



CLIENT ODOT District 3
 PROJECT HAM-471-00.00 L; PID 122951
 SUBJECT Bridge No. HAM-000471-00.290 / HAM-000471-00.30
Estimated Quantity Calculations

PROJECT NO. 2421-6043-06
 COMP. BY JDA DATE 1/6/2025
 CHECKED BY TDB DATE 1/6/2025

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

This item paid as a **LUMP SUM**.

Estimate downspout removal to estimate a cost.

Southbound Piers:

Existing steel downspout and collector pipes, dirt, and debris contained within: 4.00 CY

Southbound Total: 4.00 CY

Northbound Piers:

Existing steel downspout and collector pipes, dirt, and debris contained within: 4.00 CY

Northbound Total: 4.00 CY

Total for Piers: Say: 8 CY

Total Concrete Removals for Structure: Say: 8 CY

Estimated Lump Sum Cost: 8 cy x \$ 275.00 / cy = \$ 2,200.00 Say: \$ 5,000.00 LS

ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)

Southbound Superstructure:

Spans 10 and 11:	No.		Length (ft)		Perim. (ft)				
Bridge Railing, Left:	1	x	270.91	x	7.09	/	9	=	213.41 SY
Fascia and Overhang, Left:	1	x	270.91	x	2.54	/	9	=	76.51 SY
Bridge Railing, Left (sign structure foundation):	1	x	15.00	x	2.00	/	9	=	3.33 SY
Bridge Railing, Right:	1	x	258.67	x	7.09	/	9	=	203.76 SY
Fascia and Overhang, Right:	1	x	258.67	x	2.54	/	9	=	73.05 SY

Span 12:

Bridge Railing, Left:	1	x	88.97	x	7.21	/	9	=	71.32 SY
Fascia and Overhang, Left:	1	x	88.97	x	2.75	/	9	=	27.18 SY
Bridge Railing, Right:	1	x	78.57	x	7.55	/	9	=	65.89 SY
Fascia and Overhang, Right:	1	x	78.57	x	2.33	/	9	=	20.37 SY

Total: 754.82 SY

Total for Southbound Superstructure: Say: 755 SY

Northbound Superstructure:

Spans 10 and 11:	No.		Length (ft)		Perim. (ft)				
Bridge Railing, Left:	1	x	255.46	x	7.09	/	9	=	201.23 SY
Fascia, Left:	1	x	255.46	x	2.54	/	9	=	72.14 SY
Bridge Railing, Right:	1	x	241.57	x	7.09	/	9	=	190.29 SY
Fascia, Right:	1	x	241.57	x	2.54	/	9	=	68.22 SY

Span 12:

Bridge Railing, Left:	1	x	76.22	x	7.55	/	9	=	63.92 SY
Fascia and Overhang, Left:	1	x	76.22	x	2.33	/	9	=	19.76 SY
Bridge Railing, Right:	1	x	66.06	x	7.21	/	9	=	52.95 SY
Fascia and Overhang, Right:	1	x	66.06	x	2.67	/	9	=	19.57 SY

Total: 688.09 SY

Total for Northbound Superstructure: Say: 688 SY



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Southbound Piers

Pier 10:

	Number		Length (ft)		Width or Height (ft)					
Pier 10, Cap Faces:	2	x	60.00	x 0.5 x (8.00	+	8.00) /	9	= 106.67 SY
Pier 10, Cap Faces:	-2	x	10.75	x 0.5 x (	3.00	+	3.00	) /	9	= -7.17 SY
Pier 10, Ends:	2	x	5.50	x 0.5 x (	5.00	+	5.00	) /	9	= 6.11 SY
Pier 10, Sloped bottom of cap:	2	x	11.16	x 0.5 x (	5.50	+	5.50	) /	9	= 13.64 SY
Pier 10, Level bottom of cap:	1	x	38.50	x 0.5 x (	5.50	+	5.50	) /	9	= 23.53 SY
Pier 10, Columns:	2	x	17.28	x 0.5 x (	47.94	+	47.94	) /	9	= 184.07 SY

Pier 11:

	Number		Length (ft)		Width or Height (ft)					
Pier 11, Cap Faces:	2	x	64.00	x 0.5 x (	8.00	+	8.00	) /	9	= 113.78 SY
Pier 11, Cap Faces:	-2	x	11.75	x 0.5 x (	3.00	+	3.00	) /	9	= -7.83 SY
Pier 11, Ends:	2	x	5.50	x 0.5 x (	5.00	+	5.00	) /	9	= 6.11 SY
Pier 11, Sloped bottom of cap:	2	x	12.13	x 0.5 x (	5.50	+	5.50	) /	9	= 14.82 SY
Pier 11, Level bottom of cap:	1	x	40.50	x 0.5 x (	5.50	+	5.50	) /	9	= 24.75 SY
Pier 11, Columns:	2	x	17.28	x 0.5 x (	42.30	+	42.30	) /	9	= 162.43 SY

Pier 12:

	Number		Length (ft)		Width or Height (ft)					
Pier 12, Cap Faces:	2	x	68.00	x 0.5 x (	8.00	+	8.00	) /	9	= 120.89 SY
Pier 12, Cap Faces:	-2	x	12.25	x 0.5 x (	3.00	+	3.00	) /	9	= -8.17 SY
Pier 12, Ends:	2	x	5.50	x 0.5 x (	5.00	+	5.00	) /	9	= 6.11 SY
Pier 12, Sloped bottom of cap:	2	x	12.61	x 0.5 x (	5.50	+	5.50	) /	9	= 15.41 SY
Pier 12, Level bottom of cap:	1	x	43.50	x 0.5 x (	5.50	+	5.50	) /	9	= 26.58 SY
Pier 12, Columns:	2	x	17.28	x 0.5 x (	38.42	+	38.42	) /	9	= 147.53 SY

	Number		Radius (ft)		Radius (ft)					
Piers 10, 11, & 12, Deduct Columns From Cap Bottom:	-6	x	3.14	x	2.75	x	2.75	/	9	= -15.84 SY

Total: = 933.42 SY

Total for Southbound Piers: Say: **934** SY

Northbound Piers

Pier 10:

	Number		Length (ft)		Width or Height (ft)					
Pier 10, Cap Faces:	2	x	67.00	x 0.5 x (	8.00	+	8.00	) /	9	= 119.11 SY
Pier 10, Cap Faces:	-2	x	12.25	x 0.5 x (	3.00	+	3.00	) /	9	= -8.17 SY
Pier 10, Ends:	2	x	5.50	x 0.5 x (	5.00	+	5.00	) /	9	= 6.11 SY
Pier 10, Sloped bottom of cap:	2	x	12.61	x 0.5 x (	5.50	+	5.50	) /	9	= 15.41 SY
Pier 10, Level bottom of cap:	1	x	42.50	x 0.5 x (	5.50	+	5.50	) /	9	= 25.97 SY
Pier 10, Columns:	2	x	17.28	x 0.5 x (	47.80	+	47.80	) /	9	= 183.55 SY

Pier 11:

	Number		Length (ft)		Width or Height (ft)					
Pier 11, Cap Faces:	2	x	73.00	x 0.5 x (	8.00	+	8.00	) /	9	= 129.78 SY
Pier 11, Cap Faces:	-2	x	13.75	x 0.5 x (	3.00	+	3.00	) /	9	= -9.17 SY
Pier 11, Ends:	2	x	5.50	x 0.5 x (	5.00	+	5.00	) /	9	= 6.11 SY
Pier 11, Sloped bottom of cap:	2	x	14.07	x 0.5 x (	5.50	+	5.50	) /	9	= 17.20 SY
Pier 11, Level bottom of cap:	1	x	45.50	x 0.5 x (	5.50	+	5.50	) /	9	= 27.81 SY
Pier 11, Columns:	2	x	17.28	x 0.5 x (	42.15	+	42.15	) /	9	= 161.83 SY

Pier 12:

	Number		Length (ft)		Width or Height (ft)					
Pier 12, Cap Faces:	2	x	78.00	x 0.5 x (	8.00	+	8.00	) /	9	= 138.67 SY
Pier 12, Cap Faces:	-2	x	14.75	x 0.5 x (	3.00	+	3.00	) /	9	= -9.83 SY
Pier 12, Ends:	2	x	5.50	x 0.5 x (	5.00	+	5.00	) /	9	= 6.11 SY
Pier 12, Sloped bottom of cap:	2	x	15.05	x 0.5 x (	5.50	+	5.50	) /	9	= 18.40 SY
Pier 12, Level bottom of cap:	1	x	48.50	x 0.5 x (	5.50	+	5.50	) /	9	= 29.64 SY
Pier 12, Columns:	2	x	17.28	x 0.5 x (	38.95	+	38.95	) /	9	= 149.55 SY

	Number		Radius (ft)		Radius (ft)					
Piers 10, 11, & 12, Deduct Columns From Cap Bottom:	-6	x	3.14	x	2.75	x	2.75	/	9	= -15.84 SY

Total: = 992.24 SY

Total for Northbound Piers: Say: **993** SY

Total for ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE): 3,370 SY



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ITEM SPECIAL - URETHANE TOP COAT SEALER

Piers: (Use for FRP wraps)

Southbound Total: 1,600 / 9 = 177.78 SY
Say: 178 SY

Northbound Total: 1,500 / 9 = 166.67 SY
Say: 167 SY

Total for ITEM SPECIAL - URETHANE TOP COAT SEALER: 345 SY

ITEM 514 - SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL

This item paid as a **LUMP SUM**.

Superstructure

Southbound Total: Say: 30,100 SF
 Northbound Total: Say: 40,900 SF

Total for ITEM 514 - SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL: 71,000 SF

ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT

Superstructure:

Southbound: = 34,152.70 SF

	Number		Perimeter (ft)		Length (ft)	
Span 10, SB:	-1	x	14.80	x	91.50	= -1,354.39 SF
Span 11, SB:	-1	x	14.80	x	418.63	= -6,196.64 SF
Span 12, SB:	-1	x	11.14	x	40.00	= -445.42 SF
Miscellaneous Area, add 15%: Diaphragms, crossframes, stiffeners, bearings, etc.:			0.15	x (	26,156.26)	= 3,923.44 SF
SB, Subtotal:						Say: 30,100 SF
NB, Subtotal:						Say: 40,900 SF
Total for Superstructure:						= <u>71,000 SF</u>

Total for ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT: 71,000 SF



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ITEM 514 - FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT
ITEM 514 - FIELD PAINTING STRUCTURAL STEEL, FINISH COAT

All structural steel and bearings in spans 10-12 is to be field painted.

Existing Beams:

Girder Lengths (SB) (ft)			
Girders	Span 10	Span 11	Span 12
A	140.05	120.67	87.35
B	0	23.06	86.95
C	140.04	118.61	0
D	140.00	116.66	85.21
E	140.00	114.71*	83.91
F	140.*	112.76*	82.61
G	140.*	110.81*	81.31
H	140.*	108.85*	80.01
J			78.70
SUM	980.09	826.13	666.06

Girder Lengths (NB) (ft)				
Girder (Sp 10/11)	Span 10	Span 11	Span 12	Girder (Span 12)
J	140.00	105.15	76.22	A
K	140.00	103.19	74.92	B
L	140.00	101.23	73.61	C
M	140.00	99.27	72.30	D
N	140.00	97.31	70.99	E
P	140.00	95.35	69.69	F
R	140.12	93.40	68.39	G
S	0	10.30	66.69	H
T	140.16	91.42	66.06	P
SUM	1120.28	796.61	638.87	

* = All or portions of girder being replaced

Proposed Beams:

Girder Lengths (SB) (ft)			
Girders	Span 10	Span 11	Span 12
E		86.21*	10.00
F	30.5*	112.76*	10.00
G	30.5*	110.81*	10.00
H	30.5*	108.85*	10.00
SUM	91.50	418.63	40.00

* = All or portions of girder being replaced

- 1.8125 in. = Top and Bottom Flange Thickness (Assume an average flange thickness)
- 18 in. = Top and Bottom Flange Widths (Spans 10-11)
- 14 in. = Top and Bottom Flange Width (Span 12)
- 12 in. = Top and Bottom Flange Width (Span 12, Girder A, SB only)
- 60 in. = Span 10 Web Depth
- 60 in. = Span 11 Web Depth
- 44 in. = Span 12 Web Depth

Superstructure:

	Number		Perimeter (ft)		Length (ft)	
Span 10, SB:	1	x	14.80	x	980.09	= 14,507.43 SF
Span 11, SB:	1	x	14.80	x	826.13	= 12,228.45 SF
Span 12, SB:	1	x	11.14	x	666.06	= 7,416.83 SF

Miscellaneous Area, add 15%:

Diaphragms, crossframes, stiffeners, bearings, etc.: 0.15 x (14,507 + 12,228.45 + 7,416.83) = 5,122.91 SF

SB, Subtotal: Say: 39,300 SF

	Number		Perimeter (ft)		Length (ft)	
Span 10, NB:	1	x	14.80	x	1120.28	= 16,582.42 SF
Span 11, NB:	1	x	14.80	x	796.61	= 11,791.56 SF
Span 12, NB:	1	x	11.14	x	638.87	= 7,114.08 SF

Miscellaneous Area, add 15%:

Diaphragms, crossframes, stiffeners, bearings, etc.: 0.15 x (16,582 + 11,791.56 + 7,114.08) = 5,323.21 SF

NB, Subtotal: Say: 40,900 SF

Total for Superstructure: = **80,200** SF

Total for ITEM 514 - FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT:

80200 SF

Total for ITEM 514 - FIELD PAINTING STRUCTURAL STEEL, FINISH COAT:

80200 SF



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ITEM 514 - GRINDING FINNS, TEARS, SLIVERS ON EXISTING STRUCTURAL STEEL

Per 2020 BDM, Section 404.1.11, 1 minute per 1' of beam/girder to be coated.

92.21 ft = Length of Girder E in Span 11S being replaced (with G4)
 153.26 ft = Length of Girder F in Spans 10S-11S being replaced (with G3)
 151.31 ft = Length of Girder G in Spans 10S-11S being replaced (with G2)
 149.36 ft = Length of Girder H in Spans 10S-11S being replaced (with G1)

Remaining girder length for southbound superstructure:	Length (ft)	-	Length (ft)	=	1,926.15	FT
	2,472.28		546.13			
Miscellaneous, add 15%:	0.15	x	1,926.15	=	288.92	FT
	(1,926 + 288.92)	x	1 min/1'	=	2,215.07	MIN
				=	36.92	HR
Total for Southbound Superstructure:				Say:	<u>37</u>	MNHR
Girder length for northbound superstructure:				=	2,555.76	FT
Miscellaneous, add 15%:	0.15	x	2,555.76	=	383.36	FT
	(2,556 + 383.36)	x	1 min/1'	=	2,939.12	MIN
				=	48.99	HR
Total for northbound Superstructure:				Say:	<u>49</u>	MNHR
Total for ITEM 514 - GRINDING FINNS, TEARS, SLIVERS ON EXISTING STRUCTURAL STEEL:					<u>86</u>	MNHR

ITEM 514 - FINAL INSPECTION REPAIR

Per CMS 514.21, 1 location per 300' of beam lines + 2.5% of crossframes.

Total for Southbound Superstructure:	Say:	<u>12</u>	EACH
Total for Northbound Superstructure:	Say:	<u>12</u>	EACH
Total for ITEM 514 - FINAL INSPECTION REPAIR:		<u>24</u>	EACH

ITEM 518 - PIPE DOWNSPOUT, INCLUDING SPECIALS, AS PER PLAN

The 2017 plans replaced the entire drainage system from 6" below the bottom of deck to the ground level from Pier 10 North to Pier 21 and at the forward abutment at both NB and SB bridges.

690 ft = HAM-471-0000L (2017 Plan Quantities) 12 = No. of piers with downspouts replaced
 810 ft = HAM-471-0000R (2017 Plan Quantities) 134.87 ft/pier average replaced (both NB and SB)
 118.47 ft added by change order 67.44 ft/pier average replaced

Southbound Superstructure:

					Lengths (ft)												
Pier 11:	2	x	(	7.81	+	16.00	+	3.00	+	42.30	+	8.00	+	1.00	) = 156.22	FT
Pier 12:	2	x	(	5.00	+	16.00	+	3.00	+	38.42	+	8.00	+	1.00	) = 142.84	FT
Horizontal Lengths:																	
Span 10 to Pier 11, west gutterline:																= 95.16	FT
Span 11 to Pier 12, west gutterline:																= 59.67	FT
Span 10 to Pier 11, east gutterline:																= 77.92	FT
Contingency, add 5%:										0.05	x	531.81	=	26.59	FT		
Total for Southbound Superstructure:													Say:	<u>560</u>	FT		



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Northbound Superstructure:

		Lengths (ft)														
Pier 11:	2	x (7.81	+	17.00	+	3.00	+	42.15	+	8.00	+	1.00) =	157.91	FT
Pier 12:	2	x (	5.00	+	18.00	+	3.00	+	38.95	+	8.00	+	1.00	) =	147.90	FT

Horizontal Lengths:

Span 10 to Pier 11, west gutterline:	=	75.87	FT
Span 10 to Pier 11, east gutterline:	=	105.00	FT
Span 11 to Pier 12, east gutterline:	=	47.00	FT

Contingency, add 5%: 0.05 x 533.68 = 26.68 FT

Total for Northbound Superstructure: Say: 565 FT

Total for ITEM 518 - PIPE DOWNSPOUT, INCLUDING SPECIALS, AS PER PLAN: 1125 FT

ITEM SPECIAL - COMPOSITE FIBER WRAP SYSTEM

Southbound Piers:

Pier 11, SB Cap:

	Number		Perimeter (ft)		Length (ft)			
North Face	1	x	7.00	x	8.00	=	56.00	SF
North Face	1	x	3.50	x	8.50	=	29.75	SF
North Face	1	x	3.00	x	8.00	=	24.00	SF
North Face	1	x	8.50	x	10.00	=	85.00	SF
North Face	1	x	4.00	x	5.00	=	20.00	SF
East End	1	x	4.00	x	7.00	=	28.00	SF
Top/Edge	1	x	6.50	x	7.50	=	48.75	SF

Pier 12, SB Cap:

	Number		Perimeter (ft)		Length (ft)			
South Face	1	x	55.00	x	10.00	=	550.00	SF
North Face	1	x	15.00	x	10.00	=	150.00	SF
North Face	1	x	20.00	x	3.00	=	60.00	SF
North Face	1	x	8.00	x	6.00	=	48.00	SF
East End	1	x	7.00	x	7.00	=	49.00	SF
Top/Edge	1	x	6.50	x	4.00	=	26.00	SF
Top/Edge	3	x	6.50	x	5.50	=	107.25	SF

Pier 12, SB, East Column: Number 1 x Length (ft) 18.00 x | 2 x Width (ft) 3.14 x 2.75) = 311.02 SF

Southbound Total: Say: 1,600 SF

Northbound Piers:

Pier 11, NB Cap:

	Number		Perimeter (ft)		Length (ft)			
South Face	1	x	12.00	x	8.00	=	96.00	SF
North Face	1	x	9.00	x	7.00	=	63.00	SF
Top/Edge	1	x	5.00	x	6.00	=	30.00	SF

Pier 12, NB Cap:

	Number		Perimeter (ft)		Length (ft)			
South Face	1	x	12.00	x	9.00	=	108.00	SF
South Face (extended to bottom of cap)	1	x	14.00	x	11.00	=	154.00	SF
South Face	2	x	6.50	x	4.50	=	58.50	SF
South Face	1	x	15.00	x	6.00	=	90.00	SF
South Face	1	x	6.00	x	4.00	=	24.00	SF
South Face	1	x	27.00	x	4.50	=	121.50	SF
North Face	1	x	14.00	x	5.00	=	70.00	SF
Bottom of East Cantilever	1	x	5.00	x	6.00	=	30.00	SF
Bottom of East Cantilever	1	x	5.00	x	5.00	=	25.00	SF
West End	1	x	7.50	x	7.00	=	52.50	SF
East End	1	x	6.00	x	4.00	=	24.00	SF
Top/Edge	2	x	6.00	x	5.00	=	60.00	SF
Top/Edge	2	x	6.00	x	4.00	=	48.00	SF

Pier 12, NB, West Column: Number 1 x Length (ft) 20.00 x | 2 x Width (ft) 3.14 x 2.75) = 345.58 SF

Northbound Total: Say: 1,500 SF

Total for Piers: Say: 3,100 SF

Total for ITEM SPECIAL - COMPOSITE FIBER WRAP SYSTEM: 3,100 SF