HDR | ONE COMPANY *Many Solutions*℠

Project: ODOT Portsmouth Bypass Phase1		Computed:	Date:
Subject: SCI-823-6.81		Checked:	Date:
Task: Structure Quantities		Page:	of:
Job #:		No:	

STRUCTURE ESTIMATED QUANTITIES

- BRIDGE NO. SCI-823-0837 L/R, SR823 OVER SWAUGER VALLEY-MINFORD ROAD (CR31)
  - ESTIMATED QUANTITY BRIDGE PLAN SHEETS
  - GENERAL SUMMARY PLAN SHEET, INCLUDES STRUCTURES (20' AND OVER)
  - ESTIMATED QUANTITY CALCULATIONS (DESIGNER)
  - ESTIMATED QUANTITY CALCULATIONS (CHECKER)

AS SUBMITTED

CALCULATED BY: RBK DATE: 09/03/10
CHECKED BY: DAT DATE: 11/10/10

ESTIMATED QUANTITIES

	ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT.	PIER	SUPER.	GEN.	SHT. REF
	503	11100	LUMP		COFFERDAMS AND EXCAVATION BRACING				LUMP	
	503	21301	LUMP		UNCLASSIFIED EXCAVATION, AS PER PLAN	LUMP				15/43
	503	22200	177	CU YD	UNCLASSIFIED EXCAVATION INCLUDING ROCK AND/OR SHALE		177			
	505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION				LUMP	
	507	00200	1600	FT	STEEL PILES HP12X53, FURNISHED	1600				
	507	00250	1440	FT	STEEL PILES HP12X53, DRIVEN	1440				
	507	92200	1440	FT	PREBORED HOLES	1440				
	507	93301	32	EACH	STEEL POINTS OR SHOES, AS PER PLAN	32				5/43
	509	10000	438648	POUND	EPOXY COATED REINFORCING STEEL	16511	188796	233340		
	512	10100	2470	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	101	1021	1348		
	515	15051	20	EACH	DRAPED STRAND PRESTRESSED CONCRETE BRIDGE I-BEAM MEMBERS, LEVEL 3, TYPE 4 MODIFIED (72"), AS PER PLAN			20		25-26/43
	515	20000	64	EACH	INTERMEDIATE DIAPHRAGMS			64		
	516	13600	10	SQ FT	1" PREFORMED EXPANSION JOINT FILLER				10	
	516	13900	1534	SQ FT	2" PREFORMED EXPANSION JOINT FILLER	97		1252	185	
	516	14021	121	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN	121				5/43
	516	44000	10	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), 1.72" THICK x 22" x 13" WITH 1.50" THICK x 26" x 15" LOAD PLATE		10			
	516	44100	20	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), 2.75" THICK x 22" x 13" WITH 1.50" THICK x 26" x 15" LOAD PLATE		20			
	516	44200	10	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), 3.78" THICK x 22" x 13" WITH 1.50" THICK x 24" x 16" LOAD PLATE AND HP 14x73 SHAPE WITH 1.75" THICK x 26" x 16" LOAD PLATE	10				
	518	21200	107	CU YD	POROUS BACKFILL WITH FILTER FABRIC	107				
	518	40000	120	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	120				
	518	40010	28	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	28				
***	601	20000	1864	SQ YD	CRUSHED AGGREGATE SLOPE PROTECTION				1864	
***	601	32204	149	CU YD	ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER				149	
***	670	00500	2018	SQ YD	SLOPE EROSION PROTECTION	2018				
	898	10201	830	CU YD	OC/OA CONCRETE, CLASS OSC2, SUPERSTRUCTURE (DECK), AS PER PLAN			830		5/43
	898	10709	316	SQ YD	OC/OA CONCRETE, CLASS OSC2, SUPERSTRUCTURE (APPROACH SLAB), (T=17"), AS PER PLAN			316		5/43
	898	11000	67	CU YD	OC/OA CONCRETE, CLASS OSC2, SUPERSTRUCTURE (PARAPET)			67		
	898	11001	87	CU YD	OC/OA CONCRETE, CLASS OSC2, SUPERSTRUCTURE (PARAPET), AS PER PLAN			87		39/43
	898	20100	718	CU YD	OC/OA CONCRETE, CLASS OSC1, SUBSTRUCTURE (PIER ABOVE FOOTING)		718			
	898	20150	61	CU YD	OC/OA CONCRETE, CLASS OSC1, SUBSTRUCTURE (ABUTMENT)	61				
	898	20300	241	CU YD	OC/OA CONCRETE, CLASS OSC1, SUBSTRUCTURE (FOOTING)	77	164			

*** COST INCLUDED WITH EROSION CONTROL BID ITEM

ESTIMATED QUANTITIES
STRUCTURE SCI-823-0837 L

DESIGN AGENCY KZF DESIGN
REVIEWED BAA DATE 06/24/11
DRAWN RBK REVISED
DESIGNED DEF/RBK CHECKED DAT
STRUCTURE FILE NUMBER 7306458/7306465

ESTIMATED QUANTITIES
BRIDGE NO. SCI-823-0837 L
SR 823 OVER SWAUGER VALLEY-MINFORD ROAD (CR 31)

SCI-823-6.81
PID No. 19415

6/43
16/53

CALCULATED BY: RBK DATE: 09/03/10
CHECKED BY: DAT DATE: 11/10/10

ESTIMATED QUANTITIES

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT.	PIER	SUPER.	GEN.	SHT. REF.
503	11100	LUMP		COFFERDAMS AND EXCAVATION BRACING				LUMP	
503	21301	LUMP		UNCLASSIFIED EXCAVATION, AS PER PLAN	LUMP				15/43
503	22200	170	CU YD	UNCLASSIFIED EXCAVATION INCLUDING ROCK AND/OR SHALE		170			
505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION				LUMP	
507	00200	1680	FT	STEEL PILES HP12X53, FURNISHED	1680				
507	00250	1520	FT	STEEL PILES HP12X53, DRIVEN	1520				
507	92200	1520	FT	PREBORED HOLES	1520				
507	93301	32	EACH	STEEL POINTS OR SHOES, AS PER PLAN	32				5/43
509	10000	442214	POUND	EPOXY COATED REINFORCING STEEL	16511	192363	233340		
512	10100	2470	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	101	1021	1348		
515	15051	20	EACH	DRAPED STRAND PRESTRESSED CONCRETE BRIDGE I-BEAM MEMBERS, LEVEL 3, TYPE 4 MODIFIED (72"), AS PER PLAN			20		25-26/43
515	20000	64	EACH	INTERMEDIATE DIAPHRAGMS			64		
516	13600	10	SQ FT	1" PREFORMED EXPANSION JOINT FILLER				10	
516	13900	1534	SQ FT	2" PREFORMED EXPANSION JOINT FILLER	97		1252	185	
516	14021	121	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN	121				5/43
516	44000	10	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), 1.72" THICK x 22" x 13" WITH 1.50" THICK x 26" x 15" LOAD PLATE		10			
516	44100	20	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), 2.75" THICK x 22" x 13" WITH 1.50" THICK x 26" x 15" LOAD PLATE		20			
516	44200	10	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), 3.78" THICK x 22" x 13" WITH 1.50" THICK x 24" x 16" LOAD PLATE AND HP 14x73 SHAPE WITH 1.75" THICK x 26" x 16" LOAD PLATE	10				
518	21200	107	CU YD	POROUS BACKFILL WITH FILTER FABRIC	107				
518	40000	120	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	120				
518	40010	28	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	28				
*** 601	20000	1814	SQ YD	CRUSHED AGGREGATE SLOPE PROTECTION				1814	
*** 601	32204	146	CU YD	ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER				146	
*** 670	00500	2521	SQ YD	SLOPE EROSION PROTECTION	2521				
898	10201	830	CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK), AS PER PLAN			830		5/43
898	10709	316	SQ YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), (T=17"), AS PER PLAN			316		5/43
898	11000	67	CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET)			67		
898	11001	87	CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET), AS PER PLAN			87		39/43
898	20100	738	CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (PIER ABOVE FOOTING)		738			
898	20150	61	CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (ABUTMENT)	61				
898	20300	241	CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (FOOTING)	77	164			

*** COST INCLUDED WITH EROSION CONTROL BID ITEM

ESTIMATED QUANTITIES
STRUCTURE SCI-823-0837 R

AS SUBMITTED

DESIGNED DEF/RBK | CHECKED DAT | DRAWN RBK | REVISED | REVIEWED BAA | DATE 06/24/11 | STRUCTURE FILE NUMBER 7306458/7306466

KZF DESIGN

ESTIMATED QUANTITIES
BRIDGE NO. SCI-823-0837 R
SR 823 OVER SWAUGER VALLEY-MINFORD ROAD (CR 31)

SCI-823-6.81
PID No. 19415

GENERAL SUMMARY

SCI-823-6.81

Sheet 7	Sheet 8	Sheet 9	Sheet 16	Sheet 17	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
									ROADWAY	
640					204	10000	640	SQ YD	SUBGRADE COMPACTION	
									EROSION CONTROL	
			1864	1814	601	20000	3678	SQ YD	CRUSHED AGGREGATE SLOPE PROTECTION	
			149	146	601	32204	295	CU YD	ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER	
	90	1			616	10000	91	M GAL	WATER	
			2018	2521	670	00500	4539	SQ YD	SLOPE EROSION PROTECTION	
									PAVEMENT	
107					304	20000	107	CU YD	AGGREGATE BASE	
									STRUCTURES (20' AND OVER)	
					503	11100	LUMP		COFFERDAMS AND EXCAVATION BRACING	
					503	21301	LUMP		UNCLASSIFIED EXCAVATION, AS PER PLAN	25
			177	170	503	22200	347	CU YD	UNCLASSIFIED EXCAVATION INCLUDING ROCK AND/OR SHALE	
					505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION	
			1600	1680	507	00200	3280	FT	STEEL PILES HP12X53, FURNISHED	
			1440	1520	507	00250	2960	FT	STEEL PILES HP12X53, DRIVEN	
			1440	1520	507	92200	2960	FT	PREBORED HOLES	
			32	32	507	93301	64	EACH	STEEL POINTS, OR SHOES, AS PER PLAN	15
			438646	442214	509	10000	880860	POUND	EPOXY COATED REINFORCING STEEL	
			2470	2470	512	10100	4940	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	
			20	20	515	15051	40	EACH	DRAPED STRAND PRESTRESSED CONCRETE BRIDGE I-BEAM MEMBERS, LEVEL 3, TYPE 4 MOD. (72"), AS PER PLAN	35
			64	64	515	20000	128	EACH	INTERMEDIATE DIAPHRAGMS	
			10	10	516	13600	20	SQ FT	1" PREFORMED EXPANSION JOINT FILLER	
			1534	1534	516	13900	3068	SQ FT	2" PREFORMED EXPANSION JOINT FILLER	
			121	121	516	14021	242	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN	15
			10	10	516	44000	20	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), 1.72" THICK X 22" X 13" WITH 1.50" THICK X 26" X 15" LOAD PLATE	
			20	20	516	44100	40	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), 2.75" THICK X 22" X 13" WITH 1.50" THICK X 26" X 15" LOAD PLATE	
			10	10	516	44200	20	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), 3.78" THICK X 22" X 13" WITH 1.50" THICK X 24" X 16" LOAD PLATE AND HP 14X73 SHAPE WITH 1.75" THICK X 26" X 16" LOAD PLATE	
			107	107	518	21200	214	CU YD	POROUS BACKFILL WITH FILTER FABRIC	
			120	120	518	40000	240	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	
			28	28	518	40010	56	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	
			830	830	898	10201	1660	CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK), AS PER PLAN	15
			316	316	898	10709	632	SQ YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), (T=17"), AS PER PLAN	15
			67	67	898	11000	134	CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET)	
			87	87	898	11001	174	CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET), AS PER PLAN	50
			718	738	898	20100	1456	CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (PIER ABOVE FOOTING)	
			61	61	898	20150	122	CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (ABUTMENT)	
			241	241	898	20300	482	CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (FOOTING)	

AS SUBMITTED

CALCULATED LBD CHECKED JMB

10/53

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (left bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
503	11100	SUM	LUMP	COFFERDAMS, CRIBS AND SHEETING				SUM	
503	21301	SUM	LUMP	UNCLASSIFIED EXCAVATION, AS PER PLAN	SUM				
503	22200	177	CU YD	UNCLASSIFIED EXCAVATION INCLUDING ROCK AND/OR SHALE		177			
505	11100	SUM	LUMP	PILE DRIVING EQUIPMENT MOBILIZATION				SUM	
507	00200	1600	FT	STEEL PILES HP12X53, FURNISHED	1600				
507	00250	1440	FT	STEEL PILES HP12X53, DRIVEN	1440				
507	92200	1440	FT	PREBORED HOLES	1440				
507	93301	32	EACH	STEEL POINTS OR SHOES, AS PER PLAN	32				
509	10000	438647	POUND	EPOXY COATED REINFORCING STEEL	16511	188796	233340		
512	10100	2469	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	101	1021	1348		
515	15051	20	EACH	DRAPED STRAND PRESTRESSED CONCRETE BRIDGE I-BEAM, AS PER PLAN			20		
				MEMBERS, LEVEL 3, TYPE 4 MOD (72")					
515	20000	64	EACH	INTERMEDIATE DIAPHRAGMS			64		
516	13600	10	SQ FT	1" PREFORMED EXPANSION JOINT FILLER				10	
516	13900	1534	SQ FT	2" PREFORMED EXPANSION JOINT FILLER	97		1252	185	
516	14021	121	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOING SEAL, AS PER PLAN	121				
516	44000	10	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)		10			
				24"X16"X1.72" LAMINATED ELASTOMERIC PAD WITH 26"X16"X1.5" LOAD PLATE					
516	44100	20	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)		20			
				24"X16"X2.75" LAMINATED ELASTOMERIC PAD WITH 26"X16"X1.5" LOAD PLATE					
516	44200	10	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)	10				
				24"X16"X3.78" LAMINATED ELASTOMERIC PAD WITH 26"X16"X2" LOAD PLATE					
518	21200	107	CU YD	POROUS BACKFILL WITH FILTER FABRIC	107				
518	40000	120	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	120				
518	40010	28	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	28				
601	32204	149	CU YD	ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER				149	
601	20000	1864	SQ YD	CRUSHED AGGREGATE SLOPE PROTECTION				1864	
898	10201	830	CU YD	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (DECK), AS PER PLAN			830		
898	10709	316	SQ YD	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (APPROACH SLAB), (T=17"), APP				316	
898	11000	67	CU YD	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (PARAPET)			67		
898	11001	87	CU YD	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (PARAPET), AS PER PLAN			87		
898	20100	718	CU YD	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (PIER ABOVE FOOTING)		718			
898	20150	61	CU YD	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (ABUTMENT)	61				
898	20300	241	CU YD	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (FOOTING)	77	164			

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (left bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
503	11100	SUM	LUMP	COFFERDAMS, CRIBS AND SHEETING					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (left bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
503	21301	SUM	LUMP	UNCLASSIFIED EXCAVATION, AS PER PLAN					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
503	22200	177.1852	CU YD	UNCLASSIFIED EXCAVATION INCLUDING ROCK AND/OR SHALE		177.1852			
at pier 1:									
L (ft)	W (ft)	T (ft)	Volume						
16	23	2.5	920	ft^3					
			34.0741	cu yd		34.07407			
at pier 2:									
L (ft)	W (ft)	T (ft)	Volume						
16	23	2.5	920	ft^3					
			34.0741	cu yd		34.07407			
at pier 3:									
L (ft)	W (ft)	T (ft)	Volume						
16	23	8	2944	ft^3					
			109.037	cu yd		109.037			
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
505	11100	SUM	LUMP	PILE DRIVING EQUIPMENT MOBILIZATION					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
507	00200	1600	FT	STEEL PILES HP12X53, FURNISHED	1600				
Estimated Length = Pile Cutoff Elevation - Pile Tip Elevation									
Round Estimated Length up to the nearest 5 ft [1 m].									
Order Length = Estimated Length + 5 ft [1.5 m]									
Furnished Length = Order Length x No. of Piles									
Driven Length = Estimated Length x No. of Piles									
at rear abutment:									
pile cutoff elevation =		704.14							
pile tip elevation =		660.1							
estimated L =		44.04	ft						
estimated L (rounded) =		45	ft						
order L =		50	ft						
# piles =		16							
furnished L =		800	ft		800				
driven L =		720	ft						
at forward abutment:									
pile cutoff elevation =		699.38							
pile tip elevation =		655							
estimated L =		44.38	ft						
estimated L (rounded) =		45	ft						
order L =		50	ft						
# piles =		16							
furnished L =		800	ft		800				
driven L =		720	ft						

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (left bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
507	00250	1440	FT	STEEL PILES HP12X53, DRIVEN	1440				
Estimated Length = Pile Cutoff Elevation - Pile Tip Elevation									
Round Estimated Length up to the nearest 5 ft [1 m].									
Order Length = Estimated Length + 5 ft [1.5 m]									
Furnished Length = Order Length x No. of Piles									
Driven Length = Estimated Length x No. of Piles									
at rear abutment:									
pile cutoff elevation =		704.14							
pile tip elevation =		660.1							
estimated L =		44.04	ft						
estimated L (rounded) =		45	ft						
order L =		50	ft						
# piles =		16							
furnished L =		800	ft						
driven L =		720	ft		720				
at forward abutment:		0							
pile cutoff elevation =		699.38							
pile tip elevation =		655							
estimated L =		44.38	ft						
estimated L (rounded) =		45	ft						
order L =		50	ft						
# piles =		16							
furnished L =		800	ft						
driven L =		720	ft		720				
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
507	92200	1440	FT	PREBORED HOLES	1440				
at rear abutment:									
length =		720			720				
at forward abutment:									
length =		720			720				
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
507	93301	32	EACH	STEEL POINTS OR SHOES, AS PER PLAN	32				
at rear abutment:									
# piles =		16			16				
at forward abutment:									
# piles =		16			16				
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
509	10000	430872	POUND	EPOXY COATED REINFORCING STEEL	5894.379	157522.1	267455.33		

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (left bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
Note: Calculate the amount of reinforcing steel per Cu.Yd. of concrete and multiply by the concrete volume to obtain the total									
weight of reinforcing steel (in LBS).									
Note: Laps are not included in these calculations. The approach slab reinforcing is not included in these calculations.									
>>>>>	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (DECK), AS PER PLAN								
	take the average of the +M and -M reinforcing for the entire bridge length								
	at -M region:	Note: The abutment and pier diaphragm concrete is included in the pay item for deck volume.							
L (ft)	spacing (in.)	bar size	wt (per ft)	transverse (top)					
48.125	4.75	5	126.807						
L (ft)		bar size	wt (per ft)	transverse (bottom)					
48.125	4.75	5	126.807						
	# bars	bar size	wt (per ft)	top bars (temp & shrinkage)					
	65	4	43.42						
	# bars	bar size	wt (per ft)	top bars (additional)					
	64	4	42.752						
	# bars	bar size	wt (per ft)	bottom bars					
	83	5	86.569						
		total =	426.355	lbs					
	deck volume								
L (ft)	W (ft)	T (ft)	Volume						
48.125	1	0.729167	36.7889	ft^3					
			1.36255	cu yd					
		total =	312.909	lbs/cu yd					
	at +M region:								
L (ft)	spacing (in.)	bar size	wt (per ft)	transverse (top)					
48.125	4.75	5	126.807						
L (ft)		bar size	wt (per ft)	transverse (bottom)					
48.125	4.75	5	126.807						
	# bars	bar size	wt (per ft)	top bars (temp & shrinkage)					
	65	4	43.42						
	# bars	bar size	wt (per ft)						
	# bars	bar size	wt (per ft)	bottom bars					
	83	5	86.569						
		total =	383.603	lbs					
	deck volume								
L (ft)	W (ft)	T (ft)	Volume						
48.125	1	0.729167	36.7889	ft^3					
			1.36255	cu yd					
		total =	281.533	lbs/cu yd					
		avg. total =	297.221	lbs/cu yd				246693.83	
>>>>>	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (PARAPET)								
L (ft)	spacing (in.)	bar size	wt (per ft)	transverse (dowels)					
4	12	6	6.008						
L (ft)		bar size	wt (per ft)	transverse (main)					
6.8333333	12	5	7.12717						
	# bars	bar size	wt (per ft)	longitudinal bars					
	7	5	7.301						
		total =	20.4362	lbs					

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (left bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
	parapet volume								
	W (ft)	A (ft^2)	Volume						
	1	4.263889	4.26389	ft^3					
			0.15792	cu yd					
		total =	129.407	lbs/cu yd			8663.1461		
>>>>>	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (PARAPET), AS PER PLAN								
L (ft)	spacing (in.)	bar size	wt (per ft)	transverse (dowels)					
11.666667	12	6	17.5233						
L (ft)		bar size	wt (per ft)	transverse (main)					
0	12	5	0						
	# bars	bar size	wt (per ft)	longitudinal bars					
	7	5	7.301						
		total =	24.8243	lbs					
	parapet volume								
	W (ft)	A (ft^2)	Volume						
	1	4.799479	4.79948	ft^3					
			0.17776	cu yd					
		total =	139.652	lbs/cu yd			12098.349		
>>>>>	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (PIER ABOVE FOOTING)								
	take the average of the cap and column reinforcing per cu. yd.								
	at pier cap:								
L (ft)	spacing (in.)	bar size	wt (per ft)	stirrups					
53.666667	9	6	107.476						
	# bars	bar size	wt (per ft)	main top					
	28	10	120.484						
	# bars	bar size	wt (per ft)	main side					
	18	7	36.792						
	# bars	bar size	wt (per ft)	main bottom					
	5	5	5.215						
		total =	269.967	lbs					
	pier cap volume								
H (ft)	W (ft)	T (ft)	Volume						
8.0833333	4.75	1	38.3958	ft^3					
			1.42207	cu yd					
		total =	189.841	lbs/cu yd					
	at column:								
L (ft)	spacing (in.)	bar size	wt (per ft)	outer ties					
81.013272	12	5	84.4968						
L (ft)		bar size	wt (per ft)	inner ties					
48	12	5	50.064						
	# bars	bar size	wt (per ft)	main bars					
	102	10	438.906						
		total =	573.467	lbs					
	column volume								
	W (ft)	A (ft^2)	Volume						
	1	85.27946	85.2795	ft^3					
			3.1585	cu yd					

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (left bridge)				Design :	RBK	Date :	8/9/2010	
Subject:	Quantities (Stage 3)				Checked :		Date :		
		total =	181.563	lbs/cu yd					
		avg. total =	185.702	lbs/cu yd			133321.2		
>>>>>	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (ABUTMENT)								
L (ft)	spacing (in.)	bar size	wt (per ft)	stirrups					
5.8333333	12	5	6.08417						
	# bars	bar size	wt (per ft)	longitudinal bars					
	4	8	10.68						
	# bars	bar size	wt (per ft)	longitudinal bars					
	2	5	2.086						
		total =	18.8502	lbs					
	abutment volume								
H (ft)	W (ft)	L (ft)	Volume						
1.5	3.5	1	5.25	ft^3					
			0.19444	cu yd					
		total =	96.9437	lbs/cu yd		5894.379			
>>>>>	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (FOOTING)								
	take the average of the abutment and pier reinforcing per cu. yd.								
	at abutment:								
L (ft)	spacing (in.)	bar size	wt (per ft)	stirrups					
27	12	5	28.161						
	# bars	bar size	wt (per ft)	main top					
	4	5	4.172						
	# bars	bar size	wt (per ft)	main side					
	2	5	2.086						
	# bars	bar size	wt (per ft)	main bottom					
	4	8	10.68						
		total =	45.099	lbs					
	abutment footing volume								
H (ft)	W (ft)	L (ft)	Volume						
3	6	1	18	ft^3					
			0.66667	cu yd					
		total =	67.6485	lbs/cu yd					
	at pier:								
L (ft)	spacing (in.)	bar size	wt (per ft)	top (longitudinal-dir)					
21.67	9	6	43.3978						
	# bars	bar size	wt (per ft)	top (transverse-dir)					
	30	6	45.06						
L (ft)	spacing (in.)	bar size	wt (per ft)	dowels					
6.25	5	10	64.545						
L (ft)	spacing (in.)	bar size	`	bottom (longitudinal-dir)					
21.67	5	10	223.79						
	# bars	bar size	wt (per ft)	bottom (transverse-dir)					
	33	9	112.2						
		total =	488.993	lbs					
	pier footing volume								
T (ft)	W (ft)	L (ft)	Volume						
4.5	22	1	99	ft^3					

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (left bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
			3.66667	cu yd					
		total =	133.362	lbs/cu yd					
		avg. total =	100.505	lbs/cu yd		24200.82			
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
512	10100	2469.3	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	100.813	1020.512	1348.0141		
at superstructure (transverse section):									
W (ft)	L (ft)	Area							
28.159239	430.84	12132.13	ft^2						
		1348.014	sq yd				1348.0141		
at abutments:									
H (ft)	L (ft)	Area							
7.5	64.91373482	907.3171	ft^2						
		100.813	sq yd		100.813				
at pier 1:									
	column								
H (ft)	L (ft)	Area							
41.5	44.97050027	1866.276	ft^2						
		207.364	sq yd						
	cap								
H (ft)	L (ft)	Area							
9.5	38.8048	368.6456	ft^2	front face					
		40.96062	sq yd						
9.5	38.8048	368.6456	ft^2	back face					
		40.96062	sq yd						
4	4.75	19	ft^2	vertical face					
		2.111111	sq yd						
4	4.75	19	ft^2	vertical face					
		2.111111	sq yd						
14.384659	4.75	68.32713	ft^2	diagonal face					
		7.591903	sq yd						
14.384659	4.75	68.32713	ft^2	diagonal face					
		7.591903	sq yd						
		101.3273	sq yd						
		308.6912	sq yd			308.6912			
at pier 2:									
	column								
H (ft)	L (ft)	Area							
57.9	44.97050027	2603.792	ft^2						
		289.3102	sq yd						
	cap								
H (ft)	L (ft)	Area							
9.5	38.8048	368.6456	ft^2	front face					
		40.96062	sq yd						
9.5	38.8048	368.6456	ft^2	back face					
		40.96062	sq yd						

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (left bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
4	4.75	19	ft^2	vertical face					
		2.111111	sq yd						
4	4.75	19	ft^2	vertical face					
		2.111111	sq yd						
14.384659	4.75	68.32713	ft^2	diagonal face					
		7.591903	sq yd						
14.384659	4.75	68.32713	ft^2	diagonal face					
		7.591903	sq yd						
		101.3273	sq yd						
		390.6375	sq yd			390.6375			
at pier 3:									
	column								
H (ft)	L (ft)	Area							
44	44.97050027	1978.702	ft^2						
		219.8558	sq yd						
	cap								
H (ft)	L (ft)	Area							
9.5	38.8048	368.6456	ft^2	front face					
		40.96062	sq yd						
9.5	38.8048	368.6456	ft^2	back face					
		40.96062	sq yd						
4	4.75	19	ft^2	vertical face					
		2.111111	sq yd						
4	4.75	19	ft^2	vertical face					
		2.111111	sq yd						
14.384659	4.75	68.32713	ft^2	diagonal face					
		7.591903	sq yd						
14.384659	4.75	68.32713	ft^2	diagonal face					
		7.591903	sq yd						
		101.3273	sq yd						
		321.1831	sq yd			321.1831			

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
515	15051	20	EACH	DRAPED STRAND PRESTRESSED CONCRETE BRIDGE I-BEAM, AS PER PLAN			20		
	# spans =	4							
	beams per span =	5							
	# beams =	20							

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
515	20000	64	EACH	INTERMEDIATE DIAPHRAGMS			64		
	# spans =	4							
	diaphragms per span =	4							
	# bays (btw. beams) =	4							
	# diaphragms =	64							

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (left bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
516	13600	10	SQ FT	1" PREFORMED EXPANSION JOINT FILLER				9.60	
H (ft)	W (ft)	Area							
4.75	1.01	4.80	ft^2	btw. Interior barriers (end rear app. slab)				4.80	
4.75	1.01	4.80	ft^2	btw. Interior barriers (begin fwd app. slab)				4.80	
	total =	9.60							
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
516	13900	1533.81	SQ FT	2" PREFORMED EXPANSION JOINT FILLER	96.68		1252.13	185.00	
				note: total pejf calculated and then divided by 2 for twin bridges					
H (ft)	W (ft)	Area							
10.00	3.59	35.92	ft^2	btw. bridges abutment	35.92				
6.17	30.00	185.00	ft^2	btw. App. Slab				185.00	
3.00	6.16	18.47	ft^2	btw. bridges footing	18.47				
5.81	430.84	1252.13	ft^2	btw. bridges superstructure			1252.13		
8.24	2.57	42.28	ft^2	btw. wingwall and abutment diaphragm	42.28				
	total =	1533.81							
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
516	14021	120.55	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOING SEAL, AS PER PLAN					
	at abutment:								
		L							
		120.55	ft	2 abutments					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
516	44000	10	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)					
				24"X16"X1.72" LAMINATED ELASTOMERIC PAD WITH 26"X16"X1.5" LOAD PLATE					
	at pier 2:								
	# bearings =	10	each						
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
516	44100	20	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)					
				24"X16"X2.75" LAMINATED ELASTOMERIC PAD WITH 26"X16"X1.5" LOAD PLATE					
	at piers 1 & 3:								
	# bearings =	20	each						
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
516	44200	10	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)					
				24"X16"X3.78" LAMINATED ELASTOMERIC PAD WITH 26"X16"X2" LOAD PLATE					
	at abutments:								
	# bearings =	10	each	2 abutments					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
518	21200	107.2	CU YD	POROUS BACKFILL WITH FILTER FABRIC	107.2				
H (ft)	W (ft)	L (ft)	Volume						
12.16	2	59.5	2894.1	ft^3					
			107.2	cu yd					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (left bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
518	40000	120.0	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	120.0				
		L (ft)							
		120							
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
518	40010	28	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	28				
		L (ft)							
		28							
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
601	32204	149.3	CU YD	ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER				149.3	
L (ft)	W (ft)	T (ft)	Volume						
35	57.59632721	2	4031.7	ft^3					
			149.3	cu yd					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
601	20000	1864.4	SQ YD	CRUSHED AGGREGATE SLOPE PROTECTION				1864.4	
rear abut:									
L (ft)	W (ft)		Area						
145.34442	67.60061549		9825.4	ft^2					
			1091.7	sq yd					
forward abut:									
L (ft)	W (ft)		Area						
120.74767	57.59632721		6954.6	ft^2					
			772.7	sq yd					
			1864.4	sq yd					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
898	10201	830.0	CU YD	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (DECK), AS PER PLAN			830.0		
note: Includes Deck, Abutment Diaphragm, and Pier Diaphragm concrete.									
deck:									
L (ft)	W (ft)	T (ft)	Volume						
430.84	48.41666667	0.729167	15210.3	ft^3					
			563.344	cu yd					
deck overhang:									
L (ft)	W (ft)	T (ft)	Volume						
430.84	2.083	0.25	448.72	ft^3					
			16.6193	cu yd					
beam haunches:									
L (ft)	W (ft)	T (ft)	Volume						
430.84	15	0.270417	1747.59	ft^3					
			64.7257	cu yd					
abutment diaphragms:									
H (ft)	W (ft)	L (ft)	Volume						
7.925	3.5	99.46529	2758.92	ft^3					
			102.182	cu yd					
pier diaphragms:									
H (ft)	W (ft)	L (ft)	Volume						
6	3	129.3051	2244.51	ft^3					

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (left bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
			83.1298	cu yd					
		total =	830.001	cu yd					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
898	10709	316.1	SQ YD	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (APPROACH SLAB), (T=17"), APP				316.1	
	L (ft)	W (ft)	Area						
	60	47.41667	2845	sq ft					
			316.111	sq yd					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
898	11000	66.9	CU YD	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (PARAPET)			66.9		
main parapet:									
	Area (ft^2)	L (ft)	Volume						
	4.2561	403.875	1718.93	ft^3					
			63.6642	cu yd					
transition parapet:									
	Area (ft^2)	L (ft)	Volume						
	3.4514	20	69.0278	ft^3					
			2.55658	cu yd					
end parapet:									
	Area (ft^2)	L (ft)	Volume						
	2.4444	8	19.5556	ft^3					
			0.72428	cu yd					
		total =	66.945	cu yd					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
898	11001	86.6	CU YD	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (PARAPET), AS PER PLAN			86.6		
main parapet:									
	Area (ft^2)	L (ft)	Volume						
	4.7654	490.8438	2339.07	ft^3					
		total =	86.6321	cu yd					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
898	20100	717.9	CU YD	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (PIER ABOVE FOOTING)		717.9			
at pier 1:									
	center volume								
H (ft)	W (ft)	T (ft)	Volume						
9.5	19.9167	4.75	898.741	ft^3					
			33.2867	cu yd					
	overhang volume								
H (ft)	W (ft)	T (ft)	Volume						
6.75	26.58334	4.75	852.328	ft^3					
			31.5677	cu yd					
	column volume								
	H (ft)	A (ft^2)	Volume						
	53.16	85.27946	4533.46	ft^3					
			167.906	cu yd					
	seismic pedestal								
H (ft)	W (ft)	T (ft)	Volume						

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (left bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
0.5833333	2	4.874945	11.3749	ft^3					
			0.42129	cu yd					
		subtotal =	233.182	cu yd					
at pier 2:									
	center volume								
H (ft)	W (ft)	T (ft)	Volume						
9.5	19.9167	4.75	898.741	ft^3					
			33.2867	cu yd					
	overhang volume								
H (ft)	W (ft)	T (ft)	Volume						
6.75	26.58334	4.75	852.328	ft^3					
			31.5677	cu yd					
	column volume								
	H (ft)	A (ft^2)	Volume						
	64.4	85.27946	5492	ft^3					
			203.407	cu yd					
	seismic pedestal								
H (ft)	W (ft)	T (ft)	Volume						
0.5	2	4.874945	9.74989	ft^3					
			0.36111	cu yd					
		subtotal =	268.623	cu yd					
at pier 3:									
	center volume								
H (ft)	W (ft)	T (ft)	Volume						
9.5	19.9167	4.75	898.741	ft^3					
			33.2867	cu yd					
	overhang volume								
H (ft)	W (ft)	T (ft)	Volume						
6.75	26.58334	4.75	852.328	ft^3					
			31.5677	cu yd					
	column volume								
	H (ft)	A (ft^2)	Volume						
	47.76	85.27946	4072.95	ft^3					
			150.85	cu yd					
	seismic pedestal								
H (ft)	W (ft)	T (ft)	Volume						
0.5833333	2	4.874945	11.3749						
			0.42129						
		subtotal =	216.126	cu yd					
		total =	717.93	cu yd					

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
898	20150	60.8	CU YD	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (ABUTMENT)	60.8				
at beam seat:									
H (ft)	W (ft)	L (ft)	Volume						
1.5	3.5	99.46529	1044.39	ft^3					
			38.6809	cu yd					
at wingwalls:									
H (ft)	W (ft)	L (ft)	Volume						

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (left bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
7.39	2.5	32.32858	597.271	ft^3					
			22.1211	cu yd					
		total =	60.8021	cu yd					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
898	20300	240.8	CU YD	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (FOOTING)	77.23633	163.5556			
at abutments:									
H (ft)	W (ft)	L (ft)	Volume						
3.00	6.00	115.8545	2085.38	ft^3					
			77.2363	cu yd	77.23633				
at pier 1:									
	center volume								
L (ft)	W (ft)	T (ft)	Volume						
23	16	4	1472	ft^3					
			54.5185	cu yd		54.51852			
at pier 2:									
	center volume								
L (ft)	W (ft)	T (ft)	Volume						
23	16	4	1472	ft^3					
			54.5185	cu yd		54.51852			
at pier 3:									
	center volume								
L (ft)	W (ft)	T (ft)	Volume						
23	16	4	1472	ft^3					
			54.5185	cu yd		54.51852			

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (right bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
503	11100	SUM	LUMP	COFFERDAMS, CRIBS AND SHEETING				SUM	
503	21301	SUM	LUMP	UNCLASSIFIED EXCAVATION, AS PER PLAN	SUM				
503	22200	170	CU YD	UNCLASSIFIED EXCAVATION INCLUDING ROCK AND/OR SHALE		170			
505	11100	SUM	LUMP	PILE DRIVING EQUIPMENT MOBILIZATION				SUM	
507	00200	1680	FT	STEEL PILES HP12X53, FURNISHED	1680				
507	00250	1520	FT	STEEL PILES HP12X53, DRIVEN	1520				
507	92200	1520	FT	PREBORED HOLES	1520				
507	93301	32	EACH	STEEL POINTS OR SHOES, AS PER PLAN	32				
509	10000	442214	POUND	EPOXY COATED REINFORCING STEEL	16511	192363	233340		
512	10100	2469	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	101	1021	1348		
515	15051	20	EACH	DRAPED STRAND PRESTRESSED CONCRETE BRIDGE I-BEAM, AS PER PLAN			20		
				MEMBERS, LEVEL 3, TYPE 4 MOD (72")					
515	20000	64	EACH	INTERMEDIATE DIAPHRAGMS			64		
516	13600	10	SQ FT	1" PREFORMED EXPANSION JOINT FILLER				10	
516	13900	1534	SQ FT	2" PREFORMED EXPANSION JOINT FILLER	97		1252	185	
516	14021	121	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOING SEAL, AS PER PLAN	121				
516	44000	10	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)		10			
				24"X16"X1.72" LAMINATED ELASTOMERIC PAD WITH 26"X16"X1.5" LOAD PLATE					
516	44100	20	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)		20			
				24"X16"X2.75" LAMINATED ELASTOMERIC PAD WITH 26"X16"X1.5" LOAD PLATE					
516	44200	10	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)	10				
				24"X16"X3.78" LAMINATED ELASTOMERIC PAD WITH 26"X16"X2" LOAD PLATE					
518	21200	107	CU YD	POROUS BACKFILL WITH FILTER FABRIC	107				
518	40000	120	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	120				
518	40010	28	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	28				
601	32204	146	CU YD	ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER				146	
601	20000	1814	SQ YD	CRUSHED AGGREGATE SLOPE PROTECTION				1814	
898	10201	830	CU YD	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (DECK), AS PER PLAN			830		
898	10709	316	SQ YD	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (APPROACH SLAB), (T=17"), APP				316	
898	11000	67	CU YD	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (PARAPET)			67		
898	11001	87	CU YD	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (PARAPET), AS PER PLAN			87		
898	20100	738	CU YD	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (PIER ABOVE FOOTING)		738			
898	20150	61	CU YD	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (ABUTMENT)	61				
898	20300	241	CU YD	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (FOOTING)	77	164			

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (right bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (right bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
503	11100	SUM	LUMP	COFFERDAMS, CRIBS AND SHEETING					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
503	21301	SUM	LUMP	UNCLASSIFIED EXCAVATION, AS PER PLAN					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
503	22200	170.3704	CU YD	UNCLASSIFIED EXCAVATION INCLUDING ROCK AND/OR SHALE		170.3704			
at pier 1:									
L (ft)	W (ft)	T (ft)	Volume						
16	23	2.5	920	ft^3					
			34.0741	cu yd		34.07407			
at pier 2:									
L (ft)	W (ft)	T (ft)	Volume						
16	23	2.5	920	ft^3					
			34.0741	cu yd		34.07407			
at pier 3:									
L (ft)	W (ft)	T (ft)	Volume						
16	23	7.5	2760	ft^3					
			102.222	cu yd		102.2222			
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
505	11100	SUM	LUMP	PILE DRIVING EQUIPMENT MOBILIZATION					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
507	00200	1680	FT	STEEL PILES HP12X53, FURNISHED	1680				
Estimated Length = Pile Cutoff Elevation - Pile Tip Elevation									
Round Estimated Length up to the nearest 5 ft [1 m].									
Order Length = Estimated Length + 5 ft [1.5 m]									
Furnished Length = Order Length x No. of Piles									
Driven Length = Estimated Length x No. of Piles									
at rear abutment:									
pile cutoff elevation =		703.73							
pile tip elevation =		660.1							
estimated L =		43.63	ft						
estimated L (rounded) =		45	ft						
order L =		50	ft						
# piles =		16							
furnished L =		800	ft		800				
driven L =		720	ft						
at forward abutment:									
pile cutoff elevation =		699.35							
pile tip elevation =		653							
estimated L =		46.35	ft						

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (right bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
estimated L (rounded) =		50	ft						
order L =		55	ft						
# piles =		16							
furnished L =		880	ft		880				
driven L =		800	ft						
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
507	00250	1520	FT	STEEL PILES HP12X53, DRIVEN	1520				
Estimated Length = Pile Cutoff Elevation - Pile Tip Elevation									
Round Estimated Length up to the nearest 5 ft [1 m].									
Order Length = Estimated Length + 5 ft [1.5 m]									
Furnished Length = Order Length x No. of Piles									
Driven Length = Estimated Length x No. of Piles									
at rear abutment:									
pile cutoff elevation =		703.73							
pile tip elevation =		660.1							
estimated L =		43.63	ft						
estimated L (rounded) =		45	ft						
order L =		50	ft						
# piles =		16							
furnished L =		800	ft						
driven L =		720	ft		720				
at forward abutment:		0							
pile cutoff elevation =		699.35							
pile tip elevation =		653							
estimated L =		46.35	ft						
estimated L (rounded) =		50	ft						
order L =		55	ft						
# piles =		16							
furnished L =		880	ft						
driven L =		800	ft		800				
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
507	92200	1520	FT	PREBORED HOLES	1520				
at rear abutment:									
length =		720			720				
at forward abutment:									
length =		800			800				
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
507	93301	32	EACH	STEEL POINTS OR SHOES, AS PER PLAN	32				

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (right bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
at rear abutment:									
# piles =		16			16				
at forward abutment:									
# piles =		16			16				
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
509	10000	434614	POUND	EPOXY COATED REINFORCING STEEL	5894.379	161264.2	267455.33		
Note: Calculate the amount of reinforcing steel per Cu.Yd. of concrete and multiply by the concrete volume to obtain the total									
weight of reinforcing steel (in LBS).									
Note: Laps are not included in these calculations. The approach slab reinforcing is not included in these calculations.									
>>>>>	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (DECK), AS PER PLAN								
	take the average of the +M and -M reinforcing for the entire bridge length								
	at -M region:	Note: The abutment and pier diaphragm concrete is included in the pay item for deck volume.							
L (ft)	spacing (in.)	bar size	wt (per ft)	transverse (top)					
48.125	4.75	5	126.807						
L (ft)		bar size	wt (per ft)	transverse (bottom)					
48.125	4.75	5	126.807						
	# bars	bar size	wt (per ft)	top bars (temp & shrinkage)					
	65	4	43.42						
	# bars	bar size	wt (per ft)	top bars (additional)					
	64	4	42.752						
	# bars	bar size	wt (per ft)	bottom bars					
	83	5	86.569						
		total =	426.355	lbs					
	deck volume								
L (ft)	W (ft)	T (ft)	Volume						
48.125	1	0.729167	36.7889	ft^3					
			1.36255	cu yd					
		total =	312.909	lbs/cu yd					
	at +M region:								
L (ft)	spacing (in.)	bar size	wt (per ft)	transverse (top)					
48.125	4.75	5	126.807						
L (ft)		bar size	wt (per ft)	transverse (bottom)					
48.125	4.75	5	126.807						
	# bars	bar size	wt (per ft)	top bars (temp & shrinkage)					
	65	4	43.42						
	# bars	bar size	wt (per ft)						
	# bars	bar size	wt (per ft)	bottom bars					
	83	5	86.569						
		total =	383.603	lbs					
	deck volume								
L (ft)	W (ft)	T (ft)	Volume						
48.125	1	0.729167	36.7889	ft^3					

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (right bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
			1.36255	cu yd					
		total =	281.533	lbs/cu yd					
		avg. total =	297.221	lbs/cu yd			246693.83		
>>>>>	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (PARAPET)								
L (ft)	spacing (in.)	bar size	wt (per ft)	transverse (dowels)					
4	12	6	6.008						
L (ft)		bar size	wt (per ft)	transverse (main)					
6.8333333	12	5	7.12717						
	# bars	bar size	wt (per ft)	longitudinal bars					
	7	5	7.301						
		total =	20.4362	lbs					
	parapet volume								
	W (ft)	A (ft^2)	Volume						
	1	4.263889	4.26389	ft^3					
			0.15792	cu yd					
		total =	129.407	lbs/cu yd			8663.1461		
>>>>>	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (PARAPET), AS PER PLAN								
L (ft)	spacing (in.)	bar size	wt (per ft)	transverse (dowels)					
11.666667	12	6	17.5233						
L (ft)		bar size	wt (per ft)	transverse (main)					
0	12	5	0						
	# bars	bar size	wt (per ft)	longitudinal bars					
	7	5	7.301						
		total =	24.8243	lbs					
	parapet volume								
	W (ft)	A (ft^2)	Volume						
	1	4.799479	4.79948	ft^3					
			0.17776	cu yd					
		total =	139.652	lbs/cu yd			12098.349		
>>>>>	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (PIER ABOVE FOOTING)								
	take the average of the cap and column reinforcing per cu. yd.								
	at pier cap:								
L (ft)	spacing (in.)	bar size	wt (per ft)	stirrups					
53.666667	9	6	107.476						
	# bars	bar size	wt (per ft)	main top					
	28	10	120.484						
	# bars	bar size	wt (per ft)	main side					
	18	7	36.792						
	# bars	bar size	wt (per ft)	main bottom					
	5	5	5.215						
		total =	269.967	lbs					
	pier cap volume								
H (ft)	W (ft)	T (ft)	Volume						

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (right bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
8.0833333	4.75	1	38.3958	ft^3					
			1.42207	cu yd					
		total =	189.841	lbs/cu yd					
	at column:								
L (ft)	spacing (in.)	bar size	wt (per ft)	outer ties					
81.013272	12	5	84.4968						
L (ft)		bar size	wt (per ft)	inner ties					
48	12	5	50.064						
	# bars	bar size	wt (per ft)	main bars					
	102	10	438.906						
		total =	573.467	lbs					
	column volume								
	W (ft)	A (ft^2)	Volume						
	1	85.27946	85.2795	ft^3					
			3.1585	cu yd					
		total =	181.563	lbs/cu yd					
		avg. total =	185.702	lbs/cu yd		137063.4			
>>>>>	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (ABUTMENT)								
L (ft)	spacing (in.)	bar size	wt (per ft)	stirrups					
5.8333333	12	5	6.08417						
	# bars	bar size	wt (per ft)	longitudinal bars					
	4	8	10.68						
	# bars	bar size	wt (per ft)	longitudinal bars					
	2	5	2.086						
		total =	18.8502	lbs					
	abutment volume								
H (ft)	W (ft)	L (ft)	Volume						
1.5	3.5	1	5.25	ft^3					
			0.19444	cu yd					
		total =	96.9437	lbs/cu yd	5894.379				
>>>>>	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (FOOTING)								
	take the average of the abutment and pier reinforcing per cu. yd.								
	at abutment:								
L (ft)	spacing (in.)	bar size	wt (per ft)	stirrups					
27	12	5	28.161						
	# bars	bar size	wt (per ft)	main top					
	4	5	4.172						
	# bars	bar size	wt (per ft)	main side					
	2	5	2.086						
	# bars	bar size	wt (per ft)	main bottom					
	4	8	10.68						
		total =	45.099	lbs					
	abutment footing volume								
H (ft)	W (ft)	L (ft)	Volume						

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (right bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
3	6	1	18	ft^3					
			0.66667	cu yd					
		total =	67.6485	lbs/cu yd					
	at pier:								
L (ft)	spacing (in.)	bar size	wt (per ft)	top (longitudinal-dir)					
21.67	9	6	43.3978						
	# bars	bar size	wt (per ft)	top (transverse-dir)					
	30	6	45.06						
L (ft)	spacing (in.)	bar size	wt (per ft)	dowels					
6.25	5	10	64.545						
L (ft)	spacing (in.)	bar size	`	bottom (longitudinal-dir)					
21.67	5	10	223.79						
	# bars	bar size	wt (per ft)	bottom (transverse-dir)					
	33	9	112.2						
		total =	488.993	lbs					
	pier footing volume								
T (ft)	W (ft)	L (ft)	Volume						
4.5	22	1	99	ft^3					
			3.66667	cu yd					
		total =	133.362	lbs/cu yd					
		avg. total =	100.505	lbs/cu yd		24200.82			

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
512	10100	2469.3	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	100.813	1020.512	1348.0141		
at superstructure (transverse section):									
W (ft)	L (ft)	Area							
28.159239	430.84	12132.13	ft^2						
		1348.014	sq yd				1348.0141		
at abutments:									
H (ft)	L (ft)	Area							
7.5	64.91373482	907.3171	ft^2						
		100.813	sq yd		100.813				
at pier 1:									
	column								
H (ft)	L (ft)	Area							
41.5	44.97050027	1866.276	ft^2						
		207.364	sq yd						
	cap								
H (ft)	L (ft)	Area							
9.5	38.8048	368.6456	ft^2	front face					
		40.96062	sq yd						
9.5	38.8048	368.6456	ft^2	back face					
		40.96062	sq yd						
4	4.75	19	ft^2	vertical face					

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (right bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
		2.111111	sq yd						
4	4.75	19	ft^2	vertical face					
		2.111111	sq yd						
14.384659	4.75	68.32713	ft^2	diagonal face					
		7.591903	sq yd						
14.384659	4.75	68.32713	ft^2	diagonal face					
		7.591903	sq yd						
		101.3273	sq yd						
		308.6912	sq yd			308.6912			
at pier 2:									
	column								
H (ft)	L (ft)	Area							
57.9	44.97050027	2603.792	ft^2						
		289.3102	sq yd						
	cap								
H (ft)	L (ft)	Area							
9.5	38.8048	368.6456	ft^2	front face					
		40.96062	sq yd						
9.5	38.8048	368.6456	ft^2	back face					
		40.96062	sq yd						
4	4.75	19	ft^2	vertical face					
		2.111111	sq yd						
4	4.75	19	ft^2	vertical face					
		2.111111	sq yd						
14.384659	4.75	68.32713	ft^2	diagonal face					
		7.591903	sq yd						
14.384659	4.75	68.32713	ft^2	diagonal face					
		7.591903	sq yd						
		101.3273	sq yd						
		390.6375	sq yd			390.6375			
at pier 3:									
	column								
H (ft)	L (ft)	Area							
44	44.97050027	1978.702	ft^2						
		219.8558	sq yd						
	cap								
H (ft)	L (ft)	Area							
9.5	38.8048	368.6456	ft^2	front face					
		40.96062	sq yd						
9.5	38.8048	368.6456	ft^2	back face					
		40.96062	sq yd						
4	4.75	19	ft^2	vertical face					
		2.111111	sq yd						
4	4.75	19	ft^2	vertical face					

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (right bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
		2.111111	sq yd						
14.384659	4.75	68.32713	ft^2	diagonal face					
		7.591903	sq yd						
14.384659	4.75	68.32713	ft^2	diagonal face					
		7.591903	sq yd						
		101.3273	sq yd						
		321.1831	sq yd			321.1831			

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
515	15051	20	EACH	DRAPED STRAND PRESTRESSED CONCRETE BRIDGE I-BEAM, AS PER PLAN			20		
	# spans =	4							
	beams per span =	5							
	# beams =	20							

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
515	20000	64	EACH	INTERMEDIATE DIAPHRAGMS			64		
	# spans =	4							
	diaphragms per span =	4							
	# bays (btw. beams) =	4							
	# diaphragms =	64							

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
516	13600	10	SQ FT	1" PREFORMED EXPANSION JOINT FILLER				9.60	
H (ft)	W (ft)	Area							
4.75	1.01	4.80	ft^2	btw. Interior barriers (end rear app. slab)				4.80	
4.75	1.01	4.80	ft^2	btw. Interior barriers (begin fwd app. slab)				4.80	
	total =	9.60							

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
516	13900	1533.81	SQ FT	2" PREFORMED EXPANSION JOINT FILLER	96.68		1252.13	185.00	
				note: total pejf calculated and then divided by 2 for twin bridges					
H (ft)	W (ft)	Area							
10.00	3.59	35.92	ft^2	btw. bridges abutment	35.92				
6.17	30.00	185.00	ft^2	btw. App. Slab				185.00	
3.00	6.16	18.47	ft^2	btw. bridges footing	18.47				
5.81	430.84	1252.13	ft^2	btw. bridges superstructure			1252.13		
8.24	2.57	42.28	ft^2	btw. wingwall and abutment diaphragm	42.28				
	total =	1533.81							

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
516	14021	120.55	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOING SEAL, AS PER PLAN					
	at abutment:								
		L							

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (right bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
		120.55	ft	2 abutments					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
516	44000	10	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)					
				24"X16"X1.72" LAMINATED ELASTOMERIC PAD WITH 26"X16"X1.5" LOAD PLATE					
	at pier 2:								
	# bearings =	10	each						
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
516	44100	20	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)					
				24"X16"X2.75" LAMINATED ELASTOMERIC PAD WITH 26"X16"X1.5" LOAD PLATE					
	at piers 1 & 3:								
	# bearings =	20	each						
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
516	44200	10	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)					
				24"X16"X3.78" LAMINATED ELASTOMERIC PAD WITH 26"X16"X2" LOAD PLATE					
	at abutments:								
	# bearings =	10	each	2 abutments					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
518	21200	107.2	CU YD	POROUS BACKFILL WITH FILTER FABRIC	107.2				
H (ft)	W (ft)	L (ft)	Volume						
12.16	2	59.5	2894.1	ft^3					
			107.2	cu yd					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
518	40000	120.0	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	120.0				
		L (ft)							
		120							
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
518	40010	28	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	28				
		L (ft)							
		28							
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
601	32204	146.5	CU YD	ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER				146.5	
L (ft)	W (ft)	T (ft)	Volume						
30	65.90758209	2	3954.5	ft^3					
			146.5	cu yd					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
601	20000	1814.4	SQ YD	CRUSHED AGGREGATE SLOPE PROTECTION				1814.4	
rear abut:									
L (ft)	W (ft)		Area						

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (right bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
145.34442	57.59632721		8371.3	ft^2					
			930.1	sq yd					
forward abut:									
L (ft)	W (ft)		Area						
120.74767	65.90758209		7958.2	ft^2					
			884.2	sq yd					
			1814.4	sq yd					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
898	10201	830.0	CU YD	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (DECK), AS PER PLAN			830.0		
note: Includes Deck, Abutment Diaphragm, and Pier Diaphragm concrete.									
deck:									
L (ft)	W (ft)	T (ft)	Volume						
430.84	48.41666667	0.729167	15210.3	ft^3					
			563.344	cu yd					
deck overhang:									
L (ft)	W (ft)	T (ft)	Volume						
430.84	2.083	0.25	448.72	ft^3					
			16.6193	cu yd					
beam haunches:									
L (ft)	W (ft)	T (ft)	Volume						
430.84	15	0.270417	1747.59	ft^3					
			64.7257	cu yd					
abutment diaphragms:									
H (ft)	W (ft)	L (ft)	Volume						
7.925	3.5	99.46529	2758.92	ft^3					
			102.182	cu yd					
pier diaphragms:									
H (ft)	W (ft)	L (ft)	Volume						
6	3	129.3051	2244.51	ft^3					
			83.1298	cu yd					
		total =	830.001	cu yd					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
898	10709	316.1	SQ YD	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (APPROACH SLAB), (T=17"), APP				316.1	
	L (ft)	W (ft)	Area						
	60	47.41667	2845	sq ft					
			316.111	sq yd					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
898	11000	66.9	CU YD	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (PARAPET)			66.9		
main parapet:									
	Area (ft^2)	L (ft)	Volume						
	4.2561	403.875	1718.93	ft^3					
			63.6642	cu yd					
transition parapet:									

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (right bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
	Area (ft^2)	L (ft)	Volume						
	3.4514	20	69.0278	ft^3					
			2.55658	cu yd					
end parapet:									
	Area (ft^2)	L (ft)	Volume						
	2.4444	8	19.5556	ft^3					
			0.72428	cu yd					
		total =	66.945	cu yd					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
898	11001	86.6	CU YD	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (PARAPET), AS PER PLAN			86.6		
main parapet:									
	Area (ft^2)	L (ft)	Volume						
	4.7654	490.8438	2339.07	ft^3					
		total =	86.6321	cu yd					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
898	20100	738.1	CU YD	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (PIER ABOVE FOOTING)		738.1			
at pier 1:									
	center volume								
H (ft)	W (ft)	T (ft)	Volume						
9.5	19.9167	4.75	898.741	ft^3					
			33.2867	cu yd					
	overhang volume								
H (ft)	W (ft)	T (ft)	Volume						
6.75	26.58334	4.75	852.328	ft^3					
			31.5677	cu yd					
	column volume								
	H (ft)	A (ft^2)	Volume						
	53.16	85.27946	4533.46	ft^3					
			167.906	cu yd					
	seismic pedestal								
H (ft)	W (ft)	T (ft)	Volume						
0.5833333	2	4.874945	11.3749	ft^3					
			0.42129	cu yd					
		subtotal =	233.182	cu yd					
at pier 2:									
	center volume								
H (ft)	W (ft)	T (ft)	Volume						
9.5	19.9167	4.75	898.741	ft^3					
			33.2867	cu yd					
	overhang volume								
H (ft)	W (ft)	T (ft)	Volume						
6.75	26.58334	4.75	852.328	ft^3					
			31.5677	cu yd					
	column volume								

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (right bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
	H (ft)	A (ft^2)	Volume						
	64.4	85.27946	5492	ft^3					
			203.407	cu yd					
	seismic pedestal								
H (ft)	W (ft)	T (ft)	Volume						
0.5	2	4.874945	9.74989	ft^3					
			0.36111	cu yd					
		subtotal =	268.623	cu yd					
at pier 3:									
	center volume								
H (ft)	W (ft)	T (ft)	Volume						
9.5	19.9167	4.75	898.741	ft^3					
			33.2867	cu yd					
	overhang volume								
H (ft)	W (ft)	T (ft)	Volume						
6.75	26.58334	4.75	852.328	ft^3					
			31.5677	cu yd					
	column volume								
	H (ft)	A (ft^2)	Volume						
	54.14	85.27946	4617.03	ft^3					
			171.001	cu yd					
	seismic pedestal								
H (ft)	W (ft)	T (ft)	Volume						
0.5833333	2	4.874945	11.3749						
			0.42129						
		subtotal =	236.277	cu yd					
		total =	738.081	cu yd					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
898	20150	60.8	CU YD	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (ABUTMENT)	60.8				
at beam seat:									
H (ft)	W (ft)	L (ft)	Volume						
1.5	3.5	99.46529	1044.39	ft^3					
			38.6809	cu yd					
at wingwalls:									
H (ft)	W (ft)	L (ft)	Volume						
7.39	2.5	32.32858	597.271	ft^3					
			22.1211	cu yd					
		total =	60.8021	cu yd					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
898	20300	240.8	CU YD	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (FOOTING)	77.23633	163.5556			
at abutments:									
H (ft)	W (ft)	L (ft)	Volume						
3.00	6.00	115.8545	2085.38	ft^3					
			77.2363	cu yd	77.23633				

Company:	KZFDESIGN								
Structure :	SCI-823-0837 (right bridge)			Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)			Checked :		Date :			
at pier 1:									
	center volume								
L (ft)	W (ft)	T (ft)	Volume						
23	16	4	1472	ft^3					
			54.5185	cu yd		54.51852			
at pier 2:									
	center volume								
L (ft)	W (ft)	T (ft)	Volume						
23	16	4	1472	ft^3					
			54.5185	cu yd		54.51852			
at pier 3:									
	center volume								
L (ft)	W (ft)	T (ft)	Volume						
23	16	4	1472	ft^3					
			54.5185	cu yd		54.51852			

MARK	NUMBER								LENGTH	LEFT WEIGHT	RIGHT WEIGHT	TYPE	DIMENSIONS						
	LEFT STRUCTURE			TOTAL	RIGHT STRUCTURE			TOTAL					A	B	C	D	E	R	INC
	PIER 1	PIER 2	PIER 3		PIER 1	PIER 2	PIER 3												
PIER REINFORCING STEEL LIST																			
P401	13	13	13	39	13	13	13	39	5'-9"	150	150	2	0'-9"	4'-5"	0'-9"				
P501	477	585	432	1494	477	585	486	1548	4'-8"	7272	7535	17	4'-0"						
P502	106	130	96	332	106	130	108	344	21'-11"	7589	7864	2	3'-3"	15'-7 1/2"	3'-3"				
P503	106	130	96	332	106	130	108	344	17'-1"	5916	6129	24	4'-0"	7'-0"				2'-0"	
	2	2	2	6	2	2	2	6	24'-5"										
P504	SERIES OF	SERIES OF	SERIES OF	SERIES OF	SERIES OF	SERIES OF	SERIES OF	SERIES OF	TO	549	549	STR							4'-10"
	3	3	3	3	3	3	3	3	34'-1"										
P505	10	10	10	30	10	10	10	30	29'-10"	933	933	13	11'-8"	13'-3 1/2"	5'-6"	3'-10"			
P506	30	30	30	90	30	30	30	90	5'-8"	532	532	2	0'-9"	4'-5"	0'-9"				
P507	22	22	22	66	22	22	22	66	11'-2"	769	769	2	3'-6"	4'-5"	3'-6"				
P601	22	22	22	66	22	22	22	66	24'-2"	2398	2396	2	1'-0"	22'-6"	1'-0"				
P602	31	31	31	93	31	31	31	93	17'-2"	2398	2398	2	1'-0"	15'-6"	1'-0"				
	4	4	4	12	4	4	4	12	12'-9"					3'-9"					
P603	SERIES OF	SERIES OF	SERIES OF	SERIES OF	SERIES OF	SERIES OF	SERIES OF	SERIES OF	TO	3280	3280	3	2'-6"	TO					1 1/4"
	13	13	13	13	13	13	13	13	15'-3"					5'-0"					
	4	4	4	12	4	4	4	12	15'-5"					5'-1"					
P604	SERIES OF	SERIES OF	SERIES OF	SERIES OF	SERIES OF	SERIES OF	SERIES OF	SERIES OF	TO	6969	6969	3	2'-6"	TO					2 1/2"
	20	20	20	20	20	20	20	20	23'-3"					9'-0"					
P605	42	42	42	126	42	42	42	126	23'-7"	4463	4463	3	2'-6"	9'-2"					
P606	4	4	4	12	4	4	4	12	4'-3"	77	77	1	1'-7"	2'-10"					
P607	6	6	6	18	6	6	6	18	9'-3"	250	250	3	1'-8"	2'-10"					
P701	16	16	16	48	16	16	16	48	23'-1"	2265	2265	STR							
	4	4	4	12	4	4	4	12	19'-6"										
P702	SERIES OF	SERIES OF	SERIES OF	SERIES OF	SERIES OF	SERIES OF	SERIES OF	SERIES OF	TO	1539	1539	STR							1'-5"
	3	3	3	3	3	3	3	3	22'-4"										
P901	24	24	24	72	24	24	24	72	25'-1"	6140	6140	2	1'-7"	22'-6"	1'-7"				
P902	4	4	4	12	4	4	4	12	4'-6"	184	184	STR							
P903	22	22	22	66	22	22	22	66	4'-3"	954	954	1	1'-8"	2'-10"					
P1001	55	55	55	165	55	55	55	165	18'-6"	13135	13135	2	1'-10"	15'-6"	1'-10"				
P1002	102	102	102	306	102	102	102	306	15'-3"	20080	20080	1	1'-10"	13'-9"					
P1003	102	102	102	306	102	102	102	306	30'-0"	39502	39502	STR							
P1004	102	0	0	102	102	0	0	102	31'-2"	13679	13679	STR							
P1005	0	102	0	102	0	102	0	102	42'-5"	18617	18617	STR							
P1006	0	0	102	102	0	0	0	0	25'-9"	11302	0	STR							
P1007	0	0	0	0	0	0	102	102	32'-2"	0	14118	STR							
P1008	32	32	32	96	32	32	32	96	25'-11"	10706	10706	1	3'-3"	23'-0"					
P1009	24	24	24	72	24	24	24	72	23'-1"	7152	7152	STR							
									SUB-TOTAL	188796	192363	LBS							

MARK	NUMBER						LENGTH	LEFT WEIGHT	RIGHT WEIGHT	TYPE	DIMENSIONS						
	LEFT STRUCTURE		TOTAL	RIGHT STRUCTURE		TOTAL					A	B	C	D	E	R	INC
	REAR	FORWARD		REAR	FORWARD												
ABUTMENT REINFORCING STEEL LIST																	
A501	60	60	120	60	60	120	16'-3"	2034	2034	3	5'-6"	2'-6"					
A502	50	50	100	50	50	100	16'-11"	1764	1764	3	3'-0"	5'-4"					
A503	10	10	20	10	10	20	20'-1"	419	419	2	9'-2"	2'-0"	9'-2"				
A504	18	18	36	18	18	36	22'-0"	826	826	STR							
A505	4	4	8	4	4	8	28'-6"	221	221	STR							
A506	4	4	8	4	4	8	18'-11"	158	158	STR							
	1	1	2	1	1	2	9'-9"				4'-0"		4'-0"				
A507	SERIES OF	SERIES OF	SERIES OF	SERIES OF	SERIES OF	SERIES OF	TO	258	258	2	TO	2'-0"	TO				0'-6"
	9	9	9	9	9	9	17'-9"				8'-0"		8'-0"				
	1	1	2	1	1	2	10'-9"					3'-3"					
A508	SERIES OF	SERIES OF	SERIES OF	SERIES OF	SERIES OF	SERIES OF	TO	201	201	3	2'-0"	TO					0'-6"
	1	1	1	1	1	1	18'-9"					6'-3"					
A509	0	1	1	1	0	1	16'-10"	18	18	19	16'-3"	6 1/2"	3 1/4"				
A510	0	1	1	1	0	1	17'-4"	18	18	19	16'-3"	1'-0"	0'-6"				
	2	2	4	2	2	4	2'-2"										
A511	SERIES OF	SERIES OF	SERIES OF	SERIES OF	SERIES OF	SERIES OF	TO	286	286	STR							1'-10"
	8	8	8	8	8	8	15'-0"										
A512	36	36	72	36	36	72	8'-1"	607	607	2	2'-10"	2'-8"	2'-10"				
A513	72	72	144	72	72	144	14'-2"	2128	2128	2	5'-7"	3'-3"	5'-7"				
A514	1	0	1	0	1	1	16'-6"	17	17	19	16'-3"	1 5/8"	7/8"				
A515	1	0	1	0	1	1	17'-3"	18	18	19	16'-3"	0'-7"	3 1/2"				
A601	3	3	6	3	3	6	3'-2"	29	29	STR							
A602	12	12	24	12	12	24	9'-8"	348	348	STR							
A603	3	3	6	3	3	6	3'-1"	28	28	STR							
A604	6	6	12	6	6	12	26'-9"	482	482	STR							
D801	32	32	64	32	32	64	4'-8"	797	797	18	2'-10"	1'-0"	1'-0"				
A801	15	15	30	15	15	30	24'-3"	1942	1942	STR							
A802	26	26	52	26	26	52	28'-2"	3911	3911	STR							
							SUB-TOTAL	16511	16511	LBS							

NOTES:
1. ALL REINFORCING STEEL TO BE EPOXY COATED
2. "STR" IN THE TYPE COLUMN INDICATES STRAIGHT BARS
3. REFER TO ODOT CMS SEC. 509.05 FOR STANDARD BAR DIMENSIONS
4. ALL DIMENSIONS ARE OUT TO OUT

DESIGN AGENT
KZF DESIGN
DESIGNED DEF/RBK
DRAWN RBK
CHECKED DAT
REVISED
DATE 06/24/11
REVISED BAA
STRUCTURE FILE NUMBER 7306458/7306466

REINFORCING STEEL LIST
BRIDGE NO. SCI-823-0837 L/R
SR 823 OVER SWAUGER VALLEY-MINFORD ROAD (CR 31)

SCI-823-6.81
PID No. 19415

41/43
51/53

MARK	LEFT STRUCTURE	RIGHT STRUCTURE	LENGTH	LEFT WEIGHT	RIGHT WEIGHT	TYPE	DIMENSIONS						
							A	B	C	D	E	R	INC
INTERMEDIATE DIAPHRAGM REINFORCING STEEL LIST (FOR INFORMATION ONLY)													
D401	576	576	10'-10"	4168	4168	3	0'-6"	4'-8"					
D601	384	384	9'-4"	5383	5383	STR							
D602	256	256	10'-0"	3845	3845	13	3'-8"	0'-8"	0'-8"	5'-8"			
		SUB-TOTAL		13397	13397	LBS							

MARK	NUMBER						LENGTH	LEFT WEIGHT	RIGHT WEIGHT	TYPE	DIMENSIONS						
	LEFT STRUCTURE		TOTAL	RIGHT STRUCTURE		TOTAL					A	B	C	D	E	R	INC
	TOP	BOTTOM		TOP	BOTTOM												
DECK SLAB REINFORCING STEEL LIST																	
S401	975		975	975		975	30'-0"	19539	19539	STR							
S402	65		65	65		65	21'-9"	944	944	STR							
S403	576		576	576		576	26'-6"	10198	10196	STR							
S404	2174		2174	2174		2174	9'-7"	13917	13917	16	9'-3"						
							1'-3"										
S501	1070		1070	1070		1070	30'-0"	33480	33480	STR							
S502	1074		1074	1074		1074	21'-6"	24084	24084	STR							
	1		1	1		1	1'-3"										
S503	SERIES OF		SERIES OF	SERIES OF		SERIES OF	TO	264	264	STR							1'-8 1/2"
	17		17	17		17	28'-1"										
	1		1	1		1	3'-3"										
S504	SERIES OF		SERIES OF	SERIES OF		SERIES OF	TO	135	135	STR							1'-8 1/2"
	11		11	11		11	20'-4"										
	1		1	1		1	4'-3"										
S505	SERIES OF		SERIES OF	SERIES OF		SERIES OF	TO	254	254	STR							1'-8 1/2"
	15		15	15		15	28'-2"										
	1		1	1		1	0'-7"										
S506	SERIES OF		SERIES OF	SERIES OF		SERIES OF	TO	147	147	STR							1'-8 1/2"
	13		13	13		13	21'-1"										
S507	4	4	8	4	4	8	26'-5"	220	220	STR							
S508		1245	1245		1245	1245	30'-0"	38956	38956	STR							
S509		83	83		83	83	31'-9"	2749	2749	STR							
S510		2144	2144		2144	2144	25'-9"	57582	57582	STR							
		2	2		2	2	1'-3"										
S511		SERIES OF	SERIES OF		SERIES OF	SERIES OF	TO	413	413	STR							1'-8 1/2"
		15	15		15	15	25'-2"										
		2	2		2	2	4'-1"										
S512		SERIES OF	SERIES OF		SERIES OF	SERIES OF	TO	389	389	STR							1'-8 1/2"
		13	13		13	13	24'-7"										
							SUB-TOTAL	203271	203271	LBS							

MARK	LEFT STRUCTURE	RIGHT STRUCTURE	LENGTH	LEFT WEIGHT	RIGHT WEIGHT	TYPE	DIMENSIONS						
							A	B	C	D	E	R	INC
PIER DIAPHRAGM REINFORCING STEEL LIST													
D402	96	96	16'-4"	1047	1047	6	2'-8"	6'-0"	1'-0"				
D403	15	15	4'-10"	48	48	12A	0'-81/2"	0'-81/2"	0'-61/4"	1'-11 1/2"			
D404	15	15	13'-1"	131	131	24	0'-51/2"	6'-6"				2 1/4"	
D405	15	15	2'-8"	27	27	STR							
D603	72	72	9'-8"	1045	1045	STR							
D801	96	96	10'-10"	2177	2177	13	3'-8"	0'-8"	0'-8"	6'-4"			
		SUB-TOTAL		5076	5076	LBS							

NOTES:
1. ALL REINFORCING STEEL TO BE EPOXY COATED
2. "STR" IN THE TYPE COLUMN INDICATES STRAIGHT BARS
3. REFER TO ODOT CMS SEC. 509.05 FOR STANDARD BAR DIMENSIONS
4. ALL DIMENSIONS ARE OUT TO OUT

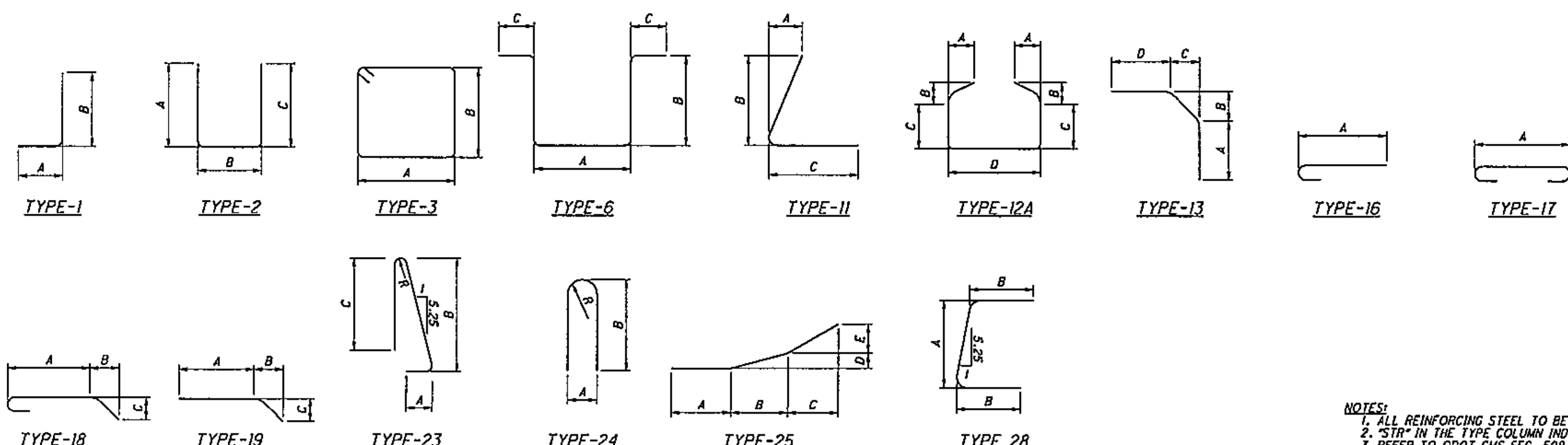
DESIGN AGENCY KZF DESIGN
DESIGNED DEF/RBK | DRAWN RBK | REVIEWED BAA | DATE 06/24/11
CHECKED DAT | REVISED | STRUCTURE FILE NUMBER 7308436/7308466

REINFORCING STEEL LIST
BRIDGE NO. SCI-823-0837 L/R
SR 823 OVER SHAUGER VALLEY-MINFORD ROAD (CR 31)

SCI-823-8.81
PID No. 19415

MARK	NUMBER: LEFT STRUCTURE INTERIOR	LEFT STRUCTURE EXTERIOR	TOTAL	RIGHT STRUCTURE INTERIOR	RIGHT STRUCTURE EXTERIOR	TOTAL	LENGTH	LEFT WEIGHT	RIGHT WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
RAILING REINFORCING STEEL LIST																	
R501	16		16	16		16	29'-7"	494	494	STR							
R502	136		136	136		136	28'-7"	4054	4054	STR							
R503		96	96		96	96	28'-11"	2895	2895	STR							
R504		404	404		404	404	7'-5"	3125	3125	23	1'-1"	3'-2"	3'-0"			2 3/4"	
R505		16	16		16	16	10'-0"	167	167	STR							
R506		10	10		10	10	5'-6"	57	57	25	1'-8"	2'-5"	1'-5"	1 1/2"	5"		
R507		6	6		6	6	5'-6"	34	34	STR							
R601		16	16		16	16	29'-6"	709	709	STR							
R602		404	404		404	404	2'-8"	1618	1618	1	1'-1"	1'-9"					
R603		404	404		404	404	3'-7"	2174	2174	28	1'-9"	1'-1"	1'-1"				
		4	4		4	4	5'-3"					3'-0"					
R604		SERIES OF	SERIES OF		SERIES OF	SERIES OF	TO	374	374	1	2'-5"	TO					0'-1"
		11	11		11	11	6'-1"					3'-10"					
R605		16	16		16	16	5'-3"	132	132	1	2'-5"	3'-0"					
R606	491		491	491		491	6'-2"	4548	4548	1	1'-1"	5'-2"					
R607	491		491	491		491	6'-3"	4609	4609	11	1'-0"	5'-2"	1'-1"				
							SUB-TOTAL	24993	24993	LBS							

MARK	NUMBER: LEFT STRUCTURE REAR	LEFT STRUCTURE FORWARD	TOTAL	RIGHT STRUCTURE REAR	RIGHT STRUCTURE FORWARD	TOTAL	LENGTH	LEFT WEIGHT	RIGHT WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
APPROACH SLAB REINFORCING STEEL LIST (FOR INFORMATION ONLY)																	
AS501	32	32	64	32	32	64	29'-6"	1969	1969	STR							
AS502	42	42	84	42	42	84	25'-10"	2263	2263	STR							
AS503	88	88	176	88	88	176	25'-4"	4650	4650	STR							
AS1001	88	88	176	88	88	176	30'-11"	23414	23414	16	29'-6"						
							SUB-TOTAL	32297	32297	LBS							
						LEFT STRUCTURE TOTAL		438646		LBS							
						RIGHT STRUCTURE TOTAL		442214		LBS							



NOTES:
1. ALL REINFORCING STEEL TO BE EPOXY COATED
2. "STR" IN THE TYPE COLUMN INDICATES STRAIGHT BARS
3. REFER TO ODOT CMS SEC. 509.05 FOR STANDARD BAR DIMENSIONS
4. ALL DIMENSIONS ARE OUT TO OUT

KZF DESIGN

DESIGNED DEF/RBK | DRAWN RBK | REVIEWED BAA | DATE 06/24/11
CHECKED DAT | REVISED | STRUCTURE FILE NUMBER 7306458/7306466

REINFORCING STEEL LIST
BRIDGE NO. SCI-823-0837 L/R
SR 823 OVER SWAUCER VALLEY-MINFORD ROAD (CR 31)

SCI-823-6.81
PID No. 19415

43/43

53/53

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ITEM 503, COFFERDAMS, CRIBS AND SHEETING:

LUMP

ITEM 503, UNCLASSIFIED EXCAVATION, AS PER PLAN:

SHEET REF. 15/43 (see calcs.)

AREA = 109.1 FT^2 L = ~~125'~~ 62.5'

VOL. = (2 ABT)$\left(\frac{109.1 \times \cancel{125} \; 62.5}{27}\right)$ = ~~[illegible]~~ 505 CU. YD. VS. LUMP ? yes

LUMP

ITEM 503, UNCLASSIFIED EXCAVATION INCLUDING ROCK AND/OR SHALE:

AT PIERS 16' x 23'

P1: (643.5 − 641.0) = 2.5'
P2: (630.9 − 628.4) = 2.5'
P3: (652.0 − 644.0) = 8.0'

VOL. = $\frac{(2.5 + 2.5 + 8.0)(16' \times 23')}{27}$ = 177 CU YD.

ITEM 505, PILE DRIVING EQUIPMENT MOBILIZATION:

LUMP

ITEM 507, STEEL PILES HP12 X 53, FURNISHED:

AT ABUTMENTS

REAR: 660.10 ROCK EL.
FWD: ASSUMING ROCK EL. VARIES, USE EL. 655 AVG.

REAR: 16 piles — 8 PILES BATTERED ($L = \frac{44.04}{\cos 14^\circ} = 45.4'$, USE 45'
TOP PILE EL. = 704.14
ESTIMATED L = 704.14 − 660.10 = 44.04 USE 45

FWD. 16 PILES — 8 PILES BATTERED (USE 45') — PER ODOT BDM 303.4.2.)
TOP PILE EL. = 699.38
ESTIMATED L = 699.38 − 655 = 44.4 USE 45

REAR:
ORDER L = ESTIMATED L + 5'
= 45 + 5 = 50'

FURNISHED L = 50' (16 piles) = 800 FT.

FWD:
ORDER L = 45 + 5 = 50'
FURNISHED L = 50' (16 piles) = 800 FT.

TOTAL FURNISHED L = 800' + 800' = 1600 FT.

ITEM 507, STEEL PILES HP12 X 53, DRIVEN:

DRIVEN L = ESTIMATED L X No. Piles

REAR: 45 (16) = 720'
FWD: 45 (16) = 720'

TOTAL = 1440 FT.

ITEM 507, PREBORED HOLES:

SAME AS DRIVEN L = 1440 FT.

ITEM 507, STEEL POINTS OR SHOES, AS PER PLAN:

SAME AS # PILES

REAR ABUT. = 16
FWD. ABUT. = 16

TOTAL = 32

ITEM 509, EPOXY COATED REINFORCING STEEL:

PIERS

ABUTMENTS

SUPERSTRUCTURE
- DECK
- PIER DIAPHRAGM
- RAILING

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

→ AT ABUTMENTS:

$H = 72" + 4" + 14.066" + 6" = 96.1"$

$L = 49.7'$

BEAM AREA = $956\ in^2$

EXTRA A to deduct = $14.1'(26") = 367\ in^2$

Front Face Diaphragm/Backwall $= 49.7'\left(\frac{96.1"}{12}\right) - 5\left(\frac{1323\ in^2}{144}\right)$

$A_1 = 352.1\ FT^2$ ea

Wingwall: $L_{Ht.} = \left(\frac{8.79 + 1.42}{2}\right) + 2.5' + 0.5' = 8.1'$

$L = 14.75'$

$A_2 = 8.1(14.75') = 119.5\ FT^2$

SUB TOTAL $A = A_1 + A_2 = \frac{(352.1\ FT^2 + 119.5)}{9} = 52.4$ SQ. YD.

TOTAL = (2 ABTS.)(52.4 SQ. YD.) = 105 SQ. YD.

→ AT PIERS:

	Pier cap Front (FT²)	Pier cap under (FT²)	Pier cap sides (FT²)	Column
P1	370.7(2)	14.4(4.75)(2)	4.05(4.75)(2)	59.1' x 55.2' = 3262
P2	741.4	136.8	38.5	59.1' x 66.4' = 3924
P3	741.4	136.8	38.5	59.1' x 49.8' = 2943

$A = \frac{3(741.4 + 136.8 + 38.5) + 3262 + 3924 + 2943}{9} = 1431$ SQ. YD.

→ AT SUPERSTRUCTURE :

LHS: 8" + 26 + 8 + 12.7 + 36 + 4.2 + 11.2 + 4 + 25 + 11 + 2 + 13 + 2 + 29 + 10 + 42.8 + 9 = 253.9 in.

MEDIAN: 9" + 58.0 + 6.75 = 73.8 in.

$A = \frac{253.9 \text{ in}}{12}(430.84') + \frac{73.8 \text{ in.}}{12}(30' + 430.84' + 30)$

$= 9115.9 \text{ FT}^2 + 3018.7 \text{ FT}^2 = 12135 \text{ FT}^2$

$A = \frac{12135 \text{ FT}^2}{9} = \underline{1348 \text{ SQ. YD.}}$

ITEM 515, DRAPED STRAND PRESTRESSED CONCRETE BRIDGE I-BEAM MEMBERS, LEVEL 3, TYPE 4 MODIFIED (72"), AS PER PLAN :

5 BMS (4 SPANS) = 20 EACH

ITEM 515, INTERMEDIATE DIAPHRAGMS :
FRAMING PLAN SHT. 30/43
(4 PER SPAN)(4 SPANS)(4 DIA.) = 64 EACH

ITEM 516, 1" PREFORMED EXPANSION JOINT FILLER :
AT MEDIAN

$A = \frac{0.5(57")(10.75")}{144} + \frac{57"(6.75")}{144} = 4.8 \text{ FT}^2$

$4.8 \text{ FT}^2 \times 2 \text{ ABTS.}$

$= 10.0 \text{ SQ. FT.}$

ITEM 516, 2" PREFORMED EXPANSION JOINT FILLER:

→ AT ABUTMENTS:

BTW. LEFT & RIGHT BRIDGES

$$A = \frac{(6.0')(3.0') + (3.5')(2.84') + (3.5')(8.3')}{\cos 13^\circ} = 58.5 \text{ FT}^2$$

BTW. ABUT. DIAPHRAGM & WINGWALL

$$A = \frac{(2.5')(8.3')}{\cos 13^\circ} = 21.3 \text{ FT}^2$$

$$\text{TOTAL} = (2 \text{ ABUT.})(21.3 \text{ FT}^2) + \frac{(2 \text{ ABUT.})(58.5)}{2} = 101 \text{ SQ.FT.}$$

SPLIT BTW. LEFT & RIGHT BRIDGES

→ AT SUPERSTRUCTURE:

$H = 57" + 11" = 68"$

$$A = \frac{\left(\frac{68"}{12}\right)(430.84')}{2} = 1221 \text{ SQ.FT.}$$

2 ← SPLIT BTW. LEFT & RIGHT BRIDGES

→ AT APPROACH SLABS (GENERAL):

$$A = \frac{\left(\frac{74"}{12}\right)(30' + 30')}{2} = 185 \text{ SQ.FT.}$$

2 ← SPLIT

$$\text{TOTAL} = 101 + 1221 + 185 = 1507 \text{ SQ.FT.}$$

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ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN:

Rear Abut. 11/43 : $L_H = 48.75'$
$L_V = 8.29'$

TOTAL = (2 ABTS)(48.75 + 8.29) = 114 FT.

ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (1.72" X 22" X 13"):

AT PIER 2 : (2 BRG. LINES)(5 BMS) = 10 EACH

ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (2.75" X 22" X 13"):

AT PIERS 1 & 3 : (2 PIERS)(2 BRG. LINES)(5 BMS) = 20 EACH

ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (3.78" X 22" X 13"):

AT ABUTS: (2 ABTS.)(5 BMS) = 10 EACH

ITEM 518, POROUS BACKFILL WITH FILTER FABRIC:

AT REAR ABT: $H = 717.19 - 703.09 - \frac{17''}{12} = 12.7'$

$L = 48.75'$

WINGWALL $H = \frac{12.7 + 9.7'}{2} = 11.2'$

$L = 8.75'$

$$\text{VOL.} = (2 \text{ ABTS})\left[(12.7)(48.75) + (11.2)(8.75)\right]\frac{(2.0 \text{ FT.})}{27}$$

$= \underline{106 \text{ CU. YD.}}$

ITEM 518, 6" PERFORATED CORRUGATED PLASTIC PIPE:

$L = (2 \text{ ABTS.})\left(\frac{119'}{2} + 0.75'\right) = \underline{121 \text{ FT.}}$

ITEM 518, 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS:

$L = (2 \text{ ABTS.})(14.0') = \underline{28 \text{ FT.}}$

ITEM 601, CRUSHED AGGREGATE SLOPE PROTECTION:

FWD. ABT.: $\frac{(45.5' + 3.0')}{\cos 26.6^\circ}\left(\frac{103'}{9}\right) = 621$ SQ. YD.

REAR ABT.: $\frac{(45.5' + 15')}{\cos 26.6^\circ}\left(\frac{103' + 25'}{9}\right) = 962$ SQ. YD.

TOTAL = 621 + 962 = 1583 SQ. YD.

ITEM 601, ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER:

AT PIER 3: $\frac{(45.5' + 3.0')}{\cos 26.6^\circ}(35')\left(\frac{2.0'}{27}\right) = 141$ CU. YD.

ITEM 898, QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK), AS PER PLAN:

DECK: $(48.42')(430.84')(0.7292')\frac{1}{27} = 563.4\ yd^3$

HAUNCH: Beams 2,3,4 $(3\ \text{BEAMS})(3.0')(0.271')(430.84)\frac{1}{27} = 38.9\ yd^3$

HAUNCH: Beams 1,5 $(2\ \text{BEAMS})(5.083')(0.271')(430.84)\frac{1}{27} = 44.0\ yd^3$

PIER DIAPHRAGMS: $(3\ \text{DIA.})\left[\left(\frac{41.33'}{\cos 13^\circ}\right)(5.604') - (4\ \text{BMS})\left(\frac{956\ in^2 - 208}{144}\right)\right]\frac{(3')}{27}$

$= 72.3\ yd^3$

BTW. BMS. $\wedge$ (3 DIA.): $(4\ \text{BMS})\left(\frac{956\ in^2 - 208}{144}\right)\left(\frac{0.75'}{27}\right) = 1.7\ yd^3$

ABUTMENT DIAPHRAGMS:

$$(2\ \text{ABT.})(48.75')(6.75')\frac{(3.5')}{27} - (2\ \text{ABT.})(5\ \text{DIAS})\frac{(956\ in^2 - 194)}{144}\frac{(2.0)}{27}$$

VOL. = $85.3\ yd^3 - 3.9\ yd^3 = 81.4\ yd^3$

TOTAL = $563.4 + 38.9 + 44.0 + 72.3 + 1.7 + 81.4 = 802$ CU. YD.

ITEM 898, QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), (T=17"), AS PER PLAN:

$$A = (2\ \text{SLABS})\frac{(47.42')(30')}{9} = 316\ \text{SQ. YD.}$$

ITEM 898, QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET):

SOUTH PARAPET: $A = \left[\frac{(13"X2") + (42)(10) + 0.5(42)(8)}{144}\right]$

$= \frac{614\ in^2}{144} = 4.26\ ft^2$ (A/38)

SECTION (B/38) $A = \left[\frac{(13"X2") + (14.5)(32) + 0.5(3.5)(4)}{144}\right]$

$= 3.45\ ft^2$

SECTION (C/38) $A = [(14.5"X32) + 0.5(3.5)(4)] \div 144 = 3.27\ ft^2$

SECTION (D/38) $A = \frac{[(10")(32") + (8")(4")]}{144} = 2.44\ ft^2$

$$\text{VOL.} = (4.26\ ft^2)(403.88') + 2\left(\frac{3.45+4.26}{2}\right)(10.0') + 2\left(\frac{3.27+3.45}{2}\right)(2.5') + 2\left(\frac{2.44+3.27}{2}\right)(1.5')$$

$$= 1823\ ft^3$$

$$= \underline{68\ \text{CU. YD.}}$$

ITEM 898, QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET), AS PER PLAN:

NORTH MEDIAN BARRIER: $A = \frac{0.5(10.75")(57") + (6.75")(57")}{144}$

$$= 4.8\ FT^2$$

$$\text{VOL.} = \frac{(4.8\ FT^2)(490.84')}{27} = \underline{87\ \text{CU. YD.}}$$

ITEM 898, QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (PIER ABOVE FOOTING):

SEISMIC PEDESTAL: $\frac{(3 \text{ PIERS})(2 \text{ PEDESTALS})}{27}\left(\frac{4.75'}{\cos 13^\circ}\right)(2.0')\left(\frac{7.2''}{12}\right)$

$= 1.3 \text{ yd}^3$

PIER CAPS: $(3 \text{ CAPS})\left[(9.55')(46.5') - (13.29')(5.5)\right]\frac{(4.75')}{27}$

$= 195.8 \text{ yd}^3$

PIER 1: COLUMN A $= (15.42')(4.5') + \frac{1}{2}(\pi)(2.25)^2$

$= 85.3 \text{ ft}^2$

VOL. $= (85.3 \text{ ft}^2)(53.2 \text{ ft})\frac{1}{27} = 168.1 \text{ yd}^3$

PIER 2: VOL. $= (85.3 \text{ ft}^2)(64.4 \text{ ft})\frac{1}{27} = 203.5 \text{ yd}^3$

PIER 3: VOL. $= (85.3 \text{ ft}^2)(47.8 \text{ ft})\frac{1}{27} = 151.0 \text{ yd}^3$

TOTAL $= 1.3 + 195.8 + 168.1 + 203.5 + 151.0$

$= \underline{720 \text{ CU. YD.}}$

ITEM 898, QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (ABUTMENT):

WINGWALLS: (2 WINGS)$\left[\left(\frac{\text{~~14.75~~}}{8.29}\right)(14.75) - 0.5(7.37)(14.75)\right]$

$A = \frac{135.8}{\text{~~219.6~~}}$ ft^2

VOL. $= \left(\frac{135.8}{\text{~~219.6~~}}\text{ ft}^2\right)(2.5')\frac{1}{27} = \frac{12.6}{\text{~~20.3~~}}$ yd^3

ABUTMENT (ABOVE FTG.): $\frac{(2\text{ ABTS})}{27}\left[(2.84)(14.75)(2.5) + (2.84)(50.75)(3.5')\right]$

$= 45.1$ yd^3

TOTAL $= \frac{12.6}{\text{~~20.3~~}} + 45.1 = \frac{58}{\text{~~63~~}}$ CU. YD.

ITEM 898, QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (FOOTING):

AT PIERS: $(3\text{ FTGS})(16')(23')(4.0')\frac{1}{27} = 163.6$ yd^3

AT ABUT: $(2\text{ FTGS})(3')(6')(59.33')\frac{1}{27} = 79.1$ yd^3

TOTAL $= 163.6 + 79.1 = 243$ CU. YD.

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ITEM 503, COFFERDAMS, CRIBS AND SHEETING:

LUMP

ITEM 503, UNCLASSIFIED EXCAVATION, AS PER PLAN:

SHEET REF. 15/43 (see calcs.)

AREA = 109.1 FT² L = ~~125'~~ 62.5'

VOL. = $(2 \text{ ADT})\left(\frac{109.1 \times \cancel{125} \; 62.5}{27}\right) = \cancel{\text{[illegible]}} \; 505$ CU. YD. vs. LUMP ? yes

LUMP

ITEM 503, UNCLASSIFIED EXCAVATION INCLUDING ROCK AND/OR SHALE:

AT PIERS ✓16' x 23' ✓

P1: (643.5 ✓ − 641.0 ✓) = 2.5'

P2: (630.9 ✓ − 628.4 ✓) = 2.5'

P3: (~~652.0~~ 645.0 − ~~644.0~~ 637.5) = ~~8.0~~ 7.5'

VOL. = $\left(\frac{2.5 + 2.5 + \cancel{8.0} \; 7.5}{7.5}\right)\left(\frac{16' \times 23'}{27}\right) = \cancel{\text{[illegible]}} \; 170$ CU YD.

ITEM 505, PILE DRIVING EQUIPMENT MOBILIZATION:

LUMP ✓

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ITEM 507, STEEL PILES HP12 X 53, FURNISHED:

AT ABUTMENTS

REAR: 660.10 ROCK EL. ✓ 653
FWD: ASSUMING ROCK EL. VARIES, USE EL. ~~655~~ AVG.

REAR: 16 piles 8 PILES BATTERED ($L = \frac{44.04}{\cos 14°}$) = 45.4', USE 45 ✓
TOP PILE EL. = ~~704.44~~ 703.73
ESTIMATED L = ~~704.44~~ 703.73 − 660.10 = ~~44.04~~ 43.63 USE 45 ✓ PER ODOT BDM 303.4.2.1

FWD. 16 PILES 8 PILES BATTERED (USE 45') 46.4
TOP PILE EL. = 699.~~38~~35
ESTIMATED L = 699.~~38~~35 − ~~655~~653 = ~~46.4~~ USE ~~45~~ 50

REAR:
ORDER L = ESTIMATED L + 5'
= 45 + 5 = 50' ✓

FURNISHED L = 50' (16 piles) = 800 FT. ✓

FWD:
ORDER L = ~~45~~50 + 5 = ~~50~~55'
FURNISHED L = ~~50~~55' (16 piles) = ~~800~~880 FT.

TOTAL FURNISHED L = 800' + ~~800~~880' = ~~1600~~1680 FT.

ITEM 507, STEEL PILES HP12 X 53, DRIVEN:

DRIVEN L = ESTIMATED L X NO. PILES

REAR: 45 (16) = 720'
FWD: ~~45~~50 (16) = ~~720~~800'

TOTAL = ~~1520~~ 1520 FT.

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ITEM 507, PREBORED HOLES:

SAME AS DRIVEN L = ~~1480~~ 1520 FT.

ITEM 507, STEEL POINTS OR SHOES, AS PER PLAN:

SAME AS # PILES

REAR ABUT. = 16

FWD. ABUT. = 16

TOTAL = 32 ✓

ITEM 509, EPOXY COATED REINFORCING STEEL:

PIERS

ABUTMENTS

SUPERSTRUCTURE
- DECK
- PIER DIAPHRAGM
- RAILING

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

→ AT ABUTMENTS:

$H = 72" + 4" + 14.066" + 6" = 96.1"$

$L = 49.7'$

BEAM AREA = $956\ in^2$

EXTRA A to deduct = $14.1"(26") = 367\ in^2$

Front Face Diaphragm/Backwall = $49.7'\left(\frac{96.1"}{12}\right) - 5\left(\frac{1323\ in^2}{144}\right)$

$A_1 = 352.1\ FT^2$ ea abt

Wingwall: $L_{Ht.} = \left(\frac{8.79 + 1.42}{2}\right) + 2.5' + 0.5' = 8.1'$

$L = 14.75'$

$A_2 = 8.1(14.75') = 119.5\ FT^2$

SUB TOTAL $A = A_1 + A_2 = \frac{(352.1\ FT^2 + 119.5)}{9} = 52.4$ SQ. YD.

TOTAL = (2 ABTS.)(52.4 SQ. YD.) = 105 SQ. YD. ✓

→ AT PIERS:

	Pier cap front (FT^2)	Pier cap under	Pier cap sides	Column
P1	370.7 (2)	14.4 (4.75)(2)	4.05 (4.75)(2)	59.1' x 55.2' = 3262
	741.4	136.8	38.5	59.1' x 66.4' = 3924
P2	741.4	136.8	38.5	59.1' x 49.8' = 2943
P3	741.4	136.8	38.5	

$A = \frac{3(741.4 + 136.8 + 38.5) + 3262 + 3924 + 2943}{9} = 1431$ SQ. YD. ✓

→ AT SUPERSTRUCTURE :

LHS: 8" + 26 + 8 + 12.7 + 36 + 4.2 + 11.2 + 4 + 25 + 11 + 2 + 13 + 2 + 29 + 10 + 42.8 + 9 = 253.9 in.

MEDIAN: 9" + 58.0 + 6.75 = 73.8 in.

$A = \frac{253.9 \text{ in.}}{12}(430.84') + \frac{73.8 \text{ in.}}{12}(30' + 430.84' + 30)$

$= 9115.9 \text{ FT}^2 + 3018.7 \text{ FT}^2 = 12135 \text{ FT}^2$

$A = \frac{12135 \text{ FT}^2}{9} = \underline{1348 \text{ SQ. YD.}}$ ✓

ITEM 515, DRAPED STRAND PRESTRESSED CONCRETE BRIDGE I-BEAM MEMBERS, LEVEL 3, TYPE 4 MODIFIED (72"), AS PER PLAN :

5 BMS (4 SPANS) = 20 EACH ✓

ITEM 515, INTERMEDIATE DIAPHRAGMS :

FRAMING PLAN SHT. 30/43

(4 PER SPAN)(4 SPANS)(4 DIA.) = 64 EACH ✓

ITEM 516, 1" PREFORMED EXPANSION JOINT FILLER :

AT MEDIAN

$A = \frac{0.5(57")(10.75")}{144} + \frac{57"(6.75")}{144} = 4.8 \text{ FT}^2$

$\times$ 2 ABTS.

$= 10.0 \text{ SQ. FT.}$ ✓

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ITEM 516, 2" PREFORMED EXPANSION JOINT FILLER:

→ AT ABUTMENTS:

BTW. LEFT & RIGHT BRIDGES

$$A = \frac{(6.0')(3.0') + (3.5')(2.84') + (3.5')(8.3')}{\cos 13^\circ} = 58.5 \text{ FT}^2$$

BTW. ABUT. DIAPHRAGM & WINGWALL

$$A = \frac{(2.5')(8.3')}{\cos 13^\circ} = 21.3 \text{ FT}^2$$

$$\text{TOTAL} = (2 \text{ ABUT.})(21.3 \text{ FT}^2) + \frac{(2 \text{ ABUT.})(58.5)}{2} = 101 \text{ SQ. FT.} \checkmark$$

SPLIT BTW. LEFT & RIGHT BRIDGES

→ AT SUPERSTRUCTURE:

$H = 57" + 11" = 68"$

$$A = \frac{\left(\frac{68"}{12}\right)(430.84')}{2} = 1221 \text{ SQ. FT.} \checkmark$$

SPLIT BTW. LEFT & RIGHT BRIDGES

→ AT APPROACH SLABS (GENERAL):

$$A = \frac{\left(\frac{74"}{12}\right)(30' + 30')}{2} = 185 \text{ SQ. FT.} \checkmark$$

SPLIT

$$\text{TOTAL} = 101 + 1221 + 185 = 1507 \text{ SQ. FT.} \checkmark$$

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ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN:

Rear Abut. #10/43 : L_H = 48.75'
L_V = 8.29'

TOTAL = (2 ABTS)(48.75 + 8.29) = 114 FT.

ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (1.72" X 22" X 13"):

AT PIER 2 : (2 BRG. LINES)(5 BMS) = 10 EACH ✓

ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (2.75" X 22" X 13"):

AT PIERS 1 & 3 : (2 PIERS)(2 BRG. LINES)(5 BMS) = 20 EACH ✓

ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (3.78" X 22" X 13"):

AT ABUTS : (2 ABTS.)(5 BMS) = 10 EACH ✓

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ITEM 518, POROUS BACKFILL WITH FILTER FABRIC:

AT REAR ABT: $H = 717.19 - 703.09 - \frac{17''}{12} = 12.7'$

$L = 48.75'$

WINGWALL $H = \frac{12.7 + 9.7'}{2} = 11.2'$

$L = 8.75'$

$VOL. = (2\ ABTS)\left[(12.7)(48.75) + (11.2)(8.75)\right]\frac{(2.0\ FT.)}{27}$

$= \underline{106\ CU.YD.}$ ✓

ITEM 518, 6" PERFORATED CORRUGATED PLASTIC PIPE:

$L = (2\ ABTS.)\left(\frac{119'}{2} + 0.75'\right) = \underline{121\ FT.}$ ✓

ITEM 518, 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS:

$L = (2\ ABTS.)(14.0') = \underline{28\ FT.}$ ✓

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ITEM 601, CRUSHED AGGREGATE SLOPE PROTECTION:

FWD. ABT.: $\frac{(45.5' + 12')}{\cos 26.6^\circ}\left(\frac{103'}{9}\right) = 736$ SQ. YD.

REAR ABT.: $\frac{(45.5' + 3')}{\cos 26.6^\circ}\left(\frac{103'}{9}\right) = 621$ SQ. YD.

TOTAL = 736 + 621 = 1357 SQ. YD.

ITEM 601, ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER:

AT PIER 3: $\frac{(45.5' + 25')}{\cos 26.6^\circ}(25')\left(\frac{2.0'}{27}\right) = 146$ CU. YD.

ITEM 898, QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK), AS PER PLAN:

DECK: $(48.42')(430.84')(0.7292')\frac{1}{27} = 563.4\ yd^3$

HAUNCH: Beams 2,3,4: $(3\ \text{BEAMS})(3.0')(0.271')(430.84)\frac{1}{27} = 38.9\ yd^3$

HAUNCH: Beams 1,5: $(2\ \text{BEAMS})(5.083')(0.271')(430.84)\frac{1}{27} = 44.0\ yd^3$

PIER DIAPHRAGMS: $(3\ \text{DIA.})\left[\left(\frac{41.33'}{\cos 13^\circ}\right)(5.604') - (4\ \text{BMS})\left(\frac{956\ in^2 - 208}{144}\right)\right]\frac{(3')}{27} = 72.3\ yd^3$

BTW. BMS. (3 DIA.): $(4\ \text{BMS})\left(\frac{956\ in^2 - 208}{144}\right)\left(\frac{0.75'}{27}\right) = 1.7\ yd^3$

ABUTMENT DIAPHRAGMS:

$$(2\ \text{ABT.})(48.75')(6.75')\frac{(3.5')}{27} - (2\ \text{ABT.})(5\ \text{BMS})\frac{(956\ in^2 - 194)}{144}\frac{(2.0)}{27}$$

VOL. = $85.3\ yd^3 - 3.9\ yd^3 = 81.4\ yd^3$

TOTAL = $563.4 + 38.9 + 44.0 + 72.3 + 1.7 + 81.4 = 802$ CU. YD. ✓

ITEM 898, QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), (T=17"), AS PER PLAN:

$$A = (2\ \text{SLABS})(47.42')\frac{(30')}{9} = 316\ \text{SQ. YD.}$$ ✓

ITEM 898, QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET):

SOUTH PARAPET: $A = \left[\frac{(13"(2") + (42)(10) + 0.5(42)(8)}{144}\right]$

$= \frac{614\ in^2}{144} = 4.26\ ft^2$ (A/38)

SECTION (B/38) $A = \left[\frac{(13"(2") + (14.5)(32) + 0.5(3.5)(4)}{144}\right]$

$= 3.45\ ft^2$

SECTION (C/38) $A = [(14.5"(32) + 0.5(3.5)(4)] \div 144 = 3.27\ ft^2$

SECTION (D/38) $A = \frac{[(10")(32") + (8")(4")]}{144} = 2.44\ ft^2$

$VOL. = (4.26\ ft^2)(403.88') + 2\left(\frac{3.45+4.26}{2}\right)(10.0') + 2\left(\frac{3.27+3.45}{2}\right)(2.5') + 2\left(\frac{2.44+3.27}{2}\right)(1.5')$

$= 1823\ ft^3$

$= \underline{68\ CU.YD.}$ ✓

ITEM 898, QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET), AS PER PLAN:

NORTH MEDIAN BARRIER: $A = \frac{0.5(10.75")(57") + (6.75")(57")}{144}$

$= 4.8\ FT^2$

$VOL. = \frac{(4.8\ FT^2)(490.84')}{27} = \underline{87\ CU.YD.}$ ✓

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ITEM 898, QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (PIER ABOVE FOOTING):

SEISMIC PEDESTAL: $\frac{(3 \text{ PIERS})(2 \text{ PEDESTALS})(\frac{4.75'}{\cos 13^\circ})(2.0')(\frac{7.2''}{12})}{27}$

$= 1.3 \text{ yd}^3$ ✓

PIER CAPS: $(3 \text{ CAPS})[(9.55')(46.5') - (13.29')(5.5)](\frac{4.75'}{27})$

$= 195.8 \text{ yd}^3$ ✓

PIER 1: COLUMN A $= (15.42')(4.5') + \pi(11)(2.25)^2$

$= 85.3 \text{ ft}^2$ ✓

VOL. $= (85.3 \text{ ft}^2)(52.8 \text{ ft})\frac{1}{27} = 166.8 \text{ yd}^3$

PIER 2: VOL. $= (85.3 \text{ ft}^2)(64.2 \text{ ft})\frac{1}{27} = 202.8 \text{ yd}^3$

PIER 3: VOL. $= (85.3 \text{ ft}^2)(54.2 \text{ ft})\frac{1}{27} = 171.2 \text{ yd}^3$

TOTAL $= 1.3$ ✓ $+ 195.8$ ✓ $+ 166.8 + 202.8 + 171.2$

$= 738$ CU. YD.

ITEM 898, QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (ABUTMENT):

WINGWALLS: (2 WINGS)$\left[\left(\frac{8.29}{2}\right)'(14.75) - 0.5(7.37)(14.75)\right]$

$A = 135.8 \text{ ft}^2$

VOL. $= (135.8 \text{ ft}^2)(2.5') \frac{1}{27} = 12.6 \text{ yd}^3$

ABUTMENT (ABOVE FTG.): $\frac{(2 \text{ ABTS})}{27}\left[(2.84)(14.75)(2.5) + (2.84)(50.75)(3.5')\right]$

$= 45.1 \text{ yd}^3$

TOTAL $= 12.6 + 45.1 = 58$ CU. YD.

ITEM 898, QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (FOOTING):

AT PIERS: $(3 \text{ FTGS})(16')(23')(4.0') \frac{1}{27} = 163.6 \text{ yd}^3$ ✓

AT ABUT: $(2 \text{ FTGS})(3')(6')(59.33') \frac{1}{27} = 79.1 \text{ yd}^3$

TOTAL $= 163.6 + 79.1 = 243$ CU. YD. ✓

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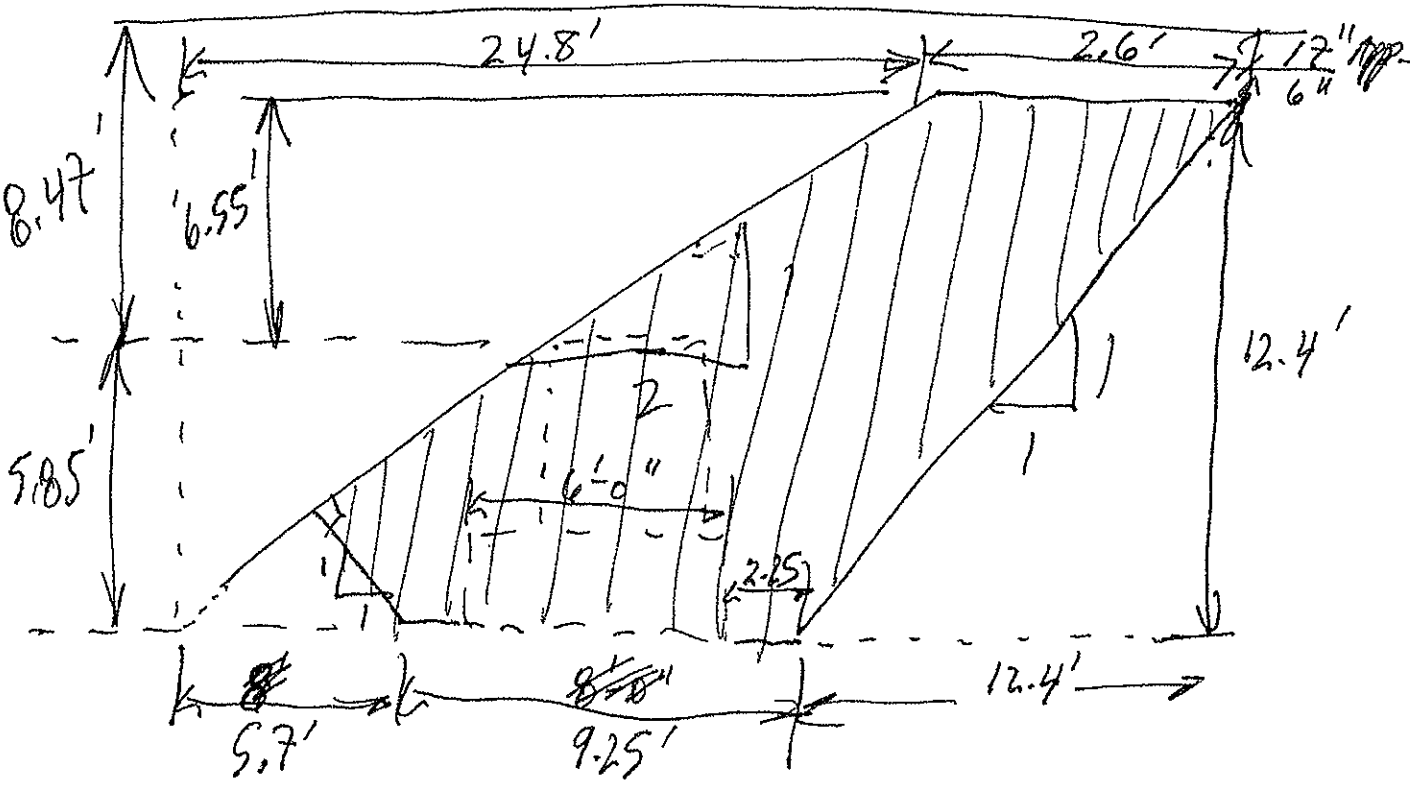


AREA = $12.4(27.4') - 0.5[(12.4')(24.8') + (12.4)(12.4)]$

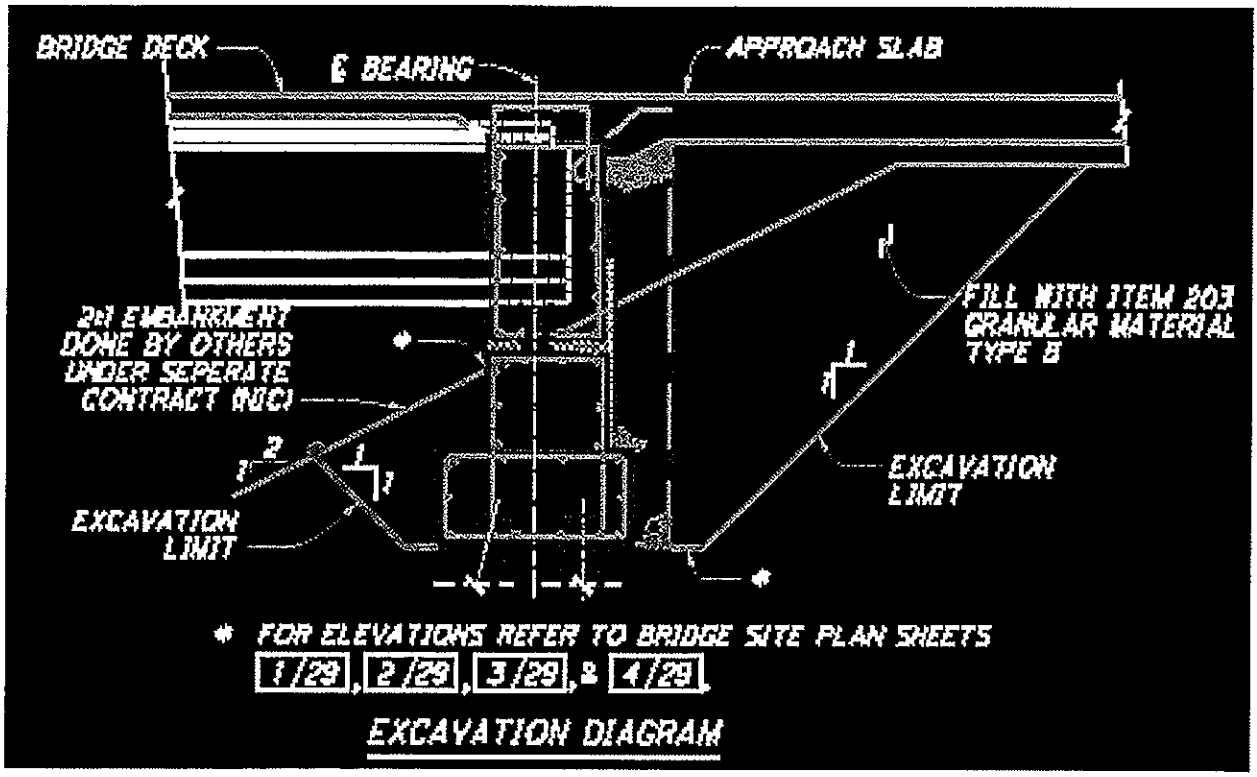
$= 109.1\ FT^2$ =

REAR ABUT. $L = 59.5' + 2(3.0') = 62.5'$

1:1 slope

$VOL. = \frac{109.1\ FT^2 (62.5\ FT)}{27} = 252.5$ CU. YD. Rear Abut.

TOTAL $= (2\ ABT.)(252.5) =$ 505 CU. YD.



EXCAVATION DIAGRAM

303.4.1.3 REINFORCING STEEL IN FOOTINGS

Secondary reinforcing steel in a footing generally should be placed under the main steel.

For footings on piles the reinforcing bars shall be placed near the bottom of the footing rather than at the top of the piles.

If the footing dowels (footing to wall or column) are provided, a bent portion of the dowel should lie in the plane of the bottom footing bars.

For piers in embankment slopes the minimum dowel size and spacing should be #8 [# 25M] at 1'-0" [300 mm] centers. For full length wall type piers not in embankment slopes and without earth overturning forces the minimum dowel size and spacing should be #6 [# 19M] at 1'-0" [300 mm] centers.

At locations where the concrete unit tensile stress approaches the allowable for un-reinforced concrete, reinforcing steel should be provided. This applies particularly to the bottom of the toe and the top of the heel of a footing for a cantilever-type retaining wall or abutment where the footing is thin in proportion to the toe and heel projections. It may also apply to the tops of footings for tall piers where unanticipated longitudinal or lateral movements may induce tension in the tops of the footings.

303.4.2 PILE FOUNDATIONS

303.4.2.1 PILES, PLAN SHEET REQUIREMENTS

For record and project use, a unique number shall individually identify each pile for a structure. The designer may choose to number each pile on the individual substructure plan sheet or on a separate pile layout sheet.

Listed below are definitions to commonly specified pile lengths:

A. Estimated Length = Pile Cutoff Elevation - Pile Tip Elevation
Round Estimated Length up to the nearest 5 ft [1 m]. Section 200 requires the Designer to provide the Estimated Length on the site plan.

B. Order Length = Estimated Length + 5 ft [1.5 m]
The Designer shall provide the order length for each pile in the Structure General Notes. Refer to Section 600.

C. Furnished Length = Order Length x No. of Piles
Include in the table of Estimated Quantities.

D. Driven Length = Estimated Length x No. of Piles

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QUANTITY CALCULATION FOR ITEM 670F00500 SLOPE EROSION PROTECTION

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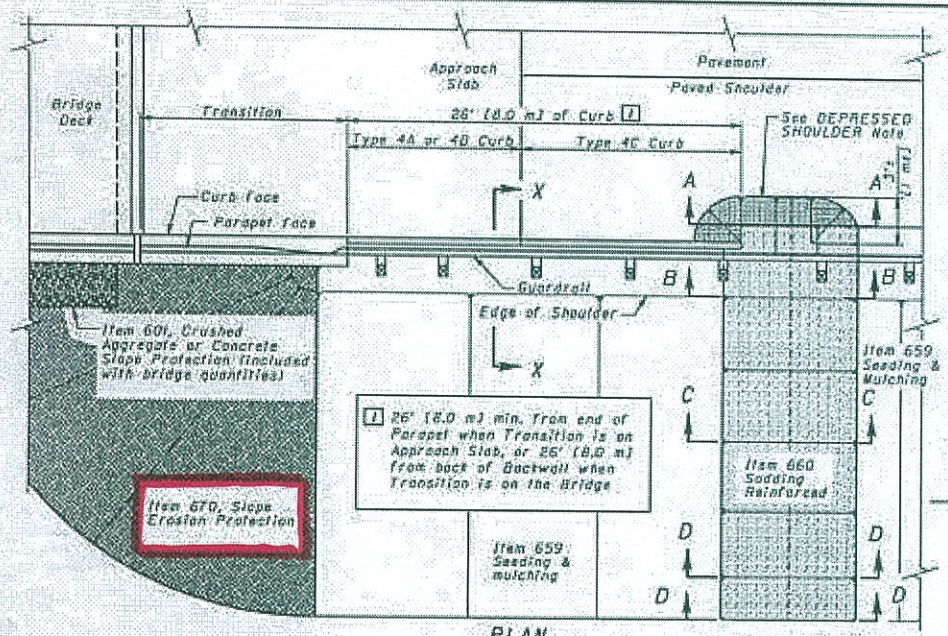
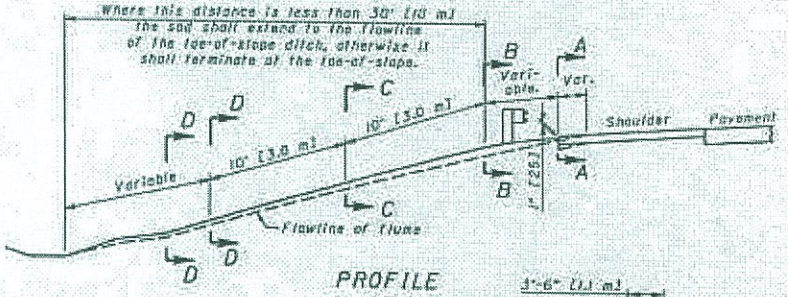
Project: Portsmouth Bypass-SC1-8236.81	Computed: JMD	Date: 9/27/2010	
Subject: Stage 3- Phase 1C Quantities	Checked: LBD	Date: 4/29/2013	
Task: Paving, Earthwork, & Seeding Calculations	Page: 1	of: 1	
Job #: 0000000000045878	No:		

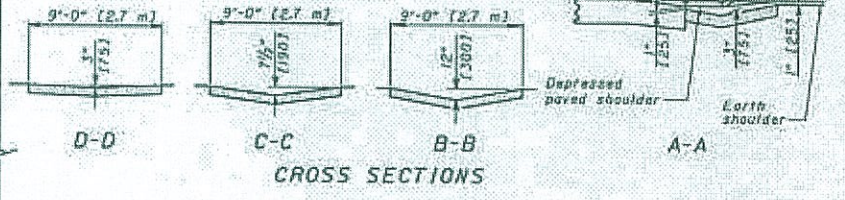
Item 670- Slope Erosion Protection

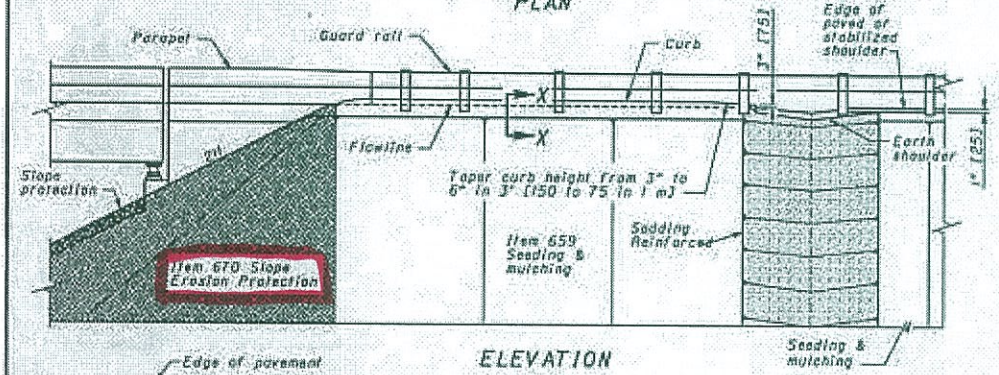
(Areas from CADD→Approach Fill (one less Item 601 crushed aggregate slope protection)

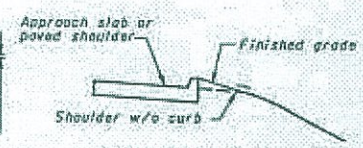
- Rear Abutment
  - Right Side- $Area_{SEP}$ = 9,573.3 sf $\left(\frac{sy}{9sf}\right)$
    - ✓ $Area_{SEP}$ = 1063.7 sy
  - Left Side- $Area_{SEP}$ = 11,755.7 sf $\left(\frac{sy}{9sf}\right)$
    - ✓ $Area_{SEP}$ = 1,306.2 sy
- Forward Abutment
  - Right Side- $Area_{SEP}$ = 13,112.8 sf $\left(\frac{sy}{9sf}\right)$
    - ✓ $Area_{SEP}$ = 1,457.0 sy
  - Left Side- $Area_{SEP}$ = 6,407.7 sf $\left(\frac{sy}{9sf}\right)$
    - ✓ $Area_{SEP}$ = 712.0 sy

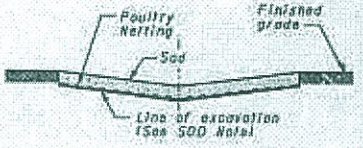


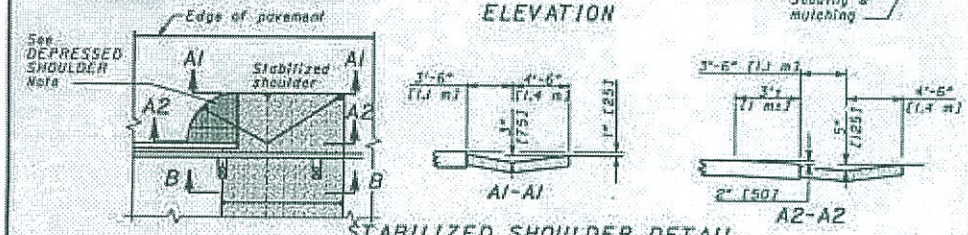












NOTES

DEPRESSED SHOULDER: This portion of the shoulder shall be depressed to ensure positive drainage into the sodded flume. It is especially important in the shoulder area to excavate and shape the subgrade according to the cross-sections.

PLACING REINFORCED SODDING: Prior to placing the sod, galvanized poultry netting shall be placed on the finished subgrade. The netting shall be 4' [1.2 m] wide, poultry netting or equivalent, with 2" [50] mesh and No. 20 gage minimum wire. Each strand shall be staked securely to the subgrade by using T-shaped pins or 1"x1"x8" [25x25x200] wood stakes. The stakes or pins shall be placed at 4' [1.2 m] intervals on the top and bottom and in rows 4' [1.2 m] apart. Fasten the poultry netting to the wood stakes with staples. Where the sodding is from 8' to 9' [2.5 to 3.0 m] wide, two strands of netting for a total width of 8' [2.5 m] is permitted.

SOD: Sod shall be laid in accordance with CMS 660. Special care shall be taken to excavate the sod bed to a proper depth so that the sod is flush with the surrounding grade.

PAYMENT: Payment for all the above shall be included in the unit price bid for Item 660, Sodding Reinforced, Square Yard (Square Meter).

OHIO DEPARTMENT OF TRANSPORTATION
STANDARD HYDRAULIC CONSTRUCTION DRAWING
EROSION CONTROL AT BRIDGES
OFFICE OF STRUCTURAL ENGINEERING
ENGINEER OF BRIDGES
DATE: 7-20-01, 7-19-02
HYDRAULIC ENGINEER: D. Grover
All metric dimensions are greater (or are in millimeters unless otherwise noted.)
NUMBER: DM-4.1
SHEET: 1 / 1