

APPENDIX E

AIR EMISSION CALCULATIONS

				Cement and Mortar Mixers			2			
				Crane			1			
				Air Compressor			2			
				Wind Erosion of Active Construction Site			1			
Commute:	23.33	miles per day								
		- See Commute Assumptions for details								
Emission Calculations:										
On Site Emissions	Device Quantity	Job Hours	Total Hours	ROG lbs	SO₂ lbs	CO lbs	NO_x lbs	PM10 lbs	PM2.5 lbs	
Pick-up Truck	2	2800	5,600	1082.54	10.49	2854.03	11196.25	369.30	369.30	
Front End Loader	1	2800	2,800	337.14	2.17	1137.76	2168.78	167.65	167.65	
Excavator	2	2800	5,600	949.25	9.36	5017.13	7419.44	407.29	407.29	
Paving Equipment	1	2800	2,800	414.07	2.22	1292.36	6094.80	190.80	190.80	
Compacting Equipment	1	2800	2,800	371.84	2.16	1215.47	2409.91	168.27	168.27	
Dump Truck	2	2800	5,600	76.66	0.54	214.65	396.93	27.18	27.18	
Trash Truck	2	2800	5,600	1613.47	14.89	5114.46	16320.70	591.34	591.34	
Fueling and Maintenance truck	2	2800	5,600	1613.47	14.89	5114.46	16320.70	591.34	591.34	
Forklift	2	2800	5,600	482.12	3.38	1397.41	3600.86	193.57	193.57	
Cement and Mortar Mixers	2	2800	5,600	67.06	0.61	255.06	387.83	27.73	27.73	
Crane	1	2800	2,800	526.91	3.86	1782.34	4745.34	211.35	211.35	
Air Compressor	2	2800	5,600	719.66	3.98	2168.15	4648.94	324.45	324.45	
			Totals (tons):	4.13	0.03	13.78	37.86	1.64	1.64	
Off Site Emissions	Device Quantity	Miles per day	Job Days	Total Miles	ROG lbs	SO₂ lbs	CO lbs	NO_x lbs	PM10 lbs	PM2.5 lbs
Passenger Vehicle	9	23.33333333	280	58,800	63.46	0.63	1,290.61	64.85	5.00	3.11
				Totals (tons):	0.03	0.00	0.65	0.03	0.00	0.00
				Grand Total (tons):	4.16	0.03	14.43	37.89	1.64	1.64
Fugitive Dust Emissions Calculations										
On Site Emissions	Emission Factors			Equipment Category						
	TSP	PM10	PM2.5							
	lb/hr	lb/hr	lb/hr							
Pick-up Truck	32.91	9.40	0.94	Off-Highway truck 250hp						
Front End Loader	37.97	10.43	1.08	Tractors/Loaders/Backhoes Total						
Excavator	37.97	10.43	1.08	Excavators Total						
Paving Equipment	32.91	9.40	0.94	Paving Equipment Total						
Compacting Equipment	32.91	9.40	0.94	Rollers Total						
Dump Truck	33.28	9.68	0.98	Dumpers/Tenders total						
Trash Truck	32.91	9.40	0.94	Off-Highway truck total						
Fueling and Maintenance truck	32.91	9.40	0.94	Off-Highway truck total						
Forklift	32.91	9.40	0.94	Forklifts total						
Cement and Mortar Mixers	32.91	9.40	0.94	Cement and Mortar Mixers Total						
Crane	32.91	9.40	0.94	Cranes Total						
Air Compressor	0.00	0.00	0.00	Air Compressors total						
Wind Erosion of Active Construction Site	0.00	0.13	0.00							

Emission factors for all trucks but dump trucks, forklifts, cranes, pavers and mixers calculated from AP - 42 5th Edition Volume I section 13.2.2							
Emission factors for backhoe, bulldozer, excavator, front end loader, graders and scrapers calculated from AP - 42 5th Edition Volume I tables 11.9-1 and 11.9-2 and section 13.2.2							
Emission factors for Dump Truck calculated from AP - 42 5th Edition Volume I section 13.2.2, tables 11.9-4 and section 13.2.4.2							
Wind Erosion factor taken from Improvement of Specific Emission Factors (BACM Project No. 1)							
Off Site Emissions	Emission Factors			Equipment Category			
	TSP	PM10	PM2.5				
	lb/mi	lb/mi	lb/mi				
Passenger Vehicle	0.00	0.00	0.00	On-Road Passenger Vehicle			
Emission factors for calculated from AP - 42 5th Edition Volume I section 13.1							
Project Variables:							
Area of Construction:	8 acres						
Area based on estimate in the project description							
Emission Calculations:							
On Site Emissions							
	Device Quantity	Job Hours	Total Hours	TSP lbs	PM10 lbs	PM2.5 lbs	
Pick-up Truck	2	2800	5,600	184296.29	52657.39	5265.74	
Front End Loader	1	2800	2,800	106319.79	29210.53	3036.33	
Excavator	2	2800	5,600	212639.59	58421.07	6072.65	
Paving Equipment	1	2800	2,800	92148.15	26328.69	2632.87	
Compacting Equipment	1	2800	2,800	92148.15	26328.69	2632.87	
Dump Truck	2	2800	5,600	186368.29	54211.39	5483.30	
Trash Truck	2	2800	5,600	184296.29	52657.39	5265.74	
Fueling and Maintenance truck	2	2800	5,600	184296.29	52657.39	5265.74	
Forklift	2	2800	5,600	184296.29	52657.39	5265.74	
Cement and Mortar Mixers	2	2800	5,600	184296.29	52657.39	5265.74	
Crane	1	2800	2,800	92148.15	26328.69	2632.87	
Air Compressor	2	2800	5,600	0.00	0.00	0.00	
Wind Erosion of Active Construction Site	1	2800	2,800	0.00	2912.00	0.00	
			Totals (tons):	851.63	242.06	24.41	
Off Site Emissions							
	Device Quantity	Miles per day	Job Days	Total Miles	TSP lbs	PM10 lbs	PM2.5 lbs
Passenger Vehicle	9	23.33333333	280	58,800	90.96	0.00	0.00
			Totals (tons):		0.05	0.00	0.00
Grand Total (tons):				TSP	PM10	PM2.5	
				851.67	242.06	24.41	
Total On-Site PM Emissions				TSP	PM10	PM2.5	
				851.63	243.69	26.04	
Tertiary Treatment Plant Expansion							

Combustion Emission Calculations									
On Site Emissions	Emission Factors						Equipment Category		
	ROG	SO ₂	CO	NO _x	PM10	PM2.5			
	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr			
Pick-up Truck	0.1933	0.0019	0.5096	1.9993	0.0659	0.0659	Off-Highway truck 250hp		
Front End Loader	0.1204	0.0008	0.4063	0.7746	0.0599	0.0599	Tractors/Loaders/Backhoes Total		
Excavator	0.1695	0.0017	0.8959	1.3249	0.0727	0.0727	Excavators Total		
Paving Equipment	0.1479	0.0008	0.4616	2.1767	0.0681	0.0681	Paving Equipment Total		
Compacting Equipment	0.1328	0.0008	0.4341	0.8607	0.0601	0.0601	Rollers Total		
Dump Truck	0.0137	0.0001	0.0383	0.0709	0.0049	0.0049	Dumpers/Tenders total		
Trash Truck	0.2881	0.0027	0.9133	2.9144	0.1056	0.1056	Off-Highway truck total		
Fueling and Maintenance truck	0.2881	0.0027	0.9133	2.9144	0.1056	0.1056	Off-Highway truck total		
Forklift	0.0861	0.0006	0.2495	0.6430	0.0346	0.0346	Forklifts total		
Cement and Mortar Mixers	0.0120	0.0001	0.0455	0.0693	0.0050	0.0050	Cement and Mortar Mixers Total		
Crane	0.1882	0.0014	0.6365	1.6948	0.0755	0.0755	Cranes Total		
Air Compressor	0.1285	0.0007	0.3872	0.8302	0.0579	0.0579	Air Compressors total		
Wind Erosion of Active Construction Site	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
Emission Factors Published in:									
SCAB Fleet Average Emission Factors (Diesel)									
Off Site Emissions	Emission Factors						Equipment Category		
	ROG	SO ₂	CO	NO _x	PM10	PM2.5			
	lb/mi	lb/mi	lb/mi	lb/mi	lb/mi	lb/mi			
Passenger Vehicle	0.0011	0.0000	0.0219	0.0011	0.0001	0.0001	On-Road Passenger Vehicle		
Emission Factors Published in:									
EMFAC2007 (v 2.3) Emission Factors for On-Road Passenger Vehicles & Delivery Trucks									
Projects in SCAQMD									
Project Variables:									
Operating Schedule:					Project Fleet:				
Hourly:	10	hours per day				On Site		Off Site	
Daily:	5	days per week	Device		Quantity		Device		Quantity
Duration:	32	weeks	Pick-up Truck		2		Passenger Vehicle		0
Total:	160	days	Front End Loader		1				
Total:	1600	hours	Excavator		2				
			Paving Equipment		1				
			Compacting Equipment		1				
			Dump Truck		2				
			Trash Truck		2				
			Fueling and Maintenance truck		2				
			Forklift		2				
			Cement and Mortar Mixers		2				
			Crane		1				
			Air Compressor		2				
			Wind Erosion of Active Construction Site		1				
Commute:	0.00	miles per day							
- See Commute Assumptions for details									

Off Site Emissions	TSP	PM10	PM2.5	Equipment Category			
	lb/mi	lb/mi	lb/mi				
Passenger Vehicle	0.00	0.00	0.00	On-Road Passenger Vehicle			
Emission factors for calculated from AP - 42 5th Edition Volume I section 13.1							
Project Variables:							
Area based scaled drawings, calculation attached.							
Area of Construction:	4.04 acres						
Operating Schedule:				Project Fleet:			
Hourly:	10	hours per day		Off-Road		On-Road	
Daily:	5	days per week		Device	Quantity	Device	Quantity
Duration:	32	weeks		Pick-up Truck	2	Passenger Vehicle	0
Total:	160	days		Front End Loader	1		0
Total:	1600	hours		Excavator	2		0
				Paving Equipment	1		0
				Compacting Equipment	1		0
				Dump Truck	2		0
Commute:	0	miles per day			0		0
		- See Commute Assumptions for details					
Emission Calculations:							
On Site Emissions	Device Quantity	Job Hours	Total Hours	TSP lbs	PM10 lbs	PM2.5 lbs	
Pick-up Truck	2	2800	5,600	184296.29	52657.39	5265.74	
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Trash Truck	2	2800	5,600	184296.29	52657.39	5265.74	
Fueling and Maintenance truck	2	2800	5,600	184296.29	52657.39	5265.74	
Forklift	2	2800	5,600	184296.29	52657.39	5265.74	
Cement and Mortar Mixers	2	2800	5,600	184296.29	52657.39	5265.74	
Crane	1	2800	2,800	92148.15	26328.69	2632.87	
Air Compressor	2	2800	5,600	0.00	0.00	0.00	
Wind Erosion of Active Construction Site	1	2800	2,800	0.00	1470.56	0.00	
			Totals (tons):	851.63	242.06	24.41	
Off Site Emissions	Device Quantity	Miles per day	Job Days	Total Miles	TSP lbs	PM10 lbs	PM2.5 lbs
Passenger Vehicle	0	23.33	280	0	0.00	0.00	0.00
				Totals (tons):	0.00	0.00	0.00
				TSP	PM10	PM2.5	
			Grand Total (tons):	851.63	242.06	24.41	

				TSP	PM10	PM2.5						
			Total On-Site PM Emissions	851.63	243.69	26.04						