Appendix A

Air Quality/Greenhouse Gas Modeling Results

100-132 North Catalina Avenue Proposed Project- Air Quality Modeling

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.38	Acre	0.38	16,552.80	0
Parking Lot	11.00	Space	0.10	4,400.00	0
Unenclosed Parking Structure	22.00	Space	0.00	8,800.00	0
Fast Food Restaurant w/o Drive Thru	1.78	1000sqft	0.04	1,784.00	0
High Turnover (Sit Down Restaurant)	1.28	1000sqft	0.03	1,279.00	0
Apartments Low Rise	8.00	Dwelling Unit	0.20	9,025.00	23
Condo/Townhouse High Rise	22.00	Dwelling Unit	0.51	40,286.00	63

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2030
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	353.87	**CH4 Intensity (lb/MWhr)**	0.015	**N2O Intensity (lb/MWhr)**	0.003

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Updated per 2030 RPS

Land Use - Based on project plans/data and google earth estimations

Construction Phase - Schedule per applicant-provided info

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Trips and VMT -

Demolition - Based on project plans

Grading - Per applicant provided info

Architectural Coating - Per SCAQMD Rule 1113

Vehicle Trips - Trip gen from traffic study

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - None per applicant-provided information

Area Coating - Per SCAQMD Rule 1113

Energy Use - Title 24 30% reduction for non-residential land uses; solar panels per 2019 Title 24

Water And Wastewater - CalGreen req's 20% reduction indoor water use

Construction Off-road Equipment Mitigation - Per SCAQMD Rule 403

Mobile Land Use Mitigation - Mixed use development, 13.3% of units affordable housing

Area Mitigation - Per SCAQMD Rule 1113

Energy Mitigation - EnergyStar appliances in residential units per applicant provided info

Water Mitigation - Project complies with 2019 CALGreen

Fleet Mix -

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Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	22.00
tblConstructionPhase	NumDays	2.00	21.00
tblConstructionPhase	NumDays	4.00	43.00
tblConstructionPhase	NumDays	200.00	577.00
tblConstructionPhase	NumDays	10.00	181.00
tblConstructionPhase	NumDays	10.00	61.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblEnergyUse	LightingElect	810.36	0.00
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tblEnergyUse	NT24E	3,172.76	0.00
tblEnergyUse	NT24E	3,054.10	0.00
tblEnergyUse	T24E	177.01	0.00
tblEnergyUse	T24E	179.76	0.00
tblEnergyUse	T24E	8.71	6.10
tblEnergyUse	T24E	8.71	6.10

tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
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tblFireplaces	NumberNoFireplace	2.20	0.00
tblFireplaces	NumberWood	0.40	0.00
tblFireplaces	NumberWood	1.10	0.00
tblGrading	MaterialImported	0.00	909.00
tblLandUse	LandUseSquareFeet	1,780.00	1,784.00
tblLandUse	LandUseSquareFeet	1,280.00	1,279.00
tblLandUse	LandUseSquareFeet	8,000.00	9,025.00
tblLandUse	LandUseSquareFeet	22,000.00	40,286.00
tblLandUse	LotAcreage	0.20	0.00
tblLandUse	LotAcreage	0.50	0.20
tblLandUse	LotAcreage	0.34	0.51
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.015
tblProjectCharacteristics	CO2IntensityFactor	702.44	353.87
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.003
tblVehicleTrips	WD_TR	6.59	7.32
tblVehicleTrips	WD_TR	4.18	7.32
tblVehicleTrips	WD_TR	716.00	225.33
tblVehicleTrips	WD_TR	127.15	96.17

tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
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tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	IndoorWaterUseRate	521,232.20	416,985.76
tblWater	IndoorWaterUseRate	1,433,388.56	1,146,710.85
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tblWater	IndoorWaterUseRate	388,523.15	310,818.52
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tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
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tblWoodstoves	NumberCatalytic	0.40	0.00
tblWoodstoves	NumberCatalytic	1.10	0.00

tblWoodstoves	NumberNoncatalytic	0.40	0.00
tblWoodstoves	NumberNoncatalytic	1.10	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

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					
2021	0.0989	0.9556	0.6153	1.2800e-003	0.1835	0.0440	0.2275	0.0894	0.0411	0.1305	0.0000	112.0078	112.0078	0.0256	0.0000	112.6466
2022	0.3303	2.4503	2.5654	5.0900e-003	0.0804	0.1083	0.1887	0.0216	0.1046	0.1262	0.0000	429.9801	429.9801	0.0616	0.0000	431.5210
2023	0.3581	1.4347	1.7147	3.2900e-003	0.0512	0.0628	0.1140	0.0137	0.0604	0.0741	0.0000	279.7098	279.7098	0.0426	0.0000	280.7748
Maximum	**0.3581**	**2.4503**	**2.5654**	**5.0900e-003**	**0.1835**	**0.1083**	**0.2275**	**0.0894**	**0.1046**	**0.1305**	**0.0000**	**429.9801**	**429.9801**	**0.0616**	**0.0000**	**431.5210**

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					
2021	0.0989	0.9556	0.6153	1.2800e-003	0.0895	0.0440	0.1335	0.0421	0.0411	0.0832	0.0000	112.0077	112.0077	0.0256	0.0000	112.6464
2022	0.3303	2.4503	2.5653	5.0900e-003	0.0804	0.1083	0.1887	0.0216	0.1046	0.1262	0.0000	429.9797	429.9797	0.0616	0.0000	431.5206
2023	0.3581	1.4347	1.7147	3.2900e-003	0.0512	0.0628	0.1140	0.0137	0.0604	0.0741	0.0000	279.7096	279.7096	0.0426	0.0000	280.7746
Maximum	**0.3581**	**2.4503**	**2.5653**	**5.0900e-003**	**0.0895**	**0.1083**	**0.1887**	**0.0421**	**0.1046**	**0.1262**	**0.0000**	**429.9797**	**429.9797**	**0.0616**	**0.0000**	**431.5206**

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	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**	**29.84**	**0.00**	**17.74**	**37.94**	**0.00**	**14.30**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**9-1-2021**	**11-30-2021**	0.6905	0.6905
2	**12-1-2021**	**2-28-2022**	0.8131	0.8131
3	**3-1-2022**	**5-31-2022**	0.7002	0.7002
4	**6-1-2022**	**8-31-2022**	0.6999	0.6999
5	**9-1-2022**	**11-30-2022**	0.6929	0.6929
6	**12-1-2022**	**2-28-2023**	0.7513	0.7513
7	**3-1-2023**	**5-31-2023**	0.9108	0.9108
8	**6-1-2023**	**8-31-2023**	0.3663	0.3663
		Highest	0.9108	0.9108

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	0.2170	3.5600e-003	0.3090	2.0000e-005		1.7200e-003	1.7200e-003		1.7200e-003	1.7200e-003	0.0000	0.5063	0.5063	4.8000e-004	0.0000	0.5184
Energy	6.1900e-003	0.0552	0.0396	3.4000e-004		4.2800e-003	4.2800e-003		4.2800e-003	4.2800e-003	0.0000	80.6211	80.6211	2.0000e-003	1.2900e-003	81.0545
Mobile	0.1482	0.8580	1.6285	7.4700e-003	0.7341	4.6100e-003	0.7387	0.1966	4.2800e-003	0.2009	0.0000	696.0445	696.0445	0.0296	0.0000	696.7851
Waste						0.0000	0.0000		0.0000	0.0000	10.0541	0.0000	10.0541	0.5942	0.0000	24.9087
Water						0.0000	0.0000		0.0000	0.0000	0.8161	7.1244	7.9405	3.1100e-003	1.8400e-003	8.5652
Total	**0.3714**	**0.9167**	**1.9772**	**7.8300e-003**	**0.7341**	**0.0106**	**0.7447**	**0.1966**	**0.0103**	**0.2069**	**10.8703**	**784.2963**	**795.1666**	**0.6294**	**3.1300e-003**	**811.8319**

2.2 Overall Operational

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	0.2170	3.5600e-003	0.3090	2.0000e-005		1.7200e-003	1.7200e-003		1.7200e-003	1.7200e-003	0.0000	0.5063	0.5063	4.8000e-004	0.0000	0.5184
Energy	6.1900e-003	0.0552	0.0396	3.4000e-004		4.2800e-003	4.2800e-003		4.2800e-003	4.2800e-003	0.0000	80.6211	80.6211	2.0000e-003	1.2900e-003	81.0545
Mobile	0.1402	0.8162	1.4382	6.4400e-003	0.6212	4.0100e-003	0.6253	0.1664	3.7200e-003	0.1701	0.0000	600.4247	600.4247	0.0263	0.0000	601.0825
Waste						0.0000	0.0000		0.0000	0.0000	10.0541	0.0000	10.0541	0.5942	0.0000	24.9087
Water						0.0000	0.0000		0.0000	0.0000	0.8161	6.9839	7.8000	3.1100e-003	1.8300e-003	8.4242
Total	**0.3634**	**0.8750**	**1.7869**	**6.8000e-003**	**0.6212**	**0.0100**	**0.6313**	**0.1664**	**9.7200e-003**	**0.1761**	**10.8703**	**688.5359**	**699.4062**	**0.6261**	**3.1200e-003**	**715.9883**

	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	**2.14**	**4.56**	**9.62**	**13.15**	**15.37**	**5.66**	**15.24**	**15.37**	**5.45**	**14.88**	**0.00**	**12.21**	**12.04**	**0.53**	**0.32**	**11.81**

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	9/1/2021	9/22/2021	7	22	
2	Site Preparation	Site Preparation	10/1/2021	10/21/2021	7	21	
3	Grading	Grading	11/1/2021	12/13/2021	7	43	
4	Building Construction	Building Construction	12/1/2021	6/30/2023	7	577	
5	Architectural Coating	Architectural Coating	1/1/2023	6/30/2023	7	181	
6	Paving	Paving	5/1/2023	6/30/2023	7	61	

Acres of Grading (Site Preparation Phase): 10.5

Acres of Grading (Grading Phase): 16.13

Acres of Paving: 0.48

Residential Indoor: 99,855; Residential Outdoor: 33,285; Non-Residential Indoor: 4,595; Non-Residential Outdoor: 1,532; Striped Parking Area: 1,785 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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	5	13.00	0.00	41.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	114.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	35.00	9.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	7.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

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					4.3900e-003	0.0000	4.3900e-003	6.7000e-004	0.0000	6.7000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0219	0.2167	0.1594	2.7000e-004		0.0115	0.0115		0.0107	0.0107	0.0000	23.1785	23.1785	5.9300e-003	0.0000	23.3266
Total	**0.0219**	**0.2167**	**0.1594**	**2.7000e-004**	**4.3900e-003**	**0.0115**	**0.0158**	**6.7000e-004**	**0.0107**	**0.0114**	**0.0000**	**23.1785**	**23.1785**	**5.9300e-003**	**0.0000**	**23.3266**

3.2 Demolition - 2021

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	1.5000e-004	5.3400e-003	1.1300e-003	2.0000e-005	3.5000e-004	2.0000e-005	3.7000e-004	1.0000e-004	2.0000e-005	1.1000e-004	0.0000	1.5307	1.5307	1.0000e-004	0.0000	1.5334
Vendor	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
Worker	6.0000e-004	4.4000e-004	4.9800e-003	2.0000e-005	1.5700e-003	1.0000e-005	1.5800e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.3666	1.3666	4.0000e-005	0.0000	1.3675
Total	**7.5000e-004**	**5.7800e-003**	**6.1100e-003**	**4.0000e-005**	**1.9200e-003**	**3.0000e-005**	**1.9500e-003**	**5.2000e-004**	**3.0000e-005**	**5.4000e-004**	**0.0000**	**2.8973**	**2.8973**	**1.4000e-004**	**0.0000**	**2.9009**

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					1.9800e-003	0.0000	1.9800e-003	3.0000e-004	0.0000	3.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0219	0.2167	0.1594	2.7000e-004		0.0115	0.0115		0.0107	0.0107	0.0000	23.1784	23.1784	5.9300e-003	0.0000	23.3266
Total	**0.0219**	**0.2167**	**0.1594**	**2.7000e-004**	**1.9800e-003**	**0.0115**	**0.0134**	**3.0000e-004**	**0.0107**	**0.0110**	**0.0000**	**23.1784**	**23.1784**	**5.9300e-003**	**0.0000**	**23.3266**

3.2 Demolition - 2021

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	1.5000e-004	5.3400e-003	1.1300e-003	2.0000e-005	3.5000e-004	2.0000e-005	3.7000e-004	1.0000e-004	2.0000e-005	1.1000e-004	0.0000	1.5307	1.5307	1.0000e-004	0.0000	1.5334
Vendor	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
Worker	6.0000e-004	4.4000e-004	4.9800e-003	2.0000e-005	1.5700e-003	1.0000e-005	1.5800e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.3666	1.3666	4.0000e-005	0.0000	1.3675
Total	**7.5000e-004**	**5.7800e-003**	**6.1100e-003**	**4.0000e-005**	**1.9200e-003**	**3.0000e-005**	**1.9500e-003**	**5.2000e-004**	**3.0000e-005**	**5.4000e-004**	**0.0000**	**2.8973**	**2.8973**	**1.4000e-004**	**0.0000**	**2.9009**

3.3 Site Preparation - 2021

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					0.0609	0.0000	0.0609	0.0310	0.0000	0.0310	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0163	0.1829	0.0794	1.8000e-004		8.0400e-003	8.0400e-003		7.3900e-003	7.3900e-003	0.0000	15.8743	15.8743	5.1300e-003	0.0000	16.0027
Total	**0.0163**	**0.1829**	**0.0794**	**1.8000e-004**	**0.0609**	**8.0400e-003**	**0.0689**	**0.0310**	**7.3900e-003**	**0.0384**	**0.0000**	**15.8743**	**15.8743**	**5.1300e-003**	**0.0000**	**16.0027**

3.3 Site Preparation - 2021

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	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
Worker	3.5000e-004	2.6000e-004	2.9300e-003	1.0000e-005	9.2000e-004	1.0000e-005	9.3000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8028	0.8028	2.0000e-005	0.0000	0.8033
Total	**3.5000e-004**	**2.6000e-004**	**2.9300e-003**	**1.0000e-005**	**9.2000e-004**	**1.0000e-005**	**9.3000e-004**	**2.4000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.8028**	**0.8028**	**2.0000e-005**	**0.0000**	**0.8033**

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					0.0274	0.0000	0.0274	0.0140	0.0000	0.0140	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0163	0.1829	0.0794	1.8000e-004		8.0400e-003	8.0400e-003		7.3900e-003	7.3900e-003	0.0000	15.8743	15.8743	5.1300e-003	0.0000	16.0026
Total	**0.0163**	**0.1829**	**0.0794**	**1.8000e-004**	**0.0274**	**8.0400e-003**	**0.0354**	**0.0140**	**7.3900e-003**	**0.0214**	**0.0000**	**15.8743**	**15.8743**	**5.1300e-003**	**0.0000**	**16.0026**

3.3 Site Preparation - 2021

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	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
Worker	3.5000e-004	2.6000e-004	2.9300e-003	1.0000e-005	9.2000e-004	1.0000e-005	9.3000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8028	0.8028	2.0000e-005	0.0000	0.8033
Total	**3.5000e-004**	**2.6000e-004**	**2.9300e-003**	**1.0000e-005**	**9.2000e-004**	**1.0000e-005**	**9.3000e-004**	**2.4000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.8028**	**0.8028**	**2.0000e-005**	**0.0000**	**0.8033**

3.4 Grading - 2021

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					0.1057	0.0000	0.1057	0.0543	0.0000	0.0543	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0277	0.3081	0.1361	3.0000e-004		0.0137	0.0137		0.0126	0.0126	0.0000	26.6249	26.6249	8.6100e-003	0.0000	26.8401
Total	**0.0277**	**0.3081**	**0.1361**	**3.0000e-004**	**0.1057**	**0.0137**	**0.1194**	**0.0543**	**0.0126**	**0.0669**	**0.0000**	**26.6249**	**26.6249**	**8.6100e-003**	**0.0000**	**26.8401**

3.4 Grading - 2021

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	4.2000e-004	0.0149	3.1500e-003	4.0000e-005	9.8000e-004	4.0000e-005	1.0200e-003	2.7000e-004	4.0000e-005	3.1000e-004	0.0000	4.2562	4.2562	2.9000e-004	0.0000	4.2635
Vendor	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
Worker	7.2000e-004	5.3000e-004	5.9900e-003	2.0000e-005	1.8900e-003	1.0000e-005	1.9000e-003	5.0000e-004	1.0000e-005	5.1000e-004	0.0000	1.6437	1.6437	4.0000e-005	0.0000	1.6448
Total	**1.1400e-003**	**0.0154**	**9.1400e-003**	**6.0000e-005**	**2.8700e-003**	**5.0000e-005**	**2.9200e-003**	**7.7000e-004**	**5.0000e-005**	**8.2000e-004**	**0.0000**	**5.8999**	**5.8999**	**3.3000e-004**	**0.0000**	**5.9083**

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					0.0476	0.0000	0.0476	0.0244	0.0000	0.0244	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0277	0.3081	0.1361	3.0000e-004		0.0137	0.0137		0.0126	0.0126	0.0000	26.6248	26.6248	8.6100e-003	0.0000	26.8401
Total	**0.0277**	**0.3081**	**0.1361**	**3.0000e-004**	**0.0476**	**0.0137**	**0.0613**	**0.0244**	**0.0126**	**0.0371**	**0.0000**	**26.6248**	**26.6248**	**8.6100e-003**	**0.0000**	**26.8401**

3.4 Grading - 2021

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	4.2000e-004	0.0149	3.1500e-003	4.0000e-005	9.8000e-004	4.0000e-005	1.0200e-003	2.7000e-004	4.0000e-005	3.1000e-004	0.0000	4.2562	4.2562	2.9000e-004	0.0000	4.2635
Vendor	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
Worker	7.2000e-004	5.3000e-004	5.9900e-003	2.0000e-005	1.8900e-003	1.0000e-005	1.9000e-003	5.0000e-004	1.0000e-005	5.1000e-004	0.0000	1.6437	1.6437	4.0000e-005	0.0000	1.6448
Total	**1.1400e-003**	**0.0154**	**9.1400e-003**	**6.0000e-005**	**2.8700e-003**	**5.0000e-005**	**2.9200e-003**	**7.7000e-004**	**5.0000e-005**	**8.2000e-004**	**0.0000**	**5.8999**	**5.8999**	**3.3000e-004**	**0.0000**	**5.9083**

3.5 Building Construction - 2021

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					
Off-Road	0.0281	0.2114	0.1999	3.4000e-004		0.0106	0.0106		0.0102	0.0102	0.0000	28.1399	28.1399	5.0200e-003	0.0000	28.2655
Total	**0.0281**	**0.2114**	**0.1999**	**3.4000e-004**		**0.0106**	**0.0106**		**0.0102**	**0.0102**	**0.0000**	**28.1399**	**28.1399**	**5.0200e-003**	**0.0000**	**28.2655**

3.5 Building Construction - 2021

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	4.0000e-004	0.0135	3.3500e-003	4.0000e-005	8.8000e-004	3.0000e-005	9.1000e-004	2.5000e-004	3.0000e-005	2.8000e-004	0.0000	3.4058	3.4058	2.2000e-004	0.0000	3.4112
Worker	2.2600e-003	1.6700e-003	0.0189	6.0000e-005	5.9500e-003	4.0000e-005	6.0000e-003	1.5800e-003	4.0000e-005	1.6200e-003	0.0000	5.1845	5.1845	1.4000e-004	0.0000	5.1879
Total	**2.6600e-003**	**0.0152**	**0.0223**	**1.0000e-004**	**6.8300e-003**	**7.0000e-005**	**6.9100e-003**	**1.8300e-003**	**7.0000e-005**	**1.9000e-003**	**0.0000**	**8.5903**	**8.5903**	**3.6000e-004**	**0.0000**	**8.5992**

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					
Off-Road	0.0281	0.2114	0.1999	3.4000e-004		0.0106	0.0106		0.0102	0.0102	0.0000	28.1399	28.1399	5.0200e-003	0.0000	28.2654
Total	**0.0281**	**0.2114**	**0.1999**	**3.4000e-004**		**0.0106**	**0.0106**		**0.0102**	**0.0102**	**0.0000**	**28.1399**	**28.1399**	**5.0200e-003**	**0.0000**	**28.2654**

3.5 Building Construction - 2021

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	4.0000e-004	0.0135	3.3500e-003	4.0000e-005	8.8000e-004	3.0000e-005	9.1000e-004	2.5000e-004	3.0000e-005	2.8000e-004	0.0000	3.4058	3.4058	2.2000e-004	0.0000	3.4112
Worker	2.2600e-003	1.6700e-003	0.0189	6.0000e-005	5.9500e-003	4.0000e-005	6.0000e-003	1.5800e-003	4.0000e-005	1.6200e-003	0.0000	5.1845	5.1845	1.4000e-004	0.0000	5.1879
Total	**2.6600e-003**	**0.0152**	**0.0223**	**1.0000e-004**	**6.8300e-003**	**7.0000e-005**	**6.9100e-003**	**1.8300e-003**	**7.0000e-005**	**1.9000e-003**	**0.0000**	**8.5903**	**8.5903**	**3.6000e-004**	**0.0000**	**8.5992**

3.5 Building Construction - 2022

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					
Off-Road	0.3009	2.2818	2.3226	4.0200e-003		0.1075	0.1075		0.1038	0.1038	0.0000	331.3779	331.3779	0.0577	0.0000	332.8208
Total	**0.3009**	**2.2818**	**2.3226**	**4.0200e-003**		**0.1075**	**0.1075**		**0.1038**	**0.1038**	**0.0000**	**331.3779**	**331.3779**	**0.0577**	**0.0000**	**332.8208**

3.5 Building Construction - 2022

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	4.3800e-003	0.1507	0.0372	4.1000e-004	0.0104	2.8000e-004	0.0106	2.9900e-003	2.7000e-004	3.2500e-003	0.0000	39.7480	39.7480	2.4400e-003	0.0000	39.8090
Worker	0.0250	0.0178	0.2055	6.5000e-004	0.0701	5.1000e-004	0.0706	0.0186	4.7000e-004	0.0191	0.0000	58.8542	58.8542	1.4800e-003	0.0000	58.8912
Total	**0.0294**	**0.1685**	**0.2428**	**1.0600e-003**	**0.0804**	**7.9000e-004**	**0.0812**	**0.0216**	**7.4000e-004**	**0.0223**	**0.0000**	**98.6022**	**98.6022**	**3.9200e-003**	**0.0000**	**98.7002**

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					
Off-Road	0.3009	2.2818	2.3226	4.0200e-003		0.1075	0.1075		0.1038	0.1038	0.0000	331.3775	331.3775	0.0577	0.0000	332.8204
Total	**0.3009**	**2.2818**	**2.3226**	**4.0200e-003**		**0.1075**	**0.1075**		**0.1038**	**0.1038**	**0.0000**	**331.3775**	**331.3775**	**0.0577**	**0.0000**	**332.8204**

3.5 Building Construction - 2022

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	4.3800e-003	0.1507	0.0372	4.1000e-004	0.0104	2.8000e-004	0.0106	2.9900e-003	2.7000e-004	3.2500e-003	0.0000	39.7480	39.7480	2.4400e-003	0.0000	39.8090
Worker	0.0250	0.0178	0.2055	6.5000e-004	0.0701	5.1000e-004	0.0706	0.0186	4.7000e-004	0.0191	0.0000	58.8542	58.8542	1.4800e-003	0.0000	58.8912
Total	**0.0294**	**0.1685**	**0.2428**	**1.0600e-003**	**0.0804**	**7.9000e-004**	**0.0812**	**0.0216**	**7.4000e-004**	**0.0223**	**0.0000**	**98.6022**	**98.6022**	**3.9200e-003**	**0.0000**	**98.7002**

3.5 Building Construction - 2023

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					
Off-Road	0.1379	1.0598	1.1413	2.0000e-003		0.0466	0.0466		0.0450	0.0450	0.0000	164.3472	164.3472	0.0279	0.0000	165.0449
Total	**0.1379**	**1.0598**	**1.1413**	**2.0000e-003**		**0.0466**	**0.0466**		**0.0450**	**0.0450**	**0.0000**	**164.3472**	**164.3472**	**0.0279**	**0.0000**	**165.0449**

3.5 Building Construction - 2023

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	1.6200e-003	0.0562	0.0165	2.0000e-004	5.1300e-003	6.0000e-005	5.2000e-003	1.4800e-003	6.0000e-005	1.5400e-003	0.0000	19.1165	19.1165	1.0500e-003	0.0000	19.1428
Worker	0.0117	7.9700e-003	0.0940	3.1000e-004	0.0348	2.5000e-004	0.0350	9.2300e-003	2.3000e-004	9.4600e-003	0.0000	28.0968	28.0968	6.6000e-004	0.0000	28.1133
Total	**0.0133**	**0.0642**	**0.1105**	**5.1000e-004**	**0.0399**	**3.1000e-004**	**0.0402**	**0.0107**	**2.9000e-004**	**0.0110**	**0.0000**	**47.2133**	**47.2133**	**1.7100e-003**	**0.0000**	**47.2561**

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					
Off-Road	0.1379	1.0598	1.1413	2.0000e-003		0.0466	0.0466		0.0450	0.0450	0.0000	164.3470	164.3470	0.0279	0.0000	165.0447
Total	**0.1379**	**1.0598**	**1.1413**	**2.0000e-003**		**0.0466**	**0.0466**		**0.0450**	**0.0450**	**0.0000**	**164.3470**	**164.3470**	**0.0279**	**0.0000**	**165.0447**

3.5 Building Construction - 2023

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	1.6200e-003	0.0562	0.0165	2.0000e-004	5.1300e-003	6.0000e-005	5.2000e-003	1.4800e-003	6.0000e-005	1.5400e-003	0.0000	19.1165	19.1165	1.0500e-003	0.0000	19.1428
Worker	0.0117	7.9700e-003	0.0940	3.1000e-004	0.0348	2.5000e-004	0.0350	9.2300e-003	2.3000e-004	9.4600e-003	0.0000	28.0968	28.0968	6.6000e-004	0.0000	28.1133
Total	**0.0133**	**0.0642**	**0.1105**	**5.1000e-004**	**0.0399**	**3.1000e-004**	**0.0402**	**0.0107**	**2.9000e-004**	**0.0110**	**0.0000**	**47.2133**	**47.2133**	**1.7100e-003**	**0.0000**	**47.2561**

3.6 Architectural Coating - 2023

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					
Archit. Coating	0.1655					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0174	0.1179	0.1639	2.7000e-004		6.4100e-003	6.4100e-003		6.4100e-003	6.4100e-003	0.0000	23.1070	23.1070	1.3800e-003	0.0000	23.1415
Total	**0.1829**	**0.1179**	**0.1639**	**2.7000e-004**		**6.4100e-003**	**6.4100e-003**		**6.4100e-003**	**6.4100e-003**	**0.0000**	**23.1070**	**23.1070**	**1.3800e-003**	**0.0000**	**23.1415**

3.6 Architectural Coating - 2023

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	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
Worker	2.3300e-003	1.5900e-003	0.0188	6.0000e-005	6.9500e-003	5.0000e-005	7.0000e-003	1.8500e-003	5.0000e-005	1.8900e-003	0.0000	5.6194	5.6194	1.3000e-004	0.0000	5.6227
Total	**2.3300e-003**	**1.5900e-003**	**0.0188**	**6.0000e-005**	**6.9500e-003**	**5.0000e-005**	**7.0000e-003**	**1.8500e-003**	**5.0000e-005**	**1.8900e-003**	**0.0000**	**5.6194**	**5.6194**	**1.3000e-004**	**0.0000**	**5.6227**

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					
Archit. Coating	0.1655					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0174	0.1179	0.1639	2.7000e-004		6.4100e-003	6.4100e-003		6.4100e-003	6.4100e-003	0.0000	23.1069	23.1069	1.3800e-003	0.0000	23.1415
Total	**0.1829**	**0.1179**	**0.1639**	**2.7000e-004**		**6.4100e-003**	**6.4100e-003**		**6.4100e-003**	**6.4100e-003**	**0.0000**	**23.1069**	**23.1069**	**1.3800e-003**	**0.0000**	**23.1415**

3.6 Architectural Coating - 2023

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	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
Worker	2.3300e-003	1.5900e-003	0.0188	6.0000e-005	6.9500e-003	5.0000e-005	7.0000e-003	1.8500e-003	5.0000e-005	1.8900e-003	0.0000	5.6194	5.6194	1.3000e-004	0.0000	5.6227
Total	**2.3300e-003**	**1.5900e-003**	**0.0188**	**6.0000e-005**	**6.9500e-003**	**5.0000e-005**	**7.0000e-003**	**1.8500e-003**	**5.0000e-005**	**1.8900e-003**	**0.0000**	**5.6194**	**5.6194**	**1.3000e-004**	**0.0000**	**5.6227**

3.7 Paving - 2023

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					
Off-Road	0.0197	0.1902	0.2685	4.1000e-004		9.4100e-003	9.4100e-003		8.6800e-003	8.6800e-003	0.0000	35.9059	35.9059	0.0114	0.0000	36.1905
Paving	6.3000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0203**	**0.1902**	**0.2685**	**4.1000e-004**		**9.4100e-003**	**9.4100e-003**		**8.6800e-003**	**8.6800e-003**	**0.0000**	**35.9059**	**35.9059**	**0.0114**	**0.0000**	**36.1905**

3.7 Paving - 2023

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	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
Worker	1.4600e-003	1.0000e-003	0.0118	4.0000e-005	4.3500e-003	3.0000e-005	4.3800e-003	1.1600e-003	3.0000e-005	1.1800e-003	0.0000	3.5171	3.5171	8.0000e-005	0.0000	3.5192
Total	**1.4600e-003**	**1.0000e-003**	**0.0118**	**4.0000e-005**	**4.3500e-003**	**3.0000e-005**	**4.3800e-003**	**1.1600e-003**	**3.0000e-005**	**1.1800e-003**	**0.0000**	**3.5171**	**3.5171**	**8.0000e-005**	**0.0000**	**3.5192**

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					
Off-Road	0.0197	0.1902	0.2685	4.1000e-004		9.4100e-003	9.4100e-003		8.6800e-003	8.6800e-003	0.0000	35.9059	35.9059	0.0114	0.0000	36.1904
Paving	6.3000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0203**	**0.1902**	**0.2685**	**4.1000e-004**		**9.4100e-003**	**9.4100e-003**		**8.6800e-003**	**8.6800e-003**	**0.0000**	**35.9059**	**35.9059**	**0.0114**	**0.0000**	**36.1904**

3.7 Paving - 2023

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	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
Worker	1.4600e-003	1.0000e-003	0.0118	4.0000e-005	4.3500e-003	3.0000e-005	4.3800e-003	1.1600e-003	3.0000e-005	1.1800e-003	0.0000	3.5171	3.5171	8.0000e-005	0.0000	3.5192
Total	**1.4600e-003**	**1.0000e-003**	**0.0118**	**4.0000e-005**	**4.3500e-003**	**3.0000e-005**	**4.3800e-003**	**1.1600e-003**	**3.0000e-005**	**1.1800e-003**	**0.0000**	**3.5171**	**3.5171**	**8.0000e-005**	**0.0000**	**3.5192**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Integrate Below Market Rate Housing

	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	0.1402	0.8162	1.4382	6.4400e-003	0.6212	4.0100e-003	0.6253	0.1664	3.7200e-003	0.1701	0.0000	600.4247	600.4247	0.0263	0.0000	601.0825
Unmitigated	0.1482	0.8580	1.6285	7.4700e-003	0.7341	4.6100e-003	0.7387	0.1966	4.2800e-003	0.2009	0.0000	696.0445	696.0445	0.0296	0.0000	696.7851

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	58.56	57.28	48.56	194,602	164,684
Condo/Townhouse High Rise	161.04	94.82	75.46	476,195	402,986
Fast Food Restaurant w/o Drive Thru	401.09	1,238.88	890.00	1,069,633	905,191
High Turnover (Sit Down Restaurant)	123.10	202.71	168.76	192,151	162,610
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unenclosed Parking Structure	0.00	0.00	0.00		
Total	743.79	1,593.69	1,182.78	1,932,580	1,635,472

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-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Condo/Townhouse High Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Fast Food Restaurant w/o Drive	16.60	8.40	6.90	1.50	79.50	19.00	51	37	12
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unenclosed Parking Structure	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.552035	0.041482	0.206421	0.111285	0.012766	0.005738	0.022315	0.037879	0.002185	0.001506	0.004914	0.000717	0.000757
Condo/Townhouse High Rise	0.552035	0.041482	0.206421	0.111285	0.012766	0.005738	0.022315	0.037879	0.002185	0.001506	0.004914	0.000717	0.000757
Fast Food Restaurant w/o Drive Thru	0.552035	0.041482	0.206421	0.111285	0.012766	0.005738	0.022315	0.037879	0.002185	0.001506	0.004914	0.000717	0.000757
High Turnover (Sit Down Restaurant)	0.552035	0.041482	0.206421	0.111285	0.012766	0.005738	0.022315	0.037879	0.002185	0.001506	0.004914	0.000717	0.000757
Other Asphalt Surfaces	0.552035	0.041482	0.206421	0.111285	0.012766	0.005738	0.022315	0.037879	0.002185	0.001506	0.004914	0.000717	0.000757
Parking Lot	0.552035	0.041482	0.206421	0.111285	0.012766	0.005738	0.022315	0.037879	0.002185	0.001506	0.004914	0.000717	0.000757
Unenclosed Parking Structure	0.552035	0.041482	0.206421	0.111285	0.012766	0.005738	0.022315	0.037879	0.002185	0.001506	0.004914	0.000717	0.000757

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install Energy Efficient Appliances

100-132 North Catalina Avenue Proposed Project- Air Quality Modeling - South Coast AQMD Air District, Annual

	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	19.3713	19.3713	8.2000e-004	1.6000e-004	19.4408
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	19.3713	19.3713	8.2000e-004	1.6000e-004	19.4408
NaturalGas Mitigated	6.1900e-003	0.0552	0.0396	3.4000e-004		4.2800e-003	4.2800e-003		4.2800e-003	4.2800e-003	0.0000	61.2498	61.2498	1.1700e-003	1.1200e-003	61.6138
NaturalGas Unmitigated	6.1900e-003	0.0552	0.0396	3.4000e-004		4.2800e-003	4.2800e-003		4.2800e-003	4.2800e-003	0.0000	61.2498	61.2498	1.1700e-003	1.1200e-003	61.6138

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					
Apartments Low Rise	102077	5.5000e-004	4.7000e-003	2.0000e-003	3.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004	0.0000	5.4472	5.4472	1.0000e-004	1.0000e-004	5.4796
Condo/Townhouse High Rise	251404	1.3600e-003	0.0116	4.9300e-003	7.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	13.4159	13.4159	2.6000e-004	2.5000e-004	13.4956
Fast Food Restaurant w/o Drive Thru	462627	2.4900e-003	0.0227	0.0191	1.4000e-004		1.7200e-003	1.7200e-003		1.7200e-003	1.7200e-003	0.0000	24.6875	24.6875	4.7000e-004	4.5000e-004	24.8342
High Turnover (Sit Down Restaurant)	331670	1.7900e-003	0.0163	0.0137	1.0000e-004		1.2400e-003	1.2400e-003		1.2400e-003	1.2400e-003	0.0000	17.6992	17.6992	3.4000e-004	3.2000e-004	17.8044
Other Asphalt Surfaces	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
Parking Lot	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
Unenclosed Parking Structure	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		**6.1900e-003**	**0.0552**	**0.0396**	**3.4000e-004**		**4.2800e-003**	**4.2800e-003**		**4.2800e-003**	**4.2800e-003**	**0.0000**	**61.2498**	**61.2498**	**1.1700e-003**	**1.1200e-003**	**61.6138**

5.2 Energy by Land Use - NaturalGas

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					
Apartments Low Rise	102077	5.5000e-004	4.7000e-003	2.0000e-003	3.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004	0.0000	5.4472	5.4472	1.0000e-004	1.0000e-004	5.4796
Condo/Townhouse High Rise	251404	1.3600e-003	0.0116	4.9300e-003	7.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	13.4159	13.4159	2.6000e-004	2.5000e-004	13.4956
Fast Food Restaurant w/o Drive Thru	462627	2.4900e-003	0.0227	0.0191	1.4000e-004		1.7200e-003	1.7200e-003		1.7200e-003	1.7200e-003	0.0000	24.6875	24.6875	4.7000e-004	4.5000e-004	24.8342
High Turnover (Sit Down Restaurant)	331670	1.7900e-003	0.0163	0.0137	1.0000e-004		1.2400e-003	1.2400e-003		1.2400e-003	1.2400e-003	0.0000	17.6992	17.6992	3.4000e-004	3.2000e-004	17.8044
Other Asphalt Surfaces	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
Parking Lot	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
Unenclosed Parking Structure	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		**6.1900e-003**	**0.0552**	**0.0396**	**3.4000e-004**		**4.2800e-003**	**4.2800e-003**		**4.2800e-003**	**4.2800e-003**	**0.0000**	**61.2498**	**61.2498**	**1.1700e-003**	**1.1200e-003**	**61.6138**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse High Rise	0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant w/o Drive Thru	60424.1	9.6988	4.1000e-004	8.0000e-005	9.7336
High Turnover (Sit Down Restaurant)	43319.7	6.9534	2.9000e-004	6.0000e-005	6.9783
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	1540	0.2472	1.0000e-005	0.0000	0.2481
Unenclosed Parking Structure	15400	2.4719	1.0000e-004	2.0000e-005	2.4808
Total		**19.3713**	**8.1000e-004**	**1.6000e-004**	**19.4408**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse High Rise	0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant w/o Drive Thru	60424.1	9.6988	4.1000e-004	8.0000e-005	9.7336
High Turnover (Sit Down Restaurant)	43319.7	6.9534	2.9000e-004	6.0000e-005	6.9783
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	1540	0.2472	1.0000e-005	0.0000	0.2481
Unenclosed Parking Structure	15400	2.4719	1.0000e-004	2.0000e-005	2.4808
Total		**19.3713**	**8.1000e-004**	**1.6000e-004**	**19.4408**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

No Hearths Installed

	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	0.2170	3.5600e-003	0.3090	2.0000e-005		1.7200e-003	1.7200e-003		1.7200e-003	1.7200e-003	0.0000	0.5063	0.5063	4.8000e-004	0.0000	0.5184
Unmitigated	0.2170	3.5600e-003	0.3090	2.0000e-005		1.7200e-003	1.7200e-003		1.7200e-003	1.7200e-003	0.0000	0.5063	0.5063	4.8000e-004	0.0000	0.5184

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	0.0166					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1912					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	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
Landscaping	9.2700e-003	3.5600e-003	0.3090	2.0000e-005		1.7200e-003	1.7200e-003		1.7200e-003	1.7200e-003	0.0000	0.5063	0.5063	4.8000e-004	0.0000	0.5184
Total	**0.2170**	**3.5600e-003**	**0.3090**	**2.0000e-005**		**1.7200e-003**	**1.7200e-003**		**1.7200e-003**	**1.7200e-003**	**0.0000**	**0.5063**	**0.5063**	**4.8000e-004**	**0.0000**	**0.5184**

6.2 Area by SubCategory

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	0.0166					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1912					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	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
Landscaping	9.2700e-003	3.5600e-003	0.3090	2.0000e-005		1.7200e-003	1.7200e-003		1.7200e-003	1.7200e-003	0.0000	0.5063	0.5063	4.8000e-004	0.0000	0.5184
Total	**0.2170**	**3.5600e-003**	**0.3090**	**2.0000e-005**		**1.7200e-003**	**1.7200e-003**		**1.7200e-003**	**1.7200e-003**	**0.0000**	**0.5063**	**0.5063**	**4.8000e-004**	**0.0000**	**0.5184**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	7.8000	3.1100e-003	1.8300e-003	8.4242
Unmitigated	7.9405	3.1100e-003	1.8400e-003	8.5652

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0.416986 / 0.328603	1.6050	5.7000e-004	3.3000e-004	1.7186
Condo/Townhouse High Rise	1.14671 / 0.903658	4.4139	1.5700e-003	9.2000e-004	4.7261
Fast Food Restaurant w/o Drive Thru	0.432232 / 0.0344866	1.1178	5.7000e-004	3.4000e-004	1.2335
High Turnover (Sit Down Restaurant)	0.310819 / 0.0247993	0.8038	4.1000e-004	2.5000e-004	0.8870
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**7.9405**	**3.1200e-003**	**1.8400e-003**	**8.5652**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0.416986 / 0.308558	1.5693	5.7000e-004	3.3000e-004	1.6827
Condo/Townhouse High Rise	1.14671 / 0.848535	4.3156	1.5600e-003	9.2000e-004	4.6274
Fast Food Restaurant w/o Drive Thru	0.432232 / 0.0323829	1.1141	5.7000e-004	3.4000e-004	1.2298
High Turnover (Sit Down Restaurant)	0.310819 / 0.0232866	0.8011	4.1000e-004	2.5000e-004	0.8843
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**7.8000**	**3.1100e-003**	**1.8400e-003**	**8.4242**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	10.0541	0.5942	0.0000	24.9087
Unmitigated	10.0541	0.5942	0.0000	24.9087

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	3.68	0.7470	0.0442	0.0000	1.8507
Condo/Townhouse High Rise	10.12	2.0543	0.1214	0.0000	5.0894
Fast Food Restaurant w/o Drive Thru	20.5	4.1613	0.2459	0.0000	10.3095
High Turnover (Sit Down Restaurant)	15.23	3.0916	0.1827	0.0000	7.6592
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Total		**10.0541**	**0.5942**	**0.0000**	**24.9087**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	3.68	0.7470	0.0442	0.0000	1.8507
Condo/Townhouse High Rise	10.12	2.0543	0.1214	0.0000	5.0894
Fast Food Restaurant w/o Drive Thru	20.5	4.1613	0.2459	0.0000	10.3095
High Turnover (Sit Down Restaurant)	15.23	3.0916	0.1827	0.0000	7.6592
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Total		**10.0541**	**0.5942**	**0.0000**	**24.9087**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

100-132 North Catalina Avenue Existing Uses GHG Modeling

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	0.97	Acre	0.97	42,253.20	0
Strip Mall	12.68	1000sqft	0.29	12,675.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2030
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	535.87	**CH4 Intensity (lb/MWhr)**	0.015	**N2O Intensity (lb/MWhr)**	0.003

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Updated per 2030 RPS

Land Use - Per site demolition plan and Assessor's Portal

Construction Phase - No construction, existing uses

Off-road Equipment -

Area Coating - SCAQMD Rule 1113

Energy Use -

Area Mitigation - SCAQMD Rule 1113

Water And Wastewater - Anaerobic only

Solid Waste -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblConstructionPhase	NumDays	20.00	0.00
tblLandUse	LandUseSquareFeet	12,680.00	12,675.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.015
tblProjectCharacteristics	CO2IntensityFactor	702.44	535.87
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.003
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

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					
2021					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum					**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 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					
2021					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum					**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**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

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	0.0521	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.4000e-004	3.4000e-004	0.0000	0.0000	3.6000e-004
Energy	1.4000e-004	1.3100e-003	1.1000e-003	1.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	51.8720	51.8720	1.4400e-003	3.1000e-004	51.9999
Mobile	0.0788	0.4367	0.8415	3.7500e-003	0.3717	2.3700e-003	0.3741	0.0996	2.2000e-003	0.1018	0.0000	349.0102	349.0102	0.0151	0.0000	349.3867
Waste						0.0000	0.0000		0.0000	0.0000	2.7018	0.0000	2.7018	0.1597	0.0000	6.6936
Water						0.0000	0.0000		0.0000	0.0000	0.3323	4.5272	4.8595	1.2700e-003	7.5000e-004	5.1142
Total	**0.1310**	**0.4380**	**0.8427**	**3.7600e-003**	**0.3717**	**2.4700e-003**	**0.3742**	**0.0996**	**2.3000e-003**	**0.1019**	**3.0341**	**405.4097**	**408.4438**	**0.1774**	**1.0600e-003**	**413.1948**

2.2 Overall Operational

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	0.0521	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.4000e-004	3.4000e-004	0.0000	0.0000	3.6000e-004
Energy	1.4000e-004	1.3100e-003	1.1000e-003	1.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	51.8720	51.8720	1.4400e-003	3.1000e-004	51.9999
Mobile	0.0788	0.4367	0.8415	3.7500e-003	0.3717	2.3700e-003	0.3741	0.0996	2.2000e-003	0.1018	0.0000	349.0102	349.0102	0.0151	0.0000	349.3867
Waste						0.0000	0.0000		0.0000	0.0000	2.7018	0.0000	2.7018	0.1597	0.0000	6.6936
Water						0.0000	0.0000		0.0000	0.0000	0.3323	4.5272	4.8595	1.2700e-003	7.5000e-004	5.1142
Total	**0.1310**	**0.4380**	**0.8427**	**3.7600e-003**	**0.3717**	**2.4700e-003**	**0.3742**	**0.0996**	**2.3000e-003**	**0.1019**	**3.0341**	**405.4097**	**408.4438**	**0.1774**	**1.0600e-003**	**413.1948**

	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	No construction	Demolition	1/21/2021	1/20/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.97

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

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
No construction			0.00	0.00	14.70	6.90				

3.1 Mitigation Measures Construction

3.2 No construction - 2021

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	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
Worker	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
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 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	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
Worker	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
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**

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	0.0788	0.4367	0.8415	3.7500e-003	0.3717	2.3700e-003	0.3741	0.0996	2.2000e-003	0.1018	0.0000	349.0102	349.0102	0.0151	0.0000	349.3867
Unmitigated	0.0788	0.4367	0.8415	3.7500e-003	0.3717	2.3700e-003	0.3741	0.0996	2.2000e-003	0.1018	0.0000	349.0102	349.0102	0.0151	0.0000	349.3867

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Strip Mall	561.98	533.07	259.05	979,023	979,023
Total	561.98	533.07	259.05	979,023	979,023

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-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.554588	0.041680	0.206638	0.111313	0.012826	0.005773	0.022313	0.034878	0.002168	0.001490	0.004854	0.000717	0.000760
Strip Mall	0.554588	0.041680	0.206638	0.111313	0.012826	0.005773	0.022313	0.034878	0.002168	0.001490	0.004854	0.000717	0.000760

5.0 Energy Detail

Historical Energy Use: Y

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	50.4448	50.4448	1.4100e-003	2.8000e-004	50.5642
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	50.4448	50.4448	1.4100e-003	2.8000e-004	50.5642
NaturalGas Mitigated	1.4000e-004	1.3100e-003	1.1000e-003	1.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	1.4272	1.4272	3.0000e-005	3.0000e-005	1.4357
NaturalGas Unmitigated	1.4000e-004	1.3100e-003	1.1000e-003	1.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	1.4272	1.4272	3.0000e-005	3.0000e-005	1.4357

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					
Parking Lot	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
Strip Mall	26744.3	1.4000e-004	1.3100e-003	1.1000e-003	1.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	1.4272	1.4272	3.0000e-005	3.0000e-005	1.4357
Total		**1.4000e-004**	**1.3100e-003**	**1.1000e-003**	**1.0000e-005**		**1.0000e-004**	**1.0000e-004**		**1.0000e-004**	**1.0000e-004**	**0.0000**	**1.4272**	**1.4272**	**3.0000e-005**	**3.0000e-005**	**1.4357**

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					
Parking Lot	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
Strip Mall	26744.3	1.4000e-004	1.3100e-003	1.1000e-003	1.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	1.4272	1.4272	3.0000e-005	3.0000e-005	1.4357
Total		**1.4000e-004**	**1.3100e-003**	**1.1000e-003**	**1.0000e-005**		**1.0000e-004**	**1.0000e-004**		**1.0000e-004**	**1.0000e-004**	**0.0000**	**1.4272**	**1.4272**	**3.0000e-005**	**3.0000e-005**	**1.4357**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	37182.8	9.0379	2.5000e-004	5.0000e-005	9.0593
Strip Mall	170352	41.4069	1.1600e-003	2.3000e-004	41.5049
Total		**50.4448**	**1.4100e-003**	**2.8000e-004**	**50.5642**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	37182.8	9.0379	2.5000e-004	5.0000e-005	9.0593
Strip Mall	170352	41.4069	1.1600e-003	2.3000e-004	41.5049
Total		**50.4448**	**1.4100e-003**	**2.8000e-004**	**50.5642**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	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	0.0521	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.4000e-004	3.4000e-004	0.0000	0.0000	3.6000e-004
Unmitigated	0.0521	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.4000e-004	3.4000e-004	0.0000	0.0000	3.6000e-004

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	3.5300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0485					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.4000e-004	3.4000e-004	0.0000	0.0000	3.6000e-004
Total	**0.0521**	**0.0000**	**1.7000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**3.4000e-004**	**3.4000e-004**	**0.0000**	**0.0000**	**3.6000e-004**

6.2 Area by SubCategory

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	3.5300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0485					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.4000e-004	3.4000e-004	0.0000	0.0000	3.6000e-004
Total	**0.0521**	**0.0000**	**1.7000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**3.4000e-004**	**3.4000e-004**	**0.0000**	**0.0000**	**3.6000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.8595	1.2700e-003	7.5000e-004	5.1142
Unmitigated	4.8595	1.2700e-003	7.5000e-004	5.1142

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.93924 / 0.575663	4.8595	1.2700e-003	7.5000e-004	5.1142
Total		**4.8595**	**1.2700e-003**	**7.5000e-004**	**5.1142**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.93924 / 0.575663	4.8595	1.2700e-003	7.5000e-004	5.1142
Total		**4.8595**	**1.2700e-003**	**7.5000e-004**	**5.1142**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.7018	0.1597	0.0000	6.6936
Unmitigated	2.7018	0.1597	0.0000	6.6936

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	13.31	2.7018	0.1597	0.0000	6.6936
Total		**2.7018**	**0.1597**	**0.0000**	**6.6936**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	13.31	2.7018	0.1597	0.0000	6.6936
Total		**2.7018**	**0.1597**	**0.0000**	**6.6936**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

N2O Operational GHG Emission Mobile Calculations

Project Code & Title: 19-07402, 100-132 N Catalina Avenue Proposed Project

Vehicle Population Breakdown*	
10751499	Gasoline vehicles
476006	Diesel vehicles
95.8%	Gasoline vehicle %
4.2%	Diesel vehicle %

VMT per Vehicle Type	
1635472	Project VMT (CalEEMod output)
1566134	Gasoline vehicle VMT
69338	Diesel vehicle VMT

Gasoline Vehicles	
95.8%	Gasoline vehicle %
0.8162	Tons per year mobile NOX emissions (annual output in CalEEMod)
0.78	Gasoline vehicle tons per year NOX emissions
0.0515	Tons per year N2O emissions for gasoline vehicles**
0.0468	Metric tons per year N2O emissions for gasoline vehicles

Diesel Vehicles	
1.60	grams N2O per gallon of fuel for diesel vehicles**
131673.95	Diesel average miles per gallon*
0.00001	grams per mile N2O for diesel vehicles
0.8	grams per year N2O for diesel vehicles
0.0000008	Metric tons per year N2O emissions for diesel vehicles

CO2e Emissions from N2O	
0.0468	Metric tons per year from gasoline + diesel vehicles
298	GWP of N2O***
13.9	**CO2e emissions per year from N2O emissions from gasoline + diesel vehicles**

Sources
***Vehicle population source:**
Source: EMFAC2021 (v1.0.0) Emissions Inventory
Region Type: Air District
Region: South Coast AQMD
Calendar Year: 2030
Season: Annual
Vehicle Classification: EMFAC202x Categories
****Methodology source:**
EMFAC2017 Volume III - Technical Documentation
https://www.arb.ca.gov/msei/emfac2011-faq.htm
*****GWP source:**
Intergovernmental Panel on Climate Change (IPCC). 2007.
AR4 Climate Change 2007: The Physical Science Basis.
Contrbution of Working Group I to the Fourth Assessment Report of the
Intergovernmental Panel on Climate Change.

N2O Operational GHG Emission Mobile Calculations

Project Code & Title: 19-07402, 100-132 N Catalina Avenue Existing Uses

Vehicle Population Breakdown*	
10751499	Gasoline vehicles
476006	Diesel vehicles
95.8%	Gasoline vehicle %
4.2%	Diesel vehicle %

VMT per Vehicle Type	
979023	Project VMT (CalEEMod output)
937516	Gasoline vehicle VMT
41507	Diesel vehicle VMT

Gasoline Vehicles	
95.8%	Gasoline vehicle %
0.4367	Tons per year mobile NOX emissions (annual output in CalEEMod)
0.42	Gasoline vehicle tons per year NOX emissions
0.0333	Tons per year N2O emissions for gasoline vehicles**
0.0302	Metric tons per year N2O emissions for gasoline vehicles

Diesel Vehicles	
1.60	grams N2O per gallon of fuel for diesel vehicles**
131673.95	Diesel average miles per gallon*
0.00001	grams per mile N2O for diesel vehicles
0.5	grams per year N2O for diesel vehicles
0.0000005	Metric tons per year N2O emissions for diesel vehicles

CO2e Emissions from N2O	
0.0302	Metric tons per year from gasoline + diesel vehicles
298	GWP of N2O***
9.0	**CO2e emissions per year from N2O emissions from gasoline + diesel vehicles**

Sources
***Vehicle population source:** Source: EMFAC2021 (v1.0.0) Emissions Inventory Region Type: Air District Region: South Coast AQMD Calendar Year: 2030 Season: Annual Vehicle Classification: EMFAC202x Categories ****Methodology source:** EMFAC2017 Volume III - Technical Documentation https://www.arb.ca.gov/msei/emfac2011-faq.htm *****GWP source:** Intergovernmental Panel on Climate Change (IPCC). 2007. AR4 Climate Change 2007: The Physical Science Basis. Contrbution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.

Appendix B

Energy Calculations

100-132 N Catalina Avenue Project Construction Energy Demand

Last Updated: 2/2/2021

Compression-Ignition Engine Brake-Specific Fuel Consumption (BSFC) Factors **[1]**:

HP: 0 to 100	0.0588	HP: Greater than 100	0.0529

Values above are expressed in gallons per horsepower-hour/BSFC.

CONSTRUCTION EQUIPMENT

Construction Equipment	#	Hours per Day	Horsepower	Load Factor	Construction Phase	Fuel Used (gallons)
Tractors/Loaders/Backhoes	3	8	97	0.37	Demolition Phase	1,113.58
Rubber Tired Dozers	1	8	247	0.4	Demolition Phase	919.15
Concrete/Industrial Saws	1	8	81	0.73	Demolition Phase	611.55
Tractors/Loaders/Backhoes	1	8	97	0.37	Site Preparation Phase	354.32
Graders	1	8	187	0.41	Site Preparation Phase	680.85
Rubber Tired Dozers	1	7	247	0.4	Site Preparation Phase	767.70
Graders	1	6	187	0.41	Grading Phase	1,045.60
Rubber Tired Dozers	1	6	247	0.4	Grading Phase	1,347.40
Tractors/Loaders/Backhoes	1	7	97	0.37	Grading Phase	634.82
Cranes	1	6	231	0.29	Building Construction Phase	12,259.03
Forklifts	1	6	89	0.2	Building Construction Phase	3,621.26
Generator Sets	1	8	84	0.74	Building Construction Phase	16,861.25
Tractors/Loaders/Backhoes	1	6	97	0.37	Building Construction Phase	7,301.52
Welders	3	8	46	0.45	Building Construction Phase	16,844.98
Air Compressors	1	6	78	0.48	Architectural Coating Phase	805.25
Pavers	1	6	130	0.42	Paving Phase	3,134.31
Cement and Mortar Mixers	1	6	9	0.56	Paving Phase	321.64
Paving Equipment	1	8	132	0.36	Paving Phase	3,637.17
Tractors/Loaders/Backhoes	1	8	97	0.37	Paving Phase	3,053.90
Rollers	1	7	80	0.38	Paving Phase	2,263.41
					Total Fuel Used	**77,578.70**
						(Gallons)

Construction Phase	Days of Construction
Demolition Phase	22
Site Preparation Phase	21
Grading Phase	43
Building Construction Phase	577
Paving Phase	181
Architectural Coating Phase	61
Total Days	905

WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Demolition Phase	24.4	13	14.7	172.30
Site Preparation Phase	24.4	8	14.7	101.21
Grading Phase	24.4	8	14.7	207.25
Building Construction Phase	24.4	35	14.7	12166.66
Paving Phase	24.4	7	14.7	763.32
Architectural Coating Phase	24.4	13	14.7	477.75
			Total	**13,888.49**

HAULING AND VENDOR TRIPS

Trip Class	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
HAULING TRIPS				
Demolition Phase	7.5	41	20.0	109.33
Site Preparation Phase	7.5	0	20.0	0.00
Grading Phase	7.5	114	20.0	304.00
Building Construction Phase	7.5	0	20.0	0.00
Paving Phase	7.5	0	20.0	0.00
Architectural Coating Phase	7.5	0	20.0	0.00
			Total	**413.33**
VENDOR TRIPS				
Demolition Phase	7.5	0	6.9	0.00
Site Preparation Phase	7.5	0	6.9	0.00
Grading Phase	7.5	0	6.9	0.00
Building Construction Phase	7.5	9	6.9	4777.56
Paving Phase	7.5	0	6.9	0.00
Architectural Coating Phase	7.5	0	6.9	0.00
			Total	**4,777.56**

Total Gasoline Consumption (gallons)	**13,888.49**
Total Diesel Consumption (gallons)	**82,769.59**

Sources:

[1] United States Environmental Protection Agency. 2018. *Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES2014b* . July 2018. Available at: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100UXEN.pdf.

[2] United States Department of Transportation, Bureau of Transportation Statistics. 2019. *National Transportation Statistics 2019* . Available at: https://www.bts.gov/topics/national-transportation-statistics.

100-132 N Catalina Avenue Project Proposed Uses
Transportation Energy Demand

Last Updated: 2/2/2021

Populate one of the following tables (Leave the other blank):

Annual VMT		OR	Daily Vehicle Trips	
Annual VMT:	1,635,472		Daily Vehicle Trips:	
			Average Trip Distance:	

Fleet Class	Fleet Mix
Light Duty Auto (LDA)	0.550809
Light Duty Truck 1 (LDT1)	0.042355
Light Duty Truck 2 (LDT2)	0.203399
Medium Duty Vehicle (MDV)	0.115606
Light Heavy Duty 1 (LHD1)	0.014562
Light Heavy Duty 2 (LHD2)	0.005806
Medium Heavy Duty (MHD)	0.02181
Heavy Heavy Duty (HHD)	0.035336
Other Bus (OBUS)	0.002134
Urban Bus (UBUS)	0.001736
Motorcycle (MCY)	0.004891
School Bus (SBUS)	0.000712
Motorhome (MH)	0.000845

Fuel Economy (MPG) [1]	
Passenger Vehicles	24.4
Light-Med Duty Trucks	17.9
Heavy Trucks/Other	7.5
Motorcycles	44

Fleet Mix

Vehicle Type	Percent	Fuel Type	Annual VMT: VMT	Vehicle Trips: VMT	Fuel Consumption (Gallons)
Passenger Vehicles	*55.08%*	*Gasoline*	900833	900832.70	73838.75
Light-Medium Duty Trucks	*36.14%*	*Gasoline*	590994	590994.16	66032.87
Heavy Trucks/Other	*8.29%*	*Diesel*	135648	135647.68	36172.72
Motorcycle	*0.49%*	*Gasoline*	7999	7999.09	363.60

Total Gasoline Consumption (gallons)	**140235.21**
Total Diesel Consumption (gallons)	**36172.72**

Sources:

[1] United States Department of Transportation, Bureau of Transportation Statistics. 2019. National Transportation Statistics 2019. Available at: https://www.bts.gov/topics/national-transportation-statistics.

100-132 N Catalina Avenue Project Existing Uses
Transportation Energy Demand

Last Updated: 2/2/2021

Populate one of the following tables (Leave the other blank):

Annual VMT		OR	Daily Vehicle Trips	
Annual VMT:	979,023		Daily Vehicle Trips:	
			Average Trip Distance:	

Fleet Class	Fleet Mix
Light Duty Auto (LDA)	0.553363
Light Duty Truck 1 (LDT1)	0.04254
Light Duty Truck 2 (LDT2)	0.203692
Medium Duty Vehicle (MDV)	0.115607
Light Heavy Duty 1 (LHD1)	0.014606
Light Heavy Duty 2 (LHD2)	0.00583
Medium Heavy Duty (MHD)	0.0218
Heavy Heavy Duty (HHD)	0.032323
Other Bus (OBUS)	0.00212
Urban Bus (UBUS)	0.001725
Motorcycle (MCY)	0.004837
School Bus (SBUS)	0.000711
Motorhome (MH)	0.000846

Fuel Economy (MPG) [1]	
Passenger Vehicles	24.4
Light-Med Duty Trucks	17.9
Heavy Trucks/Other	7.5
Motorcycles	44

Fleet Mix

Vehicle Type	Percent	Fuel Type	Annual VMT: VMT	Vehicle Trips: VMT	Fuel Consumption (Gallons)
Passenger Vehicles	*55.34%*	*Gasoline*	541755	541755.10	44406.16
Light-Medium Duty Trucks	*36.18%*	*Gasoline*	354249	354248.70	39580.86
Heavy Trucks/Other	*8.00%*	*Diesel*	78284	78283.66	20875.64
Motorcycle	*0.48%*	*Gasoline*	4736	4735.53	215.25

Total Gasoline Consumption (gallons)	**84202.27**
Total Diesel Consumption (gallons)	**20875.64**

Sources:

[1] United States Department of Transportation, Bureau of Transportation Statistics. 2019. National Transportation Statistics 2019. Available at: https://www.bts.gov/topics/national-transportation-statistics.

Appendix C

Geotechnical Engineering Investigation

Geotechnologies, Inc.
Consulting Geotechnical Engineers
439 Western Avenue
Glendale, California 91201-2837
818.240.9600 • Fax 818.240.9675

April 22, 2019
File No. 21759

Catalina Fund, LLC
1240 Rosecrans Avenue
Manhattan Beach, California 90266

Attention: Lindsey Mills

Subject: Geotechnical Engineering Investigation
Proposed Mixed-Use Development
100 - 132 North Catalina Avenue, Redondo Beach, California

Ladies and Gentlemen:

This letter transmits the Geotechnical Engineering Investigation for the subject site prepared by Geotechnologies, Inc. This report provides geotechnical recommendations for the development of the site, including earthwork, seismic design, temporary excavations, foundations, and floor slabs. Engineering for the proposed project should not begin until approval of the geotechnical investigation is granted by the local building official. Significant changes in the geotechnical recommendations may result due to the building department review process.

The validity of the recommendations presented herein is dependent upon review of the geotechnical aspects of the project during construction by this firm. The subsurface conditions described herein have been projected from limited subsurface exploration and laboratory testing. The exploration and testing presented in this report should in no way be construed to reflect any variations which may occur between the exploration locations or which may result from changes in subsurface conditions.

Should you have any questions please contact this office.

Respectfully submitted,
GEOTECHNOLOGIES, INC.

ANDRES E. LOZANO
Staff Engineer

REGISTERED PROFESSIONAL ENGINEER
STANLEY S'U KEI TANG
No 56178
Exp 12/31/20
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GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED MIXED-USE DEVELOPMENT
100 – 132 NORTH CATALINA AVENUE
REDONDO BEACH, CALIFORNIA

INTRODUCTION

This report presents the results of the geotechnical engineering investigation performed on the subject site. The purpose of this investigation was to identify the distribution and engineering properties of the geologic materials underlying the site, and to provide geotechnical recommendations for the design of the proposed development.

This investigation included six exploratory excavations, collection of representative samples, laboratory testing, engineering analysis, review of published geologic data, review of available geotechnical engineering information and the preparation of this report. The site location is shown on the enclosed Vicinity Map, and the boring locations are shown on the enclosed Plot Plan. The results of the exploration and laboratory tests are provided in the Appendix of this report.

PROPOSED DEVELOPMENT

Information concerning the proposed project was furnished by the client. The proposed project consists of a new mixed-use development. The plan proposed 13,500 square feet of commercial space located in three existing structures to be renovated. The residential portion of the development consists of 22, three-story townhomes, and a three-story, 8-unit apartment building. The structures will be constructed at, or near, current grade, with surface parking. Grading will consist of removal and recompaction of existing unsuitable soils.

Any changes in the design or location of the relocated structure, as outlined in this report, should be reviewed by this office. The recommendations contained herein should not be considered valid until reviewed and modified or reaffirmed subsequent to such review.

SITE CONDITIONS

The property is located at 100 – 132 North Catalina Avenue, in the City of Redondo Beach, California. The site is bounded by Emerald Street to the south, by a 1-story commercial structure to the north, by North Catalina Avenue to the west, and by 1 to 2-story near grade residential and commercial structures to the east.

At the time of exploration, the site was occupied by 1 to 2-story near-grade commercial structures. The existing commercial structures will be renovated as part of the proposed development. The site is relatively level, with no pronounced highs or lows.

The neighboring developments consist of multi-story commercial and residential structures. Vegetation at the site consists of a few mature trees and shrubs, contained in planter areas. Drainage appears to be by sheetflow to the city streets.

GEOTECHNICAL EXPLORATION

FIELD EXPLORATION

The site was explored on February 25 and 26, 2019, by excavating four exploratory borings and two test pits. The borings varied in depth from 20 and 50 feet below the existing grade, and Borings B1, B2 and B3 were excavated with the aid of a truck mounted drilling machine using 8-inch diameter hollow stem augers and B4 was excavated using 4-inch hand auger. The test pits were excavated to a depths ranging from 6 to 20 feet with the aid of hand tools and hand labor.

The exploration locations are shown on the enclosed Plot Plan, and the geologic materials encountered are logged on Plates A-1 through A-6.

The location of the exploratory excavations was determined from hardscaped features shown on the attached Plot Plan. The location of the exploratory excavations should be considered accurate only to the degree implied by the method used.

Geologic Materials

Fill materials underlying the subject site predominantly consists of silty sands, which are dark brown in color, moist, medium dense, and fine grained. The observed fill materials extend to a depth of 1½ to 3 feet below existing grade.

The fill is underlain by native alluvial soils, consisting predominantly of silty sands and sands. The native alluvial soils range from yellowish brown to dark brown in color, and are slightly moist to very moist, medium dense to very dense, and fine to medium grained. More detailed descriptions of the earth materials encountered may be obtained from individual logs of the subsurface excavations.

Groundwater

Groundwater was not encountered during exploration which was conducted to a maximum depth of 50 feet below the existing ground surface at Boring B2. According to the Redondo Beach 7½ Minute Quadrangle Seismic Hazard Evaluation Report, Plate 1.2, Historically Highest Ground Water Contours (CDMG, 1998, Revised 2006), the historic-high groundwater level at the site is not well defined in this area. The 10-foot contour is over 0.25 miles to the west and no contour shows for over a mile to the east of the site. It is the opinion of this firm that this closest groundwater level contour is not representative of the site's historically highest groundwater

level. A copy of this plate is included in the Appendix as Historically Highest Groundwater Levels Map.

The Los Angeles Department of Public Works lists a water monitoring well less than 100 feet east of the subject site. This monitoring well is numbered 715B, and its location is shown relative to the subject site in the enclosed Water Well Location Map. Groundwater levels were measured in this well at least annually from 1958 through 2008. According to water-well logs obtained from the Los Angeles Department of Public Works Website (enclosed in the Appendix), the highest groundwater level for Well 715B was approximately 46.3 feet below ground surface (or approximate elevation 18.7 feet) in 1989. The deepest groundwater level measured on this well is reported to be 85.2 feet (or approximate elevation -20.2 feet), which was measured in 1958. Based on the nearby groundwater well data, it is recommended that a historically highest groundwater elevation of 20.0 feet above Mean Sea Level (MSL), which corresponds to approximately 45 feet below the existing site grade.

Fluctuations in the level of groundwater may occur due to variations in rainfall, temperature, and other factors not evident at the time of the measurements reported herein. Fluctuations also may occur across the site. High groundwater levels can result in changed conditions.

Caving

Caving could not be directly observed during drilling because the boreholes were cased during drilling, and caving was not possible. Caving was not experienced during excavation of the test pits. However, based on the general experience of this firm, large diameter excavations, excavations that encounter granular, cohesionless soils will most likely experience caving.

OIL WELLS

Based on review of the California State Division of Oil, Gas and Geothermal Resources (DOGGR) Online Mapping System, the site is located within the limits of the Torrance Oil Field. Review of the DOGGR On-line Mapping System also indicates that the closest oil and gas wells are located approximately 2,000 feet to the northwest and 3,700 feet to the east. No oil wells are reported to be located at the subject site. The enclosed Oil Well Location Map shows the reported location of nearby wells.

METHANE

Since the site is located within the limits of an oil field, and the nearest oil and gas well is approximately 2,000 feet to the northwest, this firm recommends that a qualified environmental consultant is contacted to determine if methane mitigation would be required for the project.

SEISMIC EVALUATION

REGIONAL GEOLOGIC SETTING

The subject site is located within the Los Angeles Basin and Peninsular Ranges Geomorphic Province. The Peninsular Ranges are characterized by northwest-trending blocks of mountain ridges and sediment-floored valleys. The dominant geologic structural features are northwest trending fault zones that either die out to the northwest or terminate at east-west trending reverse faults that form the southern margin of the Transverse Ranges.

The Los Angeles Basin is located at the northern end of the Peninsular Ranges Geomorphic Province. The basin is bounded by the east and southeast by the Santa Ana Mountains and San Joaquin Hills, and to the northwest by the Santa Monica Mountains. Over 22 million years ago, the Los Angeles Basin was a deep marine basin formed by tectonic forces between the North

American and Pacific plates. Since that time, over 5 miles of marine and non-marine sedimentary rock as well as, intrusive and extrusive igneous rocks have filled the basin. During the last 2 million years, defined by the Pleistocene and Holocene epochs, the Los Angeles Basin and surrounding mountain ranges have been uplifted to form the present day landscape. Erosion of the surrounding mountains has resulted in deposition of unconsolidated sediments in low-lying areas by rivers such as the Los Angeles River. Areas that have experienced subtle uplift have been eroded with gullies.

REGIONAL FAULTING

Based on criteria established by the California Division of Mines and Geology (CDMG) now called California Geologic Survey (CGS), faults may be categorized as active, potentially active, or inactive. Active faults are those which show evidence of surface displacement within the last 11,000 years (Holocene-age). Potentially-active faults are those that show evidence of most recent surface displacement within the last 1.6 million years (Quaternary-age). Faults showing no evidence of surface displacement within the last 1.6 million years are considered inactive for most purposes, with the exception of design of some critical structures.

Buried thrust faults are faults without a surface expression but are a significant source of seismic activity. They are typically broadly defined based on the analysis of seismic wave recordings of hundreds of small and large earthquakes in the southern California area. Due to the buried nature of these thrust faults, their existence is usually not known until they produce an earthquake. The risk for surface rupture potential of these buried thrust faults is inferred to be low (Leighton, 1990). However, the seismic risk of these buried structures in terms of recurrence and maximum potential magnitude is not well established. Therefore, the potential for surface rupture on these surface-verging splays at magnitudes higher than 6.0 cannot be precluded.

SEISMIC HAZARDS AND DESIGN CONSIDERATIONS

The primary geologic hazard at the site is moderate to strong ground motion (acceleration) caused by an earthquake on any of the local or regional faults. The potential for other earthquake-induced hazards was also evaluated including surface rupture, liquefaction, dynamic settlement, inundation and landsliding.

Surface Rupture

In 1972, the Alquist-Priolo Special Studies Zones Act (now known as the Alquist-Priolo Earthquake Fault Zoning Act) was passed into law. The Act defines "active" and "potentially active" faults utilizing the same aging criterial as that used by California Geological Survey (CGS). However, established state policy has been to zone only those faults which have direct evidence of movement within the last 11,000 years. It is this recency of fault movement that the CGS considers as characteristic for faults that have a relatively high potential for ground rupture in the future.

The CGS policy is to delineate a boundary from 200 to 500 feet wide on each side of the known fault trace based on the location precision, the complexity, or the regional significance of the fault. If a site lies within an Earthquake Fault Zone, a geologic fault rupture investigation must be performed that demonstrates that the proposed building site is not threatened by surface displacement from the fault before development permits may be issued.

Surface rupture is defined as surface displacement which occurs along the surface trace of the causative fault during an earthquake. Based on research of available literature, no known active faults or potentially active faults underlie the subject site. In addition, the subject site is not located within an Alquist-Priolo Earthquake Fault Zone. Based on these consideration, the potential for surface ground rupture at the subject site is considered low.

Liquefaction

Liquefaction is a phenomenon in which saturated silty to cohesionless soils below the groundwater table are subject to a temporary loss of strength due to the buildup of excess pore pressure during cyclic loading conditions such as those induced by an earthquake. Liquefaction-related effects include loss of bearing strength, amplified ground oscillations, lateral spreading, and flow failures.

Liquefaction typically occurs in areas where groundwater is less than 50 feet from the surface, and where the soils are composed of poorly consolidated, fine to medium-grained sand. In addition to the necessary soil conditions, the ground acceleration and duration of the earthquake must also be of a sufficient level to initiate liquefaction.

The Seismic Hazards Map of the Redondo Beach Quadrangle by the State of California (CDMG, 1999) does not classify the site as part of a "Liquefiable" area. This determination is based on groundwater depth records, soil type and distance to a fault capable of producing a substantial earthquake. A copy of this map has been included in the Appendix.

A site-specific liquefaction analysis was performed following the Recommended Procedures for Implementation of the California Geologic Survey Special Publication 117A, Guidelines for Analyzing and Mitigating Seismic Hazards in California (CGS, 2008), and the EERI Monograph (MNO-12) by Idriss and Boulanger (2008). The semi-empirical method is based on a correlation between measured values of Standard Penetration Test (SPT) resistance and field performance data.

Groundwater was not encountered during exploration, conducted to a maximum depth of 50 feet below the existing grade. According to the Seismic Hazard Zone Report of Redondo Beach 7½-Minute Quadrangle (CDMG, 1998, Revised 2006), the historic-high groundwater level for the site is not well defined in this area. The 10-foot contour is over 0.25 miles to the west and no

contour shows for over a mile to the east of the site. However, review of the logs from a Los Angeles Department of Public Works groundwater monitoring well, located less than 100 feet east of the subject site, indicate that between 1958 and 2008 the highest groundwater level measured in this well was approximately 46.3 feet below existing grade (or approximate elevation 18.7 feet).

For the purpose of the enclosed liquefaction analysis, the historic highest groundwater level of 10 feet below the existing site grade was conservatively utilized.

The peak ground acceleration (PGA_M) and modal magnitude were obtained from the USGS websites, using the U.S. Seismic Design Maps tool (USGS, 2018) and the Probabilistic Seismic Hazard Deaggregation program (USGS, 2008). A Site Class "D" (Stiff Soil Profile) and a published shear wave velocity of 259 meters per second were utilized for V_S30 (Tinsley and Fumal, 1985) in the USGS seismic programs. A modal magnitude (M_W) of 6.95 was obtained using the USGS Probabilistic Seismic Hazard Deaggregation program (USGS, 2008). A peak ground acceleration of 0.643g, which corresponds to the site's PGA_M, was obtained using the U.S. Seismic Design Maps tool. These parameters are used in the enclosed liquefaction analyses.

The enclosed "Liquefaction Evaluation" calculation sheet is based on Boring 2. Standard Penetration Test (SPT) data were collected at 5-foot intervals. Samples of the collected materials were conveyed to the laboratory for testing and analysis. Utilizing the adjusted blow count data, and the results of laboratory testing, the enclosed liquefaction analysis indicated that the underlying soils would not be prone to liquefaction.

Dynamic Dry Settlement

Seismically-induced settlement of compaction of dry or moist, cohesionless soils can be an effect related to earthquake ground motion. Such settlements are typically most damaging when the settlements are differential in nature across the length of structures.

Some seismically-induced settlement of the proposed structures should be expected as a result of strong ground-shaking, however, due to the uniform nature of the underlying geologic materials, excessive differential settlements are not expected to occur.

Tsunamis, Seiches and Flooding

Tsunamis are large ocean waves generated by sudden water displacement caused by a submarine earthquake, landslide, or volcanic eruption. Review of the County of Los Angeles Flood and Inundation Hazards Map, (Leighton, 1990), indicates the site does not lie within mapped tsunami inundation boundaries. The site is far and/or high enough from the ocean or lakes such that it would not be prone to hazards of a tsunami or seiche.

Seiches are oscillations generated in enclosed bodies of water which can be caused by ground shaking associated with an earthquake. Review of the County of Los Angeles Flood and Inundation Hazards Map (Leighton, 1990), indicates the site does not lie within the inundation boundaries due to a seiche or a breached upgradient reservoir.

Landsliding

The probability of seismically-induced landslides affecting the subject development is considered to be low, due to the lack of elevation difference across of adjacent to the site.

CONCLUSIONS AND RECOMMENDATIONS

Based upon the exploration, laboratory testing, and research, it is the finding of this firm that the proposed project is considered feasible from a geotechnical engineering standpoint provided the advice and recommendations presented herein are followed and implemented during construction.

Fill materials were encountered during exploration to a maximum depth of 3 feet below the existing site grade. The existing fill materials are considered to be unsuitable for support of the proposed foundations, floor slabs, or additional fill, but may be reused for the preparation of a uniform compacted fill pad. Groundwater was not encountered during exploration, conducted to a depth of 50 feet below existing grade.

The proposed new structures may be supported by conventional foundations bearing in a uniform compacted fill pad. For the construction of a uniform compacted fill pad, all existing fill materials and upper native soils shall be removed and recompacted to a minimum depth of 5 feet below the proposed grade, or 3 feet below the bottom of the proposed foundations, whichever is deeper. In addition, the compacted fill should extend horizontally a minimum of 3 feet beyond the edge of foundations, or for a distance equal to the depth of fill below the foundation, whichever is greater.

New footings may be necessary as part of the proposed renovation of the existing structures. Where new footings are needed, as determined by the project structural engineer, new footings may be deepened to bear into the underlying native soils. Where existing slab-on-grade will need to be replaced, the existing fill materials shall be properly removed and recompacted for slab support.

Foundations for small outlying structures, such as property line walls, which will not be tied-in to the proposed structures, may be supported on conventional foundations bearing in native geologic materials and/or certified compacted fill.

The validity of the conclusions and design recommendations presented herein is dependent upon review of the geotechnical aspects of the proposed construction by this firm. The subsurface conditions described herein have been projected from excavations on the site as indicated and should in no way be construed to reflect any variations which may occur between these excavations or which may result from changed in subsurface conditions. Any changes in the

design, as outlined in this report, should be reviewed by this office. The recommendations contained herein should not be considered valid until reviewed and modified or reaffirmed subsequent to such review.

SEISMIC DESIGN CONSIDERATIONS

2016 CBC Seismic Parameters

Based on information derived from the subsurface investigation, the subject site is classified as Site Class D, which corresponds to a "Stiff Soil" Profile, according to Table 1613.5.2 of the California Building Code (CBC). This information and the site coordinates were input into the USGS U.S. Seismic Design Maps tool to calculate the seismic ground motion parameters for the site. Ground motion parameters for the 2016 CBC are presented below.

2016 CALIFORNIA BUILDING CODE SEISMIC PARAMETERS	
Site Class	D
Mapped Spectral Acceleration at Short Periods (S_S)	1.802g
Site Coefficient (F_a)	1.0
Maximum Considered Earthquake Spectral Response for Short Periods (S_{MS})	1.802g
Five-Percent Damped Design Spectral Response Acceleration at Short Periods (S_{DS})	1.201g
Mapped Spectral Acceleration at One-Second Period (S_1)	0.676g
Site Coefficient (F_v)	1.5
Maximum Considered Earthquake Spectral Response for One-Second Period (S_{M1})	1.014g
Five-Percent Damped Design Spectral Response Acceleration for One-Second Period (S_{D1})	0.676g

FILL SOILS

The maximum depth of fill encountered on the site was 3 feet. The existing fill soils are not suitable for support of newly proposed foundations, floor slabs or additional fill buy may be reused as compacted fill. All existing fill materials shall be properly removed and recompacted for foundation and slab support.

EXPANSIVE SOILS

The onsite geologic materials are in the very low expansion range. The Expansion Index was found to be 2 and 3 for representative remolded bulk samples. Recommended reinforcing is provided in the "Foundation Design" and "Slabs-on-grade" sections of this report.

WATER-SOLUBLE SULFATES

The Portland cement portion of concrete is subject to attack when exposed to water-soluble sulfates. Usually the two most common sources of exposure are from soil and marine environments.

The sources of natural sulfate minerals in soils include the sulfates of calcium, magnesium, sodium, and potassium. When these minerals interact and dissolve in subsurface water, a sulfate concentration is created, which will react with exposed concrete. Over time sulfate attack will destroy improperly proportioned concrete well before the end of its intended service life.

The water-soluble sulfate content of the onsite geologic materials was tested by California Test 417. The water-soluble sulfate content was determined to be less than 0.1% percentage by weight for the soils tested. Based on American Concrete Institute (ACI) Standard 318-08, the sulfate exposure is considered to be negligible for geologic materials with less than 0.1%, and therefore, there are no restrictions on cement types for concrete foundations in contact with the site soils.

GRADING GUIDELINES

The following guidelines are provided for the preparation of the compacted fill pad recommended for support of the proposed structures, and for any other miscellaneous compaction that may be required, such as retaining wall or footing backfill, or subgrade preparation.

Site Preparation

- A thorough search should be made for possible underground utilities and/or structures. Any existing or abandoned utilities or structures located within the footprint of the proposed grading should be removed or relocated as appropriate.

- All vegetation, existing fill, and soft or disturbed geologic materials should be removed from the areas to receive controlled fill. All existing fill materials and any disturbed geologic materials resulting from grading operations shall be completely removed and properly recompacted prior to foundation excavation.

- Any vegetation or associated root system located within the footprint of the proposed structures should be removed during grading.

- Subsequent to the indicated removals, the exposed grade shall be scarified to a depth of six inches, moistened to optimum moisture content, and recompacted in excess of the minimum required comparative density.

- The excavated areas shall be observed by the geotechnical engineer prior to placing compacted fill.

Recommended Overexcavation

All existing fill materials shall be properly removed and recompacted within the proposed building area. The proposed fill pad shall extend to a minimum depth of 5 feet below the bottom of the proposed grade, or 3 feet below bottom of the proposed foundations, whichever is greater. In addition, the excavation shall extend horizontally at least 3 feet beyond the edge of foundations, or for a distance equal to the depth of fill below the foundations, whichever is

greater. It is very important that the position of the proposed structure is accurately located so that the limits of the graded area are accurate and the grading operation proceeds efficiently.

Compaction

All fill should be mechanically compacted in layers not more than 8 inches thick. The materials placed should be moisture conditioned to within 3 percent of the optimum moisture content of the particular material placed. All fill should be compacted to at least 90 percent of the maximum laboratory density for the materials used. The maximum density shall be determined by the laboratory operated by Geotechnologies, Inc. using the test method described in the most recent revision of ASTM D 1557.

Field observation and testing shall be performed by a representative of the geotechnical engineer during grading to assist the contractor in obtaining the required degree of compaction and the proper moisture content. Where compaction is less than required, additional compactive effort shall be made with adjustment of the moisture content, as necessary, until minimum of 90 percent compaction is obtained.

Acceptable Materials

The excavated onsite materials are considered satisfactory for reuse in the controlled fills as long as any debris and/or organic matter is removed. Materials larger than 6 inches in maximum dimension shall not be used in the fill. Any imported materials shall be observed and tested by the representative of the geotechnical engineer prior to use in fill areas. Imported materials should contain sufficient fines so as to be relatively impermeable and result in a stable subgrade when compacted. Any required import materials should consist of geologic materials with an expansion index of less than 50. The water-soluble sulfate content of the import materials should be less than 0.1% percentage by weight.

Imported materials should be free from chemical or organic substances which could affect the proposed development. A competent professional should be retained in order to test imported materials and address environmental issues and organic substances which might affect the proposed development.

Utility Trench Backfill

Utility trenches should be backfilled with controlled fill. The utility should be bedded with clean sands at least one foot over the crown. The remainder of the backfill may be onsite soil compacted to 90 percent of the laboratory maximum density. Utility trench backfill should be tested by representatives of this firm in accordance with the most recent revision of ASTM D-1557.

Shrinkage

Shrinkage results when a volume of soil removed at one density is compacted to a higher density. A shrinkage factor between 2 and 10 percent should be anticipated when excavating and recompacting the existing fill and underlying native geologic materials on the site to an average comparative compaction of 92 percent.

Weather Related Grading Considerations

When rain is forecast all fill that has been spread and awaits compaction shall be properly compacted prior to stopping work for the day or prior to stopping due to inclement weather. These fills, once compacted, shall have the surface sloped to drain to an area where water can be removed.

Temporary drainage devices should be installed to collect and transfer excess water to the street in non-erosive drainage devices. Drainage should not be allowed to pond anywhere on the site, and especially not against any foundation or retaining wall. Drainage should not be allowed to flow uncontrolled over any descending slope.

Work may start again, after a period of rainfall, once the site has been reviewed by a representative of this office. Any soils saturated by the rain shall be removed and aerated so that the moisture content will fall within three percent of the optimum moisture content.

Surface materials previously compacted before the rain shall be scarified, brought to the proper moisture content and recompacted prior to placing additional fill, if considered necessary by a representative of this firm.

Abandoned Seepage Pits

No abandoned seepage pits were encountered during exploration and none are known to exist on the site. However, should such a structure be encountered during grading, options to permanently abandon seepage pits include complete removal and backfill of the excavation with compacted fill, or drilling out the loose materials and backfilling to within a few feet of grade with slurry, followed by a compacted fill cap.

If the subsurface structures are to be removed by grading, the entire structure should be demolished. The resulting void may be refilled with compacted soil. Concrete and brick generated during the seepage pit removal may be reused in the fill as long as all fragments are less than 6 inches in longest dimension and the debris comprises less than 15 percent of the fill by volume. All grading should comply with the recommendations of this report.

Where the seepage pit structure is to be left in place, the seepage pits should cleaned of all soil and debris. This may be accomplished by drilling. The pits should be filled with minimum 1-1/2 sack concrete slurry to within 5 feet of the bottom of the proposed foundations. In order to provide a more uniform foundation condition, the remainder of the void should be filled with controlled fill.

LEED Considerations

The Leadership in Energy and Environmental Design (LEED) Green Building Rating System encouraged adoption of sustainable green building and development practices. Credit for LEED Certification can be assigned for reuse of construction waste and diversion of materials from landfills in new construction.

In an effort to provide the design team with a viable option in this regard, demolition debris could be crushed onsite in order to use it in the ongoing grading operations. The environmental ramifications of this option, if any, should be considered by the team.

The demolition debris should be limited to concrete, asphalt and other non-deleterious material. All deleterious materials should be removed including, but not limited to, paper, garbage, ceramic materials and wood.

For structural fill applications, the materials should be crushed to 2 inches in maximum dimension or smaller. The crushed materials should be thoroughly blended and mixed with onsite soils prior to placement as compacted fill. The amount of crushed material should not exceed 20 percent. The blended and mixed materials should be tested by this office prior to placement to insure it is suitable for compaction purposes. The blended and mixed materials should be tested by Geotechnologies, Inc. during placement to insure that it has been compacted in a suitable manner.

Geotechnical Observations and Testing During Grading

Geotechnical observations and testing during grading are considered to be a continuation of the geotechnical investigation. It is critical that the geotechnical aspects of the project be reviewed by this firm during the construction process. Compliance with the design concepts, specifications or recommendations during construction requires review by this firm during the course of construction. Any fill which is placed should be observed, tested, and verified if used for engineered purposes. Please advise this office at least twenty-four hours prior to any required site visit.

FOUNDATION DESIGN

Conventional Foundation Design

The proposed structures may be supported on conventional foundations bearing in the newly placed compacted fill blanket. In addition, new footings may be necessary as part of the proposed renovation of the existing structures. Where new footings are needed, as determined by the project structural engineer, new footings may be deepened to bear into the underlying native soils. The deepened portions of the footings may be backfilled with a minimum of 3 sack slurry to the bottom of the proposed footing. The slurry is denser than the surrounding soils and will transfer the structural loads into the underlying native soils.

Continuous foundations may be designed for a bearing capacity of 2,000 pounds per square foot, and should be a minimum of 12 inches in width, 18 inches in depth below the lowest adjacent grade and 18 inches into the recommended bearing material.

Column foundations may be designed for a bearing capacity of 2,500 pounded per square foot, and should be a minimum of 24 inches in width, 18 inches in depth below the lowest adjacent grade, and 18 inches into the recommended bearing material.

The bearing capacity increase for each additional foot of width is 200 pounds per square foot. The bearing capacity increase for each additional foot of depth is 400 pounds per square foot. The maximum recommended bearing capacity is 5,000 pounds per square foot.

Miscellaneous Foundations

Foundations for small outlying structures, such as property line walls and trash enclosures, which will not be tied-in to the proposed building may be supported on conventional foundations bearing in native soils, and/or properly placed compacted fill. These footings may be designed for a bearing value of 1,500 pounds per square foot, and should be a minimum of 12 inches in width, 18 inches in depth below the lowest adjacent grade and 18 inches into the recommended bearing material. No bearing value increases are recommended.

Conventional Foundations General

A minimum factor of safety of 3 was utilized in determining the allowable bearing capacities. The bearing values indicated above are for the total of dead and frequently applied live loads, and may be increased by one third for short duration loading, which included the effects of wind or seismic forces.

Since the recommended bearing value is a net value, the weight of concrete in the foundations may be taken as 50 pounds per cubic foot and the weight of the soil backfill may be neglected when determining the downward load on the foundations.

All continuous foundations should be reinforced with a minimum of four #4 steel bars. Two should be placed near the top of the foundations, and two should be placed near the bottom.

Lateral Design

Resistance to lateral loading may be provided by friction acting at the base of the foundations and by passive earth pressure. An allowable coefficient of friction of 0.35 may be used with the dead load forces.

Passive earth pressure for the sides of foundations poured against undisturbed or recompacted soil may be computed as an equivalent fluid having a density of 200 pounds per cubic foot with a maximum earth pressure of 3,000 pounds per square foot. The passive and friction components may be combined for lateral resistance without reduction. A one-third increase in the passive value may be used for short duration loading such as wind or seismic forces.

Foundation Settlement

Settlement of the foundation system is expected to occur on initial application of loading. The maximum settlement is not expected to exceed 1 inch and would occur below the heaviest loaded elements. Differential settlement is not expected to exceed ½ inch.

Foundation Observations

It is critical that all foundation excavations are observed by a representative of this firm to verify penetration into the recommended bearing materials. The observation should be performed prior to the placement of reinforcement. Foundations should be deepened to extend into satisfactory earth materials, if necessary. Foundation excavations should be cleaned of all loose soils prior to placing steel and concrete. Any required foundation backfill should be mechanically compacted, flooding is not permitted.

RETAINING WALL DESIGN

Cantilever Retaining Walls

Miscellaneous site retaining walls up to 6 feet may be required as part of the proposed development. Retaining walls supporting a level backslope may be designed utilizing a triangular distribution of pressure. Cantilever retaining walls may be designed for 30 pounds per cubic foot for walls retaining up to 6 feet of earth.

For this equivalent fluid pressure to be valid, walls which are to be restrained at the top should be backfilled prior to the upper connection being made. Additional active pressure should be added for a surcharge condition due to sloping ground, vehicular traffic or adjacent structures.

In addition to the recommended earth pressure, the upper ten feet of the retaining wall adjacent to street, driveways or parking areas should be designed to resist a uniform lateral pressure of 100 pounds per square foot, acting as a result of an assumed 300 pounds per square foot surcharge behind the walls due to normal street traffic. If the traffic is kept back at least ten feet from the retaining walls, the traffic surcharge may be neglected.

The lateral earth pressures recommended above for retaining walls assume that a permanent drainage system will be installed so that external water pressure will not be developed against the walls. Also, where necessary, the retaining walls should be designed to accommodate any surcharge pressures that may be imposed by any adjacent buildings.

Dynamic (Seismic) Earth Pressure

Based on the 2016 California Building Code, retaining walls exceeding 6 feet in height shall be designed to resist the additional earth pressure caused by seismic ground shaking. Miscellaneous retaining walls anticipated for the proposed project are not expected to exceed 6 feet in height. Therefore the dynamic earth pressure may be omitted.

Waterproofing

Moisture effecting retaining walls is one of the most common post construction complaints. Poorly applied or omitted waterproofing can lead to efflorescence or standing water inside the building. Efflorescence is a process in which a powdery substance is produced on the surface of the concrete by the evaporation of water. The white powder usually consists of soluble salts such as gypsum, calcite, or common salt. Efflorescence is common to retaining walls and does not affect their strength or integrity.

It is recommended that retaining walls be waterproofed. Waterproofing design and inspection of its installation is not the responsibility of the geotechnical engineer. A qualified waterproofing consultant should be retained in order to recommend a product or method which would provide protection to below grade walls.

Retaining Wall Drainage

Retaining walls should be provided with a subdrain covered with a minimum of 12 inches of gravel, and a compacted fill blanket or other seal at the surface. The onsite earth materials are acceptable for use as retaining wall backfill as long as they are compacted to a minimum of 90 percent of the maximum density as determined by ASTM D 1557.

Certain types of subdrain pipe are not acceptable to the various municipal agencies. It is recommended that prior to purchasing subdrainage pipe, the type and brand is cleared with the proper municipal agencies. Subdrainage pipes should outlet to an acceptable location.

Where retaining walls are to be constructed adjacent to property lines there is usually not enough space for emplacement of a standard pipe and gravel drainage system. Under these circumstances, the use of a flat-drainage product is acceptable.

Retaining Wall Backfill

Any required backfill should be mechanically compacted in layers not more than 8 inches thick, to at least 90 percent of the maximum density obtainable by the most recent revision of ASTM D 1557 method of compaction. Flooding should not be permitted. Compaction within 5 feet, measured horizontally, behind a retaining structure should be achieved by use of light weight, hand operated compaction equipment.

Proper compaction of the backfill will be necessary to reduce settlement of overlying walks and paving. Some settlement of required backfill should be anticipated, and any utilities supported therein should be designed to accept differential settlement, particularly at the points of entry to the structure.

Sump Pump Design

The purpose of the recommended retaining wall backdrainage system is to relieve hydrostatic pressure. Groundwater was not encountered during exploration, conducted to a depth of 50 feet below existing grade. Based on the anticipated development to be constructed at/or near grade, it is the opinion of the firm that the groundwater level would not be expected to rise to the anticipated finished grade of the proposed structures level during the life of the structures. Therefore the only water which could affect the proposed retaining walls would be irrigation water and precipitation.

Based on these considerations the retaining wall backdrainage system is not expected to experience an appreciable flow of water, and in particular, no groundwater will affect it. However, for the purposes of design, a flow of 5 gallons per minute may be assumed.

TEMPORARY EXCAVATIONS

Excavations on the order of 5 feet in vertical height are anticipated for the recommended recompaction. The excavations are expected to expose fill and medium dense native soils, which are suitable for vertical excavation up to 5 feet where not surcharged by adjacent traffic of structures. Excavations which will be surcharged by adjacent traffic or structures should be shored or slot-cut.

Where sufficient space is available, temporary unsurcharged embankments could be cut at a uniform 1:1 (h:v) slope gradient in their entirety, up to a maximum height of 10 feet. A uniform sloped excavation does not have a vertical component. Sloped excavations with vertical cuts at the toe of the slope are not recommended.

Where sloped embankments are utilized, the tops of the slopes should be barricaded to prevent vehicles and storage loads near the top of slope within a horizontal distance equal to the depth of the excavation. If the temporary construction embankments are to be maintained during the rainy season, berms are suggested along the tops of the slopes where necessary to prevent runoff water from entering the excavation and eroding the slope faces. Water should not be allowed to pond on top of the excavation nor to flow towards it.

Excavation Adjacent to Buildings or Property Lines

Where foundation excavations will leave an adjacent foundation of property line unsupported the proposed foundations may be slot cut a maximum vertical height of 6 feet. The slot cutting method employs the earth as a buttress and allows the earth excavation to proceed in phases. The "A-B-C" slot-cutting procedure should be utilized. The initial excavation consists of excavating the "A" slots. Alternate "A" slots of 8 feet may be worked. The remaining earth buttresses ("B" and "C" slots) should each be 8 feet in width for a combined intervening length of 16 feet. The backfill shall be properly placed or the foundation should be poured in the "A" slots before the

"B" slots are excavated. After completing the grading and/or foundation in the "B" slots, finally the "C" slots may be excavated.

The client and contractor should be aware that where slot cuts are utilized for construction of new foundations, continuous construction of the proposed foundations will not be possible.

Excavation Observations

It is critical that the soils exposed in the cut slopes are observed by a representative of this office during excavation so that modifications of the slopes can be made if variations in the earth material conditions occur. Many building officials require that temporary excavations should be made during the continuous observations of the geotechnical engineer. All excavations should be stabilized within 30 days of initial excavation.

SLABS ON GRADE

Concrete Slabs-on-Grade

Concrete floor slabs should be a minimum of 4 inches of thickness. Slabs-on-grade should be cast over properly controlled fill materials. Any geologic materials loosened or over-excavated should be wasted from the site or properly compacted to 90 percent relative compaction.

Outdoor concrete flatwork should be a minimum of 4 inches in thickness. Outdoor concrete flatwork should be cast over undisturbed native alluvial soils or properly controlled fill materials. Any geologic materials loosened or over-excavated should be wasted from the site or properly compacted to 90 percent relative compaction.

Design Of Slabs That Receive Moisture-Sensitive Floor Coverings

Geotechnologies, Inc. does not practice in the field of moisture vapor transmission evaluation and mitigation. Therefore it is recommended that a qualified consultant be engaged to evaluate the general and specific moisture vapor transmission paths and any impact on the proposed construction. The qualified consultant should provide recommendations for mitigation of potential adverse impacts of moisture vapor transmission on various components of the structure.

Where dampness would be objectionable, it is recommended that the floor slabs should be waterproofed. A qualified waterproofing consultant should be retained in order to recommend a product or method which would provide protection from unwanted moisture.

All concrete slabs-on-grade should be supported on vapor retarder. The design of the slab and the installation of the vapor retarder should comply with the most recent revisions of ASTM E 1643 and ASTM E 1745. The vapor retarder should comply with ASTM E 1745 Class A requirements.

Where a vapor retarder is used, a low-slump concrete should be used to minimize possible curling of the slabs. The barrier can be covered with a layer of trimable, compactible, granular fill, where it is thought to be beneficial. See ACI 302.2R-32, Chapter 7 for information on the placement of vapor retarders and the use of a fill layer.

Concrete Crack Control

The recommendations presented in this report are intended to reduce the potential for cracking of concrete slabs-on-grade due to settlement. However even where these recommendations have been implemented, foundations, stucco walls and concrete slabs-on-grade may display some cracking due to minor soil movement and/or concrete shrinkage. The occurrence of concrete cracking may be reduced and/or controlled by limiting the slump of the concrete used, proper

concrete placement and curing, and by placement of crack control joints at reasonable intervals, in particular, where re-entrant slab corners occur.

For standard crack control maximum expansion joint spacing 15 feet should not be exceeded. Lesser spacings would provide greater crack control. Joints at curves and angle points are recommended. The crack control joints should be installed as soon as practical following concrete placement. Crack control joints should extend a minimum depth of one-fourth the slab thickness. Construction joints should be designed by a structural engineer.

Complete removal of the existing fill soils beneath outdoor flatwork (such as walkways or patio areas) and concrete pavement, is not required. However, due to the rigid nature of concrete, some cracking, a shorter design life and increased maintenance costs should be anticipated. In order to provide uniform support beneath the flatwork it is recommended that a minimum of 12 inches of the exposed subgrade beneath the flatwork be scarified and recompacted to at least 90 percent relative compaction.

Slab Reinforcing

Concrete slabs-on-grade and outdoor flatwork should be reinforced with a minimum of #3 steel bars on 24-inch centers each way.

PAVEMENTS

Prior to placing paving, the exposed grade should be scarified to a depth of 12 inches, moistened as required to obtain optimum moisture content, and recompacted to 95 percent of the maximum density as determined by the most recent revision of ASTM D 1557. The client should be aware that removal of all existing fill in the area of new paving is not required, however, pavement constructed in this manner will most likely have a shorter design life and increased maintenance costs. The following pavement section are recommended:

Service	Asphalt Pavement Thickness Inches	Base Course Inches
Passenger Car Traffic	3	4
Medium Truck Traffic	4	6
Heavy Truck Traffic	5	8

Concrete paving may also be utilized for the project. For concrete paving, the following sections are recommended:

Service	Concrete Pavement Thickness Inches	Base Course Inches
Passenger Car Traffic	6	4
Medium Truck Traffic	6	4
Heavy Truck Traffic	7.5	6

Aggregate base should be compacted to a minimum of 95 percent of the most recent revision of ASTM D 1557 laboratory maximum dry density. Base materials should conform to Sections 200-2.2 or 200-2.4 of the "Standard Specifications for Public Works Construction", (Green Book), latest edition.

For standard control of concrete cracking, a maximum crack control joint spacing of 15 feet should not be exceeded. Lesser spacings would provide greater crack control. Joints at curves and angle points are recommended. The crack control joints should be installed as soon as practical following concrete placement. Crack control joints should extend a minimum depth of one-fourth the slab thickness. Construction joints should be designed by a structural engineer. Concrete paving should be reinforced with a minimum of #3 steel bars on 24-inch centers each way.

The performance of pavement is highly dependent upon providing positive surface drainage away from the edges. Ponding of water on or adjacent to pavement can result in saturation of the subgrade materials and subsequent pavement distress. If planter islands are planned, the perimeter curb should extend a minimum of 12 inches below the bottom of the aggregate base.

SITE DRAINAGE

Proper surface drainage is critical to the future performance of the project. Saturation of a soil can cause it to lose internal shear strength and increase its compressibility, resulting in a change in the designed engineering properties. Proper site drainage should be maintained at all times.

All site drainage, with the exception of any required to dispose of onsite by stormwater regulations, should be collected and transferred to the street in non-erosive drainage devices. The proposed structures should be provided with roof drainage. Discharge from downspouts, roof drains and scupper should not be permitted on unprotected soils within five feet of the building perimeter. Drainage should not be allowed to pond anywhere on the site, and especially not against any foundation or retaining wall. Drainage should not be allowed to flow uncontrolled over any descending slope. Planters which are located within a distance equal to the depth of a retaining wall should be sealed to prevent moisture adversely affecting the wall. Planters which are located within five feet of a foundation should be sealed to prevent moisture affecting the earth materials supporting the foundation.

STORMWATER DISPOSAL

Introduction

Regulatory agencies have been requiring the disposal of a certain amount of stormwater generated on a site by infiltration into the site soils. This requirement is not prudent engineering practice. Increasing the moisture content of a soil can cause it to lose internal shear strength and increase its compressibility, resulting in a change in the designed engineering properties. This

means that any overlying structure, including buildings, pavements and concrete flatwork, could sustain damage due to saturation of the subgrade soils. Structures serviced by subterranean levels could be adversely impacted by stormwater disposal by increasing the design fluid pressures on retaining walls and causing leaks in the walls. Proper site drainage is critical to the performance of any structure in the built environment.

Percolation Testing

In order to establish an infiltration rate for the site soils, shallow percolation testing was conducted in Test Pit 1, and deep percolation testing was conducted in Boring 4. The location of these excavations are shown on the enclosed Plot Plan.

Shallow Percolation Testing

Test Pit 1 was initially excavated to a depth of 5 feet, and then a one cubic foot of soil was removed from the bottom of the test pit for percolation testing. Percolation testing was conducted following the excavation percolation test procedure provided in the Guidelines for Design, Investigation and Reporting Low Impact Development Stormwater Infiltration (GS200.2), dated June 30, 2017, presented in the Administrative Manual for the County of Los Angeles, Department of Public Works, Geotechnical and Material Engineering Division.

The test pit was presoaked for a minimum of 4 hours prior to the test. After the presoak, the test pit was refilled with water and the absorption of the soils was measured. The percolation test readings were recorded a minimum of 8 times, or until a stabilized rate of drop was obtained, whichever occurred first.

After a representative percolation rate was obtained from the testing, the Reduction Factor (R_f) required by the County of Los Angeles procedure to account for non-vertical flow was applied to obtain an infiltration rate. Based on the percolation testing and analysis, an infiltration rate of 1.1

inches per hour may be utilized for the design of shallow infiltration systems. No other factors of safety or correction factors have been applied to this rate. The Civil Engineer must determine and apply any additional factors of safety, or correction factors, required for the design.

Deep Percolation Testing

Boring 4 was drilled to a depth of 20 feet below the existing grade, and was utilized to conduct deep percolation testing. At the completion of drilling of the boring, a 2-inch diameter casing was placed within the center of the borehole for the purpose of conducting percolation testing. The casing consisted of a slotted PVC pipe within the lower 10 feet of the borehole, and solid PVC pipe to the top of the borehole. A sand pack consisting of #3 Monterey Sand was poured into the annular space around the slotted portion of the casing. A 1-foot thick, hydrated bentonite seal was placed over the sand and drill cuttings were placed to the ground surface.

Percolation testing was conducted following the test procedure for boring percolation provided in the Guidelines for Design, Investigation and Reporting Low Impact Development Stormwater Infiltration (GS200.2), dated June 30, 2017, presented in the Administrative Manual for the County of Los Angeles, Department of Public Works, Geotechnical and Material Engineering Division.

Prior to testing, the borehole was filled with water for the purpose of pre-soaking for 4 hours. After presoaking, the borehole was refilled with water, and the rate of drop in the water level was measured. The percolation test readings were recorded a minimum of 8 times or until a stabilized rate of drop was obtained, whichever occurred first.

The table below summarized the results of the infiltration rate derived from the testing. The infiltration rate provided below included a Reduction Factor (R_f), as required by the County of Los Angeles procedure to account for non-vertical flow. No other factors of safety or correction

factors have been applied to these rates. The Civil Engineer must determine and apply any additional factors of safety, or correction factors, required for the design.

Percolation Testing Boring No.	Depth of Boring Below Existing Ground Surface (ft.)	Percolation Testing Conducted Between Depths:	Infiltration Rate (in./hr.)
B4	20	10' and 20'	0.58

At the completion of the percolation testing, the PVC casing was completely removed from the testing well, and the resulting hole was backfilled with on-site soils to the ground surface.

Recommendations

This site soils are considered suitable for stormwater infiltration. Stormwater infiltration shall only occur on undisturbed native soils, and shall not be allowed within the fill materials.

The design and location of the proposed infiltration systems has not been finalized. It is anticipated that it will consist of a combination of shallow infiltration systems and deep drywells. The final location and design of the proposed infiltration systems shall be reviewed and approved by this office prior to construction.

Any proposed infiltration system shall be located outside the proposed structures. The edge of any proposed infiltration system shall maintain a minimum horizontal setback distance of 10 feet away from any at-grade structure and private property line, and a minimum horizontal setback of 20 feet away from any new or existing below-grade retaining wall.

For any proposed infiltration drywell systems, stormwater infiltration should only occur at or deeper than 10 feet below the grade observed at the drywell location. It is anticipated that a settling chamber would be installed in the upper portion of the drywell. The seams and bottom of

the settling chamber should be adequately sealed to prevent infiltration within 10 feet from the existing grade.

Stormwater infiltration is not allowed within 10 feet (vertically) from the groundwater level. Groundwater was not encountered during exploration, conducted to a maximum depth of 50 feet below the existing grade. As explained in the "Groundwater" Section of this report, the historically highest groundwater levels published by the State of California are not well defined in the vicinity of the site. However, review of the logs from a Los Angeles Department of Public Works groundwater monitoring well, located less than 100 feet to the east of the subject site, indicates that between 1958 and 2008 the highest groundwater level measure in this well was approximately 46.3 feet below existing grade (or approximate elevation 18.7 feet). Based on these considerations, it is the recommendation of this firm that the bottom of any proposed infiltration drywell does not extend below a depth of 35 feet below the existing site grade.

The proposed infiltration systems should be provided with overflow protection. Once the device is full of water, additional water flowing to the device should be diverted to another acceptable disposal area, or disposed offsite in an acceptable manner.

Based on the granular nature of the underlying native soils, the stormwater should percolate in a generally vertical manner. The potential for creating a perched water condition is considered to be remote. It is the opinion of this firm that, if the recommendations provided herein are followed, the proposed stormwater infiltration systems should not cause any damage, settlement, or adversely affect any buildings located on or off-site.

The proposed stormwater infiltration systems will not be located in a hillside area. The onsite soils are in the very low expansion range, and are not susceptible to significant hydroconsolidation.

The design and construction of stormwater infiltration facilities is not the responsibility of the geotechnical engineer. However, based on the experience of this firm, it is recommended that several aspects of the use of such facilities should be considered by the design and construction team:

- Open infiltration basins have many negative associated issues. Such a design must consider attractive nuisance, impacts to growing vegetation, impacts to air quality and vector control.

- All infiltration devices should be provided with overflow protection. Once the device is full of water, additional water flowing to the device should be diverted to another acceptable disposal area, or disposed offsite in an acceptable manner.

- All connections associated with stormwater infiltration devices should be sealed and water-tight. Water leaking into the subgrade soils can lead to loss of strength, piping, erosion, settlement and/or expansion of the effected earth materials.

- Excavations proposed for the installation of stormwater facilities should comply with the "Temporary Excavations" section of this report, as well as CalOSHA Regulations where applicable.

- Caving should be expected during drilling of the drywells. Where caving occurs, it will be necessary to utilized casing to maintain an open shaft.

DESIGN REVIEW

Engineering of the proposed project should not begin until approval of the geotechnical report by the Building Official is obtained in writing. Significant changes in the geotechnical recommendations may result during the building department review process.

It is recommended that the geotechnical aspects of the project be reviewed by this firm during the design process. This review provides assistance to the design team by providing specific recommendations for particular cases, as well as review of the proposed construction to evaluate whether the intent of the recommendations presented herein are satisfied.

CONSTRUCTION MONITORING

Geotechnical observations and testing during construction is considered to be a continuation of the geotechnical investigation. Therefore, it is critical that the geotechnical aspects of the project be reviewed by this firm during the construction process. Compliance with the design concepts, specifications or recommendations during construction requires review by this firm during the course of construction. All foundations should be observed by a representative of this firm prior to placing concrete or steel. Any fill which is placed should be observed, tested, and verified if used for engineered purposes. Please advise this office at least twenty-four hours prior to any required site visit.

If conditions encountered during construction appear to differ from those disclosed herein, notify this office immediately so the need for modifications may be considered in a timely manner.

It is the responsibility of the contractor to ensure that all excavations and trenches are properly sloped or shored. All temporary excavations should be cut and maintained in accordance with applicable OSHA rules and regulations.

EXCAVATION CHARACTERISTICS

The exploration performed for this investigation is limited to the geotechnical excavations described. Direct exploration of the entire site would not be economically feasible. The owner, design team and contractor must understand that differing excavation and drilling conditions may be encountered based on boulders, gravel, oversize materials, groundwater and many other conditions. Fill materials, especially when they were placed without benefit of modern grading codes, regularly contain materials which could impede efficient grading and drilling. Southern California sedimentary bedrock is known to contain variable layers which reflect differences in depositional environment. Such layers may include abundant gravel, cobbles and boulders. Similarly bedrock can contain concretions. Concretions are typically lenticular and follow the

bedding. They are formed by mineral deposits. Concretions can be very hard. Excavation and drilling in these areas may require full size equipment and coring capability. The contractor should be familiar with the site and the geologic materials in the vicinity.

CLOSURE AND LIMITATIONS

The purpose of this report is to aid in the design and completion of the described project. Implementation of the advice presented in this report is intended to reduce certain risks associated with construction projects. The professional opinions and geotechnical advice contained in this report are sought because of special skill in engineering and geology. Geotechnologies, Inc. has a duty to exercise the ordinary skill and competence of members of the engineering profession. Those who hire Geotechnologies, Inc. are not justified in expecting infallibility, but can expect reasonable professional care and competence.

The scope of the geotechnical services provided did not include any environmental site assessment for the presence or absence of organic substances, hazardous/toxic materials in the soil, surface water, groundwater, or atmosphere, or the presence of wetlands.

Proper compaction is necessary to reduce settlement of overlying improvements. Some settlement of compacted fill should be anticipated. Any utilities supported therein should be designed to accept differential settlement. Differential settlement should also be considered at the points of entry to the structure.

GEOTECHNICAL TESTING

Classification and Sampling

The soil is continuously logged by a representative of this firm and classified by visual examination in accordance with the Unified Soil Classification System. The field classification is verified in the laboratory, also in accordance with the Unified Soil Classification System.

Laboratory classification may include visual examination, Atterberg Limit Tests and grain size distribution. The final classification is shown on the boring log.

Samples of the earth materials encountered in the borings were collected and transported to the laboratory. Undisturbed samples of soil are obtained at frequent intervals. Unless noted on the boring logs as an SPT sample, samples acquired while utilizing a hollow-stem auger drill rig are obtained by driving a thin-walled, California Modified Sampler with successive 30-inch drops of a 140-pound automatic trip hammer. The soil is retained in brass rings of 2.50 inches inside diameter and 1.00 inches in height. The central portion of the samples are stored in close fitting, waterproof containers for transportation to the laboratory. Samples noted on the boring logs as SPT samples are obtained in accordance with ASTM D 1586 utilizing an automatic hammer. Samples are retained for 30 days after the date of the geotechnical report.

Moisture and Density Relationships

The field moisture content and dry unit weight are determined for each of the undisturbed soil samples, and the moisture content is determined for SPT samples by ASTM D 4959 or ASTM D 4643. This information is useful in providing a gross picture of the soil consistency between exploration locations and any local variations. The dry unit weight is determined in pounds per cubic foot and shown on the "Excavation Logs", A-Plates. The field moisture content is determined as a percentage of the dry unit weight.

Direct Shear Testing

Shear tests are performed by ASTM D 3080 with a strain controlled, direct shear machine manufactured by GeoMatic, Inc. The rate of deformation is approximately 0.025 inches per minute. Each sample is sheared under varying confining pressures in order to determine the Mohr-Coulomb shear strength parameters of the cohesion intercept and the angle of internal friction. Samples are generally tested in an artificially saturated condition. Depending upon the

sample location and future site conditions, samples may be tested at field moisture content. The results are plotted on the "Shear Test Diagram," B-Plates.

The most recent revision of ASTM 3080 limits the particle size to 10 percent of the diameter of the direct shear test specimen. The sheared sample is inspected by the laboratory technician running the test. The inspection is performed by splitting the sample along the sheared plane and observing the soils exposed on both sides. Where oversize particles are observed in the shear plane, the results are discarded and the test run again with a fresh sample.

Consolidation Testing

Settlement predictions of the soil's behavior under load are made on the basis of the consolidation tests using the most recent revision of ASTM D 2435. The consolidation apparatus is designed to receive a single one-inch high ring. Loads are applied in several increments in a geometric progression, and the resulting deformations are recorded at selected time intervals. Porous stones are placed in contact with the top and bottom of each specimen to permit addition and release of pore fluid. Samples are generally tested at increased moisture content to determine the effects of water on the bearing soil. The normal pressure at which the water is added is noted on the drawing. Results are plotted on the "Consolidation Test," C-Plates.

Expansion Index Testing

The expansion tests performed on the remolded samples are in accordance with the Expansion Index testing procedures, as described in the most recent revision of ASTM D4829. The soil sample is compacted into a metal ring at a saturation degree of 50 percent. The ring sample is then placed in a consolidometer, under a vertical confining pressure of 1 lbf/square inch and inundated with distilled water. The deformation of the specimen is recorded for a period of 24 hours or until the rate of deformation becomes less than 0.0002 inches/hour, whichever occurs

first. The expansion index, EI, is determined by dividing the difference between final and initial height of the ring sample by the initial height, and multiplied by 1,000. Results are presented in Plate D of this report.

Laboratory Compaction Characteristics

The maximum dry unit weight and optimum moisture content of a soil are determined by use of the most recent revision of ASTM D 1557. A soil at a selected moisture content is placed in five layers into a mold of given dimensions, with each layer compacted by 25 blows of a 10 pound hammer dropped from a distance of 18 inches subjecting the soil to a total compactive effort of about 56,000 pounds per cubic foot. The resulting dry unit weight is determined. The procedure is repeated for a sufficient number of moisture contents to establish a relationship between the dry unit weight and the water content of the soil. The data when plotted represent a curvilinear relationship known as the compaction curve. The values of optimum moisture content and modified maximum dry unit weight are determined from the compaction curve. Results are presented in Plate D of this report.

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SCALE 1:48000

0 1 2
MILES

0 10000
FEET

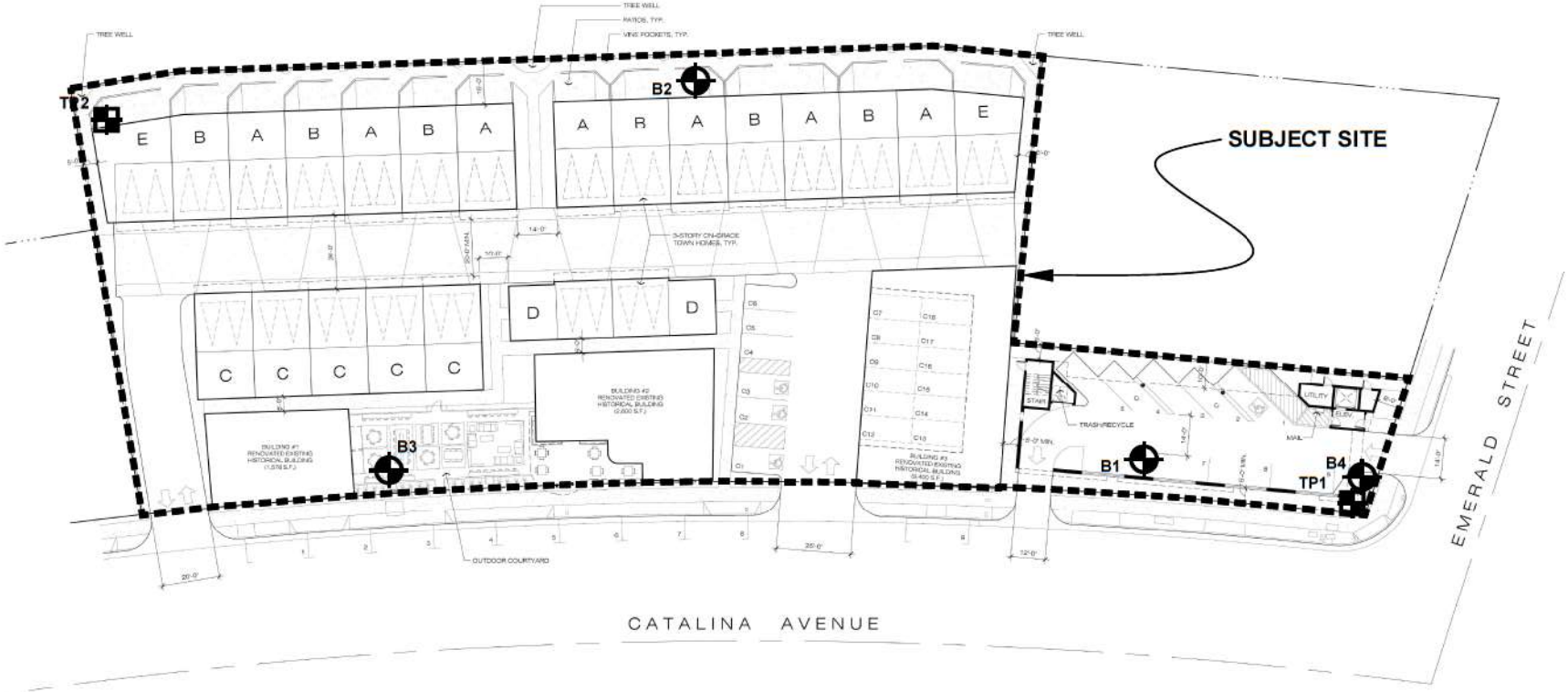
REFERENCE: U.S.G.S. TOPOGRAPHIC MAPS, 7.5 MINUTE SERIES, TORRANCE, CA QUADRANGLE

VICINITY MAP

Geotechnologies, Inc.
Consulting Geotechnical Engineers

CATALINA FUND, LLC.

FILE NO. 21759



SCALE IN FEET

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LEGEND

B4 — LOCATION & NUMBER OF BORING

TP2 — LOCATION & NUMBER OF TEST PIT

REFERENCE: BUILDING PLAN PROVIDED BY WITHEE ARCHITECTS
DATED: 12/19/2018

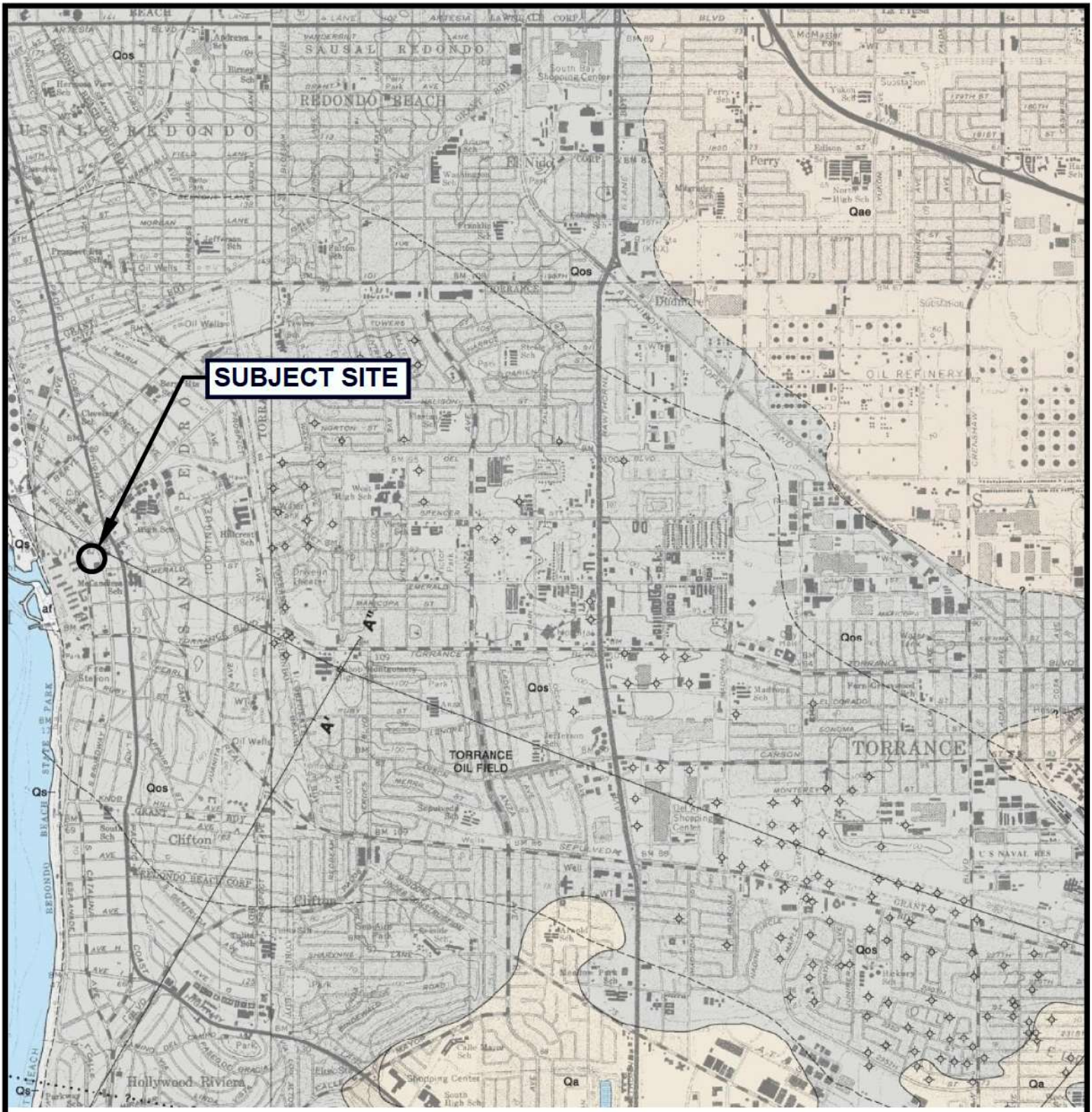
Geotechnologies, Inc.
Consulting Geotechnical Engineers

PLOT PLAN

CATALINA FUND, LLC.

File No.: 21759

Date: March '19



LEGEND

SCALE IN FEET
0 500 1000 2000

- **af:** Artificial fill or cut and fill
- **Qa:** Alluvium - gravel, sand and clay
- **Qae:** Alluvium - similar to Qa but slightly elevated and locally dissected
- **Qos:** Older, stabilized dune and drift sand
- **Qs:** Beach sediments, ranging from sand to cobble-boulder gravel

N

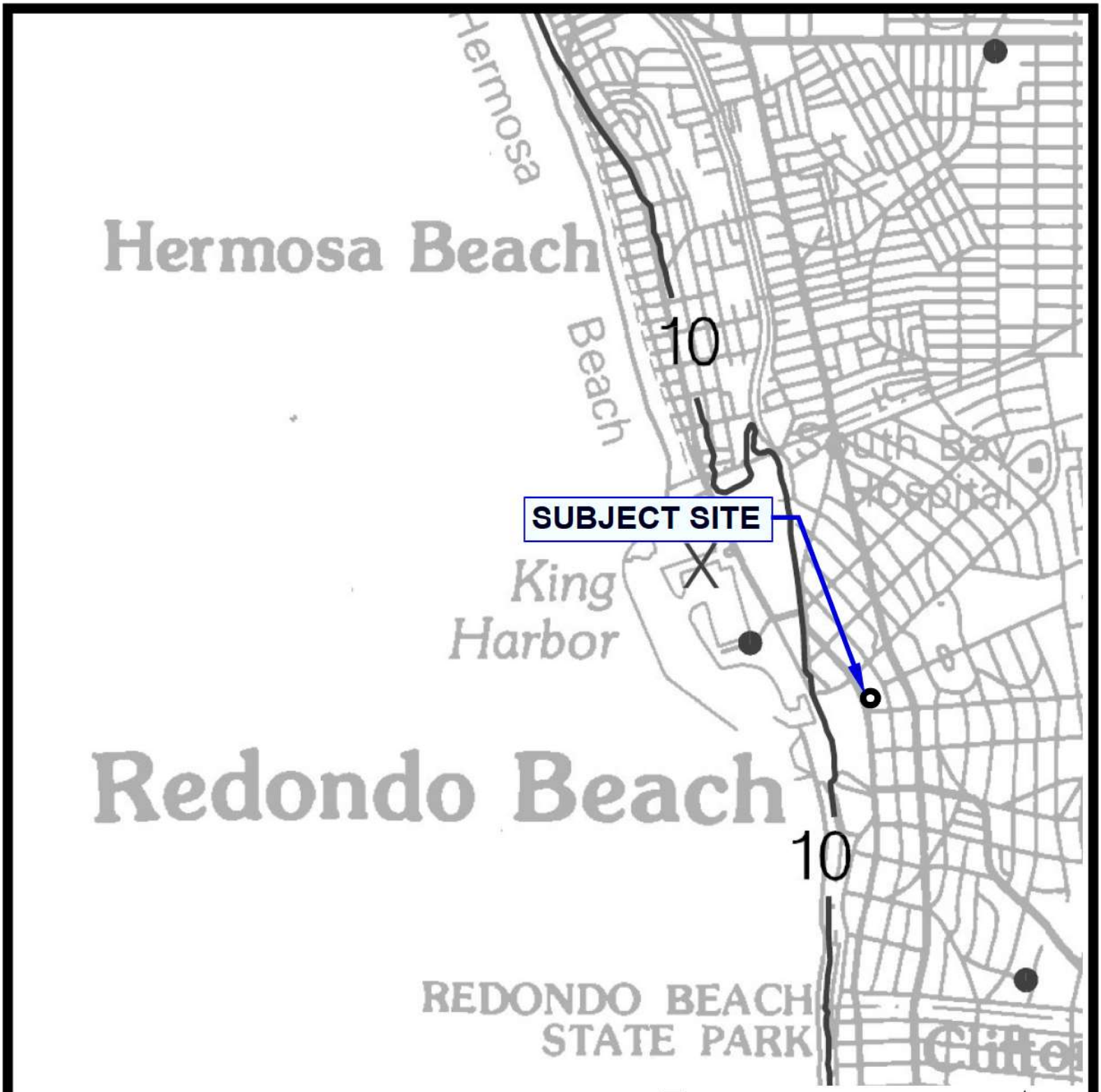
REFERENCE: DIBBLEE, T.W., (1992) GEOLOGIC MAP OF THE REDONDO BEACH, TORRANCE, AND SAN PEDRO QUADRANGLES (#DF-70)

LOCAL GEOLOGIC MAP - DIBBLEE

Geotechnologies, Inc.
Consulting Geotechnical Engineers

CATALINA FUND, LLC.

FILE NO. 21759



REFERENCE: CDMG, SEISMIC HAZARD ZONE REPORT, 031
REDONDO BEACH 7.5 - MINUTE QUADRANGLE, LOS ANGELES COUNTY, CALIFORNIA (1998, REVISED 2006)

HISTORICALLY HIGHEST GROUNDWATER LEVELS

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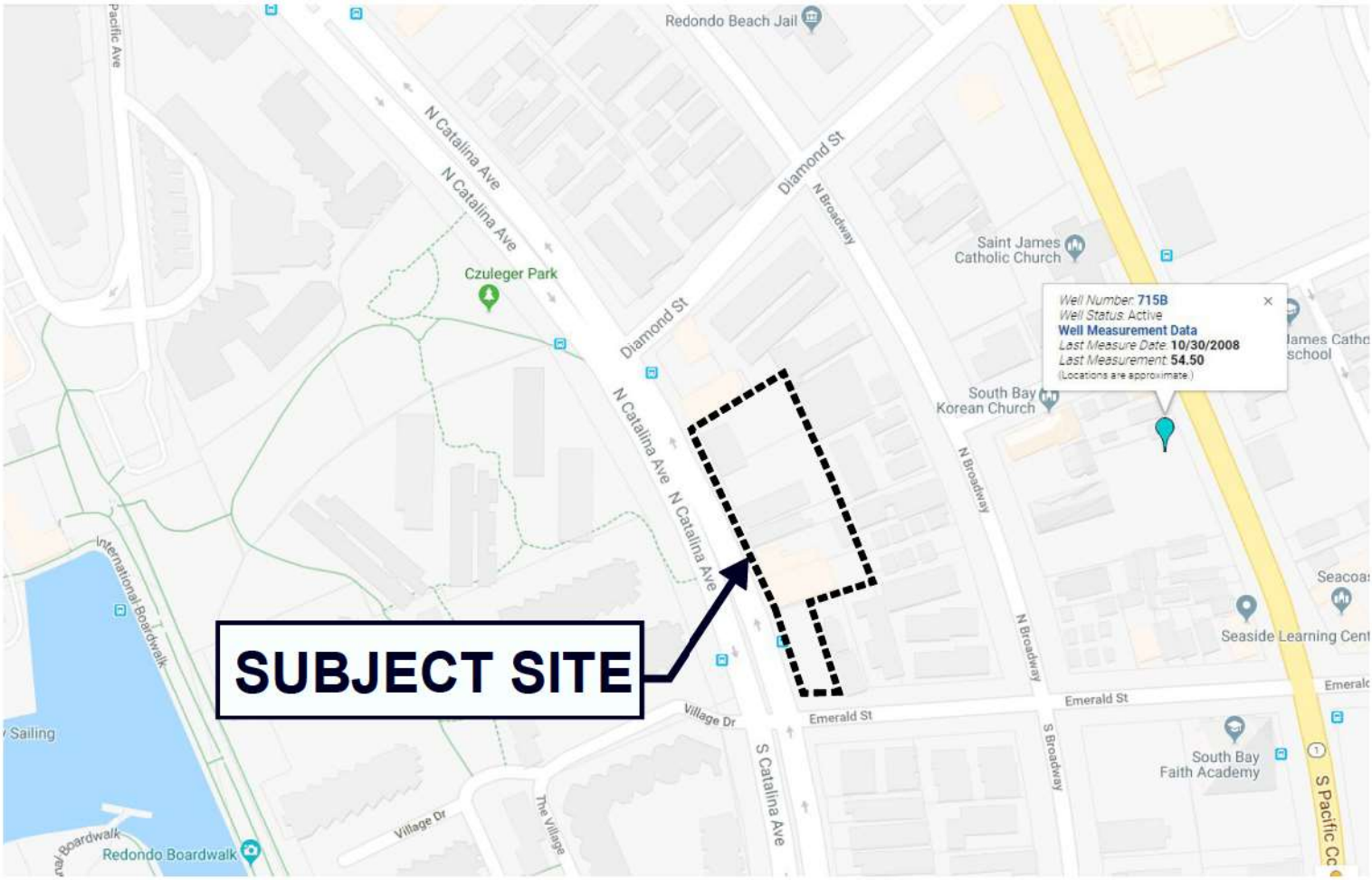
CATALINA FUND, LLC.

FILE No. 21759



APPROX. SCALE (FEET)

0 100 200

N

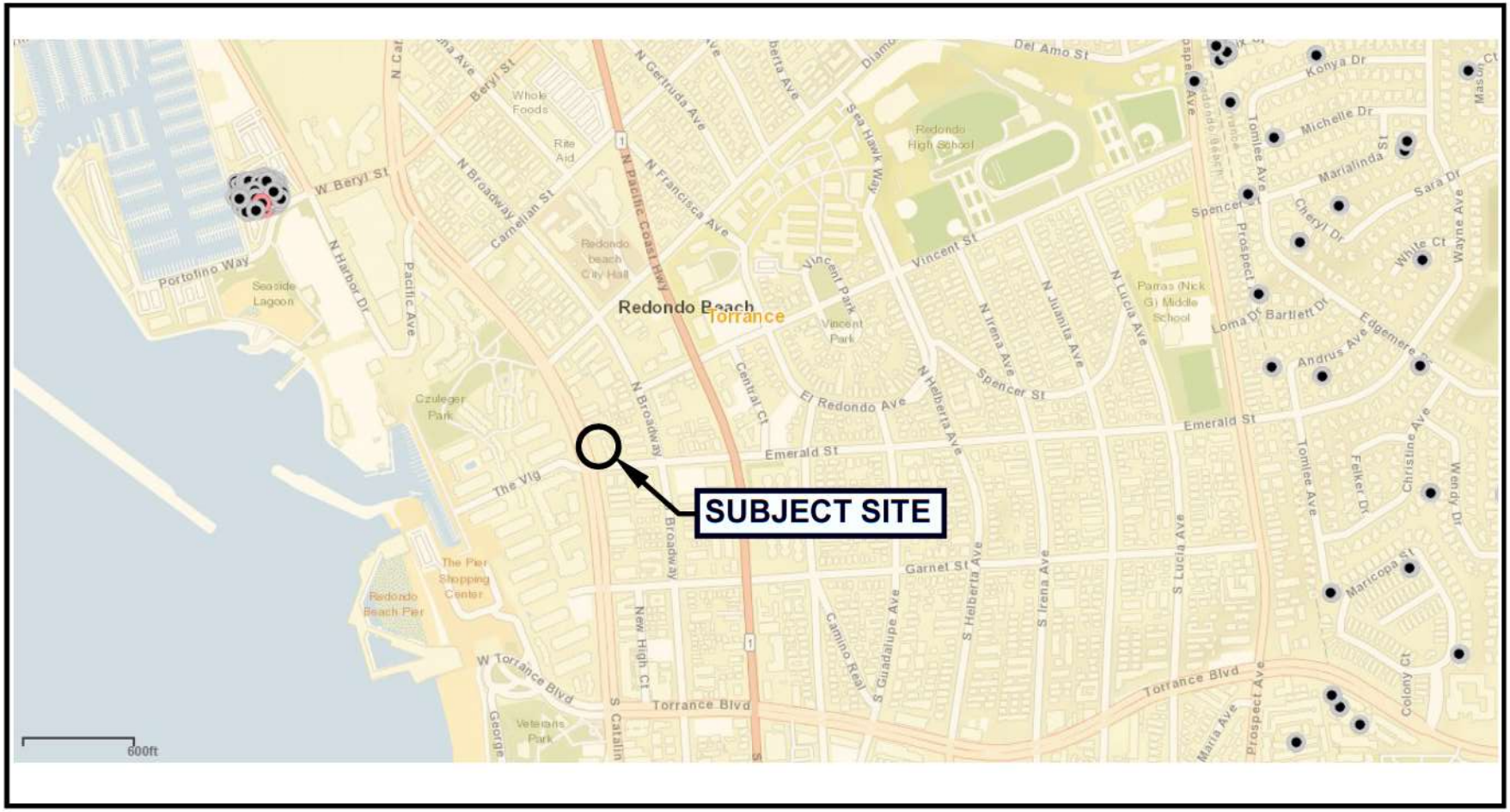
REFERENCE: LOS ANGELES DEPARTMENT OF PUBLIC WORKS WEBSITE
http://www.ladpw.org/wrd/welllnfo/well.cfm

WATER WELL LOCATION MAP

Geotechnologies, Inc.
Consulting Geotechnical Engineers

CATALINA FUND, LLC.

FILE NO. 21759



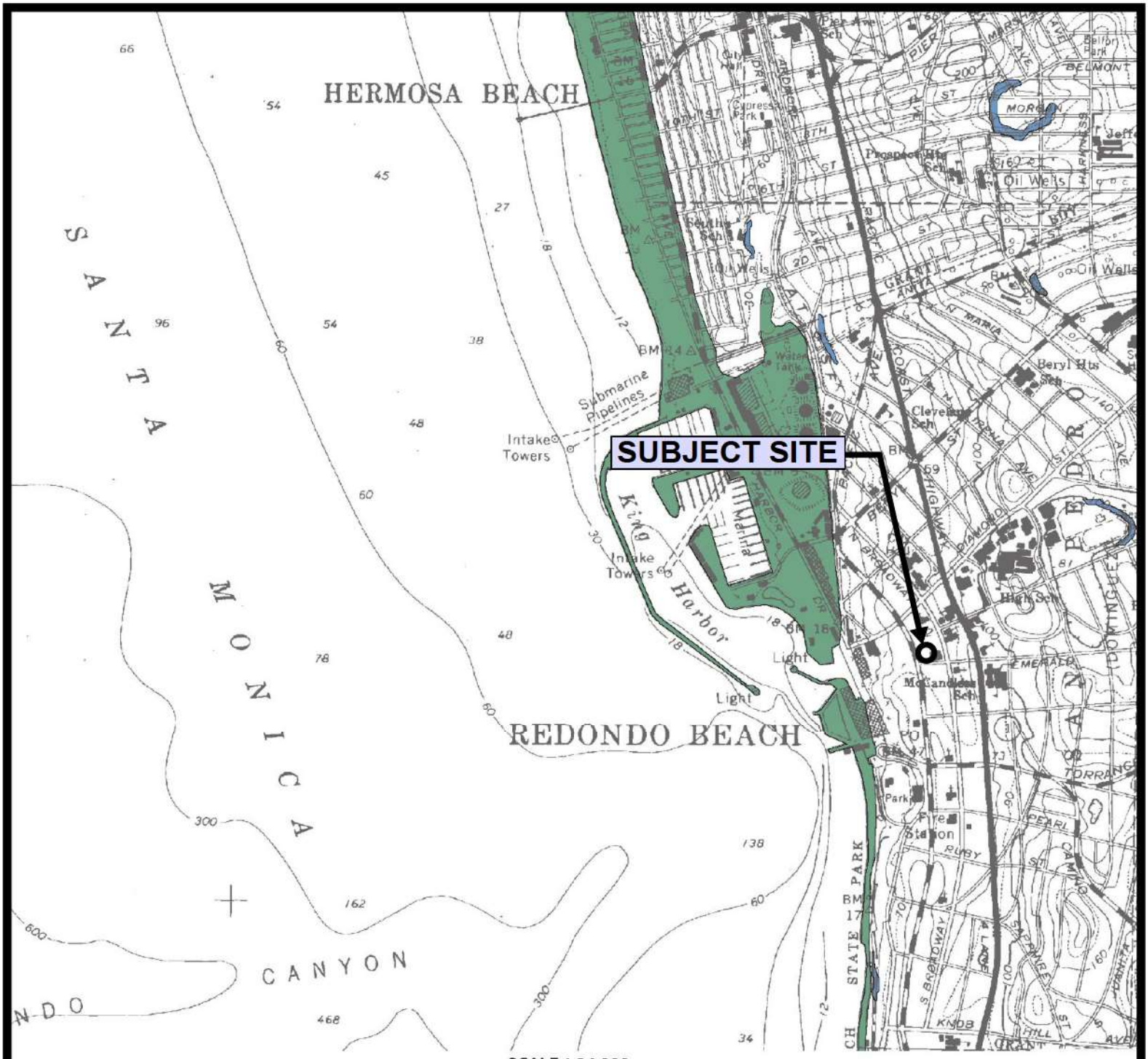
REFERENCE: DIVISION OF OIL, GAS & GEOTHERMAL RESOURCES WELL FINDER, STATE OF CALIFORNIA, 2018

OIL WELL LOCATION MAP

Geotechnologies, Inc.
Consulting Geotechnical Engineers

CATALINA FUND, LLC.

FILE NO. 21759



REFERENCE: SEISMIC HAZARD ZONES, REDONDO BEACH QUADRANGLE OFFICIAL MAP (CDMG, 1999)

SEISMIC HAZARD ZONE MAP

Geotechnologies, Inc.
Consulting Geotechnical Engineers

CATALINA FUND, LLC.

FILE NO. 21759

BORING LOG NUMBER 1

Catalina Fund, LLC **Date: 02/25/19**

File No. 21759 **Method: 8-inch diameter Hollow Stem Auger**

km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt
				0		3-inch Asphalt over 2-inch Base
				1		FILL: Silty Sand, dark brown, moist, medium dense, fine grained
2.5	29	4.6	121.5	2		
				3	SM/SP	NATIVE SOILS: Silty Sand to Sand, dark brown, slightly moist, medium dense, fine grained
5	70	3.7	126.9	4		
				5		dense
				6		
7.5	59	2.4	116.9	7		
				8	SP	Sand, dark brown, slightly moist, dense, fine grained
				9		
10	50	2.6	111.5	10		
				11		
				12		
				13		
				14		
15	67	3.5	108.9	15		dark and yellowish brown, fine to medium grained
				16		
				17		
				18		
				19		fine grained
20	72	3.0	105.9	20		Total Depth 20 feet No Water Fill to 3 feet
				21		
				22		
				23		NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.
				24		
				25		Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted

BORING LOG NUMBER 2

Catalina Fund, LLC **Date: 02/25/19**

File No. 21759 **Method: 8-inch diameter Hollow Stem Auger**

km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt for Parking
				0		3-inch Asphalt, No Base
				1		FILL: Silty Sand, dark brown, moist, medium dense, fine grained
2.5	7	8.7	116.9	2		
				3	SM/SP	NATIVE SOILS: Silty Sand, dark brown, moist, medium dense, fine grained
5	10	8.3	SPT	4		
				5	SP	Sand, dark brown, moist, medium dense, fine grained
				6		
7.5	18	12.6	117.0	7		
				8		very moist
				9		
10	18	6.7	SPT	10		
				11		moist
				12		
12.5	59	6.6	117.3	13		fine to medium grained
				14		
15	28	6.3	SPT	15		
				16		fine grained
				17		
17.5	84	6.3	115.0	18		dense to very dense
				19		
20	38	4.2	SPT	20		
				21		slightly moist, medium dense to dense, fine to medium grained
				22		
22.5	25 50/5"	4.7	111.6	23		very dense
				24		
25	37	4.3	SPT	25		
						medium dense to dense

BORING LOG NUMBER 2

Catalina Fund, LLC

File No. 21759

km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				26		
				27		
27.5	37 50/4"	4.4	110.3	28		Sand, dark and yellowish brown, slightly moist, very dense, fine grained
				29		
30	54 50/4"	7.5	SPT	30		moist, fine to medium grained
				31		
				32		
32.5	100/9"	4.8	110.5	33		slightly moist, fine grained
				34		
35	93	4.5	SPT	35		
				36		
				37		
37.5	45 50/3"	3.1	107.2	38		fine to medium grained
				39		NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.
40	70	4.2	SPT	40		Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted SPT=Standard Penetration Test
				41		
				42		
42.5	46 50/3"	4.9	106.4	43		
				44		
45	73	10.4	SPT	45		moist
				46		
				47		
47.5	49 50/4"	5.2	106.4	48		slightly moist
				49		
50	85	3.5	SPT	50		Total Depth 50 feet No Water Fill to 3 feet

BORING LOG NUMBER 3

Catalina Fund, LLC **Date: 02/25/19**

File No. 21759 **Method: 8-inch diameter Hollow Stem Auger**

km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt for Parking
				0		8-inch Asphalt, No Base
				1		FILL: Silty Sand, dark brown, moist, medium dense, fine grained
2.5	27	7.6	128.9	2		
				3	SM/SP	NATIVE SOILS: Silty Sand to Sand, dark brown, moist, medium dense, fine grained
5	24	7.8	115.7	4		
				5		
				6		
7.5	37	3.0	107.3	7		
				8	SP	Sand, dark and yellowish brown, slightly moist, medium dense, fine grained
				9		
10	47	2.8	109.0	10		medium dense to dense
				11		
				12		
				13		
				14		
15	71	2.9	110.3	15		dark brown, dense, fine to medium grained
				16		
				17		
				18		
				19		
20	83	3.2	109.3	20		Total Depth 20 feet No Water Fill to 3 feet
				21		
				22		
				23		NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.
				24		
				25		Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted

BORING LOG NUMBER 4

Catalina Fund, LLC **Date: 02/26/19**

File No. 21759 **Method: 4-inch diameter Hand Auger**

km

Sample Depth ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Planter Area
			0 –		FILL: Silty Sand, dark brown, moist, medium dense, fine grained
1	6.0	122.1	1 –		
			2 –	SM/SP	NATIVE SOILS: Silty Sand to Sand, dark brown, moist, medium dense, fine grained
3	6.5	118.6	3 –		
			4 –		
5	5.6	118.1	5 –	SP	Sand, dark and yellowish brown, slightly moist, medium dense, fine grained
			6 –		
7	3.6	114.5	7 –		
			8 –		
			9 –		
10	2.2	114.3	10 –		yellowish brown
			11 –		
			12 –		
			13 –		
			14 –		
15	2.0	108.6	15 –		dark and yellowish brown, dense, fine to medium grained
			16 –		
			17 –		
			18 –		
			19 –		
20	1.9	109.3	20 –		Total Depth 20 feet No Water Fill to 2 feet
			21 –		
			22 –		
			23 –		NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.
			24 –		Used 4-inch diameter Hand Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
			25 –		

LOG OF TEST PIT NUMBER 1

Catalina Fund, LLC **Drilling Date: 02/26/19**

File No. 21759 **Method: Hand Dug Test Pit**

km

Sample Depth ft.	Moisture Content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Planter Area
			0 –		FILL: Silty Sand, dark brown, moist, medium dense, fine grained
			1 –		
			2 –		
				SM/SP	NATIVE SOILS: Silty Sand to Sand, dark brown, moist, medium dense, fine grained
			3 –		
			4 –		
			5 –		dark and medium brown
			6 –		
					Total Depth 6 feet No Water Fill to 2 feet
			7 –		
			8 –		
			9 –		NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.
			10 –		
					Used 4-inch diameter Hand-Augering Equipment; Hand Sampler
			11 –		
			12 –		
			13 –		
			14 –		
			15 –		
			16 –		
			17 –		
			18 –		
			19 –		
			20 –		
			21 –		
			22 –		
			23 –		
			24 –		
			25 –		

LOG OF TEST PIT NUMBER 2

Catalina Fund, LLC **Drilling Date: 02/26/19**

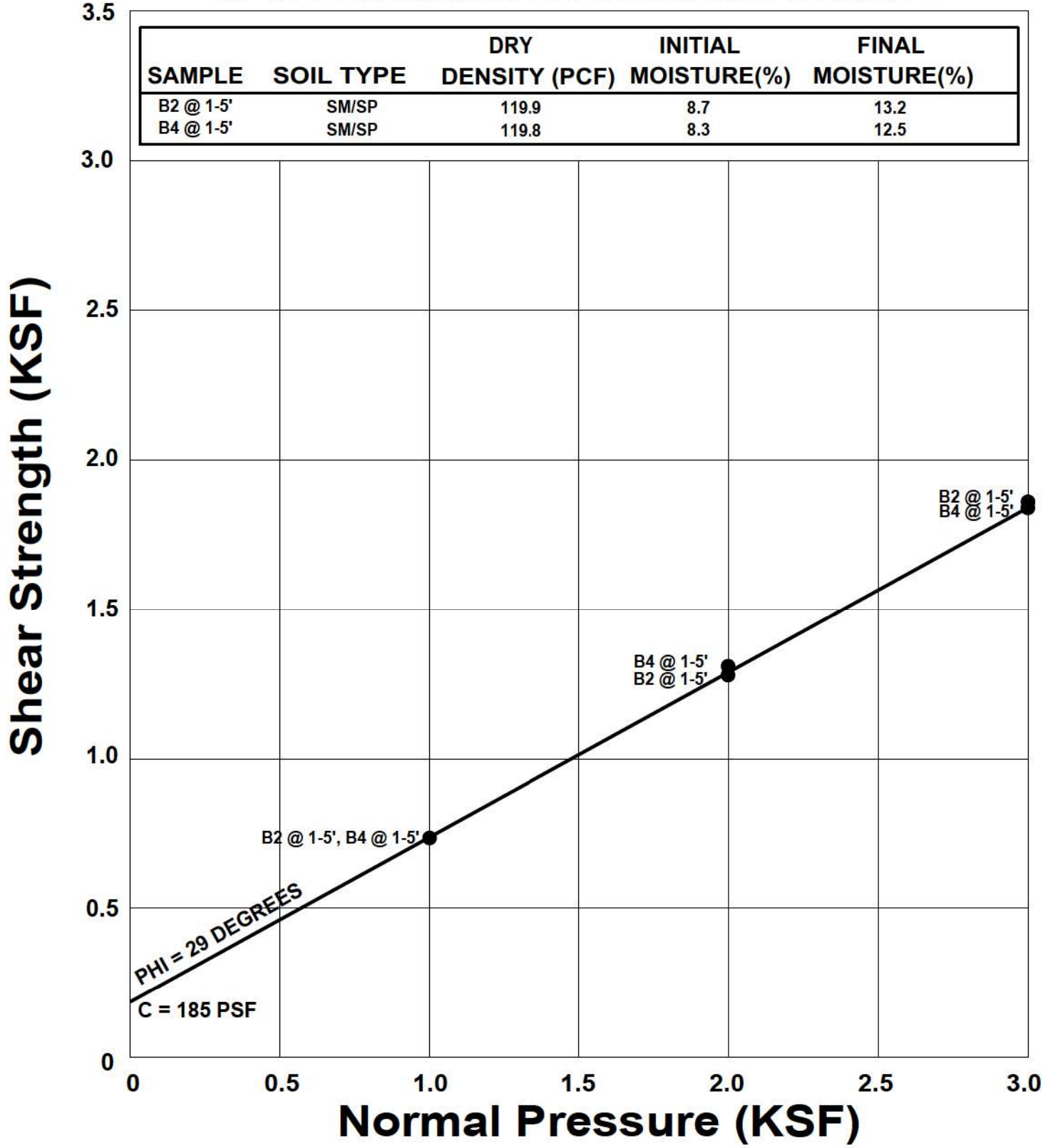
File No. 21759 **Method: Hand Dug Test Pit**

km

Sample Depth ft.	Moisture Content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Bare Ground
			0 –		FILL: Silty Sand, dark brown, moist, medium dense, fine grained
			1 –		
2	7.9	120.4	2 –	SM/SP	NATIVE SOILS: Silty Sand to Sand, dark brown, moist, medium dense, fine grained
			3 –		
4	8.3	118.3	4 –		
				SP	Sand, dark and medium brown, moist, medium dense, fine grained
			5 –		
			6 –		
7	9.1	121.2	7 –		dark brown
			8 –		
			9 –		
10	7.8	88.2	10 –		yellowish brown, medium dense to dense
			11 –		
			12 –		
			13 –		
			14 –		
15	3.9	110.9	15 –		slightly moist, fine to medium grained
			16 –		
			17 –		
			18 –		
			19 –		
20	3.5	102.4	20 –		
			21 –		Total Depth 20 feet No Water Fill to 1½ feet
			22 –		
			23 –		NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.
			24 –		
			25 –		Used 4-inch diameter Hand-Augering Equipment; Hand Sampler

BULK SAMPLE REMOLDED TO 90 PERCENT OF THE MAXIMUM LABORATORY DENSITY

SAMPLE	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE(%)	FINAL MOISTURE(%)
B2 @ 1-5'	SM/SP	119.9	8.7	13.2
B4 @ 1-5'	SM/SP	119.8	8.3	12.5



● Direct Shear, Saturated

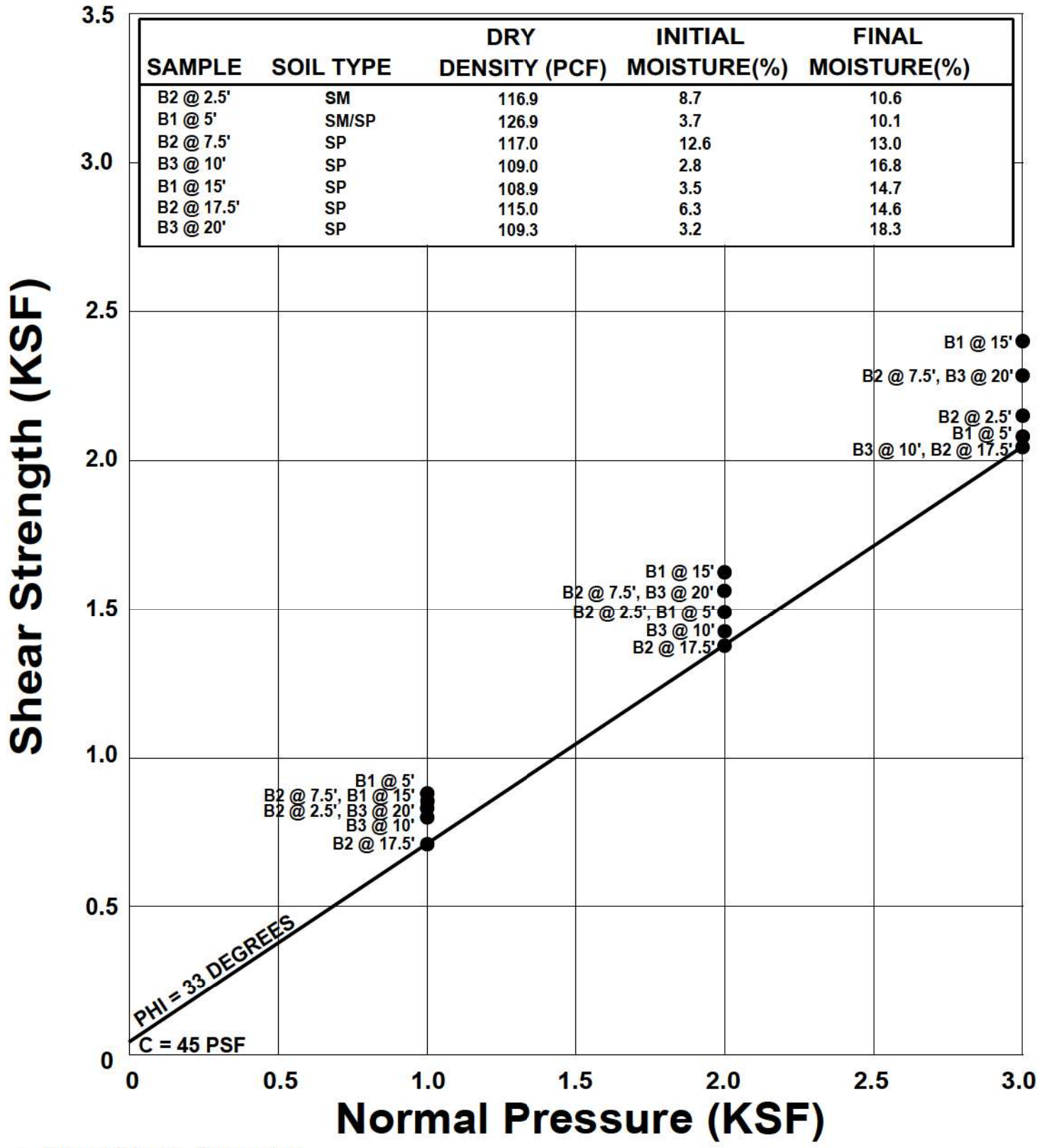
SHEAR TEST DIAGRAM

Geotechnologies, Inc.
Consulting Geotechnical Engineers

CATALINA FUND, LLC

FILE NO. 21759 | PLATE: B-1

SAMPLE	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE(%)	FINAL MOISTURE(%)
B2 @ 2.5'	SM	116.9	8.7	10.6
B1 @ 5'	SM/SP	126.9	3.7	10.1
B2 @ 7.5'	SP	117.0	12.6	13.0
B3 @ 10'	SP	109.0	2.8	16.8
B1 @ 15'	SP	108.9	3.5	14.7
B2 @ 17.5'	SP	115.0	6.3	14.6
B3 @ 20'	SP	109.3	3.2	18.3



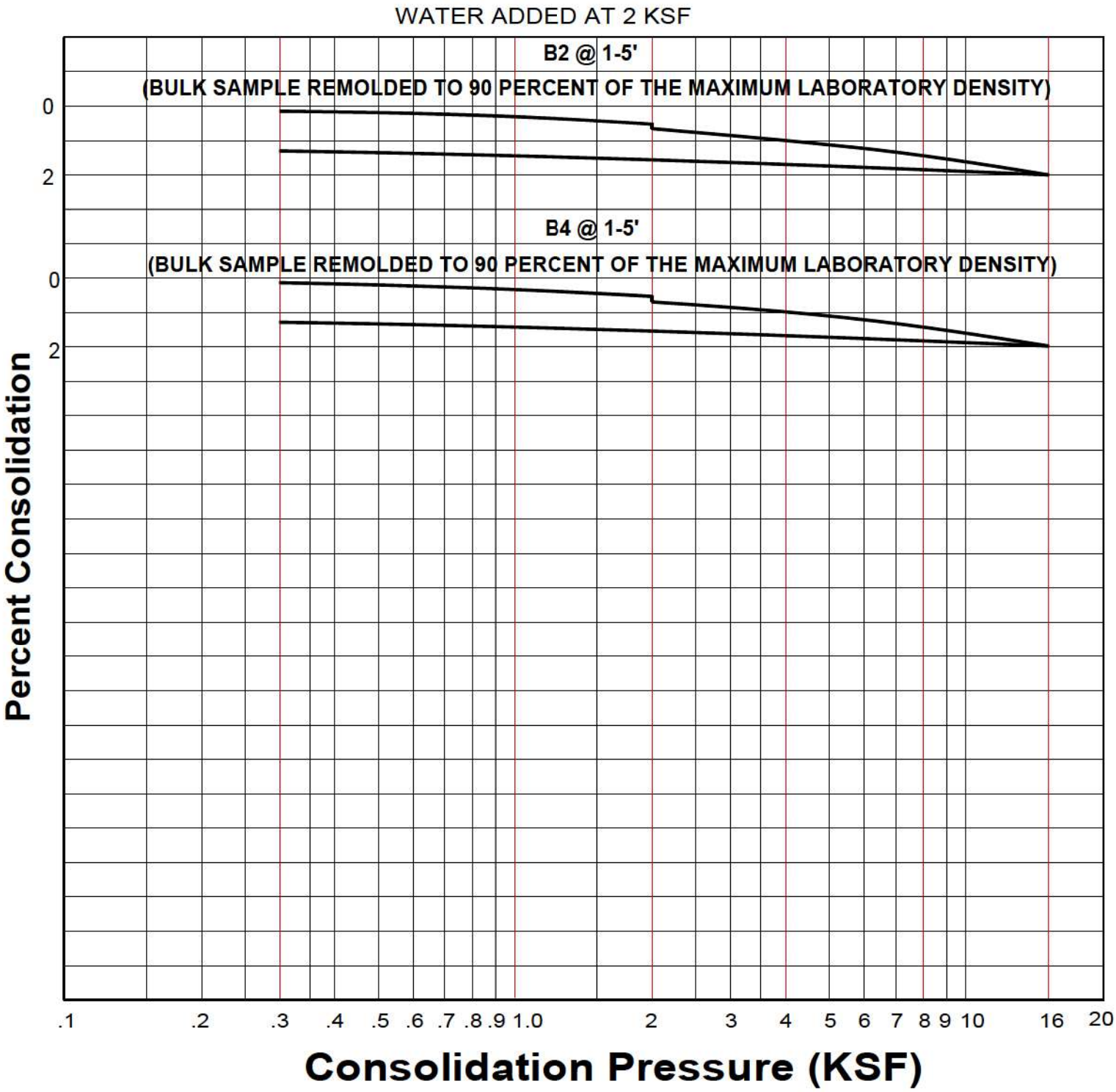
● Direct Shear, Saturated

SHEAR TEST DIAGRAM

Geotechnologies, Inc.
Consulting Geotechnical Engineers

CATALINA FUND, LLC

FILE NO. 21759 | PLATE: B-2

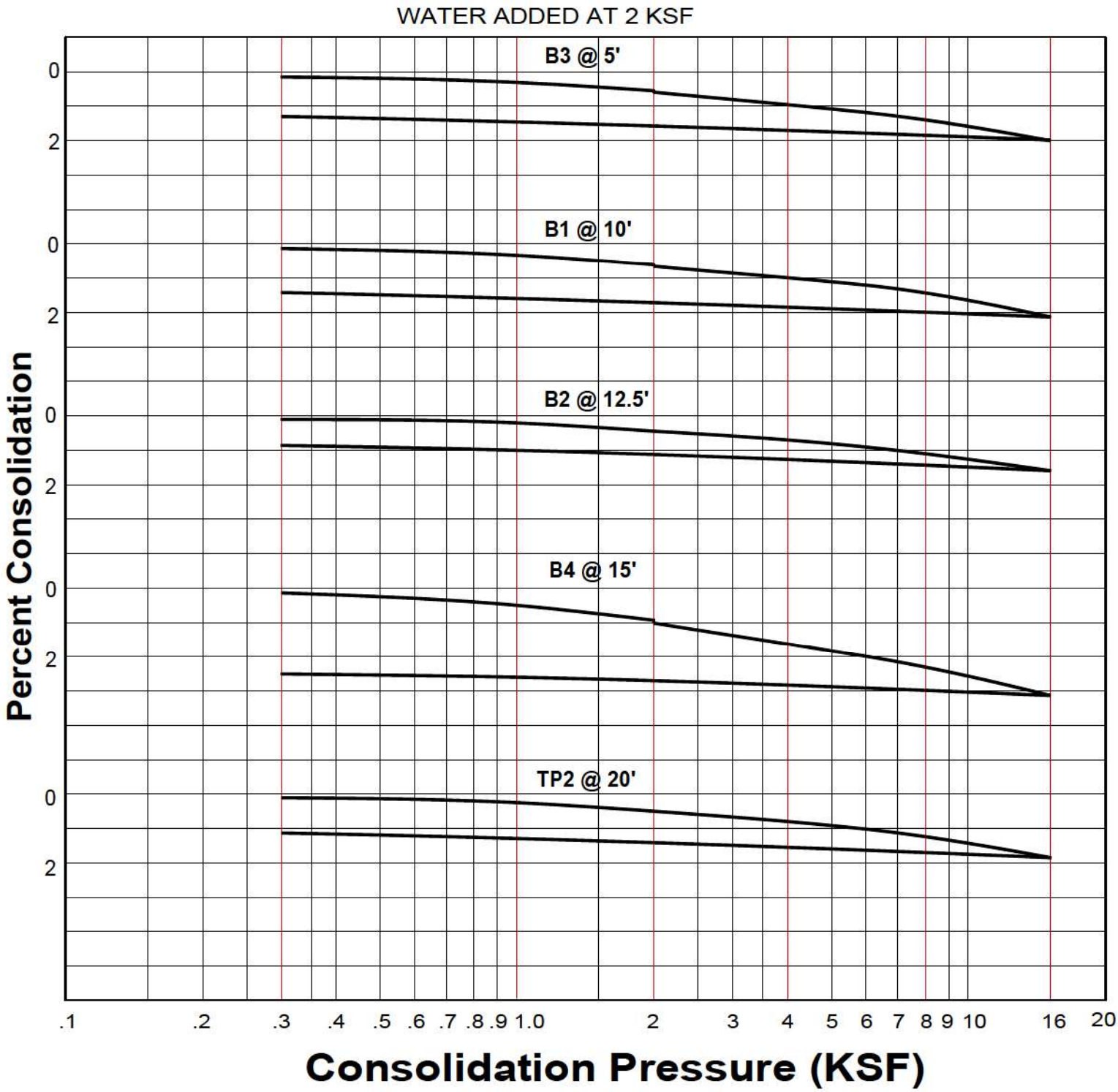


CONSOLIDATION TEST

Geotechnologies, Inc.
Consulting Geotechnical Engineers

CATALINA FUND, LLC

FILE NO. 21759 | **PLATE: C-1**



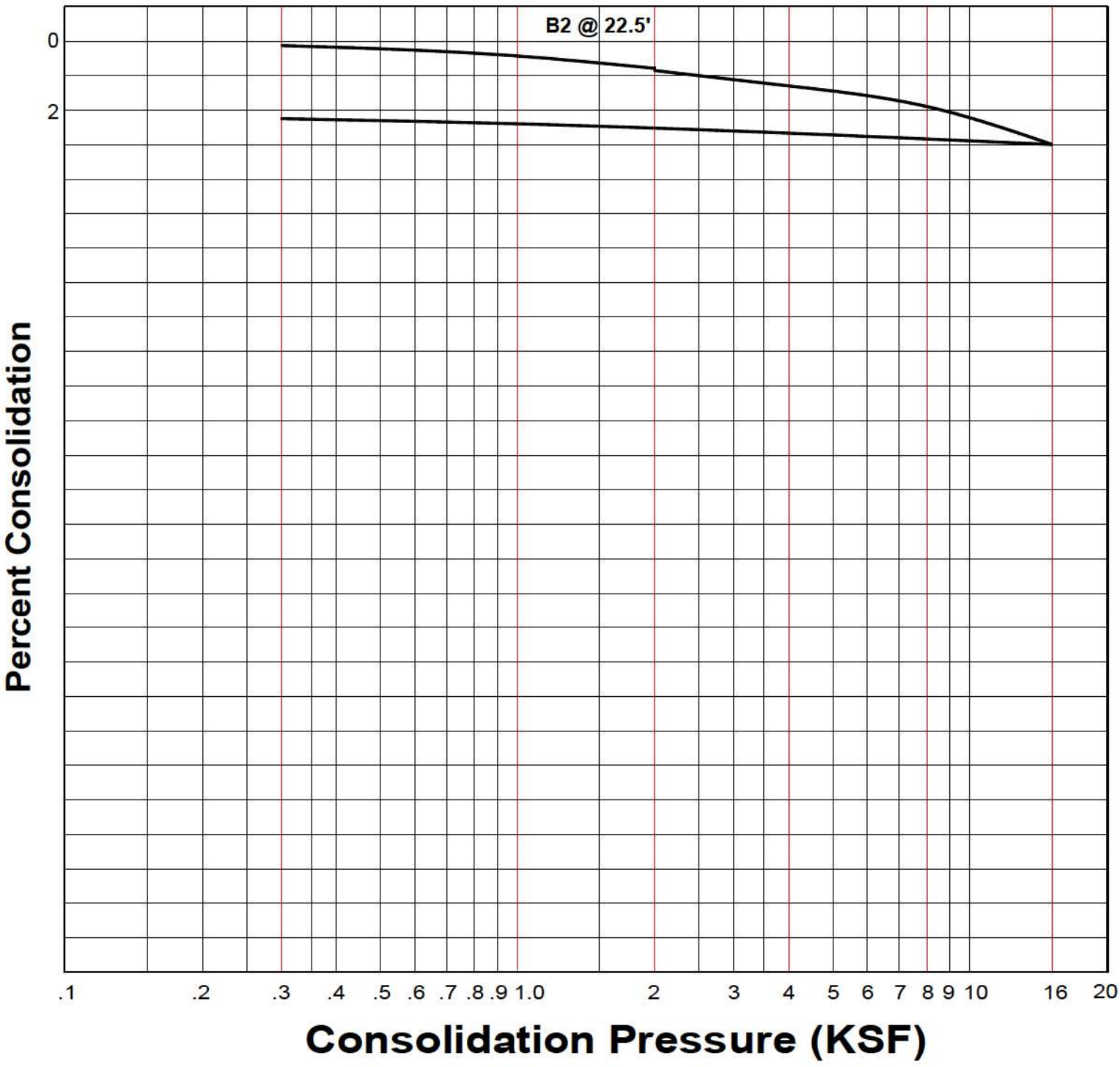
CONSOLIDATION TEST

Geotechnologies, Inc.
Consulting Geotechnical Engineers

CATALINA FUND, LLC

FILE NO. 21759 | **PLATE: C-2**

WATER ADDED AT 2 KSF



CONSOLIDATION TEST

Geotechnologies, Inc.
Consulting Geotechnical Engineers

CATALINA FUND, LLC

FILE NO. 21759 | **PLATE: C-3**

ASTM D-1557

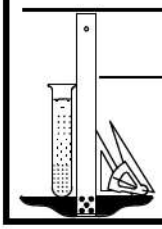
SAMPLE	B2 @ 1-5'	B4 @ 1-5'
SOIL TYPE:	SM/SP	SM/SP
MAXIMUM DENSITY pcf.	133.2	133.1
OPTIMUM MOISTURE %	8.7	8.3

ASTM D 4829

SAMPLE	B2 @ 1-5'	B4 @ 1-5'
SOIL TYPE:	SM/SP	SM/SP
EXPANSION INDEX UBC STANDARD 18-2	2	3
EXPANSION CHARACTER	VERY LOW	VERY LOW

SULFATE CONTENT

SAMPLE	B2 @ 1-5'	B4 @ 1-5'
SULFATE CONTENT: (percentage by weight)	< 0.10%	< 0.10%



COMPACTION/EXPANSION/SULFATE DATA SHEET

Geotechnologies, Inc.
Consulting Geotechnical Engineers

CATALINA FUND, LLC

FILE NO. 21759 | PLATE: D

Geotechnologies, Inc.

Project: Catalina Fund, LLC
File No.: 21759
Description: Liquefaction Analysis
Boring Numbe 2

LIQUEFACTION EVALUATION (Idriss & Boulanger, EERI NO 12)

EARTHQUAKE INFORMATION:

Earthquake Magnitude (M):	7.0
Peak Ground Horizontal Acceleration, PGA (g):	0.64
Calculated Mag.Wtg.Factor:	1.156

GROUNDWATER INFORMATION:

Current Groundwater Level (ft):	51.0
Historically Highest Groundwater Level* (ft):	10.0
Unit Weight of Water (pcf):	62.4

* Based on California Geological Survey Seismic Hazard Evaluation Report

BOREHOLE AND SAMPLER INFORMATION:

Borehole Diameter (inches):	8
SPT Sampler with room for Liner (Y/N):	Y

LIQUEFACTION BOUNDARY:

Plastic Index Cut Off (PI):	18
Minimum Liquefaction FS:	1.3

Depth to Base Layer (feet)	Total Unit Weight (pcf)	Current Water Level (feet)	Historical Water Level (feet)	Field SPT Blowcount N	Depth of SPT Blowcount (feet)	Fines Content #200 Sieve (%)	Plastic Index (PI)	Vetical Stress σ_{vc} (psf)	Effective Vert. Stress σ_{vc}' (psf)	Fines Corrected $(N_1)_{60\text{-}cs}$	Stress Reduction Coeff, r_d	Cyclic Shear Ratio CSR	Cyclic Resistance Ratio (CRR)	Factor of Safety CRR/CSR (F.S.)	Liquefaction Settlment ΔS_i (inches)
1	127.0	Unsaturated	Unsaturated	10	5	0.0	0	127.0	127.0	21.7	1.00	0.420	0.290	Non-Liq.	0.00
2	127.0	Unsaturated	Unsaturated	10	5	0.0	0	254.0	254.0	21.7	1.00	0.418	0.290	Non-Liq.	0.00
3	127.0	Unsaturated	Unsaturated	10	5	0.0	0	381.0	381.0	21.7	1.00	0.417	0.290	Non-Liq.	0.00
4	127.0	Unsaturated	Unsaturated	10	5	0.0	0	508.0	508.0	21.7	0.99	0.416	0.290	Non-Liq.	0.00
5	127.0	Unsaturated	Unsaturated	10	5	0.0	0	635.0	635.0	23.4	0.99	0.414	0.326	Non-Liq.	0.00
6	127.0	Unsaturated	Unsaturated	10	5	0.0	0	762.0	762.0	22.9	0.99	0.413	0.314	Non-Liq.	0.00
7	127.0	Unsaturated	Unsaturated	10	5	0.0	0	889.0	889.0	21.0	0.98	0.411	0.278	Non-Liq.	0.00
8	131.7	Unsaturated	Unsaturated	18	10	0.0	0	1020.7	1020.7	35.3	0.98	0.410	1.513	Non-Liq.	0.00
9	131.7	Unsaturated	Unsaturated	18	10	0.0	0	1152.4	1152.4	35.6	0.98	0.408	1.600	Non-Liq.	0.00
10	131.7	Unsaturated	Unsaturated	18	10	0.0	0	1284.1	1284.1	33.8	0.97	0.407	1.123	Non-Liq.	0.00
11	131.7	Unsaturated	Saturated	18	10	0.0	0	1415.8	1353.4	33.0	0.97	0.424	0.969	2.3	0.00
12	131.7	Unsaturated	Saturated	18	10	0.0	0	1547.5	1422.7	32.3	0.96	0.439	0.846	1.9	0.00
13	125.0	Unsaturated	Saturated	18	10	0.0	0	1672.5	1485.3	31.6	0.96	0.452	0.757	1.7	0.00
14	125.0	Unsaturated	Saturated	18	10	0.0	0	1797.5	1547.9	31.0	0.96	0.464	0.686	1.5	0.00
15	125.0	Unsaturated	Saturated	28	15	0.0	0	1922.5	1610.5	53.4	0.95	0.475	2.000	4.2	0.00
16	125.0	Unsaturated	Saturated	28	15	0.0	0	2047.5	1673.1	52.8	0.95	0.484	2.000	4.1	0.00
17	125.0	Unsaturated	Saturated	28	15	0.0	0	2172.5	1735.7	52.3	0.94	0.493	2.000	4.1	0.00
18	122.2	Unsaturated	Saturated	28	15	0.0	0	2294.7	1795.5	51.9	0.94	0.501	2.000	4.0	0.00
19	122.2	Unsaturated	Saturated	28	15	0.0	0	2416.9	1855.3	51.4	0.93	0.508	2.000	3.9	0.00
20	122.2	Unsaturated	Saturated	38	20	0.0	0	2539.1	1915.1	69.2	0.93	0.514	2.000	3.9	0.00
21	122.2	Unsaturated	Saturated	38	20	0.0	0	2661.3	1974.9	68.6	0.92	0.520	2.000	3.8	0.00
22	122.2	Unsaturated	Saturated	38	20	0.0	0	2783.5	2034.7	68.1	0.92	0.525	2.000	3.8	0.00
23	116.8	Unsaturated	Saturated	38	20	0.0	0	2900.3	2089.1	67.6	0.91	0.529	2.000	3.8	0.00
24	116.8	Unsaturated	Saturated	38	20	0.0	0	3017.1	2143.5	67.2	0.91	0.534	2.000	3.7	0.00
25	116.8	Unsaturated	Saturated	37	25	0.0	0	3133.9	2197.9	65.0	0.90	0.538	2.000	3.7	0.00
26	116.8	Unsaturated	Saturated	37	25	0.0	0	3250.7	2252.3	64.6	0.90	0.541	2.000	3.7	0.00
27	116.8	Unsaturated	Saturated	37	25	0.0	0	3367.5	2306.7	64.2	0.89	0.544	2.000	3.7	0.00
28	115.2	Unsaturated	Saturated	37	25	0.0	0	3482.7	2359.5	67.1	0.89	0.547	2.000	3.7	0.00
29	115.2	Unsaturated	Saturated	37	25	0.0	0	3597.9	2412.3	66.7	0.88	0.549	2.000	3.6	0.00
30	115.2	Unsaturated	Saturated	50	30	0.0	0	3713.1	2465.1	89.7	0.87	0.551	2.000	3.6	0.00
31	115.2	Unsaturated	Saturated	50	30	0.0	0	3828.3	2517.9	89.2	0.87	0.552	2.000	3.6	0.00
32	115.2	Unsaturated	Saturated	50	30	0.0	0	3943.5	2570.7	88.7	0.86	0.554	2.000	3.6	0.00
33	115.8	Unsaturated	Saturated	50	30	0.0	0	4059.3	2624.1	88.2	0.86	0.555	2.000	3.6	0.00
34	115.8	Unsaturated	Saturated	50	30	0.0	0	4175.1	2677.5	87.8	0.85	0.556	2.000	3.6	0.00
35	115.8	Unsaturated	Saturated	93	35	0.0	0	4290.9	2730.9	162.4	0.85	0.556	2.000	3.6	0.00
36	115.8	Unsaturated	Saturated	93	35	0.0	0	4406.7	2784.3	161.6	0.84	0.556	2.000	3.6	0.00
37	115.8	Unsaturated	Saturated	93	35	0.0	0	4522.5	2837.7	160.7	0.84	0.557	2.000	3.6	0.00
38	110.5	Unsaturated	Saturated	93	35	0.0	0	4633.0	2885.8	160.0	0.83	0.557	2.000	3.6	0.00
39	110.5	Unsaturated	Saturated	93	35	0.0	0	4743.5	2933.9	159.3	0.82	0.557	2.000	3.6	0.00
40	110.5	Unsaturated	Saturated	70	40	0.0	0	4854.0	2982.0	119.4	0.82	0.557	2.000	3.6	0.00
41	110.5	Unsaturated	Saturated	70	40	0.0	0	4964.5	3030.1	118.9	0.81	0.557	2.000	3.6	0.00
42	110.5	Unsaturated	Saturated	70	40	0.0	0	5075.0	3078.2	118.4	0.81	0.556	2.000	3.6	0.00
43	111.6	Unsaturated	Saturated	70	40	0.0	0	5186.6	3127.4	117.9	0.80	0.556	2.000	3.6	0.00
44	111.6	Unsaturated	Saturated	70	40	0.0	0	5298.2	3176.6	117.5	0.80	0.555	2.000	3.6	0.00
45	111.6	Unsaturated	Saturated	73	45	0.0	0	5409.8	3225.8	122.0	0.79	0.554	2.000	3.6	0.00
46	111.6	Unsaturated	Saturated	73	45	0.0	0	5521.4	3275.0	121.5	0.78	0.553	2.000	3.6	0.00
47	111.6	Unsaturated	Saturated	73	45	0.0	0	5633.0	3324.2	121.0	0.78	0.552	2.000	3.6	0.00
48	111.9	Unsaturated	Saturated	73	45	0.0	0	5744.9	3373.7	120.6	0.77	0.550	1.992	3.6	0.00
49	111.9	Unsaturated	Saturated	85	50	0.0	0	5856.8	3423.2	139.8	0.77	0.549	1.982	3.6	0.00
50	111.9	Unsaturated	Saturated	85	50	0.0	0	5968.7	3472.7	139.3	0.76	0.547	1.972	3.6	0.00
													Total Liquefaction Settlement, S =		0.00 inches

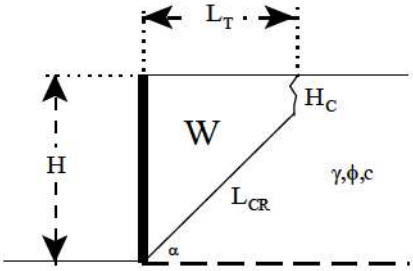
Geotechnologies, Inc.

Project: Catalina Fund, LLC
File No.: 21759
Description: Retaining Walls up to 6 feet

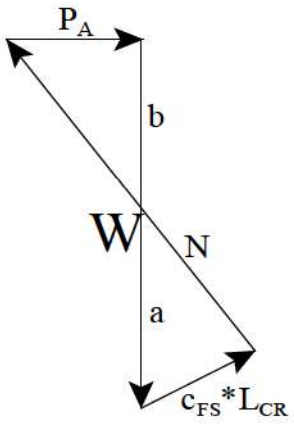
Retaining Wall Design with Level Backfill
(Vector Analysis)

Input:

Retaining Wall Height	(H)	6.00	feet
Unit Weight of Retained Soils	(γ)	120.0	pcf
Friction Angle of Retained Soils	(ϕ)	29.0	degrees
Cohesion of Retained Soils	(c)	185.0	psf
Factor of Safety	(FS)	1.50	
Factored Parameters:	(ϕ_{FS})	20.3	degrees
	(c_{FS})	123.3	psf



Failure Angle (α) degrees	Height of Tension Crack (H_C) feet	Area of Wedge (A) $feet^2$	Weight of Wedge (W) lbs/lineal foot	Length of Failure Plane (L_{CR}) feet	a lbs/lineal foot	b lbs/lineal foot	Active Pressure (P_A) lbs/lineal foot
45	3.3	13	1522.2	3.9	1071.9	450.3	207.3
46	3.2	12	1493.3	3.9	1038.4	454.9	219.1
47	3.1	12	1461.2	3.9	1004.8	456.4	229.7
48	3.1	12	1426.5	3.9	971.4	455.1	239.1
49	3.1	12	1389.9	3.9	938.5	451.4	247.3
50	3.0	11	1351.6	3.9	906.2	445.5	254.3
51	3.0	11	1312.2	3.9	874.6	437.6	260.0
52	3.0	11	1271.7	3.8	843.7	428.0	264.5
53	3.0	10	1230.5	3.8	813.7	416.8	267.8
54	3.0	10	1188.8	3.8	784.5	404.3	269.8
55	3.0	10	1146.6	3.7	756.0	390.5	270.6
56	3.0	9	1104.0	3.7	728.3	375.7	270.2
57	3.0	9	1061.2	3.6	701.2	360.0	268.5
58	3.0	8	1018.2	3.6	674.8	343.4	265.6
59	3.0	8	975.0	3.5	648.9	326.1	261.4
60	3.0	8	931.7	3.4	623.5	308.2	256.0
61	3.0	7	888.3	3.4	598.5	289.8	249.4
62	3.1	7	844.7	3.3	573.8	270.9	241.6
63	3.1	7	801.0	3.2	549.3	251.8	232.5
64	3.2	6	757.2	3.1	524.8	232.4	222.2
65	3.2	6	713.2	3.0	500.3	212.8	210.7
66	3.3	6	668.9	2.9	475.7	193.2	198.1
67	3.4	5	624.3	2.8	450.7	173.6	184.3
68	3.5	5	579.4	2.7	425.3	154.1	169.5
69	3.6	4	534.0	2.6	399.1	134.9	153.7
70	3.7	4	488.0	2.5	372.0	116.0	136.9



Design Equations (Vector Analysis):

$a = c_{FS}*L_{CR}*\sin(90+\phi_{FS})/\sin(\alpha-\phi_{FS})$

$b = W-a$

$P_A = b*\tan(\alpha-\phi_{FS})$

$EFP = 2*P_A/H^2$

Maximum Active Pressure Resultant

$P_{A,\,max}$ 270.61 lbs/lineal foot

Equivalent Fluid Pressure (per lineal foot of wall)

$EFP = 2*P_A/H^2$

EFP 15.0 pcf

Design Wall for an Equivalent Fluid Pressure: 30 pcf

Date: 26-Feb-19
File No. 21759
File Name : Catalina Fund, LLC

Percolation Rate Calculation for Test Pit

Testing Pit Number	1	
Total Depth of Test Pit (Including Test Hole)	72	inches
Volume of Test Hole Excavated at Bottom	1	cubic foot
Ground surface elevation	0	feet
Bottom Elevation of Prop. Infiltration Unit	N.A.	feet
Elevation Bottom of Test Pit	-6	feet
Pre-soak Time	4	hours
Measured By	H.C.	

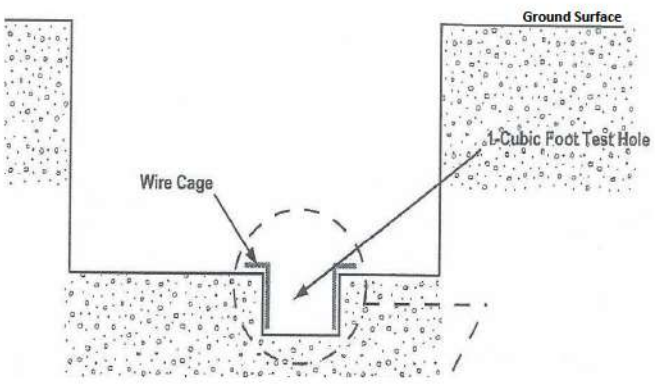
Terms
Initial water depth (d1) =dc-di
Water level drop (Δd) = di-df

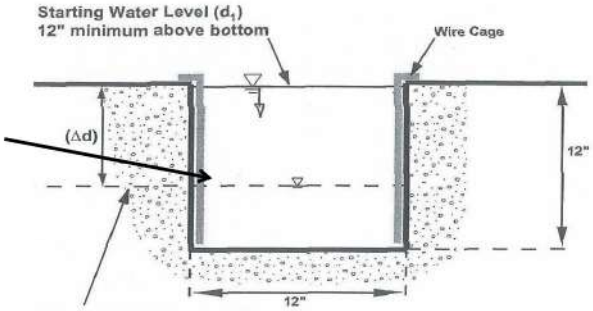
di and df are taken from ground surface

Reading Number	Clock Time	Elapsed Time	Water Measurement (d_i) and (d_f)	Measured Percolation Rate	Measured Percolation Rate	Starting Water Level	Water level Drop (Δd)	Reduction Factor (Rf)	Infilitration Rate	Infiltration Rate Variation
						d_1	$\Delta d = d_1 - d_f$	$Rf = (2d_1 - \Delta d/13.5)+1$	measured perc rate/Rf	
		Min	in	in/min	in/hour	in	in	Unitless	in/hour	Percent
1	11:55		59.75			12.25				
	12:25	30	61.25	0.05	3.00		1.50	2.7	1.1	
2										
	12:26		59.75			12.25				
	12:56	30	61.25	0.05	3.00		1.5	2.7	1.1	0.0
3										
	12:58		59.50			12.5				
	13:28	30	61.00	0.05	3.00		1.5	2.7	1.1	-1.4
4										
	13:33		59.50			12.5				
	14:03	30	61.00	0.05	3.00		1.5	2.7	1.1	0.0
5										
	14:05		59.00			13				
	14:35	30	60.50	0.05	3.00		1.5	2.8	1.1	-2.7
6										
	14:36		59.00			13				
	15:06	30	60.50	0.05	3.00		1.5	2.8	1.1	0.0
7										
8										

Final Percolation Rate = **1.1 in/hr**

Note: *Calculation based on County of Los Angeles, Administrative Manual, Low Impact Development Best Management Practice Guidelines for Design, Investigation, and Reporting (Dated 6/30/17)
**LA County Minimum Design Infiltration 0.3 Inches per hour





Water Level Drop Readings
(For Reduction Factor use the Final Period or Stablized Level)

Infiltration Rate = Pre-adjusted Percolation Rate divided by Reduction Factor

Where reduction factor (Rf) is given by:

$$R_f = \left(\frac{2d_1 - \Delta d}{DIA}\right) + 1$$

With:
d1 = Initial Water Depth (In.)
Δd = Water Level Drop of Final Period or Stablized Level (in.)
DIA = 13.5 (Equivalent Diameter of the Boring)(in.)

LOS ANGELES DEPARTMENT OF PUBLIC WORKS

MONITORING WELL No. 715B

MEASUREMENT LOGS

(6 Pages)

WELL_ID	ACTIVE	STATE_WELL_ID	MEASURE_DATE	RP_TO_WS	GS_ELEV	RP_ELEV	GS_TO_WS	WATER_SURFACE_ELEVATION
715B	1	4S14W07F01	10/30/2008	54.5	65	64.8	54.7	10.3
715B	1	4S14W07F01	4/17/2008	57.2	65	64.8	57.4	7.6
715B	1	4S14W07F01	10/29/2007	57	65	64.8	57.2	7.8
715B	1	4S14W07F01	4/17/2007	56.8	65	64.8	57	8
715B	1	4S14W07F01	10/13/2006	57	65	64.8	57.2	7.8
715B	1	4S14W07F01	4/25/2006	56.3	65	64.8	56.5	8.5
715B	1	4S14W07F01	4/29/2005	57.7	65	64.8	57.9	7.1
715B	1	4S14W07F01	4/22/1999	54.4	65	64.8	54.6	10.4
715B	1	4S14W07F01	10/26/1998	54.7	65	64.8	54.9	10.1
715B	1	4S14W07F01	4/28/1998	54.8	65	64.8	55	10
715B	1	4S14W07F01	10/20/1997	54.7	65	64.8	54.9	10.1
715B	1	4S14W07F01	4/1/1997	54.6	65	64.8	54.8	10.2
715B	1	4S14W07F01	10/31/1996	52.3	65	64.8	52.5	12.5
715B	1	4S14W07F01	4/26/1996	55	65	64.8	55.2	9.8
715B	1	4S14W07F01	10/31/1995	58.1	65	64.8	58.3	6.7
715B	1	4S14W07F01	10/25/1994	56.3	65	64.8	56.5	8.5
715B	1	4S14W07F01	4/29/1994	57.9	65	64.8	58.1	6.9
715B	1	4S14W07F01	10/20/1993	53.2	65	64.8	53.4	11.6
715B	1	4S14W07F01	5/11/1993	53.2	65	64.8	53.4	11.6
715B	1	4S14W07F01	11/5/1992	53.9	65	64.8	54.1	10.9
715B	1	4S14W07F01	4/9/1992	54.5	65	64.8	54.7	10.3
715B	1	4S14W07F01	10/29/1991	53.4	65	64.8	53.6	11.4
715B	1	4S14W07F01	4/9/1991	51.7	65	64.8	51.9	13.1
715B	1	4S14W07F01	12/11/1990	56	65	64.8	56.2	8.8
715B	1	4S14W07F01	10/17/1990	55.1	65	64.8	55.3	9.7
715B	1	4S14W07F01	10/11/1989	46.1	65	64.8	46.3	18.7
715B	1	4S14W07F01	4/25/1989	54	65	64.8	54.2	10.8
715B	1	4S14W07F01	10/27/1988	60.5	65	64.8	60.7	4.3
715B	1	4S14W07F01	7/19/1988	57.5	65	64.8	57.7	7.3
715B	1	4S14W07F01	4/15/1988	59.5	65	64.8	59.7	5.3
715B	1	4S14W07F01	10/13/1987	58.3	65	64.8	58.5	6.5
715B	1	4S14W07F01	8/25/1987	59.4	65	64.8	59.6	5.4
715B	1	4S14W07F01	4/17/1987	58.8	65	64.8	59	6
715B	1	4S14W07F01	10/24/1986	60.3	65	64.8	60.5	4.5
715B	1	4S14W07F01	5/12/1986	63.1	65	64.8	63.3	1.7
715B	1	4S14W07F01	10/31/1985	64.3	65	64.8	64.5	0.5
715B	1	4S14W07F01	4/8/1985	54.8	65	64.8	55	10
715B	1	4S14W07F01	12/6/1984	58.2	65	64.8	58.4	6.6
715B	1	4S14W07F01	7/20/1984	57.9	65	64.8	58.1	6.9
715B	1	4S14W07F01	4/10/1984	56.2	65	64.8	56.4	8.6
715B	1	4S14W07F01	10/28/1983	56	65	64.8	56.2	8.8
715B	1	4S14W07F01	5/11/1983	54	65	64.8	54.2	10.8

715B	1	4S14W07F01	10/26/1982	Temporarily inaccessible	65	64.8	Temporarily inaccessible	Temporarily inaccessible
715B	1	4S14W07F01	4/19/1982	Temporarily inaccessible	65	64.8	Temporarily inaccessible	Temporarily inaccessible
715B	1	4S14W07F01	10/23/1981	Temporarily inaccessible	65	64.8	Temporarily inaccessible	Temporarily inaccessible
715B	1	4S14W07F01	4/13/1981	Temporarily inaccessible	65	64.8	Temporarily inaccessible	Temporarily inaccessible
715B	1	4S14W07F01	10/14/1980	56.1	65	64.8	56.3	8.7
715B	1	4S14W07F01	4/11/1980	57.4	65	64.8	57.6	7.4
715B	1	4S14W07F01	10/23/1979	58.9	65	64.8	59.1	5.9
715B	1	4S14W07F01	6/6/1979	60.1	65	64.8	60.3	4.7
715B	1	4S14W07F01	4/10/1979	58.4	65	64.8	58.6	6.4
715B	1	4S14W07F01	11/15/1978	57	65	64.8	57.2	7.8
715B	1	4S14W07F01	10/18/1978	58.3	65	64.8	58.5	6.5
715B	1	4S14W07F01	4/21/1978	55.7	65	64.8	55.9	9.1
715B	1	4S14W07F01	4/18/1978	57	65	64.8	57.2	7.8
715B	1	4S14W07F01	10/24/1977	57.2	65	64.8	57.4	7.6
715B	1	4S14W07F01	7/11/1977	55.6	65	64.8	55.8	9.2
715B	1	4S14W07F01	4/13/1977	56	65	64.8	56.2	8.8
715B	1	4S14W07F01	2/22/1977	55.1	65	64.8	55.3	9.7
715B	1	4S14W07F01	11/2/1976	55.6	65	64.8	55.8	9.2
715B	1	4S14W07F01	5/10/1976	57.5	65	64.8	57.7	7.3
715B	1	4S14W07F01	4/19/1976	57.6	65	64.8	57.8	7.2
715B	1	4S14W07F01	10/16/1975	62.5	65	64.8	62.5	2.3
715B	1	4S14W07F01	4/8/1975	65.2	65	64.8	65.2	-0.4
715B	1	4S14W07F01	10/21/1974	63.9	65	64.8	64.1	0.9
715B	1	4S14W07F01	4/4/1974	59	65	64.8	59.2	5.8
715B	1	4S14W07F01	11/1/1973	60.2	65	64.8	60.2	4.6
715B	1	4S14W07F01	4/2/1973	62.1	65	64.8	62.1	2.7
715B	1	4S14W07F01	10/25/1972	63.7	65	64.8	63.7	1.1
715B	1	4S14W07F01	4/10/1972	63.7	65	64.8	63.7	1.1
715B	1	4S14W07F01	10/26/1971	62.2	65	64.8	62.2	2.6
715B	1	4S14W07F01	3/30/1971	61.2	65	64.8	61.2	3.6
715B	1	4S14W07F01	11/10/1970	59.9	65	64.8	59.9	4.9
715B	1	4S14W07F01	11/1/1970	61.2	65	64.8	61.2	3.6
715B	1	4S14W07F01	4/29/1970	62.8	65	64.8	63	2
715B	1	4S14W07F01	3/31/1970	63	65	64.8	63	1.8
715B	1	4S14W07F01	3/26/1970	62.5	65	64.8	62.7	2.3
715B	1	4S14W07F01	2/26/1970	64.3	65	64.8	64.5	0.5
715B	1	4S14W07F01	1/27/1970	61.4	65	64.8	61.6	3.4
715B	1	4S14W07F01	12/2/1969	60	65	64.8	60.2	4.8
715B	1	4S14W07F01	10/22/1969	60.3	65	64.8	60.3	4.5
715B	1	4S14W07F01	9/30/1969	59.2	65	64.8	59.4	5.6
715B	1	4S14W07F01	8/26/1969	59.3	65	64.8	59.5	5.5
715B	1	4S14W07F01	7/29/1969	59.3	65	64.8	59.5	5.5

715B	1	4S14W07F01	6/30/1969	59.5	65	64.8	59.5	5.3
715B	1	4S14W07F01	5/28/1969	59.1	65	64.8	59.1	5.7
715B	1	4S14W07F01	4/16/1969	58.3	65	64.8	58.3	6.5
715B	1	4S14W07F01	3/27/1969	58.5	65	64.8	58.5	6.3
715B	1	4S14W07F01	2/27/1969	58.4	65	64.8	58.4	6.4
715B	1	4S14W07F01	1/29/1969	59	65	64.8	59	5.8
715B	1	4S14W07F01	12/23/1968	59.1	65	64.8	59.1	5.7
715B	1	4S14W07F01	11/29/1968	59.6	65	64.8	59.6	5.2
715B	1	4S14W07F01	10/31/1968	60.1	65	64.8	60.1	4.7
715B	1	4S14W07F01	10/21/1968	60.5	65	64.8	60.5	4.3
715B	1	4S14W07F01	9/25/1968	59.3	65	64.8	59.3	5.5
715B	1	4S14W07F01	8/29/1968	57.2	65	64.8	57.2	7.6
715B	1	4S14W07F01	7/30/1968	57.1	65	64.8	57.1	7.7
715B	1	4S14W07F01	6/27/1968	56.9	65	64.8	57.1	7.9
715B	1	4S14W07F01	5/29/1968	57	65	64.8	57.2	7.8
715B	1	4S14W07F01	4/18/1968	57.1	65	64.8	57.3	7.7
715B	1	4S14W07F01	4/3/1968	57.5	65	64.8	57.5	7.3
715B	1	4S14W07F01	3/29/1968	56.7	65	64.8	56.9	8.1
715B	1	4S14W07F01	2/29/1968	56.2	65	64.8	56.4	8.6
715B	1	4S14W07F01	1/26/1968	57.6	65	64.8	57.8	7.2
715B	1	4S14W07F01	12/28/1967	56.9	65	64.8	57.1	7.9
715B	1	4S14W07F01	11/13/1967	57.4	65	64.8	57.6	7.4
715B	1	4S14W07F01	10/27/1967	57.8	65	64.8	58	7
715B	1	4S14W07F01	10/23/1967	58	65	64.8	58.2	6.8
715B	1	4S14W07F01	9/29/1967	59.1	65	64.8	59.3	5.7
715B	1	4S14W07F01	8/25/1967	59.1	65	64.8	59.3	5.7
715B	1	4S14W07F01	7/26/1967	59.7	65	64.8	59.9	5.1
715B	1	4S14W07F01	6/28/1967	59.1	65	64.8	59.3	5.7
715B	1	4S14W07F01	5/26/1967	58.9	65	64.8	59.1	5.9
715B	1	4S14W07F01	4/17/1967	59	65	64.8	59.2	5.8
715B	1	4S14W07F01	4/10/1967	58.8	65	64.8	59	6
715B	1	4S14W07F01	4/3/1967	58.6	65	64.8	58.8	6.2
715B	1	4S14W07F01	2/28/1967	57.4	65	64.8	57.6	7.4
715B	1	4S14W07F01	1/26/1967	56.5	65	64.8	56.7	8.3
715B	1	4S14W07F01	1/3/1967	57.2	65	64.8	57.4	7.6
715B	1	4S14W07F01	12/8/1966	60	65	64.8	60.2	4.8
715B	1	4S14W07F01	11/28/1966	59.5	65	64.8	59.7	5.3
715B	1	4S14W07F01	11/1/1966	60.9	65	64.8	61.1	3.9
715B	1	4S14W07F01	10/28/1966	61	65	64.8	61.2	3.8
715B	1	4S14W07F01	9/29/1966	60.2	65	64.8	60.4	4.6
715B	1	4S14W07F01	8/31/1966	60.1	65	64.8	60.3	4.7
715B	1	4S14W07F01	7/29/1966	60.7	65	64.8	60.9	4.1
715B	1	4S14W07F01	6/21/1966	60.4	65	64.8	60.6	4.4
715B	1	4S14W07F01	5/25/1966	61.3	65	64.8	61.5	3.5
715B	1	4S14W07F01	4/19/1966	60.7	65	64.8	60.9	4.1
715B	1	4S14W07F01	3/30/1966	62.2	65	64.8	62.4	2.6
715B	1	4S14W07F01	2/25/1966	62.5	65	64.8	62.7	2.3

715B	1	4S14W07F01	1/27/1966	63.1	65	64.8	63.3	1.7
715B	1	4S14W07F01	12/30/1965	64	65	64.8	64.2	0.8
715B	1	4S14W07F01	12/1/1965	64.7	65	64.8	64.9	0.1
715B	1	4S14W07F01	11/29/1965	64.7	65	64.8	64.9	0.1
715B	1	4S14W07F01	10/29/1965	64.6	65	64.8	64.8	0.2
715B	1	4S14W07F01	9/30/1965	64.1	65	64.8	64.3	0.7
715B	1	4S14W07F01	8/30/1965	63.4	65	64.8	63.6	1.4
715B	1	4S14W07F01	8/5/1965	64.6	65	64.8	64.8	0.2
715B	1	4S14W07F01	7/29/1965	64.2	65	64.8	64.4	0.6
715B	1	4S14W07F01	5/26/1965	66.8	65	64.8	67	-2
715B	1	4S14W07F01	5/5/1965	68.1	65	64.8	68.3	-3.3
715B	1	4S14W07F01	4/14/1965	69.8	65	64.8	70	-5
715B	1	4S14W07F01	4/1/1965	70.6	65	64.8	70.8	-5.8
715B	1	4S14W07F01	3/1/1965	75.6	65	64.8	75.8	-10.8
715B	1	4S14W07F01	2/24/1965	74.6	65	64.8	74.8	-9.8
715B	1	4S14W07F01	2/1/1965	75.6	65	64.8	75.8	-10.8
715B	1	4S14W07F01	1/28/1965	76.2	65	64.8	76.4	-11.4
715B	1	4S14W07F01	1/11/1965	76.8	65	64.8	77	-12
715B	1	4S14W07F01	12/29/1964	77.6	65	64.8	77.8	-12.8
715B	1	4S14W07F01	12/21/1964	77.6	65	64.8	77.8	-12.8
715B	1	4S14W07F01	11/30/1964	75.3	65	64.8	75.5	-10.5
715B	1	4S14W07F01	11/17/1964	75.6	65	64.8	75.8	-10.8
715B	1	4S14W07F01	11/6/1964	76.2	65	64.8	76.4	-11.4
715B	1	4S14W07F01	10/26/1964	76.4	65	64.8	76.6	-11.6
715B	1	4S14W07F01	10/22/1964	76.5	65	64.8	76.7	-11.7
715B	1	4S14W07F01	10/5/1964	76.8	65	64.8	77	-12
715B	1	4S14W07F01	9/28/1964	77.1	65	64.8	77.3	-12.3
715B	1	4S14W07F01	9/1/1964	77.7	65	64.8	77.9	-12.9
715B	1	4S14W07F01	8/26/1964	77.5	65	64.8	77.7	-12.7
715B	1	4S14W07F01	8/4/1964	77.8	65	64.8	78	-13
715B	1	4S14W07F01	7/30/1964	78.2	65	64.8	78.4	-13.4
715B	1	4S14W07F01	7/6/1964	78.6	65	64.8	78.8	-13.8
715B	1	4S14W07F01	7/1/1964	78.4	65	64.8	78.6	-13.6
715B	1	4S14W07F01	6/9/1964	79.2	65	64.8	79.4	-14.4
715B	1	4S14W07F01	5/4/1964	80.1	65	64.8	80.3	-15.3
715B	1	4S14W07F01	4/6/1964	81.4	65	64.8	81.6	-16.6
715B	1	4S14W07F01	3/3/1964	83	65	64.8	83.2	-18.2
715B	1	4S14W07F01	2/3/1964	84.3	65	64.8	84.5	-19.5
715B	1	4S14W07F01	1/6/1964	84.4	65	64.8	84.6	-19.6
715B	1	4S14W07F01	12/9/1963	84.1	65	64.8	84.3	-19.3
715B	1	4S14W07F01	11/19/1963	84.2	65	64.8	84.4	-19.4
715B	1	4S14W07F01	10/2/1963	84.2	65	64.8	84.4	-19.4
715B	1	4S14W07F01	9/3/1963	83.9	65	64.8	84.1	-19.1
715B	1	4S14W07F01	8/5/1963	83.9	65	64.8	84.1	-19.1
715B	1	4S14W07F01	7/8/1963	83.8	65	64.8	84	-19
715B	1	4S14W07F01	6/4/1963	82.8	65	64.8	83	-18
715B	1	4S14W07F01	6/3/1963	83.8	65	64.8	84	-19

715B	1	4S14W07F01	5/6/1963	83.7	65	64.8	83.9	-18.9
715B	1	4S14W07F01	4/3/1963	84.2	65	64.8	84.4	-19.4
715B	1	4S14W07F01	3/4/1963	84.1	65	64.8	84.3	-19.3
715B	1	4S14W07F01	2/5/1963	84.2	65	64.8	84.4	-19.4
715B	1	4S14W07F01	1/7/1963	84.2	65	64.8	84.4	-19.4
715B	1	4S14W07F01	12/6/1962	83.9	65	64.8	84.1	-19.1
715B	1	4S14W07F01	12/5/1962	83.6	65	64.8	83.8	-18.8
715B	1	4S14W07F01	11/6/1962	84	65	64.8	84.2	-19.2
715B	1	4S14W07F01	10/1/1962	83.8	65	64.8	84	-19
715B	1	4S14W07F01	9/4/1962	83.8	65	64.8	84	-19
715B	1	4S14W07F01	8/6/1962	83.8	65	64.8	84	-19
715B	1	4S14W07F01	7/10/1962	84	65	64.8	84.2	-19.2
715B	1	4S14W07F01	6/4/1962	83.8	65	64.8	84	-19
715B	1	4S14W07F01	5/7/1962	83.6	65	64.8	83.8	-18.8
715B	1	4S14W07F01	4/4/1962	84	65	64.8	84.2	-19.2
715B	1	4S14W07F01	3/7/1962	83.4	65	64.8	83.6	-18.6
715B	1	4S14W07F01	2/5/1962	84.3	65	64.8	84.5	-19.5
715B	1	4S14W07F01	1/9/1962	84.3	65	64.8	84.5	-19.5
715B	1	4S14W07F01	12/11/1961	84.1	65	64.8	84.3	-19.3
715B	1	4S14W07F01	11/15/1961	84.3	65	64.8	84.5	-19.5
715B	1	4S14W07F01	10/9/1961	84.5	65	64.8	84.7	-19.7
715B	1	4S14W07F01	9/5/1961	84.2	65	64.8	84.4	-19.4
715B	1	4S14W07F01	8/7/1961	84.3	65	64.8	84.5	-19.5
715B	1	4S14W07F01	7/11/1961	84.2	65	64.8	84.4	-19.4
715B	1	4S14W07F01	6/5/1961	84.8	65	64.8	85	-20
715B	1	4S14W07F01	5/9/1961	84.3	65	64.8	84.5	-19.5
715B	1	4S14W07F01	4/12/1961	84.5	65	64.8	84.7	-19.7
715B	1	4S14W07F01	4/4/1961	84.2	65	64.8	84.4	-19.4
715B	1	4S14W07F01	3/6/1961	84.4	65	64.8	84.6	-19.6
715B	1	4S14W07F01	2/7/1961	84.2	65	64.8	84.4	-19.4
715B	1	4S14W07F01	1/3/1961	84.2	65	64.8	84.4	-19.4
715B	1	4S14W07F01	12/13/1960	84.6	65	64.8	84.8	-19.8
715B	1	4S14W07F01	11/16/1960	84.5	65	64.8	84.7	-19.7
715B	1	4S14W07F01	11/2/1960	84.4	65	64.8	84.6	-19.6
715B	1	4S14W07F01	10/10/1960	84.9	65	64.8	85.1	-20.1
715B	1	4S14W07F01	9/13/1960	84.2	65	64.8	84.4	-19.4
715B	1	4S14W07F01	8/9/1960	83.4	65	64.8	83.6	-18.6
715B	1	4S14W07F01	7/5/1960	84.2	65	64.8	84.4	-19.4
715B	1	4S14W07F01	6/6/1960	84	65	64.8	84.2	-19.2
715B	1	4S14W07F01	5/16/1960	83.8	65	64.8	84	-19
715B	1	4S14W07F01	4/11/1960	83.8	65	64.8	84	-19
715B	1	4S14W07F01	3/7/1960	83.8	65	64.8	84	-19
715B	1	4S14W07F01	2/3/1960	84.1	65	64.8	84.3	-19.3
715B	1	4S14W07F01	1/11/1960	84.4	65	64.8	84.6	-19.6
715B	1	4S14W07F01	12/15/1959	84.7	65	64.8	84.9	-19.9
715B	1	4S14W07F01	11/16/1959	84.1	65	64.8	84.3	-19.3
715B	1	4S14W07F01	10/5/1959	83.7	65	64.8	83.9	-18.9

715B	1	4S14W07F01	9/1/1959	83.9	65	64.8	84.1	-19.1
715B	1	4S14W07F01	8/11/1959	83.9	65	64.8	84.1	-19.1
715B	1	4S14W07F01	7/7/1959	83.6	65	64.8	83.8	-18.8
715B	1	4S14W07F01	6/10/1959	83.7	65	64.8	83.9	-18.9
715B	1	4S14W07F01	5/11/1959	83.4	65	64.8	83.6	-18.6
715B	1	4S14W07F01	4/15/1959	83.5	65	64.8	83.7	-18.7
715B	1	4S14W07F01	4/7/1959	83.5	65	64.8	83.7	-18.7
715B	1	4S14W07F01	3/3/1959	82.7	65	64.8	82.9	-17.9
715B	1	4S14W07F01	2/3/1959	82.3	65	64.8	82.5	-17.5
715B	1	4S14W07F01	1/12/1959	82.9	65	64.8	83.1	-18.1
715B	1	4S14W07F01	12/15/1958	83.5	65	64.8	83.7	-18.7
715B	1	4S14W07F01	11/12/1958	84	65	64.8	84.2	-19.2
715B	1	4S14W07F01	10/14/1958	84.1	65	64.8	84.3	-19.3
715B	1	4S14W07F01	9/10/1958	84.1	65	64.8	84.3	-19.3
715B	1	4S14W07F01	8/4/1958	84.2	65	64.8	84.4	-19.4
715B	1	4S14W07F01	7/8/1958	84.2	65	64.8	84.4	-19.4
715B	1	4S14W07F01	6/11/1958	85	65	64.8	85.2	-20.2
715B	1	4S14W07F01	5/26/1958	84.3	65	64.8	84.5	-19.5
715B	1	4S14W07F01	4/16/1958	84.5	65	64.8	84.7	-19.7
715B	1	4S14W07F01	3/10/1958	84.6	65	64.8	84.8	-19.8
715B	1	4S14W07F01	2/10/1958	84.9	65	64.8	85.1	-20.1

Appendix D

Trip Generation

TABLE 6
CATALINA VILLAGE PROJECT
VEHICLE TRIP GENERATION ESTIMATES

Land Use	ITE Land Use Code	Size	Trip Generation Rates [a]							Estimated Trip Generation						
				AM Peak Hour			PM Peak Hour				AM Peak Hour Trips			PM Peak Hour Trips		
			Daily	Rate	In%	Out%	Rate	In%	Out%	Daily	In	Out	Total	In	Out	Total
PROPOSED PROJECT																
Multifamily Residential (Low-Rise)	220	30 DU	7.32	0.46	23%	77%	0.56	63%	37%	220	3	11	14	11	6	17
Coffee Shop [b]	936	1.784 ksf	364.35	101.14	51%	49%	36.31	50%	50%	650	92	88	180	33	32	65
Internal Capture [c]			*1%*		*3%*	*3%*		*6%*	*6%*	(6)	(3)	(3)	(6)	(2)	(2)	(4)
Walk/Bike [d]			*37%*		*40%*	*40%*		*29%*	*29%*	(242)	(37)	(36)	(73)	(10)	(9)	(19)
Net External Coffee Shop										402	52	49	101	21	21	42
Tasting Room [e]	925	1.279 ksf	155.30	-	-	-	11.36	66%	34%	199	0	0	0	10	5	15
Internal Capture [c]			*1%*		-	-		*6%*	*6%*	(2)	0	0	0	(1)	0	(1)
Walk/Bike [d]			*37%*		-	-		*29%*	*29%*	(74)	0	0	0	(3)	(1)	(4)
Net External Tasting Room										123	0	0	0	6	4	10
NET EXTERNAL VEHICLE TRIPS										744	55	60	115	38	31	69

Notes:

[a] Source: Institute of Transportation Engineers (ITE), *Trip Generation, 10th Edition* , 2017. Unless otherwise notes, all rates are Peak Hour of Adjacent Street Traffic.

[b] The number of daily trips was estimated to be 10 times greater than the total PM peak hour trips.

[c] Internal capture represents the percentage of trips between land uses that occur within the site. This percentage is informed by the Fehr & Peers Mainstreet/MXD+ tool, which uses census data to account for demographic characteristics of the area surrounding the project site, including residential density and local employment.

[d] The Walk/Bike credit includes non-auto trips from the surrounding neighborhood. This percentage is informed by the Fehr & Peers Mainstreet/MXD+ tool, which uses census data to account for demographic characteristics of the area surrounding the project site, including residential density and local employment.

[e] The number of daily trips was estimated to be 10 times greater than the total PM Peak Hour trips based on the PM Peak Hour of the Generator rate (15.53 trips/ksf).

Appendix E

Will Serve Letter

CALIFORNIA WATER SERVICE
Rancho Dominguez District 2632 West 237th Street, Torrance, CA 90505
Tel: (310) 257-1400

September 18, 2020

Beach City Capital
1221 Hermosa Avenue, Suite 101
Hermosa Beach, CA 90254
Attn: Ben O'Neal

Will Serve Letter
112 – 132 North Catalina Avenue, Redondo Beach, CA
Developer: Beach City Capital

Dear Mr. O'Neal:

As a regulated utility, California Water Service Company Rancho Dominguez district ("Cal Water") has an obligation to provide water service in accordance with the rules and regulations of the California Public Utility Commission (CPUC). Assuming you receive all required permits from the City of Redondo Beach or Los Angeles County, Cal Water will provide water service to the above referenced project. Cal Water agrees to operate the water system and provide service in accordance with the rules and regulations of the California Public Utilities Commission (CPUC) and the company's approved tariffs on file with the CPUC. This will serve letter shall remain valid for **two years** from the date of this letter. If construction of the project has not commenced within this **two year** time frame, Cal Water will be under no further obligation to serve the project unless the developer receives an updated letter from Cal Water reconfirming our commitment to serve the above mentioned project. Additionally, Cal Water reserves the right to rescind this letter at any time in the event its water supply is severely reduced by legislative, regulatory or environmental actions.

Cal Water will provide such potable water at such pressure as may be available from time to time as a result of its normal operations per the company's tariffs on file with the CPUC. Installation of facilities through developer funding shall be made in accordance with the current rules and regulations of the CPUC including, among others, Tariff Rules 15 and 16 and General Order 103-A. In order for us to provide adequate water for domestic use as well as fire service protection, it may be necessary for the developer to fund the cost of special facilities, such as, but not limited to, booster pumps, storage tanks and/or water wells, in addition to the cost of mains and services. Cal Water will provide more specific information regarding special facilities and fees after you provide us with your improvement plans, fire department requirements, and engineering fees for this project.

This letter shall at all times be subject to such changes or modifications by the CPUC as said Commission may, from time to time, require in the exercise of its jurisdiction.

If you have any questions regarding the above, please call me at (310) 257-1400.

Sincerely,

Daniel Armendariz
District Manager

cc: Ting He – Cal Water Engineering Dept
Robert Thompson – Operations Manager
Renzo Ayala / Cardinal Fernandezees – Superintendent
File