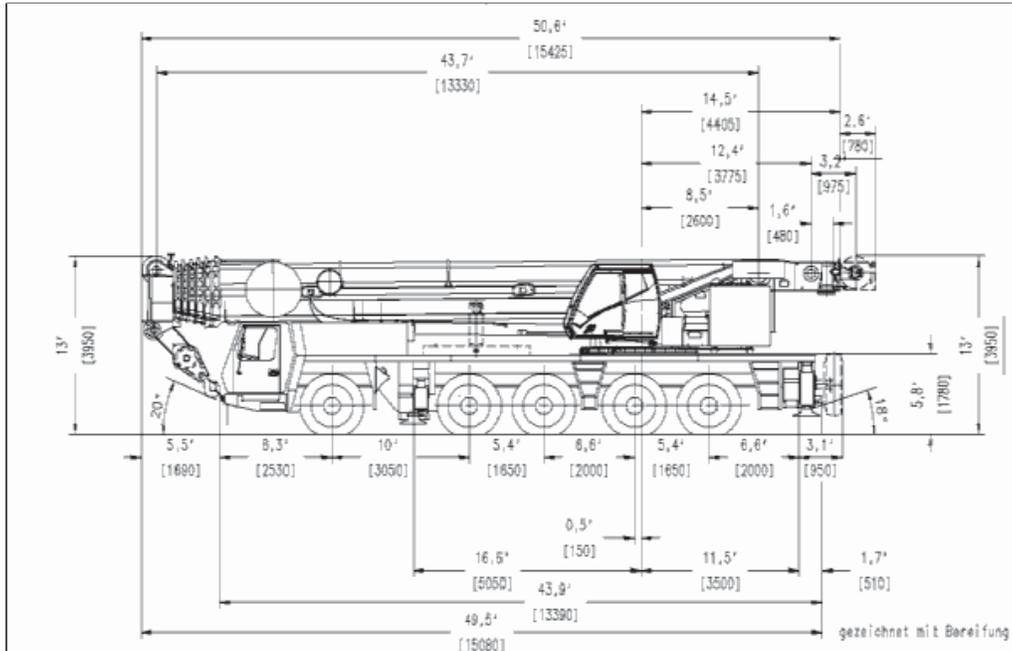
<b>CCS CONSTRUCTORS, INC</b> 138 MUNSON AVE MORRISVILLE, VT 05661 PH 802-888-7701 FX 802-888-4746	<b>PROJECT NAME</b> RANDOLPH		<b>PROJECT NO.</b> BRO1444(57)
	NEXT BEAM CRANE LAYOUT		<b>SK-2</b>
	<b>SCALE:</b> NTS	<b>DATE:</b> APRIL 24, 2015	



CCS CONSTRUCTORS, INC 138 MUNSON AVE MORRISVILLE, VT 05661 PH 802-888-7701 FX 802-888-4746	PROJECT NAME	PROJECT NO.
	RANDOLPH	BRO1444(57)
	ABUTMENT RIGGING PLAN	SK-3
	SCALE: NTS	

# Weights & Dimensions

## European Version



Width is 26'-6"  
Center/Center  
Rear Outriggers  
Plus 5' x 5' steel plates,  
allow 32' x 32' crane pad

3 119 100

	Crane with 169 700 lbs ( 77 t) counterweight									
	Outrigger base - length 28.1 ft - width 26.6 ft									
	Main boom - fixed length in ft									
	87.3	87.9	88.5	88.8	89.3	102.1	102.2	102.9	103.7	104.2
Tel. sec. I	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.50
Tel. sec. II	0.00	0.00	0.00	0.50	0.50	0.00	0.00	0.00	0.50	0.50
Tel. sec. III	0.00	0.00	0.50	0.50	0.50	0.00	0.00	0.50	0.50	0.50
Tel. sec. IV	0.00	0.50	0.50	0.50	0.00	0.00	0.50	0.50	0.50	0.50
Tel. sec. V	0.50	0.50	0.50	0.00	0.00	1.00	0.50	0.50	0.50	0.00
Tel. sec. VI	1.00	0.50	0.00	0.00	0.00	1.00	1.00	0.50	0.00	0.00
Slewing range	360°									
Radius in feet	Lifting capacities in 1000 lbs									
10.0	81.0	116.0	146.0	185.0	244.0					
15.0	78.0	116.0	146.0	185.0	242.0	70.0	81.0	116.0	146.0	185.0
20.0	66.0	107.0	146.0	180.0	212.0	59.0	72.0	115.0	146.0	182.0
25.0	57.0	94.0	126.0	157.0	181.0	51.0	63.0	102.0	137.0	166.0
30.0	50.0	84.0	111.0	138.0	155.0	45.0	56.0	92.0	122.0	151.0
35.0	44.0	75.0	98.0	123.0	135.0	39.4	50.0	83.0	110.0	136.0
40.0	39.4	68.0	88.0	110.0	118.0	35.4	45.0	76.0	99.0	120.0
45.0	36.0	62.0	79.0	99.0	104.0	32.2	40.8	70.0	90.0	106.0
50.0	33.0	57.0	72.0	90.0	93.0	29.4	37.6	65.0	82.0	95.0
55.0	30.6	53.0	66.0	82.0	84.0	27.2	34.8	60.0	75.0	85.0
60.0	28.2	50.0	61.0	76.0	75.0	25.0	32.4	56.0	69.0	77.0
65.0	26.4	47.0	57.0	70.0	69.0	23.2	30.4	52.0	63.0	70.0
70.0	24.8	43.6	53.0	63.0	60.0	21.0	28.4	48.0	59.0	64.0
75.0			50.0	50.0	48.0	19.2	26.8	45.0	55.0	58.0
80.0						18.0	25.4	41.6	52.0	53.0
85.0						17.0	24.2	39.2	49.0	46.0
90.0						16.2	22.2	37.2	39.2	36.8
SLI Code	2200									
Max. permitted windspeed	14 m/s			11 m/s	10 m/s	14 m/s			11 m/s	9 m/s

	Crane with 169 700 lbs ( 77 t ) counterweight								
	Outrigger base - length 28.1 ft - width 26.6 ft								
	Main boom - fixed length in ft								
	117.1	117.2	118.0	119.1	132.0	132.4	133.4	134.5	
Tel. sec. I	0.00	0.00	0.00	0.50	0.00	0.00	0.50	1.00	
Tel. sec. II	0.00	0.00	0.50	0.50	0.00	0.50	0.50	0.50	
Tel. sec. III	0.00	0.50	0.50	0.50	0.00	0.50	0.50	0.50	
Tel. sec. IV	0.50	0.50	0.50	0.50	1.00	0.50	0.50	0.50	
Tel. sec. V	1.00	0.50	0.50	0.50	1.00	0.50	0.50	0.50	
Tel. sec. VI	1.00	1.00	0.50	0.00	1.00	1.00	0.50	0.00	
Slewing range	360°								
Radius in feet	Lifting capacities in 1000 lbs								
20.0	62.0	76.0	116.0	144.0	61.0	78.0	106.0	106.0	
25.0	55.0	67.0	108.0	140.0	56.0	71.0	106.0	106.0	
30.0	49.0	60.0	98.0	129.0	51.0	64.0	101.0	105.0	
35.0	43.6	55.0	90.0	118.0	46.0	58.0	94.0	96.0	
40.0	38.8	50.0	82.0	108.0	41.2	53.0	87.0	88.0	
45.0	35.6	46.0	76.0	99.0	38.0	49.0	81.0	80.0	
50.0	32.8	41.8	71.0	92.0	35.2	45.0	76.0	73.0	
55.0	30.2	38.6	66.0	85.0	32.6	42.0	72.0	67.0	
60.0	28.0	36.0	62.0	79.0	30.4	39.4	67.0	61.0	
65.0	26.2	33.8	58.0	72.0	28.6	37.0	63.0	56.0	
70.0	24.6	32.0	55.0	66.0	26.8	35.0	60.0	52.0	
75.0	22.6	30.2	51.0	61.0	25.0	33.2	57.0	48.0	
80.0	20.6	28.6	48.0	55.0	23.2	31.4	54.0	45.0	
85.0	19.4	27.2	46.0	51.0	20.8	30.0	51.0	41.0	
90.0	18.4	25.8	42.6	46.0	19.4	28.6	48.0	38.4	
95.0	17.4	24.8	40.2	42.4	18.4	27.4	44.0	36.2	
100.0	16.6	23.4	38.2	37.2	17.4	26.2	40.8	34.0	
105.0					16.4	25.2	37.6	32.0	
110.0					15.6	24.2	34.8	30.2	
115.0					14.8	23.4	30.4	28.0	
SLI Code	2200								
Max. permitted windspeed	14 m/s		11 m/s		9 m/s		12 m/s		9 m/s

Endless Round Slings / Polyester Type - Capacities rated in (lbs).			
Color	Vertical	Choker	Basket
Purple	2600	2100	5200
Green	5300	4200	10600
Yellow	8400	6700	16800
Tan	10600	8500	21200
Red	13200	10600	26400
White	16800	13400	33600
Blue	21200	17000	42400
Grey	31000	24800	62000
<b>Brown</b>	<b>53000</b>	42400	106000
Olive	66000	52800	132000

1 part mechanical splice IPS IWRC 6x9 & 6x37 - Rated capacities in lbs.						
Hitch Type						
Diameter	Vertical	Choke	Basket	60°	45°	30°
1/2	4,400	3,200	8,800	7,600	6,200	4,400
5/8	6,800	5,000	13,600	11,800	9,600	6,800
3/4	9,800	7,200	19,400	16,800	13,800	9,800
7/8	13,200	9,600	26,000	22,000	18,600	13,200
1	17,000	12,600	34,000	30,000	24,000	17,000
1-1/8	20,000	15,800	42,000	36,000	30,000	20,000
1-1/4	26,000	19,200	52,000	44,000	36,000	26,000
1-3/8	30,000	24,000	62,000	54,000	44,000	30,000
<b>1-1/2</b>	<b>36,000</b>	28,000	74,000	<b>64,000</b>	52,000	36,000
1-3/4	50,000	38,000	98,000	86,000	70,000	50,000
2	64,000	48,000	128,000	110,000	90,000	64,000
Multiplier → → → →				1.00	.75	.60
Sling length formula / Distance between pick points x Multiplier = Sling Length						

# Crosby® Screw Pin Shackles

## G-209 / S-209 Screw Pin Anchor Shackles

Nominal Size (in.)	Working Load Limit (t)*	Stock No.		Weight Each (lbs.)	Dimensions (in.)													Tolerance +/-	
		G-209	S-209		A	B	C	D	E	F	G	H	L	M	P	C	A		
3/16	1/3	1018357	-	.06	.38	.25	.88	.19	.60	.56	.98	1.47	.16	1.14	.19	.06	.06		
1/4	1/2	1018375	1018384	.10	.47	.31	1.13	.25	.78	.61	1.28	1.84	.19	1.43	.25	.06	.06		
5/16	3/4	1018393	1018400	.18	.53	.38	1.22	.31	.84	.75	1.47	2.09	.22	1.71	.31	.06	.06		
3/8	1	1018419	1018428	.31	.66	.44	1.44	.38	1.03	.91	1.78	2.49	.25	2.02	.38	.13	.06		
7/16	1-1/2	1018437	1018446	.38	.75	.50	1.69	.44	1.16	1.06	2.03	2.91	.31	2.37	.44	.13	.06		
1/2	2	1018455	1018464	.72	.81	.63	1.88	.50	1.31	1.19	2.31	3.28	.38	2.69	.50	.13	.06		
5/8	3-1/4	1018473	1018482	1.37	1.06	.75	2.38	.63	1.69	1.50	2.94	4.19	.44	3.34	.69	.13	.06		
3/4	4-3/4	1018491	1018507	2.35	1.25	.88	2.81	.75	2.00	1.81	3.50	4.97	.50	3.97	.81	.25	.06		
7/8	6-1/2	1018516	1018525	3.62	1.44	1.00	3.31	.88	2.28	2.09	4.03	5.83	.50	4.50	.97	.25	.06		
1	8-1/2	1018534	1018543	5.03	1.69	1.13	3.75	1.00	2.69	2.38	4.69	6.56	.56	5.13	1.06	.25	.06		
1-1/8	9-1/2	1018552	1018561	7.41	1.81	1.25	4.25	1.16	2.91	2.69	5.16	7.47	.63	5.71	1.25	.25	.06		
1-1/4	12	1018570	1018589	9.50	2.03	1.38	4.69	1.29	3.25	3.00	5.75	8.25	.69	6.25	1.38	.25	.06		
1-3/8	13-1/2	1018598	1018605	13.53	2.25	1.50	5.25	1.42	3.63	3.31	6.38	9.16	.75	6.83	1.50	.25	.13		
<b>1-1/2</b>	<b>17</b>	1018614	1018623	17.20	2.38	1.63	5.75	1.54	3.88	3.63	6.88	10.00	.81	7.33	1.62	.25	.13		
1-3/4	25	1018632	1018641	27.78	2.88	2.00	7.00	1.84	5.00	4.19	8.86	12.34	1.00	9.06	2.25	.25	.13		
<b>2</b>	<b>35</b>	1018650	1018669	45.00	3.25	2.25	7.75	2.08	5.75	4.81	9.97	13.68	1.22	10.35	2.40	.25	.13		
2-1/2	55	1018678	1018687	85.75	4.13	2.75	10.50	2.71	7.25	5.69	12.87	17.84	1.38	13.00	3.13	.25	.25		