APPENDIX A

Air Quality and Greenhouse Gases

Western Trunk Line Project

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	300.00	1000sqft	6.89	300,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2027
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Operational year 2027.

Land Use - 300,000 SF of roadway to be paved and restriped.

Construction Phase - Construction phasing information provided by LADWP.

Off-road Equipment - Construction equipment information based on information provided by LADWP.

Off-road Equipment - Construction equipment information based on information provided by LADWP.

Off-road Equipment - Construction equipment information based on information provided by LADWP.

Trips and VMT - Construction trip data provided by the project applicant.

Grading – Graded area based on area to be paved.

Vehicle Emission Factors - CalEEMod Defaults.

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Construction Off-road Equipment Mitigation – Compliance with SCAQMD Rule 403.

Fleet Mix – CalEEMod Defaults.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	100	0
tblAreaCoating	Area_Parking	18000	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	1,040.00
tblConstructionPhase	NumDays	10.00	1,040.00
tblFleetMix	MH	8.0900e-004	8.2500e-004
tblFleetMix	SBUS	7.1600e-004	7.1300e-004
tblGrading	AcresOfGrading	0.00	127.00
tblGrading	AcresOfGrading	0.00	127.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	41,600.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	WorkerTripNumber	38.00	16.00
tblTripsAndVMT	WorkerTripNumber	38.00	32.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2023	6.4183	59.0815	74.0114	0.1526	3.3405	2.5935	5.9340	0.8176	2.4530	3.2706	0.0000	14,980.2095	14,980.2095	2.8327	0.0000	15,051.0264
2024	6.0766	55.4704	73.8286	0.1523	3.1289	2.3107	5.4396	0.7657	2.1839	2.9495	0.0000	14,953.2968	14,953.2968	2.8198	0.0000	15,023.7918
2025	5.6733	51.2393	73.4619	0.1519	3.1369	1.9992	5.1361	0.7677	1.8889	2.6565	0.0000	14,916.3514	14,916.3514	2.8057	0.0000	14,986.4949
2026	5.6641	51.1269	73.3841	0.1516	3.1369	1.9989	5.1358	0.7677	1.8886	2.6563	0.0000	14,881.7316	14,881.7316	2.8038	0.0000	14,951.8264
2027	5.6554	51.0247	73.3152	0.1513	3.043	1.9985	5.0415	7.7504	1.8882	9.6386	0.0000	14,851.0961	14,851.0961	2.8017	0.0000	14,921.1390
Maximum	**6.4183**	**59.0815**	**74.0114**	**0.1526**	**3.3405**	**2.5935**	**5.934**	**7.7504**	**2.4530**	**9.6386**	**0.0000**	**14,980.2095**	**14,980.2095**	**2.8327**	**0.0000**	**15,051.0264**

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	lb/day										lb/day					
2023	6.4183	59.0815	74.0114	0.1526	3.1981	2.5935	5.7916	0.8023	2.4530	3.2552	0.0000	14,980.2095	14,980.2095	2.8327	0.0000	15,051.0264
2024	6.0766	55.4704	73.8286	0.1523	2.9864	2.3107	5.2971	0.7503	2.1839	2.9341	0.0000	14,953.2968	14,953.2968	2.8198	0.0000	15,023.7918
2025	5.6733	51.2393	73.4619	0.1519	2.9945	1.9992	4.9937	0.7523	1.8889	2.6412	0.0000	14,916.3514	14,916.3514	2.8057	0.0000	14,986.4948
2026	5.6641	51.1269	73.3841	0.1516	2.9945	1.9989	4.9933	0.7523	1.8886	2.6409	0.0000	14,881.7316	14,881.7316	2.8038	0.0000	14,951.8264
2027	5.6554	51.0247	73.3152	0.1513	3.043	1.9985	5.0415	7.7350	1.8882	9.6233	0.0000	14,851.0961	14,851.0961	2.8017	0.0000	14,921.1390

Maximum	**6.4183**	**59.0815**	**74.0114**	**0.1526**	**3.1981**	**2.5935**	**5.934**	**7.7350**	**2.4530**	**9.6233**	**0.0000**	**14,980.2095**	**14,980.2095**	**2.8327**	**0.0000**	**15,051.0264**

	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**	**1.61**	**0.00**	**1.29**	**0.71**	**0.00**	**0.36**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1091	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1091**	**2.8000e-004**	**0.0306**	**0.0000**	**0.0000**	**1.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**1.1000e-004**		**0.0657**	**0.0657**	**1.7000e-004**	**0.0000**	**0.0699**

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	lb/day										lb/day					
Area	0.1091	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Total	0.1091	2.8000e-004	0.0306	0.0000	0.0000	1.1000e-004	1.1000e-004	0.0000	1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004	0.0000	0.0699

	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	Pipe Jacking - Construction of the Pits	Site Preparation	2/1/2023	1/26/2027	5	1040	
2	Open Trench Pipe Installation	Grading	2/1/2023	1/26/2027	5	1040	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 6.89

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Pipe Jacking - Construction of the Pits	Air Compressors	1	8.00	78	0.48
Pipe Jacking - Construction of the Pits	Concrete/Industrial Saws	1	8.00	81	0.73
Pipe Jacking - Construction of the Pits	Cranes	1	8.00	231	0.29
Pipe Jacking - Construction of the Pits	Excavators	3	8.00	158	0.38
Pipe Jacking - Construction of the Pits	Forklifts	1	8.00	89	0.20
Pipe Jacking - Construction of the Pits	Generator Sets	1	8.00	84	0.74
Pipe Jacking - Construction of the Pits	Paving Equipment	1	8.00	132	0.36
Pipe Jacking - Construction of the Pits	Plate Compactors	1	8.00	8	0.43
Pipe Jacking - Construction of the Pits	Rollers	1	8.00	80	0.38
Pipe Jacking - Construction of the Pits	Rubber Tired Dozers	0	0.00	247	0.40

Pipe Jacking - Construction of the Pits	Sweepers/Scrubbers	1	8.00	64	0.46
Pipe Jacking - Construction of the Pits	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Pipe Jacking - Construction of the Pits	Welders	1	8.00	46	0.45
Open Trench Pipe Installation	Air Compressors	1	8.00	78	0.48
Open Trench Pipe Installation	Concrete/Industrial Saws	1	8.00	81	0.73
Open Trench Pipe Installation	Cranes	1	8.00	231	0.29
Open Trench Pipe Installation	Excavators	3	8.00	158	0.38
Open Trench Pipe Installation	Forklifts	1	8.00	89	0.20
Open Trench Pipe Installation	Generator Sets	1	8.00	84	0.74
Open Trench Pipe Installation	Graders	0	0.00	187	0.41
Open Trench Pipe Installation	Paving Equipment	1	8.00	132	0.36
Open Trench Pipe Installation	Plate Compactors	1	8.00	8	0.43
Open Trench Pipe Installation	Rollers	1	8.00	80	0.38
Open Trench Pipe Installation	Rubber Tired Dozers	0	0.00	247	0.40
Open Trench Pipe Installation	Sweepers/Scrubbers	1	8.00	64	0.46
Open Trench Pipe Installation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Open Trench Pipe Installation	Welders	1	8.00	46	0.45

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
Pipe Jacking - Construction of the	15	16.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Open Trench Pipe Installation	15	32.00	10.00	41,600.00	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 Pipe Jacking - Construction of the Pits - 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	lb/day										lb/day					
Fugitive Dust					0.1295	0.0000	0.1295	0.0140	0.0000	0.0140			0.0000			0.0000
Off-Road	3.0189	26.1203	35.1726	0.0581		1.2889	1.2889		1.2190	1.2190		5,537.9925	5,537.9925	1.3036		5,570.5818
Total	**3.0189**	**26.1203**	**35.1726**	**0.0581**	**0.1295**	**1.2889**	**1.4184**	**0.0140**	**1.2190**	**1.2330**		**5,537.9925**	**5,537.9925**	**1.3036**		**5,570.5818**

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	lb/day										lb/day					
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
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
Worker	0.0596	0.0358	0.5147	1.6500e-003	0.1788	1.2500e-003	0.1801	0.0474	1.1500e-003	0.0486		164.4688	164.4688	3.8800e-003		164.5659
Total	**0.0596**	**0.0358**	**0.5147**	**1.6500e-003**	**0.1788**	**1.2500e-003**	**0.1801**	**0.0474**	**1.1500e-003**	**0.0486**		**164.4688**	**164.4688**	**3.8800e-003**		**164.5659**

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	lb/day										lb/day					

Fugitive Dust					0.0583	0.0000	0.0583	6.2900e-003	0.0000	6.2900e-003			0.0000			0.0000
Off-Road	3.0189	26.1203	35.1726	0.0581		1.2889	1.2889		1.2190	1.2190	0.0000	5,537.9925	5,537.9925	1.3036		5,570.5818
Total	**3.0189**	**26.1203**	**35.1726**	**0.0581**	**0.0583**	**1.2889**	**1.3472**	**6.2900e-003**	**1.2190**	**1.2253**	**0.0000**	**5,537.9925**	**5,537.9925**	**1.3036**		**5,570.5818**

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	lb/day										lb/day					
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
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
Worker	0.0596	0.0358	0.5147	1.6500e-003	0.1788	1.2500e-003	0.1801	0.0474	1.1500e-003	0.0486		164.4688	164.4688	3.8800e-003		164.5659
Total	**0.0596**	**0.0358**	**0.5147**	**1.6500e-003**	**0.1788**	**1.2500e-003**	**0.1801**	**0.0474**	**1.1500e-003**	**0.0486**		**164.4688**	**164.4688**	**3.8800e-003**		**164.5659**

3.2 Pipe Jacking - Construction of the Pits - 2024

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	lb/day										lb/day					
Fugitive Dust					0.1295	0.0000	0.1295	0.0140	0.0000	0.0140			0.0000			0.0000
Off-Road	2.8523	24.3380	35.1193	0.0581		1.1476	1.1476		1.0845	1.0845		5,538.8760	5,538.8760	1.2978		5,571.3220
Total	**2.8523**	**24.3380**	**35.1193**	**0.0581**	**0.1295**	**1.1476**	**1.2771**	**0.0140**	**1.0845**	**1.0985**		**5,538.8760**	**5,538.8760**	**1.2978**		**5,571.3220**

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	lb/day										lb/day					
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
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
Worker	0.0564	0.0326	0.4808	1.6000e-003	0.1788	1.2300e-003	0.1801	0.0474	1.1300e-003	0.0486		159.0734	159.0734	3.5600e-003		159.1624
Total	**0.0564**	**0.0326**	**0.4808**	**1.6000e-003**	**0.1788**	**1.2300e-003**	**0.1801**	**0.0474**	**1.1300e-003**	**0.0486**		**159.0734**	**159.0734**	**3.5600e-003**		**159.1624**

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	lb/day										lb/day					
Fugitive Dust					0.0583	0.0000	0.0583	6.2900e-003	0.0000	6.2900e-003			0.0000			0.0000
Off-Road	2.8523	24.3380	35.1193	0.0581		1.1476	1.1476		1.0845	1.0845	0.0000	5,538.8760	5,538.8760	1.2978		5,571.3220
Total	**2.8523**	**24.3380**	**35.1193**	**0.0581**	**0.0583**	**1.1476**	**1.2059**	**6.2900e-003**	**1.0845**	**1.0908**	**0.0000**	**5,538.8760**	**5,538.8760**	**1.2978**		**5,571.3220**

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	lb/day											lb/day				
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
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
Worker	0.0564	0.0326	0.4808	1.6000e-003	0.1788	1.2300e-003	0.1801	0.0474	1.1300e-003	0.0486		159.0734	159.0734	3.5600e-003		159.1624
Total	**0.0564**	**0.0326**	**0.4808**	**1.6000e-003**	**0.1788**	**1.2300e-003**	**0.1801**	**0.0474**	**1.1300e-003**	**0.0486**		**159.0734**	**159.0734**	**3.5600e-003**		**159.1624**

3.2 Pipe Jacking - Construction of the Pits - 2025

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	lb/day											lb/day				
Fugitive Dust					0.1295	0.0000	0.1295	0.0140	0.0000	0.0140			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372		5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.1295**	**0.9919**	**1.1214**	**0.0140**	**0.9372**	**0.9512**		**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day											lb/day				
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
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
Worker	0.0535	0.0298	0.4469	1.5300e-003	0.1788	1.2100e-003	0.1801	0.0474	1.1100e-003	0.0485		152.8113	152.8113	3.2500e-003		152.8924

Total	**0.0535**	**0.0298**	**0.4469**	**1.5300e-003**	**0.1788**	**1.2100e-003**	**0.1801**	**0.0474**	**1.1100e-003**	**0.0485**		**152.8113**	**152.8113**	**3.2500e-003**		**152.8924**

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	lb/day										lb/day					
Fugitive Dust					0.0583	0.0000	0.0583	6.2900e-003	0.0000	6.2900e-003			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372	0.0000	5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.0583**	**0.9919**	**1.0502**	**6.2900e-003**	**0.9372**	**0.9435**	**0.0000**	**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day										lb/day					
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
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
Worker	0.0535	0.0298	0.4469	1.5300e-003	0.1788	1.2100e-003	0.1801	0.0474	1.1100e-003	0.0485		152.8113	152.8113	3.2500e-003		152.8924
Total	**0.0535**	**0.0298**	**0.4469**	**1.5300e-003**	**0.1788**	**1.2100e-003**	**0.1801**	**0.0474**	**1.1100e-003**	**0.0485**		**152.8113**	**152.8113**	**3.2500e-003**		**152.8924**

3.2 Pipe Jacking - Construction of the Pits - 2026

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	lb/day										lb/day					
Fugitive Dust					0.1295	0.0000	0.1295	0.0140	0.0000	0.0140			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372		5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.1295**	**0.9919**	**1.1214**	**0.0140**	**0.9372**	**0.9512**		**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day										lb/day					
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
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
Worker	0.0511	0.0275	0.4180	1.4800e-003	0.1788	1.1700e-003	0.1800	0.0474	1.0700e-003	0.0485		147.4003	147.4003	2.9700e-003		147.4746
Total	**0.0511**	**0.0275**	**0.4180**	**1.4800e-003**	**0.1788**	**1.1700e-003**	**0.1800**	**0.0474**	**1.0700e-003**	**0.0485**		**147.4003**	**147.4003**	**2.9700e-003**		**147.4746**

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	lb/day										lb/day					

Fugitive Dust					0.0583	0.0000	0.0583	6.2900e-003	0.0000	6.2900e-003			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372	0.0000	5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.0583**	**0.9919**	**1.0502**	**6.2900e-003**	**0.9372**	**0.9435**	**0.0000**	**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day										lb/day					
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
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
Worker	0.0511	0.0275	0.4180	1.4800e-003	0.1788	1.1700e-003	0.1800	0.0474	1.0700e-003	0.0485		147.4003	147.4003	2.9700e-003		147.4746
Total	**0.0511**	**0.0275**	**0.4180**	**1.4800e-003**	**0.1788**	**1.1700e-003**	**0.1800**	**0.0474**	**1.0700e-003**	**0.0485**		**147.4003**	**147.4003**	**2.9700e-003**		**147.4746**

3.2 Pipe Jacking - Construction of the Pits - 2027

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	lb/day										lb/day					
Fugitive Dust					0.1295	0.0000	0.1295	0.0140	0.0000	0.0140			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372		5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.1295**	**0.9919**	**1.1214**	**0.0140**	**0.9372**	**0.9512**		**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day										lb/day					
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
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
Worker	0.0487	0.0253	0.3923	1.4300e-003	0.1788	1.1000e-003	0.1799	0.0474	1.0100e-003	0.0484		142.6335	142.6335	2.7300e-003		142.7017
Total	**0.0487**	**0.0253**	**0.3923**	**1.4300e-003**	**0.1788**	**1.1000e-003**	**0.1799**	**0.0474**	**1.0100e-003**	**0.0484**		**142.6335**	**142.6335**	**2.7300e-003**		**142.7017**

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	lb/day										lb/day					
Fugitive Dust					0.0583	0.0000	0.0583	6.2900e-003	0.0000	6.2900e-003			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372	0.0000	5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.0583**	**0.9919**	**1.0502**	**6.2900e-003**	**0.9372**	**0.9435**	**0.0000**	**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day											lb/day				
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
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
Worker	0.0487	0.0253	0.3923	1.4300e-003	0.1788	1.1000e-003	0.1799	0.0474	1.0100e-003	0.0484		142.6335	142.6335	2.7300e-003		142.7017
Total	**0.0487**	**0.0253**	**0.3923**	**1.4300e-003**	**0.1788**	**1.1000e-003**	**0.1799**	**0.0474**	**1.0100e-003**	**0.0484**		**142.6335**	**142.6335**	**2.7300e-003**		**142.7017**

3.3 Open Trench Pipe Installation - 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	lb/day											lb/day				
Fugitive Dust					0.1295	0.0000	0.1295	0.0140	0.0000	0.0140			0.0000			0.0000
Off-Road	3.0189	26.1203	35.1726	0.0581		1.2889	1.2889		1.2190	1.2190		5,537.9925	5,537.9925	1.3036		5,570.5818
Total	**3.0189**	**26.1203**	**35.1726**	**0.0581**	**0.1295**	**1.2889**	**1.4184**	**0.0140**	**1.2190**	**1.2330**		**5,537.9925**	**5,537.9925**	**1.3036**		**5,570.5818**

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	lb/day											lb/day				
Hauling	0.1823	6.0490	1.9293	0.0290	2.4810	0.0112	2.4922	0.6290	0.0107	0.6397		3,148.9503	3,148.9503	0.2001		3,153.9515
Vendor	0.0195	0.6844	0.1927	2.4500e-003	0.0640	7.7000e-004	0.0648	0.0184	7.4000e-004	0.0192		261.8677	261.8677	0.0138		262.2136
Worker	0.1191	0.0716	1.0294	3.3000e-003	0.3577	2.4900e-003	0.3602	0.0949	2.2900e-003	0.0972		328.9377	328.9377	7.7700e-003		329.1318

Total	**0.3209**	**6.8050**	**3.1515**	**0.0347**	**2.9027**	**0.0145**	**2.9172**	**0.7423**	**0.0138**	**0.7560**		**3,739.7556**	**3,739.7556**	**0.2217**		**3,745.2970**

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	lb/day										lb/day					
Fugitive Dust					0.0583	0.0000	0.0583	6.2900e-003	0.0000	6.2900e-003			0.0000			0.0000
Off-Road	3.0189	26.1203	35.1726	0.0581		1.2889	1.2889		1.2190	1.2190	0.0000	5,537.9925	5,537.9925	1.3036		5,570.5818
Total	**3.0189**	**26.1203**	**35.1726**	**0.0581**	**0.0583**	**1.2889**	**1.3472**	**6.2900e-003**	**1.2190**	**1.2253**	**0.0000**	**5,537.9925**	**5,537.9925**	**1.3036**		**5,570.5818**

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	lb/day										lb/day					
Hauling	0.1823	6.0490	1.9293	0.0290	2.4810	0.0112	2.4922	0.6290	0.0107	0.6397		3,148.9503	3,148.9503	0.2001		3,153.9515
Vendor	0.0195	0.6844	0.1927	2.4500e-003	0.0640	7.7000e-004	0.0648	0.0184	7.4000e-004	0.0192		261.8677	261.8677	0.0138		262.2136
Worker	0.1191	0.0716	1.0294	3.3000e-003	0.3577	2.4900e-003	0.3602	0.0949	2.2900e-003	0.0972		328.9377	328.9377	7.7700e-003		329.1318
Total	**0.3209**	**6.8050**	**3.1515**	**0.0347**	**2.9027**	**0.0145**	**2.9172**	**0.7423**	**0.0138**	**0.7560**		**3,739.7556**	**3,739.7556**	**0.2217**		**3,745.2970**

3.3 Open Trench Pipe Installation - 2024

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	lb/day										lb/day					
Fugitive Dust					0.1295	0.0000	0.1295	0.0140	0.0000	0.0140			0.0000			0.0000
Off-Road	2.8523	24.3380	35.1193	0.0581		1.1476	1.1476		1.0845	1.0845		5,538.8760	5,538.8760	1.2978		5,571.3220
Total	**2.8523**	**24.3380**	**35.1193**	**0.0581**	**0.1295**	**1.1476**	**1.2771**	**0.0140**	**1.0845**	**1.0985**		**5,538.8760**	**5,538.8760**	**1.2978**		**5,571.3220**

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	lb/day										lb/day					
Hauling	0.1839	6.0137	1.9604	0.0289	2.2693	0.0111	2.2805	0.5770	0.0107	0.5877		3,137.4063	3,137.4063	0.1998		3,142.4018
Vendor	0.0191	0.6827	0.1872	2.4400e-003	0.0640	7.6000e-004	0.0648	0.0184	7.3000e-004	0.0192		260.9183	260.9183	0.0136		261.2588
Worker	0.1128	0.0653	0.9616	3.1900e-003	0.3577	2.4600e-003	0.3601	0.0949	2.2600e-003	0.0971		318.1469	318.1469	7.1200e-003		318.3249
Total	**0.3157**	**6.7617**	**3.1092**	**0.0345**	**2.6910**	**0.0144**	**2.7054**	**0.6903**	**0.0136**	**0.7039**		**3,716.4715**	**3,716.4715**	**0.2206**		**3,721.9855**

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	lb/day										lb/day					

Fugitive Dust					0.0583	0.0000	0.0583	6.2900e-003	0.0000	6.2900e-003			0.0000			0.0000
Off-Road	2.8523	24.3380	35.1193	0.0581		1.1476	1.1476		1.0845	1.0845	0.0000	5,538.8760	5,538.8760	1.2978		5,571.3220
Total	**2.8523**	**24.3380**	**35.1193**	**0.0581**	**0.0583**	**1.1476**	**1.2059**	**6.2900e-003**	**1.0845**	**1.0908**	**0.0000**	**5,538.8760**	**5,538.8760**	**1.2978**		**5,571.3220**

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	lb/day										lb/day					
Hauling	0.1839	6.0137	1.9604	0.0289	2.2693	0.0111	2.2805	0.5770	0.0107	0.5877		3,137.4063	3,137.4063	0.1998		3,142.4018
Vendor	0.0191	0.6827	0.1872	2.4400e-003	0.0640	7.6000e-004	0.0648	0.0184	7.3000e-004	0.0192		260.9183	260.9183	0.0136		261.2588
Worker	0.1128	0.0653	0.9616	3.1900e-003	0.3577	2.4600e-003	0.3601	0.0949	2.2600e-003	0.0971		318.1469	318.1469	7.1200e-003		318.3249
Total	**0.3157**	**6.7617**	**3.1092**	**0.0345**	**2.6910**	**0.0144**	**2.7054**	**0.6903**	**0.0136**	**0.7039**		**3,716.4715**	**3,716.4715**	**0.2206**		**3,721.9855**

3.3 Open Trench Pipe Installation - 2025

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	lb/day										lb/day					
Fugitive Dust					0.1295	0.0000	0.1295	0.0140	0.0000	0.0140			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372		5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.1295**	**0.9919**	**1.1214**	**0.0140**	**0.9372**	**0.9512**		**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day										lb/day					
Hauling	0.1827	5.9178	1.9750	0.0287	2.2774	0.0110	2.2884	0.5790	0.0105	0.5895		3,119.5633	3,119.5633	0.1993		3,124.5469
Vendor	0.0186	0.6768	0.1822	2.4200e-003	0.0640	7.5000e-004	0.0648	0.0184	7.2000e-004	0.0191		259.4351	259.4351	0.0134		259.7702
Worker	0.1071	0.0597	0.8938	3.0600e-003	0.3577	2.4100e-003	0.3601	0.0949	2.2200e-003	0.0971		305.6225	305.6225	6.4900e-003		305.7848
Total	**0.3084**	**6.6543**	**3.0511**	**0.0342**	**2.6991**	**0.0141**	**2.7132**	**0.6923**	**0.0135**	**0.7057**		**3,684.6210**	**3,684.6210**	**0.2192**		**3,690.1019**

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	lb/day										lb/day					
Fugitive Dust					0.0583	0.0000	0.0583	6.2900e-003	0.0000	6.2900e-003			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372	0.0000	5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.0583**	**0.9919**	**1.0502**	**6.2900e-003**	**0.9372**	**0.9435**	**0.0000**	**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day											lb/day				
Hauling	0.1827	5.9178	1.9750	0.0287	2.2774	0.0110	2.2884	0.5790	0.0105	0.5895		3,119.5633	3,119.5633	0.1993		3,124.5469
Vendor	0.0186	0.6768	0.1822	2.4200e-003	0.0640	7.5000e-004	0.0648	0.0184	7.2000e-004	0.0191		259.4351	259.4351	0.0134		259.7702
Worker	0.1071	0.0597	0.8938	3.0600e-003	0.3577	2.4100e-003	0.3601	0.0949	2.2200e-003	0.0971		305.6225	305.6225	6.4900e-003		305.7848
Total	**0.3084**	**6.6543**	**3.0511**	**0.0342**	**2.6991**	**0.0141**	**2.7132**	**0.6923**	**0.0135**	**0.7057**		**3,684.6210**	**3,684.6210**	**0.2192**		**3,690.1019**

3.3 Open Trench Pipe Installation - 2026

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	lb/day											lb/day				
Fugitive Dust					0.1295	0.0000	0.1295	0.0140	0.0000	0.0140			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372		5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.1295**	**0.9919**	**1.1214**	**0.0140**	**0.9372**	**0.9512**		**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day											lb/day				
Hauling	0.1814	5.8188	1.9876	0.0285	2.2774	0.0108	2.2882	0.5790	0.0103	0.5893		3,102.5974	3,102.5974	0.1984		3,107.5581
Vendor	0.0182	0.6705	0.1784	2.4100e-003	0.0640	7.4000e-004	0.0647	0.0184	7.0000e-004	0.0191		258.0142	258.0142	0.0132		258.3439
Worker	0.1022	0.0549	0.8361	2.9600e-003	0.3577	2.3300e-003	0.3600	0.0949	2.1500e-003	0.0970		294.8006	294.8006	5.9500e-003		294.9492

Total	**0.3017**	**6.5442**	**3.0021**	**0.0339**	**2.6991**	**0.0139**	**2.7129**	**0.6923**	**0.0132**	**0.7055**		**3,655.4121**	**3,655.4121**	**0.2176**		**3,660.8512**

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	lb/day										lb/day					
Fugitive Dust					0.0583	0.0000	0.0583	6.2900e-003	0.0000	6.2900e-003			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372	0.0000	5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.0583**	**0.9919**	**1.0502**	**6.2900e-003**	**0.9372**	**0.9435**	**0.0000**	**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day										lb/day					
Hauling	0.1814	5.8188	1.9876	0.0285	2.2774	0.0108	2.2882	0.5790	0.0103	0.5893		3,102.5974	3,102.5974	0.1984		3,107.5581
Vendor	0.0182	0.6705	0.1784	2.4100e-003	0.0640	7.4000e-004	0.0647	0.0184	7.0000e-004	0.0191		258.0142	258.0142	0.0132		258.3439
Worker	0.1022	0.0549	0.8361	2.9600e-003	0.3577	2.3300e-003	0.3600	0.0949	2.1500e-003	0.0970		294.8006	294.8006	5.9500e-003		294.9492
Total	**0.3017**	**6.5442**	**3.0021**	**0.0339**	**2.6991**	**0.0139**	**2.7129**	**0.6923**	**0.0132**	**0.7055**		**3,655.4121**	**3,655.4121**	**0.2176**		**3,660.8512**

3.3 Open Trench Pipe Installation - 2027

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	lb/day										lb/day					
Fugitive Dust					0.1295	0.0000	0.1295	0.0140	0.0000	0.0140			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372		5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.1295**	**0.9919**	**1.1214**	**0.0140**	**0.9372**	**0.9512**		**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day										lb/day					
Hauling	0.1802	5.7291	1.9990	0.0283	30.7256	0.0106	30.7362	7.5617	0.0102	7.5719		3,087.5270	3,087.5270	0.1973		3,092.4593
Vendor	0.0178	0.6644	0.1754	2.3900e-003	0.0640	7.2000e-004	0.0647	0.0184	6.9000e-004	0.0191		256.7496	256.7496	0.0130		257.0740
Worker	0.0974	0.0507	0.7846	2.8600e-003	0.3577	2.2000e-003	0.3599	0.0949	2.0300e-003	0.0969		285.2669	285.2669	5.4600e-003		285.4034
Total	**0.2954**	**6.4442**	**2.9589**	**0.0336**	**31.1473**	**0.0136**	**31.1608**	**7.6750**	**0.0129**	**7.6879**		**3,629.5435**	**3,629.5435**	**0.2157**		**3,634.9367**

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	lb/day										lb/day					

Fugitive Dust					0.0583	0.0000	0.0583	6.2900e-003	0.0000	6.2900e-003			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372	0.0000	5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.0583**	**0.9919**	**1.0502**	**6.2900e-003**	**0.9372**	**0.9435**	**0.0000**	**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day										lb/day					
Hauling	0.1802	5.7291	1.9990	0.0283	30.7256	0.0106	30.7362	7.5617	0.0102	7.5719		3,087.5270	3,087.5270	0.1973		3,092.4593
Vendor	0.0178	0.6644	0.1754	2.3900e-003	0.0640	7.2000e-004	0.0647	0.0184	6.9000e-004	0.0191		256.7496	256.7496	0.0130		257.0740
Worker	0.0974	0.0507	0.7846	2.8600e-003	0.3577	2.2000e-003	0.3599	0.0949	2.0300e-003	0.0969		285.2669	285.2669	5.4600e-003		285.4034
Total	**0.2954**	**6.4442**	**2.9589**	**0.0336**	**31.1473**	**0.0136**	**31.1608**	**7.6750**	**0.0129**	**7.6879**		**3,629.5435**	**3,629.5435**	**0.2157**		**3,634.9367**

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	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	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
Other Asphalt Surfaces	0.551582	0.041972	0.204917	0.113538	0.013798	0.005777	0.022002	0.036198	0.002156	0.001623	0.004914	0.000713	0.000825

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

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	lb/day										lb/day					
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
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**

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	lb/day										lb/day					
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
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**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1091	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Unmitigated	0.1091	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699

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	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1063					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8100e-003	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Total	**0.1091**	**2.8000e-004**	**0.0306**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**		**0.0657**	**0.0657**	**1.7000e-004**		**0.0699**

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	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1063					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8100e-003	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Total	**0.1091**	**2.8000e-004**	**0.0306**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**		**0.0657**	**0.0657**	**1.7000e-004**		**0.0699**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

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

Western Trunk Line Project

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	300.00	1000sqft	6.89	300,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2027
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Operational year 2027.

Land Use - 300,000 SF of roadway to be paved and restriped.

Construction Phase - Construction phasing information provided by LADWP.

Off-road Equipment - Construction equipment information based on information provided by LADWP.

Off-road Equipment - Construction equipment information based on information provided by LADWP.

Off-road Equipment - Construction equipment information based on information provided by LADWP.

Trips and VMT - Construction trip data provided by the project applicant.

Grading – Graded area based on area to be paved.

Vehicle Emission Factors - CalEEMod Defaults.

Vehicle Emission Factors - CalEEMod Defaults.

Vehicle Emission Factors - CalEEMod Defaults.

Construction Off-road Equipment Mitigation – Compliance with SCAQMD Rule 403.

Fleet Mix – CalEEMod Defaults.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	100	0
tblAreaCoating	Area_Parking	18000	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	1,040.00
tblConstructionPhase	NumDays	10.00	1,040.00
tblFleetMix	MH	8.0900e-004	8.2500e-004
tblFleetMix	SBUS	7.1600e-004	7.1300e-004
tblGrading	AcresOfGrading	0.00	127.00
tblGrading	AcresOfGrading	0.00	127.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	41,600.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	WorkerTripNumber	38.00	16.00
tblTripsAndVMT	WorkerTripNumber	38.00	32.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2023	6.4423	59.1155	73.9694	0.1517	3.3405	2.5938	5.9344	0.8176	2.4533	3.2709	0.0000	14,882.39 05	14,882.390 5	2.8397	0.0000	14,953.38 17
2024	6.1001	55.5057	73.7924	0.1514	3.1289	2.3110	5.4399	0.7657	2.1841	2.9498	0.0000	14,857.24 45	14,857.244 5	2.8266	0.0000	14,927.90 91
2025	5.6964	51.2727	73.4333	0.1510	3.1369	1.9995	5.1364	0.7677	1.8891	2.6568	0.0000	14,822.29 31	14,822.293 1	2.8123	0.0000	14,892.60 14
2026	5.6868	51.1583	73.3617	0.1507	3.1369	1.9991	5.1360	0.7677	1.8888	2.6565	0.0000	14,789.46 74	14,789.467 4	2.8102	0.0000	14,859.72 23
2027	5.6777	51.0540	73.2987	0.1504	3.043	1.9987	5.0415	7.7504	1.8884	9.6388	0.0000	14,760.34 00	14,760.340 0	2.8079	0.0000	14,830.53 81
Maximum	**6.4423**	**59.1155**	**73.9694**	**0.1517**	**31.5851**	**2.5938**	**5.934**	**7.7504**	**2.4533**	**9.6388**	**0.0000**	**14,882.39 05**	**14,882.390 5**	**2.8397**	**0.0000**	**14,953.38 17**

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	lb/day										lb/day					
2023	6.4423	59.1155	73.9694	0.1517	3.1981	2.5938	5.7919	0.8023	2.4533	3.2556	0.0000	14,882.39 04	14,882.390 4	2.8397	0.0000	14,953.38 17
2024	6.1001	55.5057	73.7924	0.1514	2.9864	2.3110	5.2974	0.7503	2.1841	2.9344	0.0000	14,857.24 45	14,857.244 5	2.8266	0.0000	14,927.90 91
2025	5.6964	51.2727	73.4333	0.1510	2.9945	1.9995	4.9939	0.7523	1.8891	2.6414	0.0000	14,822.29 31	14,822.293 1	2.8123	0.0000	14,892.60 14
2026	5.6868	51.1583	73.3617	0.1507	2.9945	1.9991	4.9936	0.7523	1.8888	2.6411	0.0000	14,789.46 74	14,789.467 4	2.8102	0.0000	14,859.72 23
2027	5.6777	51.0540	73.2987	0.1504	3.043	1.9987	5.0415	7.7350	1.8884	9.6235	0.0000	14,760.34 00	14,760.340 0	2.8079	0.0000	14,830.53 81

Maximum	**6.4423**	**59.1155**	**73.9694**	**0.1517**	**3.1981**	**2.5938**	**5.934**	**7.7350**	**2.4533**	**9.6235**	**0.0000**	**14,882.3904**	**14,882.3904**	**2.8397**	**0.0000**	**14,953.3817**

	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**	**1.61**	**0.00**	**1.29**	**0.71**	**0.00**	**0.36**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1091	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1091**	**2.8000e-004**	**0.0306**	**0.0000**	**0.0000**	**1.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**1.1000e-004**		**0.0657**	**0.0657**	**1.7000e-004**	**0.0000**	**0.0699**

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	lb/day										lb/day					
Area	0.1091	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Total	0.1091	2.8000e-004	0.0306	0.0000	0.0000	1.1000e-004	1.1000e-004	0.0000	1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004	0.0000	0.0699

	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	Pipe Jacking - Construction of the Pits	Site Preparation	2/1/2023	1/26/2027	5	1040	
2	Open Trench Pipe Installation	Grading	2/1/2023	1/26/2027	5	1040	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 6.89

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Pipe Jacking - Construction of the Pits	Air Compressors	1	8.00	78	0.48
Pipe Jacking - Construction of the Pits	Concrete/Industrial Saws	1	8.00	81	0.73
Pipe Jacking - Construction of the Pits	Cranes	1	8.00	231	0.29
Pipe Jacking - Construction of the Pits	Excavators	3	8.00	158	0.38
Pipe Jacking - Construction of the Pits	Forklifts	1	8.00	89	0.20
Pipe Jacking - Construction of the Pits	Generator Sets	1	8.00	84	0.74
Pipe Jacking - Construction of the Pits	Paving Equipment	1	8.00	132	0.36
Pipe Jacking - Construction of the Pits	Plate Compactors	1	8.00	8	0.43
Pipe Jacking - Construction of the Pits	Rollers	1	8.00	80	0.38
Pipe Jacking - Construction of the Pits	Rubber Tired Dozers	0	0.00	247	0.40

Pipe Jacking - Construction of the Pits	Sweepers/Scrubbers	1	8.00	64	0.46
Pipe Jacking - Construction of the Pits	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Pipe Jacking - Construction of the Pits	Welders	1	8.00	46	0.45
Open Trench Pipe Installation	Air Compressors	1	8.00	78	0.48
Open Trench Pipe Installation	Concrete/Industrial Saws	1	8.00	81	0.73
Open Trench Pipe Installation	Cranes	1	8.00	231	0.29
Open Trench Pipe Installation	Excavators	3	8.00	158	0.38
Open Trench Pipe Installation	Forklifts	1	8.00	89	0.20
Open Trench Pipe Installation	Generator Sets	1	8.00	84	0.74
Open Trench Pipe Installation	Graders	0	0.00	187	0.41
Open Trench Pipe Installation	Paving Equipment	1	8.00	132	0.36
Open Trench Pipe Installation	Plate Compactors	1	8.00	8	0.43
Open Trench Pipe Installation	Rollers	1	8.00	80	0.38
Open Trench Pipe Installation	Rubber Tired Dozers	0	0.00	247	0.40
Open Trench Pipe Installation	Sweepers/Scrubbers	1	8.00	64	0.46
Open Trench Pipe Installation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Open Trench Pipe Installation	Welders	1	8.00	46	0.45

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
Pipe Jacking - Construction of the	15	16.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Open Trench Pipe Installation	15	32.00	10.00	41,600.00	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 Pipe Jacking - Construction of the Pits - 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	lb/day										lb/day					
Fugitive Dust					0.1295	0.0000	0.1295	0.0140	0.0000	0.0140			0.0000			0.0000
Off-Road	3.0189	26.1203	35.1726	0.0581		1.2889	1.2889		1.2190	1.2190		5,537.9925	5,537.9925	1.3036		5,570.5818
Total	**3.0189**	**26.1203**	**35.1726**	**0.0581**	**0.1295**	**1.2889**	**1.4184**	**0.0140**	**1.2190**	**1.2330**		**5,537.9925**	**5,537.9925**	**1.3036**		**5,570.5818**

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	lb/day										lb/day					
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
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
Worker	0.0655	0.0392	0.4608	1.5400e-003	0.1788	1.2500e-003	0.1801	0.0474	1.1500e-003	0.0486		153.8074	153.8074	3.6100e-003		153.8978
Total	**0.0655**	**0.0392**	**0.4608**	**1.5400e-003**	**0.1788**	**1.2500e-003**	**0.1801**	**0.0474**	**1.1500e-003**	**0.0486**		**153.8074**	**153.8074**	**3.6100e-003**		**153.8978**

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	lb/day										lb/day					

Fugitive Dust					0.0583	0.0000	0.0583	6.2900e-003	0.0000	6.2900e-003			0.0000			0.0000
Off-Road	3.0189	26.1203	35.1726	0.0581		1.2889	1.2889		1.2190	1.2190	0.0000	5,537.9925	5,537.9925	1.3036		5,570.5818
Total	**3.0189**	**26.1203**	**35.1726**	**0.0581**	**0.0583**	**1.2889**	**1.3472**	**6.2900e-003**	**1.2190**	**1.2253**	**0.0000**	**5,537.9925**	**5,537.9925**	**1.3036**		**5,570.5818**

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	lb/day										lb/day					
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
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
Worker	0.0655	0.0392	0.4608	1.5400e-003	0.1788	1.2500e-003	0.1801	0.0474	1.1500e-003	0.0486		153.8074	153.8074	3.6100e-003		153.8978
Total	**0.0655**	**0.0392**	**0.4608**	**1.5400e-003**	**0.1788**	**1.2500e-003**	**0.1801**	**0.0474**	**1.1500e-003**	**0.0486**		**153.8074**	**153.8074**	**3.6100e-003**		**153.8978**

3.2 Pipe Jacking - Construction of the Pits - 2024

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	lb/day										lb/day					
Fugitive Dust					0.1295	0.0000	0.1295	0.0140	0.0000	0.0140			0.0000			0.0000
Off-Road	2.8523	24.3380	35.1193	0.0581		1.1476	1.1476		1.0845	1.0845		5,538.8760	5,538.8760	1.2978		5,571.3220
Total	**2.8523**	**24.3380**	**35.1193**	**0.0581**	**0.1295**	**1.1476**	**1.2771**	**0.0140**	**1.0845**	**1.0985**		**5,538.8760**	**5,538.8760**	**1.2978**		**5,571.3220**

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	lb/day										lb/day					
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
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
Worker	0.0621	0.0357	0.4296	1.4900e-003	0.1788	1.2300e-003	0.1801	0.0474	1.1300e-003	0.0486		148.7396	148.7396	3.3100e-003		148.8223
Total	**0.0621**	**0.0357**	**0.4296**	**1.4900e-003**	**0.1788**	**1.2300e-003**	**0.1801**	**0.0474**	**1.1300e-003**	**0.0486**		**148.7396**	**148.7396**	**3.3100e-003**		**148.8223**

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	lb/day										lb/day					
Fugitive Dust					0.0583	0.0000	0.0583	6.2900e-003	0.0000	6.2900e-003			0.0000			0.0000
Off-Road	2.8523	24.3380	35.1193	0.0581		1.1476	1.1476		1.0845	1.0845	0.0000	5,538.8760	5,538.8760	1.2978		5,571.3220
Total	**2.8523**	**24.3380**	**35.1193**	**0.0581**	**0.0583**	**1.1476**	**1.2059**	**6.2900e-003**	**1.0845**	**1.0908**	**0.0000**	**5,538.8760**	**5,538.8760**	**1.2978**		**5,571.3220**

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	lb/day											lb/day				
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
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
Worker	0.0621	0.0357	0.4296	1.4900e-003	0.1788	1.2300e-003	0.1801	0.0474	1.1300e-003	0.0486		148.7396	148.7396	3.3100e-003		148.8223
Total	**0.0621**	**0.0357**	**0.4296**	**1.4900e-003**	**0.1788**	**1.2300e-003**	**0.1801**	**0.0474**	**1.1300e-003**	**0.0486**		**148.7396**	**148.7396**	**3.3100e-003**		**148.8223**

3.2 Pipe Jacking - Construction of the Pits - 2025

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	lb/day											lb/day				
Fugitive Dust					0.1295	0.0000	0.1295	0.0140	0.0000	0.0140			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372		5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.1295**	**0.9919**	**1.1214**	**0.0140**	**0.9372**	**0.9512**		**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day											lb/day				
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
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
Worker	0.0592	0.0326	0.3989	1.4300e-003	0.1788	1.2100e-003	0.1801	0.0474	1.1100e-003	0.0485		142.8806	142.8806	3.0100e-003		142.9559

Total	**0.0592**	**0.0326**	**0.3989**	**1.4300e-003**	**0.1788**	**1.2100e-003**	**0.1801**	**0.0474**	**1.1100e-003**	**0.0485**		**142.8806**	**142.8806**	**3.0100e-003**		**142.9559**

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	lb/day										lb/day					
Fugitive Dust					0.0583	0.0000	0.0583	6.2900e-003	0.0000	6.2900e-003			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372	0.0000	5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.0583**	**0.9919**	**1.0502**	**6.2900e-003**	**0.9372**	**0.9435**	**0.0000**	**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day										lb/day					
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
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
Worker	0.0592	0.0326	0.3989	1.4300e-003	0.1788	1.2100e-003	0.1801	0.0474	1.1100e-003	0.0485		142.8806	142.8806	3.0100e-003		142.9559
Total	**0.0592**	**0.0326**	**0.3989**	**1.4300e-003**	**0.1788**	**1.2100e-003**	**0.1801**	**0.0474**	**1.1100e-003**	**0.0485**		**142.8806**	**142.8806**	**3.0100e-003**		**142.9559**

3.2 Pipe Jacking - Construction of the Pits - 2026

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	lb/day										lb/day					
Fugitive Dust					0.1295	0.0000	0.1295	0.0140	0.0000	0.0140			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372		5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.1295**	**0.9919**	**1.1214**	**0.0140**	**0.9372**	**0.9512**		**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day										lb/day					
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
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
Worker	0.0566	0.0300	0.3727	1.3800e-003	0.1788	1.1700e-003	0.1800	0.0474	1.0700e-003	0.0485		137.8140	137.8140	2.7600e-003		137.8830
Total	**0.0566**	**0.0300**	**0.3727**	**1.3800e-003**	**0.1788**	**1.1700e-003**	**0.1800**	**0.0474**	**1.0700e-003**	**0.0485**		**137.8140**	**137.8140**	**2.7600e-003**		**137.8830**

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	lb/day										lb/day					

Fugitive Dust					0.0583	0.0000	0.0583	6.2900e-003	0.0000	6.2900e-003			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372	0.0000	5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.0583**	**0.9919**	**1.0502**	**6.2900e-003**	**0.9372**	**0.9435**	**0.0000**	**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day										lb/day					
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
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
Worker	0.0566	0.0300	0.3727	1.3800e-003	0.1788	1.1700e-003	0.1800	0.0474	1.0700e-003	0.0485		137.8140	137.8140	2.7600e-003		137.8830
Total	**0.0566**	**0.0300**	**0.3727**	**1.3800e-003**	**0.1788**	**1.1700e-003**	**0.1800**	**0.0474**	**1.0700e-003**	**0.0485**		**137.8140**	**137.8140**	**2.7600e-003**		**137.8830**

3.2 Pipe Jacking - Construction of the Pits - 2027

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	lb/day										lb/day					
Fugitive Dust					0.1295	0.0000	0.1295	0.0140	0.0000	0.0140			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372		5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.1295**	**0.9919**	**1.1214**	**0.0140**	**0.9372**	**0.9512**		**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day										lb/day					
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
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
Worker	0.0541	0.0277	0.3494	1.3400e-003	0.1788	1.1000e-003	0.1799	0.0474	1.0100e-003	0.0484		133.3452	133.3452	2.5300e-003		133.4084
Total	**0.0541**	**0.0277**	**0.3494**	**1.3400e-003**	**0.1788**	**1.1000e-003**	**0.1799**	**0.0474**	**1.0100e-003**	**0.0484**		**133.3452**	**133.3452**	**2.5300e-003**		**133.4084**

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	lb/day										lb/day					
Fugitive Dust					0.0583	0.0000	0.0583	6.2900e-003	0.0000	6.2900e-003			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372	0.0000	5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.0583**	**0.9919**	**1.0502**	**6.2900e-003**	**0.9372**	**0.9435**	**0.0000**	**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day											lb/day				
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
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
Worker	0.0541	0.0277	0.3494	1.3400e-003	0.1788	1.1000e-003	0.1799	0.0474	1.0100e-003	0.0484		133.3452	133.3452	2.5300e-003		133.4084
Total	**0.0541**	**0.0277**	**0.3494**	**1.3400e-003**	**0.1788**	**1.1000e-003**	**0.1799**	**0.0474**	**1.0100e-003**	**0.0484**		**133.3452**	**133.3452**	**2.5300e-003**		**133.4084**

3.3 Open Trench Pipe Installation - 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	lb/day											lb/day				
Fugitive Dust					0.1295	0.0000	0.1295	0.0140	0.0000	0.0140			0.0000			0.0000
Off-Road	3.0189	26.1203	35.1726	0.0581		1.2889	1.2889		1.2190	1.2190		5,537.9925	5,537.9925	1.3036		5,570.5818
Total	**3.0189**	**26.1203**	**35.1726**	**0.0581**	**0.1295**	**1.2889**	**1.4184**	**0.0140**	**1.2190**	**1.2330**		**5,537.9925**	**5,537.9925**	**1.3036**		**5,570.5818**

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	lb/day											lb/day				
Hauling	0.1877	6.0774	2.0300	0.0285	2.4810	0.0115	2.4925	0.6290	0.0110	0.6400		3,090.6214	3,090.6214	0.2069		3,095.7946
Vendor	0.0205	0.6801	0.2118	2.3800e-003	0.0640	8.1000e-004	0.0648	0.0184	7.7000e-004	0.0192		254.3617	254.3617	0.0147		254.7302
Worker	0.1309	0.0783	0.9216	3.0900e-003	0.3577	2.4900e-003	0.3602	0.0949	2.2900e-003	0.0972		307.6149	307.6149	7.2300e-003		307.7955

Total	**0.3391**	**6.8357**	**3.1634**	**0.0339**	**2.9027**	**0.0148**	**2.9175**	**0.7423**	**0.0141**	**0.7563**		**3,652.5980**	**3,652.5980**	**0.2289**		**3,658.3204**

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	lb/day										lb/day					
Fugitive Dust					0.0583	0.0000	0.0583	6.2900e-003	0.0000	6.2900e-003			0.0000			0.0000
Off-Road	3.0189	26.1203	35.1726	0.0581		1.2889	1.2889		1.2190	1.2190	0.0000	5,537.9925	5,537.9925	1.3036		5,570.5818
Total	**3.0189**	**26.1203**	**35.1726**	**0.0581**	**0.0583**	**1.2889**	**1.3472**	**6.2900e-003**	**1.2190**	**1.2253**	**0.0000**	**5,537.9925**	**5,537.9925**	**1.3036**		**5,570.5818**

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	lb/day										lb/day					
Hauling	0.1877	6.0774	2.0300	0.0285	2.4810	0.0115	2.4925	0.6290	0.0110	0.6400		3,090.6214	3,090.6214	0.2069		3,095.7946
Vendor	0.0205	0.6801	0.2118	2.3800e-003	0.0640	8.1000e-004	0.0648	0.0184	7.7000e-004	0.0192		254.3617	254.3617	0.0147		254.7302
Worker	0.1309	0.0783	0.9216	3.0900e-003	0.3577	2.4900e-003	0.3602	0.0949	2.2900e-003	0.0972		307.6149	307.6149	7.2300e-003		307.7955
Total	**0.3391**	**6.8357**	**3.1634**	**0.0339**	**2.9027**	**0.0148**	**2.9175**	**0.7423**	**0.0141**	**0.7563**		**3,652.5980**	**3,652.5980**	**0.2289**		**3,658.3204**

3.3 Open Trench Pipe Installation - 2024

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	lb/day										lb/day					
Fugitive Dust					0.1295	0.0000	0.1295	0.0140	0.0000	0.0140			0.0000			0.0000
Off-Road	2.8523	24.3380	35.1193	0.0581		1.1476	1.1476		1.0845	1.0845		5,538.8760	5,538.8760	1.2978		5,571.3220
Total	**2.8523**	**24.3380**	**35.1193**	**0.0581**	**0.1295**	**1.1476**	**1.2771**	**0.0140**	**1.0845**	**1.0985**		**5,538.8760**	**5,538.8760**	**1.2978**		**5,571.3220**

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	lb/day										lb/day					
Hauling	0.1891	6.0441	2.0592	0.0283	2.2693	0.0114	2.2807	0.5770	0.0109	0.5879		3,079.7772	3,079.7772	0.2065		3,084.9392
Vendor	0.0201	0.6786	0.2057	2.3700e-003	0.0640	8.0000e-004	0.0648	0.0184	7.6000e-004	0.0192		253.4965	253.4965	0.0145		253.8590
Worker	0.1243	0.0714	0.8592	2.9800e-003	0.3577	2.4600e-003	0.3601	0.0949	2.2600e-003	0.0971		297.4792	297.4792	6.6200e-003		297.6446
Total	**0.3335**	**6.7940**	**3.1242**	**0.0337**	**2.6910**	**0.0147**	**2.7057**	**0.6903**	**0.0139**	**0.7042**		**3,630.7529**	**3,630.7529**	**0.2276**		**3,636.4428**

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	lb/day										lb/day					

Fugitive Dust					0.0583	0.0000	0.0583	6.2900e-003	0.0000	6.2900e-003			0.0000			0.0000
Off-Road	2.8523	24.3380	35.1193	0.0581		1.1476	1.1476		1.0845	1.0845	0.0000	5,538.8760	5,538.8760	1.2978		5,571.3220
Total	**2.8523**	**24.3380**	**35.1193**	**0.0581**	**0.0583**	**1.1476**	**1.2059**	**6.2900e-003**	**1.0845**	**1.0908**	**0.0000**	**5,538.8760**	**5,538.8760**	**1.2978**		**5,571.3220**

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	lb/day										lb/day					
Hauling	0.1891	6.0441	2.0592	0.0283	2.2693	0.0114	2.2807	0.5770	0.0109	0.5879		3,079.7772	3,079.7772	0.2065		3,084.9392
Vendor	0.0201	0.6786	0.2057	2.3700e-003	0.0640	8.0000e-004	0.0648	0.0184	7.6000e-004	0.0192		253.4965	253.4965	0.0145		253.8590
Worker	0.1243	0.0714	0.8592	2.9800e-003	0.3577	2.4600e-003	0.3601	0.0949	2.2600e-003	0.0971		297.4792	297.4792	6.6200e-003		297.6446
Total	**0.3335**	**6.7940**	**3.1242**	**0.0337**	**2.6910**	**0.0147**	**2.7057**	**0.6903**	**0.0139**	**0.7042**		**3,630.7529**	**3,630.7529**	**0.2276**		**3,636.4428**

3.3 Open Trench Pipe Installation - 2025

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	lb/day										lb/day					
Fugitive Dust					0.1295	0.0000	0.1295	0.0140	0.0000	0.0140			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372		5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.1295**	**0.9919**	**1.1214**	**0.0140**	**0.9372**	**0.9512**		**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day										lb/day					
Hauling	0.1879	5.9470	2.0723	0.0281	2.2774	0.0112	2.2886	0.5790	0.0107	0.5897		3,062.6337	3,062.6337	0.2058		3,067.7783
Vendor	0.0196	0.6726	0.2003	2.3500e-003	0.0640	7.8000e-004	0.0648	0.0184	7.5000e-004	0.0192		252.0985	252.0985	0.0143		252.4548
Worker	0.1184	0.0652	0.7978	2.8600e-003	0.3577	2.4100e-003	0.3601	0.0949	2.2200e-003	0.0971		285.7611	285.7611	6.0300e-003		285.9118
Total	**0.3258**	**6.6849**	**3.0704**	**0.0334**	**2.6991**	**0.0144**	**2.7135**	**0.6923**	**0.0137**	**0.7060**		**3,600.4933**	**3,600.4933**	**0.2261**		**3,606.1449**

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	lb/day										lb/day					
Fugitive Dust					0.0583	0.0000	0.0583	6.2900e-003	0.0000	6.2900e-003			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372	0.0000	5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.0583**	**0.9919**	**1.0502**	**6.2900e-003**	**0.9372**	**0.9435**	**0.0000**	**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day											lb/day				
Hauling	0.1879	5.9470	2.0723	0.0281	2.2774	0.0112	2.2886	0.5790	0.0107	0.5897		3,062.6337	3,062.6337	0.2058		3,067.7783
Vendor	0.0196	0.6726	0.2003	2.3500e-003	0.0640	7.8000e-004	0.0648	0.0184	7.5000e-004	0.0192		252.0985	252.0985	0.0143		252.4548
Worker	0.1184	0.0652	0.7978	2.8600e-003	0.3577	2.4100e-003	0.3601	0.0949	2.2200e-003	0.0971		285.7611	285.7611	6.0300e-003		285.9118
Total	**0.3258**	**6.6849**	**3.0704**	**0.0334**	**2.6991**	**0.0144**	**2.7135**	**0.6923**	**0.0137**	**0.7060**		**3,600.4933**	**3,600.4933**	**0.2261**		**3,606.1449**

3.3 Open Trench Pipe Installation - 2026

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	lb/day											lb/day				
Fugitive Dust					0.1295	0.0000	0.1295	0.0140	0.0000	0.0140			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372		5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.1295**	**0.9919**	**1.1214**	**0.0140**	**0.9372**	**0.9512**		**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day											lb/day				
Hauling	0.1865	5.8467	2.0835	0.0280	2.2774	0.0110	2.2884	0.5790	0.0105	0.5895		3,046.3461	3,046.3461	0.2047		3,051.4623
Vendor	0.0191	0.6663	0.1962	2.3400e-003	0.0640	7.6000e-004	0.0648	0.0184	7.3000e-004	0.0192		250.7603	250.7603	0.0140		251.1106
Worker	0.1133	0.0601	0.7454	2.7600e-003	0.3577	2.3300e-003	0.3600	0.0949	2.1500e-003	0.0970		275.6279	275.6279	5.5200e-003		275.7659

Total	**0.3188**	**6.5730**	**3.0251**	**0.0331**	**2.6991**	**0.0141**	**2.7132**	**0.6923**	**0.0134**	**0.7057**		**3,572.7342**	**3,572.7342**	**0.2242**		**3,578.3387**

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	lb/day										lb/day					
Fugitive Dust					0.0583	0.0000	0.0583	6.2900e-003	0.0000	6.2900e-003			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372	0.0000	5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.0583**	**0.9919**	**1.0502**	**6.2900e-003**	**0.9372**	**0.9435**	**0.0000**	**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day										lb/day					
Hauling	0.1865	5.8467	2.0835	0.0280	2.2774	0.0110	2.2884	0.5790	0.0105	0.5895		3,046.3461	3,046.3461	0.2047		3,051.4623
Vendor	0.0191	0.6663	0.1962	2.3400e-003	0.0640	7.6000e-004	0.0648	0.0184	7.3000e-004	0.0192		250.7603	250.7603	0.0140		251.1106
Worker	0.1133	0.0601	0.7454	2.7600e-003	0.3577	2.3300e-003	0.3600	0.0949	2.1500e-003	0.0970		275.6279	275.6279	5.5200e-003		275.7659
Total	**0.3188**	**6.5730**	**3.0251**	**0.0331**	**2.6991**	**0.0141**	**2.7132**	**0.6923**	**0.0134**	**0.7057**		**3,572.7342**	**3,572.7342**	**0.2242**		**3,578.3387**

3.3 Open Trench Pipe Installation - 2027

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	lb/day										lb/day					
Fugitive Dust					0.1295	0.0000	0.1295	0.0140	0.0000	0.0140			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372		5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.1295**	**0.9919**	**1.1214**	**0.0140**	**0.9372**	**0.9512**		**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day										lb/day					
Hauling	0.1852	5.7555	2.0939	0.0278	30.7256	0.0108	30.7364	7.5617	0.0104	7.5721		3,031.8229	3,031.8229	0.2033		3,036.9054
Vendor	0.0187	0.6602	0.1928	2.3300e-003	0.0640	7.5000e-004	0.0648	0.0184	7.2000e-004	0.0191		249.5625	249.5625	0.0138		249.9068
Worker	0.1083	0.0554	0.6987	2.6700e-003	0.3577	2.2000e-003	0.3599	0.0949	2.0300e-003	0.0969		266.6903	266.6903	5.0600e-003		266.8169
Total	**0.3122**	**6.4711**	**2.9854**	**0.0328**	**31.1473**	**0.0138**	**31.1610**	**7.6750**	**0.0131**	**7.6881**		**3,548.0756**	**3,548.0756**	**0.2221**		**3,553.6291**

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	lb/day										lb/day					

Fugitive Dust					0.0583	0.0000	0.0583	6.2900e-003	0.0000	6.2900e-003			0.0000			0.0000
Off-Road	2.6557	22.2776	34.9820	0.0581		0.9919	0.9919		0.9372	0.9372	0.0000	5,539.4596	5,539.4596	1.2916		5,571.7503
Total	**2.6557**	**22.2776**	**34.9820**	**0.0581**	**0.0583**	**0.9919**	**1.0502**	**6.2900e-003**	**0.9372**	**0.9435**	**0.0000**	**5,539.4596**	**5,539.4596**	**1.2916**		**5,571.7503**

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	lb/day										lb/day					
Hauling	0.1852	5.7555	2.0939	0.0278	30.7256	0.0108	30.7364	7.5617	0.0104	7.5721		3,031.8229	3,031.8229	0.2033		3,036.9054
Vendor	0.0187	0.6602	0.1928	2.3300e-003	0.0640	7.5000e-004	0.0648	0.0184	7.2000e-004	0.0191		249.5625	249.5625	0.0138		249.9068
Worker	0.1083	0.0554	0.6987	2.6700e-003	0.3577	2.2000e-003	0.3599	0.0949	2.0300e-003	0.0969		266.6903	266.6903	5.0600e-003		266.8169
Total	**0.3122**	**6.4711**	**2.9854**	**0.0328**	**31.1473**	**0.0138**	**31.1610**	**7.6750**	**0.0131**	**7.6881**		**3,548.0756**	**3,548.0756**	**0.2221**		**3,553.6291**

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	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	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
Other Asphalt Surfaces	0.551582	0.041972	0.204917	0.113538	0.013798	0.005777	0.022002	0.036198	0.002156	0.001623	0.004914	0.000713	0.000825

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

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	lb/day										lb/day					
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
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**

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	lb/day										lb/day					
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
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**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1091	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Unmitigated	0.1091	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699

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	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1063					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8100e-003	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Total	**0.1091**	**2.8000e-004**	**0.0306**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**		**0.0657**	**0.0657**	**1.7000e-004**		**0.0699**

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	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1063					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8100e-003	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0657	0.0657	1.7000e-004		0.0699
Total	**0.1091**	**2.8000e-004**	**0.0306**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**		**0.0657**	**0.0657**	**1.7000e-004**		**0.0699**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

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

Western Trunk Line Project

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	300.00	1000sqft	6.89	300,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2027
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Operational year 2027.

Land Use - 300,000 SF of roadway to be paved and restriped.

Construction Phase - Construction phasing information provided by LADWP.

Off-road Equipment - Construction equipment information based on information provided by LADWP.

Off-road Equipment - Construction equipment information based on information provided by LADWP.

Off-road Equipment - Construction equipment information based on information provided by LADWP.

Trips and VMT - Construction trip data provided by the project applicant.

Grading – Graded area based on area to be paved.

Vehicle Emission Factors - CalEEMod Defaults.

Vehicle Emission Factors - CalEEMod Defaults.

Vehicle Emission Factors - CalEEMod Defaults.

Construction Off-road Equipment Mitigation – Compliance with SCAQMD Rule 403.

Fleet Mix – CalEEMod Defaults.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	100	0
tblAreaCoating	Area_Parking	18000	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	1,040.00
tblConstructionPhase	NumDays	10.00	1,040.00
tblFleetMix	MH	8.0900e-004	8.2500e-004
tblFleetMix	SBUS	7.1600e-004	7.1300e-004
tblGrading	AcresOfGrading	0.00	127.00
tblGrading	AcresOfGrading	0.00	127.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	41,600.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	WorkerTripNumber	38.00	16.00
tblTripsAndVMT	WorkerTripNumber	38.00	32.00

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					
2023	0.7639	7.0489	8.7996	0.0181	0.4943	0.3086	0.8029	0.1068	0.2919	0.3987	0.0000	1,611.6050	1,611.6050	0.3061	0.0000	1,619.2575
2024	0.7962	7.2866	9.6636	0.0199	0.5034	0.3027	0.8061	0.1094	0.2861	0.3955	0.0000	1,771.0486	1,771.0486	0.3354	0.0000	1,779.4344
2025	0.7405	6.7061	9.5797	0.0198	0.5030	0.2609	0.7639	0.1093	0.2465	0.3558	0.0000	1,760.0614	1,760.0614	0.3325	0.0000	1,768.3733
2026	0.7394	6.6908	9.5702	0.0197	0.5030	0.2609	0.7639	0.1093	0.2465	0.3558	0.0000	1,756.0924	1,756.0924	0.3322	0.0000	1,764.3984
2027	0.0509	0.4605	0.6594	1.3600e-003	0.4107	0.0180	0.4287	0.0826	0.0170	0.0996	0.0000	120.8673	120.8673	0.0229	0.0000	121.4397
Maximum	**0.7962**	**7.2866**	**9.6636**	**0.0199**	**0.5034**	**0.3086**	**0.8061**	**0.1094**	**0.2919**	**0.3987**	**0.0000**	**1,771.0486**	**1,771.0486**	**0.3354**	**0.0000**	**1,779.4344**

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					
2023	0.7639	7.0489	8.7996	0.0181	0.4202	0.3086	0.7288	0.0988	0.2919	0.3907	0.0000	1,611.6035	1,611.6035	0.3061	0.0000	1,619.2561
2024	0.7962	7.2866	9.6636	0.0199	0.4293	0.3027	0.7320	0.1014	0.2861	0.3875	0.0000	1,771.0470	1,771.0470	0.3354	0.0000	1,779.4328
2025	0.7405	6.7061	9.5797	0.0198	0.4289	0.2609	0.6898	0.1013	0.2465	0.3478	0.0000	1,760.0598	1,760.0598	0.3325	0.0000	1,768.3718
2026	0.7394	6.6908	9.5702	0.0197	0.4289	0.2609	0.6898	0.1013	0.2465	0.3478	0.0000	1,756.0908	1,756.0908	0.3322	0.0000	1,764.3968
2027	0.0509	0.4605	0.6594	1.3600e-003	0.3366	0.0180	0.3546	0.0746	0.0170	0.0916	0.0000	120.8672	120.8672	0.0229	0.0000	121.4396

Maximum	0.7962	7.2866	9.6636	0.0199	0.4293	0.3086	0.7320	0.1014	0.2919	0.3907	0.0000	1,771.0470	1,771.0470	0.3354	0.0000	1,779.4328

	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	15.34	0.00	10.39	7.73	0.00	2.49	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)
5	1-3-2023	4-2-2023	1.4282	1.4282
6	4-3-2023	7-2-2023	2.1287	2.1287
7	7-3-2023	10-2-2023	2.1522	2.1522
8	10-3-2023	1-2-2024	2.1512	2.1512
9	1-3-2024	4-2-2024	2.0021	2.0021
10	4-3-2024	7-2-2024	2.0003	2.0003
11	7-3-2024	10-2-2024	2.0223	2.0223
12	10-3-2024	1-2-2025	2.0209	2.0209
13	1-3-2025	4-2-2025	1.8311	1.8311
14	4-3-2025	7-2-2025	1.8497	1.8497
15	7-3-2025	10-2-2025	1.8700	1.8700
16	10-3-2025	1-2-2026	1.8718	1.8718
17	1-3-2026	4-2-2026	1.8271	1.8271
18	4-3-2026	7-2-2026	1.8457	1.8457
19	7-3-2026	10-2-2026	1.8660	1.8660
20	10-3-2026	1-2-2027	1.8677	1.8677
21	1-3-2027	4-2-2027	0.4863	0.4863
		Highest	2.1522	2.1522

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	0.0197	3.0000e-005	3.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.4500e-003	7.4500e-003	2.0000e-005	0.0000	7.9300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0197**	**3.0000e-005**	**3.8200e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**7.4500e-003**	**7.4500e-003**	**2.0000e-005**	**0.0000**	**7.9300e-003**

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	0.0197	3.0000e-005	3.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.4500e-003	7.4500e-003	2.0000e-005	0.0000	7.9300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0197**	**3.0000e-005**	**3.8200e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**7.4500e-003**	**7.4500e-003**	**2.0000e-005**	**0.0000**	**7.9300e-003**

	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	Pipe Jacking - Construction of the Pits	Site Preparation	2/1/2023	1/26/2027	5	1040	
2	Open Trench Pipe Installation	Grading	2/1/2023	1/26/2027	5	1040	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 6.89

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Pipe Jacking - Construction of the Pits	Air Compressors	1	8.00	78	0.48
Pipe Jacking - Construction of the Pits	Concrete/Industrial Saws	1	8.00	81	0.73
Pipe Jacking - Construction of the Pits	Cranes	1	8.00	231	0.29
Pipe Jacking - Construction of the Pits	Excavators	3	8.00	158	0.38
Pipe Jacking - Construction of the Pits	Forklifts	1	8.00	89	0.20
Pipe Jacking - Construction of the Pits	Generator Sets	1	8.00	84	0.74
Pipe Jacking - Construction of the Pits	Paving Equipment	1	8.00	132	0.36
Pipe Jacking - Construction of the Pits	Plate Compactors	1	8.00	8	0.43
Pipe Jacking - Construction of the Pits	Rollers	1	8.00	80	0.38
Pipe Jacking - Construction of the Pits	Rubber Tired Dozers	0	0.00	247	0.40
Pipe Jacking - Construction of the Pits	Sweepers/Scrubbers	1	8.00	64	0.46
Pipe Jacking - Construction of the Pits	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Pipe Jacking - Construction of the Pits	Welders	1	8.00	46	0.45
Open Trench Pipe Installation	Air Compressors	1	8.00	78	0.48
Open Trench Pipe Installation	Concrete/Industrial Saws	1	8.00	81	0.73
Open Trench Pipe Installation	Cranes	1	8.00	231	0.29
Open Trench Pipe Installation	Excavators	3	8.00	158	0.38

Open Trench Pipe Installation	Forklifts	1	8.00	89	0.20
Open Trench Pipe Installation	Generator Sets	1	8.00	84	0.74
Open Trench Pipe Installation	Graders	0	0.00	187	0.41
Open Trench Pipe Installation	Paving Equipment	1	8.00	132	0.36
Open Trench Pipe Installation	Plate Compactors	1	8.00	8	0.43
Open Trench Pipe Installation	Rollers	1	8.00	80	0.38
Open Trench Pipe Installation	Rubber Tired Dozers	0	0.00	247	0.40
Open Trench Pipe Installation	Sweepers/Scrubbers	1	8.00	64	0.46
Open Trench Pipe Installation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Open Trench Pipe Installation	Welders	1	8.00	46	0.45

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
Pipe Jacking - Construction of the	15	16.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Open Trench Pipe Installation	15	32.00	10.00	41,600.00	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 Pipe Jacking - Construction of the Pits - 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					
Fugitive Dust					0.0673	0.0000	0.0673	7.2700e-003	0.0000	7.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	0.3593	3.1083	4.1855	6.9200e-003		0.1534	0.1534		0.1451	0.1451	0.0000	597.8539	597.8539	0.1407	0.0000	601.3721
Total	**0.3593**	**3.1083**	**4.1855**	**6.9200e-003**	**0.0673**	**0.1534**	**0.2207**	**7.2700e-003**	**0.1451**	**0.1523**	**0.0000**	**597.8539**	**597.8539**	**0.1407**	**0.0000**	**601.3721**

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	7.0200e-003	4.7900e-003	0.0565	1.9000e-004	0.0209	1.5000e-004	0.0210	5.5500e-003	1.4000e-004	5.6800e-003	0.0000	16.8891	16.8891	4.0000e-004	0.0000	16.8991
Total	**7.0200e-003**	**4.7900e-003**	**0.0565**	**1.9000e-004**	**0.0209**	**1.5000e-004**	**0.0210**	**5.5500e-003**	**1.4000e-004**	**5.6800e-003**	**0.0000**	**16.8891**	**16.8891**	**4.0000e-004**	**0.0000**	**16.8991**

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					0.0303	0.0000	0.0303	3.2700e-003	0.0000	3.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3593	3.1083	4.1855	6.9200e-003		0.1534	0.1534		0.1451	0.1451	0.0000	597.8532	597.8532	0.1407	0.0000	601.3714
Total	**0.3593**	**3.1083**	**4.1855**	**6.9200e-003**	**0.0303**	**0.1534**	**0.1837**	**3.2700e-003**	**0.1451**	**0.1483**	**0.0000**	**597.8532**	**597.8532**	**0.1407**	**0.0000**	**601.3714**

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	7.0200e-003	4.7900e-003	0.0565	1.9000e-004	0.0209	1.5000e-004	0.0210	5.5500e-003	1.4000e-004	5.6800e-003	0.0000	16.8891	16.8891	4.0000e-004	0.0000	16.8991
Total	**7.0200e-003**	**4.7900e-003**	**0.0565**	**1.9000e-004**	**0.0209**	**1.5000e-004**	**0.0210**	**5.5500e-003**	**1.4000e-004**	**5.6800e-003**	**0.0000**	**16.8891**	**16.8891**	**4.0000e-004**	**0.0000**	**16.8991**

3.2 Pipe Jacking - Construction of the Pits - 2024

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					0.0673	0.0000	0.0673	7.2700e-003	0.0000	7.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3737	3.1883	4.6006	7.6100e-003		0.1503	0.1503		0.1421	0.1421	0.0000	658.2467	658.2467	0.1542	0.0000	662.1026
Total	**0.3737**	**3.1883**	**4.6006**	**7.6100e-003**	**0.0673**	**0.1503**	**0.2177**	**7.2700e-003**	**0.1421**	**0.1493**	**0.0000**	**658.2467**	**658.2467**	**0.1542**	**0.0000**	**662.1026**

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	7.3200e-003	4.8100e-003	0.0580	2.0000e-004	0.0230	1.6000e-004	0.0232	6.1100e-003	1.5000e-004	6.2600e-003	0.0000	17.9804	17.9804	4.0000e-004	0.0000	17.9904
Total	**7.3200e-003**	**4.8100e-003**	**0.0580**	**2.0000e-004**	**0.0230**	**1.6000e-004**	**0.0232**	**6.1100e-003**	**1.5000e-004**	**6.2600e-003**	**0.0000**	**17.9804**	**17.9804**	**4.0000e-004**	**0.0000**	**17.9904**

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					0.0303	0.0000	0.0303	3.2700e-003	0.0000	3.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3737	3.1883	4.6006	7.6100e-003		0.1503	0.1503		0.1421	0.1421	0.0000	658.2459	658.2459	0.1542	0.0000	662.1018
Total	**0.3737**	**3.1883**	**4.6006**	**7.6100e-003**	**0.0303**	**0.1503**	**0.1806**	**3.2700e-003**	**0.1421**	**0.1453**	**0.0000**	**658.2459**	**658.2459**	**0.1542**	**0.0000**	**662.1018**

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	7.3200e-003	4.8100e-003	0.0580	2.0000e-004	0.0230	1.6000e-004	0.0232	6.1100e-003	1.5000e-004	6.2600e-003	0.0000	17.9804	17.9804	4.0000e-004	0.0000	17.9904
Total	**7.3200e-003**	**4.8100e-003**	**0.0580**	**2.0000e-004**	**0.0230**	**1.6000e-004**	**0.0232**	**6.1100e-003**	**1.5000e-004**	**6.2600e-003**	**0.0000**	**17.9804**	**17.9804**	**4.0000e-004**	**0.0000**	**17.9904**

3.2 Pipe Jacking - Construction of the Pits - 2025

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					0.0673	0.0000	0.0673	7.2700e-003	0.0000	7.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3466	2.9072	4.5652	7.5900e-003		0.1295	0.1295		0.1223	0.1223	0.0000	655.8034	655.8034	0.1529	0.0000	659.6262
Total	**0.3466**	**2.9072**	**4.5652**	**7.5900e-003**	**0.0673**	**0.1295**	**0.1968**	**7.2700e-003**	**0.1223**	**0.1296**	**0.0000**	**655.8034**	**655.8034**	**0.1529**	**0.0000**	**659.6262**

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	6.9300e-003	4.3800e-003	0.0537	1.9000e-004	0.0229	1.6000e-004	0.0231	6.0800e-003	1.4000e-004	6.2300e-003	0.0000	17.2062	17.2062	3.6000e-004	0.0000	17.2153
Total	**6.9300e-003**	**4.3800e-003**	**0.0537**	**1.9000e-004**	**0.0229**	**1.6000e-004**	**0.0231**	**6.0800e-003**	**1.4000e-004**	**6.2300e-003**	**0.0000**	**17.2062**	**17.2062**	**3.6000e-004**	**0.0000**	**17.2153**

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					0.0303	0.0000	0.0303	3.2700e-003	0.0000	3.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3466	2.9072	4.5651	7.5900e-003		0.1294	0.1294		0.1223	0.1223	0.0000	655.8026	655.8026	0.1529	0.0000	659.6254
Total	**0.3466**	**2.9072**	**4.5651**	**7.5900e-003**	**0.0303**	**0.1294**	**0.1597**	**3.2700e-003**	**0.1223**	**0.1256**	**0.0000**	**655.8026**	**655.8026**	**0.1529**	**0.0000**	**659.6254**

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	6.9300e-003	4.3800e-003	0.0537	1.9000e-004	0.0229	1.6000e-004	0.0231	6.0800e-003	1.4000e-004	6.2300e-003	0.0000	17.2062	17.2062	3.6000e-004	0.0000	17.2153
Total	**6.9300e-003**	**4.3800e-003**	**0.0537**	**1.9000e-004**	**0.0229**	**1.6000e-004**	**0.0231**	**6.0800e-003**	**1.4000e-004**	**6.2300e-003**	**0.0000**	**17.2062**	**17.2062**	**3.6000e-004**	**0.0000**	**17.2153**

3.2 Pipe Jacking - Construction of the Pits - 2026

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					0.0673	0.0000	0.0673	7.2700e-003	0.0000	7.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	0.3466	2.9072	4.5652	7.5900e-003		0.1295	0.1295		0.1223	0.1223	0.0000	655.8034	655.8034	0.1529	0.0000	659.6262
Total	**0.3466**	**2.9072**	**4.5652**	**7.5900e-003**	**0.0673**	**0.1295**	**0.1968**	**7.2700e-003**	**0.1223**	**0.1296**	**0.0000**	**655.8034**	**655.8034**	**0.1529**	**0.0000**	**659.6262**

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	6.6200e-003	4.0300e-003	0.0502	1.8000e-004	0.0229	1.5000e-004	0.0231	6.0800e-003	1.4000e-004	6.2200e-003	0.0000	16.5962	16.5962	3.3000e-004	0.0000	16.6045
Total	**6.6200e-003**	**4.0300e-003**	**0.0502**	**1.8000e-004**	**0.0229**	**1.5000e-004**	**0.0231**	**6.0800e-003**	**1.4000e-004**	**6.2200e-003**	**0.0000**	**16.5962**	**16.5962**	**3.3000e-004**	**0.0000**	**16.6045**

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					0.0303	0.0000	0.0303	3.2700e-003	0.0000	3.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3466	2.9072	4.5651	7.5900e-003		0.1294	0.1294		0.1223	0.1223	0.0000	655.8026	655.8026	0.1529	0.0000	659.6254
Total	**0.3466**	**2.9072**	**4.5651**	**7.5900e-003**	**0.0303**	**0.1294**	**0.1597**	**3.2700e-003**	**0.1223**	**0.1256**	**0.0000**	**655.8026**	**655.8026**	**0.1529**	**0.0000**	**659.6254**

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	6.6200e-003	4.0300e-003	0.0502	1.8000e-004	0.0229	1.5000e-004	0.0231	6.0800e-003	1.4000e-004	6.2200e-003	0.0000	16.5962	16.5962	3.3000e-004	0.0000	16.6045
Total	**6.6200e-003**	**4.0300e-003**	**0.0502**	**1.8000e-004**	**0.0229**	**1.5000e-004**	**0.0231**	**6.0800e-003**	**1.4000e-004**	**6.2200e-003**	**0.0000**	**16.5962**	**16.5962**	**3.3000e-004**	**0.0000**	**16.6045**

3.2 Pipe Jacking - Construction of the Pits - 2027

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					0.0673	0.0000	0.0673	7.2700e-003	0.0000	7.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0239	0.2005	0.3148	5.2000e-004		8.9300e-003	8.9300e-003		8.4300e-003	8.4300e-003	0.0000	45.2278	45.2278	0.0106	0.0000	45.4915
Total	**0.0239**	**0.2005**	**0.3148**	**5.2000e-004**	**0.0673**	**8.9300e-003**	**0.0763**	**7.2700e-003**	**8.4300e-003**	**0.0157**	**0.0000**	**45.2278**	**45.2278**	**0.0106**	**0.0000**	**45.4915**

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	4.4000e-004	2.6000e-004	3.2400e-003	1.0000e-005	1.5800e-003	1.0000e-005	1.5900e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.1075	1.1075	2.0000e-005	0.0000	1.1080
Total	**4.4000e-004**	**2.6000e-004**	**3.2400e-003**	**1.0000e-005**	**1.5800e-003**	**1.0000e-005**	**1.5900e-003**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**0.0000**	**1.1075**	**1.1075**	**2.0000e-005**	**0.0000**	**1.1080**

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					0.0303	0.0000	0.0303	3.2700e-003	0.0000	3.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0239	0.2005	0.3148	5.2000e-004		8.9300e-003	8.9300e-003		8.4300e-003	8.4300e-003	0.0000	45.2278	45.2278	0.0106	0.0000	45.4914
Total	**0.0239**	**0.2005**	**0.3148**	**5.2000e-004**	**0.0303**	**8.9300e-003**	**0.0392**	**3.2700e-003**	**8.4300e-003**	**0.0117**	**0.0000**	**45.2278**	**45.2278**	**0.0106**	**0.0000**	**45.4914**

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	4.4000e-004	2.6000e-004	3.2400e-003	1.0000e-005	1.5800e-003	1.0000e-005	1.5900e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.1075	1.1075	2.0000e-005	0.0000	1.1080
Total	**4.4000e-004**	**2.6000e-004**	**3.2400e-003**	**1.0000e-005**	**1.5800e-003**	**1.0000e-005**	**1.5900e-003**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**0.0000**	**1.1075**	**1.1075**	**2.0000e-005**	**0.0000**	**1.1080**

3.3 Open Trench Pipe Installation - 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					
Fugitive Dust					0.0673	0.0000	0.0673	7.2700e-003	0.0000	7.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3593	3.1083	4.1855	6.9200e-003		0.1534	0.1534		0.1451	0.1451	0.0000	597.8539	597.8539	0.1407	0.0000	601.3721
Total	**0.3593**	**3.1083**	**4.1855**	**6.9200e-003**	**0.0673**	**0.1534**	**0.2207**	**7.2700e-003**	**0.1451**	**0.1523**	**0.0000**	**597.8539**	**597.8539**	**0.1407**	**0.0000**	**601.3721**

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	0.0220	0.7357	0.2349	3.4200e-003	0.2894	1.3500e-003	0.2908	0.0734	1.2900e-003	0.0747	0.0000	337.3002	337.3002	0.0219	0.0000	337.8482
Vendor	2.3700e-003	0.0822	0.0241	2.9000e-004	7.5000e-003	9.0000e-005	7.5900e-003	2.1600e-003	9.0000e-005	2.2500e-003	0.0000	27.9296	27.9296	1.5400e-003	0.0000	27.9680
Worker	0.0140	9.5900e-003	0.1130	3.7000e-004	0.0418	3.0000e-004	0.0421	0.0111	2.7000e-004	0.0114	0.0000	33.7783	33.7783	7.9000e-004	0.0000	33.7981
Total	**0.0384**	**0.8275**	**0.3720**	**4.0800e-003**	**0.3387**	**1.7400e-003**	**0.3404**	**0.0867**	**1.6500e-003**	**0.0883**	**0.0000**	**399.0080**	**399.0080**	**0.0243**	**0.0000**	**399.6143**

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					0.0303	0.0000	0.0303	3.2700e-003	0.0000	3.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3593	3.1083	4.1855	6.9200e-003		0.1534	0.1534		0.1451	0.1451	0.0000	597.8532	597.8532	0.1407	0.0000	601.3714
Total	**0.3593**	**3.1083**	**4.1855**	**6.9200e-003**	**0.0303**	**0.1534**	**0.1837**	**3.2700e-003**	**0.1451**	**0.1483**	**0.0000**	**597.8532**	**597.8532**	**0.1407**	**0.0000**	**601.3714**

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	0.0220	0.7357	0.2349	3.4200e-003	0.2894	1.3500e-003	0.2908	0.0734	1.2900e-003	0.0747	0.0000	337.3002	337.3002	0.0219	0.0000	337.8482
Vendor	2.3700e-003	0.0822	0.0241	2.9000e-004	7.5000e-003	9.0000e-005	7.5900e-003	2.1600e-003	9.0000e-005	2.2500e-003	0.0000	27.9296	27.9296	1.5400e-003	0.0000	27.9680
Worker	0.0140	9.5900e-003	0.1130	3.7000e-004	0.0418	3.0000e-004	0.0421	0.0111	2.7000e-004	0.0114	0.0000	33.7783	33.7783	7.9000e-004	0.0000	33.7981
Total	**0.0384**	**0.8275**	**0.3720**	**4.0800e-003**	**0.3387**	**1.7400e-003**	**0.3404**	**0.0867**	**1.6500e-003**	**0.0883**	**0.0000**	**399.0080**	**399.0080**	**0.0243**	**0.0000**	**399.6143**

3.3 Open Trench Pipe Installation - 2024

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					0.0673	0.0000	0.0673	7.2700e-003	0.0000	7.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	0.3737	3.1883	4.6006	7.6100e-003		0.1503	0.1503		0.1421	0.1421	0.0000	658.2467	658.2467	0.1542	0.0000	662.1026
Total	**0.3737**	**3.1883**	**4.6006**	**7.6100e-003**	**0.0673**	**0.1503**	**0.2177**	**7.2700e-003**	**0.1421**	**0.1493**	**0.0000**	**658.2467**	**658.2467**	**0.1542**	**0.0000**	**662.1026**

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	0.0244	0.8054	0.2626	3.7500e-003	0.2914	1.4700e-003	0.2929	0.0742	1.4100e-003	0.0756	0.0000	369.9767	369.9767	0.0241	0.0000	370.5790
Vendor	2.5500e-003	0.0902	0.0258	3.2000e-004	8.2600e-003	1.0000e-004	8.3600e-003	2.3800e-003	1.0000e-004	2.4800e-003	0.0000	30.6374	30.6374	1.6600e-003	0.0000	30.6790
Worker	0.0146	9.6100e-003	0.1160	4.0000e-004	0.0460	3.2000e-004	0.0463	0.0122	3.0000e-004	0.0125	0.0000	35.9608	35.9608	8.0000e-004	0.0000	35.9808
Total	**0.0416**	**0.9052**	**0.4044**	**4.4700e-003**	**0.3457**	**1.8900e-003**	**0.3476**	**0.0887**	**1.8100e-003**	**0.0906**	**0.0000**	**436.5749**	**436.5749**	**0.0266**	**0.0000**	**437.2388**

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					0.0303	0.0000	0.0303	3.2700e-003	0.0000	3.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3737	3.1883	4.6006	7.6100e-003		0.1503	0.1503		0.1421	0.1421	0.0000	658.2459	658.2459	0.1542	0.0000	662.1018
Total	**0.3737**	**3.1883**	**4.6006**	**7.6100e-003**	**0.0303**	**0.1503**	**0.1806**	**3.2700e-003**	**0.1421**	**0.1453**	**0.0000**	**658.2459**	**658.2459**	**0.1542**	**0.0000**	**662.1018**

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	0.0244	0.8054	0.2626	3.7500e-003	0.2914	1.4700e-003	0.2929	0.0742	1.4100e-003	0.0756	0.0000	369.9767	369.9767	0.0241	0.0000	370.5790
Vendor	2.5500e-003	0.0902	0.0258	3.2000e-004	8.2600e-003	1.0000e-004	8.3600e-003	2.3800e-003	1.0000e-004	2.4800e-003	0.0000	30.6374	30.6374	1.6600e-003	0.0000	30.6790
Worker	0.0146	9.6100e-003	0.1160	4.0000e-004	0.0460	3.2000e-004	0.0463	0.0122	3.0000e-004	0.0125	0.0000	35.9608	35.9608	8.0000e-004	0.0000	35.9808
Total	**0.0416**	**0.9052**	**0.4044**	**4.4700e-003**	**0.3457**	**1.8900e-003**	**0.3476**	**0.0887**	**1.8100e-003**	**0.0906**	**0.0000**	**436.5749**	**436.5749**	**0.0266**	**0.0000**	**437.2388**

3.3 Open Trench Pipe Installation - 2025

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					0.0673	0.0000	0.0673	7.2700e-003	0.0000	7.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3466	2.9072	4.5652	7.5900e-003		0.1295	0.1295		0.1223	0.1223	0.0000	655.8034	655.8034	0.1529	0.0000	659.6262
Total	**0.3466**	**2.9072**	**4.5652**	**7.5900e-003**	**0.0673**	**0.1295**	**0.1968**	**7.2700e-003**	**0.1223**	**0.1296**	**0.0000**	**655.8034**	**655.8034**	**0.1529**	**0.0000**	**659.6262**

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	0.0241	0.7894	0.2634	3.7100e-003	0.2914	1.4500e-003	0.2928	0.0741	1.3800e-003	0.0755	0.0000	366.4869	366.4869	0.0239	0.0000	367.0852
Vendor	2.4800e-003	0.0891	0.0250	3.1000e-004	8.2300e-003	1.0000e-004	8.3300e-003	2.3700e-003	1.0000e-004	2.4700e-003	0.0000	30.3491	30.3491	1.6300e-003	0.0000	30.3899
Worker	0.0139	8.7600e-003	0.1073	3.8000e-004	0.0458	3.1000e-004	0.0461	0.0122	2.9000e-004	0.0125	0.0000	34.4124	34.4124	7.3000e-004	0.0000	34.4306
Total	**0.0405**	**0.8872**	**0.3957**	**4.4000e-003**	**0.3454**	**1.8600e-003**	**0.3473**	**0.0887**	**1.7700e-003**	**0.0904**	**0.0000**	**431.2484**	**431.2484**	**0.0263**	**0.0000**	**431.9057**

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					0.0303	0.0000	0.0303	3.2700e-003	0.0000	3.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3466	2.9072	4.5651	7.5900e-003		0.1294	0.1294		0.1223	0.1223	0.0000	655.8026	655.8026	0.1529	0.0000	659.6254
Total	**0.3466**	**2.9072**	**4.5651**	**7.5900e-003**	**0.0303**	**0.1294**	**0.1597**	**3.2700e-003**	**0.1223**	**0.1256**	**0.0000**	**655.8026**	**655.8026**	**0.1529**	**0.0000**	**659.6254**

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	0.0241	0.7894	0.2634	3.7100e-003	0.2914	1.4500e-003	0.2928	0.0741	1.3800e-003	0.0755	0.0000	366.4869	366.4869	0.0239	0.0000	367.0852
Vendor	2.4800e-003	0.0891	0.0250	3.1000e-004	8.2300e-003	1.0000e-004	8.3300e-003	2.3700e-003	1.0000e-004	2.4700e-003	0.0000	30.3491	30.3491	1.6300e-003	0.0000	30.3899
Worker	0.0139	8.7600e-003	0.1073	3.8000e-004	0.0458	3.1000e-004	0.0461	0.0122	2.9000e-004	0.0125	0.0000	34.4124	34.4124	7.3000e-004	0.0000	34.4306
Total	**0.0405**	**0.8872**	**0.3957**	**4.4000e-003**	**0.3454**	**1.8600e-003**	**0.3473**	**0.0887**	**1.7700e-003**	**0.0904**	**0.0000**	**431.2484**	**431.2484**	**0.0263**	**0.0000**	**431.9057**

3.3 Open Trench Pipe Installation - 2026

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					0.0673	0.0000	0.0673	7.2700e-003	0.0000	7.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3466	2.9072	4.5652	7.5900e-003		0.1295	0.1295		0.1223	0.1223	0.0000	655.8034	655.8034	0.1529	0.0000	659.6262
Total	**0.3466**	**2.9072**	**4.5652**	**7.5900e-003**	**0.0673**	**0.1295**	**0.1968**	**7.2700e-003**	**0.1223**	**0.1296**	**0.0000**	**655.8034**	**655.8034**	**0.1529**	**0.0000**	**659.6262**

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	0.0240	0.7760	0.2650	3.6900e-003	0.2914	1.4200e-003	0.2928	0.0741	1.3600e-003	0.0755	0.0000	364.5121	364.5121	0.0238	0.0000	365.1074
Vendor	2.4200e-003	0.0882	0.0245	3.1000e-004	8.2300e-003	1.0000e-004	8.3200e-003	2.3700e-003	9.0000e-005	2.4700e-003	0.0000	30.1850	30.1850	1.6000e-003	0.0000	30.2251
Worker	0.0133	8.0600e-003	0.1003	3.7000e-004	0.0458	3.0000e-004	0.0461	0.0122	2.8000e-004	0.0125	0.0000	33.1924	33.1924	6.7000e-004	0.0000	33.2090
Total	**0.0396**	**0.8723**	**0.3898**	**4.3700e-003**	**0.3454**	**1.8200e-003**	**0.3472**	**0.0887**	**1.7300e-003**	**0.0904**	**0.0000**	**427.8895**	**427.8895**	**0.0261**	**0.0000**	**428.5415**

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					0.0303	0.0000	0.0303	3.2700e-003	0.0000	3.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3466	2.9072	4.5651	7.5900e-003		0.1294	0.1294		0.1223	0.1223	0.0000	655.8026	655.8026	0.1529	0.0000	659.6254
Total	**0.3466**	**2.9072**	**4.5651**	**7.5900e-003**	**0.0303**	**0.1294**	**0.1597**	**3.2700e-003**	**0.1223**	**0.1256**	**0.0000**	**655.8026**	**655.8026**	**0.1529**	**0.0000**	**659.6254**

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	0.0240	0.7760	0.2650	3.6900e-003	0.2914	1.4200e-003	0.2928	0.0741	1.3600e-003	0.0755	0.0000	364.5121	364.5121	0.0238	0.0000	365.1074
Vendor	2.4200e-003	0.0882	0.0245	3.1000e-004	8.2300e-003	1.0000e-004	8.3200e-003	2.3700e-003	9.0000e-005	2.4700e-003	0.0000	30.1850	30.1850	1.6000e-003	0.0000	30.2251
Worker	0.0133	8.0600e-003	0.1003	3.7000e-004	0.0458	3.0000e-004	0.0461	0.0122	2.8000e-004	0.0125	0.0000	33.1924	33.1924	6.7000e-004	0.0000	33.2090
Total	**0.0396**	**0.8723**	**0.3898**	**4.3700e-003**	**0.3454**	**1.8200e-003**	**0.3472**	**0.0887**	**1.7300e-003**	**0.0904**	**0.0000**	**427.8895**	**427.8895**	**0.0261**	**0.0000**	**428.5415**

3.3 Open Trench Pipe Installation - 2027

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					0.0673	0.0000	0.0673	7.2700e-003	0.0000	7.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	0.0239	0.2005	0.3148	5.2000e-004		8.9300e-003	8.9300e-003		8.4300e-003	8.4300e-003	0.0000	45.2278	45.2278	0.0106	0.0000	45.4915
Total	**0.0239**	**0.2005**	**0.3148**	**5.2000e-004**	**0.0673**	**8.9300e-003**	**0.0763**	**7.2700e-003**	**8.4300e-003**	**0.0157**	**0.0000**	**45.2278**	**45.2278**	**0.0106**	**0.0000**	**45.4915**

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	1.6400e-003	0.0527	0.0184	2.5000e-004	0.2707	1.0000e-004	0.2708	0.0666	9.0000e-005	0.0667	0.0000	25.0176	25.0176	1.6300e-003	0.0000	25.0584
Vendor	1.6000e-004	6.0300e-003	1.6600e-003	2.0000e-005	5.7000e-004	1.0000e-005	5.7000e-004	1.6000e-004	1.0000e-005	1.7000e-004	0.0000	2.0716	2.0716	1.1000e-004	0.0000	2.0744
Worker	8.7000e-004	5.1000e-004	6.4900e-003	2.0000e-005	3.1600e-003	2.0000e-005	3.1800e-003	8.4000e-004	2.0000e-005	8.6000e-004	0.0000	2.2149	2.2149	4.0000e-005	0.0000	2.2160
Total	**2.6700e-003**	**0.0592**	**0.0265**	**2.9000e-004**	**0.2744**	**1.3000e-004**	**0.2745**	**0.0676**	**1.2000e-004**	**0.0677**	**0.0000**	**29.3042**	**29.3042**	**1.7800e-003**	**0.0000**	**29.3487**

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					0.0303	0.0000	0.0303	3.2700e-003	0.0000	3.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0239	0.2005	0.3148	5.2000e-004		8.9300e-003	8.9300e-003		8.4300e-003	8.4300e-003	0.0000	45.2278	45.2278	0.0106	0.0000	45.4914
Total	**0.0239**	**0.2005**	**0.3148**	**5.2000e-004**	**0.0303**	**8.9300e-003**	**0.0392**	**3.2700e-003**	**8.4300e-003**	**0.0117**	**0.0000**	**45.2278**	**45.2278**	**0.0106**	**0.0000**	**45.4914**

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	1.6400e-003	0.0527	0.0184	2.5000e-004	0.2707	1.0000e-004	0.2708	0.0666	9.0000e-005	0.0667	0.0000	25.0176	25.0176	1.6300e-003	0.0000	25.0584
Vendor	1.6000e-004	6.0300e-003	1.6600e-003	2.0000e-005	5.7000e-004	1.0000e-005	5.7000e-004	1.6000e-004	1.0000e-005	1.7000e-004	0.0000	2.0716	2.0716	1.1000e-004	0.0000	2.0744
Worker	8.7000e-004	5.1000e-004	6.4900e-003	2.0000e-005	3.1600e-003	2.0000e-005	3.1800e-003	8.4000e-004	2.0000e-005	8.6000e-004	0.0000	2.2149	2.2149	4.0000e-005	0.0000	2.2160
Total	**2.6700e-003**	**0.0592**	**0.0265**	**2.9000e-004**	**0.2744**	**1.3000e-004**	**0.2745**	**0.0676**	**1.2000e-004**	**0.0677**	**0.0000**	**29.3042**	**29.3042**	**1.7800e-003**	**0.0000**	**29.3487**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT

Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-...	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	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
Other Asphalt Surfaces	0.551582	0.041972	0.204917	0.113538	0.013798	0.005777	0.022002	0.036198	0.002156	0.001623	0.004914	0.000713	0.000825

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

Mitigated

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

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000

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

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0197	3.0000e-005	3.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.4500e-003	7.4500e-003	2.0000e-005	0.0000	7.9300e-003
Unmitigated	0.0197	3.0000e-005	3.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.4500e-003	7.4500e-003	2.0000e-005	0.0000	7.9300e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0194					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.5000e-004	3.0000e-005	3.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.4500e-003	7.4500e-003	2.0000e-005	0.0000	7.9300e-003
Total	**0.0197**	**3.0000e-005**	**3.8200e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**7.4500e-003**	**7.4500e-003**	**2.0000e-005**	**0.0000**	**7.9300e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0194					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.5000e-004	3.0000e-005	3.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.4500e-003	7.4500e-003	2.0000e-005	0.0000	7.9300e-003
Total	**0.0197**	**3.0000e-005**	**3.8200e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**7.4500e-003**	**7.4500e-003**	**2.0000e-005**	**0.0000**	**7.9300e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			

Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 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

APPENDIX B

Biological Technical Report

BIOLOGICAL TECHNICAL REPORT
for the
WESTERN TRUNK LINE PROJECT
LOS ANGELES, CALIFORNIA

Prepared for:

Los Angeles Department of Water & Power

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APPENDICES

FIGURES

TABLES

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
ACOE	U.S. Army Corps of Engineers
AMSL	above mean sea level
BCC	Bird of Conservation Concern
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
FESA	federal Endangered Species Act
IPaC	Information for Planning and Conservation System
LADWP	Los Angeles Department of Water and Power
MBTA	Migratory Bird Treaty Act
NABA	North American Butterfly Association
NCCP	Natural Community Conservation Plan
NRCS	National Resources Conservation Service
OHWM	Ordinary High Water Mark
SMMC	Santa Monica Mountains Conservancy
SSC	Species of Special Concern
US-105	U.S. Highway 105
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

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1 INTRODUCTION

This biological technical report describes the existing biological conditions of the approximately 23,000-linear-foot alignment for the Los Angeles Department of Water and Power (LADWP) proposed Western Trunk Line Project (project). The proposed project would include the replacement of a portion of the Harbor Trunk Line within Western Avenue, from 59th Place to 121st Street. The proposed project would be located in the City of Los Angeles between 59th Place and 108th Street, and in unincorporated Los Angeles County between 108th Street and 121st Street. The proposed project activities, including staging, would occur within the project site defined in this report.

This biological technical report describes the existing biological conditions for the project site, which is located in the City of Los Angeles, California (Figure 1). A project study area encompassing the project site and an area 300 feet from the project site was created to evaluate biological resources potentially present, as well as potential direct and indirect impacts to those biological resources. LADWP may pursue funding through the State Water Board California Drinking Water State Revolving Fund for the project. The Clean Water State Revolving Fund Program receives partial funding from the U.S. Environmental Protection Agency, triggering a federal nexus. As such, projects pursuing Clean Water State Revolving Fund funding are required to comply with requirements of the federal authorities and environmental statutes, including Section 7 of the federal Endangered Species Act (FESA) and the Migratory Bird Treaty Act (MBTA), and a biological resources assessment is required to be provided as per the requirements of the Clean Water State Revolving Fund Environmental Package application. Thus, this biological technical report (1) describes the existing conditions of biological resources within the project study area in terms of vegetation, flora, wildlife, and wildlife habitats, including U.S. Fish and Wildlife Service (USFWS) designated critical habitat; (2) describes potential direct and indirect impacts to biological resources that would result from implementation of the proposed action, and describes those impacts in terms of biological significance in view of federal, state, and local laws and policies, including the California Environmental Quality Act (CEQA); and (3) provides a discussion of the potential impacts associated with the proposed action.

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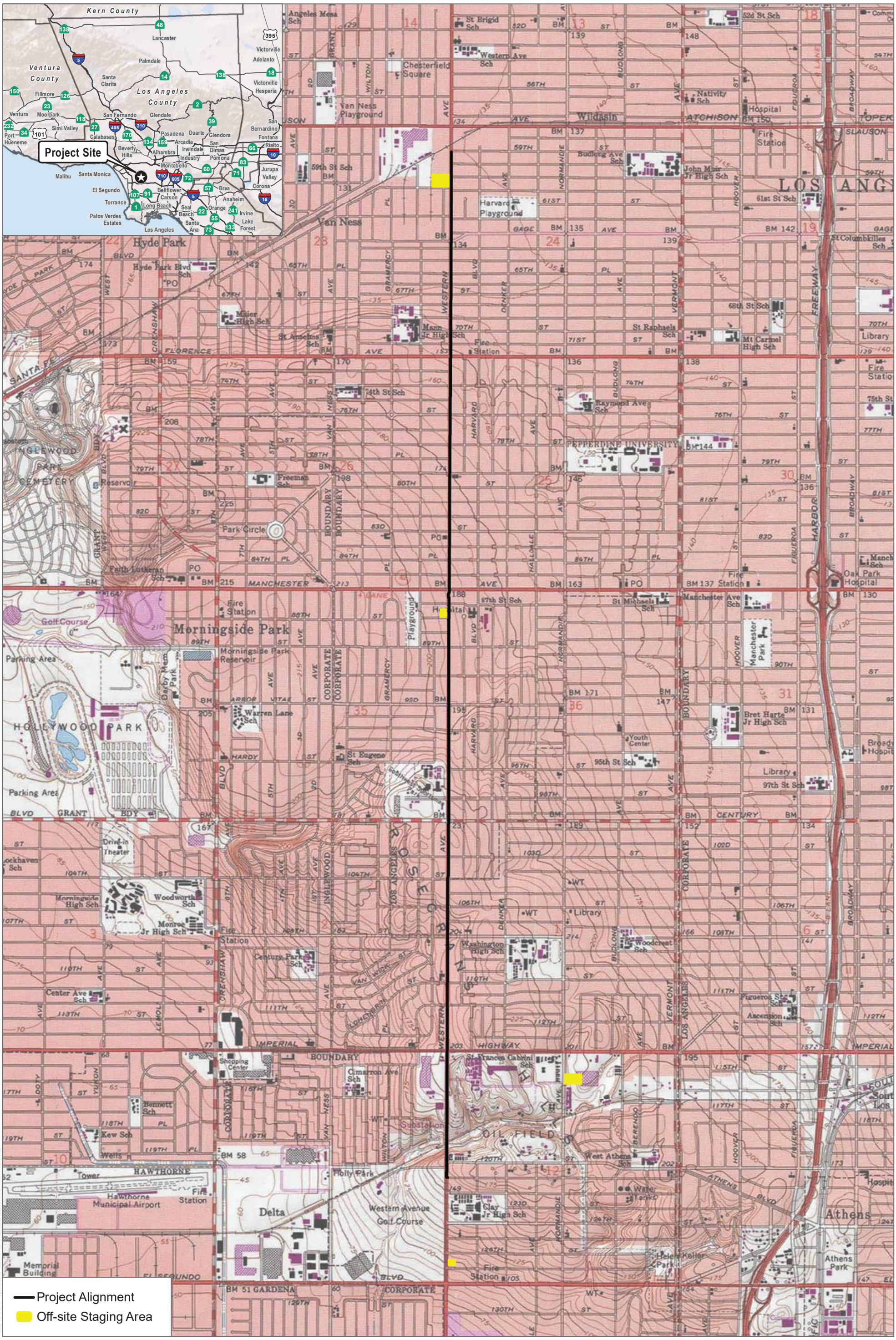

SOURCE: USGS 7.5- Minute Quadrangle, Inglewood CA
Township 02S, Range 14W, Sections 23-26 and 35, 36; Township 03S, Range 14W, Sections 1, 2, 11, 12

LA DWP Los Angeles Department of Water & Power

0 1,000 2,000 Feet

FIGURE 1

Project Location

Western Trunk Line Project

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2 PROJECT SETTING

The project alignment is primarily located in the South Los Angeles Community Plan Area of the City of Los Angeles (City). The southern portion of the trunk line (south of 108th Street) is located within the West Athens/Westmont Community Plan Area of unincorporated Los Angeles County. The proposed pipeline replacement would occur within the public right-of-way (ROW) for Western Avenue. Western Avenue is mapped by the City as an Avenue II on the South Los Angeles Circulation Map (City of Los Angeles 2017) and as a Major Highway in the County of Los Angeles General Plan (County of Los Angeles 2015). For the entirety of the project alignment, Western Avenue is four lanes in width with sidewalks on both sides of the street. On-street parking is provided along portions of the roadway.

The project alignment is located within a heavily urbanized area dominated by residential, commercial, and industrial development, and crosses under the Interstate 105 freeway along Western Avenue at the center of the alignment. Vegetation cover within the study area is limited and predominantly composed of ornamental plantings and landscaping.

2.1 Project Location

The project alignment at its northern terminus is located approximately five miles southwest of downtown Los Angeles. The project alignment extends along Western Avenue in South Los Angeles from 59th Place to 121st Street (Figure 1). Major freeways in the project vicinity include Interstate 105 (I-105), which extends through the southern portion of the project alignment and I-110 to the east. The project can be found on the U.S. Geologic Survey's (USGS) *Inglewood, CA* 7.5-minute topographical quadrangle (USGS 2018).

2.2 Project Description

The proposed project would include the replacement of 23,300 feet of existing pipe along Western Avenue and the installation of new Earthquake Resistant Ductile Iron Pipe (ERDIP) parallel to the existing pipe. The proposed replacement would occur along Western Avenue from 59th Place to 121st Street. As part of the proposed project, LADWP would also replace approximately 4,495 feet of 6-inch and 8-inch diameter water distribution mainline with 12-inch diameter piping along Western Avenue. These improvements would include the following:

- Replacing 3,750 feet of existing 6-inch mainline with 12-inch line from 77th Street to Manchester Avenue;
- Replacing 625 feet of existing 8-inch mainline with 12-inch line from 106th Street to 108th Street;

- Installing approximately 120 feet of 8-inch line to reconnect the existing 8-inch mainline on Western Avenue to the existing 8-inch line on Manchester Avenue;
- Replacing approximately 20 feet of existing 6-inch connection line to 12-inch line at the intersection of 84th Place and Western Avenue;
- Installing approximately 20 feet of 6-inch mainline to reconnect to the existing 8-inch parallel main at the intersection of 89th Street and Western Avenue;
- Replacing approximately 40 feet of existing 6-inch connection line with 8-inch line at the intersection of 108th Street and Western Avenue.

In addition to the proposed trunk line and mainline replacements and improvements, a new regulator station is proposed near the intersection of Western Avenue and Manchester Avenue. The proposed underground regulator station would replace the existing station; however, it would be installed in a new location to provide safer accessibility for maintenance and operation. The new regulator station would include a subsurface vault, access hatches, regulator valves, isolation valves, valve caps, standpipe vents, pipe, and related appurtenances. The existing regulator station would be taken out of service and abandoned.

Appurtenant structures would be installed along the pipeline that are required for pipeline operation and maintenance. The appurtenant structures required for the Western Trunk Line include isolation valves, air valves, maintenance holes, blow-offs, and cathodic protection systems.

Construction Methods

Construction of the proposed project would occur along the existing public right-of-way of Western Avenue parallel to the exiting trunk line, immediately east of its existing alignment using the open-trench and pipe-jacking/tunneling methods. Pipe jacking/tunneling installation would be used for approximately 2,926 lineal feet of pipe installation (60th Street, Florence Avenue, Manchester Avenue, Imperial Highway and I-105), while open trenching would be utilized for the remaining 20,281 feet of pipe installation. Both open trench pipe installations and pipe jacking installations would occur over 48 months. Installations would occur concurrently. The existing trunk line would remain in service during construction activities. The existing trunk line would be abandoned and left in place.

The general process for both open-trench construction and pipe jacking/tunneling consists of utility clearance, site preparation, excavation, shoring, pipe installation, backfilling, and work site street restoration. Construction would require on-site and off-site staging areas for temporary storage of supplies, materials, and equipment. Approximately 300,000 square feet of roadway would be paved and restriped. Approximately 110 cubic yards of soil would be excavated per day and hauled to offsite disposal areas.

Four off-site staging areas may be used during construction; however, staging areas would be located adjacent or in close proximity to the project alignment and would be utilized solely to store construction equipment and materials. The locations of these staging areas are:

- 5975 S. Western Avenue (between 59th Place and 60th Street)
- 8731 S. Western Avenue (between 87th Street and 88th Street)
- 1326 W. Imperial Highway (between Imperial Highway and 120th Street)
- 12610 S. Western Avenue (between 126th Street and 127th Street)

At its northern terminus, the Western Trunk Line would tie into the existing 36-inch riveted steel pipe at the intersection of Western Avenue and 59th Place. At its southern terminus, the Western Trunk Line would tie into the existing 31-inch welded steel pipe at the intersection of Western Avenue and 121st Street.

Construction Schedule

Construction is anticipated to begin in February 2023, would conclude in February 2027, and would generally involve two construction crews of approximately eight workers each. Approximately 300,000 square feet of roadway would be excavated and repaved along the entirety of the alignment. During construction, the total estimated amount of excavation would be approximately 75,000 cubic yards and total export would be approximately 100,000 cubic yards. A total of approximately 75,000 cubic yards of slurry would be imported throughout the construction process for use as backfill. Daily vehicular trips that are expected to occur throughout construction are as follows: maximum of 10 round trips per day for transportation of construction equipment to and from the work areas when necessary; approximately 25 round trips per day for transportation of construction workers to and from the work areas (2 crews); and 20 round trips per day for haul trucks (i.e., dump trucks) (includes import-cement slurry). Partial block closures would be necessary for installing the new pipeline and its appurtenances.

The additional 4,495-foot water distribution mainline replacement and associated improvements along Western Avenue would occur concurrently to the trunk line replacement. Proposed construction activities would include the replacement of the existing 6-inch and 8-inch water distribution mainline along Western Avenue with new 12-inch diameter piping, specifically 3,750 feet of existing 6-inch mainline with 12-inch line from 77th Street to Manchester Avenue; replacing 625 feet of existing 8-inch mainline with 12-inch line from 106th Street to 108th Street; and, installing approximately 120 feet of 8-inch line to reconnect the existing 8-inch mainline on Western Avenue to the existing 8-inch line on Manchester Avenue.

Operations and Maintenance

The proposed replacement pipeline is anticipated to have an operational life of 100 years, and replacement valves are anticipated to have an operational life of 70 years. Operations along the northern portion of the alignment would proceed consistent with existing conditions; operations along the southern portion of the alignment would differ from existing conditions only in that this segment would begin supplying the Harbor District service area with local supplies, in replacement of imported supplies.

The entire trunk line would be underground and would not be visible from ground level during operation. Operational activities would be limited to scheduled maintenance and repair. Maintenance activities would be minimal and would be similar to those that occur under existing conditions. Maintenance includes exercising valves and replacing or repairing worn appurtenances to ensure proper performance over the life of the facilities. No permanent workers would be required to operate or maintain the Western Trunk Line. Activities associated with long-term operations and maintenance would therefore be minimal.

Best Practices

To minimize potential traffic and transportation impacts, the construction of the proposed project would be conducted in accordance with the Standard Specifications for Public Works Construction (Greenbook), traffic control plans designed, reviewed, and approved by the City of Los Angeles Department of Transportation (LADOT) and Los Angeles County Department of Public Works to allow acceptable levels of service, traffic safety, and emergency access to the site during construction. Equipment necessary for traffic control includes changeable message signs, delineators, arrow boards, and K-rail. The Traffic Control Plan for the proposed project would be coordinated with LADOT for the area of the alignment within the City and the Los Angeles County Department of Public Works for the area of the alignment occurring within the unincorporated County.

The new pipeline design would include seismic resiliency analysis for all applicable project components. All phases of the proposed project would be required to conform to safety regulations, including those from the State of California Division of Occupational Safety and Health.

3 REGULATORY CONTEXT

This section describes the regulatory framework relevant for the project.

3.1 Federal

Federal Endangered Species Act

The federal Endangered Species Act (FESA) of 1973 (16 U.S.C. 1531 et seq.), as amended, is administered by the U.S. Fish and Wildlife Service (USFWS) for most plant and animal species and by the National Oceanic and Atmospheric Administration National Marine Fisheries Service for certain marine species. FESA is intended to provide a means to conserve the ecosystems upon which endangered and threatened species depend, and to provide programs for the conservation of those species, preventing extinction of plants and wildlife. FESA defines an endangered species as "any species that is in danger of extinction throughout all or a significant portion of its range" (16 U.S.C. 1531 et seq.). A threatened species is defined as "any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" (16 U.S.C. 1531 et seq.). Under FESA, it is unlawful to take any listed species; "take" is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 U.S.C. 1531 et seq.).

FESA allows for the issuance of incidental take permits for listed species under Section 7, which is generally available for projects that also require other federal agency permits or other approvals, and under Section 10, which provides for the approval of habitat conservation plans on private property without any other federal agency involvement. Upon development of a habitat conservation plan, USFWS can issue incidental take permits for listed species.

Clean Water Act

Pursuant to Section 404 of the Clean Water Act, ACOE regulates the discharge of dredged and/or fill material into waters of the United States. The term "wetlands" (a subset of waters) is defined in Title 33, Section 328.3(b), of the Code of Federal Regulations as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." In the absence of wetlands, the limits of ACOE jurisdiction in non-tidal waters, such as intermittent streams, extend to the ordinary high water mark, as defined in Title 33, Section 328.3(e), of the Code of Federal Regulations. Pursuant to Section 10 of the Rivers and Harbors Act of 1899, ACOE regulates any potential obstruction or alteration of any navigable water of the United States.

Migratory Bird Treaty Act

The MBTA was originally passed in 1918 as four bilateral treaties, or conventions, for the protection of a shared migratory bird resource. The primary motivation for the international negotiations was to stop the "indiscriminate slaughter" of migratory birds by market hunters and others (16 U.S.C. 703–712). Each of the treaties protects selected species of birds and provides for closed and open seasons for hunting game birds. The MBTA protects more than 800 species. Two species of eagles that are native to the United States—bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*)—were granted additional protection within the United States under the Bald and Golden Eagle Protection Act (16 U.S.C. 668–668d) to prevent these species from becoming extinct.

3.2 State

California Endangered Species Act

The California Department of Fish and Wildlife (CDFW) administers the California Endangered Species Act (CESA), which prohibits the take of plant and animal species designated by the California Fish and Game Commission as endangered or threatened in California. Under CESA Section 86, "take" is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" (California Fish and Game Code [CFGC], Section 86). CESA Section 2053 stipulates that state agencies may not approve projects that will "jeopardize the continued existence of any endangered species or threatened species, or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat which would prevent jeopardy" (CFGC, Section 2053).

CESA defines an endangered species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease" (CFGC, Section 2050 et seq.). CESA defines a threatened species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the [California Fish and Game] Commission as rare on or before January 1, 1985, is a threatened species" (CFGC, Section 2050 et seq.). A candidate species is defined as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the Commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the Commission has published a notice of proposed regulation to add the species to either list" (CFGC, Section 2050 et seq.). CESA does not list invertebrate species.

California Fish and Game Code, Sections 3503, 3511, 3513, 3801, 4700, 5050, and 5515

Section 2081(b) and (c) of the CFGC authorizes take of endangered, threatened, or candidate species if take is incidental to otherwise lawful activity and if specific criteria are met. These provisions also require CDFW to coordinate consultations with USFWS for actions involving federally listed species that are also state-listed species. In certain circumstances, Section 2080.1 of CESA allows CDFW to adopt a federal incidental take statement or a 10(a) permit as its own, based on its findings that the federal permit adequately protects the species and is consistent with state law. A Section 2081(b) permit may not authorize the take of "fully protected" species or "specified birds" (CFGC, Sections 3505, 3511, 4700, 5050, 5515, and 5517). If a project is planned in an area where a fully protected species or a specified bird occurs, an applicant must design the project to avoid take.

California Fish and Game Code, Sections 1600–1602

Pursuant to Section 1602 of the CFGC, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. A streambed alteration agreement is required for impacts to jurisdictional wetlands in accordance with Section 1602 of the California Fish and Game Code.

CEQA

CEQA requires identification of a project's potentially significant impacts on biological resources and ways that such impacts can be avoided, minimized, or mitigated. CEQA also provides guidelines and thresholds for use by lead agencies for evaluating the significance of proposed impacts. Because LADWP may seek funding for the project from the State Water Resources Control Board (State Water Board), the project is also being reviewed in accordance with CEQA+, a process that consists of CEQA and any required federal cross-cutting studies. The CEQA+ process is required by the State Water Board to satisfy the environmental requirements of its Operating Agreement with the U.S. Environmental Protection Agency. In the event that federal funding is requested, this biological technical report would be part of an environmental package that may be submitted to the State Water Board as part of the funding application to fulfill CEQA+ requirements.

Special-Status Plants and Wildlife

The CEQA Guidelines define endangered animals or plants as species or subspecies whose "survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors" (14 CCR 15380(b)(1)). A rare animal or plant is defined in CEQA Guidelines, Section 15380(b)(2), as a species that, although not currently threatened with extinction, exists "in such small numbers throughout all or a significant portion of its range that it may become

endangered if its environment worsens; or . . . [t]he species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered 'threatened' as that term is used in the federal Endangered Species Act" (14 CCR 15380(b)(2)). Additionally, an animal or plant may be presumed to be endangered, rare, or threatened if it meets the criteria for listing as defined further in CEQA Guidelines, Section 15380(c).

For the purposes of this impact analysis, species are considered sensitive if they are (1) listed or proposed for listing under the State or federal ESA as threatened or endangered; (2) plant species with a California Rare Plant Rank (CRPR) (formerly California Native Plant Society (CNPS) List) 1 through 4 (CNPS 2019); (3) considered rare or of special concern due to declining populations by CDFW (CDFW 2019a, 2019b, 2019c, 2019d); or (4) locally designated or recognized by the City.

Some mammals and birds are protected by the state as fully protected species, as described in the CFGC, Sections 4700 and 3511, respectively. Fully protected species may not be taken or possessed without a permit from the California Fish and Game Commission, and no permit is available for the incidental take of a fully protected species. Species considered state candidates for listing as threatened or endangered are subject to the taking prohibitions and provisions under CESA as if the species were listed.

Special-Status Vegetation Communities

Section IV, Appendix G (Environmental Checklist Form), of the CEQA Guidelines (14 CCR 15000 et seq.) requires an evaluation of impacts to "any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game[1] or the U.S. Fish and Wildlife Service."

3.3 Local Regulations

City of Los Angeles Protected Tree Ordinance

The City of Los Angeles Protected Tree Ordinance as modified by Ordinance 177404 provides guidelines for the preservation of native Southern California tree species measuring 4 inches or more in cumulative diameter at 4.5 feet above the ground from the base of the tree (City of Los Angeles 2006a). Trees protected under this ordinance include all oak (*Quercus* sp.) trees indigenous to California (excluding scrub oak, *Q. dumosa*), southern California black walnut (*Juglans californica* var. *californica*), California sycamore (*Platanus racemosa*), and California bay (*Umbellularia californica*).

[1] Effective January 1, 2013, the California Department of Fish and Game changed its name to the California Department of Fish and Wildlife.

4 METHODS

Data regarding biological and general jurisdictional resources present within the study area were obtained through a review of pertinent literature and field reconnaissance, as described below. Analysis within this report includes the proposed project alignment, the four potential off-site staging areas, and a 300-foot area surrounding the alignment and the staging areas (study area).

4.1 Background Research

Prior to conducting the field investigation, a literature review was conducted to evaluate the environmental setting of the project site and identify potential special-status biological resources that may be found on the site. The review centered on the *USGS Inglewood, CA* 7.5-minute topographical quadrangle (USGS 2018). The following resources were consulted:

- County of Los Angeles GIS data portal (County of Los Angeles 2019);
- Historic aerials and topographic maps (Google 2019, Nationwide Environmental Title Research 2019);
- Wetland Mapper online viewer (USFWS 2019a);
- Natural Resource Conservation Service's Web Soil Survey (USDA 2019a);
- Information for Planning and Conservation System (IPaC) (USFWS 2019b);
- Critical Habitat online viewer (USFWS 2019c);
- California Natural Diversity Database Rarefind 5 (CDFW 2019a); and
- eBird's online database of bird distribution and abundance (eBird 2019).

4.2 Resource Mapping

Dudek Biologist Eilleen Salas surveyed the proposed project alignment and the four off-site staging areas on June 27, 2019. The study area was primarily surveyed by vehicle and all biological resources observed or detected were identified and inventoried. The biological surveys included mapping vegetation communities and land covers present within the study area, an evaluation of the presence of jurisdictional wetlands or waters, and an evaluation of the potential for special-status species to occur in the study area. Table 1 includes the survey date and conditions. The Dudek biologist resume is provided in Appendix A.

Table 1:
Survey Date and Conditions

Date	Time	Personnel	Focus	Conditions
6/27/2019	0900–1200	Eilleen Salas	General biological reconnaissance level survey, vegetation mapping, resources mapping	65°F–72°F, 20% cc, 0–5 mph wind

Notes: °F = degrees Fahrenheit; mph = miles per hour; cc = cloud cover

Vegetation Community and Land Cover Mapping

Vegetation communities and land uses within the study area were mapped in the field directly onto a 400-foot-scale (1 inch = 400 feet) aerial-photograph-based field map of the project site. Following completion of the fieldwork, all vegetation polygons were digitized using ArcGIS, and GIS coverage was created. Vegetation community classifications used in this report are based on the *Manual of California Vegetation, 2nd Edition* (Sawyer et al. 2009), when applicable. Photo documentation of the study area is provided in Appendix C.

Plant Documentation

All native and naturalized plant species encountered within the study area were identified and recorded. Latin and common names for plant species with a CRPR follow the CNPS *Inventory of Rare, Threatened, and Endangered Plants of California* (CNPS 2019). For plant species without a CRPR, Latin names follow the *Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California* (Jepson Flora Project 2019), and common names follow the Natural Resources Conservation Service Plants Database (USDA 2019b). General information regarding plant species, identification, and nomenclature was obtained from *The Jepson Manual: Vascular Plants of California* (Baldwin et al. 2012). A list of plant species observed in the study area is presented in Appendix D.

Wildlife Documentation

Wildlife species observed or detected during field surveys by sight, calls, tracks, scat, or other signs were recorded. In addition to species actually observed, expected wildlife usage of the site was determined according to known habitat preferences of regional wildlife species and knowledge of their relative distributions in the area. No trapping or focused surveys for special-status or nocturnal species was conducted. Latin and common names of animals follow Crother (2012) for reptiles and amphibians, the American Ornithologists' Union (AOU 2016) for birds, Wilson and Reeder (2005) for mammals, and the North American Butterfly Association (NABA 2001) for butterflies.

All wildlife species detected during the field surveys by sight, vocalizations, burrows, tracks, scat, and other signs were recorded. Expected wildlife usage of the site was determined according to known habitat preferences of regional wildlife species and knowledge of their relative distributions in the area. A compiled list of wildlife species observed in the study area is presented in Appendix E.

Jurisdictional Waters

Although a formal wetlands delineation following the methodology described in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (ACOE 2008a), *Wetlands Delineation Manual* (ACOE 1987), and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (ACOE 2008b) was not conducted during the field survey, the project area was evaluated for the potential to support jurisdictional waters regulated under the federal Clean Water Act, California Fish and Game Code, and Porter-Cologne Water Quality Control Act.

Survey Limitations

Climatic conditions during the survey generally were favorable for identification of wildlife. Potential limitations of the survey included seasonal constraints, a diurnal bias, and the absence of focused trapping for small mammals and reptiles. Surveys were conducted during the daytime to maximize visibility for the detection of plants and most animals; however, many mammal species are primarily active at night. In addition, many species of reptiles and amphibians are secretive in their habits and are difficult to observe using standard meandering transects.

The project site was surveyed in June when many plant species that bloom in early spring may not have been detectable. However, most species would not be expected to occur due to lack of suitable habitat along the project alignment. Binocular surveys were conducted in areas where access was limited due to trespassing concerns.

4.3 Special-Status Species Habitat Assessments

Endangered, rare, or threatened plant species as defined in Section 15380(b) of the CEQA Guidelines (14 CCR 15000 et seq.) are referred to as "special-status plant species" in this report and include endangered or threatened plant species recognized in the context of CESA and FESA (CDFW 2017c) and plant species with a CRPR 1 through 4 (CNPS 2017). Species with CRPR 3 or 4 may, but generally do not, qualify for protection under this provision. Species with CRPR 3 and 4 are those that require more information to determine status and plants of limited distribution. Thus, only CRPR 3 and 4 plant species that were also locally recognized (City of Los Angeles 2006a) are analyzed herein.

Endangered, rare, or threatened wildlife species as defined in CEQA Guidelines, Section 15380(b) (14 CCR 15000 et seq.), are referred to as "special-status wildlife species" and, as used in this report, include (1) endangered or threatened wildlife species recognized in the context of CESA and FESA (CDFW 2017d); (2) California Species of Special Concern and Watch List species as designated by CDFW (2017d); (3) mammals and birds that are fully protected species as described in the California Fish and Game Code, Sections 4700 and 3511; (4) Birds of Conservation Concern as designated by USFWS (2008); and (5) and locally designated or recognized wildlife species (City of Los Angeles 2006b).

Database queries were conducted to identify special-status biological resources present or potentially present within the vicinity of the project site using the CNDDB (CDFW 2019a), California Native Plant Society's (CNPS) *Online Inventory of Rare and Endangered Vascular Plants* (CNPS 2019), USFWS species occurrence data (USFWS 2019a), and USFWS IPaC (USFWS 2019b). A "nine-quad" query was conducted of the CNPS inventory and CNDDB. A nine-quad query includes the one subject quadrangle and the eight USGS quadrangles surrounding the subject quadrangle.[2] Results of the CNPS (2019), CNDDB (CDFW 2019a), and USFWS IPaC (2019b) database queries are provided in Appendix B.

[2] A search of the USGS 7.5-minute *Inglewood, CA* quadrangle and surrounding eight quadrangles (*Beverly Hills*, *Hollywood*, *Los Angeles*, *Venice*, *South Gate*, *Redondo Beach*, *Torrance*, and *Long Beach*) was conducted within CNDDB and CNPS Inventory.

5 ENVIRONMENTAL SETTING

5.1 Land Use

Western Avenue supports commercial uses on both sides of the roadway for the majority of the alignment. Exceptions include residential uses extending from approximately 84th Street to 85th Street, fronting the eastern side of the roadway; residential uses extending from 92nd Street to 96th Street, fronting the western side of the roadway; residential uses extending from approximately 108th Street to 111th Street, fronting both sides of the roadway; and three public facilities (the Los Angeles Southwest College, Manhattan Place Elementary School, and Jesse Owens Park). Residential uses comprise a majority of the general vicinity surrounding the project, with some open space/recreational facilities. The alignment is located in the immediate vicinity of the Burlington Northern Santa Fe Railroad crossing to the north and the I-105 and the Union Pacific Railroad to the south. Additionally, local utilities extend underneath the surface of Western Avenue, such as gas, sewer, and fiber optic lines.

5.2 Topography

The project site is relatively flat, with elevations ranging between approximately 130 and 250 feet above mean sea level (AMSL) sloping generally in the southwesterly direction. There are no prominent topographical features within or adjacent to the study area

5.3 Soils

Soil mapping is from the County of Los Angeles Department of Public Works Water Resources Division, Hydrology Section (2014). U.S. Department of Agriculture (USDA) National Resources Conservation Service (NRCS) Soil Survey Geographic database was also used to assist with soil descriptions (USDA 2017a). The project site and study area contains four soil types: Urban land-Biscailuz-Pico complex, 0 to 2 percent slopes; Urban land-Hueneme, drained-San Emigdio complex, 0 to 2 percent slopes; Urban land-Windfetch-Centinela complex, 0 to 5 percent slopes; and Urban land-Typic Xerorthents, terraced-Windfetch complex, 2 to 9 percent slopes.

Urban land is mostly covered by streets, parking lots, buildings, and other structures of urban areas. Soils in urban areas are commonly human-transported (e.g., fill) or human-altered (e.g., truncated or mixed in situ) to significant depth (Ditzler et al. 2017). The study area has been developed for over 56 years (Nationwide Environmental Title Research 2019), which has altered or covered the native soils, meeting the definition of Urban land.

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6 RESULTS

The following are the results of the background research, resource mapping, and habitat assessments conducted for the study area.

6.1 Vegetation Communities and Land Covers

One land cover was mapped within the study area based on general physiognomy and species composition: urban/developed land. This land cover type is described below and acreages within the project site and study area are presented in Table 2. Spatial distribution of this land cover type is presented on Figure 2.

Table 2
Acreages of Vegetation Communities and Land Covers

Vegetation Community/ Land Cover Type	Study Area (Acres)
Urban/Developed Land	381.46

Urban/Developed Land

Developed lands consist of buildings, structures, homes, parking lots, paved roads, and maintained areas. This land cover type does not support native vegetation. Developed land occurs throughout the proposed project alignment and the study area, composed of residential and commercial development, paved well-traversed city roads, parks, a golf course, and the I-105 freeway. These areas support limited natural ecological processes, native vegetation, or habitat for wildlife species and, thus, are not considered sensitive by local, state, or federal agencies.

6.2 Floral Diversity

The project is located within an urban setting in which vegetation is dominated by landscaped areas. The proposed project alignment is dominated by development and ornamental plants typically occurring within residential and commercial areas. Twelve species of native or naturalized vascular plants were recorded within the study area, two native (17%) and nine non-native (83%), which were primarily found within the four proposed staging areas. The native species were horseweed (*Conyza canadensis*) and telegraph weed (*Heterotheca grandiflora*), and the non-native species were slender oat (*Avena barbata*), Bermuda grass (*Cynodon dactylon*), crown daisy (*Glebionis coronaria*), bristly ox-tongue (*Helminthotheca echioides*), prickly lettuce (*Lactuca serriola*), white sweetclover (*Melilotus albus*), fountain grass (*Pennisetum setaceum*), castor bean (*Ricinus communis*), and smilo grass (*Stipa miliacea* var. *miliacea*).

6.3 Wildlife Diversity

A total of two species of wildlife were recorded within the study area. Overall, the diversity of wildlife species in the project site was low due to the absence of native habitat, which is attributed to the high-density of urban development on site. Additionally, given the dense developed areas surrounding the project site, the study area likely supports more urban-adapted species, which is indicative of the species detected on site.

In total, two species of birds were observed within the study area during the field visit: rock pigeon (*Columba livia*) and house sparrow (*Passer domesticus*). Both species are non-native and common within urban environments. Additional common bird species that are adapted to urban areas and expected to occur within the study area include Anna's hummingbird (*Calypte anna*), American crow (*Corvus brachyrhynchos*), European starling (*Sturnus vulgaris*), house finch (*Haemorhous mexicanus*), mourning dove (*Zenaida macroura*), and northern mockingbird (*Mimus polyglottos*). No raptor species were observed within the study area during the site visit. Minimal suitable nesting habitat for raptors (i.e., tall trees) occurs throughout the study area; however, red-tailed hawk (*Buteo jamaicensis*) or Cooper's hawk (*Accipiter cooperii*) could potentially forage within the study area on occasion.

No amphibian species were observed and none are expected to occur in the study area due to the lack of aquatic habitat on-site. Although reptile species were not observed during the survey, western fence lizard (*Sceloporus occidentalis*) and common side-blotched lizard (*Uta stansburiana*) may potentially occur within the study area.

No mammal species were detected within the study area during the site visit. Other common mammal species more adapted to urban environments, including eastern fox squirrel (*Sciurus niger*), Virginia opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), and raccoon (*Procyon lotor*) could occur within the study area.

SOURCE: Bing Maps 2019

DUDEK

0 1,000 2,000 Feet

Figure 2

Biological Resources

Western Trunk Line Project

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6.4 Special-Status Resources

6.4.1 Special-Status Plant Species Assessments

Special-status plant species known to occur within the nine-quad query are presented in Appendix D. The evaluation of each species' potential to occur on site was based on an analysis of elevation, soils, vegetation communities, current site conditions, and past and present land use.

None of the CNDDB and USFWS special-status plant occurrences within the nine-quad query has a moderate or high potential to occur in the study area due to the high level of development within the region since the date of collection (Appendix D). Special-status plant species are not further analyzed in this report because no direct, indirect, or cumulative impacts are expected.

6.4.2 Special-Status Wildlife Species Assessments

Special-status wildlife species known to occur within the nine-quad query are presented in Appendix E. For each species listed, a determination was made regarding the potential for the species to occur on site based on information gathered during the literature review and site visits, including the location of the site, vegetation communities or land covers present, current site conditions, and past and present land use.

None of the CNDDB and USFWS special-status wildlife occurrences within the nine-quad query has a moderate or high potential to occur in the study area due to the high level of development within the region since the date of collection (Appendix E). Special-status wildlife species are not further analyzed in this report because no direct, indirect, or cumulative impacts are expected.

6.4.3 Critical Habitat

No USFWS-designated critical habitat for listed wildlife or plant species exists within one-mile of the project site (USFWS 2018a). The closest USFWS-designated critical habitat is for western snowy plover (*Charadrius nivosus nivosus*), located over approximately seven miles west of the southern end of the study area.

6.4.4 Migratory Bird Treaty Act Protected Birds

According to the USFWS IPaC Trust Resource Report (2019b; Appendix B), the following seven species of migratory birds could occur within the general study area:

1. Allen's hummingbird (*Selasphorus sasin*); USFWS Bird of Conservation Concern (BCC)
2. saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*); USFWS BCC/CDFW SSC
3. Nuttall's woodpecker (*Picoides nuttallii*); USFWS BCC

4. rufous hummingbird (*Selasphorus rufus*)*;* USFWS BCC
5. song sparrow (year-round) (*Melospiza melodia;* USFWS BCC/ CDFW SSC)
6. tricolored blackbird (*Agelaius tricolor*)*;* USFWS BCC/Candidate for State Endangered
7. wrentit (*Chamaea fasciata*); USFWS BCC

No migratory bird species provided within the USFWS IPaC Trust Resource Report (USFWS 2019b) were detected within the study area during the survey. Many of the bird species provided in the report are unlikely to occur within the study area given the disturbed nature of the site (which is dominated by commercial and residential development) and lack of suitable habitat (i.e., native vegetation, wetland and riparian areas, contiguous open habitat, and/or forested areas). Migratory bird species that could occasionally occur within the study area include Allen's hummingbird and rufous hummingbird; however, these species, if occurring on site, are unlikely to nest within the study area given the lack of native vegetation and urbanization present in the area. Additionally, the vegetation within the study area provides minimal suitable habitat to support other nesting birds protected under the MBTA and/or California Fish and Game Code.

6.5 Jurisdictional Waters

Although an official jurisdictional delineation was not performed, hydrology and vegetation were examined throughout the study area during the site visit to identify potential wetland sites and/or non-wetland waters (e.g., drainages, channels). No jurisdictional wetlands or non-wetland waters were found during the background research or during the survey of the study area.

6.6 Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for dispersal or migration of animals and dispersal of plants (e.g., through wildlife vectors). Wildlife corridors contribute to population viability by assuring continual exchange of genes between populations, which helps maintain genetic diversity; providing access to adjacent habitat areas representing additional territory for foraging and mating; allowing for a greater carrying capacity; and providing routes for colonization of habitat lands following local population extinctions or habitat recovery from ecological catastrophes (i.e., the rescue effect).

Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation. They serve as connections between habitat patches and help reduce the adverse effects of habitat fragmentation. Although individual animals may not move through a habitat linkage, the linkage is a potential route for gene flow and long-term dispersal. Habitat linkages may serve as both habitat and avenues of gene flow for small animals such as reptiles, amphibians, and rodents. Habitat linkages may be represented by continuous patches of

habitat or by nearby habitat "islands" that function as stepping stones for dispersal and movement (especially for birds and flying insects). Wildlife corridors and habitat linkages provide avenues for dispersal or migration of animals that also contribute to population viability in several ways, including (1) ensuring continual exchange of genes between populations to aid in maintaining genetic diversity, (2) providing habitat for some species, (3) providing access to adjacent habitat areas representing additional territory for foraging and mating, (4) allowing for a greater carrying capacity, and (5) providing routes for colonization of habitat lands following local population extinctions or habitat recovery from ecological catastrophes.

The study area does not reside within any designated wildlife corridors and/or habitat linkages identified in the South Coast Missing Linkages analysis project (South Coast Wildlands 2008), California Essential Habitat Connectivity project (Spencer et al. 2010), or as recognized by the City (City of Los Angeles 2006b). The study area is dominated by developed areas that support minimal vegetation (particularly native vegetation). In addition, the project alignment is isolated from designated wildlife corridors/habitat linkages and other open spaces by substantial developed areas and heavily traversed roadways. Although the study area may provide local movement for some urban-adapted wildlife species (i.e., coyote, striped skunk, raccoon, opossum), there are no corridors that readily provide connection between open spaces or undeveloped lands. Thus, the study area is unlikely to serve as a wildlife corridor or habitat linkage.

6.7 City of Los Angeles Protected Trees

Protected trees as defined in the City of Los Angeles Protected Tree Ordinance do not occur within the study area. All of the trees observed during the survey of the study area are associated with ornamental landscaping and are non-native species.

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7 IMPACT ANALYSIS

The proposed project would involve open-trench excavation and pipe jacking/tunneling installations. Open-trench excavation is a construction method typically used to install pipelines and their appurtenances. The proposed project construction and construction staging would occur along the existing public rights-of-way within well-traversed Western Avenue, or within the vicinity of Western Avenue. Equipment and materials may be staged in the parking lanes of the roadways, with some encroachment potentially occurring along sidewalks.

The project would be implemented in compliance with construction practices including dust control and noise control. Dust control would involve use of a water truck during construction activities that would expose soils. Noise control activities would include maintaining equipment and scheduling construction activities to comply with the applicable noise ordinance. Any portion of the roadway damaged as a result of construction activities would be repaved and restored in accordance with all applicable standards. Once the pavement has been restored, traffic delineation (restriping) would also be restored.

Operational activities would be limited to scheduled maintenance, repair, and inspections. These activities would be minimal and would be similar to those that occur under existing general LADWP service area conditions. Maintenance includes exercising valves, replacing or repairing worn appurtenances to ensure proper performance over the life of the facilities, and periodic inspections. No permanent workers would be required to operate or maintain the proposed project. Activities associated with long-term operations and maintenance would, therefore, be minimal.

7.1 Vegetation Communities and Land Covers

Direct and/or Indirect Impacts

The project site and surrounding study area do not support any sensitive vegetation communities. The entire proposed project alignment and offsite staging areas occur within paved streets or developed areas (urban/developed land), which is not recognized as a sensitive vegetation community. As such, implementation of the proposed project would not result in temporary or permanent direct and/or short-term or long-term indirect impacts to sensitive vegetation communities and no avoidance or mitigation measures are recommended.

7.2 Special-Status Plants

Direct and/or Indirect Impacts

No special-status plant species were observed within the project site or surrounding study area during the site visit conducted in June 2019. The study area occurs within a heavily urbanized

region where the natural vegetation and soils have been removed and altered, and suitable habitat capable of supporting special-status plant species is not present. Based upon the lack of suitable associated habitats, special-status plant species known to occur in the surrounding region are not expected to occur within the project site and study area (Appendix D). Therefore, direct and/or indirect impacts to special-status plants by the proposed project are not anticipated, and no avoidance or mitigation measures are recommended.

7.3 Special-Status Wildlife

Direct Impacts

No special-status wildlife species were detected within the project site during surveys conducted for the project site in June 2019. The study area occurs within a heavily urbanized region where the natural vegetation and soils have been removed and altered, and suitable habitat capable of supporting special-status wildlife species is not present. Thus, special-status wildlife species are not expected or have a low potential to occur within the project site (Appendix E) and no direct impacts to potential foraging habitat are anticipated to occur. Therefore, direct impacts to special-status wildlife by the proposed project is not anticipated, and no avoidance or mitigation measures are recommended.

Indirect Impacts

No special-status wildlife species were detected within the study area during surveys conducted for the project site in June 2019. The study area occurs within a heavily urbanized region where the natural vegetation and soils have been removed and altered, and suitable habitat capable of supporting special-status wildlife species is not present. Thus, special-status wildlife species are not expected or have a low potential to occur within the study area (Appendix E).

Based on the analysis of the nine-quadrangle CNDDB query search (CDFW 2019a), no species were determined to have a moderate or high potential to occur within the study area (Appendix E). The study area occurs within a heavily urbanized commercial and residential area with minimal vegetation dominated by ornamental landscaping and lacks soils suitable to support special-status plant and wildlife species. No USFWS-designated critical habitat for listed wildlife or plant species exists within one-mile of the project site (USFWS 2019).

Given the above, impacts to special-status plant and/or wildlife species would be less than significant.

7.4 Jurisdictional Resources

Direct and/or Indirect Impacts

No jurisdictional wetlands or waters occur within the project site or study area. Therefore, direct and/or indirect impacts to any jurisdictional wetlands or waters resources by the project is not anticipated, and no avoidance or mitigation measures are recommended.

7.5 Wildlife Corridors and Habitat Linkages

Direct and/or Indirect Impacts

The proposed project site occurs within an urban setting and would neither interfere or remove access to established native resident or migratory wildlife corridors nor impede the use of native wildlife nursery sites. The project site and study area does not reside within any designated wildlife corridors or habitat linkages identified in the South Coast Missing Linkages project (South Coast Wildlands 2008), California Essential Habitat Connectivity project (Spencer et al. 2010), or as recognized by the City (2006b). Urban-adapted wildlife species (i.e., striped skunk, raccoon, and opossum) may use the study area for local movement, but these species are primarily nocturnal and limited nighttime work and lighting is expected; project construction is scheduled to occur between 7:00 am and 6:00 pm Monday through Friday. Therefore, direct and/or indirect impacts to wildlife corridors and habitat linkages are not anticipated, and no avoidance or mitigation measures are recommended.

7.6 City of Los Angeles Protected Trees

Direct and/or Indirect Impacts

No City-protected trees were observed within the project site or within the visually accessible portions of the study area. Therefore, direct and/or indirect impacts to City-protected trees are not anticipated, and no avoidance or mitigation measures are recommended.

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8 BIOLOGICAL RECOMMENDATIONS SUMMARY

The project is not expected to have a significant impact on sensitive species, sensitive vegetation communities, wetlands or other jurisdictional waters, wildlife corridors or nurseries, local policies or ordinances protecting biological resources, or any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Thus, no biological recommendations are given.

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APPENDIX A

Resumes

Michael Cady

Senior Biologist

Michael Cady is a senior biologist with 15 years' experience with fieldwork and the application of environmental regulatory requirements for CEQA/NEPA compliance. Mr. Cady has worked extensively in a variety of habitats and jurisdictions throughout California. He has prepared biological technical reports in support for project and programmatic-level EIRs/EISs, initial studies (ISs), and environmental assessments (EAs). In addition, Mr. Cady has prepared permit applications and documentation to support federal ESA Section 7 and 10 consultations, CESA 2081 ITPs, CWA Section 401 and 404, and CFGC Section 1602 LSA.

Mr. Cady's field experience includes protocol surveys and habitat assessments for a variety of special-status wildlife species, rare plant surveys, general flora and fauna surveys, oak and general tree surveys, vegetation mapping, and nesting bird surveys. He has conducted wetland delineations in accordance with federal and State guidelines for a variety of aquatic resources in California. Mr. Cady's compliance monitoring experience includes both large-scale infrastructure projects and smaller projects within sensitive habitats. He has also provided environmental inspection for simple to complex projects.

Education

California State Polytechnic University, Pomona

BS, Environmental Biology, 2008

Certifications

CDFW Scientific Collecting Permit, No. SC-12259

CDFW State-Listed Plant Voucher Collection Permit, No. 2081(a)-11-15-V

Forestry and Wildlands Resources Certificate, Citrus College

Professional Affiliations

Desert Tortoise Council

Society for the Study of Amphibians and Reptiles

Southern California Botanists

Project Experience

Water/Wastewater

Los Angeles County Department of Public Works (LADPW) Cogswell Dam Restoration Project, Los Angeles County, California. Served as senior biologist for the proposed sediment removal in the Cogswell Dam Reservoir. Provided jurisdictional waters delineation and reporting for Cogswell Reservoir and adjoining streams, along with rare plant and least Bell's vireo protocol surveys.

LADPW Eaton Wash Dam Spillway Access Ramp, Pasadena, California. Served as a field biologist that provided environmental clearance for the commencement of construction of a spillway access ramp. Provided nesting bird surveys and reporting.

LADPW Eaton Canyon Reservoir Vegetation Maintenance, Pasadena, California. Served as a field biologist that provided surveys and monitoring for the clearance of vegetation within the reservoir. Duties included least Bell's vireo surveys and monitoring of the vegetation removal.

Los Angeles County Sanitation District On-Call Biological Services, Los Angeles County, California. Served as project biologist for the construction of various water-supply infrastructure in the Antelope Valley and Los Angeles Basin. Duties included the jurisdictional waters delineation of various wetlands and non-wetlands. Also prepared multiple biological resource assessments for a variety of projects, including the vegetation management plan for

the sensitive Piute Ponds. Lead the biological monitoring for the construction of the pipeline and reservoirs. Also provided pre-construction surveys for desert tortoise, burrowing owl, American badger, nesting birds and rare plants on over 1,000 acres of the project area.

Palmdale Water District Water System Master Plan Update, Palmdale, California. Served as senior biologist for the technical studies for an EIR in support of a master plan update for a 43 square mile service area. Provided surveys, studies, and biological technical report preparation. Services provided also included providing CEQA impact-mitigation analysis for the project's EIR and cumulative impacts analysis.

City of Morro Bay Water Reclamation Facility, Morro Bay, California. Served as senior biologist for a proposed wastewater collection system modifications, a new pumping station, a new force main to convey the raw wastewater to the site, advanced water treatment, recycled water storage and pumping facilities, and injection wells for groundwater replenishment. Provided review of biological resources technical reports, jurisdictional waters delineation reports, and special-status focal survey reports for water reclamation facility located within a local coastal plan. Prepared Biological Resources sections for EIRs, including providing appropriate mitigation measures, and cumulative impacts analysis.

Energy

Southern California Edison (SCE) O&M On-call Biological Services, California. Served as Biological Resources Technical Lead, QA/QC Lead, Project Manager, and Field Director for a SCE Operations and Maintenance On-call Contract for Natural and Water Resources Services in multiple counties throughout SCE's service area in California and into Arizona (transmission lines). Work completed included more than 2,000 survey, monitoring, and report production work authorization tasks in support of various utility projects including deteriorated pole replacements, grid reliability and maintenance, GO 131-D, emergency services, vegetation management, and transmission line rating remediation. Projects were located on land administered by numerous agencies including the United States Air Force, the Bureau of Land Management (Barstow, Needles, Bakersfield, Ridgecrest, Palm Springs/South Coast), United States National Forests, The National Park Service, and California State Parks. Projects involved special-status species surveys and habitat assessments, nesting bird surveys, jurisdictional waters delineation and permitting, monitoring, and emergency response work.

Geokinetics Jacalito 3D Seismic Survey, Kern County, California. Served as lead biologist for inventory and monitoring for over 300 square miles in agricultural lands and sensitive native habitats for a seismic survey for oil and gas deposits. Special-status species surveys included blunt-nosed leopard lizard, San Joaquin kit fox, Tipton kangaroo rat, giant kangaroo rat, and burrowing owl. The project resulted in zero take of special-status species and impacts to sensitive habitat were limited to the minimal extent possible.

First Solar Stateline Solar Farm Project, San Bernardino County, California. Served as project manager and compliance manager/environmental compliance monitor for the third-party compliance management program representing the BLM during the construction of a 300-MW PV solar electricity generation project on 1,685 acres near the California-Nevada border. Services provided included review of preconstruction plan submittals, compliance management and daily monitoring, daily and weekly report preparation, variance preparation and management, and development of internal and public websites and periodic updates. Ensured that the SWPPP and all other BMPs were implemented correctly. Provided an interface between the client and BLM to expedite project needs and reduced delays to the project.

Pacific Gas and Electric (PG&E) Third-Party EA Support for Gas Pipeline Maintenance, San Bernardino County, California. Served as senior biologist for proposed maintenance of two PG&E gas pipelines in the Mojave Desert. Both pipelines are located on lands managed by the Bureau of Land Management that are regulated by the Desert Renewable Energy Conservation Plan. Provided review of special-status focal survey reports and

preparation of biological resources technical reports and sections. The reporting includes impacts and mitigation analysis using the prescribed Conservation and Management Actions.

Los Angeles Department of Water and Power Victorville-Century 287 kV Transmission Lines, San Bernardino County, California. Served as senior biologist for the clearance of restoration sites on the Victorville-Century 287 kV Transmission Lines. Provided desert tortoise clearance surveys and updated the habitat assessment for the species in the area.

County of Kern Third-Party CEQA Consultant for Solar Energy Projects, Kern County, California. Served as a senior biologist that assisted Kern County with the review of natural resource reports that had been prepared for solar energy projects. Provided review of biological resources technical reports, jurisdictional waters delineation reports, and special-status focal survey reports for numerous solar energy projects. Prepared Biological Resources sections for EIRs, including providing appropriate mitigation measures.

EDF Renewables Valentine Solar Project, Kern County, California. Served as a senior biologist for the initial studies and permitting for a for a 2,000-acre solar project on natural lands. Conducted the jurisdictional waters delineation, vegetation mapping, and habitat assessments for sensitive plant and wildlife species. Also consulted with the regulatory agencies on the necessary permits and extent of impacts to jurisdictional waters.

NextEra San Gorgonio Wind Energy Center, Riverside County, California. Served as a project biologist for the initial studies, reporting, permitting, and monitoring for an 800-acre wind energy project. Conducted jurisdictional waters delineation, reporting, and acquisition of CWA 401 and 404, and CDFG SAA. Focused surveys for rare plants, flat-tailed horned lizard, desert tortoise, Le Conte's thrasher, and burrowing owl. Reporting and permitting for MND/CUP and EA. Produced and implemented a burrowing owl mitigation and monitoring plan. Lead biologist for biological monitors during project construction. Assisted in post-construction bird/bat mortality study setup and habitat restoration monitoring.

NextEra Blue Sky Wind Generation Project, Los Angeles County, California. Served as a senior Biologist for a proposed 7,500 acres wind project located within a Los Angeles County-designated Significant Ecological Area. Provided natural resources support that included vegetation mapping, rare plant surveys, avian point counts, and burrowing owl surveys. Produced the biological constraints analysis and the biological resources technical report.

NextEra WPP-91 Wind Energy Generation Facility Decommissioning, Riverside County, California. Served as a senior biologist for the decommissioning of a 200-acre wind energy facility project. Conducted jurisdictional waters delineation, reporting, and acquisition of CWA 401 and 404, and CDFG SAA. Focused surveys for rare plants, flat-tailed horned lizard, Coachella Valley fringe-toed lizard, and burrowing owl. BLM-approved Field Contact Representative and Designated Biologist during project activities.

NextEra Kramer Junction Solar Energy Center, San Bernardino County, California. Served as a biologist for a proposed 300-acre solar energy facility. Provided surveys, reporting, and permitting. Focused surveys for rare plants, desert tortoise, Le Conte's thrasher, and burrowing owl. Reporting and permitting for MND/CUP and CESA 2081. Also provided habitat assessment for 20 parcels in the project vicinity for potential mitigation.

NextEra Lucerne Valley Solar Energy Center, San Bernardino County, California. Served as a biologist for the initial studies and permitting for a proposed 650-acre solar energy facility. Provided focused surveys for rare plants, desert tortoise, and burrowing owls. Prepared biological technical reports in support of EIR and CUP.

NextEra Dawn Solar Energy Center, Kern County, California. Served as a biologist for the initial studies of a proposed 600-acre solar energy facility. Provided focused surveys for rare plants, desert tortoise, and burrowing owls; conducted a jurisdictional waters delineation; and prepared biological technical reports

NextEra SEGS X Expansion Project, San Bernardino County, California. Served as a biologist for the initial studies for the proposed expansion of a solar energy facility located north of Harper Dry Lake. Provided general surveys, habitat assessment, rare plant surveys, vegetation mapping, and prepared the technical reports for the project.

Iberdrola – Camino Solar Project, Kern County, California. Served as the senior biologist for the initial studies for a proposed solar energy facility located within the Tylerhorse Wind Project. Provided general surveys, habitat assessment, rare plant surveys, vegetation mapping, and jurisdictional waters delineation, and prepared the technical reports for the project.

sPower Renewable Energy Projects, Los Angeles and Kern counties, California. Served as senior biologist for the initial studies for multiple small-scale solar energy facilities in the Antelope Valley. Provided general biological surveys, vegetation mapping, jurisdictional waters delineations, and reporting.

WKN USA Wagner Wind Energy Project, Palm Springs, California. Served as a project biologist for the initial studies, reporting, permitting, and monitoring for a 20-acre wind energy project. Conducted surveys for rare plants, desert tortoise, Le Conte's thrasher, and burrowing owl. Reporting and permitting for MND/CUP. Lead biologist for biological monitors during project construction.

Graham Pass Wind Energy Facility, Riverside County, California. Served as the senior biologist for the initial studies for a proposed wind energy facility located south of Desert Center in critical habitat for desert tortoise. Provided vegetation mapping, habitat assessments, desert tortoise surveys, and the preparation of a Biological Assessment for desert tortoise.

Tehachapi Wind Repower Project, Kern County, California. Served as the senior biologist for the initial studies for a proposed repower of a wind energy facility. Provided general surveys, habitat assessment, rare plant surveys, vegetation mapping, and jurisdictional waters delineation, and prepared the technical reports for the project.

Geokinetics Lake Mendocino 3d Seismic Survey, Colusa County, California. Served as lead biologist for surveys, reporting, and compliance monitoring oversight for a 500-acre seismic survey project. Conducted habitat assessments and focused surveys for Swainson's hawk and giant garter snake. Prepared Biological Resources Assessment report and assisted with FWS consultation, and preparation of an IS/MND. Provided oversight of the monitoring effort.

Plains All American Natural Resources Regulation Training, San Bernardino County, California. Served as biologist for delivering natural resources regulation training to the company's California engineers and project managers. Prepared and delivered the training that focused on CEQA, State and federal ESA, and waters regulations.

Kinder Morgan Meter Stations, Kern County, California. Served as lead biologist for proposed meter stations located in the oil and gas fields near Taft. Provided biological surveys, habitat assessments, and reporting for reports required by DOGGR.

PG&E PSEP Line 167-1 Pipeline Replacement, Butte County, California. Served as environmental inspector and wildlife monitor for 2.2-mile pipeline replacement that crossed jurisdictional waters and habitat associated with special-status species. Duties included enforcing the SWPPP and other BMP measures to limit the environmental impact of the project and to avoid the take of giant gartersnake and nesting raptors. Provided daily and weekly reporting to the client.

PG&E DFM-1815-02 Pipeline Replacement Project, Monterey, County, California. Senior biologist for the replacement of an approximately 11-mile natural gas replacement along State Route 68. Provided general surveys, habitat assessment, rare plant surveys, burrowing owl surveys, California red-legged surveys, and prepared the technical reports for the project.

SCE North Sky River Windhub Transmission Project, Kern County, California. Served as senior environmental monitor for the construction of interconnect transmission line. Ensured that there were no impacts to California condor and other sensitive species, and implemented a worker's environmental plan for the project.

PG&E Willow Creek Native Species Monitoring, Fresno County, California. Served as a field biologist for native species monitoring to keep the client in compliance with FERC regulations for upstream hydroelectric dams. Provided red-legged frog, western pond turtle, and native fish surveys (included electro-shocking).

SCE Fort Irwin Reliability Project, San Bernardino County, California. Served as senior wetland biologist for a transmission line improvement project located on lands administered by the BLM, Department of Defense, and private landowners. Provided oversight on the jurisdictional waters delineation and preparing the necessary permit packages.

Morgan Hills Wind Energy Transmission Line (Segments 1 and 2) and Access Roads, Kern County, California. Served as senior biologist for the proposed construction of transmission lines through a variety of habitats in the Tehachapi Mountains. Lead the vegetation mapping, rare plant surveys, desert tortoise surveys, and burrowing owl surveys, and prepared the reports.

SCE Kern River TLRR Project, Kern and Los Angeles Counties, California. Served as senior wetland biologist for an approximately 70-mile Southern California Edison transmission line improvement project. Provided jurisdictional waters delineation and rare plant surveys.

PG&E Contra-Costa-Moraga 230 kV Reconductoring, Contra Costa County, California. Served as a field biologist for due diligence surveys for a 27-mile long transmission line project. Provided Swainson's hawk and burrowing owl protocol surveys and prepared the technical reports.

SCE San Joaquin Cross Valley Loop Transmission Project, Tulare County, California. Served as a field biologist for initial studies for the construction of a new 19 mile double-circuit 220 kilovolt transmission line. Conducted rare plant surveys and verified jurisdictional waters/wetlands mapping.

Astoria Solar Project Vegetation Management Assistance, Kern County, California. Served as senior biologist for vegetation maintenance guidance that was needed to comply with North American Electric Reliability Commission requirements. Provided vegetation mapping and plant maintenance guidelines for plants beneath and adjacent to the project's gen-tie lines.

NextEra Suncrest Dynamic Reactive Power Support Project, San Diego County, California. Served as the senior biologist for the initial studies of a dynamic reactive device at the existing Suncrest Substation's 230 kilovolt bus. Provided vegetation mapping, habitat assessment, rare plant survey, and jurisdictional waters delineation, reporting, and permitting.

Riverside Energy Resource Center, Unit 3 and 4, Riverside, California. Served as the biologist for the construction of a gas-fired peaking project. Developed a workers environmental awareness plan and provided preconstruction surveys for burrowing owl and nesting birds.

Development

Rancon Group – Ranch Storage and Temescal Canyon Road Improvement Project, Riverside County, California. Served as the project manager and senior biologist for the initial studies of a proposed storage facilities and improvements to the adjacent road. Provided project management, jurisdictional waters delineation and reporting, and a Western Riverside County MSHCP Consistency Analysis and Determination of Biologically Equivalent or Superior Preservation.

Andora Subdivision Project Natural Resources Permitting, Los Angeles, California. Served as the project manager and senior biologist for the natural resources permitting for a proposed 33-lot residential subdivision with an open space lot that was used for mitigation for impacts. Provided project management, jurisdictional waters delineation, rare plant survey, and technical support for a CESA 2081 Incidental Take Permit for Santa Susana tarplant and jurisdictional waters permits. Also prepared the Habitat Mitigation and Monitoring Plan and Land Management Plan for the permits and coordination with agencies. Prepared a Property Analysis Record (PAR) and Land Management Plan in support of establishing a conservation easement on the open space lot.

Copper Creek North and South, Los Angeles County, California. Served as a biologist for the initial studies of a proposed 484 home residential project that included public parks and an elementary school on 453-acres. Provided surveys and studies for biological technical report, environmental permitting, EIR preparation, and biological monitor Services provided included general and sensitive species surveys, vegetation mapping, rare plant surveys, jurisdictional waters delineation, oak tree surveys, oak tree permit, nesting bird surveys, Initial Study preparation, biological resource analysis, CUP/EIR preparation, agency consultation, and 404, 401, 202(p) permits preparation.

Centex Homes – Fagan Canyon Housing Development and Open Space Plan, Ventura County, California. Project biologist for proposed 2,176-acre housing development and open space plan. Lead the delineation of over five linear miles of perennial riparian, adjacent wetlands, and ephemeral drainages. Lead the oak tree assessment and survey. Conducted rare plant surveys and general biological surveys. Also developed a riparian and wetland restoration plan to mitigate project impacts. Surveyed undeveloped properties in the vicinity for potential mitigation sites.

KB Homes Coastal Mission 316 West Subdivision Project, San Marcos, California. Served as senior biologist for 67 multifamily dwelling units on approximately 3.71 acres. Provided surveys, reporting, and impact analysis to support an EIR for the project. Consulted with the U.S. Fish and Wildlife Service (USFWS) to avoid California gnatcatcher take.

Soledad Circle Estates, Santa Clarita, California. Served as the project biologist for a proposed 150 multifamily residential unit subdivision in natural lands. Provided vegetation mapping, habitat assessment, rare plant survey, jurisdictional waters delineation and reporting, waters permit application preparation, and biological resources technical report preparation.

Spring Canyon Residential Subdivision, Santa Clarita, California. Served as the project biologist for a proposed 499 multifamily residential unit subdivision on 550 acres of natural lands. Provided vegetation mapping, habitat assessment, rare plant survey, prepared a rare plant translocation plan, oak tree survey, jurisdictional waters delineation and reporting, waters permit application preparation, and biological resources technical report preparation. Also provided a wildlife corridor-habitat linkage analysis along the Interstate 14 in the vicinity of the project, and conducted extensive surveys for a 80-acre mitigation parcel located in Violin Canyon.

Stephenson Canyon Residential Project, Los Angeles County, California. Served as a biologist for the initials studies for a proposed residential development in natural lands in the foothills of the San Gabriel Mountains. Provided vegetation mapping, habitat assessment, rare plant survey, oak tree survey, jurisdictional waters delineation and reporting, and biological resources technical report preparation.

Verdugo Ranch Riparian Mitigation, Los Angeles County, California. Served as project manager and biologist for the mitigation plan design, implementation, and monitoring for creation of two acres of riparian habitat within a residential development. Monitored the project for five years and helped meet agency criteria for success.

University of California, Irvine Faculty and Staff Housing Project, Irvine, California. Served as project manager and biologist for the initial studies, reporting, permitting, and monitoring for a 20-acre wind energy project. Conducted general habitat assessment and vegetation mapping, and surveys for rare plants and burrowing owl. Prepared the biological resources technical report. Lead biologist for biological monitors during project construction.

Gordon Mull Subdivision Project, Glendora, California. Served as the senior biologist for a 71-acre residential project located in natural lands in the foothills of the San Gabriel Mountains. Provided vegetation mapping, habitat assessment, rare plant survey, jurisdictional waters delineation and reporting, and biological resources technical report preparation.

Lakeshore Town Center, Lake Elsinore, California. Served as senior biologist for the initial studies and permitting for a 24.5 acre mixed-use development on the shore of Lake Elsinore. Conducted general habitat assessment and vegetation mapping, surveys for rare plants and burrowing owl, and jurisdictional waters delineation, reporting, and permitting.

Scholl Canyon Landfill Project, Glendale, California. Served as senior biologist for the initial studies of a new facility within developed and natural lands within the landfill. Provided vegetation mapping, habitat assessment, rare plant survey, protected tree mapping, and biological resources technical report preparation.

Transportation

LOSSAN CP San Onofre to CP Pulgas Double Track Upgrade Project, San Diego County, California. Served as the project biologist for the surveys and reporting for a six mile portion of CP San Onofre to CP Pulgas railway. Services provided included sensitive and general species surveys, habitat assessments for sensitive species (arroyo toad, quino checkerspot butterfly, and San Diego ambrosia), vegetation mapping, and Biological Assessment preparation for ESA Section 7 consultation.

Riverside Municipal Airport Expansion Project, Riverside, California. Served as the biologist for the proposed expansion of the airport. Provided general biological surveys, rare plants surveys, and burrowing owl surveys. Prepared a biological resources technical report in support of an EIR that provided an impact analysis for sensitive biological resources.

Lynwood Urban Bicycle Trail Project, Los Angeles, California. Served as the senior biologist for a proposed two-mile bike path that was located on undeveloped Caltrans land adjacent to the 105 Freeway. Provided a biological survey and NES-MI report preparation.

Burbank Bike Path Project, Los Angeles, California. Served as the project manager and biologist for a proposed three-mile bike path that was located on undeveloped Caltrans land adjacent to the 5 Freeway. Provided a biological survey and NES-MI report preparation.

Azusa Intermodal Parking Facility Project, Azusa, California. Served as the senior biologist for the initial studies for a proposed parking structure. Provided general biological surveys, assisted with the tree survey, and prepared the biological technical report to support the project's EIR.

Los Alamitos Road Interchange Project, Murrieta, California. Served as the biologist for a proposed interchange project on Interstate 15. Provided a biological survey and NES-MI report preparation.

Santa Ysabel Roadway Project, San Diego County, California. Served as senior biologist for roadway improvement project within the Santa Ysabel Reservation. Provided general surveys, habitat assessment, rare plant surveys, vegetation mapping, and prepared the technical reports for the project.

Los Angeles County Metropolitan Transportation Authority Regional Connector Transit Corridor, Los Angeles, California. Served as senior biologist for the QA/QC of project technical documents and prepared the Biological Resources section of the EIR.

Municipality

LADPW Los Rancho Los Amigos South Campus Project, Downey, California. Served as the senior biologist for the construction of three new County administrative buildings on the Rancho Los Amigos Campus. Provided general surveys and habitat mapping, assisted with bat acoustic surveys, prepared the biological resources technical report, and prepared the Biological Resources section of the EIR for the project.

Adelanto North 2035 Comprehensively Sustainable Plan, Adelanto, California. Served as project manager and senior biologist to provide biological support for the development of a community plan for 55 square miles in the City of Adelanto and unincorporated San Bernardino County. Provided biological surveys, vegetation mapping, and reporting.

City of Los Angeles Park and Recreation Vegetation Maintenance Support, Los Angeles, California. Served as project manager and senior biologist for the maintenance of vegetation within the City of Los Angeles parks. Coordinated with the City to provide nesting bird surveys, nesting bird plans, and monitoring for numerous parks.

County of San Bernardino Flood Control District Sheep Creek Channelization Project, San Bernardino County, California. Served as the biologist for the channelization of a creek within the San Gabriel Mountains. Provided vegetation mapping, habitat assessment, and jurisdictional waters delineation, reporting, and permitting.

Compton Creek Master Plan, Compton, California. Biologist for a master plan for revitalizing Compton Creek. Provided general surveys, habitat assessment, and vegetation mapping, and prepared the biological resources technical report.

Resource Management

Los Angeles County Sanitation District Bixby Marshland Restoration Monitoring, Carson, California. Served as project manager and senior biologist for a 17 acres wetland and upland habitat restoration project. Set up a scientific study to provide statistical analysis of the project's progress in meeting agencies' criteria for success. Provided annual reporting over seven years that included recommended measures to counter any losses of established plants. Prepared and provided a nesting bird-training program to the maintenance crew.

Los Angeles County Sanitation District Piute Ponds Maintenance, Los Angeles County, California. Served as project biologist for the long-term maintenance of district facilities at the Piute Ponds. Provided surveys, reporting, and impact mitigation analysis for the highly sensitive habitat located within the Mojave Desert.

California Department of Water Resources Arroyo Toad Study, Ventura County, California. Served as the senior biologist for an arroyo toad population study in Piru Creek and its tributaries. Conducted a breeding season study to determine the population dynamics of arroyo toad as part of the mitigation for Pyramid Lake. Arroyo toads observed in all life stages and nighttime adult male vocal surveys conducted.

Bureau of Land Management Desert Tortoise Population and Threat Analysis, Arizona and Nevada. Served as a field biologist for an assessment of threats on the Gold-Butte Pakoon (Arizona and Nevada) desert tortoise population. Technical experience included conducting transect surveys; locating burrows; scat identification; collecting morphometric data; attaching transmitters; and radio-telemetry.

Department of Defense Fort Irwin Desert Tortoise Headstarting Project, San Bernardino County, California. Served as a field biologist for the study of juvenile desert tortoises that had been raised in protected pens before being released. Technical experience included conducting health assessments; collecting morphometric data; attaching transmitters; and radio-telemetry.

NV Energy Dry Lake Solar Energy Center at Harry Allen, Clark County, Nevada. Served as field biologist for desert tortoise population assessment. Duties included conducting transect surveys; locating burrows; scat identification; health assessments, collecting morphometric data; attaching transmitters; and radio-telemetry.

El Centro Solar Energy Transmission Line Project, Imperial County, California. Served as lead field biologist conducting flat-tailed horned lizard studies. Technical experience included conducting transect surveys; scat identification; handling, and collecting morphometric data; attaching transmitters.

Other

Bureau Veritas Third-Party Review for Verizon Cellular Towers NEPA Compliance, California. Served as senior biologist for the review of No Effect Findings reports for more than 100 proposed cell towers throughout California. For tower locations that were determined to have potential to have an effect on a sensitive biological resource, additional surveys and reporting was conducted, including jurisdictional waters delineations, burrowing owl surveys, desert tortoise surveys, and rare plant surveys.

Verizon Cajon Wash Permitting, San Bernardino, California. Served as senior biologist for after-the-fact permitting for impacts to the Cajon Wash. Provided vegetation mapping, habitat assessment, rare plant survey, jurisdictional waters delineation and reporting, waters permit application preparation, and agency consultation.

Specialized Training

- Desert Tortoise Health Assessment Training. USFWS. (2015)
- Flat-tailed Horned Lizard Survey Training. Bureau of Land Management

Eilleen Salas

As-Needed Biologist

Eilleen Salas is a stream biologist that is certified in California Rapid Assessment Method (CRAM) for riverine and depressional wetlands. Ms. Salas is skilled in plant, insect, and bird identification, as well as Benthic Macroinvertebrate and Diatom taxonomy.

Relevant Previous Experience

Graduate Student Researcher, California State University, Long Beach (CSULB), California. Investigated the effects of polycyclic aromatic hydrocarbon pollutants on freshwater diatom communities. Responsible for collecting water, sediment and algal samples in the San Bernardino Mountains. Managed undergraduates and help maintain an efficient work environment. (2015–Present)

Stream Biologist, Stream Ecology and Assessment Laboratory, California. Performed bioassessment fieldwork for California's region 8 watersheds (Santa Ana watersheds) following EPA and Surface Water Ambient Monitoring Program (SWAMP) protocols. Led and managed small teams of five through difficult terrains in the San Bernardino Mountains. Surveyed riparian habitats for mitigation projects in partnership with San Diego State University. Responsible for plant identification and habitat assessment through CRAM (California Rapid Assessment Method). Related laboratory tasks include sample processing, data entry, and quality control. Assisted in identification of bioindicators using benthic macroinvertebrates (BMI) and diatoms. (2018)

Environmental Compliance Intern, Orange County Sanitation District, California. Drafted and edited reports to aid in compliance with the EPA and AQMD including scope of work reports for industrial stormwater audits. Worked with multiple teams including stormwater, air quality, and biosolids. Successfully managed and prioritized several ongoing projects simultaneously. Oversaw third-party contractors during biological assessments/mitigation projects. (2016–2017)

Undergraduate Student Researcher, CSULB – Wetland Ecology, California. Assisted graduate students with environmental data collection in a Wetland Ecology Laboratory. Executed own behavioral project on a nemertean worm, *Ramphogordius sanguineus* that will be potentially published.

Education

California State University, Long Beach

MS, Biology

BS, Biology

Certifications

California Rapid Assessment Method (CRAM)

Professional Affiliations

Society of Environmental Toxicology and Chemistry – Southern California Chapter, Board Member

Society of Freshwater Scientists

Society of Wetland Scientists – Southern California Student Chapter, Board Member

APPENDIX B

USFWS IPaC Trust Resource Report
CNDDB Results (Rarefind 5.0)
CNPS Search Results

CNPS California Native Plant Society

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

59 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads 3411814, 3411813, 3411812, 3311884, 3311883, 3311882, 3311874 3311873 and 3311872;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Abronia maritima	red sand-verbena	Nyctaginaceae	perennial herb	Feb-Nov	4.2	S3?	G4
Aphanisma blitoides	aphanisma	Chenopodiaceae	annual herb	Feb-Jun	1B.2	S2	G3G4
Arenaria paludicola	marsh sandwort	Caryophyllaceae	perennial stoloniferous herb	May-Aug	1B.1	S1	G1
Astragalus brauntonii	Braunton's milk-vetch	Fabaceae	perennial herb	Jan-Aug	1B.1	S2	G2
Astragalus pycnostachyus var. lanosissimus	Ventura marsh milk-vetch	Fabaceae	perennial herb	(Jun)Aug-Oct	1B.1	S1	G2T1
Astragalus tener var. titi	coastal dunes milk-vetch	Fabaceae	annual herb	Mar-May	1B.1	S1	G2T1
Atriplex coulteri	Coulter's saltbush	Chenopodiaceae	perennial herb	Mar-Oct	1B.2	S1S2	G3
Atriplex pacifica	South Coast saltscale	Chenopodiaceae	annual herb	Mar-Oct	1B.2	S2	G4
Atriplex parishii	Parish's brittlescale	Chenopodiaceae	annual herb	Jun-Oct	1B.1	S1	G1G2
Atriplex serenana var. davidsonii	Davidson's saltscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S1	G5T1
Berberis nevinii	Nevin's barberry	Berberidaceae	perennial evergreen shrub	(Feb)Mar-Jun	1B.1	S1	G1
Calochortus catalinae	Catalina mariposa lily	Liliaceae	perennial bulbiferous herb	(Feb)Mar-Jun	4.2	S3S4	G3G4
Calochortus plummerae	Plummer's mariposa lily	Liliaceae	perennial bulbiferous herb	May-Jul	4.2	S4	G4
Calystegia felix	lucky morning-glory	Convolvulaceae	annual rhizomatous herb	Mar-Sep	1B.1	S1	G1Q
Calystegia peirsonii	Peirson's morning-glory	Convolvulaceae	perennial rhizomatous herb	Apr-Jun	4.2	S4	G4
Camissoniopsis lewisii	Lewis' evening-primrose	Onagraceae	annual herb	Mar-May(Jun)	3	S4	G4

Centromadia parryi ssp. australis	southern tarplant	Asteraceae	annual herb	May-Nov	1B.1	S2	G3T2
Chaenactis glabriuscula var. orcuttiana	Orcutt's pincushion	Asteraceae	annual herb	Jan-Aug	1B.1	S1	G5T1T2
Chenopodium littoreum	coastal goosefoot	Chenopodiaceae	annual herb	Apr-Aug	1B.2	S1	G1
Chloropyron maritimum ssp. maritimum	salt marsh bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct(Nov)	1B.2	S1	G4?T1
Chorizanthe parryi var. fernandina	San Fernando Valley spineflower	Polygonaceae	annual herb	Apr-Jul	1B.1	S1	G2T1
Cistanthe maritima	seaside cistanthe	Montiaceae	annual herb	(Feb)Mar-Jun(Aug)	4.2	S3	G3G4
Clinopodium mimuloides	monkey-flower savory	Lamiaceae	perennial herb	Jun-Oct	4.2	S3	G3
Convolvulus simulans	small-flowered morning-glory	Convolvulaceae	annual herb	Mar-Jul	4.2	S4	G4
Deinandra paniculata	paniculate tarplant	Asteraceae	annual herb	(Mar)Apr-Nov(Dec)	4.2	S4	G4
Dichondra occidentalis	western dichondra	Convolvulaceae	perennial rhizomatous herb	(Jan)Mar-Jul	4.2	S3S4	G3G4
Dithyrea maritima	beach spectaclepod	Brassicaceae	perennial rhizomatous herb	Mar-May	1B.1	S1	G1
Dudleya multicaulis	many-stemmed dudleya	Crassulaceae	perennial herb	Apr-Jul	1B.2	S2	G2
Dudleya virens ssp. insularis	island green dudleya	Crassulaceae	perennial herb	Apr-Jun	1B.2	S3	G3?T3
Eryngium aristulatum var. parishii	San Diego button-celery	Apiaceae	annual / perennial herb	Apr-Jun	1B.1	S1	G5T1
Erysimum suffrutescens	suffrutescent wallflower	Brassicaceae	perennial herb	Jan-Jul(Aug)	4.2	S3	G3
Helianthus nuttallii ssp. parishii	Los Angeles sunflower	Asteraceae	perennial rhizomatous herb	Aug-Oct	1A	SH	G5TH
Hordeum intercedens	vernal barley	Poaceae	annual herb	Mar-Jun	3.2	S3S4	G3G4
Horkelia cuneata var. puberula	mesa horkelia	Rosaceae	perennial herb	Feb-Jul(Sep)	1B.1	S1	G4T1
Isocoma menziesii var. decumbens	decumbent goldenbush	Asteraceae	perennial shrub	Apr-Nov	1B.2	S2	G3G5T2T3
Juglans californica	Southern California black walnut	Juglandaceae	perennial deciduous tree	Mar-Aug	4.2	S4	G4
Juncus acutus ssp. leopoldii	southwestern spiny rush	Juncaceae	perennial rhizomatous herb	(Mar)May-Jun	4.2	S4	G5T5
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	Asteraceae	annual herb	Feb-Jun	1B.1	S2	G4T2
Lepidium virginicum var. robinsonii	Robinson's pepper-grass	Brassicaceae	annual herb	Jan-Jul	4.3	S3	G5T3
Leptosyne maritima	sea dahlia	Asteraceae	perennial herb	Mar-May	2B.2	S1S2	G2
Lycium brevipes var. hassei	Santa Catalina Island desert-thorn	Solanaceae	perennial deciduous shrub	Jun(Aug)	3.1	S1	G5T1Q

Nama stenocarpa	mud nama	Namaceae	annual / perennial herb	Jan-Jul	2B.2	S1S2	G4G5
Nasturtium gambelii	Gambel's water cress	Brassicaceae	perennial rhizomatous herb	Apr-Oct	1B.1	S1	G1
Navarretia fossalis	spreading navarretia	Polemoniaceae	annual herb	Apr-Jun	1B.1	S2	G2
Navarretia prostrata	prostrate vernal pool navarretia	Polemoniaceae	annual herb	Apr-Jul	1B.1	S2	G2
Nemacaulis denudata var. denudata	coast woolly-heads	Polygonaceae	annual herb	Apr-Sep	1B.2	S2	G3G4T2
Orcuttia californica	California Orcutt grass	Poaceae	annual herb	Apr-Aug	1B.1	S1	G1
Pentachaeta lyonii	Lyon's pentachaeta	Asteraceae	annual herb	(Feb)Mar-Aug	1B.1	S1	G1
Phacelia hubbyi	Hubby's phacelia	Hydrophyllaceae	annual herb	Apr-Jul	4.2	S4	G4
Phacelia ramosissima var. austrolitoralis	south coast branching phacelia	Hydrophyllaceae	perennial herb	Mar-Aug	3.2	S3	G5?T3Q
Phacelia stellaris	Brand's star phacelia	Hydrophyllaceae	annual herb	Mar-Jun	1B.1	S1	G1
Potentilla multijuga	Ballona cinquefoil	Rosaceae	perennial herb	Jun-Aug	1A	SX	GX
Pseudognaphalium leucocephalum	white rabbit-tobacco	Asteraceae	perennial herb	(Jul)Aug-Nov(Dec)	2B.2	S2	G4
Quercus dumosa	Nuttall's scrub oak	Fagaceae	perennial evergreen shrub	Feb-Apr(May-Aug)	1B.1	S3	G3
Sidalcea neomexicana	salt spring checkerbloom	Malvaceae	perennial herb	Mar-Jun	2B.2	S2	G4
Suaeda esteroa	estuary seablite	Chenopodiaceae	perennial herb	(May)Jul-Oct(Jan)	1B.2	S2	G3
Suaeda taxifolia	woolly seablite	Chenopodiaceae	perennial evergreen shrub	Jan-Dec	4.2	S4	G4
Symphyotrichum defoliatum	San Bernardino aster	Asteraceae	perennial rhizomatous herb	Jul-Nov(Dec)	1B.2	S2	G2
Symphyotrichum greatae	Greata's aster	Asteraceae	perennial rhizomatous herb	Jun-Oct	1B.3	S2	G2

Suggested Citation

California Native Plant Society, Rare Plant Program. 2019. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 20 June 2019].

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The Calflora Database
The California Lichen Society
California Natural Diversity Database
The Jepson Flora Project
The Consortium of California Herbaria
CalPhotos

Questions and Comments
rareplants@cnps.org

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Beverly Hills (3411814) OR Hollywood (3411813) OR Los Angeles (3411812) OR Venice (3311884) OR Inglewood (3311883) OR South Gate (3311882) OR Redondo Beach (3311874) OR Torrance (3311873) OR Long Beach (3311872))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
Aimophila ruficeps canescens southern California rufous-crowned sparrow	ABPBX91091	None	None	G5T3	S3	WL
Anniella stebbinsi southern California legless lizard	ARACC01060	None	None	G3	S3	SSC
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Aphanisma blitoides aphanisma	PDCHE02010	None	None	G3G4	S2	1B.2
Arenaria paludicola marsh sandwort	PDCAR040L0	Endangered	Endangered	G1	S1	1B.1
Arizona elegans occidentalis California glossy snake	ARADB01017	None	None	G5T2	S2	SSC
Aspidoscelis tigris stejnegeri coastal whiptail	ARACJ02143	None	None	G5T5	S3	SSC
Astragalus brauntonii Braunton's milk-vetch	PDFAB0F1G0	Endangered	None	G2	S2	1B.1
Astragalus pycnostachyus var. lanosissimus Ventura Marsh milk-vetch	PDFAB0F7B1	Endangered	Endangered	G2T1	S1	1B.1
Astragalus tener var. titi coastal dunes milk-vetch	PDFAB0F8R2	Endangered	Endangered	G2T1	S1	1B.1
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Atriplex coulteri Coulter's saltbush	PDCHE040E0	None	None	G3	S1S2	1B.2
Atriplex pacifica south coast saltscale	PDCHE041C0	None	None	G4	S2	1B.2
Atriplex parishii Parish's brittlescale	PDCHE041D0	None	None	G1G2	S1	1B.1
Atriplex serenana var. davidsonii Davidson's saltscale	PDCHE041T1	None	None	G5T1	S1	1B.2
Berberis nevinii Nevin's barberry	PDBER060A0	Endangered	Endangered	G1	S1	1B.1
Bombus crotchii Crotch bumble bee	IIHYM24480	None	None	G3G4	S1S2	
Brennania belkini Belkin's dune tabanid fly	IIDIP17010	None	None	G1G2	S1S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
California Walnut Woodland California Walnut Woodland	CTT71210CA	None	None	G2	S2.1	
Calochortus plummerae Plummer's mariposa-lily	PMLIL0D150	None	None	G4	S4	4.2
Calystegia felix lucky morning-glory	PDCON040P0	None	None	G1Q	S1	1B.1
Carolella busckana Busck's gallmoth	IILEM2X090	None	None	G1G3	SH	
Centromadia parryi ssp. australis southern tarplant	PDAST4R0P4	None	None	G3T2	S2	1B.1
Centromadia pungens ssp. laevis smooth tarplant	PDAST4R0R4	None	None	G3G4T2	S2	1B.1
Chaenactis glabriuscula var. orcuttiana Orcutt's pincushion	PDAST20095	None	None	G5T1T2	S1	1B.1
Charadrius alexandrinus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
Chenopodium littoreum coastal goosefoot	PDCHE091Z0	None	None	G1	S1	1B.2
Chloropyron maritimum ssp. maritimum salt marsh bird's-beak	PDSCR0J0C2	Endangered	Endangered	G4?T1	S1	1B.2
Chorizanthe parryi var. fernandina San Fernando Valley spineflower	PDPGN040J1	Proposed Threatened	Endangered	G2T1	S1	1B.1
Cicindela gabbii western tidal-flat tiger beetle	IICOL02080	None	None	G2G4	S1	
Cicindela hirticollis gravida sandy beach tiger beetle	IICOL02101	None	None	G5T2	S2	
Cicindela latesignata latesignata western beach tiger beetle	IICOL02113	None	None	G2G4T1T2	S1	
Cicindela senilis frosti senile tiger beetle	IICOL02121	None	None	G2G3T1T3	S1	
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Coelus globosus globose dune beetle	IICOL4A010	None	None	G1G2	S1S2	
Coturnicops noveboracensis yellow rail	ABNME01010	None	None	G4	S1S2	SSC
Danaus plexippus pop. 1 monarch - California overwintering population	IILEPP2012	None	None	G4T2T3	S2S3	
Dithyrea maritima beach spectaclepod	PDBRA10020	None	Threatened	G1	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Dudleya multicaulis many-stemmed dudleya	PDCRA040H0	None	None	G2	S2	1B.2
Dudleya virens ssp. insularis island green dudleya	PDCRA040S2	None	None	G3?T3	S3	1B.2
Empidonax traillii extimus southwestern willow flycatcher	ABPAE33043	Endangered	Endangered	G5T2	S1	
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eryngium aristulatum var. parishii San Diego button-celery	PDAPI0Z042	Endangered	Endangered	G5T1	S1	1B.1
Eucosma hennei Henne's eucosman moth	IILEM0R390	None	None	G1	S1	
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G5T4	S3S4	SSC
Euphilotes battoides allyni El Segundo blue butterfly	IILEPG201B	Endangered	None	G5T1	S1	
Glaucopsyche lygdamus palosverdesensis Palos Verdes blue butterfly	IILEPG402A	Endangered	None	G5T1	S1	
Helianthus nuttallii ssp. parishii Los Angeles sunflower	PDAST4N102	None	None	G5TH	SH	1A
Horkelia cuneata var. puberula mesa horkelia	PDROS0W045	None	None	G4T1	S1	1B.1
Isocoma menziesii var. decumbens decumbent goldenbush	PDAST57091	None	None	G3G5T2T3	S2	1B.2
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G5	S3S4	
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Lasthenia glabrata ssp. coulteri Coulter's goldfields	PDAST5L0A1	None	None	G4T2	S2	1B.1
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
Lepidium virginicum var. robinsonii Robinson's pepper-grass	PDBRA1M114	None	None	G5T3	S3	4.3
Lycium brevipes var. hassei Santa Catalina Island desert-thorn	PDSOL0G0N0	None	None	G5T1Q	S1	3.1
Microtus californicus stephensi south coast marsh vole	AMAFF11035	None	None	G5T1T2	S1S2	SSC
Nama stenocarpa mud nama	PDHYD0A0H0	None	None	G4G5	S1S2	2B.2
Nasturtium gambelii Gambel's water cress	PDBRA270V0	Endangered	Threatened	G1	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Navarretia fossalis spreading navarretia	PDPLM0C080	Threatened	None	G2	S2	1B.1
Navarretia prostrata prostrate vernal pool navarretia	PDPLM0C0Q0	None	None	G2	S2	1B.1
Nemacaulis denudata var. denudata coast woolly-heads	PDPGN0G011	None	None	G3G4T2	S2	1B.2
Nyctinomops femorosaccus pocketed free-tailed bat	AMACD04010	None	None	G4	S3	SSC
Nyctinomops macrotis big free-tailed bat	AMACD04020	None	None	G5	S3	SSC
Onychobaris langei Lange's El Segundo Dune weevil	IICOL4W010	None	None	G1	S1	
Orcuttia californica California Orcutt grass	PMPOA4G010	Endangered	Endangered	G1	S1	1B.1
Panoquina errans wandering (=saltmarsh) skipper	IILEP84030	None	None	G4G5	S2	
Passerculus sandwichensis beldingi Belding's savannah sparrow	ABPBX99015	None	Endangered	G5T3	S3	
Pelecanus occidentalis californicus California brown pelican	ABNFC01021	Delisted	Delisted	G4T3T4	S3	FP
Pentachaeta lyonii Lyon's pentachaeta	PDAST6X060	Endangered	Endangered	G1	S1	1B.1
Perognathus longimembris pacificus Pacific pocket mouse	AMAFD01042	Endangered	None	G5T1	S1	SSC
Phacelia stellaris Brand's star phacelia	PDHYD0C510	None	None	G1	S1	1B.1
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC
Polioptila californica californica coastal California gnatcatcher	ABPBJ08081	Threatened	None	G4G5T2Q	S2	SSC
Potentilla multijuga Ballona cinquefoil	PDROS1B120	None	None	GX	SX	1A
Pseudognaphalium leucocephalum white rabbit-tobacco	PDAST440C0	None	None	G4	S2	2B.2
Quercus dumosa Nuttall's scrub oak	PDFAG050D0	None	None	G3	S3	1B.1
Rhaphiomidas terminatus terminatus El Segundo flower-loving fly	IIDIP05022	None	None	G1T1	S1	
Ribes divaricatum var. parishii Parish's gooseberry	PDGRO020F3	None	None	G5TX	SX	1A
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Sidalcea neomexicana salt spring checkerbloom	PDMAL110J0	None	None	G4	S2	2B.2
Siphateles bicolor mohavensis Mohave tui chub	AFCJB1303H	Endangered	Endangered	G4T1	S1	FP
Socalchemmis gertschi Gertsch's socalchemmis spider	ILARAU7010	None	None	G1	S1	
Sorex ornatus salicornicus southern California saltmarsh shrew	AMABA01104	None	None	G5T1?	S1	SSC
Southern Coast Live Oak Riparian Forest Southern Coast Live Oak Riparian Forest	CTT61310CA	None	None	G4	S4	
Southern Coastal Bluff Scrub Southern Coastal Bluff Scrub	CTT31200CA	None	None	G1	S1.1	
Southern Coastal Salt Marsh Southern Coastal Salt Marsh	CTT52120CA	None	None	G2	S2.1	
Southern Dune Scrub Southern Dune Scrub	CTT21330CA	None	None	G1	S1.1	
Southern Sycamore Alder Riparian Woodland Southern Sycamore Alder Riparian Woodland	CTT62400CA	None	None	G4	S4	
Sternula antillarum browni California least tern	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2	FP
Streptocephalus woottoni Riverside fairy shrimp	ICBRA07010	Endangered	None	G1G2	S1S2	
Suaeda esteroa estuary seablite	PDCHE0P0D0	None	None	G3	S2	1B.2
Symphyotrichum defoliatum San Bernardino aster	PDASTE80C0	None	None	G2	S2	1B.2
Symphyotrichum greatae Greata's aster	PDASTE80U0	None	None	G2	S2	1B.3
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Trigonoscuta dorothea dorothea Dorothy's El Segundo Dune weevil	IICOL51021	None	None	G1T1	S1	
Tryonia imitator mimic tryonia (=California brackishwater snail)	IMGASJ7040	None	None	G2	S2	
Vireo bellii pusillus least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S2	
Walnut Forest Walnut Forest	CTT81600CA	None	None	G1	S1.1	

Record Count: 101

IPaC Information for Planning and Consultation **U.S. Fish & Wildlife Service**

Last login December 18, 2019 05:14 PM MST

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Project information

NAME

Western Trunk Line

LOCATION

Los Angeles County, California

DESCRIPTION

The
replacement of 23,300 feet of existing pipe along Western Avenue and the installation of new Earthquake Resistant Ductile Iron Pipe (ERDIP) parallel to the existing pipe.

Local office

Carlsbad Fish And Wildlife Office

(760) 431-9440
(760) 431-5901

2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385

http://www.fws.gov/carlsbad/

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species

[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
Coastal California Gnatcatcher Polioptila californica californica There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8178	Threatened
Western Snowy Plover Charadrius nivosus nivosus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

MIGRATORY BIRD INFORMATION IS NOT AVAILABLE AT THIS TIME

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and

3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this

inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

APPENDIX C

Photo Documentation

APPENDIX C
Photo Documentation

Photo 1: Representative photo of the project alignment in the study area.

Photo 2: Representative photo of the project alignment in the study area.

Photo 3: Representative photo of the project alignment in the study area.

Photo 4: Representative photo of the project alignment in the study area.

Photo 5: Representative photo of the potential staging area at 1326 W. Imperial Highway.

Photo 6: Facing south on Coronado Street toward the project alignment with the US-101 overpass in the distance.

Photo 7: Representative photo of the potential staging area at 5975 S. Western Avenue.

Photo 8: Representative photo of the potential staging area at 8731 S. Western Avenue.

APPENDIX D

Special-Status Plant Species Potential to Occur

APPENDIX D
Special-Status Plant Species Potential to Occur

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/ City of LA[2])	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[3]
Abronia maritima	red sand-verbena	None/None/4.2	Coastal dunes/perennial herb/Feb–Nov/0–330	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Aphanisma blitoides	aphanisma	None/None/1B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub; sandy or gravelly/annual herb/Feb–June/0–1000	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Arenaria paludicola	marsh sandwort	FE/SE/1B.1	Marshes and swamps (freshwater or brackish); sandy, openings/perennial stoloniferous herb/May–Aug/5–560	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Astragalus brauntonii	Braunton's milk-vetch	FE/None/1B.1	Chaparral, Coastal scrub, Valley and foothill grassland; recent burns or disturbed areas, usually sandstone with carbonate layers/perennial herb/Jan–Aug/10–2100	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Astragalus pycnostachyus var. *lanosissimus*	Ventura marsh milk-vetch	FE/SE/1B.1	Coastal dunes, Coastal scrub, Marshes and swamps (edges, coastal salt or brackish)/perennial herb/(June)Aug–Oct/0–115	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Astragalus tener var. *titi*	coastal dunes milk-vetch	FE/SE/1B.1	Coastal bluff scrub (sandy), Coastal dunes, Coastal prairie (mesic); often vernally mesic areas/annual herb/Mar–May/0–165	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Atriplex coulteri	Coulter's saltbush	None/None/1B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub, Valley and foothill grassland; alkaline or clay/perennial herb/Mar–Oct/5–1510	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Atriplex pacifica	South Coast saltscale	None/None/1B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub, Playas/annual herb/Mar–Oct/0–460	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Atriplex parishii	Parish's brittlescale	None/None/1B.1	Chenopod scrub, Playas, Vernal pools; alkaline/annual herb/June–Oct/80–6235	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/ City of LA[2])	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[3]
Atriplex serenana var. *davidsonii*	Davidson's saltscale	None/None/1B.2	Coastal bluff scrub, Coastal scrub; alkaline/annual herb/Apr–Oct/30–655	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Berberis nevinii	Nevin's barberry	FE/SE/1B.1	Chaparral, Cismontane woodland, Coastal scrub, Riparian scrub; sandy or gravelly/perennial evergreen shrub/(Feb)Mar–June/225–2705	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Calochortus catalinae	Catalina mariposa lily	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/perennial bulbiferous herb/(Feb)Mar–June/45–2295	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Calochortus plummerae	Plummer's mariposa lily	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland; granitic, rocky/perennial bulbiferous herb/May–July/325–5575	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Calystegia felix	lucky morning-glory	None/None/1B.1	Meadows and seeps (sometimes alkaline), Riparian scrub (alluvial); Historically associated with wetland and marshy places, but possibly in drier situations as well. Possibly silty loam and alkaline/annual rhizomatous herb/Mar–Sep/95–705	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Calystegia peirsonii	Peirson's morning-glory	None/None/4.2	Chaparral, Chenopod scrub, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland/perennial rhizomatous herb/Apr–June/95–4920	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Camissoniopsis lewisii	Lewis' evening-primrose	None/None/3	Coastal bluff scrub, Cismontane woodland, Coastal dunes, Coastal scrub, Valley and foothill grassland; sandy or clay/annual herb/Mar–May(June)/0–985	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/ City of LA[2])	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[3]
Centromadia parryi ssp. *australis*	southern tarplant	None/None/1B.1	Marshes and swamps (margins), Valley and foothill grassland (vernally mesic), Vernal pools/annual herb/May–Nov/0–1575	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Centromadia pungens ssp. *laevis*	smooth tarplant	None/None/1B.1	Chenopod scrub, Meadows and seeps, Playas, Riparian woodland, Valley and foothill grassland; alkaline/annual herb/Apr–Sep/0–2100	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	None/None/1B.1	Coastal bluff scrub (sandy), Coastal dunes/annual herb/Jan–Aug/0–330	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Chenopodium littoreum	coastal goosefoot	None/None/1B.2	Coastal dunes/annual herb/Apr–Aug/30–100	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Chloropyron maritimum ssp. *maritimum*	salt marsh bird's-beak	FE/SE/1B.2	Coastal dunes, Marshes and swamps (coastal salt)/annual herb (hemiparasitic)/May–Oct(Nov)/0–100	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Chorizanthe parryi var. *fernandina*	San Fernando Valley spineflower	FC/SE/1B.1	Coastal scrub (sandy), Valley and foothill grassland/annual herb/Apr–July/490–4005	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Cistanthe maritima	seaside cistanthe	None/None/4.2	Coastal bluff scrub, Coastal scrub, Valley and foothill grassland; sandy/annual herb/(Feb)Mar–June(Aug)/15–985	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Clinopodium mimuloides	monkey-flower savory	None/None/4.2	Chaparral, North Coast coniferous forest; streambanks, mesic/perennial herb/June–Oct/1000–5905	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Convolvulus simulans	small-flowered morning-glory	None/None/4.2	Chaparral (openings), Coastal scrub, Valley and foothill grassland; clay, serpentinite seeps/annual herb/Mar–July/95–2430	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Deinandra paniculata	paniculate tarplant	None/None/4.2	Coastal scrub, Valley and foothill grassland, Vernal pools; usually vernally mesic, sometimes sandy/annual herb/(Mar)Apr–Nov(Dec)/80–3085	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/ City of LA[2])	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[3]
Dichondra occidentalis	western dichondra	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/perennial rhizomatous herb/(Jan)Mar–July/160–1640	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Dithyrea maritima	beach spectaclepod	None/ST/1B.1	Coastal dunes, Coastal scrub (sandy)/perennial rhizomatous herb/Mar–May/5–165	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Dudleya multicaulis	many-stemmed dudleya	None/None/1B.2	Chaparral, Coastal scrub, Valley and foothill grassland; often clay/perennial herb/Apr–July/45–2590	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Dudleya virens ssp. *insularis*	island green dudleya	None/None/1B.2	Coastal bluff scrub, Coastal scrub; rocky/perennial herb/Apr–June/15–985	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Eryngium aristulatum var. *parishii*	San Diego button-celery	FE/SE/1B.1	Coastal scrub, Valley and foothill grassland, Vernal pools; mesic/annual / perennial herb/Apr–June/65–2035	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Erysimum suffrutescens	suffrutescent wallflower	None/None/4.2	Coastal bluff scrub, Chaparral (maritime), Coastal dunes, Coastal scrub/perennial herb/Jan–July(Aug)/0–490	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Helianthus nuttallii ssp. *parishii*	Los Angeles sunflower	None/None/1A	Marshes and swamps (coastal salt and freshwater)/perennial rhizomatous herb/Aug–Oct/30–5005	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Hordeum intercedens	vernal barley	None/None/3.2	Coastal dunes, Coastal scrub, Valley and foothill grassland (saline flats and depressions), Vernal pools/annual herb/Mar–June/15–3280	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Horkelia cuneata var. *puberula*	mesa horkelia	None/None/1B.1	Chaparral (maritime), Cismontane woodland, Coastal scrub; sandy or gravelly/perennial herb/Feb–July(Sep)/225–2655	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Isocoma menziesii var. *decumbens*	decumbent goldenbush	None/None/1B.2	Chaparral, Coastal scrub (sandy, often in disturbed areas)/perennial shrub/Apr–Nov/30–445	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/ City of LA[2])	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[3]
Juglans californica	Southern California black walnut	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland; alluvial/perennial deciduous tree/Mar–Aug/160–2955	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	None/None/4.2	Coastal dunes (mesic), Meadows and seeps (alkaline seeps), Marshes and swamps (coastal salt)/perennial rhizomatous herb/(Mar)May–June/5–2955	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	None/None/1B.1	Marshes and swamps (coastal salt), Playas, Vernal pools/annual herb/Feb–June/0–4005	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None/None/4.3	Chaparral, Coastal scrub/annual herb/Jan–July/0–2905	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Leptosyne maritima	sea dahlia	None/None/2B.2	Coastal bluff scrub, Coastal scrub/perennial herb/Mar–May/15–490	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Lycium brevipes var. *hassei*	Santa Catalina Island desert-thorn	None/None/3.1	Coastal bluff scrub, Coastal scrub/perennial deciduous shrub/June(Aug)/210–985	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Nama stenocarpa	mud nama	None/None/2B.2	Marshes and swamps (lake margins, riverbanks)/annual / perennial herb/Jan–July/15–1640	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Nasturtium gambelii	Gambel's water cress	FE/ST/1B.1	Marshes and swamps (freshwater or brackish)/perennial rhizomatous herb/Apr–Oct/15–1085	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Navarretia fossalis	spreading navarretia	FT/None/1B.1	Chenopod scrub, Marshes and swamps (assorted shallow freshwater), Playas, Vernal pools/annual herb/Apr–June/95–2150	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Navarretia prostrata	prostrate vernal pool navarretia	None/None/1B.1	Coastal scrub, Meadows and seeps, Valley and foothill grassland (alkaline), Vernal pools; Mesic/annual herb/Apr–July/5–3970	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/ City of LA[2])	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[3]
Nemacaulis denudata var. *denudata*	coast woolly-heads	None/None/1B.2	Coastal dunes/annual herb/Apr–Sep/0–330	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Orcuttia californica	California Orcutt grass	FE/SE/1B.1	Vernal pools/annual herb/Apr–Aug/45–2165	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Pentachaeta lyonii	Lyon's pentachaeta	FE/SE/1B.1	Chaparral (openings), Coastal scrub, Valley and foothill grassland; rocky, clay/annual herb/(Feb)Mar–Aug/95–2265	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Phacelia hubbyi	Hubby's phacelia	None/None/4.2	Chaparral, Coastal scrub, Valley and foothill grassland; gravelly, rocky, talus/annual herb/Apr–July/0–3280	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Phacelia ramosissima var. *austrolitoralis*	south coast branching phacelia	None/None/3.2	Chaparral, Coastal dunes, Coastal scrub, Marshes and swamps (coastal salt); sandy, sometimes rocky/perennial herb/Mar–Aug/15–985	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Phacelia stellaris	Brand's star phacelia	None/None/1B.1	Coastal dunes, Coastal scrub/annual herb/Mar–June/0–1310	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Potentilla multijuga	Ballona cinquefoil	None/None/1A	Meadows and seeps (brackish)/perennial herb/June–Aug/0–5	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Pseudognaphalium leucocephalum	white rabbit-tobacco	None/None/2B.2	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland; sandy, gravelly/perennial herb/(July)Aug–Nov(Dec)/0–6890	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Quercus dumosa	Nuttall's scrub oak	None/None/1B.1	Closed-cone coniferous forest, Chaparral, Coastal scrub; sandy, clay loam/perennial evergreen shrub/Feb–Apr(May–Aug)/45–1310	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Ribes divaricatum var. *parishii*	Parish's gooseberry	None/None/1A	Riparian woodland/perennial deciduous shrub/Feb–Apr/210–985	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/ City of LA[2])	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[3]
Sidalcea neomexicana	salt spring checkerbloom	None/None/2B.2	Chaparral, Coastal scrub, Lower montane coniferous forest, Mojavean desert scrub, Playas; alkaline, mesic/perennial herb/Mar–June/45–5020	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Suaeda esteroa	estuary seablite	None/None/1B.2	Marshes and swamps (coastal salt)/perennial herb/(May)July–Oct(Jan)/0–15	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Suaeda taxifolia	woolly seablite	None/None/4.2	Coastal bluff scrub, Coastal dunes, Marshes and swamps (margins of coastal salt)/perennial evergreen shrub/Jan–Dec/0–165	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Symphyotrichum defoliatum	San Bernardino aster	None/None/1B.2	Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps, Valley and foothill grassland (vernally mesic); near ditches, streams, springs/perennial rhizomatous herb/July–Nov(Dec)/5–6695	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.
Symphyotrichum greatae	Greata's aster	None/None/1B.3	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Riparian woodland; mesic/perennial rhizomatous herb/June–Oct/980–6595	Not expected to occur. The project site is dominated by heavily urbanized commercial and residential development and lacks suitable habitat for this species.

Notes:

[1] Status abbreviations:

FE: Federally listed as endangered
FT: Federally listed as threatened
FC: Federal Candidate for listing
CE: State listed as endangered
CR: State Rare
CRPR List 1A: Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
CRPR List 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
CRPR List 2A: Plants Presumed Extirpated in California, But More Common Elsewhere
CRPR List 2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
CRPR List 3: Plants About Which More Information is Needed - A Review List
CRPR List 4: Plants of Limited Distribution - A Watch List

.1 Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
.3 Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

[2] Sensitive Species within the City of Los Angeles (City of Los Angeles 2006)
a: Known to occur in Zone 5
b: Occurrence is known in other zones or is unknown

[3] Vicinity refers to records within the Hollywood USGS 7.5-minute quadrangle and eight surrounding USGS 7.5-minute quadrangles (i.e., Van Nuys, Burbank, Pasadena, Beverly Hills, Los Angeles, Venice, Inglewood, South Gate).

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APPENDIX E

Special-Status Wildlife Species Potential to Occur

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Special-Status Wildlife Species Potential to Occur

Scientific Name	Common Name	Status[1] (Federal/State/ City of LA[2])	Habitat	Potential to Occur[3]
Invertebrates				
Brennania belkini	Belkin's dune tabanid fly	None/None	Inhabits coastal sand dunes of Southern California	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Carolella busckana	Busck's gallmoth	None/None	Coastal scrub dunes	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Cicindela gabbii	western tidal-flat tiger beetle	None/None	Inhabits estuaries and mudflats along the coast of Southern California	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Cicindela hirticollis gravida	sandy beach tiger beetle	None/None	Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Cicindela latesignata latesignata	western beach tiger beetle	None/None	Mudflats and beaches in coastal Southern California	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Cicindela senilis frosti	senile tiger beetle	None/None	Inhabits marine shoreline, from Central California coast south to saltmarshes of San Diego; also found at Lake Elsinore	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Cicindela latesignata obliviosa	Oblivious tiger beetle	None/None	Inhabited the Southern California coastline, from La Jolla north to the Orange County line. Occupied saline mudflats and moist sandy spots in estuaries of small streams in the lower zone. Has not been observed in 20 years. The oblivious tiger beetle (*C. l. obliviosa*) is no longer the accepted name for the species (ITIS 2016).	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Coelus globosus	globose dune beetle	None/None	Inhabitant of coastal sand dune habitat; erratically distributed from Ten Mile Creek in Mendocino County south to Ensenada, Mexico	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Eucosma hennei	Henne's eucosman moth	None/None	Endemic to El Segundo dunes	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.

Scientific Name	Common Name	Status[1] (Federal/State/ City of LA[2])	Habitat	Potential to Occur[3]
Euphilotes battoides allyni	El Segundo blue butterfly	FE/None	Remnant coastal dune habitat in Los Angeles and Santa Barbara Counties	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Glaucopsyche lygdamus palosverdesensis	Palos Verdes blue butterfly	FE/None	Cool, fog-shrouded, seaward side of Palos Verdes Hills, Los Angeles County	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Onychobaris langei	Lange's El Segundo Dune weevil	None/None	Known from El Segundo Dunes	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Panoquina errans	wandering skipper	None/None	Saltmarsh	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Rhaphiomidas terminatus terminatus	El Segundo flower-loving fly	None/None	Presumed extinct but recently discovered on Malaga Dunes, Los Angeles County	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Socalchemmis gertschi	Gertsch's socalchemmis spider	None/None	Known from only 2 localities in Los Angeles County: Brentwood (type locality) and Topanga Canyon	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Streptocephalus woottoni	Riverside fairy shrimp	FE/None	Vernal pools, non-vegetated ephemeral pools	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Trigonoscuta dorothea dorothea	Dorothy's El Segundo Dune weevil	None/None	Coastal sand dunes in Los Angeles County	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Tryonia imitator	mimic tryonia (=California brackishwater snail)	None/None	Inhabits coastal lagoons, estuaries, and saltmarshes, from Sonoma County south to San Diego County	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Reptiles				
Actinemys marmorata	western pond turtle	None/SSC/S[b]	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.

Scientific Name	Common Name	Status[1] (Federal/State/ City of LA[2])	Habitat	Potential to Occur[3]
Anniella sp.	California legless lizard	None/SSC/S[b]	Coastal dunes, stabilized dunes, beaches, chaparral, pine-oak-riparian woodlands, desert scrub, sandy washes, and stream terraces; moist, warm, loose soils and leaf litter under trees and shrubs	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Anniella stebbinsi	Southern California legless lizard	None/SSC/S[b]	Coastal dunes, stabilized dunes, beaches, chaparral, pine-oak-riparian woodlands, desert scrub, sandy washes, and stream terraces; moist, warm, loose soils and leaf litter under trees and shrubs	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Arizona elegans occidentalis	California glossy snake	None/SSC/None	Commonly occurs in desert regions throughout southern California. Prefers open sandy areas with scattered brush. Also found in rocky areas.	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Aspidoscelis tigris stejnegeri	San Diegan tiger whiptail	None/SSC/None	Hot and dry areas with sparse foliage, including chaparral, woodland, and riparian areas.	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Phrynosoma blainvillii	Blainville's horned lizard	None/SSC/S[b]	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Birds				
Agelaius tricolor (nesting colony)	tricolored blackbird	BCC/ST,SSC/None	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberrry; forages in grasslands, woodland, and agriculture	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable nesting and foraging habitat for the species.
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	None/WL/S[b]	Nests and forages in open coastal scrub and chaparral with low cover of scattered scrub interspersed with rocky and grassy patches	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable nesting and foraging habitat for the species.
Athene cunicularia (burrow sites & some wintering sites)	burrowing owl	BCC/SSC/S[b]	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	Not expected to occur. The project site and surrounding area is primarily composed of heavily urbanized commercial and residential development, lacking suitable habitat (i.e., grassland, open scrub, or agricultural fields) to support the species. Additionally, no burrows suitable for the species were observed within the project site during the site visit.

Scientific Name	Common Name	Status[1] (Federal/State/ City of LA[2])	Habitat	Potential to Occur[3]
Buteo swainsoni (nesting)	Swainson's hawk	BCC/ST/None	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable nesting and foraging habitat for the species.
Charadrius alexandrinus nivosus (nesting)	western snowy plover	FT,BCC/SSC/S[b]	On coasts nests on sandy marine and estuarine shores; in the interior nests on sandy, barren or sparsely vegetated flats near saline or alkaline lakes, reservoirs, and ponds	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable nesting and foraging habitat for the species.
Coccyzus americanus occidentalis (nesting)	western yellow-billed cuckoo	FT,BCC/SE/S[b]	Nests in dense, wide riparian woodlands and forest with well-developed understories	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable nesting and foraging habitat for the species.
Coturnicops noveboracensis	yellow rail	BCC/SSC/S[b]	Nesting requires wet marsh/sedge meadows or coastal marshes with wet soil and shallow, standing water	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable nesting and foraging habitat for the species.
Empidonax traillii extimus (nesting)	southwestern willow flycatcher	FE/SE/S[b]	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable nesting and foraging habitat for the species.
Falco peregrinus anatum (nesting)	American peregrine falcon	FDL,BCC/ SDL,FP/S[b]	Nests on cliffs, buildings, and bridges; forages in wetlands, riparian, meadows, croplands, especially where waterfowl are present	Not expected to occur. Although potential roosting sites (i.e. buildings, bridges) are present within the vicinity of the project site, there is limited foraging habitat for the species.
Laterallus jamaicensis coturniculus	California black rail	BCC/ST,FP/S[b]	Tidal marshes, shallow freshwater margins, wet meadows, and flooded grassy vegetation; suitable habitats are often supplied by canal leakage in Sierra Nevada foothill populations	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable nesting and foraging habitat for the species.
Passerculus sandwichensis beldingi	Belding's savannah sparrow	None/SE/S[b]	Nests and forages in coastal saltmarsh dominated by pickleweed (*Salicornia* spp.)	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable nesting and foraging habitat for the species.

Scientific Name	Common Name	Status[1] (Federal/State/ City of LA[2])	Habitat	Potential to Occur[3]
Pelecanus occidentalis californicus(nesting colonies& communal roosts)	California brown pelican	FDL/SDL,FP/S[b]	Forages in warm coastal marine and estuarine environments; in California, nests on dry, rocky offshore islands	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable nesting and foraging habitat for the species.
Polioptila californica californica	coastal California gnatcatcher	FT/SSC/S[b]	Nests and forages in various sage scrub communities, often dominated by California sagebrush and buckwheat; generally avoids nesting in areas with a slope of greater than 40%; majority of nesting at less than 1,000 feet above mean sea level	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable nesting and foraging habitat for the species.
Riparia riparia (nesting)	bank swallow	None/ST/S[b]	Nests in riparian, lacustrian, and coastal areas with vertical banks, bluffs, and cliffs with sandy soils; open country and water during migration	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable nesting and foraging habitat for the species.
Sternula antillarum browni (nesting colony)	California least tern	FE/SE,FP/S[b]	Forages in shallow estuaries and lagoons; nests on sandy beaches or exposed tidal flats	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable nesting and foraging habitat for the species.
Vireo bellii pusillus (nesting)	least Bell's vireo	FE/SE/S[b]	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable nesting and foraging habitat for the species.
Mammals				
Antrozous pallidus	pallid bat	None/SSC/S[b]	Grasslands, shrublands, woodlands, forests; most common in open, dry habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees	Low potential to roost and forage. The species is highly intolerant of urban development (Miner and Stokes 2005); however, the project site and surrounding area is primarily composed of heavily urbanized commercial and residential development with minimal vegetation, lacking suitable foraging habitat for the species.

Scientific Name	Common Name	Status[1] (Federal/State/ City of LA[2])	Habitat	Potential to Occur[3]
Eumops perotis californicus	western mastiff bat	None/SSC/S[b]	Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; roosts in crevices in rocky canyons, high buildings, and cliffs where the canyon or cliff is vertical or nearly vertical, trees, and tunnels	Low potential to roost and forage. Marginally suitable roosting habitat (i.e., buildings) occurs within the project action area. The project site and surrounding area is primarily composed of heavily urbanized commercial and residential development with minimal ornamental vegetation; however, the species may occasionally forage overhead.
Lasiurus xanthinus	western yellow bat	None/SSC/None	Valley–foothill riparian, desert riparian, desert wash, and palm oasis habitats; below 2,000 feet above mean sea level; roosts in riparian and palms	Not expected to roost or forage. No suitable roosting or foraging habitat (i.e., palm oases, riparian areas). The project site and surrounding area is primarily composed of heavily urbanized commercial and residential development and lacks water resources and riparian or palm oasis vegetation required by the species.
Microtus californicus stephensi	south coast marsh vole	None/SSC/S[b]	Tidal marshes	Not expected to occur. The project site lacks suitable habitat (i.e., tidal marshes) for the species.
Neotoma lepida intermedia	San Diego desert woodrat	None/SSC/S[b]	Coastal scrub, desert scrub, chaparral, cacti, rocky areas	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Nyctinomops femorosaccus	pocketed free-tailed bat	None/SSC/None	Pinyon–juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oases; roosts in high cliffs or rock outcrops with dropoffs, caverns, and buildings	Not expected to occur. The project site and surrounding area is primarily composed of heavily urbanized commercial and residential development and lacks suitable habitat for the species.
Nyctinomops macrotis	big free-tailed bat	None/SSC/None	Rocky areas; roosts in caves, holes in trees, buildings, and crevices on cliffs and rocky outcrops; forages over water	Low potential to roost or forage. Low quality roosting habitat on site (i.e., trees and buildings); however, the project site and surrounding area is primarily composed of heavily urbanized commercial and residential development and lacks preferred habitat (i.e., rugged rocky canyons) for the species.

Scientific Name	Common Name	Status[1] (Federal/State/ City of LA[2])	Habitat	Potential to Occur[3]
Onychomys torridus ramona	southern grasshopper mouse	None/SSC/S[b]	Grassland and sparse coastal scrub	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Perognathus longimembris brevinasus	Los Angeles pocket mouse	None/SSC/S[b]	Lower-elevation grassland, alluvial sage scrub, and coastal scrub	Not expected to occur. The project site and surrounding area is primarily composed of heavily urbanized commercial and residential development, lacking suitable habitat (i.e., grassland, alluvial sage scrub, or coastal scrub) for the species.
Perognathus longimembris pacificus	Pacific pocket mouse	FE/SSC/S[b]	Fine-grained sandy substrates in open coastal strand, coastal dunes, and river alluvium	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Sorex ornatus salicornicus	southern California saltmarsh shrew	None/SSC/S[b]	Saltmarsh, saltgrass, dense willow, bulrush	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.
Taxidea taxus	American badger	None/SSC/None	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	Not expected to occur. The project site is dominated by heavily urbanized development and it lacks suitable for the species.

Notes:

1 Status abbreviations:
- FE: Federally Endangered
- FT: Federally Threatened
- FDL: Federally Delisted
- BCC: U.S. Fish and Wildlife Service Bird of Conservation Concern
- SSC: California Species of Special Concern
- FP: California Fully Protected Species
- WL: California Watch List Species
- SE: State Endangered
- ST: State Threatened
- SDL: State Delisted

2 Sensitive Species within the City of Los Angeles (City of Los Angeles 2006)
- a: Potential to occur within Project site since known to occur in Zone 5
- b: Occurrence is known in other zones or is unknown; however, the species has potential to occur within Project site

3 Vicinity refers to records within the Hollywood USGS 7.5-minute quadrangle and eight surrounding USGS 7.5-minute quadrangles (i.e., Van Nuys, Burbank, Pasadena, Beverly Hills, Los Angeles, Venice, Inglewood, South Gate).

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APPENDIX C

Cultural Resources Report

HISTORIC PROPERTIES IDENTIFICATION REPORT FOR THE WESTERN TRUNK LINE PROJECT

City of Los Angeles, Los Angeles County, California

PREPARED FOR:

LOS ANGELES DEPARTMENT OF WATER AND POWER
Environmental Affairs Division
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PREPARED BY:

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ACRONYMS AND ABBREVIATIONS

CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHRIS	California Historical Resources Information System
City	City of Los Angeles
CRHR	California Register of Historical Resources
HCM	Historic-Cultural Monument
LADWP	Los Angeles Department of Water and Power
MND	Mitigated Negative Declaration
NAHC	Native American Heritage Commission
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
PRC	California Public Resources Code
project	Western Trunk Line Project
ROW	Public Right of Way
SCCIC	Southern California Coastal Information Center
SHPO	State Historic Preservation Officer
TCP	Tribal Cultural Property
TCR	Tribal Cultural Resource
DWSRF	Drinking Water State Revolving Fund
SWRCB	State Water Resources Control Board

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EXECUTIVE SUMMARY

Dudek was retained by the Los Angeles Department of Water and Power (LADWP) to complete a cultural resources study for the proposed Western Line Project (Project). LADWP is proposing to replace 23,300 feet of existing pipe along Western Avenue with new Earthquake Resistant Ductile Iron Pipe (ERDIP) that would be placed parallel to the existing pipe. The proposed replacement would occur along Western Avenue from 59th Place to 121st Street within the South Los Angeles Community Plan Area of the City of Los Angeles (City). As part of the proposed project, LADWP would also replace approximately 4,495 feet of 6-inch and 8-inch diameter water distribution mainline with 12-inch diameter piping along Western Avenue. The segment of the Harbor Trunk Line that will be replaced as part of the proposed Project is aging, deteriorating, and nearing the end of its service life. The implementation of the proposed Project would increase safety and reliability, allow for greater operational flexibility, and create the ability to transmit local water supplies in the future while decreasing dependence on imported water supplies. LADWP, as a municipal utility, would implement and operate the proposed Project and will therefore act as the lead agency under the California Environmental Quality Act (CEQA).

LADWP will fund the proposed Project and may seek additional funding from available sources, which may include the State Water Resources Control Board's (SWRCB) Drinking Water State Revolving Fund (DWSRF). The SWRCB uses the CEQA review process and compliance with federal environmental laws and regulations to satisfy the environmental requirements for the DWSRF Program Operating Agreement between the United States Environmental Protection Agency and the SWRCB. As a result, and in addition to the CEQA review process, federal crosscutting requirements are often a part of the environmental review for projects that are funded through the DWSRF Program. Therefore, applications for funding must include proof of CEQA compliance and of compliance with federal requirements. Collectively, the process is termed "CEQA+" due to the addition of federal crosscutting studies to CEQA requirements. This cultural study was prepared in support of the proposed Project's Initial Study and Mitigated Negative Declaration (IS/MND) and in compliance with federal environmental laws in the event that federal funding through the DWSRF is requested. As such, project-related activities with the potential to affect historic properties are considered federal undertakings, subject to compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and its implementing regulations (36 CFR Part 800). Therefore, the purpose of this report is to identify all cultural resources within the proposed Project's Area of Potential Effect (APE) and to determine whether the proposed Project would result in a significant impact to an historical resource under CEQA or an adverse effect to an historic property under Section 106 NHPA.

Dudek requested a search of the Sacred Lands File (SLF) from the Native American Heritage Commission (NAHC) of the proposed Project APE. The result of that search was negative for Native American resources. The NAHC also provided a list of six Native American groups and individuals who may have knowledge of the presence of Tribal Cultural Resources (TCRs) and Tribal Cultural Properties (TCPs) in the proposed Project APE or Project vicinity. Details of the Native American coordination efforts are presented in Section 5.3 and provided in Appendix C. The proposed Project is subject to compliance with Assembly Bill (AB) 52. Native American consultation pursuant to AB 52 was completed by LADWP.

Dudek completed a California Historical Resources Information System (CHRIS) records search at the South Central Coastal Information Center (SCCIC) at California State University, Fullerton of the proposed Project APE and a surrounding 0.5-mile search buffer (Confidential Appendix B). The search identified 29 previously conducted technical investigations within the proposed Project APE and search buffer, eight of which intersect the proposed Project APE. The search also identified 10 historic built-environment resources, and of these, one has been listed on the City of Los Angeles' Historic Inventory (HRI) list. None of the aforementioned historic built-environment resources intersects the proposed Project APE. No archaeological resources were identified within the 0.5-mile search buffer of the proposed Project APE.

No newly or previously recorded cultural or historic built-environment resources were identified within the direct or indirect APE as a result of the CHRIS records search, Native American coordination, or survey. All construction activities will be limited to the public right-of-way (ROW) within existing paved roadways that extend through developed areas. Additionally, four potential off-site staging areas may be used during construction; however, staging areas would be located adjacent or in close proximity to the proposed Project alignment and would be utilized solely to store construction equipment and materials. This study finds that the proposed Project would have a less-than-significant impact on historical resources under CEQA and would result in no historic properties affected under Section 106 of the NHPA.

1 INTRODUCTION

Dudek was retained by Los Angeles Department of Water and Power (LADWP) to conduct a cultural resources study in support of the IS/MND for the proposed Western Trunk Line Project (Project). This report presents the results of a CHRIS records search, a reconnaissance-level survey of the proposed Project APE, and a SLF search conducted by the NAHC.

The proposed Project would include the replacement of a 23,300-foot portion of the Harbor Trunk Line underneath Western Avenue, from 59th Place to 121st Street, thereby increasing system safety and reliability, allowing for greater operational flexibility, and creating the ability to transmit local water supplies in the future while decreasing dependence on imported water supplies. LADWP will fund the proposed Project, but may seek additional funding from the SWRCB's DWSRF. Applications for DWSRF funding are subject to compliance with applicable federal environmental laws and regulations through a process termed "CEQA+", which was established in the DWSRF Program Operating Agreement between the United States Environmental Protection Agency and the SWRCB.

Project-related activities with the potential to affect historic properties are considered federal undertakings, subject to compliance with Section 106 of the NHPA of 1966, as amended, and its implementing regulations (36 CFR Part 800). The purpose of this report is to identify all cultural resources within the proposed Project APE and to determine whether the Project, as proposed, would result in a significant impact to an historical resource under CEQA or an adverse effect to an historic property under Section 106 of the NHPA. Moreover, this report was prepared in compliance with the requirements of CEQA+ in the event federal funding is requested by LADWP for the proposed Project.

Dudek Archaeologist Linda Kry is the technical lead and primary author of this report. Dudek Archaeologist Erica Nicolay completed the CHRIS records search, conducted the NAHC SLF request, and coordinated Native American outreach. Dudek Architectural Historian Kara R. Dotter, MSHP, who exceeds the Secretary of the Interior's Professional Qualifications Standards for Architectural History, contributed to the report. Dudek Senior Architectural Historian and Archaeologist Samantha Murray, MA, RPA, who meets the Secretary of the Interior's Professional Qualifications Standards for both Archaeology and Architectural History, provided senior review. Resumes for all key personnel are provided in Appendix A.

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2 PROJECT DESCRIPTION/UNDERTAKING

2.1 Project Description

The proposed Project would include the replacement of 23,300 feet of existing pipe along Western Avenue and the installation of new Earthquake Resistant Ductile Iron Pipe (ERDIP) parallel to the existing pipe. The proposed replacement would occur along Western Avenue from 59th Place to 121st Street (Figure 1). As part of the proposed Project, LADWP would also replace approximately 4,495 feet of 6-inch and 8-inch diameter water distribution mainline with 12-inch diameter piping along Western Avenue. These improvements would include: replacing approximately 20 feet of existing 4-inch connection pipe to 6-inch line at the intersection of 65th Place and Western Avenue; replacing 3,750 feet of existing 6-inch mainline with 12-inch line from 77th Street to Manchester Avenue; replacing 625 feet of existing 8-inch mainline with 12-inch line from 106th Street to 108th Street; and, installing approximately 120 feet of 8-inch line to reconnect the existing 8-inch mainline on Western Avenue to the existing 8-inch line on Manchester Avenue. In order to maintain water pressures at specific intersections, the proposed project would also include the following minor improvements: the replacement of approximately 20 feet of existing 6-inch connection line to 12-inch line at the intersection of 84th Place and Western Avenue; the installation of approximately 20 feet of 6-inch mainline to reconnect to the existing 8-inch parallel main at the intersection of 89th Street and Western Avenue and the replacement of approximately 40 feet of existing 6-inch connection line with 8-inch line at the intersection of 108th Street and Western Avenue.

In addition to the proposed trunk line and mainline replacements and improvements, a new regulator station is proposed near the intersection of Western Avenue and Manchester Avenue. The proposed underground regulator station would replace the existing station; however, it would be installed in a new location to provide safer accessibility for maintenance and operation. The new regulator station would include a subsurface vault, access hatches, regulator valves, isolation valves, valve caps, standpipe vents, pipe, and related appurtenances. The existing regulator station would be taken out of service and abandoned.

Appurtenant structures would be installed along the pipeline that are required for pipeline operation and maintenance. The appurtenant structures required for the Western Trunk Line include isolation valves, air valves, maintenance holes, blow-offs, and cathodic protection systems.

2.1.1 Construction Methods

Construction of the proposed Project would occur along the existing public right-of-way (ROW) of Western Avenue parallel to the exiting trunk line, immediately east of its existing alignment using the open-trench and pipe-jacking/tunneling methods. Pipe jacking/tunneling installation would be used

for approximately 2,926 lineal feet of pipe installation (60th Street, Florence Avenue, Manchester Avenue, Imperial Highway, and 105 Freeway (I-105)), while open trenching would be utilized for the remaining 20,281 feet of pipe installation. Both open trench pipe installations and pipe jacking installations would occur over 48 months. Installations would occur concurrently. The existing trunk line would remain in service during construction activities. The existing trunk line would be abandoned and left in place.

The general process for both open-trench construction and pipe jacking/tunneling consists of utility clearance, site preparation, excavation, shoring, pipe installation, backfilling, and work site street restoration. Construction would require on-site and off-site staging areas for temporary storage of supplies, materials, and equipment. Approximately 300,000 square feet of roadway would be paved and restriped. Approximately 110 cubic yards of soil would be excavated per day and hauled to offsite disposal areas.

Four off-site staging areas may be used during construction; however, staging areas would be located adjacent or in close proximity to the proposed alignment and would be utilized solely to store construction equipment and materials. The locations of these potential staging areas are:

- 5975 S. Western Avenue (between 59th Place and 60th Street)
- 8731 S. Western Avenue (between 87th Street and 88th Street)
- 1326 W. Imperial Highway (between Imperial Highway and 120th Street)
- 12610 S. Western Avenue (between 126th Street and 127th Street)

At its northern terminus, the Western Trunk Line would tie into the existing 36-inch riveted steel pipe at the intersection of Western Avenue and 59th Place. At its southern terminus, the Western Trunk Line would tie into the existing 31-inch welded steel pipe at the intersection of Western Avenue and 121st Street.

2.1.2 Construction Schedule

Construction is anticipated to begin in 2023 and would conclude in 2027 and would generally involve two construction crews of approximately eight workers each. Approximately 300,000 square feet of roadway would be excavated and repaved along the entirety of the alignment. During construction, the total estimated amount of excavation would be approximately 75,000 cubic yards and total export would be approximately 100,000 cubic yards. A total of approximately 75,000 cubic yards of slurry would be imported throughout the construction process for use as backfill. Daily vehicular trips that are expected to occur throughout construction are as follows: maximum of 10 round trips per day for transportation of construction equipment to and from the work areas when necessary; approximately 25 round trips per day for transportation of construction workers to and from the work areas (2 crews); and 20 round trips per day for haul trucks (i.e., dump trucks) (includes import-cement slurry).

Partial block closures would be necessary for installing the new pipeline and its appurtenances.

The additional 4,495-foot water distribution mainline replacement and associated improvements along Western Avenue would occur concurrently to the trunk line replacement. Proposed construction activities would include the replacement of the existing 6-inch and 8-inch water distribution mainline along Western Avenue with new 12-inch diameter piping, specifically 3,750 feet of existing 6-inch mainline with 12-inch line from 77th Street to Manchester Avenue; replacing 625 feet of existing 8-inch mainline with 12-inch line from 106th Street to 108th Street; and, installing approximately 120 feet of 8-inch line to reconnect the existing 8-inch mainline on Western Avenue to the existing 8-inch line on Manchester Avenue.

2.2 Project Location

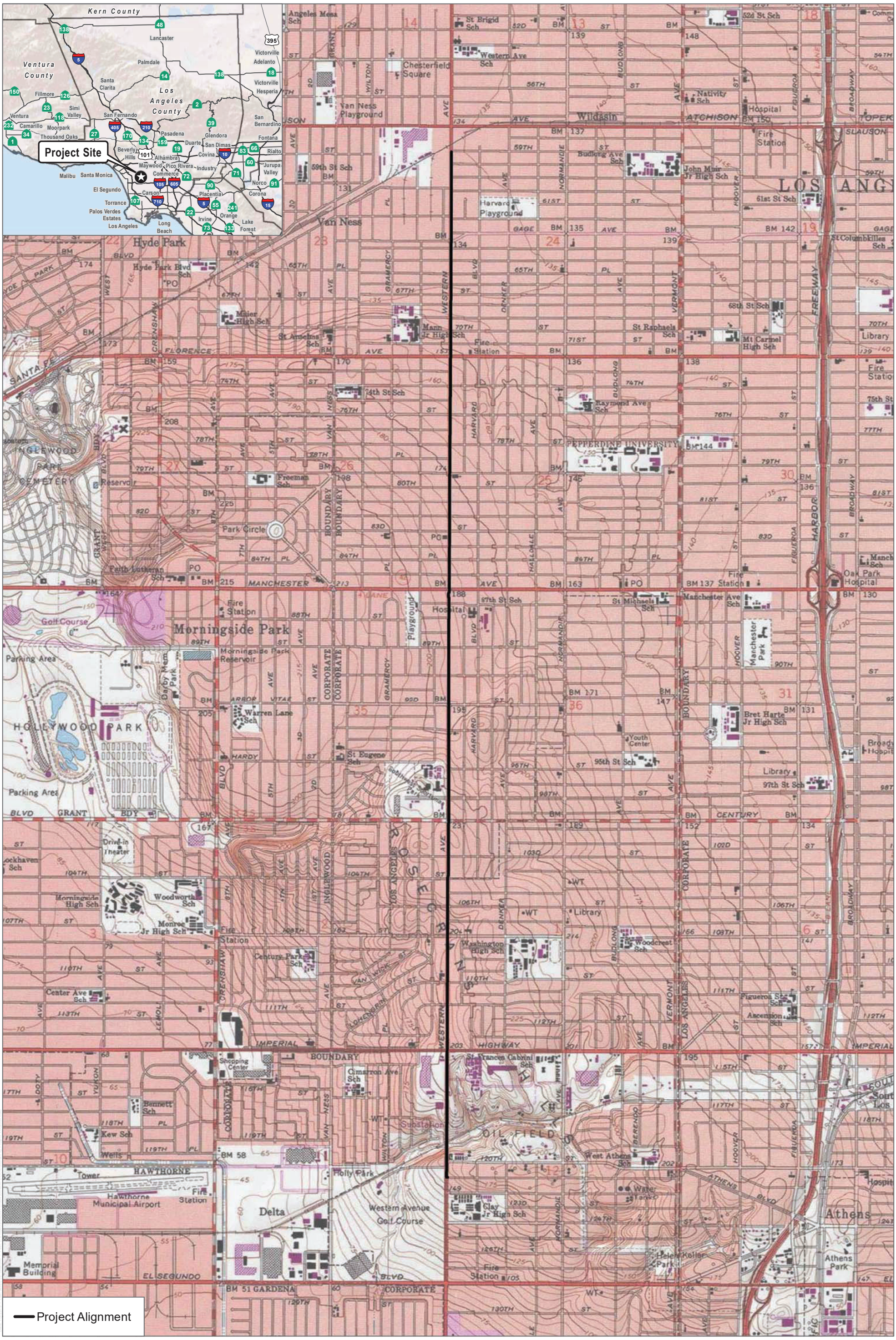
The Project alignment at its northern terminus is located approximately five miles southwest of downtown Los Angeles. The Project alignment is primarily located in the South Los Angeles Community Plan Area of the City of Los Angeles (City). The southern portion of the trunk line (south of 108th Street) is located within the West Athens/Westmont Community Plan Area of unincorporated Los Angeles County. The Project alignment extends along Western Avenue in South Los Angeles from 59th Place to 121st Street (Figure 2). Major freeways in the project vicinity include I-105, which extends through the southern portion of the Project alignment, and Interstate (I)-110 to the east.

2.3 Area of Potential Effect

The APE is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties. Determination of the APE is influenced by a project's setting, the scale and nature of the undertaking, and the different kinds of effects that may result from the undertaking (36 CFR 800.16(d)). The proposed Project APE (Figure 3) includes consideration of the direct and indirect effects of the project/undertaking.

- The direct APE is where ground disturbance is expected to occur, representing the Project footprint, and includes the following:
    - All areas of the proposed trunk line along South Western Avenue, as well as laterals where the alignment crosses West 62nd Street, East and West Florence Avenue, West Manchester Boulevard, West 87th Street, West Century Boulevard, and West 121st Street.
    - Construction staging areas along streets where the construction is taking place.
    - Areas where equipment and materials may be staged including parking lanes of roadways and along sidewalks where encroachment may occur.

The indirect APE includes the properties that abut the direct APE. The vertical extent of the APE for the proposed Project is defined as the depth of soils disturbed during Project construction that have the potential to contain intact cultural deposits. The amount of disturbed soils varies according to the topography and construction needs, but is anticipated to be roughly up to 15 feet below grade where trenching is anticipated and approximately between 40 feet and 80 feet below grade where pipe jacking may be conducted. Where perpendicular substructures must be avoided, trenches may be excavated deeper or shallower, as necessary.



SOURCE: USGS 7.5- Minute Quadrangle, Inglewood CA
Township 02S, Range 14W, Sections 23-26 and 35, 36; Township 03S, Range 14W, Sections 1, 2, 11, 12

LA DWP Los Angeles Department of Water & Power

0 1,000 2,000 Feet

FIGURE 1

Project Location

Western Trunk Line Project

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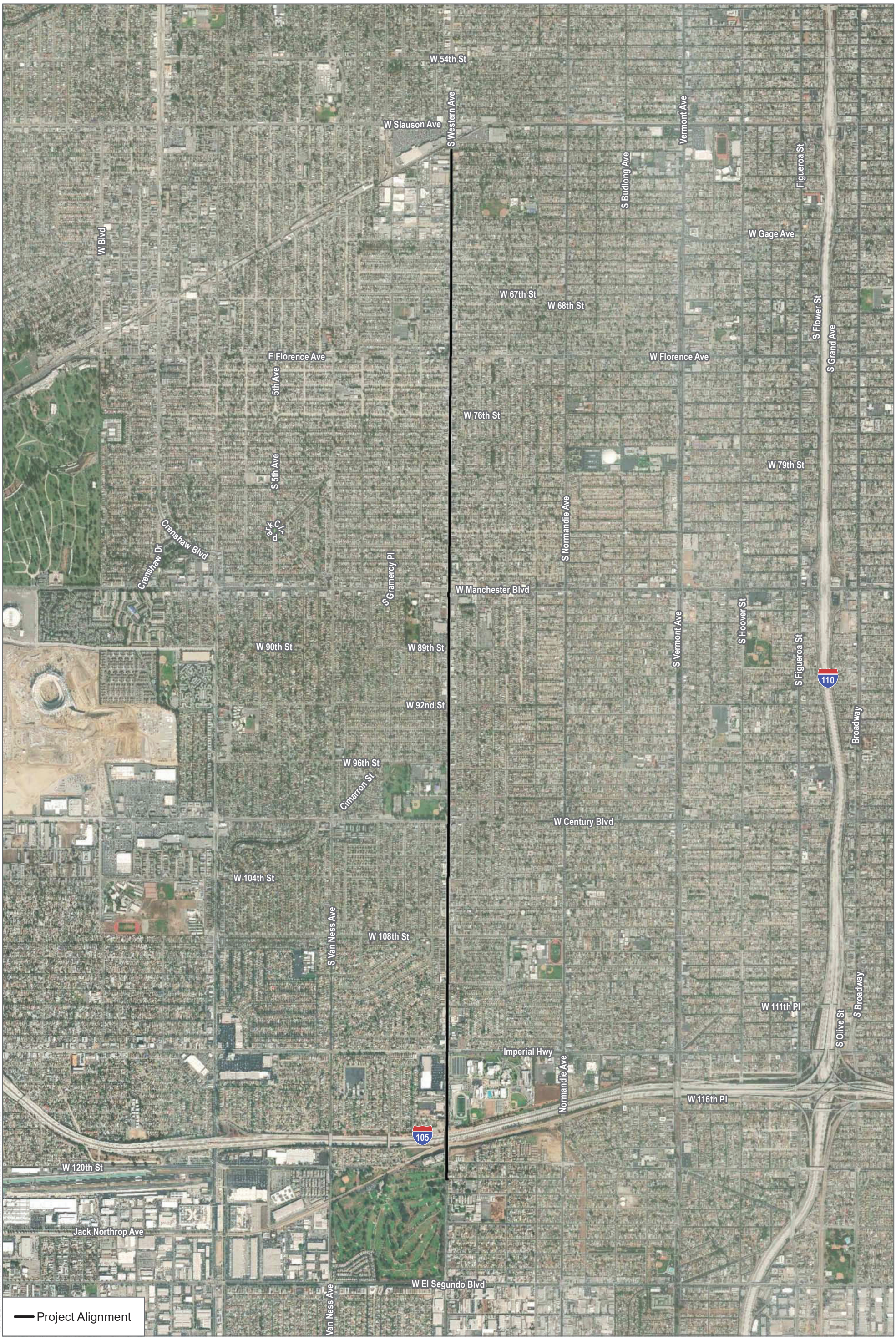

SOURCE: County of Los Angeles 2016, LADWP 2019, ESRI 2019, Digital Globe 2017

Los Angeles Department of Water & Power

0 1,000 2,000 Feet

FIGURE 2

Project Vicinity

Western Trunk Line Project

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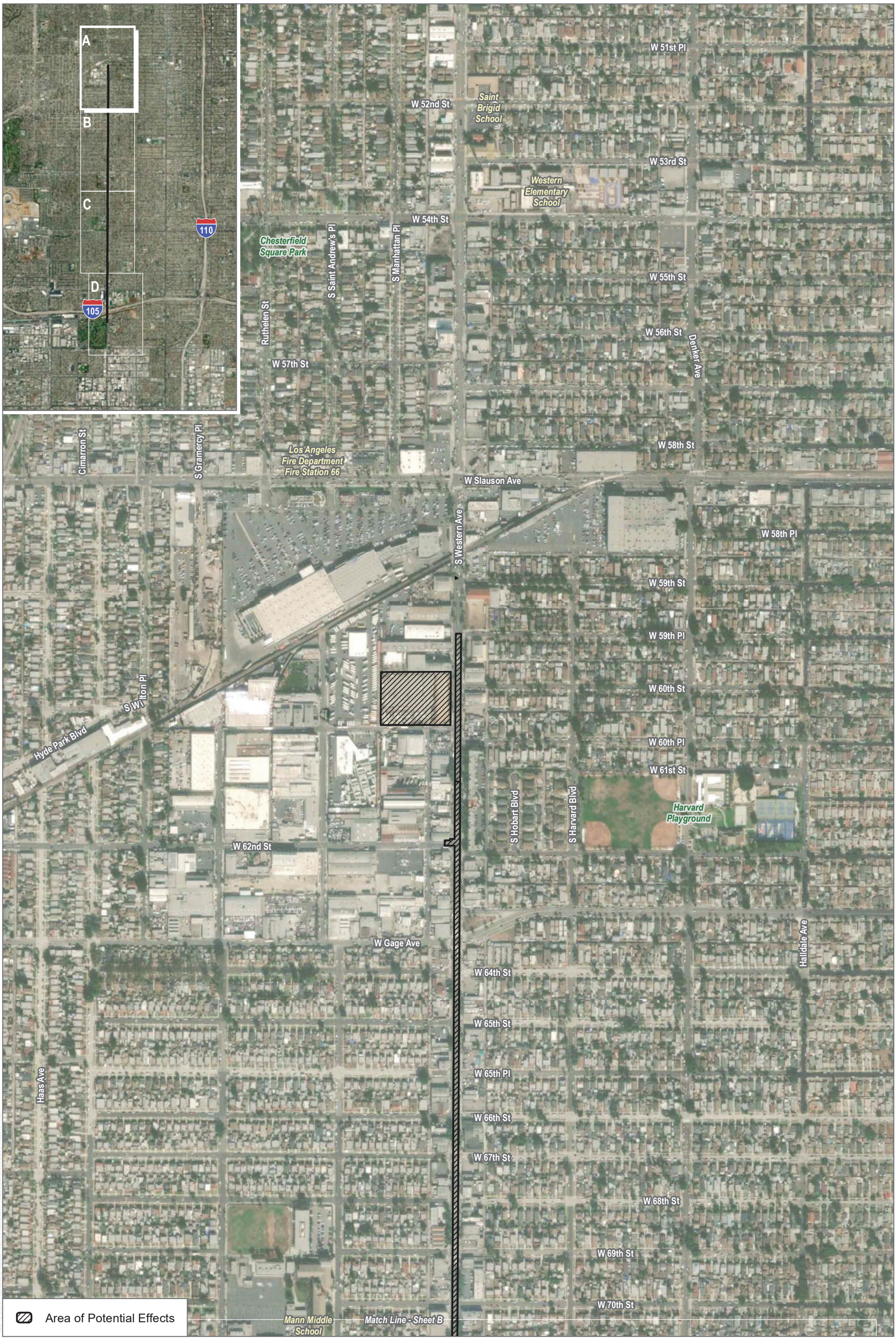

SOURCE: County of Los Angeles 2016, LADWP 2019, ESRI 2019, Digital Globe 2017

Los Angeles Department of Water & Power

0 250 500 Feet

FIGURE 3A

Project APE

Western Trunk Line Project

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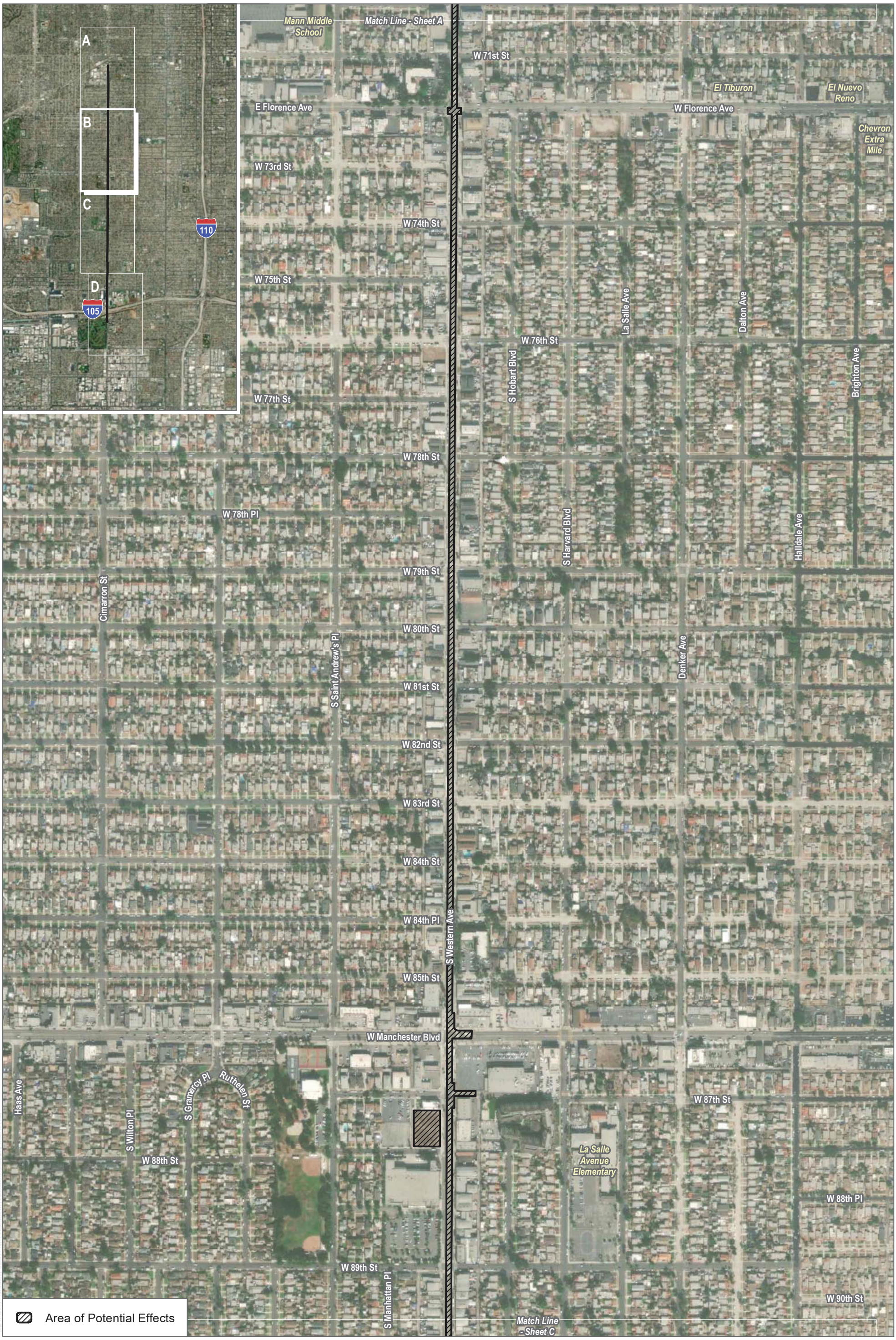

SOURCE: County of Los Angeles 2016, LADWP 2019, ESRI 2019, Digital Globe 2017

Los Angeles Department of Water & Power

0 250 500 Feet

FIGURE 3B

Project APE

Western Trunk Line Project

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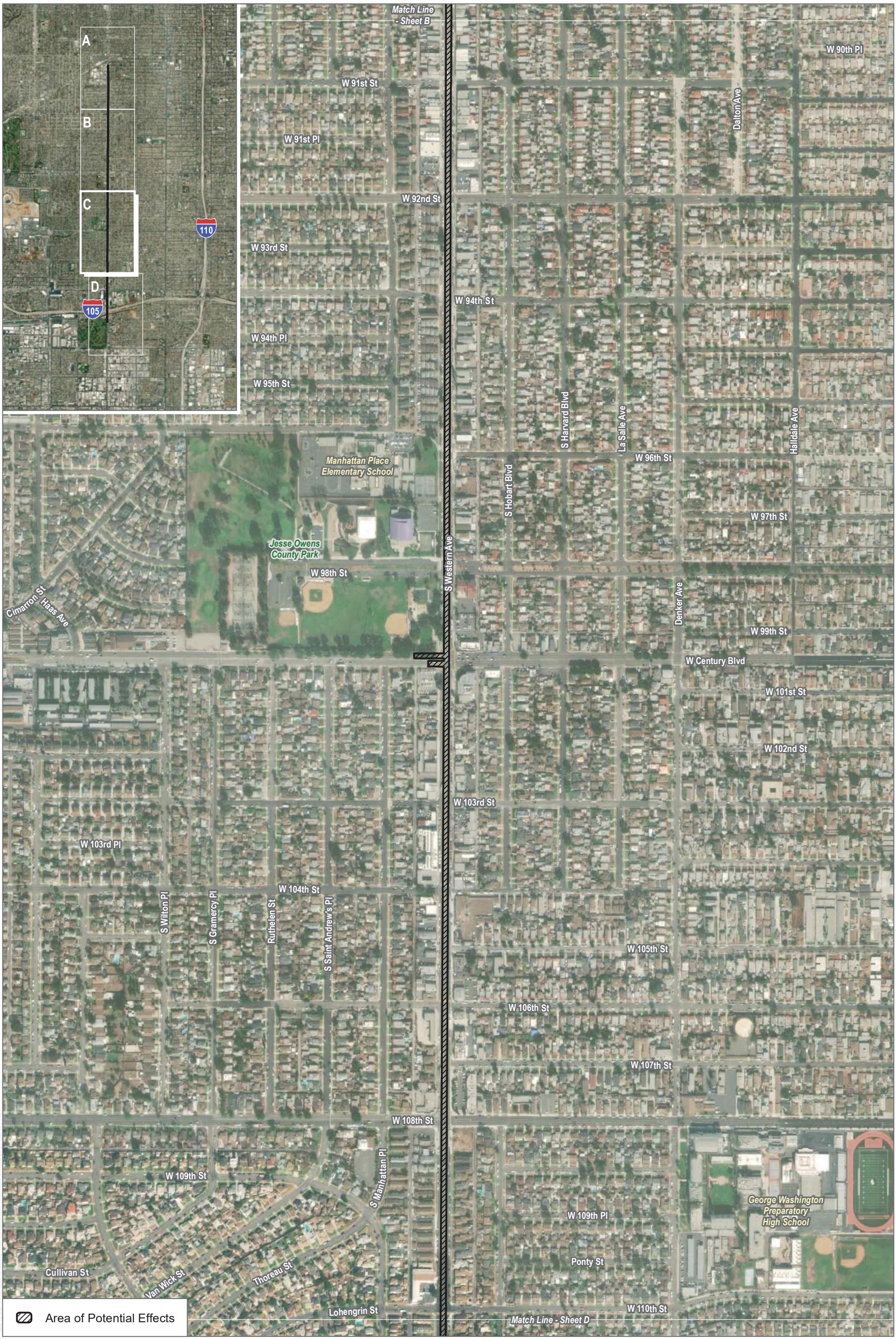

SOURCE: County of Los Angeles 2016, LADWP 2019, ESRI 2019, Digital Globe 2017

Los Angeles Department of Water & Power

0 250 500 Feet

FIGURE 3C

Project APE

Western Trunk Line Project

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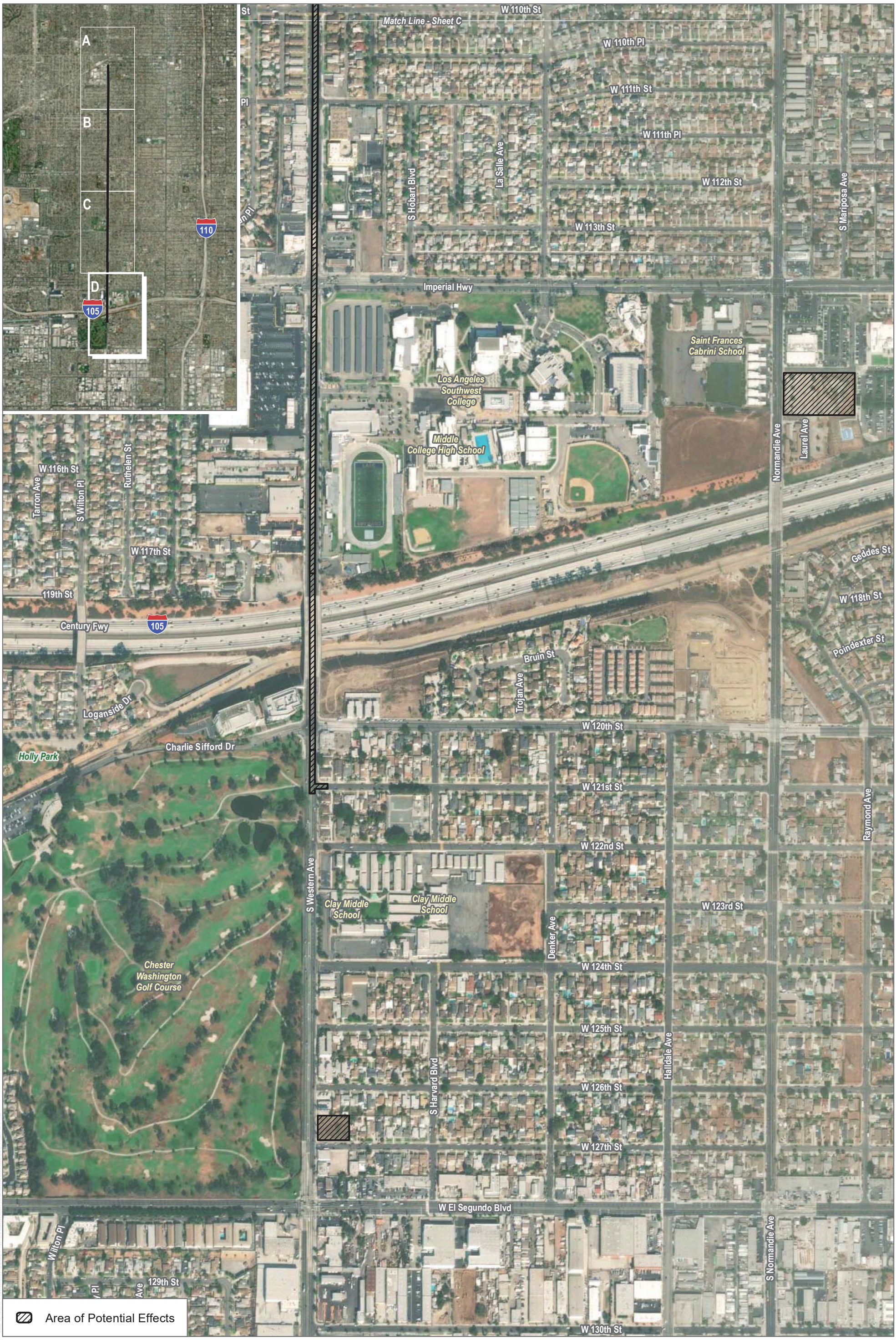

SOURCE: County of Los Angeles 2016, LADWP 2019, ESRI 2019, Digital Globe 2017

LA DWP Los Angeles Department of Water & Power

0 250 500 Feet

FIGURE 3D

Project APE

Western Trunk Line Project

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3 REGULATORY SETTING

The regulatory framework for the project is CEQA+. As such, project-related activities with the potential to affect historic properties are considered federal undertakings, subject to compliance with Section 106 of the NHPA of 1966, as amended, and its implementing regulations (36 CFR Part 800). Under Section 106, historic and archaeological districts, sites, buildings, structures, and objects are assigned significance based on their exceptional value or quality in illustrating or interpreting history, architecture, archaeology, engineering, and culture. A number of criteria are used in demonstrating resource importance; these are described below.

3.1 Federal

The National Historic Preservation Act

The NHPA established the National Register of Historic Places (NRHP) and the President's Advisory Council on Historic Preservation (ACHP), and provided that states may establish State Historic Preservation Officers (SHPOs) to carry out some of the functions of the NHPA. Most significantly for federal agencies responsible for managing cultural resources, Section 106 of the NHPA directs that

> [t]he head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the NRHP.

Section 106 also affords the ACHP a reasonable opportunity to comment on the undertaking (16 U.S.C. 470f).

36 Code of Federal Regulations, Part 800 (36 CFR 800) implements Section 106 of the NHPA. It defines the steps necessary to identify historic properties (those cultural resources listed in or eligible for listing in the NRHP), including consultation with federally recognized Native American tribes to identify resources with important cultural values; to determine whether or not they may be adversely affected by a proposed undertaking; and the process for eliminating, reducing, or mitigating the adverse effects.

The content of 36 CFR 60.4 defines criteria for determining eligibility for listing in the NRHP. The significance of cultural resources identified during an inventory must be formally evaluated for historic significance in consultation with the ACHP and the California SHPO to determine if the resources are eligible for inclusion in the NRHP. Cultural resources may be considered eligible for listing if they possess integrity of location, design, setting, materials, workmanship, feeling, and association.

Regarding criteria A through D of Section 106, the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, cultural resources, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that:

A. Are associated with events that have made a significant contribution to the broad patterns of our history; or

B. Are associated with the lives of persons significant in our past; or

C. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. have yielded or may be likely to yield, information important in prehistory or history [36 CFR 60.4].

The 1992 amendments to the NHPA enhance the recognition of tribal governments' roles in the national historic preservation program, including adding a member of an Indian tribe or Native Hawaiian organization to the ACHP.

The NHPA amendments:

- Clarify that properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization may be determined eligible for inclusion in the National Register
- Reinforce the provisions of the Council's regulations that require the federal agency to consult on properties of religious and cultural importance.

The 1992 amendments also specify that the ACHP can enter into agreement with tribes that permit undertakings on tribal land and that are reviewed under tribal regulations governing Section 106. Regulations implementing the NHPA state that a federal agency must consult with any Indian tribe that attaches religious and cultural significance to historic properties that may be affected by an undertaking.

3.2 State

California Register of Historical Resources

In California, the term "historical resource" includes "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (PRC Section 5020.1(j)). In 1992, the California legislature established the California Register of Historical Resources (CRHR) "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1(a)). The criteria for listing resources in the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the NRHP, enumerated below. According to PRC Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

(2) Is associated with the lives of persons important in our past.

(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

(4) Has yielded, or may be likely to yield, information important in prehistory or history.

To understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource younger than 50 years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (see California Code of Regulations, Title 14, Section 4852(d)(2)).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

California Environmental Quality Act

As described further below, the following CEQA statutes and guidelines are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

- PRC Section 21083.2(g) defines "unique archaeological resource."
- PRC Section 21084.1 and CEQA Guidelines Section 15064.5(a) defines "historical resources." In addition, CEQA Guidelines Section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource"; it also defines the circumstances when a project would materially impair the significance of an historical resource.
- PRC Section 21074(a) defines "tribal cultural resources."
- PRC Section 5097.98 and CEQA Guidelines Section 15064.5(e) set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.
- PRC Sections 21083.2(b)-(c) and CEQA Guidelines Section 15126.4 provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures; preservation-in-place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context, and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

Under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (PRC Section 21084.1; CEQA Guidelines Section 15064.5(b)). If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of PRC Section 5024.1(q)), it is a "historical resource" and is presumed to be historically or culturally significant for the purposes of CEQA (PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)). The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption (PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)).

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines Section 15064.5(b)(1); PRC Section 5020.1(q)). In turn, the significance of a historical resource is materially impaired when a project does any of the following (CEQA Guidelines Section 15064.5(b)(2)):

1) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or

2) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k)

of the PRC or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

3) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA.

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any historical resources, then evaluates whether that project would cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

If it can be demonstrated that a project would cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Section 21083.2(a), (b), and (c)).

Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

(1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

(2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Impacts to non-unique archaeological resources are generally not considered a significant environmental impact (PRC Section 21083.2(a); CEQA Guidelines Section 15064.5(c)(4)). However, if a non-unique archaeological resource qualifies as tribal cultural resource (PRC Sections 21074(c) and 21083.2(h)), further consideration of significant impacts is required.

CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described below, these procedures are detailed in PRC Section 5097.98.

California State Assembly Bill 52

AB 52 of 2014 amended PRC Section 5097.94 and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 established that TCRs must be considered

under CEQA and also provided for additional Native American consultation requirements for the lead agency. Section 21074 describes a TCR as a site, feature, place, cultural landscape, sacred place, or object that is considered of cultural value to a California Native American tribe. A TCR is either:

- On the CRHR or a local historic register; Eligible for the CRHR or a local historic register; or
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1.

AB 52 formalizes the lead agency–tribal consultation process, requiring the lead agency to initiate consultation with California Native American groups that are traditionally and culturally affiliated with the project, including tribes that may not be federally recognized. Lead agencies are required to begin consultation prior to the release of a negative declaration, mitigated negative declaration, or EIR.

Section 1 (a)(9) of AB 52 establishes that "a substantial adverse change to a TCR has a significant effect on the environment." Effects on TCRs should be considered under CEQA. Section 6 of AB 52 adds Section 21080.3.2 to the PRC, which states that parties may propose mitigation measures "capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource." Further, if a California Native American tribe requests consultation regarding project alternatives, mitigation measures, or significant effects to TCRs, the consultation shall include those topics (PRC Section 21080.3.2(a)). The environmental document and the mitigation monitoring and reporting program (where applicable) shall include any mitigation measures that are adopted (PRC Section 21082.3(a)).

Native American Historic Cultural Sites (California Public Resources Code section 5097 et seq.)

The Native American Historic Resources Protection Act (Public Resources Code section 5097, et seq.) addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and establishes the NAHC to resolve disputes regarding the disposition of such remains. In addition, the Native American Historic Resource Protection Act makes it a misdemeanor punishable by up to 1 year in jail to deface or destroy an Indian historic or cultural site that is listed or may be eligible for listing in the CRHR.

California Native American Graves Protection and Repatriation Act

The California Native American Graves Protection and Repatriation Act (California Repatriation Act), enacted in 2001, requires all state agencies and museums that receive state funding and that have possession or control over collections of human remains or cultural items, as defined, to complete an inventory and summary of these remains and items on or before January 1, 2003, with certain exceptions. The California Repatriation Act also provides a process for the identification and repatriation of these items to the appropriate tribes.

California Health and Safety Code

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains can occur until the County Coroner has examined the remains (Health and Safety Code Section 7050.5b). PRC Section 5097.98 outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact the Native American Heritage Commission (NAHC) within 24 hours (Health and Safety Code Section 7050.5c). The NAHC would notify the most likely descendant (MLD). With the permission of the landowner, the MLD may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the MLD by the NAHC. The MLD may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

3.3 Local

Los Angeles Historic-Cultural Monuments

Local landmarks in the City of Los Angeles are known as Historic-Cultural Monuments (HCMs) and are under the aegis of the Planning Department, Office of Historic Resources. They are defined in the Cultural Heritage Ordinance as follows (Los Angeles Municipal Code Section 22.171.7, added by Ordinance No. 178,402, effective April 2, 2007):

> Historic-Cultural Monument (Monument) is any site (including significant trees or other plant life located on the site), building or structure of particular historic or cultural significance to the City of Los Angeles, including historic structures or sites in which the broad cultural, economic or social history of the nation, State or community is reflected or exemplified; or which is identified with historic personages or with important events in the main currents of national, State or local history; or which embodies the distinguishing characteristics of an architectural type specimen, inherently valuable for a study of a period, style or method of construction; or a notable work of a master builder, designer, or architect whose individual genius influenced his or her age.

For the purposes of SurveyLA, this definition has been broken down into the following four HCM designation criteria that closely parallel the existing NRHP and CRHR criteria:

1. Is identified with important events in the main currents of national, State or local history, or exemplifies significant contributions to the broad cultural, political, economic or social history of the nation, state, city, or community; or
2. Is associated with the lives of Historic Personages important to national, state, city, or local history; or

3. Embodies the distinctive characteristics of a style, type, period, or method of construction; or represents a notable work of a master designer, builder or architect whose genius influenced his or her age; or possesses high artistic values; or
4. Has yielded, or has the potential to yield, information important to the pre-history or history of the nation, state, city or community.

Historic Preservation Overlay Zones

As described by the City of Los Angeles Office of Historic Resources, the Historic Preservation Overlay Zone (HPOZ) Ordinance was adopted in 1979 and amended in 2004 to identify and protect neighborhoods with distinct architectural and cultural resources. HPOZs, commonly known as historic districts, provide for review of proposed exterior alterations and additions to historic properties within designated districts.

Regarding HPOZ eligibility, City of Los Angeles Ordinance Number 175891 states (Los Angeles Municipal Code, Section 12.20.3):

> Features designated as contributing shall meet one or more of the following criteria:
>
> 1. adds to the Historic architectural qualities or Historic associations for which a property is significant because it was present during the period of significance, and possesses Historic integrity reflecting its character at that time; or
> 2. owing to its unique location or singular physical characteristics, represents an established feature of the neighborhood, community or city; or
> 3. retaining the building, structure, Landscaping, or Natural Feature, would contribute to the preservation and protection of an Historic place or area of Historic interest in the City.

Regarding effects on federal and locally significant properties, Los Angeles Municipal Code states the following (Section 91.106.4.5, Permits for Historical and Cultural Buildings):

> The department shall not issue a permit to demolish, alter or remove a building or structure of historical, archaeological or architectural consequence if such building or structure has been officially designated, or has been determined by state or federal action to be eligible for designation, on the National Register of Historic Places, or has been included on the City of Los Angeles list of historic cultural monuments, without the department having first determined whether the demolition, alteration or removal may result in the loss of or serious damage to a significant historical or cultural asset. If the department determines that such loss or damage may occur, the applicant shall

file an application and pay all fees for the California Environmental Quality Act Initial Study and Check List, as specified in Section 19.05 of the Los Angeles Municipal Code. If the Initial Study and Check List identifies the historical or cultural asset as significant, the permit shall not be issued without the department first finding that specific economic, social or other considerations make infeasible the preservation of the building or structure.

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4 SETTING

4.1 Environmental Setting

The proposed Project APE is located in a highly urbanized area in the South Los Angeles neighborhood of the City of Los Angeles and unincorporated Los Angeles County, characterized primarily by dense residential and commercial developments. The proposed Project APE is generally 6.6 miles southwest of Downtown Los Angeles, less than 10 miles northeast of the Pacific Ocean, and 8.3 miles south of the Santa Monica Mountains. The proposed Project APE is underlain primarily by Urban land-Windfetch-Centinela complex and Urban land-Xerorthents, terraced-Windfetch complex. These soils are both made up primarily by Urban land, which is characterized by fan remnants on disturbed, developed land. The remaining soil types are characterized by human transported material layered over mixed alluvium (USDA 2019). The entire proposed Project APE is completely developed and all native subsurface soils with potential to support the presence of cultural deposits have been substantially disturbed.

4.2 Cultural Setting

4.2.1 Prehistoric Overview

Evidence for continuous human occupation in Southern California spans the last 10,000 years. Various attempts to parse out variability in archaeological assemblages over this broad period have led to the development of several cultural chronologies; some of these are based on geologic time, most are based on temporal trends in archaeological assemblages, and others are interpretive reconstructions. To be more inclusive, this research employs a common set of generalized terms used to describe chronological trends in assemblage composition: Paleoindian (pre-5500 BC), Archaic (8000 BC–AD 500), Late Prehistoric (AD 500–1769), and Ethnohistoric (post-AD 1769).

Paleoindian Period (pre-5500 BC)

Evidence for Paleoindian occupation in the region is tenuous. Our knowledge of associated cultural pattern(s) is informed by a relatively sparse body of data that has been collected from within an area extending from coastal San Diego, through the Mojave Desert, and beyond. One of the earliest dated archaeological assemblages in the region is located in coastal Southern California (though contemporaneous sites are present in the Channel Islands) derives from SDI-4669/W-12 in La Jolla. A human burial from SDI-4669 was radiocarbon dated to 9,590–9,920 years before present (95.4% probability) (Hector 1984). The burial is part of a larger site complex that contained more than 29 human burials associated with an assemblage that fits the Archaic profile (i.e., large amounts of ground stone, battered cobbles, and expedient flake tools). In contrast, typical Paleoindian assemblages include large stemmed projectile points, high proportions of formal lithic tools, bifacial lithic reduction

strategies, and relatively small proportions of ground stone tools. Prime examples of this pattern are sites that were studied by Emma Lou Davis (1978) on Naval Air Weapons Station China Lake near Ridgecrest, California. These sites contained fluted and unfluted stemmed points and large numbers of formal flake tools (e.g., shaped scrapers, blades). Other typical Paleoindian sites include the Komodo site (MNO-679)—a multi-component fluted point site, and MNO-680—a single component Great Basined Stemmed point site (see Basgall et al. 2002). At MNO-679 and -680, ground stone tools were rare while finely made projectile points were common.

Warren et al. (2004) claimed that a biface (prehistoric stone tool that has been flaked on both faces), manufacturing tradition present at the Harris site complex (SDI-149) is representative of typical Paleoindian occupation in the region that possibly dates between 10,365 and 8,200 BC (Warren et al. 2004). Termed San Dieguito (see also Rogers 1945), assemblages at the Harris site are qualitatively distinct from most others in region because the site has large numbers of finely made bifaces (including projectile points), formal flake tools, a biface reduction trajectory, and relatively small amounts of processing tools (see also Warren 1968). Despite the unique assemblage composition, the definition of San Dieguito as a separate cultural tradition is hotly debated. Gallegos (1987) suggested that the San Dieguito pattern is simply an inland manifestation of a broader economic pattern. Gallegos's interpretation of San Dieguito has been widely accepted in recent years, in part because of the difficulty in distinguishing San Dieguito components from other assemblage constituents. In other words, it is easier to ignore San Dieguito as a distinct socioeconomic pattern than it is to draw it out of mixed assemblages.

The large number of finished bifaces (i.e., projectile points and non-projectile blades), along with large numbers of formal flake tools at the Harris site complex, is very different than nearly all other assemblages throughout the region, regardless of age. Warren et al. (2004) made this point, tabulating basic assemblage constituents for key early Holocene sites. Producing finely made bifaces and formal flake tools implies that relatively large amounts of time were spent for tool manufacture. Such a strategy contrasts with the expedient flake-based tools and cobble-core reduction strategy that typifies non-San Dieguito Archaic sites. It can be inferred from the uniquely high degree of San Dieguito assemblage formality that the Harris site complex represents a distinct economic strategy from non-San Dieguito assemblages.

San Dieguito sites are rare in the inland valleys, with one possible candidate, RIV-2798/H, located on the shore of Lake Elsinore. Excavations at Locus B at RIV-2798/H produced a toolkit consisting predominately of flaked stone tools, including crescents, points, and bifaces, and lesser amounts of groundstone tools, among other items (Grenda 1997). A calibrated and reservoir-corrected radiocarbon date from a shell produced a date of 6630 BC. Grenda (1997) suggested this site represents seasonal exploitation of lacustrine resources and small game and resembles coastal San Dieguito assemblages and spatial patterning.

If San Dieguito truly represents a distinct socioeconomic strategy from the non-San Dieguito Archaic processing regime, its rarity implies that it was not only short-lived, but that it was not as economically successful as the Archaic strategy. Such a conclusion would fit with other trends in Southern California deserts, where hunting-related tools were replaced by processing tools during the early Holocene (see Basgall and Hall 1990).

Archaic Period (8000 BC – AD 500)

The more than 2,500-year overlap between the presumed age of Paleoindian occupations and the Archaic period highlights the difficulty in defining a cultural chronology in Southern California. If San Dieguito is the only recognized Paleoindian component in the coastal Southern California, then the dominance of hunting tools implies that it derives from Great Basin adaptive strategies and is not necessarily a local adaptation. Warren et al. (2004) admitted as much, citing strong desert connections with San Dieguito. Thus, the Archaic pattern is the earliest local socioeconomic adaptation in the region (see Hale 2001, 2009).

The Archaic pattern, which has also been termed the Millingstone Horizon (among others), is relatively easy to define with assemblages that consist primarily of processing tools, such as millingstones, handstones, battered cobbles, heavy crude scrapers, incipient flake-based tools, and cobble-core reduction. These assemblages occur in all environments across the region with little variability in tool composition. Low assemblage variability over time and space among Archaic sites has been equated with cultural conservatism (see Basgall and Hall 1990; Byrd and Reddy 2002; Warren 1968; Warren et al. 2004). Despite enormous amounts of archaeological work at Archaic sites, little change in assemblage composition occurred until the bow and arrow was adopted around AD 500, as well as ceramics at approximately the same time (Griset 1996; Hale 2009). Even then, assemblage formality remained low. After the bow was adopted, small arrow points appear in large quantities and already low amounts of formal flake tools are replaced by increasing amounts of expedient flake tools. Similarly, shaped millingstones and handstones decreased in proportion relative to expedient, unshaped ground stone tools (Hale 2009). Thus, the terminus of the Archaic period is equally as hard to define as its beginning because basic assemblage constituents and patterns of manufacturing investment remain stable, complemented only by the addition of the bow and ceramics.

Late Prehistoric Period (AD 500–1769)

The period of time following the Archaic and before Ethnohistoric times (AD 1769) is commonly referred to as the Late Prehistoric (Rogers 1945; Wallace 1955; Warren et al. 2004); however, several other subdivisions continue to be used to describe various shifts in assemblage composition. In general, this period is defined by the addition of arrow points and ceramics, as well as the widespread use of bedrock mortars. The fundamental Late Prehistoric assemblage is very similar to the Archaic pattern, but includes arrow points and large quantities of fine debitage from producing arrow points, ceramics, and cremations.

The appearance of mortars and pestles is difficult to place in time because most mortars are on bedrock surfaces. Some argue that the Ethnohistoric intensive acorn economy extends as far back as AD 500 (Bean and Shipek 1978). However, there is no substantial evidence that reliance on acorns, and the accompanying use of mortars and pestles, occurred before AD 1400. Millingstones and handstones persisted in higher frequencies than mortars and pestles until the last 500 years (Basgall and Hall 1990); even then, weighing the economic significance of millingstone-handstone versus mortar-pestle technology is tenuous due to incomplete information on archaeological assemblages.

4.2.2 Ethnographic Overview

The history of the Native American communities prior to the mid-1700s has largely been reconstructed through later mission-period and early ethnographic accounts. The first records of the Native American inhabitants of the region come predominantly from European merchants, missionaries, military personnel, and explorers. These brief, and generally peripheral, accounts were prepared with the intent of furthering respective colonial and economic aims and were combined with observations of the landscape. They were not intended to be unbiased accounts regarding the cultural structures and community practices of the newly encountered cultural groups. The establishment of the missions in the region brought more extensive documentation of Native American communities, though these groups did not become the focus of formal and in-depth ethnographic study until the early twentieth century (Bean and Shipek 1978; Boscana 1846; Geiger and Meighan 1976; Harrington 1934; Laylander 2000; Sparkman 1908; White 1963). The principal intent of these researchers was to record the precontact, culturally specific practices, ideologies, and languages that had survived the destabilizing effects of missionization and colonialism. This research, often understood as "salvage ethnography," was driven by the understanding that traditional knowledge was being lost due to the impacts of modernization and cultural assimilation. Alfred Kroeber applied his "memory culture" approach (Lightfoot 2005: 32) by recording languages and oral histories within the region. Ethnographic research by Dubois, Kroeber, Harrington, Spier, and others during the early twentieth century seemed to indicate that traditional cultural practices and beliefs survived among local Native American communities.

It is important to note that even though there were many informants for these early ethnographies who were able to provide information from personal experiences about native life before the Europeans, a significantly large proportion of these informants were born after 1850 (Heizer and Nissen 1973); therefore, the documentation of pre-contact, aboriginal culture was being increasingly supplied by individuals born in California after considerable contact with Europeans. As Robert F. Heizer (1978) stated, this is an important issue to note when examining these ethnographies, since considerable culture change had undoubtedly occurred by 1850 among the Native American survivors of California. This is also a particularly important consideration for studies focused on TCRs; where concepts of "cultural resource" and the importance of traditional cultural places are intended to be interpreted based on the values expressed by present-day Native American representatives and may vary from archaeological values (Giacinto 2012).

Based on ethnographic information, it is believed that at least 88 different languages were spoken from Baja California Sur to the southern Oregon state border at the time of Spanish contact (Johnson and Lorenz 2006, p. 34). The distribution of recorded Native American languages has been dispersed as a geographic mosaic across California through six primary language families (Golla 2007).

Victor Golla has contended that one can interpret the amount of variability within specific language groups as being associated with the relative "time depth" of the speaking populations (Golla 2007: 80) A large amount of variation within the language of a group represents a greater time depth then a group's language with less internal diversity. One method that he has employed is by drawing comparisons with historically documented changes in Germanic and Romantic language groups. Golla (2007: 71) has observed that the "absolute chronology of the internal diversification within a language family" can be correlated with archaeological dates. This type of interpretation is modeled on concepts of genetic drift and gene flows that are associated with migration and population isolation in the biological sciences.

The tribes of this area have traditionally spoken Takic languages that may be assigned to the larger Uto–Aztecan family (Golla 2007: 74). These groups include the Gabrielino, Cahuilla, and Serrano. Golla has interpreted the amount of internal diversity within these language-speaking communities to reflect a time depth of approximately 2,000 years. Other researchers have contended that Takic may have diverged from Uto–Aztecan ca. 2600 BC–AD 1, which was later followed by the diversification within the Takic speaking tribes, occurring approximately 1500 BC–AD 1000 (Laylander 2010).

Gabrielino/Tongva

The archaeological record indicates that the Gabrielino arrived in the Los Angeles Basin around 500 B.C. Surrounding native groups included the Chumash and Tataviam to the northwest, the Serrano and Cahuilla to the northeast, and the Juaneño and Luiseño to the southeast.

The name "Gabrielino" denotes those people who were administered by the Spanish from the San Gabriel Mission, which included people from the Gabrielino area proper as well as other social groups (Bean and Smith 1978; Kroeber 1925). Therefore, in the post-Contact period, the name does not necessarily identify a specific ethnic or tribal group. The names by which Native Americans in southern California identified themselves have, for the most part, been lost. Many modern Gabrielino identify themselves as descendants of the indigenous people living across the plains of the Los Angeles Basin and refer to themselves as the Tongva (King 1994). This term is used in the remainder of this section to refer to the pre-Contact inhabitants of the Los Angeles Basin and their descendants.

Tongva lands encompassed the greater Los Angeles Basin and three Channel Islands, San Clemente, San Nicolas, and Santa Catalina. The Tongva established large, permanent villages in the fertile lowlands along rivers and streams, and in sheltered areas along the coast, stretching from the foothills of the San Gabriel Mountains to the Pacific Ocean. A total tribal population has been estimated of at least 5,000 (Bean and Smith 1978), but recent ethnohistoric work suggests a number approaching 10,000 (O'Neil 2002). Houses constructed by the Tongva were large, circular, domed structures made of willow poles thatched with tule that could hold up to 50 people (Bean and Smith 1978). Other structures served as sweathouses, menstrual huts, ceremonial enclosures, and probably communal granaries. Cleared fields for races and games, such as lacrosse and pole throwing, were created adjacent to Tongva villages (McCawley 1996). Archaeological sites composed of villages with various sized structures have been identified.

The largest, and best documented, ethnographic Tongva village in the vicinity was that of *Yanga* (also known as Yaangna, Janga, and Yabit), which was in the vicinity of the downtown Los Angeles (McCawley 1996:56-57; NEA and King 2004). This village was reportedly first encountered by the Portola expedition in 1769. In 1771, Mission San Gabriel was established. Yanga provided a large number of the recruitments to this mission; however, following the founding of the Pueblo of Los Angeles in 1781, opportunities for local paid work became increasingly common, which had the result of reducing the number of Native American neophytes from the immediately surrounding area (NEA and King 2004). Mission records indicate that 179 Gabrieleno inhabitants of Yanga were recruited to San Gabriel Mission (NEA and King 2004: 104). Based on this information, Yanga may have been the most populated village in the Western Gabrieleno territory. Second in size, and less thoroughly documented, the village of Cahuenga was located slightly closer, just north of the Cahuenga Pass.

The La Brea Tar Pits area (CA-LAN-159) was a known area of Native American use for hunting and the gathering of tar (Westec 1983: 4-38). Father Juan Crespi, a member of the Portola expedition, passed through the area near this area on August 3, 1769. The pertinent sections from his translated diary are provided here:

> The Captain told me that when they scouted here, in a ravine about half a league to the westward they came upon about forty springs of pitch, or tar, boiling in great surges up out of the ground, and saw very large swamps of this tar, enough to have caulked many ships [Brown 2002:341].

Crespi later returned north of the project site, moving southeast through the Cahuenga Pass on January 16, 1770. He identifies the two villages located on the 1938 Kirkman-Harriman historical Los Angeles map. Here he noted:

> The mountains make an opening on the southwest of the plain, and in a depression at the foot of it we saw a stream, or ponded up water, at which there were two villages

> belonging to the very good heathens of this place, who came unarmed as soon as they saw us in order to greet us, and were very happy to see us again. They brought us some gruel, and the chief of one village guided us through the aforesaid opening in the southwestern range; and we came into a small hollow, in which upon two sides we came across a good deal of water, with a good deal of small watering places of the small hollow of *Los Santos Martires San Cleto y San Marcelino*, the Holy Martyrs Saint Cletus and Saint Marcellinus. [Brown 2002:663]

The Tongva subsistence economy was centered on gathering and hunting. The surrounding environment was rich and varied, and the tribe exploited mountains, foothills, valleys, deserts, riparian, estuarine, and open and rocky coastal eco-niches. Like that of most native Californians, acorns were the staple food (an established industry by the time of the early Intermediate Period). Acorns were supplemented by the roots, leaves, seeds, and fruits of a wide variety of flora (e.g., islay, cactus, yucca, sages, and agave). Fresh water and saltwater fish, shellfish, birds, reptiles, and insects, as well as large and small mammals, were also consumed (Bean and Smith 1978:546; Kroeber 1925; McCawley 1996).

A wide variety of tools and implements were used by the Tongva to gather and collect food resources. These included the bow and arrow, traps, nets, blinds, throwing sticks and slings, spears, harpoons, and hooks. Groups residing near the ocean used oceangoing plank canoes and tule balsa canoes for fishing, travel, and trade between the mainland and the Channel Islands (McCawley 1996).

Tongva people processed food with a variety of tools, including hammerstones and anvils, mortars and pestles, manos and metates, strainers, leaching baskets and bowls, knives, bone saws, and wooden drying racks. Food was consumed from a variety of vessels. Catalina Island steatite was used to make ollas and cooking vessels (Blackburn 1963; Kroeber 1925; McCawley 1996).

At the time of Spanish contact, the basis of Tongva religious life was the Chinigchinich cult, centered on the last of a series of heroic mythological figures. Chinigchinich gave instruction on laws and institutions, and also taught the people how to dance, the primary religious act for this society. He later withdrew into heaven, where he rewarded the faithful and punished those who disobeyed his laws (Kroeber 1925). The Chinigchinich religion seems to have been relatively new when the Spanish arrived. It was spreading south into the Southern Takic groups even as Christian missions were being built and may represent a mixture of native and Christian belief and practices (McCawley 1996).

Deceased Tongva were either buried or cremated, with inhumation more common on the Channel Islands and the neighboring mainland coast and cremation predominating on the remainder of the coast and in the interior (Harrington 1942; McCawley 1996). Cremation ashes have been found in archaeological contexts buried within stone bowls and in shell dishes (Ashby and Winterbourne 1966), as well as scattered among broken ground stone implements (Cleland et al. 2007). Archaeological data such as these correspond with ethnographic descriptions of an elaborate mourning ceremony that

included a wide variety of offerings, including seeds, stone grinding tools, otter skins, baskets, wood tools, shell beads, bone and shell ornaments, and projectile points and knives. Offerings varied with the sex and status of the deceased (Heizer 1968; Johnston 1962; McCawley 1996). At the behest of the Spanish missionaries, cremation essentially ceased during the post-Contact period (McCawley 1996).

4.2.3 Historic-Period Overview

Post-Contact history for the State of California is generally divided into three periods: the Spanish Period (1769–1821), Mexican Period (1821–1848), and American Period (1846–present). Although Spanish, Russian, and British explorers visited the area for brief periods between 1529 and 1769, the Spanish Period in California begins with the establishment in 1769 of a settlement at San Diego and the founding of Mission San Diego de Alcalá, the first of 21 missions constructed between 1769 and 1823. Independence from Spain in 1821 marks the beginning of the Mexican Period, and the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican–American War, signals the beginning of the American Period when California became a territory of the United States.

Spanish Period (1769-1822)

Spanish explorers made sailing expeditions along the coast of southern California between the mid-1500s and mid-1700s. In search of the legendary Northwest Passage, Juan Rodríquez Cabríllo stopped in 1542 at present-day San Diego Bay. With his crew, Cabríllo explored the shorelines of present Catalina Island as well as San Pedro and Santa Monica Bays. Much of the present California and Oregon coastline was mapped and recorded in the next half-century by Spanish naval officer Sebastián Vizcaíno. Vizcaíno's crew also landed on Santa Catalina Island and at San Pedro and Santa Monica Bays, giving each location its long-standing name. The Spanish crown laid claim to California based on the surveys conducted by Cabríllo and Vizcaíno (Bancroft 1885; Cleland 2005; Gumprecht 2001).

More than 200 years passed before Spain began the colonization and inland exploration of Alta California. The 1769 overland expedition by Captain Gaspar de Portolá marks the beginning of California's Historic period, occurring just after the King of Spain installed the Franciscan Order to direct religious and colonization matters in assigned territories of the Americas. With a band of 64 soldiers, missionaries, Baja (lower) California Native Americans, and Mexican civilians, Portolá established the Presidio of San Diego, a fortified military outpost, as the first Spanish settlement in Alta California. In July of 1769, while Portolá was exploring southern California, Franciscan Fr. Junípero Serra founded Mission San Diego de Alcalá at Presidio Hill, the first of the 21 missions that would be established in Alta California by the Spanish and the Franciscan Order between 1769 and 1823, including Mission San Fernando Rey de España. (Cleland 2005; Gumprecht 2001; Jorgensen 1982; Kyle 2002; Roderick 2001)

The Portolá expedition first reached the present-day boundaries of Los Angeles in August 1769, thereby becoming the first Europeans to visit the area. Father Crespi named "the campsite by the river Nuestra Señora la Reina de los Angeles de la Porciúncula" or "Our Lady the Queen of the Angeles of the Porciúncula." Two years later, Friar Junípero Serra returned to the valley to establish a Catholic mission, the Mission San Gabriel Arcángel, on September 8, 1771. (Gumprecht 2001; Jorgensen 1982; Kyle 2002).

The expedition camped at a watering place at the base of the San Gabriel Mountains in 1769 and the location was noted in Crespi's diary. The mission was founded in September 1797 by Father Fermín Lasuén and Fray Francisco Dumetz. The mission consisted of a church, fountains, cloisters and extensive agricultural grounds outside the area. The Spanish missionaries impressed the native Tongva, Tatavium, and Chumash tribes into Christianity through baptism and service as neophytes. The land taken by the Spanish was not repatriated to these tribes. (Cleland 2005; Roderick 2001)

Mexican Period (1822-1848)

A major emphasis during the Spanish Period in California was the construction of missions and associated ranchos and presidios to integrate the Native American population into Christianity and communal enterprise. Incentives were also provided to bring settlers to pueblos or towns, but just three pueblos were established during the Spanish Period, only two of which were successful and remain as California cities (San José and Los Angeles). Several factors kept growth within Alta California to a minimum, including the threat of foreign invasion, political dissatisfaction, and unrest among the indigenous population. After more than a decade of intermittent rebellion and warfare, New Spain (Mexico and the California territory) won independence from Spain in 1821. In 1822, the Mexican legislative body in California ended isolationist policies designed to protect the Spanish monopoly on trade, and decreed California ports open to foreign merchants (Cleland 2005; Dallas 1955).

Extensive land grants were established in the interior during the Mexican Period, in part to increase the population inland from the more settled coastal areas where the Spanish had first concentrated their colonization efforts. The secularization of the missions following Mexico's independence from Spain resulted in the subdivision of former mission lands and establishment of many additional ranchos.

During the supremacy of the ranchos (1834–1848), landowners largely focused on the cattle industry and devoted large tracts to grazing. Cattle hides became a primary southern California export, providing a commodity to trade for goods from the east and other areas in the United States and Mexico. The number of nonnative inhabitants increased during this period because of the influx of explorers, trappers, and ranchers associated with the land grants. The rising California population contributed to the introduction and rise of diseases foreign to the Native American population, who had no associated immunities.

American Period (1848-Present)

War in 1846 between Mexico and the United States precipitated the Battle of Chino, a clash between resident Californios and Americans in the San Bernardino area. The Mexican-American War ended with the Treaty of Guadalupe Hidalgo in 1848, ushering California into its American Period.

California officially became a state with the Compromise of 1850, which also designated Utah and New Mexico (with present-day Arizona) as U.S. Territories (Waugh 2003). Horticulture and livestock, based primarily on cattle as the currency and staple of the rancho system, continued to dominate the southern California economy through 1850s. The Gold Rush began in 1848, and with the influx of people seeking gold, cattle were no longer desired mainly for their hides but also as a source of meat and other goods. During the 1850s cattle boom, rancho vaqueros drove large herds from southern to northern California to feed that region's burgeoning mining and commercial boom. Cattle were at first driven along major trails or roads such as the Gila Trail or Southern Overland Trail, then were transported by trains when available. The cattle boom ended for southern California as neighbor states and territories drove herds to northern California at reduced prices. Operation of the huge ranchos became increasingly difficult, and droughts severely reduced their productivity (Cleland 2005).

City of Los Angeles

In 1781, a group of 11 Mexican families traveled from Mission San Gabriel Arcángel to establish a new pueblo called El Pueblo de la Reyna de Los Angeles (The Pueblo of the Queen of the Angels). This settlement consisted of a small group of adobe-brick houses and streets and would eventually be known as the Ciudad de Los Angeles (City of Angels), which incorporated on April 4, 1850, only two years after the Mexican-American War and five months prior to California achieving statehood. Settlement of the Los Angeles region continued in the early American Period. The County of Los Angeles was established on February 18, 1850, one of 27 counties established in the months prior to California acquiring official statehood in the United States. Many of the ranchos in the area now known as Los Angeles County remained intact after the United States took possession of California; however, a severe drought in the 1860s resulted in many of the ranchos being sold or otherwise acquired by Americans. Most of these ranchos were subdivided into agricultural parcels or towns (Dumke 1944). Nonetheless, ranching retained its importance, and by the late 1860s, Los Angeles was one of the top dairy production centers in the country (Rolle 2003). By 1876, Los Angeles County reportedly had a population of 30,000 people (Dumke 1944).

Los Angeles maintained its role as a regional business center and the development of citriculture in the late 1800s and early 1900s further strengthened this status (Caughey and Caughey 1977). These factors, combined with the expansion of port facilities and railroads throughout the region, contributed to the impact of the real estate boom of the 1880s on Los Angeles (Caughey and Caughey 1977; Dumke 1944).

By the late 1800s, government leaders recognized the need for water to sustain the growing population in the Los Angeles area. Irish immigrant William Mulholland personified the city's efforts for a stable water supply (Dumke 1944; Nadeau 1997). By 1913, the City of Los Angeles had purchased large tracts of land in the Owens Valley, and Mulholland planned and completed the construction of the 240-mile aqueduct that brought the valley's water to the city (Nadeau 1997).

Los Angeles continued to grow in the twentieth century, in part due to the discovery of oil in the area and its strategic location as a wartime port. The county's mild climate and successful economy continued to draw new residents in the late 1900s, with much of the county transformed from ranches and farms into residential subdivisions surrounding commercial and industrial centers. Hollywood's development into the entertainment capital of the world and southern California's booming aerospace industry were key factors in the county's growth in the twentieth century.

4.2.4 Project Site Historic Context – South Los Angeles

The South Los Angeles area began development in the late nineteenth century, which was largely due to the rise of streetcars and railroads within the area. The first residential subdivisions within the area were for wealthy and influential individuals seeking to live away from the bustle of the city center. As Los Angeles grew in size, the wealthiest citizens continued west into the neighborhoods of Windsor Square and Hancock Park.

Post 1900, African Americans began moving to Los Angeles in greater numbers, but by 1940 African Americans still only represented 4% of the population. Throughout much of the twentieth century, racial housing covenants throughout the United States restricted where people of color could live or purchase housing. Los Angeles was no exception and these housing covenants as well as the common practice of banks and insurance companies denying African Americans and other people of color loans, insurance, and other financial services, a practice known as red-lining, resulted in segregation throughout the city (Sonksen 2018). The remnants of these practices can still be seen today.

South Los Angeles, especially the area along Central Avenue between Downtown Los Angeles and Slauson Avenue, was one of the only places where African Americans could purchase homes, resulting in 70% of the African American population being concentrated in this area by 1940. This specific area became known as South Central; however, over time, the term came to describe all areas that were predominately African American, encompassing Compton, Watts, and the Crenshaw District (Sonksen 2018).

World War II sparked a massive migration, dubbed the Great Migration, of people from around the country into Los Angeles to work in the aerospace industry. Many of these new residents were African American (Soknsen 2018). Prior to 1941, it was legal for government contractors to discriminate based on race. This resulted in many African American newcomers to Los Angeles securing only low paying

jobs. African American leaders, led by A. Philip Randolph, attempted to persuade President Roosevelt to end such discrimination. However, these leaders were largely ignored by the President, who was more concerned with war mobilization and appeasing racist southern Democrats. During a meeting with Eleanor Roosevelt, Randolph threatened mass protests in Washington D.C. if an executive order banning discrimination was not issued. In order to appease Randolph and other civil rights leaders, President Roosevelt issued Executive Order 8802, which bars discrimination based on race, national origin, or color in defense and government jobs. This order marked the first time the federal government made any type of proclamation recognizing the plight of African Americans in the country since Reconstruction (The Editors of Encyclopedia Britannica 2019; PBS 2019). Executive Order 8802 opened up jobs to thousands of individuals and resulted in 200,000 African Americans migrating to Los Angles. However, in Los Angeles African Americans were still restricted on where they could live due to the racial housing covenants that were still in effect (Skonsen 2017).

In the post-war era, the African American community in Los Angeles increased, and so did the violence, intimidation, and ire directed at them. In South Central, African American residents began protesting this discrimination, specifically housing discrimination, and residents of the Sugar Hill neighborhood took their battle to the Supreme Court. In a 1948 case, the Supreme Court ruled that restrictive housing covenants were illegal, spurring rapid diversification in the South Central area as more African Americans and Hispanic residents moved to the area (ARG 2012). Throughout the 1950s, more African Americans began moving to the southern section of Los Angeles; concurrently, the areas of West Adams, Leimert Park, and Baldwin Hills became middle- and upper-class African American neighborhoods (Skonsen 2017). Additionally, during this time African Americans began demanding better treatment and equal access to financial, health, and educational opportunities (Skonsen 2017).

However, it was also during the 1950s and 1960s that neighborhoods in South Central went through an era of intense harassment on part of the Los Angeles Police Department, and the stifling of many neighborhoods because of large infrastructure projects. During this time the relationship between African Americans, concentrated in South Central, and the Los Angeles Police Department was deteriorating. William H. Parker, the police chief at the time, was known for aggressive and blatantly racist tactics, including racial profiling, aggressive policing, harassing businesses and patrons, and raiding nightclubs. Parker was against 'race mixing' and this included commercial settings. His tactics went so far as to blockade stores and warn white customers to leave due to the 'dangerousness' of the neighborhood (Skonsen 2017). Freeway projects for the I-110 and I-10 split up the South Central community. Although there was public opposition, both freeways were ultimately built, devastating many neighborhoods of color along the way. In 1965, the frustration felt by residents of South Central erupted in the Watts Riots, which was instigated by the attempted arrest of an African American man named Marquette Frye for speeding. The riots spread out over 46 square miles and ultimately left 34 dead, over a thousand wounded, and almost 4,000 arrested. Similar riots erupted in African American neighborhoods throughout the country (Skonsen 2017).

After the Watts Riots, the South Central area became a center for the Civil Rights Movement in Los Angeles as well as the Black Arts Movement. However, the area also went through economic turmoil during this time due to a loss of many manufacturing jobs because of economic restructuring. This resulted in a major increase in unemployment and poverty rates of African Americans in Los Angeles throughout the 1970s, ultimately contributing to the rise of the Crack Cocaine Economy (Skonsen 2017).

South Central faced increasing amounts of violence, gangs, incarcerations and neighborhood devastation throughout the 1980s. The relationship between the Los Angeles Police Department and the community also continued to deteriorate, a relationship that was further strained in 1992, after four white police officers were acquitted for beating an African American motorist named Rodney King. The acquittal sparked riots in South Central that eventually spread throughout the city, leaving 52 dead (ARG 2012; PBS 2019b).

Beginning in the 1980s, Latino residents moved to the South Central area and in 2000, Latinos made up more than half of the South Central population. In 2003, the area was officially named South Los Angeles in an attempt to rebrand the community and to allow for the rise of smaller neighborhoods within the large area. The name still references a huge area within Los Angeles from the I-10 Freeway in the north, South Alameda Street to the east, Rosecrans Avenue to the South, and La Cienega to the west. This area encompasses multiple community plan areas including South Los Angeles, West Adams, Baldwin Hills, Leimert Park, and Southeast Los Angeles, which in turn encompass dozens of smaller neighborhoods.

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5 BACKGROUND RESEARCH

On March 20 and May 7, 2019, Dudek completed a search of the CHRIS at the SCCIC, located on the campus of California State University, Fullerton of the proposed Project APE and a half (0.5) mile buffer. This search included mapped prehistoric and historic archaeological resources and historic built-environment resources; Department of Parks and Recreation site records; technical reports; archival resources; and ethnographic references. Additional consulted sources included historical maps of the proposed Project APE, the NRHP, the CRHR, the California Historic Property Data File, and the lists of California State Historical Landmarks, California Points of Historical Interest, and the Archaeological Determinations of Eligibility. The confidential SCCIC records search results are also provided in Confidential Appendix B.

5.1 Previously Conducted Cultural Resource Studies

The SCCIC records indicate that 29 previous cultural resources technical investigations have been conducted within a 0.5-mile radius of the proposed Project APE between 1975 and 2016. Of these, eight studies overlap a portion of the proposed Project APE.

Table 1, below, summarizes all 29 previous cultural resource studies followed by a brief summary of each study that overlaps the proposed Project APE.

Table 1. Previous Technical Studies Within a 0.5-Mile Radius of the Proposed Project APE

Report Number (LA-)	Author	Year	Report Title	Proximity to Proposed Project APE
00078	Rosen, Martin D.	1975	Evaluation of the Archaeological Resources and Potential Impact of the Proposed Construction of Route 105 Freeway From El Segundo to Norwalk	Overlapping
02904	Stickel, Gary E.	1993	Draft Report: A Phase I Cultural Resources Literature Search for the West Basin Water Reclamation Project	Outside
02904	Stickel, Gary E.	1993	Draft Report a Phase I Cultural Resources Literature Search for the West Basin Water Reclamation Project	Outside
02950	Peak & Associates	1992	Consolidated Report: Cultural Resource Studies for the Proposed Pacific Pipeline Project	Overlapping
03886	McLean, Deborah K.	1998	Archaeological Assessment for Pacific Bell Mobile Services, Telecommunications Facility 147-03, 8953 South Western Avenue, City of Los Angeles, California	Outside

Table 1. Previous Technical Studies Within a 0.5-Mile Radius of the Proposed Project APE

Report Number (LA-)	Author	Year	Report Title	Proximity to Proposed Project APE
03949	McLean, Deborah K.	1998	Archaeological Assessment for Pacific Bell Mobile Services Telecommunications Facility La 145-01, West 60th Street, City and County of Los Angeles, California	Overlapping
04645	Duke, Curt	1999	Cultural Resource Assessment for the At&t Wireless Services Facility Number 21, County of Los Angeles, California	Outside
04836	Science Applications International Corporation (SAIC)	2000	Phase I Archaeological Survey Along Onshore Portions of the Global West Fiber Optic Cable Project	Overlapping
06045	Duke, Curt and Judith Marvin	2002	Cultural Resource Assessment: AT&T Wireless Facility No. 04105, Los Angeles County, CA	Outside
06816	Unknown	2003	Cultural Resources Overview for Washington High School Inglewood/Gardena Area of Los Angeles	Outside
06818	Marvin, Judith and Curt Duke	2003	Cultural Resource Assessment Cingular Wireless Facility No. La 145-11 City and County of Los Angeles, California	Outside
07404	Bonner, Wayne H.	2005	Cultural Resource Records Search and Site Visit Results for Cingular Telecommunications Facility Candidate 145-01 (el-012-01) Mozaffari Property, 5921 South Western Avenue, Los Angeles, Los Angeles County, California	Outside
07683	Wayne H. Bonner	2006	Cultural Resource Records Search Results and Site Visit for Sprint Nextel Candidate CA6361B (Maitland), 2225 West Manchester Boulevard, Inglewood, Los Angeles County, CA	Outside
07683	Bonner, Wayne H.	2006	Cultural Resources Records Search Results and Site Visit for Sprint Nextel Candidate Ca6361b (maitland), 2225 West Manchester Boulevard, Inglewood, Los Angeles County, California	Outside
08255	Arrington, Cindy and Nancy Sikes	2006	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project State of California: Volumes I and Ii	Overlapping
08501	Billat, Lorna	2007	Desert Inn Motel/0341c, Cellular Facility Installation, 11617 S. Western Avenue, Los Angeles, Los Angeles County, Ca 90047	Outside

Table 1. Previous Technical Studies Within a 0.5-Mile Radius of the Proposed Project APE

Report Number (LA-)	Author	Year	Report Title	Proximity to Proposed Project APE
08776	Bonner, Wayne H.	2006	Cultural Resources Records Search and Site Visit Results for Royal Street Communications, LLC Candidate La0250a (t-mo Mozaffari), 5921 South Western Avenue, Los Angeles, Los Angeles County, California	Outside
09811	Carolynn Losee	2009	Cultural Resources Analysis for T-Mobile Site Number LA33395A	Outside
10341	Bonner, Wayne H. and Kathleen Crawford	2009	Cultural Resources Records Search, Site Visit Results, and Direct APE Historic Architectural Assessment for Clearwire Candidate CA-LOS6482/CA7885, 2001 West 60th St., Los Angeles, Los Angeles County, CA.	Outside
10567	Hogan, Michael, Bai "Tom" Tang, Josh Smallwood, Laura Hensley Shaker, and Casey Tibbitt	2005	Identification and Evaluation of Historic Properties - West Basin Municipal Water District Harbor- South Bay Water Recycling Project Proposed Project Laterals	Overlapping
11016	Supernowicz, Dana	2007	Cultural Resources Study of the Normandie & 58th Rooftop Project, Royal Street Communications, LLC Site No. LA0249C 1340 W. 58th Street, Los Angeles, Los Angeles County, California 90037	Outside
11150	Maxwell, Pamela	2003	West Basin Municipal Water District Harbor/ South Bay Water Recycling Project	Overlapping
11190	Loftus, Shannon	2010	Cultural Resource Records Search and Site Survey, T-Mobile Site LA33707C, St. Eugene Church, 9505 Haas Avenue/9506 South Van Ness Avenue, Los Angeles, Los Angeles County, California 90047	Outside
11256	Larocque, Mark	2010	Form 621, Crown Castle tower project: "Florence #878095"	Outside
11973	Unknown	2011	Crenshaw/LAX Transit Corridor Project Final Environmental Impact Report/Final Environmental Impact Statement	Outside
12185	Bonner, Wayne and Crawford, Kathleen	2012	Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate LA03333B (Faith United RL) 1713 West 108th Street, Los Angeles, Los Angeles County, California	Outside
12518	Sikes, Nancy	2012	LA0526-01 Lion Oil & Gas, 10500 S Western Avenue, Los Angeles, CA	Outside

Table 1. Previous Technical Studies Within a 0.5-Mile Radius of the Proposed Project APE

Report Number (LA-)	Author	Year	Report Title	Proximity to Proposed Project APE
12546	Fulton, Phil, Tibbet, Casey, and Bechtel, Elisa	2014	Cultural Resource Assessment Class III Inventory Verizon Wireless Services Cimarron Facility City of Los Angeles, Los Angeles County, California	Outside
12819	McKenna, Jeanete A.	2016	The City of Los Angeles, West Athens-Westmont TOD Specific Plan Project Area, Los Angeles County, California	Overlapping

LA-00078

Evaluation of the Archaeological Resources and Potential Impact of the Proposed Construction of Route 105 Freeway from El Segundo to Norwalk (Rosen 1975) reports the results of an environmental evaluation for the proposed route of the I-105 Freeway. A records search and an intensive pedestrian survey was conducted for the study. Neither the records search nor the pedestrian survey identified any archaeological resources that would be impacted by the construction of the I-105, in the southern quarter of the current project alignment. No specific mitigation for archaeological resources were recommended aside from standard procedures regarding the unanticipated identification of archaeological resources during construction.

LA-02950

Consolidated Report: Cultural Resource Studies for the Proposed Pacific Pipeline Project (Peak & Associates 1992) reports the results of a multiple archaeological assessments for the Pacific Pipeline System, which ran between Gaviota in Santa Barbara County and refineries in El Segundo and Long Beach. The assessments included records searches, backgrounds research, and intensive pedestrian surveys for the proposed alignments. The study intersects the current Project alignment at the I-105, in the southern quarter of the current Project alignment. The 1992 records search and intensive pedestrian survey in the vicinity of the current Project alignment were negative and no further testing was done in the area.

LA-03949

Archaeological Assessment for Pacific Bell Mobile Services Telecommunications Facility La 145-01 (LSA & Associates, Inc. 1998) reports on an archaeological field study within a parcel less than 1-acre in size in support of a telecommunications facility. No cultural resources were identified as a result of the study.

LA-04836

Phase I Archaeological Survey along Onshore Portions of the Global West Fiber Optic Cable Project (SAIC 2000) reports the results of a series of archaeological assessments for the Global West Fiber Optic Cable Project, which runs from San Francisco to San Diego. The assessments included records searches, background research, and intensive pedestrian surveys for the proposed alignments. The pipeline alignment intersect the current Project alignment at the I-105, in the southern quarter of the current Project alignment, and at 50th Street, in the northern quarter of the Project alignment. The records search and intensive pedestrian survey conducted in the vicinity of the current Project alignment were negative and no further testing was done in the area. No specific mitigation for archaeological resources were recommended aside from standard procedures regarding the unanticipated identification of archaeological resources during construction. No further archaeological investigations were recommended.

LA-08255

Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project State of California: Volumes I and II (Arrington and Sikes 2006) reports the results of a series of archaeological assessments for proposed maintenance of the fiber optic cable within the Qwest network which runs for approximately 1,431 linear miles between Oregon and Arizona, running through California. The assessments included records searches, background research, Native American consultation, and intensive pedestrian surveys for the proposed alignments. The pipeline alignment intersect the current Project alignment at the I-105, in the southern quarter of the current Project alignment, and at 50th Street, in the northern quarter of the current proposed Project. No archaeological resources were identified through the 2006 records search and intensive pedestrian survey in the vicinity of the current Project alignment. Monitoring was conducted during maintenance activities in accordance with a Mitigation and Monitoring Plan that had previously been prepared. No archaeological resources were discovered during monitoring.

LA-10567

Identification and Evaluation of Historic Properties - West Basin Municipal Water District Harbor- South Bay Water Recycling Project Proposed Project Laterals (Hogan et al. 2005) reports the results of a cultural resource assessment for a proposed 68 linear mile pipeline throughout Los Angeles County from Inglewood to Rancho Palos Verdes. Within the pipeline overlaps the Project APE along Western Avenue from the intersection of Imperial Highway to 121st Street. The results of the 2005 study found no potential historic properties or historic resources within or immediately adjacent to the current proposed Project APE. The study also found that several portions of the proposed pipeline were sensitive for archaeological resources, and archaeological monitoring was recommended for four segments of the alignment, in the Long Beach area, the Compton area,

and the Rancho Palos Verdes area. No archaeological or Native American related resources were identified and no monitoring was recommended for the segments of the pipeline overlapping the current Project APE through the 2005 study.

LA-11150

West Basin Municipal Water District Harbor/ South Bay Water Recycling Project (Maxwell 2003) is related to report LA-10567 and reports the results of the Office of Historic Preservation's analysis of the recommendations and findings of that report at the request of the United States Army Corp of Engineer's, who were the project proponents. The Office of Historic Preservation asked to review more information regarding the potential for buried resources in the Rancho Palos Verdes area. The Office of Historic Preservation recommended that the United States Army Corps consider testing in these areas, or if that is not feasible, consider preparing a treatment plan that details monitoring procedures and treatment of any resources that may be encountered.

LA-12819

The City of Los Angeles, West Athens-Westmont TOD Specific Plan Project Area, Los Angeles County, California (Mckenna 2016) reports the results of an cultural resource study for the West Athens-Westmont neighborhood of Los Angeles, which is bordered by 110th Street on the north, Vermont Avenue on the east, 120th Street on the south, and Wilton Place on the west. The study overlaps the southernmost approximately 0.8 miles of the current Project alignment. The study included a records search, background research, Native American consultation, and an intensive pedestrian survey. Six historic built environment resources were identified, though none were within a quarter (0.25)-mile of the current Project alignment. The study concluded that the area was relatively sensitive for the presence of prehistoric resources, despite a negative finding, and moderately sensitive for historic period, built environment cultural resources.

5.2 Previously Recorded Cultural Resources

The SCCIC records indicate that cultural resources have been previously recorded within a 0.5-mile of the proposed Project APE; none of which intersect or are adjacent to the proposed Project APE. All 10 resources are historic buildings. Three of which have been recommended to be listed on both the CRHR and NRHP by the evaluator. All 10 resources are summarized in Table 2, below.

Table 2. Previously Recorded Cultural Resources Within a 0.5-Mile Radius of the Proposed Project APE

Primary Number (P-19-)	Age and Type	Description	NRHP/CRHP Status	Recorded By/Year	Proximity to Proposed Project APE
186740	Historic Building	St Eugene Church; OHP Property Number 132203	Recommended not eligible by evaluator	2002 (J. Marvin, LSA); 2010 (Shannon L. Loftus)	Outside
187732	Historic Building	Mozaffari Property: 5921 S Western Ave Los Angeles 90047	Recommended not eligible by evaluator	2003 (N. Pletka & J.Marvin, LSA Associates)	Outside
188289	Historic Building	Bethel African Methodist Episcopal Church: 7900 S Western Ave Los Angeles (APN 6034-001-025)	Recommended not eligible by evaluator	2009 (Supernowicz, Dana E.)	Outside
188503	Historic Building	Union Oil Co of CA Office	Recommended not eligible by evaluator	2009 (K.A. Crawford, Michael Brandman Associates)	Outside
190272	Historic Building	Faith United Methodist Church of Los Angeles: 1713 W 108th St Los Angeles (APN 6077-001-018)	Recommended not eligible by evaluator	2012 (K.A. Crawford, Michael Brandman Associates)	Outside
190755	Historic Building	New Testament Church; 1955 W Florence Ave: 1941 W Florence Ave Los Angeles 90047 (APN 6016-035-028); 1955 W Florence Ave	6Z: Found ineligible for NR or CR through survey evaluation	2014 (Elisa Bechtel, LSA Associates, Inc)	Outside

Table 2. Previously Recorded Cultural Resources Within a 0.5-Mile Radius of the Proposed Project APE

Primary Number (P-19-)	Age and Type	Description	NRHP/CRHP Status	Recorded By/Year	Proximity to Proposed Project APE
192509	Historic Building	Allied Plastics: 6231 S Manhattan Pl Los Angeles 90047 (APN 6001-01-6017)	3S;3CS;5S3:Appears eligible for NR as an individual property through survey evaluation; Appears eligible for CR as an individual property through survey evaluation; Appears to be individually eligible for local listing or designation through survey evaluation This finding has not been accepted by SHPO.	2018 (Chris Taylor, ESA)	Outside
192510	Historic Building	Bauman Bros. Furniture Manufacturing Co.: 6236 S St Andrews Pl Los Angeles 90047 (APN 6001-01-6017)	3S; 3CS; 5S3: Appears eligible for NR as an individual property through survey evaluation; Appears eligible for CR as an individual property through survey evaluation; Appears to be individually eligible for local listing or designation through survey evaluation. This finding has not been accepted by SHPO.	2018 (Chris Taylor, ESA)	Outside
192511	Historic Building	Langendorf United Bakeries, Inc.: 1870 W 62nd St Los Angeles 90047 (APN 6001-01-6012)	3S;3CS;5S3:Appears eligible for NR as an individual property through survey evaluation; Appears eligible for CR as an individual property through survey evaluation; Appears to be individually eligible for local listing or designation through survey evaluation This finding has not been accepted by SHPO.	2018 (Chris Taylor, ESA)	Outside

Table 2. Previously Recorded Cultural Resources Within a 0.5-Mile Radius of the Proposed Project APE

Primary Number (P-19-)	Age and Type	Description	NRHP/CRHP Status	Recorded By/Year	Proximity to Proposed Project APE
192512	Historic Building	Manhattan Pumping Plant Forebay: 6219 S Manhattan Pl Los Angeles 90047 (APN 6001-01-6900)	6Z: Found ineligible for NR or CR through survey evaluation This finding has not been accepted by SHPO.	2018 (Chris Taylor, ESA)	Outside

5.3 Aerial Photograph and Historic Map Review

Dudek consulted historic maps and aerial photographs to understand development of the proposed Project APE and vicinity. Historical aerial photographs were reviewed for the proposed Project APE for the following years: 1952, 1954, 1963, 1972, 1980, 1994, 2003, 2004, 2005, 2009, 2010, 2012, and 2014 (NETR 2019a). Historical topographical maps were also reviewed for the proposed Project APE for the following years: 1896, 1899, 1905, 1910, 1916, 1922, 1924, 1926, 1927, 1930, 1948, 1952, 1957, 1965, 1975, 1982, 2012, and 2015 (NETR 2019b).

The first topographic map showing the proposed Project APE dates to 1896 and shows the proposed Project APE as largely undeveloped land, though there are a few small developments along what would become Western Avenue. The Atchison Topeka Railroad intersects the proposed Project APE between West 58th Place and West 59th Place. The neighborhoods of Inglewood, Centinela, Hyde Park, Wildeson, and Slauson Avenue were growing along this railroad line. There are no changes on topographic maps until 1924. On the 1924 topographic map, many areas had been completely subdivided and there was a large amount of new development, primarily along what would become the I-110, to the east of the proposed Project APE. Along Western Avenue there was no subdivided areas, however, the majority of the area was still undeveloped. There was denser development to the north of the Atchison Topeka Railroad. Development continued throughout the 1920s and by 1930, much of the areas directly adjacent to Western Avenue were developed to some extent, though there was still undeveloped land within the area. The surrounding areas had also undergone extensive development during this time, though it had not yet reached it current extent and the extant freeways running through the areas had not yet been developed. The proposed Project APE and surrounding vicinity experience continual increase in development throughout the 1940s, 1950s and 1960s. By 1965, the I-110 had been developed. The I-105 Freeway was not developed until after 1982. The area was completely built out by 1952.

The first aerials depicting the proposed Project APE dates to 1952 and shows the area as completely developed. The next aerial, dating to 1963, depicts the proposed Project APE in much the same way but also shows that the I-110, which was built by this time. Aside from the addition of the I-105, which appears on the 1994 aerial, there are no observable or significant changes to the Project APE or general vicinity throughout the remainder of the twentieth and the beginning of the twenty-first century.

5.4 Native American Correspondence

5.4.1 NAHC Sacred Lands File Search

Dudek contacted the NAHC on May 6, 2019, and requested a review of the SLF. The NAHC replied via email on May 23, 2019, stating that the SLF search was completed with negative results. Because the SLF search does not include an exhaustive list of Native American cultural resources, the NAHC suggested contacting five Native American individuals and/or tribal organizations who may have direct knowledge of cultural resources in or near the proposed Project APE. LADWP handled all tribal consultation for the proposed Project. The NAHC SLF communication results are also provided in Appendix C.

6 CULTURAL RESOURCES SURVEY

6.1 Survey Methods

The project APE was subject to a windshield survey on June 27, 2019 along the roadbed of Western Avenue. Dudek also reviewed all available aerial and ground-level photographs to identify any potential historic properties/historical resources immediately adjacent to the APE.

Additionally, a qualified Dudek staff archaeologist conducted a reconnaissance-level survey within the potential off-site construction staging areas of the proposed Project in December 2019. The survey was conducted using standard archaeological procedures and techniques. The archaeological survey focused on accessible portions of the project APE with exposed ground surface utilizing transects spaced no more than 15 meters apart only where it makes sense to do so. Other developed portions of the project APE wwere spot-checked. All inaccessible areas utilized opportunistic examination of exposed ground surface. All field practices meet the Secretary of Interior's standards and guidelines for a cultural resources inventory. Location-specific photographs were taken using iPad technology with ESRI Collector and Avenza PDF Maps software with georeferenced PDF maps of the proposed Project site. All field notes, photographs, and records related to the current study are on file at Dudek's Pasadena, California, office.

6.2 Survey Results

No cultural resources were identified within the APE as a result of the windshield survey, archaeological reconnaissance-level survey, or photograph research.

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7 PROJECT EFFECTS/IMPACTS ASSESSMENT

No cultural resources were identified within the APE as a result of the records search, Native American coordination, survey, or background research. In consideration of potential indirect impacts to any historic-age buildings that are adjacent to the proposed Project APE, the following groundborne vibration discussion has been provided. The proposed Project does not pose any potential visual indirect impacts to historic-age buildings.

7.1 Groundborne Vibration Discussion

In consideration of potential indirect impacts to adjacent buildings and structures over 45 years old, Dudek's Senior Historic Preservation Specialist, Kara R. Dotter, MS, MSHP, examined the potential for groundborne vibration to adversely impact adjacent historic-age buildings.

Caltrans has established thresholds, related to the Peak Particle Velocity (PPV), for groundborne construction vibration that take into account the type of building or structures near the vibration source. For the age and condition of the historic-era buildings on parcels adjacent to the proposed alignment, a damage threshold of 0.2 PPV inches per second (in/sec) for transient sources and 0.1 PPV (in/sec) for continuous or frequent intermittent sources is appropriate (Caltrans 2013).

The majority of the pipeline would be installed using traditional open-trench techniques. While the various pieces of proposed equipment produce groundborne vibration to varying degrees, the use of large vibratory compactors or pile drivers can produce vibrations that exceed the damage threshold for historic-era buildings. The proposed construction equipment would not include such pieces of equipment. Additionally, the vibration that is produced during construction would be intermittent and transient. For these reasons, groundborne vibration from the open-trench sections poses no risk to historic-era buildings.

Pipe jacking or tunneling installation would be used for approximately 3,350 lineal feet of pipe installation at West 60th Street, East and West Florence Avenue, West Manchester Avenue, West Century Boulevard, Imperial Highway, and the I-105. Groundborne vibration from pipe jacking or tunnel boring machines (TBMs) is dependent largely on the subsurface geology around the pipe, with dense rock (like granite or basalt) or faults generating the greatest amount of groundborne vibrations. The geologic map of the Venice and Inglewood quadrangles indicates the pipeline will pass through Quaternary older alluvium of "gray to light brown pebble-gravel, sand, and silt-clay, elevated and dissected" (Dibblee 2007). There is also the possibility of encountering artificial fill from construction of roads and the highway. The shallow location of the proposed pipeline and the likelihood of tunneling through alluvium would not result in groundborne vibrations reaching the damage threshold. Should artificial fill be encountered, the possibility of hitting a denser material (like concrete

remnants) may result in a temporary increase in PPV that could briefly exceed the damage threshold; however, given the proximity of historic-era buildings to highly-trafficked roads and a major freeway, the possibility of damage from construction-related groundborne vibration is negligible and any potential impact would be less than significant.

8 RESULTS AND RECOMMENDATIONS

8.1 Results Summary

No cultural resources were identified within the APE as a result of the CHRIS records search, Native American coordination, and survey. Further, a review of potential indirect groundboune vibration impacts to adjacent historic-age buildings indicates that the proposed Project will not adversely affect any adjacent buildings or structures.

Section 106 of NHPA requires federal agencies to take into account the effects of their undertakings on historic properties, assess the effects, and seek ways to avoid, minimize, or mitigate any adverse effects on such properties (36 CFR 800.1[a]). No cultural resources have been identified within the proposed Project APE as a result of the CHRIS records search, survey, or archival research. Further, no adjacent resources would be impacted as a result of groundborne vibration. Therefore, no known historic properties would be affected by the proposed undertaking. As a result, a finding of "No Historic Properties Affected" is recommended for the proposed undertaking.

CEQA requires a lead agency to determine whether a project may have a significant effect on historical resources (PRC section 21084.1; CEQA Guidelines section 15064.5(b)). No historical resources have been identified within the proposed Project APE as a result of the records search, survey, or archival research. Further, no adjacent resources would be impacted as a result of groundborne vibration. Therefore, the Project will have a less than significant impact on historical resources.

While no surface evidence of historical or archaeological resources was identified as a result of this study, it is possible that subsurface resources could be encountered/impacted by ground disturbing activities associated with the Project. Recommendations to reduce effects/impacts to undiscovered, subsurface cultural resources are provided below.

8.2 Recommendations

In consideration of the cultural resources investigation, impacts to archaeological and historical resources would be less-than-significant. No new cultural resources were identified within the proposed Project APE as a result of the current study; therefore, no further management recommendations are necessary beyond standard protection measures to address unanticipated discoveries of cultural resources and human remains (listed below).

8.2.1 Unanticipated Discovery of Cultural Resources

In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the proposed Project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether or not additional study is warranted. Depending upon the significance of the find, the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA or Section 106 of the NHPA, additional work such as preparation of an archaeological treatment plan, testing, or data recovery may be warranted.

8.2.2 Unanticipated Discovery of Human Remains

In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the County Coroner shall be notified within 24 hours of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined, within two working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the remains are determined to be Native American, the Coroner shall notify the NAHC in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the MLD from the deceased Native American. The MLD shall complete their inspection within 48 hours of being granted access to the site. The MLD would then determine, in consultation with the property owner, the disposition of the human remains.

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APPENDIX A

Preparer's Qualifications

Linda Kry

Archaeologist

Linda Kry is an archaeologist with 12 years experience in cultural resource management specializing in various aspects of cultural resources investigations. Ms. Kry's experience includes archival research, reconnaissance surveys, archaeological excavations, artifact analysis, and authoring technical reports pursuant to the California Environmental Quality Act and Section 106 of the National Historic Preservation Act.

Education

University of California, Los Angeles
BA, Anthropology, 2006
Cerritos College
AA, Anthropology, 2004

Project Experience

San Jacinto II Wind Energy Repowering Project, Terra-Gen, LLC, Palm Springs, California. The project involves the decommissioning of approximately 126 existing wind turbines and the construction and operation of up to seven new wind turbines on private lands under the jurisdiction of the City of Palm Springs and on federal lands administered by the Bureau of Land Management. Responsibilities as technical lead include the management of a Phase I cultural resources study in compliance with the provisions of local regulations, CEQA, and Section 106 of the National Historic Preservation Act of 1966. (December 2018–Present)

Kaiser Permanente Moreno Valley Medical Center Master Plan, Kaiser Permanente, Moreno Valley, California. Kaiser Permanente is proposing the development of an approximately 400-bed hospital, hospital support buildings, outpatient medical office buildings, a central utility plant, and surface and structured parking within their existing hospital campus through a three-phase plan. The City of Moreno Valley is the lead agency under CEQA. As the technical lead for the project, responsibilities include the management of a Phase I cultural resources study. (November 2018–Present)

City of Colton Modern Pacific 88-DU Residential Project, City of Colton, Colton, California. Technical lead for a Phase I cultural resources study and Extended Phase I subsurface probing effort in accordance with CEQA. The City of Colton is proposing the development of 89-detatched single-family homes on an approximately 41.58-acre site within a single tract. (November 2018–Present)

Protea Memory Care Facility Project, City of San Juan Capistrano, San Juan Capistrano, California. Technical lead for a Phase I cultural resources study in accordance with CEQA and subject to California Assembly Bill 52 and Senate Bill 18, in support of a project that proposes to construct a 59-unit (72-bed) memory care facility. (September 2018–November 2018)

Coronado Trunk Line Project, Los Angeles Department of Water and Power, Los Angeles, California. Technical lead for a Phase I cultural resources study pursuant to CEQA and Section 106. Los Angeles Department of Water and Power is proposing to construct a new 30-inch diameter welded steel pipe, approximately 7,200 feet in length, along with a regulating and relief station vault and flow master vault. The proposed trunk line would add reliability and redundancy to the system. (September 2018–October 2018)

River Supply Conduit Unit 7 Project, Los Angeles Department of Water and Power, Los Angeles and Burbank, California. Technical lead and monitoring coordinator for the River Supply Conduit (RSC) Unit 7 Project. The existing River Supply Conduit (RSC) is a major transmission pipeline in the LADWP water distribution system. The Project is critical to meet safety of water supplies, reliability of water infrastructure, and sustainability of water supply. (August 2018–Present)

Sand Canyon Resort, City of Santa Clarita, Santa Clarita, California. Served as technical lead for a cultural resources study for a project that proposes to develop an abandoned, approximately 75-acre existing open space into a new resort and spa in an effort to become the premiere golf destination in northern Los Angeles County. Tasks include management of the technical study including the archival research, pedestrian survey, and reporting of the study results. Additionally, authored the Cultural and Tribal Cultural Resources chapters for the Environmental Impact Report (August 2018–December 2018)

Creek at Dominguez Hills, Plentitude Holdings LLC, Carson, California. Served as contributing author for the environmental impact report for a development project that consists of approximately 532,500 square feet of buildings, including: a multiuse indoor sports complex; youth learning experience facility; indoor skydiving facility; public golf recreation facility; marketplace; clubhouse; recreation and dining center; a sports wellness center; and restaurants. Alternatively, a specialty grocery store may be developed in place of some of the restaurant uses. (August 2018–December 2018)

Relevant Previous Experience

Amapa Archaeology Project, Amapa, Oaxaca, Mexico. Served as excavator and lab analyst for an archaeological academic research project in the town of Amapa, located in the Mexican state of Oaxaca. Amapa was founded in 1769 by black runaway slaves, who fled sugar plantation slavery in central Veracruz. Using a 1770 plan map and colonial documents, the project focused on excavations around an 18th century church where shallow colonial period deposits were previously encountered in 2017. The fieldwork was conducted in an effort to address research questions regarding the town's use of architecture and space, and whether the evidence is accurately reflected in the 1770 map. (June–July 2018)

Los Angeles International Airport (LAX) Midfield Satellite Concourse, Los Angeles, California. Served as field director for archaeological and paleontological monitoring project associated with the creation of a new aircraft passenger concourse and associated elements at LAX. Responsibilities included coordinating with company personnel and project contractors, scheduling, and recordation and collection of field data. (April 2017–December 2017)

Los Angeles Metropolitan Transportation Authority Compliance Monitoring, Los Angeles, California. Served as archaeological and paleontological monitor for the multiyear and multisite project within the greater Los Angeles area, including the Crenshaw rail transit corridor and the 1.9-mile Regional Connector subway corridor, as well as their associated stations. In addition, served as monitoring coordinator for the Regional Connector Archaeological and Paleontological Monitoring Project. Responsibilities as Monitoring Coordinator included coordinating and scheduling various contractors and archaeologists; developing and providing cultural resources training for new contractors and archaeologists; monthly project updates to client; invoice and budget reviews; lab analysis of all resources collected and preparation of those resources for curation. (April 2013–January 2018)

Topanga Library, Topanga Canyon, California. Served as crew chief. Involved in multiple facets of archaeological research. Conducted archaeological monitoring during construction of the Topanga Library, which resulted in the discovery of materials associated with a pre-colonial Gabrielino site. Identified and processed cultural and human remains, as well as contributed to report on all findings. (2009–2010)

Los Angeles Department of Water and Power Division Creek, Inyo County, California. Served as deputy project manager providing consultation and support in U.S. Forest Service and Bureau of Land Management consultation for the assessment of historical structures associated with the Division Creek Power Plant and Los Angeles Aqueduct. Responsibilities included assisting with work plans, project permitting, budgeting, and reporting. In addition, served as crew chief for archaeological surveys and testing. Conducted lab analysis of artifacts, prepared these resources for curation, and co-authored reports on the results of all findings. (July 2013–November 2017)

Genesis Solar Energy Project, Blythe, California. Served as archaeological monitor. Monitored the placement of transmission lines, large-scale excavations for the placement of solar panels, and caisson drilling for solar panel footings. Responsibilities also included survey, testing, and artifact collection. Coordinated with the client, archaeologists, Native American monitors, and general contractors. Provided daily updates, reviewed daily archaeological monitoring logs, and collected/stored resources daily. (June 2011–February 2014)

Long Beach Courthouse, City of Long Beach, Long Beach, California. Served as lead archaeological and paleontological monitor during construction of a new courthouse. Duties included providing workers training regarding archaeological and paleontological resources for on-site contractors, documenting historical archaeological features, and coordinating with clients and staff. In addition, conducted excavations of early 20th century features discovered during monitoring. Also served as lab director for the analysis, cataloging and processing artifacts for curation. Co-authored report documenting project results. (2010–2011)

Solar Millennium Blythe Project, Blythe, California. Served as crew chief for archaeological survey of a proposed solar electric facility in the Chuckwalla Valley. Project included survey of the project site and buffer zones, recordation of historical and pre-colonial archaeological sites, and documentation on Department of Parks and Recreation Forms. (June 2009–March 2010)

Central Los Angeles High School No. 9, Los Angeles Unified School District, Los Angeles, California. Served as excavator and lab analyst. Duties included assessing artifact conditions and conservation needs, assisting with development and implementation of artifact cleaning procedures, artifact classification, artifact cataloging using Excel, and the reconstruction of artifacts. Over 3,000 historic-era artifacts were recovered from a 19th-century cemetery. (2006–2009)

Beacon Solar Energy Project, Los Angeles Department of Water and Power, Kern County, California. Archaeological monitoring for the Beacon Solar Energy Project. Monitored excavation for the placement of solar panels. Aspects of the project included monitoring, survey, testing, and artifact collection. Responsibilities included recordation and collection of cultural resources discovered during monitoring and scheduling with Native American and construction crews.

Oasis Solar Field, NRG Solar, Environmental Assessment for the City of Palmdale and the United States Air Force, Palmdale, California. Served as Crew Chief for an archaeological survey. Responsibilities include data collection for historical resources and recordation of field data on Department of Parks and Recreation Forms.

California High Speed Train Project, Fresno, Madera, and Merced Counties, California. Field Archaeologist. Assisted in archaeological survey of parcels for a proposed high-speed train in Central California. The project included an archaeological survey of the project areas of potential effect and buffer zones, the recordation of historic and prehistoric archaeological resources, and recordation of field data on Department of Parks and Recreation Forms.

Kara R. Dotter, MSHP

Senior Historic Preservation Specialist and Architectural Historian

Kara Dotter is a senior historic preservation specialist with more than 15 years experience in historic preservation and architectural conservation. Her historic preservation experience spans all elements of cultural resources management, including project management, intensive- and reconnaisance-level field invesigations, architectural history studies, and historical significance evaluations in consideration of the National Register of Historic Places (NRHP), California Register of Historical Places (CRHR), and local-level designation criteria.

Ms. Dotter's background in geology informs many aspects of her architectural conservation work, including insight into the deterioration of building materials over time, which helps inform preservation strategies for various types of construction materials. She has experience with a variety of materials, in particular stone, brick, mortar, and concrete. Her materials analysis skills include petrographic analysis of stone, mortar, and concrete; paint analysis; wood species identification; and applicable American Society for Testing and Materials standards, as well as proficiency with Fourier transform infrared spectroscopy (FTIR), scanning electron microscopy with energy-dispersive X-ray spectroscopy (SEM-EDS), back-scattered electron imagery (BSE), atomic absorption spectrometry (AAS), differential thermal analysis (DTA), X-ray diffraction (XRD), and ion chromatography techniques.

Education

Queen's University of Belfast
PhD Candidate (ABD)
University of Texas, Austin
MS, Geological Sciences, 2006
MS, Historic Preservation, 2004
University of Houston
BS, Geology, 1996

Certifications

CEQA Practice Certificate (in progress)

Professional Affiliations

Association for Preservation Technology
American Institute for Conservation
California Preservation Foundation
Construction History Society of America
Society of Architectural Historians

Ms. Dotter exceeds the Secretary of the Interior's Professional Qualification Standards for Architectural History. She is experienced managing multidisciplinary projects in the lines of land development, state and local government, and the private sector. She has experience preparing environmental compliance documentation in support of projects that fall under the California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA), and Sections 106 and 110 of the National Historic Preservation Act (NHPA). She also prepared numerous Historic Architectural Survey Reports (HASRs) and Findings of Effect (FOE) reports for the California High-Speed Rail Authority.

Project Experience

Development

Salt Bay Design District Historical Resources Technical Report, Gonzalez, Quintana & Hunter, LLC, Chula Vista, California. Served as architectural historian and author of the Cultural Resources Technical Report. The project proposed to develop 46.6 acres of land as an industrial development. The project area included the South Bay Salt Works facility, known historically as the Western Salt Company. The work involved updating historical resources documentation in order to comply with NEPA and CEQA regulations relating to the potential redevelopment of the property. Contributions included updating existing documentation, including DPRs, relating to the Western Salt Company, as well as a site visit and extensive archival research.

Village Three Active Recreation Area Constraints Analysis, HomeFed Otay Land II LLC, Chula Vista, California. Served as cultural resources project lead for the Constraints Analysis, as well as architectural historian and author of the Historical Resources Technical Report. The project proposed to develop approximately 100 acres of land south of the Otay River as an active recreation site. Contributions included architectural history field surveys; conducting archival research; recording and evaluating historical resources in consideration of NRHP, CRHR, and local designation criteria and integrity requirements, and in consideration of potential impacts to historical resources under CEQA.

N**orth River Farms Historical Resources Technical Report, Integral Communities, Oceanside, California.** Served as architectural historian and author of the Historical Resources Technical Report. The project proposed to develop approximately 175 acres of land east of Oceanside as a small farming community. Contributions included architectural history field surveys; conducting archival research; recording and evaluating historical resources in consideration of NRHP, CRHR, and local designation criteria and integrity requirements, and in consideration of potential impacts to historical resources under CEQA.

Jefferson La Mesa Historic Evaluation, JPI, Inc., La Mesa, California. The project proposed developing four adjacent parcels, changing the use from commercial to high-density residential. Served as architectural historian and lead author of the Historical Resources Technical Report. Performed architectural history field survey; conducted archival research; and recorded and evaluated the property in consideration of NRHP, CRHR, and local designation criteria and integrity requirements, and in consideration of potential impacts to historical resources under CEQA.

Montebello North Historic Evaluation, A.P.T.S. Inc., La Mesa, California. Served as architectural historian and author of the Cultural Resources Technical Report. Conducted research into the history of the area and its relation to the 4.16 acre subject property, documented existing conditions, and liaised with the City of La Mesa Planning Department to bring about a successful result for the client.

HABS Written Documentation for Camp Haan, Riverside County, California. Dudek was retained by the County of Riverside Economic Development Agency (EDA) to prepare HABS documentation for approximately 28 building foundations associated with the Camp Haan property located on March Air Reserve Base. Served as architectural historian and lead author on the HABS Level III documentation report. Contributions entailed managing subconsultant for HABS photography services; conducting site surveys; extensive archival research at March Air Reserve base archives and the National Archives and Records Administration, as well as local historical societies and repositories; and preparation and submittal of the final HABS documentation package.

Education

SDSU Aztec Recreation Center, San Diego State University, San Diego, California. SDSU is embarking on the expansion and rehabilitation of the existing Aztec Recreation Center. The project area is adjacent to two historical resources. Served as architectural historian and lead author of the historical resources technical report. Documented the existing conditions of the two historical resources, conducted a detailed impacts assessment, and developed appropriate mitigation measures. The study also entailed conducting archival and building development research and a records search.

MiraCosta Community College District Master Plan Update, Oceanside Campus, MCCCD, Oceanside, California. The MCCCD is undertaking a comprehensive improvement and building program to make upgrades and repairs to existing buildings, as well as to construct new facilities to improve the safety and education experience of those attending MiraCosta Community College. The College proposed to update the Master Plan to more effectively meet the space needs of the projected on-campus enrollment through the next decade and beyond, while constructing and renovating facilities to meet the District's instructional needs. Co-authored and oversaw the cultural resources study. All buildings and structures on campus over 45 years old and/or proposed for demolition/substantial alteration as part of the proposed project were photographed, researched, and evaluated in consideration of NRHP, CRHR, and local designation criteria and integrity requirements, and in consideration of potential impacts to historical resources under CEQA. The study also entailed conducting extensive archival and building development research, a records search, Native American coordination, and detailed impacts assessment.

Morse High School Historical Resources Technical Report, San Diego Unified School District (SDUSD), San Diego, California. SDUSD is undertaking modernization of the Morse High School campus. Served as architectural historian and lead author of the historical resources technical report. Recorded and evaluated the Morse High School campus for NRHP, CRHR, and local level criteria and integrity considerations. The study also entailed conducting archival and building development research and a records search.

SDSU Tula Pavilion and Tenochca Hall Renewal/Refresh, San Diego State University, San Diego, California. SDSU proposed replacing an existing building with two separate buildings to better meet the growing needs of the student body. Served as architectural historian and lead author of the historical resources technical memorandum. Performed architectural history field survey; conducted archival research; and recorded and evaluated the property in consideration of NRHP, CRHR, and local designation criteria and integrity requirements, and in consideration of potential impacts to historical resources under CEQA.

Energy

Jacumba Valley Solar Project, San Diego County, California. The project proposes a 100 megawatt solar farm that included photovoltaic solar panels, a 1,500-volt DC underground collection system, a 34.5 kilovolt overhead and underground collection system, and a 20 megawatt energy storage facility, among other features. Served as architectural historian and lead author of the historical resources constraints analysis to comply with CEQA and in preparation of technical studies conducted for the Environmental Impact Report. The constraints analysis identified one potential historical resource, what appears to be the remains of a substantial early 20th century cattle operation, and recommended a full Historical Resources Evaluation Report of the property in compliance with CEQA.

Municipal

Normal Street Department of Motor Vehicles (DMV) Facility Replacement, San Diego, California. Served as architectural historian and lead author of the Historical Resources Technical Report. The work involved cultural resources documentation in order to comply with NEPA and CEQA regulations relating to the proposed facilities replacement. Contributions included recording and evaluating the Normal Street DMV building for NRHP, CRHR, and local level criteria and integrity considerations, completion of DPR forms, and responding to SHPO comments.

Transportation

Historical Resources Evaluation Report for the Imperial Avenue Bikeway, Kimley-Horn and Associates, Inc., San Diego, California. The SANDAG project proposed approximately four miles of roadway improvements, including sidewalks and bicycle lanes, along Imperial Avenue roughly between I-5 and I-805. Served as principal architectural historian and lead author on the Historical Resources Evaluation Report, that entailed identification of historic properties/historical resources within and adjacent to the project alignment; intensive site surveys; a records search; identification of existing and potential historical properties/historical resources; updating DPRs; determinations of effect; and management recommendations. The project qualified for a Categorical Exemption under CEQA and was determined to have no effect on historic properties under Section 106.

Water/Wastewater

The Pure Water Project, City of San Diego, California. Served as architectural historian and lead author of the Historical Resource Technical Report for the proposed pipeline route as part of the award-winning EIR/Environmental Impact Statement (EIS). Preparation of the report involved conducting extensive building development and archival research on historic-era structures along the proposed 56-mile-long route; development of related historic contexts; historical significance evaluations for each historic-era structure in consideration of national, state, and local designation criteria and integrity requirements; and determining appropriate mitigation measures.

Historical Resources Evaluation of Public Utilities Department Reservoir Structures, City of San Diego, California. The project proposes upgrades to ten historic-era dams, an historic-era flume, and various attendant structures, within the San Diego water supply network. Serving as architectural historian and co-author of a multiple-property historical resources evaluation report. Project includes development of a network-wide historical context, as well as contexts for each individual contributor; multiple intensive field surveys; extensive archival research; recordation and evaluation of the properties in consideration of NRHP, CRHR, and local designation criteria and integrity requirements, and in consideration of potential impacts to historical resources under CEQA; proposal of appropriate mitigation measures; and review for conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

Municipal Waterways Maintenance Plan Project, City of San Diego, California. The MWMP is intended to establish an effective and streamlined program that allows for waterway facilities to be maintained, thus reducing flood risk while minimizing impacts and potential adverse effects of maintenance. Served as architectural historian and lead author of the Historical Resources Inventory Report, in support of the Environmental Impact Report. The inventory included consideration of types of proposed activities; identification of buildings or structures that might require review under NRHP, CRHR, and City of San Diego; potential impacts to historical resources; and appropriate mitigation measures.

Historical Resource Evaluation Report for the San Dieguito Reservoir Dam Handrail Improvement Project, Santa Fe Irrigation District, Rancho Santa Fe, California. Served as architectural historian and lead author of the Historical Resource Evaluation Report for the proposed handrail replacement project. Preparation of the report involved conducting extensive engineering development and archival research on dams, development of an historic context, and historical significance evaluation for the historic-era structure in consideration of local, state, and national designation criteria and integrity requirements.

Samantha Murray, MA

Historic Built Environment Lead / Senior Architectural Historian

Samantha Murray is a senior architectural historian with 13 years' professional experience in in all elements of cultural resources management, including project management, intensive-level field investigations, architectural history studies, and historical significance evaluations in consideration of the California Register of Historical Resources (CRHR), the National Register of Historic Places (NRHP), and local-level evaluation criteria. Ms. Murray has conducted hundreds of historical resource evaluations and developed detailed historic context statements for a multitude of property types and architectural styles, including private residential, commercial, industrial, educational, medical, ranching, mining, airport, and cemetery properties, as well as a variety of engineering structures and objects. She has also provided expertise on numerous projects requiring conformance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.

Education

California State University, Los Angeles
MA, Anthropology, 2013

California State University, Northridge
BA, Anthropology, 2003

Professional Affiliations

California Preservation Foundation

Society of Architectural Historians

National Trust for Historic Preservation

Registered Professional Archaeologist

Ms. Murray meets the Secretary of the Interior's Professional Qualification Standards for both Architectural History and Archaeology. She is experienced managing multidisciplinary projects in the lines of transportation, transmission and generation, federal land management, land development, state and local government, and the private sector. She has experience preparing environmental compliance documentation in support of projects that fall under the California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA), and Sections 106 and 110 of the National Historic Preservation Act (NHPA). She also prepared numerous Historic Resources Evaluation Reports (HRERs) and Historic Property Survey Reports (HPSRs) for the California Department of Transportation (Caltrans).

Dudek Project Experience (2014-2018)

Development

HABS Written Documentation for Camp Haan, Riverside County, California (2017). Dudek was retained by the County of Riverside Economic Development Agency (EDA) to prepare HABS documentation for approximately 28 building foundations associated with the Camp Haan property located on March Air Reserve Base. Ms. Murray provided project management and QA/QC of the final HABS documentation and submittal package.

Normal Street Project, City of San Diego, San Diego County, California (2014). Ms. Murray served as architectural historian and co-author of the Historical Resources Technical Report for properties located at 3921-3923; 3925-3927; 3935 Normal Street for the City of San Diego's Development Services Department Ms. Murray assisted with the final round of comments from the City and wrote the historical significance evaluations for all properties included in the project.

Education

MiraCosta Community College District Oceanside Campus, San Diego County, California (2017). Dudek was retained by the MiraCosta Community College District (MCCCD) to conduct a cultural resources study for the proposed Oceanside Campus Facilities Master Plan. Of the original 11 buildings constructed in the early 1960s, nine are still extant and required evaluation for historical significance. The campus was ultimately found ineligible for designation due to a lack of important historical associations and integrity issues. Ms. Murray provided QA/QC of the final cultural report.

SDSU Tula Pavilion and Tenochca Hall Renewal/Refresh, San Diego, California (2017). Dudek was retained by the San Diego State University (SDSU) to evaluate potential impacts to historical resources associated with the proposed Tula Pavilion and Tenochca Hall Renewal/Refresh project located in San Diego, California. The historic resources technical memorandum provides the results of that evaluation. Ms. Murray provided quality assurance/quality control of the final work product and provided input on impacts to historical resources.

San Diego State University (SDSU) Open Air Theater Renovation Project, SDSU and Gatzke Dillon & Balance, LLP, San Diego, California (2015). Ms. Murray served as architectural historian and prepared a technical memorandum that analyzed the project's potential to impact the OAT theater (a contributing property to the San Diego State College NRHP Historic District). This included conducting a site visit, reviewing proposed site and design plans, and preparing a memorandum analyzing the project's conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

Mt. San Jacinto College (MSJC) Master Plan Project, City of San Jacinto, Riverside County, California (2015). Ms. Murray served as architectural historian, archaeologist, and lead author of the cultural resources study. As part of the study she evaluated 11 buildings for NRHP, CRHR, and local level criteria and integrity requirements. The buildings were constructed prior to 1970 and proposed for demolition as part of the project. The study also entailed conducting extensive archival and building development research at District offices, a records search, and Native American coordination.

San Diego State University (SDSU) Engineering and Sciences Facilities Project, SDSU and Gatzke Dillon & Balance, LLP, San Diego, California (2014). Ms. Murray served architectural historian, archaeologist, and lead author of the Cultural Resources Technical Report for the SDSU Engineering and Interdisciplinary Sciences Building Project. The project required evaluation of 5 historic-age buildings in consideration of NRHP, CRHR, and local designation criteria and integrity requirements, an intensive level survey, Native American coordination, and a records search. The project proposes to demolish four buildings and alter a fifth as part of the university's plan to update its engineering and science facilities.

The Cove: 5th Avenue Chula Vista Project, E2 ManageTech Inc., City of Chula Vista, San Diego County, California (2014). Ms. Murray served as architectural historian and co-author of the CEQA report. The project involved recordation and evaluation of several properties functioning as part of the Sweetwater Union High School District administration facility, proposed for redevelopment, as well as an archaeological survey of the project area.

Energy

J-135I Electrical Distribution and Substation Improvements and J-600 San Dieguito Pump Station Replacement Project, Santa Fe Irrigation, San Diego County, California (2014). Ms. Murray served as architectural historian and prepared the Department of Parks and Recreation (DPR) forms and associated memo concerning replacement of the original 1964 San Dieguito Pump Station. Ms. Murray recorded and evaluated the pump house for state and local significance and integrity considerations. As part of this effort she conducted background research, prepared a brief historic context, and a significance evaluation.

Expert Witness

Robert Salamone vs. The City of Whittier (2016). Ms. Murray was retained by the City of Whittier to serve as an expert witness for the defense. She peer reviewed a historic resource evaluation prepared by another consultant and provided expert testimony regarding the contents and findings of that report as well as historic resource requirements on a local and state level in consideration of the City of Whittier's Municipal Code Section 18.84 and CEQA. Judgement was awarded in favor of the City on all counts.

Municipal

San Carlos Library Historical Resource Technical Report, City of San Diego, California (2014). Ms. Murray served as architectural historian and author of the Historical Resource Technical Report for the San Carlos Library. Preparation of the report involved conducting extensive building development and archival research on the library building, development of a historic context, and a historical significance evaluation in consideration of local, state, and national designation criteria and integrity requirements. The project proposes to build a new, larger library building.

State of California

Department of General Services Historical Resource Evaluation for the Normal Street Department of Motor Vehicles Site at 3960 Normal Street, San Diego, California (2017). Dudek was retained by the State of California Department of General Services to complete a Historical Resources Technical Report for a project that proposes demolition and replacement of the Department of Motor Vehicles (DMV) building located at 3960 Normal Street in the City of San Diego. To comply with Public Resources Code Section 5024(b), DGS must submit to the State Historic Preservation Officer (SHPO) an inventory of all structures over 50 years of age under DGS's jurisdiction that are listed in or that may be eligible for inclusion in the National Register of Historic Places (NRHP), or that may be eligible for registration as a California Historical Landmark (CHL). The DMV was found not eligible. Ms. Murray provided QA/QC of the historical resource technical report.

Water/Wastewater

San Diego PUD Citywide Historic Context Statement and Evaluation of Dam Infrastructure (in progress). Dudek is currently in the process of preparing a citywide historic context statement and significance evaluation of all dam and reservoir infrastructure owned/operated by the City's Public Utilities Department. Dudek is also preparing detailed impacts assessments for proposed modification to dams, as required by DSOD. The project involves evaluation of at least 10 dams for historical significance in consideration of NRHP, CRHR, and City designation criteria and integrity requirements, and requires extensive archival research and pedestrian survey. Upon completion of the project, the City will have a streamlined document for the management of their historic dam and reservoir infrastructure. To date, Dudek has completed a draft historic context statement and three dam historical significance evaluations.

Morena Reservoir Outlet Tower Replacement Project, City of San Diego, California (2016). Ms. Murray evaluated the 1912 Morena Dam and Outlet Tower for NRHP, CRHR, and local level eligibility and integrity requirements. The project entailed conducting extensive archival research and development research at City archives, libraries, and historical societies, and preparation of a detailed historic context statement on the history of water development in San Diego County.

69th and Mohawk Pump Station Project, City of San Diego, California (2015). Ms. Murray served as architectural historian and lead author of the Historical Resource Technical Report for the pump station building on 69th and Mohawk Street. Preparation of the report involves conducting extensive building development and archival research on the pump station building, development of a historic context, and a historical significance evaluation in consideration of local, state, and national designation criteria and integrity requirements.

Pump Station No. 2 Power Reliability and Surge Protection Project, City of San Diego, California (2015). Ms. Murray served as architectural historian and prepared an addendum to the existing cultural resources report in order to evaluate the Pump Station No. 2 property for NRHP, CRHR, and local level eligibility and integrity requirements. This entailed conducting additional background research, building development research, a supplemental survey, and preparation of a historic context statement.

Otay River Estuary Restoration Project (ORERP), Poseidon Resources, South San Diego Bay, California (2014). Ms. Murray served as architectural historian for the documentation of Pond 15 and its associated levees. The project proposes to create new estuarine, salt marsh, and upland transition habitat from the existing salt ponds currently being used by the South Bay Salt Works salt mining facility. Because the facility was determined eligible for listing in the NRHP, the potential impacts caused by breeching the levees, a contributing feature of the property, had to be assessed.

Relevant Training

- CEQA and Historic Preservation: A 360 Degree View, CPF, 2015
- Historic Designation and Documentation Workshop, CPF, 2012
- Historic Context Writing Workshop, CPF, 2011
- Section 106 Compliance Training, SWCA, 2010

APPENDIX B

CONFIDENTIAL

CHRIS Records Search Results

APPENDIX C

Native American Communication

Sacred Lands File & Native American Contacts List Request

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95501
(916) 373-3710
(916) 373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: Western Trunk Line MND Project (10649.50)

County: Los Angeles

USGS Quadrangle

Name: Inglewood, CA (see attached map)

Township: 3S, 2S Range: 14W Section(s): 1, 2, 11, 12, 13, 14, 23, 24, 25, 26, 35, 36

Company/Firm/Agency:

Dudek

Contact Person: Erica Nicolay

Street Address: 38 North Marengo Avenue

City: Pasadena Zip: 91101

Phone: (760) 936-7952 Extension: N/A

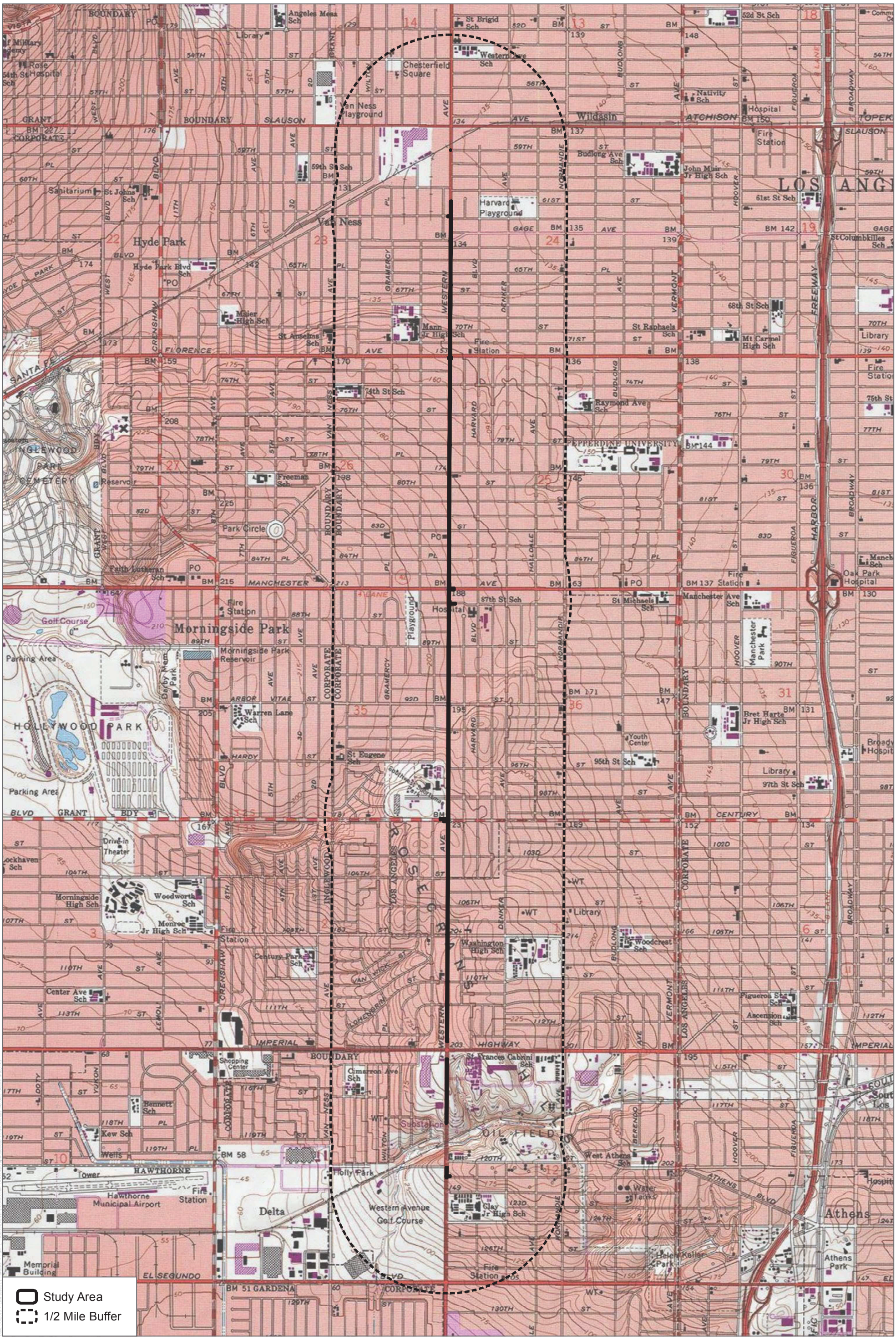
Fax: (760) 632-0164

Email: enicolay@dudek.com

Project Description:

LADWP is proposing to replace 23,300 lineal feet of existing pipe along Western Avenue from 59th Street to 121st Street with Earthquake Resistant Ductile Iron Pipe. LADWP also proposes to replace approximately 4,495 feet of 6-inch and 8-inch diameter water distribution mainline with 12-inch diameter piping along Western Avenue. The proposed project would also include minor improvements at four intersections along Western Avenue to maintain water pressures and the replacement of an existing regulator station, located at the intersection of Manchester Avenue and Western Avenue.

☑ Project Location Map is attached



SOURCE: USGS 7.5-Minute Series Inglewood Quadrangle
Township 3S, 2S; Range 14W; Sections 1, 2, 11, 12, 13, 14, 23, 24, 25, 26, 35, 36

DUDEK

0 1,000 2,000 Feet
0 250 500 Meters
1:24,000

Records Search
LADWP Western Trunk Line Project

Linda Kry

From: Quinn, Steven@NAHC <Steven.Quinn@nahc.ca.gov>
Sent: Thursday, May 23, 2019 11:08 AM
To: Erica Nicolay
Subject: Western Trunk Line MND Project
Attachments: SLFNoWesternTrunk 5.23.2019.pdf; WesternTrunk 5.23.2019.pdf

Good Morning,

Attached is the response to the project referenced above. If you have any additional questions, please feel free to contact our office email at nahc@nahc.ca.gov.

Regards,

Steven Quinn
Native American Heritage Commission
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Steven.Quinn@nahc.ca.gov
Direct Line: (916) 573-1033
Office: (916) 373-3710

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone: (916) 373-3710
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov
Twitter: @CA_NAHC

May 23, 2019

Erica Nicolay
Dudek

VIA Email to: enicolay@dudek.com

RE: Western Trunk Line MND Project, Los Angeles County

Dear Ms. Nicolay:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our lists contain current information. If you have any questions or need additional information, please contact me at my email address: steven.quinn@nahc.ca.gov.

Sincerely,

Steven Quinn
Associate Governmental Program Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Los Angeles County
5/23/2019

Gabrieleno Band of Mission Indians - Kizh Nation
Andrew Salas, Chairperson
P.O. Box 393 Gabrieleno
Covina, CA, 91723
Phone: (626) 926 - 4131
admin@gabrielenoindians.org

Gabrieleno/Tongva San Gabriel Band of Mission Indians
Anthony Morales, Chairperson
P.O. Box 693 Gabrieleno
San Gabriel, CA, 91778
Phone: (626) 483 - 3564
Fax: (626) 286-1262
GTTribalcouncil@aol.com

Gabrielino /Tongva Nation
Sandonne Goad, Chairperson
106 1/2 Judge John Aiso St., #231 Gabrielino
Los Angeles, CA, 90012
Phone: (951) 807 - 0479
sgoad@gabrielino-tongva.com

Gabrielino Tongva Indians of California Tribal Council
Robert Dorame, Chairperson
P.O. Box 490 Gabrielino
Bellflower, CA, 90707
Phone: (562) 761 - 6417
Fax: (562) 761-6417
gtongva@gmail.com

Gabrielino-Tongva Tribe
Charles Alvarez,
23454 Vanowen Street Gabrielino
West Hills, CA, 91307
Phone: (310) 403 - 6048
roadkingcharles@aol.com

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Western Trunk Line MND Project, Los Angeles County.