CUY-014-0670 PID 13182
Calculated by: RAP
Checked by: MEM
KS #15286

Structure Estimated Quantities

Revised January 30, 2020

KS ASSOCIATES

Item	Extension	Quantity	Unit	Description
202	11203	LS		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN
202	38501	156	FT	BRIDGE RAILING REMOVED, AS PER PLAN
503	11100	LS		COFFERDAMS AND EXCAVATION BRACING
503	21101	483	CY	UNCLASSIFIED EXCAVATION, AS PER PLAN
509	10000	14789	LB	EPOXY COATED REINFORCING STEEL
509	20001	400	LB	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN
510	10000	320	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT
511	34411	37	CY	CLASS QC2 CONCRETE, SUPERSTRUCTURE, AS PER PLAN
511	51511	55	CY	CLASS QC2 CONCRETE, SIDEWALK, AS PER PLAN
511	71200	718	SF	CONCRETE, MISC.: ARCHITECTURAL TREATMENT
512	10050	137	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)
512	10101	246	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE), AS PER PLAN
512	10601	100	FT	CONCRETE REPAIR BY EPOXY INJECTION, AS PER PLAN
512	44401	421	SY	TYPE B WATERPROOFING, AS PER PLAN
516	47001	LS		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN
517	75121	156	FT	RAILING (CONCRETE PARAPET WITH TWIN STEEL TUBE RAILING), AS PER PLAN
518	21200	17	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC
518	40000	100	FT	6" PERFORATED CORRUGATED PLASTIC PIPE
518	62100	48	FT	STRUCTURE DRAINAGE, MISC.:INSTALLING 3" NON-PERFORATED PVC PIPE, INCLUDING SPECIALS
518	62200	4	EACH	STRUCTURE DRAINAGE, MISC.: CLEANING BACKFILL DRAINAGE AND INSTALLATION OF 3 INCH HDPE PIPE
518	62400	372	SY	STRUCTURE DRAINAGE, MISC.: COMPOSITE DRAINAGE PANEL
519	11101	150	SF	PATCHING CONCRETE STRUCTURE, AS PER PLAN
SPECIAL	53000200	LS		STRUCTURES UTILITY PROTECTION AND SUPPORT
844	10001	631	SF	CONCRETE PATCHING WITH GALVANIC ANODE PROTECTION, AS PER PLAN

Revisions made January 30, 2020

CUY-014-0670 PID 13182
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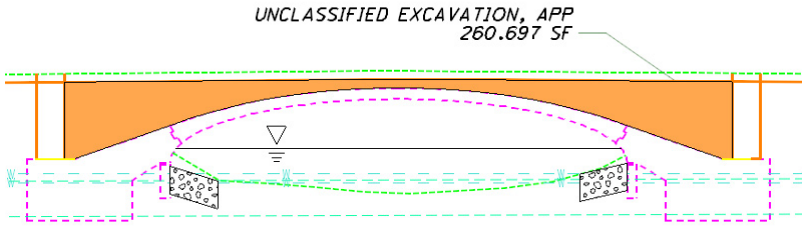
Items 202-510

KS ASSOCIATES

Item	Extension	Quantity	Unit	Description
202	11203	LS		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN
				92 CY REINFORCED CONCRETE (PER LD-4 AND PROPOSED QUANTITIES)
202	38501	156	FT	BRIDGE RAILING REMOVED, AS PER PLAN
				78'-0" LEFT, 78'-0" RIGHT, FROM EXISTING PLANS
503	11100	LS		COFFERDAMS AND EXCAVATION BRACING
				LUMP SUM BASED ON 483 CY EXCAVATION AS CALCULATED BELOW
503	21101	483	CY	UNCLASSIFIED EXCAVATION, AS PER PLAN
				CADD MEASURED CROSS SECTIONAL AREA = 260.697 SF (MEASURED 1' BEYOND PROPOSED TYPE B WATERPROOFING) x 50' TRANSVERSE WIDTH = 483 CY
509	10000	14789	LB	EPOXY COATED REINFORCING STEEL
				SEE REINFORCING STEEL TABLE, ATTACHED
509	20001	400	LB	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN
				A CONTINGENCY QUANTITY OF 400 LBS OF REINFORCING STEEL AND 10 DOWEL HOLES IS INCLUDED IN THE ESTIMATED QUANTITIES FOR THIS ITEM.
510	10000	320	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT
				Totals shown below
		S605	4	
		S606	24	
		S607	44	
		S608	24	
		S620	104	
		R601	110	
		Cont.	10	Contingency per structure notes
		Total	320	



ITEM	*UNIT*
ITEM 509 – REINFORCING STEEL, REPLACEMENT OF THE EXISTING REINFORCING	*400 LB*
ITEM 510 – DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT	*10 EACH*

Item 511

CUY-014-0670 PID 13182
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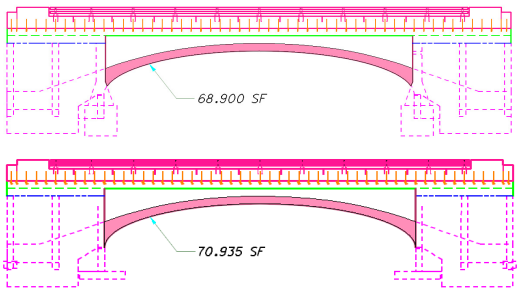
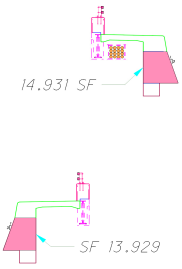
Checked by: MEM
KS #15286

KS ASSOCIATES

Item	Extension	Quantity	Unit	Description
511	34411	37	CY	CLASS QC2 CONCRETE, SUPERSTRUCTURE, AS PER PLAN





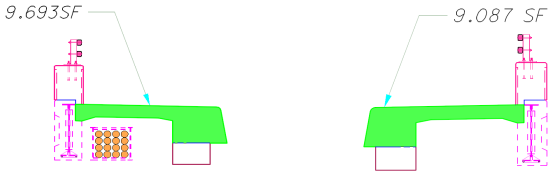
Arch Repair Concrete	Left	Right	
Face Area	68.9	70.935	SF
Repair width	2	2	FT
Volume	5.10	5.25	CY
Subtotal		10.4	

Spandrel Wall Repair (Average end area method)	Left	Right	
End trapezoid area	14.931	13.929	SF
Center trapezoid area	0	0	SF
Extrados Length	48.515	49.051	FT
Length (1/2 extrados)	24.2575	24.5255	FT
Each	2	2	EA
Volume	13.4	12.7	CY
Subtotal		26.1	CY

Total 36.42 CY

511	51511	55	CY	CLASS QC2 CONCRETE, SIDEWALK, AS PER PLAN

CADD MEASURED WALK AVERAGE CROSS SECTIONAL AREA = 9.693 SF LT, 9.087 SF RT, 78' EA



511	71200	718	SF	CONCRETE, MISC.: ARCHITECTURAL TREATMENT

	Left	Right	
Railing Face Area	173	173	SF
Each	2	2	EA
End Face Area	4.08	4.08	SF
Each	2	2	
Upper interior face area	2.313	2.313	SF
Each	2	2	EA

Area		
	358.8	358.8 SF
Total	717.6	SF

Item 512

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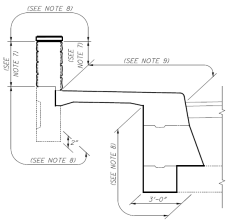
KS #15286

KS ASSOCIATES

Item	Extension	Quantity	Unit	Description
512	10050	137	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)

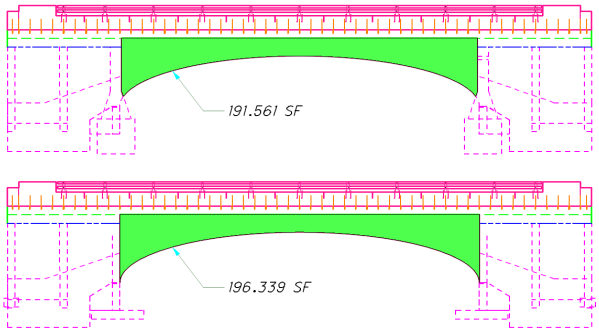


SEALING DETAIL

	Left	Right	
Avg. xsection length			
	7.956	7.782	FT
Section length			
	78	78	FT
Area			
	69.0	67.4	SY
Total	136.4		SY

7. ITEM 511 - CONCRETE MISC.: ARCHITECTURAL TREATMENT
8. ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE), AS PER PLAN
9. ITEM 512 - SEALING OF CONCRETE SURFACES (NON-EPOXY)

512	10101	246	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE), AS PER PLAN



	Left	Right	
Cap perimeter			
	2.21	2.21	FT
Cap length			
	78	78	FT
Fascia beam perimeter			
	5.17	5.17	FT
Fascia beam length			
	48	48	FT
Arch face			
	191.561	196.339	SF
Intrados length			
	49.632	52.681	FT
Intrados width			
	3	3	FT
Area			
	84.52	86.07	SY
Total	245.3		SY

Wingwalls			
RT Rear	RT Fwd		
Length			
24	24	FT	
Height			
14	14	FT	
Area			
37.33	37.33	SY	

512	10601	100	FT	CONCRETE REPAIR BY EPOXY INJECTION, AS PER PLAN

ITEM 512 – CONCRETE REPAIR BY EPOXY INJECTION, AS PER PLAN

IN ADDITION TO THE LOCATIONS SHOWN ON THE PLANS, SEAL CRACKS IN CONCRETE ON THE TOP SURFACE OF THE ARCH AND THE INSIDE SURFACES OF THE SPANDREL WALLS TO REMAIN AS DIRECTED BY THE ENGINEER.

A CONTINGENCY QUANTITY OF 100 FT IS INCLUDED IN THE ESTIMATED QUANTITIES FOR THIS ITEM.

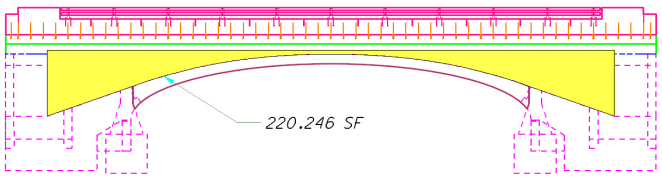
ITEM	*UNIT*
ITEM 512 – CONCRETE REPAIR BY EPOXY INJECTION, AS PER PLAN	*100 FT*

512	44401	421	SY	TYPE B WATERPROOFING, AS PER PLAN

CADD measured from structure elevation (area bounded between top of arch to a point 6" above construction joint B, toe to toe of extrados)
220.246 SF (2 EA)
Length of line extending between extrados toes
70.411 LF
Width of bridge between spandrel wall toes
47.528 LF

420.78 SY TYPE B

371.83 SY PANELS (area not including spandrel walls)



Item	Extension	Quantity	Unit	Description
516	47001	LS		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN

ITEM 516 - JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN

ALL PROVISIONS OF ITEM 508 FALSEWORK AND FORMS SHALL APPLY, WITH THE FOLLOWING ADDITIONS TO THE 516 JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE SPECIFICATION.

THIS WORK CONSISTS OF SUPPORTING EXISTING STRUCTURE PORTIONS TO REMAIN AS DEFINED IN THE PROJECT PLANS. INCLUDED IN THIS ITEM IS THE TEMPORARY SUPPORT FOR THE EDGE OF THE CONCRETE ARCH, SPANDREL WALLS TO REMAIN, AND FASCIA GIRDER. SUBMIT CONSTRUCTION PLANS IN ACCORDANCE WITH CMS 501.05.

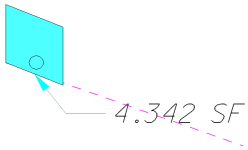
CONTRACTOR TO DESIGN AND CONSTRUCT FORMWORK TO MATCH THE CONTOUR OF THE EXISTING ARCH WITH NO JOINT MARKS OR BREAK IN ARCH SHAPE. CONTRACTOR TO CONSTRUCT FORMWORK AND SUPPORT THE FORMWORK WITH ADEQUATE FALSEWORK FOR THE CONSTRUCTION OF THE CONCRETE ARCH EDGES.

DO NOT CONSTRUCT ANY OTHER SECTION OF THE BRIDGE, SUCH AS SPANDREL WALLS, SIDEWALKS, AND RAILINGS, OR INSTALL FILL AND ROADWAY PAVEMENT UNTIL THE ARCHES ARE CURED AND FORMS AND THE SUPPORTING FALSEWORK ARE REMOVED.

CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE THE EXISTING AND NEW CONCRETE ARCHES DURING REMOVAL OF THE FORMWORK AND ITS SUPPORT.

THE DEPARTMENT WILL MEASURE THIS WORK ON A LUMP SUM BASIS. THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES AT THE CONTRACT PRICE BID FOR ITEM 516 - JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN.

517	75121	156	FT	RAILING (CONCRETE PARAPET WITH TWIN STEEL TUBE RAILING), AS PER PLAN
				78'-0" LEFT, 78'-0" RIGHT
518	21200	17	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC



CADD MEASURED CROSS SECTION AREA = 4.342 SF x 2EA x LENGTH (50') / 27 = 16.1 CY

518	40000	100	FT	6" PERFORATED CORRUGATED PLASTIC PIPE
				2 EACH @ 50' EACH = 100 FT
518	62100	48	FT	STRUCTURE DRAINAGE, MISC.:INSTALLING 3" NON-PERFORATED PVC PIPE, INCLUDING SPECIALS
				12 EACH @ 4' EACH = 48 FT
518	62200	4	EACH	STRUCTURE DRAINAGE, MISC.: CLEANING BACKFILL DRAINAGE AND INSTALLATION OF 3 INCH HDPE PIPE

ITEM 518 - STRUCTURE DRAINAGE, MISC.: CLEANING BACKFILL DRAINAGE AND INSTALLATION OF 3 INCH HDPE PIPE

DESCRIPTION:

THIS ITEM SHALL CONSIST OF FURNISHING ALL NECESSARY LABOR, MATERIALS, AND EQUIPMENT TO CLEAN THE EXISTING FOUR INCH DIAMETER BACKFILL DRAINAGE SYSTEM AND INSTALL THREE INCH (3") DIAMETER HDPE PIPE, AS SHOWN IN THE PLANS AND HEREIN SPECIFIED.

METHODS:

CLEAR THE EXISTING DRAINAGE CONDUIT OF ACCUMULATED OBSTRUCTIONS. THIS WORK SHALL PROCEED ONLY AFTER BOTH SIDES OF THE CONCRETE ARCH ARE EXPOSED. THE CONTRACTOR MAY USE RODS DRIVEN BY HAND OR PNEUMATIC HAMMERS UP TO 35 POUNDS, PRESSURE WASHING, OR OTHER SUITABLE METHODS THAT WILL NOT DAMAGE THE ARCH OR ENLARGE THESE EXISTING HOLES. UPON COMPLETION OF THE CLEANING, THE CONTRACTOR SHALL INSTALL THREE INCH (3") DIAMETER HDPE CONDUIT PIPE MEETING THE REQUIREMENTS OF 725.052. THE CONDUIT SHALL BE SECURED IN PLACE WITH GROUT CONFORMING TO CMS 510.02. THE GROUT SHALL EXTEND A MINIMUM OF 4 INCHES INTO THE HOLE AND AROUND THE CONDUIT AT THE INLET SIDE. THE CONDUIT SHALL BE CUT FLUSH WITH THE PROPOSED WATERPROOFING MATERIAL.

MEASUREMENT & PAYMENT:

THERE ARE FOUR LOCATIONS ANTICIPATED AT EACH BRIDGE, EACH DRAINAGE SYSTEM BEING TWELVE FEET MAXIMUM IN LENGTH.

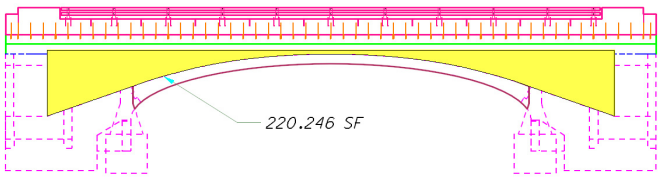
PAYMENT FOR ACCEPTED QUANTITIES, COMPLETE IN PLACE, SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR EACH ITEM 518-STRUCTURE DRAINAGE MISC.: CLEANING EXISTING BACKFILL DRAINAGE AND INSTALLATION OF 3 INCH HDPE PIPE. THIS SHALL INCLUDE ALL NECESSARY TOOLS, LABOR, EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THIS ITEM OF WORK AS DESCRIBED AND TO THE SATISFACTION OF THE ENGINEER.

518	62400	372	SY	STRUCTURE DRAINAGE, MISC.: COMPOSITE DRAINAGE PANEL

CADD measured from structure elevation (area bounded between top of arch to a point 6" above construction joint B, toe to toe of extrados)
220.246 SF (2 EA)
Length of line extending between extrados toes
70.411 LF
Width of bridge between spandrel wall toes
47.528 LF

420.78 SY TYPE B

371.83 SY PANELS (area not including spandrel walls)



519	11101	150	SF	PATCHING CONCRETE STRUCTURE, AS PER PLAN

ITEM 519 – PATCHING CONCRETE STRUCTURE, AS PER PLAN

IN ADDITION TO THE LOCATIONS SHOWN ON THE PLANS, PATCH CONCRETE SURFACES ON THE TOP SURFACE (EXTRADOS) OF THE ARCH AND THE INSIDE SURFACES OF THE SPANDREL WALLS TO REMAIN AS DIRECTED BY THE ENGINEER.

A CONTINGENCY QUANTITY OF 150 SF IS INCLUDED IN THE ESTIMATED QUANTITIES FOR THIS ITEM.

ITEM	UNIT
ITEM 519 – PATCHING CONCRETE STRUCTURE, AS PER PLAN	150 SF

CUY-014-0670 PID 13182
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KS #15286

Items 516-844

KS ASSOCIATES

SPECIAL	53000200	LS		STRUCTURES UTILITY PROTECTION AND SUPPORT

ITEM SPECIAL – STRUCTURES UTILITY PROTECTION AND SUPPORT

DESCRIPTION:

THIS ITEM SHALL CONSIST OF FURNISHING ALL NECESSARY LABOR, MATERIALS, AND EQUIPMENT TO DESIGN AND PROVIDE TEMPORARY PROTECTION AND SUPPORT TO UTILITIES AS SHOWN IN THE PLANS AND HEREIN SPECIFIED.

ON THE LEFT SIDE OF THE STRUCTURE IS A FIBER OPTIC TELECOMMUNICATION BANK. THE FIBER OPTIC LINES ARE SUPPORTED BY A UTILITY SUPPORT TRUSS BEAM. THE UTILITY TRUSS RUNS UNDER THE SIDEWALK AND ADJACENT TO THE LEFT SPANDREL WALL. THE CONTRACTOR SHALL PROTECT THE UTILITY TRUSS AND THE FIBER OPTIC LINES WITHIN USING A PROTECTIVE HOUSING SURROUNDING THE ENTIRE UTILITY TRUSS. THE PROTECTIVE HOUSING SHALL BE SUFFICIENT TO PROTECT THE UTILITIES AND THE UTILITY TRUSS FROM DAMAGE DURING THE REMOVAL AND CONSTRUCTION PROCESS.

THE UTILITY TRUSS IS SUPPORTED BY CONCRETE PIERS ATTACHED TO THE SPANDREL WALL. THE CONTRACTOR SHALL NOT DAMAGE THE PIERS, COLUMNS, OR PIER CAPS DURING REMOVAL OR CONSTRUCTION ACTIVITIES.

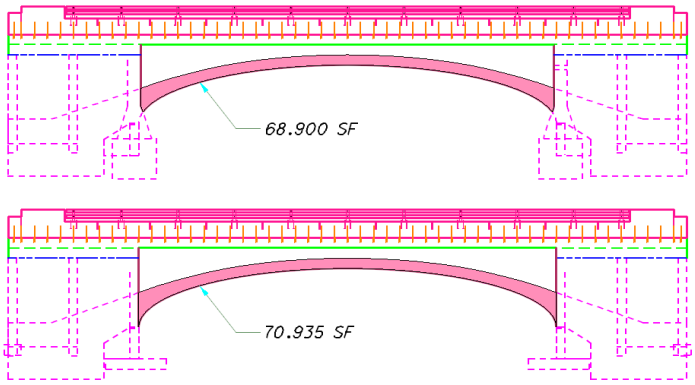
THERE IS A BRICK COMBINED SANITARY SEWER THAT RUNS ALONG THE LEFT SIDE OF THE STRUCTURE DIRECTLY BELOW THE SIDEWALK. THE CONCRETE PIERS ON THE LEFT SIDE OF THE STRUCTURE SPAN OVER THIS BRICK COMBINED SANITARY LINE. THE CONTRACTOR IS TO PROTECT THE BRICK COMBINED SANITARY LINE. THE CONTRACTOR SHALL CONSTRUCT A TEMPORARY PROTECTIVE SYSTEM OVER THE BRICK SANITARY LINE DURING REMOVAL AND CONSTRUCTION OPERATIONS THAT MAY CAUSE DAMAGE TO THE BRICK COMBINED SANITARY LINE. THE PROTECTIVE STRUCTURE SHALL BE SUFFICIENT TO PROTECT THE BRICK SANITARY LINE FROM DAMAGE DURING THE REMOVAL AND CONSTRUCTION PROCESS. THE CONTRACTOR IS TO SUBMIT THE PROTECTIVE STRUCTURE PLAN TO NEORSD FOR REVIEW AT LEAST 15 BUSINESS DAYS IN ADVANCE OF THE CONSTRUCTION FOR ACCEPTANCE OF THE PLAN.

THERE IS A WATERLINE THAT RUNS UNDER THE STRUCTURE, WITHIN THE WATER CHANNEL. THE CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE THE WATERLINE DURING REMOVAL AND CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL PROTECT THE WATERLINE FROM DAMAGE DURING THE ROCK CHANNEL PROTECTION INSTALLATION AND DURING ANY CONCRETE REMOVAL OPERATIONS.

MEASUREMENT & PAYMENT:

PAYMENT FOR ACCEPTED QUANTITIES, COMPLETE IN PLACE, SHALL BE MADE AT THE LUMP SUM PRICE BID FOR ITEM SPECIAL-STRUCTURES UTILITY PROTECTION AND SUPPORT. THIS SHALL INCLUDE ALL NECESSARY TOOLS, LABOR, EQUIPMENT, DESIGN, AND MATERIALS NECESSARY TO COMPLETE THIS ITEM OF WORK AS DESCRIBED AND TO THE SATISFACTION OF THE ENGINEER.

844	10001	631	SF	CONCRETE PATCHING WITH GALVANIC ANODE PROTECTION, AS PER PLAN



Arch Repair	Left	Right		Spandrel Wall Repai	Left	Right	
Arch face area	68.9	70.935	SF	Interface Area	14.931	13.929	SF
Intrados length	49.632	52.681	FT	Interface (EA)	2	2	EA
Extrados length	48.515	49.051	FT	2' Strip Height	4.153	4.25	FT
Strip width	2	2	FT	Strip width	2	2	FT
Intrados strip	99.264	105.362	SF	Strip (EA)	2	2	EA
Extrados strip	97.03	98.102	SF				
	265.194	274.399	SF		46.474	44.858	SF
Subtotal	539.593		SF		91.332		SF
Total	630.925		SF				