Appendix C
Air Quality and Greenhouse Gas Emission Calculations

GWF Outfall Pipe Removal Project AQ Impacts				
Pollutant	*Construction Equipment Emissions Totals (lbs/day)*	*[1] Marine Equipment Emissions Totals (lbs/day)*	*Total Daily Emissions (lbs/day)*	*BAAQMD Significance Thresholds (lbs/day)*
ROG	0.88	1.28	2.15	54
NO_x	8.44	7.61	16.05	54
Exhaust PM_{10}	0.35	0.25	0.60	82
Exhaust $PM_{2.5}$	0.33	0.25	0.58	54

[1]Particulate emissions from the marine equipment were not speciated into PM_{10} and $PM_{2.5}$, therefore it was conservatively assumed the PM emissions could either be all $PM_{2.5}$ or PM_{10}

GWF Outfall Pipe Removal Project GHG Impacts					
Pollutant	*Construction Equipment Emissions Totals (lbs/day)*	*Marine Equipment Emissions Totals (lbs/day)*	*Total Daily Emissions (lbs/day)*	*Total Project GHG Impacts (MTCO2e/year)*	*[2] BAAQMD 2010 GHG Inventory Total (MTCO2e/year)*
CO2e	1336.5	878.1	2214.6	12.1	95,800,000

[2]The BAAQMD February 2010 GHG Inventory is the most recent update available to the district level inventory

Construction Equipment Emissions Modeling Inputs, Results, and Calculations

CalEEMod Data Entry				
Equipment	*CalEEMod Entry Type*	*HP*	*Fuel Type*	*Utilization*
Excavator	Excavator	300	Diesel	7 hrs/day onsite
3/4 Ton P/U Truck	Vendor Truck	200	Gas	San Rafael to Pittsburg Daily
Hydraulic Power Unit	Generator Set	115	Diesel	1 hr/day
Generator	Generator Set	3	Gas	1 hr/day
Trash/Water Pump	Pump	40	Gas	2 hrs/day
Breathing Compressor	Air Compressor	10	Diesel	5 hrs/day

CalEEMod Criteria Pollutant Results		
Pollutant	*ton/yr*	*Average lbs/day*
ROG	0.00439	0.878
NO_x	0.0422	8.44
Exhaust PM_{10}	0.00175	0.35
Exhaust $PM_{2.5}$	0.00167	0.334

CalEEMod GHG Results		
Pollutant	*MT/yr*	*Average lbs/day*
CO2e	6.0623	1336.5

Marine Equipment Emissions Calculations

Input Data				
Marine Craft	*HP*	*Fuel Type*	*Engine Tier*	*Utilization*
Work Barge	None	N/A	N/A	N/A
Tugboat	425(2)	Diesel	II (MY 2004)	6 hours/2 days
Dive Boat	90 (2)	Gas	4-stroke	3 hours/day

Tugboat Emissions									
Pollutant	[1] *Efo (g/hp_hr)*	*F*	*D*	*A (yrs)*	*UL (yrs)*	*HP*	*LF*	*Hr*	[2] *E avg (lbs/day)*
NO_x	5.1	0.948	0.21	14	21	425	0.5	6	6.2
PM	0.15	0.8	0.67	14	21	425	0.5	6	0.2
ROG	0.68	1	0.44	14	21	425	0.5	6	1.0
CO	3.73	1	0.25	14	21	425	0.5	6	4.9
[5]CO_2	522	N/A	N/A	N/A	N/A	425	N/A	6	586.5

[4]Dive Boat Emissions									
Pollutant	[3] *Efo (g/hp_hr)*	*F*	*D*	*A (yrs)*	*UL (yrs)*	*HP*	*LF*	*Hr*	*E avg (lbs/day)*
NO_x	5.32	0.948	0.14	5	17	90	0.45	3	1.4
PM	0.22	0.8	0.44	5	17	90	0.45	3	0.1
ROG	0.99	1	0.28	5	17	90	0.45	3	0.3
CO	3.73	1	0.16	5	17	90	0.45	3	1.0
[5]CO_2	490	N/A	N/A	N/A	N/A	90	N/A	3	291.6

[1]2004 model year engine assumed (First year Tier II engines were required)

[2]Tugboat activity only during mobilization and demobilization - two 6 hour days. The Eavg value averages the emissions per day over the course of the project duration

[3]Minimum model year 2009 assumed for dive boat engines

[4]Dive boat emissions were calculated using factors for the "work boat" commercial marine craft type as it is the most pertinent designation

[5]From AP-42 Chapter 3.3 - "Gasoline and Diesel Industrial Engines." The CARB emissions estimation methodology does not address GHG

CARB Emissions Estimation Methodology for Commercial Harbor Craft Operating in California

$$E = EF_0 \times F \times (1 + D \times \frac{A}{UL}) \times HP \times LF \times Hr$$

Where:

E is the amount of emissions of a pollutant (ROG, CO, NOx, or PM) emitted during one period; [7]
EF₀ is the model year, horsepower and engine use (propulsion or auxiliary) specific zero hour emission factor (when engine is new);
F is the fuel correction factor which accounts for emission reduction benefits from burning cleaner fuel;
D is the horsepower and pollutant specific engine deterioration factor, which is the percentage increase of emission factors at the end of the useful life of the engine;
A is the age of the engine when the emissions are estimated;
UL is the vessel type and engine use specific engine useful life;
HP is rated horsepower of the engine;
LF is the vessel type and engine use specific engine load factor;
Hr is the number of annual operating hours of the engine.

Tug Boat Emission Factors									
HP Range	Model Year	ME NOx	ME PM	ME ROG	ME CO	AE NOx	AE PM	AE ROG	AE CO
251-500 hp	pre-1971	16.52	0.70	1.26	3.07	14.00	0.62	1.50	4.33
	1971-1978	15.34	0.60	1.05	3.07	13.00	0.53	1.25	4.33
	1979-1983	14.16	0.50	0.95	3.07	12.00	0.45	1.13	4.33
	1984-1986	12.98	0.50	0.90	3.07	11.00	0.45	1.07	4.33
	1987-1994	12.98	0.50	0.84	2.99	11.00	0.45	1.00	4.22
	1995-1999	9.64	0.36	0.68	1.97	8.17	0.32	0.81	2.78
	2000-2003	7.31	0.36	0.68	1.97	7.31	0.32	0.81	2.78
	2004-2013	5.10	0.15	0.68	3.73	5.10	0.15	0.81	3.73
	2014-2020	3.99	0.08	0.68	3.73	3.99	0.08	0.81	3.73

Dive Boat Emission Factors									
HP Range	Model Year	ME NOx	ME PM	ME ROG	ME CO	AE NOx	AE PM	AE ROG	AE CO
51-120 hp	pre-1997	15.34	0.80	1.44	3.50	13.00	0.71	1.71	4.94
	1997-1999	10.33	0.66	0.99	2.55	8.75	0.58	1.18	3.59
	2000-2004	7.31	0.66	0.99	2.55	7.31	0.58	1.18	3.59
	2005-2008	5.32	0.30	0.99	3.73	5.32	0.30	1.18	3.73
	2009-2020	5.32	0.22	0.99	3.73	5.32	0.22	1.18	3.73

GWF Pipeline Demo Site 5

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2014
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Non-default phase duration entered.

Off-road Equipment - Hydraulic power unit entered as a 115 HP generator set

Breathing compressor entered as a 10 HP air compressor

Trips and VMT - 5 personnel onsite per day commuting to and from the site.

Vendor trip # accounts for the 3/4 ton pickup truck driving from san rafael to pittsburg each day

Demolition -

Operational Off-Road Equipment - dfaasdg

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	10.00
tblOffRoadEquipment	HorsePower	78.00	10.00
tblOffRoadEquipment	HorsePower	162.00	300.00

tblOffRoadEquipment	HorsePower	84.00	115.00
tblOffRoadEquipment	HorsePower	84.00	3.00
tblOffRoadEquipment	HorsePower	84.00	40.00
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	PhaseName		Demolition
tblTripsAndVMT	VendorTripLength	7.30	47.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	MHDT
tblTripsAndVMT	WorkerTripNumber	8.00	10.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	4.3900e-003	0.0422	0.0238	7.0000e-005	6.7000e-004	1.7500e-003	2.4200e-003	1.8000e-004	1.6700e-003	1.8500e-003	0.0000	6.0329	6.0329	1.4000e-003	0.0000	6.0623
Total	**4.3900e-003**	**0.0422**	**0.0238**	**7.0000e-005**	**6.7000e-004**	**1.7500e-003**	**2.4200e-003**	**1.8000e-004**	**1.6700e-003**	**1.8500e-003**	**0.0000**	**6.0329**	**6.0329**	**1.4000e-003**	**0.0000**	**6.0623**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	4.3900e-003	0.0389	0.0238	7.0000e-005	6.7000e-004	1.7500e-003	2.4200e-003	1.8000e-004	1.6700e-003	1.8500e-003	0.0000	6.0328	6.0328	1.4000e-003	0.0000	6.0623
Total	**4.3900e-003**	**0.0389**	**0.0238**	**7.0000e-005**	**6.7000e-004**	**1.7500e-003**	**2.4200e-003**	**1.8000e-004**	**1.6700e-003**	**1.8500e-003**	**0.0000**	**6.0328**	**6.0328**	**1.4000e-003**	**0.0000**	**6.0623**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**7.89**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2014	9/12/2014	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Air Compressors	1	5.00	10	0.48
Demolition	Excavators	1	7.00	300	0.38
Demolition	Generator Sets	1	1.00	115	0.74
Demolition	Generator Sets	1	1.00	3	0.74
Demolition	Pumps	1	2.00	40	0.74

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	3	10.00	1.00	0.00	12.40	47.00	20.00	LD_Mix	MHDT	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.9600e-003	0.0391	0.0192	6.0000e-005		1.6700e-003	1.6700e-003		1.5900e-003	1.5900e-003	0.0000	5.0679	5.0679	1.3700e-003	0.0000	5.0967
Total	**3.9600e-003**	**0.0391**	**0.0192**	**6.0000e-005**	**0.0000**	**1.6700e-003**	**1.6700e-003**	**0.0000**	**1.5900e-003**	**1.5900e-003**	**0.0000**	**5.0679**	**5.0679**	**1.3700e-003**	**0.0000**	**5.0967**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9000e-004	2.7500e-003	1.2700e-003	1.0000e-005	2.2000e-004	8.0000e-005	2.9000e-004	6.0000e-005	7.0000e-005	1.3000e-004	0.0000	0.5244	0.5244	1.0000e-005	0.0000	0.5245
Worker	2.4000e-004	3.4000e-004	3.3500e-003	1.0000e-005	4.5000e-004	0.0000	4.6000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.4406	0.4406	3.0000e-005	0.0000	0.4412
Total	**4.3000e-004**	**3.0900e-003**	**4.6200e-003**	**2.0000e-005**	**6.7000e-004**	**8.0000e-005**	**7.5000e-004**	**1.8000e-004**	**7.0000e-005**	**2.5000e-004**	**0.0000**	**0.9650**	**0.9650**	**4.0000e-005**	**0.0000**	**0.9657**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.9600e-003	0.0358	0.0192	6.0000e-005		1.6700e-003	1.6700e-003		1.5900e-003	1.5900e-003	0.0000	5.0679	5.0679	1.3700e-003	0.0000	5.0967
Total	**3.9600e-003**	**0.0358**	**0.0192**	**6.0000e-005**	**0.0000**	**1.6700e-003**	**1.6700e-003**	**0.0000**	**1.5900e-003**	**1.5900e-003**	**0.0000**	**5.0679**	**5.0679**	**1.3700e-003**	**0.0000**	**5.0967**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9000e-004	2.7500e-003	1.2700e-003	1.0000e-005	2.2000e-004	8.0000e-005	2.9000e-004	6.0000e-005	7.0000e-005	1.3000e-004	0.0000	0.5244	0.5244	1.0000e-005	0.0000	0.5245
Worker	2.4000e-004	3.4000e-004	3.3500e-003	1.0000e-005	4.5000e-004	0.0000	4.6000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.4406	0.4406	3.0000e-005	0.0000	0.4412
Total	**4.3000e-004**	**3.0900e-003**	**4.6220e-003**	**2.0000e-005**	**6.7000e-004**	**8.0000e-005**	**7.5000e-004**	**1.8000e-004**	**7.0000e-005**	**2.5000e-004**	**0.0000**	**0.9650**	**0.9650**	**4.0000e-005**	**0.0000**	**0.9657**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.546249	0.062948	0.174600	0.125189	0.034587	0.004960	0.015036	0.022157	0.002053	0.003311	0.006538	0.000702	0.001670

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					

Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000

Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation