

MAD-SR29-1061 Estimated Quantities

Des: Parsons

Submittal:

Calculated:	JRE 7/7/2017
Checked:	RWB 7/14/2017
Backchecked:	JRE 7/14/2017
Corrected:	JRE 7/14/2017
Verified:	RWB 7/17/2017

503E21100

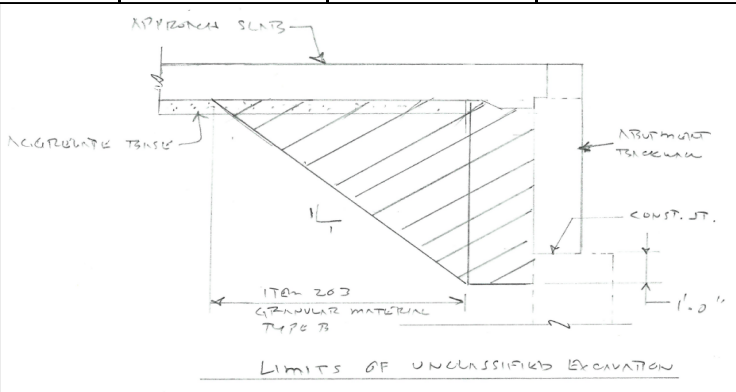
UNCLASSIFIED EXCAVATION

CY

Supplemental Description:

163

					CY
Behind Backwall					
		Left	Center	Right	
	Ex. T/Backwall Elev.	994.89	995.41	995.44	
	Ex. Beam Seat Elev.	987.70	988.23	988.24	
	Height	7.19	7.18	7.20	
	Ave. Ex. Backwall Height	7.19	ft		
	+ 1' Exc. Depth	8.19	ft		
	Say	8.25	ft		
	Ex. AS Width	31.67	ft		
	Skew	59.65	deg.		
	Ex. Abut. Length	62.67	ft		
	Ex. AS Depth	1.25	ft		
	(AS-1-81 Rev. 9/15/94)				
	Depth of Exc.	7.00	ft		
		Full Depth	Sloped	Total	
	Ave. Depth	7.00	3.50	ft	
	Length	1.50	7.00	ft	
	Abut. Length	62.67	62.67	ft	
	Volume	658.05	1,535.45	2,193.50	ft^3
At Cheekwall					
		Along Front Face	Along End		
	Length	3.96	2.54	ft	
	Width	1.00	1.00	ft	
	Depth	1.00	1.38	ft	
	Volume	3.96	3.49	7.45	ft^3
Total					
	Abutments Subtotal	2,193.50	ft^3		
		x 2			
		4,387.00	ft^3		
	+ 1 Cheekwall	7.45	ft^3		Gen Subtotal
		4,394.45	ft^3		Abut Subtotal
		162.76	yd^3		Piers Subtotal
					Super Subtotal



PARSONS SR29-1061 Estimated Quantities

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511E34447

CLASS QC2 CONCRETE WITH QC/OA, BRIDGE DECK, AS PER PLAN

CY

Supplemental Description:

697

						CY
Bridge Deck						
	Length of Bridge	534.77	ft			
	Width	36.00	ft			
	Deck Area	19251.72	ft^2			
	Thickness	0.71	ft			
	Volume	13636.64	ft^3			
Haunches						
	Min. Haunch Depth	2.00	in			
	Ave. Additional Haunch Depth	1.81	in		(per RWB Spreadsheet)	
	Ave. Total Haunch Depth	3.81	in			
	Weighted Ave. Top Flange Thickness	1.19	in			
		Depth (in)	Width (in)	No. Locations	Area (ft^2)	
	Above Flange	2.62	18.00	5	1.63	
	Wedge	3.81	9.00	8	0.95	
	Overhang	3.41	27.00	2	1.28	
	Total C.S. Area	3.86	ft^2			
	Length of Bridge	534.77	ft			
	Volume	2066.36	ft^3			
Semi-Integral Diaphragm						
		Height	Width	Area		
	Diaphragm	6.29	3.75	23.59	ft^2	
	- Approach Seat	0.50	1.25	0.63	ft^2	
			Area	22.96	ft^2	
	Length of Bridge	67.29	ft			
	Number	2				
	Volume	3090.29	ft^3			
Total						
		18,793.29	ft^3		Gen Subtotal	
		696.05	yd^3		Abut Subtotal	
					Piers Subtotal	
					Super Subtotal	696.0

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511E44110

CLASS QC1 CONCRETE, ABUTMENT NOT INCLUDING FOOTING

CY

Supplemental Description:

15

						CY
Backwall						
		Rear	Forward	Backwall Sub		
	Approx. Ave. Height	7.19	7.19	ft		
	Thickness	1.75	1.75	ft		
	Length	64.66	64.66	ft		
	Volume	813.54	813.54	1627.07	ft^3	
	Beam Seat Depth	1.25	1.25	ft		
	Beam Seat Thickness	0.50	0.50	ft		
	Beam Seat Length	62.67	62.67	ft		
	Volume	-39.17	-39.17	-78.34	ft^3	
				0.00	ft^3	
Wingwalls						
		Rear R/Forward L	Rear L/Forward R	Wingwalls Sub		
	Height	0.82	0.82	ft		
	Thickness	1.67	1.67	ft		
	Length	31.78	12.92	ft		
	Quantity	2	2			
	Volume	87.18	35.43	122.61	ft^3	
Cheekwalls						
		Wall	Stem	Cheekwalls Sub		
		NW & SE Corners				
	Height	6.83		ft		
	Thickness	1.50		ft		
	Avg. Length	5.00		ft		
	Quantity	2				
		SW & NE Corners				
	Height	6.83				
	Thickness	1.50				
	Avg. Length	7.00				
	Quantity	2				
	Volume	246.00	0.00	246.00	ft^3	
Total						
		368.61	ft^3			
		13.65	yd^3		Gen Subtotal	
	Say	15	yd^3		Abut Subtotal	15.0
					Piers Subtotal	
					Super Subtotal	

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512E10050

SEALING OF CONCRETE SURFACES (NON-EPOXY)

SY

Supplemental Description:

1,756

						SY
Abutment						
		Rear	Forward	Abutment Sub		
	Approx. Ave. Backwall Height	7.19	7.19	ft		
	Beam Seat Width	2.00	2.00	ft		
	Exposed Front of Stem	2.00	2.00	ft		
	Perimeter	11.19	11.19	ft		
	Length	64.66	64.66	ft		
	Area	723.50	723.50	0.00	ft ²	Backwalls N/A
Cheekwalls						
		Width/Height	Length	Area		
	NW & SE Corners					
	Top	1.50	5.00	7.50	ft ²	
	Front	6.83	3.88	26.48	ft ²	
	Back	6.83	6.15	42.00	ft ²	
			Total	75.98	ft ²	
			x 2	151.95	ft ²	
	SW & NE Corners					
	Top	1.50	7.00	10.50	ft ²	
	Front	6.83	6.43	43.92	ft ²	
	Back	6.83	7.56	51.68	ft ²	
			Total	106.10	ft ²	
			x 2	212.19	ft ²	
	End of Seat	1.00	7.00	0.00	ft ² N/A	
			Total	364.14	ft ²	
Wingwalls						
		Rear R/Forward L	Rear L/Forward R	Wingwalls Sub		
	Height	1.82	1.82	ft		
	Length	31.78	12.92	ft		
	Quantity	2	2			
	Area	115.87	47.09	162.96	ft ²	
Parapets						
		Rear R/Forward L	Rear L/Forward R			
	Parapet Perimeter	7.90	7.90	ft		
	Length	20.25	1.39	ft		
	Quantity	2	2			
	Area	319.80	21.88	341.68	ft ²	

MAD-SR29-1061 Estimated Quantities

Des: Parsons

Submittal:

0

0

512E10050

SEALING OF CONCRETE SURFACES (NON-EPOXY)

Supplemental Description:

Calculated:	JRE 7/7/2017
Checked:	
Backchecked:	
Corrected:	
Verified:	

SY

Subtotal B = 1,756

						SY
Parapet/Edge of Deck						
	Parapet Perimeter	7.90	ft			
	Deck Fascia Perimeter	1.63	ft			
	Total	9.52	ft			
	Length	1082.46	ft			
	Area	10306.37	ft^2			
Semi-Integral Diaphragm						
	Avg. Height	6.08	ft			
	Length	64.91	ft			
	Area	394.85	ft^2			
	x 2	789.69	ft^2			
	Total Superstructure	11096.06	ft^2			
Piers						
	Column Diameter	3.00	ft			
	Column Perimeter	9.42	ft			
	Crash Wall Length	59.38	ft			
	Crash Wall Height	6.00	ft			
	Exposed Crash Wall Height	3.50	ft			
		Height/Width	Number	Area		
	Crash Wall Sides	3.50	5.25	1,091.02	ft^2	
	Crash Wall Top	4.00	3	627.68	ft^2	
	Column Ends at Crash Wall	3.50	6	98.96	ft^2	
	Crash Wall Ends	3.50	6	21.00	ft^2	
	Pier 1 Column Above Crash Wall	10.54	5	496.87	ft^2	
	Pier 2 Column Above Crash Wall	11.36	5	535.42	ft^2	
	Pier 3 Column Above Crash Wall	11.86	5	559.08	ft^2	
			Total	3430.03	ft^2	
Total						
	Abutments	1,276.78	ft^2			
		141.86	yd^2			
	Piers	3,430.03	ft^2			
		381.11	yd^2			
	Superstructure	11,096.06	ft^2			
		1,232.90	yd^2			

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514E00050

SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL

SF

Supplemental Description:

56,262

						SF
Girders						
<i>Note: For calculations assume no stiffeners for simplicity. To compensate, ignore edges of stiffeners.</i>						
	Flanges	b (in)	t (in)	L (ft)	Area (ft ²)/Beam	
	Top	18.00	-	532.33	779.09	
	Bottom 1	18.00	0.75	76.83	237.30	
	Bottom 2	18.00	1.38	28.00	89.40	
	Bottom 3	18.00	1.38	161.33	515.09	
	Bottom 4	18.00	1.38	161.33	515.09	
	Bottom 5	18.00	1.38	28.00	89.40	
	Bottom 6	18.00	0.75	76.83	237.30	
				Subtotal	2,462.67	
	Web		t	7/16	in	
		Area of One Face (Measured)		3,120.00	ft ²	
			x 2	6,240.00	ft ²	
Bearing Stiffeners						
		b	h	Number/Beam	Area (ft ²)/Beam	
	Rear Abutment	0.71	5.38	2	15.23	
	Pier 1	0.71	6.94	2	19.66	
	Pier 2	0.71	8.77	2	24.85	
	Pier 3	0.71	6.94	2	19.66	
	Forward Abutment	0.71	5.38	2	15.23	
				Subtotal	94.62	
Longitudinal Stiffeners						
		Width	Length	No. Faces	Area (ft ²)/Beam	
	Pier 1	0.42	53.15	2	44.29	
	Pier 2	0.42	51.25	2	42.71	
	Pier 3	0.42	53.15	2	44.29	
				Subtotal	131.28	

MAD-SR29-1061 Estimated Quantities

Des: Parsons

Submittal:

0

0

514E00050

SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL

Supplemental Description:

Calculated:	JRE 7/7/2017
Checked:	
Backchecked:	
Corrected:	
Verified:	

SF

Subtotal B = 56,262

						SF
Intermediate Stiffeners						
<i>Note: Ignore edges of stiffeners to avoid double counting.</i>						
					Symmetrical @ P2	
	Height	Stiffener Start	Stiffener End	Number	x 2	
	5.38	1	12	12	24	
	5.47	13	13	1	2	
	5.52	14	14	1	2	
	5.59	15	15	1	2	
	5.68	16	16	1	2	
	5.79	17	17	1	2	
	5.82	18	18	1	2	
	5.97	19	19	1	2	
	6.15	20	20	1	2	
	6.34	21	21	1	2	
	6.56	22	22	1	2	
	6.79	23	23	1	2	
	6.74	24	24	1	2	
	6.46	25	25	1	2	
	6.21	26	26	1	2	
	6.00	27	27	1	2	
	5.83	28	28	1	2	
	5.69	29	29	1	2	
	5.59	30	30	1	2	
	5.53	31	31	1	2	
	5.27	32	49	18	36	
	5.51	50	50	1	2	
	5.58	51	51	1	2	
	5.74	52	52	1	2	
	5.97	53	53	1	2	
	6.27	54	54	1	2	
	6.66	55	55	1	2	
	7.13	56	56	1	2	
	7.67	57	57	1	2	
	8.30	58	58	1	1	
	Weighted Average Height	5.70	ft			
	Typical Width	0.58	ft			
	Area per Face of Stiffener	3.33	ft^2			
	x 115 stiffeners	382.42	ft^2			
	x 2 faces	764.84	ft^2			
	x 2 sides of web	1,529.68	ft^2	(per beam)		

MAD-SR29-1061 Estimated Quantities

Des: Parsons

Submittal:

0

0

514E00050

SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL

SF

Supplemental Description:

Subtotal C =

56,262

Calculated:	JRE 7/7/2017
Checked:	
Backchecked:	
Corrected:	
Verified:	

						SF
Cross Frames (Continued)						
Note: Calculation copied from Bracing Member Lengths spreadsheet created by RWB.						
		Constant Dimensions (ft)		Variable Dimensions (ft)		
	S	7.50	Stiffener Size	D	Y	
	A	0.17	1	5.38	0.00	
	B	0.17	2	5.38	0.22	
	E	0.25	3	5.59	0.23	
	F	0.25	4	5.82	0.52	
			5	6.34	0.59	
			6	6.21	0.73	
			7	5.69	0.52	
			8	5.27	0.42	
			9	5.27	0.00	
			10	5.27	0.24	
			11	5.51	0.46	
			12	5.97	1.16	
			13	7.13	1.64	
	Chord Lengths					
		Stiffener Size	L	M	N	
		1	8.57	8.57	7.17	
		2	8.69	8.57	7.17	
		3	8.83	8.69	7.17	
		4	9.14	8.83	7.19	
		5	9.52	9.14	7.19	
		6	9.52	9.06	7.20	
		7	9.06	8.75	7.19	
		8	8.75	8.52	7.18	
		9	8.52	8.52	7.17	
		10	8.65	8.52	7.17	
		11	8.91	8.65	7.18	
		12	9.65	8.91	7.26	
		13	10.82	9.65	7.35	

MAD-SR29-1061 Estimated Quantities

Des: Parsons

Submittal:

0

0

514E00050

SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL

Supplemental Description:

Calculated:	JRE 7/7/2017
Checked:	
Backchecked:	
Corrected:	
Verified:	

SF

Subtotal D = 56,262

						SF
Cross Frames (Continued)						
	Member	L	M	N		
	Shape	L3x3x5/16	L3x3x5/16	L3x3x5/16		
	Perimeter	1.00	1.00	1.00	ft	
Painted Area of Chords						
	Stiffener Size	L	M	N		
	1	8.57	8.57	7.17	ft^2	
	2	8.69	8.57	7.17	ft^2	
	3	8.83	8.69	7.17	ft^2	
	4	9.14	8.83	7.19	ft^2	
	5	9.52	9.14	7.19	ft^2	
	6	9.52	9.06	7.20	ft^2	
	7	9.06	8.75	7.19	ft^2	
	8	8.75	8.52	7.18	ft^2	
	9	8.52	8.52	7.17	ft^2	
	10	8.65	8.52	7.17	ft^2	
	11	8.91	8.65	7.18	ft^2	
	12	9.65	8.91	7.26	ft^2	
	13	10.82	9.65	7.35	ft^2	
Total Painted Area of Cross Frames						
	Stiffener Size	Number	Total per Frame	Area (ft^2)/Bay		
	1	8	24.32	194.53		
	2	2	24.44	48.88		
	3	2	24.69	49.39		
	4	2	25.16	50.31		
	5	2	25.86	51.71		
	6	2	25.79	51.57		
	7	2	25.00	50.00		
	8	2	24.45	48.90		
	9	10	24.20	242.03		
	10	2	24.34	48.68		
	11	2	24.74	49.49		
	12	2	25.82	51.64		
	13	2	27.82	55.64		
			Subtotal	992.77		

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514E00060

FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT

SF

Supplemental Description:

57,327

						SF
Existing Steel	Same as Item 514E00056					56,262.4
End Cross Frames						
	Gusset Plates	<i>(refer to Item 513E90000)</i>				
	t =	0.63	in			
		L (ft)	H (ft)	Number	Area (ft ²)	
	2' x 2' Plate	2.00	2.00	2	16.83	
	1' x 1' Plate	1.00	1.00	1	2.21	
	2'-6" x 2'-2" Plate	2.50	2.17	1	11.32	
	Bent Plate 1	1.75	2.00	1	7.39	
	Bent Plate 2	1.67	2.00	1	7.05	
				Subtotal	44.80	
	Angles	<i>(refer to Item 513E90000)</i>				
	Shape	L4x4x3/8				
	Perimeter	1.33	ft			
		Length (ft)	Perimeter (ft)	Number	Area (ft ²)	
	Bottom Chord	13.19	1.33	1	17.58	
	Diagonals	4.83	1.33	4	25.78	
	Vertical Chord	4.00	1.33	1	5.33	
				Subtotal	48.69	
	Cross Frame Subtotal		93.49	x 4 Bays	x 2 ends	748.0
MC Shape	<i>(Bottom and back face to expansion joint only)</i>					
	Shape	MC12x45				
	d =	1.00	ft			
	bf =	0.33	ft			
	Ex. Joint Depth =	0.25	ft	<i>(EXJ-4-87)</i>		
	Sealed Perimeter =	1.08	ft			
	Length =	64.65	ft	<i>(F/F of Parapet per EXJ-4-87)</i>		
	Subtotal Area =	70.09	ft ²			
	MC Shape Subtotal		70.09		x 2 ends	140.2

