

Project:	ODOT Portsmouth Bypass Phase 1	Computed:	Date:
Subject:	SCI-823-6.81	Checked:	Date:
Task:	Structure Quantities	Page:	of:
Job #:		No:	

STRUCTURE ESTIMATED QUANTITIES

- BRIDGE NO. SCI-TR234-0122, SHUMWAY HOLLOW ROAD OVER CSXT RAILROAD
 - ESTIMATED QUANTITY BRIDGE PLAN SHEET
 - GENERAL SUMMARY PLAN SHEET, INCLUDES STRUCTURES (20' AND OVER)
 - ESTIMATED QUANTITY CALCULATIONS (DESIGNER)
 - ESTIMATED QUANTITY CALCULATIONS (CHECKER)

SHEET NUMBER										ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
14	15	23	24	77	75	75	75	75	75						
										840	25000	424	FT	STRUCTURES 120' AND OVER) CONTINUED	
										840	25020	20	FT	6" DRAINAGE PIPE, PERFORATED	
										840	26000	197	FT	CONCRETE COPING	
										840	27000	5	DAY	ON-SITE ASSISTANCE	
										840	28000	LUMP		SOB INSPECTION AND COMPACTION TESTING	
										898	10201	304	CU YD	OC/OA CONCRETE, CLASS OS22, SUPERSTRUCTURE (DECK), AS PER PLAN	75
										898	10109	495	SO YD	OC/OA CONCRETE, CLASS OS22, SUPERSTRUCTURE APPROACH SLAB, (T-1)P, AS PER PLAN	75
										898	10200	52	CU YD	OC/OA CONCRETE, CLASS OS22, SUPERSTRUCTURE (PARAPET)	
										898	20150	172	CU YD	OC/OA CONCRETE, CLASS OS21, SUBSTRUCTURE (ABUTMENT)	
										898	20300	51	CU YD	OC/OA CONCRETE, CLASS OS21, SUBSTRUCTURE (FOOTING)	
										898	20301	105	CU YD	OC/OA CONCRETE, CLASS OS21, SUBSTRUCTURE (FOOTING), AS PER PLAN	75
										614	11110	20	HOURL	MAINTENANCE OF TRAFFIC	
										614	12318	21	EACH	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
										614	13300	114	EACH	WORK ZONE IMPACT ATTENUATOR FOR 24" WIDE HAZARDS (BIDIRECTIONAL)	
										614	13360	114	EACH	BARRIER REFLECTOR, TYPE B	
										614	21200	0.71	MILE	OBJECT MARKER, TWO WAY	
										614	22200	2.86	MILE	WORK ZONE CENTER LINE, CLASS I, 740.06, TYPE I (DOUBLE SOLID)	
										614	28400	115	FT	WORK ZONE EDGE LINE, CLASS I, 740.06, TYPE I (WHITE)	
										615	10000	LUMP		ROADS FOR MAINTAINING TRAFFIC	
										615	25000	2091	SO YD	PAVEMENT FOR MAINTAINING TRAFFIC, CLASS B	
										615	10000	18	M GAL	WATER	
										622	40020	5220	FT	PORTABLE CONCRETE BARRIER, 32"	

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GENERAL SUMMARY

SCI-823-6.81

Company:		KZFDESIGN										
Structure :	SCI-234-0122					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	21100	606	CU YD	UNCLASSIFIED EXCAVATION				606				
509	10000	122241	POUND	EPOXY COATED REINFORCING STEEL				55668		66573		
512	10100	1178	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)				633		544		
515	15051	8	EACH	DRAPED STRAND PRESTRESSED CONCRETE BRIDGE I-BEAM, AS PER PLAN MEMBERS, LEVEL 3, TYPE 4 MOD (72")						8		
515	20000	28	EACH	INTERMEDIATE DIAPHRAGMS						28		
516	13900	96	SQ FT	2" PREFORMED EXPANSION JOINT FILLER				96				
516	14015	87	FT	INTEGRAL ABUTMENT EXPANSION JOING SEAL, AS PER PLAN				87				
516	14021	84	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOING SEAL, AS PER PLAN				84				
516	44100	16	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) 22"X16"X2.24" LAMINATED ELASTOMERIC PAD WITH 26"X16"X1.5" LOAD PLATE				16				
518	21200	156	CU YD	POROUS BACKFILL WITH FILTER FABRIC				156				
518	40000	207	FT	6" PERFORATED CORRUGATED PLASTIC PIPE				207				
518	40012	31	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE				31				
524	94704	230	FT	DRILLED SHAFTS, 36" DIAMETER, INTO BEDROCK				230				
607	39900	240	FT	VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC						240		
840	20000	4222	SQ FT	Mechanically Stabilized Earth Wall				4222				
840	21000	1318	CU YD	Wall Excavation				1318				
840	22000	561	SQ YD	Foundation Preparation				561				
840	23000	3527	CU YD	Select Granular Backfill				3527				
840	23050	320	CU YD	Natural Soil				320				
840	25010	424	FT	6" Drainage Pipe, Perforated				424				
840	25020	20	FT	6" Drainage Pipe, Non-Perforated				20				
840	26000	197	FT	Concrete Coping				197				
840	27000	5	DAY	On-Site Assistance				5				
840	28000	SUM	LUMP	SGB Inspection and Compaction Testing				SUM				
898	10200	304	CU YD	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (DECK)						304		
898	10708	495	SQ YD	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (APPROACH SLAB), (T=17")						495		
898	11000	52	CU YD	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (PARAPET)						52		
898	20150	172	CU YD	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (ABUTMENT)				172				
898	20300	51	CU YD	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (FOOTING)				51				
898	20301	105	CU YD	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (FOOTING), AS PER PLAN				105				
Company:		KZFDESIGN										
Structure :	SCI-234-0122					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				

Company:		KZFDESIGN								
Structure :	SCI-234-0122				Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)				Checked :		Date :			
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION			ABUT	PIER	SUPER	GEN REF
503	21100	606.0253	CU YD	UNCLASSIFIED EXCAVATION			606.0253			
at forward abutment:										
L (ft)	W (ft)	H (ft)	Volume							
98.6666667	29.3	5.66	16362.7 ft ³							
			606.025 cu yd							
				606.0253						
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION			ABUT	PIER	SUPER	GEN REF
509	10000	149581.9	POUND	EPOXY COATED REINFORCING STEEL			32328.91		117253.008	
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 & drilled shaft reinforcing is not included in these calculations.										
>>>>> QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (DECK)										
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)						
58.67	5.5	5	133.512							
L (ft)		bar size	wt (per ft)	transverse (bottom)						
58.67	5.5	5	133.512							
	# bars	bar size	wt (per ft)	top bars (temp & shrinkage)						
	88	4	58.784							
	# bars	bar size	wt (per ft)	top bars (additional)						
	0	0	0							
	# bars	bar size	wt (per ft)	bottom bars						
	88	5	91.784							
		total =	417.591 lbs							
deck volume										
L (ft)	W (ft)	T (ft)	Volume							
58.67	1	0.729167	44.0745 ft ³							
			1.63239 cu yd							
		total =	255.816 lbs/cu yd	77864.548						
>>>>> 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)						
6.83333333	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	39388.4599						
>>>>> QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (ABUTMENT)										

Company:	KZFDESIGN							
Structure :	SCI-234-0122				Design :	RBK	Date :	8/9/2010
Subject:	Quantities (Stage 3)				Checked :		Date :	
	take the average of the rear and forward abutment reinforcing per cu. yd.							
	at rear abutment:							
L (ft)	spacing (in.)	bar size	wt (per ft)	stirrups				
5.83333333	12	5	6.08417					
	# bars	bar size	wt (per ft)	longitudinal bars				
	5	8	13.35					
	# bars	bar size	wt (per ft)	longitudinal bars				
	2	6	3.004					
		total =	22.4382	lbs				
	abutment volume							
H (ft)	W (ft)	L (ft)	Volume					
1.75	3	1	5.25	ft^3				
			0.19444	cu yd				
		total =	115.396	lbs/cu yd				
	at forward abutment:							
L (ft)	spacing (in.)	bar size	wt (per ft)	stirrups				
21	12	6	31.542					
L (ft)	spacing (in.)	bar size	wt (per ft)	stirrups (main from shaft)				
10	12	8	26.7					
L (ft)	spacing (in.)	bar size	wt (per ft)	ties				
23.33333333	24	4	7.79333					
	# bars	bar size	wt (per ft)	longitudinal bars				
	4	8	10.68					
	# bars	bar size	wt (per ft)	longitudinal bars				
	18	6	27.036					
		total =	103.751	lbs				
	abutment volume							
H (ft)	W (ft)	L (ft)	Volume					
9.33333333	3	1	28	ft^3				
			1.03704	cu yd				
		total =	100.046	lbs/cu yd				
		avg. total =	107.721	lbs/cu yd	18521.59			
>>>>	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (FOOTING), AS PER PLAN							
	take the average of the rear and forward abutment reinforcing per cu. yd.							
	at rear abutment:							
L (ft)	spacing (in.)	bar size	wt (per ft)	stirrups				
34	12	6	51.068					
	# bars	bar size	wt (per ft)	main top				
	8	8	21.36					
	# bars	bar size	wt (per ft)	main side				
	0	0	0					
	# bars	bar size	wt (per ft)	main bottom				
	8	8	21.36					
		total =	93.788	lbs				
	abutment footing volume							
H (ft)	W (ft)	L (ft)	Volume					
3	10.5	1	31.5	ft^3				

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Subject:	Quantities (Stage 3)				Checked :		Date :		
				1.16667 cu yd					
			total =	80.3897 lbs/cu yd					
	<u>at forward abutment:</u>								
L (ft)	spacing (in.)	bar size	wt (per ft)	stirrups					
24.6666667	6	5	51.4547						
	# bars	bar size	wt (per ft)	main top					
	5	8	13.35						
	# bars	bar size	wt (per ft)	main side					
	2	6	3.004						
	# bars	bar size	wt (per ft)	main bottom					
	5	8	13.35						
			total =	81.1587 lbs					
	<u>pier footing volume</u>								
T (ft)	W (ft)	L (ft)	Volume						
3	4	1	12 ft^3						
			0.44444 cu yd						
			total =	182.607 lbs/cu yd					
			avg. total =	131.498 lbs/cu yd					
						13807.33			
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
512	10100	1177.756	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	633.4674		544.288543		
<u>at superstructure (transverse section):</u>									
W (ft)	L (ft)	Area							
40.3176699	121.5	4898.597	ft^2						
	total =	544.2885	sq yd				544.288543		
<u>at diaphragm:</u>									
H (ft)	L (ft)	Area							
7.5875	59	789.1028	ft^2						
<u>at rear wings:</u>									
H (ft)	L (ft)	Area							
5.98905554	37.83333333	226.5859	ft^2						
7.5	90	675	ft^2						
<u>at forward wings:</u>									
H (ft)	L (ft)	Area							
11.125	52.25	581.2813	ft^2						
4.61	61.8	284.898	ft^2						
	total =	284.0964	sq yd		284.0964				
<u>at MSE wall:</u>									
L (ft)	H (ft)	Area (ft^2)							
40	20	400.0	LHS						
110	20	2200.0	Center						
38	20	380.0	RHS						

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Structure :	SCI-234-0122				Design :	RBK	Date :	8/9/2010		
Subject:	Quantities (Stage 3)				Checked :		Date :			
197.206651	0.833333333	164.3	top							
	total =	3144.3	ft^2							
		349.371	sq yd			349.371				
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF	
515	15051	8	EACH	DRAPED STRAND PRESTRESSED CONCRETE BRIDGE I-BEAM, AS PER PLAN			8			
	# spans =	1								
	beams per span =	8								
	# beams =	8								
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF	
515	20000	28	EACH	INTERMEDIATE DIAPHRAGMS			28			
	# spans =	1								
	diaphragms per span =	4								
	# bays (btw. beams) =	7								
	# diaphragms =	28								
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF	
516	13900	96.30	SQ FT	2" PREFORMED EXPANSION JOINT FILLER	96.30					
<u>at abutment:</u>										
	H (ft)	W (ft)	Area							
	8.03	3.00	48.18	ft^2	btw. wingwall and abutment diaphragm (rear abut.)					
	8.02	3.00	48.12	ft^2	btw. wingwall and abutment diaphragm (fwd. abut.)					
	total =		96.30	ft^2						
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF	
516	14015	87.00	FT	INTEGRAL ABUTMENT EXPANSION JOING SEAL, AS PER PLAN	87.00					
<u>at abutment:</u>										
		L								
		87.00	ft	forward abutment						
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF	
516	14021	84.00	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOING SEAL, AS PER PLAN	84.00					
<u>at abutment:</u>										
		L								
		84.00	ft	rear abutment						
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF	
516	44100	16	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)	16					
				22"X16"X2.24" LAMINATED ELASTOMERIC PAD WITH 26"X16"X1.5" LOAD PLATE						
<u>at abutments:</u>										
	# bearings =	16	each	2 abutments						
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF	
518	21200	156.2	CU YD	POROUS BACKFILL WITH FILTER FABRIC	156.2					
<u>rear abut:</u>										
	H (ft)	W (ft)	L (ft)	Volume						

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Structure :	SCI-234-0122				Design :	RBK	Date :	8/9/2010			
Subject:	Quantities (Stage 3)				Checked :		Date :				
8.99333333	2	59	1061.2	ft^3							
4.49666667	2	18.91667	340.2	ft^3							
fwd abut:											
	H (ft)	W (ft)	L (ft)	Volume							
16.54333333	2	59	1952.1	ft^3							
8.27166667	2	52.25	864.4	ft^3							
			156.2	cu yd							
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION			ABUT	PIER	SUPER	GEN	REF
518	40000	207	FT	6" PERFORATED CORRUGATED PLASTIC PIPE			207.0				
		L (ft)									
		207									
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION			ABUT	PIER	SUPER	GEN	REF
518	40012	31	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE			31				
		L (ft)									
		31									
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION			ABUT	PIER	SUPER	GEN	REF
524	94704	230.00	FT	DRILLED SHAFTS, 36" DIAMETER, INTO BEDROCK			230.00				
	bedrock	tip	shaft								
shaft #	elevation	elevation	length (ft)								
1	640.00	617.00	23.00								
2	640.00	617.00	23.00								
3	640.00	617.00	23.00								
4	640.00	617.00	23.00								
5	640.00	617.00	23.00								
6	640.00	617.00	23.00								
7	640.00	617.00	23.00								
8	640.00	617.00	23.00								
9	640.00	617.00	23.00								
10	640.00	617.00	23.00								
		total =	230.00	ft.							
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION			ABUT	PIER	SUPER	GEN	REF
607	39900	240.0	FT	VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC			240.00				
		L (ft)									
		120	LHS								
		120	RHS								
	total =	240.0	ft^2								
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION			ABUT	PIER	SUPER	GEN	REF
840	20000	4221.5	SQ FT	Mechanically Stabilized Earth Wall			4221.50				
L (ft)	H (ft)	Area (ft^2)									
40	19.5	390.0	LHS								
110	19.5	2145.0	Center								
38	19.5	370.5	RHS								

Company: KZFDESIGN									
Structure : SCI-234-0122				Design : RBK	Date : 8/9/2010				
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188	7	1316.0	bottom						
	total =	4221.5	ft^2						
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
840	21000	1317.514	CU YD	Wall Excavation	1317.51				
L (ft)	W (ft)	H (ft)	Volume						
204	29.16	6.0	35572.9	ft^3					
			1317.51	cu yd					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
840	22000	561.28	SQ YD	Foundation Preparation	561.28				
	L (ft)	W (ft)	area						
	192	26.31	5051.52	sq ft					
			561.28	sq yd					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
840	23000	3527.311	CU YD	Select Granular Backfill	3527.31				
L (ft)	W (ft)	H (ft)	Volume						
110	29	27	86130	(ft^3) area 1 (middle rectangular section)					
			3190	cu yd					
19	20.5	18.5	3602.88	(ft^3) area 2 (middle right rectangular section)					
			133.44	cu yd					
19	13.5	11.5	1474.88	(ft^3) area 3 (right rectangular section)					
			54.625	cu yd					
19	20.5	18.5	2399.51	(ft^3) area 4 (middle left rectangular section)					
			88.8709	cu yd					
21	13.5	11.5	1630.13	(ft^3) area 5 (left rectangular section)					
			60.375	cu yd					
			3527.31	cu yd					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
840	23050	319.5741	CU YD	Natural Soil	319.57				
L (ft)	W (ft)	H (ft)	Volume						
110	29	2.0	6380	(ft^3) area 1 (middle rectangular section)					
			236.296	cu yd					
19	20.5	2.0	389.5	(ft^3) area 2 (middle right rectangular section)					
			14.4259	cu yd					
19	13.5	2.0	513	(ft^3) area 3 (right rectangular section)					
			19	cu yd					
19	20.5	2.0	779	(ft^3) area 4 (middle left rectangular section)					
			28.8519	cu yd					
21	13.5	2.0	567	(ft^3) area 5 (left rectangular section)					
			21	cu yd					
		total =	319.574	cu yd					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN	REF
840	25010	424.0	FT	6" Drainage Pipe, Perforated	424.00				

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Subject:	Quantities (Stage 3)			Checked :		Date :					
	L1 =	192.00	ft								
	L2 =	8.75	ft								
	L4 =	21.00	ft								
	L5 =	7.00	ft								
	L6 =	19.00	ft								
	L7 =	8.50	ft								
	L8 =	105.50	ft								
	L9 =	8.50	ft								
	L10 =	19.00	ft								
	L10 =	7.00	ft								
	L10 =	19.00	ft								
	L10 =	8.75	ft								
	total =	424.0	ft								
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION			ABUT	PIER	SUPER	GEN	REF
840	25020	20.0	FT	6" Drainage Pipe, Non-Perforated			20.00				
		20.0	ft								
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION			ABUT	PIER	SUPER	GEN	REF
840	26000	197.2	FT	Concrete Coping			197.21				
	top =	110.0	ft								
	slope =	87.2	ft								
	total =	197.2	ft								
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION			ABUT	PIER	SUPER	GEN	REF
840	27000	5.0	DAY	On-Site Assistance			5.00				
		5.0	day								
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION			ABUT	PIER	SUPER	GEN	REF
840	28000	SUM	LUMP	SGB Inspection and Compaction Testing			SUM				
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION			ABUT	PIER	SUPER	GEN	REF
898	10200	304.3769	CU YD	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (DECK)					304.4		
note: Includes Deck and Abutment Diaphragm concrete.											
deck:											
L (ft)	W (ft)	T (ft)	Volume								
121.5	59	0.708333	5077.69 ft^3								
			188.063 cu yd								
deck overhang:											
L (ft)	W (ft)	T (ft)	Volume								
121.5	0.875	0.09375	19.9336 ft^3								
			0.73828 cu yd								
beam haunches:											
L (ft)	W (ft)	T (ft)	Volume								
121.5	24	0.166667	486 ft^3								
121.5	24	0.09375	273.375 ft^3								
			28.125 cu yd								

Company:		KZFDESIGN										
Structure :	SCI-234-0122			Design :	RBK	Date :	8/9/2010					
Subject:	Quantities (Stage 3)			Checked :		Date :						
abutment diaphragms:												
H (ft)	W (ft)	L (ft)	Volume									
6.67	3	118	2361.18 ft ³									
			87.4511 cu yd									
		total =	304.377 cu yd									
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION				ABUT	PIER	SUPER	GEN	REF
898	10708	494.7121	SQ YD	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (APPROACH SLAB), (T=17")						494.7		
	L (ft)	W (ft)	Area									
	30	57	1710 sq ft (at rear abutment)									
			190 sq yd									
			2742.41 sq ft (at forward abutment)									
			304.712 sq yd									
		total =	494.712 sq yd									
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION				ABUT	PIER	SUPER	GEN	REF
898	11000	51.97485	CU YD	QC/QA CONCRETE, CLASS QCS2, SUPERSTRUCTURE (PARAPET)						52.0		
main parapet:												
	Area (ft ²)	L (ft)	Volume									
	4.2600	277.7083	1183.04 ft ³									
			43.8162 cu yd									
transition parapet:												
	Volume (ft ³)	Quantity	Volume									
	51.0300	4	204.12 ft ³									
			7.56 cu yd									
light pole pilaster:												
	Area (ft ²)	H (ft)	Quantity	Volume								
	4.6181	3.5000	1	16.1634 ft ³								
				0.59864 cu yd								
		total =	51.9748 cu yd									
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION				ABUT	PIER	SUPER	GEN	REF
898	20150	171.94	CU YD	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (ABUTMENT)				171.94				
rear abutment:												
at beam seat:												
H (ft)	W (ft)	L (ft)	Volume									
1.8	3	59	318.6 ft ³									
			11.8 cu yd									
at wingwalls:												
H (ft)	W (ft)	L (ft)	Volume									
4.225	2.5	37.83333	399.615 ft ³									
			14.8005 cu yd									
H (ft)	W (ft)	L (ft)	Volume									
8.45	2.5	5	105.625 ft ³									
			3.91204 cu yd									
H (ft)	W (ft)	L (ft)	Volume									

Company:		KZFDESIGN									
Structure :	SCI-234-0122				Design :	RBK	Date :	8/9/2010			
Subject:	Quantities (Stage 3)				Checked :		Date :				
3	2.5	7.166667	53.75	ft^3							
			1.99074	cu yd							
H (ft)	W (ft)	L (ft)	Volume								
1.8	2.5	37.83333	170.25	ft^3							
			6.30556	cu yd							
		subtotal =	38.8089	cu yd		38.80887					
forward abutment:											
at beam seat:											
H (ft)	W (ft)	L (ft)	Volume								
9.36	3	63	1769.04	ft^3							
			65.52	cu yd							
at wingwalls:											
H (ft)	W (ft)	L (ft)	Volume								
12.98	3	17.5	681.45	ft^3 (left wall)							
			25.2389	cu yd							
H (ft)	W (ft)	L (ft)	Volume								
17.38	3	2.583333	134.695	ft^3 (left wall)							
			4.9887	cu yd							
H (ft)	W (ft)	L (ft)	Volume								
10.23	3	28.5	874.665	ft^3 (right wall)							
			32.395	cu yd							
H (ft)	W (ft)	L (ft)	Volume								
17.38	3	2.583333	134.695	ft^3 (right wall)							
			4.9887	cu yd							
		subtotal =	133.131	cu yd		133.1313					
		total =	171.94	cu yd							
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION			ABUT	PIER	SUPER	GEN	REF
898	20300	50.67	CU YD	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (FOOTING)			50.67				
at forward abutment:											
H (ft)	W (ft)	L (ft)	Volume								
3.00	4.00	114	1368	ft^3							
			50.6667	cu yd							
		total =	50.6667	cu yd		50.66667					
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION			ABUT	PIER	SUPER	GEN	REF
898	20301	105.00	CU YD	QC/QA CONCRETE, CLASS QCS1, SUBSTRUCTURE (FOOTING), AS PER PLAN			105.00				
at rear abutment:											
H (ft)	W (ft)	L (ft)	Volume								
3.00	10.50	90	2835	ft^3							
			105	cu yd							
		total =	105	cu yd		105					

MARK	NUMBER		LENGTH	WEIGHT	TYPE	DIMENSIONS														
	REAR	FORWARD				TOTAL	A	B	C	D	E	R	INC							
DRILLED SHAFT REINFORCING STEEL LIST (FOR INFORMATION ONLY)																				
SF401		10	23'-0"	3318	21	41/2"	2'-8"	13'-0"												
OS1401		80	27'-4"	18238	1	2'-8"	28'-2"													
		SUB-TOTAL		20047	185															

MARK	NUMBER		LENGTH	WEIGHT	TYPE	DIMENSIONS														
	REAR	FORWARD				TOTAL	A	B	C	D	E	R	INC							
ABUTMENT REINFORCING STEEL LIST																				
A401		280	3'-3"	630	17	2'-8"														
A402		172	4'-8"	317	2	1'-0"	2'-8"	1'-0"												
A301		488	9'-9"	4617	1	2'-3"	2'-8"													
A801		91	25'-3"	3451	3	10'-0"	2'-6"													
A602		59	14'-5"	1278	3	2'-8"	4'-5"													
A603		6	22'-5"	202	1	2'-8"	4'-5"													
A604		6	22'-5"	265	3	2'-2"	12'-3"													
A805		SERIES OF 13	17'-11"	989	3	2'-2"	17'-9"													
A806		SERIES OF 4	21'-8"																	
A607		8	18'-1"	451	1	2'-8"														
A608		12	18'-8"	222	1	2'-8"														
A609		4	8'-8"	40	1	5'-10"	0'-5"	0'-9"												
A610		4	8'-8"	97	1	5'-10"	0'-5"	0'-9"												
A611		20	15'-11"	781	1	11'-9"														
A812		SERIES OF 2	25'-11"	382	1	2'-8"														
A613		2	2'-3"																	
A614		SERIES OF 2	19'-3"																	
A815		8	18'-0"	182	1	2'-8"														
A816		4	8'-11"	46	1	7'-3"	0'-5"	0'-9"												
A817		4	20'-4"	122	1	19'-8"	0'-5"	0'-9"												
A618		72	30'-0"	3244	1	2'-8"														
A619		18	14'-5"	390	1	2'-8"														
A620		6	25'-8"	231	1	2'-8"														
A621		64	27'-7"	1713	1	2'-8"														
A622		15	24'-5"	937	1	2'-8"														
A823		21	42	6'-10"	431	1	2'-8"													
A624		57	13'-1"	1020	26	2'-8"	0'-10"	1'-4"												
A625		6	6	2'-10"	26	1	2'-8"													
A626		6	6	2'-10"	26	1	2'-8"													
A827		SERIES OF 10	12'-18"	1218	1	2'-8"														
A828		18	15'-11"																	
A829		SERIES OF 2	20'-10"	1523	1	2'-8"														
A830		126	18'-0"	1084	1	2'-8"														
A831		126	18'-0"	1084	1	2'-8"														
A832		2	31'-7"	3084	1	2'-8"														
A833		SERIES OF 10	13'-0"	1310	2	2'-8"														
A834		8	20'-7"																	
A835		56	28'-3"	6848	1	2'-8"														
		SUB-TOTAL		45540	185															

MARK	NUMBER		LENGTH	WEIGHT	TYPE	DIMENSIONS														
	REAR	FORWARD				TOTAL	A	B	C	D	E	R	INC							
INTERMEDIATE DIAPHRAGM REINFORCING STEEL LIST (FOR INFORMATION ONLY)																				
D401		168	10'-10"	1216	3	0'-8"	4'-8"													
D501		168	6'-9"	1703	3	0'-8"	4'-8"													
D502		112	8'-3"	1172	3	1'-8"	0'-8"	0'-3"	4'-2"											
		SUB-TOTAL		4391	185															

MARK	NUMBER		LENGTH	WEIGHT	TYPE	DIMENSIONS														
	TOP	BOTTOM				TOTAL	A	B	C	D	E	R	INC							
DECK SLAB REINFORCING STEEL LIST																				
S401		445	28'-5"	7853	1	2'-8"														
S402		2	2'-0"																	
S403		2	4'-10"	6	1	2'-8"														
S501		285	17'-11"	1528	1	0'-8"	15'-0"													
S502		482	21'-5"	1608	1	0'-8"	15'-0"													
S503		SERIES OF 24	25'-0"	1204	1	0'-8"	15'-0"													
S504		48	18'-0"	801	2	8'-11"	0'-5"	1'-11"												
S505		2	2'-0"																	
S506		2	2'-0"																	
S507		265	20'-8"	1014	1	0'-8"	15'-0"													
S508		445	21'-0"	12312	1	2'-8"														
S510		SERIES OF 24	21'-4"	1020	1	2'-8"														
		SUB-TOTAL		57659	185															

MARK	NUMBER		LENGTH	WEIGHT	TYPE	DIMENSIONS														
	REAR	FORWARD				TOTAL	A	B	C	D	E	R	INC							
ABUTMENT DIAPHRAGM REINFORCING STEEL LIST																				
A502		114	20	13'-7"	317	2	5'-7"	2'-8"	3'-7"											
A503		37	41	7'-1"	610	2	2'-10"	2'-11"	2'-10"											
A627		8	8	27'-3"	303	1	2'-8"													
A628		21	42	6'-10"	431	1	2'-8"													
A629		57	13'-1"	1020	26	2'-8"	0'-10"	1'-4"												
A630		6	6	2'-10"	26	1	2'-8"													
A631		24	24	24'-2"	1848	1	2'-8"													
A632		24	24	23'-7"	1839	1	2'-8"													
A833		42	80	4'-8"	887	18	2'-10"	1'-0"	1'-0"											
		SUB-TOTAL		10128	185															

NOTES:
 1. ALL REINFORCING STEEL TO BE EPOXY COATED
 2. REFER TO CADD FOR DIMENSIONS
 3. REFER TO CADD FOR DIMENSIONS
 4. ALL DIMENSIONS ARE OUT TO OUT



REVISIONS
 DATE
 BY
 CHECKED
 DATE

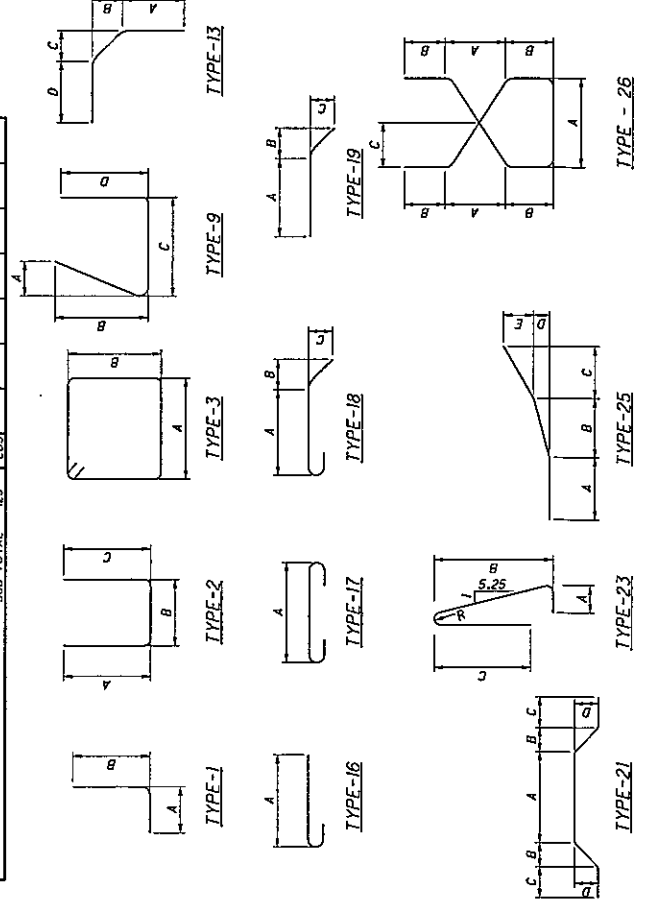
BRIDGE NO. SC1-1234-022
 SHUWAY HOLLOW ROAD OVER CSXT RAILROAD

SC1-623-6.81
 PID No. 18415

31 / 36
 104
 III

MARK	NUMBER		DIMENSIONS						TYPE	WEIGHT	TOTAL LENGTH	TOTAL
	NORTH	SOUTH	A	B	C	D	E	R				
RAILING REINFORCING STEEL LIST												
R501	36		27'-2"	1020	STA							
R502	41	137	7'-5"	280	23	1'-1"	3'-2"	3'-0"				2 1/4"
R503	36		26'-7"	998	STA							
R504	16	36	10'-0"	334	STA							
R505	10	10	5'-6"	115	STA							
R506	6	12	5'-8"	69	25	7'-8"	2'-5"	7'-5"	1 1/2"	5"		
R601	6		27'-9"	260	STA							
R602	44	137	3'-8"	119	14	1'-7"	1'-8"					
R603	41	137	3'-7"	146	28	1'-8"	1'-1"					
R604	6	6	21'-1"	244	STA							
R605	4	4	5'-3"	8	5	3'-0"						0'-1"
R606	16	16	5'-3"	282	1	2'-5"	3'-0"					
SUB-TOTAL 8791 LBS												

MARK	NUMBER		DIMENSIONS						TYPE	WEIGHT	TOTAL LENGTH	TOTAL
	LEFT	RIGHT	A	B	C	D	E	R				
LIGHT POLE PILASTER REINFORCING STEEL LIST												
L501	4		2'-11"	18	2	0'-7"	1'-11"	0'-7"				
L502	4		3'-9"	41	9	0'-7"	3'-9"	2'-5"	3'-8"			
L503	4		1'-4"	140	0'-8"	1'-11"						
L504	4		3'-10"	16	STA							
SUB-TOTAL 123 LBS												



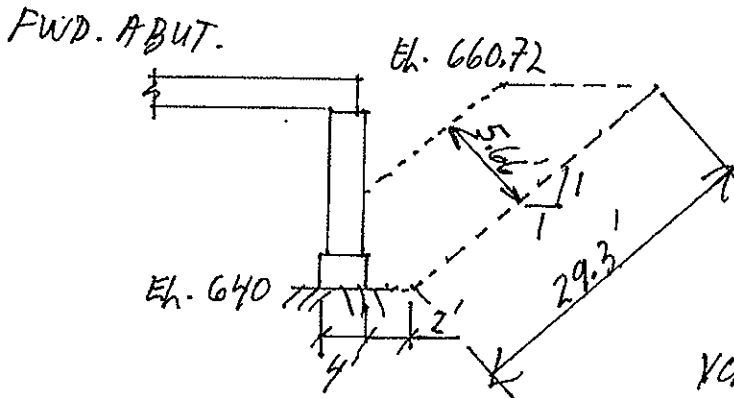
MARK	NUMBER		DIMENSIONS						TYPE	WEIGHT	TOTAL LENGTH	TOTAL
	REAR	FORWARD	A	B	C	D	E	R				
APPROACH SLAB REINFORCING STEEL LIST (FOR INFORMATION ONLY)												
A5501	66	66	24'-8"	1887	STA							
A5502	64	64	6'-9"	526	STA							
A5503	4	4	21'-11"	201	STA							1'-3"
A5504	3	3	19'-4"	33	STA							4'-0"
A5505	3	3	19'-4"	119	STA							1'-3"
A5506	3	3	19'-4"	119	STA							5'-0"
A5507	39	43	28'-6"	2823	STA							
A5508	15	15	4'-0"	203	STA							
A5509	29	29	17'-8"	89	STA							
A5510	29	29	17'-8"	121	STA							
A5511	15	15	12'-0"	133	STA							0'-8"
A5512	7	7	15'-11"	76	STA							1'-10"
A5513	119	119	14'-2"	161	STA							0'-7"
A5514	119	119	24'-0"	2919	STA							
A5515	2	2	4'-10"	68	STA							0'-3"
A5516	6	6	6'-1"	10	STA							0'-8"
A5517	23	23	21'-6"	316	STA							
A5518	8	8	20'-6"	111	STA							2'-2"
A5519	22	22	21'-10"	320	STA							0'-9"
A5520	11	11	17'-4"	169	STA							2'-0"
A5521	42	42	30'-0"	1314	STA							
A5522	68	68	29'-8"	2708	STA							
A5523	117	223	30'-11"	29667	16	29'-6"						
A5524	61	61	21'-2"	4642	STA							4 1/2"
A5525	57	57	28'-2"	4333	STA							4 1/2"
SUB-TOTAL 52784 LBS											STRUCTURE TOTAL 122241 LBS	

NOTES:
 1. ALL REINFORCING STEEL TO BE EPOXY COATED
 2. REFER TO GDOT C&S SEC. 508.05 FOR STANDARD BAR DIMENSIONS
 3. REFER TO GDOT C&S SEC. 508.05 FOR STANDARD BAR DIMENSIONS
 4. ALL DIMENSIONS ARE OUT TO OUT

ITEM 503, COFFERDAMS, CRIBS AND SHEETING:

LUMP

ITEM 503, UNCLASSIFIED EXCAVATION:



$$A = 29.3' / 5.66'$$

$$= 165.8 \text{ ft}^2$$

$$L = 68' + \frac{2}{3}(17.5 + 28.5)$$

$$= 98.7'$$

$$\text{VOL.} = \frac{165.8 \text{ ft}^2 (98.7 \text{ ft})}{27}$$

$$= \underline{\underline{606 \text{ cu. yd.}}}$$

ITEM 509, EPOXY COATED REINFORCING STEEL:

ABUTMENTS

DECK

ABUTMENT DIAPHRAGM

RAILING

LIGHT POLE PLASTER

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

→ AT ABUTMENTS:

$$H = 72'' + 4.25'' + 1.5'' + 9.56'' + 1.5'' + 2.24'' = 91.1''$$

$$L = 59.0'$$

$$\text{BEAM AREA} = 956 \text{ in}^2$$

$$\text{EXTRA AREA TO DEDUCT DUE TO H-POST \& BAGS.} = 14.8 \left(\frac{26''}{12} \right) = 385 \text{ in}^2$$

$$\text{FRONT FACE DIAPHRAGM/BACKWALL} = 59.0' \left(\frac{91.1''}{12} \right) - \frac{8(1341 \text{ in}^2)}{\text{BMS } 144}$$

$$A = 373.4 \text{ FT}^2$$

WINGWALL:

$$H_{R.A.} = \left(\frac{8.03' + 2'}{2} \right) + 2.5' + 0.5' = 8.0'$$

$$L_{R.A.} = 18.92' (2 \text{ wings}) = 37.84'$$

$$A_{R.A.} = 8.0' (37.84') = 302.7 \text{ FT}^2$$

$$H_{F.A.} = \left(\frac{14.3' + 2'}{2} \right) + 3.0' + 0.5' = 11.7'$$

$$L_{F.A.} = 17.5' + 2(3.1') + 28.5' = 52.2'$$

$$A_{F.A.} = 11.7' (52.2') = 610.7 \text{ FT}^2$$

$$\text{SUBTOTAL} = \frac{302.7 \text{ FT}^2 + 2 \text{ ABTS} (373.4) + 610.7}{9} = \underline{\underline{185 \text{ SQ. YD.}}}$$

ADDITIONAL SEALING AT REAR ABUT. FTG. = $\frac{7.5' (90')}{9} = \underline{\underline{75 \text{ SQ. YD.}}}$

→ AT SUPERSTRUCTURE

$$L = 8'' + 26 + 8 + 12.7 + 36 + 42 + 11.2 + 4 + 10.5 + 11 + 2 + 13 + 2 + 29 + 10 + 42.8 + 9 = 239.4 \text{ in.}$$

$$A = (2 \text{ SIDES}) \left(\frac{239.4 \text{ in.}}{12} \right) \left(\frac{121.5'}{9} \right) = \underline{\underline{539 \text{ SQ. YD}}}$$

Project: <u>SCI-TR234-0122</u>	Computed: <u>DAT</u>	Date: <u>11-24-10</u>
Subject: <u>QUANTITIES</u>	Checked:	Date:
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Job #: <u>148037</u>	No:	

ADDITIONAL SEALING

AT FWD. ABUT.

$$(FRONT FACE WALL) = \frac{(652.36 - 647.75) \times (61.8')}{9} = \underline{\underline{32 \text{ SQ. YD.}}}$$

BM seat TOP SLOPE

SEALING AT INSE WALL = $(20.83' \times 149') \times \frac{1}{9} = \underline{\underline{345 \text{ SQ. YD.}}}$

SUB TOTAL = 185 + 75 + 32 = ~~292~~ 637 SQ. YD. AT ABUTMENTS
+ 345

SUB TOTAL = 539 SQ. YD. AT SUPERSTRUCTURE

TOTAL = ~~292~~ + 539 = 1176 SQ. YD.
637

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

8 BMS (1 SPAN) = 8 EACH

ITEM 515, INTERMEDIATE DIAPHRAGMS:

FRAMING PLAN SH. 19/38

(4 PER SPAN) (1 SPAN) (7 DIA.) = 28 EACH

ITEM 516, 2" PREFORMED EXPANSION JOINT FILLER:

R.A. $2.5' (8.03' \times 2 \text{ SIDES}) = 40.2 \text{ FT}^2$

F.A. $\frac{3.0' (8.02' \times 2 \text{ SIDES})}{\cos 17.9^\circ} = \underline{\underline{50.6 \text{ FT}^2}}$

91 SQ. FT.

BTW. ABUT. DIAPHRAGM AND WINGWALL

Project: SCI-TR234-0122 Computed: DAT Date: 11-24-10
 Subject: QUANTITIES Checked: _____ Date: _____
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ITEM 516, INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN:

FWD. ABUT.

$$\begin{aligned} \text{HORIZ.} &= 31.92' + 31.78' = 63.7' \\ \text{VERT.} &= (2 \text{ SIDES}) \times (8.02') = 16.0' \\ & \underline{79.7'} \quad \text{USE } \underline{80 \text{ FT.}} \end{aligned}$$

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

REAR ABUT.

$$\begin{aligned} \text{HORIZ.} &= 29.67' + 29.67' = 59.3' \\ \text{VERT.} &= (2 \text{ SIDES}) \times (8.03') = 16.1' \\ & \underline{75.4'} \quad \text{USE } \underline{75 \text{ FT.}} \end{aligned}$$

ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (2.24" X 22" X 16"):

AT ABUTS: $(2 \text{ ABUTS}) \times (8 \text{ BMS}) = \underline{16 \text{ EACH}}$

ITEM 518, POROUS BACKFILL WITH FILTER FABRIC:

$$\begin{aligned} \text{R.A.} &= 662.16 - 651.75 - 17\frac{1}{2} = 8.99' \\ L &= 64.33 + (2 \text{ WINGS}) \times (16.42') \times (0.5) = 80.8' \\ \text{F.A.} &= 660.96 - \cancel{643.0} - 17\frac{1}{2} = 16.54' \\ L &= 68.0' + 0.5 [17.5' + 28.5'] = 91.0' \\ \text{VOL.} &= \left[8.99(80.8) + 16.54'(91.0) \right] \frac{(2.0')}{27} = \underline{165 \text{ CU. YD.}} \end{aligned}$$

ITEM 518, 6" PERFORATED CORRUGATED PLASTIC PIPE:

$$R.A. = 89.2'$$

$$F.A. = 116.0'$$

$$205.2' \quad \text{USE } \underline{205 \text{ FT.}}$$

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

$$R.A. = 2(4.0') = 8.0'$$

$$F.A. = 15' + 8' = 23.0'$$

$$\underline{31 \text{ FT}}$$

ITEM 524, DRILLED SHAFTS, 36" DIAMETER, INTO BEDROCK:

$$FWD. AMT. = 10 \text{ SHAFTS } (640.0 - 617.0) = \underline{230 \text{ FT.}}$$

ITEM 607, ~~REINFORCED~~ VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC:

VANDAL FENCING SCHEMATIC PLAN SHT. 27/38

$$L = (2 \text{ SIDES} \times 120') = \underline{240 \text{ FT.}}$$

ITEM 840, MECHANICALLY STABILIZED EARTH WALL:

SS 840.08 Height measured from top of leveling pad to top of concrete coping.

$$A_1 = (650.0 - 623.5)(110') = 2915 \text{ FT}^2$$

$$A_2 = 0.5(650.0 - 630.0)(40') = 400$$

$$A_3 = 0.5(650.0 - 631.0)(38') = 361$$

$$A_4 = (630.0 - 623.5)(40') = 260$$

$$A_5 = (631.0 - 623.5)(38') = 285$$

4221 SQ. FT.

ITEM 840, WALL EXCAVATION:

$$\begin{aligned} \text{PLAN AREA} &= (204' \times 40.6') - 0.5(14.69')(42.5) - 0.5(14.82')(29.75) \\ &= 7750 \text{ FT}^2 \end{aligned}$$

EXISTING GROUND ELEVATION VARIES 3-8' USE 4.5' AVG.

$$\text{VOL.} = \frac{(7750 \text{ FT}^2 \times 4.5')}{27} = \underline{\underline{1292 \text{ CU. YD.}}}$$

ITEM 840, FOUNDATION PREPARATION:

$$\frac{[0.7(650.0 - 623.5) + 4']}{9} (162') = \underline{\underline{406 \text{ SQ. YD.}}}$$

ITEM 840, SELECT GRANULAR BACKFILL:

$$\text{Vol.} = \left[0.7(650.0 - 623.5) + 4' \right] \frac{(162') \times (650.0 - 623.5)}{27}$$

$$= \underline{\underline{3585 \text{ CU. YD.}}}$$

ITEM 840, NATURAL SOIL:

55840 OUTSIDE LIMITS OF SGB COVERED WITH
2 FT. OF NATURAL SOIL

$$\text{PERIMETER SGB} = \left[(0.7(650.0 - 623.5) + 4) \right] \frac{(162') \times (\overset{\text{THICK.}}{\del 2.0'})}{27}$$

$$\approx \underline{\underline{271 \text{ CU. YD.}}}$$

ITEM 840, 6" DRAINAGE PIPE, PERFORATED:

$$L = (188' + 2') + (188' - 2') + (29' - 2') \times 2 \text{ SIDES}$$

$$= \underline{\underline{430 \text{ FT.}}}$$

ITEM 840, 6" DRAINAGE PIPE, NON-PERFORATED:

$$L = 12' + 8' = \underline{\underline{20 \text{ FT.}}}$$

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ITEM 840, CONCRETE COPING:

$$L = 2(55') + \sqrt{(650-631)^2 + (38)^2} + \sqrt{(650-630)^2 + (40)^2}$$
$$= \underline{\underline{197 \text{ FT.}}}$$

ITEM 840, ON-SITE ASSISTANCE:

SS840 5 DAYS FOR NORMAL PROJECTS WITH LESS THAN 4 WALLS

5 DAY

ITEM 840, SGB INSPECTION AND COMPACTION TESTING:

LUMP

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

$$\text{DECK} = (59.0' \times 121.5') \times \left(\frac{8.5''}{12}\right) \frac{1}{27} = 188.1 \text{ yd}^3$$

$$\text{HAUNCH BEAMS 2-7} = (6 \text{ BMS} \times 3.0') \times \frac{2'' + 0.33(2.25'')}{12} (121.5') \frac{1}{27} = 18.6 \text{ yd}^3$$

$$\text{HAUNCH BEAMS 1,8} = (2 \text{ BMS} \times 3.875') \times \frac{3.743''}{12} (121.5') \frac{1}{27} = 8.0 \text{ yd}^3$$

ABUTMENT DIAPHRAGMS:

$$\text{R.A.} = \frac{(59.0' \times 6.75' \times 3.0')}{27} - \frac{(8 \text{ BMS} \times \frac{956 \text{ in}^2 - 194}{144}) (2.5')}{27} = 40.3 \text{ yd}^3$$

$$\text{F.A.} = \frac{(62.4' \times 6.75' \times 3.0')}{27} - \frac{(8 \text{ BMS} \times \frac{956 \text{ in}^2 - 194}{144}) (2.5')}{27} = 42.9 \text{ yd}^3$$

$$\text{TOTAL} = 188.1 + 18.6 + 8.0 + 40.3 + 42.9 = \underline{\underline{298 \text{ CU.YD.}}}$$

ITEM 898, QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), (T=17''), AS PER PLAN

$$A = \frac{(57.0' \times 30.0')}{9} + \left[\frac{128'(30') - 1069 \text{ FT}^2}{9} \right]$$

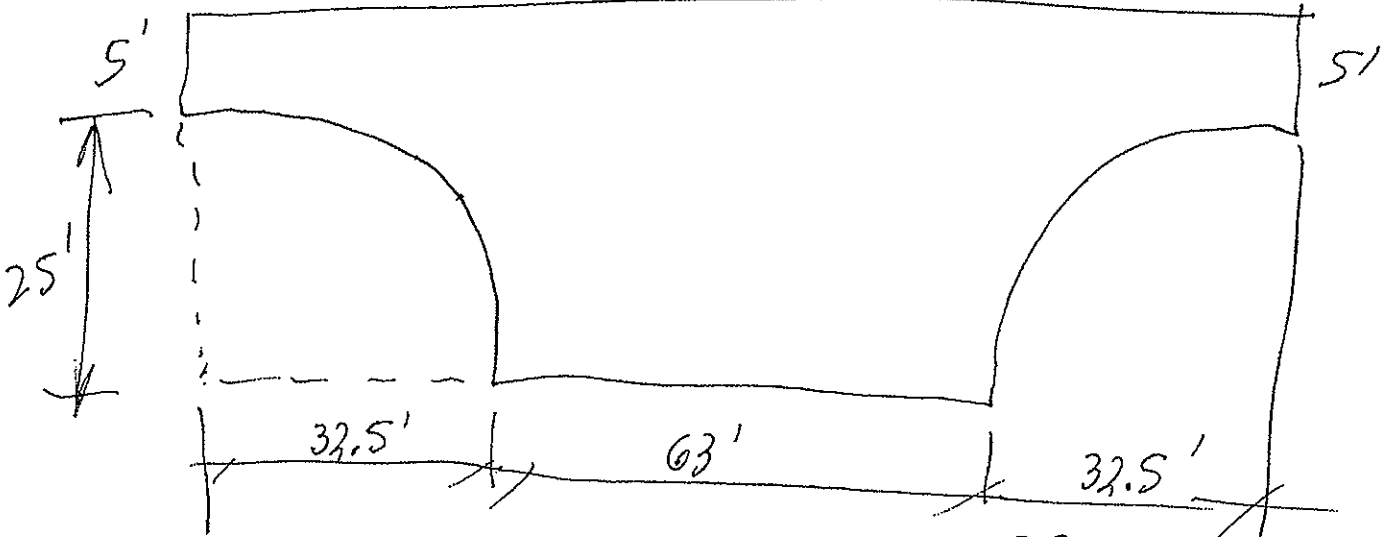
$$= \underline{\underline{498 \text{ SQ.YD.}}}$$

495
-190
305

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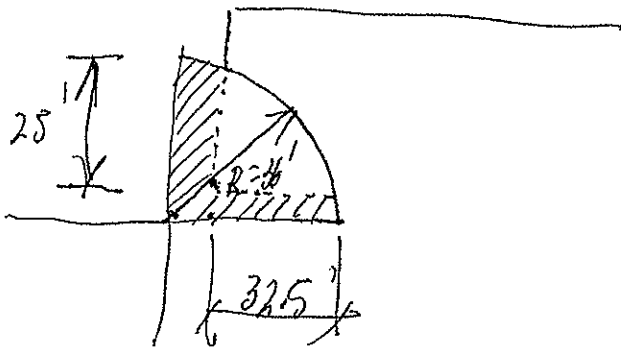
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FWD.
APPROACH SLAB: SIDE CALC.
127.95' - 128'



$$A_T = 128 \left(\frac{30}{128} \right) - 1069 \text{ FT}^2 = \frac{2771}{\cancel{15375}} \text{ FT}^2$$

$$= \frac{308}{\cancel{15375}} \text{ sq. yd. F.A.}$$



$$A = \pi r^2 = \pi (36')^2 = 4072 \text{ FT}^2$$

Full circle

$$A_{\text{half circle}} = 0.5(4072) = 2036 \text{ FT}^2$$

$$A_{\text{half cir.}} - A_{\text{deduct}} = 2036 - 2 \left[(36 \times 11) + (25 \times 3.5) \right] = 1069 \text{ FT}^2$$

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

$$\text{SECTION (A)} \left(\frac{A}{26} \right): A = \left[(13" \times 2") + (42)(10) + 0.5(42)(8) \right] \times \frac{1}{144}$$

$$= 4.26 \text{ FT}^2$$

$$\text{SECTION (B)} \left(\frac{B}{26} \right) A = \left[(13" \times 2") + (14.5)(32) + 0.5(3.5)(4) \right] \times \frac{1}{144}$$

$$= 3.45 \text{ FT}^2$$

$$\text{SECTION (C)} \left(\frac{C}{26} \right) A = \left[(14.5" \times 32") + 0.5(3.5)(4) \right] \times \frac{1}{144}$$

$$= 3.27 \text{ FT}^2$$

$$\text{SECTION (D)} \left(\frac{D}{26} \right) A = \left[(10" \times 32") + (8)(4) \right] \times \frac{1}{144}$$

$$= 2.44 \text{ FT}^2$$

$$\text{VOL.} = (4.26 \text{ FT}^2 \times 140.71') + 2(10.0' \times \frac{4.26 + 3.45}{2})$$

$$\text{LHS NORTH PARAPET} + 2(2.5' \times \frac{3.45 + 3.27}{2}) + 2(1.5' \times \frac{3.27 + 2.44}{2})$$

$$= 701.9 \text{ FT}^3$$

$$= 26.0 \text{ CU. YD.}$$

$$\text{VOL.} = (4.26 \text{ FT}^2 \times 137.0') + 77.1 \text{ FT}^3 + 16.8 + 8.6$$

$$\text{RHS SOUTH PARAPET} = 686.1 \text{ FT}^3 = 25.4 \text{ CU. YD.}$$

$$\text{TOTAL} = 26.0 + 25.4 = 51.4 \text{ USE } \underline{\underline{52 \text{ CU. YD.}}}$$

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

→ REAR ABUT.: $(653.55 - 648.75 - 3) \overset{59.33'}{\cancel{59.33}} \times (3.0') = 320.4 \text{ FT}^3$

- WINGS (BELOW C.T.) $(2 \text{ WINGS}) \times (1.8' \times 18.92' \times 2.5')$
 $+ (2 \text{ WINGS}) \times (4.8' \times 3.58' \times 2.5') = 256.2 \text{ FT}^3$

- WINGS (ABOVE C.T.) $(2 \text{ WINGS}) \times (8.03' \times 2.5' \times 2.5')$
 $+ (2 \text{ WINGS}) \times \frac{(8.03' \times 16.42' \times 2.5')}{2} = 430.0 \text{ FT}^3$

TOTAL = $320.4 + 256.2 + 430.0 = 1006.6 \text{ FT}^3$

→ FWD. ABUT.:
 $A = (114' \times 17.38') - 0.5(8.8' \times 17.5') - 0.5(14.3' \times 28.5')$
 $- (8.02' \times 62.4') = 1200.1 \text{ FT}^2$

VOL. = $(1200.1 \text{ FT}^2 \times 3.0') = 3600.3 \text{ FT}^3$

TOTAL = $\frac{1006.6 + 3600.3}{27} = \underline{\underline{171 \text{ CU. YD.}}}$

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

$$\text{FWD. ABUT. } \frac{(3.0' \times 4.0' \times 114')}{27} = \underline{\underline{51 \text{ CU. YD.}}}$$

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

$$\text{REAR ABUT. } \frac{(3.0' \times 10.5' \times 90')}{27} = \underline{\underline{105 \text{ CU. YD.}}}$$