DESIGN: PSE DATE: 5/21/2021
CHECK: MTN DATE: 6/2/2021

ESTIMATED QUANTITIES

SFN: 6501893

ALT (X)	ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT.	PIER	SUPER.	GEN.	REFERENCE SHEET NO.
	202	11203	LS		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN					2, 3, 5, 6, 25, 26 / 33
	202	22900	148	SY	APPROACH SLAB REMOVED				148	
	204	30010	42	CY	GRANULAR MATERIAL, TYPE B				42	
	204	50000	500	SY	GEOTEXTILE FABRIC				500	
	503	21101	573	CY	UNCLASSIFIED EXCAVATION, AS PER PLAN	478	95			3, 6 ,14 / 33
	509	20001	14	LB	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN	14				3 / 33
	509	25000	856	LB	UNCOATED REINFORCING STEEL	856				
	510	10001	240	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT, AS PER PLAN	240				3 ,8 ,9 ,11 ,12 / 33
	511	33501	2	EACH	SEMI-INTEGRAL DIAPHRAGM GUIDE, AS PER PLAN	2				8, 11 / 33
	511	34413	40	CY	CLASS QC2 CONCRETE WITH QC/QA, SUPERSTRUCTURE, AS PER PLAN			40		23 / 33
	511	34446	312	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK			312		
	511	34451	113	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET), AS PER PLAN			113		28, 30 / 33
	511	46210	45	CY	CLASS QC1 CONCRETE, RETAINING/WINGWALL INCLUDING FOOTING	45				
	512	10100	1,095	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	55	223	817		
	512	33000	37	SY	TYPE 2 WATERPROOFING	37				
	513	10201	1,558	LB	STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN			1,558		3 / 33
	513	20000	2,868	EACH	WELDED STUD SHEAR CONNECTORS			2,868		
	513	95030	40	EACH	STRUCTURAL STEEL, MISC.: 2" DIA. FIELD DRILLED HOLES			40		16 / 33
	514	00050	20,103	SF	SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL			20,103		
	514	00056	20,103	SF	FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT			20,103		
	514	00060	19,959	SF	FIELD PAINTING OF EXISTING STRUCTURAL STEEL, INTERMEDIATE COAT			19,959		
	514	00066	19,959	SF	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT			19,959		
	514	00504	22	MNHR	GRINDING FINS, TEARS, SLIVERS ON EXISTING STRUCTURAL STEEL			22		
	514	10000	15	EACH	FINAL INSPECTION REPAIR			15		
	516	10010	66	FT	ARMORLESS PREFORMED JOINT SEAL				66	
	516	13600	17	SF	1" PREFORMED EXPANSION JOINT FILLER				17	
	516	13900	220	SF	2" PREFORMED EXPANSION JOINT FILLER				220	
	516	14020	140	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL	140				
	516	44201	8	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN	8				15 / 33
					(13" x 13" x 3.848" WITH 14" x 14" x 1 1/2" LOAD PLATE)					
	516	47001	LS		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN					3 / 33
	518	21201	11	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC, AS PER PLAN	11				3, 7, 10 / 33
	518	40000	76	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	76				
	518	40011	100	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN	100				8, 11 / 33
	SPECIAL	51900100	1,288	SF	COMPOSITE FIBER WRAP SYSTEM (SEE PROPOSAL NOTE)		1,288			14 / 33
	526	25010	175	SY	REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=15")				175	
	526	90031	67	FT	TYPE C INSTALLATION, AS PER PLAN				67	28 / 33
	601	20001	55	SY	CRUSHED AGGREGATE SLOPE PROTECTION, AS PER PLAN				55	3 / 33
	607	39900	642	FT	VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC			642		
	625	33000	1	EACH	STRUCTURE GROUNDING SYSTEM				1	
	840	23000	320	CY	SELECT GRANULAR BACKFILL				320	
	843	50000	14	SF	PATCHING CONCRETE STRUCTURES WITH TROWELABLE MORTAR		14			
	863	00100	1,568	SY	GEOGRID, TYPE P1				1,568	
					BRIDGE ALTERNATES					
X	509	10000	122,095	LB	EPOXY COATED REINFORCING STEEL (ALTERNATE 1)	5,008		117,087		
X	509	30020	11,484	FT	NO. 4 GFRP DEFORMED BARS (ALTERNATE 1)			11,484		
X	509	10000	29,781	LB	EPOXY COATED REINFORCING STEEL (ALTERNATE 2)	5,008		24,773		
X	509	30020	33,180	FT	NO. 4 GFRP DEFORMED BARS (ALTERNATE 2)			33,180		
X	509	30030	54,085	FT	NO. 5 GFRP DEFORMED BARS (ALTERNATE 2)			54,085		
X	509	30040	26,855	FT	NO. 6 GFRP DEFORMED BARS (ALTERNATE 2)			26,855		

Project:	MAD/PIC-71-4.56/0.00	Computed:	PSE	Date:	5/21/2021
Subject:	PIC-00071-02.780	Checked:	MTN	Date:	6/14/2021
Task:	Stage 2 Estimated Quantities	Page:		of:	
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ITEM 202 PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN	**LS**

Project:	MAD/PIC-71-4.56/0.00	Computed:	PSE	Date:	5/21/2021
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ITEM 202 APPROACH SLAB REMOVED

Area of Approach Slab at Rear Abutment

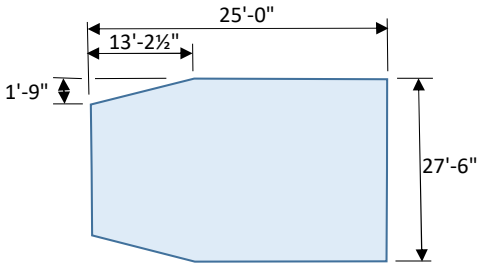
Length =	25.00 ft	ex. Plans	
Max. Width =	27.50 ft	ex. Plans and Survey	
Safety Curb Length =	13.21 ft	ex. Plans	(13.21 ft. is the average of 15.583ft. and 10.833 ft)
Safety Curb Max. Width =	1.75 ft	ex. Plans	

Area =	664.38 ft^2	CAD: Area measurements for comparison	
Area =	73.82 yd^2	Rear abutment	648.75 ft^2
		Forward abutment	654.01 ft^2
		Total =	1302.76 ft^2
		Total =	145.00 yd^2

Area of Approach Slab at Forward Abutment

Length =	25.00 ft	ex. Plans
Max. Width =	27.50 ft	ex. Plans
Safety Curb Length =	13.21 ft	ex. Plans
Safety Curb Max. Width =	1.75 ft	ex. Plans

Area =	664.38 ft^2
Area =	73.82 yd^2



Total Area of Approach Slab

Area Rear Abutment =	73.82 yd^2
Area Forward Abutment =	73.82 yd^2
Total =	147.64 yd^2

APPROACH SLAB REMOVED **148 SY**

Project:	MAD/PIC-71-4.56/0.00	Computed:	THS	Date:	11/12/2021
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ITEM 204 GRANULAR MATERIAL, TYPE B

Rear Abutment

Assumed Area behind Abutment =	15.4	ft^2	**CADD
Length along Abutment =	36.4	ft	
Total =	560.5	ft^3	
Total =	20.8	yd^3	

Forward Abutment

Assumed Area behind Abutment =	15.4	ft^2
Length along Abutment =	36.4	ft
Total =	560.5	ft^3
Total =	20.8	yd^3

Total Granular Material

Rear Abutment =	20.8	yd^3
Forward Abutment =	20.8	yd^3
Total =	41.5	yd^3

GRANULAR MATERIAL, TYPE B **42 CY**

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ITEM 204 GEOTEXTILE FABRIC

Rear Abutment : *See figures on next page*

Length 1 =	**8.00**	ft
Length 2 =	**23.50**	ft
Length 3 =	**19.00**	ft
Width 1 =	**31.37**	ft
Width 2 =	**36.57**	ft
Strip Width =	**4.00**	ft
Max Thickness =	**1.00**	ft
No. of Layers =	**6.00**	ea.
Area on Sides =	0.00	ft^2
Area Behind Abutment =	1927.77	ft^2
Area =	214.20	yd^2

Forward Abutment : *See figures on next page*

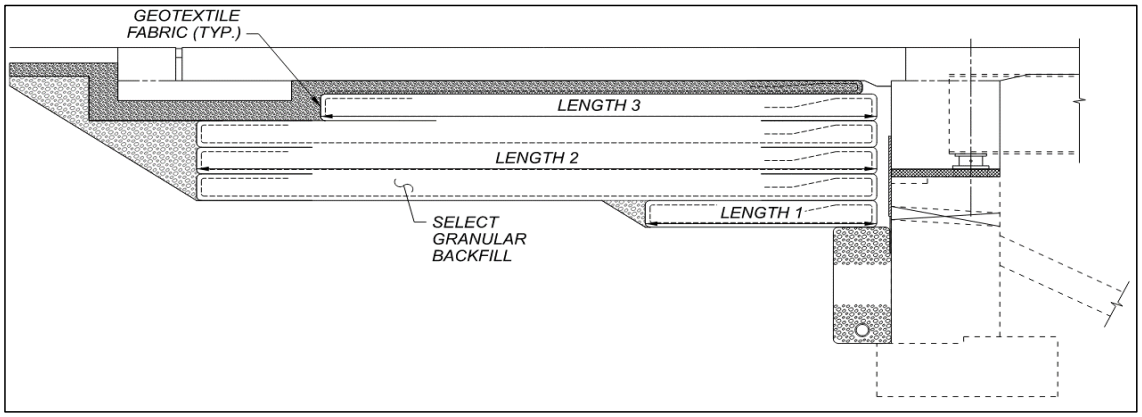
Length 1 =	**8.00**	ft
Length 2 =	**23.50**	ft
Length 3 =	**19.00**	ft
Width 1 =	**31.37**	ft
Width 2 =	**36.57**	ft
Strip Width =	**4.00**	ft
Max Thickness =	**1.00**	ft
No. of Layers =	**6.00**	ea.
Area on Sides =	0.00	ft^2
Area Behind Abutment =	1927.77	ft^2
Area =	214.20	yd^2

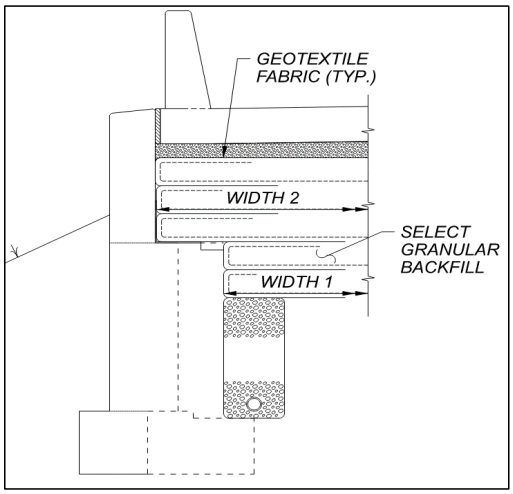
Aggregate Base Layer - both abutments

Length 3 =	**19.00**	ft
Width of Aggregate Base =	**36.57**	ft
Strip Width =	**4.00**	ft
Max Thickness =	**0.72**	ft
Area =	70.89	yd^2

(accounts for one width x 2 abutments)

GEOTEXTILE FABRIC **500 SY**


GEOTEXTILE
FABRIC (TYP.)
LENGTH 3
LENGTH 2
LENGTH 1
SELECT
GRANULAR
BACKFILL


GEOTEXTILE
FABRIC (TYP.)
WIDTH 2
SELECT
GRANULAR
BACKFILL
WIDTH 1

Project:	MAD/PIC-71-4.56/0.00	Computed:	THS	Date:	11/12/2021
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ITEM 503 UNCLASSIFIED EXCAVATION, AS PER PLAN

At Rear Abutment

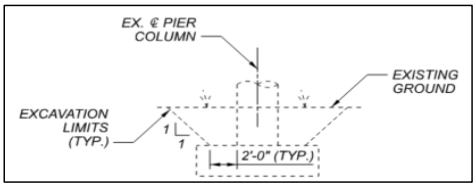
Assumed Area behind Abutment =	141.2	ft^2	**CADD
Length along Abutment =	31.4	ft	
Assumed Area behind Wingwall =	4.1	ft^2	**CADD
Average Length behind Wingwall =	6.1	ft	**CADD
Assumed Area in front of Wingwall =	52.7	ft^2	**CADD
Length in front of Wingwall =	13.9	ft	**CADD
Assumed Area adjacent to Geo wall =	21.7	ft^2	**CADD
Average Length adjacent to Geo wall =	11.2	ft	**CADD
Number of Wingwall Locations =	2	each	
Total =	6,429.3	ft^3	
Total =	238.1	yd^3	

At Forward Abutment

Assumed Area behind Abutment =	141.2	ft^2
Length behind Abutment =	31.4	ft
Assumed Area behind Wingwall =	4.1	ft^2
Length behind Wingwall =	6.1	ft
Assumed Area in front of Wingwall =	52.7	ft^2
Length in front of Wingwall =	13.9	ft
Assumed Area adjacent to Geo wall =	21.7	ft^2
Assumed Length adjacent to Geo wall =	11.2	ft
Number of Wingwall Locations =	2	each
Total =	6,429.3	ft^3
Total =	238.1	yd^3

At Piers

ex. ground to top of footing avg. distance =	3.5	ft	**ex. Survey and ex. Plans
Pier Column Diameter =	3.0	ft	
Min. Excavation Offset at Column Base =	2.0	ft	(either side of pier column)
Volume =	307.7	ft^3	
deduct Pier Column Volume =	24.4	ft^3	
Number of Locations =	9	each	
Total =	2,549.0	ft^3	
Total =	94.4	yd^3	



Total Unclassified Excavation

Rear Abutment =	239	yd^3
Forward Abutment =	239	yd^3
Piers =	95	yd^3
Total =	573	yd^3

UNCLASSIFIED EXCAVATION, AS PER PLAN **573 CY**

Project:	MAD/PIC-71-4.56/0.00	Computed:	THS	Date:	11/12/2021
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ITEM 509 REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN

Rear Abutment

Number of Longitudinal Bars (to remain) =	5	each	**A504 in ex. Plans
Diameter of Longitudinal Bars (to remain) =	0.625	in	
Length of Abutment Removal =	4.62	ft	
Number of Transverse U-Bars (to remain) =	4	each	**A505 in ex. Plans
Diameter of Transverse U-Bars (to remain) =	0.625	in	
Length of Transverse U-Bars (to remain) =	6.333	ft	
Height of Abutment Removal =	2.00	ft	
Number of Front Vertical Bars (to remain) =	4	each	**A503 in ex. Plans
Diameter of Front Vertical Bars (to remain) =	0.625	in	
Number of Back Vertical Bars (to remain) =	4	each	**A603 in ex. Plans
Diameter of Back Vertical Bars (to remain) =	0.750	in	
Distance to Shear Key =	3.00	in	
Assumed Clear Distance =	2.00	in	
Percent of replacement re-steel=	10	%	**BDM 405.2

Forward Abutment

Number of Longitudinal Bars (to remain) =	5	each	**A504 in ex. Plans
Diameter of Longitudinal Bars (to remain) =	0.625	in	
Length of Abutment Removal =	4.62	ft	
Number of Transverse U-Bars (to remain) =	4	each	**A505 in ex. Plans
Diameter of Transverse U-Bars (to remain) =	0.625	in	
Length of Transverse U-Bars (to remain) =	6.333	ft	
Height of Abutment Removal =	2.00	ft	
Number of Front Vertical Bars (to remain) =	4	each	**A503 in ex. Plans
Diameter of Front Vertical Bars (to remain) =	0.625	in	
Number of Back Vertical Bars (to remain) =	4	each	**A603 in ex. Plans
Diameter of Back Vertical Bars (to remain) =	0.750	in	
Distance to Shear Key =	3.00	in	
Assumed Clear Distance =	2.00	in	
Percent of replacement re-steel=	10	%	**BDM 405.2

Total

Rear Abutment =	6.67	lb
Forward Abutment =	6.67	lb
Total =	13.34	lb

REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS **14 LB**

Project:	MAD/PIC-71-4.56/0.00	Computed:	THS	Date:	11/12/2021
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ITEM 509 UNCOATED REINFORCING STEEL

Rear Abutment Dowels at Wingwall

Weight = **428** lbs. **see hand calcs for additional information

Forward Abutment Dowels at Wingwall

Weight = **428** lbs. **see hand calcs for additional information

Total Uncoated Resteel

Rear Abutment =	428	lbs.
Forward Abutment =	428	lbs.
Total =	856	lbs.

UNCOATED REINFORCING STEEL **856 LB**

Project:	MAD/PIC-71-4.56/0.00	Computed:	THS	Date:	8/2/2022
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ITEM 509 EPOXY COATED REINFORCING STEEL ***(ALTERNATE 1)***

Rear Abutment =	**2504**	lb
Forward Abutment =	**2504**	lb
Superstructure =	**93400**	lb
Rear Abutment End Diaphragm =	**3189**	lb
Forward Abutment End Diaphragm =	**3189**	lb
Railing =	**17309**	lb

Total Epoxy Coated Reinforcing Steel

Abutment =	5,008	lb
Superstructure =	117,087	lb

EPOXY COATED REINFORCING STEEL **122095 LB**

Project:	MAD/PIC-71-4.56/0.00	Computed:	THS	Date:	8/2/2022
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ITEM 509 NO. 4 GFRP DEFORMED BARS ***(ALTERNATE 1)***

Railing = **11484** ft

Total No. 4 GFRP Deformed Bars

Superstructure = 11,484 ft

NO. 4 GFRP DEFORMED BARS **11484 FT**

Project:	MAD/PIC-71-4.56/0.00	Computed:	THS	Date:	8/2/2022
Subject:	PIC-71-0278	Checked:	JML	Date:	8/2/2022
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ITEM 509 EPOXY COATED REINFORCING STEEL ***(ALTERNATE 2)***

Rear Abutment =	**2504**	lb
Forward Abutment =	**2504**	lb
Superstructure =	**1086**	lb
Rear Abutment End Diaphragm =	**3189**	lb
Forward Abutment End Diaphragm =	**3189**	lb
Railing =	**17309**	lb

Total Epoxy Coated Reinforcing Steel

Abutment =	5,008	lb
Superstructure =	24,773	lb

EPOXY COATED REINFORCING STEEL **29781 LB**

Project:	MAD/PIC-71-4.56/0.00	Computed:	THS	Date:	8/2/2022
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ITEM 509 NO. 4 GFRP DEFORMED BARS ***(ALTERNATE 2)***

Rear Abutment Dowels at Wingwall

Superstructure = **21696** ft
Railing = **11484** ft

Total No. 4 GFRP Deformed Bars

Superstructure = 33,180 ft

NO. 4 GFRP DEFORMED BARS **33180 FT**

Project:	MAD/PIC-71-4.56/0.00	Computed:	THS	Date:	8/2/2022
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ITEM 509 NO. 5 GFRP DEFORMED BARS ***(ALTERNATE 2)***

Rear Abutment Dowels at Wingwall

Superstructure = **54085** ft

Total No. 5 GFRP Deformed Bars

Superstructure = 54,085 ft

NO. 5 GFRP DEFORMED BARS **54085 FT**

Project:	MAD/PIC-71-4.56/0.00	Computed:	THS	Date:	8/2/2022
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ITEM 509 NO. 6 GFRP DEFORMED BARS ***(ALTERNATE 2)***

Rear Abutment Dowels at Wingwall

Superstructure = **26855** ft

Total No. 5 GFRP Deformed Bars

Superstructure = 26,855 ft

NO. 6 GFRP DEFORMED BARS **26855 FT**

Project:	MAD/PIC-71-4.56/0.00	Computed:	THS	Date:	11/12/2021
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ITEM 510 DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT, AS PER PLAN

Right Rear Wingwall

Footing Dowels =	36	each
Wingwall Dowels =	27	each

Left Rear Wingwall

Footing Dowels =	33	each
Wingwall Dowels =	24	each

Right Forward Wingwall

Footing Dowels =	33	each
Wingwall Dowels =	24	each

Left Forward Wingwall

Footing Dowels =	36	each
Wingwall Dowels =	27	each

Total Dowel Holes

Right Rear Wingwall =	63	each
Left Rear Wingwall =	57	each
Right Forward Wingwall =	57	each
Left Forward Wingwall =	63	each
Total =	240	each

DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT, AS PER PLAN	**240**	**EACH**

Project:	MAD/PIC-71-4.56/0.00	Computed:	THS	Date:	11/12/2021
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ITEM 511 SEMI-INTEGRAL DIAPHRAGM GUIDE, AS PER PLAN

Rear Abutment

Diaphragm Guide = 1 each

Forward Abutment

Diaphragm Guide = 1 each

Total Diaphragm Guides

Rear Abutment =	1 each
Forward Abutment =	1 each
Total =	2 each

SEMI-INTEGRAL DIAPHRAGM GUIDE, AS PER PLAN	**2 EACH**

Project:	MAD/PIC-71-4.56/0.00	Computed:	PSE	Date:	5/21/2021
Subject:	PIC-00071-02.780	Checked:	MTN	Date:	6/14/2021
Task:	Stage 2 Estimated Quantities	Page:		of:	
Job #:	10276486	No:			

ITEM 511 CLASS QC2 CONCRETE WITH QC/QA, SUPERSTRUCTURE, AS PER PLAN

Rear Abutment

Plan Area =	135.00	ft^2	**CADD
Ave. Depth =	4.00	ft	
Total =	540.0	ft^3	
Total =	20.0	yd^3	

Forward Abutment

Plan Area =	135.00	ft^2
Ave. Depth =	4.00	ft
Total =	540.0	ft^3
Total =	20.0	yd^3

Total Concrete Volume

Rear Abutment =	20.0	yd^3
Forward Abutment =	20.0	yd^3
Total =	40.0	yd^3

CLASS QC2 CONCRETE WITH QC/QA, SUPERSTRUCTURE, AS PER PLAN	**40 CY**

Project:	MAD-PIC-71 Redeckings	Computed:	MTN	Date:	4/26/2021
Subject:	PIC-71-0278	Checked:	LJG	Date:	4/26/2021
Task:	Deck Quantities	Page:		of:	
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Deck Quantities ITEM 511 - CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK

Deck

Skew From Centerline =	60.000	deg	
Total Deck Length =	325.70	ft	
Deck Width =	31.33	ft	
Top Flange Width =	1.167	ft	
Overhang Width =	3.667	ft	
Flange to Edge Width =	3.083	ft	
Slab Thickness =	8.50	in	
Average Haunch (From Top of Web) =	4.42	in	From 3.1.3 Profile and Haunch Check
Average Flange Thickness =	1.13	in	Weighted Average
Average Haunch Thickness =	3.29	in	
Average Left Overhang Thickness =	12.54	in	= (8.5") + (4.42") - (24") * (0.016)
Average Right Overhang Thickness =	12.54	in	= (8.5") + (4.42") - (24") * (0.016)
Number of Girders =	4		
Girder Spacing =	8.000	ft	
Deck Cross Sectional Area =	**25.547**	sq ft	
Volume of Deck Concrete =	**8320.65**	cu ft	Approach Slab Seat Concrete Subtracted Below

Diaphragm

Diaphragm Width =	3.750	ft	
Length of Diaphragm Along Skew =	36.181	ft	
Approach Slab Seat Width =	0.50	ft	
Approach Slab Seat Depth =	15	in	
Depth of Additional Concrete at Diaphragm =	6.5	in	
Additional Volume at Diaphragm =	**50.88**	cu ft	Excludes Approach Slab Seat
Total Volume of Deck Concrete =	**311.94**	cu yd	

Project:	MAD/PIC-71	Computed:	LJG	Date:	4/26/2021
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ITEM 511 - CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET), AS PER PLAN

Concrete Quantities

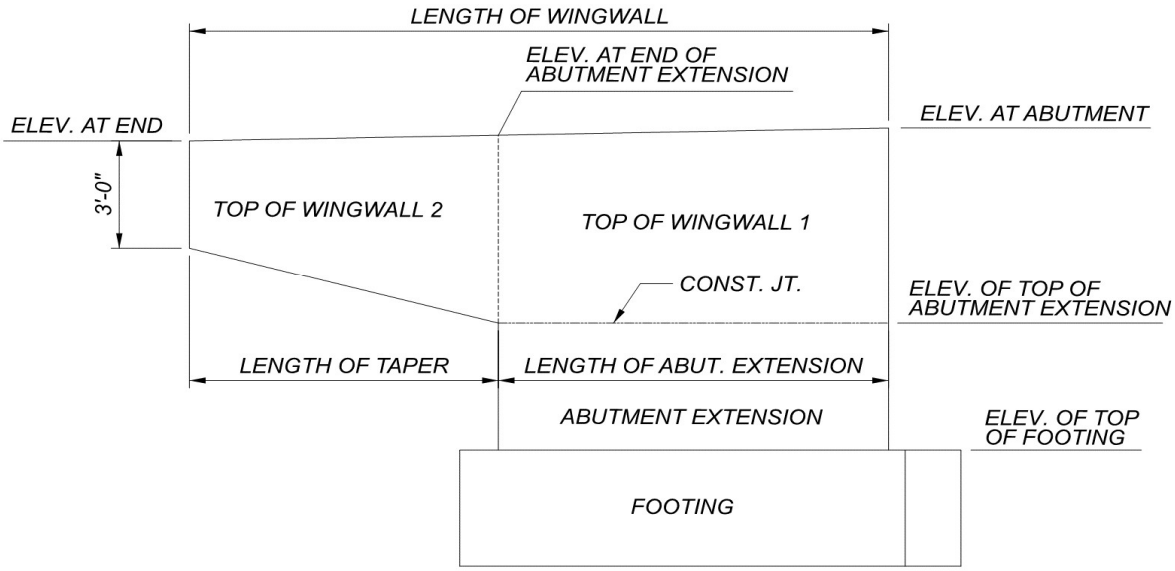
Area of Bridge Railing =	588.00	in^2	SRB-1-20
Length of Rail =	325.70	ft	
Volume of Transition Section =	1.82	CU. YDS.	SRB-1-20
Panel on Approach Slab =	10.92	ft	
Vol Class QC2 Cocrete with QC/QA (Parapet) =	98.51	CU. YDS.	(On Deck Slab)
Vol Class QC2 Cocrete with QC/QA (Parapet) =	13.88	CU. YDS.	(On Approach Slab)
Volume Class AA Concrete =	**112.40**	**CU. YDS.**	

Rear Abutment Quantities ITEM 511 - CLASS QC1 CONCRETE, RETAINING WALL INCLUDING FOOTING

Concrete

Wingwall concrete included with Item 511 - Class QC1 Concrete, Retaining/Wingwall Including Footing.
Abutment concrete below diaphragm guide included with Item 511 - Class QC1 Concrete, Abutment.
The concrete and reinforcing for the diaphragm guide are included with Item 511 - Semi-Integral Diaphragm Guide.

Wingwall Dimensions



Right Wingwall

Footing Length (Short Side) =	11.54	ft
Footing Length (Long Side) =	12.98	ft
Footing Width =	2.50	ft
Footing Thickness =	3.25	ft
Volume of Footing =	**3.69**	**cu yd**

Elev. of Top of Abutment Extension =	938.45	
Elev. of Bottom of Footing =	931.65	
Elev. of Top of Footing =	934.90	
Height of Abutment Extension =	3.55	ft
Length of Abutment Extension =	10.10	ft
Thickness of Abutment Extension =	2.25	ft
Volume of Abutment Extension =	**2.99**	cu yd

Thickness of Wingwall =	1.50	ft	
Length of Wingwall =	18.10	ft	
Length of Taper =	8.00	ft	
Elev. Top of Wingwall Elev. At Abutment =	943.93		
Elev. Top of Wingwall Elev. At End =	943.57		
Elev. at End of Abut. Extension =	943.73		
Average Height of Wingwall 1 =	5.38	ft	
Average Height of Wingwall 2 =	4.14	ft	= ((943.73 - 938.45) + 3') / 2
Volume of 2" Sloped Top of Wall =	0.08	cu yd	
Volume of Top of Wingwall =	**4.78**	**cu yd**	

Rear Abutment Quantities

Left Wingwall

Footing Length =	11.88	ft
Footing Width =	2.50	ft
Footing Thickness =	3.25	ft
Volume of Footing =	**3.57**	**cu yd**

Elev. of Top of Abutment Extension =	938.61	
Elev. of Bottom of Footing =	931.65	
Elev. of Top of Footing =	934.90	
Height of Abutment Extension =	3.71	ft
Length of Abutment Extension =	8.75	ft
Thickness of Abutment Extension =	2.25	ft
Volume of Abutment Extension =	**2.71**	cu yd

Thickness of Wingwall =	1.50	ft	
Length of Wingwall =	16.50	ft	
Length of Taper =	7.75	ft	
Elev. Top of Wingwall Elev. At Abutment =	944.24		
Elev. Top of Wingwall Elev. At End =	943.95		
Elev. at End of Abut. Extension =	944.09		
Average Height of Wingwall 1 =	5.55	ft	
Average Height of Wingwall 2 =	4.24	ft	= ((944.09 - 938.61) + 3') / 2
Volume of 2" Sloped Top of Wall =	0.08	cu yd	
Volume of Top of Wingwall =	**4.45**	**cu yd**	

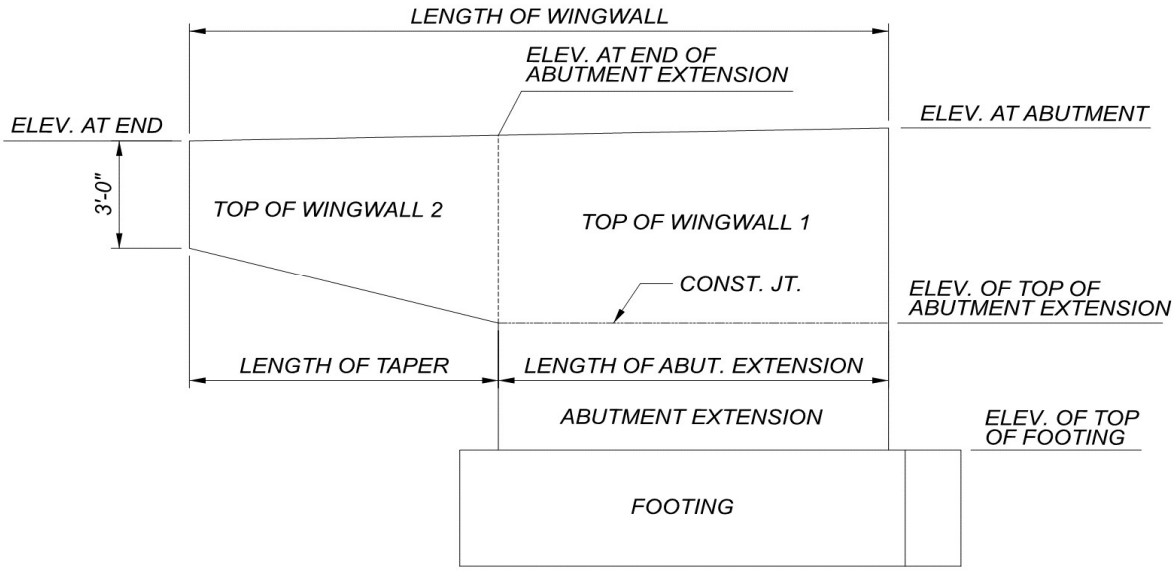
Rear Abutment Wingwall Concrete =	**22.18**	**cu yd**

Forward Abutment Quantities

Concrete

Wingwall concrete included with Item 511 - Class QC1 Concrete, Retaining/Wingwall Including Footing.
Abutment concrete below diaphragm guide included with Item 511 - Class QC1 Concrete, Abutment.
The concrete and reinforcing for the diaphragm guide are included with Item 511 - Semi-Integral Diaphragm Guide.

Wingwall Dimensions



Left Wingwall

Footing Length (Short Side) =	11.54	ft
Footing Length (Long Side) =	12.98	ft
Footing Width =	2.50	ft
Footing Thickness =	3.25	ft
Volume of Footing =	**3.69**	**cu yd**

Elev. of Top of Abutment Extension =	938.38	
Elev. Of Bott. of Footing =	931.65	
Elev. of Top of Footing =	934.90	
Height of Abutment Extension =	3.48	ft
Length of Abutment Extension =	10.10	ft
Thickness of Abutment Extension =	2.25	ft
Volume of Abutment Extension =	**2.93**	cu yd

Thickness of Wingwall =	1.50	ft	
Length of Wingwall =	18.10	ft	
Length of Taper =	8.00	ft	
Elev. Top of Wingwall Elev. At Abutment =	943.93		
Elev. Top of Wingwall Elev. At End =	943.57		
Elev. at End of Abut. Extension =	943.73		
Average Height of Wingwall 1 =	5.45	ft	
Average Height of Wingwall 2 =	4.17	ft	= ((943.73 - 938.38) + 3') / 2
Volume of 2" Sloped Top of Wall =	0.08	cu yd	
Volume of Top of Wingwall =	**4.83**	**cu yd**	

Forward Abutment Quantities

Right Wingwall

Footing Length =	11.88	ft
Footing Width =	2.50	ft
Footing Thickness =	3.25	ft
Volume of Footing =	**3.57**	**cu yd**

Elev. of Top of Abutment Extension =	938.62	
Elev. of Bottom of Footing =	931.65	
Elev. of Top of Footing =	934.90	
Height of Abutment Extension =	3.72	ft
Length of Abutment Extension =	8.75	ft
Thickness of Abutment Extension =	2.25	ft
Volume of Abutment Extension =	**2.71**	cu yd

Thickness of Wingwall =	1.50	ft	
Length of Wingwall =	16.50	ft	
Length of Taper =	7.75	ft	
Elev. Top of Wingwall Elev. At Abutment =	944.24		
Elev. Top of Wingwall Elev. At End =	943.95		
Elev. at End of Abut. Extension =	944.09		
Average Height of Wingwall 1 =	5.54	ft	
Average Height of Wingwall 2 =	4.23	ft	= ((944.09 - 938.62) + 3') / 2
Volume of 2" Sloped Top of Wall =	0.08	cu yd	
Volume of Top of Wingwall =	**4.44**	**cu yd**	

Forward Abutment Wingwall Concrete =	**22.18**	**cu yd**

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ITEM 512 SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)

Substructure

Typical pier cap surface area

Perimeter of cap =	64.86	ft.
Average. cap depth =	3.61	ft.
Appox. cap face area =	234.15	ft^2
Bottom of cap area =	69.02	ft^2

Pier 1

Bottom of cap elevation =	935.21	
Top of footing elevation =	920.71	
Approx. footing cover =	3.00	
Approx. existing ground =	923.71	
Exposed column length =	11.50	ft.
Column diameter =	3.00	ft.
Column circumference =	9.42	ft.
Area for 1 column =	108.38	ft^2
Number of columns =	3	
Total for columns =	325.15	ft^2
Total. Pier 1 =	628.33	ft^2

Pier 2

Bottom of cap elevation =	935.74	
Top of footing elevation =	920.21	
Approx. footing cover =	1.50	
Approx. existing ground =	921.71	
Exposed column length =	14.03	ft.
Column diameter =	3.00	ft.
Column circumference =	9.42	ft.
area for 1 column =	132.23	ft^2
number of columns =	3	
total for columns =	396.69	ft^2
Total. Pier 2 =	699.86	ft^2

Pier 3

Bottom of cap elevation =	935.21	
Top of footing elevation =	919.71	
Approx. footing cover =	2.50	
Approx. existing ground =	922.21	
Exposed column length =	13.00	ft.
Column diameter =	3.00	ft.
Column circumference =	9.42	ft.
area for 1 column =	122.52	ft^2
number of columns =	3	
total for columns =	367.57	ft^2
Total. Pier 3 =	670.74	ft^2
Subtotal, Piers =	1998.93	ft^2
Subtotal, Piers =	223.00	yd^2

Forward Abutment (Rear Abutment will have similar value)

(Exposed, triangularly shaped surface area of wings taken from Sections B-B and C-C)

Approx. area of forward abut, left wing face =	45.15	ft^2			**CAD
Approx. area of forward abut, right wing face =	40.37	ft^2	Area of sides of Wingwalls =	85.52 ft^2	**CAD
Top of slope, low elevation =	936.33				
High bearing seat elevation =	938.69				
Length of cap from outside wing to outside wing =	39.20	ft	Approx. of area cap face =	93.00 ft^2	**CAD
Width of wings =	1.50	ft	Area of left forward wing above bearing seat elevation =	8.33 ft^2	**CAD
Height of fwd abut left wing, above const. jt. =	5.55	ft			
Height of fwd abut right wing, above const. jt. =	5.62	ft	Area of right forward wing above bearing seat elevation =	8.43 ft^2	**CAD
Length of forward abut, left wing =	18.10	ft	Top area of left forward wing =	27.16 ft^2	
Length of forward abut, right wing =	16.50	ft	Top area of right forward wing =	24.75 ft^2	
			Total. Forward Abutment =	247.19 ft^2	
			Total. Rear Abutment =	247.19 ft^2	
			Subtotal, Abutments =	494.37 ft^2	
			Subtotal, Abutments =	55.00 yd^2	

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ITEM 512 SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)

Superstructure

Diaphragm

Crown elevation at forward abutment =	944.31	
Elevation at Top of sealing =	943.06	Crown - 15"
Recall High Bearing Seat =	938.69	
Height of diapragm sealing =	4.37	ft
Length, forward abut semi-integral diaphr =	35.87	ft
Number of diaphragms =	2	

Area Semi-Integral Diaphragms = 313.47 ft^2

Area Semi-Integral Diaphragms = 35.00 yd^2

Bridge Rails and Overhangs

Width, Face of rail, deck and bottom of overhang =	9.56	ft
Length, bridge rail and overhang =	325.70	ft
Number of sides =	2	

Area of Bridge Rails and Overhangs = 6225.58 ft^2

Area of Bridge Rails and Overhangs = 692 yd^2

Approach Slab Rails

Width, Face of rail =	8.00	ft
Length, approach slab rail =	25.00	ft
Area =	200.00	ft^2
Cross sectional area at end of rail =	2.44	ft^2
Number of railings per app slab =	2	
Number of approach slabs =	2	

Area of Approach Slab Rails = 809.78 ft^2

Area of Approach Slab Rails = 90 yd^2

Summary

Subtotal, Piers =	223	yd^2
Subtotal, Abutments =	55	yd^2
Subtotal, Superstructure (Diaphragm, Bridge Rails, and Approach Slab Rails) =	817	yd^2

SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) **1095 SY**

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ITEM 512 TYPE 2 WATERPROOFING

Existing Abutment Weepholes

Width =	3	ft	**CMS 711.25
Length =	3	ft	**CMS 711.25
Rear Abutment Weepholes =	4	each	
Forward Abutment Weepholes =	4	each	
Total =	72	ft^2	
Total =	8	yd^2	

Diaphragm Guides

Width =	3	ft	**CMS 711.25
Length =	24.08	ft	
Diaphragm Guide =	2	each	
Total =	144.5	ft^2	
Total =	16.1	yd^2	

Wingwall Widenings

Width =	3	ft	**CMS 711.25
Right Rear Length =	10.10	ft	
Left Rear Length =	8.75	ft	
Right Forward Length =	8.75	ft	
Left Forward Length =	10.10	ft	
Total =	113.1	ft^2	
Total =	12.6	yd^2	

Total Waterproofing

Existing Weepholes =	8	yd^2
Diaphragm Guides =	16.1	yd^2
Wingwall Widenings =	12.6	yd^2
Total =	36.6	yd^2

TYPE 2 WATERPROOFING **37 SY**

Project:	MAD/PIC-71-4.56/0.00	Computed:	PSE	Date:	5/21/2021
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ITEM 513 STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN

Existing Beams

Stiffener Plate Dimensions, inches

	width	thickness	length	Per Plate Volumn, cubic feet	Weight, lb	Number per girder	Number of girders
Pier Stiffeners	6.0000	0.8750	44.0000	0.1337	65.5035	6	4
Deduct corner chamfers	1.0000	0.8750	2.5000	0.0013	0.6203	6	4

Total = 1557.20 lb

STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN **1558 LB**

Project:	MAD/PIC-71-4.56/0.00	Computed:	PSE	Date:	5/21/2021
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ITEM 513 WELDED STUD SHEAR CONNECTORS

Existing Beams

Beam 1 =	717	each
Beam 2 =	717	each
Beam 3 =	717	each
Beam 4 =	717	each
Total =	2868	each

WELDED STUD SHEAR CONNECTORS **2868 EACH**

Project:	MAD/PIC-71-4.56/0.00	Computed:	THS	Date:	11/12/2021
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ITEM 513 STRUCTURAL STEEL, MISC.: 2" DIA. FIELD DRILLED HOLES

Existing Beams

Beam 1 =	**10**	each
Beam 2 =	**10**	each
Beam 3 =	**10**	each
Beam 4 =	**10**	each
Total =	40	each

STRUCTURAL STEEL, MISC.: 2" DIA. FIELD DRILLED HOLES	**40 EACH**

Project:	MAD/PIC-71-4.56/0.00	Computed:	MTN	Date:	6/22/2021
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Existing Girders

Location	Section Length (ft)	Plate Girder Dimension, inches: Flange Thickness, tf	Flange Width, bf	Web Thickness, tw	Web Depth, dw	Exposed Perimeter (in)	Area, (sq. ft.)	Notes
In Diaphragm	2.02	0.7500	14.0000	0.3750	44.0000	132.25	22.2701	Prep and Prime Only
Plate 1	46.01	0.7500	14.0000	0.3750	44.0000	132.25	507.0902	These areas included for all paint quantities
Plate 2	30.17	1.6250	14.0000	0.3750	44.0000	135.75	341.2604	
Plate 3	68.75	1.0000	14.0000	0.3750	44.0000	133.25	763.4115	
Plate 4	28.33	2.0000	14.0000	0.3750	44.0000	137.25	324.0625	
Plate 5	68.75	1.0000	14.0000	0.3750	44.0000	133.25	763.4115	
Plate 6	30.17	1.6250	14.0000	0.3750	44.0000	135.75	341.2604	
Plate 7	46.01	0.7500	14.0000	0.3750	44.0000	132.25	507.0902	
In Diaphragm	2.02	0.7500	14.0000	0.3750	44.0000	132.25	22.2701	Prep and Prime Only

Total Length = 322.23 ft.

Total, Area for Prep and Prime Including Portions in Diaphragm = 3592.13 ft^2

Total, Area For Intermediate and Finish Coats Excluding Portions in Diaphragm = 3547.59 ft^2

Location	Stiffener Plate Dimensions: Width (in)	Thickness (in)	Exposed Perimeter (in)	Length (in)	Area Per Plate, (sq. ft.)	Number Per Girder	Total Area, (sq. ft.)	Notes
Abutment	6.0000	0.3750	12.375	44.0000	3.7813	4	15.125	Prep and Prime Only
Intermediate	5.0000	0.3750	10.375	44.0000	3.1701	183	580.135	All Paint Quantities
Proposed Pier	6.0000	0.8750	12.875	44.0000	3.9340	6	23.604	nterm. and Finish Only

Intermediate Stiffeners: 89 Pairs Ext Girders and 94 pairs Int Girders

Total, Area for Prep and Prime Including Portions in Diaphragm = 4188 ft^2

Total, Area For Intermediate and Finish Coats Excluding Portions in Diaphragm = 4152 ft^2

Number of Girders = 4 each

Total, Including in Diaphragm = 16752 ft^2 **CMS 514.23

Incidentals

20% of Girders = 3351 ft^2 **crossframes, bearings, etc.

Total Surface Preparation

Existing Girders = 16752 ft^2

Incidentals = 3351 ft^2

Total = 20103 ft^2

ITEM 514 **SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL** **20103 SF**

ITEM 514 **FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT** **20103 SF**

Intermediate and finish coats excludes the portions of the girder in the diaphragm per BDM 404.6.1.
Propose bearing stiffeners are shop primed and the quantity is included with the intermediate and finish coats only.

Area Including Bearing Stiffeners = 16608 ft^2

Incidentals = 3351 ft^2

Total = 19959 ft^2

ITEM 514 **FIELD PAINTING OF EXISTING STRUCTURAL STEEL, INTERMEDIATE** **19959 SF**

ITEM 514 **FIELD PAINTING STRUCTURAL STEEL, FINISH COAT** **19959 SF**

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ITEM 514 GRINDING FINS, TEARS, SLIVERS ON EXISTING STRUCTURAL STEEL

Existing Beams

Length of Beam =	320.19	ft	
Number of Beams =	4	each	
Estimating Time =	1	min/foot	**BDM 404.1.11
Total =	1281	min.	
Total =	21.35	hours	

GRINDING FINS, TEARS, SLIVERS ON EXISTING **22 MNHR**

Project:	MAD/PIC-71-4.56/0.00	Computed:	PSE	Date:	5/21/2021
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ITEM 514 FINAL INSPECTION REPAIR

Existing Beams

Length of Beam =	318.2	ft	
Number of Beams =	4	each	
Location per linear foot of beam =	150	foot/each	**CMS 514.21
Total =	9	each	

Crossframe Assemblies and other Secondary Structural Members

Number of Ex. Crossframes =	91	each	
Number of Ex. Bearings =	12	each	
Percentage	5	%	**CMS 514.21
Total =	6	each	

Total Final Inspection Repair

Existing Beams =	9	each
Crossframes, etc. =	6	each
Total =	15	each

FINAL INSPECTION REPAIR **15 EACH**

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ITEM 516 ARMORLESS PREFORMED JOINT SEAL

Rear Abutment

Toe/Toe Barrier =	32.3	ft	
Upturn into curb =	0.7	ft	**SCD AS-2-15
Total =	33.0	ft	

Forward Abutment

Toe/Toe Barrier =	32.3	ft	
Upturn into curb =	0.7	ft	**SCD AS-2-15
Total =	33.0	ft	

Total Joint Length

Rear Abutment =	33	ft
Forward Abutment =	33	ft
Total =	66	ft

ARMORLESS PREFORMED JOINT SEAL **66 FT**

Project:	MAD/PIC-71-4.56/0.00	Computed:	PSE	Date:	5/21/2021
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ITEM 516 1" PREFORMED EXPANSION JOINT FILLER

Railing

Railing Area = **588.0** in^2 **SCD SBR-1-20

No. of Locations = **4** each

Total = 2352.0 in^2

Total = 16.3 ft^2

1" PREFORMED EXPANSION JOINT FILLER **17 SF**

Project:	MAD/PIC-71-4.56/0.00	Computed:	PSE	Date:	5/21/2021
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ITEM 516 2" PREFORMED EXPANSION JOINT FILLER

Between End Diaphragm and Wingwall **SCD SICD-1-21

Right Rear, Left Forward Width =	**3.63**	ft
Left Rear, Right Forward Width =	**4.40**	ft
Right Rear Depth =	**5.48**	ft
Left Rear Depth =	**5.63**	ft
Right Forward Depth =	**5.62**	ft
Left Forward Depth =	**5.55**	ft
Total =	89.5	ft^2

Between Approach Slab and Wingwall **SCD SICD-1-21

Depth =	**1.25**	ft
Right Rear Length =	**14.47**	ft
Left Rear Length =	**12.10**	ft
Right Forward Length =	**12.10**	ft
Left Forward Length =	**14.47**	ft
Total =	66.4	ft^2

Between Diaphragm and Diaphragmn Guide

Length, sides and top	**88.0**	in
Length	**52.0**	in
No. of Locations =	**2**	each
Total =	63.5	ft^2

2" PREFORMED EXPANSION JOINT FILLER **220 SF**

Project:	MAD/PIC-71-4.56/0.00	Computed:	PSE	Date:	5/21/2021
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ITEM 516 SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL

Between End Diaphragm and Rear Abutment **SCD SICD-1-21

Right Rear Vertical Depth =	6.98	ft
Rear Abutment Length =	38.54	ft
Rear Diaphragm Guide Length =	16.85	ft
Left Rear Vertical Depth =	7.13	ft
Total =	69.5	ft

Between End Diaphragm and Forward Abutment **SCD SICD-1-21

Right Forward Vertical Depth =	7.12	ft
Forward Abutment Length =	38.54	ft
Forward Diaphragm Guide Length =	16.85	ft
Left Forward Vertical Depth =	7.05	ft
Total =	69.6	ft

Total Semi-Integral Joint Seal

Rear Abutment =	69.5	ft
Forward Abutment =	69.6	ft
Total =	139.1	ft

SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL **140 FT**

Project:	MAD/PIC-71-4.56/0.00	Computed:	PSE	Date:	5/21/2021
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ITEM 516 ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN

At Rear Abutment

No. of Locations = 4 each

Total = 4 each

At Forward Abutment

No. of Locations = 4 each

Total = 4 each

Total Abutment Bearings

Rear Abutment = 4 each
Forward Abutment = 4 each
Total = 8 each

ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN **8 EACH**

Project:	MAD/PIC-71-4.56/0.00	Computed:	RBK	Date:	5/4/2021
Subject:	PIC-71-0099	Checked:	THS	Date:	5/5/2021
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ITEM 516 JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN

JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS **LS**

Project:	MAD/PIC-71-4.56/0.00	Computed:	THS	Date:	11/12/2021
Subject:	PIC-71-0278	Checked:	RBK	Date:	11/12/2021
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ITEM 518 POROUS BACKFILL WITH GEOTEXTILE FABRIC, AS PER PLAN

At Rear Abutment

Width =	**2**	ft
Top of Footing Elev. =	**934.90**	ft
Top of Backfill Elev. =	**936.95**	ft
Length =	**27**	ft
Total =	4	yd^3

At Forward Abutment

Width =	**2**	ft
Top of Footing Elev. =	**934.90**	ft
Top of Backfill Elev. =	**936.88**	ft
Length =	**27**	ft
Total =	4	yd^3

At Wingwalls

Number of Locations =	**4**	each
Width =	**2**	ft
Top of Footing Elev. =	**934.90**	ft
Avg. Top Elev. of 2' thick portion =	**937.02**	ft
Average Length =	**4.47**	ft
Total =	3	yd^3

Total Porous Backfill

Rear Abutment =	4	yd^3
Forward Abutment =	4	yd^3
Wingwalls =	3	yd^3
Total =	11	yd^3

POROUS BACKFILL WITH GEOTEXTILE FABRIC, AS PER PLAN	**11**	**CY**

Project:	MAD/PIC-71-4.56/0.00	Computed:	PSE	Date:	5/21/2021
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ITEM 518 6" PERFORATED CORRUGATED PLASTIC PIPE

At Rear Abutment

Total = **38** ft

At Forward Abutment

Total = **38** ft

Total PCPP

Rear Abutment =	38	ft
Forward Abutment =	38	ft
Total =	76	ft

6" PERFORATED CORRUGATED PLASTIC PIPE **76 FT**

Project:	MAD/PIC-71-4.56/0.00	Computed:	PSE	Date:	5/21/2021
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ITEM 518 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN

At Rear Abutment

Left Rear =	25	ft
Right Rear =	25	ft
Total =	50	ft

At Forward Abutment

Left Rear =	25	ft
Right Rear =	25	ft
Total =	50	ft

Total NPCPP

Rear Abutment =	50	ft
Forward Abutment =	50	ft
Total =	100	ft

6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN **100 FT**

Project:	MAD/PIC-71-4.56/0.00	Computed:	PSE	Date:	5/21/2021
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ITEM 51900100 COMPOSITE FIBER WRAP SYSTEM (SEE PROPOSAL NOTE)

At Pier 1

Bottom of Column Elev. =	920.71	ft	**from ex. Plans
Bottom of Cap Elev. =	935.21	ft	**from survey and ex. Plans
Column Diameter =	3.00	ft	
Number of Columns =	3	each	
Total =	409.98	ft^2	

At Pier 2

Bottom of Column Elev. =	920.21	ft	**from ex. Plans
Bottom of Cap Elev. =	935.74	ft	**from survey and ex. Plans
Column Diameter =	3.00	ft	
Number of Columns =	3	each	
Total =	439.10	ft^2	

At Pier 3

Bottom of Column Elev. =	919.71	ft	**from ex. Plans
Bottom of Cap Elev. =	935.21	ft	**from survey and ex. Plans
Column Diameter =	3.00	ft	
Number of Columns =	3	each	
Total =	438.25	ft^2	

Total FRP Wrap

Pier 1 =	409.98	ft^2
Pier 2 =	439.10	ft^2
Pier 3 =	438.25	ft^2
Total =	1287.33	ft^2

COMPOSITE FIBER WRAP SYSTEM (SEE PROPOSAL NOTE) **1288 SF**

Project:	MAD/PIC-71-4.56/0.00	Computed:	PSE	Date:	5/21/2021
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ITEM 526 REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=15")

At Rear Abutment

Width = **31.33** ft
Length = **25.00** ft

Total = 783.3 ft^2

At Forward Abutment

Bottom of Column Elev. = **31.33** ft
Bottom of Cap Elev. = **25.00** ft

Total = 783.3 ft^2

Total Approach Slab

Rear Abutment = 87.04 yd^2
Forward Abutment = 87.04 yd^2
Total = 174.07 yd^2

REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=15") **175 SY**

Project:	MAD/PIC-71-4.56/0.00	Computed:	PSE	Date:	5/21/2021
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ITEM 526 TYPE C INSTALLATION, AS PER PLAN

At Rear Abutment

Width = 29.00 ft
Skew = 30.00 deg

Total = 33.49 ft

At Forward Abutment

Width = 29.00 ft
Skew = 30.00 deg

Total = 33.49 ft

Total Approach Slab

Rear Abutment = 33.49 ft
Forward Abutment = 33.49 ft
Total = 66.97 ft

TYPE C INSTALLATION, AS PER PLAN **67 FT**

Project:	MAD/PIC-71-4.56/0.00	Computed:	PSE	Date:	5/21/2021
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ITEM 601 CRUSHED AGGREGATE SLOPE PROTECTION, AS PER PLAN

Total

Existing crushed agg. slope protection = **527.0** yd^2 *ex. Plans

10% replacement = **52.70** yd^2

Total = 52.70 yd^2

CRUSHED AGGREGATE SLOPE PROTECTION, AS PER PLAN **55 SY**

Project:	MAD/PIC-71-4.56/0.00	Computed:	PSE	Date:	5/21/2021
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ITEM 607 VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC

On Superstructure

Left Railing = **320.6667** ft
Right Railing = **320.6667** ft

Total = 641.33 ft

VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED **642 FT**

Project:	MAD/PIC-71-4.56/0.00	Computed:	THS	Date:	11/12/2021
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ITEM 625 STRUCTURE GROUNDING SYSTEM

At Rear Abutment

Number of Structures = 1 ea

STRUCTURE GROUNDING SYSTEM	**1 CY**

Project:	MAD/PIC-71-4.56/0.00	Computed:	THS	Date:	11/12/2021
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ITEM 840 SELECT GRANULAR BACKFILL

Rear Abutment : *See figures on next page*

Length 1 =	**8.00**	ft
Length 2 =	**23.50**	ft
Length 3 =	**19.00**	ft
Width 1 =	**31.37**	ft
Width 2 =	**36.57**	ft
Max Thickness =	**1.00**	ft
No. of Layers =	**6.00**	ea.
Volume =	4319.64	ft^3
Volume =	159.99	yd^3

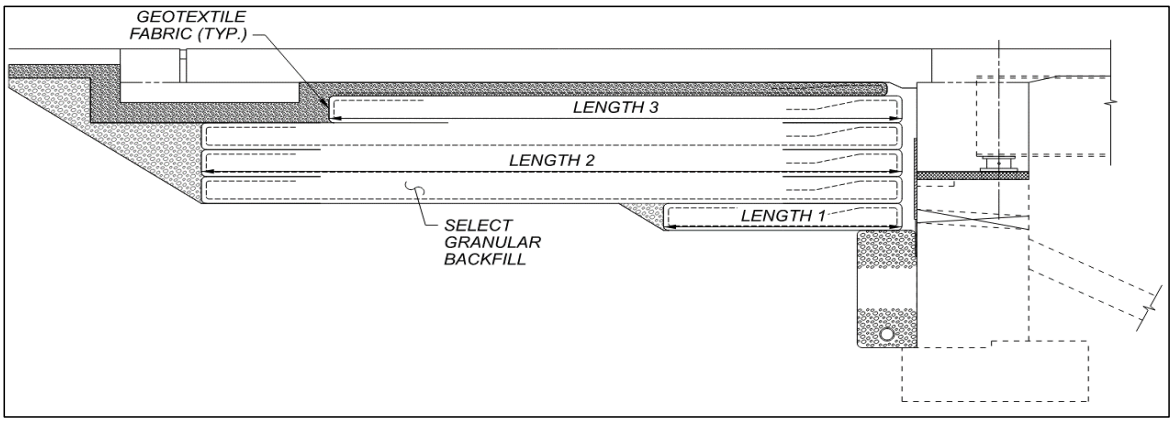
Forward Abutment : *See figures on next page*

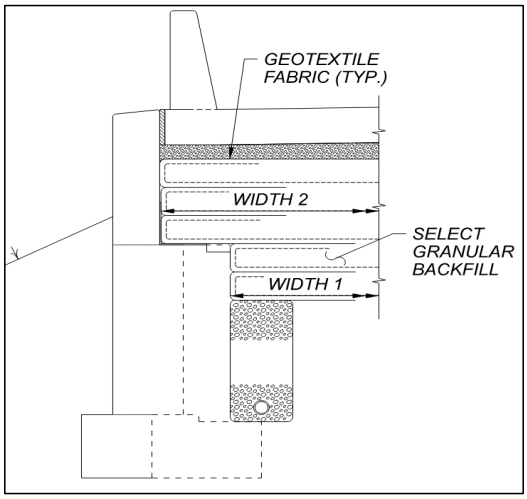
Length 1 =	**8.00**	ft
Length 2 =	**23.50**	ft
Length 3 =	**19.00**	ft
Width 1 =	**31.37**	ft
Width 2 =	**36.57**	ft
Max Thickness =	**1.00**	ft
No. of Layers =	**6.00**	ea.
Volume =	4319.64	ft^3
Volume =	159.99	yd^3

Total Select Granular Backfill

Rear Abutment =	160	yd^3
Forward Abutment =	160	yd^3
Total =	320	yd^3

SELECT GRANULAR BACKFILL **320 CY**


GEOTEXTILE
FABRIC (TYP.)
LENGTH 3
LENGTH 2
LENGTH 1
SELECT
GRANULAR
BACKFILL


GEOTEXTILE
FABRIC (TYP.)
WIDTH 2
SELECT
GRANULAR
BACKFILL
WIDTH 1

Project:	MAD/PIC-71-4.56/0.00	Computed:	PSE	Date:	5/21/2021
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ITEM 843 PATCHING CONCRETE STRUCTURES WITH TROWELABLE MORTAR

At Pier 1

Spall Height	1.5	ft
Spall Width	0.5	ft
20% Contingency =	0.2	ft2
Total =	0.9	ft2

At Pier 2

Spall Height	1.0	ft
Spall Width	0.5	ft
20% Contingency =	0.1	ft2
Total =	0.6	ft2

At Pier 3

Spall Height	5.0	ft
Spall Width	2.0	ft
20% Contingency =	2.0	ft2
Total =	12.0	ft

PATCHING CONCRETE STRUCTURES WITH TROWELABLE **14 SF**

Project:	MAD/PIC-71-4.56/0.00	Computed:	THS	Date:	11/12/2021
Subject:	PIC-71-0278	Checked:	RBK	Date:	11/12/2021
Task:	Stage 3 Added or Changed Estimated Quantities	Page:		of:	
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ITEM 863 GEOGRID, TYPE P1

Rear Abutment : *See figures on next page*

Length 1 =	8.00	ft
Length 2 =	23.50	ft
Length 3 =	19.00	ft
Width 1 =	31.37	ft
Width 2 =	36.57	ft
Rear Lap Length =	3.00	ft
Forward Lap Length =	3.75	ft
Max Thickness =	1.00	ft
No. of Layers =	6.00	ea.
Area =	6193.86	ft^2
Area =	688.21	yd^2

Forward Abutment : *See figures on next page*

Length 1 =	8.00	ft
Length 2 =	23.50	ft
Length 3 =	19.00	ft
Width 1 =	31.37	ft
Width 2 =	36.57	ft
Rear Lap Length =	3.00	ft
Forward Lap Length =	3.75	ft
Max Thickness =	1.00	ft
No. of Layers =	6.00	ea.
Area =	6193.86	ft^2
Area =	688.21	yd^2

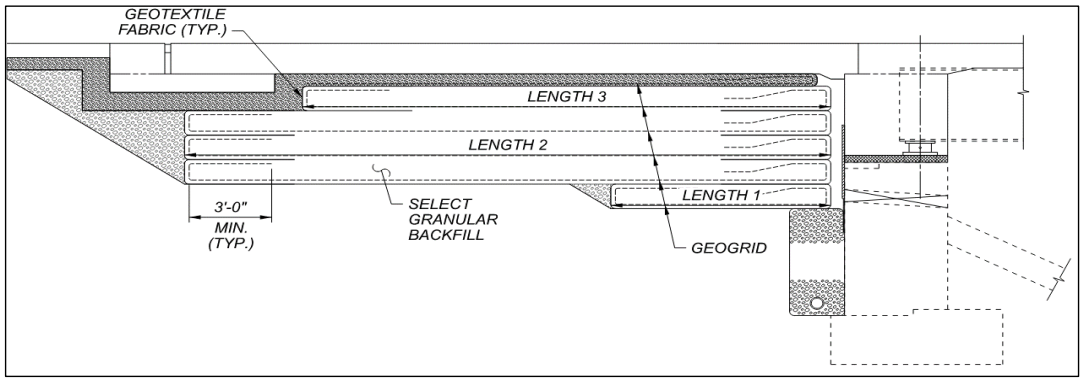
Aggregate Base Layer - both abutments : *See figures on next page*

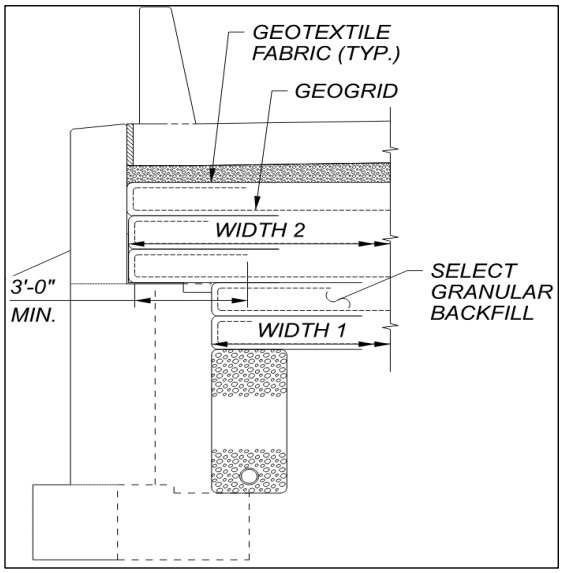
Length 3 =	19.00	ft	
Width of Aggregate Base =	36.57	ft	
Side Lap Length =	0.00	ft	
Forward Lap Length =	3.75	ft	
Max Thickness =	0.72	ft	
Area =	1716.68	ft2	(plan area + 1 thickness + 1 front lap x 2 abutments)
Area =	190.74	yd2	

Total Geogrid, Type P1

Rear Abutment =	688.21	yd^2
Forward Abutment =	688.21	yd^2
Aggregate Base =	190.74	yd^2
Total =	1567.16	yd^2

GEOGRID, TYPE P1 **1568 SY**


GEOTEXTILE
FABRIC (TYP.)
LENGTH 3
LENGTH 2
LENGTH 1
3'-0"
MIN.
(TYP.)
SELECT
GRANULAR
BACKFILL
GEOGRID


GEOTEXTILE
FABRIC (TYP.)
GEOGRID
WIDTH 2
3'-0"
MIN.
SELECT
GRANULAR
BACKFILL
WIDTH 1