195 EAST HILLCREST DRIVE PROJECT

ADDENDUM APPENDICES 1
to the
2045 Thousand Oaks General Plan Update
Final Environmental Impact EIR

Prepared for:

City of Thousand Oaks
Community Development Department, Planning Division
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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	195 E. Hillcrest Drive - Existing Office Ops only
Operational Year	2027
Lead Agency	City of Thousand Oaks
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70000
Precipitation (days)	22.6000
Location	195 E Hillcrest Dr, Thousand Oaks, CA 91360, USA
County	Ventura
City	Thousand Oaks
Air District	Ventura County APCD
Air Basin	South Central Coast
TAZ	3517
EDFZ	8
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.37

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Office Building	51.5540	1000sqft	1.18352	51,554.0	0.00000	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.81130	1.96300	17.0862	0.03748	0.05671	3.33275	3.38946	0.05416	0.84541	0.89957	43.3978	4,948.86	4,992.26	4.66845	0.20782	12.2286	5,183.13
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.40898	2.12943	14.8426	0.03615	0.05275	3.33275	3.38550	0.05117	0.84541	0.89658	43.3978	4,818.60	4,862.00	4.68358	0.21882	0.43920	5,044.73
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.02908	1.67499	12.1157	0.02796	0.04857	2.47194	2.52051	0.04690	0.62718	0.67409	43.3978	3,982.15	4,025.55	4.63623	0.17601	4.05870	4,197.96
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.55281	0.30569	2.21111	0.00510	0.00886	0.45113	0.45999	0.00856	0.11446	0.12302	7.18500	659.290	666.475	0.76758	0.02914	0.67196	695.020

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.25414	1.57647	14.5352	0.03514	0.02479	3.33275	3.35753	0.02321	0.84541	0.86862	—	3,577.87	3,577.87	0.15828	0.15347	12.1032	3,639.66

Area	1.53694	0.01887	2.24214	0.00013	0.00398	—	0.00398	0.00301	—	0.00301	—	9.22026	9.22026	0.00039	0.00008	—	9.25350
Energy	0.02022	0.36766	0.30884	0.00221	0.02794	—	0.02794	0.02794	—	0.02794	—	1,302.61	1,302.61	0.12117	0.01081	—	1,308.86
Water	—	—	—	—	—	—	—	—	—	—	17.5582	59.1613	76.7196	1.80604	0.04346	—	134.822
Waste	—	—	—	—	—	—	—	—	—	—	25.8395	0.00000	25.8395	2.58257	0.00000	—	90.4038
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.12538	0.12538
Total	3.81130	1.96300	17.0862	0.03748	0.05671	3.33275	3.38946	0.05416	0.84541	0.89957	43.3978	4,948.86	4,992.26	4.66845	0.20782	12.2286	5,183.13
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.22002	1.76177	14.5338	0.03394	0.02481	3.33275	3.35755	0.02323	0.84541	0.86864	—	3,456.83	3,456.83	0.17380	0.16455	0.31382	3,510.52
Area	1.16874	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.02022	0.36766	0.30884	0.00221	0.02794	—	0.02794	0.02794	—	0.02794	—	1,302.61	1,302.61	0.12117	0.01081	—	1,308.86
Water	—	—	—	—	—	—	—	—	—	—	17.5582	59.1613	76.7196	1.80604	0.04346	—	134.822
Waste	—	—	—	—	—	—	—	—	—	—	25.8395	0.00000	25.8395	2.58257	0.00000	—	90.4038
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.12538	0.12538
Total	3.40898	2.12943	14.8426	0.03615	0.05275	3.33275	3.38550	0.05117	0.84541	0.89658	43.3978	4,818.60	4,862.00	4.68358	0.21882	0.43920	5,044.73
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.65854	1.29802	10.7011	0.02568	0.01866	2.47194	2.49060	0.01748	0.62718	0.64466	—	2,615.83	2,615.83	0.12626	0.12170	3.93332	2,659.18
Area	1.35032	0.00930	1.10571	0.00007	0.00196	—	0.00196	0.00148	—	0.00148	—	4.54698	4.54698	0.00019	0.00004	—	4.56337
Energy	0.02022	0.36766	0.30884	0.00221	0.02794	—	0.02794	0.02794	—	0.02794	—	1,302.61	1,302.61	0.12117	0.01081	—	1,308.86
Water	—	—	—	—	—	—	—	—	—	—	17.5582	59.1613	76.7196	1.80604	0.04346	—	134.822
Waste	—	—	—	—	—	—	—	—	—	—	25.8395	0.00000	25.8395	2.58257	0.00000	—	90.4038
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.12538	0.12538
Total	3.02908	1.67499	12.1157	0.02796	0.04857	2.47194	2.52051	0.04690	0.62718	0.67409	43.3978	3,982.15	4,025.55	4.63623	0.17601	4.05870	4,197.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.30268	0.23689	1.95295	0.00469	0.00341	0.45113	0.45453	0.00319	0.11446	0.11765	—	433.080	433.080	0.02090	0.02015	0.65121	440.258
Area	0.24643	0.00170	0.20179	0.00001	0.00036	—	0.00036	0.00027	—	0.00027	—	0.75280	0.75280	0.00003	0.00001	—	0.75552
Energy	0.00369	0.06710	0.05636	0.00040	0.00510	—	0.00510	0.00510	—	0.00510	—	215.662	215.662	0.02006	0.00179	—	216.697

Water	—	—	—	—	—	—	—	—	—	—	2.90697	9.79484	12.7018	0.29901	0.00720	—	22.3213
Waste	—	—	—	—	—	—	—	—	—	—	4.27803	0.00000	4.27803	0.42757	0.00000	—	14.9674
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02076	0.02076
Total	0.55281	0.30569	2.21111	0.00510	0.00886	0.45113	0.45999	0.00856	0.11446	0.12302	7.18500	659.290	666.475	0.76758	0.02914	0.67196	695.020

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	2.25414	1.57647	14.5352	0.03514	0.02479	3.33275	3.35753	0.02321	0.84541	0.86862	—	3,577.87	3,577.87	0.15828	0.15347	12.1032	3,639.66
Total	2.25414	1.57647	14.5352	0.03514	0.02479	3.33275	3.35753	0.02321	0.84541	0.86862	—	3,577.87	3,577.87	0.15828	0.15347	12.1032	3,639.66
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	2.22002	1.76177	14.5338	0.03394	0.02481	3.33275	3.35755	0.02323	0.84541	0.86864	—	3,456.83	3,456.83	0.17380	0.16455	0.31382	3,510.52
Total	2.22002	1.76177	14.5338	0.03394	0.02481	3.33275	3.35755	0.02323	0.84541	0.86864	—	3,456.83	3,456.83	0.17380	0.16455	0.31382	3,510.52
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.30268	0.23689	1.95295	0.00469	0.00341	0.45113	0.45453	0.00319	0.11446	0.11765	—	433.080	433.080	0.02090	0.02015	0.65121	440.258
Total	0.30268	0.23689	1.95295	0.00469	0.00341	0.45113	0.45453	0.00319	0.11446	0.11765	—	433.080	433.080	0.02090	0.02015	0.65121	440.258

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	863.927	863.927	0.08235	0.00998	—	868.961
Total	—	—	—	—	—	—	—	—	—	—	—	863.927	863.927	0.08235	0.00998	—	868.961
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	863.927	863.927	0.08235	0.00998	—	868.961
Total	—	—	—	—	—	—	—	—	—	—	—	863.927	863.927	0.08235	0.00998	—	868.961
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	143.033	143.033	0.01363	0.00165	—	143.866
Total	—	—	—	—	—	—	—	—	—	—	—	143.033	143.033	0.01363	0.00165	—	143.866

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Office Building	0.02022	0.36766	0.30884	0.00221	0.02794	—	0.02794	0.02794	—	0.02794	—	438.684	438.684	0.03882	0.00083	—	439.901
Total	0.02022	0.36766	0.30884	0.00221	0.02794	—	0.02794	0.02794	—	0.02794	—	438.684	438.684	0.03882	0.00083	—	439.901
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.02022	0.36766	0.30884	0.00221	0.02794	—	0.02794	0.02794	—	0.02794	—	438.684	438.684	0.03882	0.00083	—	439.901
Total	0.02022	0.36766	0.30884	0.00221	0.02794	—	0.02794	0.02794	—	0.02794	—	438.684	438.684	0.03882	0.00083	—	439.901
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.00369	0.06710	0.05636	0.00040	0.00510	—	0.00510	0.00510	—	0.00510	—	72.6292	72.6292	0.00643	0.00014	—	72.8306
Total	0.00369	0.06710	0.05636	0.00040	0.00510	—	0.00510	0.00510	—	0.00510	—	72.6292	72.6292	0.00643	0.00014	—	72.8306

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.10326	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.06549	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.36820	0.01887	2.24214	0.00013	0.00398	—	0.00398	0.00301	—	0.00301	—	9.22026	9.22026	0.00039	0.00008	—	9.25350

Total	1.53694	0.01887	2.24214	0.00013	0.00398	—	0.00398	0.00301	—	0.00301	—	9.22026	9.22026	0.00039	0.00008	—	9.25350
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.10326	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.06549	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1.16874	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.20134	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01195	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.03314	0.00170	0.20179	0.00001	0.00036	—	0.00036	0.00027	—	0.00027	—	0.75280	0.75280	0.00003	0.00001	—	0.75552
Total	0.24643	0.00170	0.20179	0.00001	0.00036	—	0.00036	0.00027	—	0.00027	—	0.75280	0.75280	0.00003	0.00001	—	0.75552

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Office Building	—	—	—	—	—	—	—	—	—	—	17.5582	59.1613	76.7196	1.80604	0.04346	—	134.822
Total	—	—	—	—	—	—	—	—	—	—	17.5582	59.1613	76.7196	1.80604	0.04346	—	134.822
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	17.5582	59.1613	76.7196	1.80604	0.04346	—	134.822
Total	—	—	—	—	—	—	—	—	—	—	17.5582	59.1613	76.7196	1.80604	0.04346	—	134.822
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	2.90697	9.79484	12.7018	0.29901	0.00720	—	22.3213
Total	—	—	—	—	—	—	—	—	—	—	2.90697	9.79484	12.7018	0.29901	0.00720	—	22.3213

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	25.8395	0.00000	25.8395	2.58257	0.00000	—	90.4038
Total	—	—	—	—	—	—	—	—	—	—	25.8395	0.00000	25.8395	2.58257	0.00000	—	90.4038
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Office Building	—	—	—	—	—	—	—	—	—	—	25.8395	0.00000	25.8395	2.58257	0.00000	—	90.4038
Total	—	—	—	—	—	—	—	—	—	—	25.8395	0.00000	25.8395	2.58257	0.00000	—	90.4038
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	4.27803	0.00000	4.27803	0.42757	0.00000	—	14.9674
Total	—	—	—	—	—	—	—	—	—	—	4.27803	0.00000	4.27803	0.42757	0.00000	—	14.9674

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.12538	0.12538
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.12538	0.12538
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.12538	0.12538
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.12538	0.12538
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02076	0.02076

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02076	0.02076

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Office Building	558.845	113.934	36.0878	153,522	4,716.90	961.656	304.597	1,295,790

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
General Office Building	Wood Fireplaces	0	0
General Office Building	Gas Fireplaces	0	0
General Office Building	Propane Fireplaces	0	0
General Office Building	Electric Fireplaces	0	0
General Office Building	No Fireplaces	0	0
General Office Building	Conventional Wood Stoves	0	0
General Office Building	Catalytic Wood Stoves	0	0
General Office Building	Non-Catalytic Wood Stoves	0	0
General Office Building	Pellet Wood Stoves	0	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0.00000	0.00000	77,331.0	25,777.0	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00000
Summer Days	day/yr	180.000

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Office Building	910,852	346.196	0.0330	0.0040	1,368,813

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Office Building	9,162,886	0.00000

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Office Building	47.9452	0.00000

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Office Building	Household refrigerators and/or freezers	R-134a	1,430.00	0.01679	0.60000	0.00000	1.000000
General Office Building	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	14.8400	annual days of extreme heat
Extreme Precipitation	6.90000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	25.7100	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A

Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	56.9633
AQ-PM	42.2651
AQ-DPM	60.7592
Drinking Water	58.9110
Lead Risk Housing	41.3863
Pesticides	0.00000
Toxic Releases	26.3816
Traffic	89.1875
Effect Indicators	—
CleanUp Sites	4.12467
Groundwater	22.1152
Haz Waste Facilities/Generators	69.3977
Impaired Water Bodies	86.9593
Solid Waste	0.00000
Sensitive Population	—
Asthma	12.9860
Cardio-vascular	42.2233
Low Birth Weights	83.5001
Socioeconomic Factor Indicators	—
Education	65.9453
Housing	51.3561
Linguistic	77.4259
Poverty	61.5452
Unemployment	45.7834

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	49.89092776
Employed	86.50070576
Median HI	41.55010907
Education	—
Bachelor's or higher	56.2042859
High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—
Auto Access	9.174900552
Active commuting	44.14217888
Social	—
2-parent households	13.51212627
Voting	56.42243039
Neighborhood	—
Alcohol availability	29.26985756
Park access	81.35506224
Retail density	86.8728346
Supermarket access	64.62209675
Tree canopy	67.0986783
Housing	—
Homeownership	11.52316181
Housing habitability	6.005389452
Low-inc homeowner severe housing cost burden	35.91684845
Low-inc renter severe housing cost burden	64.78891313

Uncrowded housing	75.52932119
Health Outcomes	—
Insured adults	29.47517002
Arthritis	50.5
Asthma ER Admissions	80.9
High Blood Pressure	31.6
Cancer (excluding skin)	30.9
Asthma	55.1
Coronary Heart Disease	43.7
Chronic Obstructive Pulmonary Disease	47.8
Diagnosed Diabetes	68.9
Life Expectancy at Birth	29.5
Cognitively Disabled	18.3
Physically Disabled	8.1
Heart Attack ER Admissions	62.7
Mental Health Not Good	56.0
Chronic Kidney Disease	45.1
Obesity	60.5
Pedestrian Injuries	19.6
Physical Health Not Good	54.5
Stroke	45.2
Health Risk Behaviors	—
Binge Drinking	32.5
Current Smoker	58.7
No Leisure Time for Physical Activity	49.6
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0

Children	69.7
Elderly	25.1
English Speaking	42.1
Foreign-born	72.9
Outdoor Workers	71.5
Climate Change Adaptive Capacity	—
Impervious Surface Cover	63.7
Traffic Density	91.7
Traffic Access	23.0
Other Indices	—
Hardship	49.2
Other Decision Support	—
2016 Voting	61.4

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	58.0000
Healthy Places Index Score for Project Location (b)	50.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification
Construction: Construction Phases	Construction anticipated to begin Q1 2027 and be completed Q2 2029. Timing of construction phases obtained from developer.
Operations: Vehicle Data	Per TIA, existing office trips are 10.84 trips/DU. Sat and Sunday rates from ITE match CalEEMod defaults.

8.5. Operations

8.5.1. Mobile Sources

8.5.1.1. Vehicle Data

Land Use	Model Parameter	Units	Default Value	New Value
General Office Building	Weekday Trip Rate	size/day	9.74000	10.8400

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5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1.2. Mitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.1.2. Mitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

5.18.2.2. Mitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

8.1. Justifications

8.3. Land Use

8.4. Construction

8.4.1. Construction Phases

8.4.2. Off-Road Equipment

8.4.8. Architectural Coatings

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	195 E. Hillcrest Drive - Construction Only
Construction Start Date	2/1/2027
Lead Agency	City of Thousand Oaks
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70000
Precipitation (days)	22.6000
Location	195 E Hillcrest Dr, Thousand Oaks, CA 91360, USA
County	Ventura
City	Thousand Oaks
Air District	Ventura County APCD
Air Basin	South Central Coast
TAZ	3517
EDFZ	8
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.37

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Mid Rise	297.000	Dwelling Unit	7.01970	343,364	28,300.0	—	894.000	—

Unenclosed Parking with Elevator	449.000	Space	0.87300	142,615	0.00000	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-13	Use Low-VOC Paints for Construction

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	17.4834	6.19322	29.9390	0.04891	0.09960	5.33956	5.43916	0.09960	2.68025	2.77985	—	7,560.06	7,560.06	0.21799	0.39322	16.0246	7,697.43
Mit.	17.4834	6.19322	29.9390	0.04891	0.09960	5.33956	5.43916	0.09960	2.68025	2.77985	—	7,560.06	7,560.06	0.21799	0.39322	16.0246	7,697.43
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	17.7276	6.90559	38.0430	0.04974	0.08367	4.24572	4.32938	0.08367	1.01494	1.09861	—	8,892.04	8,892.04	0.22912	0.40656	0.41502	9,019.27
Mit.	17.7276	6.90559	38.0430	0.04974	0.08367	4.24572	4.32938	0.08367	1.01494	1.09861	—	8,892.04	8,892.04	0.22912	0.40656	0.41502	9,019.27
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.11025	3.57514	19.8333	0.02564	0.04745	2.85921	2.89899	0.04487	0.68370	0.72348	—	5,249.22	5,249.22	0.11834	0.27277	4.45380	5,337.92

Mit.	3.11025	3.57514	19.8333	0.02564	0.04745	2.85921	2.89899	0.04487	0.68370	0.72348	—	5,249.22	5,249.22	0.11834	0.27277	4.45380	5,337.92
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.56762	0.65246	3.61958	0.00468	0.00866	0.52181	0.52907	0.00819	0.12477	0.13203	—	869.069	869.069	0.01959	0.04516	0.73738	883.753
Mit.	0.56762	0.65246	3.61958	0.00468	0.00866	0.52181	0.52907	0.00819	0.12477	0.13203	—	869.069	869.069	0.01959	0.04516	0.73738	883.753
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.34726	6.19322	29.9390	0.04891	0.09960	5.33956	5.43916	0.09960	2.68025	2.77985	—	7,560.06	7,560.06	0.21799	0.39322	16.0246	7,697.43
2028	1.31105	4.80246	29.0280	0.03580	0.05554	4.04965	4.10519	0.05554	0.96899	1.02452	—	7,457.18	7,457.18	0.16040	0.38083	14.4177	7,589.09
2029	17.4834	0.81261	3.61130	0.00173	0.00235	0.71560	0.71795	0.00235	0.16774	0.17009	—	813.636	813.636	0.01386	0.02703	1.98289	824.021
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.33276	6.25548	28.4932	0.04147	0.08030	4.04965	4.11759	0.08030	0.96899	1.02452	—	7,405.15	7,405.15	0.17306	0.39926	0.41502	7,528.85
2028	1.29655	5.01696	27.6444	0.03580	0.05554	4.04965	4.10519	0.05554	0.96899	1.02452	—	7,305.26	7,305.26	0.17125	0.38687	0.37352	7,425.20
2029	17.7276	6.90559	38.0430	0.04974	0.08367	4.24572	4.32938	0.08367	1.01494	1.09861	—	8,892.04	8,892.04	0.22912	0.40656	0.34859	9,019.27
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.46720	2.85882	15.2947	0.02420	0.04745	1.94525	1.99270	0.04487	0.64934	0.69422	—	3,486.05	3,486.05	0.10858	0.13752	1.78301	3,531.53
2028	0.93384	3.57514	19.8333	0.02564	0.03978	2.85921	2.89899	0.03978	0.68370	0.72348	—	5,249.22	5,249.22	0.11834	0.27277	4.45380	5,337.92
2029	3.11025	0.64120	3.38106	0.00392	0.00670	0.38401	0.39071	0.00670	0.09112	0.09783	—	750.423	750.423	0.01928	0.02979	0.50997	760.291
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2027	0.08526	0.52173	2.79128	0.00442	0.00866	0.35501	0.36367	0.00819	0.11851	0.12669	—	577.155	577.155	0.01798	0.02277	0.29520	584.685
2028	0.17043	0.65246	3.61958	0.00468	0.00726	0.52181	0.52907	0.00726	0.12477	0.13203	—	869.069	869.069	0.01959	0.04516	0.73738	883.753
2029	0.56762	0.11702	0.61704	0.00072	0.00122	0.07008	0.07131	0.00122	0.01663	0.01785	—	124.241	124.241	0.00319	0.00493	0.08443	125.875

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.34726	6.19322	29.9390	0.04891	0.09960	5.33956	5.43916	0.09960	2.68025	2.77985	—	7,560.06	7,560.06	0.21799	0.39322	16.0246	7,697.43
2028	1.31105	4.80246	29.0280	0.03580	0.05554	4.04965	4.10519	0.05554	0.96899	1.02452	—	7,457.18	7,457.18	0.16040	0.38083	14.4177	7,589.09
2029	17.4834	0.81261	3.61130	0.00173	0.00235	0.71560	0.71795	0.00235	0.16774	0.17009	—	813.636	813.636	0.01386	0.02703	1.98289	824.021
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.33276	6.25548	28.4932	0.04147	0.08030	4.04965	4.11759	0.08030	0.96899	1.02452	—	7,405.15	7,405.15	0.17306	0.39926	0.41502	7,528.85
2028	1.29655	5.01696	27.6444	0.03580	0.05554	4.04965	4.10519	0.05554	0.96899	1.02452	—	7,305.26	7,305.26	0.17125	0.38687	0.37352	7,425.20
2029	17.7276	6.90559	38.0430	0.04974	0.08367	4.24572	4.32938	0.08367	1.01494	1.09861	—	8,892.04	8,892.04	0.22912	0.40656	0.34859	9,019.27
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.46720	2.85882	15.2947	0.02420	0.04745	1.94525	1.99270	0.04487	0.64934	0.69422	—	3,486.05	3,486.05	0.10858	0.13752	1.78301	3,531.53
2028	0.93384	3.57514	19.8333	0.02564	0.03978	2.85921	2.89899	0.03978	0.68370	0.72348	—	5,249.22	5,249.22	0.11834	0.27277	4.45380	5,337.92
2029	3.11025	0.64120	3.38106	0.00392	0.00670	0.38401	0.39071	0.00670	0.09112	0.09783	—	750.423	750.423	0.01928	0.02979	0.50997	760.291
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.08526	0.52173	2.79128	0.00442	0.00866	0.35501	0.36367	0.00819	0.11851	0.12669	—	577.155	577.155	0.01798	0.02277	0.29520	584.685
2028	0.17043	0.65246	3.61958	0.00468	0.00726	0.52181	0.52907	0.00726	0.12477	0.13203	—	869.069	869.069	0.01959	0.04516	0.73738	883.753
2029	0.56762	0.11702	0.61704	0.00072	0.00122	0.07008	0.07131	0.00122	0.01663	0.01785	—	124.241	124.241	0.00319	0.00493	0.08443	125.875

3. Construction Emissions Details

3.1. Demolition (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36229	4.50525	18.1730	0.03253	0.06327	—	0.06327	0.06327	—	0.06327	—	3,426.90	3,426.90	0.13901	0.02780	—	3,438.66
Demolition	—	—	—	—	—	1.07361	1.07361	—	0.16258	0.16258	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36229	4.50525	18.1730	0.03253	0.06327	—	0.06327	0.06327	—	0.06327	—	3,426.90	3,426.90	0.13901	0.02780	—	3,438.66
Demolition	—	—	—	—	—	1.07361	1.07361	—	0.16258	0.16258	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06750	0.83933	3.38566	0.00606	0.01179	—	0.01179	0.01179	—	0.01179	—	638.436	638.436	0.02590	0.00518	—	640.626
Demolition	—	—	—	—	—	0.20002	0.20002	—	0.03029	0.03029	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.01232	0.15318	0.61788	0.00111	0.00215	—	0.00215	0.00215	—	0.00215	—	105.700	105.700	0.00429	0.00086	—	106.063
Demolition	—	—	—	—	—	0.03650	0.03650	—	0.00553	0.00553	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05919	0.05886	0.82376	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	193.155	193.155	0.00265	0.00711	0.66926	196.009
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.02086	1.62910	0.41419	0.00894	0.01703	0.34947	0.36650	0.01703	0.09801	0.11504	—	1,281.16	1,281.16	0.03108	0.20092	2.61755	1,344.43
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05853	0.06663	0.74340	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	184.624	184.624	0.00298	0.00744	0.01732	186.933
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.01958	1.68359	0.42143	0.00894	0.01703	0.34947	0.36650	0.01703	0.09801	0.11504	—	1,281.57	1,281.57	0.03108	0.20092	0.06793	1,342.29
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01084	0.01229	0.13890	0.00000	0.00000	0.03600	0.03600	0.00000	0.00843	0.00843	—	34.6455	34.6455	0.00055	0.00139	0.05379	35.1262
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00381	0.31556	0.07772	0.00167	0.00317	0.06437	0.06754	0.00317	0.01807	0.02125	—	238.713	238.713	0.00579	0.03743	0.21071	250.224
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00198	0.00224	0.02535	0.00000	0.00000	0.00657	0.00657	0.00000	0.00154	0.00154	—	5.73595	5.73595	0.00009	0.00023	0.00890	5.81554
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00069	0.05759	0.01418	0.00030	0.00058	0.01175	0.01233	0.00058	0.00330	0.00388	—	39.5217	39.5217	0.00096	0.00620	0.03489	41.4274

3.2. Demolition (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36229	4.50525	18.1730	0.03253	0.06327	—	0.06327	0.06327	—	0.06327	—	3,426.90	3,426.90	0.13901	0.02780	—	3,438.66
Demolition	—	—	—	—	—	1.07361	1.07361	—	0.16258	0.16258	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36229	4.50525	18.1730	0.03253	0.06327	—	0.06327	0.06327	—	0.06327	—	3,426.90	3,426.90	0.13901	0.02780	—	3,438.66
Demolition	—	—	—	—	—	1.07361	1.07361	—	0.16258	0.16258	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06750	0.83933	3.38566	0.00606	0.01179	—	0.01179	0.01179	—	0.01179	—	638.436	638.436	0.02590	0.00518	—	640.626
Demolition	—	—	—	—	—	0.20002	0.20002	—	0.03029	0.03029	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01232	0.15318	0.61788	0.00111	0.00215	—	0.00215	0.00215	—	0.00215	—	105.700	105.700	0.00429	0.00086	—	106.063
Demolition	—	—	—	—	—	0.03650	0.03650	—	0.00553	0.00553	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05919	0.05886	0.82376	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	193.155	193.155	0.00265	0.00711	0.66926	196.009
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.02086	1.62910	0.41419	0.00894	0.01703	0.34947	0.36650	0.01703	0.09801	0.11504	—	1,281.16	1,281.16	0.03108	0.20092	2.61755	1,344.43
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05853	0.06663	0.74340	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	184.624	184.624	0.00298	0.00744	0.01732	186.933
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.01958	1.68359	0.42143	0.00894	0.01703	0.34947	0.36650	0.01703	0.09801	0.11504	—	1,281.57	1,281.57	0.03108	0.20092	0.06793	1,342.29
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01084	0.01229	0.13890	0.00000	0.00000	0.03600	0.03600	0.00000	0.00843	0.00843	—	34.6455	34.6455	0.00055	0.00139	0.05379	35.1262
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00381	0.31556	0.07772	0.00167	0.00317	0.06437	0.06754	0.00317	0.01807	0.02125	—	238.713	238.713	0.00579	0.03743	0.21071	250.224
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00198	0.00224	0.02535	0.00000	0.00000	0.00657	0.00657	0.00000	0.00154	0.00154	—	5.73595	5.73595	0.00009	0.00023	0.00890	5.81554
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00069	0.05759	0.01418	0.00030	0.00058	0.01175	0.01233	0.00058	0.00330	0.00388	—	39.5217	39.5217	0.00096	0.00620	0.03489	41.4274

3.3. Site Preparation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.49800	2.58959	28.3078	0.04891	0.09960	—	0.09960	0.09960	—	0.09960	—	5,297.82	5,297.82	0.21490	0.04298	—	5,316.00
Dust From Material Movement	—	—	—	—	—	5.11082	5.11082	—	2.62664	2.62664	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04230	0.21994	2.40422	0.00415	0.00846	—	0.00846	0.00846	—	0.00846	—	449.952	449.952	0.01825	0.00365	—	451.496
Dust From Material Movement	—	—	—	—	—	0.43407	0.43407	—	0.22308	0.22308	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00772	0.04014	0.43877	0.00076	0.00154	—	0.00154	0.00154	—	0.00154	—	74.4946	74.4946	0.00302	0.00060	—	74.7503
Dust From Material Movement	—	—	—	—	—	0.07922	0.07922	—	0.04071	0.04071	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06906	0.06867	0.96105	0.00000	0.00000	0.22874	0.22874	0.00000	0.05362	0.05362	—	225.347	225.347	0.00309	0.00829	0.78080	228.677
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00577	0.00654	0.07387	0.00000	0.00000	0.01915	0.01915	0.00000	0.00448	0.00448	—	18.4266	18.4266	0.00029	0.00074	0.02861	18.6823
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00105	0.00119	0.01348	0.00000	0.00000	0.00349	0.00349	0.00000	0.00082	0.00082	—	3.05074	3.05074	0.00005	0.00012	0.00474	3.09307
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4. Site Preparation (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.49800	2.58959	28.3078	0.04891	0.09960	—	0.09960	0.09960	—	0.09960	—	5,297.82	5,297.82	0.21490	0.04298	—	5,316.00
Dust From Material Movement	—	—	—	—	—	5.11082	5.11082	—	2.62664	2.62664	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04230	0.21994	2.40422	0.00415	0.00846	—	0.00846	0.00846	—	0.00846	—	449.952	449.952	0.01825	0.00365	—	451.496
Dust From Material Movement	—	—	—	—	—	0.43407	0.43407	—	0.22308	0.22308	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00772	0.04014	0.43877	0.00076	0.00154	—	0.00154	0.00154	—	0.00154	—	74.4946	74.4946	0.00302	0.00060	—	74.7503
Dust From Material Movement	—	—	—	—	—	0.07922	0.07922	—	0.04071	0.04071	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06906	0.06867	0.96105	0.00000	0.00000	0.22874	0.22874	0.00000	0.05362	0.05362	—	225.347	225.347	0.00309	0.00829	0.78080	228.677
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00577	0.00654	0.07387	0.00000	0.00000	0.01915	0.01915	0.00000	0.00448	0.00448	—	18.4266	18.4266	0.00029	0.00074	0.02861	18.6823
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00105	0.00119	0.01348	0.00000	0.00000	0.00349	0.00349	0.00000	0.00082	0.00082	—	3.05074	3.05074	0.00005	0.00012	0.00474	3.09307
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5. Grading (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28690	2.04249	17.7652	0.02733	0.05545	—	0.05545	0.05545	—	0.05545	—	2,960.07	2,960.07	0.12007	0.02401	—	2,970.23
Dust From Material Movement	—	—	—	—	—	1.84152	1.84152	—	0.89044	0.89044	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05109	0.36373	3.16367	0.00487	0.00987	—	0.00987	0.00987	—	0.00987	—	527.136	527.136	0.02138	0.00428	—	528.945
Dust From Material Movement	—	—	—	—	—	0.32794	0.32794	—	0.15857	0.15857	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.00932	0.06638	0.57737	0.00089	0.00180	—	0.00180	0.00180	—	0.00180	—	87.2734	87.2734	0.00354	0.00071	—	87.5729
Dust From Material Movement	—	—	—	—	—	0.05985	0.05985	—	0.02894	0.02894	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05919	0.05886	0.82376	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	193.155	193.155	0.00265	0.00711	0.66926	196.009
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00042	0.03245	0.00825	0.00018	0.00034	0.00696	0.00730	0.00034	0.00195	0.00229	—	25.5196	25.5196	0.00062	0.00400	0.05214	26.7799
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01036	0.01175	0.13277	0.00000	0.00000	0.03441	0.03441	0.00000	0.00806	0.00806	—	33.1170	33.1170	0.00053	0.00133	0.05141	33.5765
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00007	0.00601	0.00148	0.00003	0.00006	0.00123	0.00129	0.00006	0.00034	0.00040	—	4.54519	4.54519	0.00011	0.00071	0.00401	4.76435
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00189	0.00214	0.02423	0.00000	0.00000	0.00628	0.00628	0.00000	0.00147	0.00147	—	5.48289	5.48289	0.00009	0.00022	0.00851	5.55897
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00001	0.00110	0.00027	0.00001	0.00001	0.00022	0.00023	0.00001	0.00006	0.00007	—	0.75251	0.75251	0.00002	0.00012	0.00066	0.78879

3.6. Grading (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28690	2.04249	17.7652	0.02733	0.05545	—	0.05545	0.05545	—	0.05545	—	2,960.07	2,960.07	0.12007	0.02401	—	2,970.23
Dust From Material Movement	—	—	—	—	—	1.84152	1.84152	—	0.89044	0.89044	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05109	0.36373	3.16367	0.00487	0.00987	—	0.00987	0.00987	—	0.00987	—	527.136	527.136	0.02138	0.00428	—	528.945
Dust From Material Movement	—	—	—	—	—	0.32794	0.32794	—	0.15857	0.15857	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00932	0.06638	0.57737	0.00089	0.00180	—	0.00180	0.00180	—	0.00180	—	87.2734	87.2734	0.00354	0.00071	—	87.5729
Dust From Material Movement	—	—	—	—	—	0.05985	0.05985	—	0.02894	0.02894	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.05919	0.05886	0.82376	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	193.155	193.155	0.00265	0.00711	0.66926	196.009
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00042	0.03245	0.00825	0.00018	0.00034	0.00696	0.00730	0.00034	0.00195	0.00229	—	25.5196	25.5196	0.00062	0.00400	0.05214	26.7799
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01036	0.01175	0.13277	0.00000	0.00000	0.03441	0.03441	0.00000	0.00806	0.00806	—	33.1170	33.1170	0.00053	0.00133	0.05141	33.5765
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00007	0.00601	0.00148	0.00003	0.00006	0.00123	0.00129	0.00006	0.00034	0.00040	—	4.54519	4.54519	0.00011	0.00071	0.00401	4.76435
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00189	0.00214	0.02423	0.00000	0.00000	0.00628	0.00628	0.00000	0.00147	0.00147	—	5.48289	5.48289	0.00009	0.00022	0.00851	5.55897
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00001	0.00110	0.00027	0.00001	0.00001	0.00022	0.00023	0.00001	0.00006	0.00007	—	0.75251	0.75251	0.00002	0.00012	0.00066	0.78879

3.7. Building Construction (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23031	2.03076	14.3019	0.02340	0.04314	—	0.04314	0.04314	—	0.04314	—	2,397.08	2,397.08	0.09724	0.01945	—	2,405.30
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23031	2.03076	14.3019	0.02340	0.04314	—	0.04314	0.04314	—	0.04314	—	2,397.08	2,397.08	0.09724	0.01945	—	2,405.30

Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04778	0.42125	2.96673	0.00485	0.00895	—	0.00895	0.00895	—	0.00895	—	497.241	497.241	0.02017	0.00403	—	498.948
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00872	0.07688	0.54143	0.00089	0.00163	—	0.00163	0.00163	—	0.00163	—	82.3240	82.3240	0.00334	0.00067	—	82.6065
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.08025	1.07421	15.0329	0.00000	0.00000	3.57802	3.57802	0.00000	0.83868	0.83868	—	3,524.92	3,524.92	0.04828	0.12975	12.2135	3,577.01
Vendor	0.03670	1.91892	0.60423	0.01240	0.02479	0.47164	0.49643	0.01240	0.13030	0.14270	—	1,638.06	1,638.06	0.02090	0.24403	3.81109	1,715.11
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.06818	1.21603	13.5664	0.00000	0.00000	3.57802	3.57802	0.00000	0.83868	0.83868	—	3,369.24	3,369.24	0.05431	0.13579	0.31611	3,411.38
Vendor	0.03427	1.99038	0.62489	0.01240	0.02479	0.47164	0.49643	0.01240	0.13030	0.14270	—	1,638.83	1,638.83	0.02090	0.24403	0.09891	1,712.17
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22033	0.24975	2.82231	0.00000	0.00000	0.73144	0.73144	0.00000	0.17128	0.17128	—	703.979	703.979	0.01127	0.02817	1.09289	713.747
Vendor	0.00736	0.41267	0.12736	0.00257	0.00514	0.09664	0.10178	0.00257	0.02673	0.02930	—	339.858	339.858	0.00434	0.05062	0.34159	355.393
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.04021	0.04558	0.51507	0.00000	0.00000	0.13349	0.13349	0.00000	0.03126	0.03126	—	116.552	116.552	0.00187	0.00466	0.18094	118.169
Vendor	0.00134	0.07531	0.02324	0.00047	0.00094	0.01764	0.01858	0.00047	0.00488	0.00535	—	56.2675	56.2675	0.00072	0.00838	0.05655	58.8394
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.8. Building Construction (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23031	2.03076	14.3019	0.02340	0.04314	—	0.04314	0.04314	—	0.04314	—	2,397.08	2,397.08	0.09724	0.01945	—	2,405.30
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23031	2.03076	14.3019	0.02340	0.04314	—	0.04314	0.04314	—	0.04314	—	2,397.08	2,397.08	0.09724	0.01945	—	2,405.30
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04778	0.42125	2.96673	0.00485	0.00895	—	0.00895	0.00895	—	0.00895	—	497.241	497.241	0.02017	0.00403	—	498.948
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00872	0.07688	0.54143	0.00089	0.00163	—	0.00163	0.00163	—	0.00163	—	82.3240	82.3240	0.00334	0.00067	—	82.6065
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.08025	1.07421	15.0329	0.00000	0.00000	3.57802	3.57802	0.00000	0.83868	0.83868	—	3,524.92	3,524.92	0.04828	0.12975	12.2135	3,577.01
Vendor	0.03670	1.91892	0.60423	0.01240	0.02479	0.47164	0.49643	0.01240	0.13030	0.14270	—	1,638.06	1,638.06	0.02090	0.24403	3.81109	1,715.11
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.06818	1.21603	13.5664	0.00000	0.00000	3.57802	3.57802	0.00000	0.83868	0.83868	—	3,369.24	3,369.24	0.05431	0.13579	0.31611	3,411.38
Vendor	0.03427	1.99038	0.62489	0.01240	0.02479	0.47164	0.49643	0.01240	0.13030	0.14270	—	1,638.83	1,638.83	0.02090	0.24403	0.09891	1,712.17
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22033	0.24975	2.82231	0.00000	0.00000	0.73144	0.73144	0.00000	0.17128	0.17128	—	703.979	703.979	0.01127	0.02817	1.09289	713.747
Vendor	0.00736	0.41267	0.12736	0.00257	0.00514	0.09664	0.10178	0.00257	0.02673	0.02930	—	339.858	339.858	0.00434	0.05062	0.34159	355.393
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04021	0.04558	0.51507	0.00000	0.00000	0.13349	0.13349	0.00000	0.03126	0.03126	—	116.552	116.552	0.00187	0.00466	0.18094	118.169
Vendor	0.00134	0.07531	0.02324	0.00047	0.00094	0.01764	0.01858	0.00047	0.00488	0.00535	—	56.2675	56.2675	0.00072	0.00838	0.05655	58.8394
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.9. Building Construction (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.23031	2.03076	14.3019	0.02340	0.04314	—	0.04314	0.04314	—	0.04314	—	2,397.46	2,397.46	0.09725	0.01945	—	2,405.68
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23031	2.03076	14.3019	0.02340	0.04314	—	0.04314	0.04314	—	0.04314	—	2,397.46	2,397.46	0.09725	0.01945	—	2,405.68
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16496	1.45451	10.2436	0.01676	0.03090	—	0.03090	0.03090	—	0.03090	—	1,717.16	1,717.16	0.06966	0.01393	—	1,723.05
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03011	0.26545	1.86946	0.00306	0.00564	—	0.00564	0.00564	—	0.00564	—	284.296	284.296	0.01153	0.00231	—	285.271
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.04404	0.95050	14.1367	0.00000	0.00000	3.57802	3.57802	0.00000	0.83868	0.83868	—	3,461.03	3,461.03	0.04224	0.12975	11.0320	3,511.78
Vendor	0.03670	1.82121	0.58941	0.01240	0.01240	0.47164	0.48403	0.01240	0.13030	0.14270	—	1,598.69	1,598.69	0.02090	0.23163	3.38566	1,671.62
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.03197	1.09232	12.7336	0.00000	0.00000	3.57802	3.57802	0.00000	0.83868	0.83868	—	3,308.28	3,308.28	0.05431	0.13579	0.28578	3,350.38
Vendor	0.03427	1.89388	0.60885	0.01240	0.01240	0.47164	0.48403	0.01240	0.13030	0.14270	—	1,599.53	1,599.53	0.01969	0.23163	0.08774	1,669.13

Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.74346	0.77372	9.16143	0.00000	0.00000	2.52553	2.52553	0.00000	0.59140	0.59140	—	2,386.76	2,386.76	0.03458	0.09293	3.40764	2,418.72
Vendor	0.02542	1.34690	0.42825	0.00888	0.00888	0.33368	0.34255	0.00888	0.09230	0.10118	—	1,145.30	1,145.30	0.01410	0.16590	1.04616	1,196.14
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13568	0.14120	1.67196	0.00000	0.00000	0.46091	0.46091	0.00000	0.10793	0.10793	—	395.155	395.155	0.00573	0.01539	0.56417	400.447
Vendor	0.00464	0.24581	0.07816	0.00162	0.00162	0.06090	0.06252	0.00162	0.01684	0.01846	—	189.618	189.618	0.00233	0.02747	0.17320	198.035
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.10. Building Construction (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23031	2.03076	14.3019	0.02340	0.04314	—	0.04314	0.04314	—	0.04314	—	2,397.46	2,397.46	0.09725	0.01945	—	2,405.68
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23031	2.03076	14.3019	0.02340	0.04314	—	0.04314	0.04314	—	0.04314	—	2,397.46	2,397.46	0.09725	0.01945	—	2,405.68
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.16496	1.45451	10.2436	0.01676	0.03090	—	0.03090	0.03090	—	0.03090	—	1,717.16	1,717.16	0.06966	0.01393	—	1,723.05
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03011	0.26545	1.86946	0.00306	0.00564	—	0.00564	0.00564	—	0.00564	—	284.296	284.296	0.01153	0.00231	—	285.271
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.04404	0.95050	14.1367	0.00000	0.00000	3.57802	3.57802	0.00000	0.83868	0.83868	—	3,461.03	3,461.03	0.04224	0.12975	11.0320	3,511.78
Vendor	0.03670	1.82121	0.58941	0.01240	0.01240	0.47164	0.48403	0.01240	0.13030	0.14270	—	1,598.69	1,598.69	0.02090	0.23163	3.38566	1,671.62
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.03197	1.09232	12.7336	0.00000	0.00000	3.57802	3.57802	0.00000	0.83868	0.83868	—	3,308.28	3,308.28	0.05431	0.13579	0.28578	3,350.38
Vendor	0.03427	1.89388	0.60885	0.01240	0.01240	0.47164	0.48403	0.01240	0.13030	0.14270	—	1,599.53	1,599.53	0.01969	0.23163	0.08774	1,669.13
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.74346	0.77372	9.16143	0.00000	0.00000	2.52553	2.52553	0.00000	0.59140	0.59140	—	2,386.76	2,386.76	0.03458	0.09293	3.40764	2,418.72
Vendor	0.02542	1.34690	0.42825	0.00888	0.00888	0.33368	0.34255	0.00888	0.09230	0.10118	—	1,145.30	1,145.30	0.01410	0.16590	1.04616	1,196.14
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13568	0.14120	1.67196	0.00000	0.00000	0.46091	0.46091	0.00000	0.10793	0.10793	—	395.155	395.155	0.00573	0.01539	0.56417	400.447
Vendor	0.00464	0.24581	0.07816	0.00162	0.00162	0.06090	0.06252	0.00162	0.01684	0.01846	—	189.618	189.618	0.00233	0.02747	0.17320	198.035
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.11. Building Construction (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23031	2.03076	14.3019	0.02340	0.04314	—	0.04314	0.04314	—	0.04314	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01397	0.12320	0.86763	0.00142	0.00262	—	0.00262	0.00262	—	0.00262	—	145.405	145.405	0.00590	0.00118	—	145.904
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00255	0.02248	0.15834	0.00026	0.00048	—	0.00048	0.00048	—	0.00048	—	24.0734	24.0734	0.00098	0.00020	—	24.1560
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.89015	1.08628	11.9069	0.00000	0.00000	3.57802	3.57802	0.00000	0.83868	0.83868	—	3,250.81	3,250.81	0.04828	0.13579	0.25704	3,292.74

Vendor	0.03427	1.79617	0.58163	0.01240	0.01240	0.47164	0.48403	0.01240	0.13030	0.14270	—	1,555.63	1,555.63	0.01969	0.23163	0.07746	1,625.23
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05327	0.05839	0.72691	0.00000	0.00000	0.21391	0.21391	0.00000	0.05009	0.05009	—	198.646	198.646	0.00293	0.00787	0.25957	201.324
Vendor	0.00208	0.10815	0.03470	0.00075	0.00075	0.02826	0.02901	0.00075	0.00782	0.00857	—	94.3415	94.3415	0.00119	0.01405	0.07829	98.6372
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00972	0.01066	0.13266	0.00000	0.00000	0.03904	0.03904	0.00000	0.00914	0.00914	—	32.8881	32.8881	0.00048	0.00130	0.04297	33.3315
Vendor	0.00038	0.01974	0.00633	0.00014	0.00014	0.00516	0.00530	0.00014	0.00143	0.00156	—	15.6193	15.6193	0.00020	0.00233	0.01296	16.3305
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.12. Building Construction (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23031	2.03076	14.3019	0.02340	0.04314	—	0.04314	0.04314	—	0.04314	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01397	0.12320	0.86763	0.00142	0.00262	—	0.00262	0.00262	—	0.00262	—	145.405	145.405	0.00590	0.00118	—	145.904
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00255	0.02248	0.15834	0.00026	0.00048	—	0.00048	0.00048	—	0.00048	—	24.0734	24.0734	0.00098	0.00020	—	24.1560
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.89015	1.08628	11.9069	0.00000	0.00000	3.57802	3.57802	0.00000	0.83868	0.83868	—	3,250.81	3,250.81	0.04828	0.13579	0.25704	3,292.74
Vendor	0.03427	1.79617	0.58163	0.01240	0.01240	0.47164	0.48403	0.01240	0.13030	0.14270	—	1,555.63	1,555.63	0.01969	0.23163	0.07746	1,625.23
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05327	0.05839	0.72691	0.00000	0.00000	0.21391	0.21391	0.00000	0.05009	0.05009	—	198.646	198.646	0.00293	0.00787	0.25957	201.324
Vendor	0.00208	0.10815	0.03470	0.00075	0.00075	0.02826	0.02901	0.00075	0.00782	0.00857	—	94.3415	94.3415	0.00119	0.01405	0.07829	98.6372
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00972	0.01066	0.13266	0.00000	0.00000	0.03904	0.03904	0.00000	0.00914	0.00914	—	32.8881	32.8881	0.00048	0.00130	0.04297	33.3315
Vendor	0.00038	0.01974	0.00633	0.00014	0.00014	0.00516	0.00530	0.00014	0.00143	0.00156	—	15.6193	15.6193	0.00020	0.00233	0.01296	16.3305
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.13. Paving (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15994	1.93286	10.6002	0.01395	0.02813	—	0.02813	0.02813	—	0.02813	—	1,510.63	1,510.63	0.06128	0.01226	—	1,515.81
Paving	0.06019	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01665	0.20123	1.10358	0.00145	0.00293	—	0.00293	0.00293	—	0.00293	—	157.271	157.271	0.00638	0.00128	—	157.810
Paving	0.00627	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00304	0.03672	0.20140	0.00027	0.00053	—	0.00053	0.00053	—	0.00053	—	26.0379	26.0379	0.00106	0.00021	—	26.1273
Paving	0.00114	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04878	0.05952	0.65246	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	178.134	178.134	0.00265	0.00744	0.01409	180.432
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00501	0.00549	0.06836	0.00000	0.00000	0.02012	0.02012	0.00000	0.00471	0.00471	—	18.6803	18.6803	0.00028	0.00074	0.02441	18.9322
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00091	0.00100	0.01248	0.00000	0.00000	0.00367	0.00367	0.00000	0.00086	0.00086	—	3.09274	3.09274	0.00005	0.00012	0.00404	3.13445
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.14. Paving (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15994	1.93286	10.6002	0.01395	0.02813	—	0.02813	0.02813	—	0.02813	—	1,510.63	1,510.63	0.06128	0.01226	—	1,515.81
Paving	0.06019	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01665	0.20123	1.10358	0.00145	0.00293	—	0.00293	0.00293	—	0.00293	—	157.271	157.271	0.00638	0.00128	—	157.810
Paving	0.00627	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00304	0.03672	0.20140	0.00027	0.00053	—	0.00053	0.00053	—	0.00053	—	26.0379	26.0379	0.00106	0.00021	—	26.1273
Paving	0.00114	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04878	0.05952	0.65246	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	178.134	178.134	0.00265	0.00744	0.01409	180.432
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00501	0.00549	0.06836	0.00000	0.00000	0.02012	0.02012	0.00000	0.00471	0.00471	—	18.6803	18.6803	0.00028	0.00074	0.02441	18.9322
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00091	0.00100	0.01248	0.00000	0.00000	0.00367	0.00367	0.00000	0.00086	0.00086	—	3.09274	3.09274	0.00005	0.00012	0.00404	3.13445
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.15. Architectural Coating (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02114	0.64604	0.96319	0.00173	0.00235	—	0.00235	0.00235	—	0.00235	—	133.510	133.510	0.00542	0.00108	—	133.968
Architectural Coatings	17.2595	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02114	0.64604	0.96319	0.00173	0.00235	—	0.00235	0.00235	—	0.00235	—	133.510	133.510	0.00542	0.00108	—	133.968
Architectural Coatings	17.2595	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00365	0.11151	0.16625	0.00030	0.00041	—	0.00041	0.00041	—	0.00041	—	23.0441	23.0441	0.00093	0.00019	—	23.1232
Architectural Coatings	2.97904	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00067	0.02035	0.03034	0.00005	0.00007	—	0.00007	0.00007	—	0.00007	—	3.81522	3.81522	0.00015	0.00003	—	3.82831
Architectural Coatings	0.54367	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20277	0.16656	2.64811	0.00000	0.00000	0.71560	0.71560	0.00000	0.16774	0.16774	—	680.126	680.126	0.00845	0.02595	1.98289	690.053
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17803	0.21726	2.38137	0.00000	0.00000	0.71560	0.71560	0.00000	0.16774	0.16774	—	650.162	650.162	0.00966	0.02716	0.05141	658.548
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03031	0.03323	0.41364	0.00000	0.00000	0.12172	0.12172	0.00000	0.02850	0.02850	—	113.036	113.036	0.00167	0.00448	0.14770	114.560
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00553	0.00606	0.07549	0.00000	0.00000	0.02221	0.02221	0.00000	0.00520	0.00520	—	18.7144	18.7144	0.00028	0.00074	0.02445	18.9667
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.16. Architectural Coating (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02114	0.64604	0.96319	0.00173	0.00235	—	0.00235	0.00235	—	0.00235	—	133.510	133.510	0.00542	0.00108	—	133.968
Architectural Coatings	17.2595	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02114	0.64604	0.96319	0.00173	0.00235	—	0.00235	0.00235	—	0.00235	—	133.510	133.510	0.00542	0.00108	—	133.968
Architectural Coatings	17.2595	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00365	0.11151	0.16625	0.00030	0.00041	—	0.00041	0.00041	—	0.00041	—	23.0441	23.0441	0.00093	0.00019	—	23.1232
Architectural Coatings	2.97904	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00067	0.02035	0.03034	0.00005	0.00007	—	0.00007	0.00007	—	0.00007	—	3.81522	3.81522	0.00015	0.00003	—	3.82831
Architectural Coatings	0.54367	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20277	0.16656	2.64811	0.00000	0.00000	0.71560	0.71560	0.00000	0.16774	0.16774	—	680.126	680.126	0.00845	0.02595	1.98289	690.053
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17803	0.21726	2.38137	0.00000	0.00000	0.71560	0.71560	0.00000	0.16774	0.16774	—	650.162	650.162	0.00966	0.02716	0.05141	658.548
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03031	0.03323	0.41364	0.00000	0.00000	0.12172	0.12172	0.00000	0.02850	0.02850	—	113.036	113.036	0.00167	0.00448	0.14770	114.560
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00553	0.00606	0.07549	0.00000	0.00000	0.02221	0.02221	0.00000	0.00520	0.00520	—	18.7144	18.7144	0.00028	0.00074	0.02445	18.9667
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetatio	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	2/1/2027	5/5/2027	5.00000	68.0000	—
Site Preparation	Site Preparation	5/6/2027	6/17/2027	5.00000	31.0000	—
Grading	Grading	6/18/2027	9/16/2027	5.00000	65.0000	—
Building Construction	Building Construction	9/17/2027	1/31/2029	5.00000	359.000	—
Paving	Paving	1/8/2029	2/28/2029	5.00000	38.0000	—
Architectural Coating	Architectural Coating	2/1/2029	4/30/2029	5.00000	63.0000	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Rubber Tired Dozers	Diesel	Tier 4 Final	2.00000	8.00000	367.000	0.40000
Demolition	Excavators	Diesel	Tier 4 Final	3.00000	8.00000	36.0000	0.38000
Demolition	Concrete/Industrial Saws	Diesel	Tier 4 Final	1.000000	8.00000	33.0000	0.73000
Site Preparation	Rubber Tired Dozers	Diesel	Tier 4 Final	3.00000	8.00000	367.000	0.40000

Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	4.00000	8.00000	84.0000	0.37000
Grading	Graders	Diesel	Tier 4 Final	1.000000	8.00000	148.000	0.41000
Grading	Excavators	Diesel	Tier 4 Final	1.000000	8.00000	36.0000	0.38000
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00000	8.00000	84.0000	0.37000
Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.000000	8.00000	367.000	0.40000
Building Construction	Forklifts	Diesel	Tier 4 Final	3.00000	8.00000	82.0000	0.20000
Building Construction	Generator Sets	Diesel	Tier 4 Final	1.000000	8.00000	14.0000	0.74000
Building Construction	Cranes	Diesel	Tier 4 Final	1.000000	7.00000	367.000	0.29000
Building Construction	Welders	Diesel	Tier 4 Final	1.000000	8.00000	46.0000	0.45000
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00000	7.00000	84.0000	0.37000
Paving	Pavers	Diesel	Tier 4 Final	2.00000	8.00000	81.0000	0.42000
Paving	Paving Equipment	Diesel	Tier 4 Final	2.00000	8.00000	89.0000	0.36000
Paving	Rollers	Diesel	Tier 4 Final	2.00000	8.00000	36.0000	0.38000
Architectural Coating	Air Compressors	Diesel	Tier 4 Final	1.000000	6.00000	37.0000	0.48000

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Rubber Tired Dozers	Diesel	Tier 4 Final	2.00000	8.00000	367.000	0.40000
Demolition	Excavators	Diesel	Tier 4 Final	3.00000	8.00000	36.0000	0.38000
Demolition	Concrete/Industrial Saws	Diesel	Tier 4 Final	1.000000	8.00000	33.0000	0.73000
Site Preparation	Rubber Tired Dozers	Diesel	Tier 4 Final	3.00000	8.00000	367.000	0.40000
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	4.00000	8.00000	84.0000	0.37000
Grading	Graders	Diesel	Tier 4 Final	1.000000	8.00000	148.000	0.41000
Grading	Excavators	Diesel	Tier 4 Final	1.000000	8.00000	36.0000	0.38000

Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00000	8.00000	84.0000	0.37000
Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.000000	8.00000	367.000	0.40000
Building Construction	Forklifts	Diesel	Tier 4 Final	3.00000	8.00000	82.0000	0.20000
Building Construction	Generator Sets	Diesel	Tier 4 Final	1.000000	8.00000	14.0000	0.74000
Building Construction	Cranes	Diesel	Tier 4 Final	1.000000	7.00000	367.000	0.29000
Building Construction	Welders	Diesel	Tier 4 Final	1.000000	8.00000	46.0000	0.45000
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00000	7.00000	84.0000	0.37000
Paving	Pavers	Diesel	Tier 4 Final	2.00000	8.00000	81.0000	0.42000
Paving	Paving Equipment	Diesel	Tier 4 Final	2.00000	8.00000	89.0000	0.36000
Paving	Rollers	Diesel	Tier 4 Final	2.00000	8.00000	36.0000	0.38000
Architectural Coating	Air Compressors	Diesel	Tier 4 Final	1.000000	6.00000	37.0000	0.48000

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	Worker	15.0000	18.5000	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2000	HHDT,MHDT
Demolition	Hauling	19.3088	20.0000	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	Worker	17.5000	18.5000	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2000	HHDT,MHDT
Site Preparation	Hauling	0.00000	20.0000	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	Worker	15.0000	18.5000	LDA,LDT1,LDT2
Grading	Vendor	—	10.2000	HHDT,MHDT
Grading	Hauling	0.38462	20.0000	HHDT

Grading	Onsite truck	—	—	HHDT
Building Construction	Worker	273.738	18.5000	LDA,LDT1,LDT2
Building Construction	Vendor	55.1239	10.2000	HHDT,MHDT
Building Construction	Hauling	0.00000	20.0000	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	Worker	15.0000	18.5000	LDA,LDT1,LDT2
Paving	Vendor	—	10.2000	HHDT,MHDT
Paving	Hauling	0.00000	20.0000	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	Worker	54.7477	18.5000	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2000	HHDT,MHDT
Architectural Coating	Hauling	0.00000	20.0000	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	Worker	15.0000	18.5000	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2000	HHDT,MHDT
Demolition	Hauling	19.3088	20.0000	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	Worker	17.5000	18.5000	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2000	HHDT,MHDT
Site Preparation	Hauling	0.00000	20.0000	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	Worker	15.0000	18.5000	LDA,LDT1,LDT2
Grading	Vendor	—	10.2000	HHDT,MHDT
Grading	Hauling	0.38462	20.0000	HHDT
Grading	Onsite truck	—	—	HHDT

Building Construction	Worker	273.738	18.5000	LDA,LDT1,LDT2
Building Construction	Vendor	55.1239	10.2000	HHDT,MHDT
Building Construction	Hauling	0.00000	20.0000	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	Worker	15.0000	18.5000	LDA,LDT1,LDT2
Paving	Vendor	—	10.2000	HHDT,MHDT
Paving	Hauling	0.00000	20.0000	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	Worker	54.7477	18.5000	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2000	HHDT,MHDT
Architectural Coating	Hauling	0.00000	20.0000	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	695,312	231,771	1,711.25	190.139	2,281.67

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00000	0.00000	0.00000	5,249.05	0.00000
Site Preparation	—	—	46.5000	0.00000	0.00000
Grading	—	200.000	65.0000	0.00000	0.00000
Paving	0.00000	0.00000	0.00000	0.00000	0.87300

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Phase Name	Land Use	Area Paved (acres)	% Asphalt
Paving	Apartments Mid Rise	—	0%
Paving	Unenclosed Parking with Elevator	0.87300	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	0.00000	531.983	0.03300	0.00400
2028	0.00000	531.983	0.03300	0.00400
2029	0.00000	531.983	0.03300	0.00400

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	14.8400	annual days of extreme heat
Extreme Precipitation	6.90000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	25.7100	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	56.9633
AQ-PM	42.2651
AQ-DPM	60.7592
Drinking Water	58.9110
Lead Risk Housing	41.3863

Pesticides	0.00000
Toxic Releases	26.3816
Traffic	89.1875
Effect Indicators	—
CleanUp Sites	4.12467
Groundwater	22.1152
Haz Waste Facilities/Generators	69.3977
Impaired Water Bodies	86.9593
Solid Waste	0.00000
Sensitive Population	—
Asthma	12.9860
Cardio-vascular	42.2233
Low Birth Weights	83.5001
Socioeconomic Factor Indicators	—
Education	65.9453
Housing	51.3561
Linguistic	77.4259
Poverty	61.5452
Unemployment	45.7834

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	49.89092776
Employed	86.50070576
Median HI	41.55010907
Education	—

Bachelor's or higher	56.2042859
High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—
Auto Access	9.174900552
Active commuting	44.14217888
Social	—
2-parent households	13.51212627
Voting	56.42243039
Neighborhood	—
Alcohol availability	29.26985756
Park access	81.35506224
Retail density	86.8728346
Supermarket access	64.62209675
Tree canopy	67.0986783
Housing	—
Homeownership	11.52316181
Housing habitability	6.005389452
Low-inc homeowner severe housing cost burden	35.91684845
Low-inc renter severe housing cost burden	64.78891313
Uncrowded housing	75.52932119
Health Outcomes	—
Insured adults	29.47517002
Arthritis	50.5
Asthma ER Admissions	80.9
High Blood Pressure	31.6
Cancer (excluding skin)	30.9
Asthma	55.1

Coronary Heart Disease	43.7
Chronic Obstructive Pulmonary Disease	47.8
Diagnosed Diabetes	68.9
Life Expectancy at Birth	29.5
Cognitively Disabled	18.3
Physically Disabled	8.1
Heart Attack ER Admissions	62.7
Mental Health Not Good	56.0
Chronic Kidney Disease	45.1
Obesity	60.5
Pedestrian Injuries	19.6
Physical Health Not Good	54.5
Stroke	45.2
Health Risk Behaviors	—
Binge Drinking	32.5
Current Smoker	58.7
No Leisure Time for Physical Activity	49.6
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	69.7
Elderly	25.1
English Speaking	42.1
Foreign-born	72.9
Outdoor Workers	71.5
Climate Change Adaptive Capacity	—
Impervious Surface Cover	63.7
Traffic Density	91.7

Traffic Access	23.0
Other Indices	—
Hardship	49.2
Other Decision Support	—
2016 Voting	61.4

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	58.0000
Healthy Places Index Score for Project Location (b)	50.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification

Land Use	5 story building with 297 units and 5 stories of parking. Residential building is apprx. 343,364 SF. and the parking area is 142,615 SF, Parking structure footprint is 38,015 SF (0.873 ac). Acreage for residential building plus parking garage is 7.8927. 28,300 SF of landscaping is proposed.
Construction: Construction Phases	Construction anticipated to begin Q1 2027 and be completed Q2 2029. Timing of construction phases obtained from developer.
Construction: Off-Road Equipment	All construction equipment will be Tier 4 Final per the developer.
Construction: Architectural Coatings	Compliance with Conservation Element Implementation Action C-A.12. Reduce Air Pollution limits architectural coatings to 25 g/L or less (page 4.2-14 2045 General Plan Update DEIR, August 2023.)

8.3. Land Use

Model Parameter	Units	Default Value	New Value
Lot Area	acre	7.81579	7.01970
Building Area	sq. ft	285,120	343,364
Landscape Area	sq. ft	—	28,300.0
Lot Area	acre	4.04100	0.87300
Building Area	sq. ft	179,600	142,615
Landscape Area	sq. ft	—	0.00000

8.4. Construction

8.4.1. Construction Phases

Phase Type	Phase Name	Model Parameter	Default Value	New Value
Demolition	Demolition	End Date	3/1/2027	5/5/2027
Demolition	Demolition	Work Days per Phase	20.0000	68.0000
Site Preparation	Site Preparation	Start Date	3/2/2027	5/6/2027
Site Preparation	Site Preparation	End Date	3/16/2027	6/17/2027
Site Preparation	Site Preparation	Work Days per Phase	10.00000	31.0000
Grading	Grading	Start Date	3/17/2027	6/18/2027

Grading	Grading	End Date	4/14/2027	9/16/2027
Grading	Grading	Work Days per Phase	20.0000	65.0000
Building Construction	Building Construction	Start Date	4/15/2027	9/17/2027
Building Construction	Building Construction	End Date	3/2/2028	1/31/2029
Building Construction	Building Construction	Work Days per Phase	230.000	359.000
Paving	Paving	Start Date	3/3/2028	1/8/2029
Paving	Paving	End Date	3/31/2028	2/28/2029
Paving	Paving	Work Days per Phase	20.0000	38.0000
Architectural Coating	Architectural Coating	Start Date	4/1/2028	2/1/2029
Architectural Coating	Architectural Coating	End Date	4/29/2028	4/30/2029
Architectural Coating	Architectural Coating	Work Days per Phase	20.0000	63.0000

8.4.2. Off-Road Equipment

Phase Name	Equipment Type	Model Parameter	Default Value	New Value
Demolition	Rubber Tired Dozers	Engine Tier	Average	Tier 4 Final
Demolition	Excavators	Engine Tier	Average	Tier 4 Final
Demolition	Concrete/Industrial Saws	Engine Tier	Average	Tier 4 Final
Site Preparation	Rubber Tired Dozers	Engine Tier	Average	Tier 4 Final
Site Preparation	Tractors/Loaders/Backhoes	Engine Tier	Average	Tier 4 Final
Grading	Graders	Engine Tier	Average	Tier 4 Final
Grading	Excavators	Engine Tier	Average	Tier 4 Final
Grading	Tractors/Loaders/Backhoes	Engine Tier	Average	Tier 4 Final
Grading	Rubber Tired Dozers	Engine Tier	Average	Tier 4 Final
Building Construction	Forklifts	Engine Tier	Average	Tier 4 Final
Building Construction	Generator Sets	Engine Tier	Average	Tier 4 Final
Building Construction	Cranes	Engine Tier	Average	Tier 4 Final
Building Construction	Welders	Engine Tier	Average	Tier 4 Final
Building Construction	Tractors/Loaders/Backhoes	Engine Tier	Average	Tier 4 Final

Paving	Pavers	Engine Tier	Average	Tier 4 Final
Paving	Paving Equipment	Engine Tier	Average	Tier 4 Final
Paving	Rollers	Engine Tier	Average	Tier 4 Final
Architectural Coating	Air Compressors	Engine Tier	Average	Tier 4 Final

8.4.8. Architectural Coatings

Phase Name	Model Parameter	Units	Default Value	New Value
Architectural Coating	Residential Interior VOC	g/L	50.0000	25.0000
Architectural Coating	Non-Residential Interior VOC	g/L	50.0000	25.0000
Architectural Coating	Residential Exterior VOC	g/L	50.0000	25.0000
Architectural Coating	Non-Residential Exterior VOC	g/L	50.0000	25.0000

195 E. Hillcrest Drive - Operational Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	195 E. Hillcrest Drive - Operational
Operational Year	2029
Lead Agency	City of Thousand Oaks
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70000
Precipitation (days)	22.6000
Location	195 E Hillcrest Dr, Thousand Oaks, CA 91360, USA
County	Ventura
City	Thousand Oaks
Air District	Ventura County APCD
Air Basin	South Central Coast
TAZ	3517
EDFZ	8
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.37

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Mid Rise	297.000	Dwelling Unit	7.01970	343,364	28,300.0	—	894.000	—

Unenclosed Parking with Elevator	449.000	Space	0.87300	142,615	0.00000	—	—	—
Parking Lot	41.0000	Space	0.06074	0.00000	0.00000	—	—	—
Strip Mall	9.20700	1000sqft	0.21136	9,207.00	0.00000	—	—	—
Fast Food Restaurant w/o Drive Thru	2.00000	1000sqft	0.04591	2,000.00	0.00000	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	18.3326	6.38119	73.0812	0.13202	0.18948	12.2486	12.4381	0.17953	3.10663	3.28616	160.035	15,664.0	15,824.0	16.8782	0.61300	40.7538	16,469.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	15.6775	6.75976	49.3647	0.12666	0.16988	12.2486	12.4185	0.16473	3.10663	3.27136	160.035	15,163.8	15,323.8	16.9251	0.64986	6.55341	15,947.1
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	16.7361	6.63541	59.0572	0.12551	0.17795	11.8336	12.0116	0.17053	3.00203	3.17256	160.035	15,025.0	15,185.1	16.8959	0.62943	20.5058	15,815.6
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.05433	1.21096	10.7779	0.02291	0.03248	2.15964	2.19212	0.03112	0.54787	0.57899	26.4957	2,487.57	2,514.06	2.79731	0.10421	3.39497	2,618.44

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.50902	5.06301	48.9953	0.12388	0.08098	12.2486	12.3296	0.07583	3.10663	3.18246	—	12,621.4	12,621.4	0.54427	0.53300	35.1108	12,829.0
Area	10.7593	0.21466	23.5846	0.00113	0.01965	—	0.01965	0.01485	—	0.01485	0.00000	72.5617	72.5617	0.00304	0.00061	—	72.8193
Energy	0.06430	1.10352	0.50131	0.00701	0.08885	—	0.08885	0.08885	—	0.08885	—	2,886.74	2,886.74	0.26565	0.01986	—	2,899.31
Water	—	—	—	—	—	—	—	—	—	—	24.0418	83.2579	107.300	2.47315	0.05953	—	186.870
Waste	—	—	—	—	—	—	—	—	—	—	135.993	0.00000	135.993	13.5921	0.00000	—	475.795
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.64303	5.64303
Total	18.3326	6.38119	73.0812	0.13202	0.18948	12.2486	12.4381	0.17953	3.10663	3.28616	160.035	15,664.0	15,824.0	16.8782	0.61300	40.7538	16,469.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.41480	5.65624	48.8634	0.11965	0.08104	12.2486	12.3296	0.07588	3.10663	3.18251	—	12,193.8	12,193.8	0.59424	0.57046	0.91039	12,379.5
Area	8.19836	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Energy	0.06430	1.10352	0.50131	0.00701	0.08885	—	0.08885	0.08885	—	0.08885	—	2,886.74	2,886.74	0.26565	0.01986	—	2,899.31
Water	—	—	—	—	—	—	—	—	—	—	24.0418	83.2579	107.300	2.47315	0.05953	—	186.870
Waste	—	—	—	—	—	—	—	—	—	—	135.993	0.00000	135.993	13.5921	0.00000	—	475.795
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.64303	5.64303
Total	15.6775	6.75976	49.3647	0.12666	0.16988	12.2486	12.4185	0.16473	3.10663	3.27136	160.035	15,163.8	15,323.8	16.9251	0.64986	6.55341	15,947.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.21047	5.42603	46.9252	0.11794	0.07941	11.8336	11.9131	0.07436	3.00203	3.07639	—	12,019.3	12,019.3	0.56352	0.54973	14.8628	12,212.0
Area	9.46129	0.10586	11.6308	0.00056	0.00969	—	0.00969	0.00732	—	0.00732	0.00000	35.7838	35.7838	0.00150	0.00030	—	35.9109
Energy	0.06430	1.10352	0.50131	0.00701	0.08885	—	0.08885	0.08885	—	0.08885	—	2,886.74	2,886.74	0.26565	0.01986	—	2,899.31
Water	—	—	—	—	—	—	—	—	—	—	24.0418	83.2579	107.300	2.47315	0.05953	—	186.870
Waste	—	—	—	—	—	—	—	—	—	—	135.993	0.00000	135.993	13.5921	0.00000	—	475.795

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.64303	5.64303
Total	16.7361	6.63541	59.0572	0.12551	0.17795	11.8336	12.0116	0.17053	3.00203	3.17256	160.035	15,025.0	15,185.1	16.8959	0.62943	20.5058	15,815.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.31591	0.99025	8.56384	0.02152	0.01449	2.15964	2.17413	0.01357	0.54787	0.56144	—	1,989.92	1,989.92	0.09330	0.09101	2.46070	2,021.84
Area	1.72669	0.01932	2.12261	0.00010	0.00177	—	0.00177	0.00134	—	0.00134	0.00000	5.92442	5.92442	0.00025	0.00005	—	5.94546
Energy	0.01173	0.20139	0.09149	0.00128	0.01621	—	0.01621	0.01621	—	0.01621	—	477.934	477.934	0.04398	0.00329	—	480.013
Water	—	—	—	—	—	—	—	—	—	—	3.98039	13.7843	17.7647	0.40946	0.00986	—	30.9384
Waste	—	—	—	—	—	—	—	—	—	—	22.5153	0.00000	22.5153	2.25032	0.00000	—	78.7733
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.93427	0.93427
Total	3.05433	1.21096	10.7779	0.02291	0.03248	2.15964	2.19212	0.03112	0.54787	0.57899	26.4957	2,487.57	2,514.06	2.79731	0.10421	3.39497	2,618.44

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	4.96507	3.34851	32.4046	0.08194	0.05356	8.10173	8.15529	0.05015	2.05486	2.10501	—	8,348.26	8,348.26	0.35993	0.35251	23.2238	8,485.53
Unenclosed Parking with Elevator	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Strip Mall	1.83343	1.23565	11.9570	0.03023	0.01976	2.98864	3.00840	0.01850	0.75802	0.77652	—	3,079.69	3,079.69	0.13285	0.13008	8.56701	3,130.34
Fast Food Restaurant w/o Drive Thru	0.71052	0.47886	4.63376	0.01171	0.00766	1.15821	1.16587	0.00717	0.29376	0.30093	—	1,193.49	1,193.49	0.05149	0.05041	3.32003	1,213.12
Total	7.50902	5.06301	48.9953	0.12388	0.08098	12.2486	12.3296	0.07583	3.10663	3.18246	—	12,621.4	12,621.4	0.54427	0.53300	35.1108	12,829.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	4.90279	3.74085	32.3163	0.07914	0.05360	8.10173	8.15532	0.05019	2.05486	2.10505	—	8,065.38	8,065.38	0.39297	0.37729	0.60217	8,188.24
Unenclosed Parking with Elevator	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Strip Mall	1.81041	1.38043	11.9255	0.02919	0.01977	2.98864	3.00842	0.01852	0.75802	0.77653	—	2,975.34	2,975.34	0.14506	0.13922	0.22213	3,020.68
Fast Food Restaurant w/o Drive Thru	0.70160	0.53497	4.62157	0.01131	0.00766	1.15821	1.16587	0.00718	0.29376	0.30093	—	1,153.05	1,153.05	0.05621	0.05395	0.08608	1,170.62
Total	7.41480	5.65624	48.8634	0.11965	0.08104	12.2486	12.3296	0.07588	3.10663	3.18251	—	12,193.8	12,193.8	0.59424	0.57046	0.91039	12,379.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.86117	0.64820	5.60574	0.01409	0.00949	1.41383	1.42332	0.00888	0.35867	0.36755	—	1,302.71	1,302.71	0.06106	0.05958	1.61092	1,323.60
Unenclosed Parking with Elevator	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Strip Mall	0.32773	0.24652	2.13191	0.00536	0.00361	0.53751	0.54112	0.00338	0.13636	0.13974	—	495.280	495.280	0.02323	0.02266	0.61244	503.225
Fast Food Restaurant w/o Drive Thru	0.12701	0.09553	0.82619	0.00208	0.00140	0.20830	0.20970	0.00131	0.05284	0.05415	—	191.939	191.939	0.00900	0.00878	0.23734	195.018
Total	1.31591	0.99025	8.56384	0.02152	0.01449	2.15964	2.17413	0.01357	0.54787	0.56144	—	1,989.92	1,989.92	0.09330	0.09101	2.46070	2,021.84

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	958.240	958.240	0.09134	0.01107	—	963.823
Unenclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	—	381.185	381.185	0.03634	0.00440	—	383.406
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	2.19824	2.19824	0.00021	0.00003	—	2.21104
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	85.3209	85.3209	0.00813	0.00099	—	85.8180

Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	64.9081	64.9081	0.00619	0.00075	—	65.2863
Total	—	—	—	—	—	—	—	—	—	—	—	1,491.85	1,491.85	0.14221	0.01724	—	1,500.54
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	958.240	958.240	0.09134	0.01107	—	963.823
Unenclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	—	381.185	381.185	0.03634	0.00440	—	383.406
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	2.19824	2.19824	0.00021	0.00003	—	2.21104
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	85.3209	85.3209	0.00813	0.00099	—	85.8180
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	64.9081	64.9081	0.00619	0.00075	—	65.2863
Total	—	—	—	—	—	—	—	—	—	—	—	1,491.85	1,491.85	0.14221	0.01724	—	1,500.54
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	158.648	158.648	0.01512	0.00183	—	159.572
Unenclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	—	63.1095	63.1095	0.00602	0.00073	—	63.4772
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.36394	0.36394	0.00003	< 0.000005	—	0.36606

Strip Mall	—	—	—	—	—	—	—	—	—	—	—	14.1259	14.1259	0.00135	0.00016	—	14.2082
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	10.7463	10.7463	0.00102	0.00012	—	10.8089
Total	—	—	—	—	—	—	—	—	—	—	—	246.993	246.993	0.02354	0.00285	—	248.432

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.06009	1.02697	0.43701	0.00656	0.08303	—	0.08303	0.08303	—	0.08303	—	1,303.56	1,303.56	0.11536	0.00245	—	1,307.18
Unenclosed Parking with Elevator	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Strip Mall	0.00081	0.01479	0.01242	0.00009	0.00112	—	0.00112	0.00112	—	0.00112	—	17.6446	17.6446	0.00156	0.00003	—	17.6936
Fast Food Restaurant w/o Drive Thru	0.00340	0.06176	0.05187	0.00037	0.00469	—	0.00469	0.00469	—	0.00469	—	73.6851	73.6851	0.00652	0.00014	—	73.8894
Total	0.06430	1.10352	0.50131	0.00701	0.08885	—	0.08885	0.08885	—	0.08885	—	1,394.89	1,394.89	0.12345	0.00263	—	1,398.76

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.06009	1.02697	0.43701	0.00656	0.08303	—	0.08303	0.08303	—	0.08303	—	1,303.56	1,303.56	0.11536	0.00245	—	1,307.18
Unenclosed Parking with Elevator	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Strip Mall	0.00081	0.01479	0.01242	0.00009	0.00112	—	0.00112	0.00112	—	0.00112	—	17.6446	17.6446	0.00156	0.00003	—	17.6936
Fast Food Restaurant w/o Drive Thru	0.00340	0.06176	0.05187	0.00037	0.00469	—	0.00469	0.00469	—	0.00469	—	73.6851	73.6851	0.00652	0.00014	—	73.8894
Total	0.06430	1.10352	0.50131	0.00701	0.08885	—	0.08885	0.08885	—	0.08885	—	1,394.89	1,394.89	0.12345	0.00263	—	1,398.76
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.01097	0.18742	0.07975	0.00120	0.01515	—	0.01515	0.01515	—	0.01515	—	215.820	215.820	0.01910	0.00041	—	216.418
Unenclosed Parking with Elevator	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Strip Mall	0.00015	0.00270	0.00227	0.00002	0.00021	—	0.00021	0.00021	—	0.00021	—	2.92127	2.92127	0.00026	0.00001	—	2.92937

Fast Food Restaurant w/o Drive Thru	0.00062	0.01127	0.00947	0.00007	0.00086	—	0.00086	0.00086	—	0.00086	—	12.1994	12.1994	0.00108	0.00002	—	12.2332
Total	0.01173	0.20139	0.09149	0.00128	0.01621	—	0.01621	0.01621	—	0.01621	—	230.940	230.940	0.02044	0.00043	—	231.581

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Consumer Products	7.59102	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.60735	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	2.56093	0.21466	23.5846	0.00113	0.01965	—	0.01965	0.01485	—	0.01485	—	72.5617	72.5617	0.00304	0.00061	—	72.8193
Total	10.7593	0.21466	23.5846	0.00113	0.01965	—	0.01965	0.01485	—	0.01485	0.00000	72.5617	72.5617	0.00304	0.00061	—	72.8193
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Consumer Products	7.59102	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural	0.60735	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	8.19836	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Consumer Products	1.38536	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.11084	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.23048	0.01932	2.12261	0.00010	0.00177	—	0.00177	0.00134	—	0.00134	—	5.92442	5.92442	0.00025	0.00005	—	5.94546
Total	1.72669	0.01932	2.12261	0.00010	0.00177	—	0.00177	0.00134	—	0.00134	0.00000	5.92442	5.92442	0.00025	0.00005	—	5.94546

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	21.5717	74.9350	96.5067	2.21907	0.05342	—	167.903
Unenclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Strip Mall	—	—	—	—	—	—	—	—	—	—	1.30685	4.40333	5.71017	0.13442	0.00323	—	10.0347
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	1.16328	3.91961	5.08289	0.11966	0.00288	—	8.93232
Total	—	—	—	—	—	—	—	—	—	—	24.0418	83.2579	107.300	2.47315	0.05953	—	186.870
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	21.5717	74.9350	96.5067	2.21907	0.05342	—	167.903
Unenclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Strip Mall	—	—	—	—	—	—	—	—	—	—	1.30685	4.40333	5.71017	0.13442	0.00323	—	10.0347
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	1.16328	3.91961	5.08289	0.11966	0.00288	—	8.93232
Total	—	—	—	—	—	—	—	—	—	—	24.0418	83.2579	107.300	2.47315	0.05953	—	186.870
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	3.57144	12.4063	15.9778	0.36739	0.00884	—	27.7982

Unenclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Strip Mall	—	—	—	—	—	—	—	—	—	—	0.21636	0.72902	0.94538	0.02226	0.00054	—	1.66135
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	0.19259	0.64894	0.84153	0.01981	0.00048	—	1.47885
Total	—	—	—	—	—	—	—	—	—	—	3.98039	13.7843	17.7647	0.40946	0.00986	—	30.9384

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	118.367	0.00000	118.367	11.8304	0.00000	—	414.127
Unenclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

Strip Mall	—	—	—	—	—	—	—	—	—	—	5.21011	0.00000	5.21011	0.52073	0.00000	—	18.2284
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	12.4160	0.00000	12.4160	1.24093	0.00000	—	43.4393
Total	—	—	—	—	—	—	—	—	—	—	135.993	0.00000	135.993	13.5921	0.00000	—	475.795
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	118.367	0.00000	118.367	11.8304	0.00000	—	414.127
Unenclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Strip Mall	—	—	—	—	—	—	—	—	—	—	5.21011	0.00000	5.21011	0.52073	0.00000	—	18.2284
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	12.4160	0.00000	12.4160	1.24093	0.00000	—	43.4393
Total	—	—	—	—	—	—	—	—	—	—	135.993	0.00000	135.993	13.5921	0.00000	—	475.795
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	19.5971	0.00000	19.5971	1.95866	0.00000	—	68.5635
Unenclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Strip Mall	—	—	—	—	—	—	—	—	—	—	0.86259	0.00000	0.86259	0.08621	0.00000	—	3.01792
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	2.05561	0.00000	2.05561	0.20545	0.00000	—	7.19187
Total	—	—	—	—	—	—	—	—	—	—	22.5153	0.00000	22.5153	2.25032	0.00000	—	78.7733

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.45917	2.45917
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05734	0.05734
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.12651	3.12651
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.64303	5.64303
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.45917	2.45917
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05734	0.05734
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.12651	3.12651
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.64303	5.64303
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.40714	0.40714
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00949	0.00949
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.51763	0.51763
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.93427	0.93427

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Mid Rise	1,348.38	1,357.29	1,119.69	480,699	11,395.3	11,470.6	9,462.58	4,062,420
Unenclosed Parking with Elevator	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Strip Mall	501.321	501.321	501.321	182,982	4,231.37	4,231.37	4,231.37	1,544,451

Fast Food Restaurant w/o Drive Thru	194.280	194.280	194.280	70,912.2	1,639.81	1,639.81	1,639.81	598,530

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
Apartments Mid Rise	Wood Fireplaces	0	0
Apartments Mid Rise	Gas Fireplaces	0	0
Apartments Mid Rise	Propane Fireplaces	0	0
Apartments Mid Rise	Electric Fireplaces	0	0
Apartments Mid Rise	No Fireplaces	297	297
Apartments Mid Rise	Conventional Wood Stoves	0	0
Apartments Mid Rise	Catalytic Wood Stoves	0	0
Apartments Mid Rise	Non-Catalytic Wood Stoves	0	0
Apartments Mid Rise	Pellet Wood Stoves	0	0
Unenclosed Parking with Elevator	Wood Fireplaces	0	0
Unenclosed Parking with Elevator	Gas Fireplaces	0	0
Unenclosed Parking with Elevator	Propane Fireplaces	0	0
Unenclosed Parking with Elevator	Electric Fireplaces	0	0
Unenclosed Parking with Elevator	No Fireplaces	0	0
Unenclosed Parking with Elevator	Conventional Wood Stoves	0	0
Unenclosed Parking with Elevator	Catalytic Wood Stoves	0	0
Unenclosed Parking with Elevator	Non-Catalytic Wood Stoves	0	0
Unenclosed Parking with Elevator	Pellet Wood Stoves	0	0
Parking Lot	Wood Fireplaces	0	0
Parking Lot	Gas Fireplaces	0	0
Parking Lot	Propane Fireplaces	0	0

Parking Lot	Electric Fireplaces	0	0
Parking Lot	No Fireplaces	0	0
Parking Lot	Conventional Wood Stoves	0	0
Parking Lot	Catalytic Wood Stoves	0	0
Parking Lot	Non-Catalytic Wood Stoves	0	0
Parking Lot	Pellet Wood Stoves	0	0
Strip Mall	Wood Fireplaces	0	0
Strip Mall	Gas Fireplaces	0	0
Strip Mall	Propane Fireplaces	0	0
Strip Mall	Electric Fireplaces	0	0
Strip Mall	No Fireplaces	0	0
Strip Mall	Conventional Wood Stoves	0	0
Strip Mall	Catalytic Wood Stoves	0	0
Strip Mall	Non-Catalytic Wood Stoves	0	0
Strip Mall	Pellet Wood Stoves	0	0
Fast Food Restaurant w/o Drive Thru	Wood Fireplaces	0	0
Fast Food Restaurant w/o Drive Thru	Gas Fireplaces	0	0
Fast Food Restaurant w/o Drive Thru	Propane Fireplaces	0	0
Fast Food Restaurant w/o Drive Thru	Electric Fireplaces	0	0
Fast Food Restaurant w/o Drive Thru	No Fireplaces	0	0
Fast Food Restaurant w/o Drive Thru	Conventional Wood Stoves	0	0
Fast Food Restaurant w/o Drive Thru	Catalytic Wood Stoves	0	0
Fast Food Restaurant w/o Drive Thru	Non-Catalytic Wood Stoves	0	0
Fast Food Restaurant w/o Drive Thru	Pellet Wood Stoves	0	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

695,312	231,771	18,521.8	5,793.64	2,440.42

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00000
Summer Days	day/yr	180.000

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Mid Rise	1,010,288	346.196	0.0330	0.0040	4,067,465
Unenclosed Parking with Elevator	401,889	346.196	0.0330	0.0040	0.00000
Parking Lot	2,317.64	346.196	0.0330	0.0040	0.00000
Strip Mall	89,955.2	346.196	0.0330	0.0040	55,056.0
Fast Food Restaurant w/o Drive Thru	68,433.7	346.196	0.0330	0.0040	229,917

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	11,257,317	447,150
Unenclosed Parking with Elevator	0.00000	0.00000
Parking Lot	0.00000	0.00000
Strip Mall	681,986	0.00000
Fast Food Restaurant w/o Drive Thru	607,067	0.00000

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	219.631	0.00000
Unenclosed Parking with Elevator	0.00000	0.00000
Parking Lot	0.00000	0.00000
Strip Mall	9.66735	0.00000
Fast Food Restaurant w/o Drive Thru	23.0378	0.00000

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088.00	0.00225	2.50000	2.50000	10.00000
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430.00	0.11538	0.60000	0.00000	1.000000
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430.00	0.03750	1.000000	0.00000	1.000000
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922.00	0.00040	7.50000	7.50000	20.0000
Fast Food Restaurant w/o Drive Thru	Household refrigerators and/or freezers	R-134a	1,430.00	0.00000	0.60000	0.00000	1.000000
Fast Food Restaurant w/o Drive Thru	Other commercial A/C and heat pumps	R-410A	2,088.00	1.80000	4.00000	4.00000	18.0000

Fast Food Restaurant w/o Drive Thru	Walk-in refrigerators and freezers	R-404A	3,922.00	0.00040	7.50000	7.50000	20.0000

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	14.8400	annual days of extreme heat
Extreme Precipitation	6.90000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	25.7100	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	56.9633

AQ-PM	42.2651
AQ-DPM	60.7592
Drinking Water	58.9110
Lead Risk Housing	41.3863
Pesticides	0.00000
Toxic Releases	26.3816
Traffic	89.1875
Effect Indicators	—
CleanUp Sites	4.12467
Groundwater	22.1152
Haz Waste Facilities/Generators	69.3977
Impaired Water Bodies	86.9593
Solid Waste	0.00000
Sensitive Population	—
Asthma	12.9860
Cardio-vascular	42.2233
Low Birth Weights	83.5001
Socioeconomic Factor Indicators	—
Education	65.9453
Housing	51.3561
Linguistic	77.4259
Poverty	61.5452
Unemployment	45.7834

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—

Above Poverty	49.89092776
Employed	86.50070576
Median HI	41.55010907
Education	—
Bachelor's or higher	56.2042859
High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—
Auto Access	9.174900552
Active commuting	44.14217888
Social	—
2-parent households	13.51212627
Voting	56.42243039
Neighborhood	—
Alcohol availability	29.26985756
Park access	81.35506224
Retail density	86.8728346
Supermarket access	64.62209675
Tree canopy	67.0986783
Housing	—
Homeownership	11.52316181
Housing habitability	6.005389452
Low-inc homeowner severe housing cost burden	35.91684845
Low-inc renter severe housing cost burden	64.78891313
Uncrowded housing	75.52932119
Health Outcomes	—
Insured adults	29.47517002
Arthritis	50.5

Asthma ER Admissions	80.9
High Blood Pressure	31.6
Cancer (excluding skin)	30.9
Asthma	55.1
Coronary Heart Disease	43.7
Chronic Obstructive Pulmonary Disease	47.8
Diagnosed Diabetes	68.9
Life Expectancy at Birth	29.5
Cognitively Disabled	18.3
Physically Disabled	8.1
Heart Attack ER Admissions	62.7
Mental Health Not Good	56.0
Chronic Kidney Disease	45.1
Obesity	60.5
Pedestrian Injuries	19.6
Physical Health Not Good	54.5
Stroke	45.2
Health Risk Behaviors	—
Binge Drinking	32.5
Current Smoker	58.7
No Leisure Time for Physical Activity	49.6
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	69.7
Elderly	25.1
English Speaking	42.1
Foreign-born	72.9

Outdoor Workers	71.5
Climate Change Adaptive Capacity	—
Impervious Surface Cover	63.7
Traffic Density	91.7
Traffic Access	23.0
Other Indices	—
Hardship	49.2
Other Decision Support	—
2016 Voting	61.4

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	58.0000
Healthy Places Index Score for Project Location (b)	50.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification
Land Use	5 story building with 297 units and 5 stories of parking. Residential building is apprx. 343,364 SF. and the parking area is 142,615 SF, Parking structure footprint is 38,015 SF (0.873 ac). Acreage for residential building plus parking garage is 7.8927. 28,300 SF of landscaping is proposed. Existing uses retained are: 41-space parking lot, 9,207 SF of retail and 2,000 SF of fast casual restaurant. Existing uses occupy 0.3180 acres.
Construction: Construction Phases	Construction anticipated to begin Q1 2027 and be completed Q2 2029. Timing of construction phases obtained from developer.
Operations: Vehicle Data	Trip generation rates from TIA. Sat and Sunday rates for mid-rise apartments (ITE 221) from 11th Ed Trip Gen Manual.

8.3. Land Use

Model Parameter	Units	Default Value	New Value
Lot Area	acre	7.81579	7.01970
Building Area	sq. ft	285,120	343,364
Landscape Area	sq. ft	—	28,300.0
Lot Area	acre	4.04100	0.87300
Building Area	sq. ft	179,600	142,615
Landscape Area	sq. ft	—	0.00000
Lot Area	acre	0.36900	0.06074
Landscape Area	sq. ft	—	0.00000

8.5. Operations

8.5.1. Mobile Sources

8.5.1.1. Vehicle Data

Land Use	Model Parameter	Units	Default Value	New Value
Apartments Mid Rise	Weekday Trip Rate	size/day	5.44000	4.54000

Apartments Mid Rise	Saturday Trip Rate	size/day	4.91000	4.57000
Apartments Mid Rise	Sunday Trip Rate	size/day	4.09000	3.77000
Strip Mall	Weekday Trip Rate	size/day	44.3200	54.4500
Strip Mall	Saturday Trip Rate	size/day	42.0400	54.4500
Strip Mall	Sunday Trip Rate	size/day	20.4300	54.4500
Fast Food Restaurant w/o Drive Thru	Weekday Trip Rate	size/day	346.230	97.1400
Fast Food Restaurant w/o Drive Thru	Saturday Trip Rate	size/day	696.000	97.1400
Fast Food Restaurant w/o Drive Thru	Sunday Trip Rate	size/day	500.000	97.1400

Appendix B

Biological Resources Assessment

Biological Resources Assessment

195 E. Hillcrest Drive Project

City of Thousand Oaks, Ventura County, California

October 2024 (updated July 2025)

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Appendix C: Special-Status Species Analysis
Appendix D: Biologist's Qualifications
Appendix E: Arborist Report

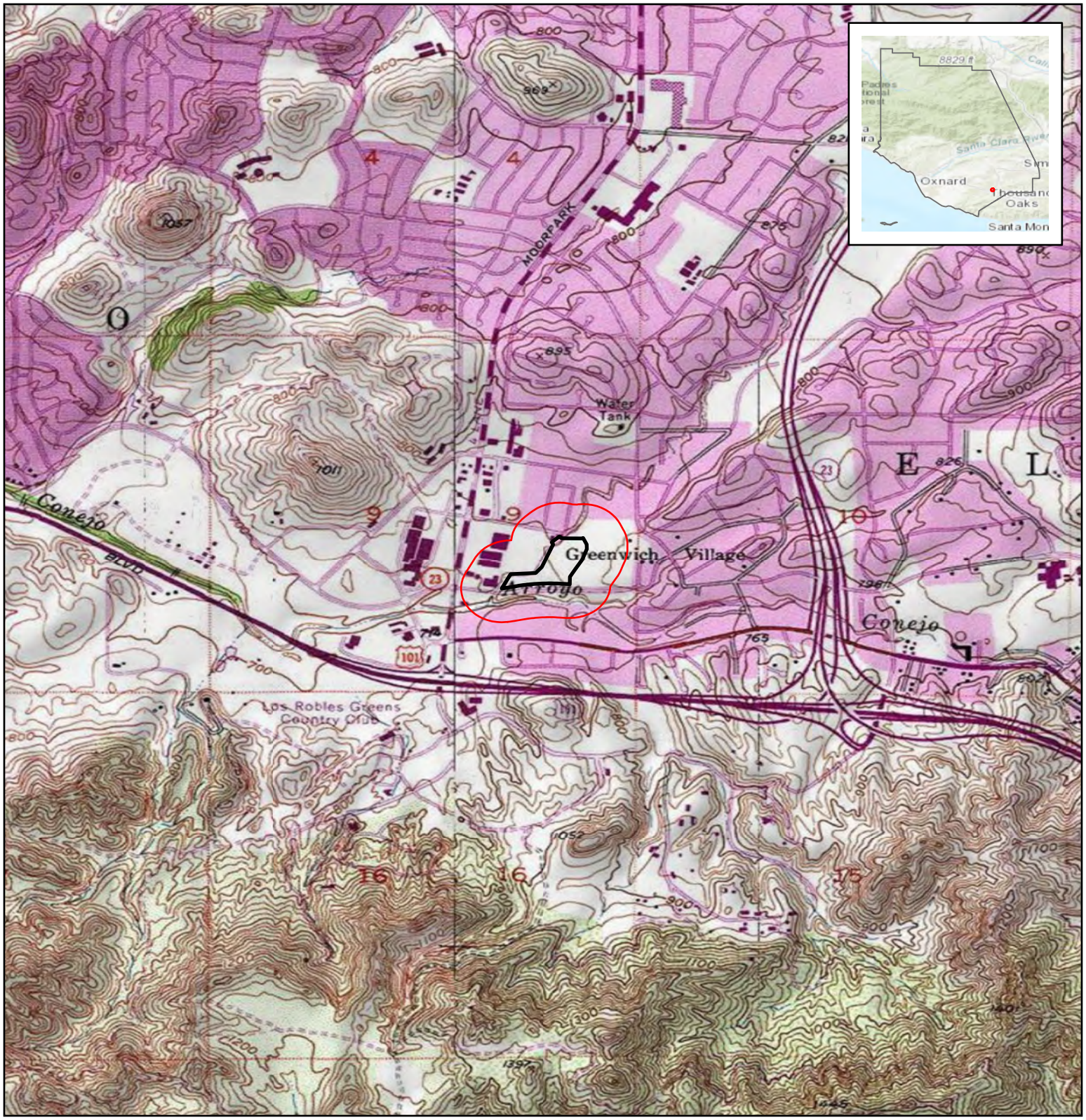
1. Introduction

This report includes the findings of a Biological Resources Assessment (BRA) conducted by South Environmental for the 195 E. Hillcrest Drive Project. Specifically, the report will assess an existing commercial development proposed for demolition and ne construction in the City of Thousand Oaks, Ventura County, California, with an Assessor's Parcel Number (APN) of 669-002-125. The purpose of this report is to assess the potential impacts from the development on protected biological resources. The scope of this report includes a description of the development, methods used to assess the biological resources, the environmental setting including technical characterizations and maps of plant communities, a preliminary assessment for wetlands or protected waters, an assessment of the potential for special-status plants and animals to occur, a description of the regulatory setting, and an analysis of the potential for the project to impact biological resources. This report is written with consideration to the thresholds in Appendix G of the California Environmental Quality Act (CEQA). Representative photographs of the Study Area (development site and a 500-feet buffer) are in Appendix A.

Project Description

Location and Setting

The project site is approximately 8.10-acres located between N Moorpark Road and Hodencamp Road on E Hillcrest Drive in the City of Thousand Oaks (Figures 1 and 2). The project site is on the U.S. Geological Survey (USGS) Thousand Oaks 7.5 Minute Topographical Quadrangle (USGS 2024a), and within Section 00 of Township 2 North (T2N) and Range 19 West (R19W). The project site includes 3 commercial buildings with paved parking lots throughout the parcel. Adjacent to the southeast of the property is a Kaiser Permanente and on the west is a Grocery Outlet. The rest of the parcel is surrounded by residential homes and assisted living facilities. The parcel is surrounded by developments with roadways and parking lots, with ornamental landscaping throughout. The surrounding area includes Janss Marketplace 0.44-miles to the west, The Oaks Mall approximately 1-mile west, and Thousand Oaks Grant R. Brimhall Library 1.6-miles northeast.



Source: ESRI USA Topo Maps and World Topo Map 2024

195, 275, and 325 E Hillcrest Drive Project

Figure 1. Regional Location

Project Site

Study Area (500-Foot Buffer)

Project Location is within Thousand Oaks, California,
in Ventura County on the USGS Thousand Oaks 7.5-minute quadrangle map in
Section 09 of Township 01 North and Range 19 West

Center Coordinate (Decimal Degrees):
Latitude: 34.1821898N Longitude: -118.8715941W

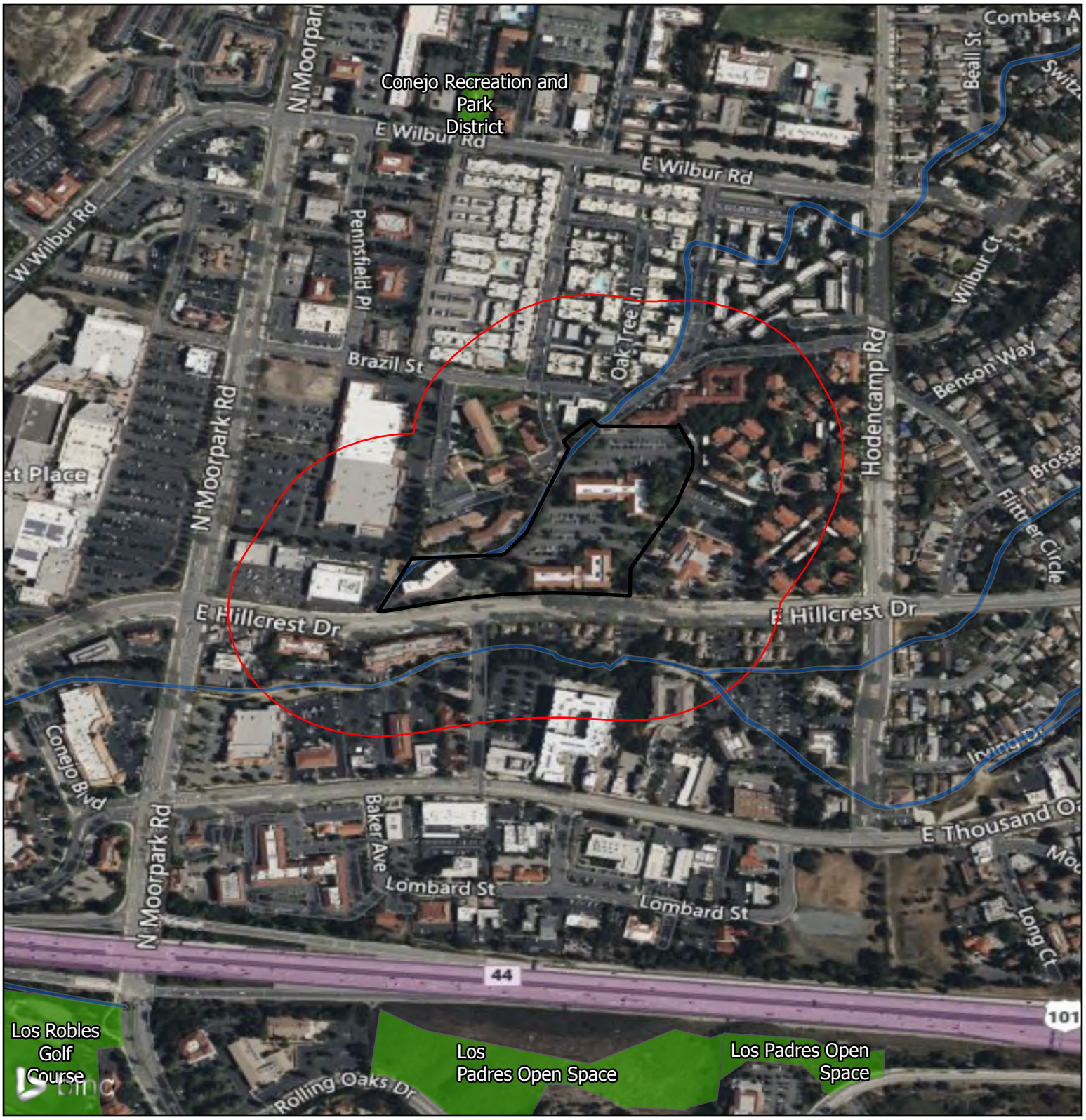


0 1,000 2,000 Feet

Scale: 1:24,000

N

SOUTH ENVIRONMENTAL



Source: BING Aerial Map 2024

195, 275, and 325 E Hillcrest Drive Project

Figure 2. Project Vicinity

0 325 650 Feet

N

Scale: 1:6,500

- Project Site
- Study Area (500-Foot Buffer)
- California Protected Area Database (CPAD)
- USFWS - National Wetlands Inventory (NWI)

SOUTH ENVIRONMENTAL

Proposed Development

High Street Residential (Applicant) proposes to remove the two commercial buildings on the east side and develop a five-story residential building totaling 357,659 square feet, consisting of 297 residential units, 421 residential parking spaces. The apartment complex would also have a pool, deck, lobby, two amenity buildings, and public exterior space. The proposed project would keep the commercial building in the southwest corner of the project site with 34 parking spaces.

The Site Plan is shown in Appendix B and proposed development footprint in Figure 3.



Source: BING Aerial Map 2024

195, 275, and 325 E Hillcrest Drive Project

Figure 3. Proposed Development

0 100 200 Feet

N

Scale: 1:2,000

Project Site

Mixed Use Development

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2. Methodology

This biological resource assessment is based on information compiled through a field reconnaissance and a review of appropriate reference materials and literature regarding the biological resources of the region. A general biological field reconnaissance of plants and animals was conducted by South Environmental, and the sources and literature referenced in this assessment are provided below in Section 6, "Bibliography".

Literature Review

The assessment of the project began with a review of literature relating to the biological resources that are known to occur in the vicinity of the project. The CDFW California Natural Diversity Database (CNDDB) "Rarefind" query (CDFW, 2024a), the CDFW "Special Animals List" query (CDFW 2022b), and the California Native Plant Society (CNPS, 2024a) online Inventory of Rare and Endangered Plants of California were reviewed to identify special-status plants, animals, and natural communities that have previously been recorded in the USGS 7.5" Thousand Oaks quad in which the project site is located, and the seven surrounding USGS 7.5"quads Calabasas, Malibu Beach, Point Dume, Triunfo Pass, Point Mugu, Camarillo, and Newbury Park (USGS 2024a). For plants, online sources CalFlora (2024) and Jepson E-flora (2024) were queried for information on current and historic range including elevation. For animals, the "California's Wildlife: Life History and Range" were consulted (CDFW 2024c) for information on the current range of wildlife. In addition, queries were conducted of the United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) Environmental Conservation Online System (ECOS) for federally protected species (USFWS 2024a), the USFWS Designated and Proposed Critical Habitat maps (USFWS 2024b). Special-status species identified in the City of Thousand Oaks 2045 General Plan Update were also evaluated for potential to occur within the vicinity of the project (City of Thousand Oaks 2024).

Field Reconnaissance

South Environmental conducted a field reconnaissance of the project areas and a 500-foot buffer (study area) on Wednesday September 11, 2024. The purpose of the reconnaissance was to record plants and animals observed on the site, map plant communities, and identify other locally significant resources including native and protected trees, and water resources. The weather was clear with a temperature of 67-70° F, wind speed of 3 MPH, and humidity of 64-56%.

Plant Community Mapping

Plant communities were mapped over the entire study area. The communities were mapped by hand in the field using aerial photographs of the development area at an approximate 1:300' scale by delineating dominant plant and habitat types observed in the field. The areas were later digitized using ArcGIS Pro mapping software to calculate acreages and assess impacts from the development. Plant community descriptions follow vegetation classifications in the Manual for California Vegetation online (CNPS 2024).

Plant and Animal Inventories

All plant and wildlife species observed during the surveys, as well as any diagnostic sign (call, tracks, nests, scat, remains, or other sign), were recorded in field notes. Binoculars and regional field guides were utilized for the identification of wildlife, as necessary. Since common names, except for birds, vary significantly between references, scientific names are included upon initial mention of each species; common names consistent throughout the report are employed thereafter.

3. Environmental Setting

Physical Characteristics

Geology and Landforms

The Study Area occurs north of the Santa Monica Mountains. Regionally, the Conejo Ridge Open Space occurs to the south, Arroyo Conejo Open Space occurs to the northwest. The geology of the site is derived from surficial sediments from the middle to late Miocene age and is marine biogenic in nature (USGS 2024a).

Topography and Climate

The project site is a relatively flat developed area with commercial businesses at an elevation of approximately 745 feet. Average high and low temperatures in the City of Thousand Oaks, California are 77°F and 57.6°F in the summer, respectively, and 64.3F and 46°F in the winter, respectively. The region receives an average of 16.62-inches of precipitation per year (worldclimate.com, 2024).

Soils

One soil type occurs in the study area:

- **Sorrento silty clay loam, 2-9% slopes** occur throughout the entire Study Area and is well-drained with punky shale that us devoid of sandstone. (USDA/NRCS 2024).

Hydrology and Jurisdictional Features

The study area is located within the Upper Conejo Arroyo Watershed (HUC12 180701030104) which includes the associated waterbody of Lang Creek (U.S. Environmental Protection Agency, 2024). On the western border of the project site is a concrete drainage channel that leads to a culvert on the north and southern side that is defined by NWI as a Freshwater Forested/Shrub Wetland (PFOA; USFWS, 2024c; USGS 2024b). According to the National Hydrography Dataset (USGS 2024b) the channel runs northeast-southwest along the entirety of the project area and continues northeast of Study Area where it is classified as Riverine habitat (R4SBC; USFWS, 2024c; USGS 2024b). Otherwise, the project site is in a commercial area and no other water bodies (e.g., wetland, pond) occur within contained commercial sites.

The extent of the concrete drainage channel is shown in Figure 4. The CDFW would consider the concrete channel a CDFW streambed and the surrounding trees to be part of the riparian woodland associated with the streambed. The riparian area includes largely non-native and landscaped trees that are maintained by annual pruning and fire maintenance per the City of Thousand Oaks Fire Department requirements. Both the streambed and riparian areas would be under the jurisdiction of CDFW. However, the streambed and riparian areas would have limited ecological value as habitat for wildlife due to the developed nature of the streambed and surrounding areas and the disturbed and maintained nature of the non-native trees in the riparian areas. There are a few oak trees in the riparian areas, but overall, the area lacks a natural setting and the ecological value is reduced as a result. The California Regional Water Quality Contral Board (RWQCB) would have jurisdiction over the areas where water flows within the concrete channel, but not outside of that area.

Biological Characteristics

Plants and Plant Communities

The Plant Communities observed on the parcel are listed below in Table 1 and mapped in Figure 5.

Table 1. Summary of Plant Communities Observed on the Project Site.

Plant Community/Cover Type	Acres on Study Area	Acres on Project Site	Acres Impacted by Project	Acres of New Fuel Modification	Global/State Rank
Developed/Ornamental Landscaped	61.01	8.10	8.10	0	N/A
Total	**61.01**	**8.10**	**8.10**	**0**	

Developed/Ornamental Landscaped

The project site is developed with commercial buildings and paved parking lots. Additionally, the survey area surrounding the project site is developed with commercial businesses, residential homes, senior living homes, and roadways. Immediately west of the project area is a Grocery Outlet. Along Moorpark Road are several commercial properties, while along Hodencamp Road are residential properties. Further west of the study area are residential developments. Landscaping around the residential and commercial areas at the canopy level is a mix of native and non-native trees. Native trees include coast live oak, valley oak, and western sycamore. Non-native ornamental trees include blue jacaranda, crimson bottle brush, and lemon-scented gum. The ground layer is a mix of ornamentals and ruderal, non-native forbs and grasses.



Source: BING Aerial Map 2025

195, 275, and 325 E Hillcrest Drive Project

Figure 4. Jurisdictional Features

0 105 210 Feet

N

Scale: 1:2,091

- Project Site
- Concrete Channel/CDFW Streambed
- CDFW Riparian

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Source: BING Aerial Map 2024

195, 275, and 325 E Hillcrest Drive Project

Figure 5. Plant Communities and Land Cover

0 200 400 Feet

N

Scale: 1:4,000

- Project Site
- Study Area (500-Foot Buffer)
- Proposed Development Footprint
- Developed / Ornamental Landscaped

SOUTH ENVIRONMENTAL

The plants observed during the survey are summarized in Table 2. Species with an asterisk (*) are considered as non-native invasive plants by the California Invasive Plant Council.

Table 2. Summary of Plants Observed on the Project Site.

Common name	Scientific name	Native/ Non-Native	Invasive?
Pineapple guava	*Acca sellowiana*	Non-native	
Lily of the Nile	*Agapanthus praecox*	Non-native	
Crimson bottlebrush	*Callistemon citrinus*	Non-native	
Lemon-scented gum	*Corymbia citriodora*	Non-native	
English ivy	*Hedera helix*	Non-native	*
Chinese hibiscus	*Hibiscus rosa-sinensis*	Non-native	
Blue jacaranda	*Jacaranda mimosifolia*	Non-native	
Trailing lantana	*Lantana montevidensis*	Non-native	
Glossy privet	*Ligustrum lucidum*	Non-native	*
Deergrass	*Muhlenbergia rigens*	Native	
Tuberous sword fern	*Neohrolepis cordifolia*	Non-native	
Oleander	*Nerium oldeander*	Non-native	
Pygmy date palm	*Phoenix roebelenii*	Non-native	
California foothill pine	*Pinus sabiniana*	Native	
Japanese pittosporum	*Pittisporum tobria*	Non-native	
Western sycamore	*Plantanus racemosa*	Native	
Cape leadwort	*Plumago auriculata*	Non-native	
Cherry plum	*Prunus cerasifera*	Non-native	*
Coast live oak	*Quercus agrifolia*	Native	
Valley oak	*Quercus lobata*	Native	
Azalea	*Rhododendron simsii*	Non-native	
China rose	*Rosa chinensis*	Non-native	
Peruvian peppertree	*Schinus molle*	Non-native	*
Brazilian pepper tree	*Schinus terebinthifolia*	Non-native	*
Chinese elm	*Ulmus parvifolia*	Non-native	

Wildlife

The site was host to several common urban birds, as well as mammals common to the area. On the day of the survey the common raven (*Corvus corax*), house finch (*Haemorhous mexicanus*), lesser goldfinch (*Spinus psaltria*), black phoebe (*Saynoris nigricans),* Anna's hummingbird (*Calypte anna),* and Nuttall's woodpecker (*Dryobates nuttallii)* were observed either flying over or foraging on the site. No mammals were observed during the survey. The plant community is highly altered, and the presence of non-native and invasive plants reduces the quality of habitat for native

wildlife, and as a result, only species adapted to non-native grasslands and disturbed areas are expected to occur.

Special-Status Species

Special-Status Plants

A total of 65 special-status plants are known to occur in the region and an assessment of their potential to occur on the study area is in Appendix C (CDFW, 2024a, CNPS 2024a, USFWS, 2024a). Based on records of the California Natural Diversity Database (CNDDB), there has not been a special-status plant recorded on the parcel. The study area consists of commercial businesses, and it is not expected for special-status plants to occur due to the lack of habitat present.

Special-Status Animals

A total of 58 special-status animals are known to occur in the region and an assessment of their potential to occur on the study area is in Appendix C (CDFW 2024a, USFWS 2024a). Based on records of the CNDDB there have been no recordings of a special-status animal on or near the study area. The study area consists of commercial businesses, and it is not expected for special-status animals to occur due to the lack of habitat.

Roosting Bats

It is unlikely that special-status bats occur as they typically avoid areas with a lot of human activities. Special-status bats would not occur roosting on the site as the site lacks typical roosting habitat for special-status species such as hollows in large trees, downed trees or limbs, or snags in trees. The trees on the site are highly maintained by annual pruning because they are within or adjacent to the existing parking area and this maintenance is required for compliance with Fire Department Regulations. The maintenance of the trees ensures that these trees would not provide roosting habitat for special-status bats, and the proximity to humans would be a further deterrent. Therefore, special-status bats are considered absent from the project site. However, there is habitat for common roosting bats due to the presence of large mature trees and a nearby water source in the concrete drainage. It is possible that common bats roost in the trees on the site.

Nesting Birds

Several common urban birds were observed during the site visit and many others including migratory birds (USFWS 2024a) have the potential to nest on the site. The site is generally devoid of shrubs for nesting but there are trees that they could use for nesting. The proposed development would require the removal of several trees that could provide potential nesting habitat for birds protected by the MBTA, MBPA, and the Fish and Game Code.

Sensitive Natural Communities

CDFW 2018 *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* defines sensitive natural communities as those that are "of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects." CDFW considers a natural community sensitive if it has a Global or State rarity rank of 1-3, which includes communities that are vulnerable (G3/S3), imperiled (G2/S2), and critically imperiled (G1/S1). CDFW uses the alliances and groups described in the Manual of California Vegetation Online to characterize California's natural communities and provides the California Natural Communities List online (most current is dated June 1, 2023) to list the current global and state rarity rank for each natural community characterized in the Manual (CNPS 2024b). The entire site is developed/ornamental landscaped which has a global rarity rank of GNA and a state rarity rank of SNA. The developed/ornamental landscaping area on the site would not be a sensitive natural community as a result.

Protected Trees

During the survey, coast live oak and western sycamore were observed on site, which are protected tree species per the City of Thousand Oaks Municipal Code. According to the arborist report (Dudek 2024 in Appendix E) there are a total of forty-six protected coast live oaks on the project site, the proposed project would remove ten of them, encroach on five, and preserve thirty-one. Of the 10 coast live oaks that will be removed, nine of them are less than 48 inches on diameter and one is greater than 48 inches in diameter. There also are fifteen western sycamores on the project site, the proposed project would remove nine, encroach on two, and preserve four.

Habitat Linkages and Wildlife Migration Corridors

The project site is in an urban area surrounded by commercial and residential development in every direction. These areas are not used as a wildlife movement corridor because they are far from high quality habitat where special-status species would more likely occur and the prevalence of roads, humans, and other man made obstacles that would deter wildlife from moving through the study area. There is a concrete drainage channel, but this does not have connection to areas of habitat and would not be a value movement corridor because it is not linked to areas native wildlife would want to move to or from. The nearest area that may serve as a block of habitat to special-status wildlife is undeveloped areas approximately 1 mile to the southeast of the Study Area, within Conejo Ridge Open Space. The project site is not within any Critical Habitats (USFWS 2024a, 2024b) and there is dense urban development between the project site and the Conejo Ridge Open Space. Due to the fragmentation from high quality habitat and the various

developments surrounding the Study Area, the Study Area would not be used as a wildlife migration corridor and does not serve as a habitat linkage.

4. Regulatory Setting and Impacts

For the purposes of this report, impacts to protected biological resources are analyzed within the context of the regulatory setting, and more specifically the analysis will follow the questions pertaining to biological resources posed in Appendix G Checklist of the California Environmental Quality Act (CEQA). Below is an overview of the federal, state, and local regulations pertaining to protected biological resources on the project site, and an analysis of impacts to those resources that may occur as a result of the development follows.

Regulatory Setting

Federal Regulations

Endangered Species Act

The Federal Endangered Species Act (FESA) of 1973 defines an endangered species as "any species which is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species which is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range." Under provisions of Section 9(a)(1)(B) of the FESA, unless properly permitted, it is unlawful to "take" any listed species. "Take" is defined in Section 3(18) of FESA: "...harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Further, the USFWS, through regulation, has interpreted the terms "harm" and "harass" to include certain types of habitat modification as forms of "take." These interpretations, however, are generally considered and applied on a case-by-case basis and often vary from species to species. In a case where a property owner seeks permission from a federal agency for an action which could affect a federally listed plant or animal species, the property owner and agency are required to consult with USFWS pursuant to Section 7 of the FESA if there is a federal nexus, or pursuant to Section 10 of the FESA. Section 9(a)(2)(b) of the FESA addresses the protections afforded to listed plants.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) protects individuals as well as any part, nest, or eggs of any bird listed as migratory. In practice, federal permits issued for activities that potentially impact migratory birds typically have conditions that require pre-disturbance surveys for nesting birds. In the event nesting is observed, a buffer area with a specified radius must be established, within which no disturbance or intrusion is allowed until the young have fledged and left the nest, or it has been determined that the nest has failed. If not otherwise specified in the permit, the size of the buffer area varies with species and local circumstances (e.g., presence of busy roads,

intervening topography, etc.), and is based on the professional judgment of a monitoring biologist. A list of migratory bird species protected under the MBTA is published by USFWS.

California Regulations

California Endangered Species Act (CESA)

The California Endangered Species Act (CESA) states that "all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, and their habitats, threatened with extinction and those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation, will be protected or preserved." The California Department of Fish and Wildlife (CDFW) oversees the CESA, and reviews and analyzes petitions for the listing of species to CESA. CEQA is typically the driver of the CESA, and projects that are subject to CEQA and have the potential to significantly impact listed species (as determined in an Initial Study or Environmental Impact Report) must consult with CDFW to get an Incidental Take Permit. Similarly, if a species is listed to both the Federal Endangered Species Act and CESA, consultation with the US Fish and Wildlife Service and CDFW will be required, and could result in a Consistency Determination.

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) is a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. CEQA applies to certain activities of state and local public agencies. A public agency must comply with CEQA when it undertakes an activity defined by CEQA as a "project." A project is an activity undertaken by a public agency or a private activity which must receive some discretionary approval (meaning that the agency has the authority to deny the requested permit or approval) from a government agency which may cause either a direct physical change in the environment or a reasonably foreseeable indirect change in the environment.

If a project is not eligible for a statutory or categorical CEQA exemption, an Initial Study (IS) would be prepared when a proposed action is determined to be a "project" under CEQA. The IS is a checklist that asks specific questions about the project's level of environmental impacts in many categories, including biological resources. The checklist includes a series of questions to determine the project's level of potential impacts in each of the categories. Potential level of impact includes: No Impacts, Less Than Significant Impact, Less Than Significant with Mitigation Incorporated, and Potentially Significant Impact. For projects that have no impact or less than significant impact a Negative Declaration is prepared, for those with Less Than Significant with Mitigation Incorporated prepare a Mitigated Negative Declaration, and for those with a Potentially Significant Impact prepare an Environmental Impact Report (EIR).

State of California Fish and Game Code Section 3500

Section 3503.5 of the California Fish and Game Code states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Activities that result in the abandonment of an active bird of prey nest may also be considered in violation of this code. In addition, California Fish and Game Code, Section 3511 prohibits the taking of any bird listed as fully protected, and California Fish and Game Code, Section 3515 states that is it unlawful to take any non-game migratory bird protected under the MBTA.

California Migratory Bird Protection Act

The California Migratory Bird Protect Act (MBPA) was enacted in September 2019 to reinforce the MBTA at the state level. The Act states:

- "It is unlawful to take or possess any migratory nongame bird as designated in the federal Migratory Bird Treaty Act (16 U.S.C. Sec. 703 et seq.) before January 1, 2017, any additional migratory nongame bird that may be designated in that federal act after that date, or any part of a migratory nongame bird described in this section, except as provided by rules and regulations adopted by the United States Secretary of the Interior under that federal act before January 1, 2017, or subsequent rules or regulations adopted pursuant to that federal act, unless those rules or regulations are inconsistent with this code." This section is inactive on January 20, 2025, and the following language below will be adopted.

- "It is unlawful to take or possess any migratory nongame bird as designated in the federal Migratory Bird Treaty Act (16 U.S.C. Sec. 703 et seq.), or any part of a migratory nongame bird described in this section, except as provided by rules and regulations adopted by the United States Secretary of the Interior under that federal act." This section is operative starting on January 20, 2025.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act requires the adoption of water quality control plans (basin plans) that give direction to managing water pollution in California. The basin plans get adopted and administered by the Regional Water Quality Control Board (RWQCB). The plans incorporate the beneficial uses of the waters of the State and then provide objectives that should be met to maintain and protect these uses. Along with the Regional Water Boards, the State Water Resources Board can issue and enforce permits containing waste discharge requirements to maintain clean surface water and groundwater. Each basin plan identifies the specific beneficial uses of water in

their region for the past, present, and future. These basin plans also all have objectives for which the plan clearly states steps that are being taken or will be taken to meet the objectives. These objectives are created for the purpose of keeping the water clean and safe to use beneficially. The Regional Board has the authority to give out permits for the purpose of waste disposal or waste assimilation.

Waters of the State (WSC) 401 Water Quality Certification

The RWQCB regulates activities pursuant to Section 401(a)(1) of the CWA. Section 401 of the CWA specifies that certification from the State is required for any applicant requesting a federal license or permit including a Section 404 permit. The RWQCB' s delegated authority over Section 401 requires a Water Quality Certification consistent with the USACE of Engineers definition of waters of the US.

The State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State was adopted in April 2020 and put into effect statewide on May 28, 2020 (State Water Resources Control Board [SWRCB] 2020a). The Water Boards define wetlands as follows:

"An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation."

The Water Code defines Waters of the State of California (WSC) broadly to include "any surface water or groundwater, including saline waters, within the boundaries of the state." In the 2020 state wetland definition, the State did not define non-wetland WSC, rather they are relying on regional characterizations of jurisdiction was delegated to the Regional Boards.

The following wetlands are WSC based on the 2020 Procedures:

1. Natural wetlands;
2. Wetlands created by modification of a surface water of the state; and
3. Artificial wetlands that meet any of the following criteria:
    a. Approved by an agency as compensatory mitigation for impacts to other WSC, except where the approving agency explicitly identifies the mitigation as being of limited duration;
    b. Specifically identified in a water quality control plan as a wetland or other water of the state;
    c. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape; or

d. Greater than or equal to one acre in size, unless the artificial wetland was constructed, and is currently used and maintained, primarily for one or more of the following purposes (i.e., the following artificial wetlands are not WSC unless they also satisfy the criteria set forth in 2, 3a, or 3b):
    i. Industrial or municipal wastewater treatment or disposal;
    ii. Settling of sediment;
    iii. Detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial stormwater permitting program,
    iv. Treatment of surface waters;
    v. Agricultural crop irrigation or stock watering;
    vi. Fire suppression;
    vii. Industrial processing or cooling;
    viii. Active surface mining – even if the site is managed for interim wetlands functions and values;
    ix. Log storage;
    x. Treatment, storage, or distribution of recycled water;
    xi. Maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits); or
    xii. Fields flooded for rice growing.

All artificial wetlands that are less than 1 acre in size and do not satisfy the criteria set forth in 2, 3.a, 3.b, or 3.c are not WSC.

State of California Fish and Game Code Section 1600

Fish and Game Code Section 1602 outlines the Lake and Streambed Alteration Agreement (LSAA) permitting process, and states:

- An entity shall not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake

Fish and Game Code Section 1602 requires any entity (defined as any person, State or local governmental agency, or public utility) to notify the CDFW before beginning any activity that will do one or more of the following:

- substantially divert or obstruct the natural flow of and river, stream, or lake, or

- substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or
- deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

A permit, known as a Lake or Streambed Alteration Agreement, from CDFW is required to conduct any of the activities described above.

Local Regulations

City of Thousand Oaks Protected Oak Tree Ordinance

Any person who owns, controls, has custody or possession of any real property within the City that is improved or has been approved for development, or which is part of or associated with the City approved development of another piece of property, such as any parcel to be maintained as permanent open space or for recreational purposes, shall maintain all oak tree(s) located thereon in a state of good health pursuant to this chapter and the Oak Tree Preservation and Protection Guidelines adopted by City Council resolution.

A tree permit is required for the following reasons:

- No person shall cut, remove, encroach into the protected zone, or relocate any oak tree on any public or private property within the City, unless a valid oak tree permit has been issued by the City pursuant to the provisions of this chapter and the oak tree preservation and protection guidelines.

- An oak tree permit may authorize the removal, cutting, or encroachment within the protected zone of one (1) or more oak trees subject to the conditions set forth in said permit. An oak tree permit may also authorize future maintenance of oak trees within the permit area, such as pruning, within parameters established in an oak tree maintenance program approval in conjunction with the oak tree permit. Activities included within an approved oak tree maintenance program may be undertaken in compliance with said program without the filing and approval of a separate oak tree permit application. Provided, however, an oak tree not covered by the initial oak tree permit may not be encroached upon without approval of a subsequent oak tree permit or modification to the original permit.

A permit is not required for the following exemptions:

- Trees that do not exceed two (2") inches in diameter when measured at a point four and a half (4-1/2') feet above the tree's natural grade.
- Ground plane improvements that are proposed between the dripline and the protected zone limit.
- Clearance pruning that involves removal of live branches that do not exceed two (2") inches in diameter, except in conjunction with' any new construction activity.
- Deadwooding.
- When removal is determined necessary by fire department personnel engaged in fighting a fire.
- Trees planted or grown in containers and held for sale as part of a licensed nursery business.
- Any encroachment, pruning, or removal deemed necessary by an authorized agent of the City for public safety purposes.

Project Impacts and Recommendations

Plant Communities/Wildlife Habitat

The proposed project would result in the development of 8.10-acres of developed/ornamental landscaping that does not have the potential to be habitat for any special-status species because it is already developed and lacks native plant communities. The community is not a sensitive natural community. Furthermore, it lacks plant and wildlife habitat due to the developments. The parcel consists of developments and areas of ornamental landscaping which has led to a prevalence of non-native, invasive species and compacted bare soils in areas where there are no developments. The site is also fragmented (i.e., isolated) from high quality habitat for special-status species which further decreases its habitat potential for these species. The project would have no impact on native plant communities or habitat for special-status species.

Special-Status Species

No special-status species were documented during the survey of the Study Area and there have been no records of special-status species recorded on the site in CNDDB. The study area lacks native habitats that special-status species would require, and therefore, no special-status species would occur. The survey found that there is a potential for nesting birds, including migratory birds,

to nest throughout the project site during nesting season, as there are mature trees throughout the project site.

Nesting Birds

If nesting birds including local and migratory species are present at the time of vegetation removal, active nests, eggs, or young could be destroyed or otherwise disturbed to a point at which the young do not survive, which would be a violation of the MBTA, MBPA, and the Fish and Game Code. In addition, indirect impacts from noise or vibration have the potential to disturb an active bird nest to the point of failure if the nest is within immediate proximity to project activities, and this would also be a violation of the MBTA and Fish and Game Code. To avoid impacts to active bird nests, eggs, or young, preconstruction nesting bird surveys and monitoring is required per the Thousand Oaks General Plan mitigation measure. The measure requires that the project implement the following avoidance and minimization, which ensures compliance with regulatory obligations including the MBTA, MBPA, and the Fish and Game Code:

- For construction activities initiated during the bird nesting season February 15 through September 15 (as early as January 1 for raptors), involving removal of vegetation, abandoned structures, man-made features, or other nesting bird habitat, a pre-construction nesting bird survey shall be conducted no more than 5 days prior to initiation of ground disturbance and vegetation removal. The nesting bird pre-construction survey shall be conducted on foot and shall include an area on and around the construction site at a distance determined by a qualified biologist, including staging and storage areas. The minimum survey radii surrounding the work area shall be 500 feet. The survey shall be conducted by a qualified biologist familiar with the identification of avian species known to occur in the Thousand Oaks region. If construction lapses for 5 days or longer, the qualified biologist shall conduct another focused survey before project activities are reinitiated.

- If nests are found, an avoidance buffer shall be determined by the biologist dependent upon the species, the proposed work activity, and existing disturbances associated with land uses outside the site. The qualified biologist shall observe the active nest to establish a behavioral baseline of the adults and nestlings, if present. The qualified biologist shall monitor the active nests, while construction activities are happening to detect signs of disturbance and behavioral change as a result of construction impacts, such as noise, vibration, odors, or worker/equipment motion. If signs of disturbance and behavioral changes are observed, the qualified biologist shall stop all construction work causing those changes and until a larger avoidance buffer is established or until it is determined that the nesting period is completed. The buffer shall be demarcated by the biologist with bright orange construction fencing, flagging, construction lathe, or other means to demarcate

the boundary. All construction personnel shall be notified of the buffer zone as a "Nesting Bird Area" and to avoid entering the buffer zone until a biologist determines that the nest is no longer active. No ground-disturbing activities shall occur within the buffer until the biologist has confirmed that breeding/nesting is completed and the young have fledged the nest. A report summarizing the preconstruction survey(s) shall be prepared by a qualified biologist and shall be included on project site plans and submitted to the City prior to the commencement of construction activities.

With the implementation of the measures described above for nesting birds the project would maintain compliance with MBTA, MBPA, Fish and Game Code, and the General Plan, and these measures are to maintain regulatory compliance but are not CEQA mitigation measures as there are not impacts to native habitats or special-status species.

Roosting Bats

The project site has large trees and a nearby water source and therefore trees onsite have the potential to support roosting bats. However, as described previously, there is no potential for special-status bats due to the proximity to humans and lack of suitable roosting trees on the site However, several of the trees on the site would be removed during project construction.. The City of Thousand Oaks General Plan requires that projects where trees or other habitat for roosting bats and construction activities occur during seasonal periods of bat activity, a habitat assessment and emergence survey focused on special-status bats is required per the General Plan. To ensure compliance with the general plan and applicable regulatory requirements, the following measures would be implemented prior to the start of construction:

- For future projects where trees, abandoned structures, or other habitat for roosting bats is present and construction activities may occur during seasonal periods of bat activity, construction activities shall occur outside the maternity season from April 1 through August 31, as feasible. Should construction timing not allow for it, a special-status bat habitat assessment survey shall be conducted by a qualified biologist no more than 5 days prior to any construction activities during the bat maternity season. The survey will document any evidence of special-status bat species that may occur in proposed work areas through direct observation (e.g., roosting bats) and/or sign (e.g., bat guano).

- If no observance and/or sign of special-status bats are detected during these surveys, then construction-related activities may proceed. If observance or sign of special-status bat species are detected during the survey, and construction activities occur during the bat maternity season (April 1 through August 31), special-status bat species emergence survey(s) will be conducted. Emergence surveys will be conducted in areas of suitable bat habitat (e.g., near buildings or trees) during the bat maternity season to document any

special-status bat species emerging from features identified during the habitat assessment survey. Generally, the emergence survey(s) will be conducted approximately one hour prior to sunset and last a minimum of two hours after sunset; however, the timing will be determined by the qualified biologist.

- Passive acoustic monitoring equipment will be utilized during the emergence surveys to identify bats to the species level. In the event multiple features were identified in the habitat assessment in which bats may occur, at the discretion of the qualified biologist, either multiple emergency surveys may be necessary or additional acoustic equipment may need to be set up in order to capture the acoustics of bats as they emerge at dusk.

- Roosting sites documented within or adjacent to a project site during the maternity season shall be avoided. Specifically, the qualified biologist will determine an appropriate buffer around the roost site where construction shall be avoided. The buffer typically ranges in size, between 100 to 300 feet around the roost site, depending on potential resulting project impacts and surrounding terrain. For example, if a project will result in high noise decibels and the roost site is exposed without surrounding trees or hills, the buffer may be increased to reduce disturbances to the roosting bats during breeding activities. Buffer distances may also be at the discretion of the USFWS and/or CDFW if special-status bat species are present in the maternity roost.

- Should special-status bat species be documented within a project site, and the roost site cannot be avoided by the project, a bat mitigation and/or management plan shall be developed for roost relocation. Mitigation and management plans will require consultation with and approval from the USFWS and/or CDFW prior to the commencement of construction.

With the implementation of the measures described above for roosting bats the project would maintain compliance with the General Plan, and these measures are to maintain regulatory compliance but are not CEQA mitigation measures as there are not impacts to native habitats or special-status species.

Protected Trees

According to the arborist report for the project (Dudek 2024 in Appendix E) there are a total of forty-six protected coast live oak on the project site, the proposed project would remove ten of them, encroach on five, and preserve thirty-one. Of the ten coast live oak that will be removed, nine of them are less than 48 inches on diameter and one is greater than 48 inches in diameter. There also are fifteen western sycamores on the project site, the proposed project would remove nine, encroach on two, and preserve four. The project is seeking a permit from the City of

Thousand Oaks to allow these impacts. The City of Thousand Oaks Tree Preservation and Protection Guidelines requires the following replacement plantings for the proposed protected tree removals: eighteen 24-inch box trees to replace the nine oak trees that are less than 48-inches in diameter, two 60-inch box trees to replace the one oak that is more than 48-inches in diameter, and 18 24-inch box trees for the nine California sycamore trees. Long-term maintenance will be required per the City of Thousand Oaks Municipal Code for the seven trees that will be encroached, if one of the trees dies as a result of the construction they will be replaced per the City of Thousand Oaks guidelines.

Jurisdictional Resources

Along the western border of the project site is a concrete drainage that has been classified as a Freshwater Forested/Shrub Wetland habitat (PFOA; USFWS 2024c; USGS 2024b). This continues into the northern study area where the classification changes to Riverine habitat. This concrete channel is likely considered waters of the state and the extent of CDFW jurisdiction is shown in Figure 4. However, the concrete channel is not within the development footprint of the project and no direct impacts would occur to the concrete channel from the project. Therefore, no direct impacts would result to WSC under the jurisdiction of RWQCB because these are found within the bottom of the concrete channel, and impacts to the channel will be avoided during the project. To avoid indirect impacts to water quality and RWQCB jurisdictional areas the project would implement typical stormwater Best Management Practices (BMPs) to ensure that no runoff or construction soils or other pollutants enter the stream during construction.

According to the project arborist report in Appendix E, the trees within the CDFW Riparian zone would be largely unaffected by the project as the project would have no encroachment into the critical root zone of any of these riparian trees. These species are almost entirely ornamental trees, and very few of them are native coast live oaks and western sycamore. Currently, the trees within the CDFW riparian area adjacent to the existing parking lot on the project site are managed by annual pruning to ensure access to the fire department per City regulations. Following the completion of the project, all trees in CDFW riparian areas would remain in place and would have the identical landscaping management requirements as they currently have. Therefore, the continued maintenance of the trees would result in no new management and no new impacts from the project and would have no significant effect to the trees. To remain in compliance with the fire department regulations the amount of annual pruning of trees in CDFW riparian areas would be insignificant and would include minor pruning of only annual growth within the fire department's fire lane. Significant branches (greater than 2-inches) would be avoided and the canopy that would be removed is estimated to be less than 2% which is an insignificant impact on the tree. Therefore, the project would not have any direct or indirect impacts to the concrete channel, and no significant impact to CDFW riparian trees.

For the reasons above the project would avoid direct and indirect impacts to CDFW and RWQCB jurisdiction aside from insignificant annual pruning of existing landscaped trees and no permit would be required as a result. However, South Environmental recommends that the project seeks concurrence from CDFW that no permit is required prior to implementing the project. If CDFW determines that the minor pruning of the trees during fire department required maintenance warrants a permit the project should obtain the permit prior to construction of the project. Nonetheless, jurisdictional features would largely be avoided by the project and only minor annual pruning that is identical to current management would result from the project. These impacts would be considered less than significant per CEQA. If CDFW determines a permit is required, the project shall obtain one prior to construction of the project to remain in compliance with Fish and Game Code Section 1600.

Wildlife Movement Corridors and Habitat Linkages

The project site is in an urban area and isolated from native habitats and doesn't serve as a wildlife movement corridor or habitat linkage. Therefore, no impacts to those resources are expected to result from the project.

Habitat Determination in Consideration of Assembly Bill 130 and Senate Bill 131

Senate Bill ("SB") 131 permits a "single subject Environmental Impact Report ("EIR")" if a project fails to comply with only a single environment condition contained in a CEQA exemption, such as the recent statutory exemption enacted by Assembly Bill ("AB") 130. The Project would otherwise qualify for the AB130 CEQA exemption but for the single environmental condition associated with the wetland located on the subject property. Thus, per an SB131 a "single subject EIR" could be prepared to exclusively evaluate that the project would not "affect wetlands as defined in the United States Fish and Wildlife Service Manual Pert 660 FW2 (June 21, 1993)."

In addition, to qualify for the SB131 "single subject EIR" the project must also ensure no habitat for protected species occurs on the site as defined by Code Section 56913.4(a)(6)(J), below:

> *(J) Habitat for protected species identified as candidate, sensitive, or species of special status by state or federal agencies, fully protected species, or species protected by the federal Endangered Species Act of 1973 (16 U.S.C. Sec. 1531 et seq.), the California Endangered Species Act (Chapter 1.5 (commencing with Section 2050) of Division 3 of the Fish and Game Code), or the Native Plant Protection Act (Chapter 10 (commencing with Section 1900) of Division 2 of the Fish and Game Code).*

Based on the findings in this report, the project lacks native habitats and is entirely developed, and the only vegetation is ornamental landscaping with a few native oaks intermixed. These oaks are highly maintained and do not constitute habitat as they are disturbed and unable to support special-status species. No special-status species would occur on the site due to a lack of native habitat and therefore, the project would not impact habitat as defined above.

There is a concrete stream channel on the site that is not considered habitat because it lacks the ability to support native vegetation or wildlife due to the disturbance from the concrete. In addition, the project would have no effect on the channel. The landscaped trees at the edge of the channel are technically within the riparian jurisdiction of the CDFW, but these trees would not be considered habitat as they do not support special-status species based on the findings in this report. As stated previously, the trees within the CDFW Riparian zone would be largely unaffected by the project as the project would have no encroachment into the critical root zone of any of these riparian trees. These species are almost entirely ornamental trees, and very few of them are native coast live oaks and western sycamore. Currently, the trees within the CDFW riparian area adjacent to the existing parking lot on the project site are managed by annual pruning to ensure access to the fire department per City regulations. Following the completion of the project, all trees in CDFW riparian areas would remain in place and would have the identical landscaping management requirements as they currently have. Therefore, the continued maintenance of the trees would result in no new management and no new impacts from the project and would have no significant effect to the trees. Maintained landscaped trees are not considered habitat for special-status species and would not constitute habitat on the project site.

Conclusion

The proposed development of 8.10-acres would occur on an already developed site that has ornamental landscaping and lacks native habitats. There are no native habitat on the site and none would be impacted by the project. The onsite plant community is not listed as a sensitive natural community by the CDFW and lacks native habitats as it consists largely of non-native, landscaped trees in a developed parking lot setting. Special-status species have no potential to be present or a very low potential to occur, and are therefore considered absent from the site and would not be impacted. There is the potential for nesting birds during the nesting season and per the City of Thousand Oaks General Plan the project is required to perform preconstruction nesting bird surveys to avoid impacts to migratory birds and achieve compliance with regulatory obligations including the MBTA, MBPA, and Fish and Game Code. Similarly, for projects where trees suitable for roosting bats will be impacted the General Plan requires a special status bat species habitat assessment and emergence surveys be conducted. With the implementation of the General Plan measures described in this report for nesting birds and roosting bats the project would maintain compliance with MBTA, MBPA, Fish and Game Code, and the General Plan, and these measures

are to maintain regulatory compliance but are not CEQA mitigation measures as there are not impacts to native habitats or special-status species.

A total of 19 protected trees will be removed and the project is seeking permits from the City of Thousand Oaks in compliance with the City's protected tree ordinance. The permit will require 38 replacement plantings to compensate for the removed protected trees.

The project would avoid direct and indirect impacts to the concrete drainage channel on the west edge of the project site aside from minor annual pruning of landscaped trees within CDFW riparian areas as required by fire department regulations. These impacts would be considered less than significant per CEQA because they are minor and would be a continuation of existing management of the trees and do not pose any new impact. If CDFW determines a permit is required, the project shall obtain one prior to construction of the project to remain in compliance with Fish and Game Code Section 1600.

Because the project would not impact resources protected by CEQA, the project would have less than significant impacts to biological resources according to CEQA. With the implementation of regulatory compliance measures described in the report , the project would maintain compliance with all pertinent regulations that the site is subject to. The protected tree permit and replacement plantings will ensure the project's compliance with the City's protected tree ordinance.

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Appendix A

Photograph Exhibit



Image 1). View of 195 E Hillcrest Drive, facing west.

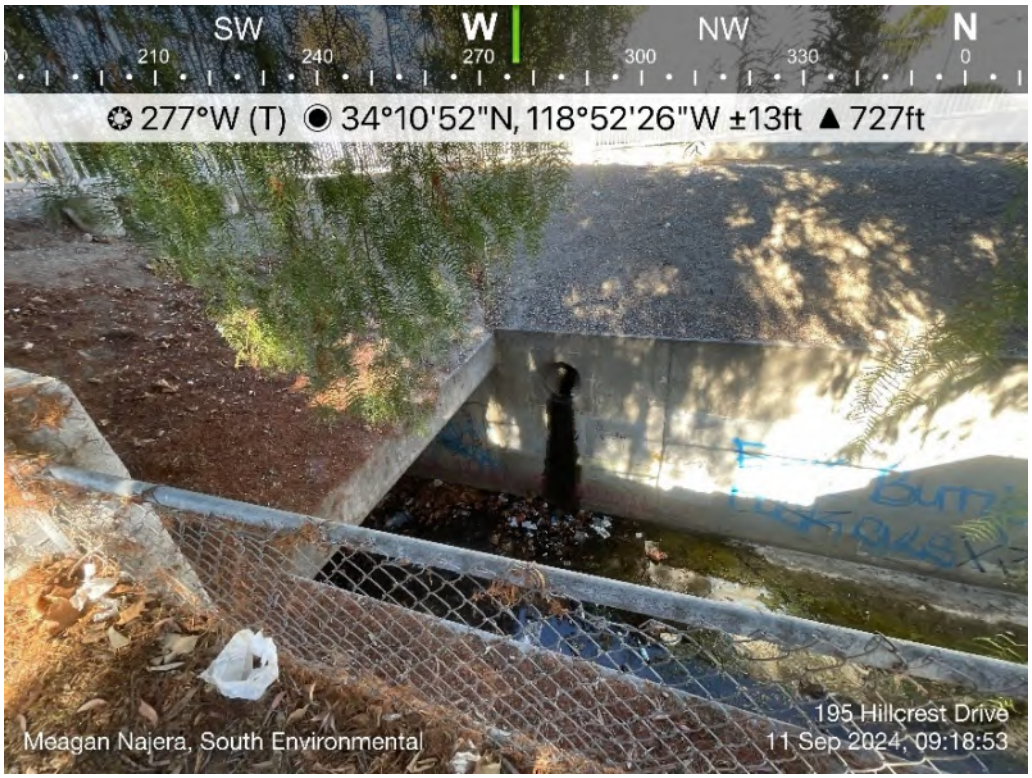


Image2). View of PFOA in the southwest corner of the project site, facing west



Image 3). View of PFOA in the southwest corner of the project, facing north



Image 4). View of landscaped area with valley oak and coast live oak from 195 E Hillcrest, facing east



Image 5). View of the parking lot in front of 195 E Hillcrest Drive with ornamental landscaping, facing northeast.



Image 6). View of 275 E Hillcrest Drive with ornamental landscaping, facing southwest.



Image 7). View of parking lot with ornamental landscaping, facing northwest



Image 8). View of the PFOA from the northwest side of the project site, facing northeast.



Image 9). View of 325 E Hillcrest Drive, facing northeast

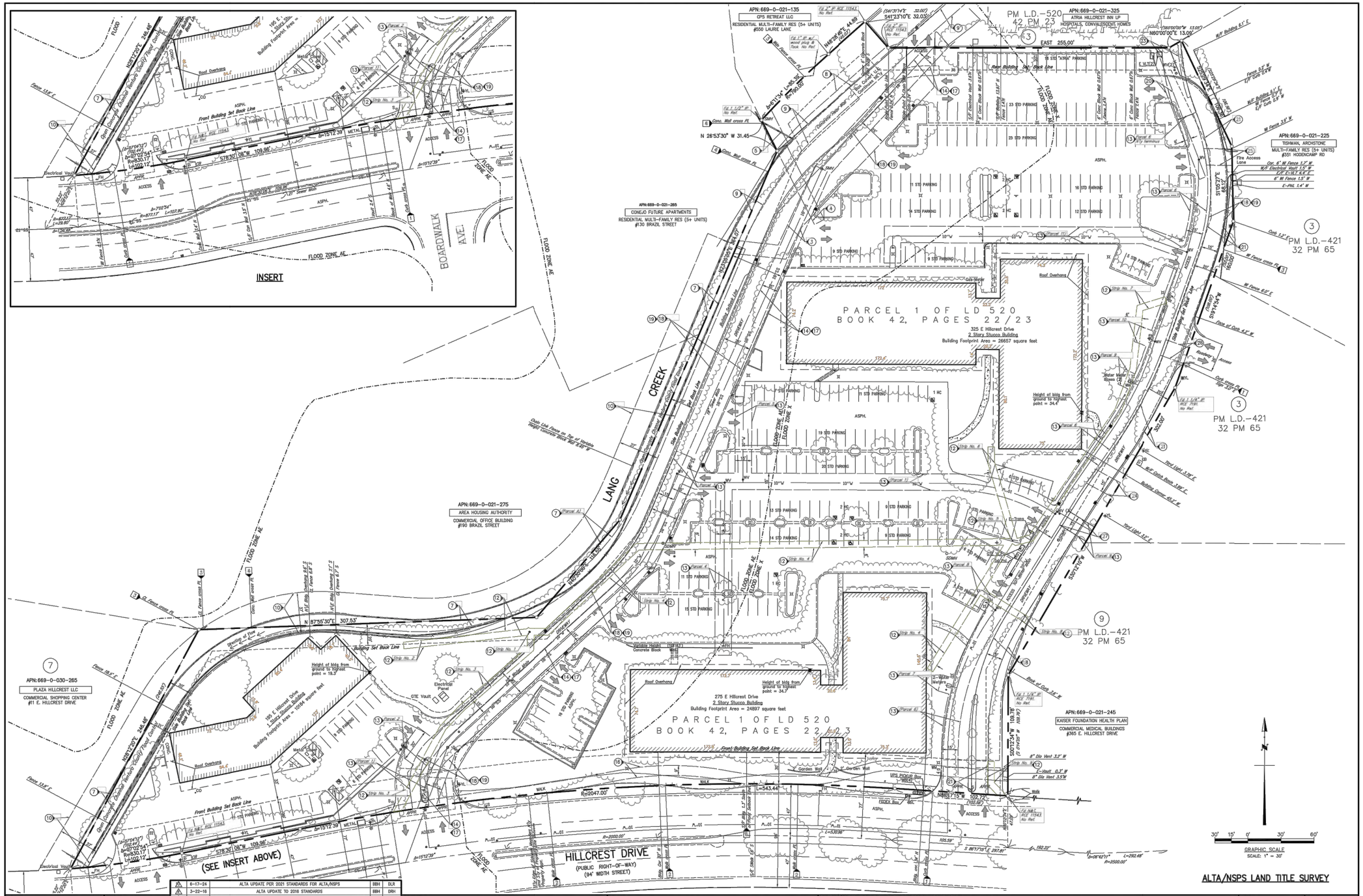


Image 10). View of the parking lot behind 325 E Hillcrest, facing east.

Appendix B

Site Plan

THIS INFORMATION IS CONCEPTUAL IN NATURE AND IS SUBJECT TO ADJUSTMENTS PENDING FURTHER VERIFICATION WITH CLIENT, TENANT, AND AUTHORITIES HAVING JURISDICTION.



REV	DATE	DESCRIPTION	BY	APP'D
8	6-17-24	ALTA UPDATE PER 2021 STANDARDS FOR ALTA/NSPS	BBH	DLR
7	3-22-16	ALTA UPDATE TO 2016 STANDARDS	BRH	DRH
6	5-28-15	ALTA UPDATE	HOG	DRH
5	11-05-01	ADDED SUCCESSORS STATEMENT TO CERTIFICATE	RCO	RCO
4	10-31-01	REVISION PER LENDER COMMENTS	RCO	RCO
3	10-03-01	ALTA UPDATE	SJM	RCO
2	10-30-97	ADDED ZONING NOTE AND BUILDING HEIGHTS	RFW	SRG
1	10-20-97	REVISED SURVEYOR'S NOTES	RFW	SRG
A	9-30-97	Revised to Reflect Comments from Dechert Price & Rhodes	RFW	SRG
B	9-27-97	Revised to Reflect Stewart Title Co. Policy Dated 9/2/97	RFW	SRG

SEAL: PROFESSIONAL LAND SURVEYOR, DANIEL L. WARE, No. 9425, STATE OF CALIFORNIA

DESIGNED: DJM
DRAFTED: DJM/BBH
CHECKED: RCO/DLR

BENCHMARK
ELEVATION _____ ADJUSTMENT _____
PATH/PLOT DATE: \\psom-fs-vb01.psomas.com\psomas\Projects\proj2024\240702 195 E. Hillcrest\24-240702VL-24LIS - Standard\VL-24LIS.dwg 8/13/24 11:16am

PSOMAS
865 South Figueroa Street, Suite 3200
Los Angeles, CA 90071
(213) 223-1400 (213) 223-1444 (FAX)
www.psomas.com

ALTA/NSPS LAND TITLE SURVEY FOR:
501 THOUSAND OAKS, LLC
C/O TRAMMEL CROW COMPANY
195, 275 & 325 E. HILLCREST DRIVE
IN THE CITY OF THOUSAND OAKS COUNTY OF VENTURA STATE OF CALIFORNIA

DATED: JUNE 17, 2024
SCALE: 1" = 30'
PROJECT NUMBER: 1TCL010100 T100
SHEET: 3 OF 3

REF: 1PAC370100; 1PAC370101,1TH0020100, 1TH0020200

Appendix C

Special-Status Species Analysis

Special-Status Species

Special-status species are those plants and animals that, because of their recognized rarity or vulnerability to various causes of habitat loss or population decline, are recognized by federal, state, or other agencies as under threat from human-associated developments. Some of these species receive specific protection that is defined by federal or state endangered species legislation. Others have been designated as special-status based on adopted policies and expertise of state resource agencies or organizations with acknowledged expertise, or policies adopted by local governmental agencies such as counties, cities, and special districts to meet local conservation objectives. Special-status species include:

- Plants or wildlife listed or proposed for listing as threatened or endangered, or are candidates for possible future listing as threatened or endangered, under the federal Endangered Species Act or the California Endangered Species Act;
- Plants or wildlife that meet the definitions of rare or endangered under CEQA Guidelines Section 15380.
- Plants or wildlife covered under an adopted NCCP/HCP;
- Plants considered by the California Native Plant Society (CNPS) to be rare, threatened, or endangered (List 1A, 1B and 2 plants) in California;
- Plants listed by the CNPS as plants in which there is limited information about distribution (List 3);
- Plants listed as rare under the California Native Plant Protection Act (Fish and Game Code 1900 et seq.);
- Wildlife designated by CDFW as species of special concern;
- Wildlife "fully protected" in California (California Fish and Game Code Sections 3511, 4700, and 5050); and
- Wildlife protected by the Migratory Bird Treaty Act (MTBA).

Federally-Protected Status

All references to Federally-protected species in this BRA include the most current published status or candidate category to which each species has been assigned by USFWS. For purposes of this assessment the following acronyms are used for Federal status species, as applicable:

FE Federally-listed as Endangered
FT Federally-listed as Threatened
FPE Federally proposed for listing as Endangered
FPT Federally proposed for listing as Threatened
FPD Federally proposed for delisting
FC Federal candidate species (former C1 species)

State-Protected Status

For the purposes of this BRA, the following acronyms are used for State status species, as applicable:

SE State-listed as Endangered
ST State-listed as Threatened
SR State-listed as Rare
SCE State candidate for listing as Endangered
SCT State candidate for listing as Threatened
SFP State Fully Protected
SSC California Species of Special Concern

California Rare Plant Rank

The CNPS is a private plant conservation organization dedicated to the monitoring and protection of special-status species in California. CNPS has compiled an inventory comprised of the information focusing on geographic distribution and qualitative characterization of Rare, Threatened, or Endangered vascular plant species of California (CNPS 2018). The list serves as the candidate list for listing as Threatened and Endangered by CDFW. CNPS has developed six categories of rarity known as the California Rare Plant Rank (CRPR), of which Ranks 1A, 1B, 2A, and 2B are particularly considered sensitive:

Rank 1A Presumed extinct in California.
Rank 1B Plants Rare, Threatened, or Endangered in California and elsewhere.
Rank 2A Presumed extinct in California, but more common elsewhere.
Rank 2B Plants Rare, Threatened, or Endangered in California, but more common elsewhere.
Rank 3 Plants about which we need more information – a review list.
Rank 4 Plants of limited distribution – a watch list.

The CNPS recently added "threat ranks" which parallel the ranks used by the CNDDB. These ranks are added as a decimal code after the CNPS List (e.g., Rank 1B.1). The threat codes are as follows:

.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);
.3 Not very threatened in California (<20% of occurrences threatened or no current threats known).

Potential to Occur Assessment

Special-status species that are **present** or are **likely** (high or medium potential) to occur within the study area are a based on one or more of the following:

- the direct observation of the species within the study area during any field surveys;
- a record reported in the CNDDB; and
- the study area is within known distribution of a species and contains appropriate habitat.

Special-status species that are **unlikely** (low potential) to occur are based on one of the following:

- the study area has the general habitat types but lacks necessary habitat elements such as suitable microhabitat or soils; or
- the study area is outside the known elevation range or distribution of the species, and has otherwise suitable habitats;

Special-status species that have no potential to occur on the study area are labeled as **none** due to the absence of suitable habitat.

Special-Status Plants

Common Name	Scientific Name	CRPR	California Listing	Federal Listing	Habitat	Microhabitat	Low Elevation (ft)	High Elevation (ft)	Potential to Occur
Red sand-verbena	*Abronia maritima*	4.2	None	None	Coastal dunes		0	330	**None:** This site lacks the habitat required for this species
Western spleenwort	*Asplenium vespertinum*	4.2	None	None	Chaparral, Cismontane woodland, Coastal scrub	Rocky	590	3280	**None:** This site lacks the habitat required for this species
Braunton's milk-vetch	*Astragalus brauntonii*	1B.1	None	FE	Chaparral, Coastal scrub, Valley and foothill grassland	Burned areas (sometimes), Carbonate, disturbed areas (sometimes), sandstone	15	2100	**None:** This site lacks the habitat required for this species
Coulter's saltbush	*Atriplex coulteri*	1B.2	None	None	Coastal bluff, coastal dunes, coastal scrub, valley and foothill grassland	Alkaline (sometimes), Clay (sometimes)	10	1510	**None:** This site lacks the habitat required for this species
Davidson's saltscale	*Atriplex serenana var. davidsonii*	1B.2	None	None	Coastal bluff scrub, coastal scrub	Alkaline	35	655	**None:** This site lacks the habitat required for this species
Malibu Baccharis	*Baccharis malibuensis*	1B.1	None	None	Chaparral, cismontane woodland, coastal scrub, riparian woodland		490	1000	**None:** This site lacks the habitat required for this species
Plummer's Baccharis	*Baccharis plummerae ssp. plummerae*	4.3	None	None	Broadleaf upland forest, chaparral, cismontane woodland, coastal scrub	Rocky	15	1395	**None:** This site lacks the habitat required for this species
Brewer's calandrinia	*Calandrinia breweri*	4.2	None	None	Chaparral, coastal scrub	Burned areas, disturbed areas, loam (sometimes), sandy (sometimes)	35	4005	**None:** This site lacks the habitat required for this species

Catalina mariposa lily	*Calochortus catalinae*	4.2	None	None	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland		50	2295	**None:** This site lacks the habitat required for this species
Club-haired mariposa lily	*Calochortus clavatus var. clavatus*	4.3	None	None	Chaparral, cismontane woodland, coastal scrub, Valley and foothill grassland	Clay, rocky, serpentine (usually)	100	4265	**None:** This site lacks the habitat required for this species
Slender mariposa -lily	*Calochortus clavatus var. gracilis*	4.2	None	None	Chaparral, coastal scrub, valley and foothill grassland		1050	3280	**None:** This site lacks the habitat required for this species
Plummer's mariposa lily	*Calochortus plummerae*	4.2	None	None	Chaprral, cismontane woodland, coastal scrub, lower montane coniferous forest, valley and foothill grassland	Granitic, rocky	330	5580	**None:** This site lacks the habitat required for this species
Lewis evening-primrose	*Camissoniopsis ssp. australis*	3	None	None	Cismontane woodland, coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland	Clay (sometimes), sandy (sometimes)	0	985	**None:** This site lacks the habitat required for this species
Southern tarplant	*Centromadia parryi ssp. australis*	4.3	None	None	Marshes and swamps (margins), valley and foothill grassland (vernally mesic), vernal pools		0	1575	**None:** This site lacks the habitat required for this species
Island mountain-mahogany	*Cerocarpus betuloides var. blancheae*	4.3	None	None	Chaparral, closed-sone coniferous forest		100	1970	**None:** This site lacks the habitat required for this species
Orcutt's pincushion	*Chaenactis glabriuscula var. orcuttiana*	1B.1	None	None	Coastal bluff scrub (sandy), coastal dunes		0	330	**None:** This site lacks the habitat required for this species
Salt marsh bird's beak	*Chloropyron maritimum ssp. maritimum*	1B.1	CE	FE	Coastal dunes, marshes and swamps (coastal salt)		0	100	**None:** This site lacks the habitat required for this species
San Fernando valley spineflower	*Chorizanthe parryi var. Fernandina*	1B.1	CE	None	Coastal scrub (sandy), valley and foothill grassland		490	4005	**None:** This site lacks the habitat required for this species

Parry's spineflower	*Chorizanthe parryi var. parryi*	1B.1	None	None	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland	Openings, rocky (sometimes), sandy (sometimes)	900	4005	**None:** This site lacks the habitat required for this species
Seaside cistanthe	*Cistanthe maritima*	4.2	None	None	Coastal bluff scrub, coastal scrub, valley and foothill grassland	Sandy	15	985	**None:** This site lacks the habitat required for this species
Small-flowered morning-glory	*Convolvulus simulans*	4.2	None	None	Chaparral (openings), coastal scrub, valley and foothill grassland	Clay, seeps, serpentine	100	2430	**None:** This site lacks the habitat required for this species
Santa Susana tarplant	*Deinandra minthornii*	1B.2	CR	None	Chaparral, coastal scrub	Rocky	920	2495	**None:** This site lacks the habitat required for this species
Dune larkspar	*Delphinium parryi ssp. blochmaniae*	1B.2	None	None	Chaprral (maritime), coastal dunes		0	655	**None:** This site lacks the habitat required for this species
Mt. Pinos larkspar	*Delphinium parryi ssp. purpureum*	4.3	None	None	Chaparral, mojavean desert scrub, pinyon and juniper woodland		3280	8530	**None:** This site lacks the habitat required for this species
Western dichondra	*Dichondra occidentalis*	4.2	None	None	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland		165	1640	**None:** This site lacks the habitat required for this species
Blochman's dudleya	*Dudleya blochmaniae ssp. blochmaniae*	1B.1	None	None	Chaparral, coastal bluff scrub, coastal scrub, valley and foothill grassland	Clay (often), rocky, serpentine	15	1475	**None:** This site lacks the habitat required for this species
Agoura hills dudleya	*Dudleya cymose ssp. agourensis*	1B.1	None	None	Chaparral, cismontane woodland	Rocky, volcanic	655	1640	**None:** This site lacks the habitat required for this species

Marcescent dudleya	*Dudleya cymose ssp. marcescens*	1B.2	CR	FT	Chaparral	Rocky, volcanic	490	1705	**None:** This site lacks the habitat required for this species
Santa Monica dudleya	*Dudleya cymose ssp. ovatifolia*	1B.1	None	FT	Chaparral, Costal scrub	Rocky, Volcanic (sometimes)	490	5495	**None:** This site lacks the habitat required for this species
Many-stemmed dudleya	*Dudleya multicaulis*	1B.2	None	None	Chaparral, coastal scrub, valley and foothill grassland	Clay (often)	50	2950	**None:** This site lacks the habitat required for this species
Conejo dudleya	*Dudleya parva*	1B.2	None	FT	Coastal scrub, valley and foothill grassland	Clay (sometimes), gravelly (sometimes), rocky (sometimes), Volcanic (sometimes)	195	1475	**None:** This site lacks the habitat required for this species
Verity's dudleya	*Dudleya verity*	1B.1	None	FT	Chaparral, cismontane woodland, coastal scrub	Rocky, volcanic	195	395	**None:** This site lacks the habitat required for this species
Conejo buckwheat	*Eriogonum crocatum*	1B.2	CR	None	Chaparral, coastal scrub, valley and foothill grassland	Rocky, volcanic	165	1905	**None:** This site lacks the habitat required for this species
Island wallflower	*Erysimum insulare*	1B.3	None	None	Coastal bluff scrub, coastal dunes		0	985	**None:** This site lacks the habitat required for this species
Suffrutescent wallflower	*Erysimum suffretuscens*	4.2	None	None	Chaparral (maritime), coastal bluff scrub, coastal dunes, coastal scrub		0	490	**None:** This site lacks the habitat required for this species
Santa Barbara bedstraw	*Galium cliftonsmithii*	4.3	None	None	Cismontane woodland		655	4005	**None:** This site lacks the habitat required for this species
Vernal barley	*Hordeum intercedens*	3.2	None	None	Coastal dunes, coastal scrub, valley and foothill grassland (depressions, saline flats) vernal pool		15	3280	**None:** This site lacks the habitat required for this species
Mesa horkelia	*Horkelia cuneata var. puberula*	1B.1	None	None	Chaparral (maritime), chaparral woodland, coastal scrub	Gravelly (sometimes), Sandy (sometimes)	230	2660	**None:** This site lacks the habitat required for this species

Decumbent goldenbush	*Isocoma menziesii var. decumbens*	1B.2	None	None	Chaparral, coastal scrub (often disturbed areas, sandy)		35	820	**None:** This site lacks the habitat required for this species
Southern California black walnut	*Juglans californica*	1B.2	None	None	Chaparral, cismontane woodland, coastal scrub, riparian woodland		165	2955	**None:** This site lacks the habitat required for this species
Southwestern spiny rush	*Juncus acutus ssp. leopoldii*	4.2	None	None	Coastal dunes (mesic), Coastal scrub, Marshes and swamps (coastal salt), meadows and seeps (alkaline seeps)		10	2955	**None:** This site lacks the habitat required for this species
Coulter's goldfields	*Lasthenia glabrata ssp. coulteri*	1B.1	None	None	Marshes and swamps (coastal salt), Playas, vernal pools		5	4005	**None:** This site lacks the habitat required for this species
Fragrant pitcher sage	*Lepechinia fragans*	4.2	None	None	Chaparral		65	4300	**None:** This site lacks the habitat required for this species
Robinson's pepper-grass	*Lepidium virginicum var. robinsonii*	4.3	None	None	Chaparral, coastal scrub		5	2905	**None:** This site lacks the habitat required for this species
Humboldt lily	*Lilium humboldtii ssp. humboldtii*	4.2	None	None	Chaparral, cismontane woodland, lower montane coniferous forest	Openings	295	4200	**None:** This site lacks the habitat required for this species
Ocellated Humboldt lily	*Lilium humboldtii ssp. ocellatum*	4,2	None	None	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland	Openings	100	5905	**None:** This site lacks the habitat required for this species
Payne's bush lupine	*Lupinus paynei*	1B.1	None	None	Coastal scrub, riparian scrub, valley and foothill grassland.	Sandy	720	1380	**None:** This site lacks the habitat required for this species
White-veined monardella	*Monardella hypoleuca ssp. hypoleuca*	1B.3	None	None	Chaparral, cismontane woodland		165	5005	**None:** This site lacks the habitat required for this species
Gerry's curly-leaved monardella	*Monardella sinuate ssp. gerryi*	1B.1	None	None	Coastal scrub	Openings, sandy	490	805	**None:** This site lacks the habitat required for this species
Ojai navarretia	*Navarretia ojaiensis*	1B.1	None	None	Chaparral (openings), Coastal scrub (openings), Valley and foothill grassland		900	2035	**None:** This site lacks the habitat required for this species
Chaparral nolina	*Nolina cismontana*	1.B2	None	None	Chaparral, coastal scrub	Gabbroic (sometimes), sandstone (sometimes)	460	4185	**None:** This site lacks the habitat required for this species

California Orcutt grass	*Orcuttia californica*	1B.1	CE	FE	Vernal pools		50	2165	**None:** This site lacks the habitat required for this species
Sonoran maiden fern	*Pelazoneuron puberulum var. sonorense*	2B.2	None	None	Meadows and seeps (seeps, streams)		165	2000	**None:** This site lacks the habitat required for this species
Lyon's pentachaeta	*Pentachaeta lyonia*	1B.1	CE	FE	Chaparral (openings), coastal scrub, valley and foothill grassland	Clay, rocky	100	2265	**None:** This site lacks the habitat required for this species
Hubby's phacelia	*Phacelia hubbyi*	4.2	None	None	Chaparral, coastal scrub, valley and foothill grassland	Gravelly, rocky, talus	0	3280	**None:** This site lacks the habitat required for this species
Michael's rein orchid	*Piperia michaelii*	4.2	None	None	Chaparral, cismontane woodland, closed-cone coniferous forest, coastal bluff scrub, coastal scrub, lower montane coniferous forest		10	3000	**None:** This site lacks the habitat required for this species
White-rabbit tobacco	*Pseudognaphalium leucocephalum*	2B.2	None	None	Chaparral, cismontane woodland, coastal scrub, riparian woodland	Gravelly, sandy	0	6890	**None:** This site lacks the habitat required for this species
Nuttall's scrub	*Quercus Dumosa*	1B.1	None	None	Chaparral, closed-cone coniferous forest, coastal scrub	Clay, loam, sandy	50	1310	**None:** This site lacks the habitat required for this species
Fish's milkwort	*Rhinotropis cornuta var. fishiae*	4.3	None	None	Chaparral, cismontane woodland, riparian woodland		330	3280	**None:** This site lacks the habitat required for this species
Coulter's Matilija poppy	*Romneya coulteri*	4.2	None	None	Chaparral, coastal scrub	Burned areas (often)	65	3935	**None:** This site lacks the habitat required for this species
Chaparral ragwort	*Senecio aphanactis*	2B.2	None	None	Chaparral, cismontane woodland, coastal scrub	Alkaline (sometimes)	50	2625	**None:** This site lacks the habitat required for this species
California seablite	*Suaeda californica*	1B.1	None	FE	Marshes and swamps (coastal salt)		0	50	**None:** This site lacks the habitat required for this species
Estuary seablite	*Suaeda esteroa*	1B.2	None	None	Marshes and swamps (coastal salt)		0	15	**None:** This site lacks the habitat required for this species
Wooly seablite	*Suaeda taxifolia*	4.2	None	None	Coastal bluff scrub, coastal dunes, marshes and swamps (coastal margins)		0	165	**None:** This site lacks the habitat required for this species

Woven-spored lichen	*Texosporium sanctijacobi*	3	None	None	Chaparral (openings)		185	2165	**None:** This site lacks the habitat required for this species
California screw moss	*Tortula californica*	1B.2	None	None	Chenopod scrub, valley and foothill grassland	Sandy	35	4790	**None:** This site lacks the habitat required for this species

Special-Status Animals

Scientific Name	Common Name	Taxonomic Group	Federal Listing	California Listing	Other Status	General Habitat	Microhabitat	Potential to Occur
Anaxyrus californicus	Arroyo toad	Amphibians	Endangered	None	CDFW_SSC-Species of Special Concern IUCN_EN-Endangered	Semi-arid regions near washes or intermittent streams, including valley-foothill and desert riparian, desert wash, etc.	Rivers with sandy banks, willows, cottonwoods, and sycamores; loose, gravelly areas of streams in drier parts of range.	**None:** This site lacks the habitat required for this species
Setophaga petechia	Yellow warbler	Birds	None	None	SSC	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.		**None:** This site lacks the habitat required for this species
Rana draytonii	California red-legged frog	Amphibians	Threatened	None	CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	**None:** This site lacks the habitat required for this species

Spea hammondii	western spadefoot	Amphibians	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands.	Vernal pools are essential for breeding and egg-laying.	**None.** The Study Area lacks habitat for this species.
Socalchemmis gertschi	Gersch's socalchemmis spider	Arachnid	None	None		Known from only 2 localities in Los Angeles County: Brentwood (type locality) and Topanga Canyon.	Coastal scrub	**None:** This site lacks the habitat required for this species
Accipiter cooperii	Cooper's Hawk	Birds	None	None	CDFW_WL-Watch List IUCN_LC-Least Concern	Woodland, chiefly of open, interrupted or marginal type.	Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	**None:** This site lacks the habitat required for this species
Agelaius tricolor	tricolored blackbird	Birds	None	Threatened	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_EN-Endangered | USFWS_BCC-Birds of Conservation Concern	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California.	Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	**None.** The Study Area lacks habitat for this species.
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	Birds	None	None	CDFW_WL-Watch List	Resident in Southern California coastal sage scrub and sparse mixed chaparral.	Frequents relatively steep, often rocky hillsides with grass and forb patches.	**None:** This site lacks the habitat required for this species
Aquila chrysaetos	Golden eagle	Birds	None	None	BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected CDFW_WL-Watch List IUCN_LC-Least Concern	Rolling foothills, mountain areas, sage-juniper flats, and desert.	Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	**None:** This site lacks the habitat required for this species
Haliaeetus leucocephalus	Bald eagle	Birds	Endangered Delisted	Endangered	CDFW_FP-Fully Protected USFS Sensitive	Rolling foothills, mountain areas, and other wide ranging habitats near large open bodies of fish-carrying waters.		**None:** This site lacks the habitat required for this species

Athene cunicularia	burrowing owl	Birds	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation.	Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	**None:** This site lacks the habitat required for this species
Buteo regalis	Ferruginous hawk	Birds	None	None	CDFW_WL-Watch List IUCN_LC-Least Concern	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats.	Eats mostly lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	**None:** This site lacks the habitat required for this species
Chardadrius nivosus nivosus	Western snowy plover	Birds	Threatened	None	CDFW_SSC-Species of Special Concern	Sandy beaches, salt pond levees and shores of large alkali lakes.	Needs sandy, gravelly or friable soils for nesting.	**None:** This site lacks the habitat required for this species
Elanus leucurus	white-tailed kite	Birds	None	None	BLM_S-Sensitive | CDFW_FP-Fully Protected | IUCN_LC-Least Concern	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland.	Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**None.** The Study Area lacks habitat for this species.
Eremophila alpestris actia	California horned lark	Birds	None	None	CDFW_WL-Watch List | IUCN_LC-Least Concern	Coastal regions, chiefly from Sonoma County to San Diego County. Also main part of San Joaquin Valley and east to foothills.	Short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	**None:** This site lacks the habitat required for this species
Falco peregrinus anatum	American peregrine falcon	Birds	Delisted	Delisted	CDF_S-Sensitive	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures.	Nest consists of a scrape or a depression or ledge in an open site.	**None:** This site lacks the habitat required for this species
Passerculus sandwichensis beldingi	Belding's savannah sparrow	Birds	None	Endangered	USFWS_BCC-Birds of Conservation Concern	Inhabits coastal salt marshes, from Santa Barbara south through San Diego County.	Nests in Salicornia on and about margins of tidal flats.	**None:** This site lacks the habitat required for this species
Pelecanus occidentalis californicus	California brown pelican	Birds	Delisted	Delisted	BLM_S-Sensitive USFS_S-Sensitive	Colonial nester on coastal islands just outside the surf line.	Nests on coastal islands of small to moderate size which afford	**None:** This site lacks the habitat required for this species

							immunity from attack by ground-dwelling predators. Roosts communally.	
Polioptila californica californica	Coastal California gnatcatcher	Birds	Threatened	None	CDFW_SSC-Species of Special Concern	Obligate, permanent resident of coastal sage scrub below 2500 ft in Southern California.	Low, coastal sage scrub in arid washes, on mesas and slopes. Not all areas classified as coastal sage scrub are occupied.	**None:** This site lacks the habitat required for this species
Rallus obsoletus levipes	Light-footed ridway's rail	Birds	Endangered	Endanagered	CDFW_FP-Fully Protected	Found in salt marshes traversed by tidal sloughs, where cordgrass and pickleweed are the dominant vegetation.	Requires dense growth of either pickleweed or cordgrass for nesting or escape cover; feeds on molluscs and crustaceans.	**None:** This site lacks the habitat required for this species
Riparia riparia	Bank swallow	Birds	None	Threatened	BLM_S-Sensitive IUCN_LC-Least Concern	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert.	Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	**None:** This site lacks the habitat required for this species
Sternula antillarum browni	California least tern	Birds	Endangered	Endangered	CDFW_FP-Fully Protected	Nests along the coast from San Francisco Bay south to northern Baja California.	Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, land fills, or paved areas.	**None:** This site lacks the habitat required for this species
Vireo bellii pusillus	Least Bell's vireo	Birds	Endangered	Endangered		Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft.	Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.	**None:** This site lacks the habitat required for this species
Eucycloglobius newberryi	Tidewater goby	Fish	Endangered	None	AFS_EN-Endangered CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River.	Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	**None:** This site lacks the habitat required for this species

Gila orcuttii	Arroyo chub	Fish	None	None	AFS_VU-Vulnerable CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	Native to streams from Malibu Creek to San Luis Rey River basin. Introduced into streams in Santa Clara, Ventura, Santa Ynez, Mojave and San Diego river basins.	Slow water stream sections with mud or sand bottoms. Feeds heavily on aquatic vegetation and associated invertebrates.	**None:** This site lacks the habitat required for this species
Oncorhynchus mykiss irideus pop. 10	Steelhead	Fish	Endangered	Candidate endangered	AFS_EN-Endangered	Federal listing refers to populations from Santa Maria River south to southern extent of range (San Mateo Creek in San Diego County).	Southern steelhead likely have greater physiological tolerances to warmer water and more variable conditions.	**None:** This site lacks the habitat required for this species
Atractelmis Wawona	Wawona riffle beetle	Insects	None	None		Aquatic; found in riffles of rapid, small to medium clear mountain streams; 2000-5000 ft elev.	Strong preference for inhabiting submerged aquatic mosses.	**None:** This site lacks the habitat required for this species
Bombus crotchii	Crotch bumble bee	Insects	None	Candidate Endangered	IUCN_EN-Endangered	Coastal California east to the Sierra-Cascade crest and south into Mexico.	Food plant genera include Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.	**None:** This site lacks the habitat required for this species
Bombus pensylvanicus	American bumble bee	Insects	None	None	IUCN_VU-Vulnerable	Coastal prairie Great Basin grassland Valley & foothill grassland	Long-tongued; forages on a wide variety of flowers including vetches (Vicia), clovers (Trifolium), thistles (Cirsium), sunflowers (Helianthus), etc. Nests above ground under long grass or underground. Queens overwinter in rotten wood or underground.	**None:** This site lacks the habitat required for this species
Cicindela hirticollis gravida	Sandy beach tiger beetle	Insects	None	None		Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico.	Clean, dry, light-colored sand in the upper zone. Subterranean larvae prefer moist sand not affected by wave action.	**None:** This site lacks the habitat required for this species

Cicindela senilis frosti	Senile tiger beetle	Insects	None	None		Inhabits marine shoreline, from Central California coast south to salt marshes of San Diego. Also found at Lake Elsinore.	Inhabits dark-colored mud in the lower zone and dried salt pans in the upper zone.	**None:** This site lacks the habitat required for this species
Coelus globosus	Globose dune beetle	Insects	None	None	IUCN_VU-Vulnerable	Inhabitant of coastal sand dune habitat; erratically distributed from Ten Mile Creek in Mendocino County south to Ensenada, Mexico.	Inhabits foredunes and sand hummocks; it burrows beneath the sand surface and is most common beneath dune vegetation.	**None:** This site lacks the habitat required for this species
Danaus plexippus plexippus pop. 1	monarch - California overwintering population	Insects	Candidate	None	IUCN_EN-Endangered | USFS_S-Sensitive	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico.	Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	**None.** The Study Area lacks habitat for this species.
Eugnosta busckana	Busck's gallmoth	Insects	None	None		Coastal southern California.	Tiny micro-moth (1 cm) with larva forming galls on host plant Encelia californica (California brittlebush). Adult flight period is during winter, generally from November to February, and have been reported at UV lights and porch lights.	**None:** This site lacks the habitat required for this species
Euphydryas Editha quino	Quino checkerspot butterfly	Insects	Endangered	None		Sunny openings within chaparral and coastal sage shrublands in parts of Riverside and San Diego counties.	Hills and mesas near the coast. Need high densities of food plants Plantago erecta, P. insularis, and Orthocarpus purpurescens.	**None:** This site lacks the habitat required for this species
Panoquina errans	Wandering (=saltmarsh) skipper	Insects	None	None	IUCN_NT-Near Threatened	Southern California coastal salt marshes.	Requires moist saltgrass for larval development.	**None:** This site lacks the habitat required for this species
Trimerotropis occidentiloides	Santa Monica grasshopper	Insects	None	None	IUCN_EN-Endangered	Known only from the Santa Monica Mountains.	Found on bare hillsides and along dirt trails in chaparral.	**None:** This site lacks the habitat required for this species

Antrozous pallidus	Pallid bat	Mammals	None	None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting.	Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**None:** This site lacks the habitat required for this species
Euderma maculatum	Spotted bat	Mammals	None	None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	Occupies a wide variety of habitats from arid deserts and grasslands through mixed conifer forests.	Feeds over water and along washes. Feeds almost entirely on moths. Needs rock crevices in cliffs or caves for roosting.	**None:** This site lacks the habitat required for this species
Eumops perotis californicus	western mastiff bat	Mammals	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern	Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc.	Roosts in crevices in cliff faces, high buildings, trees and tunnels.	**None.** The Study Area lacks habitat for this species.
Lasiurus cinereus	hoary bat	Mammals	None	None	IUCN_LC-Least Concern	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding.	Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	**None.** The Study Area lacks habitat for this species.
Lasiurus frantzii	Western red bat	Mammal	None	None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	Roosts primarily in trees, 2-40 ft above ground, from sea level up through mixed conifer forests.	Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	**None:** This site lacks the habitat required for this species
Macrotus californicus	California leaf-nosed bat	Mammals	None	None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	Desert riparian, desert wash, desert scrub, desert succulent scrub, alkali scrub and palm oasis habitats.	Needs rocky, rugged terrain with mines or caves for roosting.	**None:** This site lacks the habitat required for this species
Microtus californicus stephensi	South coast marsh vole	Mammals	None	None	CDFW_SSC-Species of Special Concern	Tidal marshes in Los Angeles, Orange and southern Ventura counties.		**None:** This site lacks the habitat required for this species
Myotis ciliolabrum	Western small-footed myotis	Mammal	None	None	BLM_S-Sensitive IUCN_LC-Least Concern	Wide range of habitats mostly arid wooded and brushy uplands near water. Seeks cover in caves, buildings, mines, and crevices.	Prefers open stands in forests and woodlands. Requires drinking water. Feeds on a wide variety of small flying insects.	**None:** This site lacks the habitat required for this species

Myotis yumanensis	Yuma myotis	Mammals	None	None	BLM_S-Sensitive IUCN_LC-Least Concern	Optimal habitats are open forests and woodlands with sources of water over which to feed.	Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	**None:** This site lacks the habitat required for this species
Neotoma lepida intermedia	San Diego woodrat	Mammals	None	None	CDFW_SSC-Species of Special Concern	Coastal scrub of Southern California from San Diego County to San Luis Obispo County.	Moderate to dense canopies preferred. They are particularly abundant in rock outcrops, rocky cliffs, and slopes.	**None:** This site lacks the habitat required for this species
Sorex ornatus salicornicus	Southern California saltmarsh shrew	Mammals	None	None	CDFW_SSC-Species of Special Concern	Coastal marshes in Los Angeles, Orange and Ventura counties.	Requires dense vegetation and woody debris for cover.	**None:** This site lacks the habitat required for this species
Taxidea taxus	American badger	Mammals	None	None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	**None:** This site lacks the habitat required for this species
Gonidea angulata	western ridged mussel	Mollusks	None	None	IUCN_VU-Vulnerable	Primarily creeks and rivers and less often lakes. Originally in most of state, now extirpated from Central and Southern California.		**None.** The Study Area lacks habitat for this species.
Helminthoglypta traskii traskii	Trask shoulderband	Mollusks	None	None		Known from Ventura, Los Angeles, Orange, and San Diego counties. Also reported from northwestern Baja California.		**None:** This site lacks the habitat required for this species
Tryonia imitator	Mimic tryonia	Mollusk	None	None	IUCN_DD-Data Deficient	Inhabits coastal lagoons, estuaries and salt marshes, from Sonoma County south to San Diego County.	Found only in permanently submerged areas in a variety of sediment types; able to withstand a wide range of salinities.	**None:** This site lacks the habitat required for this species

Actinemys pallida	Southwestern pond turtle	Reptiles	Proposed Threatened	None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	Habitat is pond with dominate vegetation of Typha latifolia and salix		**None:** This site lacks the habitat required for this species
Anniella spp.	California legless lizard	Reptiles	None	None	CDFW_SSC-Species of Special Concern	Contra Costa County south to San Diego, within a variety of open habitats. This element represents California records of Anniella not yet assigned to new species within the Anniella pulchra complex.	Variety of habitats; generally in moist, loose soil. They prefer soils with a high moisture content.	**None.** The Study Area lacks habitat for this species.
Anniella stebbinsi	Southern California legless lizard	Reptile	None	None	CDFW_SSC-Species of Special Concern USFS_S-Sensitive	Generally south of the Transverse Range, extending to northwestern Baja California. Occurs in sandy or loose loamy soils under sparse vegetation. Disjunct populations in the Tehachapi and Piute Mountains in Kern County.	Variety of habitats; generally in moist, loose soil. They prefer soils with a high moisture content.	**None:** This site lacks the habitat required for this species
Aspidoscelis tigris stejnegeri	Coastal whiptail	Reptiles	None	None	CDFW_SSC-Species of Special Concern	Found in deserts and semi-arid areas with sparse vegetation and open areas. Also found in woodland and riparian areas.	Ground may be firm soil, sandy, or rocky	**None:** This site lacks the habitat required for this species
Diadophis punctatus modestus	San Bernardino ring snake	Reptiles	None	None	USFS_S-Sensitive	Most common in open, relatively rocky areas. Often in somewhat moist microhabitats near intermittent streams.	Avoids moving through open or barren areas by restricting movements to areas of surface litter or herbaceous veg.	**None:** This site lacks the habitat required for this species
Phrynosoma blainvillii	coast horned lizard	Reptiles	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes.	Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	**None.** The Study Area lacks habitat for this species.

Thamnophis hammondii	Two-striped garter snake	Reptiles	None	None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	Coastal California from vicinity of Salinas to northwest Baja California. From sea to about 7,000 ft elevation.	Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	**None:** This site lacks the habitat required for this species
Thamnophis sirtalis pop. 1	South coast gartersnake	Reptiles	None	None	CDFW_SSC-Species of Special Concern	Southern California coastal plain from Ventura County to San Diego County, and from sea level to about 850 m.	Marsh and upland habitats near permanent water with good strips of riparian vegetation.	**None:** This site lacks the habitat required for this species

Appendix D

Biologist's Qualifications

Email: msouth@southenvironmental.com
Mobile: 303-818-3632

Matthew South

PRINCIPAL BIOLOGIST

EDUCATION

B.S., Wildlife Ecology, University of Wisconsin-Madison, 2004

CERTIFICATIONS

Certified Wildlife Biologist, The Wildlife Society 2014

Certified Technical Service Provider (TSP) for Fish and Wildlife Management Plans, USDA NRCS 2017

Authorized Desert Tortoise Biologist – Numerous BOs

Unmanned Aircraft System Pilot Certification, FAA #4177603

TRAINING

Wetland Delineation Training Course – The Wetland Institute (2014)

Southwest Willow Flycatcher Workshop, 2017

USGS Desert Tortoise Health Assessment and Tissue Collection Techniques Training, 2009

Matthew South founded South Environmental in 2018. He is a certified wildlife biologist with over 18 years of professional experience providing natural resources consulting services for a wide variety of clients that include residential, commercial, government, utility, infrastructure, research, and non-profit projects. For the last 15 years, Mr. South has been an environmental consultant in southern California acting as a Wildlife Biologist and Geographic Information System (GIS) Analyst. In early 2018 he started South Environmental and has since been supporting clients in Los Angeles, Ventura, Santa Barbara, San Bernardino, and Riverside Counties.

Mr. South's background in ecology has led to a passion for conservation planning and resources assessments for the purpose of preservation and management. The integration of the latest technologies such as advanced GIS systems, mobile computing, and drone sensing allows him to innovate new data collection, analysis, and collaboration tools for the environmental sciences that produce more accurate data and better-informed resource managers.

EXPERTISE

- **Conservation and Management Planning.** Mr. South's has extensive experience preparing mitigation and monitoring plans, habitat conservation plans, and technical biological resources management plans that are compliant with federal, state, and local regulations. Mr. South is the only active NRCS TSP for Fish and Wildlife Plans Certified in California.
- **Biological Resources Assessment.** Mr. South has completed dozens of biological resources assessments throughout southern California.
- **Rare Plants and Arborist Services.** Mr. South has surveyed and assessed thousands of native and landscaped trees in southern California. He is a certified arborist with 5-years of tree survey experience working closely with some of the most experienced arborists in California. In addition, he has performed hundreds of hours of rare plant surveys and habitat assessments.
- **Wetland & Jurisdictional Delineations.** Mr. South has conducted dozens of jurisdictional and wetland delineations per the guidelines and methods from the US Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW), and the state Regional Water Quality Control Boards (RWQCB).
- **GIS.** Mr. South is an expert at spatial data collection and analysis using ESRI mobile and desktop software products and Trimble hardware.

SELECT PROJECT EXPERIENCE

St. Andrews Recreation Center Project, City of Los Angeles Department of Recreation and Parks, California (2023). South Environmental was retained to conduct a Biological Resources Assessment (BRA) and Tree Survey Report for the St. Andrew's Recreation Center at 8701 S St. Andrew's Place in the City of Los Angeles, California for development on one parcel (Assessor's Identification Number [AIN] 6036-009-900) owned by the City of Los Angeles and administered by the Department of Recreation and Parks (RAP). The parcel (study area) is in the Empowerment Congress Southwest Area Neighborhood Council in the south-central part of the City and within the South Los Angeles Community Plan Area. This report identified sensitive or protected biological resources on the parcel and indicated the regulations governing these resources. The biological resources of the parcel was assessed based on a literature review and a field site survey. The Tree Report included a description of the survey area; methods used to survey the trees involving assessment of tree structure, health, and mapping; and the results of the survey including photographs of each tree.

Bronson Canyon Playground Project, City of Los Angeles Department of Recreation and Parks, California (2023). South Environmental was retained to prepare a BRA, jurisdictional delineation, and rare plant survey for the City of Los Angeles RAP Bronson Canyon Playground Project located at 3200 Canyon Drive in the City of Los Angeles, California, for the proposed construction of a playground and access improvements including a new pedestrian walkway on a parcel owned by the City of Los Angeles in Griffith Park with the Assessor's Identification Number [AIN] 5583-025-900. The BRA identified and assessed the potential impacts to sensitive or protected biological resources on the project site (development areas and associated work areas), indicated the regulations governing these resources, and discussed recommendations for avoiding or mitigating these impacts. The biological resources of the project site were assessed based on a literature review and a field site survey.

Bell Creek Brush Clearance Project, City of Los Angeles Department of Recreation and Parks, California (2023). South Environmental was retained to prepare an Invasive Plant Treatment and Monitoring Plan (plan) detailing the proposed actions to compensate for the temporary impacts to plant communities from the Bell Creek Brush Clearance Project under a Lake and Streambed Alteration Agreement. The implementation of the plan was consistent with measures included in that agreement, including measure 2.22 regarding invasive species management being conducted to ensure protection of the existing wildlife habitat. Implementation of clearance activities under the plan were designed to reduce the presence of and prevent the spread of non-native and invasive plant species within the Bell Creek area. The plan outlined monitoring and treatment methods to control the spread of non-native and invasive plant species in the project treatment areas and identified priority species and priority treatment areas to focus efforts and resources toward achieving the final success criteria. The biological resources of the parcel were assessed based on a literature review and a field site survey.

Various Locations, WEAP Trainings and Nesting Bird Surveys, City of Los Angeles Department of Recreation and Parks, California (2023). South Environmental was retained to provide Worker Environmental Awareness and Protection (WEAP) Trainings, field survey, monitoring, and reporting, for several City of Los Angeles RAP locations. South Environmental prepared a contractor education brochure in English and Spanish that provided information on protecting nesting birds and included pictures of sensitive plants and wildlife (particularly bats) occurring within the project areas. South Environmental also conducted environmental awareness training to Department inspectors, contractors, and subcontractors at the project site prior to the start of brush clearance activities. South Environmental also conducted as-needed nesting bird surveys, established buffer zones, and performed biological monitoring in response to the presence of active



nests. A brief letter report to RAP was prepared to document field observations, protective measures implemented, and the overall success of the measures.

Sepulveda Basin Prescribed Burn Project, City of Los Angeles Department of Recreation, Los Angeles, California (2022). South Environmental was retained to prepare a burrowing owl survey report for use by the City of Los Angeles RAP for the proposed prescribed burning of approximately 86.49 acres of undeveloped areas on the Sepulveda Basin Apollo XI/Valley Fliers Airfield and adjacent lands. Several active burrowing owl (*Athene cunicularia*) burrows were identified in October 2021 (survey area) during general surveys conducted to support the project in the early planning phase. This report was prepared according to Appendix C and Appendix D of the 2012 Staff Report on Burrowing Owl Mitigation. The report included a description of the project, biological setting, vegetation communities, survey methodology, and survey results that include burrowing owl behavior observations, and recommendations for project implementation that would avoid impacts to burrowing owls and active burrows.

Various Biology Reports within City of Los Angeles (2019-present). Mr. South has prepared and overseen the preparation of dozens of biological resources assessment reports within the City of Los Angeles. These reports are prepared within the range of the population of mountain lions that is the target of the listing status, in the Santa Monica Mountains, San Gabriel Mountains, Simi Hills, and Verdugo Hills. Numerous other projects have been completed that are not listed. Select Projects include:

- Baseline Road in LaVerne
- Altadena Hills Project
- 16 Beverly Park
- 64 Beverly Park
- 74 Beverly Park
- 79 Beverly Park
- Toyopa Drive
- Mapleton Drive
- Tigertail
- 680 Sarbonne
- 777 Sarbonne
- Stradella Road
- Tower Grove
- Bella Drive
- Chautauqua Boulevard
- Benedict Canyon
- Haslam Terrace
- Summitridge Drive
- Rial Lane
- Outpost Ave
- Pasquera
- Beverly Grove
- Multiple Granito Drive Projects
- Floral and Electra Drive Project
- Hillside
- Magnolia
- Swallow
- Sierra Mar
- Beverly Grove
- Stradella
- Chalon Road
- Moraga
- Brentridge
- Viewcrest
- Old Chimney Road
- Multiple Developments on Mulholland Highway
- Berkley Hall School Project
- Charmel Lane
- Paseo Miramar Roadway Project
- Posetano-Revello Project
- Palmera
- Shadow Mountain Drive
- Astral Project
- Nofral Road Projects
- San Onofre Drive
- Crescent Drive

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EDUCATION

B.S., Environmental Science and Resource Management, Cal State Channel Islands, 2022

SKILLS

-Scientific collection and management of field data

-Technical Writing

CERTIFICATIONS

40 hour HAZWOPER 2210261443803

TRAINING

Fauna del Noroeste Herptile Workshop, 2023

Meagan Najera

BIOLOGIST

Meagan Najera is a biologist with 2 years of experience conducting compliance monitoring, preconstruction surveys, and biological resources assessments and is a recent graduate from Cal State Channel Islands with a Bachelor of Science in Environmental Science and Resource Management. During their degree they gained extensive field experience while assisting on various student research projects. More recently they have endeavored to apply their skills to the area of biological monitoring and conservation. They have experience in avian biological monitoring for an environmental consulting firm during which they conducted field biological research on naval beaches. For the past year Meagan has focused on monitoring and nesting bird surveys in southern California.

Ms. Najera's passion for conservation led to her pursuit of her education in environmental science which has led to her peak interest in conservation planning. Their professional experience in biological monitoring has created a specific interest in avian species. Their first two years of professional experience has included numerous nesting bird surveys for utility clients such as Southern California Edison (SCE) and more recently for private developers.

EXPERTISE

- **Biological Monitoring.** Ms. Najera has experience monitoring natural habitats for avian and other T&E species.
- **Nesting Bird Surveys.** Ms. Najera has experience in identifying nesting bird species throughout southern California, including identification of endangered species.
- **Scientific Writing.** Ms. Najera has educational experience in writing scientific reports and presentations.

SELECT PROJECT EXPERIENCE

Trader Joe's Palmdale Warehouse Project (2023-ongoing). Meagan is the compliance monitor for a long-term monitoring project in Palmdale California. The project is constructing a Trader Joe's distribution Center on 130-acres in the City of Palmdale. The project has an ITP and LSAA that covers Mohave Ground Squirrel, western Joshua tree, 2 streams on the site, special-status reptiles, rare plants, Crotch's bumble bee, Swainson's hawk, and several other species. Meagan oversees compliance with all of the permitting documents.

Southern California Edison (SCE) On-Call Biological Services (2023-present). Meagan was a biologist contracted to perform construction and compliance monitoring for pole replacements and vegetation management projects. Other duties include preconstruction surveys for nesting birds and special-status species. For these projects Meagan has identified and protected numerous species including California red-legged frog, monarch butterfly, coast horned lizard, and the gaviota tarplant.

California Naval Base Biological Monitoring (2023). Meagan conducted biological monitoring of the western snowy plover and California least tern nesting and fledge surveys. She conducted ground telemetry surveys of the island fox on San Nicolas Island and also preformed bat outfly count surveys at various buildings on base.

California State Parks Biological Monitoring and Natural Resource Surveys (2022-2023). Meagan assisted the natural resource department in construction monitoring near a riparian area where riparian vegetation and wildlife were the target species. She also conducted avian surveys focusing on the western snowy plover and conducted plant surveys at 9 state parks.

City of Los Angeles Biological Resources Assessments (2023 – present). Meagan conducts site assessments for biological resources, surveys for special-status plants and animals, maps and characterizes plant communities and wetlands/streams, and assesses potential impacts to biological resources from proposed developments. Dana has worked on the following reports:

- 14815 Mulholland Highway BRA
- 6107 Mulholland Environmental Assessment Forms
- 1375 Summitridge Drive Biologist's Statement of Habitat
- 7007 Pacific View Avenue BRA
- 3598 Alta Mesa Biologist's Statement of Habitat
- 915 Andalusia BRA
- 1722 Benedict Canyon Statement of Biologist Resources

Appendix E

Arborist Report

Arborist Report

195 East Hillcrest Drive, City of Thousand Oaks, California

SEPTEMBER 2024

Prepared for:

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c/o Trammell Crow Company
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1 Introduction

This report summarizes Dudek's evaluation and analysis of tree resources within the tree survey area at the 195 East Hillcrest Drive Project (project) site (based on the site plan dated August 2024). The tree survey area, as discussed in this report, is defined as the project site plan limits plus a 15-foot buffer. The project site is located at 195, 275, and 325 East Hillcrest Drive in the City of Thousand Oaks, California (Figure 1, Project Location). The project site is located generally north of East Hillcrest Drive, east of North Moorpark Road, south of East Wilbur Road, and west of Hodencamp Road. The field inventory and assessment of the tree survey area was conducted on June 7, 2024. The focus of Dudek's field evaluation was to identify and inventory all trees within the tree survey area that are subject to regulation by the City of Thousand Oaks (City) Municipal Code that could be affected by the proposed development per the site plan. This report includes a discussion of tree inventory, evaluation, and analysis methods; a summary of findings; identification of anticipated impacts; and tree protection and tree impact mitigation recommendations consistent with the City's Municipal Code and the tree removal permit process specified therein.

The City requires a permit for the cutting, removal, protected zone encroachment, or relocation of any oak tree or landmark tree, which are defined as follows:

- **Oak Tree:** Any oak tree of the genus *Quercus* including, but not limited to, valley oak (*Quercus lobata*), coast live oak (*Quercus agrifolia*), and scrub oak (*Quercus berberidifolia*), regardless of size (City Municipal Code, Title 9, Chapter 4, Article 42, Oak Tree Preservation and Protection).
- **Landmark Tree:** Specimens of the following species that have reached the designated maturity: *Platanus racemosa* (California sycamore) that exceed 12 inches in diameter when measured at a point 4.5 feet above the natural grade at the base of the tree (diameter at standard height [DSH]), *Umbellularia californica* (California bay laurel) that exceed 8 inches in diameter when measured at a point 4.5 feet above the natural grade at the base of the tree, *Juglans californica* (Southern California black walnut) that exceed 8 inches in diameter when measured at a point 4.5 feet above the natural grade at the base of the tree, and *Heteromeles arbutifolia* (toyon) that exceed 8 inches in diameter when measured at a point 4.5 feet above the natural grade at the base of the tree. Trees with multiple trunks shall be deemed to have reached maturity if the sum of the diameters of the multiple trunks exceeds the required diameter plus 2 inches of a single trunked tree. Landmark trees shall also include all designated historic trees (City Municipal Code, Title 9, Chapter 4, Article 43, Landmark Tree Preservation and Protection).
- **Protected Zone:** A specifically defined area totally encompassing an oak, landmark, or historic tree within which work activities are strictly controlled. When depicted on a map, the outermost edge of the protected zone will appear as an irregular shaped circle that follows the contour of the dripline of the tree. Using the dripline as a point of reference, the protected zone shall commence at a point 5 feet outside of the dripline and extend inward to the trunk of the tree. In no case shall the protected zone be less than 15 feet from the trunk of a landmark tree (City Municipal Code, Title 9, Chapter 4, Articles 42 and 43).

Permits are not required to cut, remove, or encroach within the protected zone of any oak tree that does not exceed 2 inches in DSH (City Municipal Code, Title 9, Chapter 42). For the purposes of this arborist report, Dudek considers oak trees with multiple trunks to be protected if the sum of the diameters of the multiple trunks exceeds 4 inches.

Additional City approval is required for the cutting, removal, trimming, or alteration of street trees, which are defined as "tree[s] planted or to be located within the public right-of-way, or public service easement as a requirement of development or an entitlement of the same or adjacent property" (City Municipal Code, Title 7, Chapter 2, Article 9).

The analysis of potential tree impacts in this report considers the requirements outlined in the appropriate sections of the City's Municipal Code. The proposed project would remove 10 regulated oak trees, 9 protected landmark trees, and 94 ornamental trees due to site development. In addition to the 113 total tree removals, the project would encroach into the protected zone of 14 trees, including 5 protected oak trees and 2 landmark trees. In total 3 street trees that additionally qualify as regulated oak trees are located adjacent to the proposed project. No street trees will be removed to accommodate the project, and one would be encroached upon. Section 4 of this report recommends mitigation measures for anticipated tree removal and construction encroachment into the protected zone of regulated trees that would result from the proposed project. The provided measures are consistent with the provisions of the City Municipal Code.

1.1 Summary

The field survey recorded 278 trees within the survey area, 61 of which are subject to regulation under the City's Municipal Code. In total, Dudek's arborists recorded 46 protected oak trees (of which 3 are also street trees) and 15 landmark trees. The inventoried tree locations are depicted in Appendix A, Tree Locations. The proposed project's tree impacts are depicted in Appendix B, Tree Impacts. Construction of the proposed project is expected to require removal of up to 10 regulated oak trees, 9 landmark trees, and 94 ornamental trees, as well as encroachment into the protected zone of 5 protected oak trees, 2 landmark trees, and 7 ornamental trees. The remaining trees would be retained in place with no encroachments or pruning necessary. The following conditions may be placed on an oak tree and/or landmark tree permit (City Municipal Code, Title 9, Chapter 4, Articles 42 and 43):

1. Replacement or placement of additional trees on or off site
2. The relocation of a tree on or off site
3. The initiation of a maintenance and care program
4. Payment of a fee or donation of a boxed tree if there are no suitable on- or off-site planting locations

The City's Oak Tree Preservation and Protection Guidelines calls for one 15-gallon oak tree to be planted or donated for each dead or hazardous oak tree removed. For removal of healthy oak trees associated with commercial, industrial, and new residential development projects, the guidelines call for planting or donation of two 24-inch box trees and one 36-inch or 60-inch box tree. In the case of removal of oak trees larger than 48 inches in diameter, the applicant is required to obtain the largest nursery-grown oak tree available or provide two 60-inch box trees. The City's Municipal Code does not identify specific replacement requirements to mitigate for the removal of landmark trees, so this report applies the replacement requirements for the removal of oak trees to landmark tree removals. The City's Municipal Code requires the replacement of street tree removals with City-approved street trees (City Municipal Code, Title 7, Chapter 2, Article 9). The tree replacement recommendations contained herein are based on previous standards set forth in the City's Oak Tree Preservation and Protection Guidelines as well as current standards set forth in the City's Landscaping Provisions in Public Rights-of-Way Guidelines. Finally, Section 4 of this report provides construction-related tree protection recommendations and recommendations for long-term maintenance and care for regulated trees that will be retained on the project site.

Dudek recommends planting 29 oak trees (18 24-inch box trees, 9 36-inch box trees, and 2 60-inch box trees) and 27 western sycamore trees (18 24-inch box trees, and 9 36-inch box trees) on site to mitigate for the anticipated removal of 10 oak trees (including one oak tree over 48 inches in diameter) and 9 landmark trees.

Species composition of the planted trees should match the species removed at a ratio consistent with the City's Municipal Code.

A long-term monitoring and maintenance program is further recommended to mitigate for encroachments into the protected zone of regulated trees that would occur with the proposed project and to maintain the health of the trees retained on site. Further details regarding mitigation for planned tree removal is provided in Section 4.1 of this report.

1.2 Assignment

Dudek's International Society of Arboriculture (ISA) Certified Arborists performed the following tasks:

- Assessed and inventoried all trees with protected zones within the survey area and documented species, general health, general structural condition, size, appearance, and presence of pests
- Mapped the location of trees using GPS technology as necessary to develop a tree location exhibit and for planning reference
- Prepared a tree information matrix that details the attributes of each tree and identifies the species and protected status
- Analyzed tree attribute data and coordinated with the project design team to promote tree retention on site to the maximum extent practicable
- Evaluated tree impacts based on the project site plans (dated August 2024)
- Prepared this report to document the results of field surveys and impact analyses and provide recommendations for tree protection and impact mitigation measures in accordance with the provisions of the City's Municipal Code

1.3 Project Description

The proposed project is a horizontal mixed-use multifamily project to be developed on an 8.21-acre (357,659-square-foot) site located at 175, 275, and 325 East Hillcrest Drive in the City of Thousand Oaks. The site is currently improved with three buildings totaling 107,859 square feet, including two office buildings totaling 97,675 square feet and one standalone retail building of 10,184 square feet. The Project Site is bounded by a senior living facility to the north, East Hillcrest Drive to the south, residential and medical office uses to the east, and the Lang Creek concrete drainage channel and residential uses to the west. The Project would demolish the two existing office buildings and utilize the California State Density Bonus incentives program to construct a new five-story, 297-unit wrap multifamily building, including 25 units reserved as affordable and 394 parking stalls in an integrated parking garage. The existing standalone 10,184 SF retail building would remain in place. 52 stalls of surface parking would be provided on-site such that the Project would achieve multifamily and retail parking ratios that would meet or exceed City code, respectively.

1.4 Setting

1.4.1 Location

The project site is located at 195, 275, and 325 East Hillcrest Drive in the City of Thousand Oaks, California. The project site is located generally north of East Hillcrest Drive, east of North Moorpark Road, south of East Wilbur Road, and west of Hodencamp Road. The survey area is within portions of Assessor's Parcel Number 669-0-021-255.

1.4.2 General Physical Characteristics

The project site is a flat, paved site with several commercial buildings and associated parking. A human-made culvert runs directly west of the site within the 15-foot project buffer. The surrounding land use consists of public roads, commercial developments, and apartment buildings. Inventoried trees largely consist of planted ornamental landscape trees.

2 Methods

The following sections describe the methods used by Dudek's ISA Certified Arborists to inventory and evaluate trees in the tree survey area.

2.1 Field Tree Inventory and Evaluation

Dudek's ISA Certified Arborists Sarah Tian (WE-13677A) and Aida Castro (WE-13396A) conducted the tree inventory and evaluation on June 7, 2024, to document tree locations and attribute information for all trees within the survey area.

2.1.1 Tree Inventory

The Dudek arborists examined and mapped all trees with protected zones located within the tree survey area. Tree attribute data collected during the field survey included species, trunk diameter, tree height, canopy spread in eight cardinal directions, general health condition, structural condition, and presences of observable pests or other tree maladies. Trunk diameters were measured using a diameter tape that provides adjusted numbers for diameter measurements when wrapping the tape around the circumference of the trunk of a tree. Diameter measurements were collected using standard protocol described by the Council of Tree and Landscape Appraisers in the Guide for Plant Appraisal, published by the ISA, and in accordance with guidance given in the City's Oak Tree Preservation and Protection Guidelines and the City's Municipal Code.

Trunk diameter measurements were taken at 4.5 feet above the ground along the trunk axis, with a few common exceptions. In cases where the trunk of a tree split into multiple stems at approximately 4.5 feet above the ground, the measurement was made at the location that best represented the trunk's diameter. Tree height measurements were estimated by the arborist, and crown spread measurements were documented by "pacing off" the measurement based on the arborist's knowledge of their stride length or visually estimating the canopy width.

Pursuant to the Guide for Plant Appraisal (ISA 2000), tree health and structure were evaluated with respect to five distinct tree components: roots, trunk, scaffold branches, small branches, and foliage. Health and structure were graded as good, good/fair, fair, fair/poor, and poor. Good condition trees exhibit acceptable vigor, healthy foliage, minor if any structural issues, and no apparent maladies. Fair condition trees are typical, with few maladies and moderate structural issues, and may exhibit less vigor in foliage and new growth. Trees assigned a poor condition rating by Dudek's arborists exhibit significant health or structural problems or damage.

Tree locations were documented using iPhones coupled with an Arrow GPS receiver to improve location accuracy. Each surveyed tree was tagged on the north side of the trunk with an aluminum tree tag indicating the tree identification number. Dudek used the data collected to create a master tree inventory data set, inclusive of all regulated trees within the tree survey area.

Individual tree locations are presented in Appendix A, and individual tree attribute data and impact determinations are presented in Appendix B and Appendix C, Tree Information Matrix.

2.2 Tree Impact Analysis

Following data collection, processing, and analysis efforts, an impact determination was made for each tree based on proximity to the proposed disturbance area and building. Impact determinations used in this report include the following: Not Impacted (tree not affected by project), Removal (tree to be removed), and Encroachment (project disturbance would occur within the protected zone of the tree). A summary of project-related tree impacts is presented in Section 3.2, and Appendix C provides impact determination status for each tree recorded in the tree survey area.

2.3 Scope of Work Limitations

This report presents tree information as observed in the field. No root crown excavations or investigations, internal probing, or aerial canopy inspections were performed during the tree assessments. Therefore, the presence or absence of internal decay or other hidden or inaccessible inferiorities in individual trees, other than those evaluated with sonic tomography, could not be confirmed.

3 Findings/Results

3.1 Inventory Summary

Dudek's arborists recorded 278 trees with protected zones in the tree survey area. Of these 278 trees, 61 are protected by the City (46 protected oaks and15 landmark trees). Table 1 provides a summary of the species and regulatory status of the trees mapped within the tree survey area.

Table 1. Tree Species Summary

Botanical Name	Common Name	Protected Oak Tree	Street Tree	Landmark Tree	Non-protected Tree	Total Trees
Acer palmatum	Japanese maple	0	0	0	2	2
Acer saccharinum	silver maple	0	0	0	2	2
Callistemon viminalis	weeping bottlebrush	0	0	0	1	1
Citrus ×sinensis	orange	0	0	0	2	2
Eucalyptus cladocalyx	sugargum	0	0	0	4	4
Eucalyptus sideroxylon	red ironbark	0	0	0	19	19
Ficus carica	edible fig	0	0	0	1	1
Fraxinus uhdei	Shamel ash	0	0	0	31	31
Jacaranda mimosifolia	jacaranda	0	0	0	6	6
Lagerstroemia indica	crape myrtle	0	0	0	1	1
Liquidambar styraciflua	American sweetgum	0	0	0	16	16
Magnolia grandiflora	southern magnolia	0	0	0	2	2
Melaleuca quinquenervia	Australian paperbark	0	0	0	1	1
Morus alba	white mulberry	0	0	0	2	2
Pinus canariensis	Canary Island pine	0	0	0	32	32
Pinus halepensis	aleppo pine	0	0	0	4	4
Pinus thunbergii	Japanese black pine	0	0	0	4	4
Platanus racemosa	California sycamore	0	0	15	3	18
Platanus ×hispanica	London plane	0	0	0	12	12

Table 1. Tree Species Summary

Botanical Name	Common Name	Protected Oak Tree	Street Tree	Landmark Tree	Non-protected Tree	Total Trees
Prunus cerasifera	purple-leaf plum	0	0	0	6	6
Quercus agrifolia	coast live oak	36 (3)	0	0	1	37
Quercus kelloggii	California black oak	1	0	0	0	1
Quercus lobata	valley oak	9	0	0	0	9
Robinia pseudoacacia	black locust	0	0	0	1	1
Schinus molle	Peruvian pepper	0	0	0	17	17
Schinus terebinthifolius	Brazilian pepper	0	0	0	20	20
Ulmus parvifolia	Chinese elm	0	0	0	21	21
Washingtonia robusta	Mexican fan palm	0	0	0	5	5
Xylosma spp.	xylosma	0	0	0	1	1
Totals		46 (3)	0	15	217	278

Notes: Numbers in parentheses indicate trees that are protected oaks and street trees. Numbers in parentheses are included in counts of protected oak trees and are not included in counts of street trees.

As presented in Appendix C, of the 278 total trees, 83 (29.86%) trees exhibit good health, 163 (58.63%) trees exhibit fair health, 27 (9.71%) trees exhibit poor health, 2 (0.72%) trees exhibit critical health, and 3 (1.08%) trees are dead. Of these trees, 3 (1.08%) trees exhibit good structure, 245 (88.13%) trees exhibit fair structure, 25 (8.99%) trees exhibit poor structure, 2 (0.72%) trees exhibit critical structure, and 3 (1.08%) trees are dead. Trunk diameters range from 3 inches to 52 inches for single-stemmed trees and from 2 inches to 56 inches for multi-stemmed trees (total DSH). Tree heights range from 5 feet to 75 feet. Crown widths in a single cardinal direction from the trunk to the dripline range from 0 feet to 37 feet.

Of the 46 protected oak trees, including 3 street trees that qualify as protected oak trees, 22 (47.83%) trees exhibit good health, 22 (47.83%) trees exhibit fair health, and 2 (4.35%) trees exhibit poor health. Of these trees, 1 (2.17%) tree exhibits good structure, 41 (89.13%) trees exhibit fair structure, and 4 (8.70%) trees exhibit poor structure. Trunk diameters range from 3 inches to 52 inches for single-stemmed trees and from 10 inches to 56 inches for multi-stemmed trees (total DSH). Tree heights range from 10 feet to 40 feet. Crown widths in a single cardinal direction from the trunk to the dripline range from 0 feet to 35 feet.

Of the 15 landmark trees, 10 (66.67%) trees exhibit fair health, 4 (26.67%) trees exhibit poor health, and 1 (6.67%) tree exhibits critical health. Of these trees, 1 (6.67%) tree exhibits good structure, 10 (66.67%) trees exhibit fair structure, 3 (20.00%) trees exhibit poor structure, and 1 (6.67%) tree exhibits critical structure. Trunk diameters range from 16 inches to 33 inches for single-stemmed trees and from 18 inches to 21 inches for multi-stemmed trees (total DSH). Tree heights range from 30 feet to 65 feet. Crown widths in a single cardinal direction from the trunk to the dripline range from 5 feet to 37 feet. Individual attributes of each tree are presented in Appendix C.

3.2 Project-Related Impacts

There is wide variation in tolerance to construction impacts among tree species, and the response of an individual tree to impacts also varies with age and condition. Impacts assessed for this project include those trees with protected zones within 50 feet of proposed improvements and identified disturbance areas, as defined in the project site plan (dated August 2024). The impact discussion in this section identifies all impacts anticipated to result to regulated trees based on an evaluation of tree locations compared with the project site plan. Much of the site will need to be graded to accommodate the construction of buildings and parking lots and the placement of necessary infrastructure (utilities, access roads, fire lanes, etc.). Trees identified for retention and removal are graphically presented in the Tree Impacts figure included as Appendix B.

Based on August 2024 grading and development plans for the proposed project, a total of 10 regulated oak trees (including 1 oak tree over 48 inches in diameter), 9 landmark trees, and 94 ornamental trees will be removed, and 5 protected oak trees, 2 landmark trees, and 7 ornamental trees will be encroached upon. In total, the project will remove 113 trees, encroach upon 14 trees, and preserve 151 trees.

Table 2 summarizes impact determinations for all 278 trees within the survey area.

Table 2. Summary of Protected Tree Impact Determinations

Species	Impact Determination			Total
	Removal	Encroachment	No Impact	
Protected Oak	10	5	31	46
Landmark	9	2	4	15
Ornamental	94	7	116	217
Total Protected Oak Trees	**113**	**14**	**151**	**278**

3.3 Tree Relocation

During the relocation evaluation process, Dudek utilized a strict set of physical attribute criteria that a tree must exhibit to be considered a candidate for the very stressful relocation process. The success rates for transplanting large oak and landmark trees are relatively low (personal observation and Dagit and Downer 1997). Transplanting large oak trees places a great deal of stress on the trees due to difficulties that mature oaks have adapting to a new site after losing a minimum of 75% of their root mass. These additional stresses make oak trees more vulnerable to pests and diseases. Although they may live for a long time, large, transplanted oaks typically do not reach equilibrium health and vitality needed for long-term survival. The trees will exist in a declining spiral. A great deal of care, time, and attention is required during boxing, moving, storing, and transplanting to increase survival probability. Just as important, they require diligent and regular monitoring and maintenance for the rest of their lives.

In summary, younger, and smaller trees typically have a higher success rate post-transplant. These trees are still vigorously growing and are more adaptable to root disturbance and the transplant process. Trees with a trunk diameter less than approximately 15 inches typically perform better following transplant, and the smaller the tree, typically the higher relocation success and feasibility. Trees exhibiting maladies including declining health, internal decay, cavities,

uncorrectable branch architecture issues, co-dominant stems with included bark, and pest and/or disease infections are not considered for relocation. Trees must be in "good" health and structural condition (unless the species is unique or especially valuable where a "fair" condition tree may be considered a candidate) and include an accessible location, no observable soil impediments (rockbound roots, utilities), no overhead utilities, and no observable chronic pest infestations and/or disease infections. A full green canopy may give the appearance that a tree is healthy; however, with the potential presence of internal decay and the stress resulting from the relocation process, the trees may decline, resulting in tree loss and increased hazards, especially in an urbanized setting.

Some trees that are structurally sound and healthy, meeting all the criteria set for these attributes, may be rejected as relocation candidates based on soil issues. For instance, trees that are growing in soil that is highly sandy likely would be rejected due to the difficulty in boxing trees without "losing" the root ball as commonly happens in sandy soil. Similarly, trees in rocky soils may be rejected if "rock-bound" roots are suspected as these trees cannot be boxed cost-effectively. In these cases, the trees would be recommended for preservation in place, if possible.

Based on the above noted factors, none of the impacted (removal trees) tree are considered candidates for relocation.

4 Mitigation and Management Recommendations

4.1 Mitigation Recommendations

Removals

The City's Oak Tree Preservation and Protection Guidelines mitigation requirements for tree removals associated with development projects are summarized as follows:

- One 15-gallon oak tree must be planted or donated for each dead or hazardous oak tree removed.
- Two 24-inch box trees and one 36-inch or 60-inch box tree must be planted for each healthy oak tree removed for commercial, industrial, and new residential development projects.
- In the case of removal of oak trees larger than 48 inches in diameter, the applicant is required to obtain the largest nursery-grown oak tree available or plant two 60-inch box trees.

The proposed project would require removal of 10 regulated oak trees, including 1 oak tree with a cumulative DSH greater than 48 inches, and 9 landmark trees. Dudek recommends the mitigation shown in Table 3 for removals associated with the project.

Table 3. Mitigation Recommendations for Proposed Regulated Tree Removals

Species	Expected Removal	Recommended Mitigation Plantings		
		60-inch box trees	36-inch box trees	24-inch box trees
Healthy Regulated Oaks Less than 48 inches in Diameter	9	0	9	18
Healthy Regulated Oaks Larger than 48 inches in Diameter	1	2	0	0
Healthy Regulated Landmark Trees	9	0	9	18
Total	**19**	**2**	**18**	**36**

Encroachment into Protected Zone and Retained Trees

A long-term maintenance program is required by the City's Municipal Code to mitigate for encroachments into the protected zone of regulated trees that would occur with the proposed project and to maintain the health of the trees retained on the project site. In total, the proposed project will encroach into the protected zone of 14 trees, including 5 protected oak trees and 2 landmark trees. The total percentage of encroachment into the protected zone of the 14 trees ranged from 1% to 40%. These trees will require additional tree protection measures during construction. Should any of the protected oak or landmark trees die as result of the proposed construction, they shall be replaced

in accordance with the City's Oak Tree Preservation and Protection Guidelines. Appendix D provides tree protection recommendations to mitigate impacts from construction encroachment into the protected zone of regulated trees that would result from the proposed project. The measures included in Appendix D are consistent with the provisions of the City's Municipal Code and would help minimize impacts to preserved and encroached trees. Appendix D includes measures to implement prior to, during, and following construction. This includes measures such as exclusion fencing and worker training to avoid direct impacts to trees, and measures such as irrigation and monthly inspections by an arborist to promote the long-term health of retained trees. Dudek also recommends arborist monitoring during construction when encroachments into tree protection zones occur to minimize root disturbance and determine the best course of actions for root pruning, supplemental irrigation, branch trimming, or other measures that would minimize the impacts from ground disturbance or other potential impactful activities.

4.2 Tree Permits

The project applicant will need to submit an oak tree permit application and fee to the City's Community Development Department. A copy of this report and the final project site plan should accompany the application. An oak tree permit is required for the cutting, removal, encroachment into the protected zone, or relocation of any regulated oak tree. The Community Development Director may approve, deny, or conditionally approve a request for the removal of three or fewer oak trees that are less than 24 inches in DSH on a single parcel without hearing or notice. Any request for removal of four or more regulated oak trees or any oak tree 24 inches or greater in DSH on a single parcel will be reviewed by the Planning Commission following a public hearing, which will be held in conjunction with the Commission's consideration of other entitlement applications for the proposed project. The Commission may approve, conditionally approve, or deny the permit application. The decision of the Commission may be appealed to the City Council (see Section 9-4.4206 of the City's Municipal Code).

5 Disclosure

This arborist report provides conclusions and recommendations based only on a visual examination of the trees within the tree survey area by ISA Certified Arborists and reasonable reliance on the completeness and accuracy of the information provided to the arborist. The examination did not include subterranean or internal examination of the trees.

Arborists are tree specialists who use their education, knowledge, training, and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk of living near them. Although trees provide many benefits to those who live near them, they also include inherent risks from breakage or failure that can be minimized but not eliminated.

Arborists cannot detect every condition that could possibly lead to the failure of a tree. Trees are living organisms subject to attack by disease, insects, fungi, weather, and other forces of nature, and conditions that lead to failure are often hidden within trees and belowground. There are some inherent risks with trees that cannot be predicted with any degree of certainty, even by a skilled and experienced arborist. Arborists cannot predict acts of nature, including, without limitation, storms of sufficient strength, which can cause an apparently healthy tree to fail. Additionally, arborists cannot guarantee that a tree will be healthy or safe under all circumstances or for any specific period of time. A tree's condition could change over a short or long period of time due to climatic, cultural, or environmental conditions. Further, there is no guarantee or certainty that recommendations or efforts to correct unsafe conditions will prevent future breakage or failure of a tree.

To live or work near trees is to accept some degree of risk. Neither the author of this arborist report nor Dudek have assumed any responsibility for or will be liable for any claims, losses, or damages for damage to any tree, death or injury to any person, or any loss of or damage to any personal or real property.

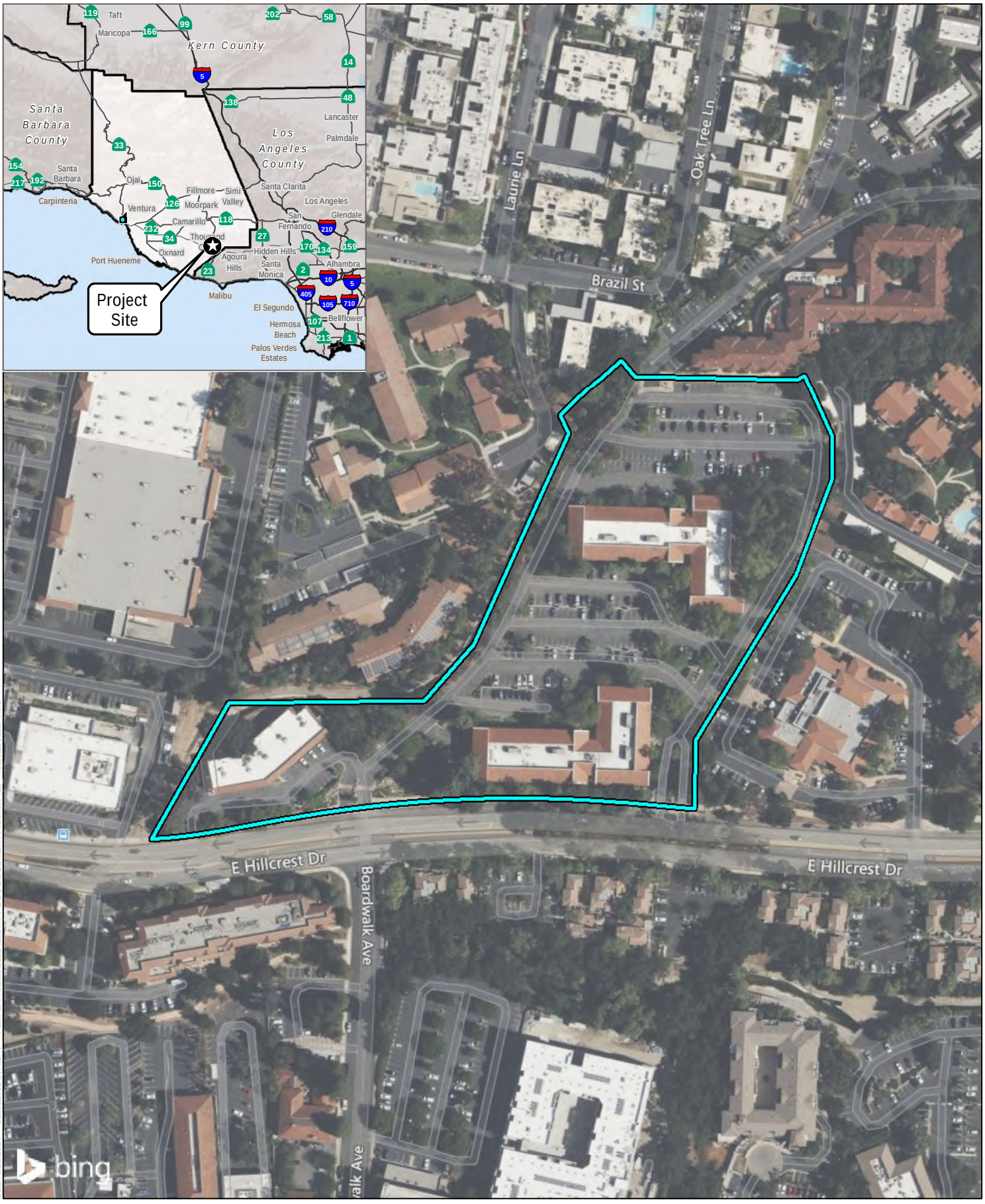
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6 References

Dagit, R., and A.J. Downer. 1997. “Status of Transplanted Coast Live Oaks (*Quercus agrifolia*) in Southern California.” U.S. Department of Agriculture Gen. Tech. Rep. PSW-GTR-160.

ISA (International Society of Arboriculture). 2000. *Guide for Plant Appraisal*. 9th ed. Champaign, Illinois: International Society of Arboriculture.

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SOURCE: AERIAL-BING MAPPING SERVICE 2023

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FIGURE 1

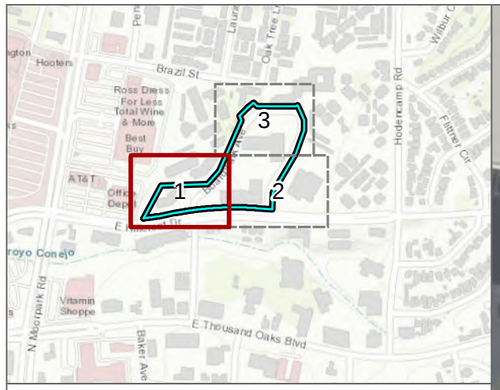
Project Location

Arborist Report for 195 East Hillcrest Drive

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Appendix A
Tree Locations



Project Site

15-Ft Buffer

Protected Tree

- *Platanus racemosa*, Western Sycamore
- *Quercus agrifolia*, Coast Live Oak

Ornamental

- *Eucalyptus sideroxylon*, Red Ironbark
- *Jacaranda mimosifolia*, Jacaranda
- *Liquidambar styraciflua*, American Sweetgum
- *Pinus canariensis*, Canary Island Pine
- *Platanus acerifolia*, London Plane
- *Prunus cerasifera*, Purple-Leaf Plum
- *Schinus molle*, California Pepper
- *Schinus terebinthifolius*, Brazilian Pepper
- *Ulmus parvifolia*, Chinese Elm
- *Fraxinus* spp.
- *Quercus lobata*
- Silver maple
- Xylosma

SOURCE: AERIAL - BING IMAGERY SERVICE 2023

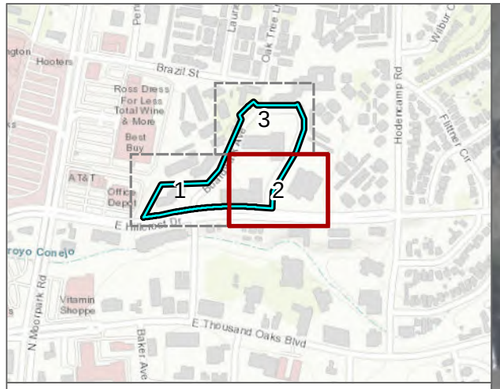
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APPENDIX A - VIEW 1

Tree Locations

Arborist Report for 195 East Hillcrest Drive



Project Site

15-Ft Buffer

Protected Tree

- *Platanus racemosa*, Western Sycamore
- *Quercus agrifolia*, Coast Live Oak

Ornamental

- *Jacaranda mimosifolia*, Jacaranda
- *Liquidambar styraciflua*, American Sweetgum
- *Pinus canariensis*, Canary Island Pine
- *Pinus halepensis*, Aleppo Pine
- *Platanus acerifolia*, London Plane
- *Prunus cerasifera*, Purple-Leaf Plum
- *Robinia pseudoacacia*, Black Locust
- *Schinus molle*, California Pepper
- *Schinus terebinthifolius*, Brazilian Pepper
- *Ulmus parvifolia*, Chinese Elm
- *Fraxinus* spp.
- *Pinus thunbergii*
- *Quercus lobata*
- Silver maple
- Valley oak

SOURCE: AERIAL - BING IMAGERY SERVICE 2023

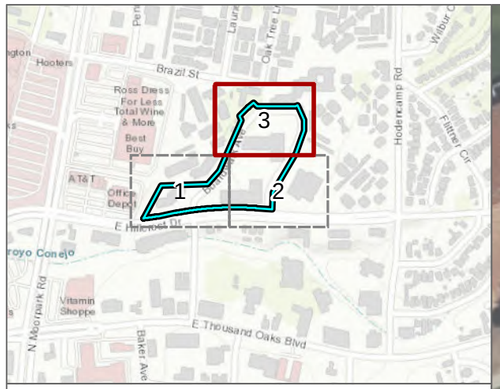
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APPENDIX A - VIEW 2

Tree Locations

Arborist Report for 195 East Hillcrest Drive



- Project Site
- 15-Ft Buffer

Protected Tree

- *Platanus racemosa*, Western Sycamore
- *Quercus agrifolia*, Coast Live Oak

Ornamental

- *Callistemon viminalis*, Weeping Bottlebrush
- *Eucalyptus cladocalyx*, Sugar Gum
- *Eucalyptus sideroxylon*, Red Ironbark
- *Fraxinus uhdei*, Shamel Ash
- *Lagerstroemia indica*, Crape Myrtle
- *Liquidambar styraciflua*, American Sweetgum
- *Magnolia grandiflora*, Southern Magnolia
- *Morus alba*, White Mulberry
- *Pinus canariensis*, Canary Island Pine
- *Pinus halepensis*, Aleppo Pine
- *Platanus acerifolia*, London Plane
- *Prunus cerasifera*, Purple-Leaf Plum
- *Schinus molle*, California Pepper
- *Schinus terebinthifolius*, Brazilian Pepper
- *Ulmus parvifolia*, Chinese Elm
- *Washingtonia robusta*, Mexican Fan Palm
- Callistemon/melaleuca spp.
- Edible fig
- *Fraxinus* spp.
- Japanese maple
- Orange
- *Pinus thunbergii*
- *Quercus kelloggi*
- *Quercus lobata*
- Valley oak

bing

SOURCE: AERIAL - BING IMAGERY SERVICE 2023

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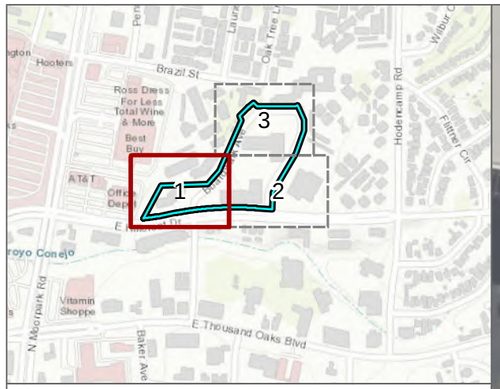
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APPENDIX A - VIEW 3

Tree Locations

Arborist Report for 195 East Hillcrest Drive

Appendix B
Tree Impacts



- Project Site
- 15-Ft Buffer
- Encroached Critical Root Zone
- Non-Encroached Critical Root Zone

Coast Live Oak Disposition

- Direct (8)
- Encroached (2)
- Preserve (27)

Western Sycamore Disposition

- Direct (11)
- Encroached (3)
- Preserve (4)

Ornamental Dispostion

- Direct (95)
- Encroached (4)
- Preserve (124)

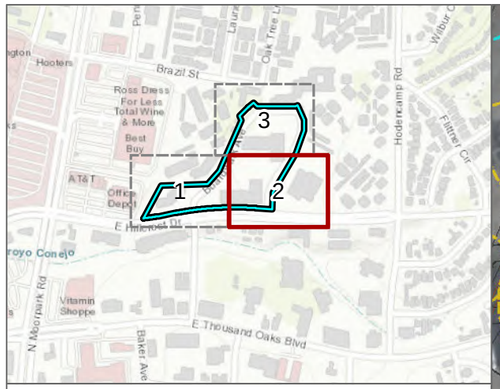
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APPENDIX B - VIEW 1

Tree Impacts

Arborist Report for 195 East Hillcrest Drive



- Project Site
- 15-Ft Buffer
- Encroached Critical Root Zone
- Non-Encroached Critical Root Zone

Coast Live Oak Disposition

- Direct (8)
- Encroached (2)
- Preserve (27)

Western Sycamore Disposition

- Direct (11)
- Encroached (3)
- Preserve (4)

Ornamental Dispostion

- Direct (95)
- Encroached (4)
- Preserve (124)

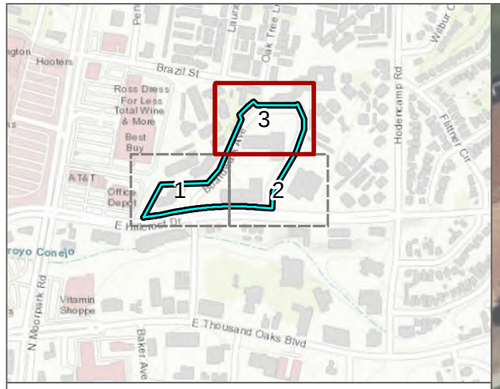
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APPENDIX B - VIEW 2

Tree Impacts

Arborist Report for 195 East Hillcrest Drive



- Project Site
- 15-Ft Buffer
- Encroached Critical Root Zone
- Non-Encroached Critical Root Zone

Coast Live Oak Disposition

- Direct (8)
- Encroached (2)
- Preserve (27)

Western Sycamore Disposition

- Direct (11)
- Encroached (3)
- Preserve (4)

Ornamental Dispostion

- Direct (95)
- Encroached (4)
- Preserve (124)

SOURCE: AERIAL-BING IMAGERY 2023; DEVELOPMENT-STANTEC 2024

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APPENDIX B - VIEW 3

Tree Impacts

Arborist Report for 195 East Hillcrest Drive

Appendix C
Tree Information Matrix

Appendix C- Tree Information Matrix																								
Tree No.	Botanical Name	Common Name	Cumulative DSH (inches)	Stems	Individual Stem Diameter						Height (feet)	Individual Crown Dimensions (feet)								Health	Structure	Protected	Impact	% of CRZ Encroached Upon	Notes
					1	2	3	4	5	6		N	NE	E	SE	S	SW	W	NW						
1	*Schinus molle*	Peruvian pepper	46	2	25	21	0	0	0	0	25	5	5	15	10	10	15	15	10	Fair	Fair	Ornamental	Preserve	0.00%	
2	*Eucalyptus sideroxylon*	red ironbark	48	2	27	21	0	0	0	0	50	5	10	15	20	20	15	12	10	Fair	Fair	Ornamental	Preserve	0.00%	
3	*Eucalyptus sideroxylon*	red ironbark	23	4	15	4	2	2	0	0	40	5	10	8	15	5	8	20	10	Fair	Fair	Ornamental	Preserve	0.00%	
4	*Eucalyptus sideroxylon*	red ironbark	20	1	20	0	0	0	0	0	55	15	10	15	15	10	8	10	20	Fair	Fair	Ornamental	Preserve	0.00%	
5	*Eucalyptus sideroxylon*	red ironbark	21	1	21	0	0	0	0	0	55	20	15	20	12	12	15	20	25	Fair	Fair	Ornamental	Preserve	0.00%	
6	*Eucalyptus sideroxylon*	red ironbark	35	3	17	14	4	0	0	0	40	25	15	15	10	10	8	15	25	Fair	Fair	Ornamental	Preserve	0.00%	
7	*Quercus lobata*	valley oak	51	1	51	0	0	0	0	0	40	30	30	20	25	20	20	30	25	Good	Fair	Protected oak	Preserve	0.00%	Cavity.
8	*Quercus lobata*	valley oak	3	1	3	0	0	0	0	0	15	5	9	8	8	5	5	8	6	Good	Fair	Protected oak	Preserve	0.00%	
9	*Quercus lobata*	valley oak	47	1	47	0	0	0	0	0	35	25	30	27	30	25	20	20	30	Fair	Fair	Protected oak	Preserve	0.00%	Minor crown dieback. Codominant stems above DSH height.
10	*Schinus molle*	Peruvian pepper	12	1	12	0	0	0	0	0	25	8	10	10	15	20	20	10	12	Fair	Fair	Ornamental	Preserve	0.00%	
11	*Ulmus parvifolia*	Chinese elm	15	1	15	0	0	0	0	0	35	20	15	15	22	20	15	25	15	Good	Fair	Ornamental	Preserve	0.00%	
12	*Fraxinus uhdei*	shamel ash	10	1	10	0	0	0	0	0	30	15	15	10	15	10	8	10	18	Fair	Fair	Ornamental	Preserve	0.00%	
13	*Quercus lobata*	valley oak	32	1	32	0	0	0	0	0	30	25	20	15	25	25	20	25	25	Fair	Fair	Protected oak	Preserve	0.00%	Low to average crown vigor.
14	*Schinus molle*	Peruvian pepper	11	1	11	0	0	0	0	0	25	17	15	12	8	10	12	12	10	Fair	Fair	Ornamental	Preserve	0.00%	
15	*Fraxinus uhdei*	shamel ash	8	1	8	0	0	0	0	0	28	10	7	10	15	20	10	20	15	Good	Fair	Ornamental	Preserve	0.00%	
16	*Schinus molle*	Peruvian pepper	9	1	9	0	0	0	0	0	20	5	5	4	4	12	10	8	8	Fair	Fair	Ornamental	Preserve	0.00%	
17	*Eucalyptus sideroxylon*	red ironbark	28	1	28	0	0	0	0	0	40	10	7	8	10	10	20	20	15	Fair	Fair	Ornamental	Preserve	0.00%	
18	*Pinus canariensis*	Canary Island pine	16	1	16	0	0	0	0	0	50	20	15	15	18	10	10	15	20	Fair	Fair	Ornamental	Preserve	0.00%	
19	*Eucalyptus sideroxylon*	red ironbark	12	1	12	0	0	0	0	0	25	15	5	4	4	10	7	7	15	Fair	Fair	Ornamental	Preserve	0.00%	
20	*Eucalyptus sideroxylon*	red ironbark	22	1	22	0	0	0	0	0	55	20	10	5	20	15	20	15	25	Fair	Fair	Ornamental	Preserve	0.00%	
21	*Pinus canariensis*	Canary Island pine	16	1	16	0	0	0	0	0	60	5	5	5	10	15	15	15	15	Fair	Fair	Ornamental	Preserve	0.00%	
22	*Pinus canariensis*	Canary Island pine	14	1	14	0	0	0	0	0	60	7	10	15	15	15	15	20	15	Poor	Fair	Ornamental	Preserve	0.00%	
23	*Eucalyptus sideroxylon*	red ironbark	27	1	27	0	0	0	0	0	55	15	15	10	12	15	15	17	25	Fair	Fair	Ornamental	Preserve	0.00%	
24	*Eucalyptus sideroxylon*	red ironbark	22	1	22	0	0	0	0	0	65	20	10	10	15	25	25	25	15	Fair	Fair	Ornamental	Preserve	0.00%	
25	*Schinus molle*	Peruvian pepper	8	1	8	0	0	0	0	0	15	5	3	3	4	7	20	9	10	Good	Fair	Ornamental	Preserve	0.00%	Bowed over.
26	*Eucalyptus sideroxylon*	red ironbark	24	1	24	0	0	0	0	0	50	20	15	15	25	20	25	15	20	Fair	Fair	Ornamental	Preserve	0.00%	
27	*Eucalyptus sideroxylon*	red ironbark	29	1	29	0	0	0	0	0	65	30	15	15	20	25	20	25	30	Fair	Fair	Ornamental	Preserve	0.00%	
28	*Pinus canariensis*	Canary Island pine	15	1	15	0	0	0	0	0	70	10	10	15	18	15	15	20	15	Fair	Fair	Ornamental	Preserve	0.00%	
29	*Pinus canariensis*	Canary Island pine	12	1	12	0	0	0	0	0	65	15	3	2	3	12	10	15	15	Fair	Fair	Ornamental	Preserve	0.00%	
30	*Pinus canariensis*	Canary Island pine	21	1	21	0	0	0	0	0	65	5	10	25	30	25	20	15	10	Good	Fair	Ornamental	Preserve	0.00%	
31	*Pinus canariensis*	Canary Island pine	12	1	12	0	0	0	0	0	70	8	8	10	10	10	10	10	15	Fair	Fair	Ornamental	Preserve	0.00%	
32	*Pinus canariensis*	Canary Island pine	14	1	14	0	0	0	0	0	60	10	10	15	10	5	7	7	20	Fair	Fair	Ornamental	Preserve	0.00%	
33	*Schinus terebinthifolius*	Brazilian pepper	7	1	7	0	0	0	0	0	15	8	5	7	10	10	10	8	8	Good	Fair	Ornamental	Preserve	0.00%	
34	*Fraxinus uhdei*	shamel ash	6	1	6	0	0	0	0	0	20	7	4	10	10	7	3	5	5	Fair	Fair	Ornamental	Preserve	0.00%	
35	*Fraxinus uhdei*	shamel ash	8	1	8	0	0	0	0	0	20	10	7	8	10	8	8	5	8	Fair	Fair	Ornamental	Preserve	0.00%	
36	*Pinus canariensis*	Canary Island pine	15	1	15	0	0	0	0	0	75	15	15	10	15	20	20	20	15	Fair	Fair	Ornamental	Preserve	0.00%	
37	*Pinus canariensis*	Canary Island pine	17	1	17	0	0	0	0	0	70	15	12	10	15	17	15	15	20	Fair	Fair	Ornamental	Preserve	0.00%	
38	*Eucalyptus sideroxylon*	red ironbark	18	1	18	0	0	0	0	0	40	10	10	15	20	17	15	10	8	Fair	Fair	Ornamental	Preserve	0.00%	
39	*Pinus canariensis*	Canary Island pine	11	1	11	0	0	0	0	0	55	5	5	10	15	10	14	7	5	Fair	Fair	Ornamental	Preserve	0.00%	
40	*Eucalyptus sideroxylon*	red ironbark	28	1	28	0	0	0	0	0	55	10	10	15	15	17	20	25	20	Fair	Fair	Ornamental	Preserve	0.00%	

Tree No.	Botanical Name	Common Name	Cumulative DSH (inches)	Stems	Individual Stem Diameter						Height (feet)	Individual Crown Dimensions (feet)								Health	Structure	Protected	Impact	% of CRZ Encroached Upon	Notes
					1	2	3	4	5	6		N	NE	E	SE	S	SW	W	NW						
41	*Schinus terebinthifolius*	Brazilian pepper	8	1	8	0	0	0	0	0	25	10	7	5	8	10	13	12	15	Fair	Fair	Ornamental	Preserve	0.00%	
42	*Platanus racemosa*	California sycamore	10	1	10	0	0	0	0	0	40	10	10	15	10	10	4	4	5	Poor	Fair	Ornamental	Preserve	0.00%	
43	*Eucalyptus sideroxylon*	red ironbark	30	1	30	0	0	0	0	0	55	30	17	15	12	15	15	35	30	Fair	Fair	Ornamental	Preserve	0.00%	
44	*Schinus molle*	Peruvian pepper	4	2	3	1	0	0	0	0	15	7	10	8	6	7	6	6	9	Fair	Fair	Ornamental	Preserve	0.00%	
45	*Eucalyptus cladocalyx*	sugar gum	5	1	5	0	0	0	0	0	25	8	7	4	3	7	6	10	10	Fair	Fair	Ornamental	Preserve	0.00%	
46	*Fraxinus uhdei*	shamel ash	8	1	8	0	0	0	0	0	27	12	6	6	6	7	10	8	10	Poor	Poor	Ornamental	Preserve	0.00%	Crown dieback.
47	*Eucalyptus cladocalyx*	sugar gum	4	1	4	0	0	0	0	0	20	10	10	12	10	6	5	7	10	Poor	Poor	Ornamental	Preserve	0.00%	Crown dieback.
48	*Schinus molle*	Peruvian pepper	4	1	4	0	0	0	0	0	15	4	3	8	7	7	5	3	5	Poor	Poor	Ornamental	Preserve	0.00%	Crown dieback.
49	*Eucalyptus cladocalyx*	sugar gum	4	1	4	0	0	0	0	0	10	3	10	12	10	6	5	7	4	Poor	Poor	Ornamental	Preserve	0.00%	
50	*Prunus cerasifera*	purple-leaf plum	18	10	4	3	2	2	2	1	10	5	3	7	8	10	10	8	5	Good	Fair	Ornamental	Preserve	0.00%	
51	*Fraxinus uhdei*	shamel ash	7	1	7	0	0	0	0	0	27	10	8	5	5	10	10	8	8	Fair	Fair	Ornamental	Preserve	0.00%	
52	*Washingtonia robusta*	Mexican fan palm	17	1	17	0	0	0	0	0	55	10	10	10	10	10	10	10	10	Good	Fair	Ornamental	Preserve	0.00%	
53	*Fraxinus uhdei*	shamel ash	7	1	7	0	0	0	0	0	15	5	7	5	5	5	5	7	10	Poor	Poor	Ornamental	Preserve	0.00%	Dieback.
54	*Fraxinus uhdei*	shamel ash	7	1	7	0	0	0	0	0	23	5	5	5	7	13	13	8	7	Fair	Fair	Ornamental	Preserve	0.00%	
55	*Eucalyptus cladocalyx*	sugar gum	4	1	4	0	0	0	0	0	12	8	4	4	5	7	7	6	7	Poor	Fair	Ornamental	Preserve	0.00%	Dieback.
56	*Fraxinus uhdei*	shamel ash	9	1	9	0	0	0	0	0	25	8	8	7	7	8	15	15	10	Fair	Fair	Ornamental	Preserve	0.00%	
57	*Schinus molle*	Peruvian pepper	18	2	13	5	0	0	0	0	25	8	10	15	15	15	15	15	15	Fair	Fair	Ornamental	Preserve	0.00%	
58	*Platanus racemosa*	California sycamore	10	1	10	0	0	0	0	0	25	5	5	10	10	10	5	5	5	Fair	Poor	Ornamental	Preserve	0.00%	Codominant, narrow angle of attachment.
59	*Schinus terebinthifolius*	Brazilian pepper	9	1	9	0	0	0	0	0	20	10	7	6	5	7	5	12	10	Good	Fair	Ornamental	Preserve	0.00%	
60	*Schinus molle*	Peruvian pepper	14	1	14	0	0	0	0	0	20	6	4	6	7	6	7	8	8	Poor	Poor	Ornamental	Preserve	0.00%	Dieback.
61	*Schinus terebinthifolius*	Brazilian pepper	18	3	8	6	4	0	0	0	20	7	5	12	12	12	12	15	15	Good	Fair	Ornamental	Preserve	0.00%	
62	*Quercus agrifolia*	coast live oak	17	1	17	0	0	0	0	0	35	12	10	10	15	18	15	25	22	Fair	Fair	Protected oak	Preserve	0.00%	Old tag 67. Crown dieback. Borer holes.
63	*Eucalyptus sideroxylon*	red ironbark	19	1	19	0	0	0	0	0	55	10	10	9	10	8	20	20	17	Fair	Fair	Ornamental	Preserve	0.00%	
64	*Schinus terebinthifolius*	Brazilian pepper	7	1	7	0	0	0	0	0	20	10	10	10	10	10	12	12	10	Fair	Fair	Ornamental	Preserve	0.00%	
65	*Eucalyptus sideroxylon*	red ironbark	20	1	20	0	0	0	0	0	40	10	7	7	6	10	15	15	10	Fair	Fair	Ornamental	Preserve	0.00%	
66	*Quercus agrifolia*	coast live oak	10	1	10	0	0	0	0	0	25	7	7	5	5	5	10	15	10	Fair	Fair	Protected oak	Preserve	0.00%	Old tag 68.
67	*Quercus agrifolia*	coast live oak	12	1	12	0	0	0	0	0	20	10	10	8	10	10	8	10	10	Fair	Poor	Protected oak	Preserve	0.00%	Old tag 69.
68	*Eucalyptus sideroxylon*	red ironbark	55	2	32	23	0	0	0	0	55	20	10	10	15	25	22	25	22	Fair	Fair	Ornamental	Preserve	0.00%	
69	*Platanus racemosa*	California sycamore	16	1	16	0	0	0	0	0	60	25	15	20	20	18	20	18	20	Fair	Good	Landmark	Preserve	0.00%	Old tag 70.
70	*Platanus racemosa*	California sycamore	21	3	8	7	6	0	0	0	35	15	10	10	10	10	5	10	17	Fair	Poor	Landmark	Preserve	0.00%	
71	*Quercus agrifolia*	coast live oak	8	1	8	0	0	0	0	0	25	10	6	13	10	10	5	5	5	Good	Fair	Protected oak	Preserve	0.00%	
72	*Quercus agrifolia*	coast live oak	2	2	1	1	0	0	0	0	5	0	5	8	0	0	0	0	0	Fair	Fair	Ornamental	Preserve	0.00%	
73	*Quercus agrifolia*	coast live oak	7	1	7	0	0	0	0	0	15	5	3	5	10	13	10	6	3	Fair	Fair	Protected oak	Preserve	0.00%	Old tag 73.
74	*Fraxinus uhdei*	shamel ash	16	1	16	0	0	0	0	0	22	12	10	10	10	12	12	16	15	Fair	Fair	Ornamental	Removal	100.00%	Dieback.
75	*Fraxinus uhdei*	shamel ash	13	1	13	0	0	0	0	0	18	7	7	7	12	15	15	12	8	Poor	Poor	Ornamental	Removal	100.00%	Dieback.
76	*Morus alba*	white mulberry	11	1	11	0	0	0	0	0	20	10	12	15	10	8	7	10	8	Poor	Poor	Ornamental	Removal	100.00%	Dieback.
77	*Eucalyptus sideroxylon*	red ironbark	28	1	28	0	0	0	0	0	40	30	25	15	20	15	32	20	20	Fair	Fair	Ornamental	Removal	100.00%	
78	*Fraxinus uhdei*	shamel ash	14	1	14	0	0	0	0	0	30	15	8	10	10	10	15	15	15	Fair	Fair	Ornamental	Removal	100.00%	
79	*Magnolia grandiflora*	Southern magnolia	7	1	7	0	0	0	0	0	20	10	4	3	5	10	8	10	10	Fair	Fair	Ornamental	Removal	100.00%	
80	*Melaleuca quinquenervia*	paperbark tree	9	1	9	0	0	0	0	0	25	5	5	5	6	8	7	8	4	Fair	Fair	Ornamental	Removal	100.00%	
81	*Callistemon viminalis*	weeping bottlebrush	7	1	7	0	0	0	0	0	22	12	10	12	0	0	0	0	0	Fair	Fair	Ornamental	Removal	100.00%	Lean.

Tree No.	Botanical Name	Common Name	Cumulative DSH (inches)	Stems	Individual Stem Diameter						Height (feet)	Individual Crown Dimensions (feet)								Health	Structure	Protected	Impact	% of CRZ Encroached Upon	Notes
					1	2	3	4	5	6		N	NE	E	SE	S	SW	W	NW						
82	*Liquidambar styraciflua*	American sweetgum	17	1	17	0	0	0	0	0	35	20	18	17	17	8	7	10	10	Fair	Fair	Ornamental	Removal	100.00%	Dieback.
83	*Schinus terebinthifolius*	Brazilian pepper	16	1	16	0	0	0	0	0	30	10	12	15	12	8	10	15	10	Fair	Fair	Ornamental	Removal	100.00%	
84	*Magnolia grandiflora*	Southern magnolia	5	1	5	0	0	0	0	0	20	9	7	7	9	9	9	9	9	Dead	Dead	Ornamental	Removal	100.00%	
85	*Schinus terebinthifolius*	Brazilian pepper	24	1	24	0	0	0	0	0	30	20	17	15	15	12	10	17	13	Fair	Fair	Ornamental	Removal	100.00%	
86	*Schinus terebinthifolius*	Brazilian pepper	16	1	16	0	0	0	0	0	30	10	12	15	12	8	12	15	15	Fair	Fair	Ornamental	Removal	100.00%	
87	*Schinus terebinthifolius*	Brazilian pepper	14	1	14	0	0	0	0	0	25	15	7	7	5	6	5	10	17	Fair	Fair	Ornamental	Removal	100.00%	
88	*Liquidambar styraciflua*	American sweetgum	10	1	10	0	0	0	0	0	30	15	10	7	10	10	10	7	10	Good	Fair	Ornamental	Removal	100.00%	
89	*Schinus terebinthifolius*	Brazilian pepper	21	1	21	0	0	0	0	0	25	15	15	10	10	5	5	12	15	Fair	Fair	Ornamental	Removal	100.00%	
90	*Platanus racemosa*	California sycamore	7	1	7	0	0	0	0	0	25	10	10	8	5	5	5	8	10	Fair	Fair	Ornamental	Removal	100.00%	
91	*Fraxinus uhdei*	shamel ash	16	1	16	0	0	0	0	0	25	13	14	12	13	15	15	15	10	Good	Fair	Ornamental	Removal	100.00%	
92	*Schinus terebinthifolius*	Brazilian pepper	15	1	15	0	0	0	0	0	30	10	8	8	10	8	10	17	13	Fair	Fair	Ornamental	Removal	100.00%	
93	*Schinus terebinthifolius*	Brazilian pepper	19	1	19	0	0	0	0	0	30	12	10	12	10	8	10	15	13	Fair	Fair	Ornamental	Removal	100.00%	
94	*Liquidambar styraciflua*	American sweetgum	7	1	7	0	0	0	0	0	30	5	5	5	5	5	6	5	5	Fair	Poor	Ornamental	Removal	100.00%	
95	*Liquidambar styraciflua*	American sweetgum	6	1	6	0	0	0	0	0	25	7	7	7	7	5	7	8	8	Fair	Fair	Ornamental	Removal	100.00%	
96	*Liquidambar styraciflua*	American sweetgum	9	1	9	0	0	0	0	0	20	5	4	4	3	5	7	10	8	Poor	Poor	Ornamental	Removal	100.00%	Topped.
97	*Quercus agrifolia*	coast live oak	29	1	29	0	0	0	0	0	35	30	25	30	20	15	12	25	35	Fair	Fair	Protected oak	Removal	100.00%	Old tag 57.
98	*Quercus agrifolia*	coast live oak	5	1	5	0	0	0	0	0	20	15	13	13	10	8	8	7	10	Poor	Fair	Protected oak	Encroached	40.00%	
99	*Platanus racemosa*	California sycamore	24	1	24	0	0	0	0	0	65	15	13	13	20	20	35	25	15	Poor	Fair	Landmark	Encroached	38.00%	
100	*Pinus halepensis*	Aleppo pine	30	1	30	0	0	0	0	0	55	10	20	25	15	17	13	12	10	Good	Fair	Ornamental	Preserve	0.00%	
101	*Pinus canariensis*	Canary Island pine	23	1	23	0	0	0	0	0	65	15	18	15	25	20	15	15	15	Fair	Fair	Ornamental	Removal	100.00%	
102	*Pinus halepensis*	Aleppo pine	23	1	23	0	0	0	0	0	65	15	10	15	15	15	9	10	9	Fair	Fair	Ornamental	Removal	100.00%	
103	*Platanus racemosa*	California sycamore	18	2	12	6	0	0	0	0	40	10	7	8	10	10	10	10	10	Critical	Critical	Landmark	Encroached	25.00%	
104	*Prunus cerasifera*	purple-leaf plum	3	1	3	0	0	0	0	0	20	5	13	13	10	5	4	3	4	Fair	Fair	Ornamental	Removal	100.00%	
105	*Platanus racemosa*	California sycamore	33	1	33	0	0	0	0	0	55	15	15	25	30	35	35	30	22	Fair	Fair	Landmark	Removal	100.00%	Old tag 62.
106	*Acer palmatum*	Japanese maple	5	5	1	1	1	1	1	0	12	5	3	4	5	5	3	3	3	Good	Fair	Ornamental	Encroached	34.00%	
107	*Acer palmatum*	Japanese maple	4	4	1	1	1	1	0	0	8	5	8	8	7	6	5	5	4	Fair	Fair	Ornamental	Removal	100.00%	
108	*Quercus agrifolia*	coast live oak	24	1	24	0	0	0	0	0	35	10	10	20	30	20	25	25	10	Fair	Fair	Protected oak	Removal	100.00%	Old tag 65. Cankers.
109	*Pinus canariensis*	Canary Island pine	29	1	29	0	0	0	0	0	65	12	7	10	15	20	20	17	25	Good	Fair	Ornamental	Removal	100.00%	
110	*Ulmus parvifolia*	Chinese elm	10	1	10	0	0	0	0	0	25	10	12	17	15	12	10	10	10	Fair	Fair	Ornamental	Preserve	0.00%	
111	*Pinus thunbergii*	black pine	9	1	9	0	0	0	0	0	25	8	6	10	8	8	8	7	5	Poor	Fair	Ornamental	Encroached	9.00%	
112	*Liquidambar styraciflua*	American sweetgum	12	1	12	0	0	0	0	0	40	5	10	9	8	9	8	7	7	Fair	Fair	Ornamental	Preserve	0.00%	
113	*Liquidambar styraciflua*	American sweetgum	10	1	10	0	0	0	0	0	45	8	8	7	8	7	7	7	5	Fair	Fair	Ornamental	Preserve	0.00%	
114	*Liquidambar styraciflua*	American sweetgum	5	1	5	0	0	0	0	0	25	6	5	5	6	8	8	7	7	Dead	Dead	Ornamental	Preserve	0.00%	
115	*Liquidambar styraciflua*	American sweetgum	9	1	9	0	0	0	0	0	40	10	8	8	6	5	4	7	10	Fair	Fair	Ornamental	Encroached	2.00%	
116	*Pinus canariensis*	Canary Island pine	17	1	17	0	0	0	0	0	55	20	20	18	13	10	10	20	15	Fair	Fair	Ornamental	Encroached	2.00%	
117	*Pinus halepensis*	Aleppo pine	33	1	33	0	0	0	0	0	60	0	0	0	35	30	8	0	0	Good	Fair	Ornamental	Preserve	0.00%	
118	*Pinus canariensis*	Canary Island pine	12	1	12	0	0	0	0	0	50	10	10	10	8	10	15	10	20	Fair	Fair	Ornamental	Preserve	0.00%	
119	*Quercus agrifolia*	coast live oak	44	2	22	22	0	0	0	0	40	25	25	30	25	12	10	10	10	Fair	Fair	Protected oak	Preserve	0.00%	Codominant stem.
120	*Quercus agrifolia*	coast live oak	30	1	30	0	0	0	0	0	30	20	20	25	20	12	13	20	26	Fair	Fair	Protected oak	Preserve	0.00%	
121	*Quercus lobata*	valley oak	31	1	31	0	0	0	0	0	35	10	10	32	30	20	25	25	20	Fair	Fair	Protected oak	Removal	100.00%	
122	*Fraxinus uhdei*	shamel ash	14	1	14	0	0	0	0	0	25	13	15	12	10	10	10	14	16	Poor	Fair	Ornamental	Removal	100.00%	
123	*Quercus agrifolia*	coast live oak	28	1	28	0	0	0	0	0	35	10	10	12	12	20	17	18	15	Good	Fair	Protected oak	Preserve	0.00%	Old tag 77.
124	*Quercus agrifolia*	coast live oak	29	1	29	0	0	0	0	0	30	20	12	15	15	15	15	20	20	Good	Fair	Protected oak	Encroached	1.00%	Old tag 78.
125	*Quercus agrifolia*	coast live oak	23	1	23	0	0	0	0	0	30	15	18	18	18	17	17	16	15	Good	Fair	Protected oak	Preserve	0.00%	Old tag 76.
126	*Quercus agrifolia*	coast live oak	21	1	21	0	0	0	0	0	30	16	16	15	13	15	15	18	15	Good	Fair	Protected oak	Preserve	0.00%	Old tag 76.

Tree No.	Botanical Name	Common Name	Cumulative DSH (inches)	Stems	Individual Stem Diameter						Height (feet)	Individual Crown Dimensions (feet)								Health	Structure	Protected	Impact	% of CRZ Encroached Upon	Notes
					1	2	3	4	5	6		N	NE	E	SE	S	SW	W	NW						
127	*Fraxinus uhdei*	shamel ash	7	2	4	3	0	0	0	0	23	7	7	6	7	10	10	9	9	Good	Fair	Ornamental	Preserve	0.00%	
128	*Quercus kelloggi*	black oak	3	1	3	0	0	0	0	0	12	7	5	8	9	8	8	8	7	Fair	Good	Protected oak	Preserve	0.00%	
129	*Ficus carica*	edible fig	7	5	3	1	1	1	1	0	20	8	10	13	10	7	7	7	9	Fair	Fair	Ornamental	Preserve	0.00%	Trunk data estimated cannot see.
130	*Schinus molle*	Peruvian pepper	24	1	24	0	0	0	0	0	35	15	15	15	10	10	10	0	10	Fair	Fair	Ornamental	Preserve	0.00%	
131	*Ulmus parvifolia*	Chinese elm	14	1	14	0	0	0	0	0	35	20	10	20	23	18	10	10	17	Fair	Poor	Ornamental	Preserve	0.00%	Wounds.
132	*Ulmus parvifolia*	Chinese elm	15	1	15	0	0	0	0	0	35	17	14	20	13	10	10	10	18	Fair	Fair	Ornamental	Preserve	0.00%	
133	*Ulmus parvifolia*	Chinese elm	12	1	12	0	0	0	0	0	40	15	5	20	22	17	25	15	14	Good	Fair	Ornamental	Preserve	0.00%	
134	*Schinus molle*	Peruvian pepper	26	1	26	0	0	0	0	0	30	15	13	13	13	13	12	13	20	Fair	Fair	Ornamental	Preserve	0.00%	
135	*Liquidambar styraciflua*	American sweetgum	7	1	7	0	0	0	0	0	25	8	7	8	7	5	5	5	8	Good	Good	Ornamental	Preserve	0.00%	
136	*Ulmus parvifolia*	Chinese elm	6	1	6	0	0	0	0	0	20	9	10	15	12	10	5	6	8	Fair	Fair	Ornamental	Preserve	0.00%	
137	*Ulmus parvifolia*	Chinese elm	18	1	18	0	0	0	0	0	35	20	15	22	20	20	20	28	25	Good	Fair	Ornamental	Encroached	5.00%	
138	*Quercus lobata*	valley oak	33	1	33	0	0	0	0	0	23	0	0	0	30	20	10	0	0	Fair	Poor	Protected oak	Preserve	0.00%	Severe lean; propped up.
139	*Liquidambar styraciflua*	American sweetgum	9	1	9	0	0	0	0	0	15	8	6	5	5	8	8	9	9	Fair	Poor	Ornamental	Preserve	0.00%	
140	*Schinus molle*	Peruvian pepper	20	1	20	0	0	0	0	0	20	15	10	8	7	10	10	10	10	Fair	Poor	Ornamental	Preserve	0.00%	
141	*Ulmus parvifolia*	Chinese elm	12	1	12	0	0	0	0	0	35	15	10	10	10	15	15	23	20	Fair	Fair	Ornamental	Preserve	0.00%	
142	*Ulmus parvifolia*	Chinese elm	13	1	13	0	0	0	0	0	35	5	0	0	0	0	10	15	10	Fair	Fair	Ornamental	Preserve	0.00%	
143	*Quercus agrifolia*	coast live oak	22	1	22	0	0	0	0	0	30	15	17	20	17	17	24	20	15	Good	Fair	Protected oak	Preserve	0.00%	Old tag 74.
144	*Schinus molle*	Peruvian pepper	15	1	15	0	0	0	0	0	25	8	8	10	7	7	17	13	15	Fair	Fair	Ornamental	Preserve	0.00%	
145	*Liquidambar styraciflua*	American sweetgum	12	1	12	0	0	0	0	0	50	8	7	7	8	7	8	9	7	Fair	Fair	Ornamental	Preserve	0.00%	
146	*Pinus halepensis*	Aleppo pine	37	1	37	0	0	0	0	0	55	10	8	9	9	17	25	23	15	Good	Fair	Ornamental	Preserve	0.00%	
147	*Pinus canariensis*	Canary Island pine	24	1	24	0	0	0	0	0	65	15	15	10	10	15	15	25	25	Good	Fair	Ornamental	Preserve	0.00%	
148	*Pinus canariensis*	Canary Island pine	25	1	25	0	0	0	0	0	70	15	12	10	10	15	18	20	16	Good	Fair	Ornamental	Preserve	0.00%	
149	*Pinus thunbergii*	black pine	9	2	7	2	0	0	0	0	35	0	7	10	0	10	7	0	0	Poor	Poor	Ornamental	Preserve	0.00%	
150	*Pinus canariensis*	Canary Island pine	23	1	23	0	0	0	0	0	70	13	5	7	10	20	20	20	13	Good	Fair	Ornamental	Preserve	0.00%	
151	*Pinus thunbergii*	black pine	8	1	8	0	0	0	0	0	23	4	0	20	10	7	5	0	0	Good	Fair	Ornamental	Preserve	0.00%	
152	*Pinus thunbergii*	black pine	7	1	7	0	0	0	0	0	35	4	0	5	6	8	15	10	4	Fair	Fair	Ornamental	Preserve	0.00%	
153	*Fraxinus uhdei*	shamel ash	12	1	12	0	0	0	0	0	25	10	6	10	10	15	15	15	10	Fair	Fair	Ornamental	Preserve	0.00%	
154	*Fraxinus uhdei*	shamel ash	10	1	10	0	0	0	0	0	25	12	10	10	12	8	13	10	15	Fair	Fair	Ornamental	Preserve	0.00%	
155	*Fraxinus uhdei*	shamel ash	10	1	10	0	0	0	0	0	25	10	10	12	12	10	10	7	6	Fair	Fair	Ornamental	Preserve	0.00%	
156	*Ulmus parvifolia*	Chinese elm	15	1	15	0	0	0	0	0	35	20	15	20	15	10	15	10	10	Good	Fair	Ornamental	Removal	100.00%	
157	*Ulmus parvifolia*	Chinese elm	10	1	10	0	0	0	0	0	35	10	5	5	5	10	20	20	10	Good	Fair	Ornamental	Removal	100.00%	
158	*Fraxinus uhdei*	shamel ash	11	1	11	0	0	0	0	0	30	5	20	10	8	5	0	2	3	Fair	Fair	Ornamental	Removal	100.00%	
159	*Fraxinus uhdei*	shamel ash	11	1	11	0	0	0	0	0	30	10	15	15	10	8	8	8	10	Fair	Fair	Ornamental	Removal	100.00%	
160	*Quercus agrifolia*	coast live oak	16	2	11	5	0	0	0	0	15	7	9	9	9	8	8	10	10	Fair	Fair	Protected oak	Preserve	0.00%	
161	*Jacaranda mimosifolia*	jacaranda	13	1	13	0	0	0	0	0	25	5	6	7	10	15	15	10	8	Fair	Fair	Ornamental	Preserve	0.00%	
162	*Platanus racemosa*	California sycamore	20	1	20	0	0	0	0	0	30	10	13	16	20	15	13	12	8	Fair	Fair	Landmark	Preserve	0.00%	Old tag 18.
163	*Quercus agrifolia*	coast live oak	9	1	9	0	0	0	0	0	10	10	10	10	8	6	7	7	8	Good	Fair	Protected oak	Preserve	0.00%	Borer holes. Old tag 17.
164	*Ulmus parvifolia*	Chinese elm	18	1	18	0	0	0	0	0	30	15	10	13	25	15	20	20	17	Good	Fair	Ornamental	Preserve	0.00%	
165	*Platanus x hispanica*	London plane	9	1	9	0	0	0	0	0	25	6	7	10	15	10	10	7	10	Poor	Poor	Ornamental	Preserve	0.00%	Old tag 16.
166	*Fraxinus uhdei*	shamel ash	12	1	12	0	0	0	0	0	25	10	13	13	10	10	9	5	5	Fair	Fair	Ornamental	Preserve	0.00%	
167	*Acer saccharinum*	Silver maple	13	1	13	0	0	0	0	0	25	10	10	10	10	12	13	10	10	Good	Fair	Ornamental	Preserve	0.00%	

Tree No.	Botanical Name	Common Name	Cumulative DSH (inches)	Stems	Individual Stem Diameter						Height (feet)	Individual Crown Dimensions (feet)								Health	Structure	Protected	Impact	% of CRZ Encroached Upon	Notes
					1	2	3	4	5	6		N	NE	E	SE	S	SW	W	NW						
168	*Fraxinus uhdei*	shamel ash	9	1	9	0	0	0	0	0	20	8	7	3	3	5	8	8	10	Poor	Poor	Ornamental	Preserve	0.00%	
169	*Schinus terebinthifolius*	Brazilian pepper	13	1	13	0	0	0	0	0	25	10	8	7	6	10	10	10	12	Good	Fair	Ornamental	Removal	100.00%	
170	*Ulmus parvifolia*	Chinese elm	12	1	12	0	0	0	0	0	25	20	15	10	13	13	20	15	15	Good	Fair	Ornamental	Removal	100.00%	
171	*Fraxinus uhdei*	shamel ash	8	1	8	0	0	0	0	0	22	10	8	9	8	7	7	10	12	Good	Fair	Ornamental	Removal	100.00%	
172	*Fraxinus uhdei*	shamel ash	10	1	10	0	0	0	0	0	25	15	9	7	5	7	8	10	20	Good	Fair	Ornamental	Removal	100.00%	
173	*Jacaranda mimosifolia*	jacaranda	4	1	4	0	0	0	0	0	10	0	10	10	12	5	0	0	0	Poor	Poor	Ornamental	Removal	100.00%	Dieback.
174	*Jacaranda mimosifolia*	jacaranda	6	1	6	0	0	0	0	0	25	9	8	5	7	12	9	8	8	Fair	Fair	Ornamental	Removal	100.00%	
175	*Pinus canariensis*	Canary Island pine	26	1	26	0	0	0	0	0	55	15	10	10	10	10	12	12	15	Good	Fair	Ornamental	Removal	100.00%	
176	*Pinus canariensis*	Canary Island pine	18	1	18	0	0	0	0	0	45	17	10	8	10	13	10	10	10	Fair	Fair	Ornamental	Removal	100.00%	
177	*Liquidambar styraciflua*	American sweetgum	11	1	11	0	0	0	0	0	35	10	12	12	12	10	10	10	10	Good	Fair	Ornamental	Removal	100.00%	
178	*Prunus cerasifera*	purple-leaf plum	15	2	9	6	0	0	0	0	15	5	6	5	5	8	9	8	7	Fair	Fair	Ornamental	Removal	100.00%	
179	*Prunus cerasifera*	purple-leaf plum	10	3	4	3	3	0	0	0	20	5	5	6	7	8	7	7	6	Fair	Fair	Ornamental	Removal	100.00%	
180	*Platanus racemosa*	California sycamore	24	1	24	0	0	0	0	0	60	15	25	20	25	25	15	10	15	Poor	Fair	Landmark	Removal	100.00%	Old tag 23. Dieback.
181	*Pinus canariensis*	Canary Island pine	18	1	18	0	0	0	0	0	60	8	6	6	7	14	15	7	20	Fair	Fair	Ornamental	Removal	100.00%	
182	*Pinus canariensis*	Canary Island pine	13	1	13	0	0	0	0	0	40	10	3	3	4	4	8	15	10	Fair	Fair	Ornamental	Removal	100.00%	
183	*Quercus agrifolia*	coast live oak	12	1	12	0	0	0	0	0	25	5	5	5	5	15	17	10	7	Poor	Poor	Protected oak	Removal	100.00%	Old tag 25. Dieback.
184	*Pinus canariensis*	Canary Island pine	20	1	20	0	0	0	0	0	65	8	10	10	15	15	10	8	8	Fair	Fair	Ornamental	Removal	100.00%	
185	*Pinus canariensis*	Canary Island pine	28	1	28	0	0	0	0	0	75	13	14	18	22	18	13	30	15	Good	Fair	Ornamental	Removal	100.00%	
186	*Pinus canariensis*	Canary Island pine	14	1	14	0	0	0	0	0	45	8	8	10	10	10	9	9	8	Fair	Fair	Ornamental	Removal	100.00%	
187	*Pinus canariensis*	Canary Island pine	26	1	26	0	0	0	0	0	65	13	10	10	10	17	15	18	17	Fair	Fair	Ornamental	Removal	100.00%	
188	*Ulmus parvifolia*	Chinese elm	13	1	13	0	0	0	0	0	35	17	15	10	10	15	15	20	20	Good	Fair	Ornamental	Removal	100.00%	
189	*Quercus agrifolia*	coast live oak	13	1	13	0	0	0	0	0	20	5	6	8	12	10	10	9	8	Fair	Fair	Protected oak	Encroached	22.00%	Street tree. Old tag 26.
190	*Quercus agrifolia*	coast live oak	17	1	17	0	0	0	0	0	20	5	5	10	15	17	20	15	10	Fair	Poor	Protected oak	Preserve	0.00%	Street tree. Old tag 27.
191	*Schinus molle*	Peruvian pepper	25	1	25	0	0	0	0	0	35	10	10	12	15	17	16	20	10	Fair	Fair	Ornamental	Removal	100.00%	
192	*Pinus canariensis*	Canary Island pine	18	1	18	0	0	0	0	0	55	10	13	14	13	12	15	15	15	Good	Fair	Ornamental	Removal	100.00%	
193	*Jacaranda mimosifolia*	jacaranda	12	1	12	0	0	0	0	0	30	5	6	10	17	10	6	7	6	Fair	Fair	Ornamental	Removal	100.00%	
194	*Pinus canariensis*	Canary Island pine	15	1	15	0	0	0	0	0	65	18	15	13	10	10	10	10	13	Fair	Fair	Ornamental	Removal	100.00%	
195	*Jacaranda mimosifolia*	jacaranda	9	1	9	0	0	0	0	0	20	3	3	3	3	7	15	17	10	Fair	Fair	Ornamental	Encroached	26.00%	
196	*Quercus agrifolia*	coast live oak	18	1	18	0	0	0	0	0	25	10	10	8	17	20	15	15	15	Good	Fair	Protected oak	Encroached	32.00%	Old tag 28.
197	*Platanus racemosa*	California sycamore	18	1	18	0	0	0	0	0	50	15	18	18	15	10	10	15	16	Poor	Poor	Landmark	Removal	100.00%	Old tag 29. Dieback.
198	*Jacaranda mimosifolia*	jacaranda	9	1	9	0	0	0	0	0	30	5	8	20	13	10	10	5	5	Fair	Fair	Ornamental	Encroached	23.00%	
199	*Pinus canariensis*	Canary Island pine	19	1	19	0	0	0	0	0	45	15	10	10	10	10	15	14	15	Fair	Fair	Ornamental	Removal	100.00%	
200	*Quercus agrifolia*	coast live oak	15	1	15	0	0	0	0	0	25	10	5	7	13	10	14	17	14	Good	Fair	Protected oak	Encroached	6.00%	Old tag 30.
201	*Quercus agrifolia*	coast live oak	10	1	10	0	0	0	0	0	20	5	6	7	8	10	8	10	7	Good	Fair	Protected oak	Preserve	0.00%	Old tag 32. Street tree.
202	*Platanus racemosa*	California sycamore	33	1	33	0	0	0	0	0	50	5	7	7	25	37	20	25	6	Fair	Fair	Landmark	Removal	100.00%	
203	*Ulmus parvifolia*	Chinese elm	12	1	12	0	0	0	0	0	40	10	15	20	25	20	8	7	10	Good	Fair	Ornamental	Removal	100.00%	
204	*Ulmus parvifolia*	Chinese elm	14	1	14	0	0	0	0	0	35	10	10	10	17	20	10	10	10	Good	Fair	Ornamental	Removal	100.00%	
205	*Quercus agrifolia*	coast live oak	56	2	28	28	0	0	0	0	35	13	15	18	20	20	20	15	13	Good	Fair	Protected oak	Removal	100.00%	Codominant stems.
206	*Schinus terebinthifolius*	Brazilian pepper	28	2	16	12	0	0	0	0	30	5	7	10	12	18	10	10	7	Fair	Fair	Ornamental	Removal	100.00%	
207	*Pinus canariensis*	Canary Island pine	25	1	25	0	0	0	0	0	70	10	12	13	12	14	15	12	10	Fair	Fair	Ornamental	Removal	100.00%	
215	*Fraxinus uhdei*	shamel ash	6	1	6	0	0	0	0	0	25	5	7	8	6	6	6	4	4	Fair	Fair	Ornamental	Preserve	0.00%	
220	*Ulmus parvifolia*	Chinese elm	13	1	13	0	0	0	0	0	35	15	13	14	15	13	13	13	15	Good	Fair	Ornamental	Removal	100.00%	

Tree No.	Botanical Name	Common Name	Cumulative DSH (inches)	Stems	Individual Stem Diameter						Height (feet)	Individual Crown Dimensions (feet)								Health	Structure	Protected	Impact	% of CRZ Encroached Upon	Notes
					1	2	3	4	5	6		N	NE	E	SE	S	SW	W	NW						
221	*Quercus agrifolia*	coast live oak	23	2	12	11	0	0	0	0	30	20	15	10	10	8	8	8	10	Good	Fair	Protected oak	Removal	100.00%	Codominant.
222	*Liquidambar styraciflua*	American sweetgum	13	1	13	0	0	0	0	0	35	17	10	7	6	8	9	10	13	Fair	Fair	Ornamental	Removal	100.00%	
223	*Schinus terebinthifolius*	Brazilian pepper	28	1	28	0	0	0	0	0	25	10	13	10	12	17	16	17	13	Fair	Fair	Ornamental	Removal	100.00%	
224	*Schinus terebinthifolius*	Brazilian pepper	12	1	12	0	0	0	0	0	23	10	8	7	7	8	7	13	13	Fair	Fair	Ornamental	Removal	100.00%	
225	*Fraxinus uhdei*	shamel ash	15	1	15	0	0	0	0	0	27	13	16	17	13	10	10	10	12	Good	Fair	Ornamental	Removal	100.00%	
226	*Quercus agrifolia*	coast live oak	34	2	17	17	0	0	0	0	40	17	15	15	15	25	22	10	15	Good	Fair	Protected oak	Removal	100.00%	Codominant.
227	*Platanus racemosa*	California sycamore	21	1	21	0	0	0	0	0	55	15	10	20	23	23	20	12	13	Fair	Fair	Landmark	Removal	100.00%	Old tag 42.
228	*Platanus racemosa*	California sycamore	16	1	16	0	0	0	0	0	45	15	10	10	20	20	20	14	15	Poor	Poor	Landmark	Removal	100.00%	
229	*Quercus lobata*	valley oak	36	1	36	0	0	0	0	0	35	20	10	15	15	20	25	15	20	Fair	Fair	Protected oak	Removal	100.00%	Low to fair vigor.
230	*Ulmus parvifolia*	Chinese elm	16	1	16	0	0	0	0	0	40	23	15	12	12	13	15	17	23	Good	Fair	Ornamental	Removal	100.00%	
231	*Ulmus parvifolia*	Chinese elm	13	1	13	0	0	0	0	0	30	10	9	9	10	16	23	15	10	Good	Fair	Ornamental	Removal	100.00%	
232	*Platanus x hispanica*	London plane	12	1	12	0	0	0	0	0	40	10	9	8	18	20	15	15	10	Poor	Fair	Ornamental	Removal	100.00%	Dieback.
233	*Liquidambar styraciflua*	American sweetgum	14	1	14	0	0	0	0	0	40	9	9	8	9	10	10	10	10	Good	Fair	Ornamental	Removal	100.00%	
234	*Liquidambar styraciflua*	American sweetgum	10	1	10	0	0	0	0	0	30	10	10	10	10	10	10	10	10	Good	Fair	Ornamental	Removal	100.00%	
235	*Platanus x hispanica*	London plane	10	1	10	0	0	0	0	0	40	10	10	10	12	15	12	10	12	Fair	Fair	Ornamental	Removal	100.00%	
236	*Platanus x hispanica*	London plane	12	1	12	0	0	0	0	0	35	10	10	10	10	13	15	17	18	Fair	Fair	Ornamental	Removal	100.00%	
237	*Pinus canariensis*	Canary Island pine	28	1	28	0	0	0	0	0	65	10	12	17	17	18	20	20	17	Good	Fair	Ornamental	Removal	100.00%	
238	*Quercus agrifolia*	coast live oak	30	1	30	0	0	0	0	0	35	10	10	15	20	23	20	18	10	Good	Fair	Protected oak	Removal	100.00%	Old tag 45.
239	*Platanus racemosa*	California sycamore	20	1	20	0	0	0	0	0	60	15	10	15	15	20	20	16	15	Fair	Fair	Landmark	Removal	100.00%	Old tag 46.
240	*Schinus terebinthifolius*	Brazilian pepper	16	1	16	0	0	0	0	0	30	10	10	10	7	8	10	15	13	Fair	Fair	Ornamental	Removal	100.00%	
241	*Prunus cerasifera*	purple-leaf plum	9	3	5	3	1	0	0	0	20	7	5	2	3	2	2	10	10	Dead	Dead	Ornamental	Removal	100.00%	
242	*Fraxinus uhdei*	shamel ash	12	1	12	0	0	0	0	0	30	10	6	5	5	10	13	13	10	Fair	Fair	Ornamental	Removal	100.00%	
243	*Schinus molle*	Peruvian pepper	7	1	7	0	0	0	0	0	20	5	5	5	5	8	8	8	3	Fair	Fair	Ornamental	Removal	100.00%	
244	*Morus alba*	white mulberry	10	1	10	0	0	0	0	0	20	10	10	10	10	10	10	10	10	Good	Fair	Ornamental	Removal	100.00%	
245	*Platanus x hispanica*	London plane	9	1	9	0	0	0	0	0	30	10	13	12	10	10	10	10	15	Fair	Fair	Ornamental	Removal	100.00%	
246	*Quercus agrifolia*	coast live oak	22	6	6	5	5	4	1	1	15	8	8	8	7	8	9	9	8	Good	Fair	Protected oak	Removal	100.00%	
247	*Platanus x hispanica*	London plane	11	1	11	0	0	0	0	0	20	5	5	6	8	5	5	5	5	Critical	Critical	Ornamental	Removal	100.00%	
248	*Platanus x hispanica*	London plane	11	1	11	0	0	0	0	0	20	10	12	13	10	10	10	10	13	Fair	Fair	Ornamental	Removal	100.00%	
249	*Platanus x hispanica*	London plane	11	1	11	0	0	0	0	0	20	10	9	8	10	10	10	10	10	Fair	Fair	Ornamental	Removal	100.00%	
250	*Platanus x hispanica*	London plane	11	1	11	0	0	0	0	0	25	10	10	10	8	10	10	10	10	Fair	Fair	Ornamental	Removal	100.00%	
251	*Platanus racemosa*	California sycamore	17	1	17	0	0	0	0	0	30	12	10	10	10	13	18	17	14	Fair	Fair	Landmark	Removal	100.00%	
252	*Platanus x hispanica*	London plane	7	1	7	0	0	0	0	0	20	10	10	10	10	8	8	10	10	Poor	Fair	Ornamental	Removal	100.00%	
253	*Robinia pseudoacacia*	black locust	12	1	12	0	0	0	0	0	25	13	12	8	10	10	10	12	10	Good	Fair	Ornamental	Removal	100.00%	
254	*Fraxinus uhdei*	shamel ash	12	1	12	0	0	0	0	0	25	10	9	10	10	9	9	9	8	Good	Fair	Ornamental	Removal	100.00%	
255	*Platanus racemosa*	California sycamore	23	1	23	0	0	0	0	0	60	18	20	25	10	10	10	15	15	Fair	Fair	Landmark	Removal	100.00%	Old tag 36. Codominant, narrow angle of attachment.
256	*Schinus terebinthifolius*	Brazilian pepper	12	1	12	0	0	0	0	0	25	8	8	8	7	8	10	12	8	Fair	Fair	Ornamental	Removal	100.00%	
257	*Schinus terebinthifolius*	Brazilian pepper	15	1	15	0	0	0	0	0	30	12	10	10	10	9	10	15	15	Fair	Fair	Ornamental	Removal	100.00%	Estimated data no tag, private tree
258	*Platanus x hispanica*	London plane	12	1	12	0	0	0	0	0	30	12	10	10	10	10	10	10	13	Poor	Fair	Ornamental	Removal	100.00%	
259	*Platanus x hispanica*	London plane	10	1	10	0	0	0	0	0	30	10	8	8	8	10	10	10	12	Fair	Fair	Ornamental	Removal	100.00%	
260	*Schinus terebinthifolius*	Brazilian pepper	26	1	26	0	0	0	0	0	35	10	10	10	10	13	10	15	13	Fair	Fair	Ornamental	Removal	100.00%	
261	*Ulmus parvifolia*	Chinese elm	16	1	16	0	0	0	0	0	35	15	10	17	15	20	20	18	20	Good	Fair	Ornamental	Removal	100.00%	

Tree No.	Botanical Name	Common Name	Cumulative DSH (inches)	Stems	Individual Stem Diameter						Height (feet)	Individual Crown Dimensions (feet)								Health	Structure	Protected	Impact	% of CRZ Encroached Upon	Notes
					1	2	3	4	5	6		N	NE	E	SE	S	SW	W	NW						
262	*Acer saccharinum*	Silver maple	25	1	25	0	0	0	0	0	45	23	18	15	16	18	15	15	15	Good	Fair	Ornamental	Removal	100.00%	
263	*Prunus cerasifera*	purple-leaf plum	13	1	13	0	0	0	0	0	25	10	10	12	10	13	16	17	10	Good	Fair	Ornamental	Removal	100.00%	
264	*Lagerstroemia indica*	crape myrtle	23	10	3	3	3	2	2	2	15	7	7	7	7	7	7	7	7	Good	Fair	Ornamental	Preserve	0.00%	No tag private tree
265	*Citrus × sinensis*	orange	5	1	5	0	0	0	0	0	8	4	4	4	4	4	4	4	4	Good	Fair	Ornamental	Preserve	0.00%	No tag private tree
266	*Citrus × sinensis*	orange	14	4	5	3	3	3	0	0	12	5	5	5	5	5	5	5	5	Good	Fair	Ornamental	Preserve	0.00%	
267	*Quercus lobata*	valley oak	52	1	52	0	0	0	0	0	40	15	18	27	33	28	27	35	18	Fair	Fair	Protected oak	Preserve	0.00%	No tag private tree.
268	*Quercus agrifolia*	coast live oak	9	1	9	0	0	0	0	0	25	7	6	8	1	13	10	8	6	Fair	Fair	Protected oak	Preserve	0.00%	No tag private tree.
269	*Schinus molle*	Peruvian pepper	35	1	35	0	0	0	0	0	35	1	16	20	13	28	25	27	15	Fair	Fair	Ornamental	Preserve	0.00%	No tag private tree.
270	*Quercus agrifolia*	coast live oak	4	1	4	0	0	0	0	0	20	5	7	8	6	10	8	7	6	Fair	Fair	Protected oak	Preserve	0.00%	No tag private tree.
271	*Schinus molle*	Peruvian pepper	6	1	6	0	0	0	0	0	15	5	6	6	6	7	9	5	5	Fair	Fair	Ornamental	Preserve	0.00%	
272	*Quercus agrifolia*	coast live oak	12	2	7	5	0	0	0	0	20	5	5	6	6	7	8	10	8	Good	Fair	Protected oak	Preserve	0.00%	
273	*Quercus lobata*	valley oak	3	1	3	0	0	0	0	0	10	5	5	5	6	6	6	8	5	Fair	Fair	Protected oak	Preserve	0.00%	
274	*Fraxinus uhdei*	shamel ash	30	1	30	0	0	0	0	0	50	20	20	15	20	20	20	20	20	Fair	Fair	Ornamental	Preserve	0.00%	Estimated data no tag private tree.
275	*Fraxinus uhdei*	shamel ash	22	1	22	0	0	0	0	0	50	15	16	16	17	16	16	17	16	Fair	Fair	Ornamental	Preserve	0.00%	Estimated data no tag private tree.
276	*Washingtonia robusta*	Mexican fan palm	14	1	14	0	0	0	0	0	25	10	10	10	10	10	10	10	10	Good	Fair	Ornamental	Preserve	0.00%	Estimated data no tag private tree.
277	*Quercus agrifolia*	coast live oak	15	1	15	0	0	0	0	0	25	10	12	12	10	10	10	10	10	Good	Fair	Protected oak	Preserve	0.00%	No tag private tree.
278	*Quercus agrifolia*	coast live oak	10	3	5	3	2	0	0	0	20	6	10	10	10	10	5	5	5	Good	Fair	Protected oak	Preserve	0.00%	
279	*Washingtonia robusta*	Mexican fan palm	20	1	20	0	0	0	0	0	55	10	10	10	10	10	10	10	10	Good	Fair	Ornamental	Preserve	0.00%	No tag private tree.
280	*Washingtonia robusta*	Mexican fan palm	20	1	20	0	0	0	0	0	55	10	10	10	10	10	10	10	10	Good	Fair	Ornamental	Preserve	0.00%	No tag private tree.
281	*Quercus agrifolia*	coast live oak	3	1	3	0	0	0	0	0	10	8	18	8	5	5	5	8	10	Fair	Fair	Protected oak	Preserve	0.00%	No tag private tree.
282	*Quercus agrifolia*	coast live oak	9	1	9	0	0	0	0	0	25	15	10	10	10	10	10	10	10	Good	Fair	Protected oak	Preserve	0.00%	No tag private tree.
283	*Washingtonia robusta*	Mexican fan palm	24	1	24	0	0	0	0	0	60	10	10	10	10	10	10	10	10	Good	Fair	Ornamental	Preserve	0.00%	No tag private tree.
284	*Quercus agrifolia*	coast live oak	4	1	4	0	0	0	0	0	15	5	9	9	9	8	3	2	3	Good	Fair	Protected oak	Preserve	0.00%	No tag estimated data, access issue.
285	*Ulmus parvifolia*	Chinese elm	6	1	6	0	0	0	0	0	20	12	10	9	10	10	12	9	5	Good	Fair	Ornamental	Preserve	0.00%	No tag estimated data. Access issue.
286	*Platanus racemosa*	California sycamore	20	1	20	0	0	0	0	0	60	20	20	20	20	20	20	20	20	Fair	Fair	Landmark	Preserve	0.00%	No tag estimated data.
287	*Fraxinus uhdei*	shamel ash	16	1	16	0	0	0	0	0	55	15	15	15	15	15	15	15	15	Good	Fair	Ornamental	Preserve	0.00%	Estimated data access issue
288	*Pinus canariensis*	Canary Island pine	13	1	13	0	0	0	0	0	45	15	15	15	15	15	15	15	15	Fair	Fair	Ornamental	Preserve	0.00%	Estimated data access issue.
289	*Xylosma spp.*	xylosma	8	1	8	0	0	0	0	0	20	5	5	5	5	5	5	5	10	Fair	Fair	Ornamental	Preserve	0.00%	Estimated data access issue.

Appendix D

Tree Protection Measures

Tree Protection Measures

Dudek recommends the following measures to reduce impacts to the preserved protected tree and maintain its current health status.

Tree Protection Measures Prior to Construction

Prior to any grading activity, preserved trees that fall within 500 feet of construction activity shall be protected by fencing and signage. All contractors shall be made aware of the tree protection measures.

Fencing

Chain link fencing, not less than 4 feet high with tree protection signs shall be erected around all trees (or tree groups) to be preserved on site. The protective fence shall be installed at the Protected Zone boundary of each tree (or tree group), which is defined as five (5) feet beyond the tree canopy dripline (Los Angeles County Code of Ordinances, Section 22.14.150). The intent of protection fencing is to prevent root damage and/or compaction by grading equipment. An International Society of Arboriculture (ISA) Certified Arborist may be required on site if grading activities will occur within the oak tree protected zone. The fencing shall be secured to 6-foot, heavy gauge t-bar line posts, pounded in the ground a minimum of 18-inches and spaced a minimum of 8-feet on-center. Fencing shall be attached to t-bar posts with minimum 14-gage wire fastened to the top, middle and bottom of each post. Tree protection signs should be attached to every fourth post. The contractor shall maintain the fence to keep it upright, taut and aligned at all times. Fencing shall be in place and inspected by the Los Angeles County Fire Department prior to commencement of any activity on the property. Fencing shall be removed only after all construction activities are complete.

Pre-construction Meeting

A pre-construction meeting shall be held between all contractors (including grading, tree removal/pruning, builders, etc.) and the project arborist. The meeting shall focus on instructing the contractors on tree protection practices and answer any questions. All equipment operators and spotters, assistants, or those directing operators from the ground shall provide written acknowledgement of their receiving tree protection training. This training shall include information on the location and marking of protected trees, the necessity of preventing damage, and the discussion of work practices that will accomplish such.

Protection and Maintenance During Construction

Once construction activities have begun, the protection measures provided below should be observed.

Equipment Operation and Storage

Contractors shall avoid heavy equipment operation around the protected tree. Operating heavy machinery around the root zones of trees increases soil compaction, which decreases soil aeration and subsequently reduces water penetration into the soil. All heavy equipment and vehicles should, at minimum, stay out of the fenced protected tree zone unless where specifically approved in writing and under the supervision of a Certified Arborist.

Storage and Disposal

Materials Storage and Disposal: Do not store or discard any supply or material, including paint, lumber, concrete overflow, etc. within the protected zone. Remove all foreign debris within the protected zone; it is important to leave the duff, mulch, chips, and leaves around the retained trees for water retention and nutrient supply. Avoid draining or leakage of equipment fluids near retained trees. Fluids such as: gasoline, diesel, oils, hydraulics, brake and transmission fluids, paint, paint thinners, and glycol (anti-freeze) should be disposed of properly. Equipment should be parked at least 50 feet from the protected zone to avoid the possibility of leakage of equipment fluids into the soil. The effect of toxic equipment fluids on the retained trees could result in tree decline and/or mortality.

Grade Changes

Contractors shall ensure that grade changes, including adding fill, not be permitted within the protected zone without special written authorization and under supervision of a Certified Arborist. Lowering the grade within the protected zone would necessitate cutting main support and feeder roots, jeopardizing the health and structural integrity of the tree. Adding soil, even temporarily, on top of the existing grade would compact the soil further and decrease water and air availability to tree roots. Contractors shall ensure that grade changes made outside of the protected tree zone not create conditions that allow water to pond at the base of trees. Water trapped at the base of a tree could lead to root rot and other detrimental tree impacts.

Moving Construction Materials

Contractors shall ensure that care be exercised when moving construction equipment and supplies near the protected tree, especially overhead. Contractors shall ensure that damage to the tree be avoided when transporting or moving construction materials and working around the tree (even outside of the fenced protected zone). Contractors should flag aboveground tree parts with potential for damage (e.g., low limbs, scaffold branches, trunks) with high-visibility flagging, such as florescent red or orange. If contact with the tree crown is unavoidable, affected branches may be pruned by an ISA-Certified Tree Worker Climber Specialist under supervision of a Certified Arborist and should adhere to ISA standards.

Trenching

Except where specifically approved in writing beforehand, all trenching shall be done outside of the fenced protected zone. Roots primarily extend in a horizontal direction, forming a support base to the tree similar to the base of a wineglass. Where trenching is necessary in areas that contain roots from retained trees, contractors should use trenching techniques that include the use of either a root pruner or an Air-Spade to limit root impacts. A Certified Arborist should ensure that all pruning cuts be clean and sharp to minimize ripping, tearing, and fracturing of the root system. Root damage caused by backhoes, earthmovers, dozers, or graders is severe and may result in tree mortality. Use of both root-pruning and Air-Spade equipment should be accompanied only by hand tools to remove soil from trench locations. The trench should be made no deeper than necessary, and when possible, alternatives to trenching should be utilized.

Irrigation

Supplemental irrigation for trees adjacent to construction activity may be necessary during winter and/or spring months. Summer and fall irrigation may be necessary based on variable climatic and site conditions but should be conducted judiciously to avoid overwatering. One irrigation cycle should thoroughly soak the root zones of the trees

to a depth of 2 feet. The soil should be allowed to dry out between watering to avoid keeping a consistently wet soil. The contractor should be responsible for irrigating (deep watering) the trees. Soil moisture should be checked with a soil probe before irrigating. Irrigation is best accomplished by installing a temporary aboveground micro-spray system that would distribute water slowly (to avoid runoff) and evenly throughout the fenced protection zone. The area within 3 feet of the trunk should never be soaked, especially in summer months. Overwatering trees may promote the growth of tree-damaging agents, so proper soil moisture monitoring is critical to prolonged tree health. For any trees that have been substantially root pruned (30% or more of their root zone), irrigation should be required for the first 12 months. The first irrigation should occur within 48 hours of root pruning. The trees should be deep watered every 2 weeks during the summer and once a month during the winter (adjusted accordingly with rainfall).

Canopy Pruning

The contractor shall not prune the protected tree until all construction is completed unless standard pruning would reduce conflict between the canopy and equipment. This will help protect the tree's canopy from damage. All pruning should be conducted by an ISA-Certified Tree Worker Climber Specialist under the supervision of a Certified Arborist and should adhere to ISA pruning standards.

Inspection

A Certified Arborist/licensed pest control advisor or their representative should inspect the protected tree adjacent to grading and construction activity on a monthly basis for the duration of project construction. A report summarizing site conditions, observations, tree health, and recommendations for minimizing tree damage should be submitted by the Certified Arborist or their representative following each inspection. Photographs of the protected trees are to be included on a minimum annual basis.

Maintenance After Construction

After the completion of construction activities, tree protection fencing may be removed, and the following measures may be performed to sustain and enhance the vigor of the tree.

Mulch

The contractors shall ensure that a 6-to-8-inch layer of mulch is applied within the tree protection zone. This helps to stabilize soil temperatures in root zones, conserve soil moisture, and reduce erosion. The contractor shall ensure that the mulch is kept a minimum 1 foot away from the trunk base to avoid creating conditions favorable to the establishment and growth of decay-causing fungal pathogens. When adding organic mulch under retained trees, it should be certified free of pests and pathogens. Also, the use of redwood chips should be avoided because certain inhibitive chemicals may be present in the wood.

Pruning

Regular pruning of the protected tree is not required. An ISA-Certified Tree Worker Climber Specialist, under the supervision of a Certified Arborist, should only prune the tree to maintain clearance and remove broken, dead, or diseased branches. No more than 15% of the canopy should be removed at one time. All pruning should conform to ISA standards.

Watering

Once the project site's existing drainage is modified, soil probing will be necessary to accurately monitor moisture levels. Especially in years with low winter rainfall, supplemental irrigation for the trees that sustained root pruning or altered site drainage may be necessary. The protected tree should be infrequently watered with deep soaks, rather than frequent light irrigation, and the soil should be allowed to dry out between waterings. The soil should not be allowed to become saturated or stay continually wet, and drainage should not allow ponding of water beneath the canopy of the tree. Irrigation spray should not hit the trunk of any tree. A 30-inch dry zone around the tree trunk should be maintained. An aboveground micro-spray or in-line drip irrigation system should be used in lieu of typical pop-up sprays.

Chemical Applications

If the trees are maintained in a healthy state, regular spraying for insect or disease control is not necessary. If a problem does develop, a Certified Arborist should be consulted, as the trees may require application of insecticides to prevent the intrusion of bark-boring beetles and other invasive pests. All chemical spraying should be performed by a licensed applicator under the direction of a licensed pest control advisor.

Monitoring

A Certified Arborist should inspect the protected tree retained on site for 5 years following the completion of construction. Monitoring visits should be completed quarterly, totaling 20 visits. Following each monitoring visit, a report summarizing site conditions, observations, tree health, and recommendations should be submitted. Additionally, tree mortality should be noted, and if the tree dies during the monitoring period it should be replaced as specified for minimum replacement standards provided by local requirements and in this protected tree report.

Appendix C

Arborist Report

Arborist Report

195 East Hillcrest Drive, City of Thousand Oaks, California

APRIL 2025 (REVISED JULY 2025)

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1 Introduction

This report summarizes Dudek's evaluation and analysis of tree resources within the tree survey area at the 195 East Hillcrest Drive Project (project) site (based on the site plan dated August 2024). The tree survey area, as discussed in this report, is defined as the project site plan limits plus a 15-foot buffer. The project site is located at 195, 275, and 325 East Hillcrest Drive in the City of Thousand Oaks, California (Figure 1, Project Location). The project site is located generally north of East Hillcrest Drive, east of North Moorpark Road, south of East Wilbur Road, and west of Hodencamp Road. The field inventory and assessment of the tree survey area was conducted on June 7, 2024. The focus of Dudek's field evaluation was to identify and inventory all trees within the tree survey area that are subject to regulation by the City of Thousand Oaks (City) Municipal Code that could be affected by the proposed development per the site plan. This report includes a discussion of tree inventory, evaluation, and analysis methods; a summary of findings; identification of anticipated impacts; and tree protection and tree impact mitigation recommendations consistent with the City's Municipal Code and the tree removal permit process specified therein.

The City requires a permit for the cutting, removal, protected zone encroachment, or relocation of any oak tree or landmark tree, which are defined as follows:

- **Oak Tree:** Any oak tree of the genus *Quercus* including, but not limited to, valley oak (*Quercus lobata*), coast live oak (*Quercus agrifolia*), and scrub oak (*Quercus berberidifolia*), regardless of size (City Municipal Code, Title 9, Chapter 4, Article 42, Oak Tree Preservation and Protection).
- **Landmark Tree:** Specimens of the following species that have reached the designated maturity: *Platanus racemosa* (California sycamore) that exceed 12 inches in diameter when measured at a point 4.5 feet above the natural grade at the base of the tree (diameter at standard height [DSH]), *Umbellularia californica* (California bay laurel) that exceed 8 inches in diameter when measured at a point 4.5 feet above the natural grade at the base of the tree, *Juglans californica* (Southern California black walnut) that exceed 8 inches in diameter when measured at a point 4.5 feet above the natural grade at the base of the tree, and *Heteromeles arbutifolia* (toyon) that exceed 8 inches in diameter when measured at a point 4.5 feet above the natural grade at the base of the tree. Trees with multiple trunks shall be deemed to have reached maturity if the sum of the diameters of the multiple trunks exceeds the required diameter plus 2 inches of a single trunked tree. Landmark trees shall also include all designated historic trees (City Municipal Code, Title 9, Chapter 4, Article 43, Landmark Tree Preservation and Protection).
- **Protected Zone:** A specifically defined area totally encompassing an oak, landmark, or historic tree within which work activities are strictly controlled. When depicted on a map, the outermost edge of the protected zone will appear as an irregular shaped circle that follows the contour of the dripline of the tree. Using the dripline as a point of reference, the protected zone shall commence at a point 5 feet outside of the dripline and extend inward to the trunk of the tree. In no case shall the protected zone be less than 15 feet from the trunk of a landmark tree (City Municipal Code, Title 9, Chapter 4, Articles 42 and 43).

Permits are not required to cut, remove, or encroach within the protected zone of any oak tree that does not exceed 2 inches in DSH (City Municipal Code, Title 9, Chapter 42). For the purposes of this arborist report, Dudek considers oak trees with multiple trunks to be protected if the sum of the diameters of the multiple trunks exceeds 4 inches.

Additional City approval is required for the cutting, removal, trimming, or alteration of street trees, which are defined as "tree[s] planted or to be located within the public right-of-way, or public service easement as a requirement of development or an entitlement of the same or adjacent property" (City Municipal Code, Title 7, Chapter 2, Article 9).

The analysis of potential tree impacts in this report considers the requirements outlined in the appropriate sections of the City's Municipal Code. The proposed project would remove 8 regulated oak trees, 9 protected landmark trees, and 94 ornamental trees due to site development. In addition to the 111 total tree removals, the project would encroach into the protected zone of 32 trees, including 10 protected oak trees and 3 landmark trees. In total 3 street trees that additionally qualify as regulated oak trees are located adjacent to the proposed project. No street trees will be removed to accommodate the project, and one would be encroached upon. Section 4 of this report recommends mitigation measures for anticipated tree removal and construction encroachment into the protected zone of regulated trees that would result from the proposed project. The measures provided are consistent with the provisions of the City Municipal Code.

1.1 Summary

The field survey recorded 278 trees within the survey area, 61 of which are subject to regulation under the City's Municipal Code. In total, Dudek's arborists recorded 46 protected oak trees (of which 3 are also street trees) and 15 landmark trees. Of the 46 protected trees, seven (tree nos. 7, 9, 13, 121, 124, 138, and 229) are considered historic to the site (Figure 2, Historic Trees). The inventoried tree locations are depicted in Appendix A, Tree Locations. The proposed project's tree impacts are depicted in Appendix B, Tree Impacts. Construction of the proposed project is expected to require removal of up to 10 regulated oak trees (including one historic tree, tree no. 229), 9 landmark trees, and 94 ornamental trees, as well as encroachment into the protected zone of 8 protected oak trees (including one historic tree; tree no.124), 3 landmark trees, and 19 ornamental trees. The remaining trees would be retained in place with no encroachments or pruning necessary. The following conditions may be placed on an oak tree and/or landmark tree permit (City Municipal Code, Title 9, Chapter 4, Articles 42 and 43):

1. Replacement or placement of additional trees on or off site
2. The relocation of a tree on or off site
3. The initiation of a maintenance and care program
4. Payment of a fee or donation of a boxed tree if there are no suitable on- or off-site planting locations

The City's Oak Tree Preservation and Protection Guidelines calls for one 15-gallon oak tree to be planted or donated for each dead or hazardous oak tree removed. For removal of healthy oak trees associated with commercial, industrial, and new residential development projects, the guidelines call for planting or donation of two 24-inch box trees and one 36-inch or 60-inch box tree. In the case of removal of oak trees larger than 48 inches in diameter, the applicant is required to obtain the largest nursery-grown oak tree available or provide two 60-inch box trees. The City's Municipal Code does not identify specific replacement requirements to mitigate for the removal of landmark trees, so this report applies the replacement requirements for the removal of oak trees to landmark tree removals. The City's Municipal Code requires the replacement of street tree removals with City-approved street trees (City Municipal Code, Title 7, Chapter 2, Article 9). The tree replacement recommendations contained herein are based on previous standards set forth in the City's Oak Tree Preservation and Protection Guidelines as well as current standards set forth in the City's Landscaping Provisions in Public Rights-of-Way Guidelines. Finally, Section 4 of this report provides construction-related tree protection recommendations and recommendations for long-term maintenance and care for regulated trees that will be retained on the project site.

Dudek recommends planting 23 oak trees (14 24-inch box trees, 7 36-inch box trees, and 2 60-inch box trees) and 27 western sycamore trees (18 24-inch box trees, and 9 36-inch box trees) on site to mitigate for the anticipated removal of 8 oak trees (including one tree historic to the site) and 9 landmark trees.

Species composition of the planted trees should match the species removed at a ratio consistent with the City's Municipal Code.

A long-term monitoring and maintenance program is further recommended to mitigate for encroachments into the protected zone of regulated trees that would occur with the proposed project and to maintain the health of the trees retained on site. Further details regarding mitigation for planned tree removal is provided in Section 4.1 of this report.

1.2 Assignment

Dudek's International Society of Arboriculture (ISA) Certified Arborists performed the following tasks:

- Assessed and inventoried all trees with protected zones within the survey area and documented species, general health, general structural condition, size, appearance, and presence of pests
- Mapped the location of trees using GPS technology as necessary to develop a tree location exhibit and for planning reference
- Prepared a tree information matrix that details the attributes of each tree and identifies the species and protected status
- Analyzed tree attribute data and coordinated with the project design team to promote tree retention on site to the maximum extent practicable
- Analyze historical imagery to determine the site's remaining historical trees
- Evaluated tree impacts based on the project site plans (dated August 2024)
- Prepared this report to document the results of field surveys and impact analyses and provide recommendations for tree protection and impact mitigation measures in accordance with the provisions of the City's Municipal Code

1.3 Project Description

The proposed project is a horizontal mixed-use multifamily project to be developed on an 8.21-acre (357,659-square-foot) site located at 175, 275, and 325 East Hillcrest Drive in the City of Thousand Oaks. The site is currently improved with three buildings totaling 107,859 square feet, including two office buildings totaling 97,675 square feet and one standalone retail building of 10,184 square feet. The Project Site is bounded by a senior living facility to the north, East Hillcrest Drive to the south, residential and medical office uses to the east, and the Lang Creek concrete drainage channel and residential uses to the west. The Project would demolish the two existing office buildings and utilize the California State Density Bonus incentives program to construct a new five-story, 297-unit wrap multifamily building, including 25 units reserved as affordable and 394 parking stalls in an integrated parking garage. The existing standalone 10,184 SF retail building would remain in place. 52 stalls of surface parking would be provided on-site such that the Project would achieve multifamily and retail parking ratios that would meet or exceed City code, respectively.

1.4 Setting

1.4.1 Location

The project site is located at 195, 275, and 325 East Hillcrest Drive in the City of Thousand Oaks, California. The project site is located generally north of East Hillcrest Drive, east of North Moorpark Road, south of East Wilbur Road, and west of Hodencamp Road. The survey area is within portions of Assessor's Parcel Number 669-0-021-255.

1.4.2 General Physical Characteristics

The project site is a flat, paved site with several commercial buildings and associated parking. A human-made culvert runs directly west of the site within the 15-foot project buffer. The surrounding land use consists of public roads, commercial developments, and apartment buildings. Inventoried trees largely consist of planted ornamental landscape trees.

2 Methods

The following sections describe the methods used by Dudek's ISA Certified Arborists to inventory and evaluate trees in the tree survey area.

2.1 Field Tree Inventory and Evaluation

Dudek's ISA Certified Arborists Sarah Tian (WE-13677A) and Aida Castro (WE-13396A) conducted the tree inventory and evaluation on June 7, 2024, to document tree locations and attribute information for all trees within the survey area.

2.1.1 Tree Inventory

The Dudek arborists examined and mapped all trees with protected zones located within the tree survey area. Tree attribute data collected during the field survey included species, trunk diameter, tree height, canopy spread in eight cardinal directions, general health condition, structural condition, and presences of observable pests or other tree maladies. Trunk diameters were measured using a diameter tape that provides adjusted numbers for diameter measurements when wrapping the tape around the circumference of the trunk of a tree. Diameter measurements were collected using standard protocol described by the Council of Tree and Landscape Appraisers in the Guide for Plant Appraisal, published by the ISA, and in accordance with guidance given in the City's Oak Tree Preservation and Protection Guidelines and the City's Municipal Code.

Trunk diameter measurements were taken at 4.5 feet above the ground along the trunk axis, with a few common exceptions. In cases where the trunk of a tree split into multiple stems at approximately 4.5 feet above the ground, the measurement was made at the location that best represented the trunk's diameter. Tree height measurements were estimated by the arborist, and crown spread measurements were documented by "pacing off" the measurement based on the arborist's knowledge of their stride length or visually estimating the canopy width.

Pursuant to the Guide for Plant Appraisal (ISA 2020), tree health and structure were evaluated with respect to five distinct tree components: roots, trunk, scaffold branches, small branches, and foliage. Health and structure were graded as good, good/fair, fair, fair/poor, and poor. Good condition trees exhibit acceptable vigor, healthy foliage, minor if any structural issues, and no apparent maladies. Fair condition trees are typical, with few maladies and moderate structural issues, and may exhibit less vigor in foliage and new growth. Trees assigned a poor condition rating by Dudek's arborists exhibit significant health or structural problems or damage.

Tree locations were documented using iPhones coupled with an Arrow GPS receiver to improve location accuracy. Each surveyed tree was tagged on the north side of the trunk with an aluminum tree tag indicating the tree identification number. Dudek used the data collected to create a master tree inventory data set, inclusive of all regulated trees within the tree survey area.

Individual tree locations are presented in Appendix A, and individual tree attribute data and impact determinations are presented in Appendix B and Appendix C, Tree Information Matrix.

2.2 Tree Impact Analysis

Following data collection, processing, and analysis, an impact assessment was conducted for each tree in accordance with the City of Thousand Oaks tree protection guidelines. This evaluation considered the proximity of each tree to the proposed disturbance area and building, using the Tree Protection Zone (TPZ) standard as defined in section 9-4.4202 of the city ordinance. In compliance with city regulations, the TPZ is defined as the crown width plus five feet, but no less than 15-feet from the trunk of the tree, ensuring adequate root and canopy protection. Trees located within or near the TPZ were assessed for potential impacts, including root zone disturbance, canopy encroachment, and overall health risks. Impact determinations used in this report include the following: Preserved (tree not affected by project), Removal (tree to be removed), and Encroachment (project disturbance would occur within the protected zone of the tree, including pruning to meet local fire regulations). A summary of project-related tree impacts is presented in Section 3.2, and Appendix C provides impact determination status for each tree recorded in the tree survey area.

2.3 Scope of Work Limitations

This report presents tree information as observed in the field. No root crown excavations or investigations, internal probing, or aerial canopy inspections were performed during the tree assessments. Therefore, the presence or absence of internal decay or other hidden or inaccessible inferiorities in individual trees, other than those evaluated with sonic tomography, could not be confirmed.

3 Findings/Results

3.1 Inventory Summary

Dudek's arborists recorded 278 trees with protected zones in the tree survey area. Of these 278 trees, 61 are protected by the City (46 protected oaks and 15 landmark trees). Of the 46 protected trees, seven (tree nos. 7, 9, 13, 121, 124, 138, and 229) are considered historic to the site (Figure 2, Historic Trees). Table 1 provides a summary of the species and regulatory status of the trees mapped within the tree survey area.

Table 1. Tree Species Summary

Botanical Name	Common Name	Protected Oak Tree	Street Tree	Landmark Tree	Non-protected Tree	Total Trees
Acer palmatum	Japanese maple	0	0	0	2	2
Acer saccharinum	silver maple	0	0	0	2	2
Callistemon viminalis	weeping bottlebrush	0	0	0	1	1
Citrus ×sinensis	orange	0	0	0	2	2
Eucalyptus cladocalyx	sugargum	0	0	0	4	4
Eucalyptus sideroxylon	red ironbark	0	0	0	19	19
Ficus carica	edible fig	0	0	0	1	1
Fraxinus uhdei	Shamel ash	0	0	0	31	31
Jacaranda mimosifolia	jacaranda	0	0	0	6	6
Lagerstroemia indica	crape myrtle	0	0	0	1	1
Liquidambar styraciflua	American sweetgum	0	0	0	16	16
Magnolia grandiflora	southern magnolia	0	0	0	2	2
Melaleuca quinquenervia	Australian paperbark	0	0	0	1	1
Morus alba	white mulberry	0	0	0	2	2
Pinus canariensis	Canary Island pine	0	0	0	32	32
Pinus halepensis	aleppo pine	0	0	0	4	4
Pinus thunbergii	Japanese black pine	0	0	0	4	4
Platanus racemosa	California sycamore	0	0	15	3	18

Table 1. Tree Species Summary

Botanical Name	Common Name	Protected Oak Tree	Street Tree	Landmark Tree	Non-protected Tree	Total Trees
Platanus ×hispanica	London plane	0	0	0	12	12
Prunus cerasifera	purple-leaf plum	0	0	0	6	6
Quercus agrifolia	coast live oak	36 (3)	0	0	1	37
Quercus kelloggii	California black oak	1	0	0	0	1
Quercus lobata	valley oak	9	0	0	0	9
Robinia pseudoacacia	black locust	0	0	0	1	1
Schinus molle	Peruvian pepper	0	0	0	17	17
Schinus terebinthifolius	Brazilian pepper	0	0	0	20	20
Ulmus parvifolia	Chinese elm	0	0	0	21	21
Washingtonia robusta	Mexican fan palm	0	0	0	5	5
Xylosma spp.	xylosma	0	0	0	1	1
Totals		46 (3)	0	15	217	278

Notes: Numbers in parentheses indicate trees that are protected oaks and street trees. Numbers in parentheses are included in counts of protected oak trees and are not included in counts of street trees.

As presented in Appendix C, of the 278 total trees, 83 (29.86%) trees exhibit good health, 163 (58.63%) trees exhibit fair health, 27 (9.71%) trees exhibit poor health, 2 (0.72%) trees exhibit critical health, and 3 (1.08%) trees are dead. Of these trees, 3 (1.08%) trees exhibit good structure, 245 (88.13%) trees exhibit fair structure, 25 (8.99%) trees exhibit poor structure, 2 (0.72%) trees exhibit critical structure, and 3 (1.08%) trees are dead. Trunk diameters range from 3 inches to 52 inches for single-stemmed trees and from 2 inches to 56 inches for multi-stemmed trees (total DSH). Tree heights range from 5 feet to 75 feet. Crown widths in a single cardinal direction from the trunk to the dripline range from 0 feet to 37 feet.

Of the 46 protected oak trees, including 3 street trees that qualify as protected oak trees, 22 (47.83%) trees exhibit good health, 22 (47.83%) trees exhibit fair health, and 2 (4.35%) trees exhibit poor health. Of these trees, 1 (2.17%) tree exhibits good structure, 41 (89.13%) trees exhibit fair structure, and 4 (8.70%) trees exhibit poor structure. Trunk diameters range from 3 inches to 52 inches for single-stemmed trees and from 10 inches to 56 inches for multi-stemmed trees (total DSH). Tree heights range from 10 feet to 40 feet. Crown widths in a single cardinal direction from the trunk to the dripline range from 0 feet to 35 feet.

Of the 15 landmark trees, 10 (66.67%) trees exhibit fair health, 4 (26.67%) trees exhibit poor health, and 1 (6.67%) tree exhibits critical health. Of these trees, 1 (6.67%) tree exhibits good structure, 10 (66.67%) trees exhibit fair structure, 3 (20.00%) trees exhibit poor structure, and 1 (6.67%) tree exhibits critical structure. Trunk diameters range from 16 inches to 33 inches for single-stemmed trees and from 18 inches to 21 inches for multi-stemmed

trees (total DSH). Tree heights range from 30 feet to 65 feet. Crown widths in a single cardinal direction from the trunk to the dripline range from 5 feet to 37 feet. Individual attributes of each tree are presented in Appendix C.

3.2 Project-Related Impacts

There is wide variation in tolerance to construction impacts among tree species, and the response of an individual tree to impacts also varies with age and condition. Impacts assessed for this project include those trees with protected zones within 50 feet of proposed improvements and identified disturbance areas, as defined in the project site plan (dated August 2024). The impact discussion in this section identifies all impacts anticipated to result to regulated trees based on an evaluation of tree locations compared with the project site plan. Much of the site will need to be graded to accommodate the construction of buildings and parking lots and the placement of necessary infrastructure (utilities, access roads, fire lanes, etc.). Trees identified for retention and removal are graphically presented in the Tree Impacts figure included as Appendix B.

Based on July 2025 grading and development plans for the proposed project, a total of 8 regulated oak trees (including one historic trees, tree no.229), 9 landmark trees, and 94 ornamental trees will be removed, and 10 protected oak trees, 3 landmark trees, and 19 ornamental trees will be encroached upon. Of the 32 encroachments, 16 will be encroached by development, while the remaining 16 will require a crown raise to meet local fire regulations (13'6" clearance over roadways). In total, the project will remove 111 trees, encroach upon 32 trees, and preserve (no encroachment) 135 trees.

Table 2 summarizes impact determinations for all 278 trees within the survey area.

Table 2. Summary of Protected Tree Impact Determinations

Species	Impact Determination			Total
	Removal	Encroachment	No Impact	
Protected Oak	8	10 (5)	28	46
Landmark	9	3 (1)	3	15
Ornamental	94	19 (12)	104	217
Total Protected Oak Trees	**111**	**32 (16)**	**135**	**278**

*(X) Number of trees requiring pruning for clearance requirements.

3.3 Tree Relocation

During the relocation evaluation process, Dudek utilized a strict set of physical attribute criteria that a tree must exhibit to be considered a candidate for the very stressful relocation process. The success rates for transplanting large oak and landmark trees are relatively low (personal observation and Dagit and Downer 1997). Transplanting large oak trees places a great deal of stress on the trees due to difficulties that mature oaks have adapting to a new site after losing a minimum of 75% of their root mass. These additional stresses make oak trees more vulnerable to pests and diseases. Although they may live for a long time, large, transplanted oaks typically do not reach equilibrium health and vitality needed for long-term survival. The trees will exist in a declining spiral. A great deal of care, time, and attention is required during boxing, moving, storing, and transplanting to increase survival probability. Just as important, they require diligent and regular monitoring and maintenance for the rest of their lives.

In summary, younger, and smaller trees typically have a higher success rate post-transplant. These trees are still vigorously growing and are more adaptable to root disturbance and the transplant process. Trees with a trunk diameter less than approximately 15 inches typically perform better following transplant, and the smaller the tree, typically the higher relocation success and feasibility. Trees exhibiting maladies including declining health, internal decay, cavities, uncorrectable branch architecture issues, co-dominant stems with included bark, and pest and/or disease infections are not considered for relocation. Trees must be in "good" health and structural condition (unless the species is unique or especially valuable where a "fair" condition tree may be considered a candidate) and include an accessible location, no observable soil impediments (rockbound roots, utilities), no overhead utilities, and no observable chronic pest infestations and/or disease infections. A full green canopy may give the appearance that a tree is healthy; however, with the potential presence of internal decay and the stress resulting from the relocation process, the trees may decline, resulting in tree loss and increased hazards, especially in an urbanized setting.

Some trees that are structurally sound and healthy, meeting all the criteria set for these attributes, may be rejected as relocation candidates based on soil issues. For instance, trees that are growing in soil that is highly sandy likely would be rejected due to the difficulty in boxing trees without "losing" the root ball as commonly happens in sandy soil. Similarly, trees in rocky soils may be rejected if "rock-bound" roots are suspected as these trees cannot be boxed cost-effectively. In these cases, the trees would be recommended for preservation in place, if possible.

Based on the above noted factors, none of the impacted (removal trees) tree are considered candidates for relocation.

4 Mitigation and Management Recommendations

4.1 Mitigation Recommendations

Removals

The City's Oak Tree Preservation and Protection Guidelines mitigation requirements for tree removals associated with development projects are summarized as follows:

- One 15-gallon oak tree must be planted or donated for each dead or hazardous oak tree removed.
- Two 24-inch box trees and one 36-inch or 60-inch box tree must be planted for each healthy oak tree removed for commercial, industrial, and new residential development projects.
- In the case of removal of oak trees larger than 48 inches in diameter, the applicant is required to obtain the largest nursery-grown oak tree available or plant two 60-inch box trees.

The proposed project would require removal of 8 regulated oak trees, including one historic oak trees (tree no. 229), and 9 landmark trees. Dudek recommends the mitigation shown in Table 3 for removals associated with the project.

Table 3. Mitigation Recommendations for Proposed Regulated Tree Removals

Species	Expected Removal	Recommended Mitigation Plantings		
		60-inch box trees	36-inch box trees	24-inch box trees
Healthy Regulated Oaks Less than 48 inches in Diameter	7	0	7	14
Healthy Regulated Oaks Larger than 48 inches in Diameter and Historical Trees	1	2	0	0
Healthy Regulated Landmark Trees	9	0	9	18
Total	**17**	**2**	**16**	**32**

Encroachment into Protected Zone and Retained Trees

A long-term maintenance program is required by the City's Municipal Code to mitigate for encroachments into the protected zone of regulated trees that would occur with the proposed project and to maintain the health of the trees retained on the project site. In total, the proposed project will encroach into the protected zone of 10 protected oak trees, 3 landmark trees, and 19 ornamental trees. Of the 32 encroachments, 16 will be encroached by development grading, while the remaining 16 will require pruning to meet local fire regulations (13'6" clearance over roadways).

The total percentage of encroachment into the protected zone of the 30 trees ranged from 1% to 40%. These trees will require additional tree protection measures during construction. Should any of the protected oak or landmark trees die as result of the proposed construction, they shall be replaced in accordance with the City's Oak Tree Preservation and Protection Guidelines. Appendix D provides tree protection recommendations to mitigate impacts from construction encroachment into the protected zone of regulated trees that would result from the proposed project. The measures included in Appendix D are consistent with the provisions of the City's Municipal Code and would help minimize impacts to preserved and encroached trees. Appendix D includes measures to implement prior to, during, and following construction. This includes measures such as exclusion fencing and worker training to avoid direct impacts to trees, and measures such as irrigation and monthly inspections by an arborist to promote the long-term health of retained trees. Dudek also recommends arborist monitoring during construction when encroachments into tree protection zones occur to minimize root disturbance and determine the best course of actions for root pruning, supplemental irrigation, branch trimming, or other measures that would minimize the impacts from ground disturbance or other potential impactful activities.

4.2 Tree Permits

The project applicant will need to submit an oak tree permit application and fee to the City's Community Development Department. A copy of this report and the final project site plan should accompany the application. An oak tree permit is required for the cutting, removal, encroachment into the protected zone, or relocation of any regulated oak tree. The Community Development Director may approve, deny, or conditionally approve a request for the removal of three or fewer oak trees that are less than 24 inches in DSH on a single parcel without hearing or notice. Any request for removal of four or more regulated oak trees or any oak tree 24 inches or greater in DSH on a single parcel will be reviewed by the Planning Commission following a public hearing, which will be held in conjunction with the Commission's consideration of other entitlement applications for the proposed project. The Commission may approve, conditionally approve, or deny the permit application. The decision of the Commission may be appealed to the City Council (see Section 9-4.4206 of the City's Municipal Code).

5 Disclosure

This arborist report provides conclusions and recommendations based only on a visual examination of the trees within the tree survey area by ISA Certified Arborists and reasonable reliance on the completeness and accuracy of the information provided to the arborist. The examination did not include subterranean or internal examination of the trees.

Arborists are tree specialists who use their education, knowledge, training, and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk of living near them. Although trees provide many benefits to those who live near them, they also include inherent risks from breakage or failure that can be minimized but not eliminated.

Arborists cannot detect every condition that could possibly lead to the failure of a tree. Trees are living organisms subject to attack by disease, insects, fungi, weather, and other forces of nature, and conditions that lead to failure are often hidden within trees and belowground. There are some inherent risks with trees that cannot be predicted with any degree of certainty, even by a skilled and experienced arborist. Arborists cannot predict acts of nature, including, without limitation, storms of sufficient strength, which can cause an apparently healthy tree to fail. Additionally, arborists cannot guarantee that a tree will be healthy or safe under all circumstances or for any specific period of time. A tree's condition could change over a short or long period of time due to climatic, cultural, or environmental conditions. Further, there is no guarantee or certainty that recommendations or efforts to correct unsafe conditions will prevent future breakage or failure of a tree.

To live or work near trees is to accept some degree of risk. Neither the author of this arborist report nor Dudek have assumed any responsibility for or will be liable for any claims, losses, or damages for damage to any tree, death or injury to any person, or any loss of or damage to any personal or real property.

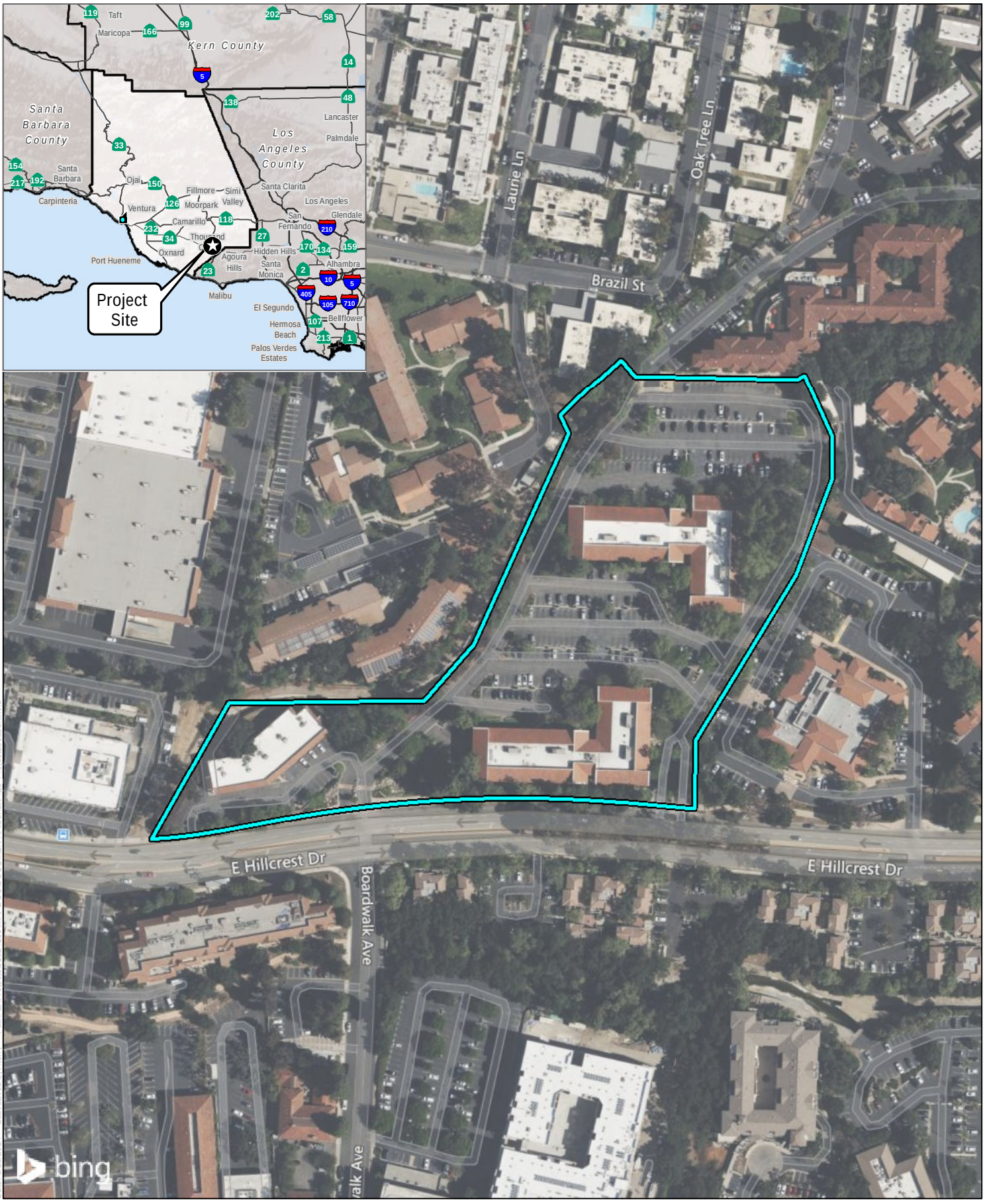
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6 References

Dagit, R., and A.J. Downer. 1997. “Status of Transplanted Coast Live Oaks (*Quercus agrifolia*) in Southern California.” U.S. Department of Agriculture Gen. Tech. Rep. PSW-GTR-160.

CTLA (Council of Tree and Landscape Appraisers). 2020. *Guide for Plant Appraisal.* 10th ed. Champaign, Illinois: International Society of Arboriculture.

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SOURCE: AERIAL-BING MAPPING SERVICE 2023

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FIGURE 1

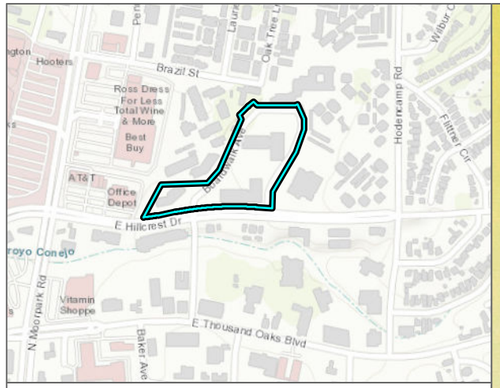
Project Location

Arborist Report for 195 East Hillcrest Drive

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OAK TREE LOCATION MAP



- Project Site
- *Quercus agrifolia* Coast Live Oak
- *Quercus lobata*, Valley Oak



SOURCE: EIR 153-DP 77-385-Oak Tree Locations Map

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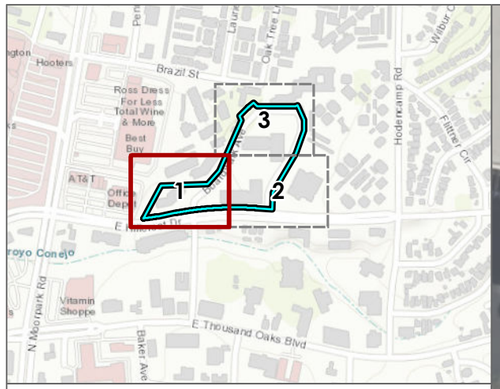
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Historical Tree Locations

Arborist Report for 195 East Hillcrest Drive

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Appendix A
Tree Locations



Project Site

15-Ft Buffer

Protected Tree

- *Platanus racemosa*, Western Sycamore
- *Quercus agrifolia*, Coast Live Oak
- *Quercus lobata*, Valley Oak

Ornamental

- *Eucalyptus sideroxylon*, Red Ironbark
- *Jacaranda mimosifolia*, Jacaranda
- *Liquidambar styraciflua*, American Sweetgum
- *Pinus canariensis*, Canary Island Pine
- *Platanus acerifolia*, London Plane
- *Prunus cerasifera*, Purple-Leaf Plum
- *Schinus molle*, California Pepper
- *Schinus terebinthifolius*, Brazilian Pepper
- *Ulmus parvifolia*, Chinese Elm
- *Fraxinus* spp.
- Silver maple
- Xylosma

Historic Tree

SOURCE: AERIAL - BING IMAGERY SERVICE 2023

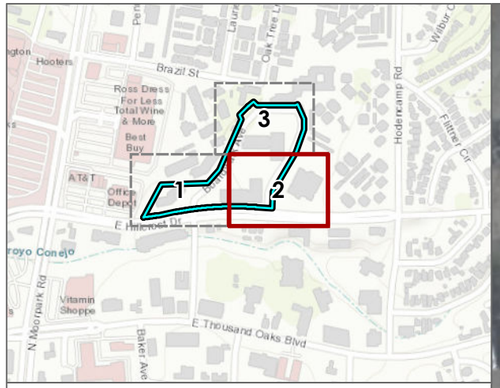
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APPENDIX A - VIEW 1

Tree Locations

Arborist Report for 195 East Hillcrest Drive



Project Site

15-Ft Buffer

Protected Tree

- *Platanus racemosa*, Western Sycamore
- *Quercus agrifolia*, Coast Live Oak
- *Quercus lobata*, Valley Oak

Ornamental

- *Jacaranda mimosifolia*, Jacaranda
- *Liquidambar styraciflua*, American Sweetgum
- *Pinus canariensis*, Canary Island Pine
- *Pinus halepensis*, Aleppo Pine
- *Platanus acerifolia*, London Plane
- *Prunus cerasifera*, Purple-Leaf Plum
- *Robinia pseudoacacia*, Black Locust
- *Schinus molle*, California Pepper
- *Schinus terebinthifolius*, Brazilian Pepper
- *Ulmus parvifolia*, Chinese Elm
- *Fraxinus* spp.
- *Pinus thunbergii*
- Silver maple

Historic Tree

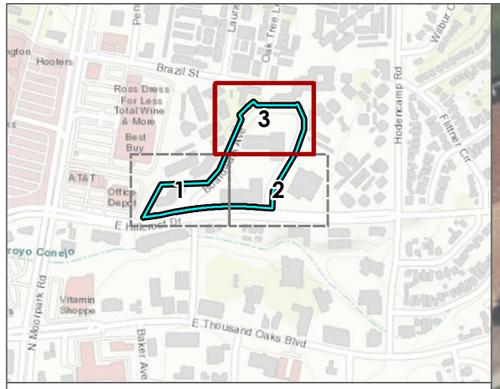
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APPENDIX A - VIEW 2

Tree Locations

Arborist Report for 195 East Hillcrest Drive



Project Site

15-Ft Buffer

Protected Tree

- *Platanus racemosa*, Western Sycamore
- *Quercus agrifolia*, Coast Live Oak
- *Quercus kelloggi*, Black Oak
- *Quercus lobata*, Valley Oak

Ornamental

- *Callistemon viminalis*, Weeping Bottlebrush
- *Eucalyptus cladocalyx*, Sugar Gum
- *Eucalyptus sideroxylon*, Red Ironbark
- *Fraxinus uhdei*, Shamel Ash
- *Lagerstroemia indica*, Crape Myrtle
- *Liquidambar styraciflua*, American Sweetgum
- *Magnolia grandiflora*, Southern Magnolia
- *Morus alba*, White Mulberry
- *Pinus canariensis*, Canary Island Pine
- *Pinus halepensis*, Aleppo Pine
- *Platanus acerifolia*, London Plane
- *Prunus cerasifera*, Purple-Leaf Plum
- *Schinus molle*, California Pepper
- *Schinus terebinthifolius*, Brazilian Pepper
- *Ulmus parvifolia*, Chinese Elm
- *Washingtonia robusta*, Mexican Fan Palm
- Callistemon/melaleuca spp.
- Edible fig
- *Fraxinus* spp.
- Japanese maple
- Orange
- *Pinus thunbergii*

Historic Tree

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SOURCE: AERIAL - BING IMAGERY SERVICE 2023

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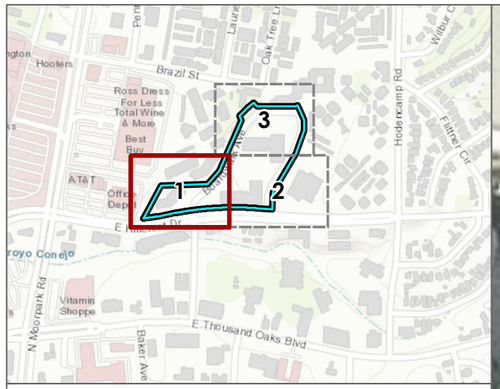
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APPENDIX A - VIEW 3

Tree Locations

Arborist Report for 195 East Hillcrest Drive

Appendix B
Tree Impacts



- Project Site
- Building
- Road Improvements
- Parking
- Landscape
- No Impact
- 15-Ft Buffer
- Encroached Critical Root Zone
- Non-Encroached Critical Root Zone

Coast Live Oak Disposition
- Removal (7)
- Encroached (6)
- Encroached - Pruning (3)
- Preserve (21)

Valley Oak Disposition
- Removal (1)
- Encroached (1)
- Preserve (7)

Black Oak Disposition
- Preserve (1)

Western Sycamore Disposition
- Removal (10)
- Encroached (2)
- Encroached - Pruning (2)
- Preserve (4)

Ornamental Dispostion
- Removal (93)
- Encroached (7)
- Encroached - Pruning (11)
- Preserve (102)

- Historic Tree

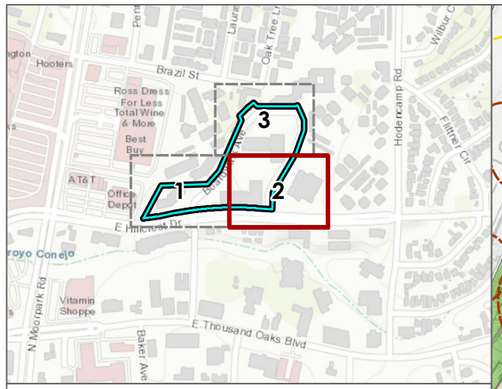
SOURCE: AERIAL-ESRI World Imagery; DEVELOPMENT-ACMARTIN 2025

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APPENDIX B - VIEW 1

Tree Impacts

Arborist Report for 195 East Hillcrest Drive



- Project Site
- Building
- Road Improvements
- Parking
- Landscape
- No Impact
- 15-Ft Buffer
- Encroached Critical Root Zone
- Non-Encroached Critical Root Zone

Coast Live Oak Disposition

- Removal (7)
- Encroached (6)
- Encroached - Pruning (3)
- Preserve (21)

Valley Oak Disposition

- Removal (1)
- Encroached (1)
- Preserve (7)

Black Oak Disposition

- Preserve (1)

Western Sycamore Disposition

- Removal (10)
- Encroached (2)
- Encroached - Pruning (2)
- Preserve (4)

Ornamental Dispostion

- Removal (93)
- Encroached (7)
- Encroached - Pruning (11)
- Preserve (102)
- Historic Tree

PROPOSED MULTI-STORY RESIDENTIAL DEVELOPMENT

(E) PRIVATE LOOP ROAD

(N) DRIVEWAY

SOURCE: AERIAL-ESRI World Imagery; DEVELOPMENT-ACMARTIN 2025

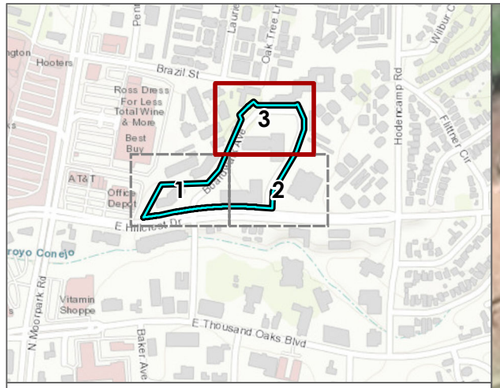
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APPENDIX B - VIEW 2

Tree Impacts

Arborist Report for 195 East Hillcrest Drive



- Project Site
- Building
- Road Improvements
- Parking
- Landscape
- No Impact
- 15-Ft Buffer
- Encroached Critical Root Zone
- Non-Encroached Critical Root Zone

Coast Live Oak Disposition

- Removal (7)
- Encroached (6)
- Encroached - Pruning (3)
- Preserve (21)

Valley Oak Disposition

- Removal (1)
- Encroached (1)
- Preserve (7)

Black Oak Disposition

- Preserve (1)

Western Sycamore Disposition

- Removal (10)
- Encroached (2)
- Encroached - Pruning (2)
- Preserve (4)

Ornamental Dispostion

- Removal (93)
- Encroached (7)
- Encroached - Pruning (11)
- Preserve (102)
- Historic Tree

SOURCE: AERIAL-ESRI World Imagery; DEVELOPMENT-ACMARTIN 2025

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APPENDIX B - VIEW 3

Tree Impacts

Arborist Report for 195 East Hillcrest Drive

Appendix C
Tree Information Matrix

Appendix C- Tree Information Matrix																										
Tree No.	Botanical Name	Common Name	Cumulative DSH (inches)	Stems	Individual Stem Diameter						Height (feet)	Individual Crown Dimensions (feet)								Health	Structure	Protected	Historic	Impact	Impact Type	Clearance Pruning for Fire Access	% of CRZ Encroached Upon	Notes
					1	2	3	4	5	6		N	NE	E	SE	S	SW	W	NW								
1	*Schinus molle*	Peruvian pepper	46	2	25	21	0	0	0	0	25	5	5	15	10	10	15	15	10	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
2	*Eucalyptus sideroxylon*	red ironbark	48	2	27	21	0	0	0	0	50	5	10	15	20	20	15	12	10	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
3	*Eucalyptus sideroxylon*	red ironbark	23	4	15	4	2	2	0	0	40	5	10	8	15	5	8	20	10	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
4	*Eucalyptus sideroxylon*	red ironbark	20	1	20	0	0	0	0	0	55	15	10	15	15	10	8	10	20	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
5	*Eucalyptus sideroxylon*	red ironbark	21	1	21	0	0	0	0	0	55	20	15	20	12	12	15	20	25	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
6	*Eucalyptus sideroxylon*	red ironbark	35	3	17	14	4	0	0	0	40	25	15	15	10	10	8	15	25	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
7	*Quercus lobata*	valley oak	51	1	51	0	0	0	0	0	40	30	30	20	25	20	20	30	25	Good	Fair	Protected oak	Yes	Preserve	No Impact	No	0.00%	Cavity.
8	*Quercus lobata*	valley oak	3	1	3	0	0	0	0	0	15	5	9	8	8	5	5	8	6	Good	Fair	Protected oak	No	Preserve	No Impact	No	0.00%	
9	*Quercus lobata*	valley oak	47	1	47	0	0	0	0	0	35	25	30	27	30	25	20	20	30	Fair	Fair	Protected oak	Yes	Preserve	No Impact	No	0.00%	Minor crown dieback. Codominant stems above DSH height.
10	*Schinus molle*	Peruvian pepper	12	1	12	0	0	0	0	0	25	8	10	10	15	20	20	10	12	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
11	*Ulmus parvifolia*	Chinese elm	15	1	15	0	0	0	0	0	35	20	15	15	22	20	15	25	15	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
12	*Fraxinus uhdei*	shamel ash	10	1	10	0	0	0	0	0	30	15	15	10	15	10	8	10	18	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
13	*Quercus lobata*	valley oak	32	1	32	0	0	0	0	0	30	25	20	15	25	25	20	25	25	Fair	Fair	Protected oak	Yes	Preserve	No Impact	No	0.00%	Low to average crown vigor.
14	*Schinus molle*	Peruvian pepper	11	1	11	0	0	0	0	0	25	17	15	12	8	10	12	12	10	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
15	*Fraxinus uhdei*	shamel ash	8	1	8	0	0	0	0	0	28	10	7	10	15	20	10	20	15	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
16	*Schinus molle*	Peruvian pepper	9	1	9	0	0	0	0	0	20	5	5	4	4	12	10	8	8	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
17	*Eucalyptus sideroxylon*	red ironbark	28	1	28	0	0	0	0	0	40	10	7	8	10	10	20	20	15	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
18	*Pinus canariensis*	Canary Island pine	16	1	16	0	0	0	0	0	50	20	15	15	18	10	10	15	20	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
19	*Eucalyptus sideroxylon*	red ironbark	12	1	12	0	0	0	0	0	25	15	5	4	4	10	7	7	15	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
20	*Eucalyptus sideroxylon*	red ironbark	22	1	22	0	0	0	0	0	55	20	10	5	20	15	20	15	25	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
21	*Pinus canariensis*	Canary Island pine	16	1	16	0	0	0	0	0	60	5	5	5	10	15	15	15	15	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
22	*Pinus canariensis*	Canary Island pine	14	1	14	0	0	0	0	0	60	7	10	15	15	15	15	20	15	Poor	Fair	Ornamental	No	Encroachment - Pruning	Encroachment	Yes	0.00%	
23	*Eucalyptus sideroxylon*	red ironbark	27	1	27	0	0	0	0	0	55	15	15	10	12	15	15	17	25	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
24	*Eucalyptus sideroxylon*	red ironbark	22	1	22	0	0	0	0	0	65	20	10	10	15	25	25	25	15	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
25	*Schinus molle*	Peruvian pepper	8	1	8	0	0	0	0	0	15	5	3	3	4	7	20	9	10	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	Bowed over.
26	*Eucalyptus sideroxylon*	red ironbark	24	1	24	0	0	0	0	0	50	20	15	15	25	20	25	15	20	Fair	Fair	Ornamental	No	Encroachment - Pruning	Encroachment	Yes	0.00%	
27	*Eucalyptus sideroxylon*	red ironbark	29	1	29	0	0	0	0	0	65	30	15	15	20	25	20	25	30	Fair	Fair	Ornamental	No	Encroachment - Pruning	Encroachment	Yes	0.00%	
28	*Pinus canariensis*	Canary Island pine	15	1	15	0	0	0	0	0	70	10	10	15	18	15	15	20	15	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
29	*Pinus canariensis*	Canary Island pine	12	1	12	0	0	0	0	0	65	15	3	2	3	12	10	15	15	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
30	*Pinus canariensis*	Canary Island pine	21	1	21	0	0	0	0	0	65	5	10	25	30	25	20	15	10	Good	Fair	Ornamental	No	Encroachment - Pruning	Encroachment	Yes	0.00%	
31	*Pinus canariensis*	Canary Island pine	12	1	12	0	0	0	0	0	70	8	8	10	10	10	10	10	15	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
32	*Pinus canariensis*	Canary Island pine	14	1	14	0	0	0	0	0	60	10	10	15	10	5	7	7	20	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
33	*Schinus terebinthifolius*	Brazilian pepper	7	1	7	0	0	0	0	0	15	8	5	7	10	10	10	8	8	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
34	*Fraxinus uhdei*	shamel ash	6	1	6	0	0	0	0	0	20	7	4	10	10	7	3	5	5	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
35	*Fraxinus uhdei*	shamel ash	8	1	8	0	0	0	0	0	20	10	7	8	10	8	8	5	8	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
36	*Pinus canariensis*	Canary Island pine	15	1	15	0	0	0	0	0	75	15	15	10	15	20	20	20	15	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
37	*Pinus canariensis*	Canary Island pine	17	1	17	0	0	0	0	0	70	15	12	10	15	17	15	15	20	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
38	*Eucalyptus sideroxylon*	red ironbark	18	1	18	0	0	0	0	0	40	10	10	15	20	17	15	10	8	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
39	*Pinus canariensis*	Canary Island pine	11	1	11	0	0	0	0	0	55	5	5	10	15	10	14	7	5	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
40	*Eucalyptus sideroxylon*	red ironbark	28	1	28	0	0	0	0	0	55	10	10	15	15	17	20	25	20	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
41	*Schinus terebinthifolius*	Brazilian pepper	8	1	8	0	0	0	0	0	25	10	7	5	8	10	13	12	15	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
42	*Platanus racemosa*	California sycamore	10	1	10	0	0	0	0	0	40	10	10	15	10	10	4	4	5	Poor	Fair	Ornamental	No	Encroachment - Pruning	Encroachment	Yes	0.00%	
43	*Eucalyptus sideroxylon*	red ironbark	30	1	30	0	0	0	0	0	55	30	17	15	12	15	15	35	30	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
44	*Schinus molle*	Peruvian pepper	4	2	3	1	0	0	0	0	15	7	10	8	6	7	6	6	9	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
45	*Eucalyptus cladocalyx*	sugar gum	5	1	5	0	0	0	0	0	25	8	7	4	3	7	6	10	10	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
46	*Fraxinus uhdei*	shamel ash	8	1	8	0	0	0	0	0	27	12	6	6	6	7	10	8	10	Poor	Poor	Ornamental	No	Preserve	No Impact	No	0.00%	Crown dieback.
47	*Eucalyptus cladocalyx*	sugar gum	4	1	4	0	0	0	0	0	20	10	10	12	10	6	5	7	10	Poor	Poor	Ornamental	No	Preserve	No Impact	No	0.00%	Crown dieback.
48	*Schinus molle*	Peruvian pepper	4	1	4	0	0	0	0	0	15	4	3	8	7	7	5	3	5	Poor	Poor	Ornamental	No	Preserve	No Impact	No	0.00%	Crown dieback.

Tree No.	Botanical Name	Common Name	Cumulative DSH (inches)	Stems	Individual Stem Diameter						Height (feet)	Individual Crown Dimensions (feet)								Health	Structure	Protected	Historic	Impact	Impact Type	Clearance Pruning for Fire Access	% of CRZ Encroached Upon	Notes
					1	2	3	4	5	6		N	NE	E	SE	S	SW	W	NW								
49	*Eucalyptus cladocalyx*	sugar gum	4	1	4	0	0	0	0	0	10	3	10	12	10	6	5	7	4	Poor	Poor	Ornamental	No	Preserve	No Impact	No	0.00%	
50	*Prunus cerasifera*	purple-leaf plum	18	10	4	3	2	2	2	1	10	5	3	7	8	10	10	8	5	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
51	*Fraxinus uhdei*	shamel ash	7	1	7	0	0	0	0	0	27	10	8	5	5	10	10	8	8	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
52	*Washingtonia robusta*	Mexican fan palm	17	1	17	0	0	0	0	0	55	10	10	10	10	10	10	10	10	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
53	*Fraxinus uhdei*	shamel ash	7	1	7	0	0	0	0	0	15	5	7	5	5	5	5	7	10	Poor	Poor	Ornamental	No	Preserve	No Impact	No	0.00%	Dieback.
54	*Fraxinus uhdei*	shamel ash	7	1	7	0	0	0	0	0	23	5	5	5	7	13	13	8	7	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
55	*Eucalyptus cladocalyx*	sugar gum	4	1	4	0	0	0	0	0	12	8	4	4	5	7	7	6	7	Poor	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	Dieback.
56	*Fraxinus uhdei*	shamel ash	9	1	9	0	0	0	0	0	25	8	8	7	7	8	15	15	10	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
57	*Schinus molle*	Peruvian pepper	18	2	13	5	0	0	0	0	25	8	10	15	15	15	15	15	15	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
58	*Platanus racemosa*	California sycamore	10	1	10	0	0	0	0	0	25	5	5	10	10	10	5	5	5	Fair	Poor	Ornamental	No	Preserve	No Impact	No	0.00%	Codominant, narrow angle of attachment.
59	*Schinus terebinthifolius*	Brazilian pepper	9	1	9	0	0	0	0	0	20	10	7	6	5	7	5	12	10	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
60	*Schinus molle*	Peruvian pepper	14	1	14	0	0	0	0	0	20	6	4	6	7	6	7	8	8	Poor	Poor	Ornamental	No	Preserve	No Impact	No	0.00%	Dieback.
61	*Schinus terebinthifolius*	Brazilian pepper	18	3	8	6	4	0	0	0	20	7	5	12	12	12	12	15	15	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
62	*Quercus agrifolia*	coast live oak	17	1	17	0	0	0	0	0	35	12	10	10	15	18	15	25	22	Fair	Fair	Protected oak	No	Preserve	No Impact	No	0.00%	Old tag 67. Crown dieback. Borer holes.
63	*Eucalyptus sideroxylon*	red ironbark	19	1	19	0	0	0	0	0	55	10	10	9	10	8	20	20	17	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
64	*Schinus terebinthifolius*	Brazilian pepper	7	1	7	0	0	0	0	0	20	10	10	10	10	10	12	12	10	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
65	*Eucalyptus sideroxylon*	red ironbark	20	1	20	0	0	0	0	0	40	10	7	7	6	10	15	15	10	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
66	*Quercus agrifolia*	coast live oak	10	1	10	0	0	0	0	0	25	7	7	5	5	5	10	15	10	Fair	Fair	Protected oak	No	Preserve	No Impact	No	0.00%	Old tag 68.
67	*Quercus agrifolia*	coast live oak	12	1	12	0	0	0	0	0	20	10	10	8	10	10	8	10	10	Fair	Poor	Protected oak	No	Preserve	No Impact	No	0.00%	Old tag 69.
68	*Eucalyptus sideroxylon*	red ironbark	55	2	32	23	0	0	0	0	55	20	10	10	15	25	22	25	22	Fair	Fair	Ornamental	No	Encroachment - Pruning	Encroachment	Yes	0.00%	
69	*Platanus racemosa*	California sycamore	16	1	16	0	0	0	0	0	60	25	15	20	20	18	20	18	20	Fair	Good	Landmark	No	Encroachment - Pruning	Encroachment	Yes	0.00%	Old tag 70.
70	*Platanus racemosa*	California sycamore	21	3	8	7	6	0	0	0	35	15	10	10	10	10	5	10	17	Fair	Poor	Landmark	No	Preserve	No Impact	No	0.00%	
71	*Quercus agrifolia*	coast live oak	8	1	8	0	0	0	0	0	25	10	6	13	10	10	5	5	5	Good	Fair	Protected oak	No	Preserve	No Impact	No	0.00%	
72	*Quercus agrifolia*	coast live oak	2	2	1	1	0	0	0	0	5	0	5	8	0	0	0	0	0	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
73	*Quercus agrifolia*	coast live oak	7	1	7	0	0	0	0	0	15	5	3	5	10	13	10	6	3	Fair	Fair	Protected oak	No	Preserve	No Impact	No	0.00%	Old tag 73.
74	*Fraxinus uhdei*	shamel ash	16	1	16	0	0	0	0	0	22	12	10	10	10	12	12	16	15	Fair	Fair	Ornamental	No	Removal	Road/Landscape/Grading Improvements	No	100.00%	Dieback.
75	*Fraxinus uhdei*	shamel ash	13	1	13	0	0	0	0	0	18	7	7	7	12	15	15	12	8	Poor	Poor	Ornamental	No	Removal	Road/Landscape/Grading Improvements	No	100.00%	Dieback.
76	*Morus alba*	white mulberry	11	1	11	0	0	0	0	0	20	10	12	15	10	8	7	10	8	Poor	Poor	Ornamental	No	Removal	Road/Landscape/Grading Improvements	No	100.00%	Dieback.
77	*Eucalyptus sideroxylon*	red ironbark	28	1	28	0	0	0	0	0	40	30	25	15	20	15	32	20	20	Fair	Fair	Ornamental	No	Removal	Road/Landscape/Grading Improvements	No	100.00%	
78	*Fraxinus uhdei*	shamel ash	14	1	14	0	0	0	0	0	30	15	8	10	10	10	15	15	15	Fair	Fair	Ornamental	No	Removal	Road/Landscape/Grading Improvements	No	100.00%	
79	*Magnolia grandiflora*	Southern magnolia	7	1	7	0	0	0	0	0	20	10	4	3	5	10	8	10	10	Fair	Fair	Ornamental	No	Removal	Building	No	100.00%	
80	*Melaleuca quinquenervia*	paperbark tree	9	1	9	0	0	0	0	0	25	5	5	5	6	8	7	8	4	Fair	Fair	Ornamental	No	Removal	Building	No	100.00%	
81	*Callistemon viminalis*	weeping bottlebrush	7	1	7	0	0	0	0	0	22	12	10	12	0	0	0	0	0	Fair	Fair	Ornamental	No	Removal	Building	No	100.00%	Lean.
82	*Liquidambar styraciflua*	American sweetgum	17	1	17	0	0	0	0	0	35	20	18	17	17	8	7	10	10	Fair	Fair	Ornamental	No	Removal	Building	No	100.00%	Dieback.
83	*Schinus terebinthifolius*	Brazilian pepper	16	1	16	0	0	0	0	0	30	10	12	15	12	8	10	15	10	Fair	Fair	Ornamental	No	Removal	Building	No	100.00%	
84	*Magnolia grandiflora*	Southern magnolia	5	1	5	0	0	0	0	0	20	9	7	7	9	9	9	9	9	Dead	Dead	Ornamental	No	Removal	Building	No	100.00%	
85	*Schinus terebinthifolius*	Brazilian pepper	24	1	24	0	0	0	0	0	30	20	17	15	15	12	10	17	13	Fair	Fair	Ornamental	No	Removal	Building	No	100.00%	
86	*Schinus terebinthifolius*	Brazilian pepper	16	1	16	0	0	0	0	0	30	10	12	15	12	8	12	15	15	Fair	Fair	Ornamental	No	Removal	Building	No	100.00%	
87	*Schinus terebinthifolius*	Brazilian pepper	14	1	14	0	0	0	0	0	25	15	7	7	5	6	5	10	17	Fair	Fair	Ornamental	No	Removal	Building	No	100.00%	
88	*Liquidambar styraciflua*	American sweetgum	10	1	10	0	0	0	0	0	30	15	10	7	10	10	10	7	10	Good	Fair	Ornamental	No	Removal	Building	No	100.00%	
89	*Schinus terebinthifolius*	Brazilian pepper	21	1	21	0	0	0	0	0	25	15	15	10	10	5	5	12	15	Fair	Fair	Ornamental	No	Removal	Building	No	100.00%	
90	*Platanus racemosa*	California sycamore	7	1	7	0	0	0	0	0	25	10	10	8	5	5	5	8	10	Fair	Fair	Ornamental	No	Removal	Road/Landscape/Grading Improvements	No	100.00%	
91	*Fraxinus uhdei*	shamel ash	16	1	16	0	0	0	0	0	25	13	14	12	13	15	15	15	10	Good	Fair	Ornamental	No	Removal	Building	No	100.00%	
92	*Schinus terebinthifolius*	Brazilian pepper	15	1	15	0	0	0	0	0	30	10	8	8	10	8	10	17	13	Fair	Fair	Ornamental	No	Removal	Building	No	100.00%	
93	*Schinus terebinthifolius*	Brazilian pepper	19	1	19	0	0	0	0	0	30	12	10	12	10	8	10	15	13	Fair	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
94	*Liquidambar styraciflua*	American sweetgum	7	1	7	0	0	0	0	0	30	5	5	5	5	5	6	5	5	Fair	Poor	Ornamental	No	Removal	Landscaping	No	100.00%	
95	*Liquidambar styraciflua*	American sweetgum	6	1	6	0	0	0	0	0	25	7	7	7	7	5	7	8	8	Fair	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	

Tree No.	Botanical Name	Common Name	Cumulative DSH (inches)	Stems	Individual Stem Diameter						Height (feet)	Individual Crown Dimensions (feet)								Health	Structure	Protected	Historic	Impact	Impact Type	Clearance Pruning for Fire Access	% of CRZ Encroached Upon	Notes
					1	2	3	4	5	6		N	NE	E	SE	S	SW	W	NW								
96	*Liquidambar styraciflua*	American sweetgum	9	1	9	0	0	0	0	0	20	5	4	4	3	5	7	10	8	Poor	Poor	Ornamental	No	Removal	Landscaping	No	100.00%	Topped.
97	*Quercus agrifolia*	coast live oak	29	1	29	0	0	0	0	0	35	30	25	30	20	15	12	25	35	Fair	Fair	Protected oak	No	Removal	Landscaping/Building	No	100.00%	Old tag 57.
98	*Quercus agrifolia*	coast live oak	5	1	5	0	0	0	0	0	20	15	13	13	10	8	8	7	10	Poor	Fair	Protected oak	No	Encroached	Landscaping	No	40.00%	
99	*Platanus racemosa*	California sycamore	24	1	24	0	0	0	0	0	65	15	13	13	20	20	35	25	15	Poor	Fair	Landmark	No	Encroached	Landscaping	No	38.00%	
100	*Pinus halepensis*	Aleppo pine	30	1	30	0	0	0	0	0	55	10	20	25	15	17	13	12	10	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
101	*Pinus canariensis*	Canary Island pine	23	1	23	0	0	0	0	0	65	15	18	15	25	20	15	15	15	Fair	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
102	*Pinus halepensis*	Aleppo pine	23	1	23	0	0	0	0	0	65	15	10	15	15	15	9	10	9	Fair	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
103	*Platanus racemosa*	California sycamore	18	2	12	6	0	0	0	0	40	10	7	8	10	10	10	10	10	Critical	Critical	Landmark	No	Encroached	Landscaping	No	25.00%	
104	*Prunus cerasifera*	purple-leaf plum	3	1	3	0	0	0	0	0	20	5	13	13	10	5	4	3	4	Fair	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
105	*Platanus racemosa*	California sycamore	33	1	33	0	0	0	0	0	55	15	15	25	30	35	35	30	22	Fair	Fair	Landmark	No	Removal	Landscaping/Building	No	100.00%	Old tag 62.
106	*Acer palmatum*	Japanese maple	5	5	1	1	1	1	1	0	12	5	3	4	5	5	3	3	3	Good	Fair	Ornamental	No	Encroached	Landscaping	No	34.00%	
107	*Acer palmatum*	Japanese maple	4	4	1	1	1	1	0	0	8	5	8	8	7	6	5	5	4	Fair	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
108	*Quercus agrifolia*	coast live oak	24	1	24	0	0	0	0	0	35	10	10	20	30	20	25	25	10	Fair	Fair	Protected oak	No	Removal	Landscaping/Building	No	100.00%	Old tag 65. Cankers.
109	*Pinus canariensis*	Canary Island pine	29	1	29	0	0	0	0	0	65	12	7	10	15	20	20	17	25	Good	Fair	Ornamental	No	Removal	Landscaping/Building	No	100.00%	
110	*Ulmus parvifolia*	Chinese elm	10	1	10	0	0	0	0	0	25	10	12	17	15	12	10	10	10	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
111	*Pinus thunbergii*	black pine	9	1	9	0	0	0	0	0	25	8	6	10	8	8	8	7	5	Poor	Fair	Ornamental	No	Encroached	Landscaping	No	9.00%	
112	*Liquidambar styraciflua*	American sweetgum	12	1	12	0	0	0	0	0	40	5	10	9	8	9	8	7	7	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
113	*Liquidambar styraciflua*	American sweetgum	10	1	10	0	0	0	0	0	45	8	8	7	8	7	7	7	5	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
114	*Liquidambar styraciflua*	American sweetgum	5	1	5	0	0	0	0	0	25	6	5	5	6	8	8	7	7	Dead	Dead	Ornamental	No	Preserve	No Impact	No	0.00%	
115	*Liquidambar styraciflua*	American sweetgum	9	1	9	0	0	0	0	0	40	10	8	8	6	5	4	7	10	Fair	Fair	Ornamental	No	Encroached	Landscaping	No	2.00%	
116	*Pinus canariensis*	Canary Island pine	17	1	17	0	0	0	0	0	55	20	20	18	13	10	10	20	15	Fair	Fair	Ornamental	No	Encroached	Landscaping	No	2.00%	
117	*Pinus halepensis*	Aleppo pine	33	1	33	0	0	0	0	0	60	0	0	0	35	30	8	0	0	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
118	*Pinus canariensis*	Canary Island pine	12	1	12	0	0	0	0	0	50	10	10	10	8	10	15	10	20	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
119	*Quercus agrifolia*	coast live oak	44	2	22	22	0	0	0	0	40	25	25	30	25	12	10	10	10	Fair	Fair	Protected oak	No	Preserve	No Impact	No	0.00%	Codominant stem.
120	*Quercus agrifolia*	coast live oak	30	1	30	0	0	0	0	0	30	20	20	25	20	12	13	20	26	Fair	Fair	Protected oak	No	Encroachment - Pruning	Encroachment	Yes	0.00%	
121	*Quercus lobata*	valley oak	31	1	31	0	0	0	0	0	35	10	10	32	30	20	25	25	20	Fair	Fair	Protected oak	Yes	Encroached	Landscaping/Building	No	11.00%	
122	*Fraxinus uhdei*	shamel ash	14	1	14	0	0	0	0	0	25	13	15	12	10	10	10	14	16	Poor	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
123	*Quercus agrifolia*	coast live oak	28	1	28	0	0	0	0	0	35	10	10	12	12	20	17	18	15	Good	Fair	Protected oak	No	Encroachment - Pruning	Encroachment	Yes	0.00%	Old tag 77.
124	*Quercus agrifolia*	coast live oak	29	1	29	0	0	0	0	0	30	20	12	15	15	15	15	20	20	Good	Fair	Protected oak	Yes	Encroached	Landscaping	Yes	1.00%	Old tag 78.
125	*Quercus agrifolia*	coast live oak	23	1	23	0	0	0	0	0	30	15	18	18	18	17	17	16	15	Good	Fair	Protected oak	No	Encroachment - Pruning	Encroachment	Yes	0.00%	Old tag 76.
126	*Quercus agrifolia*	coast live oak	21	1	21	0	0	0	0	0	30	16	16	15	13	15	15	18	15	Good	Fair	Protected oak	No	Preserve	No Impact	No	0.00%	Old tag 76.
127	*Fraxinus uhdei*	shamel ash	7	2	4	3	0	0	0	0	23	7	7	6	7	10	10	9	9	Good	Fair	Ornamental	No	Encroachment - Pruning	Encroachment	Yes	0.00%	
128	*Quercus kelloggi*	black oak	3	1	3	0	0	0	0	0	12	7	5	8	9	8	8	8	7	Fair	Good	Protected oak	No	Preserve	No Impact	No	0.00%	
129	*Ficus carica*	edible fig	7	5	3	1	1	1	1	0	20	8	10	13	10	7	7	7	9	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	Trunk data estimated cannot see.
130	*Schinus molle*	Peruvian pepper	24	1	24	0	0	0	0	0	35	15	15	15	10	10	10	0	10	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
131	*Ulmus parvifolia*	Chinese elm	14	1	14	0	0	0	0	0	35	20	10	20	23	18	10	10	17	Fair	Poor	Ornamental	No	Preserve	No Impact	No	0.00%	Wounds.
132	*Ulmus parvifolia*	Chinese elm	15	1	15	0	0	0	0	0	35	17	14	20	13	10	10	10	18	Fair	Fair	Ornamental	No	Encroachment - Pruning	Encroachment	Yes	0.00%	
133	*Ulmus parvifolia*	Chinese elm	12	1	12	0	0	0	0	0	40	15	5	20	22	17	25	15	14	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
134	*Schinus molle*	Peruvian pepper	26	1	26	0	0	0	0	0	30	15	13	13	13	13	12	13	20	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
135	*Liquidambar styraciflua*	American sweetgum	7	1	7	0	0	0	0	0	25	8	7	8	7	5	5	5	8	Good	Good	Ornamental	No	Preserve	No Impact	No	0.00%	
136	*Ulmus parvifolia*	Chinese elm	6	1	6	0	0	0	0	0	20	9	10	15	12	10	5	6	8	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
137	*Ulmus parvifolia*	Chinese elm	18	1	18	0	0	0	0	0	35	20	15	22	20	20	20	28	25	Good	Fair	Ornamental	No	Encroached	Road/Landscape/Grading Improvements	No	5.00%	
138	*Quercus lobata*	valley oak	33	1	33	0	0	0	0	0	23	0	0	0	30	20	10	0	0	Fair	Poor	Protected oak	Yes	Preserve	No Impact	No	0.00%	Severe lean; propped up.
139	*Liquidambar styraciflua*	American sweetgum	9	1	9	0	0	0	0	0	15	8	6	5	5	8	8	9	9	Fair	Poor	Ornamental	No	Preserve	No Impact	No	0.00%	
140	*Schinus molle*	Peruvian pepper	20	1	20	0	0	0	0	0	20	15	10	8	7	10	10	10	10	Fair	Poor	Ornamental	No	Preserve	No Impact	No	0.00%	
141	*Ulmus parvifolia*	Chinese elm	12	1	12	0	0	0	0	0	35	15	10	10	10	15	15	23	20	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
142	*Ulmus parvifolia*	Chinese elm	13	1	13	0	0	0	0	0	35	5	0	0	0	0	10	15	10	Fair	Fair	Ornamental	No	Encroachment - Pruning	Encroachment	Yes	0.00%	
143	*Quercus agrifolia*	coast live oak	22	1	22	0	0	0	0	0	30	15	17	20	17	17	24	20	15	Good	Fair	Protected oak	No	Preserve	No Impact	No	0.00%	Old tag 74.

Tree No.	Botanical Name	Common Name	Cumulative DSH (inches)	Stems	Individual Stem Diameter						Height (feet)	Individual Crown Dimensions (feet)								Health	Structure	Protected	Historic	Impact	Impact Type	Clearance Pruning for Fire Access	% of CRZ Encroached Upon	Notes
					1	2	3	4	5	6		N	NE	E	SE	S	SW	W	NW								
144	*Schinus molle*	Peruvian pepper	15	1	15	0	0	0	0	0	25	8	8	10	7	7	17	13	15	Fair	Fair	Ornamental	No	Encroachment - Pruning	Encroachment	Yes	0.00%	
145	*Liquidambar styraciflua*	American sweetgum	12	1	12	0	0	0	0	0	50	8	7	7	8	7	8	9	7	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
146	*Pinus halepensis*	Aleppo pine	37	1	37	0	0	0	0	0	55	10	8	9	9	17	25	23	15	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
147	*Pinus canariensis*	Canary Island pine	24	1	24	0	0	0	0	0	65	15	15	10	10	15	15	25	25	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
148	*Pinus canariensis*	Canary Island pine	25	1	25	0	0	0	0	0	70	15	12	10	10	15	18	20	16	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
149	*Pinus thunbergii*	black pine	9	2	7	2	0	0	0	0	35	0	7	10	0	10	7	0	0	Poor	Poor	Ornamental	No	Preserve	No Impact	No	0.00%	
150	*Pinus canariensis*	Canary Island pine	23	1	23	0	0	0	0	0	70	13	5	7	10	20	20	20	13	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
151	*Pinus thunbergii*	black pine	8	1	8	0	0	0	0	0	23	4	0	20	10	7	5	0	0	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
152	*Pinus thunbergii*	black pine	7	1	7	0	0	0	0	0	35	4	0	5	6	8	15	10	4	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
153	*Fraxinus uhdei*	shamel ash	12	1	12	0	0	0	0	0	25	10	6	10	10	15	15	15	10	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
154	*Fraxinus uhdei*	shamel ash	10	1	10	0	0	0	0	0	25	12	10	10	12	8	13	10	15	Fair	Fair	Ornamental	No	Encroachment - Pruning	Encroachment	Yes	0.00%	
155	*Fraxinus uhdei*	shamel ash	10	1	10	0	0	0	0	0	25	10	10	12	12	10	10	7	6	Fair	Fair	Ornamental	No	Encroachment - Pruning	Encroachment	Yes	0.00%	
156	*Ulmus parvifolia*	Chinese elm	15	1	15	0	0	0	0	0	35	20	15	20	15	10	15	10	10	Good	Fair	Ornamental	No	Removal	Landscaping/Building	No	100.00%	
157	*Ulmus parvifolia*	Chinese elm	10	1	10	0	0	0	0	0	35	10	5	5	5	10	20	20	10	Good	Fair	Ornamental	No	Removal	Building	No	100.00%	
158	*Fraxinus uhdei*	shamel ash	11	1	11	0	0	0	0	0	30	5	20	10	8	5	0	2	3	Fair	Fair	Ornamental	No	Removal	Building	No	100.00%	
159	*Fraxinus uhdei*	shamel ash	11	1	11	0	0	0	0	0	30	10	15	15	10	8	8	8	10	Fair	Fair	Ornamental	No	Removal	Building	No	100.00%	
160	*Quercus agrifolia*	coast live oak	16	2	11	5	0	0	0	0	15	7	9	9	9	8	8	10	10	Fair	Fair	Protected oak	No	Preserve	No Impact	No	0.00%	
161	*Jacaranda mimosifolia*	jacaranda	13	1	13	0	0	0	0	0	25	5	6	7	10	15	15	10	8	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
162	*Platanus racemosa*	California sycamore	20	1	20	0	0	0	0	0	30	10	13	16	20	15	13	12	8	Fair	Fair	Landmark	No	Preserve	No Impact	No	0.00%	Old tag 18.
163	*Quercus agrifolia*	coast live oak	9	1	9	0	0	0	0	0	10	10	10	10	8	6	7	7	8	Good	Fair	Protected oak	No	Preserve	No Impact	No	0.00%	Borer holes. Old tag 17.
164	*Ulmus parvifolia*	Chinese elm	18	1	18	0	0	0	0	0	30	15	10	13	25	15	20	20	17	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
165	*Platanus x hispanica*	London plane	9	1	9	0	0	0	0	0	25	6	7	10	15	10	10	7	10	Poor	Poor	Ornamental	No	Preserve	No Impact	No	0.00%	Old tag 16.
166	*Fraxinus uhdei*	shamel ash	12	1	12	0	0	0	0	0	25	10	13	13	10	10	9	5	5	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
167	*Acer saccharinum*	Silver maple	13	1	13	0	0	0	0	0	25	10	10	10	10	12	13	10	10	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
168	*Fraxinus uhdei*	shamel ash	9	1	9	0	0	0	0	0	20	8	7	3	3	5	8	8	10	Poor	Poor	Ornamental	No	Preserve	No Impact	No	0.00%	
169	*Schinus terebinthifolius*	Brazilian pepper	13	1	13	0	0	0	0	0	25	10	8	7	6	10	10	10	12	Good	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
170	*Ulmus parvifolia*	Chinese elm	12	1	12	0	0	0	0	0	25	20	15	10	13	13	20	15	15	Good	Fair	Ornamental	No	Removal	Landscaping	Yes	100.00%	
171	*Fraxinus uhdei*	shamel ash	8	1	8	0	0	0	0	0	22	10	8	9	8	7	7	10	12	Good	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
172	*Fraxinus uhdei*	shamel ash	10	1	10	0	0	0	0	0	25	15	9	7	5	7	8	10	20	Good	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
173	*Jacaranda mimosifolia*	jacaranda	4	1	4	0	0	0	0	0	10	0	10	10	12	5	0	0	0	Poor	Poor	Ornamental	No	Removal	Landscaping	No	100.00%	Dieback.
174	*Jacaranda mimosifolia*	jacaranda	6	1	6	0	0	0	0	0	25	9	8	5	7	12	9	8	8	Fair	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
175	*Pinus canariensis*	Canary Island pine	26	1	26	0	0	0	0	0	55	15	10	10	10	10	12	12	15	Good	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
176	*Pinus canariensis*	Canary Island pine	18	1	18	0	0	0	0	0	45	17	10	8	10	13	10	10	10	Fair	Fair	Ornamental	No	Removal	Landscaping/Building	No	100.00%	
177	*Liquidambar styraciflua*	American sweetgum	11	1	11	0	0	0	0	0	35	10	12	12	12	10	10	10	10	Good	Fair	Ornamental	No	Removal	Landscaping/Building	No	100.00%	
178	*Prunus cerasifera*	purple-leaf plum	15	2	9	6	0	0	0	0	15	5	6	5	5	8	9	8	7	Fair	Fair	Ornamental	No	Removal	Landscaping/Building	No	100.00%	
179	*Prunus cerasifera*	purple-leaf plum	10	3	4	3	3	0	0	0	20	5	5	6	7	8	7	7	6	Fair	Fair	Ornamental	No	Removal	Landscaping/Building	No	100.00%	
180	*Platanus racemosa*	California sycamore	24	1	24	0	0	0	0	0	60	15	25	20	25	25	15	10	15	Poor	Fair	Landmark	No	Removal	Landscaping/Building	No	100.00%	Old tag 23. Dieback.
181	*Pinus canariensis*	Canary Island pine	18	1	18	0	0	0	0	0	60	8	6	6	7	14	15	7	20	Fair	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
182	*Pinus canariensis*	Canary Island pine	13	1	13	0	0	0	0	0	40	10	3	3	4	4	8	15	10	Fair	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
183	*Quercus agrifolia*	coast live oak	12	1	12	0	0	0	0	0	25	5	5	5	5	15	17	10	7	Poor	Poor	Protected oak	No	Removal	Landscaping	No	100.00%	Old tag 25. Dieback.
184	*Pinus canariensis*	Canary Island pine	20	1	20	0	0	0	0	0	65	8	10	10	15	15	10	8	8	Fair	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
185	*Pinus canariensis*	Canary Island pine	28	1	28	0	0	0	0	0	75	13	14	18	22	18	13	30	15	Good	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
186	*Pinus canariensis*	Canary Island pine	14	1	14	0	0	0	0	0	45	8	8	10	10	10	9	9	8	Fair	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
187	*Pinus canariensis*	Canary Island pine	26	1	26	0	0	0	0	0	65	13	10	10	10	17	15	18	17	Fair	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
188	*Ulmus parvifolia*	Chinese elm	13	1	13	0	0	0	0	0	35	17	15	10	10	15	15	20	20	Good	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
189	*Quercus agrifolia*	coast live oak	13	1	13	0	0	0	0	0	20	5	6	8	12	10	10	9	8	Fair	Fair	Protected oak	No	Encroached	Landscaping	No	22.00%	Street tree. Old tag 26.
190	*Quercus agrifolia*	coast live oak	17	1	17	0	0	0	0	0	20	5	5	10	15	17	20	15	10	Fair	Poor	Protected oak	No	Preserve	No Impact	No	0.00%	Street tree. Old tag 27.
191	*Schinus molle*	Peruvian pepper	25	1	25	0	0	0	0	0	35	10	10	12	15	17	16	20	10	Fair	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
192	*Pinus canariensis*	Canary Island pine	18	1	18	0	0	0	0	0	55	10	13	14	13	12	15	15	15	Good	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
193	*Jacaranda mimosifolia*	jacaranda	12	1	12	0	0	0	0	0	30	5	6	10	17	10	6	7	6	Fair	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
194	*Pinus canariensis*	Canary Island pine	15	1	15	0	0	0	0	0	65	18	15	13	10	10	10	10	13	Fair	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
195	*Jacaranda mimosifolia*	jacaranda	9	1	9	0	0	0	0	0	20	3	3	3	3	7	15	17	10	Fair	Fair	Ornamental	No	Encroached	Landscaping	No	26.00%	
196	*Quercus agrifolia*	coast live oak	18	1	18	0	0	0	0	0	25	10	10	8	17	20	15	15	15	Good	Fair	Protected oak	No	Encroached	Landscaping	No	32.00%	Old tag 28.

Tree No.	Botanical Name	Common Name	Cumulative DSH (inches)	Stems	Individual Stem Diameter						Height (feet)	Individual Crown Dimensions (feet)								Health	Structure	Protected	Historic	Impact	Impact Type	Clearance Pruning for Fire Access	% of CRZ Encroached Upon	Notes
					1	2	3	4	5	6		N	NE	E	SE	S	SW	W	NW								
197	*Platanus racemosa*	California sycamore	18	1	18	0	0	0	0	0	50	15	18	18	15	10	10	15	16	Poor	Poor	Landmark	No	Removal	Landscaping	No	100.00%	Old tag 29. Dieback.
198	*Jacaranda mimosifolia*	jacaranda	9	1	9	0	0	0	0	0	30	5	8	20	13	10	10	5	5	Fair	Fair	Ornamental	No	Encroached	Landscaping	No	23.00%	
199	*Pinus canariensis*	Canary Island pine	19	1	19	0	0	0	0	0	45	15	10	10	10	10	15	14	15	Fair	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
200	*Quercus agrifolia*	coast live oak	15	1	15	0	0	0	0	0	25	10	5	7	13	10	14	17	14	Good	Fair	Protected oak	No	Encroached	Landscaping	No	6.00%	Old tag 30.
201	*Quercus agrifolia*	coast live oak	10	1	10	0	0	0	0	0	20	5	6	7	8	10	8	10	7	Good	Fair	Protected oak	No	Preserve	No Impact	No	0.00%	Old tag 32. Street tree.
202	*Platanus racemosa*	California sycamore	33	1	33	0	0	0	0	0	50	5	7	7	25	37	20	25	6	Fair	Fair	Landmark	No	Removal	Landscaping	No	100.00%	
203	*Ulmus parvifolia*	Chinese elm	12	1	12	0	0	0	0	0	40	10	15	20	25	20	8	7	10	Good	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
204	*Ulmus parvifolia*	Chinese elm	14	1	14	0	0	0	0	0	35	10	10	10	17	20	10	10	10	Good	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
205	*Quercus agrifolia*	coast live oak	56	2	28	28	0	0	0	0	35	13	15	18	20	20	20	15	13	Good	Fair	Protected oak	No	Encroached	Landscaping/Building	No	5.00%	Codominant stems.
206	*Schinus terebinthifolius*	Brazilian pepper	28	2	16	12	0	0	0	0	30	5	7	10	12	18	10	10	7	Fair	Fair	Ornamental	No	Removal	Landscaping/Building	No	100.00%	
207	*Pinus canariensis*	Canary Island pine	25	1	25	0	0	0	0	0	70	10	12	13	12	14	15	12	10	Fair	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
215	*Fraxinus uhdei*	shamel ash	6	1	6	0	0	0	0	0	25	5	7	8	6	6	6	4	4	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
220	*Ulmus parvifolia*	Chinese elm	13	1	13	0	0	0	0	0	35	15	13	14	15	13	13	13	15	Good	Fair	Ornamental	No	Removal	Landscaping/Building	No	100.00%	
221	*Quercus agrifolia*	coast live oak	23	2	12	11	0	0	0	0	30	20	15	10	10	8	8	8	10	Good	Fair	Protected oak	No	Removal	Landscaping/Building	Yes	100.00%	Codominant.
222	*Liquidambar styraciflua*	American sweetgum	13	1	13	0	0	0	0	0	35	17	10	7	6	8	9	10	13	Fair	Fair	Ornamental	No	Removal	Landscaping/Building	No	100.00%	
223	*Schinus terebinthifolius*	Brazilian pepper	28	1	28	0	0	0	0	0	25	10	13	10	12	17	16	17	13	Fair	Fair	Ornamental	No	Removal	Landscaping/Building	Yes	100.00%	
224	*Schinus terebinthifolius*	Brazilian pepper	12	1	12	0	0	0	0	0	23	10	8	7	7	8	7	13	13	Fair	Fair	Ornamental	No	Removal	Building	No	100.00%	
225	*Fraxinus uhdei*	shamel ash	15	1	15	0	0	0	0	0	27	13	16	17	13	10	10	10	12	Good	Fair	Ornamental	No	Removal	Landscaping	No	100.00%	
226	*Quercus agrifolia*	coast live oak	34	2	17	17	0	0	0	0	40	17	15	15	15	25	22	10	15	Good	Fair	Protected oak	No	Removal	Building	Yes	100.00%	Codominant.
227	*Platanus racemosa*	California sycamore	21	1	21	0	0	0	0	0	55	15	10	20	23	23	20	12	13	Fair	Fair	Landmark	No	Removal	Building	No	100.00%	Old tag 42.
228	*Platanus racemosa*	California sycamore	16	1	16	0	0	0	0	0	45	15	10	10	20	20	20	14	15	Poor	Poor	Landmark	No	Removal	Building	No	100.00%	
229	*Quercus lobata*	valley oak	36	1	36	0	0	0	0	0	35	20	10	15	15	20	25	15	20	Fair	Fair	Protected oak	Yes	Removal	Building	No	100.00%	Low to fair vigor.
230	*Ulmus parvifolia*	Chinese elm	16	1	16	0	0	0	0	0	40	23	15	12	12	13	15	17	23	Good	Fair	Ornamental	No	Removal	Building	No	100.00%	
231	*Ulmus parvifolia*	Chinese elm	13	1	13	0	0	0	0	0	30	10	9	9	10	16	23	15	10	Good	Fair	Ornamental	No	Removal	Building	No	100.00%	
232	*Platanus x hispanica*	London plane	12	1	12	0	0	0	0	0	40	10	9	8	18	20	15	15	10	Poor	Fair	Ornamental	No	Removal	Building	No	100.00%	Dieback.
233	*Liquidambar styraciflua*	American sweetgum	14	1	14	0	0	0	0	0	40	9	9	8	9	10	10	10	10	Good	Fair	Ornamental	No	Removal	Building	No	100.00%	
234	*Liquidambar styraciflua*	American sweetgum	10	1	10	0	0	0	0	0	30	10	10	10	10	10	10	10	10	Good	Fair	Ornamental	No	Removal	Building	No	100.00%	
235	*Platanus x hispanica*	London plane	10	1	10	0	0	0	0	0	40	10	10	10	12	15	12	10	12	Fair	Fair	Ornamental	No	Removal	Building	No	100.00%	
236	*Platanus x hispanica*	London plane	12	1	12	0	0	0	0	0	35	10	10	10	10	13	15	17	18	Fair	Fair	Ornamental	No	Removal	Building	No	100.00%	
237	*Pinus canariensis*	Canary Island pine	28	1	28	0	0	0	0	0	65	10	12	17	17	18	20	20	17	Good	Fair	Ornamental	No	Removal	Building	No	100.00%	
238	*Quercus agrifolia*	coast live oak	30	1	30	0	0	0	0	0	35	10	10	15	20	23	20	18	10	Good	Fair	Protected oak	No	Removal	Landscaping/Building	No	100.00%	Old tag 45.
239	*Platanus racemosa*	California sycamore	20	1	20	0	0	0	0	0	60	15	10	15	15	20	20	16	15	Fair	Fair	Landmark	No	Removal	Landscaping	No	100.00%	Old tag 46.
240	*Schinus terebinthifolius*	Brazilian pepper	16	1	16	0	0	0	0	0	30	10	10	10	7	8	10	15	13	Fair	Fair	Ornamental	No	Removal	Road/Landscape/Grading Improvements	No	100.00%	
241	*Prunus cerasifera*	purple-leaf plum	9	3	5	3	1	0	0	0	20	7	5	2	3	2	2	10	10	Dead	Dead	Ornamental	No	Removal	Landscaping	No	100.00%	
242	*Fraxinus uhdei*	shamel ash	12	1	12	0	0	0	0	0	30	10	6	5	5	10	13	13	10	Fair	Fair	Ornamental	No	Removal	Road/Landscape/Grading Improvements	No	100.00%	
243	*Schinus molle*	Peruvian pepper	7	1	7	0	0	0	0	0	20	5	5	5	5	8	8	8	3	Fair	Fair	Ornamental	No	Removal	Road/Landscape/Grading Improvements	No	100.00%	
244	*Morus alba*	white mulberry	10	1	10	0	0	0	0	0	20	10	10	10	10	10	10	10	10	Good	Fair	Ornamental	No	Removal	Road/Landscape/Grading Improvements	No	100.00%	
245	*Platanus x hispanica*	London plane	9	1	9	0	0	0	0	0	30	10	13	12	10	10	10	10	15	Fair	Fair	Ornamental	No	Removal	Road/Landscape/Grading Improvements	No	100.00%	
246	*Quercus agrifolia*	coast live oak	22	6	6	5	5	4	1	1	15	8	8	8	7	8	9	9	8	Good	Fair	Protected oak	No	Removal	Road/Landscape/Grading Improvements	No	100.00%	
247	*Platanus x hispanica*	London plane	11	1	11	0	0	0	0	0	20	5	5	6	8	5	5	5	5	Critical	Critical	Ornamental	No	Removal	Road/Landscape/Grading Improvements	No	100.00%	
248	*Platanus x hispanica*	London plane	11	1	11	0	0	0	0	0	20	10	12	13	10	10	10	10	13	Fair	Fair	Ornamental	No	Removal	Building	No	100.00%	
249	*Platanus x hispanica*	London plane	11	1	11	0	0	0	0	0	20	10	9	8	10	10	10	10	10	Fair	Fair	Ornamental	No	Removal	Building	No	100.00%	
250	*Platanus x hispanica*	London plane	11	1	11	0	0	0	0	0	25	10	10	10	8	10	10	10	10	Fair	Fair	Ornamental	No	Removal	Building	No	100.00%	
251	*Platanus racemosa*	California sycamore	17	1	17	0	0	0	0	0	30	12	10	10	10	13	18	17	14	Fair	Fair	Landmark	No	Removal	Building	No	100.00%	
252	*Platanus x hispanica*	London plane	7	1	7	0	0	0	0	0	20	10	10	10	10	8	8	10	10	Poor	Fair	Ornamental	No	Removal	Building	No	100.00%	
253	*Robinia pseudoacacia*	black locust	12	1	12	0	0	0	0	0	25	13	12	8	10	10	10	12	10	Good	Fair	Ornamental	No	Removal	Building	No	100.00%	
254	*Fraxinus uhdei*	shamel ash	12	1	12	0	0	0	0	0	25	10	9	10	10	9	9	9	8	Good	Fair	Ornamental	No	Removal	Building	No	100.00%	
255	*Platanus racemosa*	California sycamore	23	1	23	0	0	0	0	0	60	18	20	25	10	10	10	15	15	Fair	Fair	Landmark	No	Removal	Building	No	100.00%	Old tag 36. Codominant, narrow angle of attachment.

Tree No.	Botanical Name	Common Name	Cumulative DSH (inches)	Stems	Individual Stem Diameter						Height (feet)	Individual Crown Dimensions (feet)								Health	Structure	Protected	Historic	Impact	Impact Type	Clearance Pruning for Fire Access	% of CRZ Encroached Upon	Notes
					1	2	3	4	5	6		N	NE	E	SE	S	SW	W	NW								
256	*Schinus terebinthifolius*	Brazilian pepper	12	1	12	0	0	0	0	0	25	8	8	8	7	8	10	12	8	Fair	Fair	Ornamental	No	Removal	Building	No	100.00%	
257	*Schinus terebinthifolius*	Brazilian pepper	15	1	15	0	0	0	0	0	30	12	10	10	10	9	10	15	15	Fair	Fair	Ornamental	No	Removal	Building	No	100.00%	Estimated data no tag, private tree
258	*Platanus x hispanica*	London plane	12	1	12	0	0	0	0	0	30	12	10	10	10	10	10	10	13	Poor	Fair	Ornamental	No	Removal	Building	No	100.00%	
259	*Platanus x hispanica*	London plane	10	1	10	0	0	0	0	0	30	10	8	8	8	10	10	10	12	Fair	Fair	Ornamental	No	Removal	Building	No	100.00%	
260	*Schinus terebinthifolius*	Brazilian pepper	26	1	26	0	0	0	0	0	35	10	10	10	10	13	10	15	13	Fair	Fair	Ornamental	No	Removal	Building	No	100.00%	
261	*Ulmus parvifolia*	Chinese elm	16	1	16	0	0	0	0	0	35	15	10	17	15	20	20	18	20	Good	Fair	Ornamental	No	Removal	Building	No	100.00%	
262	*Acer saccharinum*	Silver maple	25	1	25	0	0	0	0	0	45	23	18	15	16	18	15	15	15	Good	Fair	Ornamental	No	Removal	Building	No	100.00%	
263	*Prunus cerasifera*	purple-leaf plum	13	1	13	0	0	0	0	0	25	10	10	12	10	13	16	17	10	Good	Fair	Ornamental	No	Removal	Building	No	100.00%	
264	*Lagerstroemia indica*	crape myrtle	23	10	3	3	3	2	2	2	15	7	7	7	7	7	7	7	7	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	No tag private tree
265	*Citrus × sinensis*	orange	5	1	5	0	0	0	0	0	8	4	4	4	4	4	4	4	4	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	No tag private tree
266	*Citrus × sinensis*	orange	14	4	5	3	3	3	0	0	12	5	5	5	5	5	5	5	5	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
267	*Quercus lobata*	valley oak	52	1	52	0	0	0	0	0	40	15	18	27	33	28	27	35	18	Fair	Fair	Protected oak	No	Preserve	No Impact	No	0.00%	No tag private tree.
268	*Quercus agrifolia*	coast live oak	9	1	9	0	0	0	0	0	25	7	6	8	1	13	10	8	6	Fair	Fair	Protected oak	No	Preserve	No Impact	No	0.00%	No tag private tree.
269	*Schinus molle*	Peruvian pepper	35	1	35	0	0	0	0	0	35	1	16	20	13	28	25	27	15	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	No tag private tree.
270	*Quercus agrifolia*	coast live oak	4	1	4	0	0	0	0	0	20	5	7	8	6	10	8	7	6	Fair	Fair	Protected oak	No	Preserve	No Impact	No	0.00%	No tag private tree.
271	*Schinus molle*	Peruvian pepper	6	1	6	0	0	0	0	0	15	5	6	6	6	7	9	5	5	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	
272	*Quercus agrifolia*	coast live oak	12	2	7	5	0	0	0	0	20	5	5	6	6	7	8	10	8	Good	Fair	Protected oak	No	Preserve	No Impact	No	0.00%	
273	*Quercus lobata*	valley oak	3	1	3	0	0	0	0	0	10	5	5	5	6	6	6	8	5	Fair	Fair	Protected oak	No	Preserve	No Impact	No	0.00%	
274	*Fraxinus uhdei*	shamel ash	30	1	30	0	0	0	0	0	50	20	20	15	20	20	20	20	20	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	Estimated data no tag private tree.
275	*Fraxinus uhdei*	shamel ash	22	1	22	0	0	0	0	0	50	15	16	16	17	16	16	17	16	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	Estimated data no tag private tree.
276	*Washingtonia robusta*	Mexican fan palm	14	1	14	0	0	0	0	0	25	10	10	10	10	10	10	10	10	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	Estimated data no tag private tree.
277	*Quercus agrifolia*	coast live oak	15	1	15	0	0	0	0	0	25	10	12	12	10	10	10	10	10	Good	Fair	Protected oak	No	Preserve	No Impact	No	0.00%	No tag private tree.
278	*Quercus agrifolia*	coast live oak	10	3	5	3	2	0	0	0	20	6	10	10	10	10	5	5	5	Good	Fair	Protected oak	No	Preserve	No Impact	No	0.00%	
279	*Washingtonia robusta*	Mexican fan palm	20	1	20	0	0	0	0	0	55	10	10	10	10	10	10	10	10	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	No tag private tree.
280	*Washingtonia robusta*	Mexican fan palm	20	1	20	0	0	0	0	0	55	10	10	10	10	10	10	10	10	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	No tag private tree.
281	*Quercus agrifolia*	coast live oak	3	1	3	0	0	0	0	0	10	8	18	8	5	5	5	8	10	Fair	Fair	Protected oak	No	Preserve	No Impact	No	0.00%	No tag private tree.
282	*Quercus agrifolia*	coast live oak	9	1	9	0	0	0	0	0	25	15	10	10	10	10	10	10	10	Good	Fair	Protected oak	No	Preserve	No Impact	No	0.00%	No tag private tree.
283	*Washingtonia robusta*	Mexican fan palm	24	1	24	0	0	0	0	0	60	10	10	10	10	10	10	10	10	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	No tag private tree.
284	*Quercus agrifolia*	coast live oak	4	1	4	0	0	0	0	0	15	5	9	9	9	8	3	2	3	Good	Fair	Protected oak	No	Preserve	No Impact	No	0.00%	No tag estimated data, access issue.
285	*Ulmus parvifolia*	Chinese elm	6	1	6	0	0	0	0	0	20	12	10	9	10	10	12	9	5	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	No tag estimated data. Access issue.
286	*Platanus racemosa*	California sycamore	20	1	20	0	0	0	0	0	60	20	20	20	20	20	20	20	20	Fair	Fair	Landmark	No	Preserve	No Impact	No	0.00%	No tag estimated data.
287	*Fraxinus uhdei*	shamel ash	16	1	16	0	0	0	0	0	55	15	15	15	15	15	15	15	15	Good	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	Estimated data access issue
288	*Pinus canariensis*	Canary Island pine	13	1	13	0	0	0	0	0	45	15	15	15	15	15	15	15	15	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	Estimated data access issue.
289	*Xylosma spp.*	xylosma	8	1	8	0	0	0	0	0	20	5	5	5	5	5	5	5	10	Fair	Fair	Ornamental	No	Preserve	No Impact	No	0.00%	Estimated data access issue.

Appendix D
Tree Protection Measures

Tree Protection Measures

Dudek recommends the following measures to reduce impacts to the preserved protected tree and maintain its current health status.

Tree Protection Measures Prior to Construction

Prior to any grading activity, preserved trees that fall within 500 feet of construction activity shall be protected by fencing and signage. All contractors shall be made aware of the tree protection measures.

Fencing

Chain link fencing, not less than 4 feet high with tree protection signs shall be erected around all trees (or tree groups) to be preserved on site. The protective fence shall be installed at the Protected Zone boundary of each tree (or tree group), which is defined as five (5) feet beyond the tree canopy dripline (City of Thousand Oaks: Sec. 9-4.4202. Definitions). The intent of protection fencing is to prevent root damage and/or compaction by grading equipment. An International Society of Arboriculture (ISA) Certified Arborist may be required on site if grading activities will occur within the oak tree protected zone. The fencing shall be secured to 6-foot, heavy gauge t-bar line posts, pounded in the ground a minimum of 18-inches and spaced a minimum of 8-feet on-center. Fencing shall be attached to t-bar posts with minimum 14-gage wire fastened to the top, middle and bottom of each post. Tree protection signs should be attached to every fourth post. The contractor shall maintain the fence to keep it upright, taut and aligned at all times. Fencing shall be in place and inspected by the City prior to commencement of any activity on the property. Fencing shall be removed only after all construction activities are complete.

Pre-construction Meeting

A pre-construction meeting shall be held between all contractors (including grading, tree removal/pruning, builders, etc.) and the project arborist. The meeting shall focus on instructing the contractors on tree protection practices and answer any questions. All equipment operators and spotters, assistants, or those directing operators from the ground shall provide written acknowledgement of their receiving tree protection training. This training shall include information on the location and marking of protected trees, the necessity of preventing damage, and the discussion of work practices that will accomplish such.

Protection and Maintenance During Construction

Once construction activities have begun, the protection measures provided below should be observed.

Equipment Operation and Storage

Contractors shall avoid heavy equipment operation around the protected tree. Operating heavy machinery around the root zones of trees increases soil compaction, which decreases soil aeration and subsequently reduces water penetration into the soil. All heavy equipment and vehicles should, at minimum, stay out of the fenced protected tree zone unless where specifically approved in writing and under the supervision of a Certified Arborist.

Storage and Disposal

Materials Storage and Disposal: Do not store or discard any supply or material, including paint, lumber, concrete overflow, etc. within the protected zone. Remove all foreign debris within the protected zone; it is important to leave the duff, mulch, chips, and leaves around the retained trees for water retention and nutrient supply. Avoid draining or leakage of equipment fluids near retained trees. Fluids such as: gasoline, diesel, oils, hydraulics, brake and transmission fluids, paint, paint thinners, and glycol (anti-freeze) should be disposed of properly. Equipment should be parked at least 50 feet from the protected zone to avoid the possibility of leakage of equipment fluids into the soil. The effect of toxic equipment fluids on the retained trees could result in tree decline and/or mortality.

Grade Changes

Contractors shall ensure that grade changes, including adding fill, not be permitted within the protected zone without special written authorization and under supervision of a Certified Arborist. Lowering the grade within the protected zone would necessitate cutting main support and feeder roots, jeopardizing the health and structural integrity of the tree. Adding soil, even temporarily, on top of the existing grade would compact the soil further and decrease water and air availability to tree roots. Contractors shall ensure that grade changes made outside of the protected tree zone not create conditions that allow water to pond at the base of trees. Water trapped at the base of a tree could lead to root rot and other detrimental tree impacts.

Moving Construction Materials

Contractors shall ensure that care be exercised when moving construction equipment and supplies near the protected tree, especially overhead. Contractors shall ensure that damage to the tree be avoided when transporting or moving construction materials and working around the tree (even outside of the fenced protected zone). Contractors should flag aboveground tree parts with potential for damage (e.g., low limbs, scaffold branches, trunks) with high-visibility flagging, such as florescent red or orange. If contact with the tree crown is unavoidable, affected branches may be pruned by an ISA-Certified Tree Worker Climber Specialist under supervision of a Certified Arborist and should adhere to ISA standards.

Trenching

Except where specifically approved in writing beforehand, all trenching shall be done outside of the fenced protected zone. Roots primarily extend in a horizontal direction, forming a support base to the tree similar to the base of a wineglass. Where trenching is necessary in areas that contain roots from retained trees, contractors should use trenching techniques that include the use of either a root pruner or an Air-Spade to limit root impacts. A Certified Arborist should ensure that all pruning cuts be clean and sharp to minimize ripping, tearing, and fracturing of the root system. Root damage caused by backhoes, earthmovers, dozers, or graders is severe and may result in tree mortality. Use of both root-pruning and Air-Spade equipment should be accompanied only by hand tools to remove soil from trench locations. The trench should be made no deeper than necessary, and when possible, alternatives to trenching should be utilized.

Irrigation

Supplemental irrigation for trees adjacent to construction activity may be necessary during winter and/or spring months. Summer and fall irrigation may be necessary based on variable climatic and site conditions but should be conducted judiciously to avoid overwatering. One irrigation cycle should thoroughly soak the root zones of the trees

to a depth of 2 feet. The soil should be allowed to dry out between watering to avoid keeping a consistently wet soil. The contractor should be responsible for irrigating (deep watering) the trees. Soil moisture should be checked with a soil probe before irrigating. Irrigation is best accomplished by installing a temporary aboveground micro-spray system that would distribute water slowly (to avoid runoff) and evenly throughout the fenced protection zone. The area within 3 feet of the trunk should never be soaked, especially in summer months. Overwatering trees may promote the growth of tree-damaging agents, so proper soil moisture monitoring is critical to prolonged tree health. For any trees that have been substantially root pruned (30% or more of their root zone), irrigation should be required for the first 12 months. The first irrigation should occur within 48 hours of root pruning. The trees should be deep watered every 2 weeks during the summer and once a month during the winter (adjusted accordingly with rainfall).

Canopy Pruning

The contractor shall not prune the protected tree until all construction is completed unless standard pruning would reduce conflict between the canopy and equipment. This will help protect the tree's canopy from damage. All pruning should be conducted by an ISA-Certified Tree Worker Climber Specialist under the supervision of a Certified Arborist and should adhere to ISA pruning standards.

Inspection

A Certified Arborist/licensed pest control advisor or their representative should inspect the protected tree adjacent to grading and construction activity on a monthly basis for the duration of project construction. A report summarizing site conditions, observations, tree health, and recommendations for minimizing tree damage should be submitted by the Certified Arborist or their representative following each inspection. Photographs of the protected trees are to be included on a minimum annual basis.

Maintenance After Construction

After the completion of construction activities, tree protection fencing may be removed, and the following measures may be performed to sustain and enhance the vigor of the tree.

Mulch

The contractors shall ensure that a 6-to-8-inch layer of mulch is applied within the tree protection zone. This helps to stabilize soil temperatures in root zones, conserve soil moisture, and reduce erosion. The contractor shall ensure that the mulch is kept a minimum 1 foot away from the trunk base to avoid creating conditions favorable to the establishment and growth of decay-causing fungal pathogens. When adding organic mulch under retained trees, it should be certified free of pests and pathogens. Also, the use of redwood chips should be avoided because certain inhibitive chemicals may be present in the wood.

Pruning

Regular pruning of the protected tree is not required. An ISA-Certified Tree Worker Climber Specialist, under the supervision of a Certified Arborist, should only prune the tree to maintain clearance and remove broken, dead, or diseased branches. No more than 15% of the canopy should be removed at one time. All pruning should conform to ISA standards.

Watering

Once the project site's existing drainage is modified, soil probing will be necessary to accurately monitor moisture levels. Especially in years with low winter rainfall, supplemental irrigation for the trees that sustained root pruning or altered site drainage may be necessary. The protected tree should be infrequently watered with deep soaks, rather than frequent light irrigation, and the soil should be allowed to dry out between waterings. The soil should not be allowed to become saturated or stay continually wet, and drainage should not allow ponding of water beneath the canopy of the tree. Irrigation spray should not hit the trunk of any tree. A 30-inch dry zone around the tree trunk should be maintained. An aboveground micro-spray or in-line drip irrigation system should be used in lieu of typical pop-up sprays.

Chemical Applications

If the trees are maintained in a healthy state, regular spraying for insect or disease control is not necessary. If a problem does develop, a Certified Arborist should be consulted, as the trees may require application of insecticides to prevent the intrusion of bark-boring beetles and other invasive pests. All chemical spraying should be performed by a licensed applicator under the direction of a licensed pest control advisor.

Monitoring

A Certified Arborist shall inspect all protected trees retained on-site for a period of five years following the completion of construction. During this monitoring period, if any retained tree exhibits visible signs of decline to the extent that its survival is unlikely, it shall be replaced in accordance with the Oak Tree Preservation and Protection Guidelines (OTPPG) and the City of Thousand Oaks Municipal Code. Monitoring visits shall be conducted quarterly, totaling 20 visits over the five-year period. After each visit, a report detailing site conditions, observations, tree health, and recommendations shall be submitted. Additionally, any tree mortality shall be documented, and if a tree dies during the monitoring period, it must be replaced in accordance with the minimum replacement standards outlined in local regulations and this protected tree report.

Appendix D

Historical Report

October 18, 2024

Andrew Goodman, Vice President
Trammell Crow Company
2221 Rosecrans Avenue, Suite 200
El Segundo, CA 90245
Email: agoodman@trammellcrow.com

RE: Historic Built Environment Assessment for the 195 E. Hillcrest Project, City of Thousand Oaks, California

Dear Mr. Goodman:

South Environmental was retained by Trammell Crow Company to prepare a historic built environment assessment report for the 195 E. Hillcrest Project (project) in the City of Thousand Oaks California. The purpose of this report is to determine if the proposed project will result in impacts to historic built environment resources located within the project site. This report was prepared in conformance with the requirements of the California Environmental Quality Act (CEQA) Guidelines § 15064.5 for historical resources and the City of Thousand Oaks Municipal Code.

The project site comprises one parcel (APN 669002125) containing three commercial buildings that were constructed in 1983. The property was recorded and evaluated for historical significance and integrity on the appropriate set of State of California Department of Parks and Recreation Series 523 Forms (DPR forms, Attachment A).

This significance evaluation and associated impacts assessment was prepared by Cultural Resources Director, Samantha Murray, MA and Principal Architectural Historian Sarah Corder, MFA who meets the Secretary of the Interior's Professional Qualification Standards for architectural history and history (resumes provided in Attachment B).

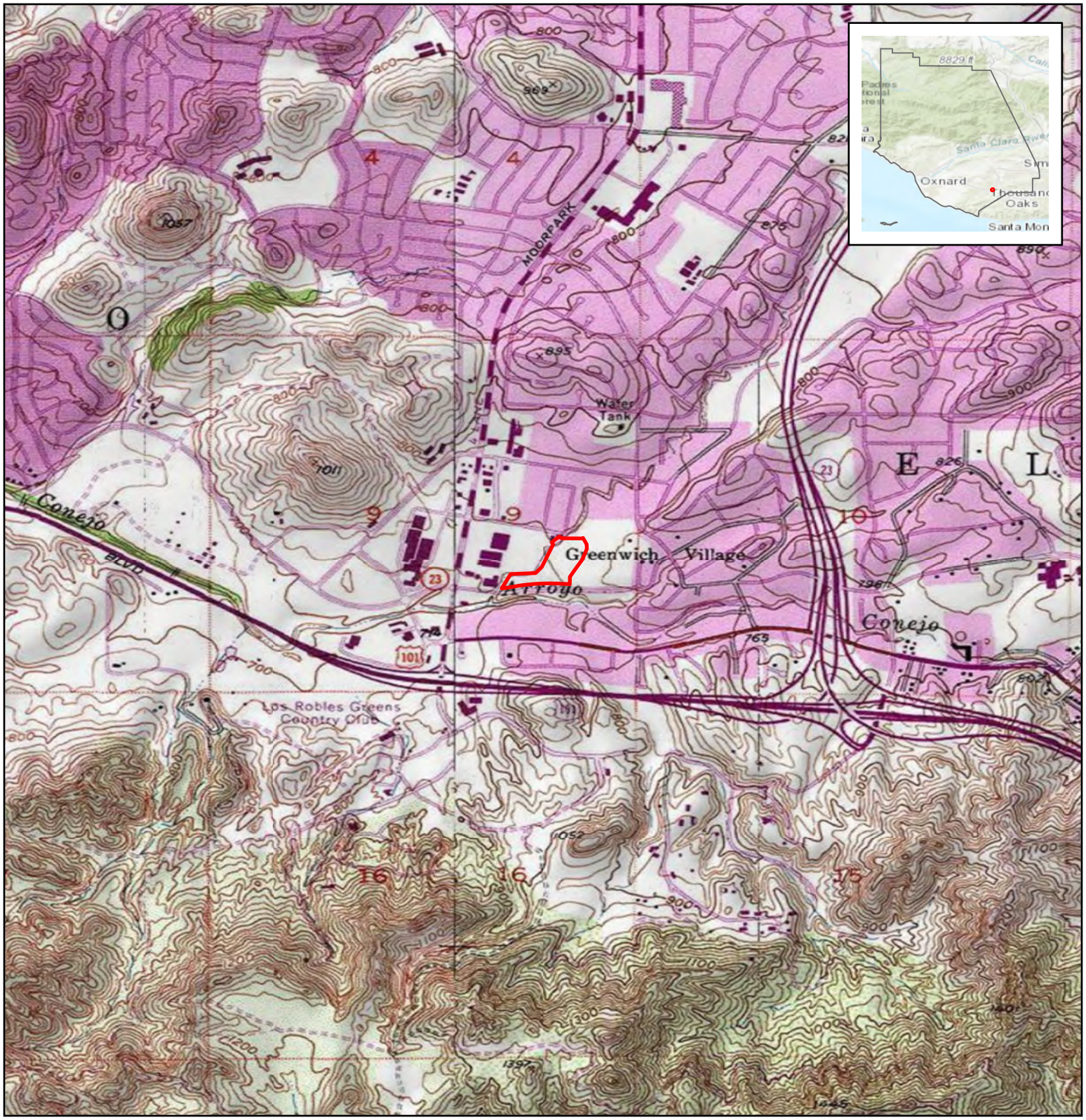
Introduction

Project Description

High Street Residential (Applicant) proposes to remove the two commercial buildings on the east side of the project site and develop a five-story residential building totaling 357,659 square feet, consisting of 297 residential units, 421 residential parking spaces. The apartment complex would also have a pool, deck, lobby, two amenity buildings, and public exterior space. The proposed project would keep the commercial building in the southwest corner of the project site with 34 parking spaces.

Project Location

The project site includes one 8.2-acre parcel (APN 669002125) with three addresses, 195, 275, and 325 E. Hillcrest Drive, representing three buildings. It is located on the north side of Hillcrest Drive between a Ventura County Flood Control District channel to the west and Hodencamp Road to the east.



Source: ESRI USA Topo Maps and World Topo Map 2024

195, 275, and 325 E Hillcrest Drive Project

Figure 1. Project Location Map

Project Site



0 1,000 2,000 Feet

Scale: 1:24,000

N

Project Location is within Thousand Oaks, California,
in Ventura County on the USGS Thousand Oaks 7.5-minute quadrangle map in
Section 09 of Township 01 North and Range 19 West

Center Coordinate (Decimal Degrees):
Latitude: 34.1821898N Longitude: -118.8715941W

SOUTH ENVIRONMENTAL

Regulatory Setting

California Register of Historical Resources

In California, the term "historical resource" includes but is not limited to "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" (California Public Resources Code Section 5020.1(j)). In 1992, the California legislature established the 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" (California Public Resources Code Section 5024.1(a)). The criteria for listing resources on the CRHR (enumerated below) were expressly developed to be in accordance with previously established criteria developed for listing in the National Register of Historic Places (NRHP). According to California Public Resources Code 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.

In order 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 less 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 14 CCR 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 the 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

CEQA requires a lead agency determine whether a project may have a significant effect on historical resources (Public Resources Code [PRC], Section 21084.1). A historical resource is a resource listed in,



or determined to be eligible for listing, in the CRHR, a resource included in a local register of historical resources or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (State CEQA Guidelines, Section 15064.5[a][1-3]).

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" (California Public Resources Code 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 California Public Resources Code Section 5024.1(q)), it is a "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA (California Public Resources Code 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 (California Public Resources Code 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); California Public Resources Code Section 5020.1(q)). In turn, CEQA Guidelines section 15064.5(b)(2) states the significance of an historical resource is materially impaired when a project:

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 of Historical Resources; 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 Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, 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 of Historical Resources 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 will cause a substantial adverse change

in the significance of a historical resource such that the resource's historical significance is materially impaired.

Historical resources achieving significance within the past fifty years.

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 less 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 (Office of Historic Preservation)

City of Thousand Oaks Municipal Code

Article 2. Thousand Oaks Cultural Heritage Board and Regulations

Sec. 1-9.203. Definitions.

(a) Landmark. For purposes of this article, "landmark" shall mean any object, building, structure, site, area, place, or natural formation which has historic, architectural, archaeological, cultural or aesthetic significance to the City of Thousand Oaks, and:

(1) Exemplifies or reflects special elements of the City's social, aesthetic, engineering, architectural or natural history;

(2) Is associated with events that have made a significant contribution to the broad patterns of the City's cultural heritage;

(3) Is associated with the lives of persons important to the City;

(4) Has yielded or has the potential to yield information important to the prehistory or history of the City; or,

(5) Embodies the distinctive characteristics of a type, period, region, or method of construction, represents the work of a master, or possesses high artistic values.

(b) Point of Historic Interest. For purposes of this article, "point of historic interest" shall mean any object, building, structure, site, area, place, or natural formation which has historic, architectural, archaeological, cultural or aesthetic significance to the City of Thousand Oaks that:

(1) No longer exists or was associated with historic events, important persons or embodied a distinctive character or architectural style;

(2) Has been altered to the extent that the integrity of the original workmanship, materials or type has been substantially compromised; or,

(3) Is a site of an historic event which has no distinguishable characteristics other than that an historic event occurred there and the site is not of sufficient historic significance to justify the establishment of a landmark.

(§ 1, Ord. 868-NS, eff. September 18, 1984, as amended by § 1, Ord. 1015-NS, eff. December 6, 1988, Ord. 1276-NS, eff. February 12, 1997, and § 1, Ord. 1420-NS, eff. December 17, 2003)

Article 34. Historic Landmark Overlay Zone (HL)

Sec. 9-4.3400. Purpose (HL).

The HL or Historic Landmark Overlay Zone is established to promote the economic and general welfare of the City by identifying and regulating real property of special historic or cultural significance, as defined in Section 1-9.205 of Article 2 of Chapter 9 of Title 1 of this Code, in order to protect and preserve the rich cultural and natural heritage of the City and the Conejo Valley. The application of the HL Zone shall be in the manner specified for all rezoning applications by the provisions of Article 29 of this chapter. When property has been rezoned to the HL Zone, all the regulations of the underlying zone shall apply, except as set forth in this article. Property in the HL Zone shall be so designated by the appropriate zoning symbol on the zoning maps. (§ I, Ord. 632-NS, eff. June 2, 1977).

Sec. 9-4.3401. Delineation of historic landmarks or sites (HL).

The historic landmarks and sites to which this article applies shall be defined and delineated by the Thousand Oaks Cultural Heritage Board in the manner provided in Section 2-2.2.04 of Article 2 of Chapter 2 of Title 2 of this Code. A map and corresponding description of each landmark or site so delineated shall be presented to the Council for adoption by resolution and shall be kept on file with the Community Development Department for review. (§ I Ord. 632-NS, eff. June 2, 1977).

Sec. 9-4.3402. Archaeological sites: Special provisions (HL).

Due to the sensitive nature of archaeological sites and resources and the potential for the abuse thereof resulting from public knowledge of their location, landmark sites defined under Section 1-9.205 of Article 2 of Chapter 9 of Title 1 of this Code relating to the habitation, activity, or culture of prehistoric man or historic native American culture shall not be designated on zoning maps. However, the development of properties containing archaeological resources of such nature shall be subject to all the other provisions of this article. (§ I, Ord. 632-NS, eff. June 2, 1977).

Sec. 9-4.3403. Regulations (HL).

The tentative tract maps, special use permits, and any and all other entitlements or permits for the development of real property located within the Historic Landmark Overlay Zone may be conditioned by the Commission or Community Development Department in such a manner as to:

(a) Ensure the preservation of the historic landmark or site;

(b) Minimize adverse impacts on the historic landmark or site;

(c) Allow reasonable time for qualified professionals to perform investigations of the landmark or site; or

(d) Preserve for posterity, in such other manner as is necessary or appropriate in the public interest, the valuable aspects of the cultural or historical landmark or site involved. (§ I, Ord. 632-NS, eff. June 2, 1977).

Sec. 9-4.3404. Appeals (HL).

Any condition imposed pursuant to the provisions of this article may be appealed to the Council in the manner prescribed in this Code, and the determination of the Council of such appeal shall be final. (§ I, Ord. 632-NS, eff. June 2, 1977).

City of Thousand Oaks General Plan (2024)

Chapter 7. Conservation

Cultural and Historic Resources

Goal C-11: Protect historical and culturally significant resources, which contribute to the community's sense of identity.

11.1. Cultural resource identification and recognition. Identify and, as appropriate, recognize significant cultural resources by identifying significant cultural resources with landmark designation plaques, directional signage, self-guided tours, programs, and events.

11.2. Cultural resource preservation. Require that new development preserve or mitigate impacts to significant historic, archaeological, and paleontological resources.

11.3. Archeological site protection. The preferred method for protecting any previously recorded archeological site shall be by deed restriction as permanent "open space", in order to prevent any future development or use that might otherwise adversely impact these resources.

11.4 Native American consultation. Conduct Native American consultation consistent with most recent regulations when new development is proposed in culturally sensitive areas.

11.5 Historic resource management. Maintain, rehabilitate, and reuse significant historic resources, as feasible.

11.6 Archaeological site confidentiality. Maintain a list of the locations of previously recorded archaeological sites confidential unless the release of such information to the public is specifically authorized by local Native American organizations or other entities with jurisdiction over such sites.

11.7 Resource stakeholder engagement. Decisions pertaining to the disposition of archaeological, paleontological, historical, and cultural resources shall be made in concert with recognized public agencies, groups or individuals having jurisdiction, expertise, or interest in these matters, including but not limited to the State Office of Historic Preservation, Ventura County Cultural Heritage Board, and local Native American organizations, and affected property owners.

11.8 Public and private involvement. Collaborate with private and public entities whose goals are to protect and preserve historic resources and important cultural resources

Methods

Building Development and Archival Research

The information obtained from the following sources was used in the development of the property history presented as part of this study (see Attachment A).

City of Thousand Oaks Virtual Land Use Service

South Environmental reviewed all available building permits and plans available through the City's virtual land use website: https://thousandoaksca-energovpub.tylerhost.net/apps/selfservice#/home.

City of Thousand Oaks Virtual Library

South Environmental visited the library's virtual Local History collection, which includes local historical photographs, newspaper articles, and other special collections pertaining to the City's history.

Historical Newspaper Search

South Environmental reviewed all available historical newspapers covering the City of Thousand Oaks and Los Angeles and Ventura Counties to understand the development of the property and surrounding areas.

Historical Aerial Photographs

South Environmental conducted a review of historical aerial photographs for the following years: 1947, 1959, 1967, 1980, 1985, 1989, 1994, 2002, 2005, 2009, 2010, 2012, 2014, 2016, 2018, 2020, and 2022 (NETR 2024).

Built Environment Resource Directory

The Built Environment Resource Directory (BERD) is an online resource that provides information, organized by county, regarding non-archaeological resources in the California Office of Historic Preservation (OHP) inventory. This includes resources reviewed for eligibility for the NRHP, CRHR, and the California Historical Landmarks programs through federal and state environmental compliance laws, and resources nominated under federal and state registration programs. South Environmental accessed the BERD from OHP on September 26, 2024. The subject property was not listed.

Survey

South Environmental completed an intensive-level pedestrian survey of the project site and surrounding areas on September 11, 2024. The built environment survey entailed walking the site and documenting the exterior of the existing buildings and structures with notes and photographs.

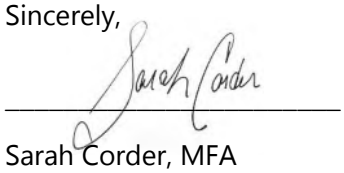
Findings

One built environment resource was identified within the project site: the existing commercial complex located at 195, 275, and 325 E. Hillcrest Drive. The property was recorded and evaluated for historical significance on the appropriate set of DPR Forms in consideration of CRHR and City designation criteria and integrity requirements (Attachment A). The property was found not eligible under all state and local designation criteria due to a lack of significant historical associations and architectural merit.

No historical resources were identified within the project site as a result of this study. Therefore, with respect to built environment resources, the proposed project will have no impact on historical resources under CEQA.

Should you have any questions regarding this report or its findings, please do not hesitate to contact us at scorder@southenvironmental.com or (760) 334-3355.

Sincerely,



Sarah Corder, MFA
Principal Architectural Historian



Samantha Murray, MA
Cultural Resources Director

Attachments

A. DPR Form Set for 195, 275, and 325 E. Hillcrest Drive

B. Resumes

ATTACHMENT A.

DPR Form Set for 195, 275, and 325 E. Hillcrest Drive

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 6Z

Other Listings
Review Code Reviewer Date

Page 1 **of** 20 ***Resource Name or #:** (Assigned by recorder) 195, 275, and 325 E. Hillcrest Drive
P1. Other Identifier: Thousand Oaks Financial Plaza; Stone Creek Professional Offices

*P2. **Location:** ☐ **Not for Publication** ■ Unrestricted
*a. **County** Ventura **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)
*b. **USGS 7.5' Quad** Thousand Oaks **Date** 2024 **T** 01 N ; **R** 19 W ; _ ☐ **of** _ ☐ **of Sec** 9; SB **B.M.**
c. Address 195, 275, and 325 E. Hillcrest Drive City Thousand Oaks Zip 91360
d. UTM: (Give more than one for large and/or linear resources) Zone , mE/ mN
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, decimal degrees, etc., as appropriate)
APN 669002125. The subject property includes one 8.2-acre parcel with three addresses, 195, 275, and 325 E. Hillcrest Drive, representing three buildings. It is located on the north side of Hillcrest Drive between a Ventura County Flood Control District channel to the west and Hodencamp Road to the east.

***P3a. Description:**
The subject property is an office park containing three commercial/office buildings and associated parking lots constructed in 1983 (see Continuation Sheet).

***P3b. Resource Attributes:** (List attributes and codes) HP6. 1-3 story commercial building

***P4.Resources Present:** ■ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)
P5b. Description of Photo: (view, date, accession #) Southeast elevation of Bldg. 325, facing northwest (South Environmental 2024)



***P6. Date Constructed/Age and Source:** ■ Historic ☐ Prehistoric ☐ Both
1983 (Thousand Oaks Star 1983d)

***P7. Owner and Address:**
501 Thousand Oaks LLC
1231-B State St.
Santa Barbara, CA 93101

***P8. Recorded by:**
Samantha Murray,
South Environmental
2061 N. Los Robles Ave., Ste. 205
Pasadena, CA 91104

***P9. Date Recorded:** 9/26/2024

***P10. Survey Type:** Intensive-Level Pedestrian

***P11. Report Citation:**
Historic Built Environment Assessment for the 195 E. Hillcrest Project, City of Thousand Oaks, California (South Environmental 2024)

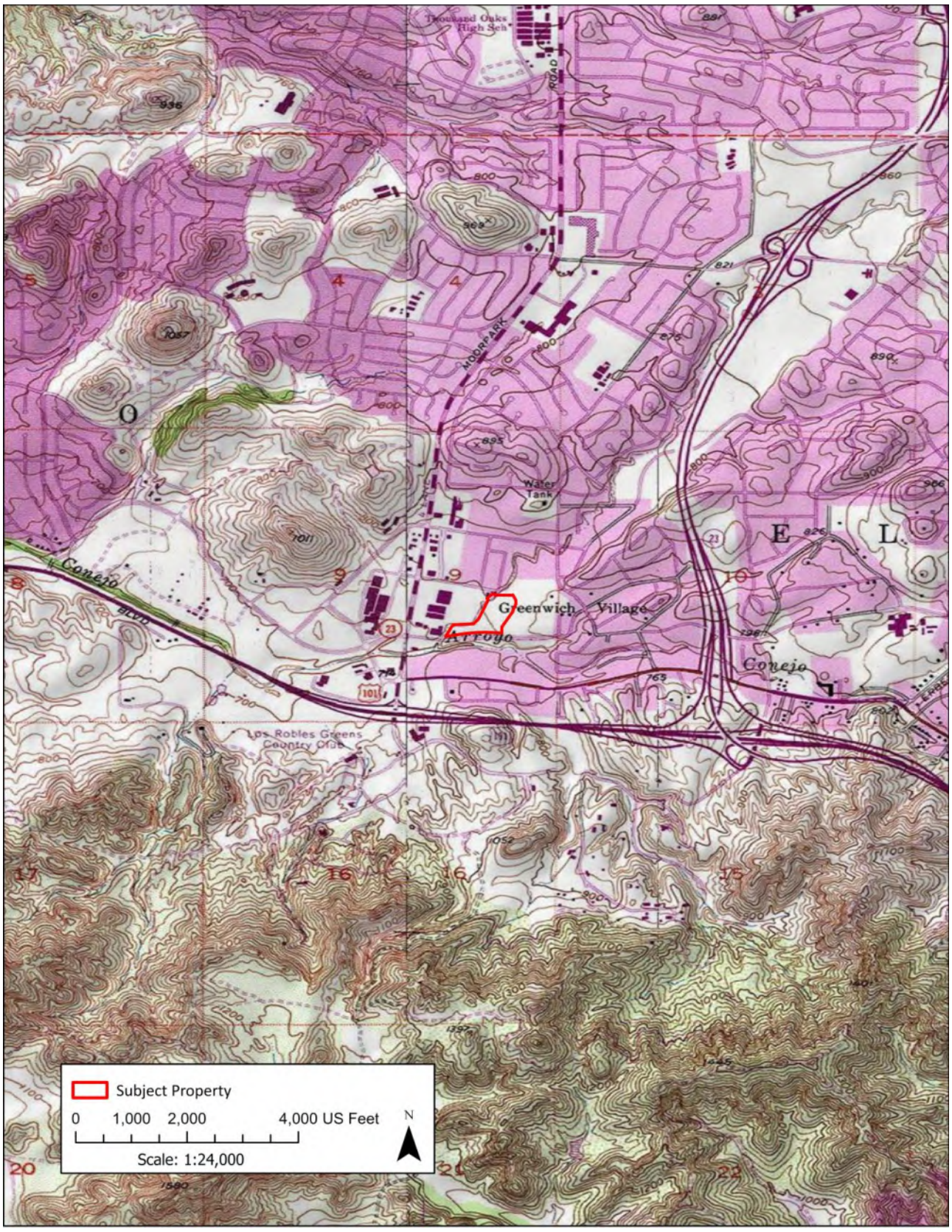
***Attachments:** ☐NONE ■Location Map ■Continuation Sheet ■Building, Structure, and Object Record
☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record
☐Artifact Record ☐Photograph Record ☐Other (List):

State of California Natural Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

 ***Resource Name or #** (Assigned by recorder) 195, 275, and 325 E. Hillcrest Drive
***Map Name:** Thousand Oaks, California ***Scale:** 1:24,000 ***Date of map:** 2024



BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** (Assigned by recorder) 195, 275, and 325 E. Hillcrest Drive
***NRHP Status Code** 6Z
Page 3 **of** 20

B1. Historic Name: Thousand Oaks Financial Plaza
B2. Common Name: n/a
B3. Original Use: Office park B4. Present Use: Office park
*** B5. Architectural Style:** Contemporary Style Office Park
***B6. Construction History:** (Construction date, alterations, and date of alterations)
The existing three-building complex was constructed in 1983 (Thousand Oaks Star 1983d). Review of available building permits on the City's virtual land use website revealed numerous permits, primarily for interior alterations completed by various tenants over the years. No major exterior alterations were identified for any of the buildings as a result of building permit research or observations made during the survey.
***B7. Moved?** ■**No** □**Yes** □**Unknown** **Date:** **Original Location:**
***B8. Related Features:** n/a
B9a. Architect: Wilkins-Lippich Architects and Associates of Los Angeles; landscape architect Dudley Trudgett b. Builder: C.W. Driver
***B10. Significance: Theme** n/a **Area** n/a
Period of Significance n/a **Property Type** n/a **Applicable Criteria** n/a

The subject property is recommended not eligible under all CRHR and City landmark designation criteria due to a lack of important historical associations and architectural merit.

(See Continuation Sheets).

B11. Additional Resource Attributes:
***B12. References:** See Continuation Sheet
B13. Remarks:
***B14. Evaluator:** Samantha Murray, South Environmental
***Date of Evaluation:** 9/26/2024

(Sketch Map with north arrow required.)



(This space reserved for official comments.)

***P3a. Description (Continued):**

195 E. Hillcrest Drive

One-story commercial building located in the southwestern most portion of the parcel. The building is irregular in plan with a central flat roof with sloped, overhanging projections clad in Spanish clay tile that create a covered walkway. The overhang is supported by squared brick columns and wood beams. The exterior of the building is clad in textured stucco with decorative brick veneer and wood paneling applied around windows and doors. All storefront entry doors are wood with 6 lights. All windows and transoms are metal framed with fixed, tinted glass (Photographs 1 and 2).



Photograph 1. Overview of primary elevation, facing northeast.



Photograph 2. Overview of primary elevation, facing west

275 E. Hillcrest Drive

Two-story commercial office building in the southeasternmost portion of the parcel. The building is L-shape in plan, steel framed, with a central flat roof with sloped, overhanging projections clad in Spanish clay tile. The exterior of the building is clad in textured stucco with brick veneer applied at the base of the first-floor windows. All windows are metal framed and feature fixed, reflective solar glass. The south elevation of the building is almost entirely obscured by mature trees along Hillcrest Drive. The north elevation faces into the parking lot. Entrances to the building are located on the north, south, and east elevations (Photographs 3 and 4).



Photograph 3. Overview of entrance on north elevation, facing southwest



Photograph 4. Overview of east elevation, facing south

325 E. Hillcrest Drive

Almost a mirror image of the building at 275 E. Hillcrest Dr, this two-story commercial office building is located in the northernmost portion of the parcel. The building is L-shape in plan, steel framed, with a central flat roof with sloped, overhanging projections clad in Spanish clay tile. The exterior of the building is clad in textured stucco with brick veneer applied at the base of the first-floor windows. All windows are metal framed and feature fixed, reflective solar glass. The north elevation of the building is largely covered by mature trees. Both the north and south elevations face into the parking lot. Entrances to the building are located on the north, south, and east elevations (Photographs 5 and 6).



Photograph 5. Overview of southeast corner, facing northwest



Photograph 6. Overview of south entrance, facing northwest

Landscaping Features

Landscaping features identified throughout the larger property include the following (Photographs 7-10):

- Concrete block retaining walls around landscaping beds
- Rock gardens
- Water features
- Wood plank footbridges with either low, concrete side walls or wood handrails
- Metal lamp posts along paths and in parking lot
- Mature trees
- Plantings (unclear which plantings, if any, are original)



Photograph 7. Example of rock garden, water feature, and footbridge outside the southeast entrance to the 325 Building, facing northeast



Photograph 8. Example of rock garden, water feature, footbridge, and lamp post outside the northeast entrance to the 275 Building, facing southeast



Photograph 9. Landscaping features at main entrance from Hillcrest Drive, facing east



Photograph 10. Landscaping features at main entrance from Hillcrest Drive, facing west

***B10. Significance (Continued):**

Property Development History

The subject property was constructed as the Thousand Oaks Financial Plaza (Plaza), which held its grand opening in May 1983:

> The three-building, first phase includes 46,000 square feet of specifically designed brokerage and financial services office space, 50,000 square feet of general office space and more than 10,000 square feet available for retail shops. Restaurants and outdoor cafes are also planned. Moir Devco, a division of Wallace Moir Company of Beverly Hills, is the developer and C.W. Driver is the general contractor. Wilkins-Lippich Architects and Associates of Los Angeles designed the two-story Mediterranean-style buildings with red clay tile roofs, textured plaster exteriors, wood siding and bronze solar reflective glass. A 1985 completion date is scheduled for the $30-million, 26.2-acre development, which will include eight buildings totaling 345,000 square feet (Thousand Oaks Star 1983c) (Exhibit 1).

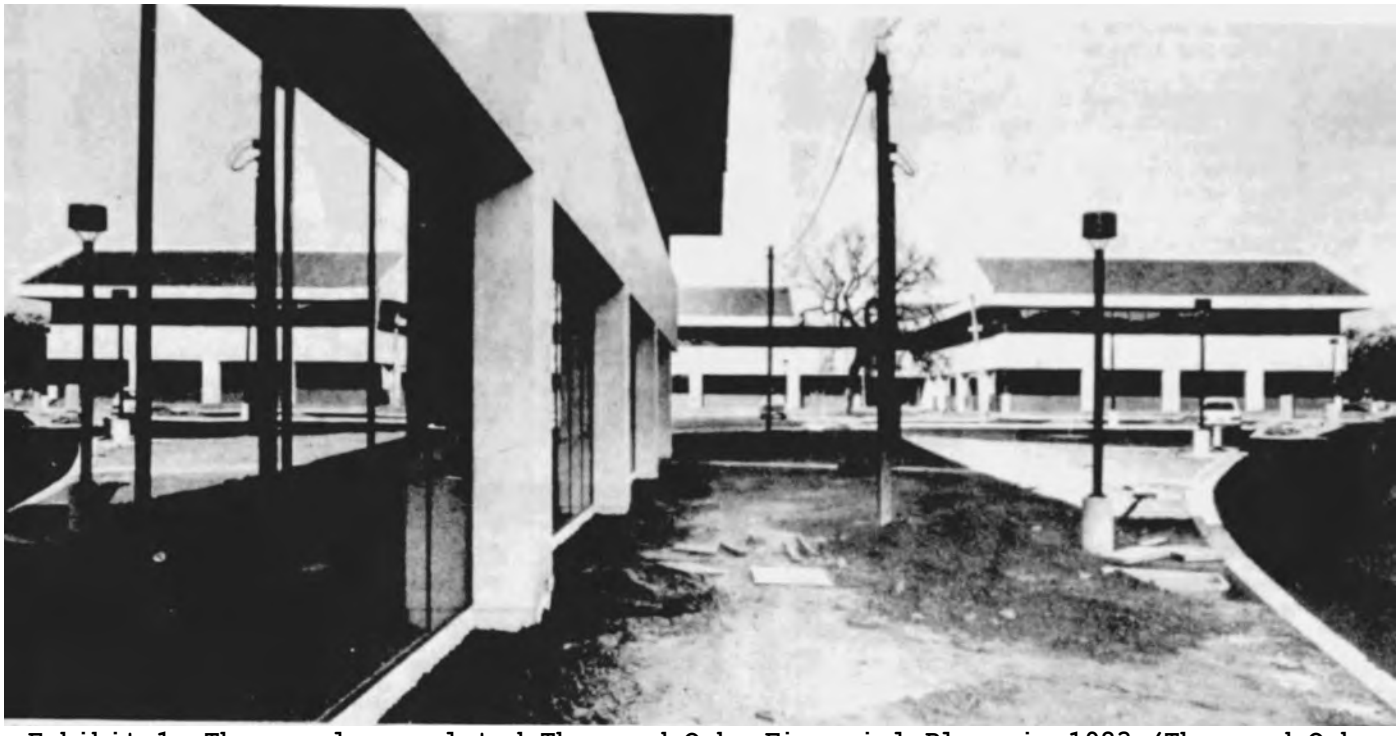


Exhibit 1. The nearly completed Thousand Oaks Financial Plaza in 1983 (Thousand Oaks Star 1983a)

The approximately 26-acres of oak woodlands originally captured the attention of developer John Gilbert, who envisioned "a complex of artists' shops and office buildings called Mercado del Mundo". However, marketers' efforts to attract the interest of investors in the concept ultimately failed (Thousand Oaks Star 1977).

A six-member partnership called Thousand Oaks Financial Plaza, Ltd. (including EcoScience, Inc. of Westlake Village and F.J.M. Development Company), purchased the property from Gilbert in 1977 and began planning a new development. "We envision a Warner

Center concept for Thousand Oaks" said an agent from Coldwell Banker Commercial Brokerage Co., referring to the Woodland Hills business complex in the San Fernando Valley. However, after trying to develop the land for over three years, the partnership dissolved (Thousand Oaks Star 1977 and 1981).

The land was purchased in 1981 by Beverly Hills-based Moir Development Company, a division of Waller Moir Company. The new developers announced their intention to pick up the stalled project and "make the plaza a truly professional complex, one containing banks, savings and loan associations, and other types of financial institutions, attorneys, insurance companies and other major office users" (Thousand Oaks Star 1981). It was reported that the plaza would be built in three phases (Exhibit 2), with the final phase completed in approximately 4 years. Grading for the first phase of the planned $30 million office and financial plaza began in August 1981, with a projected completion date of late spring 1982 (Thousand Oaks Star 1981).



Exhibit 2. Artist's Rendering of the original three-phase master plan for the Thousand Oaks Financial Plaza (Los Angeles Times 1983)

By January 1982 the buildings' steel frames were nearly complete (Thousand Oaks Star 1982a; Exhibit 3). In February 1982, the Conejo Valley Chamber of Commerce organized an event to introduce the community to the new developers, Moir Devco. Landscape architect Dudley Trudgett was also present at the event and shared his plans for "a heavily landscaped, parklike setting including a jogging trail" (Thousand Oaks Star 1982b). As part of the master plan, Trudgett ensured that the existing 60 oaks trees on the site were preserved and surrounded each tree with protective fencing that remained for the duration of grading. It was reported that over $400,000 was allocated for landscaping for the original three-phase/eight-building master plan. It was also noted that this was to be "the first master-planned office park in the Conejo Valley" (Los Angeles Times 1983).



Exhibit 3. Plaza shown under construction in 1982 (Thousand Oaks Star 1982a)

The targeted leasing market was Los Angeles-based businesses looking to escape increasing rent and parking fees by moving out of the city and into the suburbs. By July 1982, Coldwell Banker announced that Financial Planning Consultants, Inc. had leased more than 12,000 square feet in the in-progress Plaza (Thousand Oaks Star 1982c).

Prior to the opening of the Plaza, a full-page advertisement featuring a fashionable model appeared in the Thousand Oaks Star, boasting that the nearly completed Plaza would be the next Century City: "Century City, you've had your day in the sun. Now it's Thousand Oaks Financial Plaza." Distinguishing itself as a "sophisticated business environment without the hassle and congestion of the city," and featuring "streams and ponds, bridges, lush grassy knolls, bicycle and jogging paths" with "over 60 oaks" that were retained on site, "something you'll never see in Century City" (Thousand Oaks Star 1983b; Exhibit 4).

The grand opening featured a ribbon-cutting ceremony presented by Conejo Valley Chamber of Commerce diplomats and Miss Conejo Valley. A representative from Coldwell Banker Commercial Real Estate Services told those in attendance that "the Thousand Oaks Financial Plaza is the all-new, downtown commercial center for Thousand Oaks; it will be the hub of the financial community" (Thousand Oaks Star 1983d). At the time of its completion, it was noted that these three buildings represented the first phase of the project, with an additional five buildings planned for completion by 1985 (Thousand Oaks Star 1983d).



Exhibit 4. Newspaper advertisement promoting the Thousand Oaks Financial Plaza (Thousand Oaks Star 1983b)

Although the original master plan called for the completion of 5 additional buildings by 1985, it appears that the remaining phases of the project never occurred. A public notice in the newspaper from February 1985 noted an application "to revise the approved master plan for the Thousand Oaks Financial Plaza and to divide the subject property into a separate lot" for a new development (Thousand Oaks Star 1985).

Architect: Wilkins-Lippich Architects and Associates

Leslie T. Lippich, also known as Les Lippich, was born in Budapest, Hungry in 1940. He relocated to Los Angeles in 1968 and that same year married Agotha I Jadot/ Nagy. He married his second wife, Sandra K. Bakken, in 1979. He appears to have lived at, or at least owned, numerous properties/residences throughout the Los Angeles area, primarily in the San Fernando Valley, and appears to have lived and practiced in Hawaii for an unknown amount of time (Ancestry.com various). Limited information could be found concerning Lippich's work as an architect. By 1985, he was operating as Les Lippich & Associates of Beverly Hills, which was identified as designing the Oak View Ranch tract in Thousand Oaks (Thousand Oaks Star 1985a); the Great West Homes Manor Gate Homes Project in Simi Valley (Thousand Oaks Star 1985b); with more recent projects including 367 Monterey Pines Dr in Arcadia built in 2007, and 1714 Stone Canyon Road mansion in Bel Air built in 2012 (Zillow 2024 various). Lippich's company name was identified as having various iterations over the years.

Limited information could be found on Don Wilkins, other than that he designed a large estate in Solano Verde in 1993 (Thousand Oaks Star 1993).

There was also limited information found about the firm Wilkins-Lippich Architects and Associates. Newspaper articles referred to them by the following iterations of the firm's name: Wilkins and Lippich Architects of Westwood, Wilkins-Lippich Architects & Associates, Wilkins-Lippich, and Wilkins Lippich of Santa Monica. Projects identified with the firm were as follows (Los Angeles Times 1978, 1983, 1984a; Ventura County Star 1984):

- Warner Square, San Fernando Valley (1978)
- Thousand Oaks Financial Plaza, Thousand Oaks (1983)
- Pacifica Plaza, Westlake Village (1984)
- Mountain Park Estates, Calabasas (1985)

Landscape Architect: Dudley Trudgett (1908-1985)

The following provides a brief biography for Dudley Trudgett:

> R. Dudley Trudgett was born in 1908 in Alameda, California. Trudgett graduated with a degree in landscape architecture from the University of California, Berkeley in 1934. Between 1935 and 1936 he attended Harvard's Graduate School of Design, focusing on city planning. He served in the Navy for four years during WWII after which he traveled extensively throughout Europe and Asia. Following the armistice, he spent six years in India and Japan working on site development and town planning. First, in India under the firm of Mayer & Whittlesey and then in Okinawa, Japan, for the firm of Skidmore, Owings, and Merrill. Trudgett began his career working on county planning, State Parks, and land subdivision in both Northern and Southern California. He became an early member of Telesis, an inter-professional environmental design group organized to give direction to the city of Los

> Angeles in regards to regional planning. During the late 1950s, Trudgett created a landscape design practice in the Los Angeles area that he continued until his death at the age of 77 in 1985 (OAC 2024).

Notable projects completed by Trudgett while he worked for landscape architect Phil Shipley in Los Angeles, include: the Howard Hughes Research Center in Malibu, the Pasadena Art Museum, the Norton Simon Museum, the University of Southern California campus, Las Vegas Tropicana, Palm Springs El Dorado Country Club, and numerous homes for famous people including Clark Gable, Walt Disney, Steven Spielberg, Ronald Regan, Jack Warner, Lew Wasserman, Frank Sinatra, Aaron Spelling, and Kirk Douglas (OAC 2024 and Carlson 2013).

While there are many designs in Trudgett's career that are tied to his work with Shipley, he also worked independently for many years. Trudgett's extensive travel throughout the world inspired him to create landscape designs that drew inspirations from Asia, Europe, and popular trends in the United States. He was noted for his mastery of natural design that was achieved by incorporating streams or other water features and pathways that meandered through the site. He was also known for incorporating trees into his designs. In the 1960s and 1970s, he became popular for his work in designing large-scale housing complexes that created natural experiences and utilized natural materials while being located within cities. Examples of his work during this time period include the following (News-Pilot 1973; Los Angeles Times 1975, 1977, 1980, 1984b; Daily Breeze 1982; Marshall 2013):

- The Estate, Rolling Hills (1973)
- The Courtyard, Sherman Oaks (1975)
- Cordova Plaza Townhouses, Pasadena (1977)
- North Coast Village, Oceanside (1980)
- Seagate Village, Playa Del Rey (1982)
- Hollywood Fountain South, Hollywood (1984)

Contractor: C.W. Driver

C.W. Driver has been in business for over 100 years, with their website noting construction of over 10,200,000 square feet of office space in California (C.W. Driver 2024). The subject property was one of countless projects completed by the contractor.

Significance Evaluation

The following presents an evaluation of the subject property in consideration of CRHR and City of Thousand Oaks landmark eligibility criteria.

City Criterion 1. Exemplifies or reflects special elements of the City's social, aesthetic, engineering, architectural or natural history.

The Thousand Oaks Financial Plaza was an ambitious master plan that sought to rival other established, successful business/office parks like Century City and Warner Center in Woodland Hills and capitalize on an office rental market that was anxious to flee the rising costs of rent and parking in the city centers. However, it appears that the original master plan comprising eight buildings on 26 acres never came to fruition. In actuality the Plaza remained in its initial construction phase with three buildings on approximately 8 acres and no additional buildings or landscaping efforts were undertaken. Thus, the master plan was never realized. While the Plaza was a large undertaking and noted in

newspapers as being the first master-planned office park in the Conejo Valley, the fact that it was not fully executed prevents it from exemplifying or reflecting special elements of the City's planning or development. Further, the property lacks innovative materials and designs that prevent it from rising to the level of significance required for designation under this criterion. Therefore, the subject property is recommended not eligible under City Criterion 1.

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

City Criteria 2. Is associated with events that have made a significant contribution to the broad patterns of the City's cultural heritage.

The Plaza is not associated with events that significantly contribute to broad patterns of history. Development of the Plaza aimed to capitalize on an office rental market that was anxious to flee the rising costs of rent and parking in the city centers. Its goal was to be a major business hub, complete with shops and a hotel, similar to other successful business hubs like Century Center and the Warner Center. However, the complete master plan for the project was never fully executed as only the original phase and three buildings were completed in 1983 and only eight acres of the property were developed. Therefore, the subject property is recommended not eligible under CRHR Criterion 1 and City Criterion 2.

CRHR Criterion 2. Is associated with the lives of persons important in our past.

City Criteria 3. Is associated with the lives of persons important to the City.

The subject property is associated with countless tenants and appears to have been owned by various real estate/brokerage firms over the years. While not every owner and tenant could be confirmed, nothing found in the course of archival research indicates the subject property is associated with the lives of important people. Therefore, the subject property is recommended not eligible under CRHR Criterion 2 or City Criterion 3.

CRHR Criterion 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.

City Criterion 5. Embodies the distinctive characteristics of a type, period, region, or method of construction, represents the work of a master, or possesses high artistic values.

The subject property was constructed in 1983 as phase one of a master-planned business park known as the Thousand Oaks Financial Plaza. The original plans called for a 26.2-acre development with eight buildings, however the project appears to have never progressed beyond the initial phase of development, which constructed the existing three buildings on just over 8 acres.

The architectural style of the buildings is typical for 1980s low rise office buildings, vaguely nodding to Mediterranean Revival style influences through its use of clay roof tiles, stucco, and exposed wood beams. The buildings were designed by Wilkins-Lippich Architects and Associates who were not found to be associated with any other notable designs.

Newspaper articles indicate that landscape architect Dudley Trudgett designed the landscaping plan for the Plaza, inclusive of water features, rock gardens, footbridges,

and other elements that created a park-like setting. Research into Trudgett's professional career as a landscape architect indicates that he was a master of his field with a large body of work on projects throughout not only California, but the world. Dudley's mastery of landscape design afforded him numerous opportunities to design for many famous individuals and to work on notable projects like the Las Vegas Tropicana and Palm Springs El Dorado Country Club. Trudgett's style of landscape design was known to incorporate meandering pathways and water features and utilize as many trees as possible. These characteristics can be seen throughout his work with Shipley and his independent work on numerous housing projects in the 1970s and 1980s. His work at the subject property was near the end of his career and life, and it appears that his original landscape plan for the 26-acre site was never fully realized. Given the simplistic scale of the subject property's design and the fact that it was completed so late in Trudgett's life and career, there is nothing to suggest that it stands as a great example of his work. Further, when compared to his larger body of work, his work on the incomplete Plaza master plan project is unremarkable.

For these reasons, the subject property is recommended not eligible under City Criterion 5 or CRHR Criterion 3.

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

City Criterion 4. Has yielded or has the potential to yield information important to the prehistory or history of the City.

The subject property is not significant as a source, or likely source, of important historical information nor does it appear likely to yield important information about historic construction methods, materials or technologies. Therefore, the property is not recommended eligible under City Criterion 4 or CRHR Criterion 4.

Integrity

Location: The subject property retains integrity of location. The property is sited on the original location it was constructed in its original orientation.

Design: The subject property retains integrity of design. No major alterations were noted to the exterior of any of the three buildings and much of the original landscaping appears to be intact.

Setting: The subject property retains integrity of setting. While the land to the northeast was undeveloped at the time of the subject property's completion, much of the surrounding area had already been developed, started to develop, or was planned for development.

Materials: The subject property retains integrity of materials as there have been no major alterations to the exterior of the buildings.

Workmanship: The subject property retains integrity of workmanship. There have been no major alterations that have altered its original workmanship.

Feeling: The subject property retains integrity of feeling. It still conveys a feeling of a 1980s business park.

Association: The subject property lacks integrity of association. The property has no important associations with events, people, or important patterns of development in the

City.

For all of the reasons provided above, the property at 195, 275, and 325 E. Hillcrest Drive is recommended not eligible for designation in the CRHR or as a City landmark.

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ATTACHMENT B.

Resumes

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EDUCATION

M.F.A., Historic Preservation, Savannah College of Art and Design, Savannah, Georgia, 2004

B.A., History, Bridgewater College, Bridgewater, Virginia, 2002

PROFESSIONAL AFFILIATIONS

California Preservation Foundation

Los Angeles Conservancy

Society of Architectural Historians

National Trust for Historic Preservation

Sarah Corder, MFA

PRINCIPAL ARCHITECTURAL HISTORIAN

Sarah Corder is the Principal Architectural Historian at South Environmental with 20 years' experience in all elements of cultural resources management, including project management, historic preservation planning, rehabilitation of historic buildings, community engagement, intensive-level field investigations, citywide surveys, architectural history studies, and historical significance evaluations in consideration of the NRHP, CRHR, and local-level evaluation criteria. Sarah has conducted thousands of historical resource evaluations and developed detailed historic context statements for a multitude of property types and architectural styles, including private residential, commercial, military, industrial, educational, recreational, civic, and agricultural properties. Sarah has also worked closely with design teams, property owners, and agencies on numerous projects that required conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties (Standards) and local design guidelines.

Sarah exceeds the Secretary of the Interior's Professional Qualification Standards for both Architectural History and History. She has extensive experience preparing environmental compliance documentation in support of projects that fall under the CEQA/NEPA, and Sections 106 and 110 of the National Historic Preservation Act. Sarah also has extensive experience consulting with lead agencies and managing large scale projects for municipalities like the City of Coronado, the City of San Diego, and the County of Los Angeles.

EXPERTISE

- CEQA, NEPA, and Section 106 of the NHPA compliance documentation in consideration of impacts to historical resources, and historic properties.
- Large scale historic resources survey management and execution.
- Large scale historic context statement development.
- Community engagement.
- Resource significance evaluations in consideration of NRHP, CRHR, and local designation criteria.
- Project design review for conformance with the Secretary of the Interior's Standards.

SELECT PROJECT EXPERIENCE

Wilshire Country Club Stream Restoration Project, Los Angeles, California (2024). South Environmental was retained by Dudek to complete a cultural resources study for a project that would restore a streambed within the golf course on the approximately 96-acre Wilshire Country Club property. The project requires federal permitting through the U.S. Army Corps of Engineers (USACE) which in turn required compliance with Section 106 of the NHPA. The study included a CHRIS records search of the project Area of Potential Effects (APE) and a 0.5-mile search radius, property development and archival research, development of an appropriate historic context, and recordation and evaluation of the Wilshire Country Club. The property was evaluated for historical significance in consideration of NRHP designation criteria and integrity requirements. The property was found not eligible due to a lack of integrity. Ms. Corder served as the principal architectural historian, co-authored the technical report, and provided QA/QC on all project deliverables.

Historic Built Environment Assessment for The Mill Project, City of Anaheim, California (2024). South Environmental was retained to prepare a historic built environment assessment report in support of The Mill Project in the City of Anaheim, California. The report included the results of an intensive-level pedestrian survey of the existing industrial buildings; building development and archival research; analysis of potential project-related impacts to historical resources; and recordation and evaluation of the property for historical significance in consideration of federal, state, and local designation criteria and integrity requirements. Ms. Corder served as the principal architectural historian, co-authored the report, prepared the impacts assessment, and provided QA/QC of all project deliverables.

Historical Resources Avoidance and Protection Plan for Upper and Lower Arroyo Trail Improvements, City of Pasadena, California (2023). South Environmental was retained to prepare a Historical Resources Avoidance and Protection Plan for the One Arroyo Trail Demonstration Project located in the City of Pasadena, California. The project proposes to make improvements to existing trails, walls, bridges, and related elements that fall within the NRHP Pasadena Arroyo Parks and Recreation District, which includes the Lower Arroyo and Central Arroyo as well as numerous contributing elements comprising buildings, sites, landscape elements, and structures throughout. This project included a review of all proposed plans for SOIS conformance and conformance with the Arroyo Seco Design Guidelines and development of an Avoidance and Protection Plan to mitigate any significant impacts to the historic district. Ms. Corder serves as the principal architectural historian for the project.

Historic Built Environment Assessment for Fullerton Airport Administration and Terminal Building Expansion Project, City of Fullerton, California (2023). South Environmental was retained to prepare a historic built environment assessment report in support of the Fullerton Administration and Terminal Building Expansion Project located in the City of Fullerton at the Fullerton Municipal Airport. The purpose of the project was to determine if the proposed project would result in adverse effects to historic properties located within the project's APE. This report was prepared in conformance with the requirements of Section 106 of the NHPA and its implementing regulation Title 36 Code of Federal Regulations (CFR) Part 800. The report included an intensive-level pedestrian survey, development and archival research, development of an appropriate historic context, and recordation and evaluation of one built environment resource within the project APE over 50 years old that had not been previously evaluated for historical significance. As a result of this study, the property was found not eligible for the NRHP. Ms. Corder served as the principal architectural historian for the project, performed archival research, and co-authored the report.

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Mobile: 818-458-1162

EDUCATION

M.A., Anthropology, California State University, Los Angeles, 2013

B.A., Anthropology, California State University, Northridge, 2003

CERTIFICATIONS

Registered Professional Archaeologist (RPA); Registrant ID: 28686211

PROFESSIONAL AFFILIATIONS

California Preservation Foundation

Society of Architectural Historians

National Trust for Historic Preservation

Samantha Murray, MA, RPA

CULTURAL RESOURCES DIRECTOR

Samantha Murray is the cultural resources director at South Environmental and a principal archaeologist and architectural historian with over 18 years' experience in all elements of cultural resources management, including project management, architectural history studies, and historical significance evaluations in consideration of the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), and local-level designation criteria. Ms. Murray has conducted thousands of historical resource evaluations and developed detailed historic context statements for a multitude of property types and architectural styles. She has also provided expertise on numerous projects requiring conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

Ms. Murray meets the Secretary of the Interior's Professional Qualification Standards for both Archaeology and Architectural History. She is experienced managing multidisciplinary projects in the lines of private development, transportation, transmission and generation, federal land management, land development, and state and local government. She is an expert in preparation of cultural resources compliance documentation for 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). Ms. Murray has also served as an expert witness in legal proceedings concerning historical resources under CEQA and local ordinance protection.

EXPERTISE

- CEQA, NEPA, and Section 106 of the NHPA compliance documentation in consideration of impacts to historical, archaeological, and tribal cultural resources, and historic properties.
- Resource significance evaluations in consideration of NRHP, CRHR, and local designation criteria.
- Project design review for conformance with the Secretary of the Interior's Standards.
- Assistance with complex mitigation including HABS/HAER/HALS, salvage, and interpretive displays.
- Peer review.

SELECT PROJECT EXPERIENCE

Metro Link US Utilities, City of Los Angeles, California (2024-ongoing). The Los Angeles County Metropolitan Transportation Authority (Metro) is providing environmental oversight for the utilities replacement component of the project located near the Little Tokyo neighborhood of Los Angeles. Ms. Murray coordinates with the prime consultant and Metro on the project's cultural resources support needs, including both archaeology and architectural history, and provides quality assurance/quality control (QA/QC) of all project deliverables. Ms. Murray serves as the Project Manager and Archaeological Principal Investigator in support of the project.

Wilshire Country Club Stream Restoration Project, City of Los Angeles, California (2024). South Environmental was retained to complete a cultural resources study for a project that would restore a streambed within the golf course on the approximately 96-acre Wilshire Country Club property. The project requires federal permitting through the U.S. Army Corps. of Engineers (USACE) which in turn required compliance with Section 106 of the NHPA. The study included development of an Area of Potential Effects (APE) map, a CHRIS records search of the project APE and a 0.5-mile search radius, Native American Coordination, an intensive level archaeological and architectural history survey, property development and archival research, development of an appropriate historic context, and recordation and evaluation of the Wilshire Country Club. The final cultural resources report addressed the requirements of Section 106 of the NHPA. Ms. Murray served as project manager and Principal Archaeologist.

Historic Built Environment Assessment for the eTS 47405.01 Line 404 Encroachment – Encino Little League, City of Los Angeles, California (2023). South Environmental was retained to prepare a historic built environment assessment in support of the SoCalGas eTS 47405.01 Line 404 Encroachment Encino Little League project. The report was prepared in conformance with the requirements of Section 106 of the NHPA. The project included an intensive-level pedestrian survey, development of the project APE, a CHRIS records search of the project APE, property development and archival research, development of an appropriate historic context, and recordation and evaluation of one built environment resource within the project APE over 50 years old that had not been previously evaluated for historical significance: The Encino Little League Complex. Ms. Murray served as project manager and provided QA/QC of all project deliverables.

Hope Gardens Sequoia Building Project, Los Angeles County, California (2022). South Environmental was retained to complete a cultural resources technical report for the Union Rescue Mission Hope Gardens Sequoia Building Project which proposed demolition of the existing building on the site and construction of a new residential and childcare facility. This study includes the results of a CHRIS records search of the project site and a 0.5-mile radius; Native American coordination; an intensive-level survey of the project site by a qualified archaeologist and architectural historian (Ms. Murray); building development and archival research; and recordation and evaluation of a newly identified historic district of buildings and structures (Forester Haven Historic District) for historical significance. As a result of the property significance evaluation, 11 buildings were found eligible as contributing resources to the newly identified Forester Haven Historic District under NRHP, CRHR, and County Criteria A/1/1 and C/3/3 for their important historical associations with the Independent Order of Foresters (IOF) and for embodying the distinctive character-defining features of the Contemporary style of architecture. Recommendations included: 1) considering a reasonable range of alternatives to demolition; 2) archival documentation of the building prior to demolition; and 3) providing protection to adjacent buildings during demolition and construction activities. Ms. Murray served as project manager, cultural resources director, and provided QA/QC of all documents.

Appendix E

Cultural Resources Assessment

CULTURAL RESOURCES ASSESSMENT REPORT FOR THE EAST HILLCREST DRIVE MIXED-USE PROJECT, CITY OF THOUSAND OAKS, VENTURA COUNTY, CALIFORNIA

Prepared for:
Eco Tierra Consultation
633 W. 5th Street, 26th Fl
Los Angeles, CA 90071

Authors:
Sandy Duarte, B.A.
John Gust, Ph.D.

Principal Investigator:
John Gust, Ph.D.

Updated February 2026

Cogstone Project Number: 6291
Type of Study: Cultural Resources Assessment
Sites: None within Project area
USGS Quadrangle: Thousand Oaks
Area: 8.21 acres
Key Words: Cultural resources assessment, Chumash territory, negative for cultural resources

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SUMMARY OF FINDINGS

This study was conducted to determine the potential impacts to cultural resources during the East Hillcrest Drive Mixed-Use Project (Project), City of Thousand Oaks (City), Los Angeles County, California. The City is the lead agency under the California Environmental Quality Act (CEQA).

The Project is located within Assessor Parcel Number (APN) 669-0-021-255 at 195 E. Hillcrest Drive in the City of Thousand Oaks, Ventura County, California.

Cogstone Resource Management (Cogstone) requested a search of the California Historical Resources Information System (CHRIS) from the South-Central Coastal Information Center (SCCIC) located at California State University, Fullerton which included the entire proposed Project area as well as a half-mile radius. Results of the record search were received on July 17, 2025 and indicate that one previous study has been completed within the Project area while an additional 25 studies have been completed previously within a half-mile radius of the Project area.

No cultural resources have been recorded within the Project area. Outside of the Project area a total of three cultural resources have been previously documented within the half-mile search radius from the Project area. The resources consist of two prehistoric-aged archaeological sites and one historic built environment resource all within a quarter- to half-mile of the Project area.

Cogstone requested a Sacred Lands File (SLF) search from the Native American Heritage Commission (NAHC) on June 4, 2025. The NAHC responded on June 9, 2025, that the Project area is negative for known tribal resources

In compliance with Assembly Bill (AB) 52, the City sent the Barbareno/Ventureno Band of Mission Indians a letter notifying them of the Project on December 18, 2025. This letter included information about the Project and requested response within 30 days of receipt if Tribes wishes to initiate tribal consultation. No other Tribes have requested to be notified of Projects within the City.

Cogstone archaeologist Sandy Duarte completed an intensive pedestrian survey of the Project area on September 5, 2025. Small areas in the northwestern and southwestern portions of the Project area were inaccessible due to fencing. The Project area was almost completely landscaped and hardscaped. Eucalyptus and oak trees lined the western boundary of the Project area as well as other mature trees. An improved drainage course was observed running along the western boundary of the Project area. No cultural resources were identified during the intensive pedestrian survey.

Based on the results of the pedestrian survey, the cultural records search, and the negative SLF search, the Project area has low sensitivity for prehistoric cultural resources. Analysis of these data sources and historical USDA aerial photographs indicate that the Project area also has low sensitivity for buried historical archaeological features such as foundations or trash pits.

As required by the standard code, in the event of an unanticipated discovery, all work must be suspended within 50 feet of the find until a qualified archaeologist evaluates it. In the unlikely event that human remains are encountered during project development, all work must cease near the find immediately.

INTRODUCTION

PURPOSE OF STUDY

This study was conducted to determine the potential impacts to cultural resources during the Hillcrest Drive Mixed-Use Project, City of Thousand Oaks (City), Los Angeles County, California (Project; Figure 1). The City is the lead agency under the California Environmental Quality Act (CEQA).

PROJECT LOCATION AND DESCRIPTION

The Project is located within Assessor Parcel Number (APN) 669-0-021-255 at 195 E. Hillcrest Drive in the City of Thousand Oaks, Ventura County, California. Specifically, the Project is located within Section 9 of Township 1 North, Range 19 West, San Bernardino Baseline and Meridian, on the Thousand Oaks United States Geological Survey (USGS) 7.5-minute topographic quadrangle maps (Figures 2, 3 and 4).

The Project proposes demolition of an existing commercial office development and construction of a mixed-use development with 297 residential units with a Density Bonus (Concessions and Waivers) providing 25 affordable units (331,550 square feet), approximately 10184 square feet of commercial space, surface parking, one parking structure with 438 parking spaces, including grading, hardscaping, landscaping, as well as the encroachment and removal of various protected oak trees on an approximately 8.21-acre parcel.

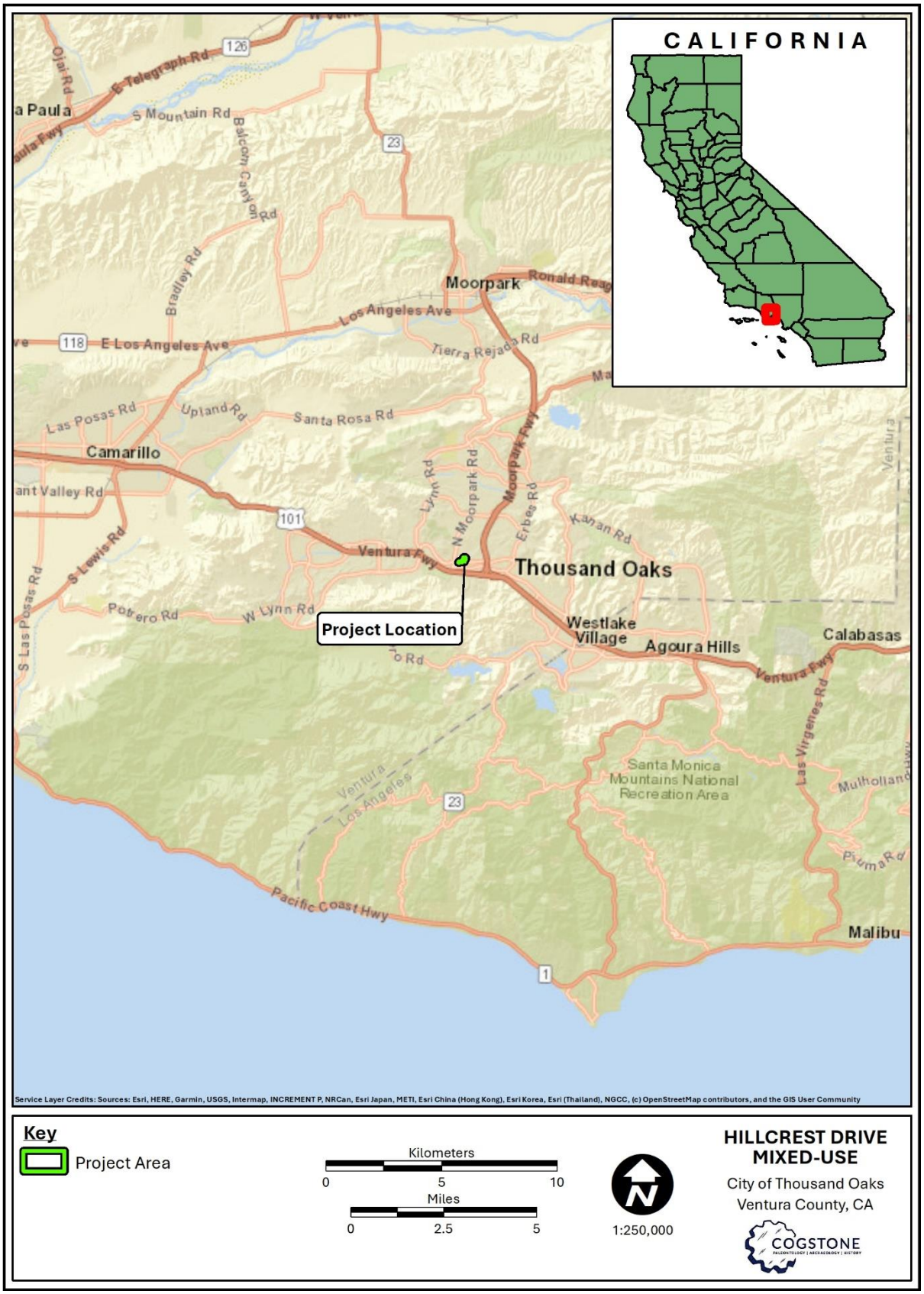


Figure 1. Project vicinity map

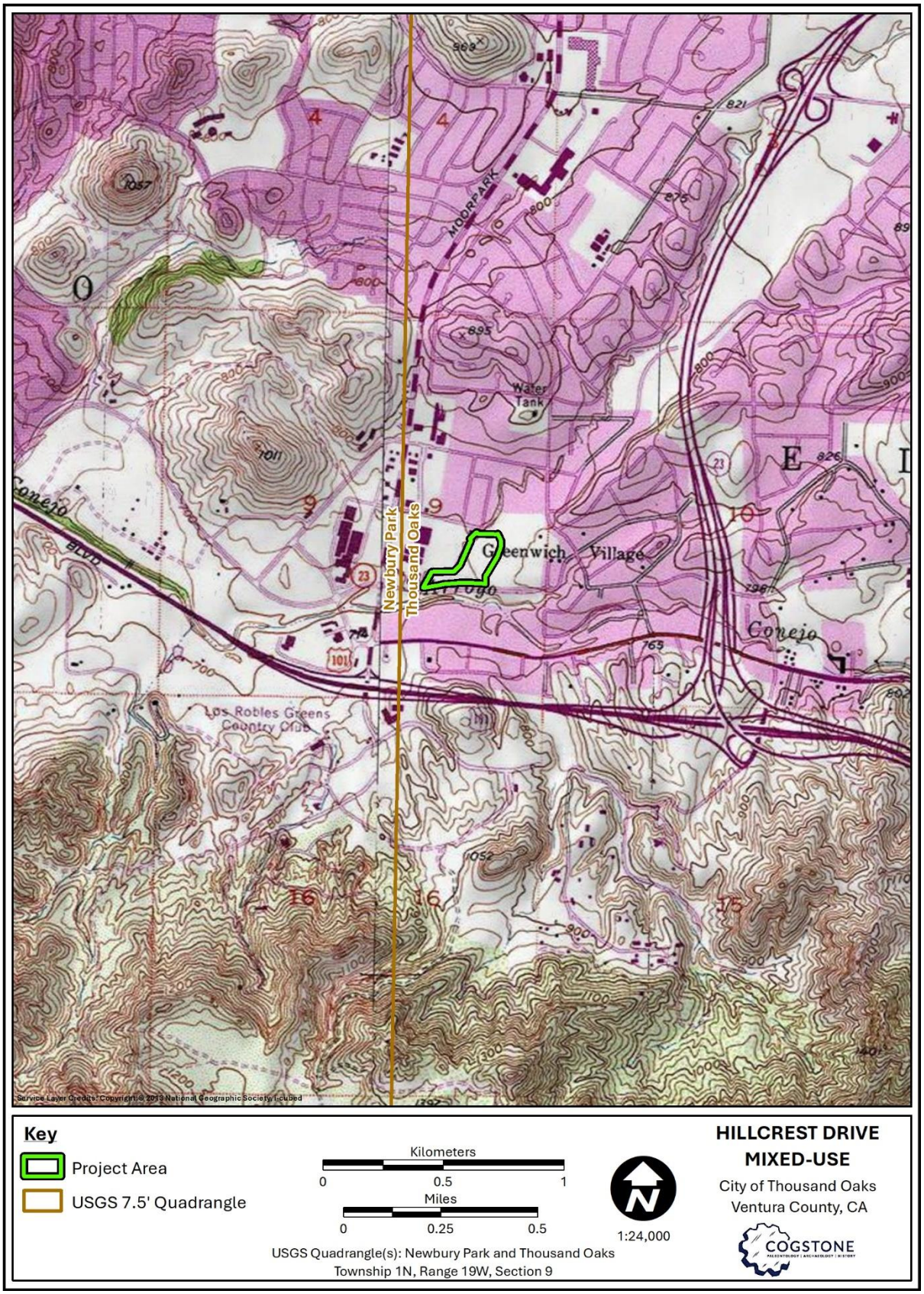


Figure 2. Project location map

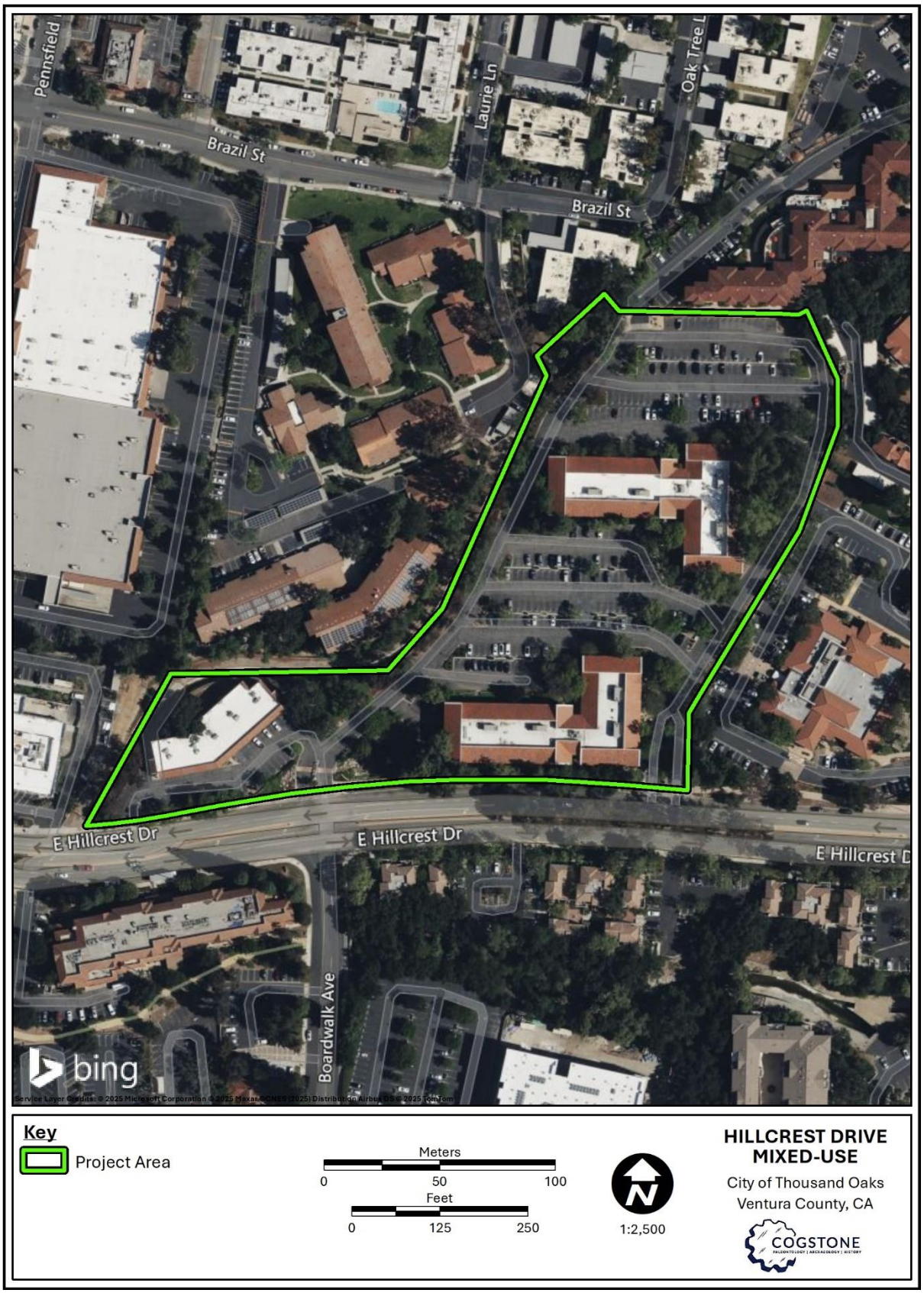


Figure 3. Project area aerial map

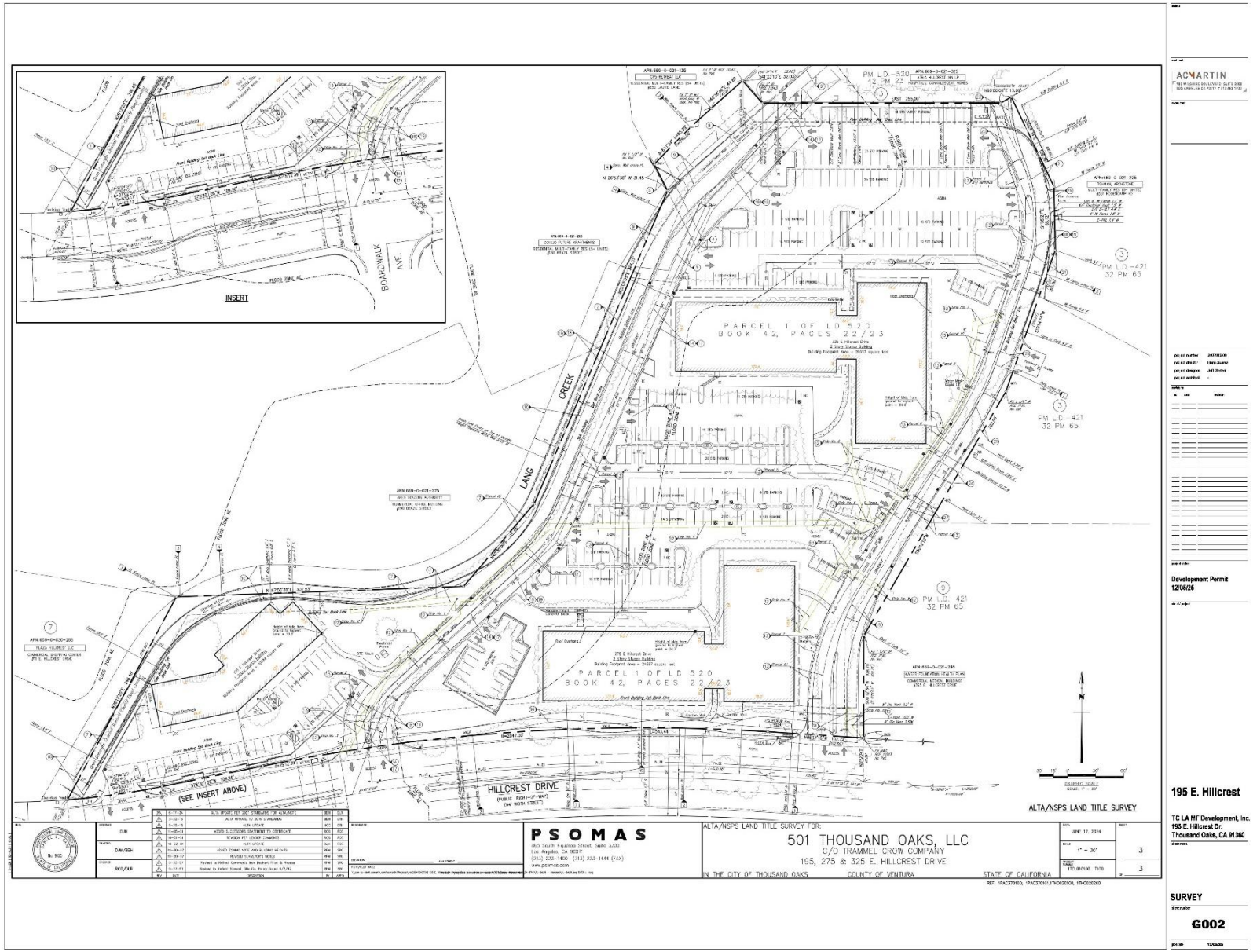


Figure 4. Project plan

PROJECT PERSONNEL

Cogstone Resource Management (Cogstone) conducted the cultural resources assessment and authored this report. Resumes of key personnel are provided in Appendix A.

- Molly Valasik, Registered Professional Archaeologist (RPA), provided Quality Assurance and Quality Control (QA/QC) for the Project and reviewed this report. Ms. Valasik has an M.A. in Anthropology from Kent State University in Ohio and over 16 years of experience in California archaeology.

- John Gust, RPA, served as the Task Manager, Principal Investigator for Archaeology, and reviewed this report. Dr. Gust has a Ph.D. in Anthropology from the University of California (UC), Riverside and more than 13 years of experience in archaeology.

- Sandy Duarte conducted the pedestrian survey and authored this report. Mrs. Duarte holds a B.A. in Anthropology from UC Santa Barbara and has more than 20 years of experience in southern California archaeology.

- Shannon Lopez conducted historic society consultation letters for this Project. Ms. Lopez holds an M.A. in History from California State University (CSU), Fullerton and has more than seven years of experience as an architectural historian.

- Logan Freeberg conducted the archaeological and paleontological record searches and prepared the maps for the report. Mr. Freeberg has a certificate in Geographic Information Systems (GIS) from CSU Fullerton and a B.A. in Anthropology from UC Santa Barbara and has more than 20 years of experience in southern California archaeology.

REGULATORY ENVIRONMENT

STATE LAWS AND REGULATIONS

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA states that it is the state's policy "that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required by this division are intended to assist public agencies in systematically identifying both the significant effects of proposed project and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects."

CEQA declares that it is state policy to: "take all action necessary to provide the people of this state with…historic environmental qualities." It further states that public or private projects financed or approved by the state are subject to environmental review by the state. All such projects, unless entitled to an exemption, may proceed only after this requirement has been satisfied. CEQA requires detailed studies that analyze the environmental effects of a proposed project. In the event that a project is determined to have a potential significant environmental effect, the act requires that alternative plans and mitigation measures be considered.

TRIBAL CULTURAL RESOURCES

A tribal cultural resource is defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the California Register of Historical Resources (CRHR), or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or
b) 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 Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

As of 2015, CEQA established that "[a] project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment" (Public Resources Code, § 21084.2).

To help determine whether a project may have such an effect, the lead agency must consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a proposed project. If a lead agency determines that a project may cause a substantial adverse change to tribal cultural resources, the lead agency must consider measures to mitigate that impact. Public Resources Code §20184.3 (b)(2) provides examples of mitigation measures that lead agencies may consider to avoid or minimize impacts to tribal cultural resources.

PUBLIC RESOURCES CODE

Section 5097.5: No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands (lands under state, county, city, district or public authority jurisdiction, or the jurisdiction of a public corporation), except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor. As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.

CALIFORNIA REGISTER OF HISTORICAL RESOURCES

The CRHR is a listing of all properties considered to be significant historical resources in the state. The California Register includes all properties listed or determined eligible for listing in the National Register, including properties evaluated under Section 106 as well as State Historical Landmarks numbered 770 and above. The California Register statute specifically provides that historical resources must be considered under CEQA if they are listed, determined eligible for listing in the California Register by the State Historical Resources Commission, or are resources that meet the California Register criteria. Other resources, such as resources listed in local registers of historic resources or in local surveys, may be listed if they are determined by the State Historic Resources Commission to be significant in accordance with the criteria and procedures to be adopted by the Commission and are nominated; their listing in the California Register is not automatic.

Resources eligible for listing include buildings, sites, structures, objects, or historic districts that retain historical integrity and are historically significant at the local, state, or national level under one or more of the following four criteria:

1) It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
2) It is associated with the lives of persons important to local, California, or national history;
3) It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
4) It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

In addition to having significance, resources must have integrity for the period of significance which is the date or span of time within which significant events transpired or significant individuals made their important contributions. Integrity is the authenticity of a historical resource's physical identity as evidenced by the survival of characteristics or historic fabric that existed during the resource's period of significance.

Alterations to a resource or changes in its use over time may have historical, cultural, or architectural significance. Simply, resources must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. A resource that has lost its historic character or appearance may still have sufficient integrity for the California Register, if, under Criterion 4, it maintains the potential to yield significant scientific or historical information or specific data.

NATIVE AMERICAN HUMAN REMAINS

Sites that may contain human remains important to Native Americans must be identified and treated in a sensitive manner, consistent with state law (i.e., Health and Safety Code §7050.5 and Public Resources Code §5097.98), as reviewed below:

In the event that human remains are encountered during project development and in accordance with the Health and Safety Code Section 7050.5, the County Coroner must be notified if potentially human bone is discovered. The Coroner will then determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she shall contact the Native American Heritage Commission (NAHC) by phone within 24 hours, in accordance with Public

Resources Code Section 5097.98. The NAHC will then designate a Most Likely Descendant (MLD) with respect to the human remains. The MLD then has the opportunity to recommend to the property owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and associated grave goods.

CALIFORNIA ADMINISTRATIVE CODE, TITLE 14, SECTION 4307

This section states that "No person shall remove, injure, deface or destroy any object of paleontological, archeological or historical interest or value."

THOUSAND OAKS GENERAL PLAN

Goal C-11: Protect historical and culturally significant resources, which contribute to the community's sense of identity.

- 11.1 Cultural resource identification and recognition. Identify and, as appropriate, recognize significant cultural resources by identifying significant cultural resources with landmark designation plaques, directional signage, self-guided tours, programs, and events.
- 11.2 Cultural resource preservation. Require that new development preserve or mitigate impacts to significant historic, archaeological, and paleontological resources.
- 11.3 Archeological site protection. The preferred method for protecting any previously recorded archeological site shall be by deed restriction as permanent "open space", in order to prevent any future development or use that might otherwise adversely impact these resources.
- 11.4 Native American consultation. Conduct Native American consultation consistent with most recent regulations when new development is proposed in culturally sensitive areas.
- 11.5 Historic resource management. Maintain, rehabilitate, and reuse significant historic resources, as feasible.
- 11.6 Archaeological site confidentiality. Maintain a list of the locations of previously recorded archaeological sites confidential unless the release of such information to the public is specifically authorized by local Native American organizations or other entities with jurisdiction over such sites.
- 1.7 Resource stakeholder engagement. Decisions pertaining to the disposition of archaeological, paleontological, historical, and cultural resources shall be made in concert with recognized public agencies, groups or individuals having jurisdiction, expertise, or interest in these matters, including but not limited to the State Office of Historic Preservation, Ventura County Cultural Heritage Board, and local Native American organizations, and affected property owners.

- 11.8 Public and private involvement. Collaborate with private and public entities whose goals are to protect and preserve historic resources and important cultural resources.

BACKGROUND

ENVIRONMENTAL SETTING

The Project area is located in the southern portion of Ventura County. The Project vicinity is in an urban setting within Conejo valley, southeast of hilly terrain Conejo Valley Botanic Garden and north of Santa Monica Mountains.

Today's Mediterranean-type climate is characterized by warm dry summers and cool moist winters, with rainfall predominantly falling between November and May. Modern vegetation communities are dominated by dense coastal sage scrub and chaparral. There is a near absence of acorn-producing oaks that are characteristic of much of California. The chaparral hosts a variety of animal resources including mule deer, brush rabbits, and blacktail jackrabbits.

Climatic conditions in this region varied substantially during prehistory. Research by Heusser (1978), for example, indicates pine forests were present in the Santa Barbara coastal regions between 12,000 and 8,000 years ago. As the climate then became warmer and drier, the pine forests were replaced approximately 5,700 years ago by Holocene-type grassland and oak woodland communities. Today's coastal sage scrub and chaparral communities became more pronounced by approximately 2,000 years ago. With this mosaic of ecological communities, and in view of the prehistoric record and the ethnographic descriptions of the Chumash (Kroeber 1925; Grant 1978a, 1978b) who historically occupied the Project area, it would appear the Project vicinity would have provided a very productive environment for its prehistoric occupants, one well suited to a hunting-gathering economy with a variety of shellfish, fish, sea mammals, small and large land mammals, birds and edible plant species.

PREHISTORIC SETTING

The terms used to describe the prehistoric cultures that once existed along the coast have evolved and changed since the mid-1950s, when attempts at cultural classification in the

region began. In 1955, William Wallace defined the then earliest known archaeological assemblage, the Millingstone Horizon (at ca. 7,000 to 3,000 years before present), as a material complex that included an abundance of milling stones (i.e. metates and manos, for grinding food items), but which utilized relatively few projectile points. Regionally, the Millingstone Horizon was subsequently subsumed with what Claude Warren (1968) termed the Encinitas Tradition. Other broad cultural categories like "Early," "Middle," and "Late" have also been used. It is now recognized that these generalized terms have been masking many of the more specific indicators of cultural, spatial and temporal variations, which have the potential to illuminate the movements of peoples throughout space and time; factors that are critical in helping us understand regional cultural adaptation and change (Sutton and Gardner 2010:1-2).

The Encinitas Tradition was therefore redefined by Sutton and Gardner (2010:8-25) as having four patterns. These are (1) Topanga in coastal Los Angeles and Orange counties, (2) La Jolla in coastal San Diego County, (3) Greven Knoll in inland San Bernardino, Riverside, Orange and Los Angeles counties and (4) Pauma in inland San Diego County. According to Sutton (2010), the Topanga Pattern was being supplanted on portions of the mainland part of Los Angeles County by about 3,500 years ago. Sutton proposed this new cultural pattern be called the Del Rey Tradition. Each Pattern has Phases that are identified by specific changes in cultural assemblages, through time. These Phases are identified by their archaeological signatures, as components within sites, as summarized in Table 1.

The early Topanga Pattern bands consisted of relatively small, highly mobile families, whose diet was dependent on seed gathering and, along the coast, shellfish collecting. Topanga I is characterized by a scarcity of projectile points, and inhumation is the only method of disposal of the dead. The most important artifact types include abundant manos and metates, core tools, scraper planes/scrapers, charmstones, cogged stones, and early discoidals. Identified faunal remains are minimal, but adequate enough to identify many different species of animal, fish, and shellfish (Sutton and Gardner 2010:9).

Beginning about 3,500 years ago, the newly arrived Del Rey Tradition Angeles Pattern bands utilized a wider variety of natural resources, and their culture had greater emphases on hunting and near shore fishing. Elko points for atlatls or darts appear in Angeles Phase I, and small steatite objects such as pipes and effigies, made out of Catalina Island soapstone, are found, as are shell beads and shell ornaments. Fishing technologies became more complex, and now include bone harpoons/fishhooks, shell fishhooks, donut stones, and hafted micro blades for cutting/graving wood or stone. Mortuary practices changed to consist of flexed inhumations. Settlement patterns made a shift from general use sites to

habitation areas separate from functional work areas. Subsistence shifted from mostly collecting of plants and shellfish to increased hunting and fishing (Sutton 2010). A number of researchers have postulated that these archaeologically demonstrable changes mark the arrival of members of the Takic Language Family, who had migrated south to the coast from the general region of Southern Sierra Nevada Mountains/Tehachapi Mountains/Southern San Joaquin Valley, and who were the ancestors of the Tongva and other linguistically closely related tribes (e.g. the Fernandeño, the Luiseno).

Table 1. Culture change chronology

Pattern	Phase	Dates (BP)	Material Traits	Other Traits
Topanga	Topanga I	8,500 to 5,000	Abundant manos and metates, many core tools and scraper planes/scrapers, charmstones, cogged stones, early discoidals, few but large points, faunal remains are rare	Shellfish and hunting important, secondary burials under metate cairns (some with long bones only), few extended inhumations, no cremations
	Topanga II	5,000 to 3,500	Still abundant but few manos and metates, adoption of mortar and pestles, smaller points, cogged stones, late discoidals, fewer scraper planes and core tools, some stone balls and charmstones	Shellfish important, addition of acorns, reburial of long bones only and addition of flexed inhumations (some beneath metate cairns), cremations rare
Angeles	Angeles I	3,500 to 2,600	Appearance of Elko dart points and an increase in the overall number of projectile points from Encinitas components; beginning of large-scale trade in small steatite artifacts (effigies, pipes, and beads) and *Olivella* shell beads from the southern Channel Islands; appearance of single-piece shell fishhooks and bone harpoon points; Coso obsidian becomes important; appearance of donut stones	Appearance of a new biological population (Takic, proto-Gabrielino/Cupan language), apparent population increase; fewer and larger sites along the coast; collector strategy; less overall dependence on shellfish but fishing and terrestrial hunting more important; appearance of flexed and extended inhumations without cairns, cremations uncommon
	Angeles II	2,600 to 1,600	Continuation of basic Angeles I material culture with the addition of mortuary features containing broken tools and fragmented cremated human bone; fishhooks become more common	Continuation of basic Angeles I settlement and subsistence systems; appearance of a new funerary complex

Pattern	Phase	Dates (BP)	Material Traits	Other Traits
	Angeles III	1,600 to 1,250	Appearance of bow and arrow technology (e.g., Marymount or Rose Spring points); changes in *Olivella* beads; asphaltum becomes important; reduction in obsidian use; Obsidian Butte obsidian largely replaces Coso	Larger seasonal villages; flexed primary inhumations but no extended inhumations and an increase in cremations; appearance of obsidian grave goods; possible expansion into eastern Santa Monica Mountains, replacing Topanga III groups
	Angeles IV	1,250 to 800	Cottonwood points appear; some imported pottery appears; birdstone effigies at the beginning of the phase and "spike" effigies dropped by the end of the phase; possible appearance of ceramic pipes	Change in settlement pattern to fewer but larger permanent villages; flexed primary inhumations continue, cremations uncommon; expansion into the San Gabriel Mountains, displacing Greven Knoll III groups
	Angeles V	800 to 450	Trade of steatite artifacts from the southern Channel Islands becomes more intensive and extensive, with the addition or increase in more and larger artifacts, such as vessels and comals; larger and more elaborate effigies	Strengthening of ties, especially trade, with southern Channel Islands; expansion into the northern Santa Ana Mountains and San Joaquin Hills; development of mainland dialects of Gabrielino
	Angeles VI	450 to 150	Addition of Euro-American material culture (e.g., glass beads and metal tools), locally made pottery, metal needle-drilled *Olivella* beads	Change of settlement pattern, movement close to missions and ranches; use of domesticated species obtained from Euro-Americans; flexed primary inhumations continue, cremations uncommon to the north (nearer the Chumash) but somewhat more common to the south (nearer the Luiseño); apparent adoption of Chinigchinich religion

Angeles Phase II is recognized by killed (broken) artifacts, including manos, metates, bowls, mortars, pestles, and points, as well as highly fragmented cremated human bones. The cremations were not done at the actual burial site (Sutton 2010).

The Angeles Phase III is the beginning of what has previously been called the Late Period. Small projectile points now appear, as do steatite shaft straighteners; reflecting the introduction of bow and arrow technology. Obsidian sources changed from mostly Coso to Obsidian Butte, and shell beads from Gulf of California species began to appear; the Angeles Pattern begins spread to adjacent areas (Sutton 2010).

Angeles Phase IV is marked by new material items including Cottonwood points for arrows, Olivella cupped beads, Mytilus shell disks, birdstones (zoomorphic effigies with magico-religious properties), and trade items from the Southwest, including occasional pottery. It appears that populations increased and the settlement pattern altered to one of fewer, but larger villages. Smaller special-purpose sites continued to be used (Sutton 2010).

Angeles Phase V components contain more and larger steatite artifacts, including larger vessels, more elaborate effigies, and comals. Settlement locations shifted from woodland to open grasslands (Sutton 2010).

Angeles Phase VI reflects the ethnographic mainland populations of the Historic (post-1542) Period. Angeles Phase VI is essentially Angeles Phase V augmented by a variety of Euro-American tools and materials, including glass beads and metal tools such as knives and needles (now used in shell bead manufacture). The frequency of Euro-American material culture increased through time until it constituted the vast majority of materials used. Locally produced brownware pottery appears after the Spanish establish themselves (Sutton 2010).

ETHNOGRAPHY

The Project is within the traditional use area of the Chumash (Figure 5).Traditional Chumash territory expanded over large portions of the central and southern coastal regions of California, from Estero Bay in the north and inland to California Valley and Mount Pinos, south to Malibu, as well as occupation of the three northern Channel Islands (Kroeber 1925; King 1975). While pre-contact population estimates are difficult to determine, Alfred Kroeber (1925) suggested a population of 8,000 to 10,000 while Chester King (1975) estimated closer to 15,000 – 20,000 individuals. S.F. Cook (1962) placed Chumash populations at 13,650 at the beginning of the California mission system based upon baptismal records research.

Chumashan languages can be generally broken down into three subfamilies – northern Chumash (Obispeño), island Chumash (Cruzeño/Ysleño) and central Chumash (Ventureño, Purismeño, Barbareño, and Ineseño) (Grant 1978b; Kroeber 1925). Additionally, numerous sub-groups lie within each subfamily, with assumptions each village/region may have had a distinct dialect. While previously grouped with Hokan language stock, most modern linguists agree that Chumashan languages are unrelated to any other language groups and may have developed independently (Henry-Rodriguez 2021; Mithun 1999). It is believed that

before her death in 1965, Barbareño linguist Mary Yee (granddaughter of J.P. Harrington informant Luisa Ygnacio) was the last native Chumash speaker (NPS 2023; Schwartz et al 2018).

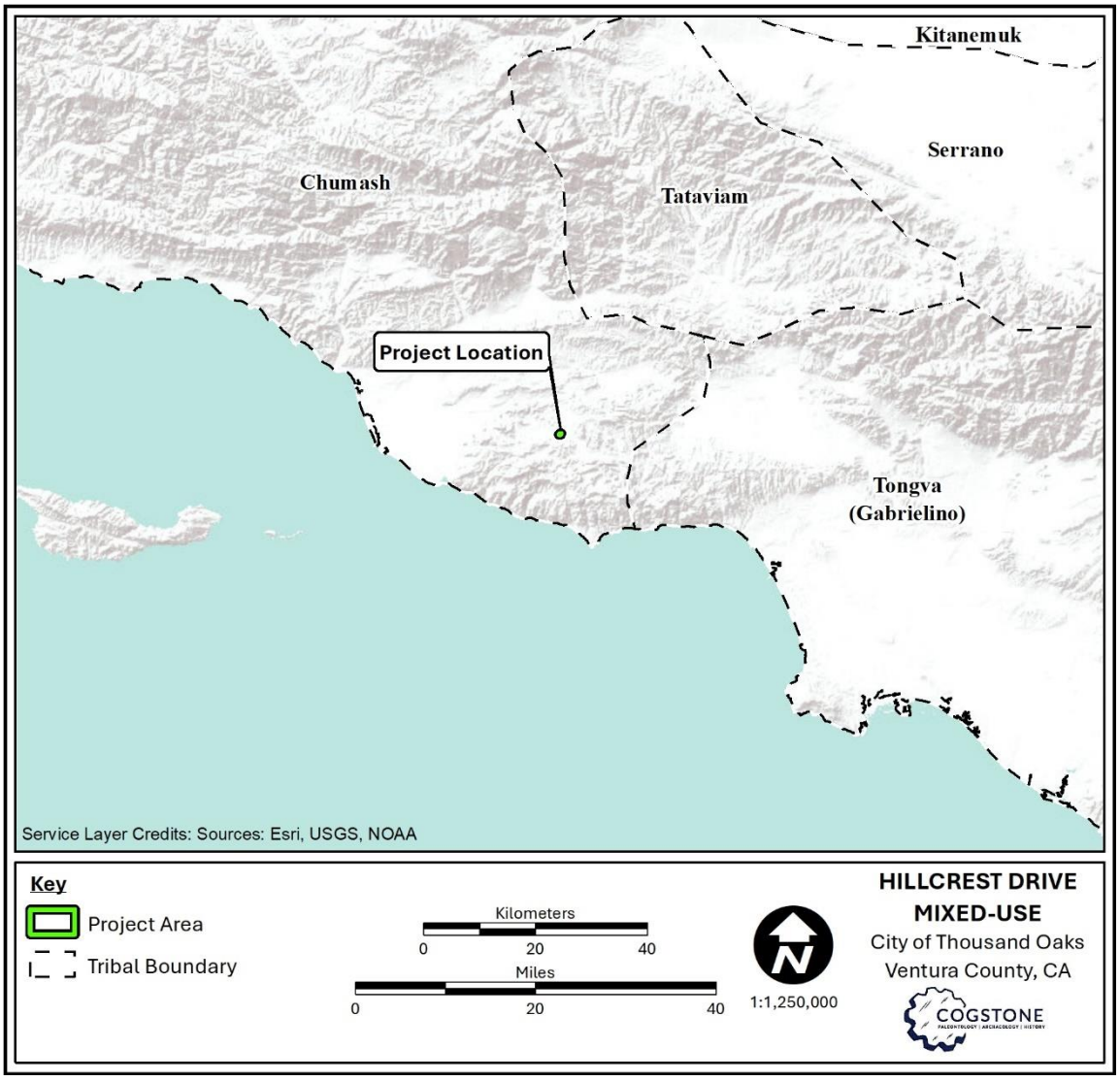


Figure 5. Tribal boundary map

At the point of European contact, it is estimated approximately 150-160 villages may have existed within Chumash territory with populations from a few dozen to nearly 1,000 individuals each (Kroeber 1925; SBMNH 2023; King 1975; Rick 2007). Chumash villages generally consisted of single-family dwellings (a circular willow pole structure called an *'ap*), sweathouses (*'apa'yik*), sacred enclosures, menstrual houses, windbreaks, storage and drying facilities, as well as dance and gaming areas (Gamble 1995; SBMNH 2023).

The Chumash developed highly specialized occupations and a simple chiefdom where hereditary chiefly families held sway over multiple communities and could manipulate labor of kin and non-kin (Arnold 1987). The chief and his assistants had political and religious ceremonial duties, and along with canoe builders and other specialists, were members of the upper class. These elite groups may have been buried separate from the commoners in the formal Chumash cemeteries. Some ethnographic data suggest that alliances between surrounding villages were maintained by military dominance or economic exchange (Glassow 1996). Their use of the 'tomol,' or plank canoe, dating back to about 500ad was essential to their complex trade network and sociopolitical complexity (Arnold 1987). They created a shell bead money system from shells (mainly *Olivella Biblicata)* harvested on the islands which was then used as currency throughout neighboring tribes in southern California. Extensive documentation of the baptisms, marriages and deaths recorded by the Franciscan missionaries indicate that the Chumash were matrilineal, with social groups and relations based on the female lineage (Glassow 1996).

The Chumash were a complex hunter-gatherer culture, utilizing the rich natural resources of the central and southern coast. They were so successful in adapting their lifeways to the natural environments of the coast that they had population densities among the highest recorded for hunter-gatherers (Arnold 1987). Like many other indigenous groups in California, the acorn was a dietary staple for the Chumash (Grant 1978b). Pine nuts, walnuts, wild cherry (Islay) and other berries, underground tubers, yucca and grass seeds were also collected. They employed milling implements to process foodstuffs (manos, metates, mortars, pestles), which had been gathered using a variety of baskets, seed beaters and digging sticks. Bows and arrows, traps, snares, and throwing sticks were utilized to capture terrestrial animals and birds. For marine mammals and fish, the Chumash utilized the tomol and used harpoons, hook and line and nets to collect a wide variety of marine resources. Shellfish were gathered from the beaches and estuaries and consumed year-round.

HISTORIC SETTING

Prior to European intrusion, the Conejo Valley was home to Chumash communities, whose villages such as Satwiwa and Sap'wi formed part of a complex regional network of trade, ceremony, and subsistence (King 1994). The first Spanish colony in California was established at San Diego in 1769. In 1782, the Spanish established Mission San Buenaventura, near the same village that had been visited by Cabrillo over two centuries earlier (Grant 1978b:518–519). The entire Chumash(an) population is estimated to have been between 15,000 and 20,000 people. The Spanish hoped to convert native peoples to

Christianity, and turn them into hard-working servants of the Empire. By 1821, the Spanish Empire had colonized the entire California littoral to as far north as Sonoma County, and had established numerous presidios (forts), pueblos (towns), and missions (churches). The primary economic activities during these years were cattle ranching and agriculture.

THOUSAND OAKS AREA

The first sustained Spanish presence in the Conejo Valley began after 1770 with expeditions connected to the establishment of the California missions. Soldiers and missionaries traveling between Mission San Buenaventura and Mission San Fernando Rey de España (founded 1797) used the Conejo Valley as a corridor, and Spanish livestock herds were soon grazed in the area (Conejo Valley Guide n.d.). By 1803, Spanish colonial authorities formalized occupation through the Rancho El Conejo land grant to José Polanco and Ignacio Rodríguez, both retired soldiers from the Presidio of Santa Barbara (Robinson 1948; Figure 6). Following Mexico's independence from Spain in 1821, the Conejo Valley became part of Mexican California's rancho system. In 1822, Governor Pablo Vicente de Solá awarded José de la Guerra y Noriega half of Rancho El Conejo.

The Empire of Mexico, including California, became independent from Spain in 1821, but Mexico soon declared itself to be a republic, which wanted to reduce the power of the Roman Catholic Church. The Secularization Act of 1833 began a process by which the vast church holdings in California were redistributed to private persons in the form of almost 500 land grants (Bean and Rawls 1993; Robinson 1948). Primary economic activities continued to be cattle ranching and agriculture.

The American period in the Conejo Valley began formally after the Treaty of Guadalupe Hidalgo in 1848, when California became part of the United States. Although the treaty promised to honor existing Mexican land grants, the Land Act of 1851 required landholders to defend their titles in U.S. courts, a process that often lasted decades and drained resources. Rancho El Conejo's patent was not confirmed until 1873, by which time much of the land had already been sold. Severe droughts and cattle disease in the 1860s further undermined the de la Guerra and Rodríguez holdings, leading to the sale of half the rancho to John Edwards and H. W. Mills in 1872 (Ventura County Museum of History & Art 2010). By the late nineteenth century, the Conejo Valley transitioned from large cattle ranchos to smaller sheep operations and dry-farmed wheat and barley, facilitated by stagecoach routes in the 1870s and the arrival of the Southern Pacific Railroad in the 1880s (Robinson 1948). With the establishment of new communities and subdivisions in the mid-20th century, especially after the Janss Corporation's master-planned development in the 1950s,

the region was transformed into the modern suburban city of Thousand Oaks, incorporated in 1964 (Ventura County Star 2014).

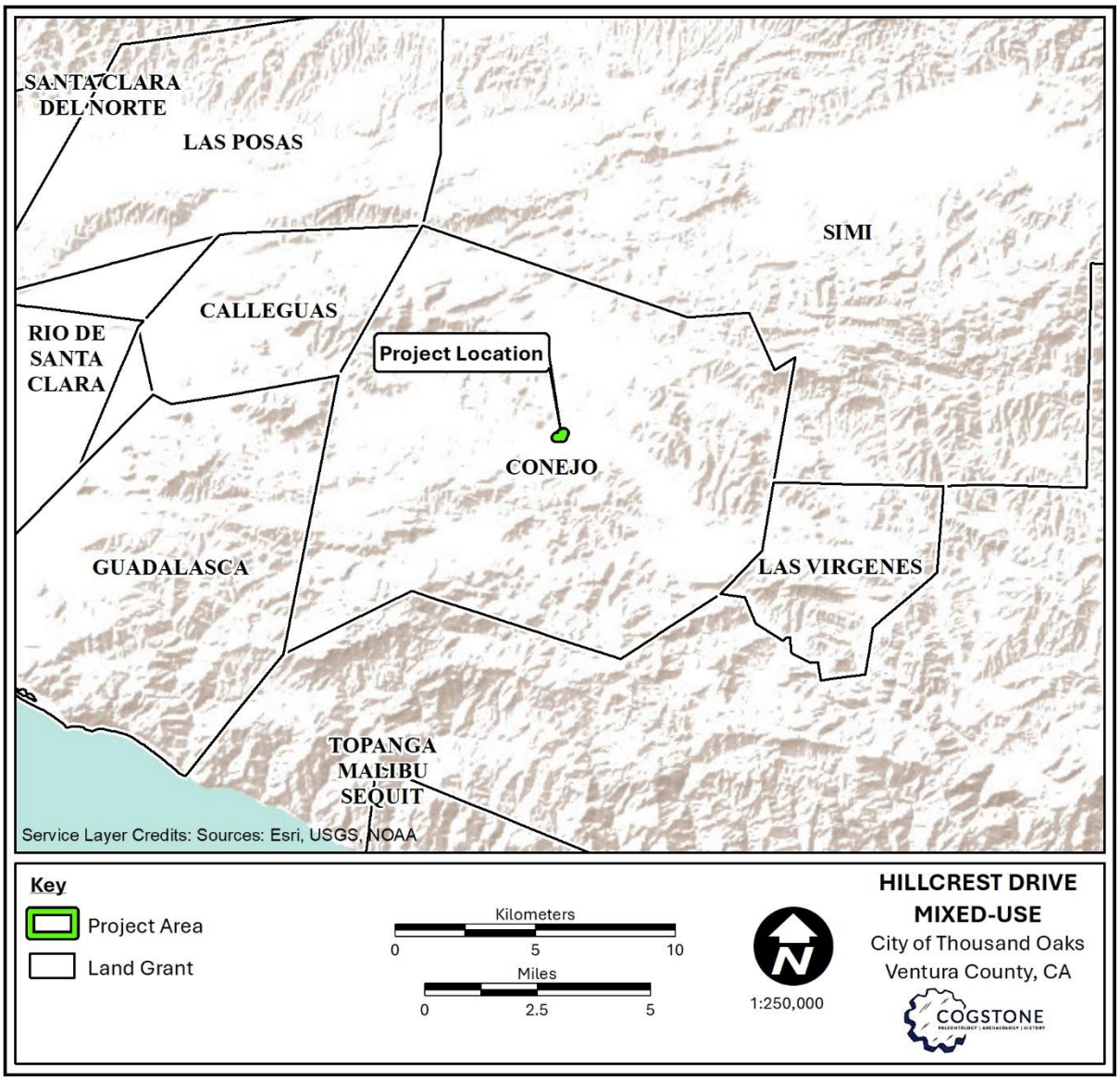


Figure 6. Land grant map

PROJECT AREA HISTORY

The earliest known USGS topographic quadrangle map of the Project area is from 1900 (*Triunfo Pass*; 1:62,500) and shows that there was no development or built environment at that time, but it does show a drainage dissecting the Project area. By 1950 (*Thousand Oaks; 1:24,000*) the drainage looks to have been improved and is running adjacent to the Project area's western boundary. Community development in the surrounding areas labeled as Arroyo and Greenwich Village are also observed.

The earliest known USDA aerial photograph of the Project area is from 1947 and shows extensive agricultural fields and improved drainage adjacent to the Project area (NETROnline 1947). Historic aerial photographs of the Project area show that the current buildings were completed between 1980 and 1985 (NETROnline 1980, 1985).

SOURCES CONSULTED

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM

Cogstone requested a search of the California Historical Resources Information System (CHRIS) from the South-Central Coastal Information Center (SCCIC) located at California State University, Fullerton which included the entire proposed Project area as well as a half-mile radius. Results of the record search received on July 17, 2025 indicate that one previous study has been completed within the Project area while an additional 25 studies have been completed previously within a half-mile radius of the Project area (Table 2).

Table 2. Previous Studies within a half mile radius of the Project area

Report No. (VN-)	Author(s)	Title	Year	Distance (miles) from Project area
00028	Rosen, Martin D.	Evaluation of the Archaeological Resources and Potential Impact of Proposed Widening and Realignment of the Ventura Freeway (Federal Highway 101), Ventura County	1975	0-0.25
00074	Ivie, Pamela J. and David Scott Whitley	Archaeological Resource Survey and Impact Evaluation for Tentative Tract 2561, City of Thousand Oaks, Ventura County, California	1976	0.25-0.5
00111	Whitley, David S.	A Consideration of Potential Archaeological Resources Within Three Community Development Block Programs, City of Thousand Oaks, Ventura County, California	1978	0-0.25
00136	Singer, Clay A.	Cultural Resource Survey and Impact Assessment for a 26 Acre Parcel in the Downtown Section of the City of Thousand Oaks, Ventura County, California	1978	Within
00518	Parker, John	Archaeological Evaluation of the Callegus Municipal Water District, Lake Sherwood Project, Ventura County	1987	0-0.25
00654	Parker, John	Cultural Resource Evaluation of Callegus Municipal Water District Lake Sherwood Project Alternate Route 4	1987	0.25-0.5
00728	Lopez, Robert	Ventura County Archaeological Society Thousand Oaks Area Plan Archaeological Resources	1987	0.25-0.5
00814	McKenna, Jeanette A.	An Intensive Historic and Prehistoric Archaeological Survey of the Proposed Calvary Community Church Project Area, Thousand Oaks, Ventura County, California	1990	0.25-0.5
00944	Boyer, Jackie	Field Project UCAS-107	1967	0.25-0.5

Report No. (VN-)	Author(s)	Title	Year	Distance (miles) from Project area
01040	Stelle, Kenneth and Albert Gallardo	For Improvement of the Operational Characteristics of Route 101, the Ventura Freeway in Los Angeles and Ventura Counties, Between Route 405 in Los Angeles, and the Santa Clara River in Oxnard	1982	0.25-0.5
01102	Singer, Clay A.	Preliminary Cultural Resource Survey and Potential Impact Assessment for Thirteen Areas in Southern Ventura County, California	1977	0-0.25
01206	Simon, Joseph M.	A Phase I Archaeological and Historical Resource Survey and Assessment of a Seven Acre Parcel in Thousand Oaks, Ventura County, California	1993	0-0.25
01322	Whitley, David S. and Joseph M. Simon	Phase 1 Archaeological Survey and Cultural Resources Assessment of the Oak Creek Seniors' Villa Parcel, Thousand Oaks, Ventura County, California	1994	0-0.25
01520	Romani, John F.	Archaeological Survey Report for the 07-LA/VEN 101 Project P.M. 17.1-38.2/0.0-22.7 07351 - 076620	1982	0.25-0.5
01539	Huey, Gene	Phase 1 Archaeological Survey Ven 101 P.M. 4.1/23.0 Freeway Widening and Pavement Reconstruction	1978	0.25-0.5
01640	Wlodarski, Robert J.	A Phase I Archaeological Study, Rolling Oaks Drive Extension Project, City of Thousand Oaks, County of Ventura, California	1998	0.25-0.5
01903	Sylvia, Barbara	Reconstruction of Us 101 Median, Bridges, Pavement and Ramps	2000	0.25-0.5
01954	Sylvia, Barbara	Negative Archaeological Survey Report: 1y2601 Highway Project Description	2000	0.25-0.5
02639	Wlodarski, Robert J.	A Phase I Archaeological Study for the Oaks Mall Renovation/Expansion Project, City of Thousand Oaks, County of Ventura, California	2003	0.25-0.5
02798	Parr, Robert E.	Cultural Resource Assessment for the Replacement of Four Deteriorated Power Poles on the Southern California Edison Company Moorpark-Thousand Oaks No. 2 66kV Circuit and Newbury-Thousand Oaks 66kV Circuit, Thousand Oaks, Ventura County, California	2008	0.25-0.5
02836	Orfila, Rebecca S.	Archaeological Survey for the Southern California Edison Company: Replacement of Fifteen Deteriorated Power Poles on the Moorpark-Thousand Oaks No. 2 66kV Line, Newbury-Thousand Oaks 66kV Line, and the Moorpark-Potrero-Thousand Oaks 66kV Line, Ventura County, California	2009	0-0.25
02844	Whitley, D.	Phase I Archaeological Survey of Tentative Tract 5325, Thousand Oaks, Ventura County, California	2003	0.25-0.5
02872	Fortier, Jana	TEA-21 Rural Roadside Inventory: Native American Consultants and Ethnographic Study for Caltrans District 7, Ventura County	2009	0.25-0.5
03034	Kirksih, Alex	Archaeological Survey Report for the SR-23/US-101 Interchange Project Ventura County, California	2011	0-0.25

Report No. (VN-)	Author(s)	Title	Year	Distance (miles) from Project area
03211	DiCenzo Peterson, J.M.	Archaeological Resource Monitoring Report for Tract No. 5325, Twenty Oaks Project, Thousand Oaks, Ventura County, California	2015	0.25-0.5
03307	Bruce, Bonnie, Carrie D. Wills, and Kathleen A. Crawford	Cultural Resources Records Search and Site Visit Results for AT&T Mobility, LLC Candidate SBOV18_CLU1654 (Thousand Oaks), 223 East Thousand Oaks Boulevard, Thousand Oaks, California. CASPR (3C): 3551A03BDK, CASPR (AMC): 3551A04JG4	2016	0-0.25

No cultural resources have been recorded within the Project area (Table 3). Outside of the Project area a total of three cultural resources have been previously documented within the half-mile search radius from the Project area (Table 3). The resources consist of two prehistoric-aged archaeological sites and one historic built environment resource all within a quarter- to half-mile of the Project area.

Table 3. Previously Recorded Cultural Resources within half-mile radius of the Project area

Primary No. (P-56-)	Trinomial No. (CA-VEN-)	Resource Type	Resource Description	Year Recorded	Distance from Project area	NRHP/CRHR Status
000490	000490	Prehistoric Archaeological Site	Lithic scatter	1976	0.25-0.5	Unevaluated
001107	001107	Prehistoric Archaeological Site	Lithic scatter; Habitation debris	1993; 2006	0.25-0.5	Unevaluated
153156		Historic Built Environment	1-3 story commercial building; Landscape architecture; Other	2019	0.25-0.5	NR – 6Z

OTHER SOURCES

In addition to the SCCIC records search, a variety of sources were consulted in August 2025 to obtain information regarding the cultural context of the Project vicinity (Table 4). Sources included the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), Built Environment Resource Directory (BERD), California Historical Landmarks (CHL), and California Points of Historical Interest (CPHI). Specific information about the Project area, obtained from historic-era maps and aerial photographs, is presented in the Project area History section.

Table 4. Additional Sources Consulted

Source	Results
National Register of Historic Places (NRHP)	Negative
Historic USGS Topographic Maps	See Project area history section
Historic US Department of Agriculture Aerial Photographs	See Project area history section
California Register of Historical Resources (CRHR)	Negative
Built Environment Resource Directory (BERD)	Negative
California Historical Landmarks (CHL)	Negative
California Points of Historical Interest (CPHI)	Negative
Caltrans Historic Bridge Inventory (2016)	Negative
Bureau of Land Management (BLM) General Land Office Records	Positive See Table 5.

Table 5. BLM Land Patents

Name(s)	Year	Accession Number	Type	T; R; Section
Jose Guerra	1851	CACAAA 076054	Grant-Spanish/Mexican	T:1N; R:19W; S:7

Jose Guerra (b. 1779-d. 1859)

José de la Guerra y Noriega was a Spanish-born officer who arrived in California in the late eighteenth century and served more than fifty years in presidial service (California State Military Museum 2006). As Commandant of the Presidio of Santa Barbara between1827–1842, he became one of the most prominent Californio figures of the Mexican period. Through grants and purchases, de la Guerra accumulated extensive landholdings exceeding half a million acres, including Rancho San Julian, Rancho Simi, Rancho Las Posas, and his share of Rancho El Conejo. His family's influence persisted well into the American period, although prolonged droughts and economic downturns in the 1860s forced the sale of much of the family's Conejo holdings (Ventura County Museum of History & Art 2010).

HISTORICAL SOCIETY CONSULTATION

On June 16, 2025, a request for information was sent to the Museum of Ventura County via email asking if the museum could provide a list of active historical societies to contact for consultation for this Project. On June 17, 2025, a response was received via email from Hannah Rogers, Access Services Supervisor and Cataloger of the museum. Ms. Rogers provided a list of resources and information regarding active historical societies and research services (Appendix B).

A request for information was sent to the Conejo Valley Historical Society and Stagecoach Inn Museum via USPS on June 16, July 10, and July 31, 2025. A response was received via

email on August 11, 2025 from Darlene Van Maanen, Treasurer of the Conejo Valley Historical Society. Ms. Van Maanen stated that the “Board of Trustees are not aware of any archaeological or historic concerns that we have with the development/project” (Appendix B).

NATIVE AMERICAN CONSULTATION

Cogstone requested a Sacred Lands File (SLF) search from the Native American Heritage Commission (NAHC) on June 4, 2025. The NAHC responded on February June 9, 2025, that the Project area is negative for known tribal resources

In compliance with Assembly Bill (AB) 52, the City sent the Barbareno/Ventureno Band of Mission Indians a letter notifying them of the Project (Appendix C) on December 18, 2025. This letter included information about the Project and requested response within 30 days of receipt if Tribes wishes to initiate tribal consultation. No other Tribes have requested to be notified of Projects within the City .

SURVEY

METHODS

The survey stage is important in a Project's environmental assessment phase to verify the exact location of each identified cultural resource, the condition or integrity of the resource, and the proximity of the resource to areas of cultural resources sensitivity. All undeveloped ground surface areas within the ground disturbance portion of the Project Area were examined for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools or fire-affected rock), soil discoloration that might indicate the presence of a cultural midden, soil depressions and features indicative of the former presence of structures or buildings (e.g., postholes, foundations), or historic-era debris (e.g., metal, glass, ceramics). Existing ground disturbances (e.g., cutbanks, ditches, animal burrows, etc.) were visually inspected. Photographs of the Project Area, including ground surface visibility and items of interest, were taken with a digital camera.

RESULTS

Cogstone archaeologist Sandy Duarte completed an intensive pedestrian survey of the Project area on September 5, 2025. Small areas in the northwestern and southwestern portions of the Project area were inaccessible due to fencing. The Project area was almost completely landscaped and hardscaped. Eucalyptus and oak trees lined the western boundary of the Project area as well as other mature trees. An improved drainage course was observed running along the western boundary of the Project area (Figures 7 through 10). No archaeological resources were identified during the intensive pedestrian survey.



Figure 7. Northwestern portion of Project area inaccessible due to fence, facing west.



Figure 8. West to northwest boundary with drainage in background along boundary, facing south.



Figure 9. East boundary overview facing west to northwest.



Figure 10. South boundary overview facing west.

STUDY FINDINGS AND CONCLUSIONS

No cultural resources were identified during the survey. Based on the results of the pedestrian survey, the cultural records search, and the negative SLF search, the Project Area has low sensitivity for prehistoric cultural resources. Analysis of these data sources and historical USDA aerial photographs indicate that the Project Area also has low sensitivity for buried historical archaeological features such as foundations or trash pits.

As required by the standard code, in the event of an unanticipated discovery, all work must be suspended within 50 feet of the find until a qualified archaeologist evaluates it. In the unlikely event that human remains are encountered during project development, all work must cease near the find immediately.

In accordance with California Health and Safety Code Section 7050.5, the County Coroner must be notified if potentially human bone is discovered. The Coroner will then determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she shall contact the Native American Heritage Commission (NAHC) by phone within 24 hours, in accordance with Public Resources Code Section 5097.98. The NAHC will then designate a Most Likely Descendant (MLD) with respect to the human remains. The MLD then has the opportunity to recommend to the property owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and associated grave goods. Work may not resume in the vicinity of the find until all requirements of the health and safety code have been met.

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APPENDIX A. QUALIFICATIONS

MOLLY VALASIK
QA/QC

EDUCATION

2009 M.A., Anthropology, Kent State University, Kent, Ohio
2006 B.A., Anthropology, Ohio State University, Columbus, Ohio

SUMMARY QUALIFICATIONS

Ms. Valasik serves as Cogstone's CEO and CFO and helps guide the vision and direction of Cogstone. She has been with the company since 2009 and has helped transition Cogstone from sole ownership to multiple owners with an active board of directors. Ms. Valasik is a Registered Professional Archaeologist (RPA #989162) with more than 16 years of experience. She is a skilled professional who is well-versed in the compliance procedures of the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), and Sections 106 and 110 of the National Historic Preservation Act (NHPA) and regularly prepares cultural resources assessment reports for a variety of federal, state, and local agencies throughout California. Ms. Valasik has managed projects in the water, transportation, energy, development, and federal sectors. She meets the qualifications required by the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation*. She is accepted as a Principal Investigator for prehistoric archaeology by the State Historic Preservation Office (SHPO) and is listed as a Principal Investigator on Cogstone's Bureau of Land Management (BLM) Permit for Archaeological Investigations.

SELECTED EXPERIENCE

Oxnard Campus Park Activation Project, City of Oxnard, Ventura County, CA. Cogstone conducted a cultural resources assessment to determine the potential impacts to cultural resources resulting from redevelopment of an existing 27.66-acre park into a new community park with a focus on passive recreation. The project site was a high school until the mid-1990s, at which time the high school was relocated and the recreational and training fields fell out of use. Improvements to the park included construction of three walking paths, a dry rock and plant lined creek bed for stormwater management, three basketball courts, a skate park, a central play area with sensory and nature play areas, outdoor classrooms, picnic area, and play equipment, relocation of the existing dog park, restrooms, lighting, landscaping, and parking lots. Cogstone's services included cultural resources records searches, a Sacred Lands File Search from the Native American Heritage Commission (NAHC), and intensive pedestrian survey. A California Department of Parks and Recreation 523 (DPR 523) form was prepared to document the remnants of the athletic fields. A Cultural Resources Assessment Report was prepared at the conclusion of the survey. The project will receive federal funding from the Outdoor Recreation Legacy Partnership (ORLP) Program, administered through the National Park Service (NPS). All work was completed in accordance with the guidelines for compliance with Section 106 of the NHPA under NEPA. Sub to MIG. Project Manager. 2024-2025

Brandywine Glendora Project, City of Glendora, Los Angeles County, CA. Cogstone conducted a cultural and paleontological resources assessment to determine the potential impacts to cultural and paleontological resources resulting from the project. The 1.85-acre project area contained a historic in age commercial structure to be demolished and the lot re-graded and redeveloped with the construction of six three-story residential buildings. Cogstone's services included cultural and paleontological record searches, a Sacred Lands File search from the NAHC, consultation with local historical societies, and intensive pedestrian survey. The existing building was recorded on DPR 523 forms and evaluated for National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR) eligibility. A Cultural and Paleontological Resources Assessment Report was prepared to document the findings. The City of Glendora was the lead agency under CEQA. Sub to Sagecrest Planning + Environmental. Project Manager. 2024

JOHN GUST

Task Manager/Principal Investigator for Archaeology

EDUCATION

2016 Ph.D., Anthropology, University of California, Riverside (UCR)
2011 M.A., Anthropology, UCR
2007 M.A., Applied Geography, University of Colorado, Colorado Springs (UCCS)
2002 B.A., Anthropology, minor in Geography/Environmental Studies, UCCS

SUMMARY OF QUALIFICATIONS

Dr. Gust is a Registered Professional Archaeologist (RPA) with over 13 years of experience in field archaeology. His field expertise includes pedestrian surveys, excavation monitoring, resource recording, and historic artifact analysis. Dr. Gust has extensive experience in California cultural resources, having served as Principal Investigator on projects for Southern California Edison, Pacific Gas and Electric, Los Angeles International Airport, and the City of Morro Bay. He has managed a variety of projects at Cogstone in the water, transportation, energy, development, and federal sectors. He has also managed cultural resources monitoring projects for both public and private sector clients. He meets the qualifications required by the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation*. Dr. Gust is a member of the Society for California Archaeology, Society for American Archaeology, and the American Anthropological Association and is listed as a Principal Investigator on Cogstone's Bureau of Land Management (BLM) Permit for Archaeological Investigations.

SELECTED EXPERIENCE

Water Main Replacement Phase 5 Project, City of Inglewood, Los Angeles County, CA. Cogstone conducted a cultural resources assessment to determine the potential impacts to cultural resources during the replacement of approximately 20,810 feet of existing cast iron and asbestos cement water pipelines. This work includes trenching, backfilling, and compacting and constructing new pavement over the excavated trench. Cogstone's services included a cultural resources records search, a Sacred Lands File search from the Native American Heritage Commission (NAHC), and Native American consultation support. As the entire project area was landscaped/hardscaped, a photographic reconnaissance survey was conducted. Cogstone prepared a Cultural Resources Assessment Report to document the findings. The Project was funded through a United States Environmental Protection Agency (EPA) Community Grant and required compliance with Section 106 of the National Historic Preservation Act (NHPA) under the National Environmental Policy Act (NEPA). The City of Inglewood was the lead agency under the California Environmental Quality Act (CEQA). Prime. Task Manager and Principal Investigator for Archaeology. 2024

Brandywine Glendora Project, City of Glendora, Los Angeles County, CA. Cogstone conducted a cultural and paleontological resources assessment to determine the potential impacts to cultural and paleontological resources resulting from the project. The 1.85-acre project area contained a historic in age commercial structure to be demolished and the lot re-graded and redeveloped with the construction of six three-story residential buildings. Cogstone's services included cultural and paleontological record searches, a Sacred Lands File search from the NAHC, consultation with local historical societies, and intensive pedestrian survey. The existing building was recorded on California Department of Parks and Recreation 523 (DPR 523) forms and evaluated for National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR) eligibility. A Cultural and Paleontological Resources Assessment Report was prepared to document the findings. The City of Glendora was the lead agency under CEQA. Sub to Sagecrest Planning + Environmental. Principal Investigator for Archaeology. 2024

SANDY DUARTE
Principal Investigator for Archaeology

EDUCATION

2002 B.A., Cultural Anthropology, University of California, Santa Barbara

SUMMARY OF QUALIFICATIONS

Ms. Duarte is a skilled archaeologist with 20 years of experience in monitoring, surveying, and excavation in the state of California. She has experience with Native American consultation in compliance with Section 106 of the National Historic Preservation Act (NHPA), Assembly Bill (AB) 52, and Senate Bill (SB) 18. Beginning in 2006, she worked for the United States Forest Service in the Biology, Timber, and Geology Department as an archaeologist and as a trained wild-land firefighter to preserve archaeological sites in forest fires. In addition, she is skilled in paleontological identification, fossil preparation, artifact identification and curation, and has authored cultural resources reports for a variety of federal, state, and local agencies throughout California.

SELECTED EXPERIENCE

Oxnard Campus Park Activation Project, City of Oxnard, Ventura County, CA. Cogstone conducted a cultural resources assessment to determine the potential impacts to cultural resources resulting from redevelopment of an existing 27.66-acre park into a new community park with a focus on passive recreation. The project site was a high school until the mid-1990s, at which time the high school was relocated and the recreational and training fields fell out of use. Improvements to the park included construction of three walking paths, a dry rock and plant lined creek bed for stormwater management, three basketball courts, a skate park, a central play area with sensory and nature play areas, outdoor classrooms, picnic area, and play equipment, relocation of the existing dog park, restrooms, lighting, landscaping, and parking lots. Cogstone's services included cultural resources records searches, a Sacred Lands File Search from the Native American Heritage Commission (NAHC), and intensive pedestrian survey. A California Department of Parks and Recreation 523 (DPR 523) form was prepared to document the remnants of the athletic fields. A Cultural Resources Assessment Report was prepared at the conclusion of the survey. The project will receive federal funding from the Outdoor Recreation Legacy Partnership (ORLP) Program, administered through the National Park Service (NPS). All work was completed in accordance with the guidelines for compliance with Section 106 of the NHPA under the National Environmental Policy Act (NEPA). Sub to MIG. Archaeology Supervisor. 2024-2025

Water Main Replacement Phase 5 Project, City of Inglewood, Los Angeles County, CA. Cogstone conducted a cultural resources assessment to determine the potential impacts to cultural resources during the replacement of approximately 20,810 feet of existing cast iron and asbestos cement water pipelines. This work includes trenching, backfilling, and compacting and constructing new pavement over the excavated trench. Cogstone's services included a cultural resources records search, a Sacred Lands File search from the NAHC, and Native American consultation support. As the entire project area was landscaped/hardscaped, a photographic reconnaissance survey was conducted. Cogstone prepared a Cultural Resources Assessment Report to document the findings. The Project was funded through a United States Environmental Protection Agency (EPA) Community Grant and required compliance with Section 106 of the NHPA under NEPA. The City of Inglewood was the lead agency under the California Environmental Quality Act (CEQA). Prime. Principal Investigator for Archaeology. 2024

SHANNON LOPEZ
Architectural Historian

EDUCATION

2022 Certificate in Historic Preservation, The Boston Architectural College, Boston
2018 M.A., History (with an emphasis in architecture), California State University, Fullerton
2012 B.A., History, Minor in Asian-Pacific Studies, California State University, Dominguez Hills

SUMMARY QUALIFICATIONS

Ms. Lopez is a qualified architectural historian with over seven years of experience who meets or exceeds the Secretary of the Interior's *Standards and Guidelines for Architectural History*. Her experience includes architectural history research and surveys with photo documentation and recording of built environment resources for local and federal projects. She has extensive knowledge with Native American consultation, consultation with local and state historical societies, and in the analysis of primary and secondary sources. Ms. Lopez is acknowledged as an approved Architectural Historian by Caltrans and is listed as a Principal Investigator on Cogstone's Bureau of Land Management (BLM) Permit for Archaeological Investigations. She is accepted as a Principal Investigator for Architectural History and History by the State Historic Preservation Office (SHPO).

SELECTED EXPERIENCE

Oxnard Campus Park Activation Project, City of Oxnard, Ventura County, CA. Cogstone conducted a cultural resources assessment to determine the potential impacts to cultural resources resulting from redevelopment of an existing 27.66-acre park into a new community park with a focus on passive recreation. The project site was a high school until the mid-1990s, at which time the high school was relocated and the recreational and training fields fell out of use. Improvements to the park included construction of three walking paths, a dry rock and plant lined creek bed for stormwater management, three basketball courts, a skate park, a central play area with sensory and nature play areas, outdoor classrooms, picnic area, and play equipment, relocation of the existing dog park, restrooms, lighting, landscaping, and parking lots. Cogstone's services included cultural resources records searches, a Sacred Lands File Search from the Native American Heritage Commission (NAHC), and an intensive pedestrian survey. A California Department of Parks and Recreation 523 (DPR 523) form was prepared to document the remnants of the athletic fields and a Cultural Resources Assessment Report was prepared at the conclusion of the survey. The project will receive federal funding from the Outdoor Recreation Legacy Partnership (ORLP) Program, administered through the National Park Service (NPS). All work was completed in accordance with the guidelines for compliance with Section 106 of the National Historic Preservation Act (NHPA) under the National Environmental Policy Act (NEPA). Sub to MIG. Architectural Historian. 2024-2025

Walnut Business Park Project, City of Walnut, Los Angeles County, CA. Cogstone conducted a built environment assessment to determine the potential impacts to historic built environment resulting from the project which planned to demolish all 34 buildings in the 23-acre site. While none of the buildings within the Project are historic in age, 18 buildings met or surpassed the 45-year threshold. Cogstone's services included background research, consultation with local historical societies, and a built environment survey. The 18 buildings were photographed and documented on DPR 523 forms and evaluated for National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR) eligibility. Cogstone prepared a Historic Built Environment Assessment Report to document the findings. The City of Walnut was the lead agency under the California Environmental Quality Act (CEQA). Prime. Architectural Historian. 2024

LOGAN FREEBERG
GIS Manager

EDUCATION

2018 Geographic Information Systems (GIS) Certificate, California State University, Fullerton
2003 B.A., Anthropology, University of California, Santa Barbara

SUMMARY OF QUALIFICATIONS

Mr. Freeberg has over 20 years of experience in cultural resource management and has extensive experience in field surveying, data recovery, monitoring, and excavation of archaeological and paleontological resources associated with land development projects in the private and public sectors. He has conducted all phases of archaeological work, including fieldwork, laboratory analysis, research, and reporting. Mr. Freeberg also has a strong grounding in conventional field and laboratory methods and is skilled in the use of ArcGIS.

SELECTED EXPERIENCE

Oxnard Campus Park Activation Project, City of Oxnard, Ventura County, CA. Cogstone conducted a cultural resources assessment to determine the potential impacts to cultural resources resulting from redevelopment of an existing 27.66-acre park into a new community park with a focus on passive recreation. The project site was a high school until the mid-1990s, at which time the high school was relocated and the recreational and training fields fell out of use. Improvements to the park included construction of three walking paths, a dry rock and plant lined creek bed for stormwater management, three basketball courts, a skate park, a central play area with sensory and nature play areas, outdoor classrooms, picnic area, and play equipment, relocation of the existing dog park, restrooms, lighting, landscaping, and parking lots. Cogstone's services included cultural resources records searches, a Sacred Lands File Search from the Native American Heritage Commission (NAHC), and intensive pedestrian survey. A California Department of Parks and Recreation 523 (DPR 523) form was prepared to document the remnants of the athletic fields. A Cultural Resources Assessment Report was prepared at the conclusion of the survey. The project will receive federal funding from the Outdoor Recreation Legacy Partnership (ORLP) Program, administered through the National Park Service (NPS). All work was completed in accordance with the guidelines for compliance with Section 106 of the National Historic Preservation Act (NHPA) under the National Environmental Policy Act (NEPA). Sub to MIG. GIS Manager. 2024-2025

Brandywine Glendora Project, City of Glendora, Los Angeles County, CA. Cogstone conducted a cultural and paleontological resources assessment to determine the potential impacts to cultural and paleontological resources resulting from the project. The 1.85-acre project area contained a historic in age commercial structure to be demolished and the lot re-graded and redeveloped with the construction of six three-story residential buildings. Cogstone's services included cultural and paleontological record searches, a Sacred Lands File search from the NAHC, consultation with local historical societies, and intensive pedestrian survey. The existing building was recorded on DPR 523 forms and evaluated for National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR) eligibility. A Cultural and Paleontological Resources Assessment Report was prepared to document the findings. The City of Glendora was the lead agency under the California Environmental Quality Act (CEQA). Sub to Sagecrest Planning + Environmental. GIS Manager. 2024

APPENDIX B. HISTORICAL SOCIETY CONSULTATION

COGSTONE
PALEONTOLOGY | ARCHAEOLOGY | HISTORY

Final Attempt: July 31, 2025 (2ad attempt: July 10, 2025)

Conejo Valley Historical Society
and Stagecoach Inn Museum
51 S. Ventu Park Road
Newbury Park, CA 91320

RE: Request for Information regarding the Cultural Resources Assessment for the Hillcrest Drive Mixed-Use Project, City of Thousand Oaks, Ventura County, California.

To Whom It May Concern:

Cogstone Resource Management (Cogstone) is conducting a cultural resources assessment for the Hillcrest Drive Mixed-Use Project (Project) located on 8.21 acres within Assessor Parcel Numbers (APNs) 669-0-021-255 located at 195 E. Hillcrest Drive in the City of Thousand Oaks, Ventura County, California.

The Project proposes demolition an existing commercial office development and construction of an approximately 577,080 square foot mixed-use development with 297 residential units with a Density Bonus (Concessions and Waivers) providing 25 affordable units, approximately 11,207 square foot of commercial space, surface parking, one parking structure with 438 parking spaces, including grading, hardscaping, landscaping, as well as the encroachment and removal of various protected oak trees on an approximately 8.21-acre parcel.

We are contacting you because we would like to invite members of the Conejo Valley Historical Society and Stagecoach Inn Museum to provide input regarding the redevelopment of the Project area. We appreciate any information regarding the history of the Project area that you may have as well as any comments, issues, and/or concerns you may have relating to any known historic resources within the Project area. Please contact me at slopez@cogstone.com. Thank you for your attention to this matter.

Sincerely,

Shannon Lopez

Shannon Lopez, M.A.
Architectural Historian
slopez@cogstone.com

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Federal Certifications WOSB, EDWOSB, SDB
State Certifications DBE, WBE, UDBE

cogstone.com
Toll free (888) 333-3212

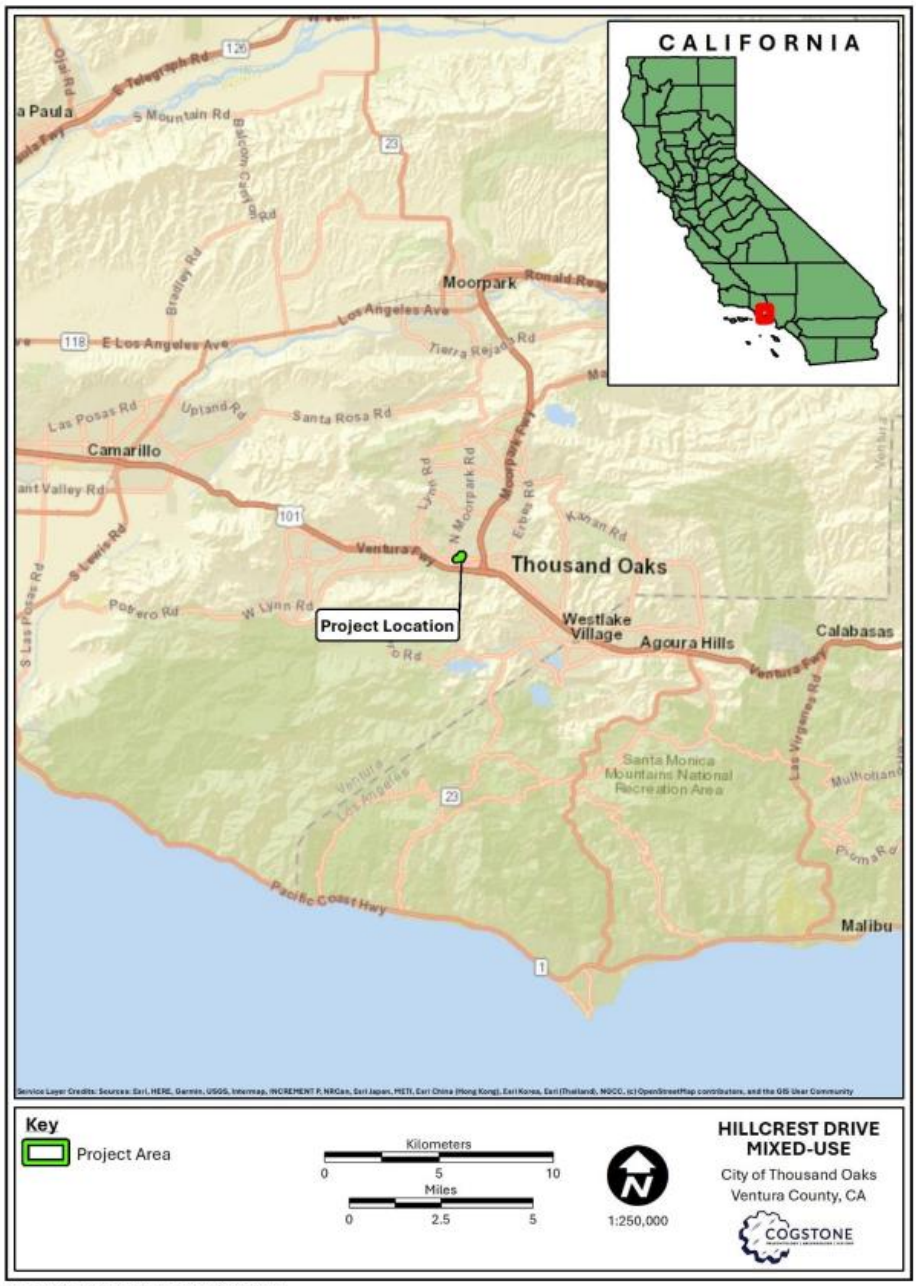


Figure 1. Project Vicinity Map

cogstone.com

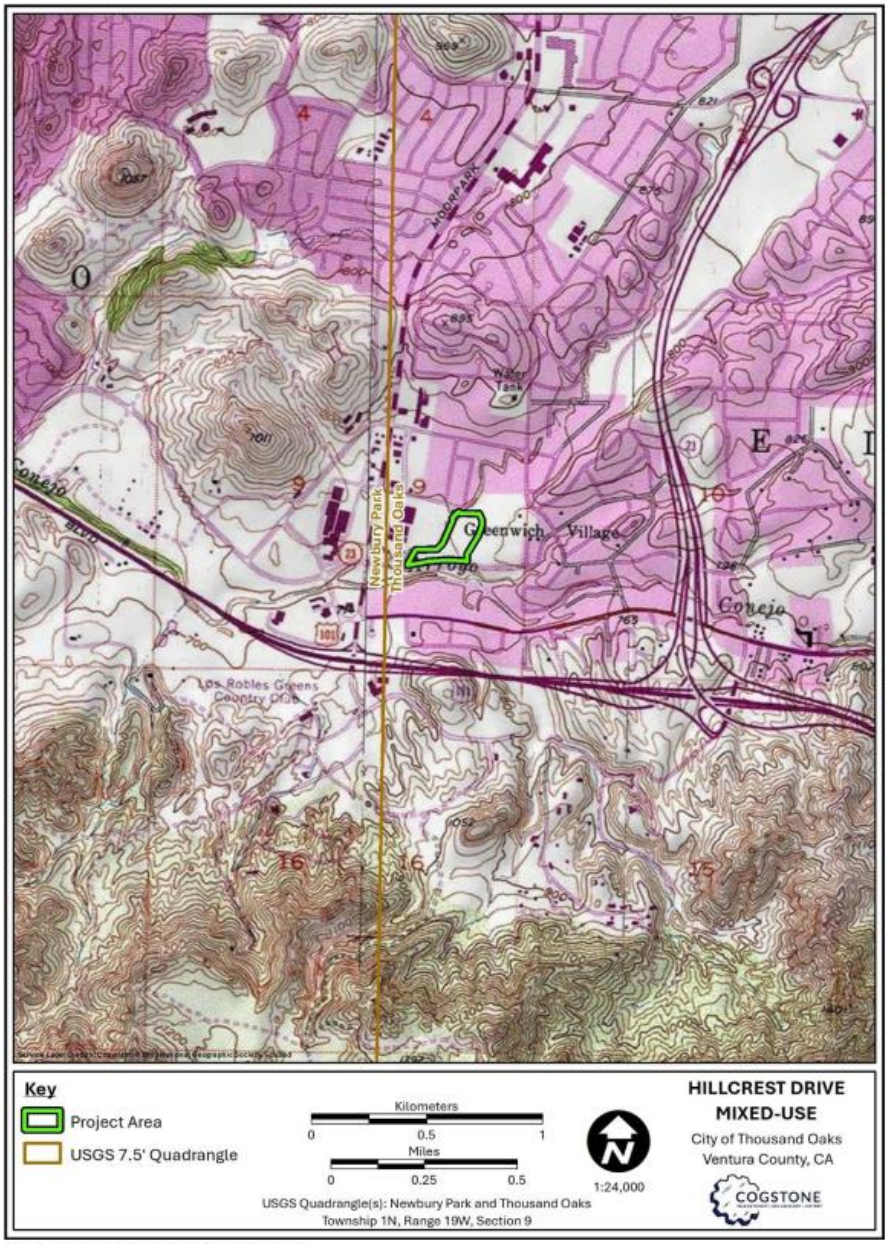


Figure 2. Project Location Map

cogstone.com

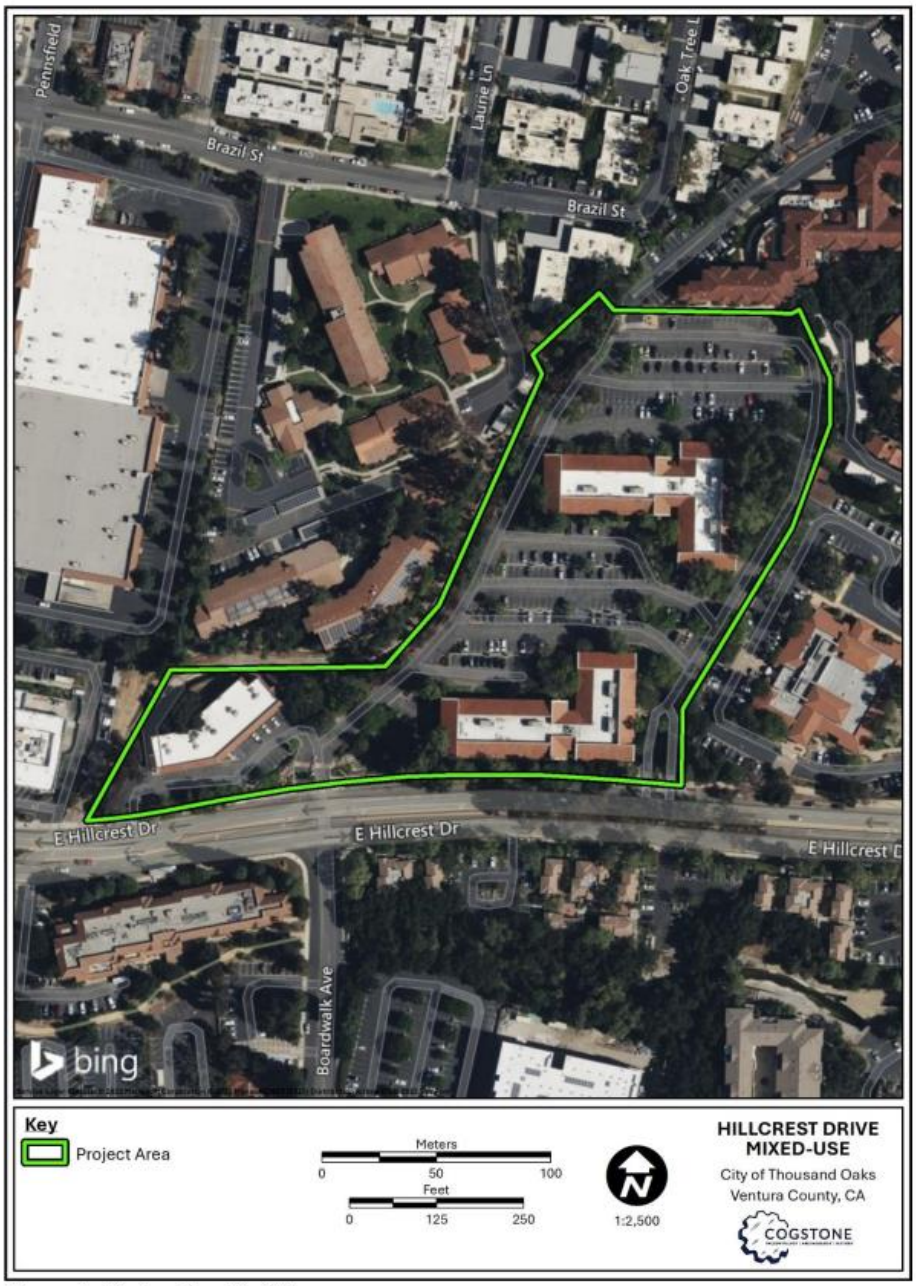


Figure 3. Project Aerial Map

cogstone.com

Outlook

RE: Request for Information

From Library <library@venturamuseum.org>
Date Tue 6/17/2025 10:24 AM
To Shannon Lopez <SLopez@cogstone.com>

Hi Shannon,

To my knowledge the Conejo Valley Historical Society/Stagecoach Inn Museum are the only historical society in the Thousand Oaks area. The Thousand Oaks Public Library does maintain a local history collection, so may be another good resource in your work. Other historical societies in nearby communities are the Simi Valley Historical Society/Strathearn Historical Park, and the Pleasant Valley Historical Society in Camarillo. Contact info is at the end of this email.

The Ventura County Historical Society transformed years ago to be the Docent Volunteer Council of the Museum of Ventura County. They are still very active and several members work as researchers in our Research Library.

If you have any research questions for me to pass along, I am happy to assign a researcher. We also offer appointments Wednesday thru Friday from 11am-5pm. Appointments can be made here: https://museumofventuracountytickets.as.me/RESEARCHLIBRARY

Our collections include ephemera, news clippings, maps, architectural drawings, and more that document the Thousand Oaks area. You can explore the indexes and finding aids for our collections here: https://venturamuseum.org/research-library-collections/

Simi Valley Hist. Soc./Strathearn: StrathearnPark@gmail.com or (805) 526-6453
Pleasant Valley Hist. Soc.: pvhmag@gmail.com or (805) 482-3660
Thousand Oaks PL, Local History Dept.: Ask-A-Librarian or (805) 449-2660, option 4.

Best,

MUSEUM of VENTURA COUNTY

Hannah Rogers (she/her)
Access Services Supervisor & Cataloger

Phone (805) 653-0323 ext. 320 | Website venturamuseum.org
Email hrogers@venturamuseum.org
Address 100 E. Main St., Ventura, CA 93001

I recognize I live and work on the traditional homeland of the Chumash people. I honor and extend my respect to the many Indigenous people who call these lands home. Please check https://native-land.ca to learn more about the land you reside on.

From: Shannon Lopez <SLopez@cogstone.com>
Sent: Monday, June 16, 2025 9:36 AM
To: Library <library@venturamuseum.org>
Subject: Request for Information

You don't often get email from slopez@cogstone.com. Learn why this is important

Good morning!

My name is Shannon Lopez and I am an architectural historian with Cogstone in the City of Orange. Cogstone is currently working on a cultural resource assessment for a project located in the City of Thousand Oaks. We are trying to locate appropriate historical societies which may have information regarding the Project area. I am reaching out to you to ask if the museum knows if the City of Thousand Oaks or Ventura County have active historical societies aside from the Conejo Valley Historical Society? We are having difficulty finding information regarding these groups.

Any help you can provide would be greatly appreciated! Thank you very much for your time.

All the best,
Shannon Lopez

Shannon Lopez, MA
Architectural Historian

Cogstone Resource Management
P.O. Box 7366, Orange, CA 92863
714-974-8300 office x 108
slopez@cogstone.com www.cogstone.com
Offices in Orange, Riverside, Morro Bay, Sacramento
Uncover the past. Build the future.

Firefox https://outlook.office365.com/mail/inbox/id/AAkALgAAAAAAHYQ...

Outlook

Re: 195 E. Hillcrest Drive

From Darlene Van Maanen <darvanmaanen@hotmail.com>
Date Mon 8/11/2025 1:02 PM
To Shannon Lopez <SLopez@cogstone.com>

Dear Ms. Lopez,
Thank you for notifying us of the proposed project located at 195 E. Hillcrest Drive in Thousand Oaks. The Board of Trustees are not aware of any archaeological or historic concerns that we have with the development/project.
Sincerely,
Darlene Van Maanen
Treasurer
Conejo Valley Historical Society
director@stagecoachinnmuseum.com

The love for all living creatures is the most noble attribute of man - Charles Darwin

1 of 1 8/11/2025, 1:06 PM

APPENDIX C. NATIVE AMERICAN CONSULTATION

Sacred Lands File & Native American Contacts List Request

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: Hillcrest Drive Mixed Use
County: Ventura

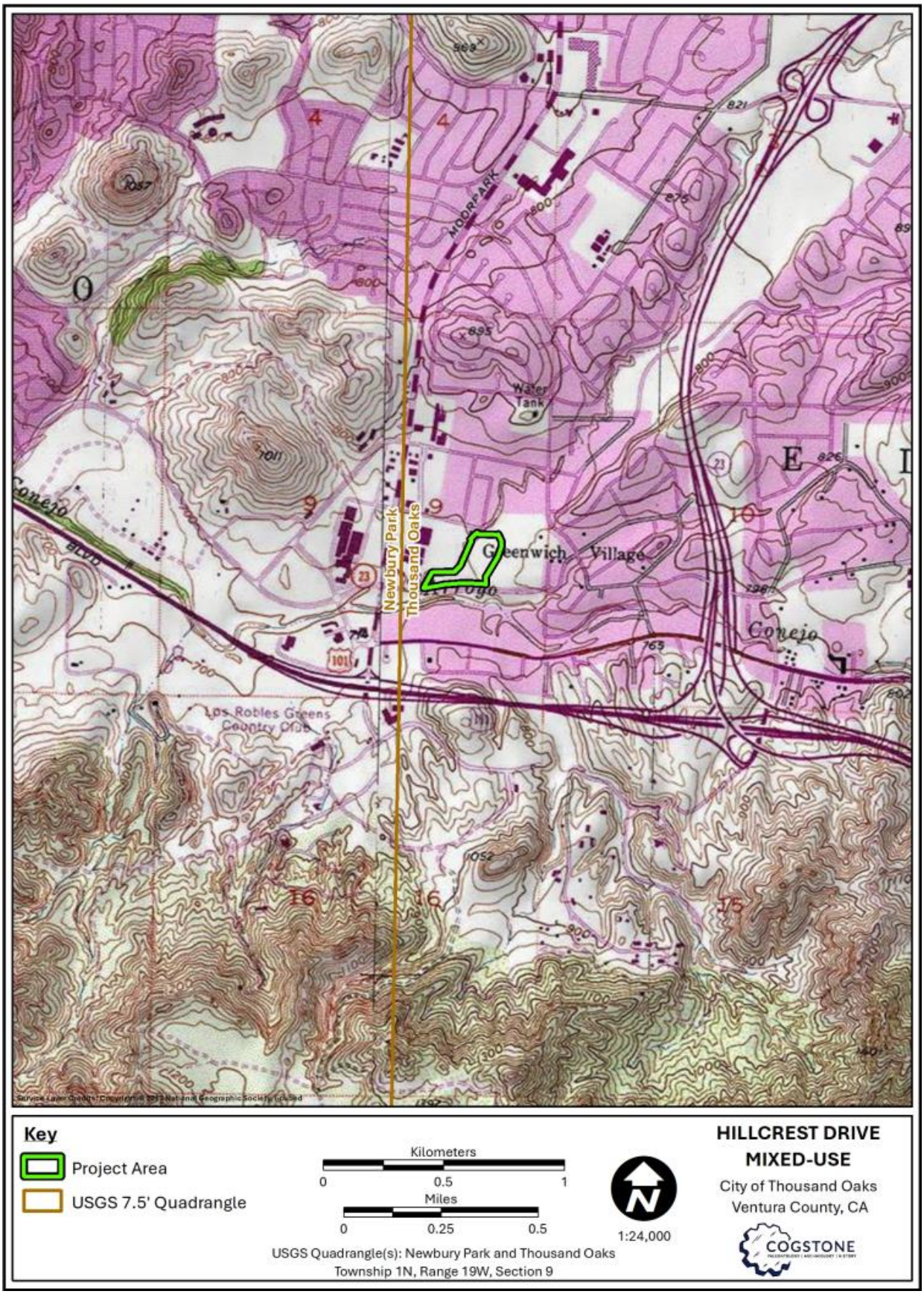
USGS Quadrangle
Name: Thousand Oaks
Township: 1N Range: 19W Section(s): 9

Company/Firm/Agency:
Cogstone Resource Management
Contact Person:
Street Address: 1518 W. Taft Avenue
City: Orange Zip: 92865
Phone: (714) 974-8300 Extension:
Fax: (714) 974-8303
Email: cogstoneconsult@cogstone.com

Project Description:
The Project proposes demolition an existing commercial office development and construction of an approximately 577,080 square foot mixed-use development with 297 residential units with a Density Bonus (Concessions and Waivers) providing 25 affordable units, approximately 11,207 square foot of commercial space, surface parking, one parking structure with 438 parking spaces, including grading, hardscaping, landscaping, as well as the encroachment and removal of various protected oak trees on an approximately 8.21-acre parcel.

☑ Project Location Map is attached

SLF&Contactsform: rev: 05/07/14


Newbury Park
Thousand Oaks
Greenwich Village
Conejo
Conejo BLVD
Water Tank
Los Robles Greens Country Club
MOORPARK
Key
Project Area
USGS 7.5' Quadrangle
Kilometers
0
0.5
1
Miles
0
0.25
0.5
1:24,000
USGS Quadrangle(s): Newbury Park and Thousand Oaks
Township 1N, Range 19W, Section 9
HILLCREST DRIVE
MIXED-USE
City of Thousand Oaks
Ventura County, CA
COGSTONE

STATE OF CALIFORNIA — Gavin Newsom, *Governor*

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Reginald Pagaling
Chumash

VICE-CHAIRPERSON
Buffy McQuillen
Yokaya Pomo, Yuki, Nomlaki

SECRETARY
Sara Dutschke
Miwok

PARLIAMENTARIAN
Wayne Nelson
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COMMISSIONER
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COMMISSIONER
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Kumeyaay

COMMISSIONER
Reid Milanovich
Cahuilla

COMMISSIONER
Bennae Calac
Pauma-Yuima Band of Luiseño Indians

COMMISSIONER
Vacant

ACTING EXECUTIVE SECRETARY
Steven Quinn

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov

June 9, 2025

Cogstone Resource Management

Via Email to: cogstoneconsult@cogstone.com

Re: Hillcrest Drive Mixed Use Project, Ventura County

To Whom It May Concern:

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 me. 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 Mathew.lin@nahc.ca.gov.

Sincerely,

Mathew Lin

Mathew Lin, MPP
Cultural Resources Analyst

Attachment

City of Thousand Oaks
Community Development Department
2100 Thousand Oaks Boulevard • Thousand Oaks, CA 91362
Phone 805/449.2500 • Fax 805/449.2575 • www.toaks.org

December 18, 2025

Barbareno/Ventureno Band of Mission Indians
Cultural Resource Department
c/o BVBMI Chair Vestuto
PO Box 364
Ojai, CA, 93024
Via email: cr@bvbmi.com

RE: Assembly Bill 52 Tribal Consultation – 195 E. Hillcrest Drive, Mixed-Use Development

Dear Chair Vestuto:

This letter is to inform you that the City of Thousand Oaks (City) has determined that a project application has been submitted for a proposed horizontal mixed-use development (Project) and is preparing a Environmental Impact Report (EIR) Addendum to the 2045 General Plan Update EIR, in accordance with the California Environmental Quality Act (CEQA). An Addendum will be prepared for the Project to determine that, with the inclusion of recommended mitigation measures contained in the 2045 General Plan Update EIR (EIR No. 2022060087), the Project will not result in new significant impacts nor substantially increase the severity of previously disclosed impacts beyond those already identified in EIR No. 2022060087.

The Project site is located in the southwest portion of the City of Thousand Oaks north of U.S. Route 101 ("101 Freeway") and west of State Route 23 (see Figures 1 and 2). The project site is bounded by a senior living facility to the north, East Hillcrest Drive to the south, residential and medical office uses to the east, and the Lang Creek concrete drainage channel to the west and residential uses beyond. To the south and across East Hillcrest Drive is an existing senior living facility and multifamily residential uses.

The Project consists of the demolition of an existing commercial office development to construct a new mixed-use development consisting of 297 residential units, with associated 5 level parking garage, public common open space, private open space, roof decks, and refurbishing a 10,184 square foot stand-alone commercial building, including grading, hardscape, and landscape on a 8.21-acre property.

Pursuant to Public Resources Code (PRC) Section 21080.3.1(b), you have 30 days from the receipt of this letter to request Assembly Bill 52 consultation, in writing, with the City of Thousand Oaks Community Development Department. The goal of the AB 52 Consultation is for lead agencies to consult with California Native American Tribes to identify Tribal Cultural Resources, as defined in PRC Section 21074, and if such resources are identified, to work with tribes to identify mitigation measures capable of avoiding or substantially lessening potential significant impacts to those identified resources, in accordance with PRC Section 21080.3.2.

Your tribe's input is important to the City's planning process. We request that you advise us as early as possible if you wish to consult on the proposed project.

If you require any additional information or have any questions, please contact me at 805-449-2317 or via e-mail at ccontreras@toaks.org. Thank you for your assistance.

Sincerely,



Carlos Contreras
Senior Planner
City of Thousand Oaks Community Development Department

Enclosure: Project Location Map

Figure 1 - Project Location Map

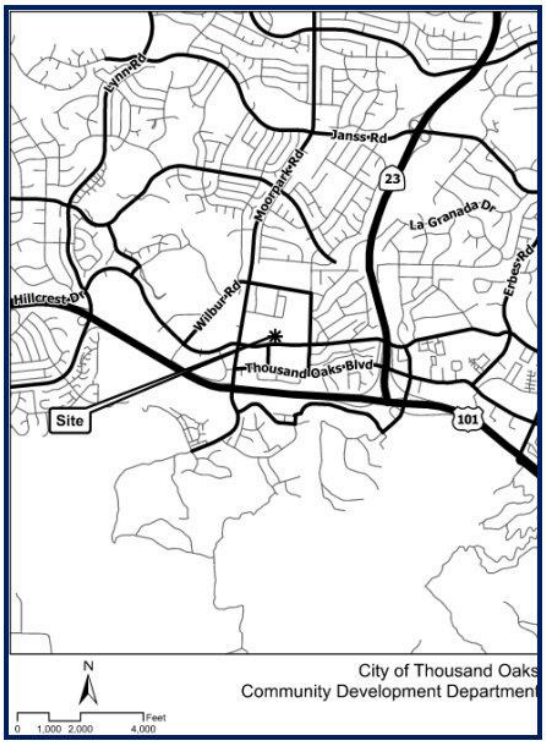
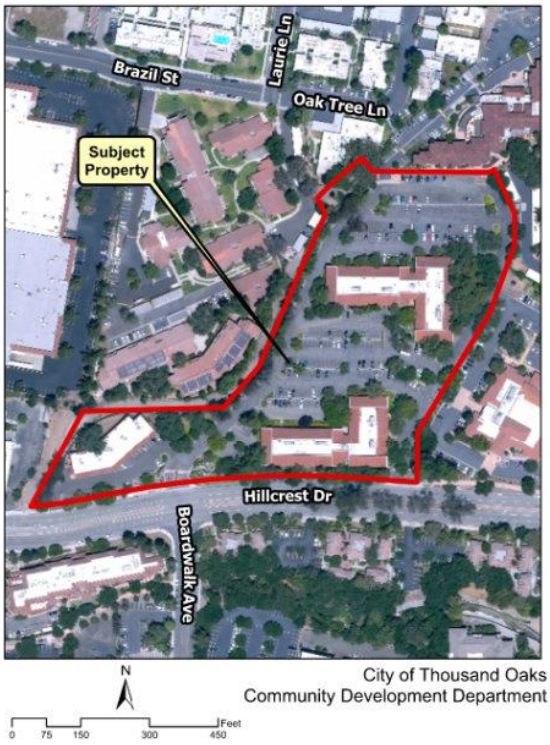


Figure 2 – Project Site Map



Appendix F

Geotechnical Report

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

October 25, 2024
File Number 22549

TC LA MF Development, Inc.
2221 Rosecrans Avenue, Suite 200
El Segundo, California 90045

Attention: Andrew Parker

Subject: Preliminary Geotechnical Engineering Investigation
Proposed Mixed-Family Residential Development
195, 275, and 325 East Hillcrest Drive, Thousand Oaks, California

Dear Mr. Parker:

This letter transmits the Preliminary Geotechnical Engineering Investigation for the Project Site prepared by Geotechnologies, Inc. This report provides preliminary geotechnical recommendations for the development of the Project Site, including earthwork, seismic design, retaining walls, temporary excavations, shoring, and foundation design. Engineering for the proposed project should not begin until approval of the geotechnical investigation is granted by the local building official. Significant changes in the geotechnical recommendations may result due to the building department review process.

This report is preliminary in nature due to the conceptual nature of the Project and the limited explorations performed as part of the current scope. This report is therefore not intended for submission for building permit purposes. A comprehensive geotechnical report for design development should be prepared when the proposed development plan achieves more definition and additional explorations are performed for a thorough investigation of the Project Site.

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

Should you have any questions please contact this office.

Respectfully submitted,
GEOTECHNOLOGIES, INC.





VASILY DUNAEV
R.C.E. 94931

STANLEY S. TANG
R.C.E. 56178

VD/SST:km

Email to: [AParker@trammellcrow.com]

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Geologic and Soil Engineering Investigation (Work Order 852-1-12, Log No. 5862)
Report on Controlled Grading (Work Order 852-1-20, Log No. 7140)

PRELIMINARY GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED MIXED-FAMILY RESIDENTIAL DEVELOPMENT
195, 275, AND 325 EAST HILLCREST DRIVE
THOUSAND OAKS, CALIFORNIA

INTRODUCTION

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

This report is preliminary in nature due to the conceptual nature of the Project and the limited explorations performed as part of the current scope. This report is therefore not intended for submission for building permit purposes. A comprehensive geotechnical report for design development should be prepared when the proposed development plan achieves more definition and additional explorations are performed for a thorough investigation of the Project Site.

This limited investigation included excavation of two exploratory borings, collection of representative samples, laboratory testing, engineering analysis, review of published geologic data, review of available geotechnical engineering information and the preparation of this report. The exploratory boring locations are shown on the enclosed Site Plan and Plot Plan. The results of the exploration and the laboratory testing are presented in the Enclosures of this report.

PROPOSED DEVELOPMENT

Preliminary design information concerning the proposed development was obtained by review of conceptual design package by AC Martin dated June 19, 2024. The proposed development consists of a 4 to 5-story multi-family residential building and an associated 5-story parking structure with rooftop parking. Due to gently sloping nature of the Project Site, the proposed ground floor level

of the buildings will be terraced with partial subterranean levels. The location of the proposed development is shown on the enclosed Plot Plan.

Column loads are estimated to be between 500 and 1,000 kips. Wall loads are estimated to be between 5 and 10 kips per lineal foot. Grading will consist of removal and recompaction of existing unsuitable soils.

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

SITE CONDITIONS

The Project Site is located at 195, 275, and 325 E. Hillcrest Drive, in the City of Thousand Oaks, California. The site is bounded by 1 to 3-story residential, commercial, and medical office buildings to the north and east, by East Hillcrest Drive to the south, and an open concrete-lined channel (formerly known as Lang Creek) along the west property line.

The area of the Project Site is approximately 8.2 acres. The site is currently developed with three 1-2 story at-grade office buildings (formerly known as Buildings A, B, and C) and associated asphalt paved parking lots. According to the prior geotechnical reports (see Research Section below), prepared by Gorian and Associates, Inc. (GAI), the existing buildings are supported on conventional foundations bearing in certified fill pads. The site is shown relative to nearby topographic features in the enclosed Vicinity Map.

Based on review of referenced conceptual design package, it is anticipated that two of the existing office buildings (aka Buildings B and C) will be demolished prior to the beginning of construction of proposed development. The office building (aka Building A) located at the southwestern portion

of the Project Site will remain in place. The locations of the existing buildings and limits of the Project Site are shown in the enclosed Site Plan.

The topography of the site slopes downward gently towards the west. Based on review of the ALTA Survey Plan by Psomas dated March 22, 2016, several easements traverse below the existing driveways along the east and west of the Project Site. Vegetation on the site consists of isolated trees, shrubs, and grasses located in isolated planter areas. Drainage across the site within the parking lots appears to be by sheetflow to the local area drains and city streets. The surrounding developments predominantly consist of residential and commercial structures.

RESEARCH

The Project Site was previously explored by Gorian and Associates, Inc (GAI). The following geotechnical reports were provided by the client and reviewed by this firm:

- Potential for Soil Liquefaction, Proposed Thousand Oaks Financial Plaza, Hodencamp Road and Hillcrest Lane, City of Thousand Oaks, Work Order 852-1-11, Log No. 5089, dated November 3, 1978;
- Geologic and Soil Engineering Investigation, Proposed Thousand Oaks Financial Plaza, Hodencamp Road and Hillcrest Lane, City of Thousand Oaks, Work Order 852-1-12, Log No. 5862, dated October 4, 1979;
- Report on Controlled Grading, Proposed Thousand Oaks Financial Plaza, Hodencamp Road and Hillcrest Drive, City of Thousand Oaks, Work Order 852-1-20, Log No. 7140, dated September 13, 1981.

The GAI report, dated November 3, 1978, included one exploratory boring (B1), which was drilled to the depth of 21½ feet with a bucket-auger typed drill rig, for evaluation of liquefaction potential. The location of the boring B1 was located between the concrete-lined channel and Hillcrest Lane near the southwest corner of the Project Site. Based on the GAI findings, the bedrock was encountered at a depth of 18½ feet. No groundwater was encountered in boring B1 which was excavated to a maximum depth of 21½ feet. No caving was observed in the exploration by GAI. The referenced report concluded that liquefaction potential of the site soils was negligible due to

absence of shallow groundwater, compact to dense nature of the underlying Older Alluvium with significant amount of clay, and underlying Modelo Formation Bedrock.

The GAI report, dated October 4, 1979, included 12 exploratory borings ranging in depth from 11 to 21 feet, and four exploratory backhoe trenches ranging in depth from 7 to 13 feet. A partial plot plan for this report, was obtained from GAI, showing that 4 of the exploratory borings (B4, B5, B6, and B9) are located within the limits of the Project Site. Based on the findings by GAI, the Project Site is underlain by fill, Older Alluvium, and Modelo Formation Bedrock. Up to 2 feet of fill materials were encountered in the exploratory borings by GAI. The fill materials were underlain by Older Alluvium extending to depths ranging from 2 to 21 feet. The Older Alluvium was underlain by Modelo Formation bedrock, which was white to light gray in color, very moist, very weathered, or fractured but well laminated. The bedding of bedrock was generally to the north at 10-to-35-degree angles. Bedrock was encountered at depths between 9½ and 18 feet below the Project Site, except for Boring B6 which was excavated to a depth of 16 feet and did not encounter bedrock. No groundwater was encountered in the GAI borings with the exception to Boring 4, which encountered water seepage at 20½ feet. The locations of five exploratory borings (B1, B4, B5, B6, and B9) by GA are shown on the enclosed Site Plan and Plot Plan.

Based on Report of Controlled Grading dated September 13, 1981, compacted fill pads were created for the three existing buildings (Buildings A, B, and C). The existing fill materials were compacted to a minimum of 90% relative compaction. The compacted fill soils were found to be moderately expansive. The compacted fill pads for the existing buildings were observed and tested by a representative of GA and were certified by GA on September 13, 1981. The limits of existing fill pads are shown in the Compaction Test Location Map of the referenced Report on Controlled Grading. The maximum depth of fill placed during grading was approximately 6 feet, located west of building A.

GEOTECHNICAL EXPLORATION

FIELD EXPLORATION

The Project Site was explored on September 19, 2024, by drilling two exploratory borings. The exploratory borings varied in depth from 30 to 40 feet below the existing grade and were excavated with the aid of a truck-mounted drilling machine using 8-inch diameter hollowstem augers. Samples were taken at regular intervals using an automatic hammer, consisting of a 140-pound weight dropped from a height of 30 inches. The exploratory boring locations are shown on the enclosed Site Plan and Plot Plan, and the geologic materials encountered are logged on Plates A-1 through A-2.

The location of exploratory borings was determined by information furnished by the client. The location of the exploratory borings should be considered accurate only to the degree implied by the method used.

Geologic Materials

Fill materials were encountered in the explorations performed by this firm, to depths ranging from 3 to 5 feet below the existing site grade. Fill materials consist of silty sand and sandy silt, which are dark brown in color, moist, medium dense to very dense, stiff to very stiff, fine grained.

Older Alluvium was encountered below the existing fill materials. The Older Alluvium consists of silty sand, sand, sandy silt, and silty clay, which are dark and yellowish brown in color, moist to wet, medium dense to very dense, fine to medium grained, stiff to very stiff, with minor bedrock fragments.

The Modelo Formation Bedrock underlies the Old Alluvium. The bedrock consists of siltstone, which is light and yellowish gray to dark gray in color, moist to very moist, moderately hand to

hard, weathered. The depths to bedrock encountered in exploratory borings ranges from 10 to 22 feet.

Groundwater

Seepage of groundwater was encountered at depths ranging from 20 to 24½ feet below existing site grade during explorations performed by this firm. The historically high groundwater level was established by review of California Geological Survey Seismic Hazard Zone Report 042, Plate 1.2 entitled "Historically Highest Ground Water Contours". Review of this plate indicates that the historically highest groundwater level is on the order of 10 feet below the existing site grade.

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

Caving

Caving could not be directly observed during exploration due to the type of excavation equipment utilized. Based on the experience of this firm, large diameter excavations, excavations that encounter granular, cohesionless soils and excavations below the groundwater table will most likely experience caving.

SEISMIC EVALUATION

REGIONAL GEOLOGIC SETTING

The Project Site is located in the Transverse Ranges Geomorphic Province. The Transverse Ranges are characterized by roughly east-west trending mountains and the northern and southern boundaries are formed by reverse fault scarps. The convergent deformational features of the

Transverse Ranges are a result of north-south shortening due to plate tectonics. This has resulted in local folding and uplift of the mountains along with the propagation of thrust faults (including blind thrusts). The intervening valleys have been filled with sediments derived from the bordering mountains.

REGIONAL FAULTING

Based on criteria established by the California Division of Mines and Geology (CDMG) now called California Geologic Survey (CGS), Faults may be categorized as Holocene-active, Pre-Holocene faults, and Age-undetermined faults. Holocene-active faults are those which show evidence of surface displacement within the last 11,700 years. Pre-Holocene faults are those that have not moved in the past 11,700 years. Age-undetermined faults are faults where the recency of fault movement has not been determined.

These Holocene-active faults represent most of the earthquake hazard. Faults that have ruptured to the ground surface during the Holocene epoch are considered “active” and are included in Alquist-Priolo Earthquake Fault Zones. There are several other definitions of activity, used for other purposes, such as the siting and design of large dams, power plants and other facilities. Another commonly used designation is for faults that have offset geologic units from the Quaternary period (the last 1,800,000 years). Faults that offset Quaternary units are sometimes called “potentially active.”

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

magnitude is not well established. Therefore, the potential for surface rupture on these surface-verging splays at magnitudes higher than 6.0 cannot be precluded.

SEISMIC HAZARDS AND DESIGN CONSIDERATIONS

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

Surface Rupture

In 1972, the Alquist-Priolo Special Studies Zones Act (now known as the Alquist-Priolo Earthquake Fault Zoning Act) was passed into law. As revised in 2018, The Act defines "Holocene-active" Faults utilizing the same aging criteria as that used by California Geological Survey (CGS). However, established state policy has been to zone only those faults which have direct evidence of movement within the last 11,700 years. It is this recency of fault movement that the CGS considers as a characteristic for faults that have a relatively high potential for ground rupture in the future.

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

Ground rupture is defined as surface displacement which occurs along the surface trace of the causative fault during an earthquake. Based on research of available literature, no known Holocene-active faults underlie the Project Site.

Sycamore Canyon Fault

Based on review of the Fault Activity Map website which is maintained by CGS (https://maps.conservation.ca.gov/cgs/fam/) and the Fault Location Map from the County View of Ventura County website (https://maps.ventura.org/countyview/), the Sycamore Canyon Fault is projected to traverse through the Project Site in the northeasterly direction.

The Sycamore Canyon Fault and the Boney Mountain Fault form a series of north-east rending segments, extending from the Pacific Ocean near Mugu Lagoon, through the Santa Monica Mountains to Newbury Park, and continues further into Thousand Oaks. The Sycamore Canyon Fault is identified as a quaternary potentially active fault, which may have activities within the last 1.8 million years.

The official CGS Fault Activity Map shows the fault crossing through the Project Site as a dashed line, indicating that the fault location is projected from bedrock terrain and mapped between bedrock ridges to the north. The precise location of the fault is uncertain and can only be inferred due to the prevalence of recent younger alluvial deposits overlying the Project Site and its surroundings. There is no map scale evidence for deformation of younger deposits.

The Seismic Hazard Zone Report for the Point Mugu 7.5-Minute Quadrangle, Ventura County, California (CGS SHZR 057, 2002), states that the Sycamore Fault and the Boney Mountain Fault displace Miocene rocks but are not known to be seismically active or to have Quaternary displacement.

The Sycamore Fault is not zoned as an active fault and is not classified by CGS as a part of an Alquist-Priolo Earthquake Fault Zone. According to the CGS Earthquake Fault Zone Map, the Project Site is not located within an Alquist-Priolo Earthquake Fault Zone requiring a fault rupture study. Additionally, Figure 7-2 (Hazards Protection Map Southern Half) of the Hazards and Safety element of the Ventura County 2040 General Plan (September 2020) does not show any county

designated Fault Hazard Area surrounding the Sycamore Canyon Fault. The Hazards Appendix of the Ventura County General Plan (October 2013) also states that the surface evidence of displacement of sedimentary and volcanic rocks of Miocene age indicates that the Sycamore Canyon Fault and the Boney Mountain Fault have been active after the formation of these rocks. However, rocks younger than Miocene age are not known to have been displaced by the faults.

The City of Thousand Oaks General Plan 2045, which was officially adopted on December 5, 2023, states that no active faults have been mapped with the City limits. The City of Thousand Oaks recognizes that both the Boney Mountain and Sycamore Canyon Faults traverse through part of the City, but they are considered to be inactive. Inactive faults are geologic structures that can be identified but cannot cause an earthquake due to lack of evidence of recent seismic activity.

GAI stated in the referenced geotechnical report that a trace of the Boney Mountain Fault projected underlying through a portion of the Project Site by the then California Division of Mines and Geology (currently known as CGS). However, the fault tract is conjectural only, possibly by the linear appearance of the south-easterly edge of the flood plain of Lang Creek. The fault is not well defined in older sediments or in volcanic bedrock exposed at each of the suspected trace, and no physiographic features (such as fault scarps) were recognized in the competent rock units. GAI referenced a letter issued by F. Beach Leighton to the City of Thousand Oaks (dated October 28, 1975) stating that the Fault is considered to be inactive. Due to the conjectural nature of the fault and its probable inactivity, GAI concluded that the fault rupture impact is remote and not significant to the development of the Project Site.

Based on these considerations, it is the opinion of this firm that fault rupture affecting the Project Site is considered to be low.

Liquefaction

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

The Earthquake Zones of Required Investigation Map (CGS, 2016) classifies the site as part of the potentially "Liquefiable" area. This determination is based on groundwater depth records, soil type and distance to a fault capable of producing a substantial earthquake.

A site-specific liquefaction analysis was performed following Guidelines for Evaluating and Mitigating Seismic Hazard in California Special Publication 117A (SP 117A, CGS, 2008). In addition, recommendations provided in EERI Monograph (MNO-12) (Idriss and Boulanger, 2008) were also incorporated into the analysis.

Groundwater was encountered at depths ranging from 20 to 24½ feet below existing site grade. Based on review of California Geological Survey Seismic Hazard Zone Report of the Thousand Oaks Quadrangle (CDMG, 2000, revised 2006), the historically highest groundwater level is on the order of 10 feet below grade. The historically highest groundwater level was conservatively utilized for the enclosed liquefaction analysis.

The ASCE 7 Hazard Tool (https://asce7hazardtool.online/) yields the adjusted peak ground acceleration (PGA_M) of 0.56 g. The USGS Probabilistic Seismic Hazard Analysis Deaggregation program (USGS, 2014) was utilized to determine the magnitude (M_W) of the 7.5 for the Project Site. These parameters were used for the enclosed liquefaction analysis.

The enclosed Liquefaction Potential Analysis is based on the Standard Penetration Test (SPT) blowcounts recorded from exploratory boring B1. The SPT blowcounts were recorded at 5-foot intervals. Samples of the collected materials were conveyed to the laboratory for testing and analysis. The percentage passing a Number 200 sieve, Atterberg Limits, and the Plasticity Index (PI) of representative samples of the soils are presented on the enclosed Plates E and F.

Based on SP 117A, the vast majority of liquefaction hazards are associated with sandy soils and silty soils of low plasticity. Furthermore, cohesive soils with PI between 7 and 12 and moisture content greater than 85 percent of the liquid limit are susceptible to liquefaction.

The procedure presented in the SP 117A guidelines was followed for the analysis of the liquefaction potential of the Project Site. The SP 117A guidelines were developed based on a paper titled, "Assessment of the Liquefaction Susceptibility of Fine-Grained Soils", by Bray and Sancio (2006). According to the SP117A, soils having a Plastic Index greater than 18 exhibit clay-like behavior, and the liquefaction potential of these soils are considered to be low. Therefore, where the results of Atterberg Limits testing showed a Plastic Index greater than 18, the soils would be considered non-liquefiable, and the analysis of these soil layers was turned off in the liquefaction susceptibility column.

Based on the collected field SPT data and laboratory testing of soils, the enclosed site-specific liquefaction analysis indicates that the underlying site soils would not be capable of liquefaction during a major seismic event. Additionally, bedrock was encountered at depths between 10 and 22 feet below the existing site grade. By nature, the bedrock is non-liquefiable. Therefore, the liquefaction potential occurring at the Project Site is considered to be remote.

Dynamic Dry Settlement

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

settlements are differential in nature across the length of structures. Some seismically-induced settlement of the proposed structures should be expected as a result of strong ground-shaking, however, excessive differential settlements are not expected to occur.

Tsunamis, Seiches, and Flooding

Tsunamis are large ocean waves generated by sudden water displacement caused by a submarine earthquake, landslide, or volcanic eruption. The site is far enough from the Pacific Ocean that the risk of a tsunami is considered negligible.

Seiches are oscillations generated in enclosed bodies of water which can be caused by ground shaking associated with an earthquake. No major water-retaining structures are located immediately up gradient from the project site. Therefore, the risk of flooding from a seismically-induced seiche is considered to be remote.

Review of the Dam Breach Inundation Map by California Department of Water Resources (https://fmds.water.ca.gov/webgis/?appid=dam_prototype_v2) indicates the site lies within the inundation boundaries of the Lang Creek Detention Basin.

Review of the applicable Flood Insurance Rate Map indicates that the western portion of site is located within Special Flood Hazard Area with base flood elevations ranging from 729 to 736 feet. A determination of whether a higher site elevation would remove the site from the potential inundation zones is beyond the scope of this investigation.

Landsliding

Based on review of the Earthquake Zones of Required Investigation (CGS, 2016), the site is not located within a Seismically Induced Landslide Zone. The probability of seismically-induced landslides occurring on the site is considered to be negligible due to the general lack of substantive

elevation difference across or adjacent to the site. Therefore, potential impacts related to landsliding would be less than significant.

OTHER GEOLOGICAL CONSIDERATIONS

Regional Subsidence

The site is not located within a zone of known subsidence due to oil or other fluid withdrawal. The Project Site is underlain by Older Alluvium and bedrock of the Modelo Formation. Therefore, the potential for subsidence is considered to be remote.

Oil Fields and Oil Wells

Based on review of the Well Finder online mapping application by California Geologic Energy Management Division (https://maps.conservation.ca.gov/calGEM/wellfinder/v2/), the site is not located within the limits of an oil field. No evidence of an oil or gas well has been drilled within the site.

Ground Failure

The proposed construction is not anticipated to cause or increase the potential for any seismic related ground failure on the project site or adjacent sites. Based on available research, the Sycamore Canyon Fault passes through the central portion of the site from northeast to southwest. According to the USGS website, the Sycamore Canyon Fault is a potentially active quaternary fault.

Based on review of the Earthquake Zones of Required Investigation (CGS, 2016), the site is not located within an Earthquake Fault Zone, or a Seismically Induced Landslide Zone. The proposed structure will be designed in accordance with the Ventura County Building Code and will mitigate the potential effects of ground failure, if any.

Collapsible Soil or Hydroconsolidation

Hydroconsolidation is a phenomena in which the underlying soils collapse when wetted. Hydroconsolidation could potentially result in significant foundation movements, over a long period of time of wetting.

The underlying native soils consist of Older Alluvium which are generally dense and stiff. Additionally, bedrock was encountered at depths between 10 and 22 feet below the existing site grade. Soil samples collected from the underlying native soils are subject to negligible degree of hydroconsolidation strains, less than 0.1 percent. Based on the laboratory testing results, the potential for damaging settlement due to hydrocollapse is anticipated to be insignificant.

The property owner shall maintain proper drainage of the subject site throughout the life of the structure. All utility and irrigation lines, and drainage devices should be checked periodically and maintained. In addition, landscape irrigation should be properly controlled, in order to reduce the amount of water infiltration into the underlying soils, which provide support to the proposed structure. The Site Drainage section below should be followed and implemented into the final construction documents.

Erosion

The project would not result in substantial off site soil erosion or the loss of topsoil due to the paved nature of the surrounding sites, and the lack of elevation difference slope geometry across or adjacent to the site. In addition, earthwork activities associated with the grading and export of

soil would occur in accordance with the city requirements as specified in the Ventura County Building Code and through the grading plan review and approval process. Grading and erosion control measures would be implemented during site grading to reduce erosion impacts as part of the regulatory requirements.

Landform Alterations

There are no significant hills, canyons, ravines, outcrops or other geologic or topographic features on the site. Therefore, any proposed project would not adversely affect any prominent geologic or topographic features

CONCLUSIONS AND RECOMMENDATIONS

Based upon the exploration, laboratory testing, and research, it is the preliminary finding of Geotechnologies, Inc. that construction of the proposed mixed-family residential development is considered feasible from a geotechnical engineering standpoint provided the advice and recommendations presented herein are followed and implemented during construction.

This report is preliminary in nature due to the conceptual nature of the Project and the limited explorations performed as part of the current scope. This report is therefore not intended for submission for building permit purposes. A comprehensive geotechnical report for design development should be prepared when the proposed development plan achieves more definition and additional explorations are performed for a thorough investigation of the Project Site.

Up to 5 feet of existing fill material were encountered during site exploration. Due to the varying nature and depths of the existing fill across the Project Site, it is recommended that all existing fill materials and any fill generated during demolition be removed and recompacted as controlled fill prior to foundation excavation or wasted from the site.The proposed compacted fill pad shall extend to a minimum depth of 5 feet below proposed subgrade, or 3 feet below proposed

foundations, whichever is greater. In addition, the compacted fill should extend horizontally a minimum of 3 feet beyond the edge of foundations or for a distance equal to the depth of fill below foundations, whichever is greater.

Bedrock was encountered at depths between 10 and 22 feet below the existing site grade. By nature, bedrock is considered to be relatively impermeable. Therefore, onsite stormwater infiltration is considered to be infeasible due to the impermeable nature of the underlying bedrock and the potential for creating perched groundwater conditions above the bedrock.

It should be noted that the western portion of site is located within Special Flood Hazard Area with base flood elevations ranging from 729 to 736 feet. A determination of whether a higher site elevation would remove the site from the potential inundation zones is beyond the scope of this investigation. The base flood elevation shall be taken into consideration in the overall site grading and design of the Project.

The validity of the conclusions and design recommendations presented herein is dependent upon review of the geotechnical aspects of the proposed construction by this firm. The subsurface conditions described herein have been projected from borings on the site as indicated and should in no way be construed to reflect any variations which may occur between these borings, or which may result from changes in subsurface conditions. Once the project design achieves more definition, the proposed development plans shall be provided to this firm for review. Any changes in the design, as outlined in this report, shall be reviewed by this office. The recommendations contained herein should not be considered valid until reviewed and modified or reaffirmed subsequent to such review.

SEISMIC DESIGN CONSIDERATIONS

2022 California Building Code Seismic Parameters

Preliminary, the Project Site may be classified as Site Class D ("Stiff Soil" Profile), in accordance with Table 20.3-1 of ASCE 7-16 Standard. This information and the site coordinates were input into the ASCE Hazard Tool (https://ascehazardtool.org/) in order to calculate ground motion parameters for the site for preliminary design purposes.

2022 CALIFORNIA BUILDING CODE SEISMIC PARAMETERS	
California Building Code	2022
ASCE Design Standard	7-16
Risk Category	II
Site Class	D
Mapped Spectral Acceleration at Short Periods (S_S)	1.466g
Site Coefficient (F_a)	1.0
Maximum Considered Earthquake Spectral Response for Short Periods (S_{MS})	1.466g
Five-Percent Damped Design Spectral Response Acceleration at Short Periods (S_{DS})	0.977g
Mapped Spectral Acceleration at One-Second Period (S_1)	0.526g
Site Coefficient (F_v)	1.7*
Maximum Considered Earthquake Spectral Response for One-Second Period (S_{M1})	0.894g*
Five-Percent Damped Design Spectral Response Acceleration for One-Second Period (S_{D1})	0.596g*

** These values are determined based on the tabulated values shown on ASCE 7-16, Table 11.4-2 for the Long-Period Site Coefficient, F_v. It should be noted that the exception to performing a site-specific hazard analysis for structures on Site Class D for values of S_1 greater than or equal to 0.2 presented by ASCE 7-16 may be followed, provided the conditions outlined in the ASCE 7-16 Section 11.4.8 (including Supplement 3 of the ASCE 7 Standards) are implemented in the structural design and analyses. This exception recommends that, where a site-specific ground motion hazard analysis is not required, the S_{M1} determined by eq. (11.4-2) is increased by 50% for all applications of S_{M1} in this standard. The resulting value of the parameter S_{D1} determined by Eq. (11.4-4) shall be used for all applications of S_{D1} in this standard. This would require that the S_{M1} and S_{D1} values provided in the above table are increased by 50%.*

FILL SOILS

The maximum depth of fill encountered in the field explorations was 5 feet. The existing fill materials are not suitable for the support of the proposed foundations. All existing fill materials and any fill generated during demolition should be removed and recompacted as controlled fill prior to foundation excavation or be wasted from the site.

EXPANSIVE SOILS

The onsite soils were found to be in the very low to moderate expansion range with expansion index ranging between 10 to 68 for in-situ samples and bulk samples remolded to 90 percent of the laboratory maximum density. Recommended reinforcing is noted in the "Foundation Design" and "Slabs-On-Grade" sections of this report.

SOIL CORROSION POTENTIAL

The results of soil corrosion potential testing performed by HDR Engineering, Inc. indicate that the electrical resistivities of the soils were in the mildly corrosive and moderately corrosive categories in the as-received moisture content. When saturated the resistivity was in the severely to moderately corrosive category. The soil pH values of the sample were found to be between 7.2 and 7.8, which corresponds to neutral to mildly alkaline conditions. The soluble sault content ranged from low to very high. Ammonium was not detected. Nitrate was detected in low concentrations that were high enough to be aggressive to copper.

In summary, the soils are classified as severely corrosive to ferrous metals, severe (S2) for sulfate attack on concrete, and aggressive with respect to exposure of reinforcing steel to the migration of chloride. Due to the severe sulfate concentration (S2), the use of Type V cement with a maximum water-cement ratio of 0.45, and minimum strength of 4,500 psi is recommended for protection of concrete structures and pipes from sulfate attack.

Detailed results, discussion of results and recommended mitigating measures are provided within the enclosed Soil Corrosivity Study prepared by HDR Engineering, Inc., dated October 15, 2015. Geotechnologies, Inc. does not practice in the field of corrosion engineering and mitigation. Any questions regarding the results of the soil corrosion report should be addressed to the corrosion engineer.

GRADING GUIDELINES

Site Preparation

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

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

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

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

- Field observation and testing shall be performed during grading in order to confirm the required degree of compaction and the proper moisture content. Where compaction is less than required, additional compaction effort shall be made with adjustment of the moisture content, as necessary, until the required compaction is obtained.

Recommended Overexcavation and Blending

All existing fill materials shall be properly removed and recompacted for the proposed development. The proposed building area shall be overexcavated to a minimum depth of 5 feet below proposed subgrade, or 3 feet below proposed foundations, whichever is greater. In addition,

the compacted fill should extend horizontally a minimum of 3 feet beyond the edge of foundations or for a distance equal to the depth of fill below foundations, whichever is greater. It is very important that the positions of the proposed structures are accurately located so that the limits of the graded area are accurate, and the grading operation proceeds efficiently.

Compaction

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

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

Acceptable Materials

The excavated onsite materials are considered satisfactory for reuse in the controlled fills as long as any debris and/or organic matter is removed. Materials larger than 6 inches shall not be used for the fill. Any imported materials shall be observed and tested by the representative of the geotechnical engineer prior to use in fill areas. Imported materials should contain sufficient fines to act as a binder and result in a stable subgrade when compacted. Any required import materials should consist of geologic materials with an expansion index of less than 90. The water-soluble sulfate content of the import materials should be less than 0.1% percentage by weight.

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

Utility Trench Backfill

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

Wet Soils

At the time of exploration, the soils which will be exposed at the bottom of the excavation were locally above optimum moisture content. It is anticipated that the excavated material to be placed as compacted fill, and the materials exposed at the bottom of the excavated plane may require significant drying and aeration prior to recompaction.

Pumping (yielding or vertical deflection) of the high-moisture content soils at the bottom of the excavation may occur during operation of heavy equipment. Where pumping is encountered, angular minimum ¾-inch to 1-inch crushed gravel may be placed and worked into the subgrade. The exact thickness of the gravel would be a trial-and-error procedure and would be determined in the field. It would likely be on the order of 1 to 2 feet thick.

The gravel will help to densify the subgrade as well as function as a stabilization material upon which heavy equipment may operate. It is not recommended that rubber tire construction equipment attempt to operate directly on the pumping subgrade soils prior to placing the gravel. Direct operation of rubber tire equipment on the soft subgrade soils will likely result in excessive

disturbance to the soils, which in turn will result in a delay to the construction schedule since those disturbed soils would then have to be removed and properly recompacted. Extreme care should be utilized to place gravel as the subgrade becomes exposed.

Shrinkage

Shrinkage results when a volume of soil removed at one density is compacted to a higher density. A shrinkage factor between 10 and 20 percent should be anticipated when excavating and recompacting the existing fill and underlying Older Alluvium on the site to an average comparative compaction of 92 percent.

Weather Related Grading Considerations

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

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

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

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

Geotechnical Observations and Testing During Grading

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

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

FOUNDATION DESIGN

The proposed residential development and parking structures may be supported on conventional foundations bearing in the recommended compacted fill pad.

Conventional Foundations

Continuous foundations may be designed for a bearing capacity of 2,500 pounds per square foot and should be a minimum of 12 inches in width, 18 inches in depth below the lowest adjacent grade and 18 inches into the recommended bearing material.

Column foundations may be designed for a bearing capacity of 3,000 pounds per square foot and should be a minimum of 24 inches in width, 18 inches in depth below the lowest adjacent grade and 18 inches into the recommended bearing material.

The bearing capacity increase for each additional foot of width is 100 pounds per square foot. The bearing capacity increase for each additional foot of depth is 400 pounds per square foot. The maximum recommended bearing capacity is 6,000 pounds per square foot.

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

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

Due to moderate expansion potential for the site soils, all continuous foundations should be reinforced with a minimum of four #4 steel bars. Two should be placed near the top of the foundation, and two should be placed near the bottom.

Lateral Design

Resistance to lateral loading may be provided by friction acting at the base of foundations and by passive earth pressure. An allowable coefficient of friction of 0.3 may be used with the dead load forces.

Passive geologic pressure for the sides of foundations poured against undisturbed or recompacted soil may be computed as an equivalent fluid having a density of 250 pounds per cubic foot with a maximum earth pressure of 3,000 pounds per square foot. The passive and friction components may be combined for lateral resistance without reduction. A one-third increase in the passive value may be used for short duration loading such as wind or seismic forces.

Conventional Foundation Settlement

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

Miscellaneous Foundations

Foundations for small miscellaneous outlying structures, such as property line fence walls, planters, exterior canopies, and trash enclosures, which will not be tied-in to the proposed parking structure may be supported on conventional foundations bearing in properly compacted fill and/or the native soils. Continuous footings may be designed for a bearing capacity of 2,000 pounds per square foot and should be a minimum of 12 inches in width, 18 inches in depth below the lowest adjacent grade and 18 inches into the recommended bearing material. No bearing capacity increases are recommended.

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

Foundation Observations

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

RETAINING WALL DESIGN

Preliminarily, it is anticipated that retaining walls up to 12 feet in height will be required for the proposed subterranean levels. Cantilever retaining walls supporting a level backslope may be designed utilizing a triangular distribution of active earth pressure. Restrained retaining walls may be designed utilizing a triangular distribution of at-rest earth pressure. Retaining walls may be designed utilizing the following table:

Height of Retaining Wall (feet)	Cantilever Retaining Wall Triangular Distribution of Active Earth Pressure (pcf)	Restrained Retaining Wall Triangular Distribution of At-Rest Earth Pressure (pcf)
12 feet	45 pcf	72½ pcf

The lateral earth pressures recommended above for retaining walls assume that a permanent drainage system will be installed so that external water pressure will not be developed against the walls. Additional active pressure should be added for a surcharge condition due to sloping ground, vehicular traffic or adjacent structures.

The upper ten feet of the retaining wall adjacent to streets, driveways or parking areas should be designed to resist a uniform lateral pressure of 100 pounds per square foot, acting as a result of an assumed 300 pounds per square foot surcharge behind the walls due to normal street traffic. If the traffic is kept back at least ten feet from the retaining walls, the traffic surcharge may be neglected. Foundations may be designed using the allowable bearing capacities, friction, and passive earth pressure found in the "Foundation Design" section above.

Dynamic (Seismic) Earth Pressure

Retaining walls exceeding 6 feet in height shall be designed to resist the additional earth pressure caused by seismic ground shaking. A triangular pressure distribution should be utilized for the

additional seismic loads, with an equivalent fluid pressure of 16 pounds per cubic foot. When using the load combination equations from the building code, the seismic earth pressure should be combined with the lateral active earth pressure for analyses of basement walls under seismic loading conditions. For retaining walls less than 6 feet in height, dynamic earth pressure may be omitted.

Waterproofing

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

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

Retaining Wall Drainage

All retaining walls shall be provided with a subdrain in order to minimize the potential for future hydrostatic pressure buildup behind the proposed retaining walls. Subdrains may consist of 4-inch diameter perforated pipes, placed with perforations facing down. The pipe shall be encased in at least one foot of gravel around the pipe. The gravel may consist of ¾-inch to 1-inch crushed rocks.

A compacted fill blanket or other seal shall be provided at the surface. Retaining walls may be backfilled with gravel adjacent to the wall to within 2 feet of the ground surface. The onsite earth

materials are acceptable for use as retaining wall backfill as long as they are compacted to a minimum of 90 percent of the maximum dry density as determined by the latest revision of ASTM D 1557.

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

Where retaining walls are to be constructed adjacent to shoring system, there is usually not enough space for placement of a standard perforated pipe and gravel drainage system. Under these circumstances, 2-inch diameter weepholes may be placed at the 8 feet on center along the base of the wall. The gravel may consist of ¾-inch to 1-inch crushed rocks. A collector is placed within the gravel which directs collected waters through the wall to a sump or standard pipe and gravel system constructed under the slab.

The lateral earth pressures recommended above for retaining walls assume that a permanent drainage system will be installed so that external water pressure will not be developed against the walls. If a drainage system is not provided, the walls should be designed to resist external hydrostatic pressure due to water in addition to the lateral earth pressure. In any event, it is recommended that the retaining walls be waterproofed.

Retaining Wall Backfill

Any required backfill should be mechanically compacted in layers not more than 8 inches thick, to at least 90 percent of the maximum dry density obtainable by the latest revision of ASTM D 1557. Flooding shall not be permitted. Proper compaction of the backfill will be necessary to reduce settlement of overlying walks and paving. Some settlement of required backfill should be anticipated, and any utilities supported therein should be designed to accept differential settlement, particularly at the points of entry to the structure.

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

TEMPORARY EXCAVATIONS

Preliminarily, temporary excavations between 5 and 17 feet in vertical height may be required for the proposed grading and construction of the partial subterranean level. The excavations are expected to expose fill, Older Alluvium soil, and locally Modelo Formation Bedrock, which are suitable for vertical excavations up to 5 feet where not surcharged by adjacent traffic or structures. Any excavations which will be surcharged by adjacent traffic or structures should be shored.

Where sufficient space is available, temporary unsurcharged embankments could be sloped back without shoring. Excavations over 5 in height should be excavated at a uniform 1:1 (h:v) slope gradient in its entirety to a maximum height of 20 feet. A uniform sloped excavation does not have a vertical component.

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

Excavation Observations

It is critical that the soils exposed in the cut slopes are observed by a representative of Geotechnologies, Inc. during excavation so that modifications of the slopes can be made if

variations in the geologic material conditions occur. Many building officials require that temporary excavations should be made during the continuous observations of the geotechnical engineer. All excavations should be stabilized within 30 days of initial excavation.

SLABS ON GRADE

Concrete Slabs on Grade

Concrete floor slabs should be a minimum of 5 inches in thickness and should be reinforced with a minimum of #3 steel bars on 18-inch centers each way. Slabs-on-grade should be cast over undisturbed natural geologic materials or properly controlled fill materials. Any geologic materials loosened or over-excavated should be wasted from the site or properly compacted to 90 percent of the laboratory maximum dry density.

Outdoor concrete flatwork should be a minimum of 4 inches in thickness and should be reinforced with a minimum of #3 steel bars on 18-inch centers each way. Outdoor concrete flatwork should be cast over undisturbed natural geologic materials or properly controlled fill materials. Any geologic materials loosened or over-excavated should be wasted from the site or properly compacted to 90 percent of the laboratory maximum dry density.

Design of Slabs That Receive Moisture-Sensitive Floor Coverings

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

Where any dampness would be objectionable or where the slab will be cast below the historic high groundwater level, it is recommended that floor slabs should be waterproofed. A qualified waterproofing consultant should be engaged in order to recommend a product and/or method which would provide protection from unwanted moisture.

All concrete slabs-on-grade should be supported on vapor retarder/barrier. The design of the slab and the installation of the vapor retarder/barrier should comply with the most recent revisions of ASTM E 1643 and ASTM E 1745. The vapor retarder/barrier should comply with ASTM E 1745 Class A requirements. The necessity of a vapor retarder/barrier is not a geotechnical issue and should be confirmed by qualified members of the design team.

Where a vapor retarder/barrier is used, it should be placed on a level and compact subgrade. Precautions should be taken to protect the vapor retarder/barrier from damage during installation of reinforcing, utilities and concrete. The use of stakes driven thought the vapor retarder/barrier should be avoided. Repair any damaged areas of the vapor retarder/barrier prior to concrete placement.

Concrete Crack Control

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

For standard control of concrete cracking, a maximum crack control joint spacing of 10 feet should not be exceeded. Lesser spacings would provide greater crack control. Joints at curves and angle

points are recommended. The crack control joints should be installed as soon as practical following concrete placement. Crack control joints should extend a minimum depth of one-fourth the slab thickness. Construction joints should be designed by a structural engineer.

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

PAVEMENTS

Prior to placing paving, the existing grade should be scarified to a depth of 12 inches, moistened as required to obtain optimum moisture content, and recompacted to 90 percent of the maximum density as determined by the most recent revision of ASTM D 1557. Preliminary pavement sections are provided in the table below:

Service	Asphalt Pavement Thickness Inches	Base Course Inches
Passenger Cars (TI = 4)	3	5
Moderate Truck (TI = 6)	4	7
Heavy Truck (TI = 8)	7	9

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

A subgrade modulus of 100 pounds per cubic inch may be assumed for the design of concrete paving. Concrete paving for passenger cars and moderate truck traffic shall be a minimum of 6

inches in thickness and shall be underlain by 6 inches of aggregate base. Concrete paving for heavy truck traffic shall be a minimum of 8 inches in thickness and shall be underlain by 6 inches of aggregate base. Concrete paving should be reinforced with a minimum of #3 steel bars on 18-inch centers each way.

For standard control of concrete cracking, a maximum crack control joint spacing of 10 feet should not be exceeded. Lesser spacing would provide greater crack control. Joints at curves and angle points are recommended. The crack control joints should be installed as soon as practical following concrete placement. Crack control joints should extend a minimum depth of one-fourth the slab thickness. Construction joints should be designed by a structural engineer.

The performance of pavement is highly dependent upon providing positive surface drainage away from the edges. Ponding of water on or adjacent to pavement can result in saturation of the subgrade materials and subsequent pavement distress. If planter islands are planned, the perimeter curb should extend to a minimum of 12 inches below the bottom of the aggregate base. In addition, where landscaping is planned adjacent to pavement, it is recommended that a cutoff wall should be provided along the edge of the pavement. The cutoff wall should extend at least 12 inches below the depth of the base course.

SITE DRAINAGE

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

All site drainage should be collected and transferred to the street in non-erosive drainage devices. The proposed structure should be provided with roof drainage. Discharge from downspouts, roof drains and scuppers should not be permitted on unprotected soils within five feet of the building perimeter. Drainage should not be allowed to pond anywhere on the site, and especially not against

any foundation or retaining wall. Drainage should not be allowed to flow uncontrolled over any descending slope. Planters which are located within a distance equal to the depth of a retaining wall should be sealed to prevent moisture adversely affecting the wall. Planters which are located within five feet of a foundation should be sealed to prevent moisture affecting the earth materials supporting the foundation.

STORMWATER DISPOSAL

Bedrock was encountered at depths between 10 and 22 feet below the existing site grade. By nature, bedrock is considered to be relatively impermeable. Therefore, onsite stormwater infiltration is considered to be infeasible due to the impermeable nature of the underlying bedrock and the potential for creating perched groundwater conditions above the bedrock.

Where infiltration of stormwater into the subgrade is not advisable, Building Officials have typically allowed the stormwater to be filtered through soils in planter areas. Once the water has been filtered through a planter it may be released into the storm drain system. It is recommended that overflow pipes are incorporated into the design of the discharge system in the planters to prevent flooding. In addition, the planters shall be sealed and waterproofed to prevent leakage. Please be advised that adverse impact to landscaping and periodic maintenance may result due to excessive water and contaminants discharged into the planters.

It is recommended that the design team (including the structural engineer, waterproofing consultant, plumbing engineer, and landscape architect) be consulted in regards to the design and construction of filtration systems.

DESIGN REVIEW

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

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

CONSTRUCTION MONITORING

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

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

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

EXCAVATION CHARACTERISTICS

The exploration performed for this investigation is limited to the geotechnical excavations described. Direct exploration of the entire site would not be economically feasible. The owner, design team and contractor must understand that differing excavation and drilling conditions may be encountered based on boulders, gravel, oversize materials, groundwater and many other

conditions. Fill materials, especially when they were placed without benefit of modern grading codes, regularly contain materials which could impede efficient grading and drilling. Southern California sedimentary bedrock is known to contain variable layers which reflect differences in depositional environment. Such layers may include abundant gravel, cobbles and boulders. Similarly, bedrock can contain concretions. Concretions are typically lenticular and follow the bedding. They are formed by mineral deposits. Concretions can be very hard. Excavation and drilling in these areas may require full size equipment and coring capability. The contractor should be familiar with the site and the geologic materials in the vicinity.

CLOSURE AND LIMITATIONS

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

The recommendations of this report pertain only to the site investigated and are based upon the assumption that the geologic conditions do not deviate from those disclosed in the investigation. If any variations are encountered during construction, or if the proposed construction will differ from that anticipated herein, Geotechnologies, Inc. should be notified so that supplemental recommendations can be prepared.

This report is issued with the understanding that it is the responsibility of the owner, or the owner's representatives, to ensure that the information and recommendations contained herein are brought to the attention of the project architect and engineer and are incorporated into the plans. The owner

is also responsible to see that the contractor and subcontractors carry out the geotechnical recommendations during construction.

The findings of this report are valid as of the date of this report. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside control of this firm. Therefore, this report is subject to review and should not be relied upon after a period of three years.

Geotechnical observations and testing during construction is considered to be a continuation of geotechnical investigation. It is, therefore, most prudent to employ the consultant performing the initial investigative work to provide observation and testing services during construction. This practice enables the project to flow smoothly from the planning stages through to completion.

Should another geotechnical firm be selected to provide the testing and observation services during construction, that firm should prepare a letter indicating their assumption of the responsibilities of geotechnical engineer of record. A copy of the letter should be provided to the regulatory agency for review. The letter should acknowledge the concurrence of the new geotechnical engineer with the recommendations presented in this report.

EXCLUSIONS

Geotechnologies, Inc. does not practice in the fields of methane gas, radon gas, environmental engineering, waterproofing, dewatering organic substances or the presence of corrosive soils or wetlands which could affect the proposed development including mold and toxic mold. Nothing in this report is intended to address these issues and/or their potential effect on the proposed development. A competent professional consultant should be retained in order to address

environmental issues, waterproofing, organic substances and wetlands which might affect the proposed development.

GEOTECHNICAL TESTING

Classification and Sampling

During site investigations, soils were continuously logged by a representative of this firm and classified by visual examination in accordance with the Unified Soil Classification system. The field classification is verified in the laboratory, also in accordance with the Unified Soil Classification System. Laboratory classification may include visual examination, Atterberg Limit Tests, and grain size distribution. The final classification is shown on the boring logs.

Samples of the geologic materials encountered in the exploratory borings were collected and transported to the laboratory. Undisturbed samples of soil are obtained at frequent intervals. Unless noted on the excavation logs as an SPT sample, samples acquired while utilizing a hollow-stem auger drill rig are obtained by driving a thin-walled, California Modified Sampler with successive 30-inch drops of a 140-pound hammer. The soil is retained in brass rings of 2.50 inches outside diameter and 1.00 inch in height. The soil samples were delivered to the laboratory for testing and examination. Samples noted on the excavation logs as SPT samples are obtained in accordance with the most recent revision of ASTM D 1586. Samples are retained for 30 days after the date of the geotechnical report.

Moisture and Density Relationships

The field moisture content and dry unit weight are determined for each of the undisturbed soil samples, and the moisture content is determined for SPT samples by the most recent revision of ASTM D 4959 or ASTM D 4643. This information is useful in providing a gross picture of the soil consistency between exploration locations and any local variations. The dry unit weight is

determined in pounds per cubic foot and shown on the “Excavation Logs”, A-Plates. The field moisture content is determined as a percentage of the dry unit weight.

Direct Shear Testing

Shear tests are performed by the most recent revision of ASTM D 3080 with a strain controlled, direct shear machine manufactured by Soil Test, Inc. or a Direct Shear Apparatus manufactured by GeoMatic, Inc. The rate of deformation is approximately 0.005 inches per minute. Each sample is sheared under varying confining pressures in order to determine the Mohr-Coulomb shear strength parameters of the cohesion intercept and the angle of internal friction. Samples are generally tested in an artificially saturated condition. Depending upon the sample location and future site conditions, samples may be tested at field moisture content. The results are plotted on the "Shear Test Diagram," B-Plates.

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

Consolidation Testing

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

the effects of water on the bearing soil. The normal pressure at which the water is added is noted in the drawing. Results are plotted on the "Consolidation Test," C-Plates.

Expansion Index Testing

The expansion tests performed on the remolded samples are in accordance with the Expansion Index testing procedures, as described in the most recent revision of ASTM D 4829. The soil sample is compacted into a metal ring at a saturation degree of 50 percent. The ring sample is then placed in a consolidometer, under a vertical confining pressure of 1 lbf/square inch and inundated with distilled water. The deformation of the specimen is recorded for a period of 24 hours or until the rate of deformation becomes less than 0.0002 inches/hour, whichever occurs first. The expansion index, EI, is determined by dividing the difference between final and initial height of the ring sample by the initial height and multiplied by 1,000.

Laboratory Compaction Characteristics

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

Grain Size Distribution

These tests cover the quantitative determination of the distribution of particle sizes in soils. Sieve analysis is used to determine the grain size distribution of the soil larger than the Number 200 sieve. The most recent revision of ASTM D 422 is used to determine particle sizes smaller than the Number 200 sieve. A hydrometer is used to determine the distribution of particle sizes by a sedimentation process. The grain size distributions are plotted on the E-Plates presented in the Enclosures of this report.

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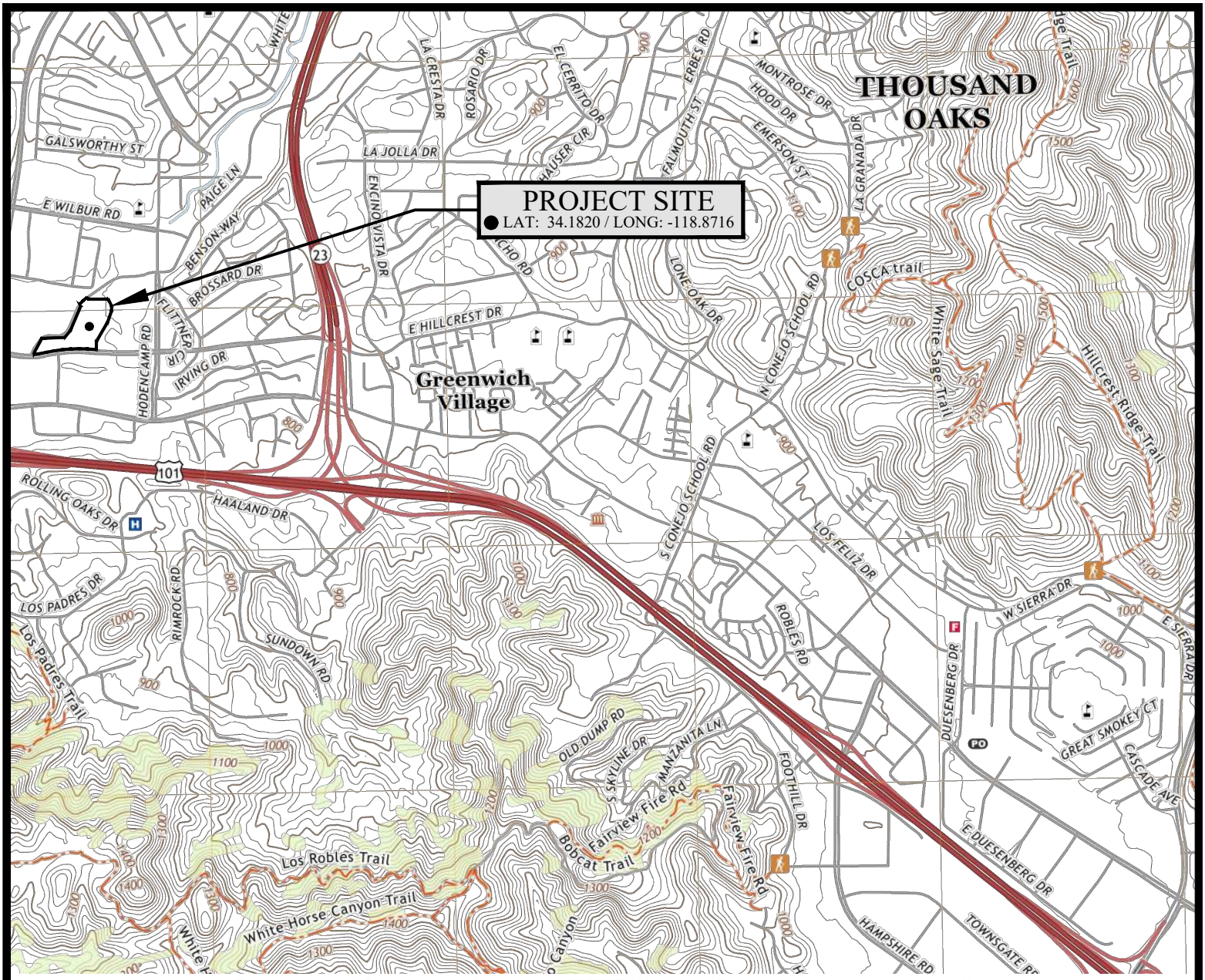
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1 0.5 0 KILOMETERS 1 2

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MILES

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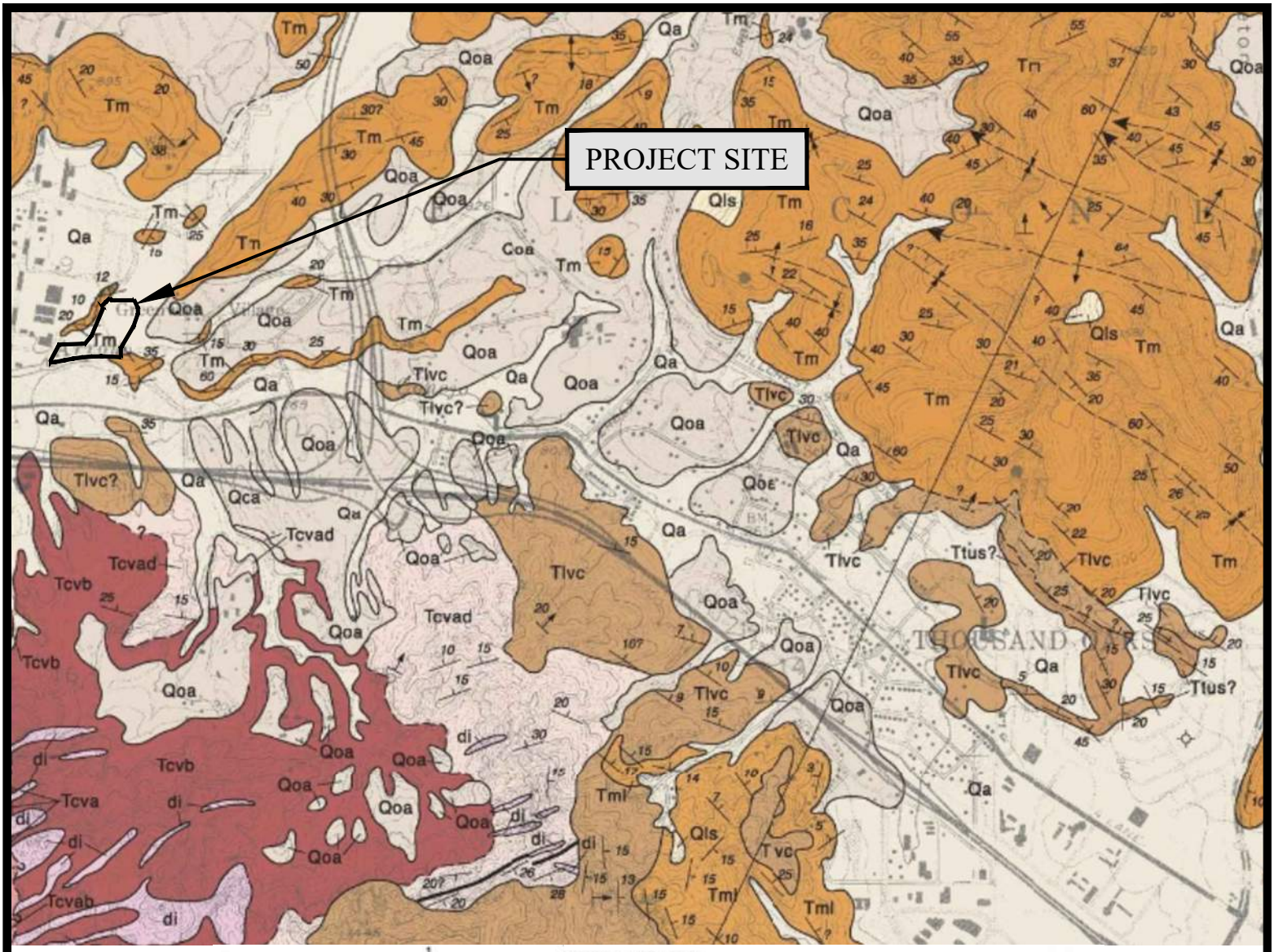
REFERENCE: U.S.G.S. TOPOGRAPHIC MAPS, 7.5 - MINUTE SERIES THOUSAND OAKS, CA QUADRANGLE 2022

VICINITY MAP

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FILE NO: 22549



LEGEND

- Qa: Surficial Sediments - Alluvial gravel, sand and clay of valley areas
- Qls: Landslide Debris - Landslide debris
- Qoa: Older Surficial Sediments - Older dissected alluvial gravel
- Tm: Monterey Formation - White weathering, thin bedded, platy, locally brittle siliceous shale to soft, punky shale; devoid of sandstone in this quadrangle; mostly late Miocene age (Mohnian Stage)
- Tlvc: Detrital Sediments of Lindero Canyon - Basal epiclastic (reworked) conglomerate of detritus derived from Conejo Volcanics: gray to rusty brown, massive to crudely layered
- Ttus: Upper Topanga Formation - Sandstone, light gray to tan, friable, massive to vaguely bedded; interbedded with clay shale
- Tcvad: Conejo Volcanics Extrusive Rocks - Light colored (light pinkish gray to light brown), composed of moderately to poorly sorted, mostly cobble-boulder sized angular fragments of light colored, very fine grained feldspathic andesite-dacite in semi-coherent, detrital or tuffaceous
- Tcvb: Mountclef Ridge includes thin stratum of gray brown volcanic sandstone; breccias probably deposited subaerially as laharic rock and mudflow and reworked detritus from nearby volcanic sources
- di: Conejo Volcanic Intrusive Rocks - Andesite-dacite, light gray to tan, fine grained, hard, resistant, made of feldspar and minor altered hornblende and or biotite (?), forms dikes, pods, and a small plug near Lake Sherwood
- Folds - arrow on axial trace of fold indicates direction of plunge
- Fault - dashed where indefinite or inferred, dotted where concealed, queried where existence is doubtful

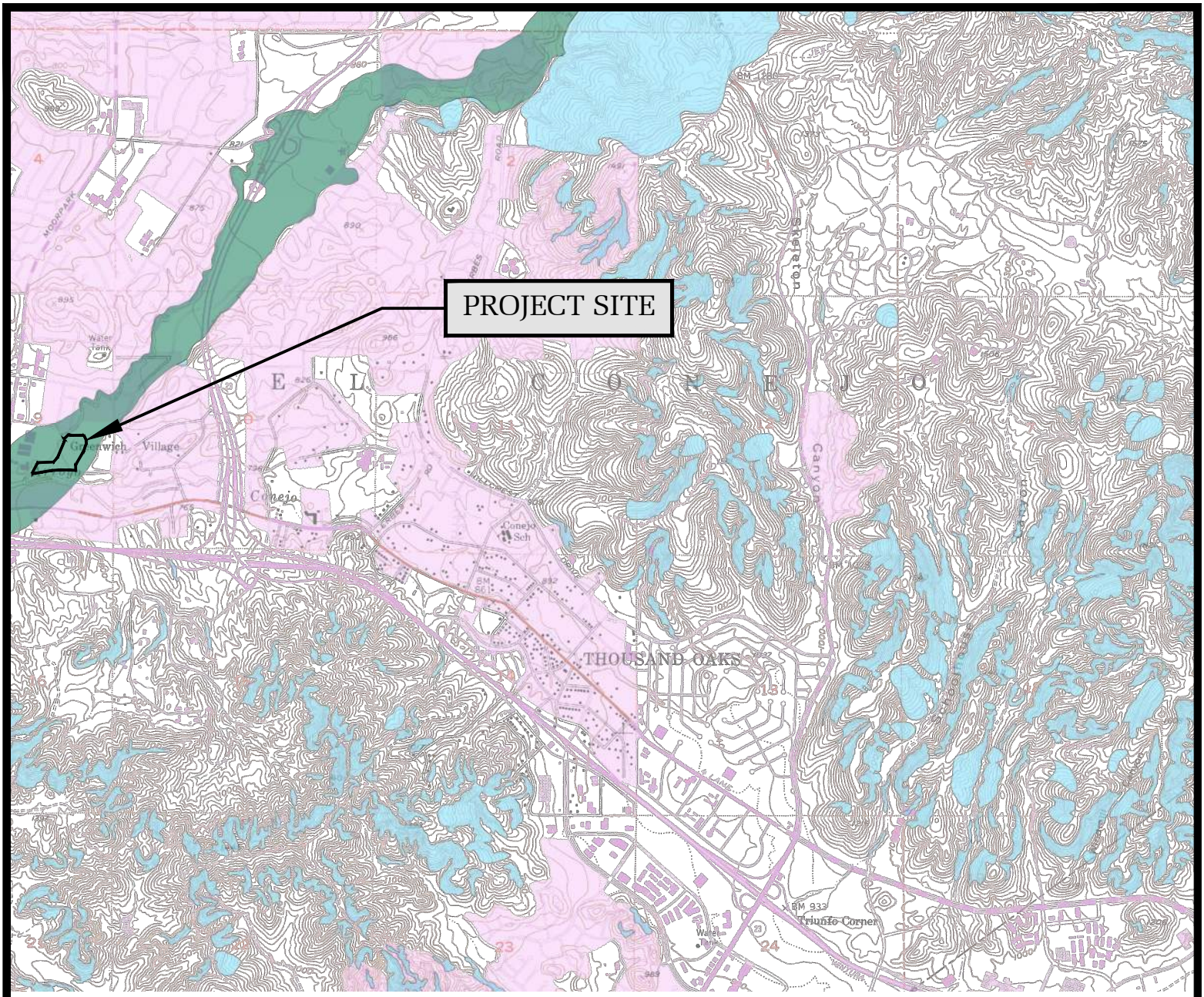
REFERENCE: T.W. DIBBLEE (EDITED 2009) GEOLOGIC MAP OF THE THOUSAND OAKS QUADRANGLE (#DF-49)

GEOLOGIC MAP (DIBBLEE)

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1 0.5 0 1 2 Miles

1,000 500 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 8,000 9,000 10,000 Feet

1 0.5 0 1 2 Kilometers

1000 500 0 1000 2000 Meters

LEGEND

LIQUEFACTION ZONES

EARTHQUAKE-INDUCED LANDSLIDE ZONES

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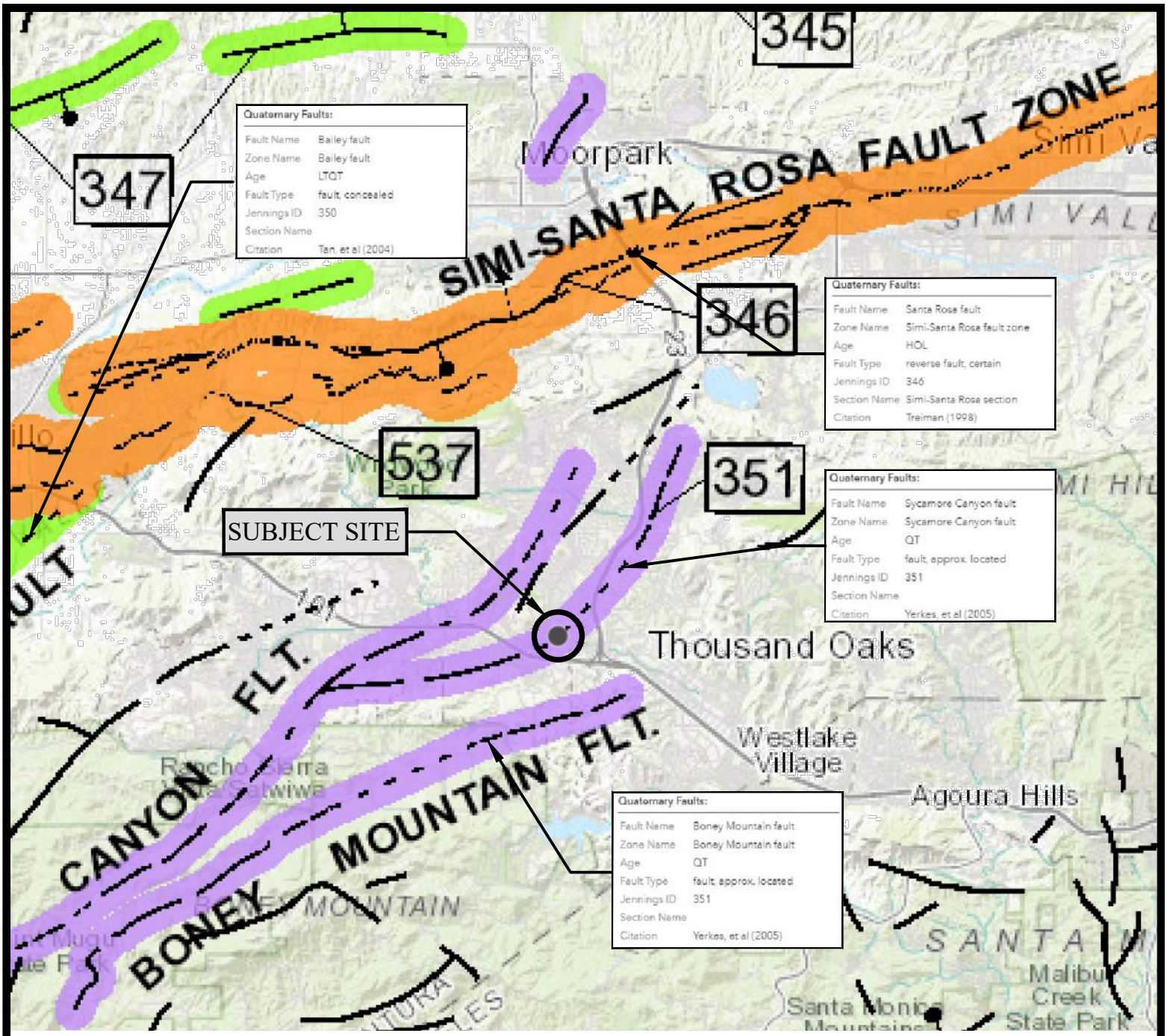
REFERENCE: EARTHQUAKE ZONES OF REQUIRED INVESTIGATION, THOUSAND OAKS QUADRANGLE (CGS, 2016)

EARTHQUAKE ZONES OF REQUIRED INVESTIGATION MAP

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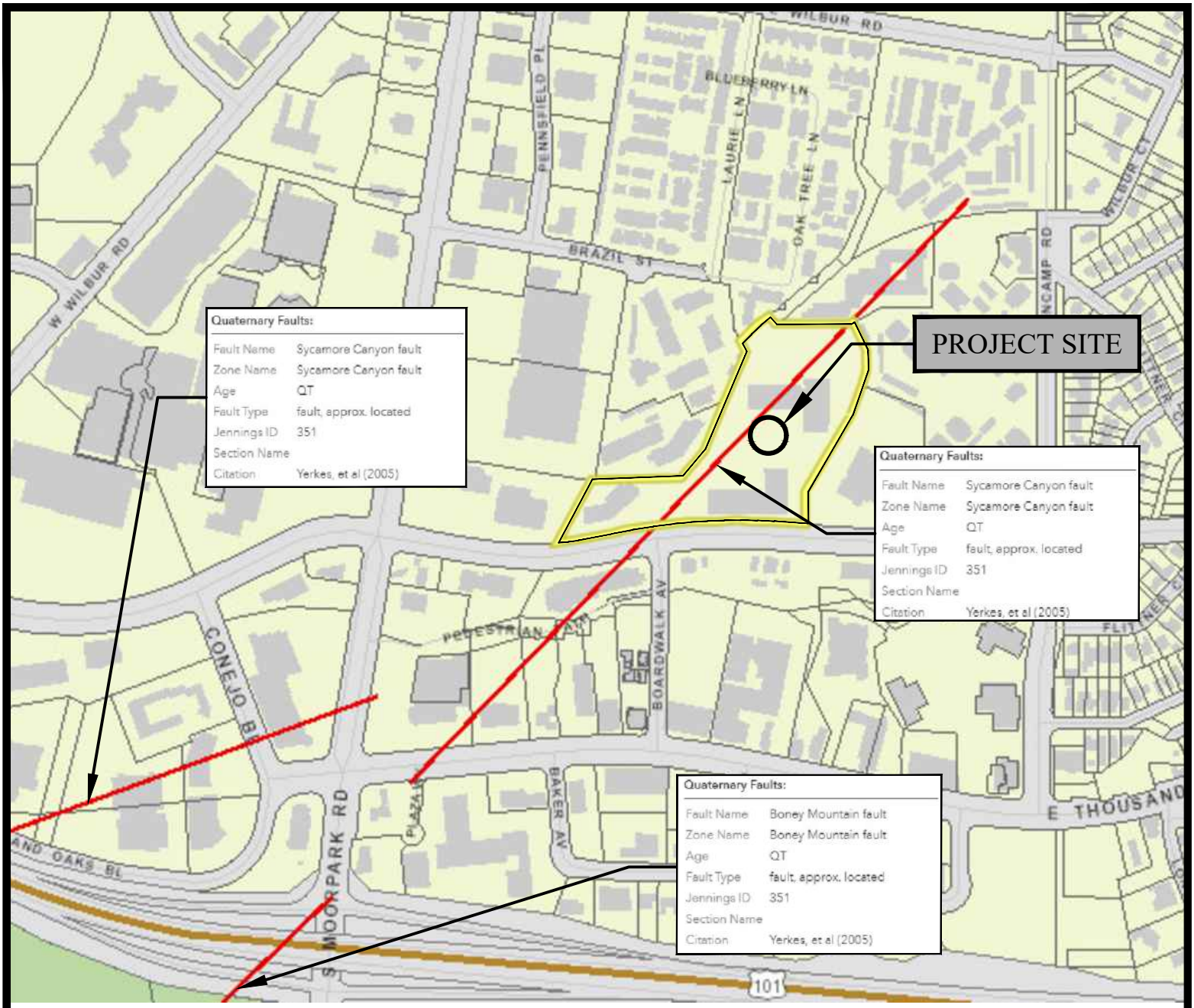
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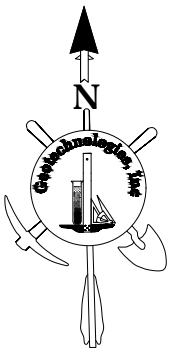
FAULT ACTIVITY MAP OF CALIFORNIA

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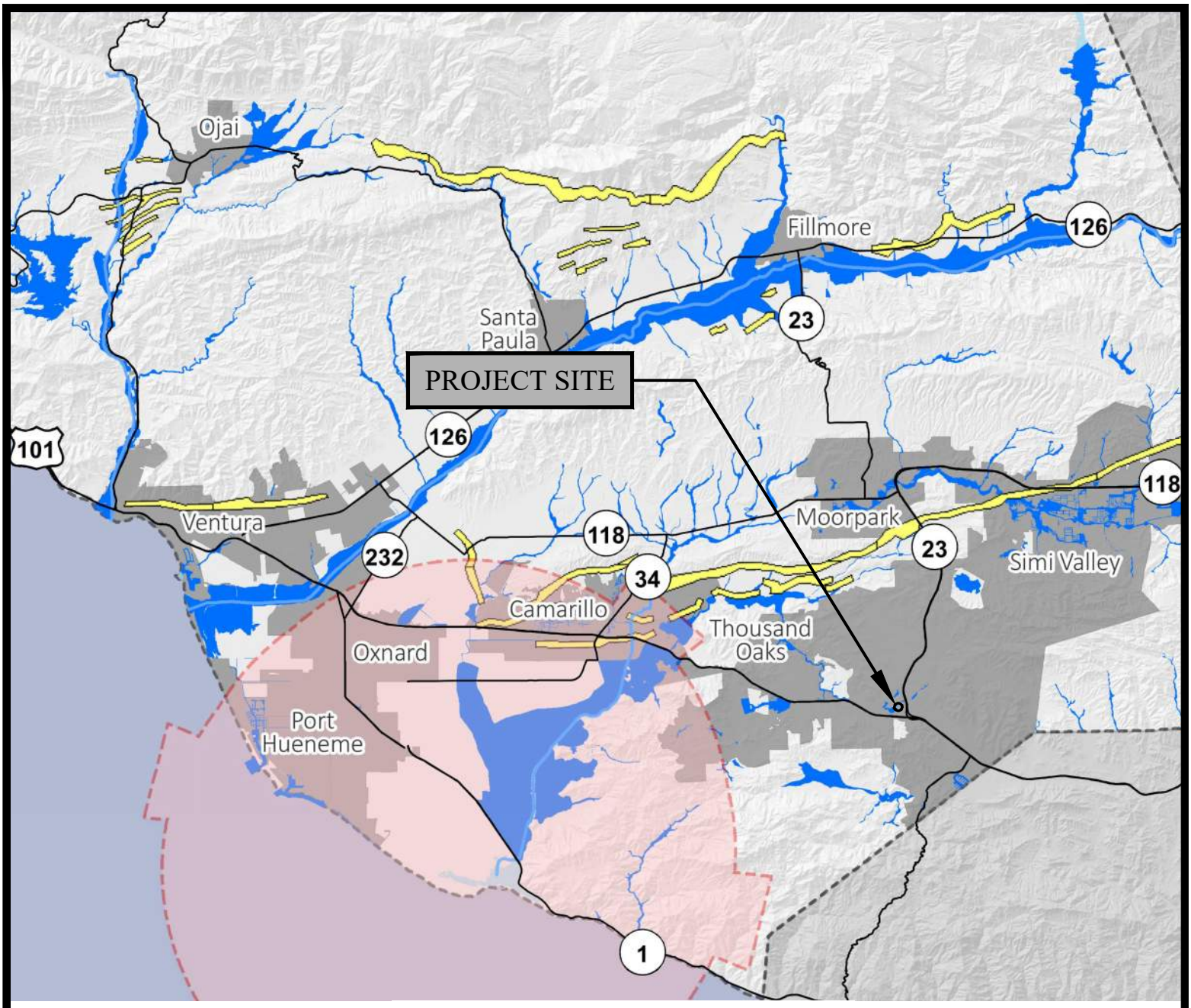
REFERENCE: https://maps.ventura.org/countyview/

VENTURA COUNTY FAULT DATABASE MAP

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LEGEND

- Ventura County Boundary
- Cities
- Major Roadways
- Major Waterways
- 100-Year Floodplain Areas
- Fault Zones
- Military Compatibility Area (MCA)

N

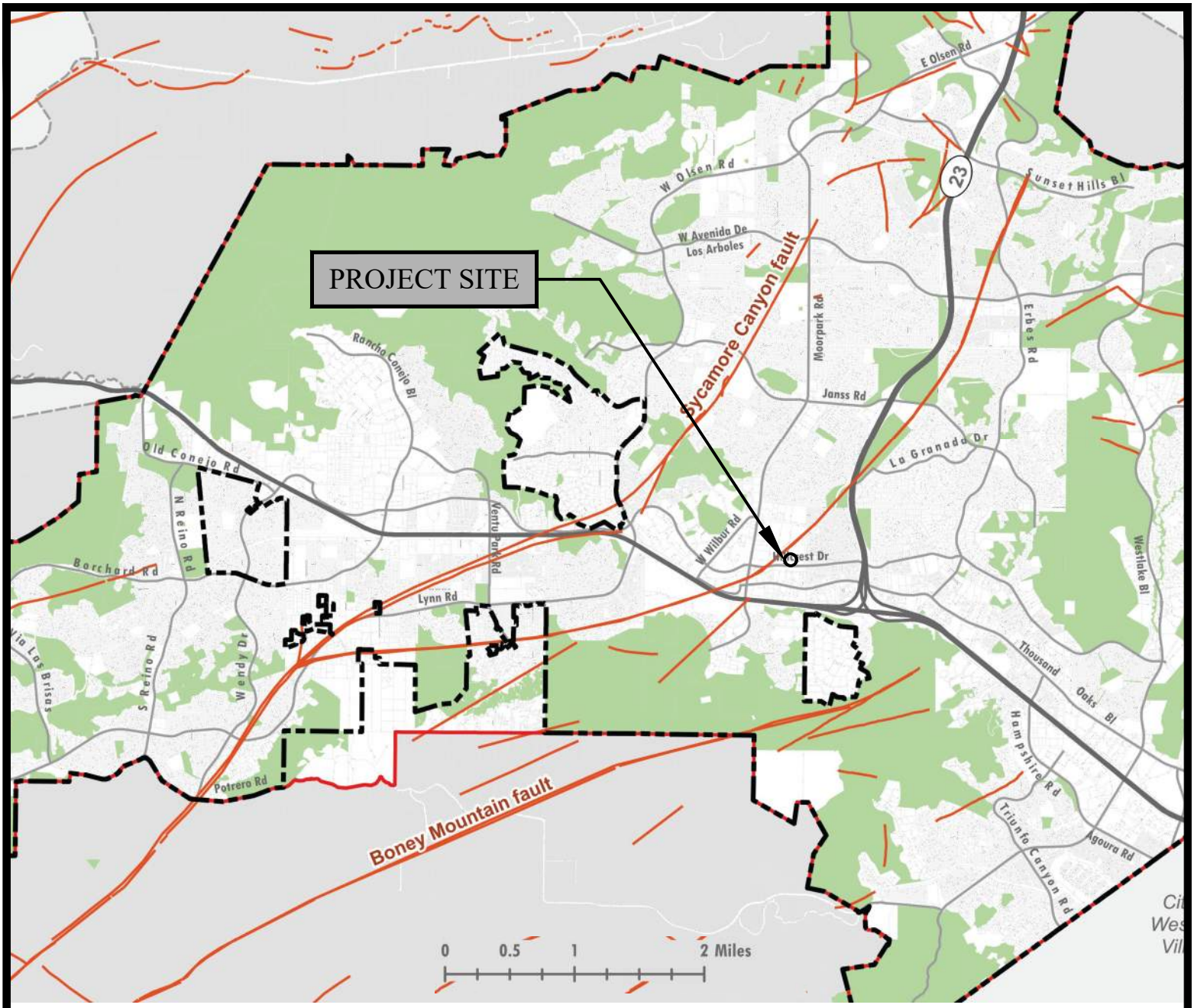
REFERENCE: 7. HAZARDS AND SAFETY ELEMENT FIGURE 7-2 HAZARDS PROTECTION MAP SOUTHERN MAP SOUTHERN HALF (SHEET 7-5)

COUNTY OF VENTURA HAZARDS PROTECTION MAP

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LEGEND

- City Limits
- City Sphere
- Inactive Seismic Faults
- Major Roads
- Freeways
- Parks and Open Space
- Unincorporated Counties Land
- Adjacent cities

N

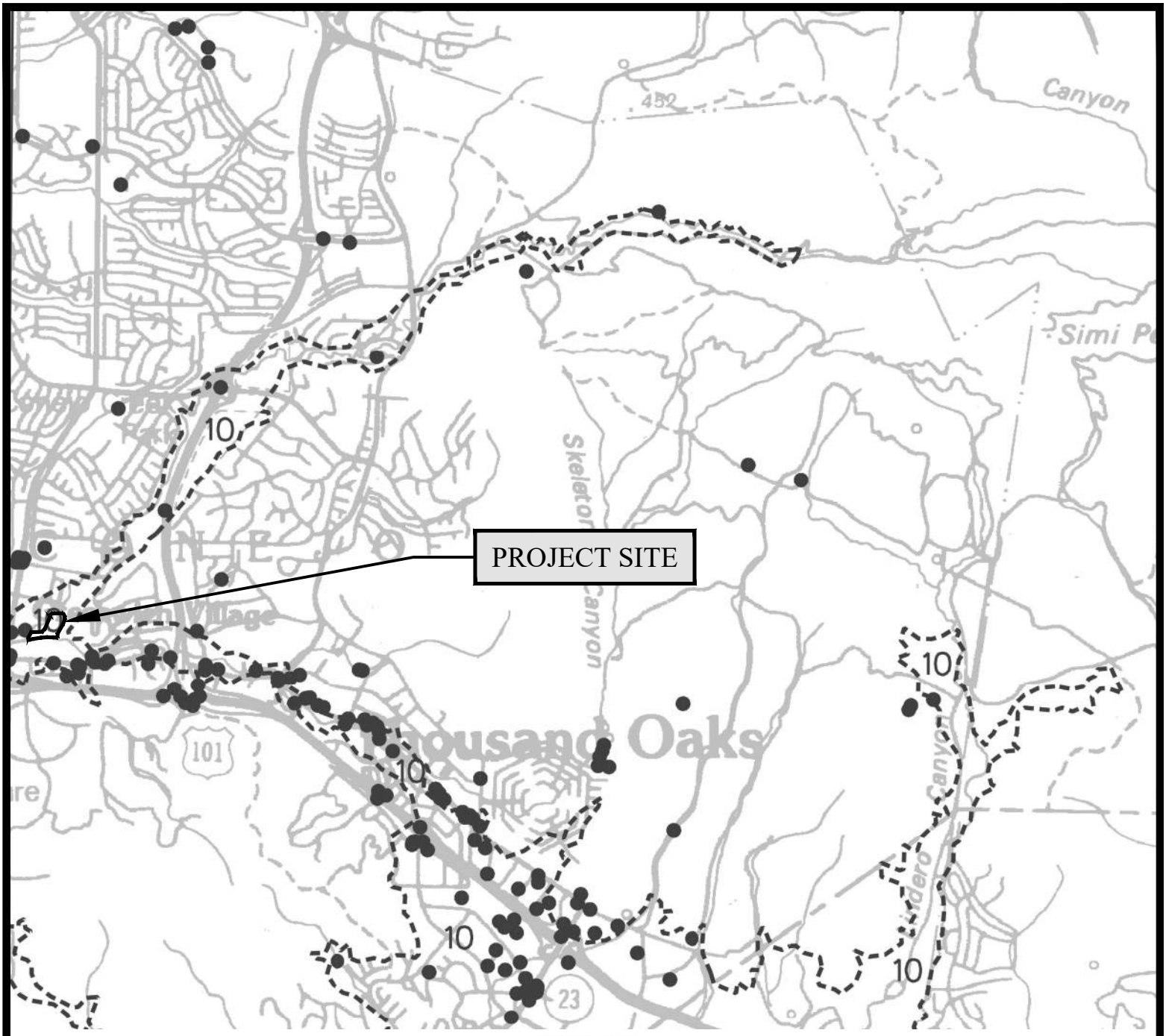
REFERENCE: THOUSAND OAKS GENERAL PLAN 2045 FIGURE 10.1 SEISMIC FAULTS (SHEET 198)

CITY OF THOUSAND OAKS SEISMIC FAULTS MAP

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FILE NO: 22549



LEGEND

- Borehole Site
- Alluviated Valley
- 10 Historically shallow ground-water depth where same value occurs over a broad area (in feet)

N

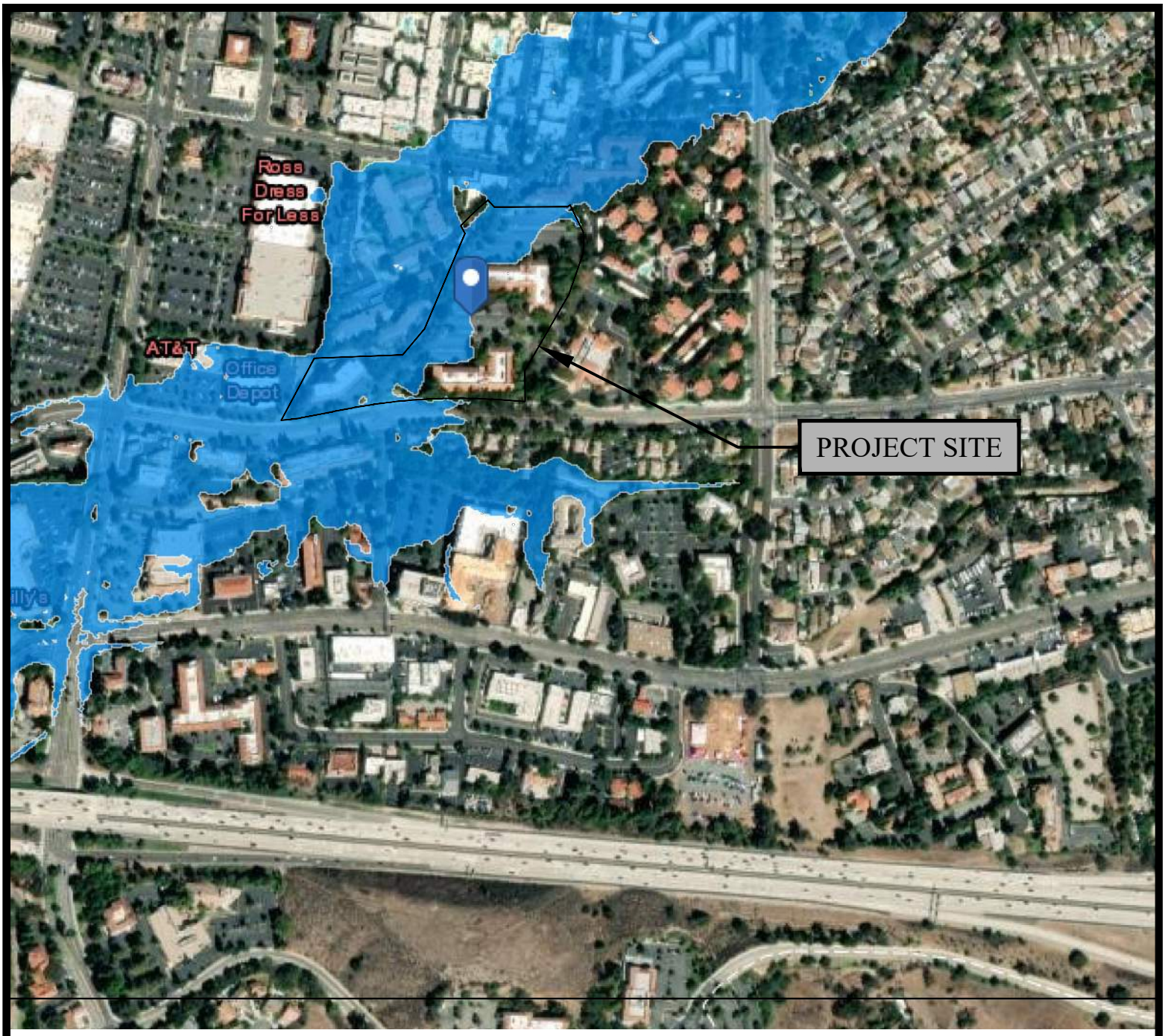
REFERENCE: SEISMIC HAZARD ZONE REPORT, 042 THOUSAND OAKS, 7.5 - MINUTE QUADRANGLE, VENTURA AND LOS ANGELES COUNTY, CALIFORNIA 2000 (REV 2006)

HISTORICALLY HIGHEST GROUNDWATER LEVELS MAP

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0 300 600ft

N

REFERENCE: https://fmds.water.ca.gov/webgis/?appid=dam_prototype_v2

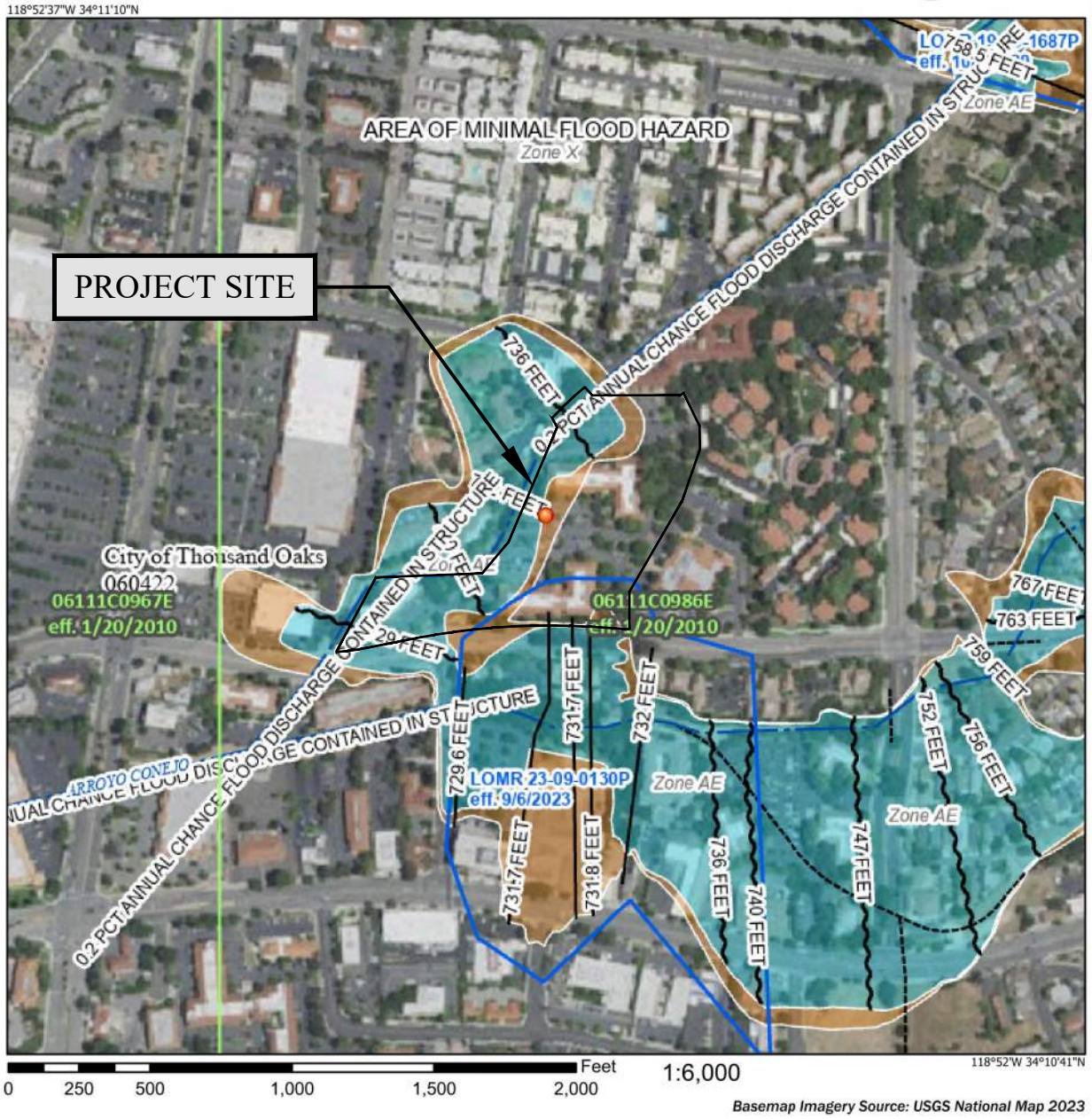
DAM BREACH INUNDATION MAP

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FILE NO: 22549

National Flood Hazard Layer FIRMette



Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

- **SPECIAL FLOOD HAZARD AREAS**
  - Without Base Flood Elevation (BFE) *Zone A, V, A99*
  - With BFE or Depth *Zone AE, AO, AH, VE, AR*
  - Regulatory Floodway
- **OTHER AREAS OF FLOOD HAZARD**
  - 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
  - Future Conditions 1% Annual Chance Flood Hazard *Zone X*
  - Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
  - Area with Flood Risk due to Levee *Zone D*
- **OTHER AREAS**
  - NO SCREEN — Area of Minimal Flood Hazard *Zone X*
  - Effective LOMRs
  - Area of Undetermined Flood Hazard *Zone D*
- **GENERAL STRUCTURES**
  - Channel, Culvert, or Storm Sewer
  - Levee, Dike, or Floodwall
- **OTHER FEATURES**
  - 20.2 / 17.5 — Cross Sections with 1% Annual Chance Water Surface Elevation
  - Coastal Transect
  - Base Flood Elevation Line (BFE)
  - Limit of Study
  - Jurisdiction Boundary
  - Coastal Transect Baseline
  - Profile Baseline
  - Hydrographic Feature
- **MAP PANELS**
  - Digital Data Available
  - No Digital Data Available
  - Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 6/25/2024 at 11:49 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

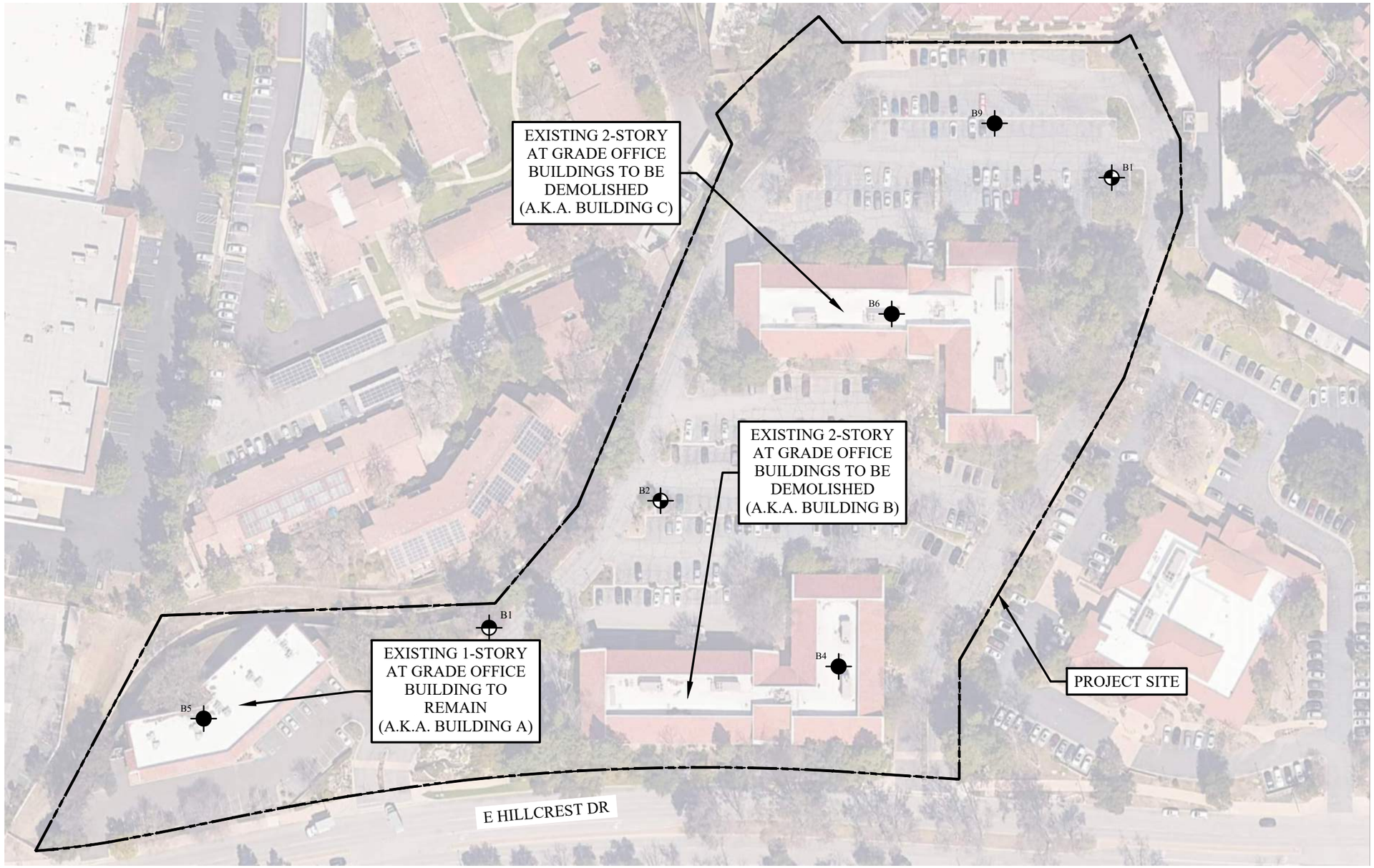
FLOOD INSURANCE RATE MAP

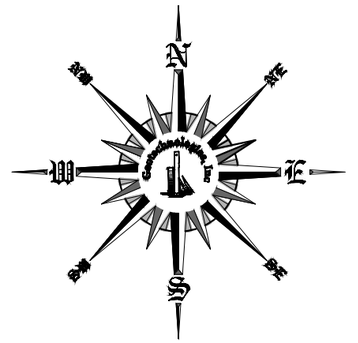
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TC LA MF DEVELOPMENT, INC.
195, 275 & 325 E HILLCREST DR., THOUSAND OAKS

FILE NO: 22549

Plot Date: Oct. 9, 2024
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SCALE IN FEET

0 25 50 100 150 200

LEGEND

B2 — LOCATION AND NUMBER OF BORING (THIS INVESTIGATION)

B1 — LOCATION AND NUMBER OF BORING (PREVIOUS INVESTIGATION BY GORIAN AND ASSOCIATES, INC. DATED 11/03/1978)

B9 — LOCATION AND NUMBER OF BORING (PREVIOUS INVESTIGATION BY GORIAN AND ASSOCIATES, INC. DATED 10/04/1979)

REFERENCE: AERIAL VIEW BY GOOGLE MAPS

SITE PLAN

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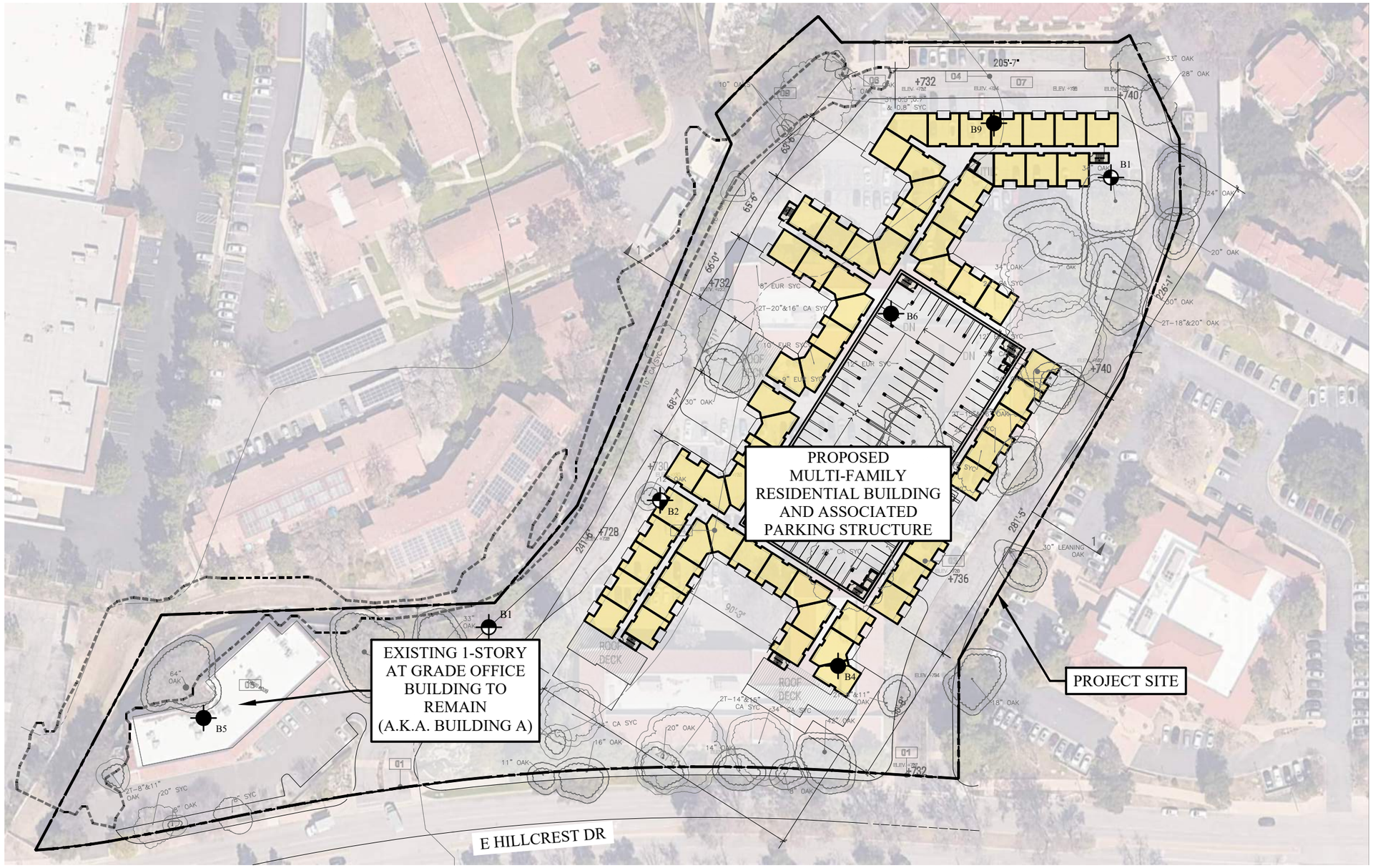
TC LA MF DEVELOPMENT, INC.
195, 275 & 325 E HILLCREST DR., THOUSAND OAKS

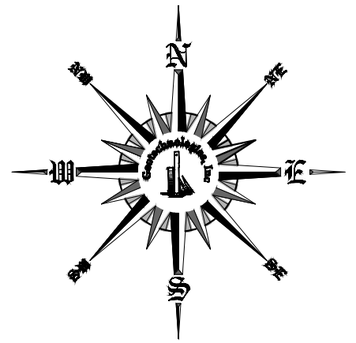
Drawn by: JD | File No.: 22549

Date: October 2024

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Plot Date: Oct. 9, 2024
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SCALE IN FEET

0 25 50 100 150 200

LEGEND

B2 — LOCATION AND NUMBER OF BORING (THIS INVESTIGATION)

B1 — LOCATION AND NUMBER OF BORING (PREVIOUS INVESTIGATION BY GORIAN AND ASSOCIATES, INC. DATED 11/03/1978)

B9 — LOCATION AND NUMBER OF BORING (PREVIOUS INVESTIGATION BY GORIAN AND ASSOCIATES, INC. DATED 10/04/1979)

REFERENCE: INTEGRATED PARKING LEVEL 5 PLAN (SHEET A104) BY ACMARTIN DATED 06/19/2024

PLOT PLAN

Geotechnologies, Inc.
Consulting Geotechnical Engineers

TC LA MF DEVELOPMENT, INC.
195, 275 & 325 E HILLCREST DR., THOUSAND OAKS

Drawn by: JD | File No.: 22549

Date: October 2024

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BORING LOG NUMBER 1

TC LA MF Development, Inc. **Date: 09/19/24**

File No. 22549 **Method: 8-inch diameter Hollow Stem Auger**

kk

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt for Parking
				0 --		3.5-inch Asphalt over 7.5-inch Base
				-		
				1 --		
				-		FILL: Silty Sand to Sandy Silt, dark brown, moist, medium dense to stiff, fine grained
				2 --		
2.5	40	13.6	112.4	-		
				3 --		Sandy Silt, dark brown, moist, very stiff
				-		
				4 --		
				-		
5	22	10.9	SPT	5 --		
				-	SM	OLDER ALLUVIUM: Silty Sand, dark brown, moist, medium dense, fine grained
				6 --		
				-		
				7 --		
7.5	68	9.1	117.5	-		yellowish brown, dense
				8 --		
				-		
				9 --		
				-		
10	33	15.0	SPT	10 --		
				-		dark brown
				11 --		
				-		
				12 --		
12.5	31	13.7	108.8	-		
	50/5"			13 --		dark and yellowish brown, very dense
				-		
				14 --		
				-		
15	27	12.1	SPT	15 --		
				-	ML	Sandy Silt, dark brown, moist, stiff
				16 --		
				-		
				17 --		
17.5	71	16.1	118.8	-		
				18 --	SM/SP	Silty Sand to Sand, dark brown, moist, dense, fine grained
				-		
				19 --		
				-		
20	30	20.5	SPT	20 --		
				-	SP	Sand, dark brown, wet, dense, fine to medium grained, with gravel
				21 --		
				-		
				22 --		
22.5	28	88.9	46.0	-	RX	BEDROCK: Siltstone, light gray and yellowish gray, brown, moist to very moist, moderately hard, weathered
	50/3"			23 --		
				-		
				24 --		
				-		
25	43	81.2	SPT	25 --		
	50/2"			-		Siltstone, light to dark gray, moist, moderately hard

BORING LOG NUMBER 1

TC LA MF Development, Inc.

File No. 22549

kk

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				26 --		
				27 --		
27.5	100/5"	77.4	50.1	-		Siltstone, dark gray, moist, moderately hard
				28 --		
				29 --		
30	43 50/4"	87.7	SPT	30 --		
				31 --		
				32 --		
				33 --		
				34 --		
35	100/6"	69.0	49.8	35 --		
				36 --		
				37 --		
				38 --		
				39 --		
40	100/7"	59.6	58.8	40 --		
				41 --		Total Depth 40 feet Water at 20 feet Fill to 5 feet
				42 --		
				43 --		NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.
				44 --		
				45 --		Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
				46 --		
				47 --		SPT=Standard Penetration Test
				48 --		
				49 --		
				50 --		

BORING LOG NUMBER 2

TC LA MF Development, Inc. **Date: 09/19/24**

File No. 22549 **Method: 8-inch diameter Hollow Stem Auger**

kk

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt for Parking
				0 --		4-inch Asphalt over 7-inch Base
				1 --		
				2 --		FILL: Silty Sand to Sandy Silt, dark brown, moist, very dense to very stiff, fine grained
2.5	42 50/5"	10.3	103.8	3 --		
				4 --	SM	OLDER ALLUVIUM: Silty Sand, dark and yellowish brown, moist, dense, fine grained
5	35	7.8	SPT	5 --		dark brown, occasional rock fragments
				6 --		
				7 --		
7.5	90	33.8	75.5	8 --	CH	Silty Clay, dark and yellowish brown, moist, very stiff
				9 --		
10	37	50.9	SPT	10 --	RX	BEDROCK: Siltstone, light gray to yellowish gray, moist, moderately hard, weathered
				11 --		
				12 --		
12.5	100/8"	92.0	47.5	13 --		moderately hard to hard
				14 --		
15	50/6"	74.4	SPT	15 --		
				16 --		
				17 --		
17.5	100/7"	71.1	54.8	18 --		
				19 --		
20	50/6"	72.6	SPT	20 --		Siltstone, dark gray, moist, moderately hard
				21 --		
				22 --		
				23 --		
				24 --		
25	100/8"	74.3	52.2	25 --		Siltstone, gray to dark gray, moist to very moist, hard

BORING LOG NUMBER 2

TC LA MF Development, Inc.

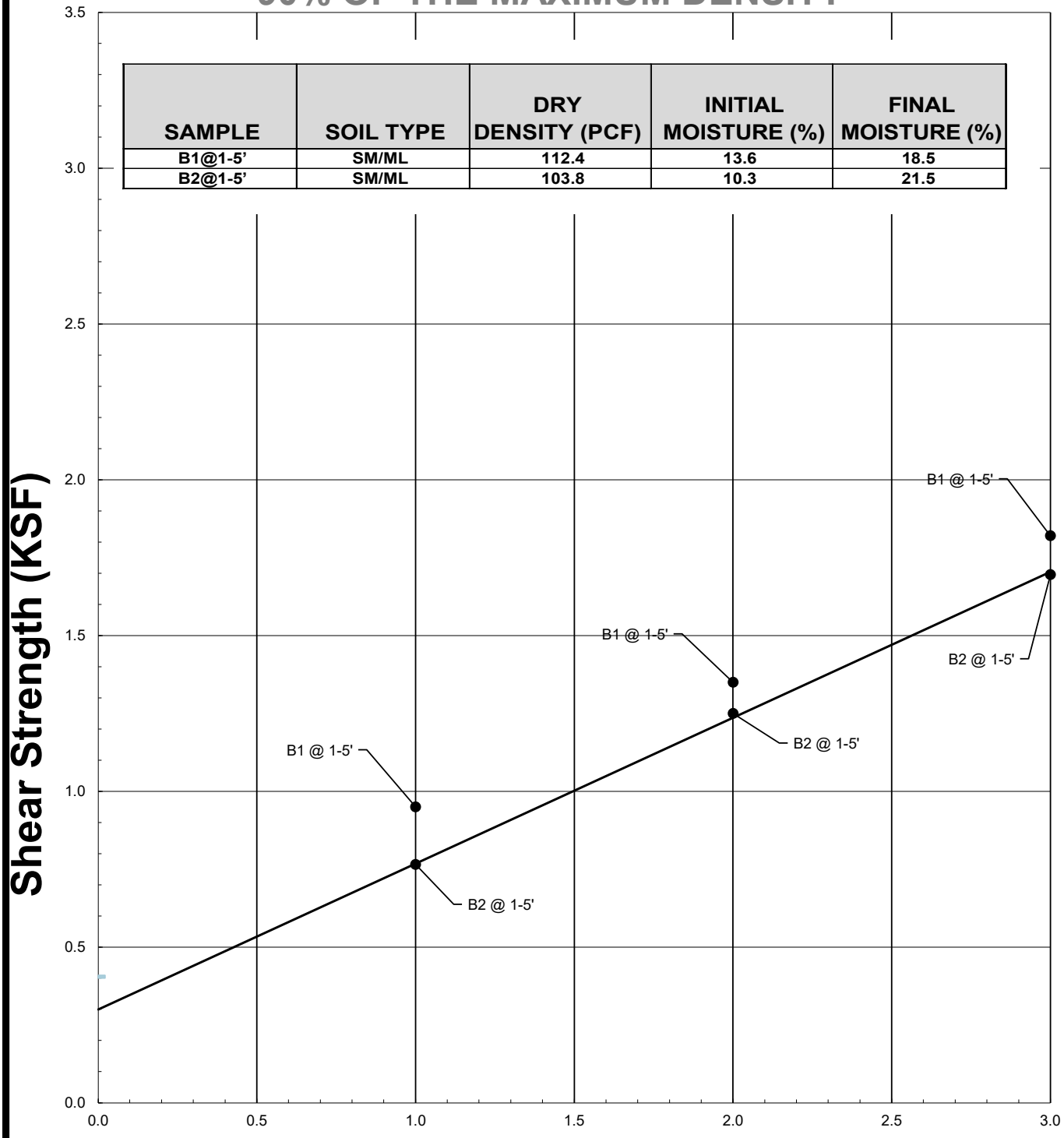
File No. 22549

kk

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				- 26 -- - 27 -- - 28 -- - 29 -- -		
30	100/4"	92.9	51.7	30 -- - 31 -- - 32 -- - 33 -- - 34 -- - 35 -- - 36 -- - 37 -- - 38 -- - 39 -- - 40 -- - 41 -- - 42 -- - 43 -- - 44 -- - 45 -- - 46 -- - 47 -- - 48 -- - 49 -- - 50 -- -		**Total Depth 30 feet** **Water at 24.5 feet** **Fill to 3 feet** **NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.** **Used 8-inch diameter Hollow-Stem Auger** **140-lb. Automatic Hammer, 30-inch drop** **Modified California Sampler used unless otherwise noted** **SPT=Standard Penetration Test**

BULK SAMPLES REMOLDED TO 90% OF THE MAXIMUM DENSITY

SAMPLE	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@1-5'	SM/ML	112.4	13.6	18.5
B2@1-5'	SM/ML	103.8	10.3	21.5



ϕ:	25	deg
c:	300	psf

SHEAR TEST DIAGRAM

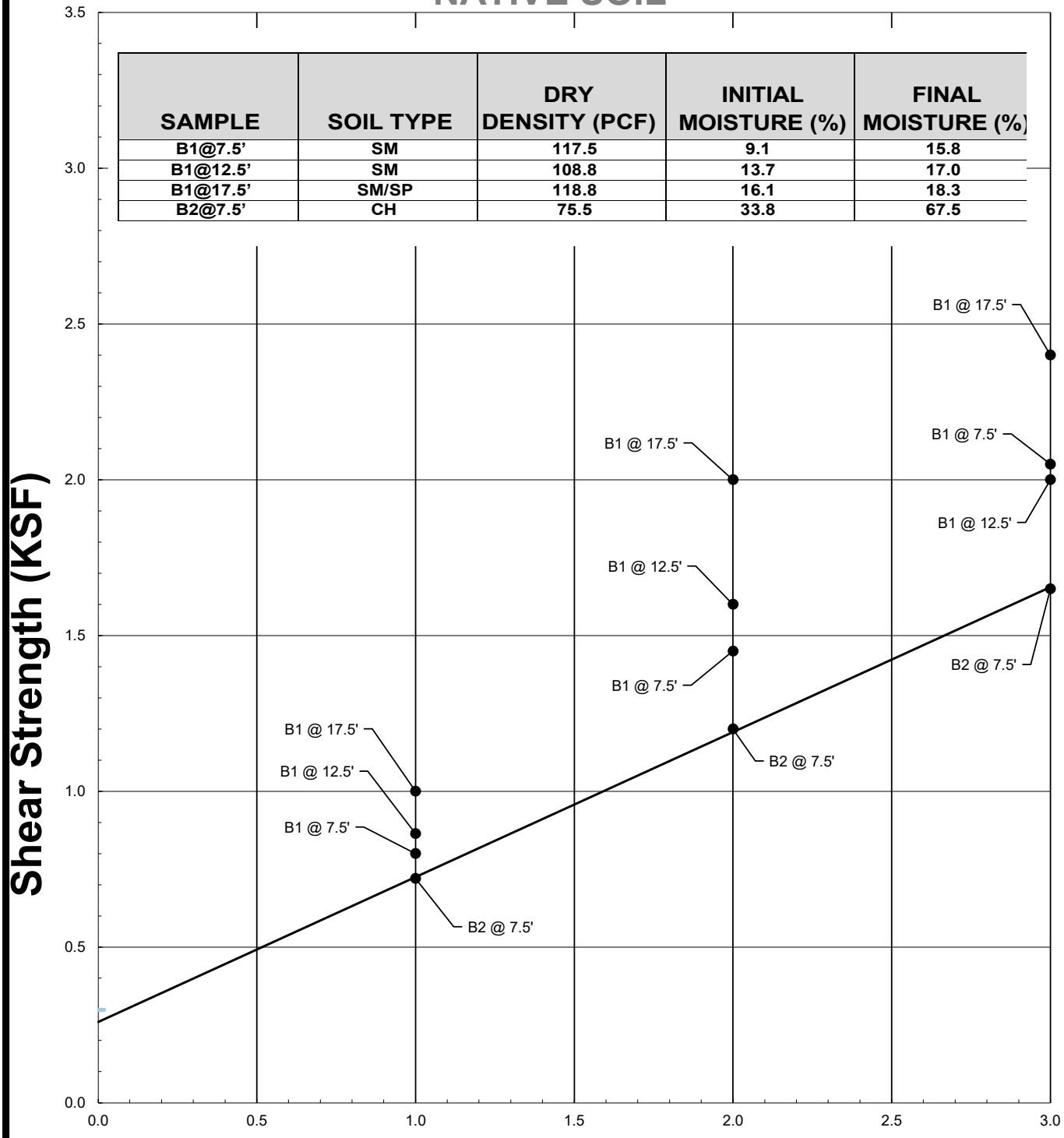
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Consulting Geotechnical Engineers

TC LA MF Development, Inc.
195, 275, and 325 E. Hillcrest Dr., Thousand Oaks

FILE NO.: 22549 | **PLATE: B-1**

NATIVE SOIL

SAMPLE	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@7.5'	SM	117.5	9.1	15.8
B1@12.5'	SM	108.8	13.7	17.0
B1@17.5'	SM/SP	118.8	16.1	18.3
B2@7.5'	CH	75.5	33.8	67.5



ϕ:	25	deg
c:	260	psf

SHEAR TEST DIAGRAM

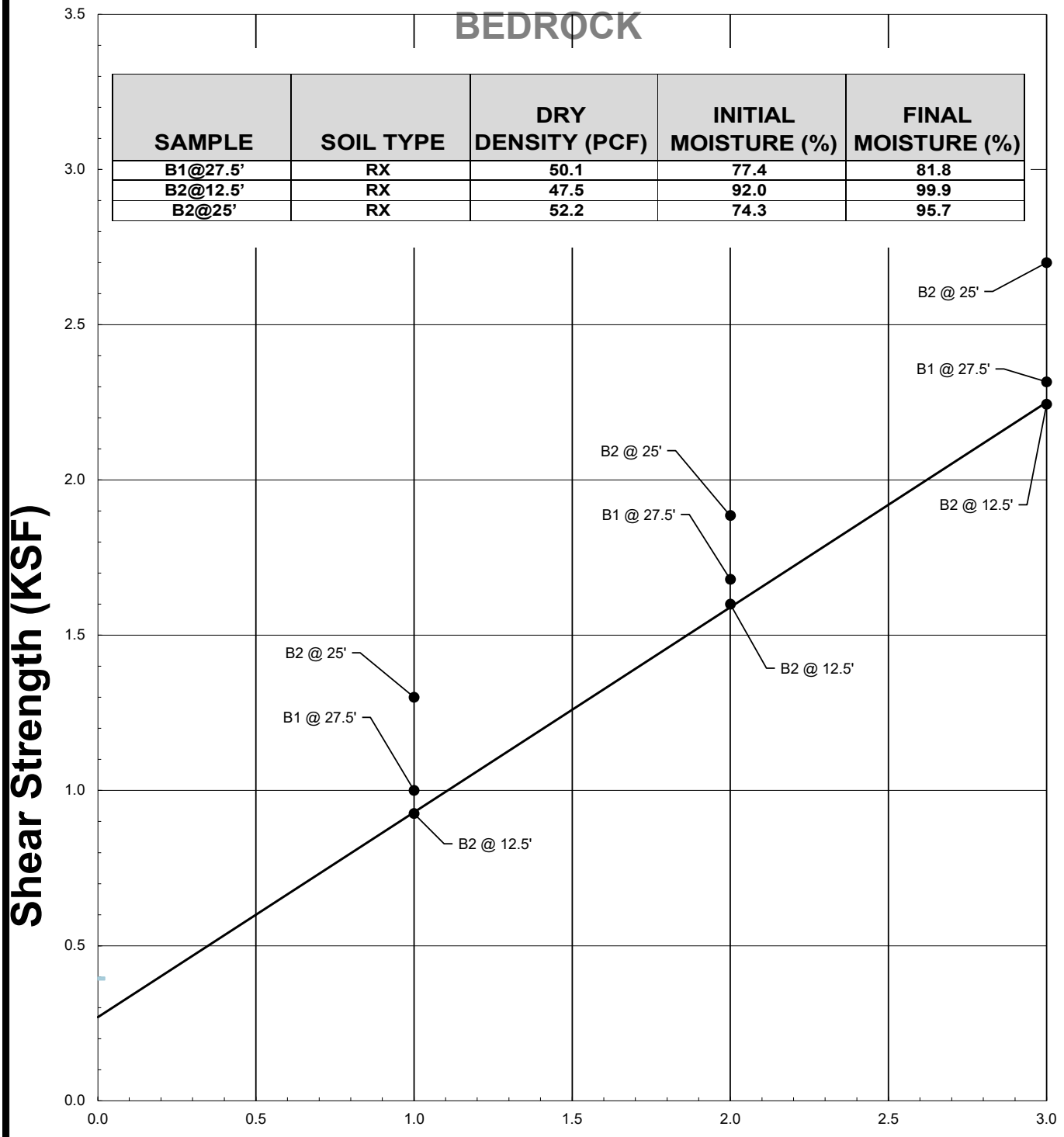
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FILE NO.: 22549 | **PLATE: B-2**

BEDROCK

SAMPLE	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@27.5'	RX	50.1	77.4	81.8
B2@12.5'	RX	47.5	92.0	99.9
B2@25'	RX	52.2	74.3	95.7



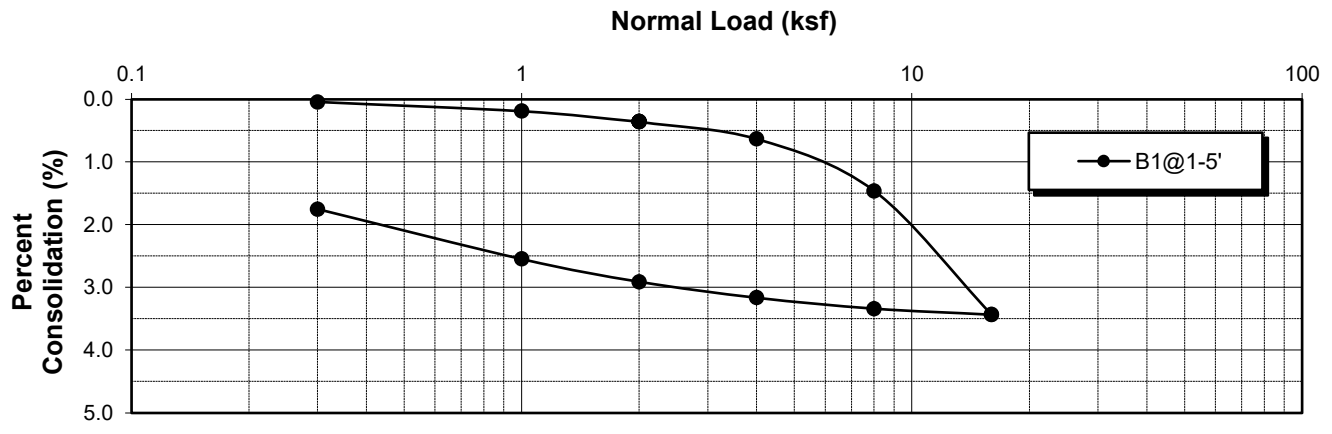
ϕ:	33	deg
c:	270	psf

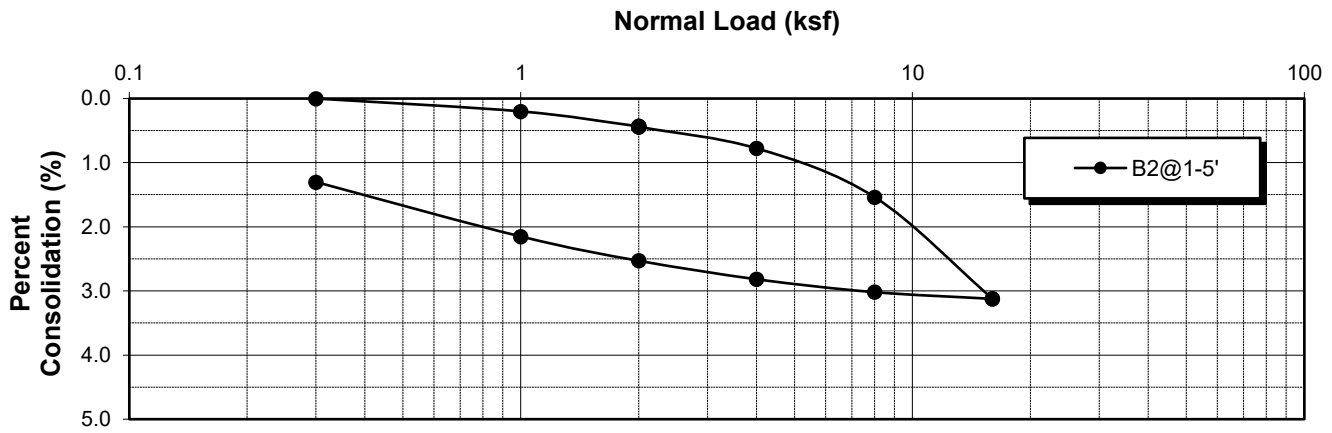
SHEAR TEST DIAGRAM

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FILE NO.: 22549 | **PLATE: B-3**



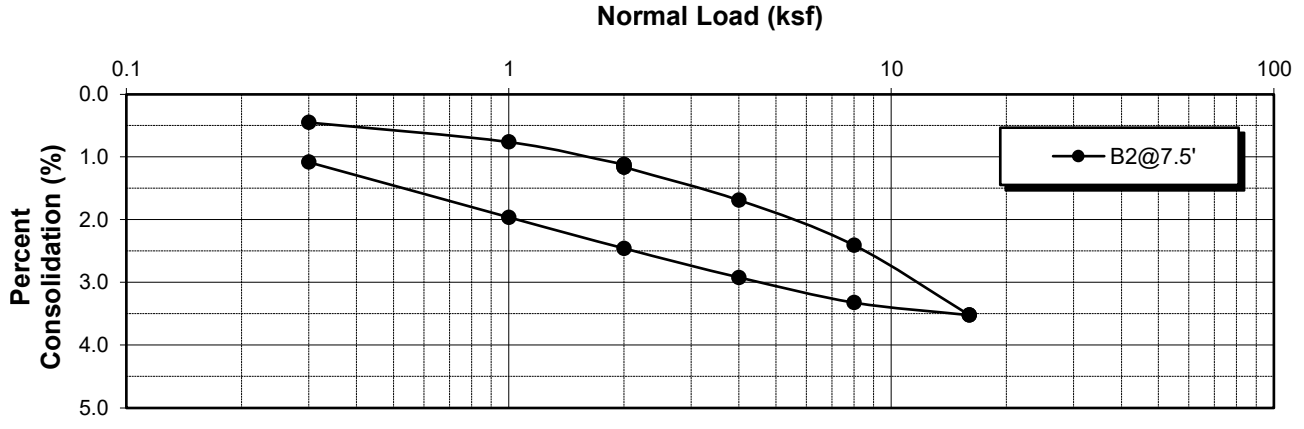


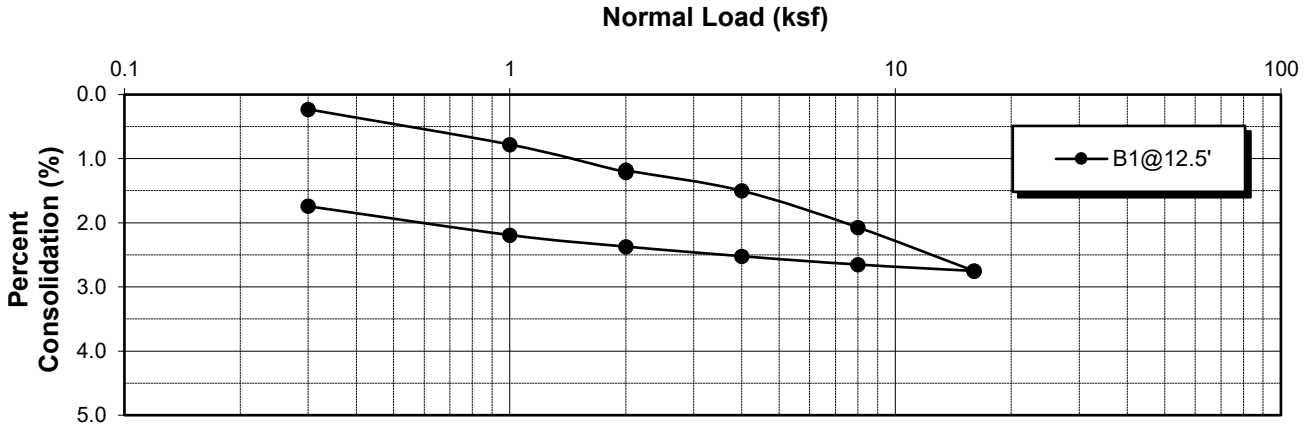
Water added at 2 KSF

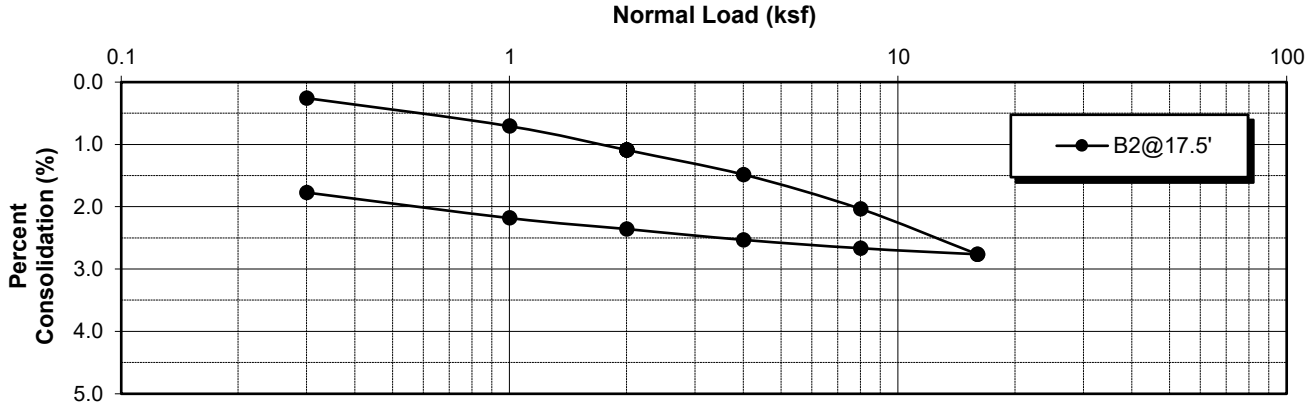
CONSOLIDATION

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Consulting Geotechnical Engineers

PROJECT: TC LA MF Development, Inc.	
FILE NO.: 22549	PLATE: C-1







Water added at 2 KSF

CONSOLIDATION

Geotechnologies, Inc.
Consulting Geotechnical Engineers

PROJECT: TC LA MF Development, Inc.	
FILE NO.: 22549	PLATE: C-2

LABORATORY COMPACTION CHARACTERISTICS
(ASTM D1557)

SAMPLE	B1 @ 1'-5'	B2 @ 1'-5'
SOIL TYPE	SM/ML	SM/ML
MAXIMUM DRY DENSITY (PCF)	128.6	124.3
OPTIMUM MOISTURE %	9.9	11.0

EXPANSION INDEX
(ASTM D4829)

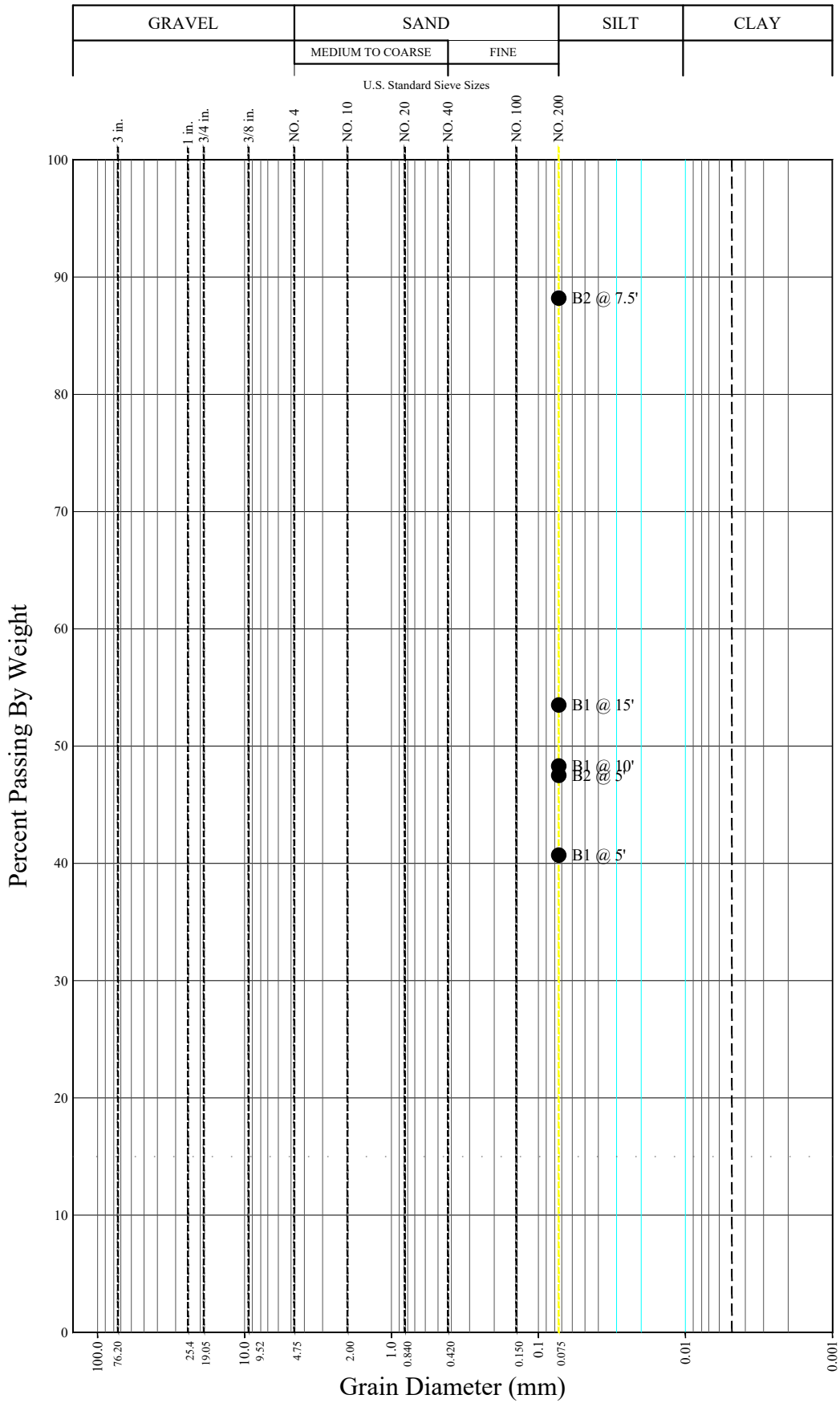
SAMPLE	B1 @ 1'-5'	B2 @ 1'-5'	B1 @ 12.5'	B2 @ 12.5'
SOIL TYPE	SM/ML	SM/ML	SM	BEDROCK
EXPANSION INDEX UBC STANDARD 18-2	68	64	35	10
EXPANSION CHARACTER	MODERATE	MODERATE	LOW	VERY LOW

COMPACTION/EXPANSION/SULFATE DATA SHEET

Geotechnologies, Inc.
Consulting Geotechnical Engineers

TC LA MF DEVELOPMENT, INC.
195, 275 & 325 E HILLCREST DR., THOUSAND OAKS

FILE NO: 22549 | PLATE: D



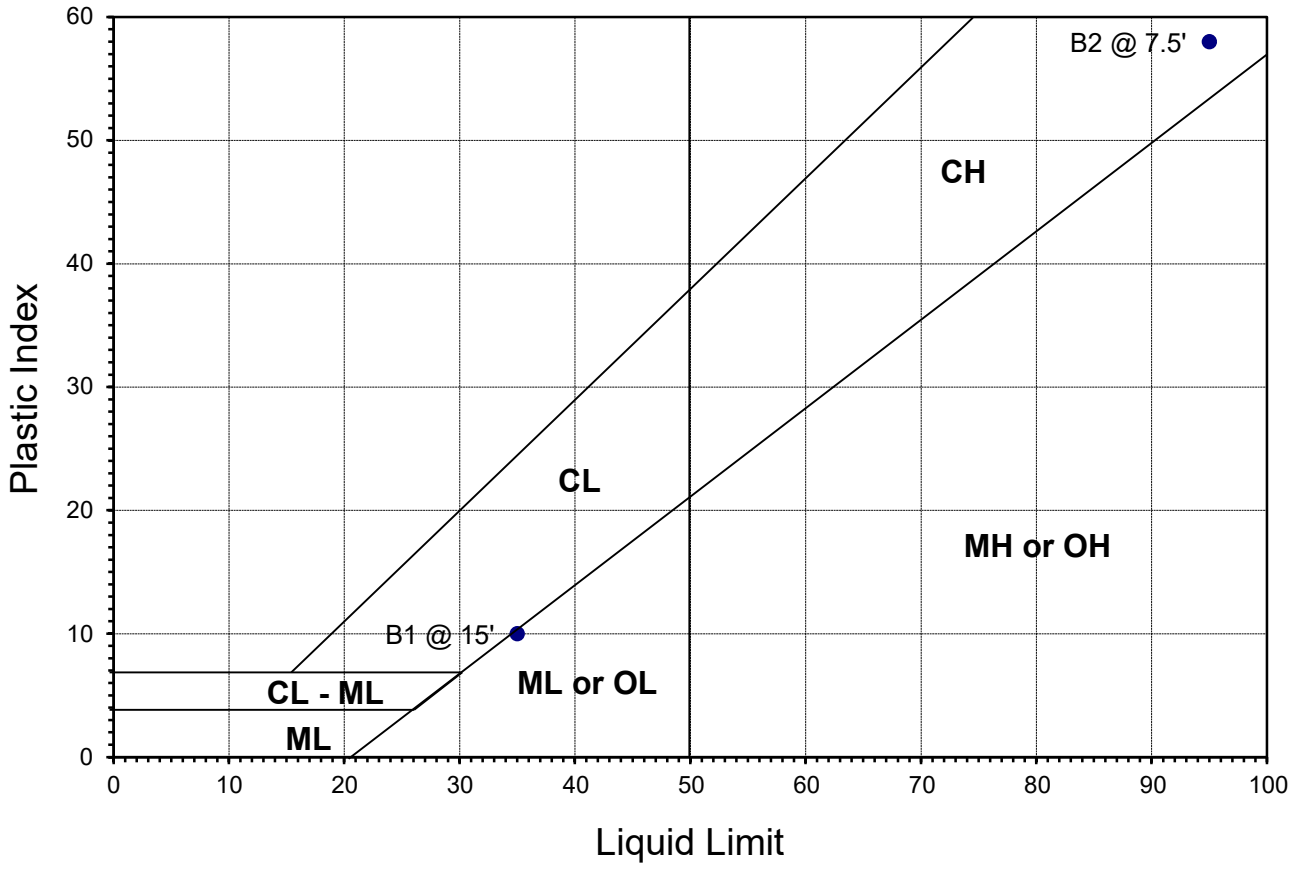
GRAIN SIZE DISTRIBUTION (ASTM D1140)

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Consulting Geotechnical Engineers

TC LA MF DEVELOPMENT, INC.
195, 275 & 325 E HILLCREST DR., THOUSAND OAKS

FILE NO: 22549

PLATE: E



Sample ID	Descriptions	Passing #200	Liquid Limit	Plastic Limit	Plastic Index
B1 @ 15'	ML	53.5	35.0	25.0	10.0
B2 @ 7.5'	CH	88.2	95.0	37.0	58.0

ATTERBERG LIMITS (ASTM D4318)

Geotechnologies, Inc.

CONSULTING GEOTECHNICAL ENGINEERS

PROJECT: TC LA MF DEVELOPMENT, INC.

FILE NO.: 22549

PLATE: F



Geotechnologies, Inc.

Project: TC LA MF Development, Inc.
File No.: 22549
Description: Liquefaction Analysis
Boring Numb 1

LIQUEFACTION EVALUATION (Idriss & Boulanger, EERI NO 12)

EARTHQUAKE INFORMATION:

Earthquake Magnitude (M):	7.5
Peak Ground Horizontal Acceleration, PGA (g):	0.56
Calculated Mag.Wtg.Factor:	1.000

GROUNDWATER INFORMATION:

Current Groundwater Level (ft):	20.0
Historically Highest Groundwater Level* (ft):	10.0
Unit Weight of Water (pcf):	62.4

* Based on California Geological Survey Seismic Hazard Evaluation Report

BOREHOLE AND SAMPLER INFORMATION:

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

LIQUEFACTION BOUNDARY:

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

Depth to Base Layer (feet)	Total Unit Weight (pcf)	Current Water Level (feet)	Historical Water Level (feet)	Field SPT Blowcount N	Depth of SPT Blowcount (feet)	Fines Content #200 Sieve (%)	Plastic Index (PI)	Vetical Stress σ_{vc}, (psf)	Effective Vert. Stress σ_{vc}', (psf)	Fines Corrected $(N_1)_{60\text{-}cs}$	Stress Reduction Coeff, r_d	Cyclic Shear Ratio CSR	Cyclic Resistance Ratio (CRR)	Factor of Safety CRR/CSR (F.S.)	Liquefaction Settlment ΔS_i (inches)
1	127.7	Unsaturated	Unsaturated	22	5	40.7	0	127.7	127.7	58.0	1.00	0.366	2.000	Non-Liq.	0.00
2	127.7	Unsaturated	Unsaturated	22	5	40.7	0	255.4	255.4	58.0	1.00	0.365	2.000	Non-Liq.	0.00
3	127.7	Unsaturated	Unsaturated	22	5	40.7	0	383.1	383.1	58.0	1.00	0.364	2.000	Non-Liq.	0.00
4	127.7	Unsaturated	Unsaturated	22	5	40.7	0	510.8	510.8	56.8	1.00	0.363	2.000	Non-Liq.	0.00
5	127.7	Unsaturated	Unsaturated	22	5	40.7	0	638.5	638.5	55.2	1.00	0.362	2.000	Non-Liq.	0.00
6	127.7	Unsaturated	Unsaturated	22	5	40.7	0	766.2	766.2	52.2	0.99	0.361	2.000	Non-Liq.	0.00
7	127.7	Unsaturated	Unsaturated	22	5	40.7	0	893.9	893.9	49.8	0.99	0.360	2.000	Non-Liq.	0.00
8	128.2	Unsaturated	Unsaturated	22	5	40.7	0	1022.1	1022.1	47.8	0.99	0.359	2.000	Non-Liq.	0.00
9	128.2	Unsaturated	Unsaturated	22	5	40.7	0	1150.3	1150.3	48.3	0.98	0.358	2.000	Non-Liq.	0.00
10	128.2	Unsaturated	Unsaturated	22	5	40.7	0	1278.5	1278.5	46.8	0.98	0.357	2.000	Non-Liq.	0.00
11	128.2	Unsaturated	Saturated	33	10	48.4	0	1406.7	1344.3	64.6	0.98	0.373	2.000	5.4	0.00
12	128.2	Unsaturated	Saturated	33	10	48.4	0	1534.9	1410.1	63.9	0.98	0.386	2.000	5.2	0.00
13	123.7	Unsaturated	Saturated	33	10	48.4	0	1658.6	1471.4	63.2	0.97	0.399	2.000	5.0	0.00
14	123.7	Unsaturated	Saturated	33	10	48.4	0	1782.3	1532.7	62.6	0.97	0.410	2.000	4.9	0.00
15	123.7	Unsaturated	Saturated	33	10	48.4	0	1906.0	1594.0	68.7	0.97	0.420	2.000	4.8	0.00
16	123.7	Unsaturated	Saturated	27	15	53.5	10	2029.7	1655.3	56.7	0.96	0.429	2.000	4.7	0.00
17	123.7	Unsaturated	Saturated	27	15	53.5	10	2153.4	1716.6	56.2	0.96	0.438	2.000	4.6	0.00
18	137.9	Unsaturated	Saturated	27	15	53.5	10	2291.3	1792.1	55.6	0.96	0.445	2.000	4.5	0.00
19	137.9	Unsaturated	Saturated	27	15	53.5	10	2429.2	1867.6	55.1	0.95	0.451	2.000	4.4	0.00
20	137.9	Unsaturated	Saturated	27	15	53.5	10	2567.1	1943.1	54.6	0.95	0.456	2.000	4.4	0.00
21	137.9	Saturated	Saturated	30	20	0.0	0	2705.0	2018.6	53.9	0.94	0.461	2.000	4.3	0.00
22	137.9	Saturated	Saturated	30	20	0.0	0	2842.9	2094.1	53.4	0.94	0.465	2.000	4.3	0.00
													Total Liquefaction Settlement, S =		**0.00 inches**

October 15, 2024 via email: vdunaev@geoteq.com

Geotechnologies, Inc.
439 Western Ave.
Glendale, CA, 91201

Attention: Vasily Dunaev

Re: Soil Corrosivity Study
TC LA MF Development, Inc.
Thousand Oaks, CA
HDR #24-0465SCS, CID #22549

Introduction

Laboratory tests have been completed on three soil samples provided to HDR for the TC LA MF Development, Inc project. The purpose of these tests was to determine whether the soils are likely to have deleterious effects on underground utility piping, hydraulic elevator cylinders, and concrete structures. HDR assumes that the provided samples are representative of the most corrosive soils at the site.

The proposed construction is a multi-family residential development that has four to five stories and one subterranean level. The project sites are located at 195, 275 and 325 E. Hillcrest Dr. in Thousand Oaks, California. The water table is reportedly 20 feet deep.

The scope of this study is limited to a determination of soil corrosivity and general corrosion control recommendations for materials likely to be used for construction. HDR's recommendations do not constitute, and are not meant as a substitute for, design documents for the purpose of construction. If the architects and/or engineers desire more specific information, designs, specifications, or review of design, HDR will be happy to work with them as a separate phase of this project.

Soil Corrosivity Testing

Laboratory Testing

The electrical resistivity of each sample was measured in a soil box per ASTM International (ASTM) G187 in its as-received condition and again after saturation with distilled water. Resistivities are at about their lowest value when the soil is saturated. The pH of the saturated samples was measured per ASTM G51. A 5:1 water:soil extract from each sample was chemically analyzed for the major soluble salts commonly found in soil per ASTM D4327, ASTM D6919, and American Water Works Association (AWWA) Standard Method 2320-B.

Discussion

A major factor in determining soil corrosivity is electrical resistivity. The electrical resistivity of a soil is a measure of its resistance to the flow of electrical current. Corrosion of buried metal is an electrochemical process in which the amount of metal loss due to corrosion is directly proportional to the flow of electrical current (DC) from the metal into the soil. Corrosion currents, following Ohm's Law, are inversely proportional to soil resistivity. Lower electrical resistivities result from higher moisture and soluble salt contents and indicate corrosive soil. A correlation between electrical resistivity and corrosivity toward ferrous metals is shown in Table 1.[1]

Table 1: Soil Corrosivity Categories

Soil Resistivity (ohm-cm)	Corrosivity Category
Greater than 10,000	Mildly Corrosive
2,001 to 10,000	Moderately Corrosive
1,001 to 2,000	Corrosive
0 to 1,000	Severely Corrosive

Other soil characteristics that may influence corrosivity towards metals are pH, soluble salt content, soil types, aeration, anaerobic conditions, and site drainage.

Electrical resistivities were in the mildly corrosive and moderately corrosive categories with as-received moisture. When saturated, the resistivities were in the severely to moderately corrosive categories.

Soil pH values varied from 7.2 to 7.8. This range is neutral to mildly alkaline.[2] These values do not particularly increase soil corrosivity.

The soluble salt content of the samples ranged from low to very high.

The soluble salt content was very high in the boring sample B2 @ 15’. Chloride and sulfate salts were the predominant constituents for sample B2 @ 15’. Chloride is particularly corrosive to ferrous metals, and in the higher concentrations measured in this soil sample, chloride can overcome the corrosion inhibiting effect of concrete on reinforcing steel. High concentrations of sulfate, as was measured in this soil sample, can react with components in concrete to cause degradation and reduced strength in a mechanism known as sulfate attack.

For samples B1 @ 1’-5’ and B2 @ 1’-5’, the chloride and sulfate concentrations were low.

Per ACI-318, the soil is classified as S2 with respect to sulfate concentration.[3]

Ammonium was not detected. Nitrate was detected in low concentrations that were not high enough to be aggressive to copper.

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[1] Romanoff, Melvin. Underground Corrosion, NBS Circular 579. Reprinted by NACE. Houston, TX, 1989, pp. 166–167.
[2] Romanoff, Melvin. Underground Corrosion, NBS Circular 579. Reprinted by NACE. Houston, TX, 1989, p. 8.
[3] American Concrete Institute (ACI) 318-19 Table 19.3.1.1.

Tests were not made for sulfide and oxidation-reduction (redox) potential because these samples did not exhibit characteristics typically associated with anaerobic conditions.

In conclusion, this soil is classified as severely corrosive to ferrous metals, severe (S2) for sulfate attack on concrete, and aggressive with respect to exposure of reinforcing steel to the migration of chloride.

Corrosion Control Recommendations

The life of buried materials depends on thickness, strength, loads, construction details, soil moisture, etc., in addition to soil corrosivity, and is, therefore, difficult to predict. Of more practical value are corrosion control methods that will increase the life of materials that would be subject to significant corrosion. The following recommendations are based on the evaluation of soil corrosivity described above. Unless otherwise indicated, these recommendations apply to the entire site or alignment.

All Pipe

1. On all pipes, appurtenances, and fittings not protected by cathodic protection, coat bare metal such as valves, bolts, flange joints, joint harnesses, and flexible couplings with wax tape per AWWA C217 after assembly.

2. Where metallic pipelines penetrate concrete structures such as building floors, vault walls, and thrust blocks use plastic sleeves, rubber seals, or other dielectric material to prevent pipe contact with the concrete and reinforcing steel.

3. To prevent differential aeration corrosion cells, provide at least 2 inches of pipe bedding or backfill material all around metallic piping, including the bottom. Do not lay pipe directly on undisturbed soil.

Steel Pipe

1. Underground steel pipe with rubber gasketed, mechanical, grooved end, or other nonconductive type joints should be bonded for electrical continuity. Electrical continuity is necessary for corrosion monitoring and cathodic protection.

2. Install corrosion monitoring test stations to facilitate corrosion monitoring and the application of cathodic protection:

    a. At each end of the pipeline.

    b. At each end of all casings.

    c. Other locations as necessary so the interval between test stations does not exceed 1,200 feet.

3. To prevent dissimilar metal corrosion cells and to facilitate the application of cathodic protection, electrically isolate each buried steel pipeline per NACE SP0286 from:

   a. Dissimilar metals.

   b. Dissimilarly coated piping (cement-mortar vs. dielectric).

   c. Above ground steel pipe.

   d. All existing piping.

4. Apply a suitable dielectric coating intended for underground use such as:

   a. Polyurethane per AWWA C222 *or*

   b. Extruded polyethylene per AWWA C215 *or*

   c. A tape coating system per AWWA C214 *or*

   d. Hot applied coal tar enamel per AWWA C203 *or*

   e. Fusion bonded epoxy per AWWA C213.

5. Apply cathodic protection to steel piping as per NACE SP0169.

NOTE: Some steel piping systems, such as oil, gas, insulated, or high-pressure piping systems, have special corrosion and cathodic protection requirements that must be evaluated for each specific application.

Ductile Iron Pipe

1. To prevent dissimilar metal corrosion cells and to facilitate the application of cathodic protection, electrically insulate underground iron pipe from dissimilar metals and from above ground iron pipe with insulating joints per NACE SP0286.

2. Bond all nonconductive type joints for electrical continuity. Electrical continuity is necessary for corrosion monitoring and cathodic protection.

3. Install corrosion monitoring test stations to facilitate corrosion monitoring and the application of cathodic protection:

   a. At each end of the pipeline.

   b. At each end of any casings.

   c. Other locations as necessary so the interval between test stations does not exceed 1,200 feet.

4. Apply a suitable coating intended for underground use such as:

   a. Polyethylene encasement per AWWA C105; *or*

   b. Epoxy coating; *or*

c. Polyurethane; *or*

d. Wax tape.

NOTE: The thin factory-applied asphaltic coating applied to ductile iron pipe for transportation and aesthetic purposes does not constitute a corrosion control coating.

5. Apply cathodic protection to ductile iron piping as per NACE SP0169.

NOTE: Some iron piping systems, such as for fire water piping, have special corrosion and cathodic protection requirements that must be evaluated for each specific application.

Cast Iron Soil Pipe

1. Protect cast iron soil pipe with either a double wrap 4-mil or single wrap 8-mil polyethylene encasement per AWWA C105.
2. It is not necessary to bond the pipe joints or apply cathodic protection.
3. Provide 6 inches of clean sand backfill all around the pipe. Use the following parameters for clean sand backfill:

    a. Minimum saturated resistivity of no less than 3,000 ohm-cm; *and*

    b. pH between 6.0 and 8.0.

    c. All backfill testing should be performed by a corrosion engineering laboratory.

Copper Tubing

1. Use Type K or Type L copper tubing as required by the applicable local plumbing code. Type M tubing should not be used for buried applications.[4]
2. Electrically insulate underground copper pipe from dissimilar metals and from above ground copper pipe with insulating devices per NACE SP0286. Sleeve copper pipe through footings and foundations to prevent pH concentration cells and prevent leaks caused by settlement.
3. Electrically insulate cold water piping from hot water piping systems.
4. Protect cold water pipe using all of the following measures:

    a. Place cold water copper tubing in an 8-mil polyethylene sleeve or encase in double 4-mil thick polyethylene sleeves. Ensure that sleeves are intact and free of cuts, tears, punctures, or other damage.

[4] *2022 California Plumbing Code (CPC) Section 604.3.*

b. Remove any construction debris, rocks, wood, or organic matter from the trench prior to backfill.

c. Bed and backfill with at least 2 inches of clean sand all around the tubing, including the bedding. Use the following parameters for clean sand backfill:

   i. Minimum saturated resistivity of no less than 3,000 ohm-cm; and

   ii. pH between 6.0 and 8.0.

   iii. All backfill testing should be performed by a corrosion engineering laboratory.

d. Copper tubing for cold water can also be treated the same as for hot water.

5. Hot water tubing may be subject to a higher corrosion rate. Protect hot copper tubing using one of the following measures:

   a. Prevent soil contact. Soil contact may be prevented by placing the tubing above ground or encasing the tubing with PVC pipe with solvent-welded joints. Either seal the PVC pipe at both ends using ammonia- and methanol-free caulk, or terminate both ends above-grade in a manner that doesn't allow water to infiltrate; *or*

   b. Applying cathodic protection per NACE SP0169. The amount of cathodic protection current needed can be minimized by coating the tubing with a suitable dielectric coating that is compatible with cathodic protection, such as Polyken 930.

Plastic and Vitrified Clay Pipe

1. No special corrosion control measures are required for plastic and vitrified clay piping placed underground.

2. Protect all metallic fittings and valves with wax tape per AWWA C217, or with epoxy and appropriately designed cathodic protection system per NACE SP0169.

Concrete Structures and Pipe

1. Protect concrete structures and pipe from sulfate attack in soil with a severe sulfate concentration (S2), from 0.20 to 2.0 percent. Use ASTM C150 Type V cement, a maximum water/cement ratio of 0.45, and a minimum strength of 4,500 psi per applicable codes.[5,6,7]

2. Chloride concentrations were measured at levels where additional protective measures are required to protect steel and iron embedded in concrete from chloride attack.[8] This applies to such items as reinforcing steel and anchor bolts, but not post-tensioning strands and anchors, which have separate requirements. The protection could be one or a combination of the following:

    a. Install protective concrete, a concrete mix designed to protect embedded steel and iron based on the following parameters:

        i. A chloride ion content of 600 ppm in the soil;

        ii. The desired service life;

        iii. The design concrete cover; and

        iv. The applicable building code.

        Note that a protective concrete mix may include a corrosion inhibitor admixture and/or supplementary cementitious materials such as fly ash or silica fume.

    b. Install waterproof concrete. Waterproofing for concrete could be a gravel capillary break under the concrete, a waterproof membrane such as the Grace PrePrufe® products, a waterproofing admixture, and/or a liquid applied waterproof barrier coating. Visqueen, similar rolled barriers, or bentonite-based membranes are not viable waterproofing systems for corrosion protection.[9]

    c. Coat embedded metal. A coating for embedded steel and iron could be an epoxy coating applied to the metal. Purple fusion bonded epoxy (FBE) (ASTM A934) intended for prefabricated reinforcing steel reinforcing steel is suitable. Any damage to the coating must be repaired in accordance with the manufacturer's specifications prior to installation. The green flexible FBE (ASTM A775) is not recommended.

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[5] *2021 International Building Code (IBC) which refers to American Concrete Institute (ACI) 318-19 Table 19.3.2.1*
[6] *2021 International Residential Code (IRC) which refers to American Concrete Institute (ACI) 318-19 Table 19.3.2.1*
[7] *2022 California Building Code (CBC) which refers to American Concrete Institute (ACI) 318-19 Table 19.3.2.1*
[8] *Design Manual 303: Concrete Cylinder Pipe. Ameron. p.65*
[9] *ASTM E1643-18a: Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs. ASTM International, 2018.*

d. Apply cathodic protection. Cathodic protection is most practical for pipelines and must be designed for each application. The amount of cathodic protection current needed can be minimized by coating the steel or iron.

3. Due to the high ground water table encountered at this site, cyclical or continual wetting may be an issue. Any contact between concrete structures and ground water should be prevented as follows:

    a. For structures that extend below the water table, contact can be prevented with an impermeable waterproofing system. Options include a membrane such as Grace PrePrufe® products, a liquid applied barrier coating, or a waterproofing admixture such as Xypex® Admix. Visqueen, similar rolled barriers, or bentonite-based membranes are not viable waterproofing systems for corrosion protection.

    b. For structures above the water table, contact can be prevented with a gravel capillary break under the concrete and a vapor retarding membrane. Note that per ASTM E1643, "vapor retarders are not intended to provide a waterproofing function."[10] Alternatively, an impermeable waterproofing system may be used.

    NOTE: Interior surfaces of concrete structures and pipe used to transport wastewater may require additional corrosion protection measures, such as linings, based on the flow conditions and wastewater characteristics. These considerations are beyond the scope of this report.

Hydraulic Elevators

1. Choose one of the following corrosion control options for the hydraulic steel cylinders.

    OPTION 1

    a. Coat hydraulic elevator cylinders with a suitable dielectric coating intended for underground use such as:

        i. Polyurethane per AWWA C222 or

        ii. Extruded polyethylene per AWWA C215 or

        iii. A tape coating system per AWWA C214 or

        iv. Hot applied coal tar enamel per AWWA C203 or

        v. Fusion bonded epoxy per AWWA C213.

    b. Electrically insulate each cylinder from building metals by installing dielectric material between the piston platen and car, insulating the bolts, and installing an insulated joint in the oil line; and

[10] *ASTM E1643-18a: Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs. ASTM International, 2018.*

c. Apply cathodic protection to hydraulic cylinders as per NACE SP0169.

OPTION 2

a. As an alternative to electrical insulation and cathodic protection, place each cylinder in a plastic casing with a plastic watertight seal at the bottom.

2. The elevator oil line should be placed above ground if possible but, if underground, should be protected by one of the following corrosion control options:

OPTION 1

a. Provide a bonded dielectric coating,

b. Electrically isolate the pipeline, and

c. Apply cathodic protection to steel piping as per NACE SP0169.

OPTION 2

a. Place the oil line in a PVC casing pipe with solvent-welded joints and sealed at both ends to prevent contact with soil and moisture.

Closure

The analysis and recommendations presented in this report are based upon data obtained from the laboratory samples. This report does not reflect variations that may occur across the site or due to the modifying effects of construction. If variations appear, HDR should be notified immediately so that further evaluation and supplemental recommendations can be provided.

HDR's services have been performed with the usual thoroughness and competence of the engineering profession. No other warranty or representation, either expressed or implied, is included or intended.

Please call if you have any questions.

Respectfully Submitted,
HDR Engineering, Inc.



Tyler J. Cedres, E.I.T.
Corrosion E.I.T.

Bradley M. Stuart, PE
Corrosion Engineer

Enc: Table 1 – Laboratory Tests on Soil Samples

Table A1 - Laboratory Tests on Soil Samples

Geotechnologies, Inc.
TC LA MF Development, Inc.
Your #22549, HDR Lab #24-0465SCS
30-Sep-24

Sample ID			B1 @ 1'-5'	B2 @ 1'-5'	B2 @ 15'
Resistivity		**Units**			
as-received		ohm-cm	7,200	16,000	4,400
saturated		ohm-cm	1,640	2,080	400
pH			7.2	7.8	7.5
Electrical Conductivity		mS/cm	0.12	0.16	1.25
Chemical Analyses					
Cations					
calcium	Ca^{2+}	mg/kg	52	57	472
magnesium	Mg^{2+}	mg/kg	12	10	200
sodium	Na^{1+}	mg/kg	56	90	558
potassium	K^{1+}	mg/kg	8.0	3.0	16
ammonium	NH_4^{1+}	mg/kg	ND	ND	ND
Anions					
carbonate	CO_3^{2-}	mg/kg	ND	29	ND
bicarbonate	HCO_3^{1-}	mg/kg	198	238	134
fluoride	F^{1-}	mg/kg	12	7.0	5.0
chloride	Cl^{1-}	mg/kg	8.0	3.0	572
sulfate	SO_4^{2-}	mg/kg	93	35	2,140
nitrate	NO_3^{1-}	mg/kg	1.0	1.0	2.0
phosphate	PO_4^{3-}	mg/kg	6.0	6.0	ND
Other Tests					
% moisture	H_2O	%	na	na	na
total acidity	H^{1+}	mmol/kg	na	na	na
sulfide	S^{2-}	qual	na	na	na
Redox		mV	na	na	na

Resistivity per ASTM G187, pH per ASTM G51, Cations per ASTM D6919, Anions per ASTM D4327, and Alkalinity per APHA 2320-B.

Electrical conductivity in millisiemens/cm and chemical analyses were made on a 1:5 soil-to-water extract.

mg/kg = milligrams per kilogram (parts per million) of dry soil.

Redox = oxidation-reduction potential in millivolts

ND = not detected

na = not analyzed

GORIAN AND ASSOCIATES, Inc.
Soil and Foundation Engineers
Applied Earth Sciences

November 3, 1978

Ecoscience, Inc.
2343 Townsgate Road
Thousand Oaks, CA 91361

Work Order: 852-1-11
Log Number: 5089

Attention: Mr. Thompson

Subject: Potential for Soil Liquefaction, Thousand Oaks Financial Plaza, Hodencamp and Hillcrest Lane, City of Thousand Oaks.

Gentlemen:

This report, supplementing our prior report of January 4, 1978, presents our opinions regarding the potential for soil liquefaction on the above site, and was prepared in reponse to comments by Mr. Greg Smith, Planning Department, City of Thousand Oaks.

INVESTIGATION

A 24" diameter bucket auger boring was drilled at the location shown on the attached Plot Plan, judged to be the area most likely to be within a zone susceptable to soil liquefaction. The boring was drilled as close as possible to the channel, where one would expect to encounter shallow groundwater, if it was present.

Our boring encountered Older Alluvium to a depth of 18½ feet, consisting of firm to compact sandy clays, clayey sands clayey silts and sands and gravelly sands, as previously described. This underlying bedrock consists of thinly laminated diatomaceous shale of the Modelo Formation. No groundwater was encountered in our boring, either within the Older Alluvium or underlying bedrock.

SUMMARY AND CONCLUSIONS

Based on the investigation described above, we conclude that the potential for soil liquefaction is negligable since shallow groundwater is not present. Further, most of the soils encountered within the Older Alluvium are compact to dense and contain significant admixtures of clay. Cohensionless fine sand is not present. Thus, even if the soils became saturated, the probability of liquefaction is remote. Due to the urgent need to supply this information to Mr. Smith as soon as possible, normal sampling and soil engineering tests were not conducted; the condition of the soils with respect to their compactness and relative consolidation was based on the visual judgment of our field engineer. At an appropriate stage in design, we will provide a detailed foundation investigation and substantiating numerical data to confirm these conclusions.

Please call if you have any questions.

Very truly yours,

Rudy M. Pacal
RCE 021278

Charles A. Swift
EG 948

RMP/ts

Attachments: Plot Plan
Boring Log

Distribution: Addressee (4)
Attention: Mr. Gerald Thompson
City of Thousand Oaks Planning Department (1)
Attention: Mr. Greg Davis

GORIAN AND ASSOCIATES

SUB-SURFACE DATA

Log No. 1

PROJECT: Ecoscience - Hillcrest & Hodencamp

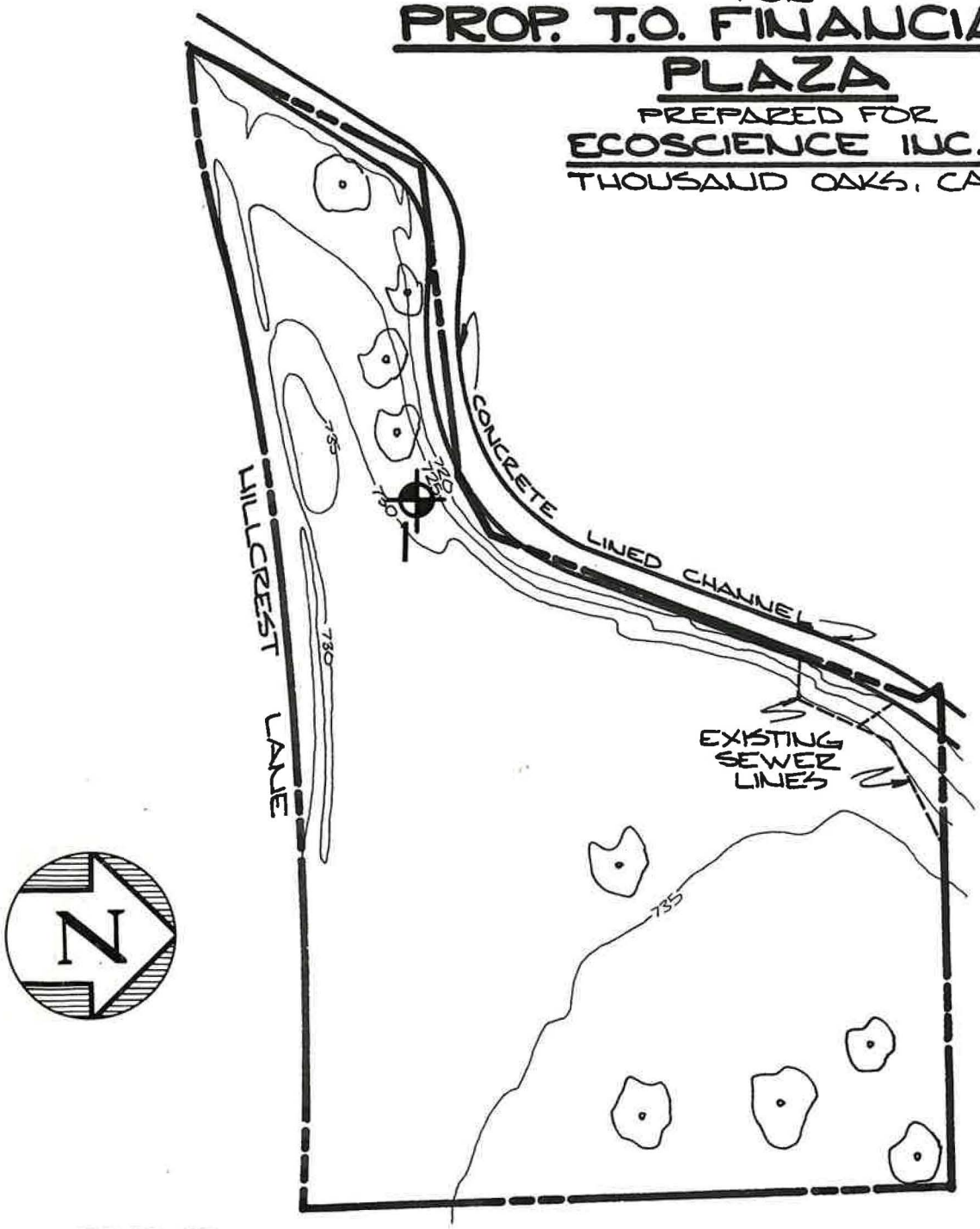
Method of Drilling: 24" Bucket Auger **Logged by** B. Cavan **Job No.** 852-1-11

Ground Elevation: _____ **Location:** See Map **Date Observed:** _____

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs./cu. ft.	DESCRIPTION
0	CH						Alluvium: Dark brown fine sandy silty clay (upper 12" dry becoming moist below) (Stiff)
5	SM						Yellowish brown very clayey silt and fine sand becoming sandier with depth (very moist, medium to stiff)
10	CH						Mottled rust and tan sandy silty clay with traces of gravel (very moist, stiff)
15	SC						Light brown clayey fine to very coarse sand with abundant subrounded to subangler gravel, pebbles and cobbles to 6" maximum diameter commonly 1"-2" diameter (very moist, compact) At 15' abundant angler siliceous shale fragments becoming less clayey with depth below 15'
	GC						
20							Light to moderate olive brown (5'/4.5/5) clayey fine to very coarse gravelly sand with scattered pebbles and cobbles (very moist, compact)
25							Modelo Formation: Buff white to light gray with minor tan diatomaceous shale (very moist, dense) well caminated and fissile. At 20.5' becoming non diatomaceous and greyish olive. Very dense at 21.5'
30							Total Depth = 21.5' Refusal No Caving No Groundwater
35							

A-6045

LOCATION MAP
FOR
PROP. T.O. FINANCIAL PLAZA
PREPARED FOR
ECOSCIENCE INC.
THOUSAND OAKS, CA.



LEGEND

1 ⊕ LOCATION OF EXPLORATORY BORING

SOIL AND FOUNDATION ENGINEERS	GORIAN AND ASSOCIATES, Inc.		APPLIED EARTH SCIENCES
JOB NUMBER: 852-1-10		DATE: 11-8-78	
SCALE: 1"=160'	APPROVED BY:	DRAWN BY: BS	
		LOG NO: 5089	

BISHOP GRAPHICS/ACCUPRESS
REORDER NO. A-1242

GREYNALD AND ASSOCIATES

GEOLOGIC AND SOIL ENGINEERING

INVESTIGATION,

PROPOSED THOUSAND OAKS FINANCIAL PLAZA,

CITY OF THOUSAND OAKS

GORIAN AND ASSOCIATES, Inc.

GORIAN AND ASSOCIATES, Inc.
Soil and Foundation Engineers
Applied Earth Sciences

October 4, 1979

Greynald and Associates
2625 Townsgate Road, Suite 100
Westlake Village, CA 91361

Work Order: 852-1-12
Log Number: 5862
Revised

Attention: Mr. Mike Greynald

Subject: Geologic and Soil Engineering Investigation, Proposed Thousand Oaks Financial Plaza, Hodencamp Road and Hillcrest Lane, City of Thousand Oaks

Reference: Preliminary Geologic Evaluation, Proposed Thousand Oaks Financial Plaza, Work Order 852-1-10, Log Number 4082, Dated January 4, 1978

Potential for Soil Liquefaction, Proposed Thousand Oaks Financial Plaza, Work Order 852-1-11, Log Number 5089, Dated November 3, 1978

Gentlemen:

In this report, we present the results of our geologic and soil investigation for the subject property. In addition, we are also including the information presented in the above referenced reports.

SITE DESCRIPTION

The site is located in the north west corner of Hillcrest Lane and Hodencamp Road. The property is roughly triangular in shape and contains approximately 26 acres. Lang Creek, a natural drainage course forms the northwesterly boundary of the parcel.

Man-Made Culture

No significant man-made culture is present on the site, except for Hillcrest Lane along the southerly boundary. An existing 12" sewer line crosses the northwestern

portion of the property near Lang Creek. We understand that this line is to be relocated.

Culture and Vegetation

The property is covered mainly by sparse seasonal grasses which have been disced for fire control and by numerous oak trees of varying size. The tree locations are shown on the referenced topographic map.

Topography

The eastern part of the site exhibits a prominent topographic rise approximately 25 to 30 feet above the main northerly and westerly portion. From this rise, a gentle westward slope joins the main plain at about 5:1. The majority of the property is nearly flat, sloping gently south westward at about 2%.

The most prominent topographic feature adjacent to the property is Lang Creek, a well defined water course. The creek is confined to a concrete lined channel as it crosses the site. Side slopes of the concrete channel are vertical. An examination of old aerial photos reveals the northern half of the channel is man-made, graded when an original stream meander west of the property was back-filled.

SITE DEVELOPMENT

The site will be developed as a financial plaza which will include 17 two story buildings and 3 parking structures. The buildings will be rectangular in shape and range in size from approximately 120' by 70' to 220' to 70'. Some of the buildings

will be separated 25 feet and will have connecting portions. The buildings are to be of steel frame construction. The parking structures will extend three to ten feet below the existing grade and will have two levels of parking. There will also be several interior driveways and parking areas. Numerous retaining walls will be constructed to protect existing oak trees. Some of the retaining walls will form part of the buildings and some will be adjacent to parking areas.

INVESTIGATION

Our investigation was conducted in September of 1979, and included the following.

1. An examination of the site by a soil engineer and an engineering geologist.
2. Drilling and logging 12 exploratory borings ranging in depth from 11 to 21 feet. Undisturbed and bulk samples were obtained for laboratory testing.
3. Excavating and logging 4 exploratory backhoe trenches ranging in depth from 7 to 13 feet to obtain subsurface geologic information.
4. A program of laboratory testing.
5. A review of the information presented in the referenced reports along with pertinent published and unpublished information in our files.
6. A foundation engineering analysis based on the above information.

GEOLOGIC AND SOIL CONDITIONS

The site is underlain by old fill, old alluvium, and at depth by bedrock of the Modelo Formation.

Old Fill

A thin layer of old fill was encountered in Boring 4 to a depth of 2 feet. The fill consisted of a sandy clay which was in a moist and stiff condition.

Older Alluvium

The site is underlain by Pleistocene-age deposits classified as Older Alluvium. These deposits are comprised of sandy silty clay, clayey silt and sand, sand and gravels, and silty sands. They are in a damp to very moist and compact to very dense condition.

Bedrock

Underlying the Older Alluvium at depth, is Miocene-age bedrock of the Modelo Formation. The Modelo is composed of diatomaceous to clayey siltstone and shale. Colors vary from light gray to white to tan to rust. The shale and siltstone are typically fractured, but well laminated and locally tightly folded.

Bedding is inclined generally to the north at shallow to moderate angles (10°-35°).

Groundwater and Caving

Water seepage was observed in Boring 4 at a depth of 20.5. Seepage was not encountered in any of the other borings. No caving occurred in any of the exploratory borings or trenches.

Faulting

A review of the unpublished open file prepared by the California State Division of Mines and Geology pertaining to the location of fault traces in the region, indicates that a projected trace of the Boney Mountain fault is shown underlying a portion of the property. The fault trace is conjectural only, possibly having been placed there to account for the linear appearance of the south-easterly edge of the flood plain of Lang Creek. If present, it is concealed below the Older Alluvium at a probable depth of several tens of feet, possibly deeper. It should be noted that the fault is

not well defined in older sediments or in volcanic bedrock occurring at each end of the suspected trace. One would expect that a fault which produced a prominent physiographic feature such as the linear "scarp" mentioned above would be easily recognized in more competant rock units. The actual location of the conjectured fault trace, if it exists, is uncertain and may not actually underlie the property at all. Its presence or absence could be verified only by a detailed program of fault trenching.

Activity Status of the Boney Mountain Fault

Activity status of the Boney Mountain fault is unknown, but it is presently believed to be inactive. Its inactivity was discussed in a letter to the City of Thousand Oaks by F. Beach Leighton, dated October 28, 1975, who also considers it to be inactive. Its latest known movement may have taken place as much as 12,000,000 years ago, based on fault activity maps published in 1974 by the U.S. Geological Survey. Because of the conjectural nature of the fault and its probable inactivity, we believe its presence is not significant to the proposed development.

Seismicity

Fault Rupture

As discussed above, no significant active faults are known to pass through the property. We believe the likelihood of fault rupture on this site is remote.

Ground Shaking

Although fault rupture should not occur on the property, intense ground shaking could result from a major earthquake along more distant faults. The extent of ground shaking during such an earthquake would be similar to that for most of the

central portions of the City of Thousand Oaks. For purposes of design, we believe the provisions of the Seismic Safety Element of the City of Thousand Oaks provides satisfactory design parameters.

LABORATORY TESTING

Classification

Samples obtained from the borings were classified visually in the field and subsequently by laboratory classification in accordance with the Unified Soil Classification System. Field density and moisture content were determined for each undisturbed sample and are shown on the attached Boring Logs.

Moisture-Density Curves

Maximum density-optimum moisture curves were prepared for three representative samples of the upper native soil. The curves were prepared according to ASTM D 1557 70T (modified to 3 layers). The results are as follows:

Boring Number	Depth	Description	Maximum Dry Density (pcf)	Optimum Moisture Content (%)
2	10.0'	Modelo Formation	68.0	45.0
3	1.0'	Dark brown sandy silty clay	113.5	15.0
6	1.0'	Brown clayey silt and fine sand	118.5	13.0

Soil Expansion Test

Expansion tests were performed on three representative samples of the native soils. The tests were run in accordance with the City of Thousand Oaks Expansion Test, utilizing a surcharge of 60 lbs./sq.ft. The results are as follows:

Boring Number	Depth	Description	Expansion (%)	Expansion Range (%)
2	10.0'	Modelo Formation	11.9	8-12%
3	1.0'	Dark brown sandy silty clay	8.8	8-12%
6	1.0'	Brown clayey silt and fine sand	7.5	4-8%

The native soils are moderately to highly expansive.

Load-Consolidation Tests

Load-consolidation tests were performed on six undisturbed samples of the native soil. The samples were tested under axial loads up to 8000 or 9400 lbs./sq.ft. Moisture was added to the samples at axial loads of 1000 or 1200 lbs./sq.ft. to study the potential effect of moisture infiltration on footing behavior. The results are attached as graphic summaries.

Direct Shear Tests

Direct shear tests were performed on two undisturbed samples of the native soil and three bulk samples remolded to 90% relative compaction. The sample sets were saturated prior to being sheared under axial loads varying from 920 to 3700 lbs./sq. ft. The results are attached as graphic summaries.

CONCLUSIONS AND RECOMMENDATIONS

1. General

   The site may be developed as proposed in accordance with the following recommendations.

2. Liquefaction

Water seepage was encountered within the bedrock at a depth of 20.5 feet in Boring 4. Also, very moist to saturated soils were encountered in Boring 7 at a depth of 20.0 feet. Since the bedrock is very dense and the soils noted in Boring 7 have a moderately high dry density, the presence of the water should not have a major effect on the performance of these soils. Due to the dense nature of the bedrock and compact to dense nature of the overlying soils, the probability of liquefaction appears to be remote.

3. Faulting and Seismicity

As stated in the main body of this report, no significant active faults are known to pass through the property and the likelihood of fault rupture through the site is remote.

Intense ground shaking could result from earthquakes generated on regional active faults. However, the provisions of the Seismic Safety Element of the City of Thousand Oaks provide satisfactory design parameters.

4. Site Preparation

General

Prior to any grading, all major vegetation, trash and debris should be removed from all areas of construction. Minor vegetation may be blended with the native soils during processing. It is anticipated that no oak trees will be removed. In order to protect the trees, care should be taken when recompaction and construction is performed near the trees. All loose fill or loose soils should be removed to soils having a relative compaction of 85%. These removals are anticipated to be on the order of one to two feet.

After all removals and prior to placing any fill, the upper 12 inches of exposed native soil should be scarified, watered to near optimum moisture content and compacted to a minimum of 90% relative compaction. All fill should be cleansed of major vegetation, trash and debris, placed in 6 to 8 inch lifts, watered to near optimum moisture content and compacted to a minimum of 90% relative compaction.

The portion of the existing sewer line and old backfill located within the proposed parking structure should be removed. The resulting excavation should be backfilled with fill compacted to a minimum of 90% relative compaction.

Recompaction for Surface Parking and Driveways

The upper 12 inches of exposed native soil should be scarified, watered to near optimum moisture content and compacted to a minimum of 90% relative compaction.

Recompaction Within Building Areas

Recompaction will be required within the building areas for either post-tensioned slabs or conventional footings. The depth of recompaction for each building location is discussed below.

Building Pads A, C, D, E, F, G and H will require recompaction as follows: For a post-tensioned slab and conventional slab system, the upper soils should be recompacted to a minimum of 90% relative compaction for a depth of 12 inches. To prepare the areas for conventional footings, the soils will need to be recompacted to a minimum of 90% relative compaction to a depth of 12 inches below the footing. The next 12 inches should be densified to a minimum of 85% relative compaction. We anticipate that this recompaction may be accomplished from the bottom of the footing excavation with equipment such as a hydrohammer.

Building Pad B is overlain by a layer of old fill which should be removed to soil having a relative compaction of 85%. The fill was 2 feet thick in Boring 4. After removals have been made, the upper 12 inches of exposed native soils should be scarified, watered to near optimum moisture content and compacted to a minimum of 90% relative compaction. This treatment applies to both post-tensioned slabs and conventional foundations.

Building Pads J and K should be recompacted to a minimum of 90% relative compaction to a depth of 12 inches below the existing surface. This treatment applies to both post-tensioned slabs and conventional foundations.

No recompaction should be required in the cut area of the parking structures. However, within the fill areas, recompaction should follow the recommendations presented for Buildings A, C, D, E, F, G, and H.

5. Soil Expansiveness

The native soils tested in accordance with the City of Thousand Oaks standards were found to be generally in the 8-12% expansion range.

6. Shrinkage and Subsidence

Recompaction of the upper soils will result in a shrinkage of approximately 10%. The shrinkage value is designed to account for the variability of the density in the upper soils. Subsidence within the native soils will be on the order of .3 to .4 feet. This takes into account the fact that the upper surface of the site has been recently disced.

A zero to 5% shrinkage and zero subsidence figure should be used for the bedrock.

7. Foundation Design

Continuous and Isolated Footings

An allowance soil bearing pressure of 1500 lbs./sq.ft. may be used for footings a minimum of 12 inches wide and a minimum depth of 24 inches below the lowest adjacent grade. The bearing value may be increased to 2000 lbs./sq.ft. for a footing a minimum of 24 inches wide and 24 inches deep. The increased bearing value should not be used in the area of Building G. The above bearing capacities may be increased by 1/3 for temporary loads due to wind and seismic forces.

Isolated footings should have a minimum width of 2 feet. All footings should be embedded deep enough to provide a minimum horizontal distance of 5 feet from slope faces. All footing trenches should be inspected by a soils engineer.

All footings, should be reinforced with a minimum of 2 No. 4 bars placed in the top and bottom.

Grade Beams or Thickened Conventional Slab Edge

All isolated perimeter footings should be connected by a grade beam or thickened conventional slab edge embedded a minimum of 24 inches below the lowest adjacent exterior grade. The intent of the grade beam or thickened slab edge is to provide a continuous moisture barrier around the perimeter of the building. The grade beam or thickened slab edge should be a minimum of 12 inches wide. Grade beams and thickened slab edges should be reinforced with two No. 4 bars placed in the top and bottom.

Conventional Slab

Floor slabs should be at least 4.0 inches thick and reinforced with No. 3 bars placed on 24 inch centers in each direction. A 6 mil Visqueen moisture barrier should be placed beneath slabs on grade, overlain by two inches of sand to improve curing. The moisture barrier should be underlain by a minimum of 4 inches of clean sand or crushed rock. Care should be taken to keep the sand out of the perimeter footing trenches. Garage floor slabs should be underlain by sufficient base material to handle vehicle loads.

Post-Tentioned Slab

A post-tensioned slab may be used in lieu of a conventional footing and grade beam system. The slab may be designed to impose an allowable bearing pressure of 1000 lbs./sq.ft. at the surface of a properly prepared pad and 1250 lbs./sq. ft. at a minimum embedment of 8 inches. The slab should be designed for span distances of 5 feet for the interior and exterior. The slab should be underlain by a 6 mil Visqueen moisture barrier overlain by 2 inches of sand.

Moisture-Penetration

The footing and subgrade soils should be moistened to a minimum of 3% over the optimum moisture content for a depth of 18 inches under the footings and slabs.

Settlements

Settlements for footings designed as recommended are estimated to be on the order of 1/4 to 1/2 inch. Footing settlements are expected to occur rapidly

as loads are applied. After construction is complete, no long term settlements are anticipated. Differential settlements between similarly loaded foundations are expected to be less than 1/4 inch.

8. Retaining Walls

Passive Resistance and Friction

Lateral forces may be resisted by passive soil resistance and friction. Passive earth pressure may be taken as an equivalent fluid pressure equal to 350 lbs./ cu.ft. The coefficient of friction between the bottom of the footing and firm soil may be taken as 0.4.

Should both friction and passive resistance be required to resist lateral loads, the calculated values of one or the other should be reduced by 50%.

Earth Pressures

The retaining wall should be designed to resist an active earth pressure of exerted by compacted backfill or retained soil. The active earth pressure may be taken as an equivalent fluid pressure equal to 35 lbs./cu.ft. for a level backfill and 50 lbs./cu. ft. for a 1½:1 backfill. These values are not designed to support an adverse bedding condition. All cuts should be inspected by an engineering geologist.

If any structures are located near the retaining walls, the building loads should be treated as a surcharge on the backfill.

We recommend that a drainage system be installed behind the wall to prevent

accumulation of water and build-up hydrostatic pressures. This drainage system could consist of weep holes with gravel filter material.

Where retaining walls are to also be building walls, we recommend that the walls be water proofed and that gravel backfill be placed behind the walls.

During placement of water backfill, heavy compaction equipment should not be allowed within 8 feet of the retaining wall to prevent excessive overturning forces and foundation edge pressure. The backfill should be compacted to a minimum of 90% relative compaction of light equipment. The backfill should be benched into firm material.

9. Slopes

Cut and fill slopes constructed at a 1½:1 gradient to a maximum height of 15 feet were analyzed using Janbu's Method of Dimenionless Parameters. The resulting Factors of Safety exceed the minimum of 1.5.

All fill slopes should be keyed and benched into firm native soils in accordance with the City of Thousand Oaks standards. Fill slopes should be overfilled and trimmed back to firm well compact material.

North facing cut slopes in the vicinity of Pads H, J, and K and the eastern parking structures may expose adversly dipping bedding planes to the Modelo Formation which would require stabilization. We anticipate these occurrences to be only isolated cases, but recommend that all cut slopes be inspected by an engineering geologist during grading.

No site drainage should be allowed to flow over the slope faces during or after construction.

10. Structural Section

For preliminary design, a structural section of 3" A.C. on 8" of base should be adequate for the parking and drive areas.

The actual pavement section should be confirmed at the conclusion of grading and when the traffic loading is known.

11. Site Drainage

During and after construction, all surface drainage should be directed away from the building pads and slope faces. If planters are located adjacent to the structures, they should be constructed so that irrigation water will not saturate the soils underlying the building footings and slabs.

Please call if you have any questions.

Respectfully,

Gorian and Associates, Inc.

By: Charles A. Swift
EG 948

By: Rudy M. Pacal
RCE 21278

JJB, CS & RP/jb

Attachments: Location Map
Table 29-A-2
Lab Tests
Boring and Trench Logs

Distribution: Addressee (6)
(For submittal to the City of Thousand Oaks)

GORIAN AND ASSOCIATES

SUB-SURFACE DATA

Log No. B-1

PROJECT: Greynald and Associates

Method of Drilling: 24" bucket auger **Logged by** R. Simons **Job No.** 852-1-12

Ground Elevation: _____ **Location:** See Map **Date Observed:** 9/12/79

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs./cu. ft.	DESCRIPTION	Relative Compaction
0	CH		■	■	14.3	103	Older Alluvium: (Upper 6" plowed) Dark brown fine to medium sandy silty clay with abundant gravel. Upper 2.0' very porous and desiccated. (Moist, stiff below.) At 3.0' becoming very gravelly and cobbley with cobbles to 8".	91%
5	GP						Light brown gravel and cobbles in fine to coarse sand matrix (damp, very dense).	
				■	80.1	52	Modelo Formation: Light gray to tan with rust partings, very weathered diatomaceous siltstone (thinly bedded) (very moist, dense).	
10			■					
15			■		47.1	70.5		
20							Total depth = 16.0' No caving No groundwater	
25								
30								
35								

A-6045

GORIAN AND ASSOCIATES

SUB-SURFACE DATA

Log No. B-2

PROJECT: Greynald and Associates

Method of Drilling: 24" bucket auger Logged by R. Simons Job No. 852-1-12

Ground Elevation: _____ Location: See Map Date Observed: 9/12/79

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs./cu. ft.	DESCRIPTION	Relative Compaction
0	CL		■	■	11.6	119	Topsoil: (Upper 4" plowed) Dark brown fine to medium sandy clay with abundant gravel becoming brown at 2.0' (moist, very stiff).	
5	SC		■	■	14.9	115	Light brown clayey fine to very coarse sand and gravel (moist, very compact).	97%
10			■	■	53.3	67	Modelo Formation: Light gray tan to rust diatomaceous siltstone (very moist, dense) very weathered.	
15			■		62.3	61	At 17.0' very firm drilling and becoming limy siltstone (moist, very dense).	
20			■		44.5	82		
25							Total depth = 21.0' No caving No groundwater	
30								
35								

A-6045

GORIAN AND ASSOCIATES

SUB-SURFACE DATA

Log No. B-3

PROJECT: Greynald and Associates

Method of Drilling: 24" bucket auger Logged by R. Simons Job No. 852-1-12

Ground Elevation: _____ Location: See Map Date Observed: 9/12/79

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs./cu. ft.	DESCRIPTION	Relative Compaction
0	CH		■		14.2	95	Older Alluvium: (Upper 6" plowed) Dark brown fine sandy silty clay, very porous,	84%
			■		16.8	96	desiccated to 1.0' (moist, medium stiff). Grades to mottled brown at 2.0' to brown at 3.0' and becomes sandier with depth.	85%
5	ML		■		13.6	107	Brown clayey silt and fine sand, porous, becoming light brown and less clayey at 6.0'.	90%
	ML				22.0	92	Light brown silt and very fine sand, very porous. (Moist, medium).	
10	ML		■		22.0	92	Brown very clayey silt and fine sand, very porous with caliche (very moist, medium compact).	78%
	SM						Light brown silty fine to medium sand (moist) porous.	
15	CH		■		25	92	Dark brown very fine sandy silty clay, very porous. Becoming gray brown with caliche at 15.0', very moist.	81%
20							Total depth = 16.0' No caving No groundwater	
25								
30								
35								

A-6045

GORIAN AND ASSOCIATES

SUB-SURFACE DATA

Log No. B-4

PROJECT: Greynald and Associates

Method of Drilling: 24" bucket auger Logged by R. Simons Job No. 852-1-12

Ground Elevation: _____ Location: See Map Date Observed: 9/12/79

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs./cu. ft.	DESCRIPTION	Relative Compaction
0	CH		■	■	13.1	112	Fill: Mottled brown fine sandy clay (moist, stiff).	
	ML		■	■	11.6	103	Older Alluvium: Dark brown clayey silt and fine sand, porous.	87%
5	ML		■		13.4	102	Brown clayey silt and fine sand, porous (moist, compact becoming compact at 5.0). Becoming light brown with caliche at 5.5' and interbedded with silty fine sand.	86%
10			■		12.6	102	Very moist at 10.0'. At 12.0' color change to mottled brown.	86%
15	ML		■	■	17.9	108	Mottled gray brown clayey silt and fine sand with caliche slightly porous (moist, compact).	91%
20			■		102.8	43	Modelo Formation: White diatomaceous shale, very weathered, very moist, dense (trace of seepage at 20.5').	
25							Total depth 21.0' No caving Water seepage at 20.5'	
30								
35								

A-6045

GORIAN AND ASSOCIATES

SUB-SURFACE DATA

Log No. B-5

PROJECT: Greynald and Associates

Method of Drilling: 24" bucket auger **Logged by** R. Simons **Job No.** 852-1-12

Ground Elevation: _____ **Location:** See Map **Date Observed:** 9/12/79

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs./cu. ft.	DESCRIPTION	Relative Compaction
0	CH		■	■	11.4	95	Older Alluvium: (Upper 4" plowed) Mottled gray-brown fine sandy silty clay, porous with small carbon fragments (moist, medium stiff).	84%
	ML						Brown clayey silt and fine sand, porous (moist, medium compact).	
5	ML		■		6.8	106	Light brown interbedded clayey silt and fine sand and silty fine to fine medium sand with gravel and shale fragments and caliche (damp to moist, compact).	89%
	GP							
10			■		98.4	45	Gravel and cobbles to 6" diameter in light brown silty fine to coarse sand matrix (moist, very compact).	
							Modelo Formation: Tan diatomaceous siltstone (very moist, dense).	
15							Total depth = 11.0' No caving No groundwater	
20								
25								
30								
35								

A-6045

GORIAN AND ASSOCIATES

SUB-SURFACE DATA

Log No. B-6

PROJECT: Greynald and Associates

Method of Drilling: 24" bucket auger Logged by R. Simons Job No. 852-1-12

Ground Elevation: _____ Location: See Map Date Observed: 9/12/79

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs./cu. ft.	DESCRIPTION	Relative Compaction
0	ML		■	■	12.9	91	Older Alluvium: (Upper 6" plowed) Brown very clayey silt and fine sand very porous.	77%
			■		13.1	105	Becoming light brown at 2.5' (moist, medium compact).	89%
5	SW		■	■	5.9	102	Light brown fine to coarse sand, trace of gravel (damp to moist, medium compact).	
	SM						Light brown to brown silty fine sand, moist.	
10	CH		■		18.2	109	Mottled gray to brown fine sandy silty clay with caliche (moist, very stiff).	96%
	SM						Light brown silty fine sand with trace of gravel and shale fragments.	
15	SW		■		10.6	97	Light rust brown fine to coarse sand with abundant gravel, cobbles and shale fragments (moist, compact).	
							Total depth = 16.0' No caving No groundwater	
20								
25								
30								
35								

A-6045

GORIAN AND ASSOCIATES

SUB-SURFACE DATA

Log No. B-7

PROJECT: Greynald and Associates

Method of Drilling: 24" bucket auger Logged by R. Simons Job No. 852-1-12

Ground Elevation: _____ Location: See Map Date Observed: 9/12/79

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs./cu. ft.	DESCRIPTION	Relative Compaction
0	CH				19.3	89	Older Alluvium: (Upper 6" plowed) Mottled brown fine sandy silty clay, very porous (moist, medium stiff). Becoming sandier with depth.	78%
5	ML				12.1	113	Brown to light brown clayey silt and fine to medium sand. Trace of gravel and shale fragments, porous (moist, compact).	95%
	SW						At 6.5' becoming very gravelly and cobbley with cobbles to 4".	
10	CH				18.8	99	Light brown fine to coarse sand with abundant gravel and cobbles to 3-4" (damp, compact).	87%
	CH						Gray brown fine to medium sandy clay, porous (very moist, medium stiff).	
15	CH				26.3	89	Light brown fine to coarse sand with shale fragments.	78%
	ML						Brown to light brown fine sandy silty clay with caliche, very porous (very moist, medium).	
							Brown silt and fine sand, porous very moist.	
20	CH						Dark brown fine sandy silty clay, very moist.	86%
	SM						Gray to brown (mottled) silty fine sand (very moist to saturated, compact).	
25							Total depth = 21.0' No caving No groundwater	
30								
35								

A-6045

GORIAN AND ASSOCIATES

SUB-SURFACE DATA

Log No. B-8

PROJECT: Greynald and Associates

Method of Drilling: 24" bucket auger Logged by R. Simons Job No. 852-1-12

Ground Elevation: _____ Location: See Map Date Observed: 8/13/79

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs./cu. ft.	DESCRIPTION	Relative Compaction
0	CH				13.1	87	Older Alluvium: Dark brown fine sandy silty clay very porous. Becoming brown at 1.0', some roots (moist, medium stiff). Sandier with depth.	77%
					16.0	85		72%
5	ML				12.1	101	Brown clayey silt and fine sand, very porous, trace of caliche (moist, medium compact).	85%
	SM						Brown to light brown silty fine sand (trace of clay) porous, moist.	
10	CH				21.7	97	Gray brown fine sandy silty clay with caliche very porous (moist, medium stiff).	85%
15					22.5	99	Increasing moisture with depth.	87%
							Total depth = 16.0'	
							No caving	
20							No groundwater	
25								
30								
35								

A-6045

GORIAN AND ASSOCIATES, Inc.

SUB-SURFACE DATA

Log No. B-9

PROJECT: Greynald and Associates

Method of Drilling: 24" bucket auger Logged by R. Simons Job No. 852-1-12

Ground Elevation: _____ Location: See Map Date Observed: 9/13/79

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs./cu. ft.	DESCRIPTION	Relative Compaction
0	CH						Older Alluvium: Brown fine sandy silty clay very porous (moist, medium).	
	ML				11.5	94	Brown clayey silt and fine sand, very porous (moist, medium compact).	79%
5	SM				12.1	106	Light brown silty fine sand, porous, with trace of shale fragments (moist, compact).	
10					18.2	98		86%
	CH						Brown to yellow brown fine sandy silty clay with siltstone and shale fragments (very moist, stiff).	
15					65.5	55	Modelo Formation: White diatomaceous siltstone, very weathered (moist, very dense) (very thinly bedded). Color change to gray and very firm drilling at 18.0'.	
20					96.8	44		
							Total depth = 21.0' No caving No groundwater	
25								
30								
35								

A-2936

GORIAN AND ASSOCIATES, Inc.

LOGS OF BORINGS

PROJECT: Greynald and Associates

Method of Drilling: 24" bucket auger **Logged by** R. Simons **Job No.** 852-1-12

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs./cu. ft.	DESCRIPTION	Relative Compaction
Log No. B-10							**LOCATION** See Map **DATE** 9/13/79	
0	CH				17.1	108	Older Alluvium: (Upper 6" plowed) Dark brown fine sandy silty clay with trace of shale fragments, porous. Becoming brown at 2.5' (moist, stiff).	95%
5	ML				21.4	86	Brown clayey silt and fine sand very porous (moist, medium compact).	72%
10	SM				13.9	109	Brown to light brown silty fine sand with gravel and shale fragments from 10.5 to 11.5, porous (moist, medium compact to compact).	
15	CH				24.4	94	Gray brown fine sandy silty clay with trace of caliche, porous (very moist, stiff).	
							Total depth = 16.0' No caving, no groundwater	
Log No. B-11							**LOCATION** See Map **DATE** 9/13/79	
0	CH				25.0	86	Topsoil: Dark gray fine sandy silty fat clay, porous. Becoming light tan to white diatomaceous at 3.0' (moist, stiff).	76%
5	SM				22.9	101	Older Alluvium: Brown silty fine sand, very cemented (damp to moist, very dense). Becoming gravelly at 8.0'	
10					11.6	115	At 9.5' becoming brown silty fine to coarse sand with abundant volcanic rock fragments (moist, very compact).	
15							Total depth = 11.0' No caving No groundwater	

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GORIAN AND ASSOCIATES, Inc.

SUB-SURFACE DATA

Log No. B-12

PROJECT: Greynald & Associates

Method of Drilling: 24" bucket auger **Logged by** R. Simons **Job No.** 852-1-12

Ground Elevation: _____ **Location:** See Map **Date Observed:** 9/13/79

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs./cu. ft.	DESCRIPTION	Relative Compaction
0	CH		■	■	16.3	101	Older Alluvium: Dark brown fine to medium sandy silty clay, porous with root hairs (moist, stiff).	89%
5			■		15.5	106	At 4.0' becoming brown with shale fragments and gravel, porous (moist, stiff).	93%
10			■	■	17.9	108	At 9.0' becoming gray brown fine to coarse sandy clay with gravel and shale fragments (moist, stiff).	95%
15			■		92.3	44	Modelo Formation: Light tan to white with rust partings. Diatomceous siltstone, weathered (very moist, dense) and shale.	
20			■		100	42		
25							Total depth = 21.0' No caving No groundwater	
30								
35								

A-2936

GORIAN AND ASSOCIATES, Inc.

LOGS OF BORINGS

PROJECT: Greynald and Associates

Method of Drilling: 24" backhoe **Logged by** S. Simmons **Job No.** 852-1-12

Log No. P-1

LOCATION See Map **DATE** 9/14/79

Depth in Feet	Classification Unified Soil System Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs./cu. ft.	DESCRIPTION
0	CH					Topsoil: Dark brown sandy silty clay, very porous (soft to firm, moist), partially desiccated.
	CH					Older Alluvium: Medium brown silty mudstone (firm to dense) mottled with caliche with local pockets of fine sand.
5	SW					Medium brown fine to coarse sand (dense, moist) very friable.
	SP					Conglomerate - abundant sand and gravel sequence, large subrounded cobbles, very friable.
10						Total depth = 13.0'
						No caving
						No groundwater
15						Bearing N87°W

Log No. P-2

LOCATION See Map **DATE** 9/14/79

Depth in Feet	Classification Unified Soil System Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs./cu. ft.	DESCRIPTION
0	CH					Topsoil: Dark brown sandy silty clay (firm to dense, moist), very porous with abundant rootlets and scattered pebbles.
	CH					Tan - predominently medium brown very sandy clay, with abundant pebbles and cobbles, subangular to subrounded, porous with scattered rootlets.
5						Modelo Formation: White light gray shale, very argillaceous, fractured, laminated. Att. at 6,66'; N76°W/23°N
10						Total depth = 8.0'
						No caving
						No groundwater
						Bearing N80°W
15						

GORIAN AND ASSOCIATES, Inc.

LOGS OF BORINGS

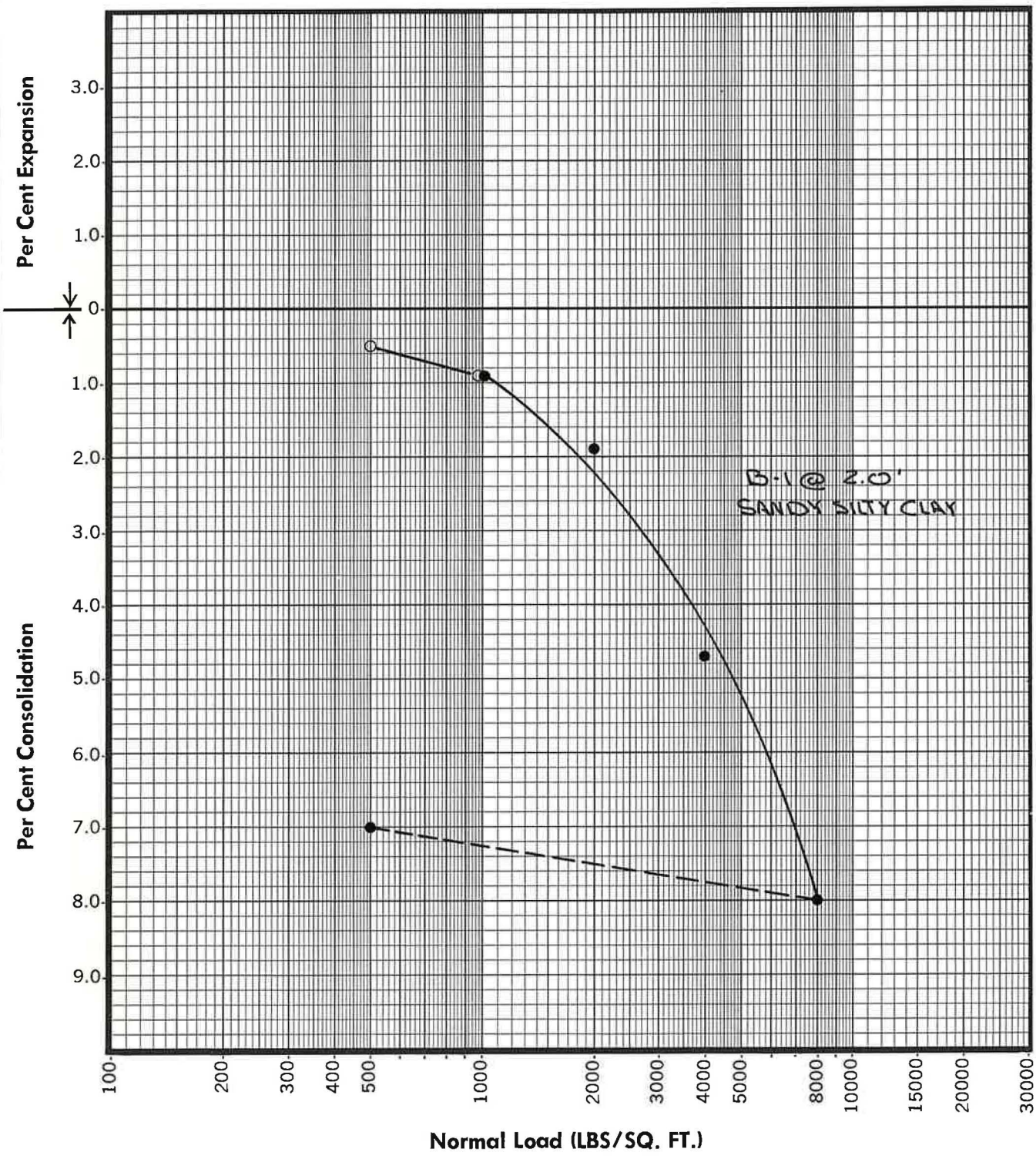
PROJECT: Greynald and Associates

Method of Drilling: 24" backhoe **Logged by** S. Simmons **Job No.** 852-1-12

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs./cu. ft.	DESCRIPTION	
Log No. P-3							**LOCATION** See Map **DATE** 9/14/79	
0	CH						Older Alluvium: Dark brown to gray sandy silty clay with pebbles and scattered shale fragments, partially desiccated (soft to firm, loose; moist).	
5							Modelo Formation: White to light gray shale, argillaceous, fractured, laminated, occasionally tightly folded.	Att. at 6.0': N54°E/35°NW Att. at 7.0': N51°E/21°NW
10							Total depth = 8.5' No caving No groundwater Bearing N77°W	
15								
Log No. P-4							**LOCATION** See Map **DATE** 9/14/79	
0	CH						Older Alluvium: Dark to light gray sandy silty clay with large cobbles, very porous (loose to firm).	Att. at 3.66': N25°W/11°NE
5							Modelo Formation: Tan to light gray shale, fractured, laminated, argillaceous, scattered fish scales.	Apparent Dip at 3.0': N82°E/11°N
10							Total depth = 7.0' No caving No groundwater Bearing N83°E	
15								

LOAD CONSOLIDATION TESTS

W.O. 852-1-12



O FIELD MOISTURE

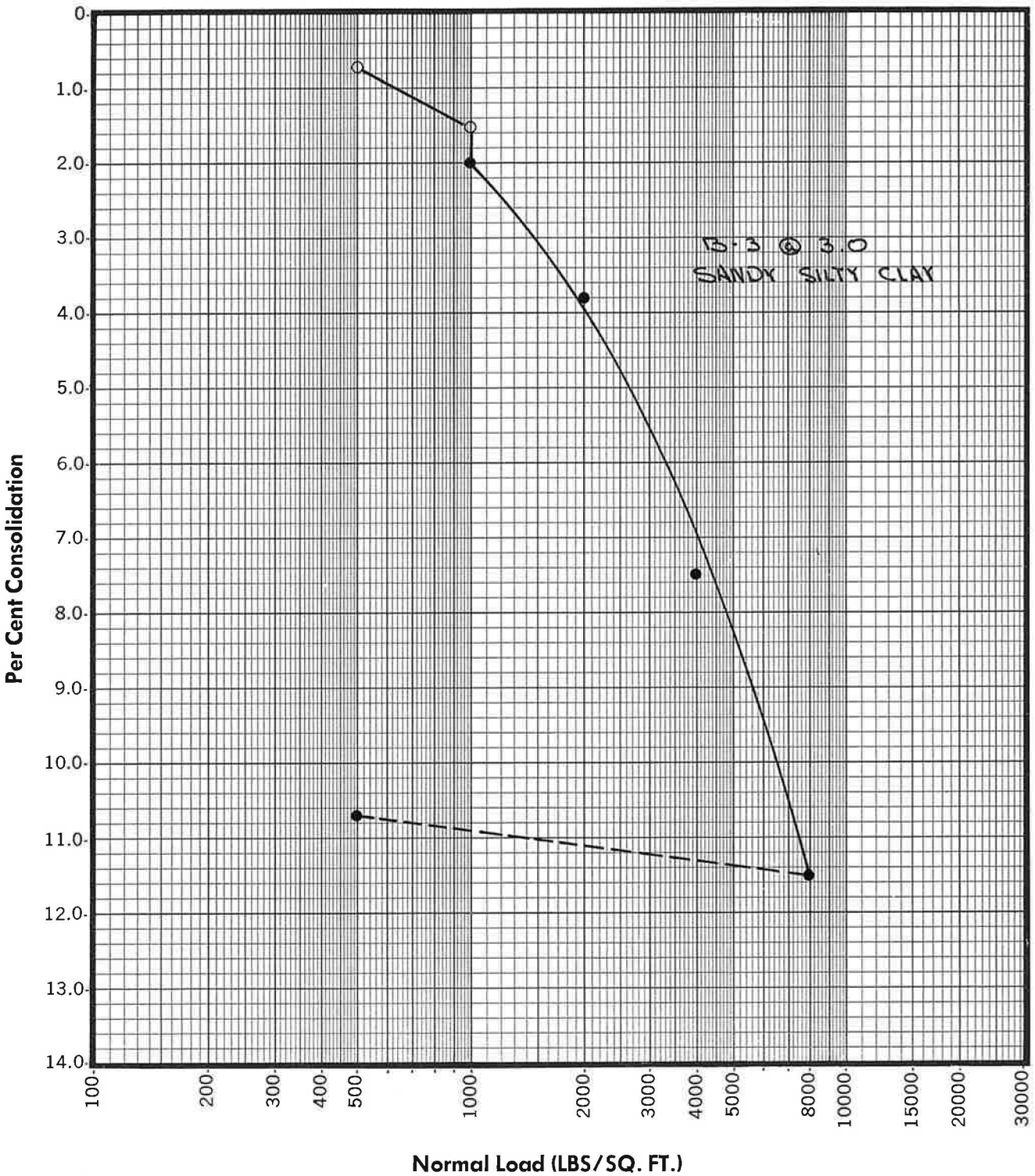
● EFFECT of ADDING MOISTURE

— — — REBOUND

GORIAN AND ASSOCIATES

LOAD CONSOLIDATION TESTS

W.O. 852-1-12

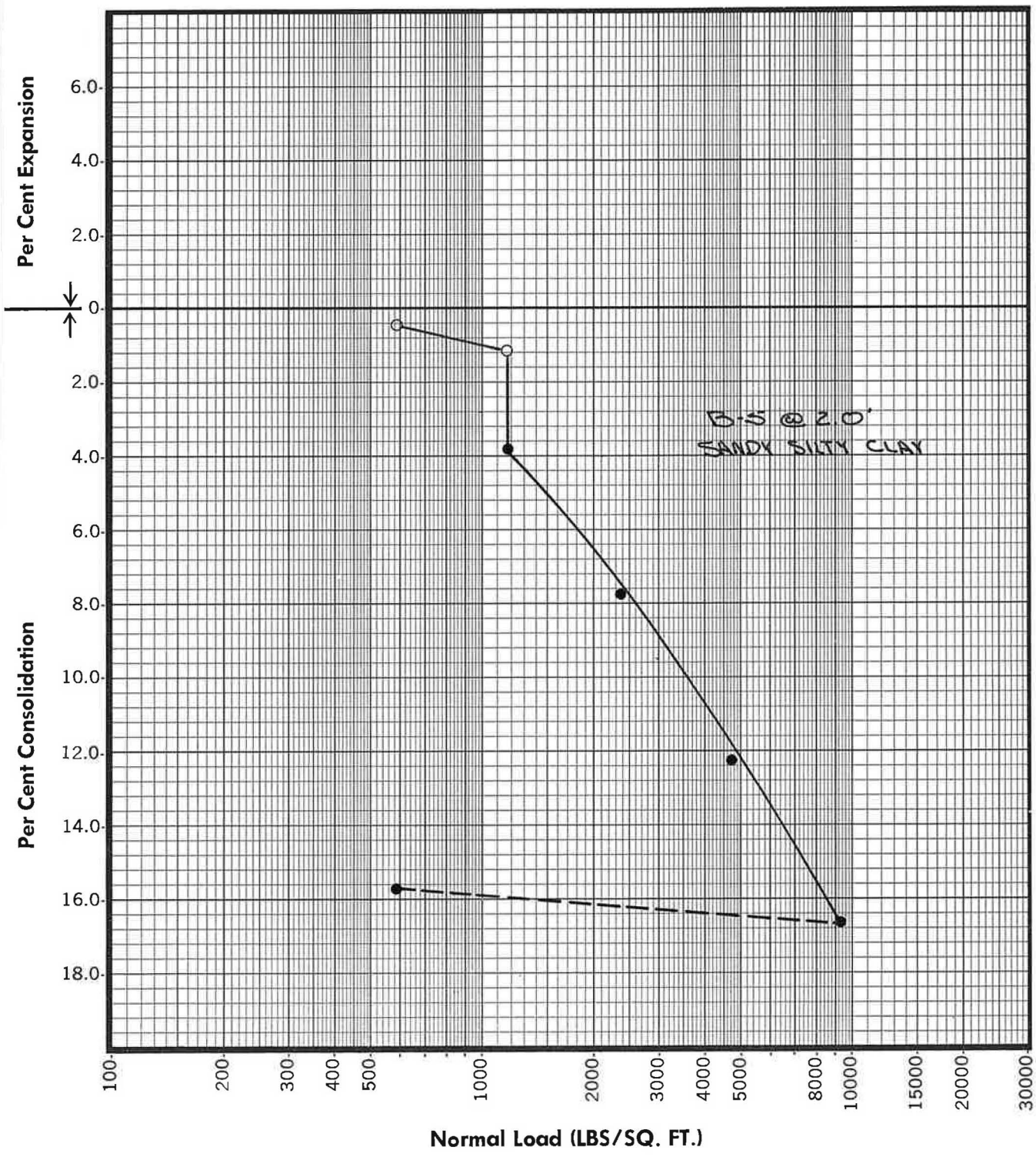


GORIAN AND ASSOCIATES

REORDER NO. A-7310

LOAD CONSOLIDATION TESTS

W.O. 852-1-12



○ FIELD MOISTURE

● EFFECT of ADDING MOISTURE

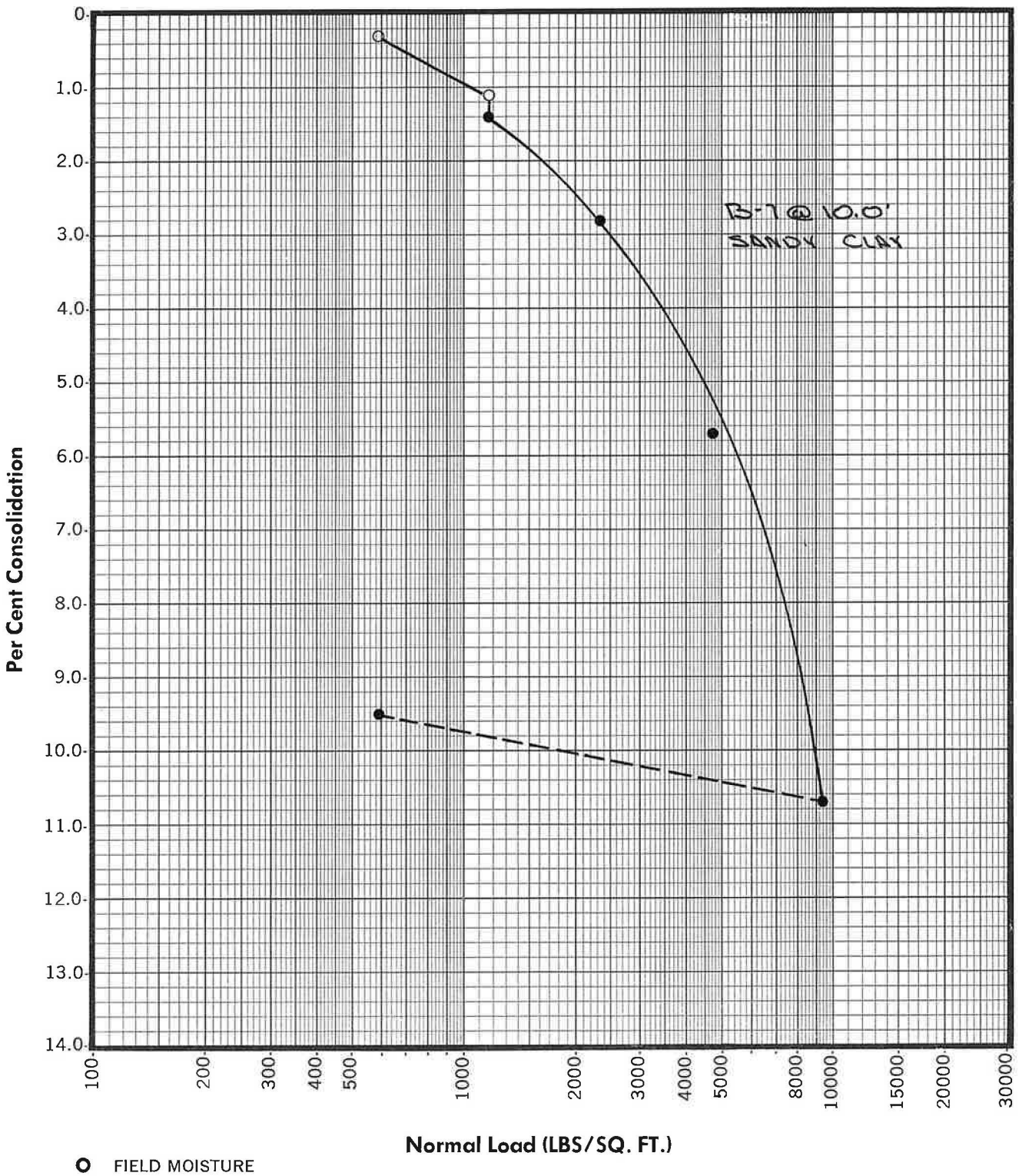
— — — REBOUND

GORIAN AND ASSOCIATES

REORDER NO. A-7308

LOAD CONSOLIDATION TESTS

W.O. B52-1-12

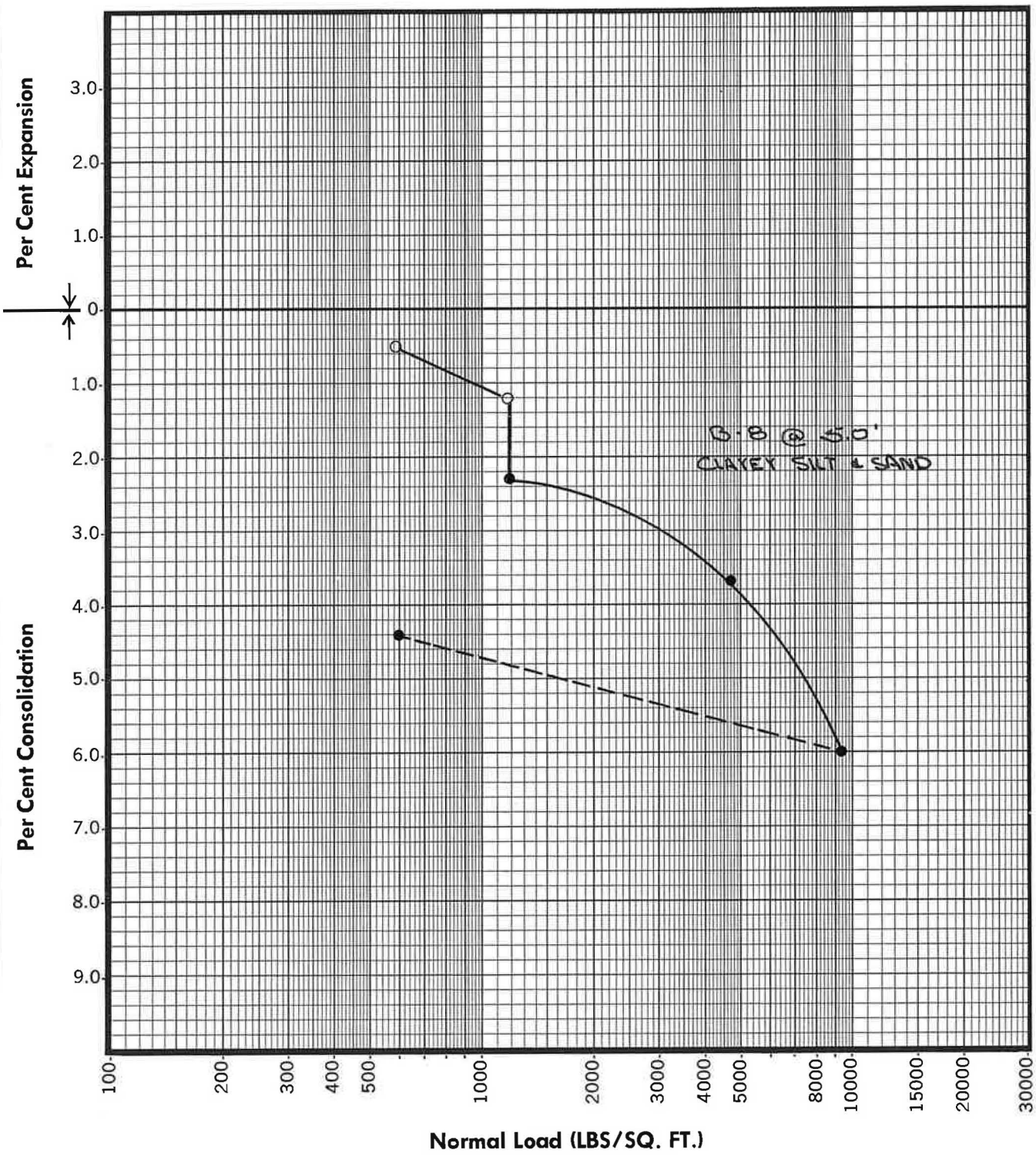


GORIAN AND ASSOCIATES

REORDER NO. A-7310

LOAD CONSOLIDATION TESTS

W.O. 852-1-12

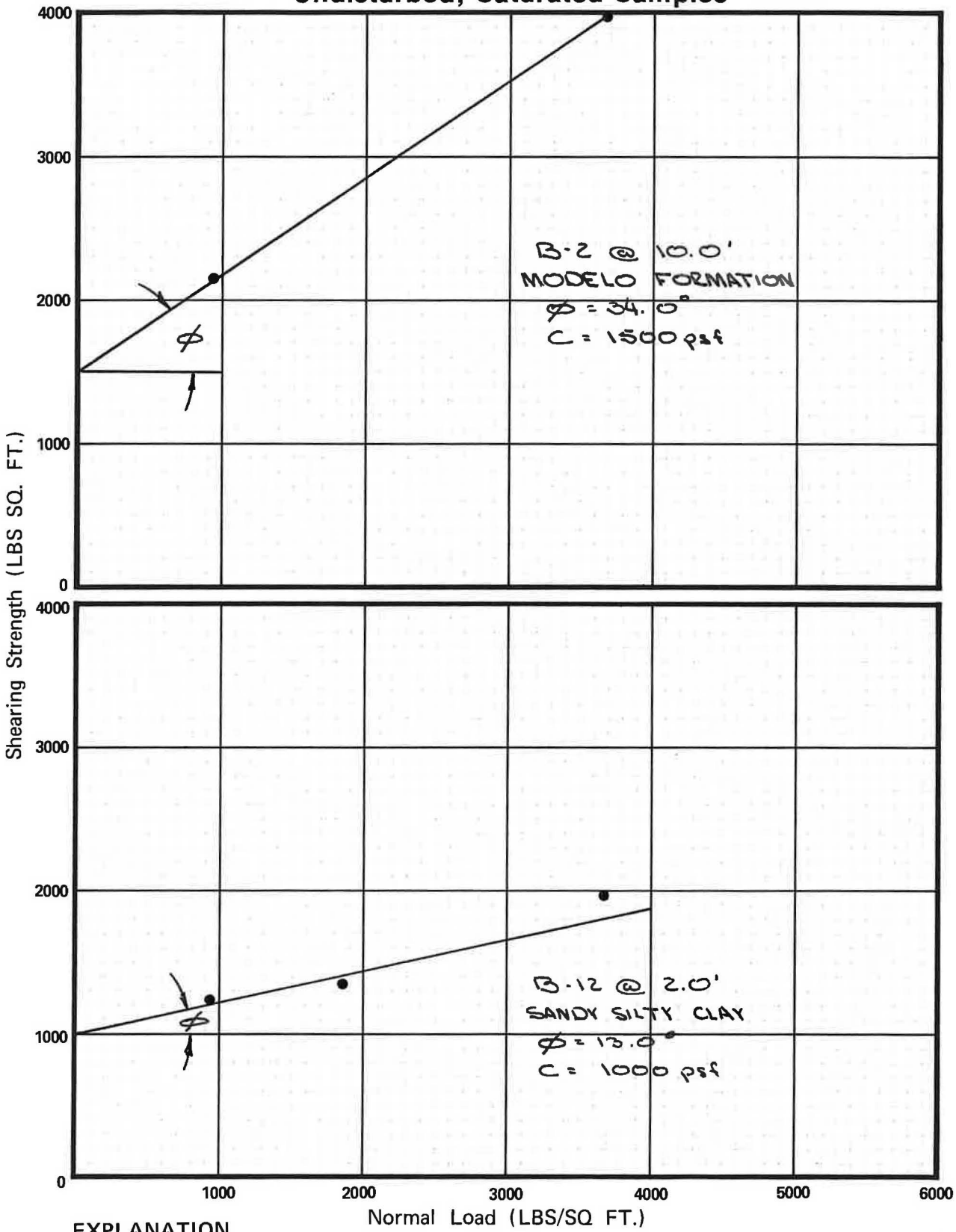


GORIAN AND ASSOCIATES

REORDER NO. A-7309

RESULTS OF SHEARING STRENGTH TESTS

Undisturbed, Saturated Samples



EXPLANATION

B-9 @ 12' = Sample taken from Boring 9 at 12 Feet in Depth.

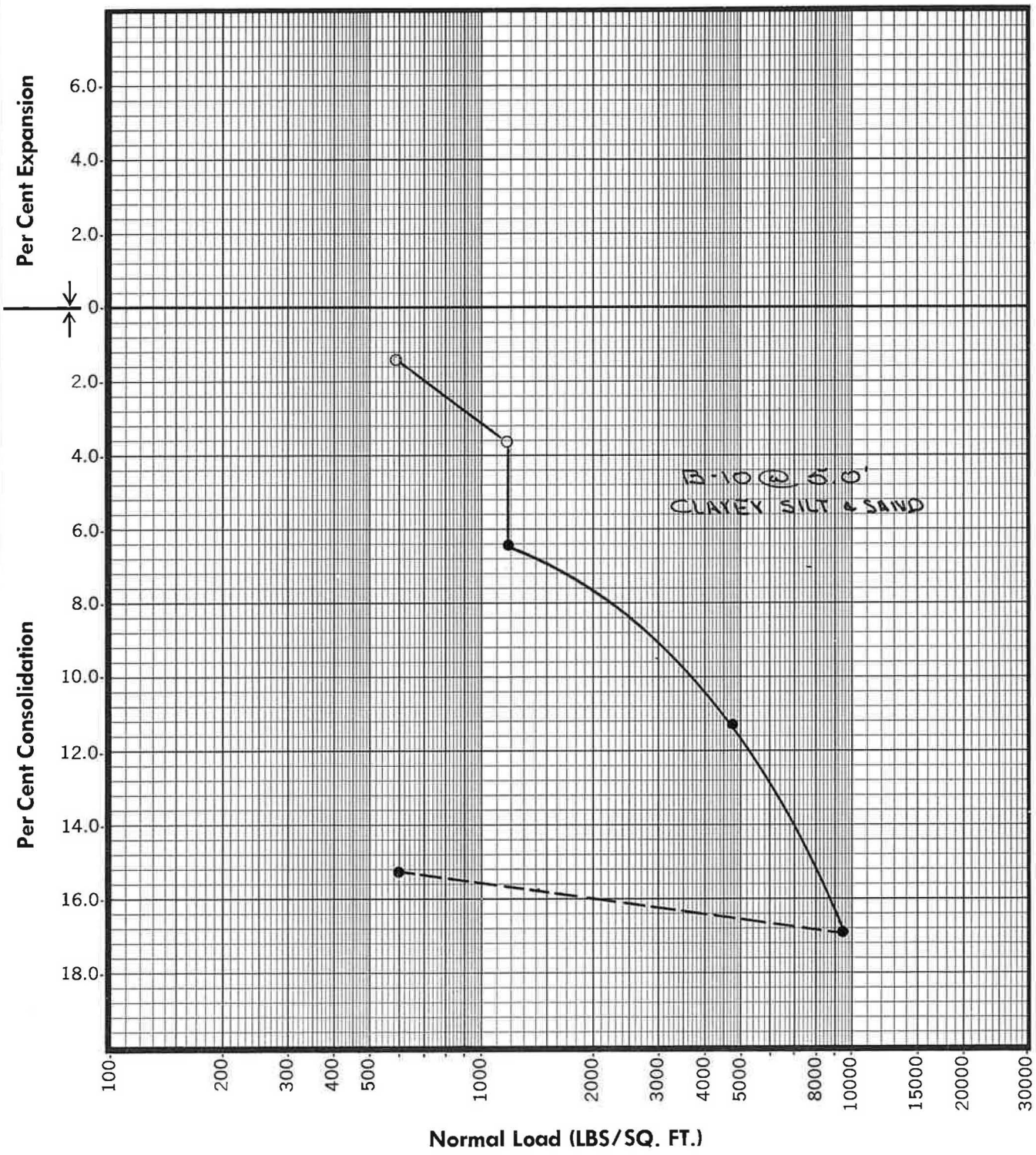
GORIAN AND ASSOCIATES

W.o. # 852-1-12

REORDER NO. A-8791

LOAD CONSOLIDATION TESTS

W.O. 852-1-11



O FIELD MOISTURE

● EFFECT of ADDING MOISTURE

— — — REBOUND

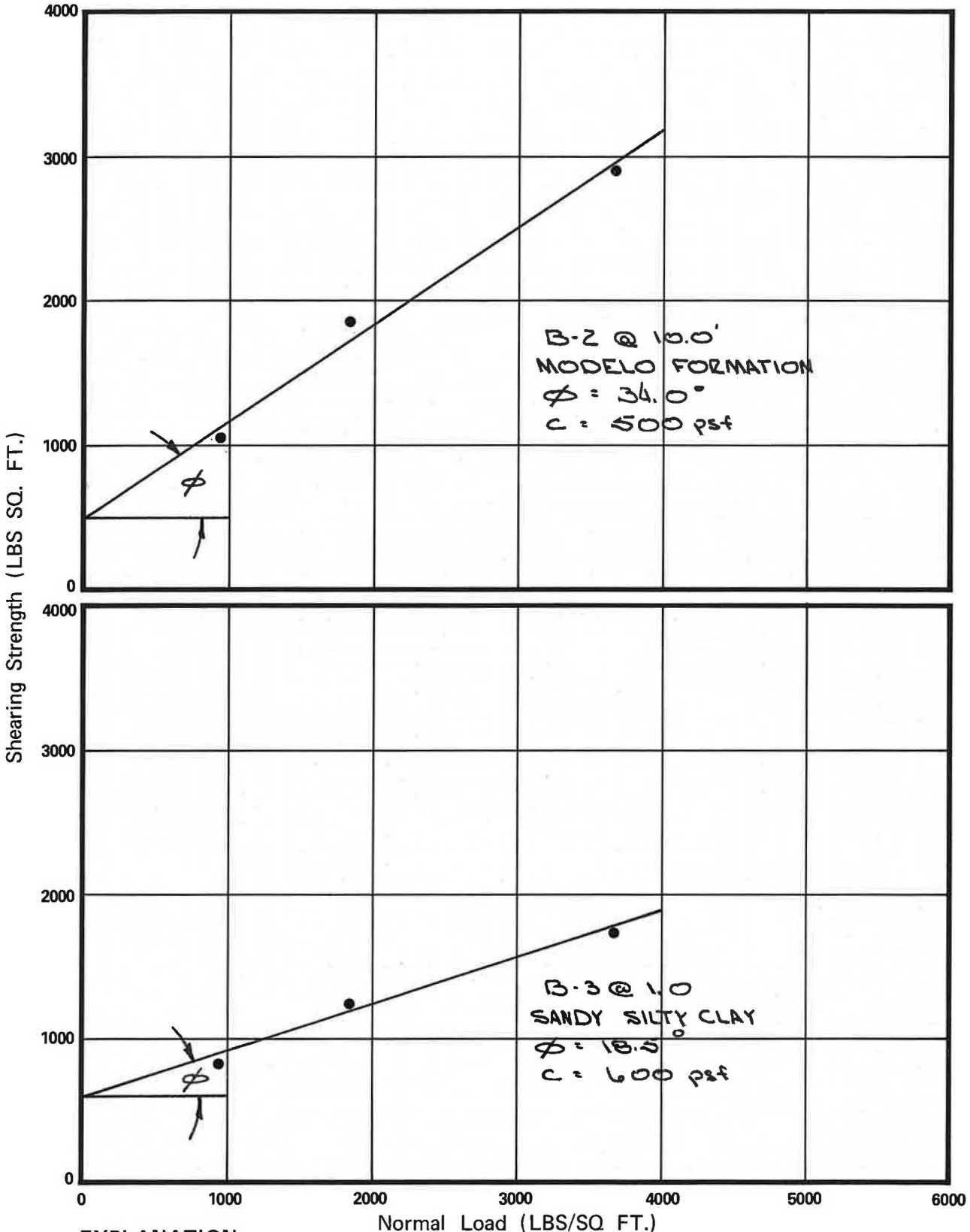
GORIAN AND ASSOCIATES

REORDER NO. A-7308

RESULTS OF SHEARING STRENGTH TESTS

BULK SAMPLES REMOLDED TO 90% AND SATURATED

W.O. No. BS2-1-12



EXPLANATION

B-9 @ 12' = Sample taken from Boring 9 at 12 Feet in Depth.

GORIAN AND ASSOCIATES

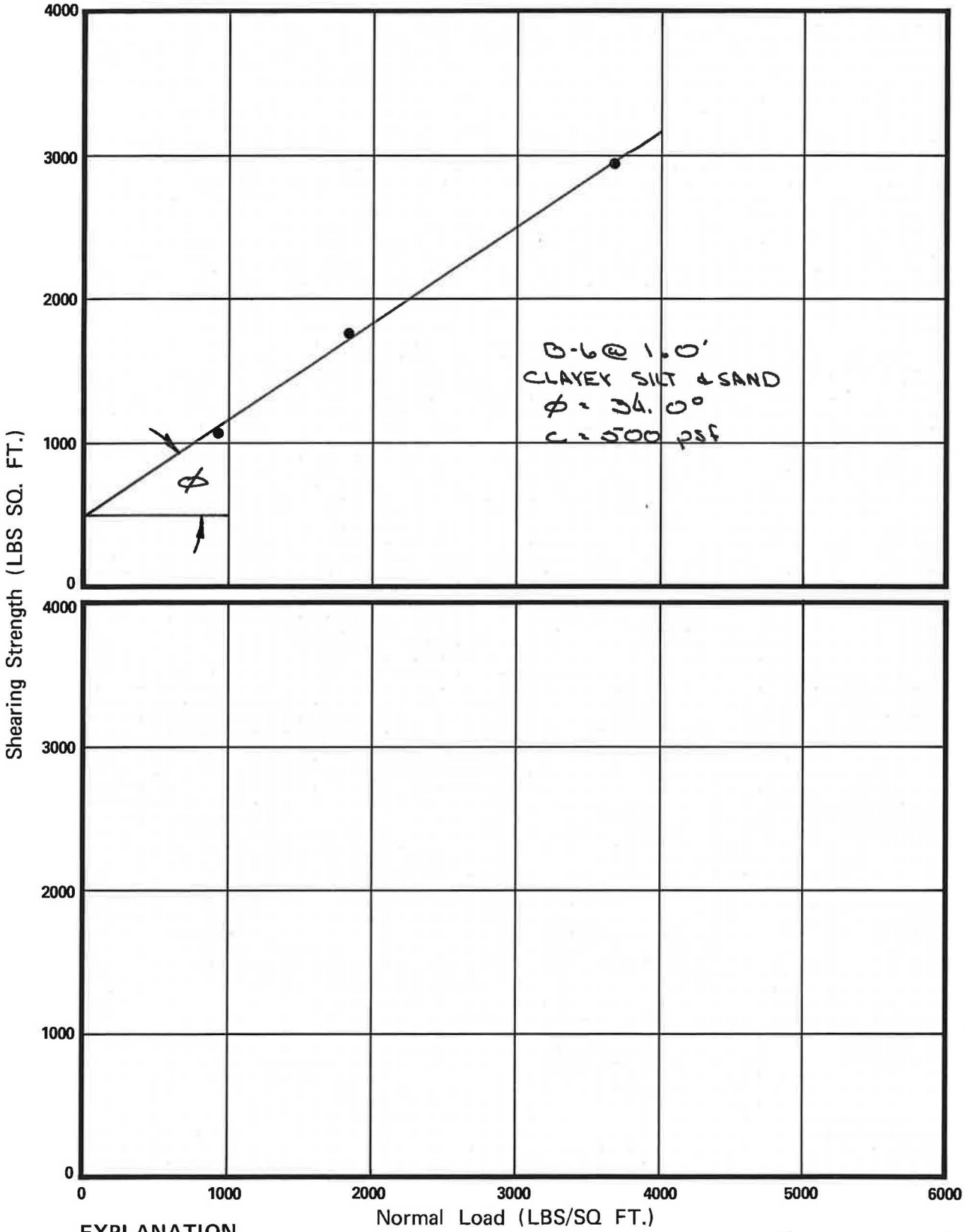
W.o. # BS2-1-12

REORDER NO. A-8792

RESULTS OF SHEARING STRENGTH TESTS

BULK SAMPLES REMOLDED TO 90% AND SATURATED

W.O. No. 852-1-12



EXPLANATION

B-9 @ 12' = Sample taken from Boring 9 at 12 Feet in Depth.

GORIAN AND ASSOCIATES

W.o. # 852-1-12

REORDER NO. A-8792

ROTATIONAL ANALYSIS USING JANBU'S DIMENSIONLESS PARAMETERS

(Harvard Soil Mechanics Series No. 46)

SECTION 1½:1 Fill Slope

SHEAR STRESS PARAMETERS

Unit Weight, γ	=	115	lb./cu. ft.
Cohesion, C	=	600	lb./cu. ft.
Angle of Internal Friction, ϕ	=	18.5	degrees
Tangent ϕ	=	.335	

CALCULATIONS

Height of Section	=	15	feet
Slope of Section	=	1½:1	
$\frac{\gamma H}{C}$	=	2.9	
$\lambda c\phi = \frac{\gamma H}{C}$ Tan ϕ	=	1.	
N_{cf} (from Janbu's curves)	=	8.5	

FACTOR OF SAFETY

F.S. = $N_{cf} \div \frac{\gamma H}{C}$	=	2.93	

W.O. No. BS2-1-12 Date 10-3-79 By J Blunck

GORIAN AND ASSOCIATES

REORDER NO. A-8793

ROTATIONAL ANALYSIS USING JANBU'S DIMENSIONLESS PARAMETERS

(Harvard Soil Mechanics Series No. 46)

SECTION 1½:1 Cut Slope

SHEAR STRESS PARAMETERS

Unit Weight, γ	=	115	lb./cu. ft.
Cohesion, C	=	1000	lb./cu. ft.
Angle of Internal Friction, ϕ	=	13	degrees
Tangent ϕ	=	.231	

CALCULATIONS

Height of Section	=	15	feet
Slope of Section	=	1½:1	
$\frac{\gamma H}{C}$	=	1.7	
$\lambda c\phi = \frac{\gamma H}{C}$ Tan ϕ	=	.4	
N_{cf} (from Janbu's curves)	=	7	

FACTOR OF SAFETY

F.S. = $N_{cf} \div \frac{\gamma H}{C}$	=	4.12

W.O. No. 852-1-12 Date 10-3-79 By J Blunck

GORIAN AND ASSOCIATES

REORDER NO. A-8793

TABLE NO. 29-A-2

FOUNDATIONS FOR STRUCTURES ON EXPANSIVE SOILS

MINIMUM REQUIREMENTS

SLAB CONSTRUCTION				
EXPANSIVENESS (SWELL)	DEPTH OF FOOTING BELOW FINISH OR NATURAL GRADE	SLAB REINFORCEMENT	WALL REINFORCEMENT	THICKNESS OF ROCK BASE OR CLEAN SAND UNDER LIVING AREA
0% to 4%	12"	#4 @ 48' O.C. or #3 @ 36" O.C. Both ways or 6x6 - 10/10 Mesh	1 - #4 @ Top and Bottom	Optional
4% to 8%	18"	#3 @ 24" O.C. Both Ways	1 - #4 @ Top and Bottom	4"
8% to 12%	24"	Slab 4" Thick #3 @ 24" O.C. Both Ways	2 - #4 @ Top and Bottom	6"

WOOD FLOOR TYPE CONSTRUCTION				
EXPANSIVENESS (SWELL)	DEPTH OF FOOTING BELOW FINISH OR NATURAL GRADE	WALL REINFORCEMENT	CONTINUOUS INTERIOR BEARING WALLS	PIERS
0% to 4%	12"	Optional	Piers Allowed	As Per Code
4% to 8%	15"	1 - #4 @ Top and Bottom	1 - #4 @ Top and Bottom	Not Permitted Under Bearing Walls
8% to 12%	21"	2 - #4 or 1 - #6 @ Top and Bottom	2 - #4 @ Top and Bottom	Not Permitted Under Bearing Walls

1. All foundations on soils that fall into an expansive range in excess of 12% shall have a special design by a foundation engineer registered as a Civil Engineer in California, and said design shall not be less than the minimum standards specified in Table 29-A-2 for soils in the 8 to 12% expansive range.

2. Slab reinforcement shall be positioned above the center of the slab.

3. Fireplace footings shall be reinforced with #4 deformed bars @ 24" on center both ways.

4. Any requirement set forth in Table 29-A-2, when found to be greater than set forth in this table, shall be considered minimum.

5. Interior footings on soils in the 0% to 4% range of expansiveness need not be continuous.

6. Soil over 4% expansion shall be soaked to at least 3% over the optimum moisture content for a minimum depth of 18 inches under the footings and slabs respectively. Where piers are permitted in other than the zero to four (0-4%) percent range, a grade beam shall be constructed between said piers to conform to the width and depth of footings as shown in Table 29-A-2.

7. Slabs on soil over 4% expansion shall be doweled into the foundation walls with a minimum of No. 3 bars bent (12") inches into the wall and (30") inches into the slab at (48") inches on center. Interior walls with continuous foundations shall have similar floor ties. Slab floors shall be reinforced as set forth in Table 29-A-2. All reinforcing in slab floors shall be positioned above the center of the slab.

8. An approved moisture membrane with a minimum thickness of six (6) mils shall be installed in an approved manner under all interior concrete slab areas. A layer of sand with a minimum depth of one (1") inch shall be placed over said membrane and moistened just prior to placing of concrete.

9. A grade beam shall be constructed between piers and to conform to width and depth as shown in Table 29-A-2.

10. Whenever a daylight line between cut or natural ground and compacted fill falls within a proposed building area, continuous footings shall be reinforced with a minimum of two (2) No. 4 continuous deformed bars, one placed at the top and one placed at the botton. Alternate designs may be submitted to the Building Official by a Soils Engineer that include due allowances for dissimilar foundation materials.

GORIAN AND ASSOCIATES
Soil and Foundation Engineers
Applied Earth Sciences

CATES SLOPE
W LINE
SH SURFACE
DE BREAK
CTION OF FLOW
POINT
POINT
ED INLET
ER ELEVATION
R ELEVATION
N VERTICAL CURVE
VERTICAL CURVE

SOILS LEGEND

12 LOCATION OF EXPLORATORY BORINGS
12 LOCATION OF EXPLORATORY BACKHOE PITS
STRIKE AND DIP OF BEDDING
APPROXIMATE STRIKE AND DIP OF BEDDING

SOIL AND FOUNDATION ENGINEERS	GORIAN AND ASSOCIATES, Inc.		APPLIED EARTH SCIENCES
JOB NUMBER: 852-1-12		DATE: 10-4-79	
SCALE: 1"=40'	APPROVED BY:	DRAWN BY:	
		LOG NO: 3852	

PARKING STRUCTURE
UPPER EL. = 741.0
LOWER EL. = 731.0

PAD ELEV. = 735.0

Qoal

PAD ELEV. = 732.1

PAD ELEV. = 728.5

HILLCREST

LANE
18" R.C.P. CLASS 150
8" SEWER

PAD

GORIAN AND ASSOCIATES, Inc.
Soil and Foundation Engineers
Applied Earth Sciences

September 13, 1981

Alderman, Swift and Lewis
721 Fair Oaks Avenue
South Pasadena, CA 91030

Work Order: 852-1-20
Log Number: 7140

Subject: Report on Controlled Grading, Proposed Thousand Oaks Financial Plaza, Hodencamp Road and Hillcrest Drive, City of Thousand Oaks, California

Reference: Geologic and Soils Engineering Investigation, Proposed Thousand Oaks Financial Plaza, By Gorian and Associates, Inc., Dated October 4, 1979.

Gentlemen:

This report summarizes the results of our tests and inspections and presents our opinions regarding the controlled grading operations for the referenced subject. Grading was conducted under our supervision during August of 1981.

REMOVALS AND SITE PREPARATIONS

Prior to any grading, existing weeds and significant vegetation were stripped and removed from the site. Remaining minor vegetation was blended with native soils during processing.

Existing old fill and loose native soils, as encountered, were removed or processed and compacted in-place in accordance with recommendations described in the preliminary investigation report.

Prior to placement of fill and after removals, the upper 12" of native ground was scarified, watered to near the optimum moisture content, as necessary, and recompacted to a minimum of 90% relative compaction.

Grading Operations

Fill soils were cleansed of all debris and significant vegetation, watered to near the optimum moisture content, and compacted in six to eight inch lifts to a minimum of 90% relative compaction by mechanical rolling.

Maximum depth of fill placed during grading was approximately 6', located west of Building A.

Fill Slopes

Prior to construction of fill slopes, minimum equipment width keys were established at the proposed toes as necessary and founded in firm natural ground. Benching into firm natural ground was conducted as fills progressed. The highest 1½:1 fill slope constructed was approximately 8 feet located west of Building A, adjacent to Lang Creek.

The outer faces of all fill slopes were overfilled during construction. However, only the fill slopes adjacent to Buildings B and C were trimmed back to well compacted soil. Remaining fill slopes will be certified in a subsequent report when grading is completed.

Cut Slopes

Maximum 6 foot high rough graded cut slopes were created during the grading of the driveway located west of Hodencamp Road. These slopes expose Quatenary-age older alluvium with minor outcrops of diatomite and diatomaceous shale of the Miocene-age Modelo Formation. These rough cuts should be trimmed back to the finished 2:1 gradients. We anticipate no adverse geologic conditions on these slopes.

Equipment

Equipment utilized during the grading operations included an 815 self propelled compactor, three self loading scrapers, a motor grader and a water pull.

COMPACTION TESTING

Compaction tests were conducted as grading progressed in accordance with City of Thousand Oaks requirements. Locations of compaction tests are shown on the attached Location Map. The test results are summarized in the enclosed Table I. Optimum moisture-maximum density data utilized as laboratory standards are as follows:

Laboratory Standard: ASTM D 1557 (modified to three layers)
1/30 cu.ft. mold, 4 inch diameter
10 lb. hammer falling 18 inches
25 blows per layer, 3 layer curve

Soil Type	Classification	Maximum Dry Density (pcf)	Optimum Moisture Content (%)
I	Dark brown sandy silty clay	113.5	15.0
II	Brown sandy silty clay	121.5	12.5
III	Dark brown very sandy silty clay with gravel	117.5	13.5

Expansiveness

Soil Expansion was determined by remolding a representative sample of the significant soil type within the upper 3 feet of each building pad area to 90% relative compaction, confining the material in a 2.62" diameter by 1.0" high ring, air drying it back to or below the shrinkage limit, and saturating it under a surcharge of 60 lbs./sq.ft. for a 24 hour testing period. Following are the results of the tests performed:

	% Expansion	Expansion Range
Building A	8.9	8%-12%
Building B	10.4	8%-12%
Building C	9.2	8%-12%

CONCLUSIONS AND RECOMMENDATIONS

1. General

The site was graded as recommended and is suitable for the proposed commercial constructions from a geologic and soils engineering standpoint. However, fill and cut slope faces will be certified in a subsequent report when additional grading and density tests are completed.

2. Soils within the proposed building areas are considered to be moderately expansive (8%-12% Expansion Range) when tested in accordance with the present City of Thousand Oaks test procedures.

3. Foundation Designs

Foundations may be designed for an allowable soil bearing pressure of 1500 psf at 24" minimum embedment depth into compacted fill or firm native ground. Foundations should comply with City of Thousand Oaks requirements for soils within the 8%-12% expansive range. See the attached Table 29-A-2 for the required foundation and slab designs. Remaining foundation recommendations as outlined in the referenced Preliminary Investigation report remain applicable.

Footings constructed adjacent to the top of slopes should have minimum horizontal clearances of 5 feet from the footings deepest outer corner to the adjacent slope face.

4. Footing trenches excavated in cut areas should be inspected by a soil engineer to confirm the presence of firm material.

5. Parking and Driveway Structural Section Recommendations

In view of the moderately low CBR characteristics of subgrade soils within the site and the minimum requirments of the City of Thousand Oaks, a structural section of 3" AC/6" AB should be placed on all light vehicle parking and driveway areas. Properly compacted subgrade soils beneath all curb areas should be moistened to at least 3% above the optimum moisture content prior to placement of concrete.

The upper 6" of subgrade soils in areas of proposed paving should be processed and recompacted to a minimum of 95% relative compaction.

6. Site Drainage

During and after construction all surface drainage should be directed away from the building pads and slope faces. If planters are located adjacent to the structures they should be constructed so that irrigation water will not saturate the soils underlying the building footings and slabs.

7. Slope Planting and Maintenance

All slopes should be planted with a dense, deep rooting ground cover such as Dwarf Coyote Brush (Baccharis pilularis). A reliable watering system should be installed and over-watering must be avoided. The watering system should be periodically checked for leakage.

At the first sign of burrowing rodents, a professional exterminator should be contacted and immediate measures taken to eliminate them before a colony can become

established.

The future performance of the slopes will depend on the control of rodents and maintenance of the slope face moisture and vegetation as discussed above.

8. Retaining Wall Backfills

Fill soils placed behind constructed retaining walls should be compacted to a minimum of 90% relative compaction. Benching into the wall backcuts or fill slopes should be conducted as necessary so that wall backfills are placed on level ground. Wall drainage should be in accordance with the City of Thousand Oaks standards. Where compacted backfills are placed, field compaction tests should be taken in the fills at maximum 18" vertical intervals.

Please call if you have any questions.

Respectfully,

Gorian and Associates, Inc.

By: Charles A. Swift
EG 948

By: Rudy M. Pacal
RCE 21278

LM/gm

Attachments: Table I
Table 29-A-2
Location Map
Certification

Distribution: Addressee (6)
(For submittal to the City of Thousand Oaks)
Wallace Moir Company (1)

TABLE 1

RESULTS OF COMPACTION TESTS

W.O. 852-1-20 Name A.S.L. T.O. FINANCIAL PLAZA Date of Report 9-13-81

TEST NO.	DATE	TEST ELEVATION	MOISTURE CONTENT (%)	UNIT DRY DENSITY (LBS./CU. FT.)	RELATIVE COMPACTION (%)	SOIL TYPE	LOCATION
1	8-13-81	720.5	13.1	103.1	91	I	Building A
2	8-13-81	720.5	13.9	102.7	90	I	"
3	8-14-81	722.0	16.7	102.4	90	I	"
4	8-14-81	723.0	16.9	103.3	91	I	"
5	8-17-81	724.0	16.8	108.7	96	I	"
6	8-17-81	725.0	15.3	107.7	92	III	"
7	8-17-81	733.0	14.9	106.2	90	III	Building C
8	8-17-81	734.5	15.3	116.7	96	II	"
9	8-18-81	730.5	14.3	96.6	85 *	I	Building B
9A	8-19-81	730.5	15.9	106.6	94	I	"
10	8-18-81	728.5	15.0	101.6	90	I	"
11	8-18-81	728.0	14.0	102.1	90	I	"
12	8-19-81	731.5	15.7	104.8	92	I	"
13	8-19-81	730.5	15.2	106.9	91	III	"
14	8-19-81	732.5	15.7	103.0	91	I	"
15	8-19-81	731.5	16.3	104.2	92	I	"
16	8-19-81	731.5	15.8	106.2	90	III	"
17	8-20-81	729.0	17.0	102.3	90	I	Parkway
18	8-20-81	729.0	16.3	102.5	90	I	"
19	8-21-81	722.0	16.1	105.1	93	I	Driveway
20	8-21-81	723.5	13.8	101.8	90	I	"
21	8-21-81	825.5	15.2	105.2	90	III	"
22	8-21-81	727.0	17.4	102.9	91	I	"

GORIAN AND ASSOCIATES, Inc.

REORDER NO. A-7311

TABLE 1

RESULTS OF COMPACTION TESTS

W.O. 852-1-20 Name A.S.L. T.O. FINANCIAL PLAZA Date of Report 9-13-81

TEST NO.	DATE	TEST ELEVATION	MOISTURE CONTENT (%)	UNIT DRY DENSITY (LBS./CU. FT.)	RELATIVE COMPACTION (%)	SOIL TYPE	LOCATION
23	8-27-81	733.2	10.9	115.4	95	II	Building B
24	8-27-81	725.0	13.3	106.7	94	I	Building A
25	8-27-81	746.0	12.1	113.3	93	II	Hodencamp
26	8-28-81	748.5	12.6	111.9	92	II	"
27	8-28-81	735.5	13.8	111.0	91	II	Building C
28	8-28-81	742.0	11.5	115.6	95	II	Hodencamp
29	8-29-81	752.0	13.3	111.9	92	II	"
30	9-8-81	724.0	11.9	116.8	96	II	Drive
31	9-8-81	726.5	10.9	116.6	96	II	"
32	9-8-81	728.5	11.1	115.5	95	II	"
33	9-8-81	735.5 OG	8.3	114.9	95	II	Building C
34	9-8-81	724.0	9.2	113.2	93	II	Parking
35	9-8-81	725.0	10.6	116.6	96	II	"

OG Denotes original ground

* Denotes compaction test result below the minimum relative compaction requirements.

A Denotes retest of failing area after being reworked.

TABLE NO. 29-A-2

FOUNDATIONS FOR STRUCTURES ON EXPANSIVE SOILS

MINIMUM REQUIREMENTS

SLAB CONSTRUCTION				
EXPANSIVENESS (SWELL)	DEPTH OF FOOTING BELOW FINISH OR NATURAL GRADE	SLAB REINFORCEMENT	WALL REINFORCEMENT	THICKNESS OF ROCK BASE OR CLEAN SAND UNDER LIVING AREA
0% to 4%	12"	#4 @ 48' O.C. or #3 @ 36" O.C. Both ways or 6x6 - 10/10 Mesh	1 - #4 @ Top and Bottom	Optional
4% to 8%	18"	#3 @ 24" O.C. Both Ways	1 - #4 @ Top and Bottom	4"
8% to 12%	24"	Slab 4" Thick #3 @ 24" O.C. Both Ways	2 - #4 @ Top and Bottom	6"

WOOD FLOOR TYPE CONSTRUCTION				
EXPANSIVENESS (SWELL)	DEPTH OF FOOTING BELOW FINISH OR NATURAL GRADE	WALL REINFORCEMENT	CONTINUOUS INTERIOR BEARING WALLS	PIERS
0% to 4%	12"	Optional	Piers Allowed	As Per Code
4% to 8%	15"	1 - #4 @ Top and Bottom	1 - #4 @ Top and Bottom	Not Permitted Under Bearing Walls
8% to 12%	21"	2 - #4 or 1 - #6 @ Top and Bottom	2 - #4 @ Top and Bottom	Not Permitted Under Bearing Walls

1. All foundations on soils that fall into an expansive range in excess of 12% shall have a special design by a foundation engineer registered as a Civil Engineer in California, and said design shall not be less than the minimum standards specified in Table 29-A-2 for soils in the 8 to 12% expansive range.

2. Slab reinforcement shall be positioned above the center of the slab.

3. Fireplace footings shall be reinforced with #4 deformed bars @ 24" on center both ways.

4. Any requirement set forth in Table 29-A-2, when found to be greater than set forth in this table, shall be considered minimum.

5. Interior footings on soils in the 0% to 4% range of expansiveness need not be continuous.

6. Soil over 4% expansion shall be soaked to at least 3% over the optimum moisture content for a minimum depth of 18 inches under the footings and slabs respectively. Where piers are permitted in other than the zero to four (0-4%) percent range, a grade beam shall be constructed between said piers to conform to the width and depth of footings as shown in Table 29-A-2.

7. Slabs on soil over 4% expansion shall be doweled into the foundation walls with a minimum of No. 3 bars bent (12") inches into the wall and (30") inches into the slab at (48") inches on center. Interior walls with continuous foundations shall have similar floor ties. Slab floors shall be reinforced as set forth in Table 29-A-2. All reinforcing in slab floors shall be positioned above the center of the slab.

8. An approved moisture membrane with a minimum thickness of six (6) mils shall be installed in an approved manner under all interior concrete slab areas. A layer of sand with a minimum depth of one (1") inch shall be placed over said membrane and moistened just prior to placing of concrete.

9. A grade beam shall be constructed between piers and to conform to width and depth as shown in Table 29-A-2.

10. Whenever a daylight line between cut or natural ground and compacted fill falls within a proposed building area, continuous footings shall be reinforced with a minimum of two (2) No. 4 continuous deformed bars, one placed at the top and one placed at the botton. Alternate designs may be submitted to the Building Official by a Soils Engineer that include due allowances for dissimilar foundation materials.

GORIAN AND ASSOCIATES
Soil and Foundation Engineers
Applied Earth Sciences

DEPARTMENT OF PUBLIC WORKS

SUPERVISED GRADING INSPECTION CERTIFICATE

(TO BE FILED IN DUPLICATE)
(ONE ORIGINAL NEEDED)

Job Address
or Tract No. THOUSAND OAKS FINANCIAL PLAZA Locality Hodencamp Rd. & Hillcrest Drive

Owner ALDERMAN, SWIFT, & LEWIS Permit No. _____

ROUGH GRADING CERTIFICATION
BY SOILS ENGINEER

(A) I certify that the earth fills placed on the following lots were installed upon competent and properly prepared base material and compacted in compliance with requirements of Grading Ordinance of City. I further certify that where the report or reports of an engineering geologist, relative to this site, have recommended the installation of buttress fills or other similar stabilization measures, such earthwork construction has been completed in accordance with the approved design.

LOT NOS. Buildings A, B, & C

See report dated 9-13-81 for compaction test data, recommended allowable soil bearing volume and other special recommendations.

EXPANSIVE SOILS (YES) (■) LOT NOS. Buildings A, B, & C

BUTTRESS FILLS (■) (NO) LOT NOS. _____

Remarks Fill and cut slopes to be certified in a subsequent report.

Engineer Rudy M Parsa Reg. No. 21278 Date 9-13-81
(Signature)

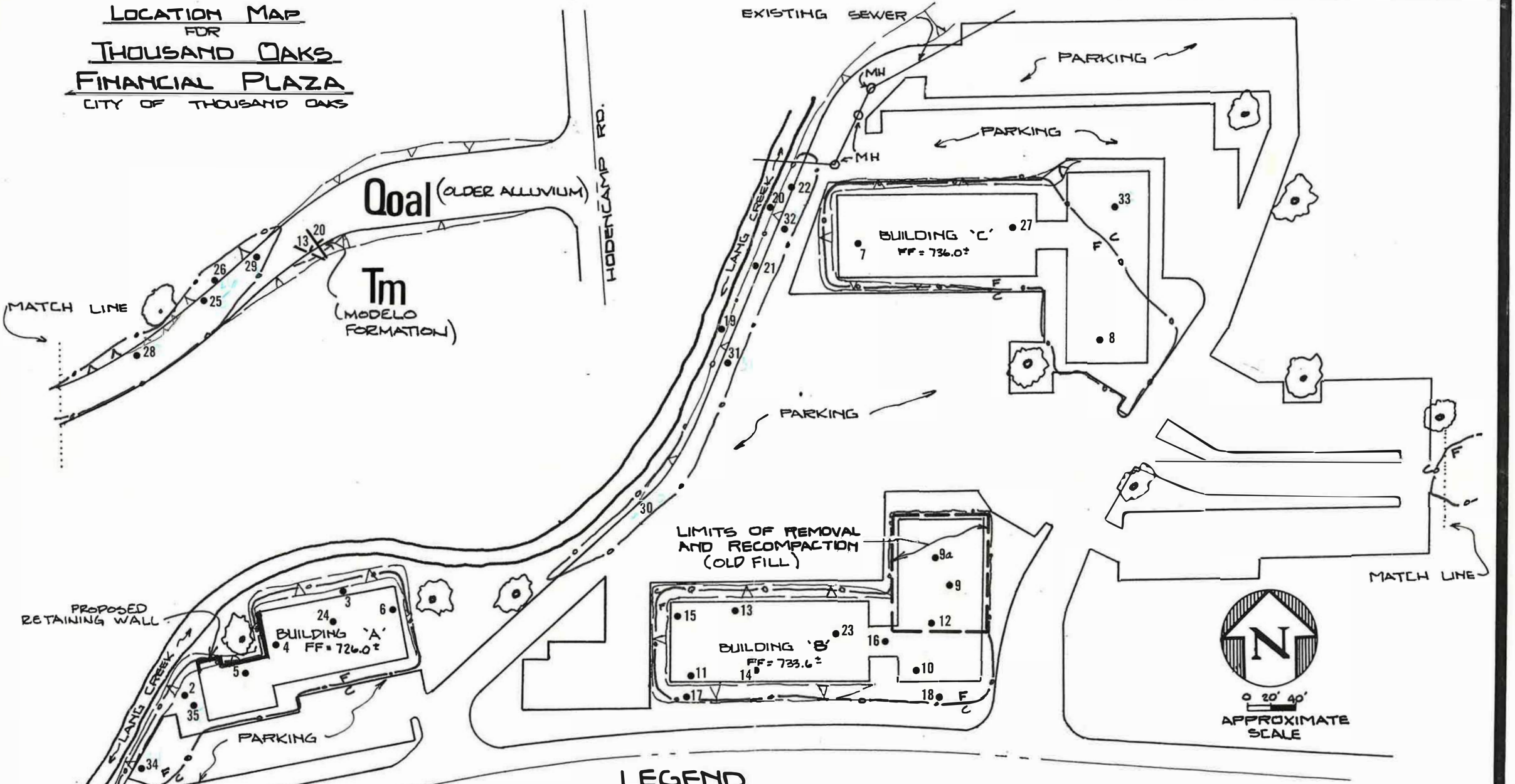
GORIAN AND ASSOCIATES, INC.

BY SUPERVISING GRADING ENGINEER

(B) I certify to the satisfactory completion of rough grading including; grading to approximate final elevations; property lines located and staked; cut and fill slopes correctly graded and located in accordance with the approved design; swales and terraces graded and ready for paving; berms installed; and required drainage slopes provided on the building pads. I further certify that where

LOCATION MAP FOR THOUSAND OAKS FINANCIAL PLAZA

CITY OF THOUSAND OAKS



LEGEND

27● LOCATION OF FIELD COMPACTION TESTS

LIMITS OF CERTIFIED FILL

TOP OF SLOPE

TOE OF SLOPE

13 STRIKE & DIP OF BEDDING

20 APPROXIMATE STRIKE & DIP OF BEDDING

SOIL AND FOUNDATION ENGINEERS	GORIAN AND ASSOCIATES, Inc.	APPLIED EARTH SCIENCES
JOB NUMBER: 852·1·20		DATE: 9·8·81
SCALE: AS SHOWN	APPROVED BY:	DRAWN BY: DAVE
		LOG NO: 7140