



ROUTE	STATION		WIDTH FT	SIDE	LENGTH FT	SURFACE AREA (CA = CADD GENERATED AREA) SF	407				304	206	206					441	302	
	FROM	TO					DEPTH	NON-TRACKING TACK COAT (0.055 GAL/SY)	AGGREGATE BASE T=6.00"	CEMENT STABILIZED SUBGRADE, 12 INCHES DEEP	CEMENT STABILIZED SUBGRADE, 14 INCHES DEEP	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (446)	ASPHALT CONCRETE BASE, PG64-22, (449), AS PER PLAN							
STEP DETAIL QUANTITIES							GAL	CY	SY	SY	CY	CY								
SR-21 (BRECKSVILLE RD)																				
RT SHOULDER																				
21	495+73.38	497+31.30	0.4	RT	158.0	52.2													1	
21	495+73.38	497+31.30	1	RT	158.0	158.0				3		17.6						3.7		
21	497+30.30	499+99.31	2.5	RT	269.1	672.6	8.3													
21	497+30.30	499+99.31	2.9	RT	269.1	761.3													14.1	
21	497+30.30	499+99.31	3	RT	269.1	807.1				15		89.7								
21	499+99.31	506+05.74	0.4	RT	606.5	200.2													3.8	
21	499+99.31	506+05.74	1	RT	606.5	606.5				11.3		67.4								
21	497+31.30	499+95.48	2	RT	264.2	528.4	3.3			9.8		58.8						2.9	9.8	
21	497+31.30	499+95.48	0.5	RT	264.2	132.1	0.9			2.5		14.7						0.8	2.5	
LT SHOULDER																				
21	495+73.38	10009+55.25	0.4	LT	125.2	41.4													0.8	
21	495+73.38	10009+55.25	1	LT	125.2	125.2				2.4		14								
21	497+16.16	497+94.39	0.4	LT	78.3	25.9													0.5	
21	497+16.16	497+94.39	1	LT	78.3	78.3				1.5		8.7								
21	497+94.39	500+55.14	2.5	LT	260.8	651.9	8											3.6		
21	497+94.39	500+55.14	2.9	LT	260.8	738.0													13.7	
21	497+94.39	500+55.14	3	LT	260.8	782.3				14.5		87								
21	500+55.14	503+11.58	0.4	LT	256.5	84.7													1.6	
21	500+55.14	503+11.58	1	LT	256.5	256.5				4.8		28.5								
21	497+94.39	500+54.07	2	LT	259.7	519.4	3.2			9.7		57.8						2.9	9.7	
21	497+94.39	500+54.07	0.5	LT	259.7	129.9	0.8			2.5		14.5						0.8	2.5	
SR-21 (BRECKSVILLE RD) - RAMP G																				
RT SHOULDER																				
G	10008+56.05	10020+57.11	0.5	RT	1201.1	600.6				11.2		66.8								
LT SHOULDER																				
G	10008+56.05	10020+57.11	0.5	LT	1201.1	600.6				11.2		66.8								
SUBTOTAL							24.5			99.4		133.6	458.7					14.7	60	
TOTALS CARRIED TO SUBSUMMARY							25			100		134	459						15	60
TOTALS CARRIED TO GENERAL SUMMARY							6781			11298		62673	5172						239	12859

Calculation	Bridge Quantities: SUM-77-3227L					
Description	Stage 2 Quantities					
GF Job No: 67490	Bridge SFN 7704712	Calculated • RSN 10/20/21	Checked SAT 10/28/21	Updated RSN 01/09/22	Verified SAT 02/03/22	Final Rev RSN 04/29/2022

Revised EFD  
10/3/22

This calculation will use ODOT Bid Elements.  
Reinforcing ratios will be used to determine reinforcing until the Stage 3 reinforcing calculations are

**INPUT: Superstructure**

**General and Existing Data**

Minimum Concrete Deck Thickness:	8.500 in	Outside Parapet Area:	4.06 sf
Total Number of Girder Lines:	3 Girders	Approach Slab Parapet Perimeter:	7.82 ft
Length of Bridge Limits:	233.94 ft	Outside Parapet/Deck Ovhg Perimeter:	9.44 ft
		Right Parapet Length (not include App Slabs):	233.95
		Right Parapet Length (include Approaches):	300.95
Existing Rear Abutment:	12 cy	Girder H Flange Width:	12.10 in
Existing Forward Abutment:	12 cy	Girder H Flange Thickness:	1.16 in
Existing Approach Slabs:		Girder H Web Depth:	34.18 in
CIP Deck Reinforcing Ratio:	270 lb/cy	Abutment & W.W. Reinforcing Ratio:	120 lb/cy
Pier Cap Reinforcing Ratio:	200 lb/cy	Footing Reinforcing Ratio:	140 lb/cy
Pier Wall & Abutment Backwall Reinforcing Ratio:	300 lb/cy	Parapet/Curb Reinforcing Ratio:	170 lb/cy

**Superstructure Specific Data**

Design Girder Length:	227.33 ft	C/C Bearing	Deck Width, Out-Out:	20.08 ft	normal to align.
Girder Projection Length after BRG:	1.00 ft		Skew:	47.022 deg	0.82069 rad
Splice Top Flange External	0.269 cf		Girder Flange Width:	14.077 in	
Splice Top Flange Internal	0.264 cf		Girder Flange Thickness:	1.283 in	
Splice Bottom Flange External	0.269 cf		Girder Web Depth:	25.455 in	
Splice Bottom Flange Internal	0.264 cf		Girder Web Thickness:	0.756 in	
Splice Web	0.209 cf		Girder Paint Perimeter:	94.2 in	
Filler Plate Top Flange	0.100 cf		Girder Weight:	189.39 p/f	
Filler Plate Bottom Flange	0.100 cf		Intermediate Dprm Connx Plate Height:	25.440 in	
Concrete Deck CAD Area:	4,698 sf		Intermediate Dprm Connx Plate Thickness:	0.500 in	
Concrete Haunch Area:	0.20 sf		Intermediate Dprm Connx Plate Width:	11.500 in	
Overhang CAD Area:	0.39 sf		Typical Stiffener Clip Area:	29.500 SqIn	
End Area above Diaphragm:	1 sf		Intermediate Dprm Connx Plate Paint Area:	552 Sqft	
APP Slab CAD Area:	3,928 sf		# of Intermediate Dprm Connx Plates:	92	
			Number of Int Diaphragms:	46	

**INPUT: Substructure**

**Rear Abutment**

Stem Thickness:	3.75 ft	Wingwall Thickness:	1.50 ft
Diaph Thickness:	3.75 ft	Wingwall CAD Area:	147 sf
RA Footing CAD Area:	205 sf	Wingwall Length:	15.00 ft
RA Footing Thickness:	3.00 ft	RA Diaph CAD Sealing Area Limit:	95 sf
RA Stem CAD Plan Area:	100 sf		
RA Diaph CAD Area:	86 sf		
Beam Seat EL:	1026.75 ft		
Top/Footing EL:	1021.68 ft		

**Forward Abutment**

Stem Thickness:	3.75 ft	Wingwall CAD Area:	143 sf
Diaph Thickness:	3.75 ft	Wingwall Thickness:	1.50 ft
FA Footing CAD Area:	210 sf	Wingwall Length:	15.00 ft
FA Footing Thickness:	3.00 ft		
RA Stem CAD Plan Area:	100 sf		

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FA Diaph CAD Area: 86 sf

Beam Seat EL.: 1030.15 ft

Top/Footing EL.: 1025.16 ft

FA Diaph CAD Sealing Area Limit: 96 sf

**Pier 1+2**

Cap thickness:	3.00 ft	Footing Length:	21.00 ft
Cap CAD Area:	78.00 sf	Foundation Width:	8.50 ft
Wall Stem Thickness:	3.00 ft	Foundation Thickness:	3.00 ft
Wall Section CAD Area:	46 sf	Ex. Footing Width and Length:	8.50 ft
Bottom/Cap Pier 1 EL.:	1025.47 ft		
Bottom/Cap Pier 2 EL.:	1026.75 ft		
Top/Footing El. Pier 1:	1005.50 ft		
Top/Footing El. Pier 2:	1012.20 ft		

**Quantities**

<b>202E 11003</b>	<b>STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN</b>	<b>(LS) = 100,000</b>	<b>0</b>
<b>Structure Demolition</b>			
Deck:	448 sf	X \$25 /sf	\$ 12,000
RA Removed:	12 cy	X \$150 /cy	\$ 2,000
FA Removed:	12 cy	X \$150 /cy	\$ 2,000
<b>202E 22900</b>	<b>APPROACH SLAB REMOVED</b>	<b>(SY) = 334</b>	<b>0</b>
APP Slabs:	2999 sf	/(9 sf/sy)= 333 sy	
<b>503E 21101</b>	<b>UNCLASSIFIED EXCAVATION, AS PER PLAN</b>	<b>(CY) = 398</b>	<b>(CHECK UNIT OF MEASURE)</b>
<b>Pier 1:</b>	10.50 ft	X	23.00 ft
Width			Length
			8.73 ft
			Avg Depth
			/(27 cf/cy)= 78.1 cy
<b>Pier 2:</b>	10.50 ft	X	23.00 ft
Width			Length
			5.03 ft
			Avg Depth
			/(27 cf/cy)= 45.0 cy
<b>FA+wingwall:</b>	7.75 ft	X	28.25 ft
Width			Length
	5.75 ft	X	7.50 ft
Width			Length
			6.32 ft
			Avg Depth
			/(27 cf/cy)= 51.2 cy
			/(27 cf/cy)= 10.1 cy
<b>RA+wingwall:</b>	7.75 ft	X	31.00 ft
Width			Length
	5.75 ft	X	11.00 ft
Width			Length
			6.94 ft
			Avg Depth
			/(27 cf/cy)= 61.8 cy
			/(27 cf/cy)= 16.3 cy
<b>Existing Pier Excavation</b>			
<b>Ex Pier 1:</b>	8.50 ft	X	8.50 ft
Width			Length
			7.07 sf
			Area of Pier Column
			30.42 ft
			Total Depth
			/(27 cf/cy)= 73.4 cy
<b>Ex Pier 2:</b>	8.50 ft	X	8.50 ft
Width			Length
			7.07 sf
			Area of Pier Column
			25.44 ft
			Total Depth
			/(27 cf/cy)= 61.4 cy
<b>507E 00500</b>	<b>12" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN</b>	<b>(FT) = 850</b>	<b>0</b>
FA:	10	X	45 ft Long
			= 450 ft
RA:	10	X	40 ft Long
			= 400 ft
<b>507E 00550</b>	<b>12" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED</b>	<b>(FT) = 950</b>	<b>0</b>
FA:	10	X	50 ft Long
			= 500 ft
RA:	10	X	45 ft Long
			= 450 ft
<b>507E 00600</b>	<b>14" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN</b>	<b>(FT) = 840</b>	<b>0</b>
Pier 1:	12	X	35 ft Long
			= 420 ft
Pier 2:	12	X	35 ft Long
			= 420 ft
<b>507E 00650</b>	<b>14" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED</b>	<b>(FT) = 960</b>	<b>0</b>
Pier 1:	12	X	40 ft Long
			480 ft
Pier 2:	12	X	40 ft Long
			480 ft
<b>505E 11101</b>	<b>PILE DRIVING EQUIPMENT MOBILIZATION, AS PER PLAN</b>	<b>(LS)</b>	<b>0</b>
All Piles:	Lump Sum		
<b>509E 10001</b>	<b>EPOXY COATED REINFORCING STEEL, AS PER PLAN</b>	<b>(LB) = 76,765</b>	<b>0</b>



Deck:	X	270 lb/cy	=	40,489 lb
Diaphragm:	X	140 lb/cy	=	3,718 lb
Parapet:	X	170 lb/cy	=	9,921 lb
RA, FA & Wingwalls (w/o footing):	X	120 lb/cy	=	2,339 lb
RA, FA & Wingwalls (only footing):	X	140 lb/cy	=	4,037 lb
Pier:	X	200 lb/cy	=	10,438 lb
Pier Footing:	X	140 lb/cy	=	5,823 lb
<b>510E 20001</b>	<b>REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN</b>			<b>LB 300</b>
<b>510E 10001</b>	<b>DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT, AS PER PLAN</b>			<b>(EACH) = 22</b>
				<b>#N/A</b>
Rear Abutment:	11			
Forward Abutment:	11			
Deck:	0			
Diaphragm:	0			
<b>511E 34446</b>	<b>CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK</b>			<b>(CY) = 158</b>
				<b>(CHECK UNIT OF MEASURE)</b>
Deck - Above Haunch:		4,698 sf CAD Area	X	8.50 in Thickness
				<b>/(27 cf/cy)= 123 cy</b>
Deck - Haunch:	229.33 ft Length	X	0.20 sf Area	X
				3 # of Haunches
				<b>/(27 cf/cy)= 5.0 cy</b>
Deck - Overhang:	229.33 ft Length	X	0.39 sf Area	X
				1 # of Haunches
				<b>/(27 cf/cy)= 3.3 cy</b>
Deck - Ends above Diaphragm:	29.79 ft Length	X	1.00 sf Area	X
				2 Rear and Forward
				<b>/(27 cf/cy)= 2.2 cy</b>
RA, Diaph:	86.00 sf CAD Area	X	3.75 ft Thickness	
				<b>/(27 cf/cy)= 11.9 cy</b>
FA, Diaph:	86.00 sf CAD Area	X	3.75 ft Thickness	
				<b>/(27 cf/cy)= 11.9 cy</b>
<b>511E 34451</b>	<b>CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET), AS PER PLAN</b>			<b>(CY) = 46</b>
				<b>(CHECK UNIT OF MEASURE)</b>
Curb/Parapet:	300.95 ft	X	4.06 sf	
				<b>/(27 cf/cy)= 45.3 cy</b>
<b>511E 40512</b>	<b>CLASS QC1 CONCRETE WITH QC/QA, PIER ABOVE FOOTINGS</b>			<b>(CY) = 77</b>
				<b>(WALLS)</b>
Pier Cap 1:	3.00 ft WIDTH	X	78.00 sf CAD Area	
				<b>/(27 cf/cy)= 8.7 cy</b>
Pier Wall 1:	19.97 ft Height	X	46.00 sf CAD Area	
				<b>/(27 cf/cy)= 34.0 cy</b>
Pier Cap 2:	3.00 ft WIDTH	X	78.00 sf CAD Area	
				<b>/(27 cf/cy)= 8.7 cy</b>
Pier Wall 2:	14.55 ft Height	X	46.00 sf CAD Area	
				<b>/(27 cf/cy)= 24.8 cy</b>
<b>511E 46512</b>	<b>CLASS QC1 CONCRETE WITH QC/QA, FOOTING</b>			<b>(CY) = 86</b>
				<b>()</b>
Pier 1 Footing:	8.50 ft	X	21.00 ft	X
				3.00 ft
				<b>/(27 cf/cy)= 19.8 cy</b>
Pier 2 Footing:	8.50 ft	X	21.00 ft	X
				3.00 ft
				<b>/(27 cf/cy)= 19.8 cy</b>
FA Footing (CAD area):	210.00 sf	X	3.00 ft	
				<b>/(27 cf/cy)= 23.3 cy</b>
RA, Footing (CAD Area):	205.25 sf	X	3.00 ft	
				<b>/(27 cf/cy)= 22.8 cy</b>
<b>511E 44112</b>	<b>CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT NOT INCLUDING FOOTING</b>			<b>(CY) = 54</b>
				<b>()</b>
RA, Stem:	100.00 sf CAD Area (Plan)	X	5.07 ft Height of stem	
				<b>/(27 cf/cy)= 18.8 cy</b>
RA, Wingwall:	146.85 sf CAD Area	X	1.50 ft Thickness	
				<b>/(27 cf/cy)= 8.2 cy</b>
FA, Stem:	100.00 sf	X	4.99 ft	
				<b>/(27 cf/cy)= 18.5 cy</b>

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	CAD Area (Plan)		Height of stem			
	CAD Area		Thickness			
FA, Wingwall	143.00 sf	X	1.50 ft		/(27 cf/cy)=	7.9 cy
	CAD Area		Thickness			

**512E 10101 SEALING OF CONCRETE SURFACES (EPOXY-URETHANE), AS PER PLAN (SY) = 675 0**

Parapet & Deck Underside:	234.0 ft	X	9.44 ft		/(9 sf/sy)=	245 sy
Approach Slab Parapets:	67.0 ft	X	7.82 ft		/(9 sf/sy)=	58 sy

RA, Stem:	86 sf				/(9 sf/sy)=	10 sy
RA, WingWall:	147 sf				/(9 sf/sy)=	16.3 sy
RA, Wingwall top + sides + back:	23 sf				/(9 sf/sy)=	3 sy
RA, Diaphragm without fillet area:	95 sf				/(9 sf/sy)=	11 sy
FA Stem + Diaphragm:	55 sf				/(9 sf/sy)=	6 sy
FA, WingWall:	33 sf				/(9 sf/sy)=	4 sy
FA, Wingwall top + sides + back:	35 sf				/(9 sf/sy)=	4 sy
FA, Diaphragm without fillet area:	104 sf				/(9 sf/sy)=	12 sy

Pier 1 - Wall:	477 sf				/(9 sf/sy)=	53 sy
Pier 1 - Cap:	156 sf				/(9 sf/sy)=	17 sy
	2.55 ft	X	3.00 ft	X	2	/(9 sf/sy)= 2 sy
Pier 2 - Wall:	452 sf				/(9 sf/sy)=	50 sy
Pier 2 - Cap:	156 sf				/(9 sf/sy)=	17 sy
	2.55 ft	X	3.00 ft	X	2	/(9 sf/sy)= 2 sy

**Existing Pier Column Sealing**

Pier 1:	9.42 ft perimeter	X	82.44 ft total height		/(9 sf/sy)=	86 sy
Pier 2:	9.42 ft perimeter	X	76.02 ft total height		/(9 sf/sy)=	80 sy

**512E 33000 TYPE 2 WATERPROOFING (SY) = 7 (CHECK UNIT OF MEASURE)**

Rear Wingwall:	10 ft	Along WW	3.0 ft	width of sealing	=	3.3 SY
Forward Wingwall:	10 ft	Along WW	3.0 ft	width of sealing	=	3.3 SY

**512E 74000 REMOVAL OF EXISTING COATINGS FROM CONCRETE SURFACES (SY) = 357.0 0**

Pier 1	9.425 ft perimeter	X	61.4 ft height		579.1	193.0 sy
Pier 2	9.425 ft perimeter	X	52.0 ft height		490.3	163.4 sy

**513E 10260 STRUCTURAL STEEL MEMBERS, LEVEL 3 (LB) = 155,046 (CHECK UNIT OF MEASURE)**

<b>Girder Weight:</b>	Length					
section 1,5,9	229.3 ft	X	189.39 lb	X	3 girder(s)	130,304
<b>Bolts:</b>	1104 each	X	109 lb/100			= 1,203
<b>Washers:</b>	1104 each	X	9 lb/100			= 104
<b>Int Xframes(MC18x42.7):</b>	6.25 ft	X	X 12 lb/ft	X	30	= 8,006
<b>Int Xframes(4x4x1/2):</b>	12.00 ft	X	X 12.80 lb/ft	X	16	= 2,458
<b>Int Xframes Plate:</b>	0.068 cf		X 490 lb/cf	X	92	3,047
	Volume				numbers	
<b>Splice Weight:</b>	17.70 cf		X 490 lb/cf			8,674.05
	Volume/all					
<b>Splice Bolts:</b>	1056 each	X	109 lb/100			= 1,151.04
<b>Splice Washers:</b>	1056 each	X	9 lb/100			= 99.26

**513E 20000 WELDED STUD SHEAR CONNECTORS (EACH) = 1,989 0**

<b>G1:</b>	221	X	3		663 Each
<b>G2:</b>	221	X	3		663 Each
<b>G3:</b>	221	X	3		663 Each

Rows of studs Studs per Row

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<b>513E 95020</b>	<b>STRUCTURAL STEEL, MISC.:</b>				<b>(LS) =</b>	<i>SUM-77-3227L SHOP DRAWINGS</i>
<b>514E 00060</b>	<b>FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT</b>				<b>(SF) = 5,401</b>	0
Proposed Beams	94.2 in	X	229.33 ft	X	3.0 each	
<b>514E 00066</b>	<b>FIELD PAINTING STRUCTURAL STEEL, FINISH COAT</b>				<b>(SF) = 5,401</b>	0
<b>514E 00504</b>	<b>GRINDING FINES, TEARS, SLIVERS ON EXISTING STRUCTURAL STEEL</b>				<b>(MNHR) = 2</b>	0
Grinding Time Per Foot	30.0 sec/ft	X	228.83 ft			<b>= 1.9 ManHours</b>
	<small>Time is halved since only one side of existing beam is used</small>		<small>Beam Length</small>			
<b>514E 10000</b>	<b>FINAL INSPECTION REPAIR</b>				<b>(EACH) = 5</b>	0
	Inspection Repair per 150 ft.		4.58668		5	
<b>514E 27800</b>	<b>FIELD PAINTING, MISC.:</b>				<b>(LS) = 1</b>	<i>(ADD SUPPLEMENTAL DESCRIPTION)</i>
					1	
<b>516E 10010</b>	<b>ARMORLESS PREFORMED JOINT SEAL</b>				<b>(FT) = 227</b>	0
Rear Sleeper Slab:	110 ft					<b>= 110.0 ft</b>
Forward Sleeper Slab:	117 ft					<b>= 117.0 ft</b>
	<small>Length</small>					
<b>516E 13600</b>	<b>1" PREFORMED EXPANSION JOINT FILLER</b>				<b>(SF) = 25</b>	0
App Slab Parapets:	6.14 sf	X	4			<b>= 24.6 sf</b>
	<small>CAD Area</small>		<small>Number of Joints</small>			
<b>516E 13900</b>	<b>2" PREFORMED EXPANSION JOINT FILLER</b>				<b>(SF) = 99</b>	0
RA Wingwall:	17.81 sf	+	26.875 sf			<b>= 44.7 sf</b>
FA Wingwall:	17.81 sf	+	28.750 sf			<b>= 46.6 sf</b>
FA Wingwall and Roadway Barrier:	7.39 sf					<b>= 7.4 sf</b>
<b>516E 44100</b>	<b>ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)</b>				<b>(EACH) = 9</b>	<i>(2"-3" TK, SPECIFY DIMENSIONS)</i>
14"x9.50x2.96 bearing with	3		each			
15"x10.5" load plate						
18"x13"x.259" with 19"x14" load plate	6		each			
<b>516E 44200</b>	<b>ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)</b>				<b>(EACH) = 3</b>	<i>(3"-4" TK, SPECIFY DIMENSIONS)</i>
Total # required:	3		each			
<b>516E 14020</b>	<b>SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL</b>				<b>(FT) = 108</b>	0
RA Abutment:	54 ft					
FA Abutment:	54 ft					
<b>518E 21200</b>	<b>POROUS BACKFILL WITH GEOTEXTILE FABRIC</b>				<b>(CY) = 39</b>	<i>(CHECK UNIT OF MEASURE)</i>
Rear Abutment:	200 sf	X	2.0 ft		<b>/(27 cf/cy)=</b>	<b>14.8 cy</b>
	<small>CAD Area</small>		<small>width</small>			
Rear Wingwall:	60 sf	X	2.0 ft		<b>/(27 cf/cy)=</b>	<b>4.4 cy</b>
	<small>CAD Area</small>		<small>width</small>			
Forward Abutment:	200 sf	X	2.0 ft		<b>/(27 cf/cy)=</b>	<b>14.8 cy</b>
	<small>CAD Area</small>		<small>width</small>			
Forward Wingwall:	60 sf	X	2.0 ft		<b>/(27 cf/cy)=</b>	<b>4.4 cy</b>
	<small>CAD Area</small>		<small>Width</small>			
<b>518E 40000</b>	<b>6" PERFORATED CORRUGATED PLASTIC PIPE</b>				<b>(FT) = 90</b>	0
FA+Wingwall:	45 ft					<b>45 ft</b>
RA+Wingwall:	45 ft					<b>45 ft</b>
<b>518E 40010</b>	<b>6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS</b>				<b>(FT) = 60</b>	0
RA Wingwall:	30 ft					<b>30 ft</b>
FA Wingwall:	30 ft					<b>30 ft</b>
<b>519E 00100</b>	<b>SPECIAL - COMPOSITE FIBER WRAP SYSTEM</b>				<b>(SF) = 2,020</b>	0

Calculation	Bridge Quantities: SUM-77-3227L	
Description	Stage 2 Quantities	
GF Job No: 67490	Bridge SFN 7704712	Calculated • RSN 10/20/21
		Checked SAT 10/28/21
		Updated RSN 01/09/22
		Verified SAT 02/03/22
		Final Rev RSN 04/29/2022

Pier 1	9.425 ft <small>perimeter</small>	X	112.9 ft <small>height</small>	1,063.7 sf
Pier 2	9.425 ft <small>perimeter</small>	X	101.4 ft <small>width</small>	955.7 sf

<b>519E 11100</b>	<b>PATCHING CONCRETE STRUCTURE</b>	(SF) =	202	0
Existing Pier Columns	2,020.0 sf	X	10 % <small>10% of total column surface area</small>	202.0 sf

<b>523E 20001</b>	<b>DYNAMIC LOAD TESTING, AS PER PLAN</b>	(EACH) =	4	0
RA:	1			1 each
Pier 1:	1			1 each
Pier 2:	1			1 each
FA:	1			1 each

<b>523E 20501</b>	<b>RESTRIKE, AS PER PLAN</b>	(EACH) =	4	0
RA:	1			1 each
Pier 1:	1			1 each
Pier 2:	1			1 each
FA:	1			1 each

<b>526E 25010</b>	<b>REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=15")</b>	(SY) =	437	0
App Slabs:	3,928.00 sf		/(9 sf/sy)=	436.4 sy

<b>526E 90030</b>	<b>TYPE C INSTALLATION</b>	(FT) =	227	0
	227.0 ft <small>Length</small>		RA & FA	

<b>601E 20000</b>	<b>CRUSHED AGGREGATE SLOPE PROTECTION</b>	(SY) =	487	0
RA + Wingwall:	2,501 sf		/(9 sf/sy)=	277.9 cy
FA + Wingwall:	1,878 sf		/(9 sf/sy)=	208.6 cy