



CONSTRUCTION LEADERS

LETTER OF TRANSMITTAL	
DATE: June 30, 2015	PCL JOB NO: 5515002
ATTN: Chris Barker	TRANSMITTAL NO: 083

To: **State of Vermont Agency of Transportation**
 One National Life Drive
 Montpelier, VT 05633-5001
 (802) 828-0053

Re: Hartford Lateral Slide
 Project No.: IM 091-2(79)
 Contract ID.: 12A132

County: Windsor

PCL FILE NO: 5515002-051

WE ARE SENDING Attached Under separate cover via **Email & SP** the following:
 Shop drawings Prints Plans Samples Specifications
 Copy of Letter Change Order Other

COPIES	SPEC.	REVISION	DESCRIPTION
1	529		Removal of Existing Structures

TRANSMITTED for as checked below:

For approval Approved as submitted Resubmit Copies for approval
 For your use Approved as noted Submit Copies for distribution
 As requested Returned for corrections Return Corrected prints
 For review and comment

Remarks:

Please return an email of this approved submittal to Erich Heymann (ewheymann@pcl.com) and Jeremy Mackling (jmackling@pcl.com).

We request the review and return of this submittal within **14 days**. Please advise if this request cannot be met so we can plan accordingly.

By: **Erich Heymann**, Project Engineer

COPY TO: Project Files



CONSTRUCTION LEADERS

SUBMITTAL NO. : 51
Removal of Existing Structures

Item No.	Specification	Description
1	529	Removal of Existing Structures

PROJECT:
HARTFORD LATERAL SLIDE
PROJECT NO.: IM 091-2(79)
CONTRACT ID.: 12A132

OWNER:
STATE OF VERMONT AGENCY OF TRANSPORTATION

ENGINEER OF RECORD:
STATE OF VERMONT AGENCY OF TRANSPORTATION

CONTRACTOR:
PCL CIVIL CONSTRUCTORS, INC.

JUNE 30, 2015



Vermont Agency of Transportation
I-91
Windsor County
Project Number: IM 091-2(79)

Hartford Lateral Slide

Calculations for Temporary Structures including:

Existing Bridge Demolition

Submitted By,

Tim Davis, P.E.
VT P.E. 97183

André Tousignant, P.E.
VT P.E. # 100162



Tim Davis, P.E.
Jun 30 2015 9:00 AM

June 29th, 2015

PCL Civil Constructors Inc.

3810 Northdale Blvd. Suite 200
Tampa, Florida 33624
813-264-9500



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Introduction

The purpose of this calculation is the demolition of the existing I-91 bridges above US-5.

Design Criteria

Loads:

- Dead Load
 - o Asphalt / Concrete Weight = 150 lb/ft³
 - o Steel Weight = 490 lb/ft³
- Live Load
 - o 25 psf

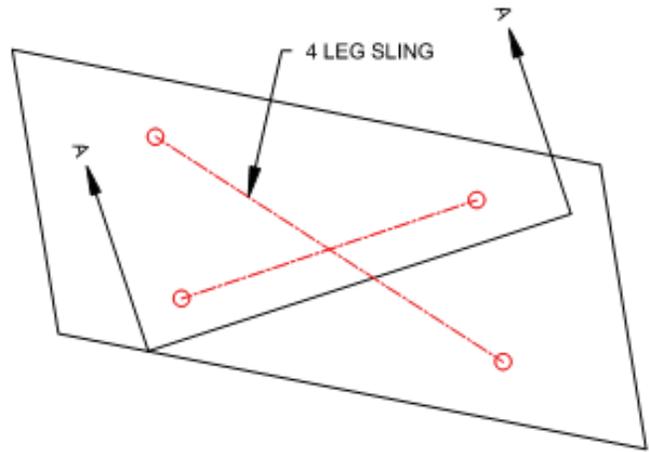
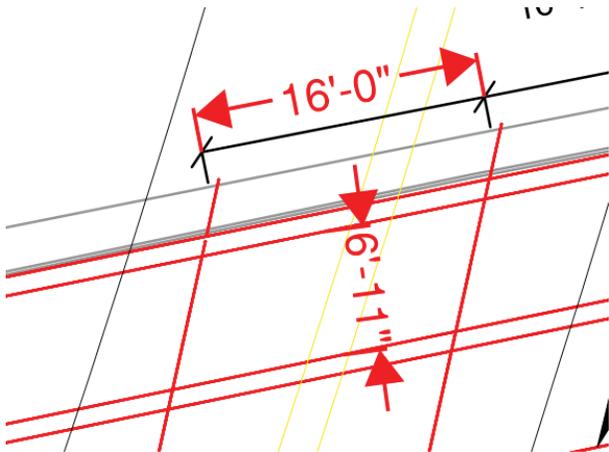
Materials:

- Steel
 - o W Shapes / HP's / Channels, $F_y = 50$ ksi or better
 - o Misc plates / shims, $F_y = 36$ ksi or better
 - o Existing Steel, $F_y = 36$ ksi

Design Aids:

- AASHTO Guide Design Specification for Bridge Temporary Works
- AISC ASD 9th Edition

Demo Calcs - Lifting Slabs



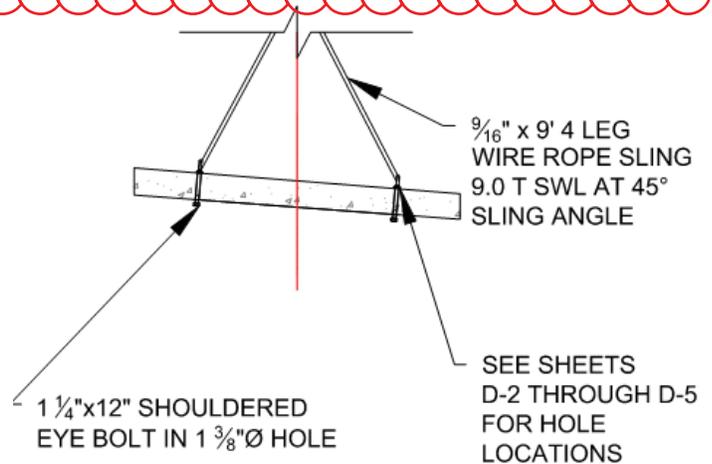
CONCRETE SLAB RIGGING - PLAN

Max Slab is on NB, suspended span. 16' x 7'-3" x 7.5". Holes are offset 3' from transverse sawcut, and 1'-4" from longitudinal sawcut.

Max calculated piece weight = 16' x 7.25' x .625' x 150pcf = 10.9 kips

12 kips used conservatively in calc's and drawings.

Three legs of rigging detailed to hold entire slab, four provided--> OK by inspection



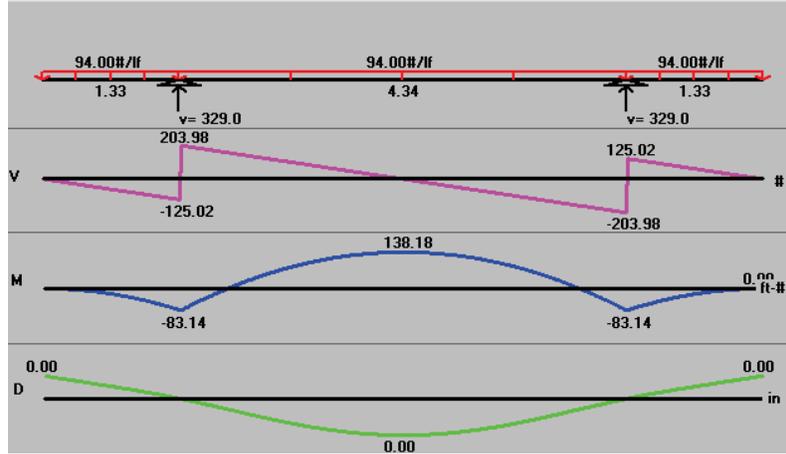
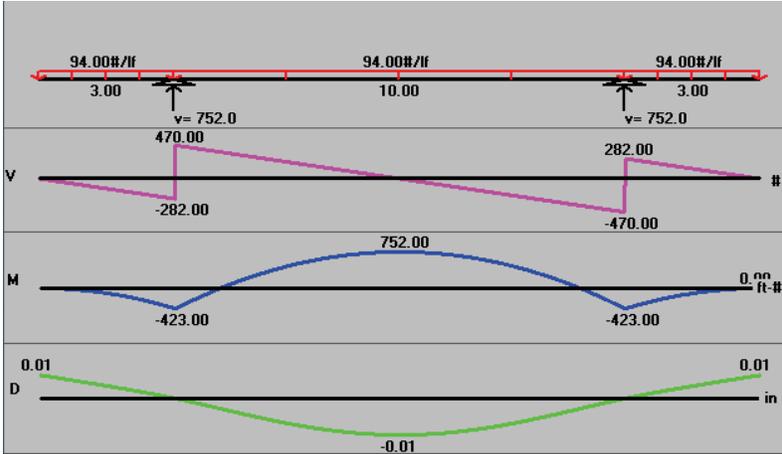
CONCRETE SLAB RIGGING - ELEVATION

Demo Calcs - Lifting Slabs - Cont.

Check Slab Bending and Shear:

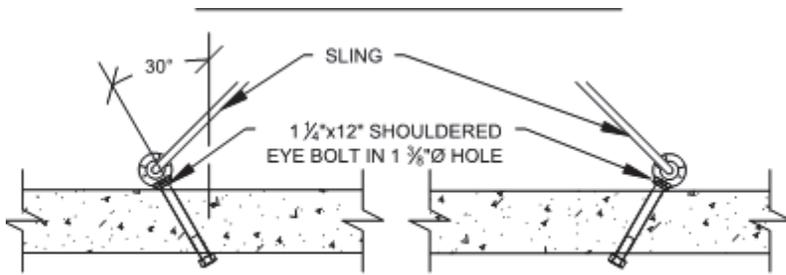
Longitudinal Shear/moment diagram

Transverse Shear/moment diagram



Check Slab Bending and Shear:

For Bending # 5 at 37" required, #5 at 9" provided --> OK
 No shear reinforcing Required
 see following sheets



SECTION A-A

G-277 Shoulder Nut Eye Bolts

Shank Dia. & Length (in.)	G-277 Stock No.	Working Load Limit (lbs.)*	Weight Each Per 100 (lbs.)	Dimensions (in.)										
				A	B	C	D	E	F	G	H	J		
1/4 x 2	1045014	650	6.60	.25	.50	.88	.19	1.50	2.00	2.94	.50	.47		
1/4 x 4	1045032	650	9.10	.25	.50	.88	.19	2.50	4.00	4.94	.50	.47		
5/16 x 2-1/4	1045050	1200	12.50	.31	.62	1.12	.25	1.50	2.25	3.50	.69	.56		
5/16 x 4-1/4	1045078	1200	18.80	.31	.62	1.12	.25	2.50	4.25	5.50	.69	.56		
3/8 x 2-1/2	1045096	1550	21.40	.38	.75	1.38	.31	1.50	2.50	3.97	.78	.66		
3/8 x 4-1/2	1045112	1550	25.30	.38	.75	1.38	.31	2.50	4.50	5.97	.78	.66		
1/2 x 3-1/4	1045130	2600	42.60	.50	1.00	1.75	.38	1.50	3.25	5.12	1.00	.91		
1/2 x 6	1045158	2600	56.80	.50	1.00	1.75	.38	3.00	6.00	7.88	1.00	.91		
5/8 x 4	1045176	5200	68.60	.62	1.25	2.25	.50	2.00	4.00	6.44	1.31	1.12		
5/8 x 6	1045194	5200	102.40	.62	1.25	2.25	.50	3.00	6.00	8.44	1.31	1.12		
3/4 x 4-1/2	1045210	7200	144.50	.75	1.50	2.75	.62	2.00	4.50	7.44	1.56	1.38		
3/4 x 6	1045238	7200	167.50	.75	1.50	2.75	.62	3.00	6.00	8.94	1.56	1.38		
7/8 x 5	1045256	10600	225.00	.88	1.75	3.25	.75	2.50	5.00	8.46	1.84	1.56		
1 x 6	1045292	13300	366.30	1.00	2.00	3.75	.88	3.00	6.00	9.97	2.09	1.81		
1 x 9	1045318	13300	422.50	1.00	2.00	3.75	.88	4.00	9.00	12.97	2.09	1.81		
1-1/4 x 8	1045336	21000	650.00	1.25	2.50	4.50	1.00	4.00	8.00	12.72	2.47	2.28		
1-1/4 x 12	1045354	21000	795.00	1.25	2.50	4.50	1.00	4.00	12.00	16.72	2.47	2.28		
1-1/2 x 15	1045372	24000	1425.00	1.50	3.00	5.50	1.25	6.00	15.00	20.75	3.00	2.75		

*Ultimate Load is 5 times the Working Load Limit. Maximum Proof Load is 2 times the Working Load Limit.

Check Eyebolts:

21k > 12k ---> OK

Oversize chosen so that nuts could be installed if necessary

Moment Design



Project No: 5515002 By: TMD Date: _____
 Project: Hartford Checked By: _____ Date: _____

Calculation Of Required Reinforcing Rebars

Subject: _____

Calculation For: _____

Input

M (DL)=	0 FT.KIPS	Factor DL=	1.4
M (LL)=	0.752 FT.KIPS	Factor LL=	2
Mu=	FT.KIPS	f'c=	4 KSI
d=	4.5 IN	fy=	60 KSI
b=	12 IN	As(prov)=	0.44 IN ²

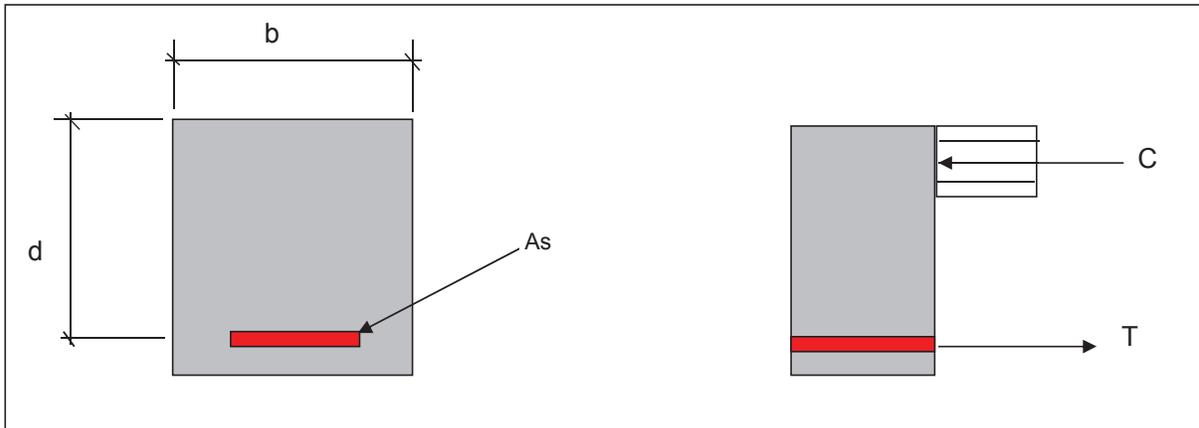
Output

Moment (Mu)=	1.5 FT.KIPS	X=	6.044804
A=	39.71	Y=	0.075196
B=	-243.0	(A) As ² + (B) As + (C) = 0	
C=	18.0	As=	0.075196 IN ²
Δ=	56183	a=	0.11 IN
β ₁ =	0.85 ACI (10.2.7.3)	Cc=	5 KIPS
ρ Min=	0.0033 ACI (10.5.1)	T=	5 KIPS
ρ Max=	0.0214 ACI (10.3.3)	Use the minimum of 1.33 Req'd As or As min	
ρ Actual=	0.0014	φMn=	8.3 FT.KIPS
Required As=	0.08 IN ²		
Min As=	0.18 IN ²		
Max As=	1.15 IN ²		

Final As (IN²)= **0.10**
 % of ρ Max= **8.66244** %

Bar Selection:

1	#3	0.11	or	#3 @	13.20 o.c.
1	#4	0.20	or	#4 @	24.00 o.c.
1	#5	0.31	or	#5 @	37.20 o.c.
1	#6	0.44	or	#6 @	52.79 o.c.
1	#7	0.60	or	#7 @	71.99 o.c.
1	#8	0.79	or	#8 @	94.79 o.c.
1	#9	1.00	or	#9 @	119.99 o.c.
1	#10	1.27	or	#10 @	152.38 o.c.
1	#11	1.56	or	#11 @	187.18 o.c.



Shear Design



Project No: _____

By: _____ TMD

Date: _____ 5/18/2015

Project: _____

Checked By: _____

Date: _____

CONSTRUCTION LEADERS

Calculation Of Required Shear Reinforcement

Subject: _____

Calculation For: _____

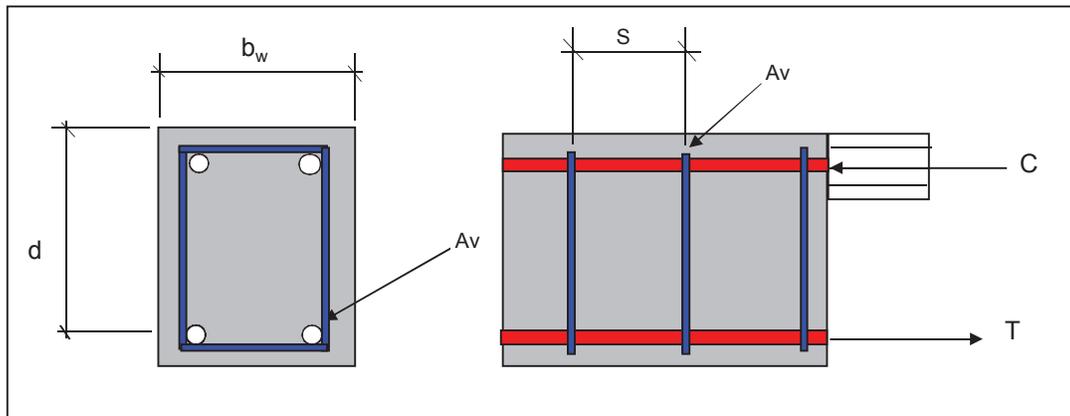
Input

V(DL)=	KIPS	Factor DL=	1.4
V(LL)=	0.47 KIPS	Factor LL=	2
Vu=	KIPS	f _c =	4 KSI
d=	4.5 IN	f _y =	60 KSI
b _w =	12 IN	A _v (prov)=	IN ²

Output

Shear (V _u)=	0.94 KIPS	φV _s max =	23.22 KIPS	(ACI 11.5.6.8)
φV _c min=	5.81 KIPS	S max =	2.25 IN	(ACI 11.5.4.1)
φV _s =	KIPS	S =	2.25 IN	(ACI 11-15)
Comments:	No shear reinf. req'd (ACI 11.5.4.3)			

Area of Shear Reinforcement=	IN ²
Spacing of Shear Reinforcement=	N/A IN



Demo Calcs - Lifting Slabs - Cont.

Check Curb Section:

Concrete is deeper with same reinforcement as Deck, OK by inspection.

Piece weight =

2'-2" x 19.5" x 16' x 150pcf = 8.4 kip (thickened)

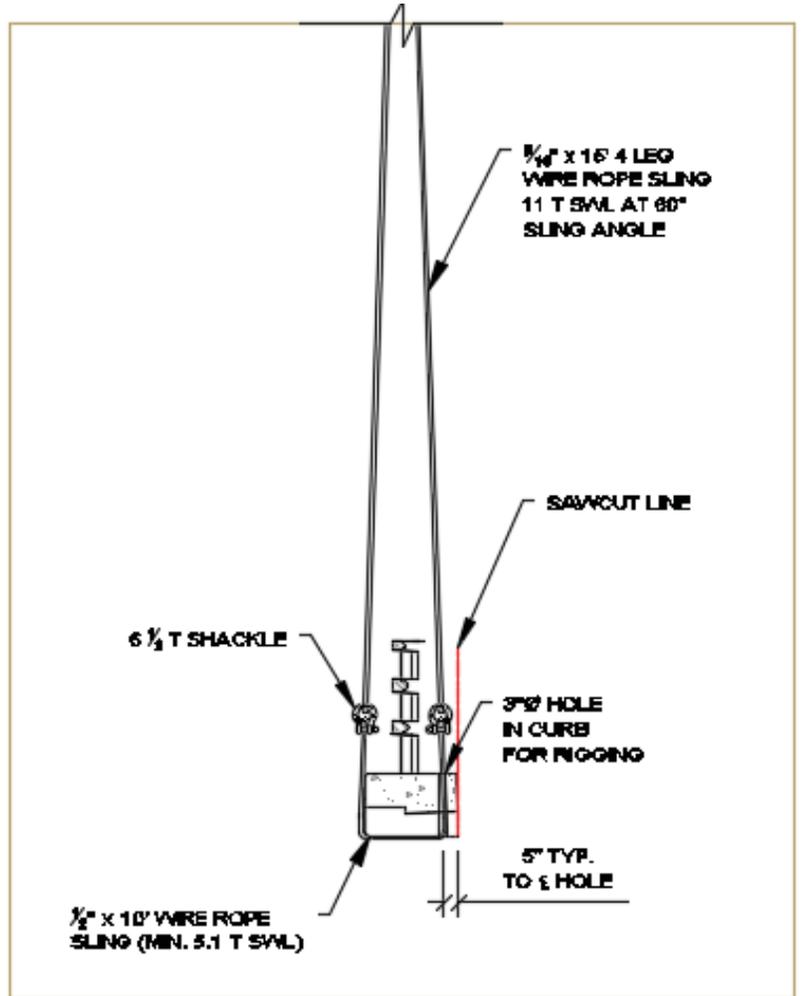
1'-8" x 7.5" x 16' x 150pcf = 2.5 kips (deck)

8.4 k + 2.5 k = 10.9 k. 14 kips used conservatively, to include railing

Rigging Check:

14k total / 2 sides in a basket.

Rigging shall be 4.7k/leg min, rigging shown OK.



OVERHANG CURB RIGGING

Demo Calcs - Cap Removal

Piece weight =

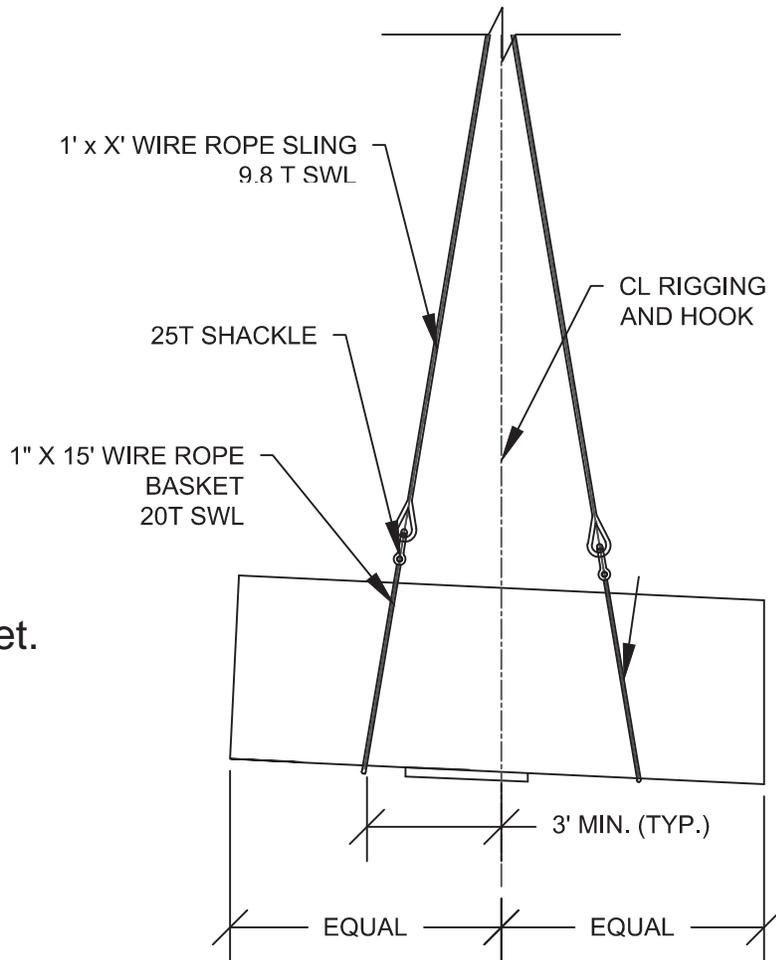
3'-0" x 4'-0" x 12'-0" x 150pcf
= 21.6 kips

23 kips used conservatively

Rigging Check:

23k total / 2 sides in a basket.

Rigging shall be 6k/leg min,
rigging shown OK.



PIER CAP RIGGING

Demo Calcs - Column Removal

Piece weight =

$$(3.14 * 1'-4" ^2) * 17'-0" * 150 \text{pcf} = 14.2 \text{ kips}$$

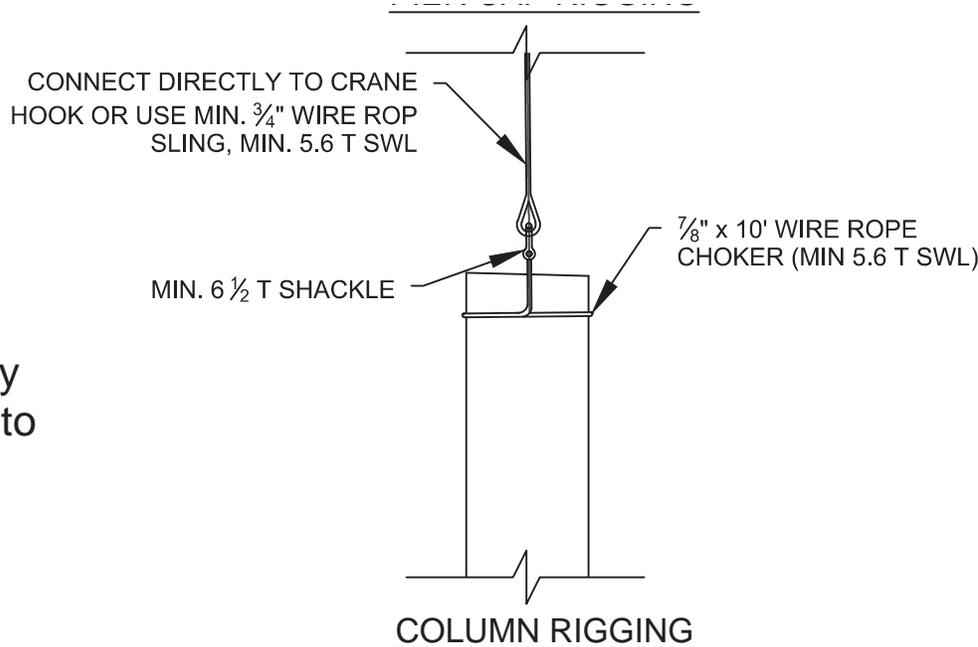
16 kips used conservatively

Rigging Check:

Rigging will not support entire column weight, used only to lay column over. Assume rigging to take 65% of total load.

$$16 \text{ kips} * 0.65 = 10.4 \text{ k}$$

Rigging shall be minimum 5.3 T
rigging shown OK.



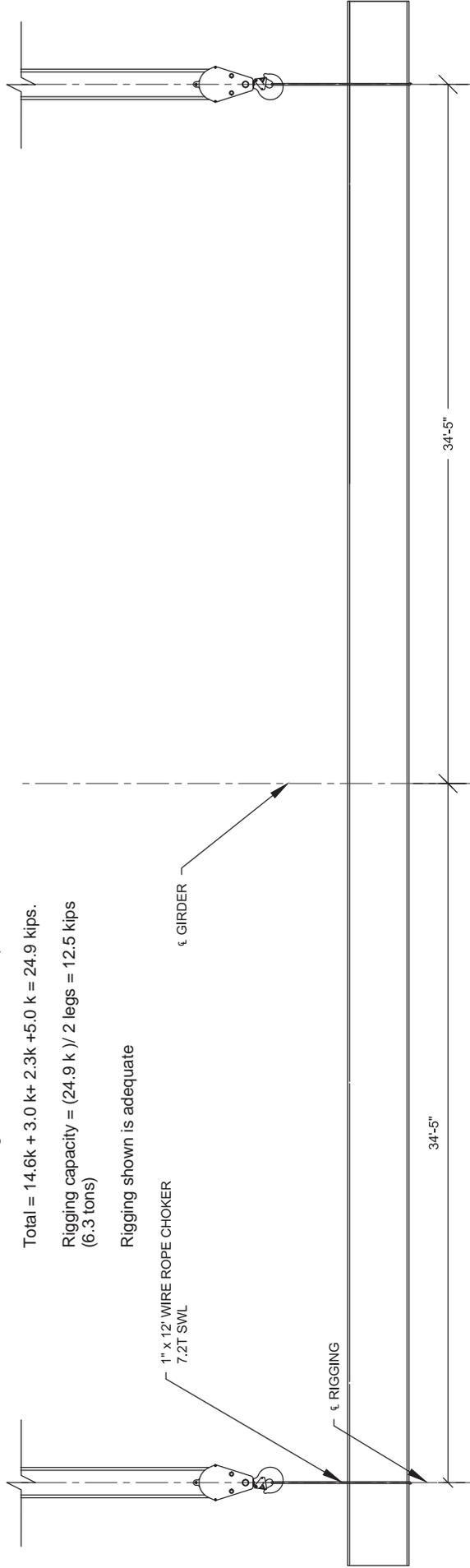
2 Crane Rigging Check

Center Spans (composite):

Steel Weight = 182 x 80' = 14.6 kips (beams)
 Steel Weight = 42.7 x 7' x 10 ea = 3.0 kips (diaphragms)
 Steel Weight = 53' x 10" x 1 1/4" = 2.3 kips (Cover Plates)
 Concrete Weight = 7.5" x 8" x 80' x 150pcf = 5k
 Total = 14.6k + 3.0 k+ 2.3k +5.0 k = 24.9 kips.

Rigging capacity = (24.9 k)/ 2 legs = 12.5 kips (6.3 tons)

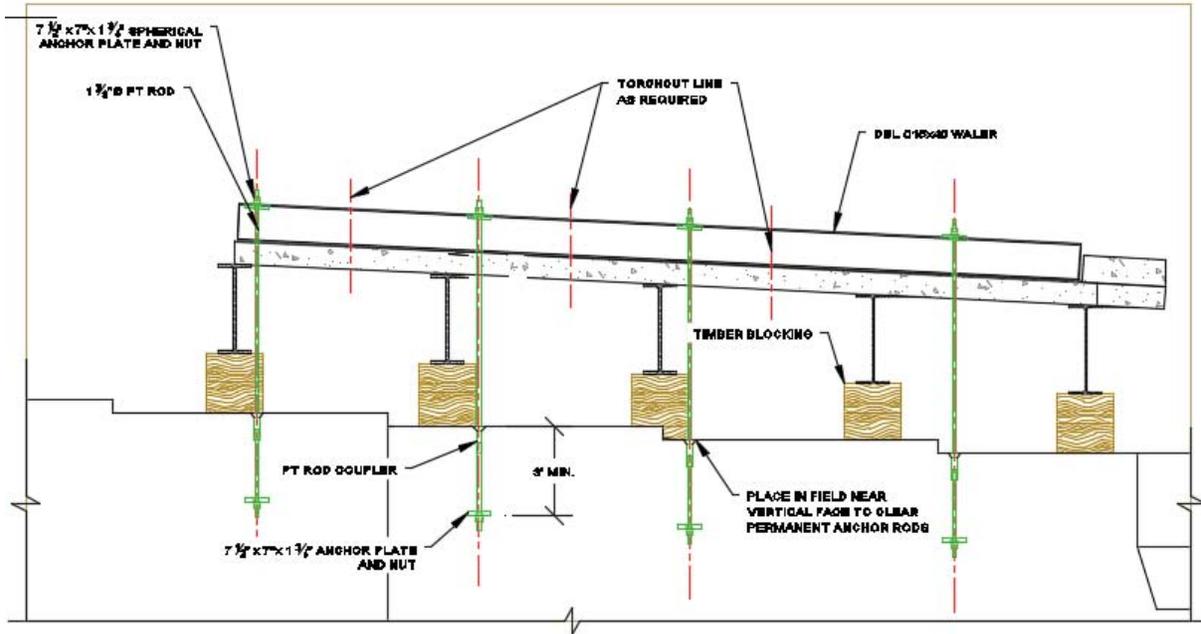
Rigging shown is adequate



DEMOLITION RIGGING - TWO CRANE LIFT

Revision No. & Date	Vermont Agency of Transportation		Engineer's Seal	Drawing Status	Name	Date	PCL Civil Constructors, Inc.	
	Road No.	County / City					Financial Project ID No.	3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689
	I-91	Windsor / Hartford	IM 091-2(79)	PRELIMINARY	AJT	04/01/15	Submittal	PCL Project / Job No.
					TMD	04/07/15	DEMOLITION PLAN	1-91 Windsor / Hartford / 5514001
							RIGGING DETAILS (2)	Drawing Title
								Sheet No.
								D-7

Demo Calcs - Temporary Tie Downs



Weights

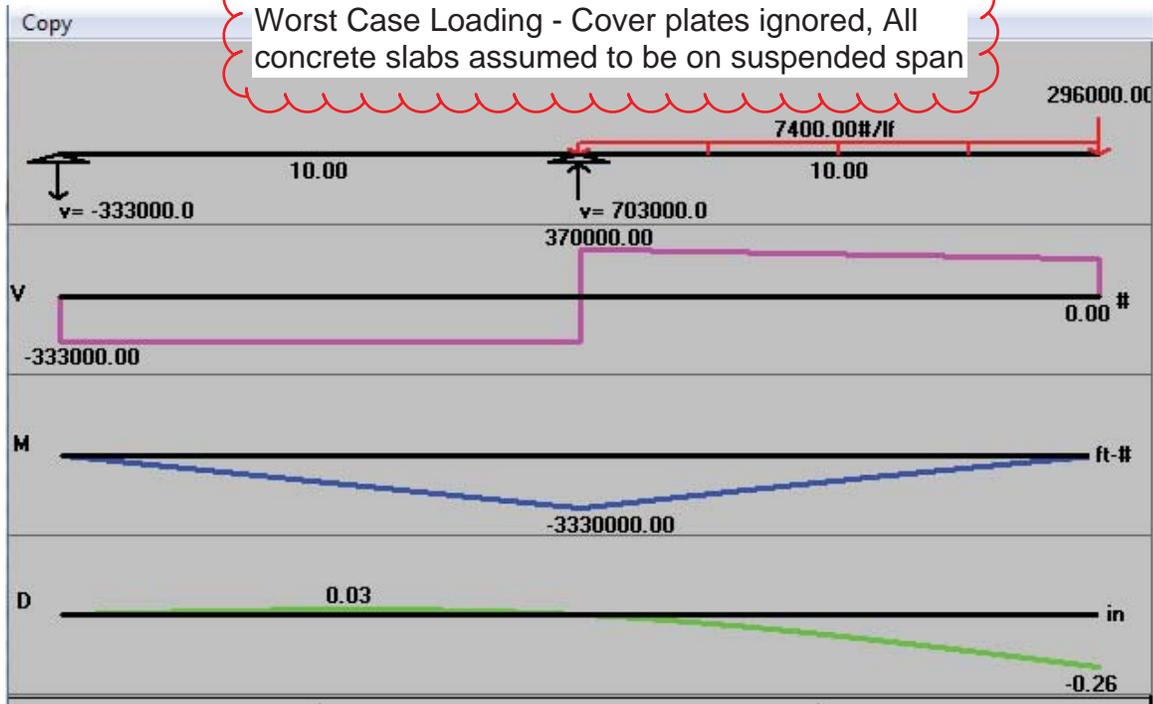
From existing plans, concrete cross sectional area = 39' = 5.9 KLF

Steel weight = 7 beams x 182 plf x 1.2 (stiff/x-frames) = 1.5 KLF

total weight = 7.4 KLF

40' of suspended span goes to each side, sitting at hinge = 40' x 7.4 = 296 kips
 10' of backspan overhangs existing pier, and a minimum of 10' restrains.

Worst Case Loading - Cover plates ignored, All concrete slabs assumed to be on suspended span





Project: _____ By: TMD Date: 5/18/2015
 Project #: _____ Check By: _____ Date: _____
 Title: ASD STEEL DESIGN (AISC 9TH EDITION)

M_x	475	ft-kip	L_b	15	ft	C_B	1
M_y	9.5	ft-kip	L_x	15	ft	K_x	1
V	53	kip	L_y	15	ft	K_y	1
R	101	kip	a	6	in	C_{mx}	1
P	2.02	kip	T	0	kip	C_{my}	1
N	6	in	F	0	kip	Load	Interior
$t_{stiffener}$	1/2	in					

Section:	W36x135	$F_y =$	36	ksi	$F_u =$	65	ksi
A	39.7	in^2	k	1.6875	in	$X_2 * 10^6$	38000
d	35.55	in	$b_f / 2t_f$	7.6		I_x	7800
t_w	0.6	in	h/t_w	54.1		S_x	439
b_f	11.95	in	r_T	2.93	in	r_x	14
t_f	0.79	in	X_1	1520	ksi	I_y	225
S_y	37.7	in^3	d_c	32.175	in	Z_y	59.7
r_y	2.38	in	Z_x	509	in^3	E	29000

Section Classification

Webs Compact Flange Compact

Flexure

L_c	12.29423868	ft	M_x	790.2	ft-kip	OK	60.1%
F_{bx}	21.6	ksi	M_y	84.825	ft-kip	OK	11.2%
F_{by}	27	ksi					

Shear

F_v	14.4	ksi	V_{allow}	307.152	kip	OK	17.3%
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Axial

(Kl/r)	75.6302521		C_c	126.0992836			
F_a	15.83441443	ksi	P_{allow}	628.6262528	kips	OK	0.3%

Combined Stresses

f_a	0.050881612	ksi	f_{bx}	12.98405467	ksi		
f_{by}	3.023872679	ksi	f_t	0	ksi		
F_T	21.6	ksi	F'_{ex}	903.3628247	ksi		
F'_{ey}	26.10718563	ksi					
Axial Compression and Bending:				0.716322283		OK	71.6%
Axial Tension and Bending:				0.713108927		OK	71.3%

Special Design Considerations (Concentrated Loads)

Local Flange Bending

P_{bf}	168.3333333	kips	t_{min}	0.864955576	in	NG	109.5%
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Stiffeners required

Stiffeners required

OK, existing Stiffener at Bearing

Local Web Yielding

F_{allow}	11.65945166	ksi				OK	49.1%
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Bearing Stiffeners NOT required

Web Crippling

R_{allow}	223.3677466	kips				OK	45.2%
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Bearing Stiffeners NOT required

Sidesway Web Buckling

$(d_c/t_w)/(l/b_f)$	3.560104167		R_{allow}	N/A		OK	0.00%
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Bearing Stiffeners NOT required

Compression Buckling of the Web

$(4100t_{wc}^3 \sqrt{F_{yc}})/P_{bf}$	31.56594059	in				NG	101.93%
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Stiffeners required

OK, existing Stiffener at Bearing

Stiffener Design

$h_{stiffener}$	25.4775	in	$W_{stiffener}$	11.95	in	$Cont_{web}$	15
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Stiffener Axial

(Kl/r)	11.69213951		C_c	126.0353566			
F_a	21.0685532	ksi	P_{allow}	315.5015842	kips	OK	32.01%

Weld Design

l_{weld}	135.88	in	R_w	0.743302914	kip/in	t_{weld}	0.050064182
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Demo Calcs - Temporary Tie Downs - Cont.

Weights

Per Girder analysis:

Bending Moment = 3330k-ft/ 7 girders = 475 k-ft

Shear = 370 k / 7 girders = 53 kips

Bearing = 703 k / 7 girders = 101 kips

tie down = 333 k / 7 girders = 48 kips each

In Bending, Girders have 40% reserve capacity, cover plates ignored

In Shear, Girders have 80% reserve capacity

In Bearing, Stiffeners are required, the 1/2" stiffeners provided have 50% reserve capacity,

---> no detailed extra analysis required. see analysis following page

Check Tie Down System:

Max Load in Tie down is 2 beam lines, however extremely unlikely that deck is remaining on girders at this time.

Load = 48k x 2 = 96 kips.

Nominal Bar Diameter (in.)(mm)	Ultimate Stress f_{pu} (ksi)(Mpa)	Cross Section Area Aps (in. ²)(mm ²)	Ultimate Strength f_{pu} Aps (kips)(KN)	Prestressing Force—kips KN			Weight (lbs./ft.)(kg/m)	Minimum* Elastic Bending Radius (ft.)(m)
				0.8 f_{pu} Aps	0.7 f_{pu} Aps	0.6 f_{pu} Aps		
1 in. 26 mm	150 1030	0.85 548	127.5 567	102.0 454	89.3 397	76.5 340	3.01 4.48	52 15.9
1 in. 26 mm	160** 1100	0.85 548	136.0 605	108.8 485	95.2 423	81.6 363	3.01 4.48	49 14.9
1 1/4 in. 32 mm	150 1030	1.25 806	187.5 834	150.0 662	131.3 584	112.5 500	4.39 6.54	64 19.5
1 1/4 in. 32 mm	160** 1100	1.25 806	200.0 890	160.0 707	140.0 623	120.0 534	4.39 6.54	60 18.3
1 1/4 in. 36 mm	150 1030	1.58 1018	237.0 1055	189.6 839	165.9 738	142.2 633	5.56 8.28	72 22.0
1 1/4 in. 36 mm	160** 1100	1.58 1018	252.8 1125	202.3 899	177.0 787	151.7 675	5.56 8.28	67 20.4
1 1/4 in.	150	2.62	400	320	280	240	9.23	92

PT Bar good for 237 kips ultimate. $237k / 97k = FOS 2.4$ ---> Bars and Hardware are adequate

For a Double C15x40, Max spacing between supports = $97 k \times \text{spacing}/4 / 93in^3 = (0.6 \times 50ksi)$,
($M/S = .6F_y$)

max spacing = 9.58'. this assumes zero contribution from the deck, which is conservative.

CHECK CAPACITY OF EMBEDDED PT ROD PER ACI 318STEEL STRENGTH

$$N_{SA} = n A_{se,n} f_{tma}$$

ACI 318-08 D-3

$$n = 1$$

$$A_{se,n} = 1.58 \text{ in}^2$$

$$f_{tma} = 237 \text{ ksi}$$

$$N_{SA} = 374.46 \text{ k}$$

$$\phi N_{STEEL} = (0.75)(374.46 \text{ k}) \text{ ACI 318-08 D-1}$$
$$= 280.85 \text{ k}$$

POULTRY STRENGTH

$$N_{pN} = 4 \phi_p N_p$$

ACI 318-08 D-14

$$\phi_p = 1.4$$

$$N_p = 8 A_{brg} f'_c$$

ACI 318-08 D-15

$$A_{brg} = 7" \times 7" \text{ ANCHOR PLATE, } 49 \text{ in}^2$$

$$f'_c = 3.5 \text{ ksi}$$

$$N_{pN} = (1.4)(8)(3.5 \text{ ksi})(49 \text{ in}^2)$$

$$= 1,920.8 \text{ k}$$

$$\phi N_{pN} = (0.7)(1,920.8) \text{ ACI 318-08 D-1}$$

$$= 1,344.56 \text{ k}$$

CONCRETE BREAKOUT

$$h_{ef} = 36 \text{ in}$$

$$e_{c1} = 0$$

$$e_{c2} = 0$$

$$C_{br} M_u = 18 \text{ in}$$

$$\psi_{c,u} = 1.25$$

$$C_{ac} = 0$$

$$k_c = 24$$

$$\lambda = 1$$

$$f'_c = 3.5 \text{ ksi}$$

$$A_{uc} = (18+18)[(15)(36)(2)] \quad \text{ACI 318-08 D.5.2.1}$$
$$= 3888 \text{ in}^2, A_{ucb} = 11,664 \text{ in}^2$$

$$N_b = 24 \lambda \sqrt{f'_c} h_{ef}^{5/3}$$
$$= 557.3 \text{ k}$$

$$\psi_{ec1} = 1.0$$

$$\psi_{ec2} = 1.0$$

$$\psi_{cp} = 1.0$$

$$\psi_{ed} = 0.7 + 0.3 \left(\frac{C_{br} M_u}{15 h_{ef}} \right) \leq 1.0 \quad \text{ACI 318-08 D-11}$$
$$= 0.8$$

$$N_{cb} = \left(\frac{A_{uc}}{A_{ucb}} \right) \psi_{ed} \psi_c \psi_{cp} N_b$$
$$= 148.6 \text{ k}$$

$$\phi N_{cb} = (0.7)(148.6 \text{ k})$$

$$= 104.02 \text{ k} \quad \leftarrow \underline{\underline{\text{LIMITING VALUE}}}$$

CRANE INFO:		GROVE RTC-8080	TADANO GR-750XL	LINK BELT LS-248H II	LINK BELT 298 HSL
BOOM LENGTH:	ft	90	88.6, TELE MODE I	120	120
PIECE TYPE		DECK OVERHANG	DECK OVERHANG	DECK OVERHANG	DECK OVERHANG
MAX. PIECE WEIGHT	lbs	14,000	14,000	14,000	14,000
PICK WEIGHT + RIGGING:	lbs	16,330	16,330	22,913	22,913
MAX. CRANE RADIUS:	ft	55	45	100	110
CRANE CAPACITY:	ft	20,400	22,200	31,400	31,700
% OF CHART:		80%	74%	73%	72%

CRANE INFO:		GROVE RTC-8080	TADANO GR-750XL	LINK BELT LS-248H II	LINK BELT 298 HSL
BOOM LENGTH:	ft	90	88.6, TELE MODE I	120	120
PIECE TYPE		DECK SECTION	DECK SECTION	DECK SECTION	DECK SECTION
MAX. PIECE WEIGHT	lbs	12,000	12,000	12,000	12,000
PICK WEIGHT + RIGGING:	lbs	14,330	14,330	20,913	20,913
MAX. CRANE RADIUS:	ft	55	50	110	117
CRANE CAPACITY:	ft	20,400	18,100	27,500	28,900
% OF CHART:		70%	79%	76%	72%

CRANE INFO:		GROVE RTC-8080	TADANO GR-750XL
BOOM LENGTH:	ft	90	88.6, TELE MODE I
PIECE TYPE		SUSPENDED GIRDER	SUSPENDED GIRDER
MAX. PIECE WEIGHT	lbs	24,900	24,900
PICK WEIGHT + RIGGING:	lbs	14,780	14,780
MAX. CRANE RADIUS:	ft	55	45
CRANE CAPACITY:	ft	20,400	22,200
% OF CHART:		72%	67%

CRANE INFO:		LINK BELT LS-248H II	LINK BELT 298 HSL
BOOM LENGTH:	ft	120	120
PIECE TYPE		END SPAN GIRDER	END SPAN GIRDER
MAX. PIECE WEIGHT	lbs	11,700	11,700
PICK WEIGHT + RIGGING:	lbs	20,613	20,613
MAX. CRANE RADIUS:	ft	110	117
CRANE CAPACITY:	ft	27,500	28,900
% OF CHART:		75%	71%

CRANE INFO:		GROVE RTC-8080	TADANO GR-750XL	LINK BELT LS-248H II	LINK BELT 298 HSL
BOOM LENGTH:	ft	90	88.6, TELE MODE I	120	120
PIECE TYPE		CAP SECTION	CAP SECTION	CAP SECTION	CAP SECTION
MAX. PIECE WEIGHT	lbs	23,000	23,000	23,000	23,000
PICK WEIGHT + RIGGING:	lbs	25,330	25,330	31,913	31,913
MAX. CRANE RADIUS:	ft	40	35	100	70
CRANE CAPACITY:	ft	35,800	34,700	31,400	58,800
% OF CHART:		71%	73%	102%	54%

CRANE INFO:		GROVE RTC-8080	TADANO GR-750XL
BOOM LENGTH:	ft	90	88.6, TELE MODE I
PIECE TYPE		COLUMN	COLUMN
MAX. PIECE WEIGHT	lbs	10,400	10,400
PICK WEIGHT + RIGGING:	lbs	12,730	12,730
MAX. CRANE RADIUS:	ft	40	35
CRANE CAPACITY:	ft	35,800	34,700
% OF CHART:		36%	37%



CRANE LIFT STUDY ANALYSIS - LONG FORM

(All weights in lbs. unless noted otherwise)

I-91 NB/SB Bridges - 5515002

Date: _____

LOAD INFORMATION:

What is to be lifted: Existing Beam/Girder More than one crane Yes No

Initial location: Attach Lift Diagram (plan view) if required

Final set location: Attach Lift Diagram (plan view) if required

Verified Weight (weight of load, lbs.) 15,000 How was weight verified: Shop Drawings

Lift Points: Per Manufacturer
 Other, attach details and calculations

Maximum radius of lift: 55 Quadrants All

Maximum elevation of lift: Attach lift diagram (elevation view) if required

Maximum allowable wind speed for lift Per Manitowoc, 30 mph (Attach calculations)

GROUND CONDITIONS: Nature of soil Compacted Fill Safe Bearing Capacity 2 (tpsf)

Is the use of crane mats or compacted fill required: Yes No

CRANE CONFIGURATION: Model/SN Grove RT 880E Boom Length/Type 100 ft., LATTICE

Maximum Capacity 160,000 Jib Length/Type N/A

Boom Point Elevation at Maximum Working Radius 71.1

Cable Diameter 3/4" Block Capacity RT 80 Ton No. of Parts 4

Anti-two block device Yes No Barge/Crane List N/A

CALCULATIONS

Weight of Load	<u>15,000</u>	
+ Crane Capacity Deduction	<u>1,656</u>	
+ Plus Rigging Weight	<u>674</u>	
= Gross Weight	<u>17,330</u>	Maximum Lift Capacity for Radius <u>22,450</u>
% of Crane Chart	<u>77%</u>	(Gross weight/Crane capacity) See District Policy

RESPONSIBLE PERSONNEL (Print Name & Sign)

Project Manager _____
 Level 1 Lift Specialist _____
 Level 2 Lift Specialist (If Critical Lift) _____
 Level 3 Lift Specialist (If Engineered Lift) _____
 Superintendent _____
 Lift Supervisor _____
 Operator _____

WORKSHEET

RIGGING

Sling Length _____ Vertical Length _____ Max. Sling
 Sling Angle _____ Sling Load Angle Factor N/A Load _____ Tons

	Type	Size	Capacity	Qty	Weight
Slings	5/8" 6-Part Wire 38 ft.- Vertical	38 ft.	17 Ton	4	556.0
Slings	None	0	0	0	0.0
Slings	None	0	0	0	0.0
Shackles	Forged Screw Pin	25	25 Ton	4	117.8
Shackles	None	None	0	0	0.0
Eye Bolts					
Picking Device	None	N/A	N/A	0	0.0
Additional Items	None	0	0	0	0.0

Capacity >
Load?
OK

CONSERVATIVE RIGGING
WEIGHTS USED

TOTAL WEIGHT OF RIGGING 673.8

CRANE CAPACITY DEDUCTIONS

	Type	Gross Weight
Block	RT 80 Ton	1,319
Effective Jib Weight		
Boom Extension		
Hook and Overhaul Ball	None	0
Whip Line below boom tip		42
Main Load Cable below tip		296
Stowed Jib or Boom Extension		
TOTAL DEDUCTIONS		<u>1,656</u>

Final checks prior to lift

<input type="checkbox"/>	Verify gross weight and load chart capacities (de-rated if crane on barge)
<input type="checkbox"/>	Inspected crane and verified components (Daily logs & annual certification checked)
<input type="checkbox"/>	Inspected rigging for condition and size
<input type="checkbox"/>	Inspect load line and drum wrap configuration
<input type="checkbox"/>	Ground stability. Outrigger pads/blocking sized correctly? Barge/crane list (de-rated chart)
<input type="checkbox"/>	Distance to nearest utility _____ (above and below ground)
<input type="checkbox"/>	Weather and wind load consideration, checked & verified at time of lift
<input type="checkbox"/>	Pre-lift meeting with rigging crew, operator, and signal person (attached sign in sheet)
<input type="checkbox"/>	Rigging drawings attached
<input type="checkbox"/>	Method of communication (radios, hand signals, etc.) checked & verified
<input type="checkbox"/>	Lift abort procedures checked and verified. JHA/PSI conducted



CRANE LIFT STUDY ANALYSIS - LONG FORM

(All weights in lbs. unless noted otherwise)

I-91 NB/SB Bridges - 5515002

Date: _____

LOAD INFORMATION:

What is to be lifted: Existing Beam/Girder More than one crane Yes No

Initial location: Attach Lift Diagram (plan view) if required

Final set location: Attach Lift Diagram (plan view) if required

Verified Weight (weight of load, lbs.) 0 How was weight verified: Shop Drawings

Lift Points: Per Manufacturer
 Other, attach details and calculations

Maximum radius of lift: 110 Quadrants All

Maximum elevation of lift: Attach lift diagram (elevation view) if required

Maximum allowable wind speed for lift Per Manitowoc, 30 mph (Attach calculations)

GROUND CONDITIONS: Nature of soil Compacted Fill Safe Bearing Capacity 2 (tpsf)

Is the use of crane mats or compacted fill required: Yes No

CRANE CONFIGURATION:	Model/SN	<u>Link-Belt 298 HSL</u>	Boom Length/Type	<u>150 ft., LATTICE</u>
	Maximum Capacity	<u>171,400</u>	Jib Length/Type	<u>N/A</u>
		Boom Point Elevation at Maximum Working Radius		<u>47.8</u>
	Cable Diameter	<u>1 1/8"</u>	Block Capacity	<u>250</u>
			No. of Parts	<u>8</u>
	Anti-two block device	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Barge/Crane List	<u>N/A</u>

CALCULATIONS

Weight of Load	<u>0</u>	
+ Crane Capacity Deduction	<u>7,965</u>	
+ Plus Rigging Weight	<u>889</u>	
= Gross Weight	<u>8,854</u>	Maximum Lift Capacity for Radius <u>150,000</u>
% of Crane Chart	<u>6%</u>	(Gross weight/Crane capacity) See District Policy

RESPONSIBLE PERSONNEL (Print Name & Sign)

Project Manager _____
 Level 1 Lift Specialist _____
 Level 2 Lift Specialist (If Critical Lift) _____
 Level 3 Lift Specialist (If Engineered Lift) _____
 Superintendent _____
 Lift Supervisor _____
 Operator _____

WORKSHEET

RIGGING

Sling Length _____ Vertical Length _____ Max. Sling
 Sling Angle _____ Sling Load Angle Factor N/A Load _____ Tons

	Type	Size	Capacity	Qty	Weight
Slings	5/8" 6-Part Wire 38 ft.- Vertical	38 ft.	17 Ton	4	556.0
Slings	7/8" 6-Part Wire Rope Choker	16 ft.	29 Ton	2	274.0
Slings	None	0	0	0	0.0
Shackles	None	None	0	0	0.0
Shackles	Forged Screw Pin	25	25 Ton	2	58.9
Eye Bolts					
Picking Device	None	N/A	N/A	0	0.0
Additional Items	None	0	0	0	0.0

Capacity >
Load?

OK

CONSERVATIVE RIGGING WEIGHTS USED

TOTAL WEIGHT OF RIGGING 888.9

CRANE CAPACITY DEDUCTIONS

	Type	Gross Weight
Block	250 Ton	5,721
Effective Jib Weight		
Boom Extension		
Hook and Overhaul Ball	20 Ton	1,255
Whip Line below boom tip		94
Main Load Cable below tip		896
Stowed Jib or Boom Extension		
TOTAL DEDUCTIONS		7,965

Final checks prior to lift

<input type="checkbox"/>	Verify gross weight and load chart capacities (de-rated if crane on barge)
<input type="checkbox"/>	Inspected crane and verified components (Daily logs & annual certification checked)
<input type="checkbox"/>	Inspected rigging for condition and size
<input type="checkbox"/>	Inspect load line and drum wrap configuration
<input type="checkbox"/>	Ground stability. Outrigger pads/blocking sized correctly? Barge/crane list (de-rated chart)
<input type="checkbox"/>	Distance to nearest utility _____ (above and below ground)
<input type="checkbox"/>	Weather and wind load consideration, checked & verified at time of lift
<input type="checkbox"/>	Pre-lift meeting with rigging crew, operator, and signal person (attached sign in sheet)
<input type="checkbox"/>	Rigging drawings attached
<input type="checkbox"/>	Method of communication (radios, hand signals, etc.) checked & verified
<input type="checkbox"/>	Lift abort procedures checked and verified. JHA/PSI conducted



CRANE LIFT STUDY ANALYSIS - LONG FORM

(All weights in lbs. unless noted otherwise)

I-91 NB/SB Bridges - 5515002

Date: _____

LOAD INFORMATION:

What is to be lifted: Existing Beam/Girder More than one crane Yes No

Initial location: Attach Lift Diagram (plan view) if required

Final set location: Attach Lift Diagram (plan view) if required

Verified Weight (weight of load, lbs.) 0 How was weight verified: Shop Drawings

Lift Points: Per Manufacturer
 Other, attach details and calculations

Maximum radius of lift: 110 Quadrants All

Maximum elevation of lift: Attach lift diagram (elevation view) if required

Maximum allowable wind speed for lift Per Manitowoc, 30 mph (Attach calculations)

GROUND CONDITIONS: Nature of soil Compacted Fill Safe Bearing Capacity 2 (tpsf)

Is the use of crane mats or compacted fill required: Yes No

CRANE CONFIGURATION:	Model/SN	<u>Link-Belt LS-248H II</u>	Boom Length/Type	<u>150 ft., LATTICE</u>
	Maximum Capacity	<u>171,400</u>	Jib Length/Type	<u>N/A</u>
		Boom Point Elevation at Maximum Working Radius	<u>47.8</u>	
	Cable Diameter	<u>1 1/8"</u>	Block Capacity	<u>200</u>
			No. of Parts	<u>8</u>
	Anti-two block device	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Barge/Crane List	<u>N/A</u>

CALCULATIONS

Weight of Load	<u>0</u>	
+ Crane Capacity Deduction	<u>6,544</u>	
+ Plus Rigging Weight	<u>1,007</u>	
= Gross Weight	<u>7,551</u>	Maximum Lift Capacity for Radius <u>150,000</u>
% of Crane Chart	<u>5%</u>	(Gross weight/Crane capacity) See District Policy

RESPONSIBLE PERSONNEL (Print Name & Sign)

Project Manager _____
 Level 1 Lift Specialist _____
 Level 2 Lift Specialist (If Critical Lift) _____
 Level 3 Lift Specialist (If Engineered Lift) _____
 Superintendent _____
 Lift Supervisor _____
 Operator _____

WORKSHEET

RIGGING

Sling Length _____ Vertical Length _____ Max. Sling
 Sling Angle _____ Sling Load Angle Factor N/A Load _____ Tons

	Type	Size	Capacity	Qty	Weight
Slings	5/8" 6-Part Wire 38 ft.- Vertical	38 ft.	17 Ton	4	556.0
Slings	7/8" 6-Part Wire Rope Choker	16 ft.	29 Ton	2	274.0
Slings	None	0	0	0	0.0
Shackles	None	None	0	1	0.0
Shackles	Forged Screw Pin	25	25 Ton	6	176.8
Eye Bolts					
Picking Device	None	N/A	N/A	0	0.0
Additional Items	None	0	0	0	0.0

Capacity >
Load?

OK

**CONSERVATIVE RIGGING
WEIGHTS USED**

TOTAL WEIGHT OF RIGGING 1,006.8

CRANE CAPACITY DEDUCTIONS

	Type	Gross Weight
Block	200 Ton	4,300
Effective Jib Weight		
Boom Extension		
Hook and Overhaul Ball	20 Ton	1,255
Whip Line below boom tip		94
Main Load Cable below tip		896
Stowed Jib or Boom Extension		
TOTAL DEDUCTIONS		6,544

Final checks prior to lift

<input type="checkbox"/>	Verify gross weight and load chart capacities (de-rated if crane on barge)
<input type="checkbox"/>	Inspected crane and verified components (Daily logs & annual certification checked)
<input type="checkbox"/>	Inspected rigging for condition and size
<input type="checkbox"/>	Inspect load line and drum wrap configuration
<input type="checkbox"/>	Ground stability. Outrigger pads/blocking sized correctly? Barge/crane list (de-rated chart)
<input type="checkbox"/>	Distance to nearest utility _____ (above and below ground)
<input type="checkbox"/>	Weather and wind load consideration, checked & verified at time of lift
<input type="checkbox"/>	Pre-lift meeting with rigging crew, operator, and signal person (attached sign in sheet)
<input type="checkbox"/>	Rigging drawings attached
<input type="checkbox"/>	Method of communication (radios, hand signals, etc.) checked & verified
<input type="checkbox"/>	Lift abort procedures checked and verified. JHA/PSI conducted

SERIAL NUMBER: **XXXX-XXXX**

CRANE RATING MANUAL

298 HSL

250 TON LATTICE BOOM CRAWLER CRANE

- 68" x 80" TUBE BOOM
WITH 30' PEAK SECTION
- 1.25" DIAMETER DUAL PENDANTS
- WITH 25' LIVE MAST
- 30" X 36" TUBULAR JIB
- LBCE CRAWLER LOWER 19' 3" GAUGE
AND 27' 9" OVERALL LENGTH

For Replacement, Order Part Number: P3P0029
(061812)

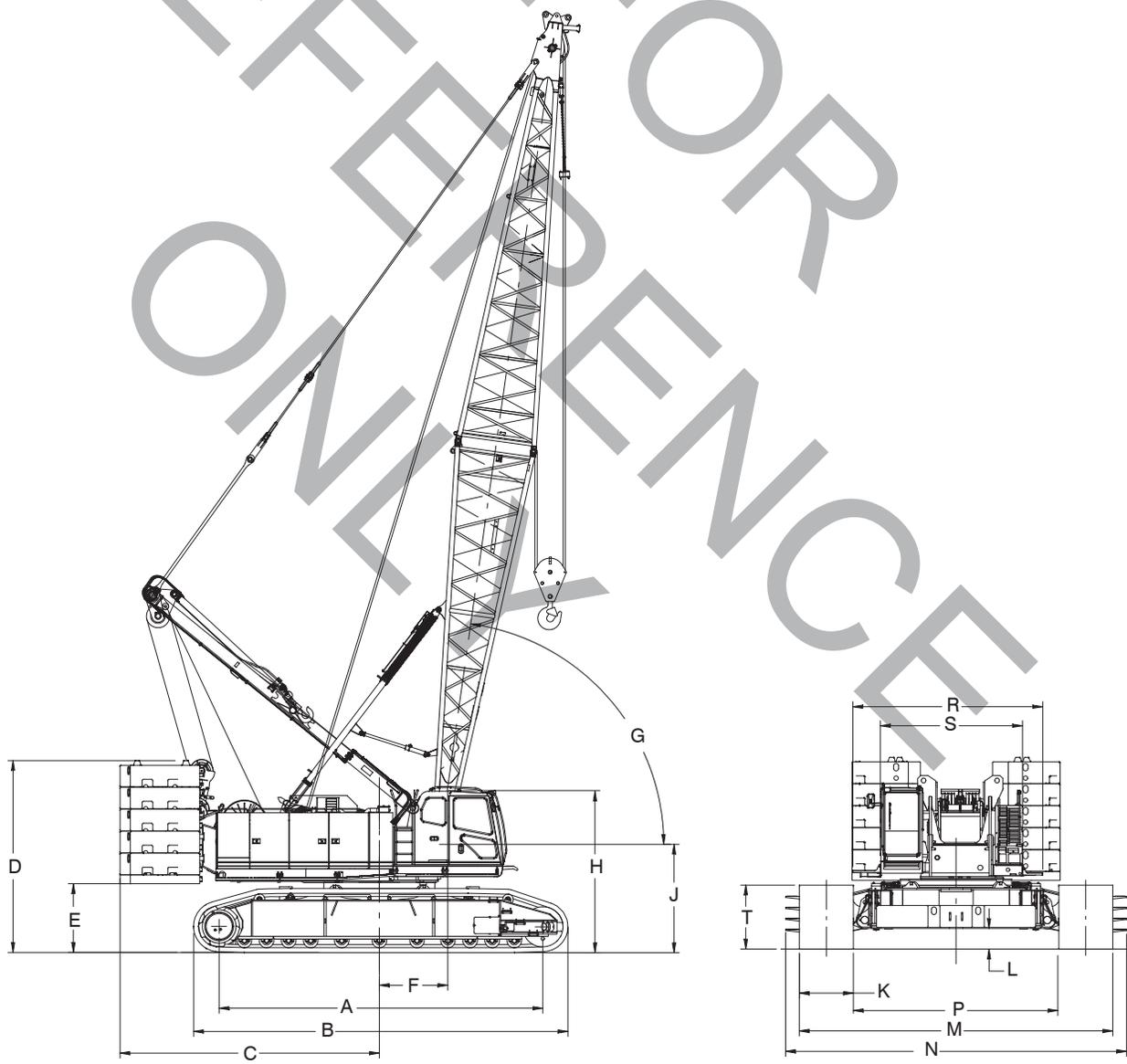
Link-Belt[®]
CONSTRUCTION EQUIPMENT

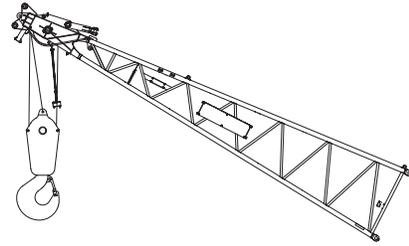
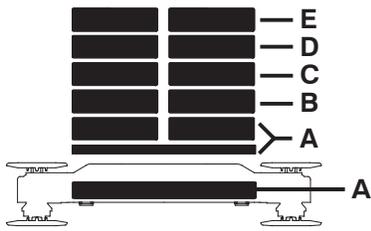
© Link-Belt is a registered trademark.

General Dimensions

A	Centerline Sprocket To Centerline Idler (Nominal)	24' (7.32m)
B	Overall Length (Lower)	27'-9" (8.46m)
C	Tailswing (Upper Counterweight)	19'-5.0" (5.92m)
D	Working Height	14'-4" (4.37m)
E	Ground Clearance (Upper Counterweight)	61.6" (1.56m)
F	Centerline Of Rotation To Centerline Of Boom Foot	53.5" (1.36m)
G	Boom Angle (Maximum)	82°
H	Operator's Cab Height	12'-10.5" (3.92m)
J	Boom Foot Pin Height	97" (2.46m)

K	Track Shoe Width	48" (1.22m) Std. 60" (1.52m) Opt.
L	Ground Clearance (Frame)	17.8" (0.45m)
M	Overall Width – Lower [48" (1.22m) Shoes]	23'-3" (7.08m)
	Overall Width – Lower [60" (1.52m) Shoes]	24'-3" (7.39m)
N	Overall Width – Lower With Steps [48" (1.22m) Shoes]	25'-3.5" (7.71m)
	Overall Width – Lower With Steps [60" (1.52m) Shoes]	26'-3.5" (8.01m)
P	Distance Between Tracks [48" (1.22m) Shoes]	15'-3" (4.64m)
	Distance Between Tracks [60" (1.52m) Shoes]	14'-3" (4.27m)
R	Upper Width (Over Catwalks)	14'-1" (4.29m)
S	Upper Width (Catwalks Removed)	10'-6" (3.20m)
T	Track Height	57.3" (1.46m)





Main Boom Capacities – 120'

Load Radius (ft)	Boom Angle (deg)	Over End Blocked	360° Rotation					Load Radius (ft)
		ABCDE+A CTWT (lb)	ABCDE+A CTWT (lb)	ABCD+A CTWT (lb)	ABC+A CTWT (lb)	AB+A CTWT (lb)		
		Curve 1	Curve 2	Curve 3	Curve 4	Curve 5		
21.16	82.0	326,800	326,800	317,700	305,000	292,200	21.16	
25	80.1	282,000	282,000	271,000	257,600	225,600	25	
30	77.7	231,300	231,300	215,800	191,800	167,700	30	
35	75.3	190,400	190,400	171,400	152,100	132,700	35	
40	72.8	162,900	157,700	141,600	125,500	109,400	40	
50	67.7	125,300	116,400	104,300	92,200	80,100	50	
60	62.4	100,100	91,600	81,900	72,200	62,500	60	
70	56.9	84,100	74,900	66,900	58,800	50,700	70	
80	51.0	70,900	63,000	56,100	49,200	42,300	80	
90	44.5	60,800	54,100	48,000	42,000	35,900	90	
100	37.2	52,700	47,100	41,700	36,300	30,900	100	
110	28.4	47,000	41,400	36,600	31,700	26,900	110	
117.22	20.0	42,200	38,000	33,500	28,900	24,400	117.22	

Note: Refer To Page 21 For “Capacity Deductions”.

Link-Belt®

CONSTRUCTION EQUIPMENT

LS - 248H II

CRANE RATING MANUAL

- 68" x 80" TUBULAR BOOM
- 30' OPEN THROAT PEAK SECTION
- 15' HAMMERHEAD PEAK SECTION
- 1.0" DIAMETER PENDANTS
- WITH LIVE MAST
- LBCE CRAWLER LOWER, 18'10" GAGE AND 28'6" OVERALL LENGTH

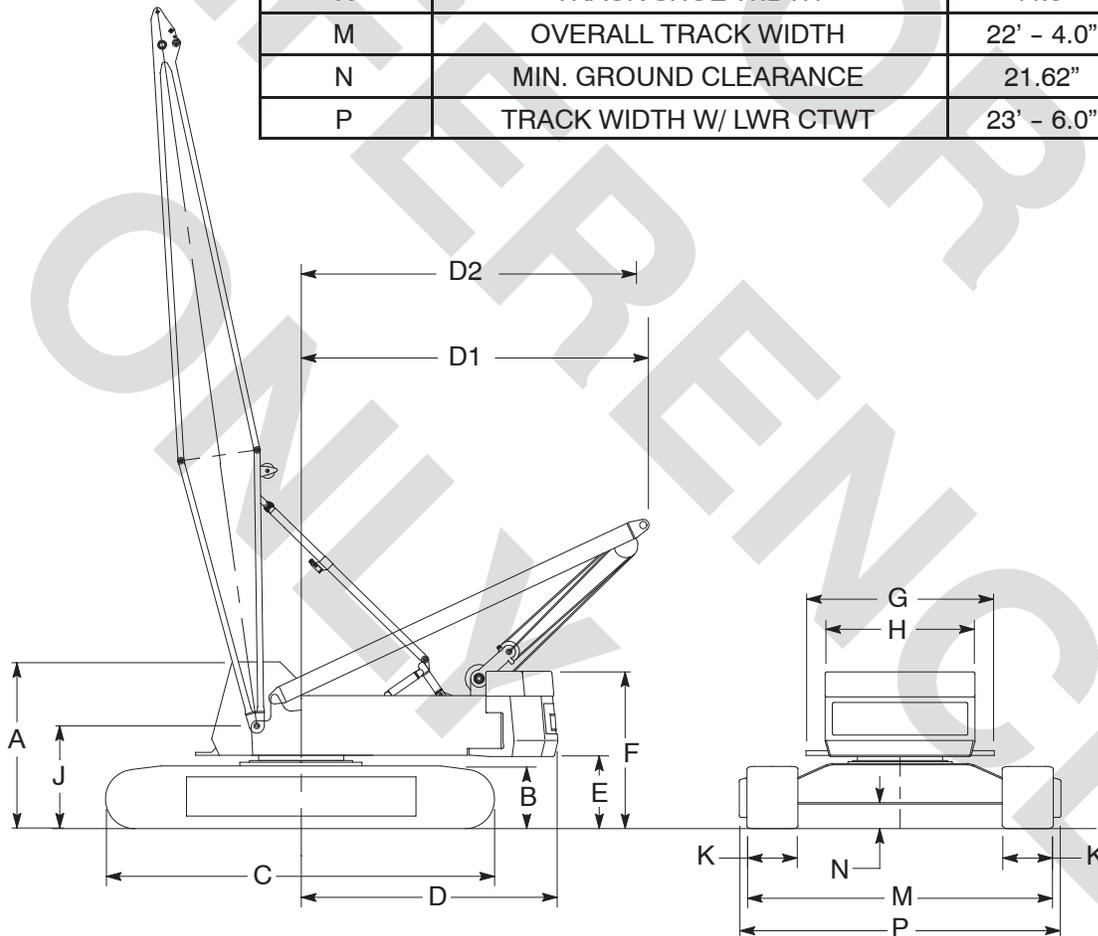
SERIAL NUMBER XXXX-XXXX

For Replacement, Order Part Number H3P0038.
(010802)

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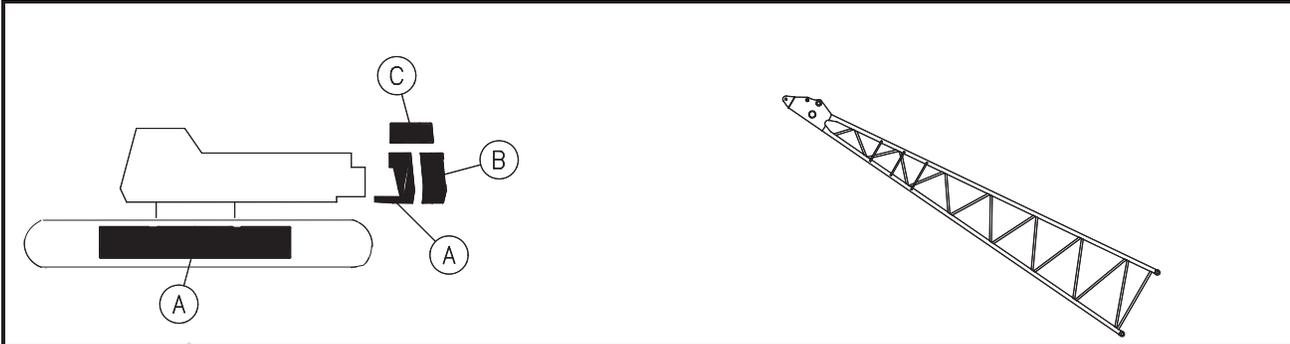
GENERAL DIMENSIONS

GENERAL DESCRIPTION	DIMENSION	
A	OPERATOR'S CAB HEIGHT	12' - 0.00"
B	TREADMEMBER HEIGHT	53.50"
C	TREADMEMBER LENGTH	28' - 6.0"
D	TAIL SWING - CTWT	18' - 10.62"
D1	MAX. LIVE MAST SWING	25' - 0.0"
D2	MAX. BALANCE ARM SWING	24' - 6.0"
E	GROUND CLEARANCE - CTWT	63.81"
F	OVERALL HEIGHT - CTWT	11' - 5.55"
G	WIDTH OVER CATWALKS	13' - 7.78"
H	UPPER WIDTH	10' - 11.50"
J	HEIGHT OF BOOM FOOT PIN	90.5"
K	TRACK SHOE WIDTH	44.0"
M	OVERALL TRACK WIDTH	22' - 4.0"
N	MIN. GROUND CLEARANCE	21.62"
P	TRACK WIDTH W/ LWR CTWT	23' - 6.0"



NOTES:

1. Dimensions D1 and D2 are approximate and should be considered as reference only. Dimension D2 is applicable to luffing attachment applications only.
2. Individual job site obstacles must be considered and ample clearance given for all hazards near the crane working range.



MAIN BOOM CAPACITIES - 120 FT OPEN THROAT TUBE BOOM

Load Radius (ft)	Boom Angle (deg)	360° Rotation					Over End Blocked	Load Radius (ft)
		ABC + A CTWT (lb)	ABC CTWT (lb)	AB CTWT (lb)	A CTWT (lb)	0 CTWT (lb)	ABC + A CTWT (lb)	
20.0	82.0	186,200	186,200	186,200	148,900	106,900	186,200	20.0
25	79.6	173,900	173,900	157,300	97,900	69,800	173,900	25
30	77.1	156,900	144,900	117,000	72,200	51,000	156,900	30
35	74.7	128,900	115,000	92,600	56,700	39,700	131,100	35
40	72.2	106,500	94,900	76,300	46,300	32,100	112,600	40
50	67.1	78,500	69,800	55,800	33,200	22,600	86,900	50
60	61.8	61,600	54,600	43,400	25,400	16,800	69,300	60
70	56.2	50,300	44,500	35,100	20,100	13,000	58,300	70
80	50.3	42,200	37,200	29,200	16,300	10,200	49,000	80
90	43.7	36,100	31,800	24,700	13,400	8,100	41,800	90
100	36.3	31,400	27,500	21,200	11,200	6,400	36,100	100
110	27.2	27,500	24,000	18,400	9,400	5,100	31,400	110
120	13.4	24,300	21,100	16,000	7,800	3,900	27,500	120

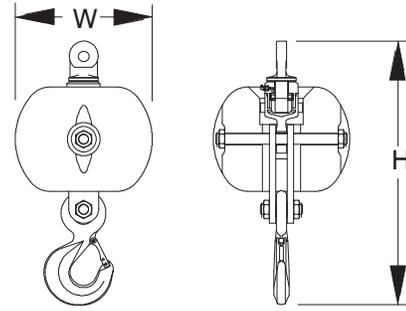
Note: Refer To Page 13 For "Capacity Deductions" Caused By Any Jib Attachment Or Tip Extension.

Hook Balls

20 Ton (18.1mt) Swivel

Hook Ball* ①

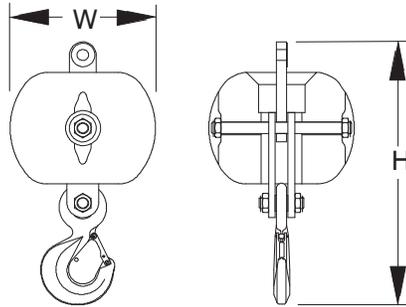
Width	21.75 in	(0.55m)
Height	41.75 in	(1.06m)
Weight	1,255 lb	(569kg)



20 Ton (18.1mt) Non-Swivel

Hook Ball* ①

Width	21.75 in	(0.55m)
Height	39 in	(0.99m)
Weight	1,211 lb	(549kg)

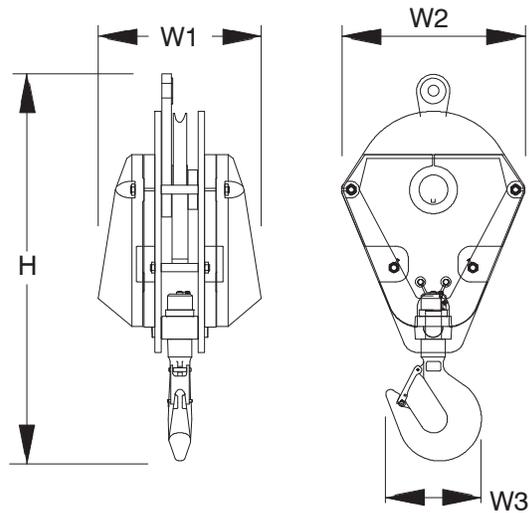


Hook Blocks

40 Ton (36.3mt)

1 – Sheave Hook Block* ①

Width1	25.50 in	(0.65m)
Width2	28.75 in	(0.73m)
Width3	15 in	(0.38m)
Height	60.75 in	(1.54m)
Weight	2,293 lb	(1 040kg)



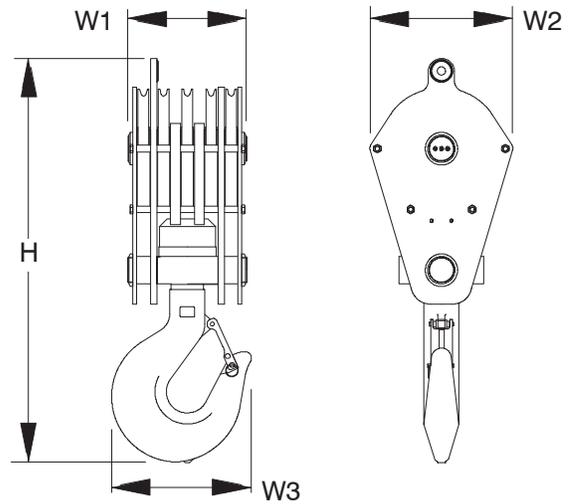
Number inside black circle “①” = # of components

* – Optional equipment

165 Ton (150mt)

5-Sheave Hook Block* ①

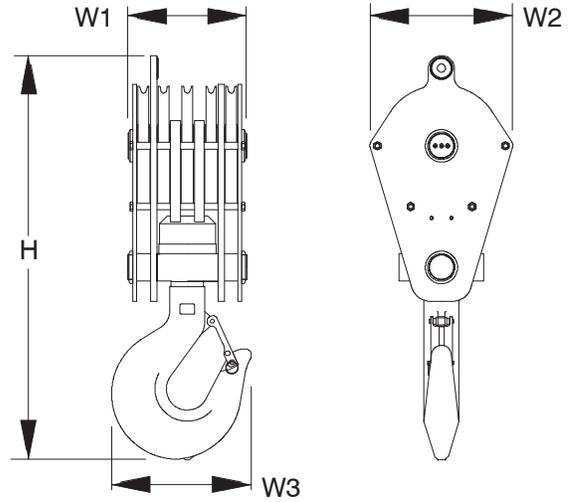
Width1	22 in	(0.56m)
Width2	28.75 in	(0.73m)
Width3	28.25 in	(0.72m)
Height	81.50 in	(2.07m)
Weight	3,392 lb	(1 539kg)



200 Ton (181.4mt)

5-Sheave Hook Block* ①

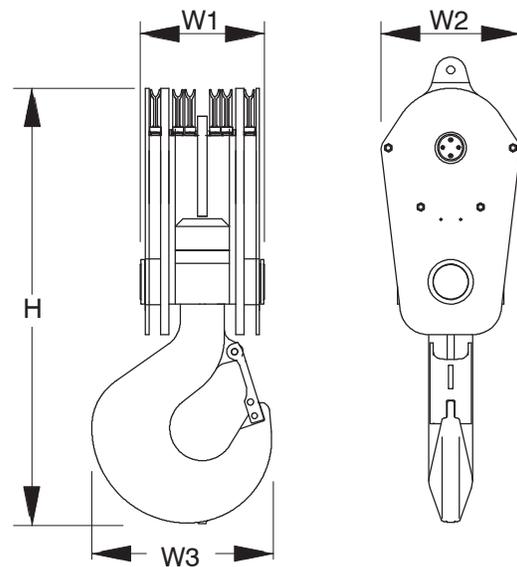
Width1	25 in	(0.63m)
Width2	28.75 in	(0.73m)
Width3	35 in	(0.89m)
Height	58 in	(1.47m)
Weight	4,300 lb	(1 950kg)



250 Ton (226.8mt)

6-Sheave Hook Block* ①

Width1	27 in	(0.69m)
Width2	35.25 in	(0.90m)
Width3	34.75 in	(0.88m)
Height	95.50 in	(2.43m)
Weight	5,721 lb	(2 595kg)



Number inside black circle "①" = # of components
 * - Optional equipment

Load Hoist Performance

Front & Rear Drums – 28mm Wire Rope

Rope Layer	Maximum Line Pull		No Load Line Speed		Full Load Line Speed		Pitch Diameter		Layer		Total	
	lb	kg	ft/min	m/min	ft/min	m/min	in	mm	ft	m	ft	m
1	59,234	26 869	383.7	116.9	191.8	58.5	24.6	624.0	192.9	58.8	192.9	58.8
2	54,356	24 656	413.0	125.9	206.5	62.9	26.4	671.7	278.5	84.9	400.6	122.1
3	50,220	22 780	442.3	134.8	221.1	67.4	28.3	719.3	222.5	67.8	623.1	189.9
4	46,669	21 169	471.6	143.7	235.8	71.9	30.2	767.0	237.1	72.3	860.2	262.2
5	43,587	19 771	500.9	152.7	250.4	76.3	32.1	814.6	251.9	76.8	1,112.1	339.0
6	40,887	18 546	530.2	161.6	265.1	80.8	33.9	862.3	266.7	81.3	1,378.8	420.2
7	38,502	17 465	559.5	170.5	279.7	85.3	35.8	910.0	281.3	85.7	1,660.1	506.0

Boom Hoist Drums – 22mm Wire Rope

Rope Layer	Maximum Line Pull		No Load Line Speed		Full Load Line Speed		Pitch Diameter		Layer		Total	
	lb	kg	ft/min	m/min	ft/min	m/min	in	mm	ft	m	ft	m
1	103,657	47 019	99.9	30.4	54.8	16.7	26.1	663.0	150.3	45.8	150.3	45.8
2	97,096	44 043	105.6	32.2	57.9	17.7	27.6	701.1	159.0	48.5	309.3	94.3
3	91,316	41 421	111.3	33.9	61.1	18.6	29.1	739.3	167.7	51.1	477.0	145.4
4	86,186	39 094	117.1	35.7	64.2	19.6	30.6	777.4	176.2	53.7	653.2	199.1
5	81,601	37 014	122.8	37.4	67.4	20.5	32.1	815.6	185.0	56.4	838.2	255.5
6	77,480	35 145	128.6	39.2	70.5	21.5	33.6	853.7	193.6	59.0	1,031.8	314.5
7	73,755	33 455	134.3	40.9	73.7	22.5	35.1	891.9	202.2	61.6	1,234.0	376.1

Third Hoist Drum – 1.0 in (25.4mm) Wire Rope

Rope Layer	Maximum Line Pull		No Load Line Speed		Full Load Line Speed		Pitch Diameter		Layer		Total	
	lb	kg	ft/min	m/min	ft/min	m/min	in	mm	ft	m	ft	m
1	29,090	13 195	271	82.6	230	70.1	21	533.4	131	39.9	131	39.9
2	26,560	12 048	297	90.5	251	76.5	23	584.2	143	43.6	274	83.5
3	24,440	11 086	322	98.1	273	83.2	25	635.0	156	47.5	430	131.1
4	22,630	10 265	348	106.1	295	89.9	27	685.8	168	51.2	598	182.3
5	21,070	9 557	374	114.0	317	96.6	29	736.6	181	55.2	779	237.4
6	---	---	---	---	---	---	---	---	193	58.8	972	296.3

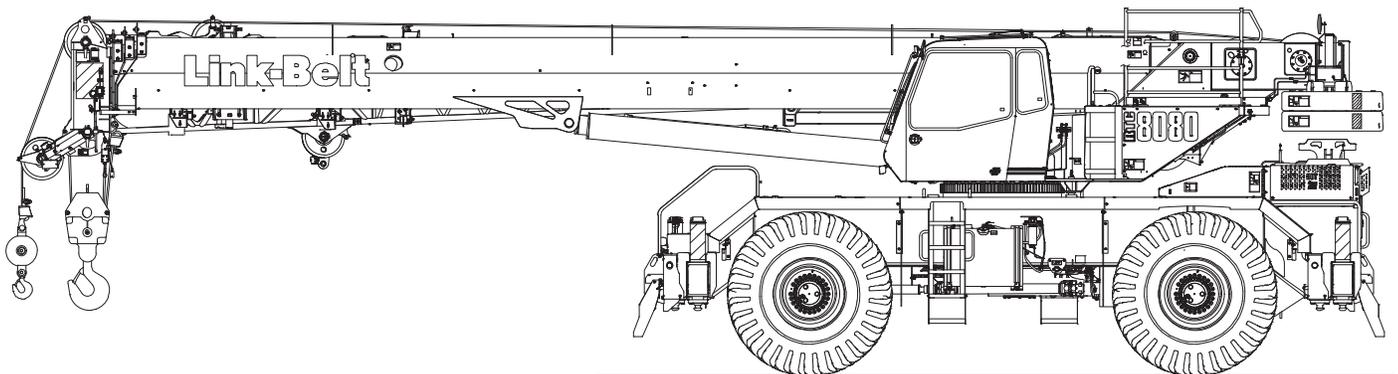
Wire Rope Application	Diameter		Type	Max. Permissible Load		Wire Rope Descriptions
	in	mm		lb	kg	
Front Hoist	--	28	ZB	33,900	15 377	4 strand, low torque, right regular lay
Rear Hoist	--	28	ZB	33,900	15 377	4 strand, low torque, right regular lay
Boom Hoist	--	22	LB	25,000	11 340	6 x 25 (6 x19 Class) – Filler Wire – Preformed – I.W.R.C – Right Lay – Regular Lay Compacted Strands
Third Drum	1.0	25.4	RB	22,760	10 324	18 x 19 Rotation Resistant Compacted Strand – High Strength – Preformed, Right Regular Lay

Technical Data

Specifications & Capacities

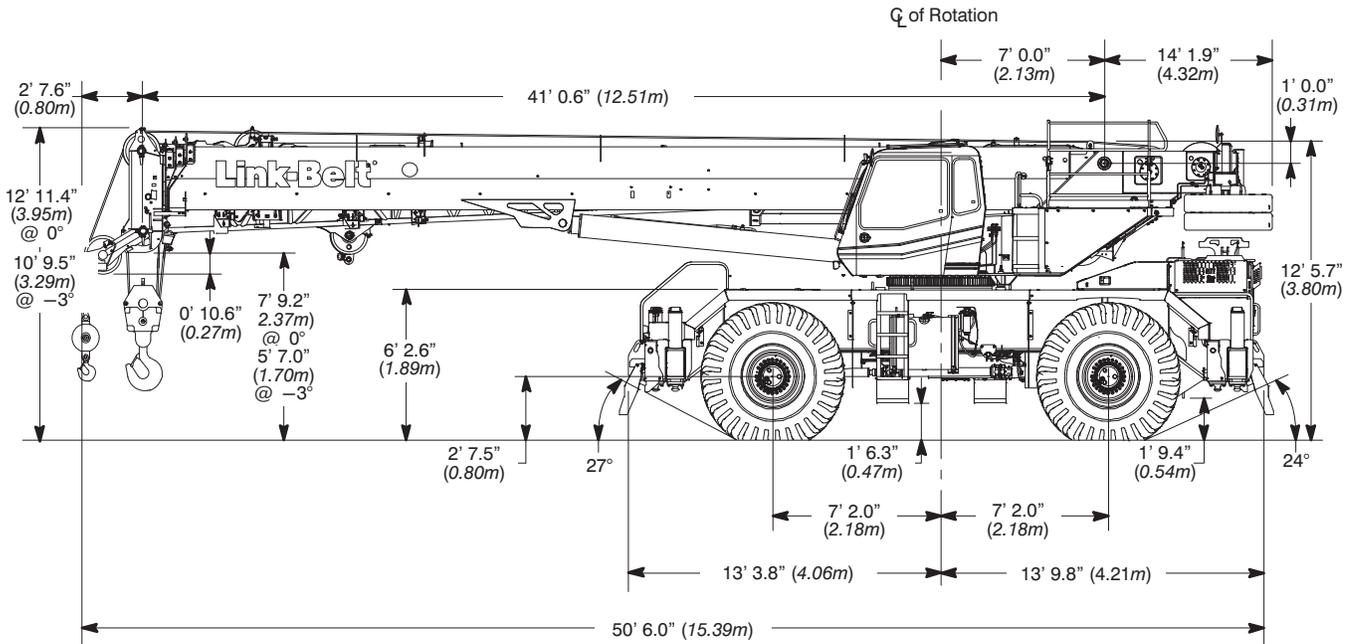
RTC 8080

Series II
80 US ton
80 metric ton



CAUTION: This material is supplied for reference use only. Operator must refer to in-cab Crane Rating Manual and Operator's Manual to determine allowable crane lifting capacities and assembly and operating procedures.

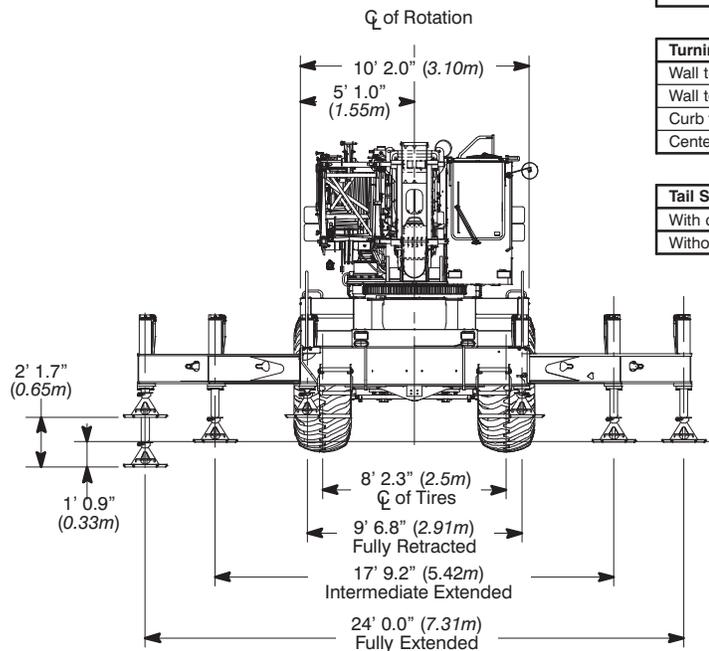
General Dimensions



Turning Radius – Front Wheel (4x2) Steering		English	Metric
Wall to wall over carrier		48' 3"	14.71m
Wall to wall over boom attachment		60' 1"	18.31m
Curb to curb		46' 8"	14.22m
Centerline of tire		45' 3"	13.79m

Turning Radius – All Wheel (4x4) Steering		English	Metric
Wall to wall over carrier		27' 10"	8.48m
Wall to wall over boom attachment		38' 11"	11.86m
Curb to curb		26' 0"	7.92m
Centerline of tire		24' 6"	7.47m

Tail Swing		English	Metric
With counterweight		14' 2"	4.32m
Without counterweight		13' 2"	4.01m



Not To Scale

■ Load Hoist System

Load Hoist Performance

Main (Front) and Auxiliary (Rear) Winches – 3/4 in (19mm) Rope										
Layer	Maximum Line Pull		Normal Line Speed		High Line Speed		Layer		Total	
	lb	kN	ft/min	m/min	ft/min	m/min	ft	m	ft	m
1	18,500	82.29	172	52.4	341	103.9	114	34.7	114	34.7
2	17,071	75.94	187	57.0	371	113.1	124	37.8	238	72.5
3	15,798	70.27	202	61.6	401	122.2	134	40.8	372	113.4
4	14,701	65.39	217	66.1	430	131.1	144	43.9	516	157.3
5	13,747	61.15	232	70.7	460	140.2	154	46.9	670	204.2
6	---	---	---	---	---	---	164	50.0	834	254.2

Wire Rope Application		in	mm	Type	lb	kN
Main (Rear) Winch	Standard	3/4	19	18x19 rotation resistant – right regular lay (Type RB)	12,920	57.47
	Optional	3/4	19	4 strand, low torque, right regular lay (Type GC)	22,400	99.64
	Optional	3/4	19	34x7 rotation resistant – right regular lay (Type ZB)	15,600	69.39
Auxiliary (Front) Winch	Standard	3/4	19	18x19 rotation resistant – right regular lay (Type RB)	12,920	57.47
	Optional	3/4	19	4 strand, low torque, right regular lay (Type GC)	22,400	99.64
	Optional	3/4	19	34x7 rotation resistant – right regular lay (Type ZB)	15,600	69.39

2M Main and Optional Auxiliary Winches

- Axial piston, full and half displacement (2–speed) motors driven through planetary reduction unit for positive control under all load conditions.
- Grooved lagging
- Power up/down mode of operation
- Hoist drum cable follower – optional
- Drum rotation indicator
- Drum diameter: 16 in (40.6cm)
- Rope length:
 - Main: 670 ft (204.2m)
 - Auxiliary: 500 ft (152.4m) or 670 ft (204.2m)
- Maximum rope storage: 834 ft (254.2m)
- Terminator style socket and wedge

■ Hydraulic System

Counterbalance Valves – All hoist motors, boom extend cylinders, and boom hoist cylinders are equipped with counterbalance valves to provide load lowering and prevents accidental load drop when hydraulic power is suddenly reduced.

Hydraulic Oil Coolers – One carrier mounted cooler removes heat from the hydraulic oil. Remote mounted on right side of the carrier.

■ Counterweight

Standard – Total of 19,200 lb (8 709.0kg) counterweight consisting of two counterweights pinned to the upper with capacities for:

- 0 lb (0kg) counterweight*
- 9,600 lb (4 354kg) counterweight
- 19,200 lb (8 709.0kg) counterweight

* Travel speed limited to 5 mph.

Optional – Hydraulic counterweight removal activated by a hand–held controller with enough cable to access the pins on each side of the counterweights.

Axle Loads

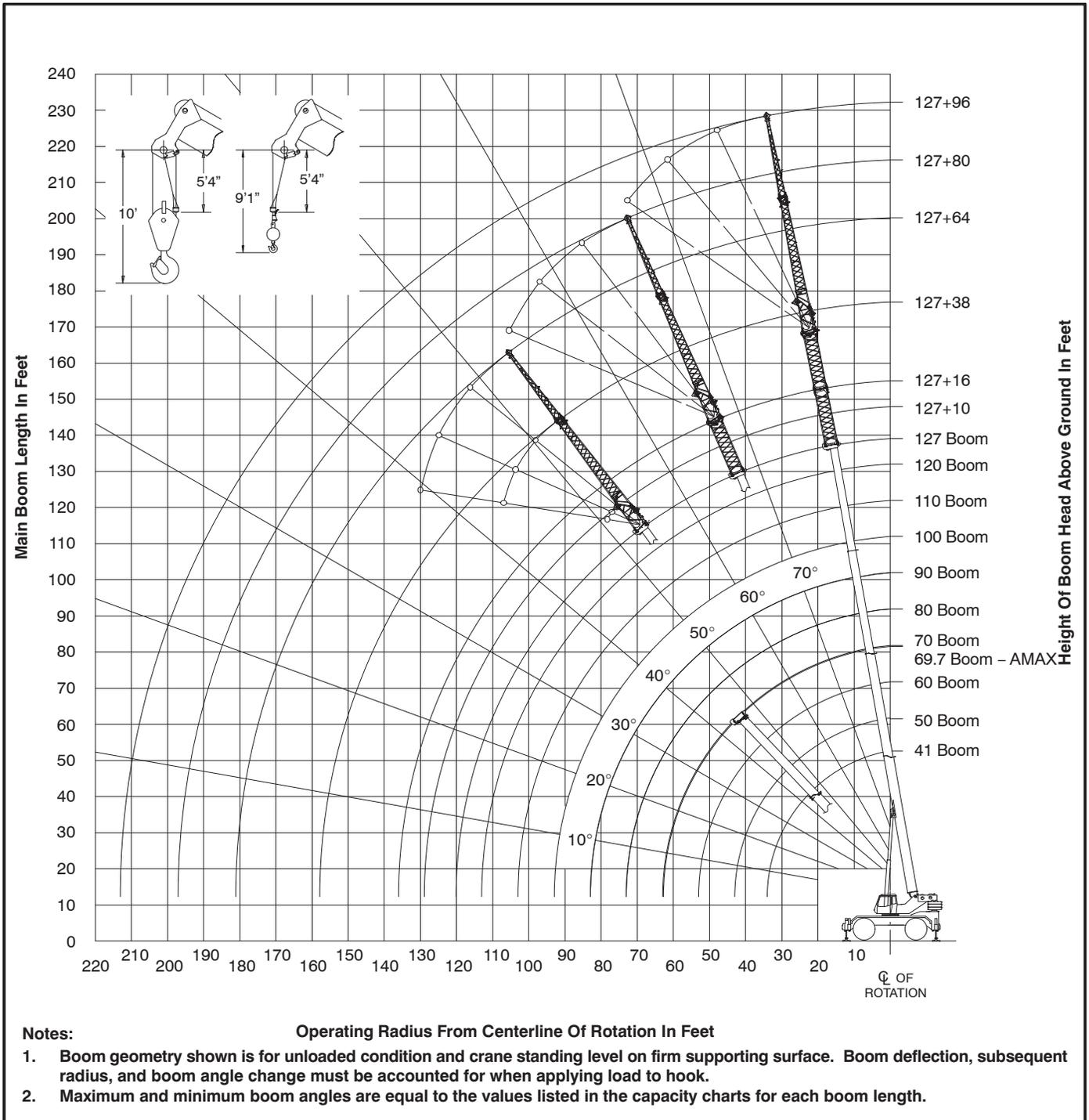
Base crane with zero counterweight and full tank of fuel	Gross Vehicle Weight ⁽¹⁾	Upper Facing Front				Upper Facing Rear				
		Front Axles		Rear Axles		Front Axles		Rear Axles		
		lb	kg	lb	kg	lb	kg	lb	kg	
Tier 4i/ Stage IIIB	81,125	36 798	52,515	23 820	28,610	12 977	21,959	9 960	59,166	26 837
Tier 3/ Stage IIIA	80,992	36 737	52,573	23 847	28,419	12 891	22,017	9 987	58,975	26 751
Pintle hook, front	13	6	17	8	-5	-2	17	8	-5	-2
Pintle hook, rear	13	6	-5	-2	18	8	-5	-2	18	8
Hydro-gas suspension	56	25	20	9	36	16	20	9	36	16
Operator in cab	250	113	140	64	110	50	110	50	140	64
Hoist drum follower – main	69	31	-24	-11	93	42	93	42	-24	-11
Auxiliary winch with 500 ft (152.4m) wire rope	616	279	-75	-34	691	313	691	313	-75	-34
Hoist drum follower – auxiliary	69	31	-6	-3	75	34	75	34	-6	-3
Substitute 500 ft (152.4m) wire rope with 670 ft (204.2m) – auxiliary	213	97	-7	-3	220	100	220	100	-7	-3
Remove 670 ft (202.4m) wire rope from rear (main) winch	-856	-388	187	85	-1,043	-473	-1,043	-473	187	85
Remove 500 ft (152.4m) wire rope from front (auxiliary) winch	-643	-292	21	10	-664	-301	-664	-301	21	10
Counterweight removal	300	136	-89	-40	389	176	389	176	-89	-40
One slab of counterweight on upper	9,600	4 355	-3,356	-1 522	12,956	5 877	12,956	5 877	-3,356	-1 522
Two slabs of counterweight on upper	19,200	8 709	-6,712	-3 045	25,912	11 754	25,912	11 754	-6,712	-3 045
Emergency steering	258	117	40	18	218	99	218	99	40	18
360° mechanical swing lock	140	64	72	33	68	31	68	31	72	33
Air conditioning	128	58	37	17	91	87	91	87	37	17
Floodlight to front of boom base section	11	5	15	7	-4	-2	-4	-2	15	7
Fly mounting brackets to boom base section for fly options	225	102	306	39	-81	-37	-81	-37	306	139
38 ft (11.6m) offsettable fly – stowed	1,659	753	2,895	1 313	-1,236	-561	-1,236	-561	2,895	1 313
38–64 ft (11.6–19.5m) offsettable fly – stowed	2,401	1 089	3,888	1 764	-1,487	-675	-1,487	-675	3,888	1 764
10–38–64 ft (3.0–11.6–19.5m) offsettable fly – stowed	2,762	1 253	4,728	2 145	-1,966	-892	-1,966	-892	4,728	2 145
Auxiliary lifting sheave	110	50	327	148	-217	-98	-217	-98	327	148
80 ton (72.5mt) 5–sheave hook block at bumper	1,406	638	2,134	968	-728	-330	-728	-330	2,134	968
60 ton (54.4mt) 4–sheave hook block at bumper	1,109	503	1,683	763	-574	-260	-574	-260	1,683	763
10 ton (9.1mt) hook ball at bumper	583	264	885	401	-302	-137	-302	-137	885	401
8.5 ton (7.7mt) hook ball at bumper	360	163	546	248	-186	-84	-186	-84	546	248
80 ton (72.5mt) 5–sheave hook block at boom head	1,406	638	4,031	1 828	-2,625	-1 191	-2,625	-1 191	4,031	1 828
60 ton (54.4mt) 4–sheave hook block at boom head	1,109	503	3,180	1 442	-2,071	-939	-2,071	-939	3,180	1 442
10 ton (9.1mt) hook ball at boom head	583	264	1,672	758	-1,089	-494	-1 089	-494	672	758
8.5 ton (7.7mt) hook ball at boom head	360	163	1,032	468	-672	-305	-672	-305	1,032	468

Tire	Maximum Allowable Axle Load @ 20 mph (32.2km/h)
29.5 x 25 (28-PR)	55,000 lb (24 948kg)

(1) Adjust gross vehicle weight and axle loading according to component weight.
 Note: All weights are ±3%.

**USE 1,600 # 75 TON BLOCK
 FOR RIGGING WEIGHT
 CALCULATIONS**

Main Boom Working Range Diagram – Standard



- Notes:** **Operating Radius From Centerline Of Rotation In Feet**
1. Boom geometry shown is for unloaded condition and crane standing level on firm supporting surface. Boom deflection, subsequent radius, and boom angle change must be accounted for when applying load to hook.
 2. Maximum and minimum boom angles are equal to the values listed in the capacity charts for each boom length.

Main Boom Lift Capacity Charts – Standard

19,200 lb Counterweight – Fully Extended Outriggers – 360° Rotation (All Capacities Are Listed In Pounds)											
Radius (ft)	Boom Length (ft)										Radius (ft)
	41	50	60	70	80	90	100	110	120	127	
10	160,000	105,600	104,100	66,700							10
12	138,200	105,600	104,100	66,700	48,000						12
15	111,100	105,600	94,200	66,700	48,000	48,600					15
20	81,500	81,200	79,100	63,600	48,000	48,600	45,900	37,300			20
25	63,400	63,100	62,800	54,600	48,000	48,600	41,400	37,300	27,100	23,200	25
30	51,000	50,800	50,600	47,600	48,000	47,100	37,700	34,100	27,100	23,200	30
35		43,100	43,700	44,100	44,400	42,800	34,400	30,900	27,100	23,200	35
40		34,200	35,000	35,400	35,600	35,800	31,300	28,200	25,900	23,200	40
45			28,200	28,700	28,900	29,100	28,500	25,800	23,700	22,600	45
50			23,200	23,800	24,000	24,200	24,400	23,700	21,800	20,700	50
55				19,900	20,300	20,400	20,600	20,700	20,100	19,100	55
60				16,900	17,200	17,400	17,600	17,700	17,700	17,700	60
65					14,700	15,000	15,100	15,200	15,300	15,300	65
70					12,700	13,000	13,100	13,200	13,300	13,300	70
75						11,300	11,500	11,600	11,700	11,800	75
80						9,800	10,000	10,200	10,300	10,300	80
85							8,700	8,900	9,000	9,100	85
90							7,600	7,800	7,900	8,000	90
95								6,800	6,900	7,000	95
100								6,000	6,100	6,200	100
105									5,300	5,400	105
110									4,600	4,700	110
115										4,100	115

This information is not for crane operation. Operator must refer to the in-cab information for crane operation. Rated lifting capacities shown on fully extended outriggers do not exceed 85% of the tipping loads and on tires do not exceed 75% of the tipping loads.

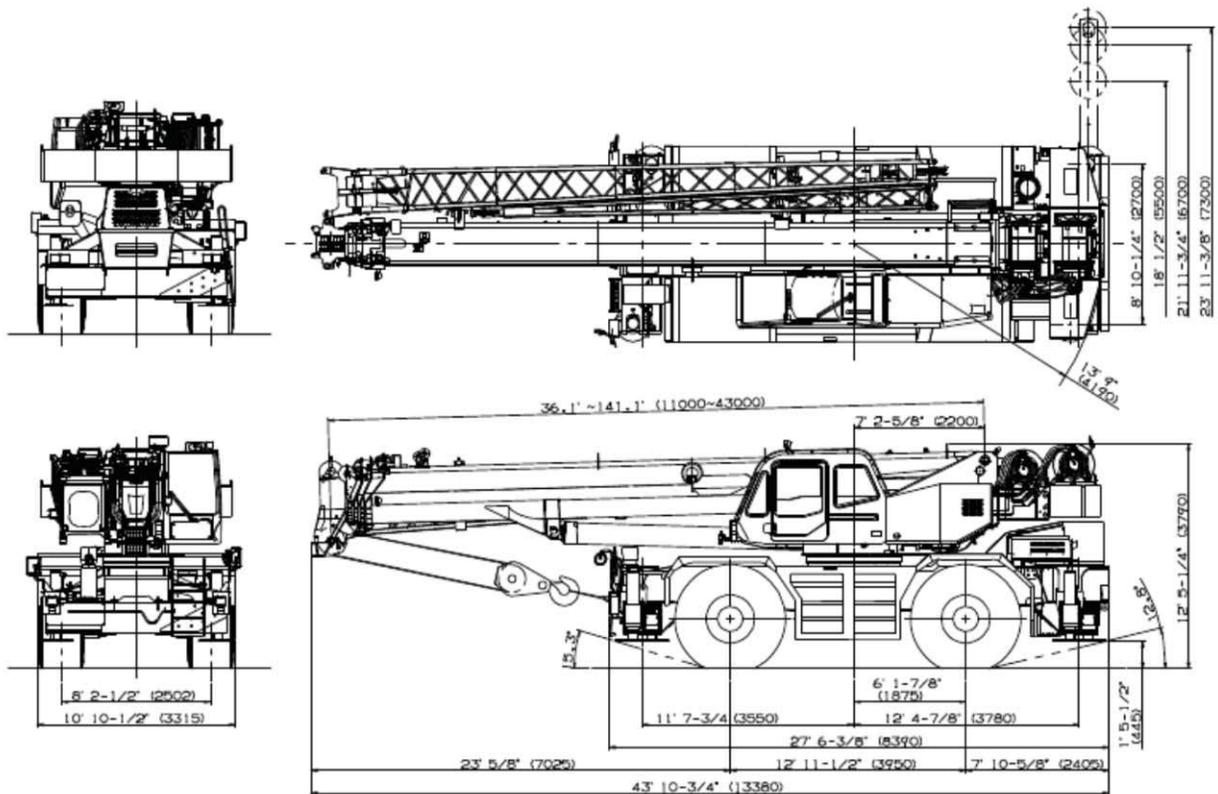


GR-750XL

75 Ton Capacity (68 Metric Tons)

HYDRAULIC ROUGH TERRAIN CRANE

DIMENSIONS



Note : Dimension is with boom angle at -1.6 degree.

GENERAL DIMENSIONS (29.5 - 25 Tires)

	Feet	Meters
Turning radius		
4 wheel steer	22' 4"	6.8
2 wheel steer	39' 1"	11.9
Tail swing of counterweight	13' 9"	4.19

Specifications are subject to change without notice.
Specification effective with serial number 548831 and up.

STANDARD EQUIPMENT

- Five section full power partially synchronized boom
36.1'~141.1' (11.0 m~43.0 m)
- 33.2' or 58.1' (10.1 m or 17.7 m) bi-fold lattice jib (tilt type)
with 3.5°, 25° or 45° pinned offsets and self storing pins.
- Auxiliary lifting sheave (single top) stowable
- Variable speed main hoist with grooved drum, cable follower
and 771' of 3/4" cable.
- Variable speed auxiliary hoist with grooved drum, cable follower
and 436' of 3/4" cable.
- Drum rotation indicator (audible, visible and thumper type) main
and auxiliary hoist
- Anti-Two block device (overwind cutout)
- Boom angle indicator
- Tadano electronic load moment indicator system (AML-C)
- Outrigger extension length detector
- Electronic crane monitoring system
- Tadano twin slewing system and 360° positive slewing lock
- Self centering finger control levers with pilot control
- Control pedals for boom elevating and boom telescoping
- 3 way adjustable cloth seat with armrests, high back
and seat belt
- Tilt-telescoping steering wheel
- Tinted safety glass and sun visor
- Front windshield wiper and washer
- Roof window wiper and washer
- Power window (cab door)
- Rear view mirrors (right and left side)
- Mirror for main and auxiliary hoists
- Cigarette lighter and ashtray
- Cab floor mat
- Pump disconnect in operator's cab
- Hydraulic oil cooler
- Hot water cab heater and air conditioner
- Positive control
- Quick reeving type bi-fold jib
- Work lights
- Independently controlled outriggers
- Four outrigger extension positions
- Self-storing outrigger pads
- Cummins QSB6.7 turbo charged
after cooled engine (270HP) with exhaust brake
- Electronic controlled automatic transmission driven
by torque converter
- 4 X 4 X 4 drive/steer
- Non-spin rear differential
- Automatic rear axle oscillation lockout system
- 29.5-25 22PR(OR) tires or 29.5-25 28PR(OR) tires
- Disc brakes
- Fenders
- Air dryer
- Water separator with filter (high filtration)
- Engine over-run alarm
- Back-up alarm
- Low oil pressure/high water temp. warning device (visual)
- Rear steer centering light
- Air cleaner dust indicator
- Full instrumentation package
- Complete highway light package
- Tool storage compartment
- Tire inflation kit
- 24 volt electric system
- 6.2 ton (5.6 metric ton) hook ball with swivel
- 75 ton (68 metric ton) - 7 sheaves with swivel hook block
and safety latch for 3/4"(19mm) wire rope
- Towing hooks-Front and rear
- Lifting eyes
- Hook block tie down (front bumper)
- Weighted hook storage compartment
- Halogen head lamp
- Telematics (machine data logging and monitoring system)
with HELLO-NET via internet
- Fuel consumption monitor
- Eco mode system

HOISTING PERFORMANCE

LINE SPEEDS AND PULLS

Layer	Main or auxiliary hoist - 14-1/4" (0.362m) drum			
	Line speeds ¹		Line pulls Available ²	
	F.P.M.	m/min	Lbs.	kgf
1st	331	101	16,500	7,480
2nd	361	110	15,200	6,900
3rd	390	119	13,800	6,260
4th	420	128	12,700	5,760
5th	450	137	11,900	5,400
6th	479	146	11,000	4,990
7th ³	509	155	10,300	4,670

* Maximum permissible line pull may be affected by wire rope strength.
Maximum lifting capacity per line (Main & Aux.): 12,300 lbs (5,600 kg)

¹ Line speeds based only on hook block, not loaded.

² Developed by machinery with each layer of wire rope, but not based
on rope strength or other limitation in machinery or equipment.

³ Seventh layer of wire rope are not recommended
for hoisting operations.

DRUM WIRE ROPE CAPACITIES

Wire rope layer	Main and auxiliary drum grooved lagging			
	3/4" (19mm) wire rope			
	Rope per layer		Total wire rope	
	Feet	Meters	Feet	Meters
1	112.2	34.2	112.2	34.2
2	122.3	37.3	234.5	71.5
3	132.2	40.3	366.8	111.8
4	142.3	43.4	509.1	155.2
5	152.2	46.4	661.4	201.6
6	162.4	49.5	823.8	251.1
7	172.5	52.6	996.4	303.7

DRUM DIMENSIONS

	Inch	mm
Root diameter	14-1/4"	362
Length	23-5/8"	600
Flange diameter	25-7/8"	657

WARNING AND OPERATING INSTRUCTIONS FOR USING THE LOAD MOMENT INDICATOR (AML-C)

1. When operating crane on outriggers:
 - Set P.T.O. switch to "ON".
 - Press the outrigger mode select key to register for the outrigger operation. Press the register key, then the outrigger mode indicative symbol changes from flashing to a solid light.
 - Press the lift mode select key to select the lift status that corresponds to the actual boom configuration. Each time the lift mode select key is pressed, the status changes. Press the register key to register the lift status, then the lift indicative symbol changes from flashing to a solid light.
 - when mounting and stowing jib, select the jib set status. (the jib state indicative symbol will be flashing.)
 2. When operating crane on rubber:
 - Set P.T.O. switch to "ON".
 - Press the outrigger mode select key. The on-tire mode indicative symbol comes on. Each time the outrigger mode select key is pressed the status changes. Select the creep operation, the on-tire mode indicative symbol flicker.
 - Press the lift mode select key to register the boom or single top lift.
- However, pay attention to the following.
- (1) For stationary operation.
 - The front capacities are attainable only when the over front position symbol comes on. When the boom is more than 2 degrees from centered over front of chassis, 360° capacities are in effect.
 - (2) For creep operation.
 - The creep capacities are attainable only when boom is in the straight forward position of chassis and the over front position symbol is on. If boom is not in the straight forward position of chassis, never lift load.
3. A slewing does not automatically stop even if the crane becomes overloaded.
 4. During crane operation, make sure that the displays on front panel are in accordance with actual operating conditions.
 5. The displayed values of LOAD MOMENT INDICATOR (AML-C) are based on freely suspended loads and make no allowance for such factors as the effect of wind, sudden stopping of loads, supporting surface conditions, inflation of tire, operating speed, side loads, etc. For safe operation, it is recommended when extending and lowering boom or slewing, lifting loads shall be appropriately reduced.
 6. LOAD MOMENT INDICATOR (AML-C) is intended as an aid to the operator. Under no condition should it be relied upon to replace use of capacity charts and operating instruction. Sole reliance upon LOAD MOMENT INDICATOR (AML-C) aids in place of good operating practice can cause an accident. The operator must exercise caution to assure safety.

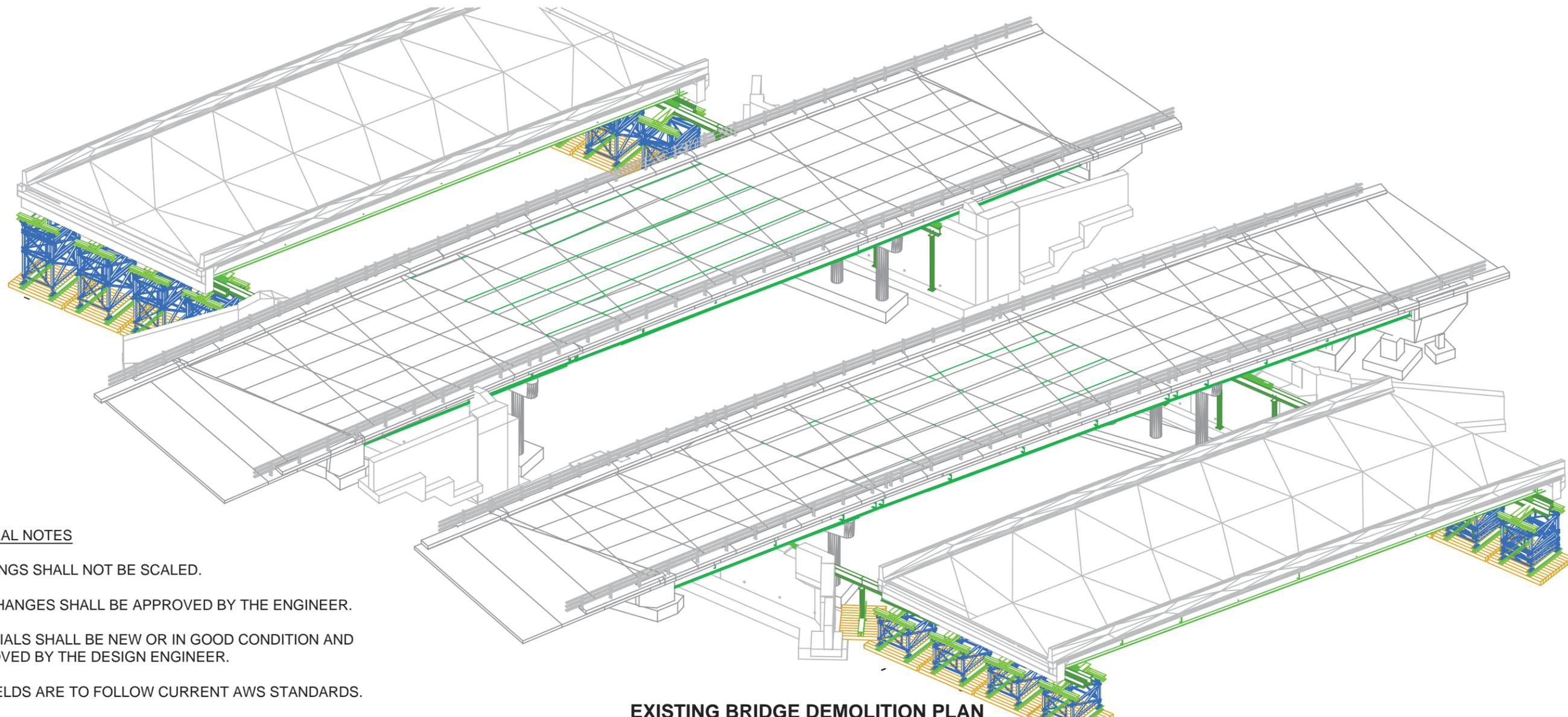
GR-750XL Axle weight distribution chart

	Pounds			Kilograms		
	GVW	Front	Rear	GVW	Front	Rear
Base machine	97,920	50,180	47,740	44,416	22,762	21,654
1. 6.2ton (5.6metric ton) hook ball	-330	-470	140	-150	-214	64
2. 75ton (68metric ton) hook block (1,600lbs)	-1,600	-2,840	1,240	-726	-1,290	564
3. Top jib	-740	-805	65	-336	-365	29
Remove: 4. Base jib	-1,910	-3,270	1,360	-867	-1,483	616
5. Auxiliary lifting sheave	-110	-300	190	-50	-137	87
6. Counterweight (with Auxiliary hoist & wire rope)	-12,500	5,510	-18,010	-5,670	2,498	-8,168

TADANO AMERICA CORPORATION

4242 West Greens Road
 Houston, Texas, 77066 U.S.A.
 PHONE: (281) 869-0030
 FAX: (281) 869-0040
<http://www.tadanoamerica.com>

Form No. TAC-GR-750-3-00311-09022014



GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

ANY CHANGES SHALL BE APPROVED BY THE ENGINEER.

MATERIALS SHALL BE NEW OR IN GOOD CONDITION AND APPROVED BY THE DESIGN ENGINEER.

ALL WELDS ARE TO FOLLOW CURRENT AWS STANDARDS.

ALL WORK OVER US-5 TO BE PERFORMED UNDER FLAGGING OPERATIONS PER THE TRAFFIC CONTROL PLAN.

DEMOLITION SEQUENCE BASED ON REMOVAL OF SUSPENDED SPAN AND END SPAN DECK PRIOR TO END SPAN STEEL REMOVAL. ALTERNATE SEQUENCE REQUIRING THE USE OF TEMPORARY TIEDOWNS SHOWN WITHIN TO BE PERFORMED UNDER THE DIRECTION OF THE CONSTRUCTION ENGINEER, ONLY AS REQUIRED.

CRANE CONFIGURATIONS ARE AS FOLLOWS:

- ALL RT CRANES ON 100% OUTRIGGER EXTENSION
- LINK-BELT LS-248H I ABC+A COUNTERWEIGHT
- LINK BELT 298 HSL ABC+A COUNTERWEIGHT

EXISTING BRIDGE DEMOLITION PLAN

DESIGN AIDS

- ASD NINTH ED. (STEEL)
- AASHTO GUIDE DESIGN SPECIFICATIONS FOR BRIDGE TEMPORARY WORKS

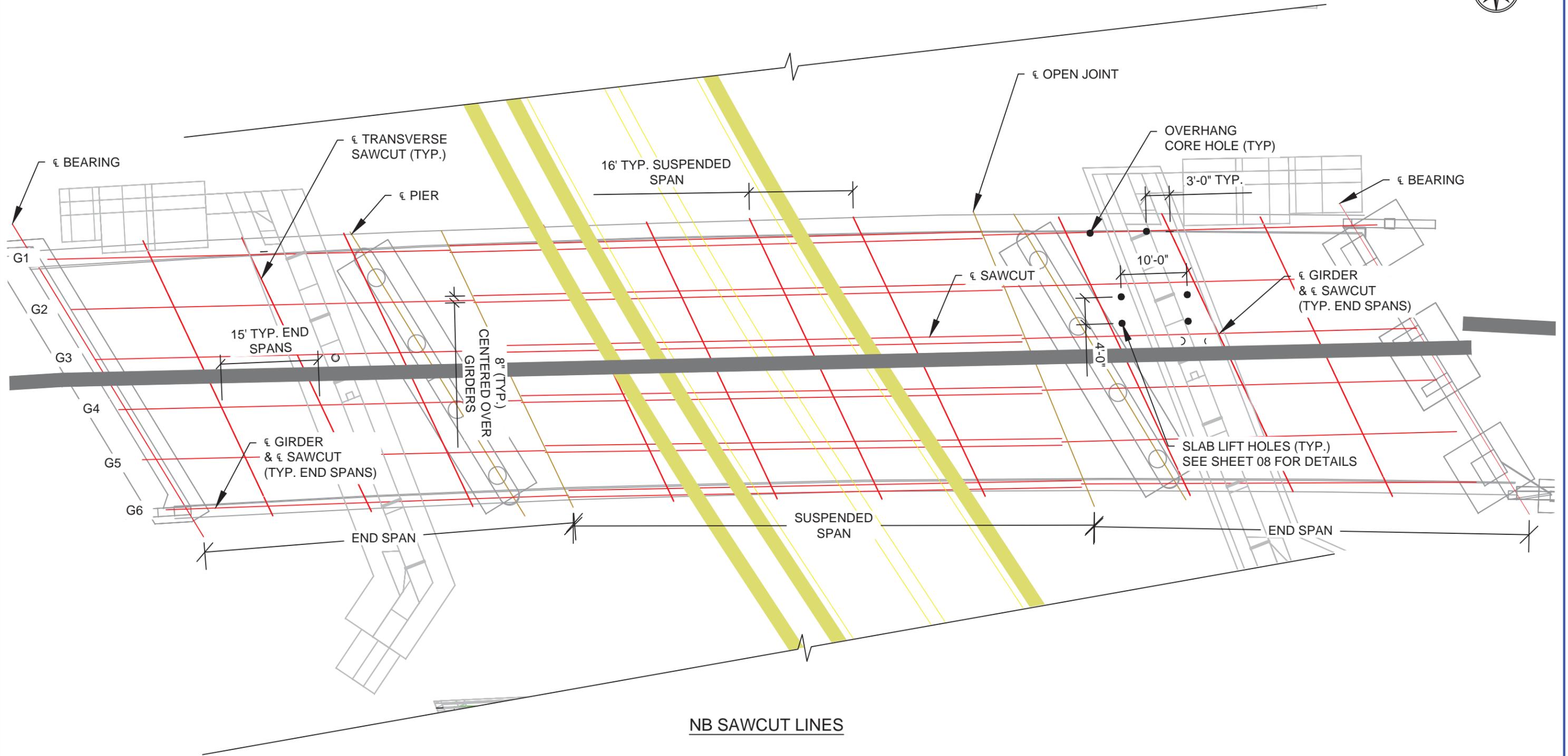
MATERIAL PROPERTIES

- STEEL
- PLATE, MISC.
 - ASTM A36 Fy = 36 ksi MIN
 - CHANNEL
 - ASTM A529, Gr. 50 Fy = 50 ksi MIN
 - PT ROD
 - Fy = 150 ksi MIN

LIST OF DRAWINGS

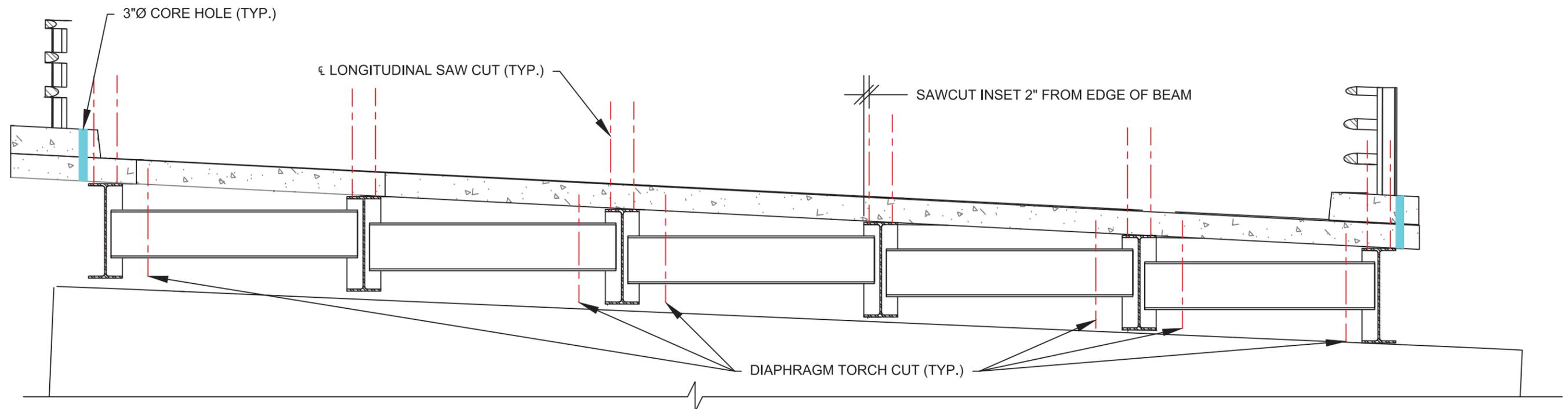
TITLE SHEET	01
SAWCUT LAYOUTS	02
RIGGING DETAILS	06
TIEDOWN DETAILS	09
PIER CAP DEMO DETAIL	12
NB SEQUENCE	13
SB SEQUENCE	22

Revision No. & Date		Vermont Agency of Transportation			Drawing Status		Name		Date		PCL Civil Constructors, Inc.	
					Tim Davis, P.E. Jun 30 2015 8:53 AM FOR CONSTRUCTION		Drawn By AJT		06/03/15		3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689	
Road No.	County / City	Financial Project ID No.				Design By TMD/ AJT		06/03/15		Submittal DEMOLITION PLAN		PCL Project / Job No. I-91 Windsor / Hartford / 5514001
I-91	Windsor / Hartford	IM 091-2(79)				Check By TMD		06/30/15		Drawing Title DEMOLITION TITLE SHEET		Sheet No. 01

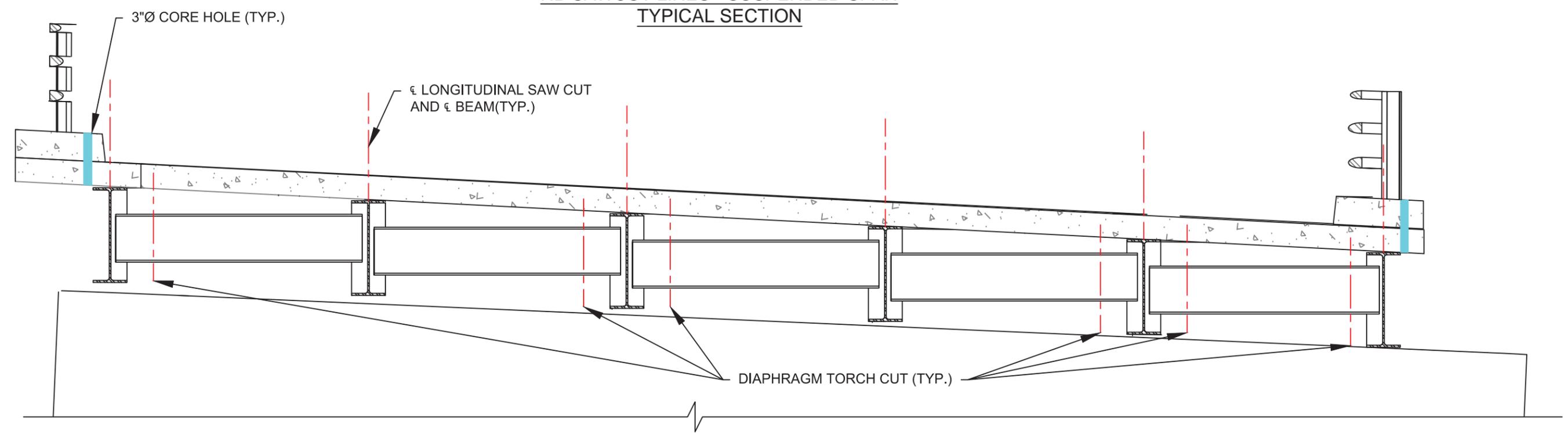


NB SAWCUT LINES

Revision No. & Date		Vermont Agency of Transportation			Drawing Status		PCL Civil Constructors, Inc. 3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689	
		Road No.	County / City		Financial Project ID No.	Jun 30 2015 8:50 AM FOR CONSTRUCTION	Drawn By	AJT
		I-91	Windsor / Windsor / Hartford	IM 091-2(79)		Design By	TMD/ AJT	06/03/15
						Check By	TMD	06/30/15
						Submittal DEMOLITION PLAN Drawing Title NORTHBOUND SAWCUT LAYOUT		PCL Project / Job No. I-91 Windsor / Hartford / 5514001 Sheet No. 02



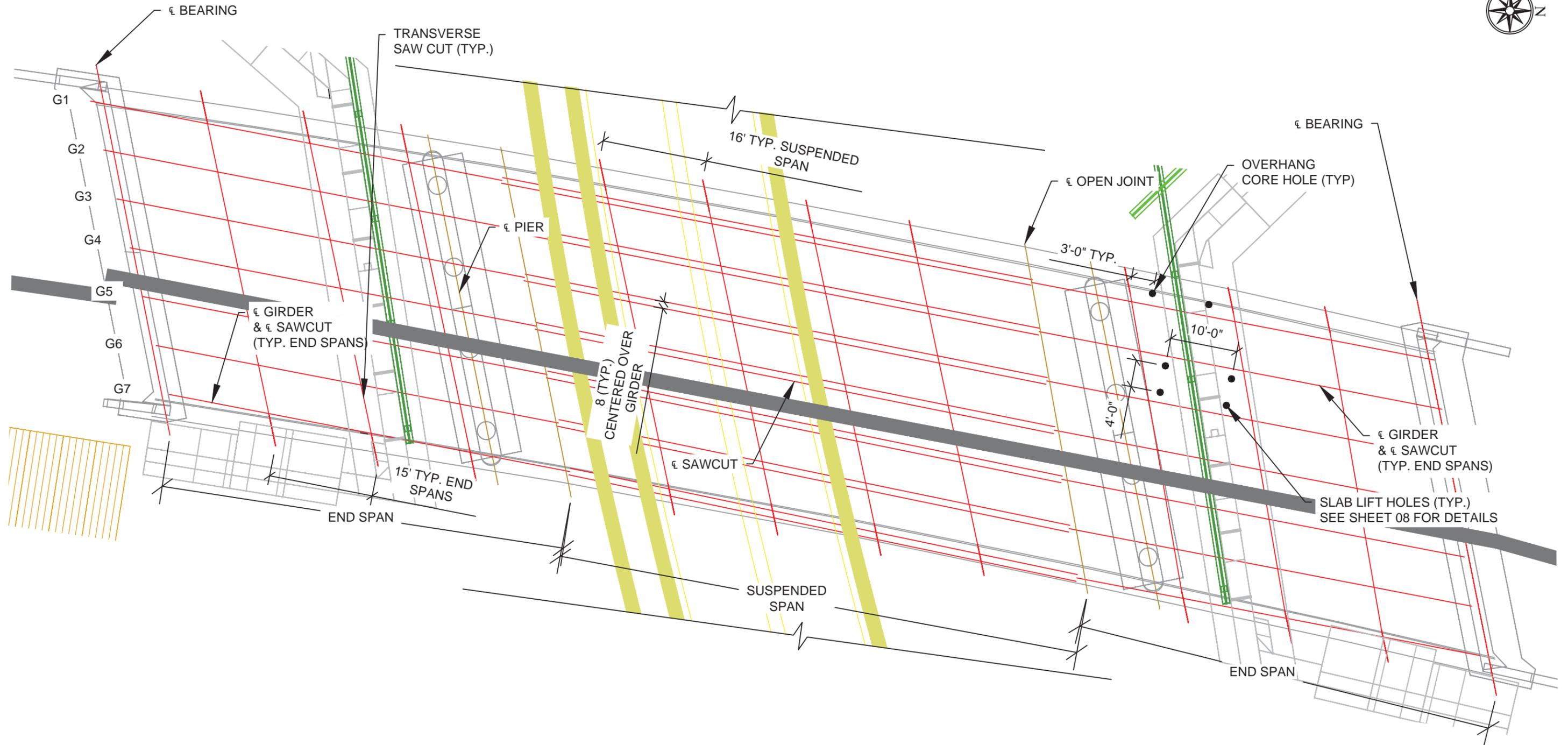
NB SAWCUT LINES - SUSPENDED SPAN
TYPICAL SECTION



NB SAWCUT LINES - END SPAN TYPICAL
SECTION

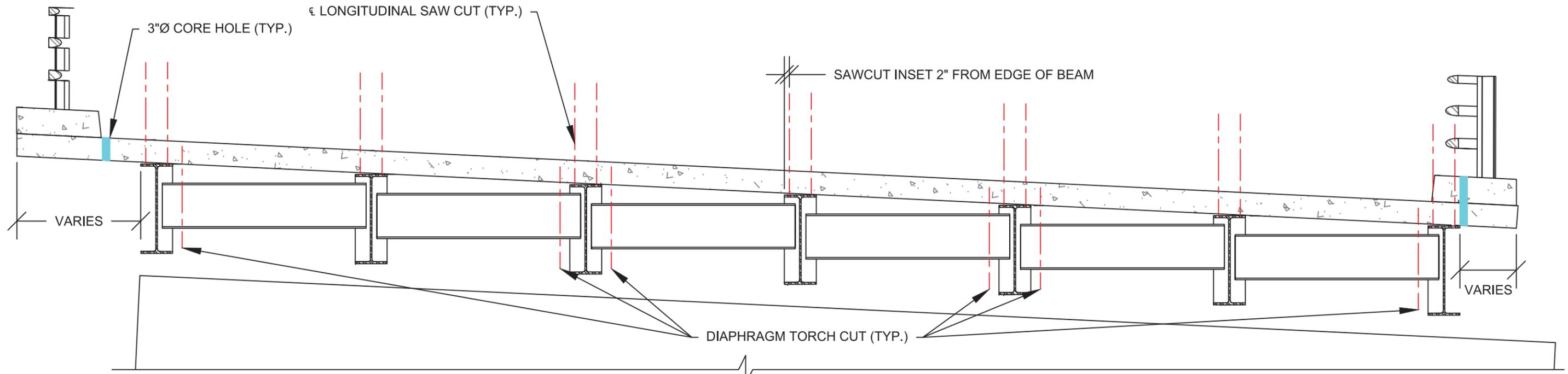
NOTE: BOLTS MAY BE REMOVED IN LIEU OF TORCHCUTS AT DIAPHRAGMS

Revision No. & Date		Vermont Agency of Transportation			Drawing Status		Name		Date		PCL Civil Constructors, Inc. 3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689		
		Road No.	County / City		Financial Project ID No.	Jun 30 2015 8:50 AM FOR CONSTRUCTION		Drawn By	AJT	06/03/15	Submittal DEMOLITION PLAN		PCL Project / Job No. I-91 Windsor / Hartford / 5514001
		I-91	Windsor / Windsor / Hartford		IM 091-2(79)			Design By	TMD/ AJT	06/03/15	Drawing Title NORTHBOUND SAWCUT SECTIONS		Sheet No. 03

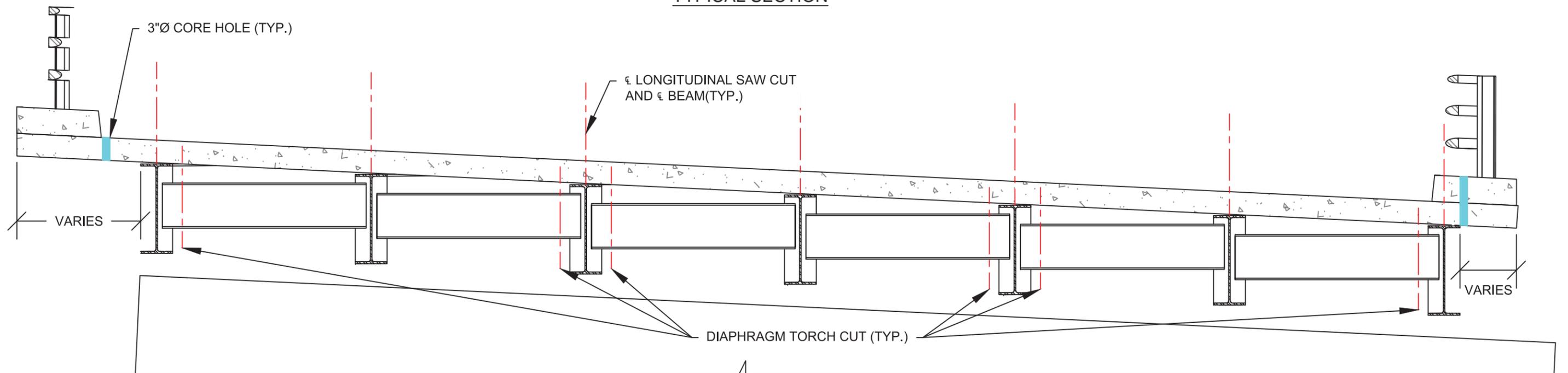


SB SAWCUT LINES

Revision No. & Date	Vermont Agency of Transportation				Drawing Status	Name	Date	PCL Civil Constructors, Inc. 3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689	
	Road No.	County / City	Financial Project ID No.	Jun 30 2015 8:50 AM FOR CONSTRUCTION	Drawn By	AJT	06/03/15	Submittal DEMOLITION PLAN	PCL Project / Job No. I-91 Windsor / Hartford / 5514001
	I-91	Windsor / Windsor / Hartford	IM 091-2(79)		Design By	TMD/ AJT	06/03/15	Drawing Title SOUTHBOUND SAWCUT LAYOUT	Sheet No. 04
					Check By	TMD	06/30/15		



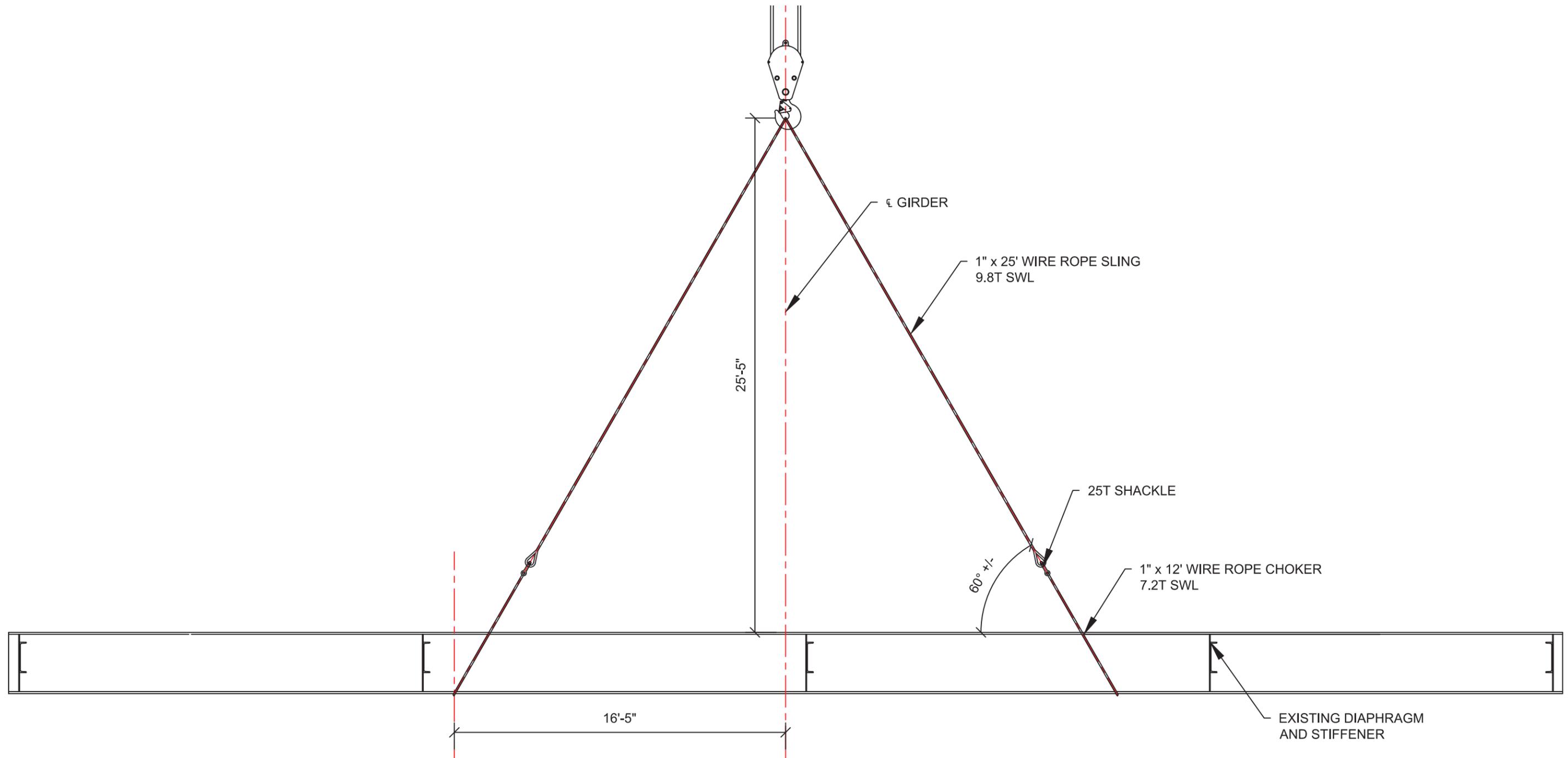
SB SAWCUT LINES - SUSPENDED SPAN
TYPICAL SECTION



SB SAWCUT LINES - END SPAN TYPICAL
SECTION

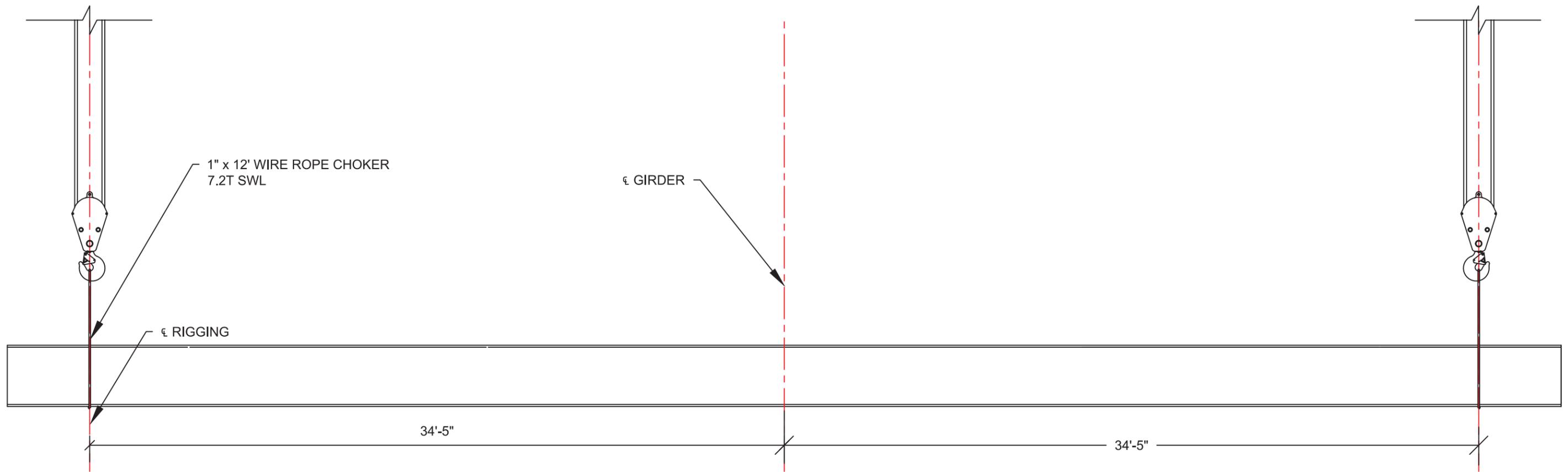
NOTE: BOLTS MAY BE REMOVED IN LIEU
OF TORCHCUTS AT DIAPHRAGMS

Revision No. & Date	Vermont Agency of Transportation				Drawing Status	Name	Date	PCL Civil Constructors, Inc.	
	Road No.	County / City	Financial Project ID No.		Jun 30 2015 8:50 AM FOR CONSTRUCTION	Drawn By	AJT	06/03/15	3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689
	I-91	Windsor / Windsor / Hartford	IM 091-2(79)		Design By	TMD/ AJT	06/03/15	Submittal DEMOLITION PLAN	PCL Project / Job No. I-91 Windsor / Hartford / 5514001
					Check By	TMD	06/30/15	Drawing Title SOUTHBOUND SAWCUT SECTIONS	Sheet No. 05



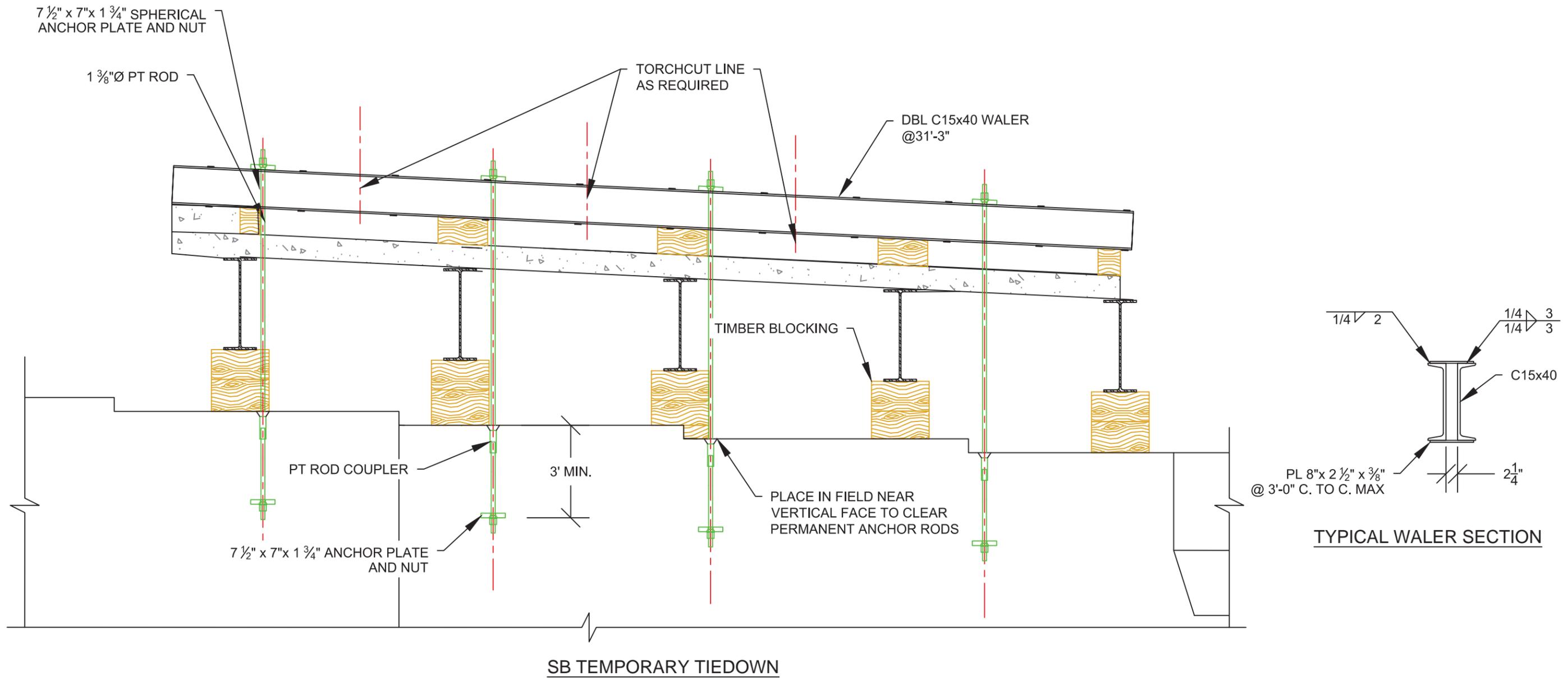
**GIRDER DEMOLITION RIGGING - SINGLE
CRANE LIFT**

Revision No. & Date	Vermont Agency of Transportation				Drawing Status	Name	Date	PCL Civil Constructors, Inc. 3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689	
	Road No.	County / City	Financial Project ID No.	Jun 30 2015 8:50 AM FOR CONSTRUCTION	Drawn By	AJT	06/03/15	Submittal DEMOLITION PLAN	PCL Project / Job No. I-91 Windsor / Hartford / 5514001
	I-91	Windsor / Hartford	IM 091-2(79)		Design By	TMD/ AJT	06/03/15	Drawing Title RIGGING DETAILS (1)	Sheet No. 06
					Check By	TMD	06/30/15		

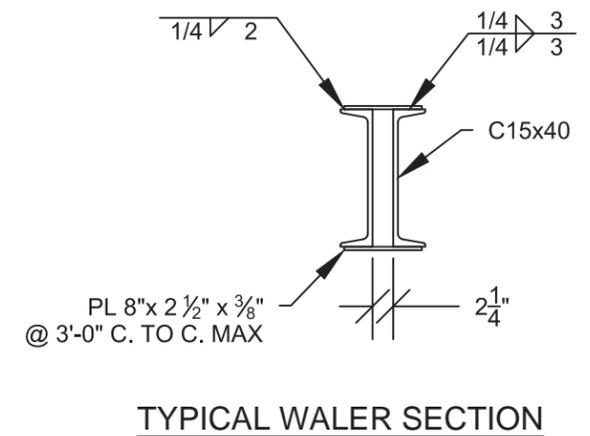
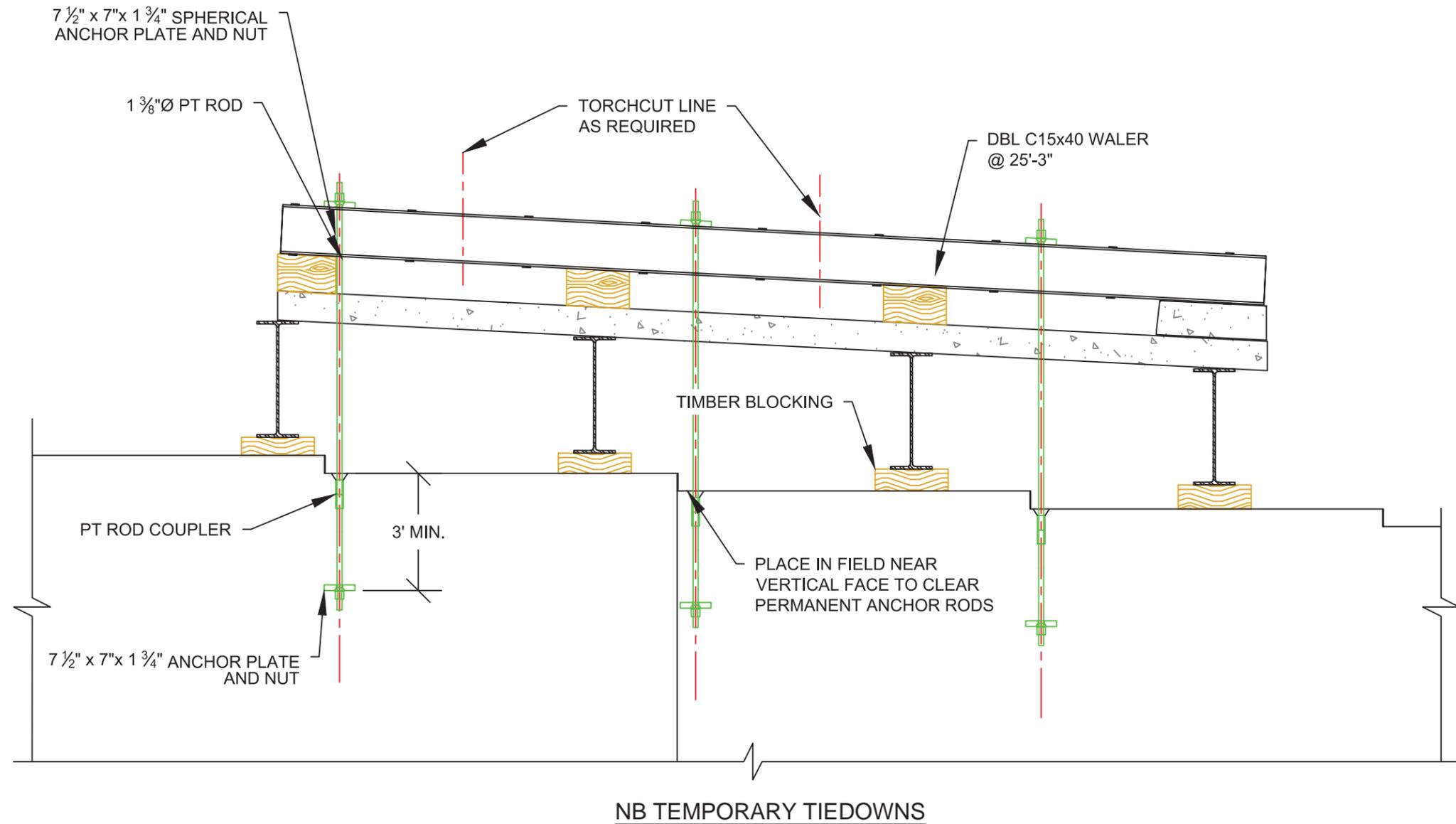


DEMOLITION RIGGING - TWO CRANE LIFT

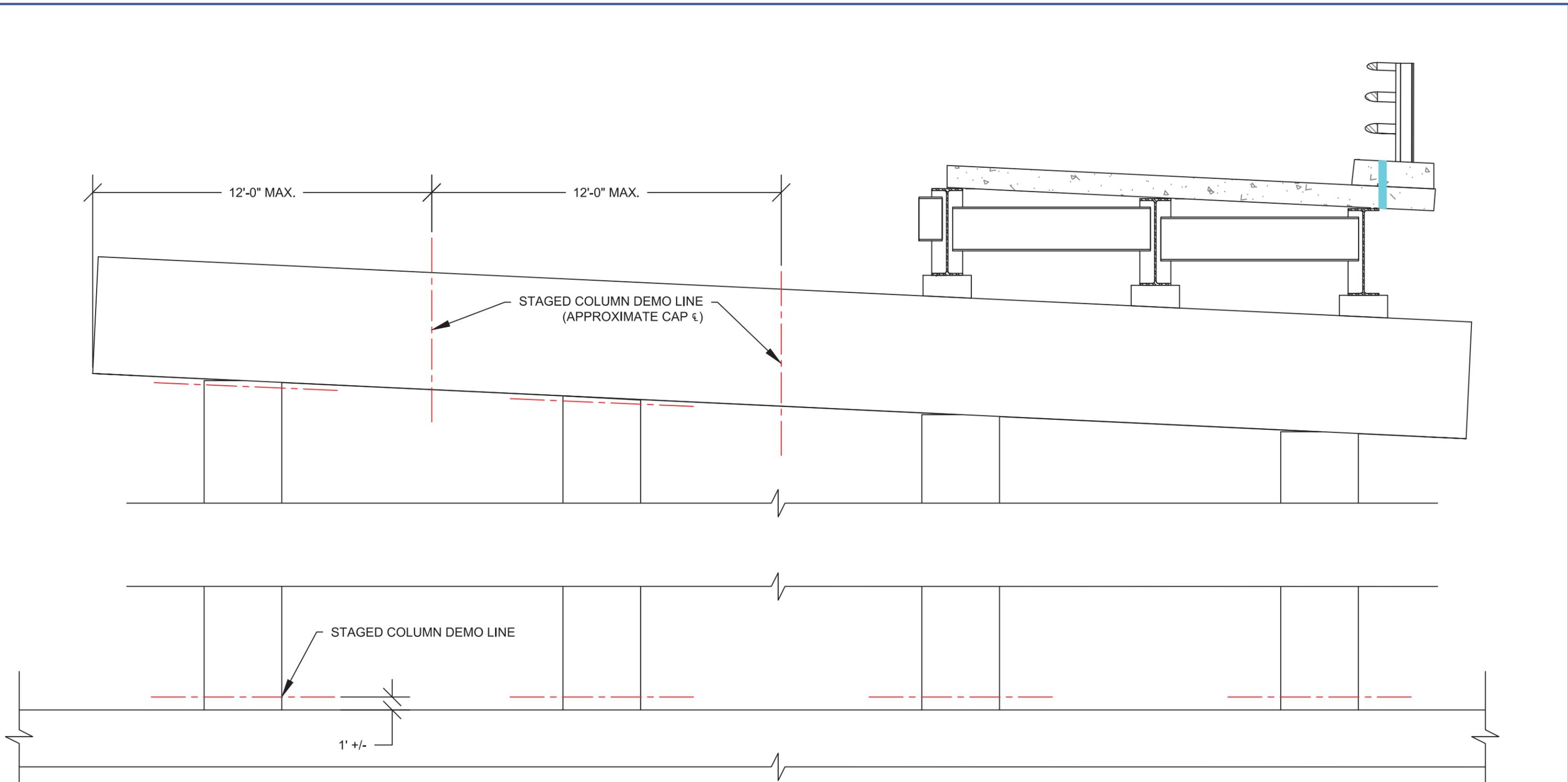
Revision No. & Date	Vermont Agency of Transportation				Drawing Status	Name	Date	PCL Civil Constructors, Inc. 3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689	
	Road No.	County / City	Financial Project ID No.		Jun 30 2015 8:50 AM FOR CONSTRUCTION	Drawn By	AJT	06/03/15	Submittal DEMOLITION PLAN
	I-91	Windsor / Hartford	IM 091-2(79)		Design By	TMD/ AJT	06/03/15	Drawing Title RIGGING DETAILS (2)	Sheet No. 07
					Check By	TMD	06/30/15		



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	Road No.	County / City	Financial Project ID No.		Jun 30 2015 8:50 AM FOR CONSTRUCTION	Drawn By	AJT	06/03/15	Submittal DEMOLITION PLAN
	I-91	Windsor / Hartford	IM 091-2(79)		Design By	TMD/ AJT	06/03/15	Drawing Title TIEDOWN DETAILS (1)	Sheet No. 09
					Check By	TMD	06/30/15		



Revision No. & Date	Vermont Agency of Transportation				Drawing Status	Name	Date	PCL Civil Constructors, Inc. 3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689	
	Road No.	County / City	Financial Project ID No.		Jun 30 2015 8:50 AM FOR CONSTRUCTION	Drawn By	AJT	06/03/15	Submittal DEMOLITION PLAN
	I-91	Windsor / Hartford	IM 091-2(79)		Design By	TMD/ AJT	06/03/15	Drawing Title TIEDOWN DETAILS (2)	Sheet No. 10



CAP DEMOLITION
 NB BRIDGE SHOWN, SB MIRROR IMAGE
 COLUMN STUB AND FOOTING (AS REQ'D) TO BE REMOVED
 AFTER CLOSURE

Revision No. & Date	Vermont Agency of Transportation				Drawing Status	Name	Date	PCL Civil Constructors, Inc. 3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689	
	Road No.	County / City	Financial Project ID No.		Jun 30 2015 8:51 AM FOR CONSTRUCTION	Drawn By	AJT	06/03/15	Submittal DEMOLITION PLAN
	I-91	Windsor / Hartford	IM 091-2(79)		Design By	TMD/ AJT	06/03/15	Drawing Title CAP DEMOLITION	Sheet No. 12
					Check By	TMD	06/30/15		



CRANE INFO:		GROVE RTC-8080	TADANO GR-750XL	LINK BELT LS-248H II	LINK BELT 298 HSL
BOOM LENGTH:	ft	90	88.6, TELE MODE I	120	120
PIECE TYPE		DECK OVERHANG	DECK OVERHANG	DECK OVERHANG	DECK OVERHANG
MAX. PIECE WEIGHT	lbs	14,000	14,000	14,000	14,000
PICK WEIGHT + RIGGING:	lbs	16,330	16,330	22,913	22,913
MAX. CRANE RADIUS:	ft	55	45	100	110
CRANE CAPACITY:	ft	20,400	22,200	31,400	31,700
% OF CHART:		80%	74%	73%	72%

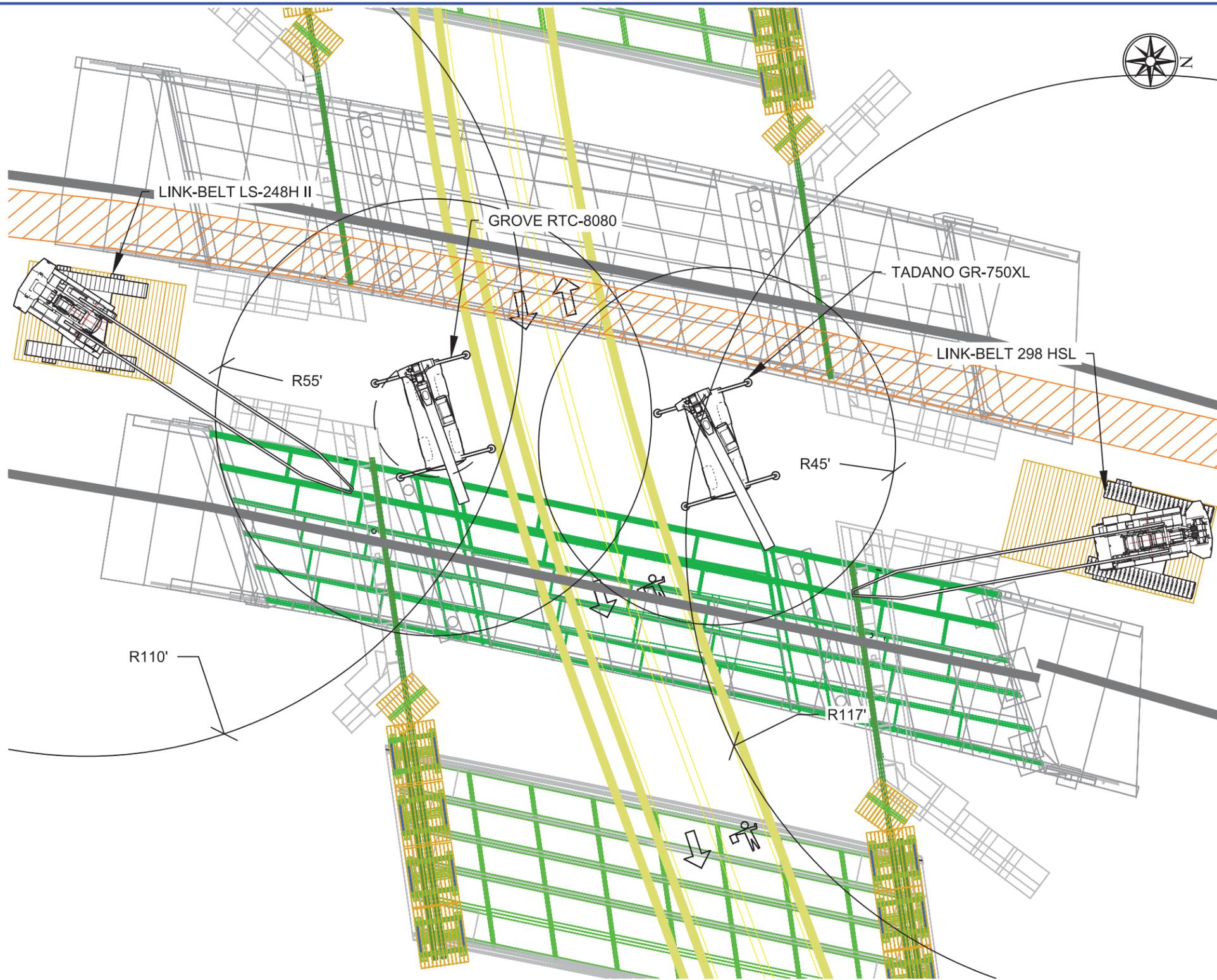
CRANE INFO:		GROVE RTC-8080	TADANO GR-750XL	LINK BELT LS-248H II	LINK BELT 298 HSL
BOOM LENGTH:	ft	90	88.6, TELE MODE I	120	120
PIECE TYPE		DECK SECTION	DECK SECTION	DECK SECTION	DECK SECTION
MAX. PIECE WEIGHT	lbs	12,000	12,000	12,000	12,000
PICK WEIGHT + RIGGING:	lbs	14,330	14,330	20,913	20,913
MAX. CRANE RADIUS:	ft	55	50	110	117
CRANE CAPACITY:	ft	20,400	18,100	27,500	28,900
% OF CHART:		70%	79%	76%	72%

NB DEMOLITION - STAGE 1

1. LAYOUT CORE HOLES AS SHOWN ON SHEETS 02, 04 AND 08 UNDER LANE CLOSURES..
2. CORE DRILL HOLES IN BRIDGE DECK UNDER LANE CLOSURES. FLAG TRAFFIC FOR HOLES IN SUSPENDED SPAN.
3. REMOVE ASPHALT FROM BRIDGE SURFACE UNDER LANE CLOSURES.
4. INSTALL TEMPORARY BARRIER WALL AND SECURE TO BRIDGE DECK PER THE TRAFFIC CONTROL PLAN.
5. LAYOUT SAWCUTS AS SHOWN ON SHEETS 02 AND 04.
6. COMPLETE PLUNGE CUTS IN OVERHANG. FLAG TRAFFIC FOR CUTS IN SUSPENDED SPAN.
7. SET UP SB LEFT LANE CLOSURE FOR STAGING OF DEBRIS REMOVAL TRUCKS.
8. REMOVE OVERHANG DECK SECTIONS. FLAG TRAFFIC FOR CUTS IN SUSPENDED SPAN.
 - 8.1. RIG TO SECTION PER RIGGING DETAILS ON SHEET 08.
 - 8.2. REMOVE SLACK FROM RIGGING.
 - 8.3. PERFORM FINAL LONGITUDINAL CUT TO RELEASE PIECE.
9. COMPLETE LONGITUDINAL AND TRANSVERSE CUTS BETWEEN G1 AND G3.
10. AS CUTS IN SECTIONS ARE COMPLETED, RIG TO SLAB SECTION PER DETAIL ON SHEET 08 AND REMOVE.

NB DEMOLITION - STAGE 1
PRE-CLOSURE WORK

Revision No. & Date		Vermont Agency of Transportation			Drawing Status		Name		Date		PCL Civil Constructors, Inc.	
					Jun 30 2015 8:51 AM		AJT		06/03/15		3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689	
					FOR CONSTRUCTION		TMD/ AJT		06/03/15		Submittal DEMOLITION PLAN	
Road No.	County / City	Financial Project ID No.				Check By		TMD		06/30/15		PCL Project / Job No.
I-91	Windsor / Hartford	IM 091-2(79)										I-91 Windsor / Hartford / 5514001
											Drawing Title	Sheet No.
											NB DEMO - STAGE 1	13



CRANE INFO:		GROVE RTC-8080	TADANO GR-750XL
BOOM LENGTH:	ft	90	88.6, TELE MODE I
PIECE TYPE		SUSPENDED GIRDER	SUSPENDED GIRDER
MAX. PIECE WEIGHT	lbs	24,900	24,900
PICK WEIGHT + RIGGING:	lbs	14,780	14,780
MAX. CRANE RADIUS:	ft	55	45
CRANE CAPACITY:	ft	20,400	22,200
% OF CHART:		72%	67%

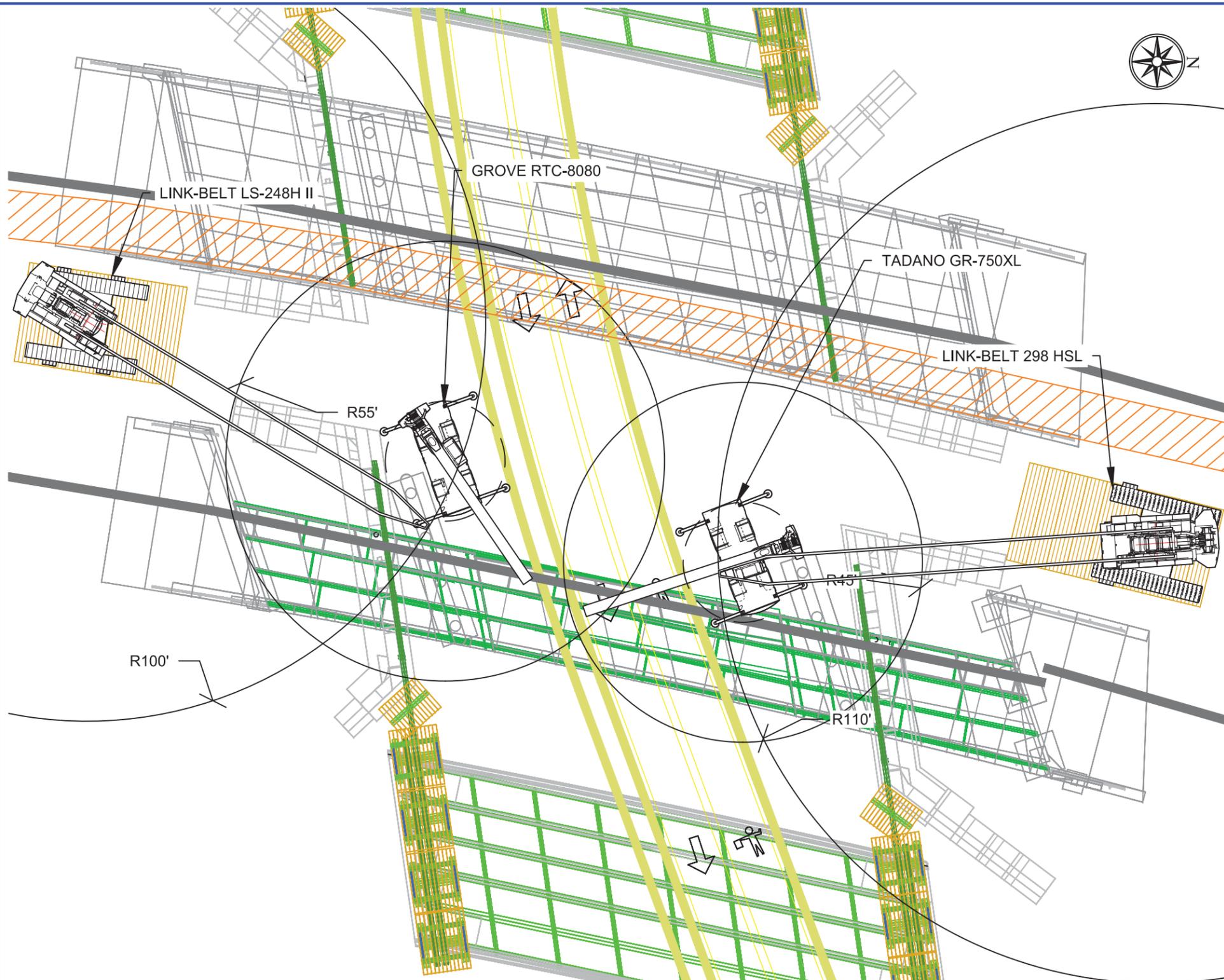
CRANE INFO:		LINK BELT LS-248H II	LINK BELT 298 HSL
BOOM LENGTH:	ft	120	120
PIECE TYPE		END SPAN GIRDER	END SPAN GIRDER
MAX. PIECE WEIGHT	lbs	11,700	11,700
PICK WEIGHT + RIGGING:	lbs	20,613	20,613
MAX. CRANE RADIUS:	ft	110	117
CRANE CAPACITY:	ft	27,500	28,900
% OF CHART:		75%	71%

NB DEMOLITION - STAGE 2

1. SET UP FLAGGING OPERATIONS.
2. SET UP SB LEFT LANE CLOSURE FOR STAGING OF DEBRIS REMOVAL TRUCKS.
3. RIG TO SUSPENDED SPAN G1 AS SHOWN ON SHEET 07. REMOVE SLACK FROM MAIN LINES AND RIGGING.
4. STOP TRAFFIC.
5. TORCH CUT OR UNBOLT DIAPHRAGMS AT LOCATIONS SHOWN ON SHEET 05 AND SET ONTO HAUL TRUCK.
6. RELEASE GIRDER FROM CRANES AND RELEASE TRAFFIC.
7. RIG TO END SPAN GIRDERS PER DETAIL ON SHEET 06. REMOVE SLACK FROM MAIN LINES AND RIGGING.
8. TORCH CUT OR UNBOLT GIRDER AS SHOWN ON SHEET 11 AND DIAPHRAGMS AT LOCATIONS SHOWN ON SHEET 05.
9. SET ONTO HAUL TRUCK AND RELEASE GIRDER FROM CRANE.
10. REPEAT STEPS 2-8 FOR G2.

NB DEMOLITION - STAGE 2
PRE-CLOSURE-WORK

Revision No. & Date	Vermont Agency of Transportation				Drawing Status	Name	Date	PCL Civil Constructors, Inc.	
	Road No.	County / City	Financial Project ID No.		Jun 30 2015 8:51 AM FOR CONSTRUCTION	Drawn By	AJT	06/03/15	3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689
	I-91	Windsor / Hartford	IM 091-2(79)		Design By	TMD/ AJT	06/03/15	Submittal DEMOLITION PLAN	PCL Project / Job No. I-91 Windsor / Hartford / 5514001
					Check By	TMD	06/30/15	Drawing Title NB DEMO - STAGE 2	Sheet No. 14



NB DEMOLITION - STAGE 3
CLOSURE WORK

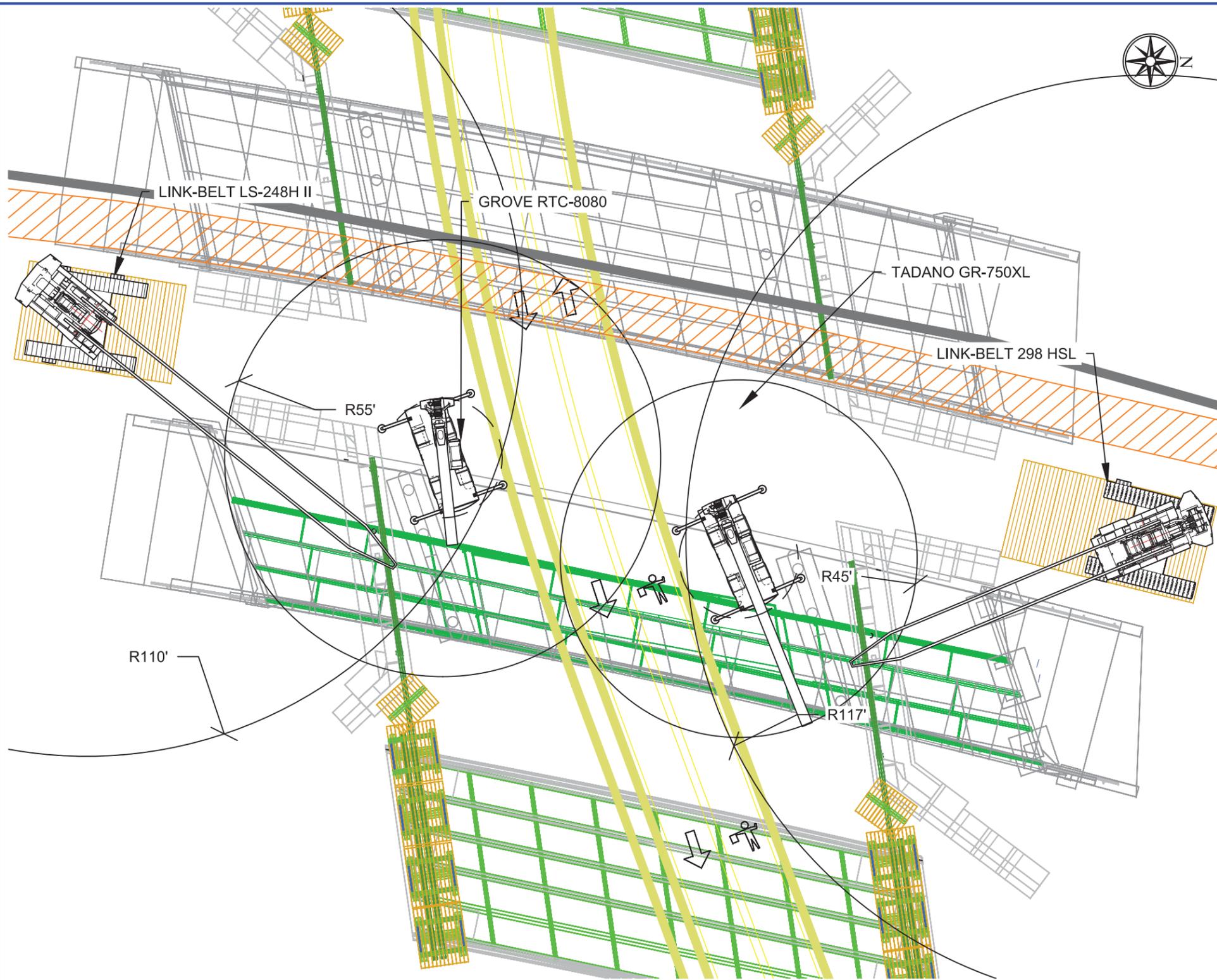
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BOOM LENGTH:	ft	90	88.6, TELE MODE I	120	120
PIECE TYPE		DECK OVERHANG	DECK OVERHANG	DECK OVERHANG	DECK OVERHANG
MAX. PIECE WEIGHT	lbs	14,000	14,000	14,000	14,000
PICK WEIGHT + RIGGING:	lbs	16,330	16,330	22,913	22,913
MAX. CRANE RADIUS:	ft	55	45	100	110
CRANE CAPACITY:	ft	20,400	22,200	31,400	31,700
% OF CHART:		80%	74%	73%	72%

CRANE INFO:		GROVE RTC-8080	TADANO GR-750XL	LINK BELT LS-248H II	LINK BELT 298 HSL
BOOM LENGTH:	ft	90	88.6, TELE MODE I	120	120
PIECE TYPE		DECK SECTION	DECK SECTION	DECK SECTION	DECK SECTION
MAX. PIECE WEIGHT	lbs	12,000	12,000	12,000	12,000
PICK WEIGHT + RIGGING:	lbs	14,330	14,330	20,913	20,913
MAX. CRANE RADIUS:	ft	55	50	110	117
CRANE CAPACITY:	ft	20,400	18,100	27,500	28,900
% OF CHART:		70%	79%	76%	72%

NB DEMOLITION - STAGE 3

1. SET UP SB LEFT LANE CLOSURE FOR STAGING OF DEBRIS REMOVAL TRUCKS.
2. REMOVE TEMPORARY BARRIER WALL.
3. COMPLETE LONGITUDINAL AND TRANSVERSE CUTS. FLAG TRAFFIC FOR CUTS IN SUSPENDED SPAN.
4. AS SECTIONS ARE COMPLETELY CUT, RIG TO SLAB SECTION PER DETAIL ON SHEET 08 AND REMOVE.
5. REMOVE ALL DECK SLABS BETWEEN G3 AND G4 FROM THE CENTER OF THE SPAN OUTWARDS. REMOVE EXTERIOR OVERHANG SECTIONS BEFORE REMOVING INTERIOR SLAB SECTIONS. END SPAN SLAB REMOVAL TO BE SEQUENCED SO THAT WEIGHT ON END SPAN PROVIDES A MINIMUM 1.5 FACTOR OF SAFETY AGAINST OVERTURNING IN THE SUSPENDED SPAN. THIS WORK WILL BE DIRECTED ON SITE BY THE CONSTRUCTION ENGINEER.

Revision No. & Date		Vermont Agency of Transportation			Drawing Status		Name		Date		PCL Civil Constructors, Inc. 3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689	
		Road No.	County / City		Financial Project ID No.	Jun 30 2015 8:51 AM FOR CONSTRUCTION		Drawn By	AJT	06/03/15	Submittal DEMOLITION PLAN	
		I-91	Windsor / Hartford	IM 091-2(79)			Design By	TMD/ AJT	06/03/15	Drawing Title NB DEMO - STAGE 3		I-91 Windsor / Hartford / 5514001
							Check By	TMD	06/30/15			Sheet No.
											15	



CRANE INFO:		GROVE RTC-8080	TADANO GR-750XL
BOOM LENGTH:	ft	90	88.6, TELE MODE I
PIECE TYPE		SUSPENDED GIRDER	SUSPENDED GIRDER
MAX. PIECE WEIGHT	lbs	24,900	24,900
PICK WEIGHT + RIGGING:	lbs	14,780	14,780
MAX. CRANE RADIUS:	ft	55	45
CRANE CAPACITY:	ft	20,400	22,200
% OF CHART:		72%	67%

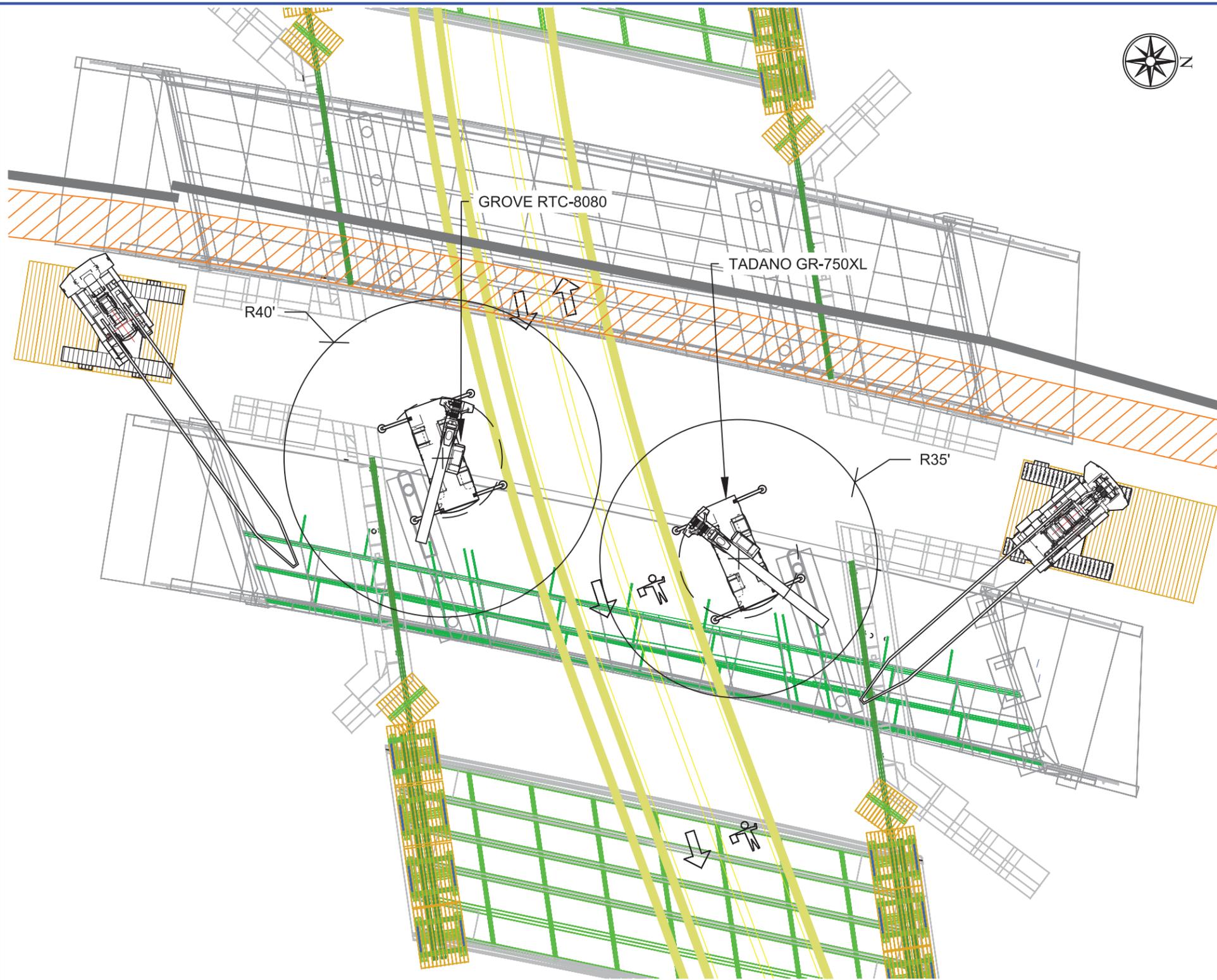
CRANE INFO:		LINK BELT LS-248H II	LINK BELT 298 HSL
BOOM LENGTH:	ft	120	120
PIECE TYPE		END SPAN GIRDER	END SPAN GIRDER
MAX. PIECE WEIGHT	lbs	11,700	11,700
PICK WEIGHT + RIGGING:	lbs	20,613	20,613
MAX. CRANE RADIUS:	ft	110	117
CRANE CAPACITY:	ft	27,500	28,900
% OF CHART:		75%	71%

NB DEMOLITION - STAGE 4

1. RIG TO SUSPENDED SPAN G3 AS SHOWN ON SHEET 07. REMOVE SLACK FROM MAIN LINES AND RIGGING.
2. STOP TRAFFIC.
3. TORCH CUT OR UNBOLT DIAPHRAGMS AT LOCATIONS SHOWN ON SHEET 05 AND SET ONTO HAUL TRUCK.
4. RELEASE GIRDER FROM CRANES AND RELEASE TRAFFIC.
5. RIG TO END SPAN GIRDERS PER DETAIL ON SHEET 06. REMOVE SLACK FROM MAIN LINES AND RIGGING.
6. TORCH CUT OR UNBOLT GIRDER AS SHOWN ON SHEET 11 AND DIAPHRAGMS AT LOCATIONS SHOWN ON SHEET 05
7. SET ONTO HAUL TRUCK AND RELEASE GIRDER FROM CRANE.

NB DEMOLITION - STAGE 4
CLOSURE WORK

Revision No. & Date	Vermont Agency of Transportation				Drawing Status	Name	Date	PCL Civil Constructors, Inc.	
	Road No.	County / City	Financial Project ID No.		Jun 30 2015 8:51 AM FOR CONSTRUCTION	Drawn By	AJT	06/03/15	3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689
	I-91	Windsor / Hartford	IM 091-2(79)		Design By	TMD/ AJT	06/03/15	Submittal DEMOLITION PLAN	PCL Project / Job No. I-91 Windsor / Hartford / 5514001
					Check By	TMD	06/30/15	Drawing Title NB DEMO - STAGE 4	Sheet No. 16



CRANE INFO:		GROVE RTC-8080	TADANO GR-750XL
BOOM LENGTH:	ft	90	88.6, TELE MODE I
PIECE TYPE		CAP SECTION	CAP SECTION
MAX. PIECE WEIGHT	lbs	23,000	23,000
PICK WEIGHT + RIGGING:	lbs	25,330	25,330
MAX. CRANE RADIUS:	ft	40	35
CRANE CAPACITY:	ft	35,800	34,700
% OF CHART:		71%	73%

CRANE INFO:		GROVE RTC-8080	TADANO GR-750XL
BOOM LENGTH:	ft	90	88.6, TELE MODE I
PIECE TYPE		COLUMN	COLUMN
MAX. PIECE WEIGHT	lbs	10,400	10,400
PICK WEIGHT + RIGGING:	lbs	12,730	12,730
MAX. CRANE RADIUS:	ft	40	35
CRANE CAPACITY:	ft	35,800	34,700
% OF CHART:		36%	37%

NB DEMOLITION - STAGE 5

1. VERTICALLY CUT PIER CAP AT LOCATIONS SHOWN ON SHEET 12.
2. RIG TO EXTERIOR SECTION OF PIER CAP. (SEE DETAIL SHEET 08)
REMOVE SLACK FROM RIGGING.
3. HORIZONTALLY CUT PIER CAP AT TOP OF EXTERIOR COLUMN AS SHOWN ON SHEET 12.
4. REMOVE CAP SECTION, FLAGGING TRAFFIC AS NECESSARY.
5. REPEAT STEPS 2-4 FOR INTERIOR SECTION OF PIER CAP.
6. CHOKE TOP OF COLUMN AS SHOWN ON SHEET 08.
7. SAWCUT OR CHIP BOTTOM OF COLUMN. USE CRANE TO STABILIZE TOP OF COLUMN AS CUT IS MADE.
8. USE CRANE TO LAYOVER COLUMN ONTO FOOTING. DO NOT PICK ENTIRE COLUMN WITH RIGGING. CUT OR CHIP COLUMN ON GROUND FOR REMOVAL FROM SITE.

NB DEMOLITION - STAGE 5
CLOSURE WORK

Revision No. & Date		Vermont Agency of Transportation			Drawing Status		PCL Civil Constructors, Inc. 3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689		
Road No.	County / City	Financial Project ID No.			Jun 30 2015 8:51 AM	FOR CONSTRUCTION	Drawn By	AJT	06/03/15
I-91	Windsor / Hartford	IM 091-2(79)				Design By	TMD/ AJT	06/03/15	
						Check By	TMD	06/30/15	
							Submission	PCL Project / Job No.	
							DEMOLITION PLAN	I-91 Windsor / Hartford / 5514001	
							Drawing Title	Sheet No.	
							NB DEMO - STAGE 5	17	



CRANE INFO:		GROVE RTC-8080	TADANO GR-750XL
BOOM LENGTH:	ft	90	88.6, TELE MODE I
PIECE TYPE		SUSPENDED GIRDER	SUSPENDED GIRDER
MAX. PIECE WEIGHT	lbs	24,900	24,900
PICK WEIGHT + RIGGING:	lbs	14,780	14,780
MAX. CRANE RADIUS:	ft	55	45
CRANE CAPACITY:	ft	20,400	22,200
% OF CHART:		72%	67%

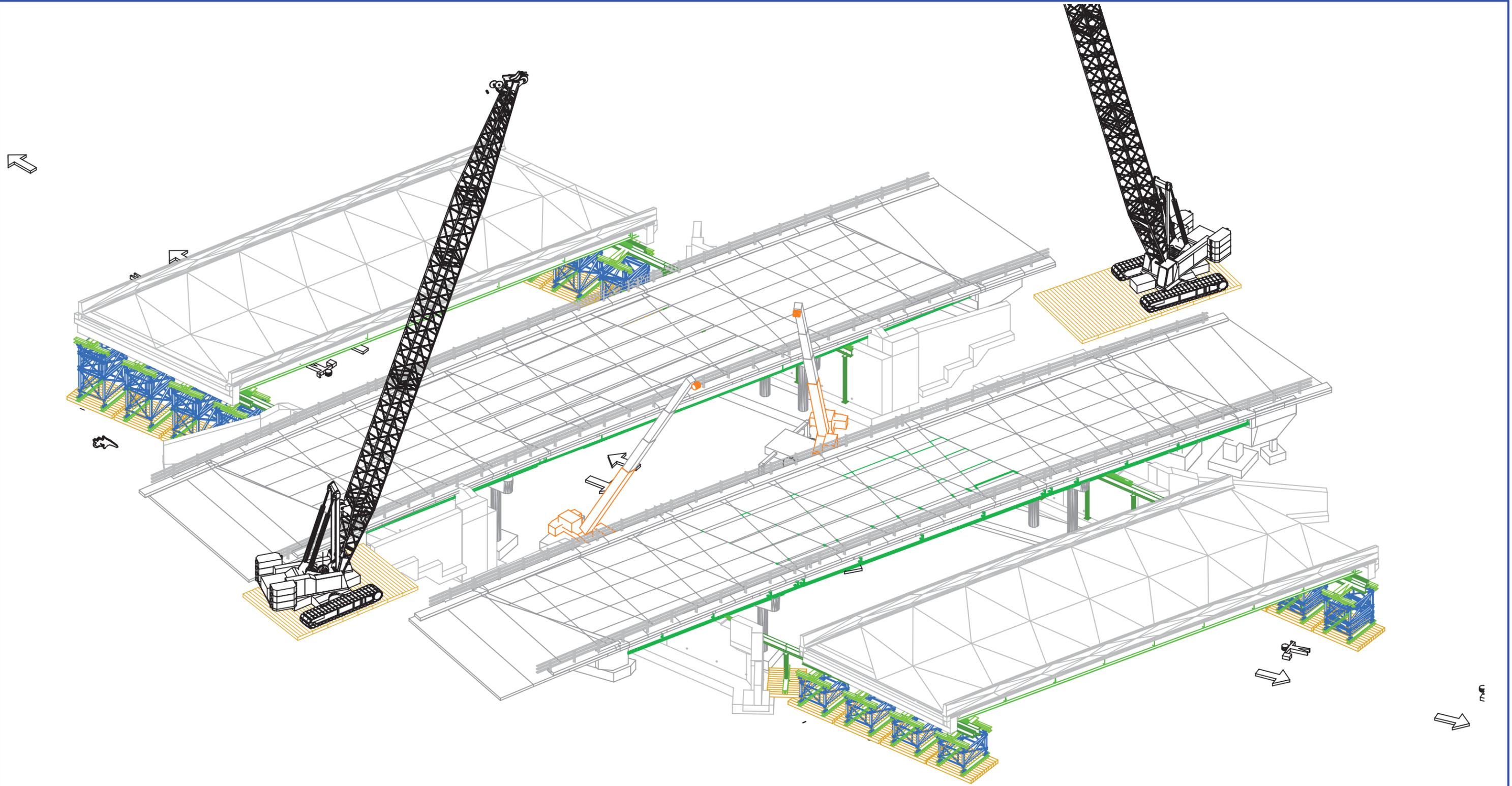
CRANE INFO:		LINK BELT LS-248H II	LINK BELT 298 HSL
BOOM LENGTH:	ft	120	120
PIECE TYPE		END SPAN GIRDER	END SPAN GIRDER
MAX. PIECE WEIGHT	lbs	11,700	11,700
PICK WEIGHT + RIGGING:	lbs	20,613	20,613
MAX. CRANE RADIUS:	ft	110	117
CRANE CAPACITY:	ft	27,500	28,900
% OF CHART:		75%	71%

NB DEMOLITION - STAGE 7

1. RIG TO SUSPENDED SPAN G5 AS SHOWN ON SHEET 07. REMOVE SLACK FROM MAIN LINES AND RIGGING.
2. STOP TRAFFIC.
3. TORCH CUT OR UNBOLT DIAPHRAGMS AT LOCATIONS SHOWN ON SHEET 05 AND SET ONTO HAUL TRUCK.
4. RELEASE GIRDER FROM CRANES AND RELEASE TRAFFIC.
5. REPEAT STEPS 2-5 FOR SUSPENDED SPAN G6.
6. RIG TO END SPAN GIRDERS PER DETAIL ON SHEET 06. REMOVE SLACK FROM MAIN LINES AND RIGGING.
7. TORCH CUT OR UNBOLT GIRDER AS SHOWN ON SHEET 11 AND DIAPHRAGMS AT LOCATIONS SHOWN ON SHEET 05
8. SET ONTO HAUL TRUCK AND RELEASE GIRDER FROM CRANE.
9. REPEAT STEPS 1-7 FOR END SPAN GIRDER G6.

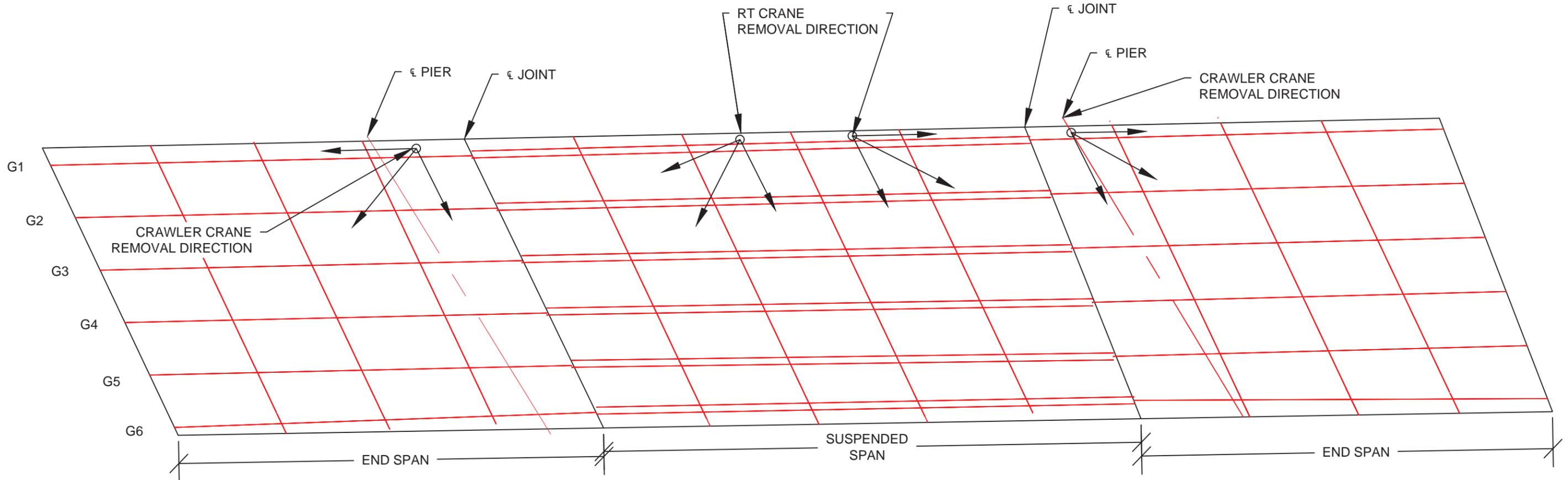
NB DEMOLITION - STAGE 7
CLOSURE WORK

Revision No. & Date	Vermont Agency of Transportation				Drawing Status	Name	Date	PCL Civil Constructors, Inc.	
	Road No.	County / City	Financial Project ID No.		Jun 30 2015 8:51 AM FOR CONSTRUCTION	Drawn By	AJT	06/03/15	3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689
	I-91	Windsor / Hartford	IM 091-2(79)		Design By	TMD/ AJT	06/03/15	Submittal DEMOLITION PLAN	PCL Project / Job No. I-91 Windsor / Hartford / 5514001
					Check By	TMD	06/30/15	Drawing Title NB DEMO - STAGE 7	Sheet No. 19



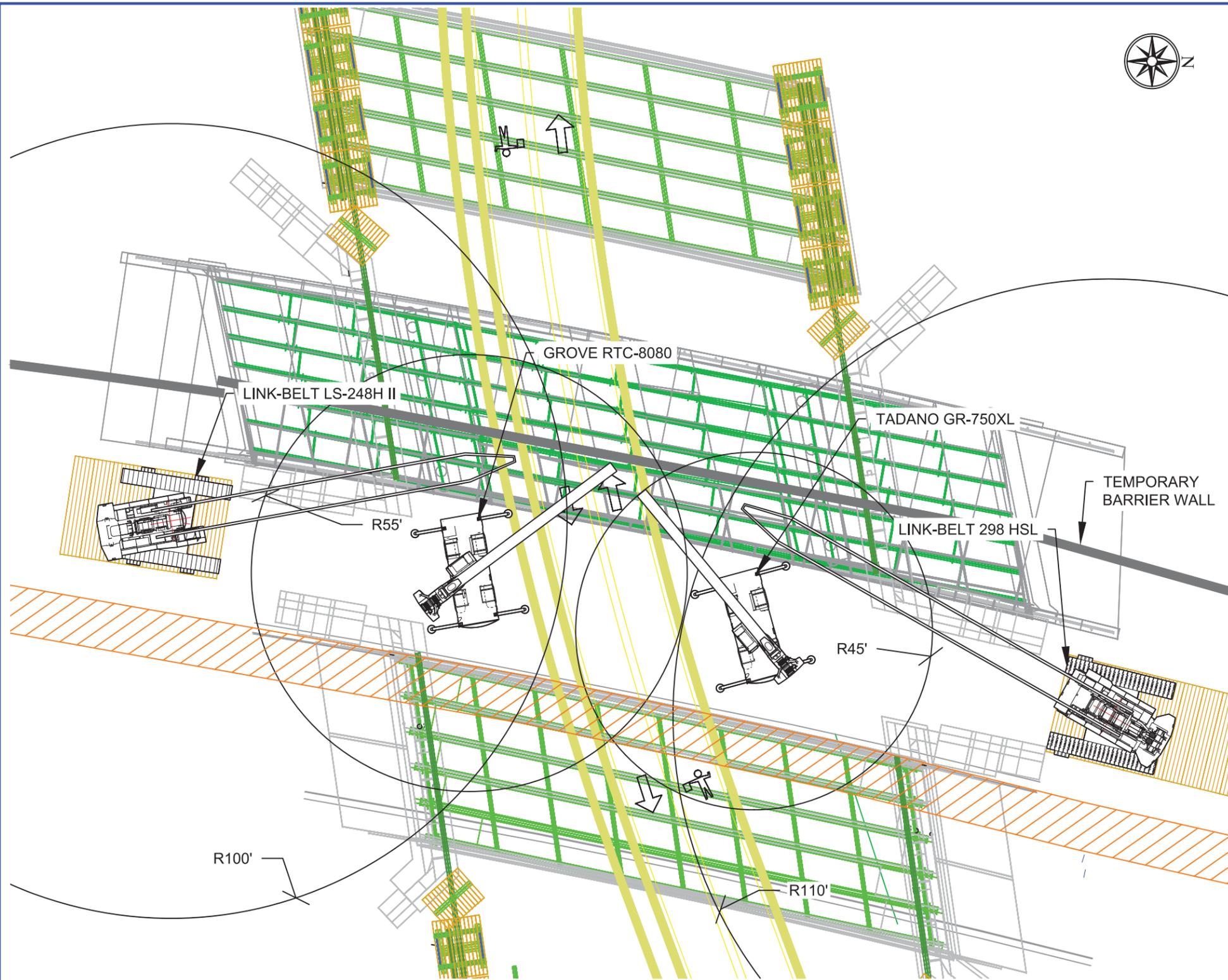
NB DEMOLITION - ISOMETRIC

Revision No. & Date		Vermont Agency of Transportation			Drawing Status		PCL Civil Constructors, Inc. 3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689		
		Road No.	County / City		Financial Project ID No.	Jun 30 2015 8:51 AM	Drawn By: AJT Date: 06/03/15	Submittal DEMOLITION PLAN	PCL Project / Job No.
		I-91	Windsor / Hartford		IM 091-2(79)	FOR CONSTRUCTION	Design By: TMD/ AJT Date: 06/03/15	Drawing Title	I-91 Windsor / Hartford / 5514001
						Check By: TMD Date: 06/30/15	NB DEMO - ISOMETRIC	Sheet No.	
								20	



NB DECK PANEL - REMOVAL SEQUENCE
 SEQUENCE SUBJECT TO FIELD MODIFICATION UNDER THE
 DIRECTION OF THE CONSTRUCTION ENGINEER

Revision No. & Date	Vermont Agency of Transportation				Drawing Status	Name	Date	PCL Civil Constructors, Inc. 3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689	
	Road No.	County / City	Financial Project ID No.		Jun 30 2015 8:51 AM FOR CONSTRUCTION	Drawn By	AJT	06/03/15	Submittal
	I-91	Windsor / Windsor / Hartford	IM 091-2(79)		Design By	TMD/ AJT	06/03/15	DEMOLITION PLAN	I-91 Windsor / Hartford / 5514001
					Check By	TMD	06/30/15	Drawing Title	Sheet No.
								NB SLAB REMOVAL	21



SB DEMOLITION - STAGE 1
PRE-CLOSURE WORK

CRANE INFO:		GROVE RTC-8080	TADANO GR-750XL	LINK BELT LS-248H II	LINK BELT 298 HSL
BOOM LENGTH:	ft	90	88.6, TELE MODE I	120	120
PIECE TYPE		DECK OVERHANG	DECK OVERHANG	DECK OVERHANG	DECK OVERHANG
MAX. PIECE WEIGHT	lbs	14,000	14,000	14,000	14,000
PICK WEIGHT + RIGGING:	lbs	16,330	16,330	22,913	22,913
MAX. CRANE RADIUS:	ft	55	45	100	110
CRANE CAPACITY:	ft	20,400	22,200	31,400	31,700
% OF CHART:		80%	74%	73%	72%

CRANE INFO:		GROVE RTC-8080	TADANO GR-750XL	LINK BELT LS-248H II	LINK BELT 298 HSL
BOOM LENGTH:	ft	90	88.6, TELE MODE I	120	120
PIECE TYPE		DECK SECTION	DECK SECTION	DECK SECTION	DECK SECTION
MAX. PIECE WEIGHT	lbs	12,000	12,000	12,000	12,000
PICK WEIGHT + RIGGING:	lbs	14,330	14,330	20,913	20,913
MAX. CRANE RADIUS:	ft	55	50	110	117
CRANE CAPACITY:	ft	20,400	18,100	27,500	28,900
% OF CHART:		70%	79%	76%	72%

SB DEMOLITION - STAGE 1

1. LAYOUT CORE HOLES AS SHOWN ON SHEETS 02, 04 AND 08 UNDER LANE CLOSURES..
2. CORE DRILL HOLES IN BRIDGE DECK UNDER LANE CLOSURES. FLAG TRAFFIC FOR HOLES IN SUSPENDED SPAN.
3. REMOVE ASPHALT FROM BRIDGE SURFACE UNDER LANE CLOSURES.
4. INSTALL TEMPORARY BARRIER WALL AND SECURE TO BRIDGE DECK PER THE TRAFFIC CONTROL PLAN.
5. LAYOUT SAWCUTS AS SHOWN ON SHEETS 04 AND 03.
6. COMPLETE PLUNGE CUTS IN OVERHANG. FLAG TRAFFIC FOR CUTS IN SUSPENDED SPAN.
7. SET UP SB LEFT LANE CLOSURE FOR STAGING OF DEBRIS REMOVAL TRUCKS.
8. REMOVE OVERHANG DECK SECTIONS. FLAG TRAFFIC FOR CUTS IN SUSPENDED SPAN.
 - 8.1. RIG TO SECTION PER RIGGING DETAILS ON SHEET 08.
 - 8.2. REMOVE SLACK FROM RIGGING.
 - 8.3. PERFORM FINAL LONGITUDINAL CUT TO RELEASE PIECE.
9. COMPLETE LONGITUDINAL AND TRANSVERSE CUTS BETWEEN G5 AND G7.
10. AS CUTS IN SECTIONS ARE COMPLETED, RIG TO SLAB SECTION PER DETAIL ON SHEET 08 AND REMOVE.

Revision No. & Date		Vermont Agency of Transportation			Drawing Status	Name	Date	PCL Civil Constructors, Inc.	
					Jun 30 2015 8:51 AM FOR CONSTRUCTION	AJT	06/03/15	3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689	
Road No.	County / City	Financial Project ID No.			Design By	TMD/ AJT	06/03/15	PCL Project / Job No.	
I-91	Windsor / Hartford	IM 091-2(79)			Check By	TMD	06/30/15	I-91 Windsor / Hartford / 5514001	
								Drawing Title	
								SB DEMO - STAGE 1	
								Sheet No.	
								22	



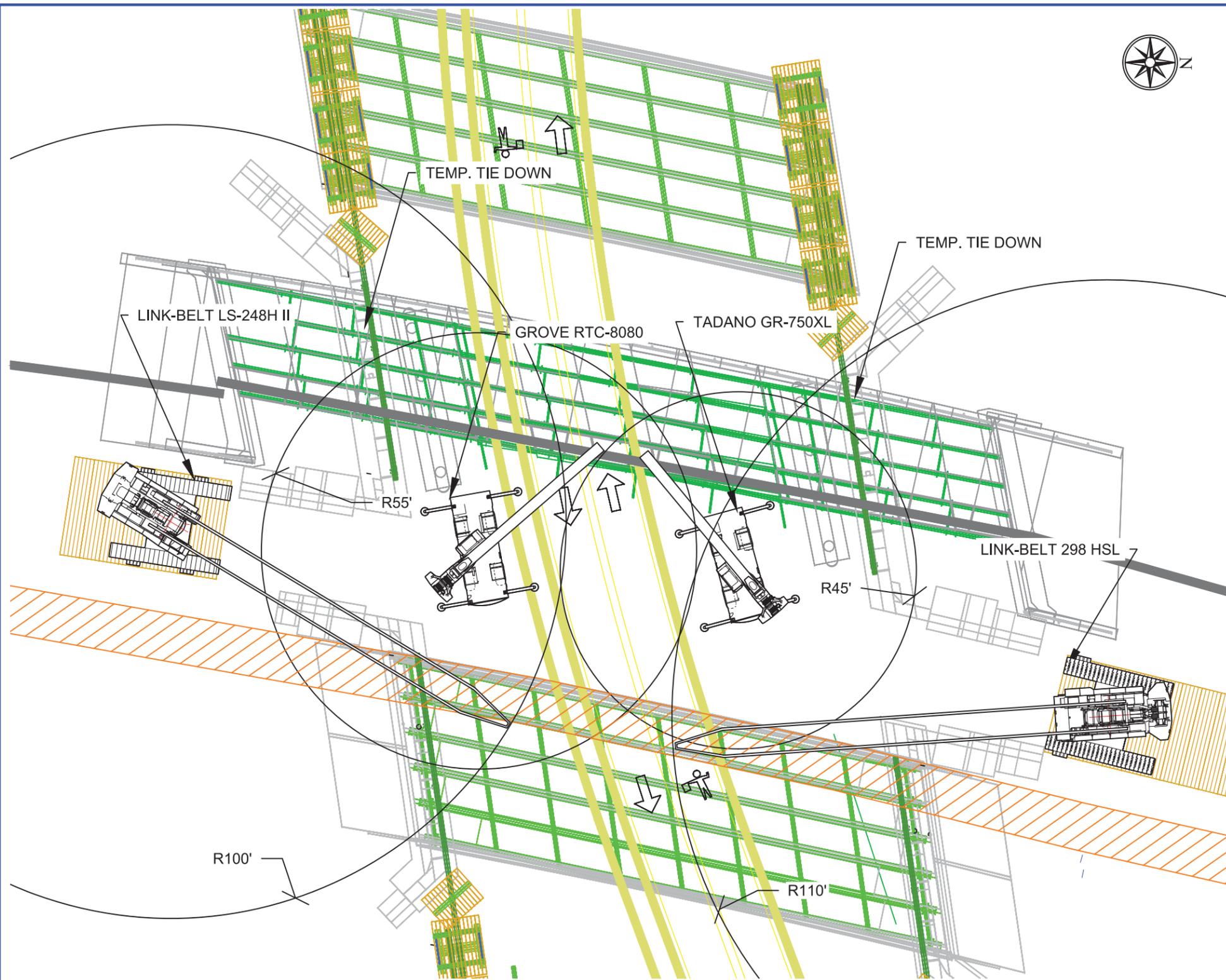
CRANE INFO:		GROVE RTC-8080	TADANO GR-750XL
BOOM LENGTH:	ft	90	88.6, TELE MODE I
PIECE TYPE		SUSPENDED GIRDER	SUSPENDED GIRDER
MAX. PIECE WEIGHT	lbs	24,900	24,900
PICK WEIGHT + RIGGING:	lbs	14,780	14,780
MAX. CRANE RADIUS:	ft	55	45
CRANE CAPACITY:	ft	20,400	22,200
% OF CHART:		72%	67%

CRANE INFO:		LINK BELT LS-248H II	LINK BELT 298 HSL
BOOM LENGTH:	ft	120	120
PIECE TYPE		END SPAN GIRDER	END SPAN GIRDER
MAX. PIECE WEIGHT	lbs	11,700	11,700
PICK WEIGHT + RIGGING:	lbs	20,613	20,613
MAX. CRANE RADIUS:	ft	110	117
CRANE CAPACITY:	ft	27,500	28,900
% OF CHART:		75%	71%

- SB DEMOLITION - STAGE 2**
1. SET UP FLAGGING OPERATIONS.
 2. RIG TO SUSPENDED SPAN G7 AS SHOWN ON SHEET 07. REMOVE SLACK FROM MAIN LINES AND RIGGING.
 3. STOP TRAFFIC.
 4. TORCH CUT OR UNBOLT DIAPHRAGMS AT LOCATIONS SHOWN ON SHEET 05 AND SET ONTO HAUL TRUCK.
 5. RELEASE GIRDER FROM CRANES AND RELEASE TRAFFIC.
 6. RIG TO END SPAN GIRDERS PER DETAIL ON SHEET 06. REMOVE SLACK FROM MAIN LINES AND RIGGING.
 7. TORCH CUT OR UNBOLT GIRDER AS SHOWN ON SHEET 11 AND DIAPHRAGMS AT LOCATIONS SHOWN ON SHEET 05
 8. SET ONTO HAUL TRUCK AND RELEASE GIRDER FROM CRANE.
 9. REPEAT STEPS 2-8 FOR G6.

SB DEMOLITION - STAGE 2
PRE-CLOSURE WORK

Revision No. & Date	Vermont Agency of Transportation				Drawing Status	Name	Date	PCL Civil Constructors, Inc. 3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689	
	Road No.	County / City	Financial Project ID No.		Jun 30 2015 8:52 AM FOR CONSTRUCTION	Drawn By	AJT	06/03/15	Submittal
	I-91	Windsor / Hartford	IM 091-2(79)		Design By	TMD/ AJT	06/03/15	DEMOLITION PLAN	I-91 Windsor / Hartford / 5514001
					Check By	TMD	06/30/15	Drawing Title	Sheet No.
								SB DEMO - STAGE 2	23



CRANE INFO:		GROVE RTC-8080	TADANO GR-750XL	LINK BELT LS-248H II	LINK BELT 298 HSL
BOOM LENGTH:	ft	90	88.6, TELE MODE I	120	120
PIECE TYPE		DECK OVERHANG	DECK OVERHANG	DECK OVERHANG	DECK OVERHANG
MAX. PIECE WEIGHT	lbs	14,000	14,000	14,000	14,000
PICK WEIGHT + RIGGING:	lbs	16,330	16,330	22,913	22,913
MAX. CRANE RADIUS:	ft	55	45	100	110
CRANE CAPACITY:	ft	20,400	22,200	31,400	31,700
% OF CHART:		80%	74%	73%	72%

CRANE INFO:		GROVE RTC-8080	TADANO GR-750XL	LINK BELT LS-248H II	LINK BELT 298 HSL
BOOM LENGTH:	ft	90	88.6, TELE MODE I	120	120
PIECE TYPE		DECK SECTION	DECK SECTION	DECK SECTION	DECK SECTION
MAX. PIECE WEIGHT	lbs	12,000	12,000	12,000	12,000
PICK WEIGHT + RIGGING:	lbs	14,330	14,330	20,913	20,913
MAX. CRANE RADIUS:	ft	55	50	110	117
CRANE CAPACITY:	ft	20,400	18,100	27,500	28,900
% OF CHART:		70%	79%	76%	72%

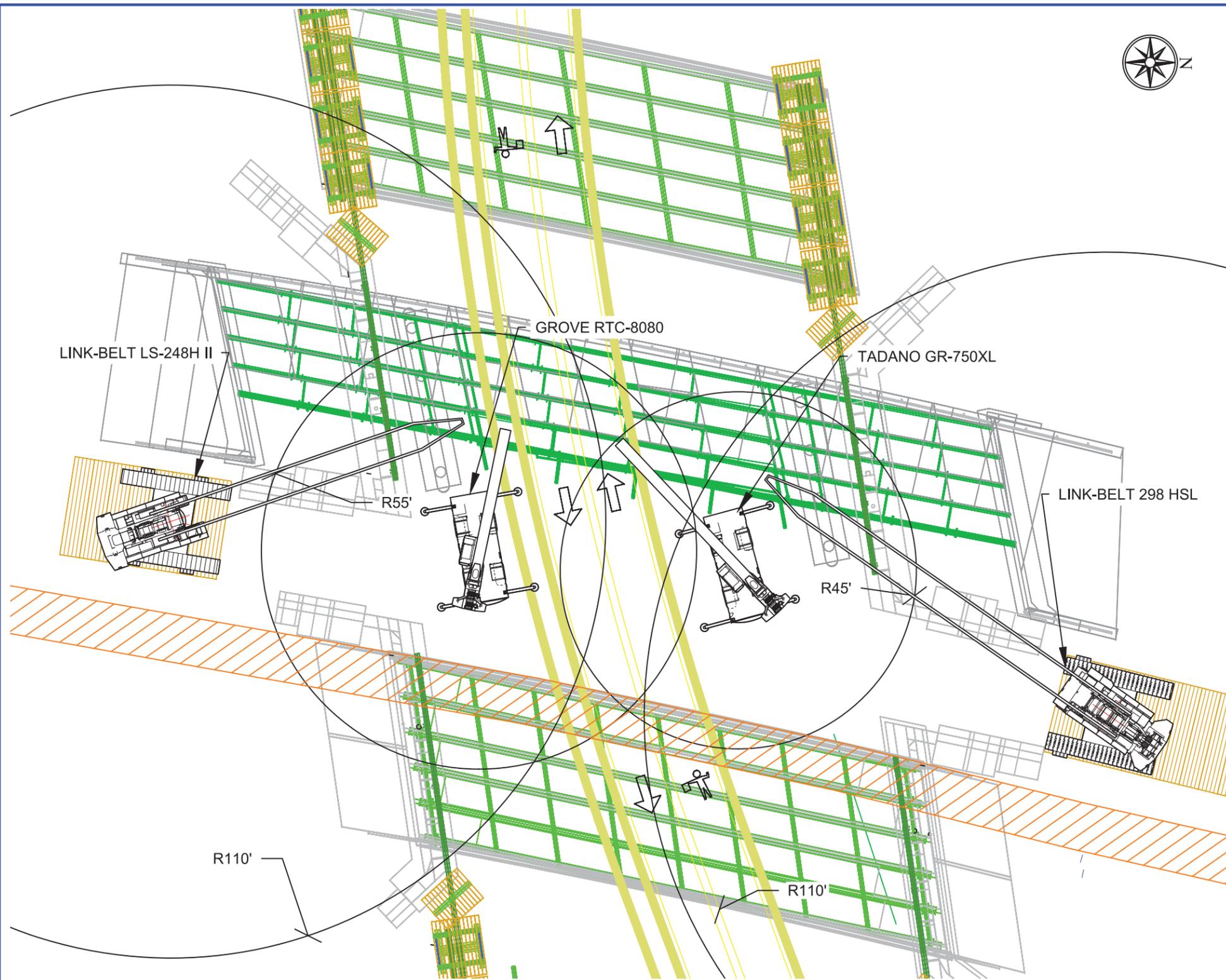
SB DEMOLITION - STAGE 3

1. SET UP NB LEFT LANE CLOSURE FOR STAGING OF DEBRIS REMOVAL TRUCKS.
2. REMOVE TEMPORARY BARRIER WALL.
3. COMPLETE LONGITUDINAL AND TRANSVERSE CUTS. FLAG TRAFFIC FOR CUTS IN SUSPENDED SPAN.
4. AS SECTIONS ARE COMPLETELY CUT, RIG TO SLAB SECTION PER DETAIL ON SHEET 08 AND REMOVE.
5. REMOVE ALL DECK SLABS BETWEEN G4 AND G5 FROM THE CENTER OF THE SPAN OUTWARDS. END SPAN SLAB REMOVAL TO BE SEQUENCED SO THAT WEIGHT ON END SPAN PROVIDES A MINIMUM 1.5 FACTOR OF SAFETY AGAINST OVERTURNING IN THE SUSPENDED SPAN. THIS WORK WILL BE DIRECTED ON SITE BY THE CONSTRUCTION ENGINEER.

SB DEMOLITION - STAGE 3
CLOSURE WORK

Revision No. & Date		Vermont Agency of Transportation			Drawing Status		Name		Date		PCL Civil Constructors, Inc.	
					Jun 30 2015 8:52 AM		AJT		06/03/15		3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689	
					FOR CONSTRUCTION		TMD/ AJT		06/03/15		Submittal DEMOLITION PLAN	
Road No.	County / City	Financial Project ID No.				TMD		06/30/15		PCL Project / Job No. I-91 Windsor / Hartford / 5514001		
I-91	Windsor / Hartford	IM 091-2(79)								Sheet No. 24		

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CRANE INFO:		GROVE RTC-8080	TADANO GR-750XL
BOOM LENGTH:	ft	90	88.6, TELE MODE I
PIECE TYPE		SUSPENDED GIRDER	SUSPENDED GIRDER
MAX. PIECE WEIGHT	lbs	24,900	24,900
PICK WEIGHT + RIGGING:	lbs	14,780	14,780
MAX. CRANE RADIUS:	ft	55	45
CRANE CAPACITY:	ft	20,400	22,200
% OF CHART:		72%	67%

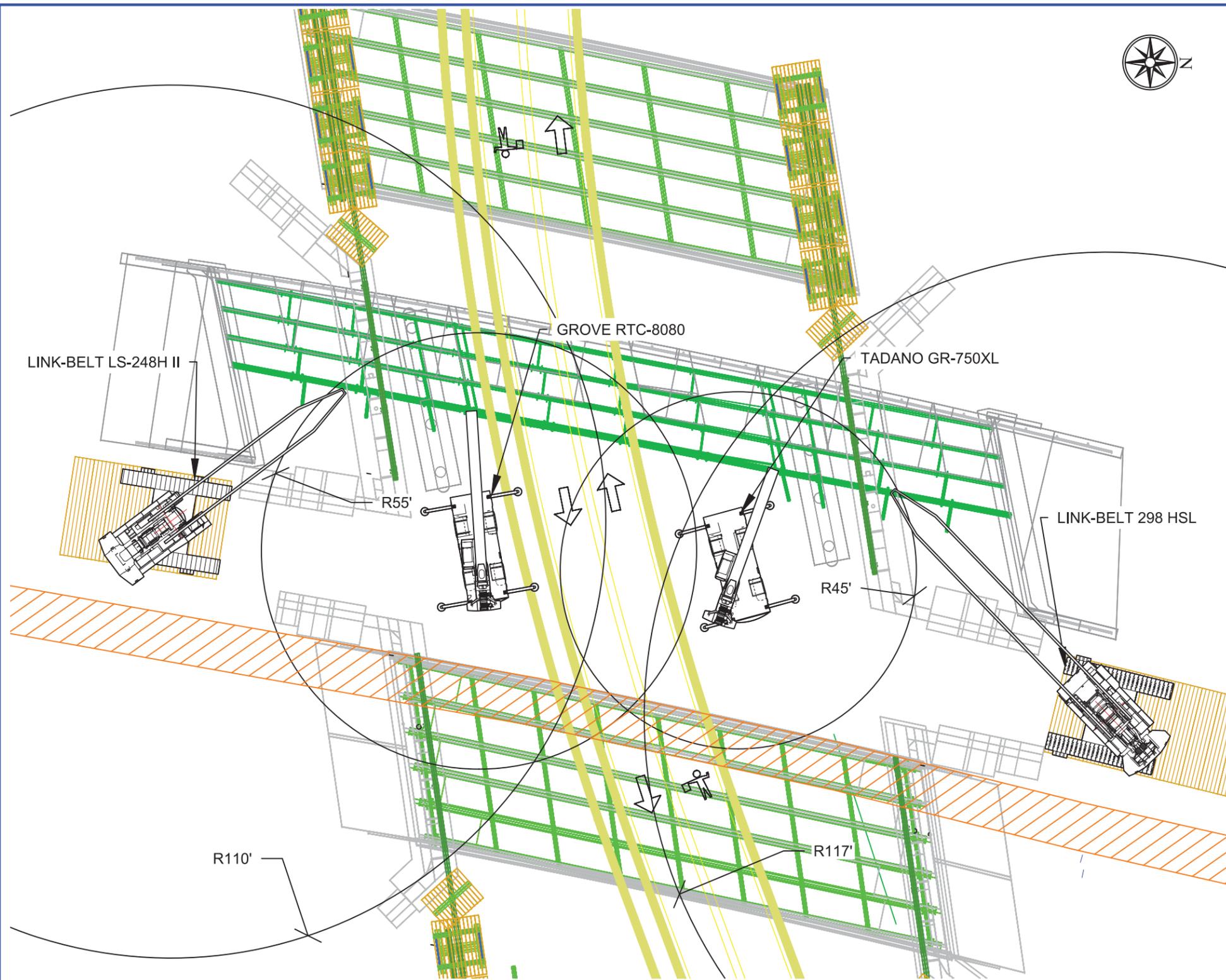
CRANE INFO:		LINK BELT LS-248H II	LINK BELT 298 HSL
BOOM LENGTH:	ft	120	120
PIECE TYPE		END SPAN GIRDER	END SPAN GIRDER
MAX. PIECE WEIGHT	lbs	11,700	11,700
PICK WEIGHT + RIGGING:	lbs	20,613	20,613
MAX. CRANE RADIUS:	ft	110	117
CRANE CAPACITY:	ft	27,500	28,900
% OF CHART:		75%	71%

SB DEMOLITION - STAGE 4

1. RIG TO SUSPENDED SPAN G5 AS SHOWN ON SHEET 07. REMOVE SLACK FROM MAIN LINES AND RIGGING.
2. STOP TRAFFIC.
3. TORCH CUT OR UNBOLT DIAPHRAGMS AT LOCATIONS SHOWN ON SHEET 05 AND SET ONTO HAUL TRUCK.
4. RELEASE GIRDER FROM CRANES AND RELEASE TRAFFIC.
5. RIG TO END SPAN GIRDERS PER DETAIL ON SHEET 06. REMOVE SLACK FROM MAIN LINES AND RIGGING.
6. TORCH CUT OR UNBOLT GIRDER AS SHOWN ON SHEET 11 AND DIAPHRAGMS AT LOCATIONS SHOWN ON SHEET 05
7. SET ONTO HAUL TRUCK AND RELEASE GIRDER FROM CRANE.

SB DEMOLITION - STAGE 4
CLOSURE WORK

Revision No. & Date		Vermont Agency of Transportation			Drawing Status		Name		Date		PCL Civil Constructors, Inc.	
					Jun 30 2015 8:52 AM FOR CONSTRUCTION		AJT		06/03/15		3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689	
Road No.	County / City	Financial Project ID No.				TMD/ AJT		06/03/15		Submittal DEMOLITION PLAN		PCL Project / Job No. I-91 Windsor / Hartford / 5514001
I-91	Windsor / Hartford	IM 091-2(79)				TMD		06/30/15		Drawing Title SB DEMO - STAGE 4		Sheet No. 25



CRANE INFO:		GROVE RTC-8080	TADANO GR-750XL
BOOM LENGTH:	ft	90	88.6, TELE MODE I
PIECE TYPE		SUSPENDED GIRDER	SUSPENDED GIRDER
MAX. PIECE WEIGHT	lbs	24,900	24,900
PICK WEIGHT + RIGGING:	lbs	14,780	14,780
MAX. CRANE RADIUS:	ft	55	45
CRANE CAPACITY:	ft	20,400	22,200
% OF CHART:		72%	67%

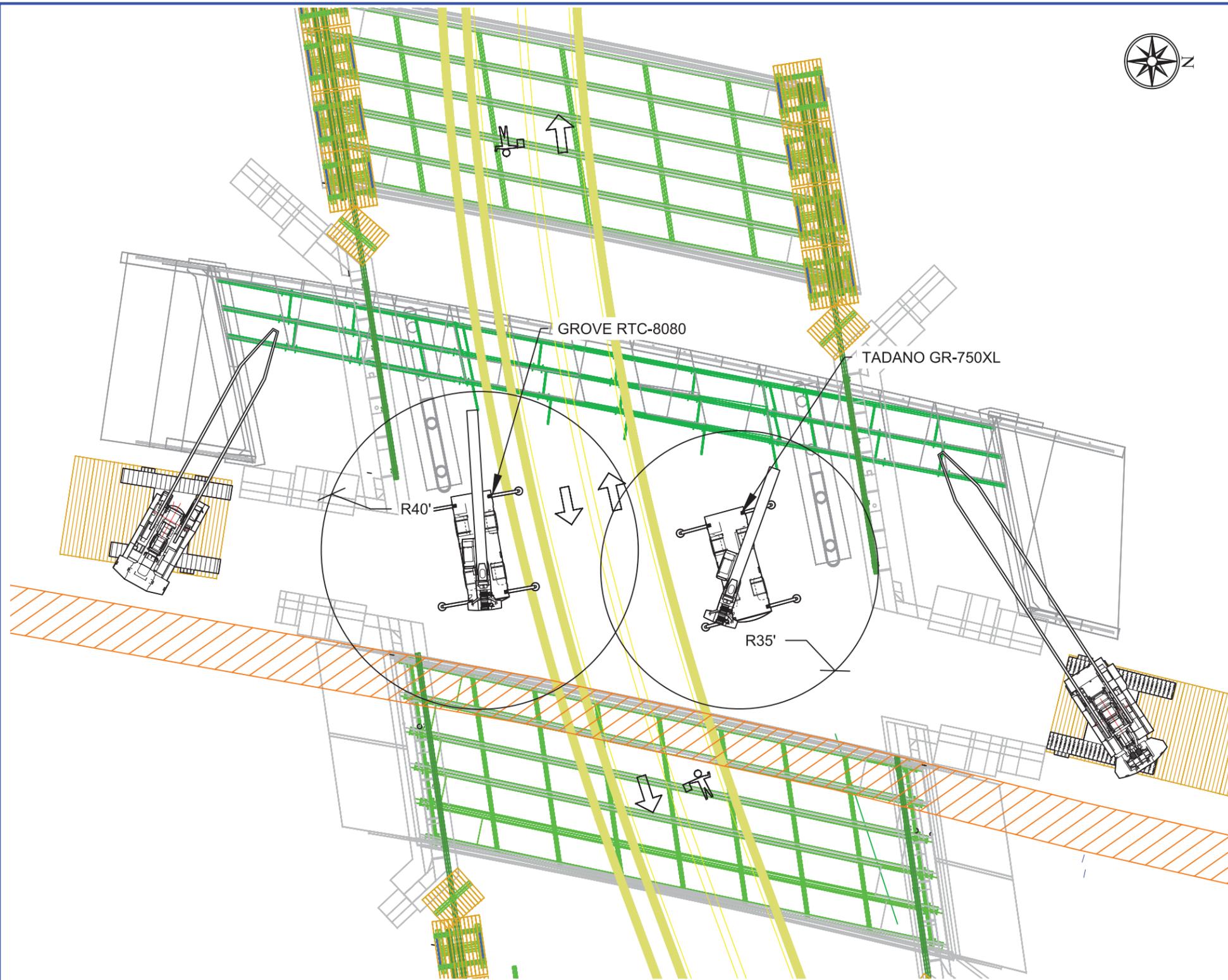
CRANE INFO:		LINK BELT LS-248H II	LINK BELT 298 HSL
BOOM LENGTH:	ft	120	120
PIECE TYPE		END SPAN GIRDER	END SPAN GIRDER
MAX. PIECE WEIGHT	lbs	11,700	11,700
PICK WEIGHT + RIGGING:	lbs	20,613	20,613
MAX. CRANE RADIUS:	ft	110	117
CRANE CAPACITY:	ft	27,500	28,900
% OF CHART:		75%	71%

SB DEMOLITION - STAGE 6

1. RIG TO SUSPENDED SPAN G4 AS SHOWN ON SHEET 07. REMOVE SLACK FROM MAIN LINES AND RIGGING.
2. STOP TRAFFIC.
3. TORCH CUT OR UNBOLT DIAPHRAGMS AT LOCATIONS SHOWN ON SHEET 05 AND SET ONTO HAUL TRUCK.
4. RELEASE GIRDER FROM CRANES AND RELEASE TRAFFIC.
5. RIG TO END SPAN GIRDERS PER DETAIL ON SHEET 06. REMOVE SLACK FROM MAIN LINES AND RIGGING.
6. TORCH CUT OR UNBOLT GIRDER AS SHOWN ON SHEET 11 AND DIAPHRAGMS AT LOCATIONS SHOWN ON SHEET 05
7. SET ONTO HAUL TRUCK AND RELEASE GIRDER FROM CRANE.

SB DEMOLITION - STAGE 6
CLOSURE WORK

Revision No. & Date	Vermont Agency of Transportation				Drawing Status	Name	Date	PCL Civil Constructors, Inc. 3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689	
	Road No.	County / City	Financial Project ID No.		Jun 30 2015 8:52 AM FOR CONSTRUCTION	Drawn By	AJT	06/03/15	Submittal
	I-91	Windsor / Hartford	IM 091-2(79)		Design By	TMD/ AJT	06/03/15	DEMOLITION PLAN	I-91 Windsor / Hartford / 5514001
					Check By	TMD	06/30/15	Drawing Title	Sheet No.
								SB DEMO - STAGE 6	27



CRANE INFO:		GROVE RTC-8080	TADANO GR-750XL
BOOM LENGTH:	ft	90	88.6, TELE MODE I
PIECE TYPE		CAP SECTION	CAP SECTION
MAX. PIECE WEIGHT	lbs	23,000	23,000
PICK WEIGHT + RIGGING:	lbs	25,330	25,330
MAX. CRANE RADIUS:	ft	40	35
CRANE CAPACITY:	ft	35,800	34,700
% OF CHART:		71%	73%

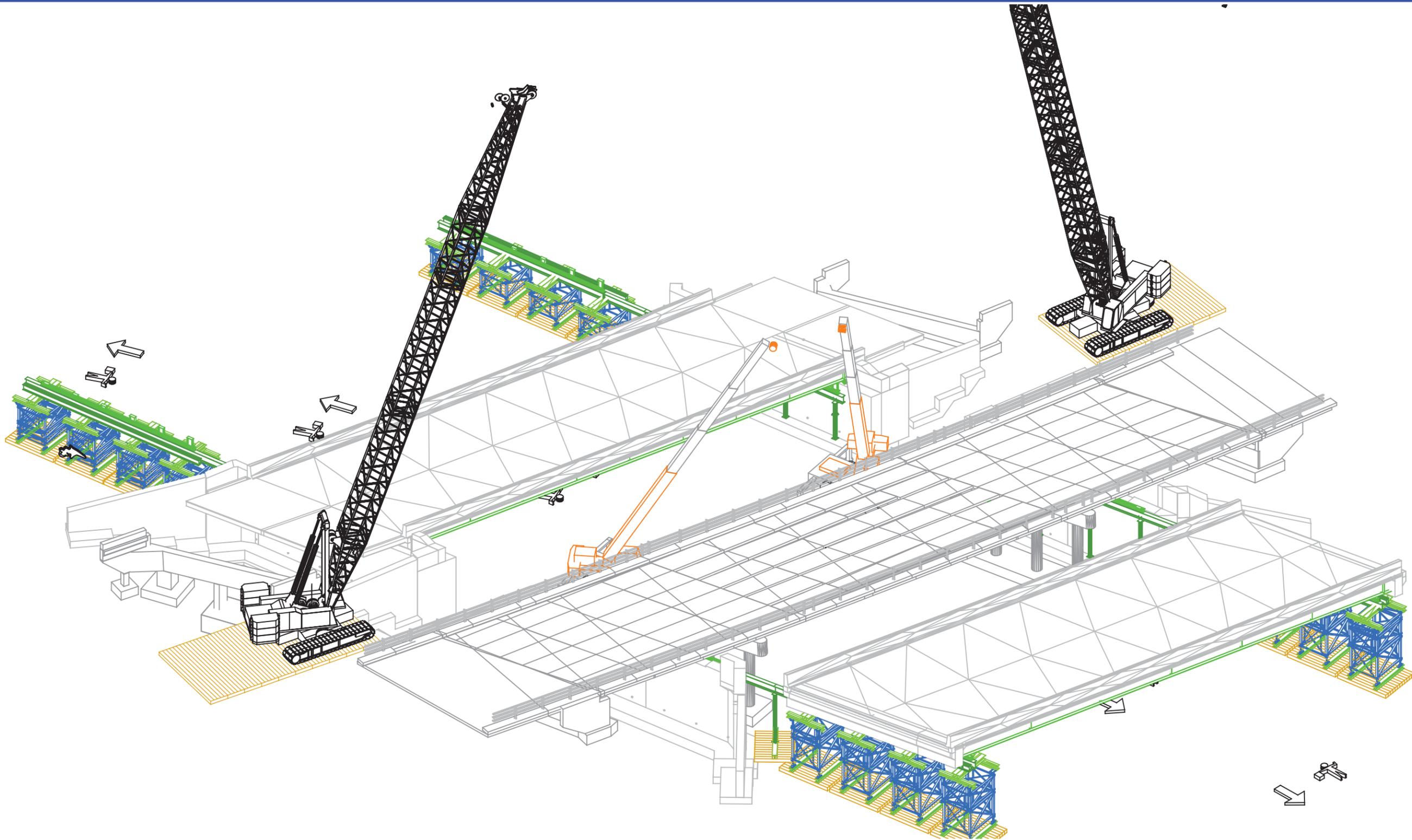
CRANE INFO:		GROVE RTC-8080	TADANO GR-750XL
BOOM LENGTH:	ft	90	88.6, TELE MODE I
PIECE TYPE		COLUMN	COLUMN
MAX. PIECE WEIGHT	lbs	10,400	10,400
PICK WEIGHT + RIGGING:	lbs	12,730	12,730
MAX. CRANE RADIUS:	ft	40	35
CRANE CAPACITY:	ft	35,800	34,700
% OF CHART:		36%	37%

SB DEMOLITION - STAGE 7

1. VERTICALLY CUT PIER CAP AT LOCATIONS SHOWN ON SHEET 12.
2. RIG TO EXTERIOR SECTION OF PIER CAP. (SEE DETAIL SHEET 08)
REMOVE SLACK FROM RIGGING.
3. HORIZONTALLY CUT PIER CAP AT TOP OF EXTERIOR COLUMN AS SHOWN ON SHEET 12.
4. REMOVE CAP SECTION, FLAGGING TRAFFIC AS NECESSARY.
5. REPEAT STEPS 2-4 FOR INTERIOR SECTION OF PIER CAP.
6. CHOKE TOP OF COLUMN AS SHOWN ON SHEET 08.
7. SAWCUT OR CHIP BOTTOM OF COLUMN. USE CRANE TO STABILIZE TOP OF COLUMN AS CUT IS MADE.
8. USE CRANE TO LAYOVER COLUMN ONTO FOOTING. DO NOT PICK ENTIRE COLUMN WITH RIGGING. CUT OR CHIP COLUMN ON GROUND FOR REMOVAL FROM SITE.

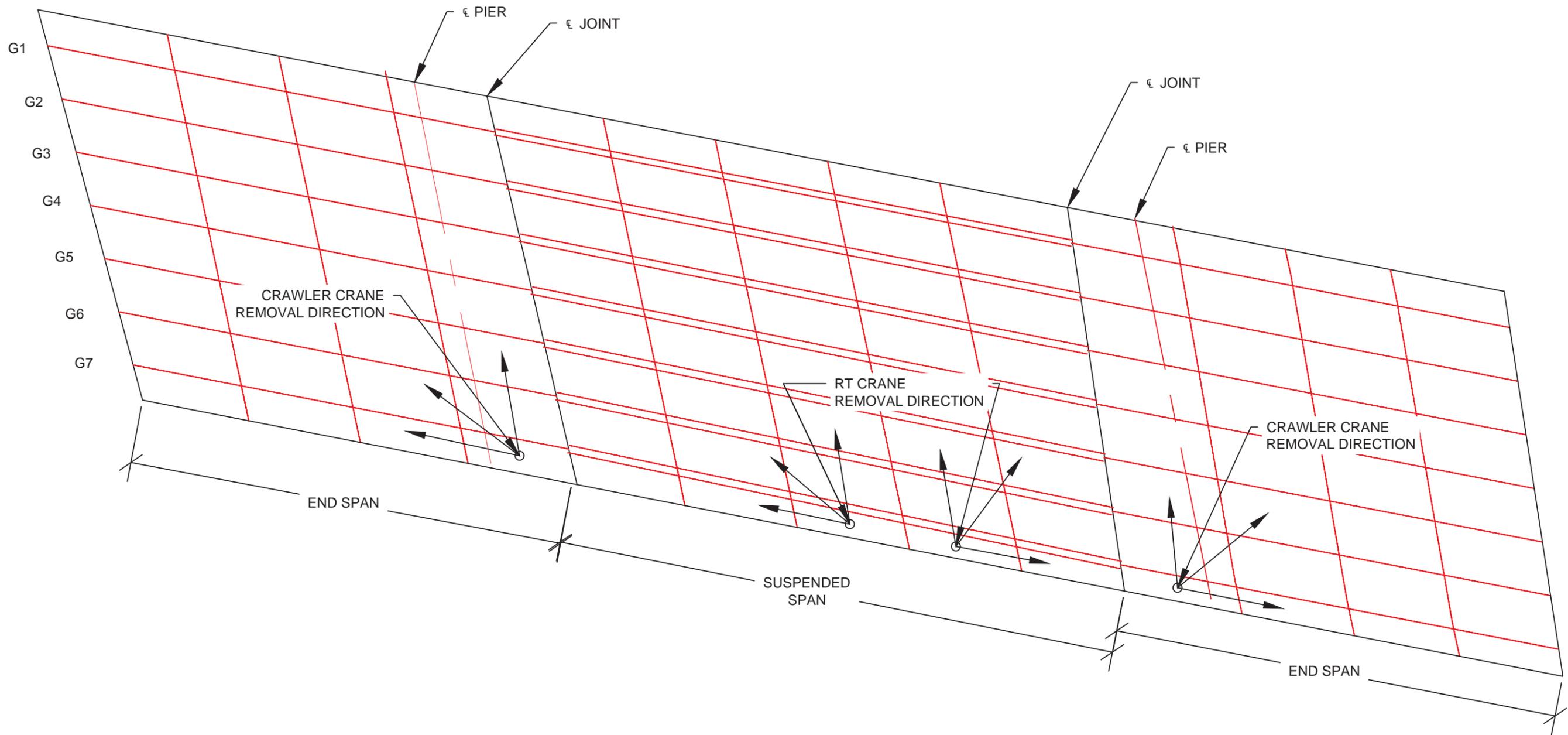
SB DEMOLITION - STAGE 7
CLOSURE WORK

Revision No. & Date		Vermont Agency of Transportation			Drawing Status	Name	Date	PCL Civil Constructors, Inc. 3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689			
		Road No.	County / City		Financial Project ID No.	Jun 30 2015 8:52 AM FOR CONSTRUCTION	Drawn By	AJT	06/03/15	Submittal DEMOLITION PLAN Drawing Title SB DEMO - STAGE 7	PCL Project / Job No. I-91 Windsor / Hartford / 5514001
		I-91	Windsor / Hartford		IM 091-2(79)		Design By	TMD/ AJT	06/03/15		Sheet No. 28
						Check By	TMD	06/30/15			



SB DEMOLITION - ISOMETRIC

Revision No. & Date		Vermont Agency of Transportation			Drawing Status		PCL Civil Constructors, Inc. 3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689	
Road No.	County / City	Financial Project ID No.			Jun 30 2015 8:52 AM FOR CONSTRUCTION	Name	Date	Submittal DEMOLITION PLAN
I-91	Windsor / Hartford	IM 091-2(79)			Drawn By AJT	06/03/15	Drawing Title SB DEMO - ISOMETRIC	Sheet No. 31
					Design By TMD/ AJT	06/03/15		
					Check By TMD	06/30/15		



SB DECK PANEL - REMOVAL SEQUENCE
 SEQUENCE SUBJECT TO FIELD MODIFICATION UNDER THE
 DIRECTION OF THE CONSTRUCTION ENGINEER

Revision No. & Date	Vermont Agency of Transportation				Drawing Status	Name	Date	PCL Civil Constructors, Inc. 3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689	
	Road No.	County / City	Financial Project ID No.		Jun 30 2015 8:52 AM FOR CONSTRUCTION	Drawn By	AJT	06/03/15	Submittal DEMOLITION PLAN
	I-91	Windsor / Windsor / Hartford	IM 091-2(79)		Design By	TMD/ AJT	06/03/15	Drawing Title SB SLAB REMOVAL	Sheet No. 32
					Check By	TMD	06/30/15		