Bridge Estimated Quantities

Project Number: 10010
Bridge: BUT-00004-14.800L
Description: SR 4 SB over Gregory Greek
SFN: 0900184

Designer: JFK **Date:** 7/10/2023
Checker: ERK **Date:** 7/11/2023

Item Number	Description
202E11203	PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

Area of Existing Deck Removed=	299.31 ft^2
Cost/SF of removal =	$75/SF
Cost of deck removal =	$22,448
Volume of backwall concrete removed =	638.37 ft^3
Volume of Rear Right WW concrete removed =	159.91 ft^3
Volume of remaining WW's concrete removed =	303.35 ft^3
Volume of concrete removed =	41 CY
Cost/CY of removal =	$425/CY
Cost of concrete removal =	$17,425
Total cost =	$40,000
Total Quantity =	LS

Item Number	Description
202E22900	APPROACH SLAB REMOVED

	Rear	Forward
Area of existing approach slab =	600.00 ft^2	600.00 ft^2
Total removal =	1200.00 ft^2	
Total Quantity =	134 SY	

Item Number	Description
202E23500	WEARING COURSE REMOVED

	Rear	Forward
Area of existing approach slab =	600.00 ft^2	600.00 ft^2
Total removal =	1200.00 ft^2	
Total Quantity =	134 SY	

Item Number	Description
503E11100	COFFERDAMS AND EXCAVATION BRACING

	Rear	Forward
Length =	12.25 ft	12.25 ft
Approximate Height =	6.00 ft	6.00 ft
Area =	73.50 ft^2	73.50 ft^2
Cost/SF =	$100/sf	
Total cost =	$15,000	
Total Quantity =	LS	

Item Number	Description
503E11101	COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN

Quantity for temproary access fill	
Total cost =	$10,000
Total Quantity =	LS

Item Number	Description
503E21300	UNCLASSIFIED EXCAVATION

	Rear	Forward
Right Area =	72.92 ft^2	43.51 ft^2
Left Area =	85.56 ft^2	68.38 ft^2
Avg. Bottom of footing to Top of Ex. Soil =	9.00 ft	9.00 ft
Volume =	52.83 CY	37.30 CY
Total Volume =	91 CY	
Cost/CY of excavation =	$85/CY	
Total Cost =	$8,000	

505E11100	PILE DRIVING EQUIPMENT MOBILIZATION		

	Total cost =	$22,500	
	Total Quantity =	LS	

507E00600	14" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN		

		Rear	Forward
	No. of piles =	2	3	4
	Driven Length =	35.00 ft	35.00 ft	25.00 ft
	Total Driven Length =	70.00 ft	105.00 ft	100.00 ft

	Total Quantity =	275 FT	

507E00651	14" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED, AS PER PLAN		

		Rear		Forward
	No. of piles =	2	3	4
	Bottom of pile cap =	622.88	622.88	623.65
	Extension into cap =	2.00 ft	1.00 ft	2.00 ft
	Tip elevation from geotech report =	594.00	594.00	604
	Estimated Length =	30.88 ft	29.88 ft	21.65 ft
	Estimated Length (rounded) =	35.00 ft	35.00 ft	25.00 ft
	Order Length =	40.00 ft	40.00 ft	30.00 ft
	Total Furnished Length =	80.00 ft	120.00 ft	120.00 ft

	Total Quantity =	320 FT	

509E20001	CONCRETE REINFORCEMENT, REPLACEMENT OF EXISTING CONCRETE REINFORCEMENT, AS PER PLAN		

		Deck			
	Length of bar =	4.16 ft	4.16 ft	5.50 ft	5.50 ft
	Number of bars =	74	62	38	38
	Total Length =	307.84 ft	257.92 ft	209.00 ft	209.00 ft
	Bar size weight =	0.668 lb/ft	1.043 lb/ft	1.043 lb/ft	1.502 lb/ft
	Rebar Weight =	206 lb	269 lb	218 lb	314 lb
	Ratio =	25%	25%	25%	25%
	Total =	51 lb	67 lb	54 lb	78 lb

	Total Quantity =	252 LB	

509E26001	GALVANIZED STEEL REINFORCEMENT, AS PER PLAN		

		Abutments	Superstructure
	Total =	2836 lb	8140 lb
	Total Quantity =	10976 LB	

510E10000	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT		

		Rear	Forward
	Number of Dowel holes =	27 each	28 each
	Total Quantity =	55 EACH	

511E33501	SEMI-INTEGRAL DIAPHRAGM GUIDE, AS PER PLAN		

		Rear	Forward
	Number of diaphragm guides =	1 each	1 each
	Total Quantity =	2 EACH	

511E43510	CLASS QC1 CONCRETE, ABUTMENT INCLUDING FOOTING		

		Wingwall 1	Wingwall 2	Wingwall 3	Wingwall 4
	Width of footing =	3.13 ft	5.50 ft	5.50 ft	5.50 ft
	Height of footing =	3.00 ft	4.45 ft	4.46 ft	4.36 ft
	Length of footing extension =	15.04 ft	8.10 ft	4.70 ft	7.82 ft
	Volume of footing =	141.19 ft^3	198.22 ft^3	115.24 ft^3	187.46 ft^3
	Width of wingwall =	1.50 ft	3.00 ft	3.00 ft	3.00 ft
	Length of flat wingwall =	11.25 ft	2.14 ft	2.13 ft	3.76 ft
	Length of sloped wingwall =	0.00 ft	6.00 ft	4.75 ft	3.25 ft
	Height at beginning of wingwall =	5.85 ft	4.57 ft	4.54 ft	4.50 ft

Height at end of wingwall =	5.85 ft	1.17 ft	2.39 ft	2.49 ft
Volume of wingwall =	98.72 ft^3	59.94 ft^3	44.33 ft^3	60.49 ft^3
Volume of abutment =	239.91 ft^3	258.16 ft^3	159.57 ft^3	247.96 ft^3
Total Quantity =	34 CY			

511E53012   CLASS QC2 CONCRETE, MISC.: SUPERSTRUCTURE CONCRETE, AS PER PLAN

Out/out bridge width along skew=	45.08 ft
Limits of deck replacement =	1.00 ft
Deck area =	45.08 ft^2
Deck thickness =	7.75 in
Deck volume =	29.11 ft^3
Haunch width =	20.00 in
Haunch thickness =	2.75 in
Beam length of deck replacement =	1.00 ft
Number of beams =	6 each
Haunch volume =	2.29 ft^3
Overhang depth =	16.00 in
Overhang width =	3.00 ft
Replacement overhang volume =	2.98 ft^3
Total deck replacement volume =	68.77 ft^3
Total deck replacement volume =	3 yd^3

	Rear	Forward
Diapraghm length =	45.08 ft	45.08 ft
Diapraghm height =	4.40 ft	4.40 ft
Diapragm thickness =	4.41 ft	4.41 ft
Diaphragm volume =	873.10 ft^3	873.10 ft^3
Total diaphragm volume =	1746.20 ft^3	
Total diaphragm volume =	65 yd^3	
Total Quantity =	68 CY	

512E10050   SEALING OF CONCRETE SURFACES (NON-EPOXY)

Superstructure:

	Rear	Forward
Average diaphragm height =	4.40 ft	4.40 ft
Deck thickness =	7.75 in	7.75 in
Average exposed height =	3.75 ft	5.92 ft
Length of diaphragm =	45.08 ft	45.08 ft
Area for diaphragm =	169.04 ft^2	266.70 ft^2
Total area for diaphragm =	435.74 ft^2	
Length of Deck Edge =	154.35 ft	
Perimeter of Deck Edge Sealed =	1.83 ft	
Area of sealing =	565.95 ft^2	
Total area for superstructure =	1001.69 ft^2	

Abutment:

	Rear	Forward
Abutment stem wall average height =	2.17 ft	2.17 ft
Length of stem wall exposed =	45.08 ft	45.08 ft
Area for abutment =	97.67 ft^2	97.67 ft^2
Total area for abutment =	195.33 ft^2	

Wingwalls:

	Wingwall 1		Wingwall 2	Wingwall 3	Wingwall 4
Area of wingwall face behind =	10.36 ft^2	31.67 ft^2	7.45 ft^2	4.45 ft^2	4.88 ft^2
Area of wingwall face =	0.00 ft^2	0.00 ft^2	23.10 ft^2	26.92 ft^2	13.62 ft^2
Wingwall thickness =	0.00 ft	1.50 ft	3.00 ft	3.00 ft	3.00 ft
Length along top of wingwall =	0.00 ft	11.25 ft	8.13 ft	6.88 ft	5.38 ft
Total wingwall area =	10.36 ft^2	48.54 ft^2	54.94 ft^2	52.01 ft^2	34.64 ft^2

Total area for wingwalls =	200.49 ft^2
Quantity for abutment =	44 SY
Quantity for superstructure =	112 SY

Total Quantity =   156 SY

512E10400	TREATING OF CONCRETE BRIDGE DECK WITH SRS	

	Deck Area =	5908.68 ft^2
	Total Quantity =	657 SY

512E33000	TYPE 2 WATERPROOFING	

		Rear	Forward
	Width =	3.00 ft	3.00 ft
	Height =	3.17 ft	3.17 ft
	Area =	1.06 SY	1.06 SY
	Total Quantity =	3 SY	

512E74001	REMOVAL OF EXISTING COATINGS FROM CONCRETE SURFACES, AS PER PLAN	

	Length of Deck Edge =	154.35 ft	
	Perimeter of Deck Edge Sealed =	1.83 ft	
	Area of sealing =	63 yd^2	
	Abutment stem wall average height =	2.17 ft	2.17 ft
	Length of diaphragm =	45.08 ft	45.08 ft
	Area for diaphragm =	11 yd^2	11 yd^2
	Total Quantity =	85 FT^2	

514E27700	FIELD PAINTING, MISC.: COATING OF BEAM ENDS	

		Rear	Forward
	Beam Area =	38.30 ft^2	38.30 ft^2
	Beam Flange Width =	11.50 in	11.50 in
	Beam Depth =	33.10 in	33.10 in
	Nominal Perimeter =	100.70 IN	100.70 IN
	Length =	3.90 ft	3.90 ft
	# of Beams =	6	6
	Aprrox. Surface Area =	234.67 SF	234.67 SF
	10% incedental =	23.47 SF	23.47 SF
	Total Quantity =	517 SF	

516E13900	2" PREFORMED EXPANSION JOINT FILLER	

		Rear Abutment	FWD. Abutment
	Area =	35.01 sf	33.35 sf
	Total Quantity =	69 SF	

516E14020	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL	

		Rear	Forward
	Length along diaphragm =	48.83 ft	48.83 ft
	Height at wingwall =	4.31 ft	4.31 ft
	Diaphragm guide =	6.00 ft	6.00 ft
	Total length =	63.46 ft	63.46 ft
	Total Quantity =	127 FT	

516E44101	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (10"X15"X2.628" WITH A 11"X16"X1.5" LOAD PLATE)	

		Rear	Forward
	Number of bearings =	6 each	6 each
	Total Quantity =	12 EACH	

516E44201	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (12"X19"X3.382" WITH A 13"X20"X2" LOAD PLATE)	

		Pier 1	Pier 2
	Number of bearings =	6 each	6 each
	Total Quantity =	12 EACH	

516E47001	JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN			
	Cost/Jacked Supported Locations=	1333 EACH		
	Total Cost = $	32,000.00		
		Rear	Pier 1	Pier 2	Forward
	# of Jack Supported Locations	6 each	6 each	6 each	6 each
	Total # of Jack Supported Locations	24 EACH			
	Total Quantity =	LS			

517E75601	DEEP BEAM BRIDGE RETROFIT RAILING, AS PER PLAN

	Left	Right
Length btwn. first posts off bridge =	174.00 ft	174.00 ft
Total Quantity =	348 FT	

518E21200	POROUS BACKFILL WITH GEOTEXTILE FABRIC

	Rear	Forward
Length of porous backfill =	64.15 ft	57.76 ft
Width of porous backfill =	2.00 ft	2.00 ft
Approx. average height of porous backfill =	5.75 ft	5.75 ft
Volume of porous backfill =	737.73 ft^3	664.18 ft^3
Total Quantity =	52 CY	

519E11101	PATCHING CONCRETE STRUCTURE, AS PER PLAN

	Rear	Pier 1	Pier 2	Forward
Area of patching	6.50 ft^2	0.00 ft^2	0.00 ft^2	0.00 ft^2
Accounting for further deterioration	50.00 %			
Total Quantity =	10 SF			

523E20000	DYNAMIC LOAD TESTING

Number of tests =	1 EACH

526E15001	REINFORCED CONCRETE APPROACH SLABS (T=13"), AS PER PLAN

	Rear	Forward
Approach slab length =	20.00 ft	20.00 ft
Approach slab width =	36.00 ft	36.00 ft
Approach slab area =	720.00 ft^2	720.00 ft^2
Total Quantity =	160 SY	

526E90011	TYPE A INSTALLATION, AS PER PLAN

	Rear	Forward
Length along approach slab =	45.08 ft	45.08 ft
Total Quantity =	91 FT	

601E32000	ROCK CHANNEL PROTECTION, TYPE A WITH FILTER

	Rear	Forward
Area of rock channel protection =	276.35 ft^2	277.53 ft^2
Width of rock channel protection =	3.00 ft	3.00 ft
Sloped ground of rock channel protection =	1.15	1.15
Volume of porous backfill =	953.41 ft^3	957.48 ft^3
Total Quantity =	71 CY	

846E00110	POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM

	Rear Abutment	FWD. Abutment
Area =	19 CF	19 CF
Total Quantity =	38 CF	