

PROJ: FRA-71-0308 LEFT/SOUTHBOUND

ESTIMATED QUANTITIES

Structure File No.: 2506963

Calculated By: RLC

Date: 2/2/2016

Checked By: CMH

Date: 8/16/2016

**ITEM 202E11203, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN**

Lump

**Basis of Unit Cost:**

Deck Volume based on 20 1/2" existing concrete thickness  
 =  $(9,001.25 \times (20.5/12))/27 = 569.5$  Cu Yd Deck  
 =  $((200.34 + 198.42) \times 3.42)/27 = 50.51$  Cu Yd Parapet & Curb  
 =  $(25 \times 1.25 \times (33.83 + 38.10)) \times 2/27 = 83.25$  Cu Yd Approach Slab  
 Cost =  $703.26 \times \$100 = \$70,326$ ; say \$70,500

Abutment Removal  
 = 33 cu yd per abutment (per LYH)  
 Cost =  $(33 \times 2) \times \$150 = 9,900$ ; say \$10,000

Pier Cap Removal  
 =  $((57 \times 3 \times 3.7083) \times 3)/27 = 70.5$  Cu Yd  
 Cost =  $70.5 \times \$175 = \$12,337.5$ ; say \$15,000

Total Cost = \$92,563.5; say	<b>100,000</b>	<b>LUMP</b>
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**ITEM 202E22900, APPROACH SLAB REMOVED**

Area of Deck 1,972.41 sq ft

<b>APPROACH SLAB REMOVED</b>	<b>220</b>	<b>SQ YD</b>
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**ITEM 202E23500, WEARING COURSE REMOVED**

Area of Deck 8,371.63 sq ft

<b>WEARING COURSE REMOVED</b>	<b>931</b>	<b>SQ YD</b>
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**ITEM 507E00500, 12" CAST-IN-PLACE REINFORCED CONCRETE PILE, DRIVEN**

Number of Piles	18	(Rear Abutment)
Avg. Length of Pile	35 ft	(Rear Abutment)
Number of Piles	30	(Piers 1 & 3)
Avg. Length of Pile	25 ft	(Piers 1 & 3)
Number of Piles	15	(Piers 2)
Avg. Length of Pile	20 ft	(Piers 2)
Number of Piles	18	(Forward Abutment)
Avg. Length of Pile	35 ft	(Forward Abutment)

**Abut Total** 1260 ft  
**Pier Total** 1050 ft

<b>12" CAST-IN-PLACE REINF. CONCRETE PILE DRIVEN</b>	<b>2,310</b>	<b>LF</b>
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**Item 511E32212, CLASS QC2 CONCRETE WITH QC/QA, SUPERSTRUCTURE**

Deck Area	14,377.32 sf	(MicroStation)	
Thickness	1.92 ft		
Diaphragm Thickness	3.17 ft		
Rear Dia Elev Area	166.91 sf	(MicroStation)	
Fwd Dia Elev Area	187.67 sf	(MicroStation)	
Diaphragm Total	41.59 cy		
Pier Dia Thickness	3.58 ft		
Pier 1 Elev Area	48.26 sf	(MicroStation)	
Pier 2 Elev Area	48.65 sf	(MicroStation)	
Pier 3 Elev Area	49.07 sf	(MicroStation)	
Pier Dia Total	19.37 cy		
SUPERSTRUCTURE			1081.57 CY
Cross-sectional Area	4.08 ft <sup>2</sup>	(Standard Drawing)	
Left Parapet Length	227.83 ft		
Right Parapet Length	225.48 ft		
BRIDGE DECK (PARAPET)			68.56 CY

**CLASS QC2 CONCRETE, SUPERSTRUCTURE 1150.13 CY**

**Item 511E41012, CLASS QC1 CONCRETE WITH QC/QA, PIER ABOVE FOOTINGS**

Pier 1 Column Height	16.48 ft	
Pier 2 Column Height	16.21 ft	
Pier 3 Column Height	16.22 ft	
Column Diameter	3 ft	
Columns Per Pier	2 (per pier)	
Total Column	691.40 ft <sup>3</sup>	
Cap End Radius (all)	1.5 ft	
Cap Width (all)	3.00 ft	
Pier 1 Cap Length	88.89 ft	
Pier 1 Cap Height	5.15 ft	
Pier 1 Cap Volume	1362.2299 ft <sup>3</sup>	
Pier 2 Cap Length	89.97 ft	
Pier 2 Cap Height	5.42 ft	
Pier 2 Cap Volume	1451.5303 ft <sup>3</sup>	
Pier 3 Cap Length	91.04 ft	
Pier 3 Cap Height	5.33 ft	
Pier 3 Cap Volume	1446.3658 ft <sup>3</sup>	
Total Cap	4260.13 ft <sup>3</sup>	

**CLASS QC1 CONCRETE QA/AC, PIER ABOVE FOOTINGS 183.39 CY**

**Item 511E46510, CLASS QC1 CONCRETE, FOOTING**

Footing Thickness	3	ft	
Footing Width	5.5	ft	
Footing Length	9	ft	
Footing Thickness	3	ft	
Footing Width	9	ft	
Footing Length	9	ft	
Footing Volume	391.5	ft <sup>3</sup>	(per pier)
Number of Piers	3		
Total Footing Volume	1174.5	ft <sup>3</sup>	

<b>CLASS QC1 CONCRETE, PIER FOOTING</b>	<b>43.5</b>	<b>CY</b>
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**Item 511E43512, CLASS QC1 CONCRETE, WITH QC/QA, ABUTMENT INCLUDING FOOTING**

REAR ABUTMENT

Footing thickness front	2.25	ft	(in front of and under stem/wingwall)
Footing thickness back	2.00	ft	(behind back face of stem/wingwall)
Plan Area (front)	215.55	sf	(MicroStation)(in front of and under stem/wingwall)
Plan Area (back)	121.82	sf	(MicroStation)(behind back face of stem/wingwall)
Footing Volume	728.64	ft <sup>3</sup>	
Stem Thickness	3.17	ft	
Stem Elevation Area	313.68	sf	(MicroStation)
Stem Volume	993.32	ft <sup>3</sup>	
Straight Wing Thickness	2.50	ft	
Straight Wing Elev Area	135.10	sf	(MicroStation)
Straight Wing Volume	337.75	ft <sup>3</sup>	
Turnback Thickness	1.50	ft	
Turnback Elev Area	117.31	sf	(MicroStation)
Turnback Volume	175.96	ft <sup>3</sup>	
Rear Abutment Total	2235.67	ft <sup>3</sup>	

FORWARD ABUTMENT

Footing thickness front	2.25	ft	(in front of and under stem/wingwall)
Footing thickness back	2.00	ft	(behind back face of stem/wingwall)
Plan Area (front)	197.44	sf	(MicroStation)(in front of and under stem/wingwall)
Plan Area (back)	122.61	sf	(MicroStation)(behind back face of stem/wingwall)
Footing Volume	689.47	ft <sup>3</sup>	
Stem Thickness	3.17	ft	
Stem Elevation Area	338.95	sf	(MicroStation)
Stem Volume	1073.34	ft <sup>3</sup>	

Straight Wing Thickness	2.50	ft	
Straight Wing Elev Area	120.50	sf	(MicroStation)
Straight Wing Volume	301.25	ft <sup>3</sup>	
Turnback Thickness	1.50	ft	
Turnback Elev Area	120.53	sf	(MicroStation)
Turnback Volume	180.79	ft <sup>3</sup>	
Forward Abutment Total	2244.85	ft <sup>3</sup>	

<b>CLASS QC1 CONCRETE, ABUTMENT</b>	<b>165.95</b>	<b>CY</b>
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**Item 512E10050, SEALING OF CONCRETE SURFACES (NON-EPOXY)**

REAR ABUTMENT

Stem Elevation Area	247.92	sf	
Straight Wing Elev Area	86.00	sf	
Straight Wing Width	3.00	ft	Top plus back
Straight Wing Length	14.19	ft	
Straight Wing Total Area	128.57	sf	
Turnback Length	14.75	ft	
Turnback Width	1.50	ft	
Turnback Elev Area	49.69	sf	
Turnback Total Area	71.82	sf	
Diaphragm	182.90	sf	(Microstation)
Rear Abutment Total	631.20	sf	

FORWARD ABUTMENT

Stem Elevation Area	254.25	sf	
Straight Wing Elev Area	70.14	sf	
Straight Wing Width	3.00	ft	Top plus back
Straight Wing Length	12.92	ft	
Straight Wing Total Area	108.90	sf	
Turnback Length	14.75	ft	
Turnback Width	1.50	ft	
Turnback Elev Area	48.24	sf	
Turnback Total Area	70.36	sf	
Diaphragm	190.92	sf	(Microstation)
Forward Abutment Total	624.44	sf	
ABUTMENT TOTAL	140.00	SY	

PIERS

Column Diameter	3.00	ft	
Columns Per Pier	5.00	each	
Pier 1 Column Height	12.04	ft	
Pier 2 Column Height	11.79	ft	
Pier 3 Column Height	10.52	ft	
Pier Column Area	1618.90	sf	
Pier 1 Cap Length	88.89	ft	
Pier 1 Cap Height	5.15	ft	
Pier 1 Cap Area	1181.44	sf	
Pier 2 Cap Length	89.97	ft	
Pier 2 Cap Height	5.42	ft	
Pier 2 Cap Area	1244.57	sf	
Pier 3 Cap Length	91.04	ft	
Pier 3 Cap Height	5.33	ft	
Pier 3 Cap Area	1244.24	sf	
Pier Total	5289.14	sf	<b>588.00</b>

PARAPET

Perimeter	10.44	ft	
Left Side	177.32	ft	
Right Side	175.48	ft	
Perimeter	8.00	ft	
Rear Appr Slab	50.09	ft	
Fwd Appr Slab	50.09	ft	
Parapet Total	4484.80	sf	<b>499.00</b>

<b>SEALING OF CONCRETE SURFACES (NON-EPOXY)</b>	<b>1225.51 SY</b>
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Item 512E33000, TYPE 2 WATERPROOFING

Width (all)	3.00	ft
Rear Abut Length	71.62	ft
Forward Abut Length	79.15	ft

<b>TYPE 2 WATERPROOFING</b>	<b>50.26 SY</b>
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Item 516E13600, 1" PREFORMED EXPANSION JOINT FILLER

Parapet Ends	16.32	sf
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<b>1" PREFORMED EXPANSION JOINT FILLER</b>	<b>16.32 SF</b>
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**Item 516E13900, 2" PREFORMED EXPANSION JOINT FILLER**

Wingwall Height	9.45	ft
Wingwall Width	2.5	ft
Footing Height	2.25	ft
Footing Width	5.67	ft
Diaphragm/Slab Height	7.07	ft
Diaphragm/Slab Width	3.58	ft
Approach Slab Height	1.25	ft
Approach Slab Width	24.95	ft

**2" PREFORMED EXPANSION JOINT FILLER 92.88 SF**

**Item 516E14020, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL**

Rear Abutment	99.61	ft
Forward Abutment	103.58	ft

**STRUCTURAL EXPANSION JOINT 203.19 FT**

**Item 516E43100, ELASTOMERIC BEARING WITH INTERNAL LAMINATES ONLY (NEOPRENE), 11"x8"x1.474"**

FORWARD ABUTMENT	25	EACH
REAR ABUTMENT	22	EACH

**ELASTOMERIC BEARING WITH INTERNAL LAMINATES ONLY 47 EACH**

**Item 518E21200 POROUS BACKFILL WITH GEOTEXTILE FABRIC**

**REAR ABUTMENT**

Thickness (all)	2	ft	
Stem/Straight Wing	889	sf	(elev area - microstation)
Turnback Area	59.25	sf	(elev area - microstation)
Rear Total	1896.5	cf	

**FORWARD ABUTMENT**

Thickness (all)	2	ft	
Stem/Straight Wing	1022	sf	(elev area - microstation)
Turnback Area	61.6	sf	(elev area - microstation)
Forward Total	2167.2	cf	

**POROUS BACKFILL WITH GEOTEXTILE FABRIC 151 CY**

**Item 518E40000 6" PERFORATED CORRUGATED PLASTIC PIPE**

REAR ABUTMENT 102 FT  
FORWARD ABUTMENT 113 FT

**6" PERFORATED CORRUGATED PLASTIC PIPE 215 FT**

**Item 518E40011 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN**

REAR ABUTMENT 20 FT  
FORWARD ABUTMENT 20 FT

**6" NON-PERFORATED CORRUGATED PLASTIC PIPE 40 FT**

**Item 523E20000, DYNAMIC LOAD TESTING**

ABUTMENT 1 EACH  
PIER 2 EACH

**DYNAMIC LOAD TESTING 3.00 EACH**

**Item 526E25001, REINFORCED CONCRETE APPROACH SLAB (T=15"), AS PER PLAN**

Rear Approach 1997.60 ft<sup>2</sup> (Microstation)  
Forward Approach 2098.87 ft<sup>2</sup> (Microstation)

**REINFORCED CONCRETE APPROACH SLAB 455.16 SY**

**Item 526E90010, TYPE A INSTALLATION**

Rear Approach 89.44 FT (Microstation)  
Forward Approach 93.41 FT (Microstation)

**TYPE A INSTALLATION 182.85 FT**

**Item 601E20001, CRUSHED AGGREGATE SLOPE PROTECTION, AS PER PLAN**

Rear Approach 318.90 SF (Microstation)  
Forward Approach 415.01 SF (Microstation)

**CRUSHED AGGREGATE SLOPE PROTECTION, AS PER PLAN 81.55 SY**



**Item 846E00110, POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM**

Rear Approach Length	88.87	FT	(Microstation)
Forward Approach Length	93.98	FT	(Microstation)
Width	1.67	FT	
Thickness	0.25	FT	

<b>POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM</b>	<b>76.19</b>	<b>CF</b>
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**Item 607E39900, VANDAL PROTECTION FENCE, 6'STRAIGHT, COATED FABRIC**

Left Parapet	170.50	FT
Right Parapet	170.50	FT

<b>VANDAL PROTECTION FENCE</b>	<b>341.00</b>	<b>FT</b>
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