Combined Stationary and Mobile Source Emissions. Table 11 combines the operational and mobile GHG emissions associated with the proposed project, which total approximately 3,238 metric tons per year in CDE units. This total represents roughly 0.00062% of California's total 2004 emissions of 523 million metric tons CDE (CARB, 2007). These emissions projections indicate that the majority of the project GHG emissions are associated with vehicular travel (90%). As discussed above, the mobile emissions accounted for in Table 10 are, in part, a redirection of existing travel to other locations, and so are not new or increased emissions but are instead already a part of the total California GHG emissions.

Table 11
Combined Annual Emissions of Greenhouse Gases

Emission Source	Annual Emissions
Operational	304 metric tons CO_2e
Mobile	2,934 metric tons CO_2e
Project Total	**3,238 metric tons CO_2e**

Sources: Operational Emissions from URBEMIS 2007 (version 9.2.4).
California Climate Action Registry General Reporting Protocol,
Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.0, April 2008.

GHG Cumulative Significance. As discussed above under *Methodology*, CAPCOA (January 2008) provided several approaches to consider potential cumulative significance of projects with respect to GHGs. A zero threshold approach can be considered based on the concept that climate change is a global phenomenon in that all GHG emissions generated throughout the earth contribute to it, and not controlling small source emissions would potentially neglect a major portion of the GHG inventory. However, the *CEQA Guidelines* (Section 15130) also recognize that there may be a point where a project's contribution, although above zero, would not be a considerable contribution to the cumulative impact. Therefore, a threshold of greater than zero is considered more appropriate in this air quality analysis. Table 12 shows CAPCOA's suggested thresholds for GHG emissions.

Based on CAPCOA suggested thresholds in Table 12, the proposed project's contribution of about 3,238 metric tons CDE/year would exceed the 900-ton Quantitative Threshold, but would not exceed the other four thresholds. Therefore, because the proposed project would exceed one of the five numeric thresholds under the non-zero threshold approach, the project's contribution to a cumulative impact with regards to GHG emissions would not be cumulatively considerable. Furthermore, the proposed project would be infill development and would place a source of employment closer to places of residential uses, public transportation, city services, etc., thereby reducing vehicle miles traveled, which is the primary source of residential and commercial GHG emissions. In addition, as discussed above, the project would not result in operational emissions that exceed SCAQMD thresholds.

Table 12
CAPCOA Suggested Thresholds for Greenhouse Gases

Quantitative (900 tons)	~900 tons CDE/year
Quantitative CARB Reporting Threshold/Cap and Trade	Report: 25,000 tons CDE/year Cap and Trade: 10,000 tons CDE/year
Quantitative Regulated Inventory Capture	~40,000 - 50,000 tons CDE/year
Qualitative Unit-Based Threshold	Commercial space > 50,000 sf*
Statewide, Regional or Areawide (CEQA Guidelines 15206(b)).	Office Space > 250,000 sf

**sf = square feet*
Sources: California Air Pollution Control Officers Association (CAPCOA), CEQA & Climate Change, January 2008.

GHG emissions reduction strategies were prepared by CalEPA's Climate Action Team (CAT) established by Executive Order S-3-05. The CAT strategies are recommended to reduce GHG emissions at a statewide level to meet the goals of the Executive Order S-3-05 (http://www.climatechange.ca.gov). Table 13 illustrates that the proposed project would be consistent with the GHG reduction strategies set forth by the 2006 CAT Report. Therefore, the project's contribution to cumulative GHG emissions and climate change would not be cumulatively considerable.

Table 13
Project Consistency with 2006 CAT Report
Greenhouse Gas Emission Reduction Strategies

Strategy	Project Consistency
California Air Resources Board	
Vehicle Climate Change Standards AB 143 (Pavley) required the state to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by the ARB I September 2004.	**Consistent** The vehicles that travel to and from the project site on public roadways would be in compliance with ARB vehicle standards that are in effect at the time of vehicle purchase.
Diesel Anti-Idling In July 2004, the ARB adopted a measure to limit diesel-fueled commercial motor vehicle idling	**Consistent** Current state law restricts diesel truck idling to five minutes or less. Diesel trucks operating from, and making deliveries to the project site, are subject to this state-wide law.

Table 13
Project Consistency with 2006 CAT Report
Greenhouse Gas Emission Reduction Strategies

Strategy	Project Consistency
Hydrofluorocarbon Reduction 1) Ban retail sale of HFC in small cans. 2) Require that only low GWP refrigerants be used in new vehicular systems. 3) Adopt specifications for new commercial refrigeration. 4) Add refrigerant leak-tightness to the pass criteria for vehicular inspection and maintenance programs. 5) Enforce federal ban on releasing HFCs.	**Consistent** This strategy applies to consumer products. All applicable products would comply with the regulations that are in effect at the time of manufacture.
Alternative Fuels: Biodiesel Blends ARB would develop regulations to require the use of 1 to 4 percent biodiesel displacement of California diesel fuel.	**Consistent** The ARB is in the process of developing regulations which would increase the use of biodiesel for transportation uses. Currently, it is unknown when such regulations would be implemented; however, it is expected that upon implementation of such a regulation that would require increase biodiesel blends, the diesel fuel used vehicles that travel to and from the project site would be correspondingly displaced by biodiesel.
Alternative Fuels: Ethanol Increased use of E-85 fuel.	**Consistent** As data becomes available on the impacts of fuel specifications on the current and future vehicle fleets, the ARB will review and update motor vehicle fuel specifications as appropriate. In reviewing the specifications, the ARB will consider the emissions performance, fuel supply consequences, potential greenhouse gas reduction benefits, and cost issues surrounding E85, for gasoline by January 31, 2007, and for diesel by December 31, 2008. Future tenants of the project could purchase flex-fuel vehicles and utilize this fuel, once it is commercially available in the region and local vicinity.
Heavy-Duty Vehicle Emission Reduction Measures Increased efficiency in the design of heavy duty vehicles and an education program for the heavy-duty vehicle sector.	**Consistent** The heavy-duty vehicles that travel to and from the project site on public roadways would be subject to all applicable ARB efficiency standards that are in effect at the time of vehicle manufacture.
Achieving 50% Statewide Recycling Goal Achieving the State's 50% waste reduction mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions, associated with energy intensive material extraction and production, as well as methane emission from landfills. A diversion rate of 48% has been achieved on a statewide basis. Therefore, a 2% additional reduction is needed.	**Consistent** The City has completed a comprehensive waste reduction and recycling plan in compliance with State Law AB 939, which requires every city in California to reduce the waste it sends to landfills by 50% by the year 2000. Currently, the City requires that at least 50% of all solid waste, including construction/demolition waste, be diverted from landfills. As of 2007, the City was recycling 55% of its solid waste, thereby exceeding the standards established by AB 939. The City continues to implement programs to increase the diversion rate (Louis Celaya, Assistant to the City Manager, City of Agoura Hills).
Zero Waste – High Recycling Efforts to exceed the 50% goal would allow for additional reductions in climate change emissions	**Consistent** As discussed above, currently, the City requires that at least 50% of all solid waste, including construction/demolition waste, be diverted from landfills. As of 2007, the City was recycling 55% of its solid waste, thereby exceeding the standards established by AB 939. The City continues to implement programs to increase the diversion rate (Louis Celaya, Assistant to the City Manager, City of Agoura Hills).

Table 13
Project Consistency with 2006 CAT Report
Greenhouse Gas Emission Reduction Strategies

Strategy	Project Consistency
Department of Forestry	
Urban Forestry A new statewide goal of planting 5 million trees in urban areas by 2020 would be achieved through the expansion of local urban forestry programs.	**Consistent** The landscaping proposed for the project would include new trees at the site.
Department of Water Resources	
Water Use Efficiency Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce greenhouse gas emissions.	**Consistent** The proposed project would be required to comply with Part 2, Division 8 of the City's Municipal Code which requires onsite landscaping to implement water conservation measures.
Energy Commission (CEC)	
Building Energy Efficiency Standards in Place and in Progress Public Resources Code 25402 authorizes the CEC to adopt and periodically update its building energy efficiency standards (that apply to newly constructed buildings and alterations to existing buildings).	**Consistent** The project would be required to meet the standards of Title 24 that are in effect at the time of development.
Appliance Energy Efficiency Standards in Place and in Progress Public Resources Code 25402 authorizes the Energy Commission to adopt and periodically update its appliance energy efficiency standards (that apply to devices and equipment using energy that are sold or offered for sale in California).	**Consistent** Under State law, appliances that are purchased for the project – both pre- and post-development – would be consistent with energy efficiency standards that are in effect at the time of manufacture.
Business, Transportation and Housing	
Measures to Improve Transportation Energy Efficiency Builds on current efforts to provide a framework for expanded and new initiatives including incentives, tools and information that advance cleaner transportation and reduce climate change emissions.	**Consistent** The project would be infill development in close proximity to existing commercial and residential development.
Smart Land Use and Intelligent Transportation Systems (ITS) Smart land use strategies encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors.	**Consistent** The project site would be in close proximity to residential development and other commercial development. The Los Angeles County Metro Bus #161 make regular stops near the Dorothy Drive/Chesebro Road intersection.

Recommended Mitigation Measures. Emissions generated by construction and operation of the proposed project would not exceed SCAQMD significance thresholds or CAPCOA suggested thresholds for GHGs, and the proposed project would be consistent with GHG reduction strategies set forth by the 2006 CAT Report. Furthermore, the proposed project would be required to meet SCAQMD Rule 403 requirements for minimizing emissions for dust generating activities.

REFERENCES

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Attachments: URBEMIS 2007 v.9.2.4 Modeling Results; SCAQMD's Sample Construction Scenario spreadsheet for LST analysis (Appendix C – 2 Acre Site Sample); Greenhouse gas emissions worksheets

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Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: C:\Documents and Settings\PNichols\Application Data\Urbemis\Version9a\Projects\Agoura Medical Partners.urb924

Project Name: Agoura Medical Partners Office Project

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2008 TOTALS (lbs/day unmitigated)	3.83	34.06	17.27	0.01	23.61	1.69	25.29	4.93	1.55	6.48	3,057.80
2009 TOTALS (lbs/day unmitigated)	43.64	10.46	8.37	0.00	0.02	0.66	0.68	0.01	0.61	0.62	1,301.06

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	0.38	0.29	1.78	0.00	0.01	0.01	328.65

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	10.51	15.57	136.04	0.14	23.28	4.53	13,820.82

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SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	10.89	15.86	137.82	0.14	23.29	4.54	14,149.47

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\PNichols\Application Data\Urbemis\Version9a\Projects\Agoura Medical Partners.urb924

Project Name: Agoura Medical Partners Office Project

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 3/3/2008-3/21/2008 Active Days: 15	1.36	8.76	6.15	0.00	0.01	0.68	0.69	0.00	0.63	0.63	824.75
Demolition 03/03/2008-03/21/2008	1.36	8.76	6.15	0.00	0.01	0.68	0.69	0.00	0.63	0.63	824.75
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	1.31	8.68	4.91	0.00	0.00	0.68	0.68	0.00	0.62	0.62	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.04	0.08	1.24	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.45
Time Slice 3/24/2008-6/20/2008 Active Days: 65	3.83	34.06	17.27	0.01	23.61	1.69	25.29	4.93	1.55	6.48	3,057.80
Mass Grading 03/24/2008-06/20/2008	3.83	34.06	17.27	0.01	23.61	1.69	25.29	4.93	1.55	6.48	3,057.80
Mass Grading Dust	0.00	0.00	0.00	0.00	23.58	0.00	23.58	4.92	0.00	4.92	0.00
Mass Grading Off Road Diesel	3.31	28.00	13.56	0.00	0.00	1.41	1.41	0.00	1.30	1.30	2,247.32
Mass Grading On Road Diesel	0.47	5.99	2.46	0.01	0.02	0.27	0.29	0.01	0.25	0.26	686.03
Mass Grading Worker Trips	0.04	0.08	1.24	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.45

Time Slice 6/23/2008-8/1/2008 Active Days: 30	3.36	28.08	14.81	0.00	9.41	1.41	10.82	1.97	1.30	3.27	2,371.76
Fine Grading 06/23/2008-08/01/2008	3.36	28.08	14.81	0.00	9.41	1.41	10.82	1.97	1.30	3.27	2,371.76
Fine Grading Dust	0.00	0.00	0.00	0.00	9.40	0.00	9.40	1.96	0.00	1.96	0.00
Fine Grading Off Road Diesel	3.31	28.00	13.56	0.00	0.00	1.41	1.41	0.00	1.30	1.30	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.08	1.24	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.45
Time Slice 8/4/2008-8/15/2008 Active Days: 10	2.37	20.19	9.71	0.00	0.01	1.00	1.01	0.00	0.92	0.92	1,839.09
Trenching 08/04/2008-08/15/2008	2.37	20.19	9.71	0.00	0.01	1.00	1.01	0.00	0.92	0.92	1,839.09
Trenching Off Road Diesel	2.33	20.12	8.46	0.00	0.00	1.00	1.00	0.00	0.92	0.92	1,714.64
Trenching Worker Trips	0.04	0.08	1.24	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.45
Time Slice 8/18/2008-8/29/2008 Active Days: 10	2.47	14.03	9.58	0.00	0.01	1.18	1.19	0.00	1.09	1.09	1,268.52
Asphalt 08/18/2008-08/29/2008	2.47	14.03	9.58	0.00	0.01	1.18	1.19	0.00	1.09	1.09	1,268.52
Paving Off-Gas	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.22	13.27	7.15	0.00	0.00	1.15	1.15	0.00	1.06	1.06	979.23
Paving On Road Diesel	0.05	0.62	0.26	0.00	0.00	0.03	0.03	0.00	0.03	0.03	71.51
Paving Worker Trips	0.07	0.13	2.18	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.78
Time Slice 9/1/2008-12/31/2008 Active Days: 88	1.54	11.19	8.77	0.00	0.02	0.70	0.72	0.01	0.64	0.65	1,301.21
Building 09/01/2008-04/24/2009	1.54	11.19	8.77	0.00	0.02	0.70	0.72	0.01	0.64	0.65	1,301.21
Building Off Road Diesel	1.39	10.47	5.09	0.00	0.00	0.67	0.67	0.00	0.61	0.61	893.39
Building Vendor Trips	0.05	0.52	0.43	0.00	0.00	0.02	0.03	0.00	0.02	0.02	83.43
Building Worker Trips	0.11	0.20	3.24	0.00	0.02	0.01	0.02	0.01	0.01	0.01	324.40
Time Slice 1/1/2009-4/24/2009 Active Days: 82	1.44	10.46	8.37	0.00	0.02	0.66	0.68	0.01	0.61	0.62	1,301.06
Building 09/01/2008-04/24/2009	1.44	10.46	8.37	0.00	0.02	0.66	0.68	0.01	0.61	0.62	1,301.06
Building Off Road Diesel	1.30	9.79	4.94	0.00	0.00	0.63	0.63	0.00	0.58	0.58	893.39
Building Vendor Trips	0.04	0.49	0.40	0.00	0.00	0.02	0.02	0.00	0.02	0.02	83.43
Building Worker Trips	0.10	0.18	3.03	0.00	0.02	0.01	0.02	0.01	0.01	0.01	324.24

Time Slice 4/27/2009-5/22/2009 Active Days: 20	43.64	0.04	0.59	0.00	0.00	0.00	0.00	0.00	0.00	63.33
Coating 04/27/2009-05/22/2009	43.64	0.04	0.59	0.00	0.00	0.00	0.00	0.00	0.00	63.33
Architectural Coating	43.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	0.59	0.00	0.00	0.00	0.00	0.00	0.00	63.33

Phase Assumptions

Phase: Demolition 3/3/2008 - 3/21/2008 - Default Demolition Description

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/23/2008 - 8/1/2008 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 1.87

Maximum Daily Acreage Disturbed: 0.47

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 3/24/2008 - 6/20/2008 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 1.87

Maximum Daily Acreage Disturbed: 0.47

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: .160 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 161.86

Off-Road Equipment:
1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 8/4/2008 - 8/15/2008 - Default Trenching Description
Off-Road Equipment:
2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day

Phase: Paving 8/18/2008 - 8/29/2008 - Default Paving Description
Acres to be Paved: 0.47
Off-Road Equipment:
4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 9/1/2008 - 4/24/2009 - Default Building Construction Description
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day
2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 4/27/2009 - 5/22/2009 - Default Architectural Coating Description
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Urbemis 2007 Version 9.2.4

Detail Report for Summer Area Source Unmitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\PNichols\Application Data\Urbemis\Version9a\Projects\Agoura Medical Partners.urb924

Project Name: Agoura Medical Partners Office Project

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

AREA SOURCE EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.02	0.27	0.23	0.00	0.00	0.00	325.84
Hearth - No Summer Emissions							
Landscape	0.12	0.02	1.55	0.00	0.01	0.01	2.81
Consumer Products	0.00						
Architectural Coatings	0.24						
TOTALS (lbs/day, unmitigated)	0.38	0.29	1.78	0.00	0.01	0.01	328.65

Area Source Changes to Defaults

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Operational Unmitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\PNichols\Application Data\Urbemis\Version9a\Projects\Agoura Medical Partners.urb924

Project Name: Agoura Medical Partners Office Project

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Medical office building	10.51	15.57	136.04	0.14	23.28	4.53	13,820.82
TOTALS (lbs/day, unmitigated)	10.51	15.57	136.04	0.14	23.28	4.53	13,820.82

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2010 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Medical office building		36.13	1000 sq ft	40.73	1,471.57	13,473.00
					1,471.57	13,473.00

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	53.6	1.1	98.7	0.2
Light Truck < 3750 lbs	6.8	2.9	94.2	2.9

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	22.8	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.0	1.0	99.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.5	0.0	86.7	13.3
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.3	69.6	30.4	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Medical office building				7.0	3.5	89.5

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Summary Report for Winter Emissions (Pounds/Day)

File Name: C:\Documents and Settings\PNichols\Application Data\Urbemis\Version9a\Projects\Agoura Medical Partners.urb924

Project Name: Agoura Medical Partners Office Project

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2008 TOTALS (lbs/day unmitigated)	3.83	34.06	17.27	0.01	23.61	1.69	25.29	4.93	1.55	6.48	3,057.80
2009 TOTALS (lbs/day unmitigated)	43.64	10.46	8.37	0.00	0.02	0.66	0.68	0.01	0.61	0.62	1,301.06

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	0.26	0.27	0.23	0.00	0.00	0.00	325.84

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	11.85	18.77	130.68	0.12	23.28	4.53	12,514.15

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SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	12.11	19.04	130.91	0.12	23.28	4.53	12,839.99

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Urbemis 2007 Version 9.2.4

Detail Report for Winter Construction Unmitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\PNichols\Application Data\Urbemis\Version9a\Projects\Agoura Medical Partners.urb924

Project Name: Agoura Medical Partners Office Project

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Winter Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 3/3/2008-3/21/2008 Active Days: 15	1.36	8.76	6.15	0.00	0.01	0.68	0.69	0.00	0.63	0.63	824.75
Demolition 03/03/2008-03/21/2008	1.36	8.76	6.15	0.00	0.01	0.68	0.69	0.00	0.63	0.63	824.75
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	1.31	8.68	4.91	0.00	0.00	0.68	0.68	0.00	0.62	0.62	700.30
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.04	0.08	1.24	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.45
Time Slice 3/24/2008-6/20/2008 Active Days: 65	3.83	34.06	17.27	0.01	23.61	1.69	25.29	4.93	1.55	6.48	3,057.80
Mass Grading 03/24/2008-06/20/2008	3.83	34.06	17.27	0.01	23.61	1.69	25.29	4.93	1.55	6.48	3,057.80
Mass Grading Dust	0.00	0.00	0.00	0.00	23.58	0.00	23.58	4.92	0.00	4.92	0.00
Mass Grading Off Road Diesel	3.31	28.00	13.56	0.00	0.00	1.41	1.41	0.00	1.30	1.30	2,247.32
Mass Grading On Road Diesel	0.47	5.99	2.46	0.01	0.02	0.27	0.29	0.01	0.25	0.26	686.03
Mass Grading Worker Trips	0.04	0.08	1.24	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.45

Time Slice 6/23/2008-8/1/2008 Active Days: 30	3.36	28.08	14.81	0.00	9.41	1.41	10.82	1.97	1.30	3.27	2,371.76
Fine Grading 06/23/2008-08/01/2008	3.36	28.08	14.81	0.00	9.41	1.41	10.82	1.97	1.30	3.27	2,371.76
Fine Grading Dust	0.00	0.00	0.00	0.00	9.40	0.00	9.40	1.96	0.00	1.96	0.00
Fine Grading Off Road Diesel	3.31	28.00	13.56	0.00	0.00	1.41	1.41	0.00	1.30	1.30	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.08	1.24	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.45
Time Slice 8/4/2008-8/15/2008 Active Days: 10	2.37	20.19	9.71	0.00	0.01	1.00	1.01	0.00	0.92	0.92	1,839.09
Trenching 08/04/2008-08/15/2008	2.37	20.19	9.71	0.00	0.01	1.00	1.01	0.00	0.92	0.92	1,839.09
Trenching Off Road Diesel	2.33	20.12	8.46	0.00	0.00	1.00	1.00	0.00	0.92	0.92	1,714.64
Trenching Worker Trips	0.04	0.08	1.24	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.45
Time Slice 8/18/2008-8/29/2008 Active Days: 10	2.47	14.03	9.58	0.00	0.01	1.18	1.19	0.00	1.09	1.09	1,268.52
Asphalt 08/18/2008-08/29/2008	2.47	14.03	9.58	0.00	0.01	1.18	1.19	0.00	1.09	1.09	1,268.52
Paving Off-Gas	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.22	13.27	7.15	0.00	0.00	1.15	1.15	0.00	1.06	1.06	979.23
Paving On Road Diesel	0.05	0.62	0.26	0.00	0.00	0.03	0.03	0.00	0.03	0.03	71.51
Paving Worker Trips	0.07	0.13	2.18	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.78
Time Slice 9/1/2008-12/31/2008 Active Days: 88	1.54	11.19	8.77	0.00	0.02	0.70	0.72	0.01	0.64	0.65	1,301.21
Building 09/01/2008-04/24/2009	1.54	11.19	8.77	0.00	0.02	0.70	0.72	0.01	0.64	0.65	1,301.21
Building Off Road Diesel	1.39	10.47	5.09	0.00	0.00	0.67	0.67	0.00	0.61	0.61	893.39
Building Vendor Trips	0.05	0.52	0.43	0.00	0.00	0.02	0.03	0.00	0.02	0.02	83.43
Building Worker Trips	0.11	0.20	3.24	0.00	0.02	0.01	0.02	0.01	0.01	0.01	324.40
Time Slice 1/1/2009-4/24/2009 Active Days: 82	1.44	10.46	8.37	0.00	0.02	0.66	0.68	0.01	0.61	0.62	1,301.06
Building 09/01/2008-04/24/2009	1.44	10.46	8.37	0.00	0.02	0.66	0.68	0.01	0.61	0.62	1,301.06
Building Off Road Diesel	1.30	9.79	4.94	0.00	0.00	0.63	0.63	0.00	0.58	0.58	893.39
Building Vendor Trips	0.04	0.49	0.40	0.00	0.00	0.02	0.02	0.00	0.02	0.02	83.43
Building Worker Trips	0.10	0.18	3.03	0.00	0.02	0.01	0.02	0.01	0.01	0.01	324.24

Time Slice 4/27/2009-5/22/2009	43.64	0.04	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.33
Active Days: 20											
Coating 04/27/2009-05/22/2009	43.64	0.04	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.33
Architectural Coating	43.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.33

Phase Assumptions

Phase: Demolition 3/3/2008 - 3/21/2008 - Default Demolition Description

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/23/2008 - 8/1/2008 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 1.87

Maximum Daily Acreage Disturbed: 0.47

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 3/24/2008 - 6/20/2008 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 1.87

Maximum Daily Acreage Disturbed: 0.47

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 160 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 161.86

Off-Road Equipment:
1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 8/4/2008 - 8/15/2008 - Default Trenching Description
Off-Road Equipment:
2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day

Phase: Paving 8/18/2008 - 8/29/2008 - Default Paving Description
Acres to be Paved: 0.47
Off-Road Equipment:
4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 9/1/2008 - 4/24/2009 - Default Building Construction Description
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day
2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 4/27/2009 - 5/22/2009 - Default Architectural Coating Description
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Detail Report for Winter Area Source Unmitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\PNichols\Application Data\Urbemis\Version9a\Projects\Agoura Medical Partners.urb924

Project Name: Agoura Medical Partners Office Project

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

AREA SOURCE EMISSION ESTIMATES (Winter Pounds Per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.02	0.27	0.23	0.00	0.00	0.00	325.84
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping - No Winter Emissions							
Consumer Products	0.00						
Architectural Coatings	0.24						
TOTALS (lbs/day, unmitigated)	0.26	0.27	0.23	0.00	0.00	0.00	325.84

Area Source Changes to Defaults

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Urbemis 2007 Version 9.2.4

Detail Report for Winter Operational Unmitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\PNichols\Application Data\Urbemis\Version9a\Projects\Agoura Medical Partners.urb924

Project Name: Agoura Medical Partners Office Project

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Winter Pounds Per Day, Unmitigated)

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Medical office building	11.85	18.77	130.68	0.12	23.28	4.53	12,514.15
TOTALS (lbs/day, unmitigated)	11.85	18.77	130.68	0.12	23.28	4.53	12,514.15

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2010 Temperature (F): 60 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Medical office building		36.13	1000 sq ft	40.73	1,471.57	13,473.00
					1,471.57	13,473.00

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	53.6	1.1	98.7	0.2
Light Truck < 3750 lbs	6.8	2.9	94.2	2.9

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	22.8	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.0	1.0	99.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.5	0.0	86.7	13.3
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.3	69.6	30.4	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Medical office building				7.0	3.5	89.5

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Summary Report for Annual Emissions (Tons/Year)

File Name: C:\Documents and Settings\PNichols\Application Data\Urbemis\Version9a\Projects\Agoura Medical Partners.urb924

Project Name: Agoura Medical Partners Office Project

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2008 TOTALS (tons/year unmitigated)	0.28	2.26	1.31	0.00	0.91	0.12	1.03	0.19	0.11	0.30	213.93
2009 TOTALS (tons/year unmitigated)	0.50	0.43	0.35	0.00	0.00	0.03	0.03	0.00	0.03	0.03	53.98

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.06	0.05	0.32	0.00	0.00	0.00	59.98

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	2.00	3.04	24.50	0.02	4.25	0.83	2,442.81

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SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	2.06	3.09	24.82	0.02	4.25	0.83	2,502.79

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Urbemis 2007 Version 9.2.4

Detail Report for Annual Construction Unmitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\PNichols\Application Data\Urbemis\Version9a\Projects\Agoura Medical Partners.urb924

Project Name: Agoura Medical Partners Office Project

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
2008	0.28	2.26	1.31	0.00	0.91	0.12	1.03	0.19	0.11	0.30	213.93
Demolition 03/03/2008-03/21/2008	0.01	0.07	0.05	0.00	0.00	0.01	0.01	0.00	0.00	0.00	6.19
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.01	0.07	0.04	0.00	0.00	0.01	0.01	0.00	0.00	0.00	5.25
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.93
Mass Grading 03/24/2008-06/20/2008	0.12	1.11	0.56	0.00	0.77	0.05	0.82	0.16	0.05	0.21	99.38
Mass Grading Dust	0.00	0.00	0.00	0.00	0.77	0.00	0.77	0.16	0.00	0.16	0.00
Mass Grading Off Road Diesel	0.11	0.91	0.44	0.00	0.00	0.05	0.05	0.00	0.04	0.04	73.04
Mass Grading On Road Diesel	0.02	0.19	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	22.30
Mass Grading Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.04
Fine Grading 06/23/2008-08/01/2008	0.05	0.42	0.22	0.00	0.14	0.02	0.16	0.03	0.02	0.05	35.58
Fine Grading Dust	0.00	0.00	0.00	0.00	0.14	0.00	0.14	0.03	0.00	0.03	0.00
Fine Grading Off Road Diesel	0.05	0.42	0.20	0.00	0.00	0.02	0.02	0.00	0.02	0.02	33.71
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.87

Trenching 08/04/2008-08/15/2008	0.01	0.10	0.05	0.00	0.00	0.01	0.01	0.00	0.00	0.00	9.20
Trenching Off Road Diesel	0.01	0.10	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.57
Trenching Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62
Asphalt 08/18/2008-08/29/2008	0.01	0.07	0.05	0.00	0.00	0.01	0.01	0.00	0.01	0.01	6.34
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.07	0.04	0.00	0.00	0.01	0.01	0.00	0.01	0.01	4.90
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09
Building 09/01/2008-04/24/2009	0.07	0.49	0.39	0.00	0.00	0.03	0.03	0.00	0.03	0.03	57.25
Building Off Road Diesel	0.06	0.46	0.22	0.00	0.00	0.03	0.03	0.00	0.03	0.03	39.31
Building Vendor Trips	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.67
Building Worker Trips	0.00	0.01	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.27
2009	0.50	0.43	0.35	0.00	0.00	0.03	0.03	0.00	0.03	0.03	53.98
Building 09/01/2008-04/24/2009	0.06	0.43	0.34	0.00	0.00	0.03	0.03	0.00	0.03	0.03	53.34
Building Off Road Diesel	0.05	0.40	0.20	0.00	0.00	0.03	0.03	0.00	0.02	0.02	36.63
Building Vendor Trips	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.42
Building Worker Trips	0.00	0.01	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.29
Coating 04/27/2009-05/22/2009	0.44	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63
Architectural Coating	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63

Phase Assumptions

Phase: Demolition 3/3/2008 - 3/21/2008 - Default Demolition Description

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/23/2008 - 8/1/2008 - Default Fine Site Grading/Excavation Description
Total Acres Disturbed: 1.87
Maximum Daily Acreage Disturbed: 0.47
Fugitive Dust Level of Detail: Default
20 lbs per acre-day
On Road Truck Travel (VMT): 0
Off-Road Equipment:
1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 3/24/2008 - 6/20/2008 - Default Mass Site Grading/Excavation Description
Total Acres Disturbed: 1.87
Maximum Daily Acreage Disturbed: 0.47
Fugitive Dust Level of Detail: Low
Onsite Cut/Fill: 160 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day
On Road Truck Travel (VMT): 161.86
Off-Road Equipment:
1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 8/4/2008 - 8/15/2008 - Default Trenching Description
Off-Road Equipment:
2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day

Phase: Paving 8/18/2008 - 8/29/2008 - Default Paving Description
Acres to be Paved: 0.47
Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 9/1/2008 - 4/24/2009 - Default Building Construction Description
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day
2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 4/27/2009 - 5/22/2009 - Default Architectural Coating Description
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

10/30/2008 9:13:04 AM

Urbemis 2007 Version 9.2.4

Detail Report for Annual Area Source Unmitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\PNichols\Application Data\Urbemis\Version9a\Projects\Agoura Medical Partners.urb924

Project Name: Agoura Medical Partners Office Project

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

AREA SOURCE EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.00	0.05	0.04	0.00	0.00	0.00	59.47
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscape	0.02	0.00	0.28	0.00	0.00	0.00	0.51
Consumer Products	0.00						
Architectural Coatings	0.04						
TOTALS (tons/year, unmitigated)	0.06	0.05	0.32	0.00	0.00	0.00	59.98

Area Source Changes to Defaults

10/30/2008 9:13:24 AM

Urbemis 2007 Version 9.2.4

Detail Report for Annual Operational Unmitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\PNichols\Application Data\Urbemis\Version9a\Projects\Agoura Medical Partners.urb924

Project Name: Agoura Medical Partners Office Project

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Medical office building	2.00	3.04	24.50	0.02	4.25	0.83	2,442.81
TOTALS (tons/year, unmitigated)	2.00	3.04	24.50	0.02	4.25	0.83	2,442.81

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2010 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Medical office building		36.13	1000 sq ft	40.73	1,471.57	13,473.00
					1,471.57	13,473.00

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	53.6	1.1	98.7	0.2

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck < 3750 lbs	6.8	2.9	94.2	2.9
Light Truck 3751-5750 lbs	22.8	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.0	1.0	99.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.5	0.0	86.7	13.3
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.3	69.6	30.4	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Medical office building				7.0	3.5	89.5

Operational Changes to Defaults

Summary of Two Acre Site Example Results By Phase

Total On-Site	CO	NOx	PM10	PM2.5
Demolition	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Site Preparation	20.8	45.1	4.8	2.6
Grading	25.0	53.4	3.6	2.8
Building	11.0	26.0	1.5	1.3
Arch Coating and Paving	17.6	36.0	2.6	2.4
Localized Significance Threshold*	226	147	6	4
Exceed Significance?	NO	NO	NO	NO

* For illustration purposes only, this analysis is based on the most stringent LSTs. Please consult App. C of the Methodology Paper for applicable LSTs.

Summary of Two Acre Site Example Results By Phase and Equipment

Demolition of Existing 0 Square Foot Structure

Vehicle Description	No. of Vehicle	Hours	Trips	Length	CO	NOx	PM10	PM2.5
Concrete/Industrial Saws	0	8.0			0.00	0.00	0.00	0.00
Rubber Tired Dozers	0	8.0			0.00	0.00	#DIV/0!	#DIV/0!
Tractors/Loaders/Backhoes	0	8.0			0.00	0.00	#DIV/0!	#DIV/0!
Haul Trucks			#DIV/0!	0.1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Total Onsite Emissions					**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**
Localized Significance Threshold*					**887**	**143**	**17**	**5**
Exceed Significance?					**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**

Site Preparation

Vehicle Description	No. of Vehicle	Hours	Trips	Length	CO	NOx	PM10	PM2.5
Rubber Tired Dozers	1	7.0			11.86	23.90	1.88	1.13
Graders	1	8.0			5.37	13.76	1.55	0.83
Tractors/Loaders/Backhoes	1	8.0			3.31	6.64	1.31	0.64
Haul Trucks			9	0.1	0.03	0.08	0.004	0.004
Water Trucks			3	2.5	0.22	0.71	0.04	0.032
Total Onsite Emissions					**20.8**	**45.1**	**4.8**	**2.6**
Localized Significance Threshold*					**887**	**143**	**17**	**5**
Exceed Significance?					**NO**	**NO**	**NO**	**NO**

Grading

Vehicle Description	No. of Vehicle	Hours	Trips	Length	CO	NOx	PM10	PM2.5
Bulldozer	1	8.0			13.56	27.31	1.19	1.09
Grader	1	8.0			5.37	13.76	0.72	0.66
Tractor/Loader/Backhoe	2	7.0			5.80	11.62	1.67	0.99
Haul Truck			4	0.1	0.01	0.04	0.00	0.0017
Water Truck			3	2.5	0.22	0.71	0.04	0.03
Total Onsite Emissions					**25.0**	**53.4**	**3.6**	**2.8**
Localized Significance Threshold*					**887**	**143**	**17**	**5**
Exceed Significance?					**NO**	**NO**	**NO**	**NO**

Building of 87,000 Square Foot Structure

Vehicle Description	No. of Vehicle	Hours	Trips	Length	CO	NOx	PM10	PM2.5
Forklifts	1	6.0			1.50	3.86	0.21	0.19
Cranes	1	6.0			3.82	10.17	0.45	0.41
Tractors/Loaders/Backhoes	1	6.0			2.49	4.98	0.38	0.35
Generator Sets	1	8.0			2.84	5.80	0.36	0.33
Electric Welders	3	8.0			N/A	N/A	N/A	N/A
Haul Trucks			30	0.1	0.09	0.28	0.01	0.013
Water Trucks			3	3.2	0.28	0.91	0.04	0.04
Total Onsite Emissions					**11.0**	**26.0**	**1.5**	**1.3**
Localized Significance Threshold*					**887**	**143**	**17**	**4**
Exceed Significance?					**NO**	**NO**	**NO**	**NO**

* Illustration purpose showing the most stringent LSTs. Please consult App. C of the Methodology Paper for applicable LSTs.

Summary of Two Acre Site Example Results By Phase and Equipment

Architectural Coating and Asphalt Paving of Parking Lot

Vehicle Description	No. of Vehicle	Hours	Trips	Length	CO	NOx	PM10	PM2.5
Pavers	1	6.0			3.60	6.77	0.48	0.44
Paving Equipment	1	8.0			3.75	8.27	0.57	0.52
Rollers	1	7.0			3.09	6.35	0.44	0.40
Cement and Mortar Mixers	1	6.0			0.27	0.42	0.03	0.03
Tractors/Loaders/Backhoes	2	8.0			6.63	13.29	1.02	0.94
Haul Trucks			3	0.1	0.01	0.03	0.0014	0.0013
Water Trucks			3	3.2	0.28	0.91	0.04	0.04
Total Onsite Emissions					**17.6**	**36.0**	**2.6**	**2.4**
Localized Significance Threshold*					**226**	**147**	**6**	**4**
Exceed Significance?					**NO**	**NO**	**NO**	**NO**

* Illustration purpose showing the most stringent LSTs. Please consult App. C of the Methodology Paper for applicable LSTs.

Two Acre Site Example - Demolition Phase

Example	Construction Activity		
Two Acre Site	Demolition of Existing	0	Square Foot Structure[a]
Demolition Schedule -	0	days[a]	

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Concrete/Industrial Saws	0	8.0	8
Rubber Tired Dozers	0	8.0	
Tractors/Loaders/Backhoes	0	8.0	

Construction Equipment Emission Factors

Equipment Type[c]	CO lb/hr	NOx lb/hr	PM10 lb/hr
Concrete/Industrial Saws	0.449	0.764	0.064
Rubber Tired Dozers	1.695	3.414	0.147
Tractors/Loaders/Backhoes	0.414	0.830	0.064

Building Dimensions

Description[a]	Width of Building ft	Length of Building ft	Height of Building ft
Total Project	0	0	0

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[d]	Mean Wind Speed[e] mph	Moisture Content[f]	Debris Handled[g] ton/day
0.35	10	2.0	#DIV/0!

Construction Vehicle (Mobile Source) Emission Factors

	CO lb/mile	NOx lb/mile	PM10 lb/mile
Heavy-Duty Truck[h]	0.014462	0.047182	0.002309

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day[i]	One-Way Trip Length[j] (miles)
Haul Truck	#DIV/0!	0.1

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factor (lb/hr) x No. of Equipment x Work Day (hr/day) = Onsite Construction Emissions (lb/day)

Equipment Type	CO lb/day	NOx lb/day	PM10 lb/day
Concrete/Industrial Saws	0.00	0.00	0.00
Rubber Tired Dozers	0.00	0.00	0.00
Tractors/Loaders/Backhoes	0.00	0.00	0.00
Total	**0.0**	**0.0**	**0.0**

Incremental Increase in Onsite Fugitive Dust Emissions from Construction Equipment

Material Handling[k]: (0.0032 x Acrodynamic Particle Size Multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x debris handled (ton/day)) x (1 - control efficiency) = PM10 Emissions (lb/day)

Description	Control Efficiency %	PM10 Mitigated[m] lb/day
Material Handling (Demolition)[l]	68	#DIV/0!
Material Handling (Debris)	68	#DIV/0!
Total		**#DIV/0!**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

Vehicle	CO lb/day	NOx lb/day	PM10 lb/day
Haul Truck	#DIV/0!	#DIV/0!	#DIV/0!
Total	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**

Total Incremental Localized Emissions from Construction Activities			
	CO	NOx	PM10
	lb/day	lb/day	lb/day
Sources	#DIV/0!	#DIV/0!	#DIV/0!
On-site Emissions (Mitigated)	*226*	*147*	*6*
Significance Threshold[n]	#DIV/0!	#DIV/0!	#DIV/0!
Exceed Significance?			

Combustion and Fugitive Summary	PM2.5 Fraction[o]	PM10	PM2.5
		lb/day	lb/day
Combustion (Offroad)	0.92	0.0	0.0
Combustion (Onroad)	0.96	#DIV/0!	#DIV/0!
Fugitive	0.21	#DIV/0!	#DIV/0!
Total		#DIV/0!	**#DIV/0!**
Significance Threshold[n]			**4**
Exceed Significance?			**#DIV/0!**

Notes:

Project specific data may be entered into shaded cells. Changing the values in the shaded cells will not affect the integrity of the worksheets. Verify that units of values entered match units for cell. Adding lines or entering values with units different than those associated with the shaded cells may alter the integrity of the sheets or produce incorrect results.

a) SCAQMD, estimated from survey data, Sept 2004

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, Oct 2006. Assumed equipment is diesel fueled.

d) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, p 13.2.4-3 Aerodynamic particle size multiplier for < 10 µm

e) Mean wind speed - maximum of daily average wind speeds reported in 1981 meteorological data.

f) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, equation 2-13, p 2-28

g) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, p 2-28. Debris weight to area ratio = 0.046 ton/sq ft

#DIV/0!

h) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

#DIV/0!

Multiple trucks can be used.

j) Assumed trucks travel 0.1 mile through project site.

k) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, equation 2-13, p 2-28. EPA suggests using the material handling equation for demolition emission estimates.

l) EPA suggests using the material handling equation for demolition emission estimates.

m) Includes watering at least three times a day per Rule 403 (68% control efficiency)

n) Illustration purpose showing the most stringent LSTs. Please consult App. C of the Methodology Paper for applicable LSTs.

o) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Two Acre Site Example - Site Preparation Phase

Example	Construction Activity		
Two Acre Site	Site Preparation	79,194	Square Feet[a]
Site Preparation Schedule -	2	days[a]	

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Rubber Tired Dozers	1	7.0	5
Graders	1	8.0	
Tractors/Loaders/Backhoes	1	8.0	

Construction Equipment Emission Factors

Equipment Type[c]	CO lb/hr	NOx lb/hr	PM10 lb/hr
Rubber Tired Dozers	1.695	3.414	0.147
Graders	0.671	1.720	0.089
Tractors/Loaders/Backhoes	0.414	0.830	0.064

Fugitive Dust Clearing Parameters

Silt Content[d]	Moisture Content[d]
6.9	7.9

Fugitive Dust Stockpiling Parameters

Silt Content[d]	Precipitation Days[e]	Mean Wind Speed Percent[f]	TSP Fraction	Area (acres)[g]
6.9	10	100	0.5	0.06

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i] mph	Moisture Content[d]	Dirt Handled[a] cy	Debris Handled[a] cy	Dirt Handled[j] lb/day
0.35	10	7.9	444	48	555,000

Construction Vehicle (Mobile Source) Emission Factors

	CO lb/mile	NOx lb/mile	PM10 lb/mile
Heavy-Duty Truck[l]	0.014462	0.047182	0.002309

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One-Way Trip Length (miles)
Haul Truck[k]	9	0.1
Water Truck[m]	3	2.5

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factor (lb/hr) x No. of Equipment x Work Day (hr/day) = Onsite Construction Emissions (lb/day)

Equipment Type	CO lb/day	NOx lb/day	PM10 lb/day
Rubber Tired Dozers	11.86	23.90	1.03
Graders	5.37	13.76	0.71
Tractors/Loaders/Backhoes	3.31	6.64	0.51
Total	**20.5**	**44.3**	**2.3**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Clearing[n]: PM10 Emissions (lb/day) = 0.75 x (silt content$^{1.5}$)/(moisture content$^{1.4}$) x hours operated (hr/day) x (1 - control efficiency)

Storage Piles[o]: PM10 Emissions (lb/day) = 1.7 x (silt content/1.5) x ((365-precipitation days)/235) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[p] PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton) (1 - control efficiency)

Description	Control Efficiency %	PM10[q] lb/day
Clearing	68	1.69
Storage Piles	68	0.76
Material Handling	68	0.04
Total		**2.49**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (miie) = Mobile Emissions (lb/day)

Vehicle	CO lb/day	NOx lb/day	PM10 lb/day
Haul Truck	0.03	0.08	0.00
Water Truck	0.22	0.71	0.035
Total	**0.25**	**0.79**	**0.04**

Total Incremental Localized Emissions from Construction Activities

Sources	CO lb/day	NOx lb/day	PM10 lb/day
On-site Emissions	20.8	45.1	4.8
Significance Threshold[r]	*226*	*147*	*6*
Exceed Significance?	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	PM2.5 Fraction[s]	PM10 lb/day	PM2.5 lb/day
Combustion (Offroad)	0.92	2.3	2.1
Combustion (Onroad)	0.96	0.04	0.04
Fugitive	0.21	2	0.52
Total		4.8	2.6
Significance Threshold[r]			4
Exceed Significance?			NO

Notes:

Project specific data may be entered into shaded cells. Changing the values in the shaded cells will not affect the integrity of the worksheets. Verify that units of values entered match units for cell. Adding lines or entering values with units different than those associated with the shaded cells may alter the integrity of the sheets or produce incorrect results.

a) SCAQMD, estimated from survey data, Sept 2004

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, Oct 2006. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph.

g) Assumed storage piles are 0.06 acres in size

h) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, p 13.2.4-3 Aerodynamic particle size multiplier for < 10 μm

i) Mean wind speed - maximum of daily average wind speeds reported in 1981 meteorological data.

j) Assuming 444 cubic yards of dirt handled [(444 cyd x 2,500 lb/cyd)/2 days = 555,000 lb/day]

k) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

l) Assumed 30 cubic yd truck capacity for 444 cyd of dirt and 48 cyd of debris [(492 cy x truck/30 cy)/2 days = 9 one-way truck trips/day]

m) Assumed six foot wide water truck traverses over 79,194 square feet of disturbed area

n) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden, ≤ 10 µm

o) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, Sept 1992, EPA-450/2-92-004, Equation 2-12

p) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

q) Includes watering at least three times a day per Rule 403 (68% control efficiency).

r) Illustration purpose showing the most stringent LSTs. Please consult App. C of the Methodology Paper for applicable LSTs.

s) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Two Acre Site Example - Grading Phase

Example	Construction Activity	
Two Acre Site	Grading	79,194 Square Feet[a]
Site Preparation Schedule -	4 days[n]	

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Rubber Tired Dozers	1	8.0	5
Graders	1	8.0	
Tractors/Loaders/Backhoes	2	7.0	

Construction Equipment Emission Factors

Equipment Type[c]	CO lb/hr	NOx lb/hr	PM10 lb/hr
Rubber Tired Dozers	1.695	3.414	0.147
Graders	0.671	1.720	0.089
Tractors/Loaders/Backhoes	0.414	0.830	0.064

Fugitive Dust Grading Parameters

Vehicle Speed (mph)[d]	Vehicle Miles Traveled[e]
3	0.34

Fugitive Dust Stockpiling Parameters

Silt Content[f]	Precipitation Days[g]	Mean Wind Speed Percent[h]	TSP Fraction	Area (acres)[i]
6.9	10	100	0.5	0.06

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[j]	Mean Wind Speed[k] mph	Moisture Content[f]	Dirt Handled[a] cy	Dirt Handled[l] lb/day
0.35	10	7.9	444	277,500

Two Acre Site Example - Grading Phase

Construction Vehicle (Mobile Source) Emission Factors

	CO lb/mile	NOx lb/mile	PM10 lb/mile
Heavy-Duty Truck[m]	0.014462	0.047182	0.002309

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One-Way Trip Length (miles)
Haul Truck[n]	4	0.1
Water Truck[o]	4	2.5

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factor (lb/hr) x No. of Equipment x Work Day (hr/day) = Onsite Construction Emissions (lb/day)

Equipment Type	CO lb/day	NOx lb/day	PM10 lb/day
Rubber Tired Dozers	13.56	27.31	1.18
Graders	5.37	13.76	0.71
Tractors/Loaders/Backhoes	5.80	11.62	0.89
Total	**24.7**	**52.7**	**2.78**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Grading[p]: PM10 Emissions (lb/day) = 0.60 x 0.051 x mean vehicle speed$^{2.0}$ x VMT x (1 - control efficiency)

Storage Piles[q]: PM10 Emissions (lb/day) = 1.7 x (silt content/1.5) x ((365-precipitation days)/235) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[r] PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton) (1 - control efficiency)

Description	Control Efficiency %	PM10[s] lb/day
Earthmoving	68	0.03
Storage Piles	68	0.76
Material Handling	68	0.02
Total		**0.81**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	CO	NOx	PM10
Vehicle	lb/day	lb/day	lb/day
Haul Truck	0.01	0.04	0.00
Water Truck	0.22	0.71	0.035
Total	0.23	0.75	0.04

Total Incremental Localized Emissions from Construction Activities

	CO	NOx	PM10
Sources	lb/day	lb/day	lb/day
On-site Emissions	25.0	53.4	3.6
Significance Threshold[t]	*226*	*147*	*6*
Exceed Significance?	NO	NO	NO

Combustion and Fugitive Summary	**PM2.5 Fraction[u]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	2.8	2.6
Combustion (Onroad)	0.96	0.04	0.04
Fugitive	0.21	1	0
Total		3.6	2.8
Significance Threshold[t]			4
Exceed Significance?			NO

Notes:

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a) SCAQMD, estimated from survey data, Sept 2004

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, Oct 2006. Assumed equipment is diesel fueled.

d) Caterpillar Performance Handbook, Edition 33, October 2003 Operating Speeds, p 2-3.

e) Assumed 13 foot wide blade with 2 foot overlap (11 foot wide). Vehicle miles traveled (VMT) = (79,194 sq ft/11 foot x mile/5,280 ft)/4 days = 0.34miles

f) USEPA, AP-42, Jan 1995, Table 11.9-3 Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations

g) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

h) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph. At least one meteorological site recorded wind speeds greater than 12 mph over a 24-hour period in 1981.

i) Assumed storage piles are 0.06 acres in size

j) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, p 13.2.4-3 Aerodynamic particle size multiplier for < 10 μm

k) Mean wind speed - maximum of daily average wind speeds reported in 1981 meteorological data.

l) Assuming 444 cubic yards of dirt handled [(444 cyd x 2,500 lb/cyd)/4 days = 277,500 lb/day]

m) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

n) Assumed 30 cubic yd truck capacity for 444 cyd of dirt [(444 cyd x truck/30 cyd)/4 days = 4 one-way truck trips/day]. Multiple trucks may be used.

o) Assumed six foot wide water truck traverses over 79,194 square feet of disturbed area

p) USEPA, AP-42, Jan 1995, Table 11.9-1, Equation for Site Grading ≤ 10 μm

q) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, Sept 1992, EPA-450/2-92-004, Equation 2-12

r) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

s) Includes watering at least three times a day per Rule 403 (68% control efficiency).

t) Illustration purpose showing the most stringent LSTs. Please consult App. C of the Methodology Paper for applicable LSTs.

u) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Two Acre Site Example - Structure Construction

Example	Construction Activity
Two Acre Site	Building 40,733 Square Foot Structure[a]

Construction Schedule

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Forklifts	1	6.0	8
Cranes	1	6.0	
Tractors/Loaders/Backhoes	1	6.0	
Generator Sets	1	8.0	
Electric Welders	0	8.0	

Construction Equipment Combustion Emission Factors

Equipment Type[c]	CO lb/hr	NOx lb/hr	PM10 lb/hr
Forklifts	0.250	0.643	0.035
Cranes	0.637	1.695	0.075
Tractors/Loaders/Backhoes	0.414	0.830	0.064
Generator Sets	0.355	0.725	0.045
Electric Welders	N/A	N/A	N/A

Construction Vehicle (Mobile Source) Emission Factors

	CO lb/mile	NOx lb/mile	PM10 lb/mile
Heavy-Duty Truck[d]	0.014462	0.047182	0.002309

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One-Way Trip Length (miles)
Flatbed Truck[a,e]	30	20.1
Water Truck[f]	3	3.2

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factor (lb/hr) x No. of Equipment x Work Day (hr/day) = Onsite Construction Emissions (lb/day)

Equipment Type	CO lb/day	NOx lb/day	PM10 lb/day
Forklifts	1.50	3.86	0.21
Cranes	3.82	10.17	0.45
Tractors/Loaders/Backhoes	2.49	4.98	0.38
Generator Sets	2.84	5.80	0.36
Electric Welders	N/A	N/A	N/A
Total	**10.65**	**24.81**	**1.40**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

Vehicle	CO lb/day	NOx lb/day	PM10 lb/day
Flatbed Truck	0.09	0.28	0.014
Water Truck	0.28	0.91	0.044
Total	**0.37**	**1.19**	**0.06**

Total Incremental Combustion Emissions from Construction Activities

Sources	CO lb/day	NOx lb/day	PM10 lb/day
On-Site Emissions	11.0	26.0	1.5
Significance Threshold[g]	*226*	*147*	*6*
Exceed Significance?	NO	NO	NO

Combustion and Fugitive Summary	PM2.5 Fraction[h]	PM10 lb/day	PM2.5 lb/day
Combustion (Offroad)	0.92	1.4	1.3
Combustion (Onroad)	0.96	0.06	0.06
Fugitive	0.21	0	0
Total		**1.5**	**1.3**
Significance Threshold[g]			**4**

Two Acre Site Example - Structure Construction

Exceed Significance?	NO

Two Acre Site Example - Structure Construction

Notes:

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a) SCAQMD, estimated from survey data, Sept 2004

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, Oct 2006. Assumed equipment is diesel fueled except the welders which are powered by the generator.

d) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

e) Assumed haul truck travels 0.1 miles through facility

f) Assumed six foot wide water truck traverses over 100,000 square feet of disturbed area

g) Illustration purpose showing the most stringent LSTs. Please consult App. C of the Methodology Paper for applicable LSTs.

h) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Two Acre Site Example - Architectural Coating and Asphalt Paving

Example	Construction Activity
Two Acre Site	Architectural Coating and Asphalt Paving of Parking Lot
Construction Schedule -	5 days[a]

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Pavers	1	6.0	8
Paving Equipment	1	8.0	1
Rollers	1	7.0	
Cement and Mortar Mixers	1	6.0	
Tractors/Loaders/Backhoes	2	8.0	

Construction Equipment Combustion Emission Factors

Equipment Type[c]	CO lb/hr	NOx lb/hr	PM10 lb/hr
Pavers	0.600	1.129	0.080
Paving Equipment	0.469	1.033	0.071
Rollers	0.442	0.907	0.063
Cement and Mortar Mixers	0.046	0.069	0.005
Tractors/Loaders/Backhoes	0.414	0.830	0.064

Construction Vehicle (Mobile Source) Emission Factors

	CO lb/mile	NOx lb/mile	PM10 lb/mile
Heavy-Duty Truck[d]	0.014462	0.047182	0.002309

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One-Way Trip Length (miles)
Delivery Truck[e]	3	0.1
Water Truck[f]	3	3.2

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factor (lb/hr) x No. of Equipment x Work Day (hr/day) = Onsite Construction Emissions (lb/day)

Equipment Type	CO lb/day	NOx lb/day	PM10 lb/day
Pavers	3.60	6.77	0.48
Paving Equipment	3.75	8.27	0.57
Rollers	3.09	6.35	0.44
Cement and Mortar Mixers	0.27	0.42	0.03
Tractors/Loaders/Backhoes	6.63	13.29	1.02
Total	**17.34**	**35.10**	**2.54**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

Vehicle	CO lb/day	NOx lb/day	PM10 lb/day
Delivery Truck	0.01	0.03	0.0014
Water Truck	0.28	0.91	0.04
Total	**0.29**	**0.94**	**0.04**

Total Incremental Combustion Emissions from Construction Activities

Sources	CO lb/day	NOx lb/day	PM10 lb/day
On-Site Emissions	17.6	36.0	2.6
Significance Threshold[g]	*226*	*147*	*6*
Exceed Significance?	NO	NO	NO

Combustion and Fugitive Summary	PM2.5 Fraction[h]	PM10 lb/day	PM2.5 lb/day
Combustion (Offroad)	0.92	2.5	2.3
Combustion (Onroad)	0.96	0.041	0.040
Fugitive	0.21	0	0
Total		**2.6**	**2.4**
Significance Threshold[g]			**4**

Exceed Significance?	NO

Two Acre Site Example - Architectural Coating and Asphalt Paving

Notes:

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a) SCAQMD, estimated from survey data, Sept 2004

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, Oct 2006. Assumed equipment is diesel fueled.

d) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, tori/yr x 2,000 lb/ton)/VMT

e) Assumed haul truck travels 0.1 miles through facility

f) Assumed six foot wide water truck traverses over 100,000 square feet of disturbed area

g) Illustration purpose showing the most stringent LSTs. Please consult App. C of the Methodology Paper for applicable LSTs.

h) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Greenhouse Gas Emission Worksheet

Operational Emissions Agoura Medical Partners Office Project

Electricity Generation *	(kWH)		Project units	Project Usage
Commercial consumption	16,750	per KSF	40.733	682,278
Residential Consumption	7,000	per unit	0	0
			Total	682,278

* Generation Factor Source: CAPCOA, January 2008. CEQA and Climate Change.

Total Project Annual KWh:	682,278	kWH/year
Project Annual MWh:	682	MWH/year

Emission Factors:

CO2 *	804.54	lbs/MWh/year
CH4 **	0.0067	lbs/MWh/year
N2O **	0.0037	lbs/MWh/year

Total Annual Operational Emissions (metric tons) =
(Electricity Use (kWh) x EF)/ 2,204.62 lbs/metric ton

Conversion to Carbon Dioxide Equivalency (CO2e) Units based on Global Warming Potential (GWP)

CH4	23	GWP
N2O	296	GWP

1 ton (short, US) = 0.90718474 metric ton.

Annual Operational Emissions:

	Total Emissions		Total CO2e Units	
CO2 emissions, electricity:	274.4599	tons	249.0	metric tons CO2e
CO2 emissions***:	59.9800	tons	54.4	metric tons CO2e
CH4 emissions:	0.0021	metric tons	0.0	metric tons CO2e
N2O emissions:	0.0011	metric tons	0.3	metric tons CO2e
		Project Total	*304*	*metric tons CO2e*

References

* Table C.1: EPA eGRID CO2 Electricity Emission Factors by Subregion (Year 2000)
** Table C.2: Methane and Nitrous Oxide Electricity Emission Factors by State and Region (Average years 2001-1003)
*** URBEMIS Annual Emissions output for Area Source emissions; includes natural gas combustion for heating.

Sources: California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 2.2, March 2007. Third Assessment Report, 2001, U.S. Environmental Protection Agency, U.S. Greeenhouse Gas Emissions and Sinks, 1990-2000 (April 2002).

Greenhouse Gas Emission Worksheet

Mobile Emissions Agoura Medical Partners Office Project

From URBEMIS 2007 Vehicle Fleet Mix Output:
Daily Vehicle Miles Traveled (VMT): 13,473 (Net: Proposed - Existing)
Annual VMT: 4,917,645

Vehicle Type	Percent Type	CH4 Emission Factor (g/mile)*	CH4 Emission (g/mile)	N2O Emission Factor (g/mile)*	N2O Emission (g/mile)
Light Auto	55.6%	0.4	0.2224	0.4	0.2224
Light Truck < 3750 lbs	15.1%	0.5	0.0755	0.6	0.0906
Light Truck 3751-5750 lbs	15.9%	0.5	0.0795	0.6	0.0954
Med Truck 5751-8500 lbs	7.0%	0.5	0.035	0.6	0.042
Lite-Heavy Truck 8501-10,000 lbs	1.1%	0.12	0.00132	0.2	0.0022
Lite-Heavy Truck 10,001-14,000 lbs	0.3%	0.12	0.00036	0.2	0.0006
Med-Heavy Truck 14,001-33,000 lbs	1.0%	0.12	0.0012	0.2	0.002
Heavy-Heavy Truck 33,001-60,000 lbs	0.9%	0.12	0.00108	0.2	0.0018
Other Bus	0.0%	0.5	0	0.6	0
Urban Bus	0.1%	0.5	0.0005	0.6	0.0006
Motorcycle	1.7%	0.09	0.00153	0.01	0.00017
School Bus	0.1%	0.5	0.0005	0.6	0.0006
Motor Home	1.2%	0.12	0.00144	0.2	0.0024
Total			0.42033		0.46077

* from Table C.4: Methane and Nitrous Oxide Emission Factors for Mobile Sources by Vehicle and Fuel Type (g/mile).
Assume Model year 2000-present, gasoline fueled.
Source: California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 2.2, March 2007.

Total Emissions (metric tons) =
Emission Factor by Vehicle Mix (g/mi) x Annual VMT(mi) x 0.000001 metric tons/g

Conversion to Carbon Dioxide Equivalency (CO2e) Units based on Global Warming Potential (GWP)
CH4 23 GWP
N2O 296 GWP
1 ton (short, US) = 0.90718474 metric ton.

Annual Mobile Emissions:

	Total Emissions		Total CO2e units	
CO2 Emissions* :	2442.8	tons CO2	2,216	metric tons CO2e
CH4 Emissions:	2.1	metric tons CH4	48	metric tons CO2e
N20 Emissions:	2.3	metric tons N2O	671	metric tons CO2e
		Project Total:	*2,934*	*metric tons CO2e*

* From URBEMIS 2007 results for mobile sources

APPENDIX C

Biological Resources

- Biological Resources Assessment
- Oak Tree Report
- Oak Tree Report Addendum

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April 2, 2008
Project Number 08-92720

Al Dickens
Agoura Medical Partners, L.L.C.
23945 Calabasas Road, Suite 111
Calabasas, CA 91302

Subject: **Biological Resources Assessment Agoura Medical Partners Project, Chesebro and Agoura Roads, Agoura Hills, County of Los Angeles, California.**

Dear Mr. Dickens:

Rincon Consultants has completed a biological resources assessment of an approximately 1.8- acre site proposed for development in the City of Agoura Hills (Figure 1). The site consists of a single parcel located immediately northwest of the intersection of Chesebro Road and Agoura Road. The purpose of this analysis is to provide information about the general biological conditions of the area; wildlife observed and anticipated onsite; photo-documentation of existing site conditions; identification and location of any special-status species; and analysis of potential project impacts on on-site biological resources.

INTRODUCTION

The subject property consists of approximately 1.8 acres of gently sloping, vacant, undeveloped land within the City of Agoura Hills. The project site is situated in the Calabasas Quadrangle and is approximately eight miles north of the Pacific Ocean and approximately 920 feet above sea level. The property is bounded to the north and east by commercial development and Chesebro Road; to the west by commercial development and a vacant lot; and to the south by Agoura Road. The City of Agoura Hills has a Mediterranean type climate with hot summers and mild winters. Annual precipitation in the region is around 14-18 inches, most of which occurs between November and early April. Average daytime temperatures are in the mid-50's degrees Fahrenheit in the winter to the mid 90's in summer.

Proposed construction includes a two-story medical and dental office with a two-tiered parking structure totaling approximately 42,000 square feet above grade (Figure 2). Landscaping will cover approximately 22,159 square feet and the remaining approximately 10,525 square feet will be covered with hardscape (i.e., sidewalks, driveways, etc.).

METHODOLOGY

Prior to conducting a field survey of the project site, Rincon Consultants reviewed aerial photography of the study area (Google Maps, 2008), consulted the California Natural Diversity Data Base (March, 2008) and U.S. Fish and Wildlife Service Critical Habitat Online Mapper (http://criticalhabitat.fws.gov/), and reviewed documents from other projects in the area for information on special-status species occurrences within a five-mile radius of the project site (Table 1). A site visit was performed by Rincon Consultants' biologist Carie Wingert on March 12, 2008 to identify those areas that could potentially contain sensitive biological resources. Plant and wildlife species observed during the site visit were noted (Table 2). The assessment was performed by walking meandering transects across the site to generally characterize the existing biological resources present. The on-site habitat types were characterized and mapped (Figure 3). The work performed was at a reconnaissance level and no specific surveys for special-status plants or wildlife were conducted. The probability of special status species presence was accessed and is discussed below.

RESULTS

Habitat Types and Plants Observed

Ruderal/Disturbed. A single habitat type was observed within the project site. The ruderal/disturbed habitat identified on-site is not defined by Holland (1986) or Sawyer and Keeler-Wolfe (1995) as it is an unnaturally disturbed habitat typically occupied by non-native plants. This habitat type occupied the entire project site, which had been plowed within the past four to six weeks as estimated based on plant re-growth (Figure 4). Vegetation remained around the periphery of the study area and was dominated by invasive plant species including fiddleneck (*Amsinckia* spp.), soft chess brome (*Bromus hordeaceus*), rip-gut brome (*Bromus diandrus*), and filaree (*Erodium cicutarium*). Generally, ruderal/disturbed habitat offers marginal habitat that is utilized by species adapted to frequent disturbance such as various urban-adaptable birds. Table 2 contains a complete list of plants and animals observed on-site.

Wildlife Species Observed

Wildlife observed by site, sign, or sound on-site included only the American crow (*Corvus brachyrhynchos*) and western fence lizard (*Sceloporus occidentalis*).

Special Status Species

For the purpose of this report, special status species are those plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered by the U.S. Fish and Wildlife Service (USFWS) under the federal Endangered Species Act (ESA); those considered "species of concern" by the USFWS; those listed or proposed for listing as rare, threatened, or endangered by the California Department of Fish and Game (CDFG) under the California Endangered Species Act (CESA); animals designated as "Species of Special Concern" by the CDFG; and those found on the CDFG *Special Vascular Plants, Bryophytes, and Lichens List* (January 2008). This latter document

includes the California Native Plant Society (CNPS) Inventory of Rare and Endangered Vascular Plants of California, Sixth Edition (Tibor, 2001) as updated online. Those plants on the CDFG List (CNPS Lists 1B, 2, and 4) are considered special status species in this study. Per CNPS code definition: List 1B species include those considered rare, threatened, or endangered in California and elsewhere; List 2 includes plants rare, threatened, or endangered in California but more common elsewhere; and List 4 includes species of limited distribution or infrequent throughout a broader range of California and their vulnerability or susceptibility to threat appears low at this time.

Rincon Consultants developed a target list of special-status plant and animal species (Table 1) that occur in the study area vicinity based on our review of the California Natural Diversity Data Base (CNDDB, 2008) and documents from other projects in the area. Field reconnaissance to identify habitat types and evaluation of on-site conditions refined the target list of species and focused the assessment on the actual or potential for occurrence of special-status species. Of the 20 plants and 30 animals listed on the CNDDB, all occur in ecosystems directly associated with the immediate coast (estuaries, dunes, coastal bluff), require specific habitats not found on or near the property, or are listed from pre-1930 historical reports.

Communities of Special Concern. Eight sensitive plant communities considered "rare" per the List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database, September 2003 Edition and included in the CNDDB (2008) are found in the vicinity of the project area (Table 1). None of these plant communities occur within or adjacent to the project site.

Special Status Plants. Of the 20 plants listed on the CNDDB, none have the potential to occur on site. The site is highly disturbed, with the recent plowing of the field and the predominance of invasive plant species on the periphery indicating that it is highly unlikely for special status plants species to occur. In addition, these plants are generally found in specific habitats and soil conditions that are not present within the project site.

Special Status Wildlife. The CNDDB contains a number of recorded occurrences of special status wildlife species in the general project area (Table 1). Suitable habitat for species listed under the state or federal Endangered Species Act, such as the California gnatcatcher (*Polioptila californica californica*), tidewater goby (*Eucyclogobius newberryi*), bank swallow (*Riparia riparia*), southern steelhead (*Oncorhyncus mykiss irideus*), or California red-legged frog (*Rana aurora draytonii*), is lacking at the site. As stated previously, the site is highly disturbed and has been plowed recently. Of the 30 wildlife species listed on the CNDDB, only highly mobile animals such as raptors (golden eagle, Cooper's hawk) and insectivorous bats are likely to occasionally forage at the site. The limited amount of available food resources at the site would not sustain such species and the loss of such as a consequence of site development would have a negligible effect on these species.

Jurisdictional Drainages and Wetlands. The site is an open field as illustrated by the photographs shown in Figure 4. The field reconnaissance detected no indications of drainage areas or possible depressions that would be under the jurisdiction of the

California Department of Fish and Game, the Army Corps of Engineers (waters of the U.S.), or the Los Angeles Regional Water Quality Control Board (waters of the State).

ANALYSIS AND CONCLUSIONS

The subject property proposed for construction of the Agoura Medical Partners Project is highly disturbed and lacking natural vegetation to support sensitive biological resources. While the timing of the field visit excluded the potential for a spring survey of most blooming plants, the ruderal/disturbed habitat present at the site lack the potential to contain sensitive plant and animal species because of the long term continual disturbance of the property for weed control/fuel management and the consequential lack of suitable habitat for the reviewed species. Given the present condition of the site, the construction of the proposed medical/dental facility would not result in a significant impact on biological resources. No mitigation measures are anticipated to be necessary with respect to the biological resources present.

LIMITATIONS

This work has been performed in accordance with good commercial, customary, and generally accepted biological investigation practices conducted at this time and in this geographic area. The findings and opinions conveyed in this report are based on a suitability analysis level only and did not include definitive surveys for the presence or absence of the special-status species that may be present. Definitive surveys for special status wildlife and plant species generally require specific survey protocols requiring extensive field survey time to be conducted only at certain times of the year. The findings and opinions conveyed in this report are based on the methodologies described above. It is understood that Rincon is to be held harmless for any inverse condemnation or devaluation of said property that may result if Rincon's report or information generated during our performance of services is used for other purposes.

If you have any questions regarding this submittal, please contact us.

Sincerely:
RINCON CONSULTANTS, INC.

Carie Wingert
Associate Biologist

Duane Vander Pluym, D.ESE
Principal Biologist

Attachments: *Vicinity Map*
Habitat Map
Site Plan
Special-Status Species Table
Plant and Wildlife Inventory
Photo Sheet

Attachment A

Vicinity Map

Sources: Map images copyright © 2008 ESRI and its licensors. All rights reserved. Used by permission.U.S. Bureau of the Census Tiger 2000 data; ESRI, 2002 and Rincon Consultants, 2008.

Vicinity Map

Figure 1

Attachment B

Habitat Map

Source: Heathcote & Associates, 2008; Map images copyright ©2008 ESRI and its licensors. All rights reserved. Used by permission.

Approximate Property Boundary

Ruderal/Disturbed Habitat

0 100 200 Feet

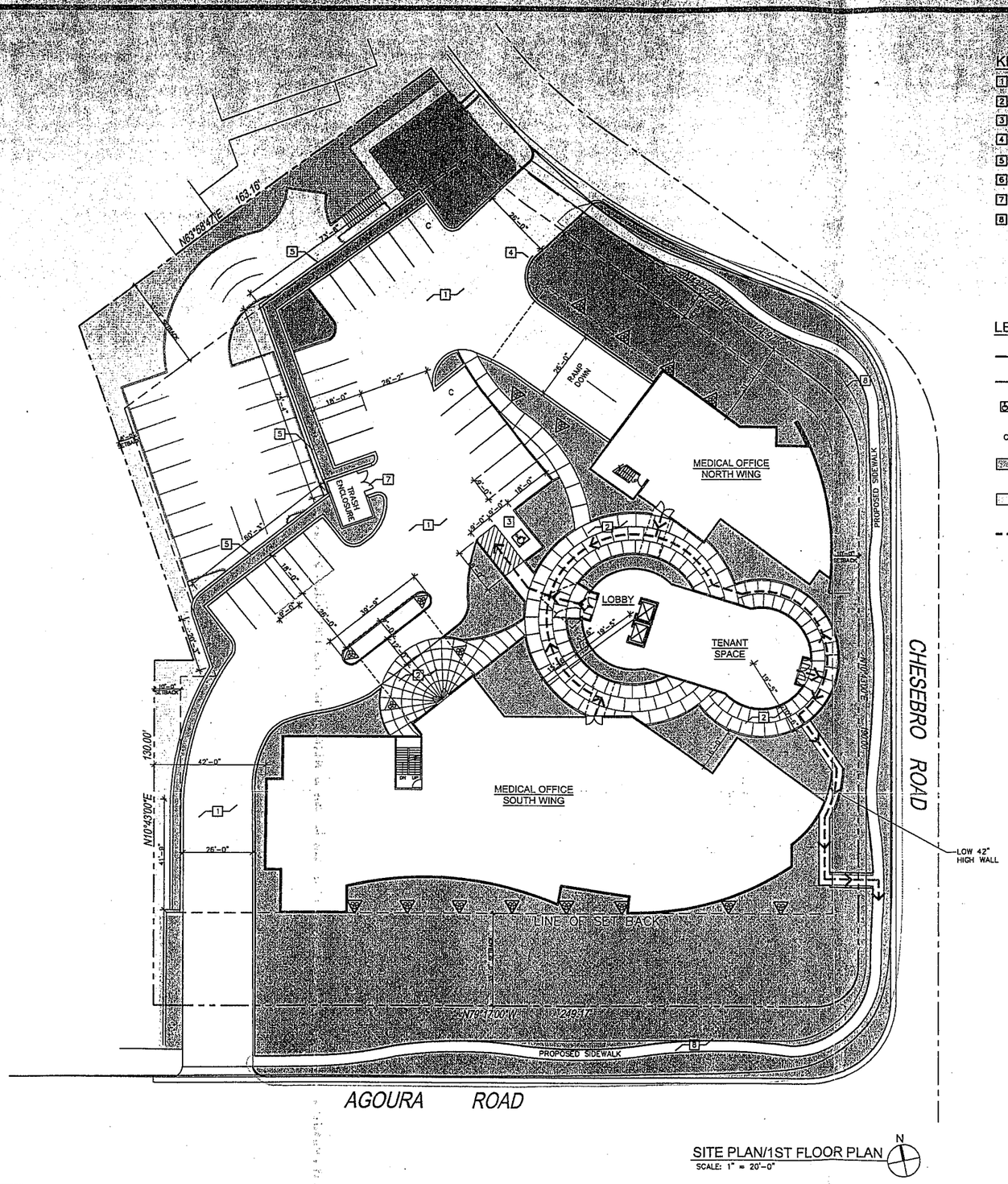
N

Habitat Map

Figure 3

Attachment C

Site Plan



SITE PLAN/1ST FLOOR PLAN
SCALE: 1" = 20'-0"

SITE PLAN

1

KEY NOTES

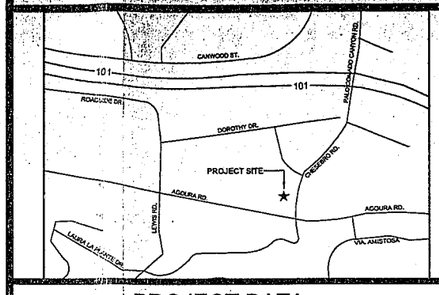
1. PROVIDE NEW CONCRETE DRIVEWAY
2. PROVIDE NEW STAMPED CONCRETE PATIO
3. PROVIDE NEW VAN ACCESSIBLE H.C. PARKING W/ LOADING ZONE
4. PROVIDE NEW CONCRETE CURB
5. PROVIDE NEW SHORT WALL W/ 36" HIGH GUARD RAIL
6. PROPOSED DELIVERY TRUCK LOADING ZONE
7. PROVIDE NEW TRASH ENCLOSURE
8. PROVIDE NEW SIDEWALK

LEGEND

- H.C. PATH OF TRAVEL
- PROPERTY LINE
- PROPOSED H.C. PARKING SPACE
- C — PROPOSED COMPACT PARKING SPACE
- PROPOSED UPPER LEVEL LANDSCAPE
- PROPOSED LOWER LEVEL LANDSCAPE
- EXIT PATH OF TRAVEL

SHEET INDEX

VICINITY MAP



PROJECT DATA

PROJECT DESCRIPTION:
THIS PROJECT IS A TWO (2) STORY MEDICAL DENTAL OFFICE BUILDING WITH A TWO TIERED PARKING STRUCTURE.

ZONE:
(CRS) COMMERCIAL RETAIL SERVICE

OCCUPANCY CLASSIFICATION:
PROPOSED OCCUPANCY:
MEDICAL BUILDING "B" OCCUPANCY
PARKING LEVEL "S4" OCCUPANCY
LOWER PARKING LEVEL "S3" OCCUPANCY

ALLOWABLE FLOOR AREA:
TWO (2) STORY MEDICAL BUILDING
TYPE V ONE (1) HOUR= 14,000 SQ. FT. X'S 3 FIRE SPRINKLED=42,000 SQ. FT.
42,000 SQ. FT. ALLOWABLE AREA.

PARKING STRUCTURE
TYPE I CONSTRUCTION = UNLIMITED OR
TYPE II = F.R.= 125,000 SQ. FT. AREA PER TIER

PARKING JUSTIFICATION:
PARKING REQUIRED
MEDICAL OFFICE 40,733 SQ. FT. / 200 = 204 SPACES

PARKING PROVIDED

PLAZA LEVEL	24
PARKING LEVEL	120
LOWER PARKING GARAGE	66
TOTAL PARKING	210

210 CARS X 200 SQ. FT. PER CAR= 42,000 SQ. FT. ALLOWABLE AREA.

SQUARE FOOTAGE CALCULATIONS:
TOTAL TENANT SPACE (APPROX. AREA)

1ST FLOOR MEDICAL OFFICE BUILDING

LOBBY	2,882.0 SQ. FT.
SOUTH WING	12,323.0 SQ. FT.
NORTH WING	3,425.0 SQ. FT.
1ST FLR TOTAL SQ. FT.	18,630.0 SQ. FT

2ND FLOOR MEDICAL OFFICE BUILDING

LOBBY	2882.0 SQ. FT.
SOUTH WING	13,454.0 SQ. FT.
NORTH WING	5,767.0 SQ. FT.
2ND FLR TOTAL SQ. FT.	22,103.0 SQ. FT.

TOTAL BUILDING AREA: 40,733 SQ.FT

SITE COVERAGE JUSTIFICATION :	AREA (SQ. FT.)	% OF COVERAGE	
BUILDING (PARKING STRUCTURE & OFFICE BUILDING)	±46,510	±58.7	
LANDSCAPE	±22,159	±28.0	
HARDSCAPE	±10,525	±13.3	
TOTAL SITE	±79,194		80% MAX
ADDITIONAL LANDSCAPING ON PARKING STRUCTURE	±5,254	±6.6	25% MIN
TOTAL LANDSCAPE	±27,413	±34.6	

CONTACTS

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ANDREW WILDRODT, P.E., LEED A.P.
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AL DICKENS
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REVISIONS

DRAWING INFO
COMPUTER FILE
DATE
SEPTEMBER, 07
SCALE
JOB NO.
1718.3

AGOURA MEDICAL PARTNERS LLC

CORNER OF CHESEBRO ROAD & AGOURA ROAD

Agoura Hills, CA

LICENSED ARCHITECT GARY HEATHCOTE, AIA C-011856 REN. 3/31/07 STATE OF CALIFORNIA

Heathcote & Associates
Architecture
3396 Willow Lane
Westlake Village
California Suite 200
Phone 805-497-4700

SHEET
T1
TITLE SHEET/SITE PLAN

PRELIMINARY NOT FOR CONSTRUCTION

Attachment D

List of Special-Status Species in the Project Vicinity

Table 1. Special-Status Biological Resources in the Project Vicinity

Species	Status* Fed/CA/CNPS	Habitat Requirements	Project Site Suitability/Observations
		PLANTS	
Agoura Hills dudleya *Dudleya cymosa ssp. agourensis*	T/--/List 1B.2	Chaparral and cismontane woodland habitats, typically on rocky or volcanic soils.	Suitable habitat is not present on-site. This species is not expected to occur. No dudleyas present at the site.
Blochman's dudleya *Dudleya blochmaniae* ssp. *blochmaniae*	--/--/List 1B.1	Coastal scrub, coastal bluff scrub, valley and foothill grassland. Open rocky slopes, often in shallow clays over serpentine.	Suitable habitat is not present on-site. This species is not expected to occur. No dudleyas present at the site.
Braunton's milk-vetch *Astragalus brauntonii*	E/--/List 1B.1	Recently burned or disturbed areas in closed-cone coniferous forest, chaparral, coastal scrub, and valley/foothill grassland habitats, usually on carbonate soils.	Suitable habitat is not present on-site. This species is not expected to occur and none were seen during the field survey.
California Orcutt grass *Orcuttia californica*	E/E/List 1B.1	Vernal pool habitat at elevations ranging from 15 to 660 meters.	Suitable habitat is not present on-site. This species is not expected to occur.
Chaparral nolina *Nolina cismontana*	--/--/List 1B.2	Sandstone and gabbaro substrates in chaparral and coastal scrub habitats.	Suitable habitat is not present on-site. None seen during field survey.
Conejo buckwheat *Eriogonum crocatum*	--/R/List 1B.2	Chaparral, coastal scrub, and valley and foothill grassland; commonly found on Conejo volcanic outcrops or rocky soils.	Suitable habitat is not present on-site. This species is not expected to occur and none were seen during the field survey.
Conejo dudleya *Dudleya parva*	T/--/List 1B.2	Coastal scrub and valley and foothill grassland communities, usually on rocky, gravelly, or clay soils.	Suitable habitat is not present on-site. This species is not expected to occur. No dudleyas present at the site.
Coulter's saltbush *Atriplex coulteri*	--/--/List 1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, and valley and foothill grassland; occurs in alkaline clay soils where open sites within habitat are found.	Suitable habitat is not present on-site. This species is not expected to occur and none were seen during the field survey.
Dune larkspur *Delphinium parryi* ssp. *blochmaniae*	--/--/List 1B.2	Rocky areas in chaparral and coastal (maritime) dunes. 0-200 meters.	This project site is above the elevational range for this species, nor is the site located near the coast. This species is not expected to occur.
Lyon's pentachaeta *Pentachaeta lyonii*	E/E/List 1B.1	Ranges 30 to 630 meters; found in chaparral, coastal scrub, and valley and foothill grassland.	Suitable habitat is not present on-site. Site is heavily disturbed and dominated by ruderal species. This species is not expected to occur.
Malibu baccharis *Baccharis malibuensis*	--/--/List 1B.1	Conejo volcanic soils in coastal scrub, chaparral, and cismontane woodland habitats in Los Angeles County.	Suitable habitat is not present on-site. This species is not expected to occur and no *Baccharis* sp. were detected during the field survey.
Many-stemmed dudleya *Dudleya multicaulis*	--/--/List 1B.2	Rocky areas in chaparral, coastal scrub, and valley and foothill grasslands, often in clay soils.	Suitable habitat is not present on-site. This species is not expected to occur. No dudleyas present at the site.
Marcescent dudleya *Dudleya cymosa ssp. marcescens*	T/--/List 1B.2	Occurs on volcanic soils in chaparral at elevations from 150 to 250 meters.	Suitable habitat is not present on-site. This species is not expected to occur. No dudleyas present at the site.
Plummer's mariposa-lily *Calochortus plummerae*	--/--/List 1B.2	Occurs on granitic, rocky soils from 100 to 1700 meters; chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, and valley/foothill grassland habitats.	Project site is highly disturbed and disced, which eliminates bulbiferous species. Suitable habitat is not present on-site. This species is not expected to occur.
Round-leaved filaree *Erodium macrophyllum*		Clay soils in cismontane woodland and valley/foothill grassland at elevations ranging.	Suitable habitat is not present on-site. This species is not expected to occur.

Table 1. Special-Status Biological Resources in the Project Vicinity

Species	Status* Fed/CA/CNPS	Habitat Requirements	Project Site Suitability/Observations
California mountain kingsnake (San Diego population)	--/CSC/--	Found in coniferous forests; below edge of mixed oak-coniferous forests to riparian woodlands, sometimes in association with chaparral and coastal scrub; rocks or rocky outcrops important.	There is no suitable habitat present on-site. Discing eliminates this species; it is not expected to occur.
Coast horned lizard *Phrynosoma coronatum (blainvillii population)*	--/CSC/--	Wide variety of habitat including grasslands, coastal scrub and woodlands. Open areas for sunning and bushes for cover. Loose soils for burial.	Area too heavily disturbed and no shrub cover. Discing eliminates this species; it is not expected to occur.
Coast horned lizard *Phrynosoma coronatum (frontale population)*	--/CSC/--	Wide variety of habitat including grasslands, coastal scrub and woodlands. Open areas for sunning and bushes for cover. Loose soils for burial.	Area too heavily disturbed and no shrub cover. Discing eliminates this species; it is not expected to occur.
Southwestern Pond Turtle *Actinemys marmorata pallida*	--/CSC/--	Basking sites such as partially submerged logs, vegetation mats, or open mud banks.	There is no suitable aquatic habitat present on-site. This species is not expected to occur.
Two-striped garter snake *Thamnophis hammondii*	--/CSC/--	Highly aquatic, in or near permanent fresh water.	There is no suitable aquatic habitat present on-site. This species is not expected to occur.
BIRDS			
Bank swallow *Riparia riparia*	--/T/--	nests in vertical banks or bluffs in friable soils near riparian areas	There are no vertical banks or bluffs, or riparian areas on-site. This species is not expected to occur.
Burrowing owl *Athene cunicularia*	--/CSC/--	Grasslands; nests in burrows.	No burrows present. Not expected to occur.
Coastal California gnatcatcher *Polioptila californica californica*	T/CSC/--	Coastal sage scrub from Los Angeles County south to Baja, California; nests commonly placed in sagebrush; may be found nesting in trees in ruderal habitats and feeding on frogs in riparian areas.	No suitable habitat present. Not expected to occur.
Cooper's hawk (nesting) *Accipiter cooperi*	--/WL/--	Forages and nests in open woodlands, woodland margins and riparian forests.	No suitable habitat present. Could forage at site.
Golden eagle *Aquila chrysuetos*	--/WL, FP/--	Nests on cliffs and rocks and forages in open country, grasslands.	No suitable habitat present. Unlikely forager at site.
Southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	--/WL/--	Slopes of Transverse and Coastal ranges from L.A. County to Baja, California; resident; prefer open shrubby habitat on rocky, xeric slopes	No suitable habitat present. Not expected to occur.
Tricolored blackbird *Agelaius tricolor*	--/CSC/--	Freshwater habitats where it nests in emergent freshwater or riparian vegetation; feeds in grasslands and croplands near nesting areas.	There is no freshwater habitat on-site. This species is not expected to occur.
MAMMALS			
American badger *Taxidea taxus*	--/CSC/--	Friable soils and open, uncultivated ground. Preys on burrowing rodents.	Ground has been plowed. No evidence of a prey base. Not expected to occur.

Table 1. Special-Status Biological Resources in the Project Vicinity

Species	Status* Fed/CA/CNPS	Habitat Requirements	Project Site Suitability/Observations
PLANT COMMUNITIES			
Community Name			**Present**
California Walnut Woodland			Not present.
Southern California Coastal Lagoon			Not present.
Southern California Steelhead Stream			Not present.
Southern Coast Live Oak Riparian Forest			Not present.
Southern Coastal Salt Marsh			Not present.
Southern Sycamore Alder Riparian Woodland			Not present.
Valley Needlegrass Grassland			Not present.
Valley Oak Woodland			Not present.

Source: California Department of Fish and Game, Special Animals, February 2008; DFG Special Vascular Plants, Bryophytes, and Lichens List, January 2008; CNDDB Rarefind 10-mile search radius, March 2008;
CSC = California Species of Special Concern; E = Endangered; T= Threatened; FP = Fully protected; R = Rare; WL = Watch List; CNPS List 4 = limited distribution; CNPS List 2 = rare or endangered in California; CNPS List 1B = rare or endangered in California and elsewhere; -- = no status.

Attachment E

List of Plant and Animals Species Observed On-Site

Table 2. Plant and Animal Species Observed on Agoura Medical Partners Project During a Site Visit Conducted on March 12, 2008.

PLANTS	
Scientific Name	**Common Name**
Amsinckia spp.	fiddleneck
Avena barbata	slender wheat
Avena fatua	common wheat
Bromus diandrus	rip-gut brome
Bromus hordeaceus	soft chess brome
Capsella bursa-pastoris	shepherd's purse
Carduus pycnocephalus	Italian thistle
Claytonia perfoliata	miner's lettuce
Erodium ciutarium	red-stem filaree
Hirschfeldia incana	mustard
Medicago polymorpha	bur clover
Polypogon monspeliensis	rabbitfoot grass
Rhamnus californica	California coffeeberry
ANIMALS	
Scientific Name	**Common Name**
Corvus brachyrhynchos	American crow
Sceloporus occidentalis	western fence lizard

Attachment F

Photo Plate

Figure 4. PHOTO PLATE

Photo 1. View of project area looking north from intersection of Chesebro and Agoura Roads. Chesebro Road can be seen on the right side of the photo. Note that the majority of the site has been plowed. Only a small strip of vegetation remains around the periphery.

Photo 2. View of project area looking northwest from the intersection of Chesebro and Agoura Roads. The large non-native trees in the background are on adjacent properties.

Photo 3. View of project site looking west from intersection of Chesebro and Agoura Roads.

Photo 4. View of project site looking southwest from northwestern corner of property.

AGOURA MEDICAL BUILDING

OAK TREE REPORT

RICHARD W. CAMPBELL
OAK TREE PRESERVATION SPECIALIST

Richard W. Campbell
ASLA BSLA
Landscape Architect
Calif. #1099 - Nev. #14
(805) 375-1010
P. O. Box 6192
Thousand Oaks, Calif. 91359

OAK TREE REPORT

AGOURA MEDICAL BUILDING

March 8, 2008

Client:
I Construction Co.
23945 Calabasas Road, Suite 111
Calabasas, California 91302

Attn.: Al Dickens

SUBJECT SITE:

AGOURA MEDICAL BUILDING
AGOURA HILLS, CALIFORNIA

GENERAL STATEMENT

On March 6 and 8, 2008 Oak Tree "Surveys" were conducted at the Subject Site. Ground level field inventory and external details (caliper size, general health and physical & aesthetic character) were recorded, based upon the existing site conditions. One (1) Quercus lobata and one (1) Quercus agrifolia off-site Oak Trees were evaluated for their present condition based on "owner's" concern for the general health and impact potential relative to the proposed new Medical Building construction. The results of the "Survey" are shown on the attached Tree Evaluation Forms, and as outlined herein. It is proposed that the Oak Trees be protected in place (see Oak Tree Map). Field monitoring will direct workers to avoid and preserve the branching and root areas of these off-site Oak Trees, to remain, during construction.

PURPOSE AND SCOPE

The purpose and scope of this report, in accordance with the City of Agoura Hills Zoning Ordinance #9657 and #9657.5 Appendix A **Oak Tree Preservation Guidelines**, is to identify native and "planted" oak species and evaluate their present condition. A report on impacts, if known, and proposed mitigation measures is required, for submittal to the City for review by the Planning Department, if <u>any</u> work is planned to take place in or within the "PROTECTED ZONE" of any Quercus genus two (2") inches, and over, in diameter at 42" above grade.

The American Society of Landscape Architects founded 1899

SITE CONDITIONS

The site for the Trees is located between the Chesebro, Palo Comado Canyon and Agoura Roads, with assess from both Agoura Road and Chesebro Road (The 101 Freeway on/off ramp access). The general topography is rolling to moderately sloping downward from Agoura Road toward the existing Office Buildings along Dorothy Drive. The site has recently been disced for weed and fire control. The high point of the Site is located at the Southeast corner of the property, at the intersection of Chesebro and Agoura Roads. The property is bordered by the existing Office Buildings to the North, vacant property to the West, Agoura Road to the South and Chesebro Road to the East. Other existing flora at the Site and adjacent include Pines, Cypress, Walnut, Peppers, Sumac, Elderberry and, of course, Mustard & wild oats. The two off-site Oak Trees have been "tagged" with aluminum flags on their northerly sides.

Tree OST-1 is in a parking lot planter, approximately 50' from the northerly boundary of the property. Tree OST-2 is located adjacent to and midway along the northerly boundary of the property. The off-site Oak Trees are on relatively flat terrain, surrounded by irrigated landscape plantings. These "planted" off-site Oak Trees are just maturing and do not exhibit the normal characteristics of those of a more mature age, ie. fire damage, extensive infestation of twig girdler/pit scale, exudation, exfoliation, etc. The two off-site Oak Trees OST-1 and OST-2 are not expected to be impacted by the new grading and building/wall/parking lot construction. See Oak Tree Map and Tree Evaluation Forms for specific notes and remarks relative to these Oak Trees.

WORK PROCEDURES (AS APPLICABLE)

All work, as applicable, (construction / maintenance activity) around existing oak trees is recommended to follow this work procedures program. This program has been developed to minimize the impacts to each tree and protect them from unscheduled damage and unauthorized treatment.

1. **All work** within the oak tree aerial/root ("protected") zone shall be regularly observed by the oak tree preservation consultant.

2. The extent of all new construction work affecting oak trees shall be staked, where applicable, by field survey and reviewed with the oak tree preservation consultant.

3. Any approved pruning shall be done by a qualified tree trimmer, and observed by the oak tree preservation consultant of record.

4. **Hand dig** vertical trench or fence post(s) at the final location to final grade and "bridge-over", move footing/post or cleanly cut and seal with tree/root seal, as approved by the oak tree preservation consultant, any and all roots encountered . (This procedure shall protect the root system from unnecessary damage by excavation equipment).

5. All footings for wall construction (as applicable) shall be designed to provide minimal impact to the tree and backfilled with topsoil. Where roots greater in diameter than one (1") inch are encountered, footings must be "bridged" over the affected roots.

6. Unless waived, a minimum five (5') foot high temporary chain link fence shall be constructed at the limit of approved work, prior to the commencement of work, to protect the adjacent trees from further unauthorized damage and remain in place until completion of construction. A Fencing Plan shall be submitted at the preconstruction meeting. The fence must have four (4) warning signs located equidistant from each other around each Tree or group of Trees. For groves of Oak Trees, the signs must be no further than fifty (50') feet apart around the grove. The signs must be two (2') feet square and contain the following language:

> WARNING
> THIS FENCE SHALL NOT BE REMOVED OR RELOCATED WITHOUT WRITTEN AUTHORIZATION FROM THE CITY OF AGOURA HILLS DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT

Should any work be required within the limit of work, and the temporary fence must be opened, the oak tree preservation consultant **must** direct **all work** at any time the fence is open.

7. No further work within the aerial/root ("protected") zone shall be done beyond that which was approved, without obtaining written approval prior to proceeding.

8. The area within the chain link fence shall not be used at any time for material or equipment storage or parking.

9. No chemicals or herbicides shall be applied to the soil surface within 100' of an oak tree's aerial/root (protected) zone.

10. Copies of the following shall be maintained on the site during any work to or around the Oaks, as applicable:

    OAK TREE REPORT
    OAK TREE PERMIT
    OAK TREE LOCATION MAP
    ENGINEERING PLANS
    INSPECTION TICKET
    OAK TREE PRESERVATION AND GUIDELINES
    OAK TREE ORDINANCE
    APPROVED SITE PLAN
    APPROVED PLANTING AND IRRIGATION PLAN

11. Oak Tree preservation device such as air ventilation systems, tree wells, drains, special paving and branch cabling, if required, must be installed prior to completion of grading and prior to the construction phase.

12. A utilities trenching pathway plan must be submitted, prior to completion of grading and prior to the construction phase, in order to avoid unnecessary damage to the Tree root systems. The plan shall indicate the routing of all trenching including but not limited to storm drains, subdrains, sewers, easements, area drains, gas lines, electrical service, cable TV, water mains, irrigation main lines and any other underground installations.

13. In areas where Trees are in or adjacent to walkways or parking areas, pervious paving shall be employed to mitigate the effects of root air space reduction, as approved.

14. Oak Tree removals shall be replaced as follows:

Commercial properties---- For dead or hazardous Trees, one (1) thirty-six inch box Oak Tree shall be planted on site for each unhealthy Oak Tree approved for removal. For healthy Trees, two (2) twenty-four inch box specimen Oak Trees and one (1) thirty-six inch box specimen Oak Tree shall be planted on site for each healthy Oak Tree approved for removal. For landmark trees (forty-eight inch diameter and larger), a nursery grown Oak Tree of equivalent diameter to the Tree removed or two (2) nursery container grown sixty inch box Oak Trees shall be planted on site for each healthy Oak Tree approved for removal.

Residential properties------For dead or hazardous Trees one (1) thirty-six inch box Oak Tree shall be planted on site for each Tree approved for removal. However, in cases where houses currently exist on the property, the requirement for replacement shall be one (1) fifteen gallon Oak Tree be planted on site for each unhealthy Tree approved for removal. For landmark trees (forty-eight inch diameter and larger), one (1) nursery container grown sixty inch box Oak Tree shall be planted on site for each healthy Oak Tree approved for removal.

In the case of Trees which are candidates for transplant, a refundable cash deposit, in the amount equal to the cost of purchasing an equivalent nursery grown Oak Tree, shall be made with the City. The deposit will be refunded after twelve (12) months if, in the opinion of the City's Oak Tree Consultant, the transplanted Tree has survived and is considered to be in good health. Should the Tree be in marginal health or physical condition, the deposit will be retained for an additional twelve (12) months. At the end of the second twelve month period, should the Tree continue to be in a marginal or poor health condition, then the Tree shall be removed and replaced with an equivalent nursery grown Oak Tree and the deposit will be retained for at least an additional twelve (12) months.

15. Whenever any construction work is being performed contrary to the provisions of the Oak Tree Permit/Ordinance, a City inspector may issue a written notice to the responsible party, to stop work on the project on which the violation occurred or upon which danger exists. The "Stop Work Order" will state the nature of the violation or danger and no work may proceed until the violation has been rectified and approved by the code enforcement officer or City's Oak Tree Consultant.
During any construction and/or treatment, tree work and impacts must be closely monitored to further mitigate shock symptoms should they occur. If needed, water must be provided to irrigate the tree(s) and also to wash the dust from foliage.

PROTECTION

Per paragraph 6 above, to preserve Oak trees in a construction area, a minimum 5' height chain link **fence** must be installed at the limit of work, prior to any clearing, grubbing, demolition, construction and/or treatment, in order to protect the sensitive "Z.O.N.E.", during all work operations. The Oak Tree Preservation Consultant of record must "function" as the **fence** for any work necessary within the Z.O.N.E. fenced area, while directing or observing work in and near any oak tree.

Z.O.N.E.= "Zone of Nutraire Endemic" (the area of natural or amended planting medium which may extend to or beyond the dripline of a native tree). An oak care and maintenance guideline, as provided by the City of Agoura Hills, should be followed, as well as regular monitoring throughout each tree's life cycle, by a qualified Oak Tree Preservation Consultant.

EVALUATION CRITERIA

In evaluating oak trees, as with any other trees, the reporting format records the external observation of the tree(s) at the time of the "survey," including approximate sizes of trunk, height and spread of the branching system to the outer drip line, surface observation of the trees' condition and other pertinent information. The Rating designation assigns a health/aesthetic value for each tree. Ratings range from "A" to "F", with "A" as the indicator of a tree exhibiting the best condition for the species in the area, and the lower letters indicating lesser values. The "C" value represents an average condition for the species. An "F" rating is a candidate for removal for health or hazard reasons.

Plus (+) and minus (-) sub-values are assigned where a clear letter designation is not appropriate. The letter "E" is not used in order to avoid confusion with the term "excellent".

CARE AND SAFETY

It must be noted that the tree referred to in this report is a living organisms, and therefore subject to change. And since internal, crown or subsurface systems could not be investigated, no warranties, either expressed or implied, are made that these trees will be in any condition other than as observed and reported herewith, beyond the date of the inventory walk-thru ("survey"). A copy of the OAK TREE--CARE AND MAINTENANCE , for the care and maintenance of Oak trees, is available from The City of Agoura Hills for use in providing guidelines for the "on-going" maintenance of your Oak trees. The preferred maintenance procedure used in caring for native Oak trees is to promote and encourage proper vigor within the tree systems. In this way, the natural defenses are better able to ward-off pests and diseases.

CONSTRUCTION AND MAINTENANCE PROCEDURES

According to the "City" Oak Tree Ordinance, all work, should it be necessary, within the "Protected Zone" (that area enclosed by a line five (5') feet beyond the natural "drip line" of the Oak Tree, but not less than fifteen (15) feet) shall be done using hand tools under the observation of the Oak Tree Preservation Consultant. This also includes pruning / trimming for clearance. Pruning for aesthetics is not permitted in the Ordinance.

Current maintenance/treatment procedures for the Oak Trees at the AGOURA MEDICAL BUILDING, consist of the following (also see Tree Evaluation Forms, and Oak Tree Map):

1) **GENERAL:**

IT IS OUR RECOMMENDATION THAT THE FOLLOWING TREATMENT(S) TO THE APPROPRIATE OAK TREES BE IMPLEMENTED:

OAK TREE PRESERVATION SPECIALIST IS TO MONITOR AND DIRECT ALL WORK NEAR THE TREES TO REMAIN PROTECTED IN PLACE.

REMOVE DEADWOOD FROM APPROPRIATE SPECIMENS.

CLEAN-CUT PRIOR PRUNING/BROKEN BRANCH SCARS, AS DIRECTED.
REMOVE "WATERSPROUTS" AND CROSSING BRANCHES, AS DIRECTED.

CABLE TRUNKS/BRANCHING ON APPROPRIATE OAK TREES, AS DIRECTED.

PROTECT "DUFF" AREAS TO ALLOW SEEDLINGS TO ESTABLISH.

THE "PROTECTED ZONES" OF OFF-SITE TREES OST-1 AND OST-2 NEED NOT BE FENCED TO PROTECT THE TREES FROM CONSTRUCTION AND/OR GRADING ACTIVITIES, AS AN EXISTING OFFICE BUILDING PERIMETER WALL IS IN PLACE, ALONG ITS SOUTHERLY BOUNDARY

FINAL DETERMINATION OF TREATMENT WILL BE AS DIRECTED IN THE FIELD BY THE OAK TREE PRESERVATION SPECIALIST.

2) **IMPACT(S):**

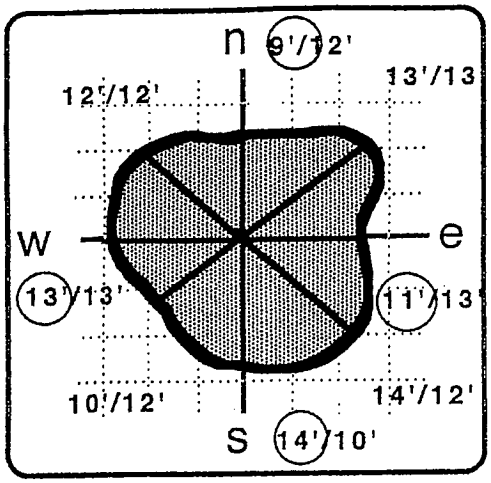
NONE ANTICIPATED

IN ADDITION TO THESE PROCEDURES, PERIODIC (AT LEAST QUARTERLY) MONITORING FOR DECLINING BRANCHING SYSTEMS, IS ALSO RECOMMENDED.

Cordially,

Richard W. Campbell, A.S.L.A., B.S.L.A.

tree evaluation form AGOURA MEDICAL BUILDING



SPECIES: Quercus agrifolia

APPEARANCE (A-F): B- DATE: 3-6-08

HEALTH (A-F): C- INSPECTOR: DC

NO. OF TRUNKS: 1 HEIGHT: ±25'

DIA. OF TRUNKS: 8"

TREE #

OST-1

VIGOR:

- ○ CHLOROSIS
- ○ EXOCORMIC GROWTH
- ○ DIEBACK
- ○ MINOR DEADWOOD
- ○ THINNING OF CROWN
- ● GOOD SHOOT GROWTH

STRUCTURE:

- ○ BROKEN BRANCHES
- ● PRIOR PRUNING
- ○ MECHANICAL INJURY
- ○ WIRE/NAILS/SPIKES
- ○ TORN BRANCH SCARS
- ○ SHARP BRANCH ANGLE
- ○ LOW BRANCHING
- ○ WATER TRAP
- ○ CAVITY-TRUNK
- ○ HOLLOW BRANCH(S)
- ○ LOPSIDED CANOPY
- ○ EXCESS HORIZ. GROWTH
- ○ DECAY / ROT SUSPECTED
- ○ FIRE DAMAGE
- ○ ROOTS EXPOSED
- ○ HARZARDOUS CONDITION
- ○ STRUCTURE CONFLICT
- ● STRESS CRACKS NOTED
- ○ CROSSING BRANCHES
- ● INTERIOR CROWN PRUNING

PESTS:

- ○ BORERS
- ● GIRDLERS
- ○ ANTS
- ○ WOODPECKERS
- ○ GALLS
- ○ WITCHES BROOM
- ○ PIT-SCALE
- ○ OAK MOTH
- ○ BEES
- ○ PLANT PARASITES

DISEASE:

- ○ MARGINAL LEAF SCORCH
- ○ EXFOLIATION
- ○ LESIONS
- ○ EXUDATIONS
- ○ EHRHORN'S SCALE

ENVIRONMENT:

- ● OVERHANGS DRIVE
- ○ POOR DRAINAGE
- ○ SEEDLINGS IN "DUFF"
- ● IRRIGATED GR. COVER

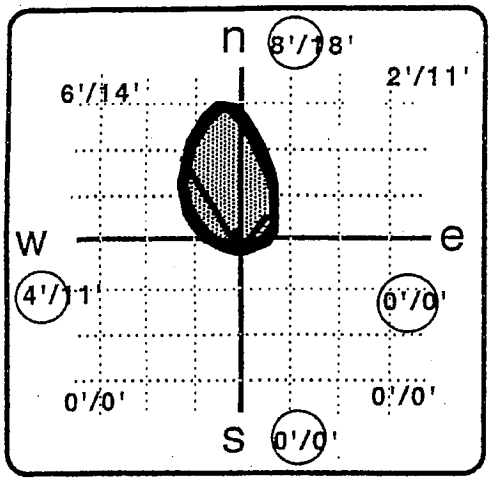
GRAPHIC:

REMARKS / RECOMMENDATIONS:

PROTECT TREE IN PLACE.

RICHARD W. CAMPBELL, ASLA, BSLA
P. O. BOX 6192
THOUSAND OAKS, CALIFORNIA 91359

tree evaluation form AGOURA MEDICAL BUILDING



SPECIES: Quercus lobata

APPEARANCE (A-F): C- DATE: 3-6-08

HEALTH (A-F): C- INSPECTOR: DC

NO. OF TRUNKS: 1 HEIGHT: ±28'

DIA. OF TRUNKS: 7"

TREE #

OST-2

VIGOR:

- ○ CHLOROSIS
- ○ EXOCORMIC GROWTH
- ○ DIEBACK
- ○ MINOR DEADWOOD
- ○ THINNING OF CROWN
- ○ GOOD SHOOT GROWTH

STRUCTURE:

- ○ BROKEN BRANCHES
- ● PRIOR PRUNING
- ○ MECHANICAL INJURY
- ○ WIRE/NAILS/SPIKES
- ○ TORN BRANCH SCARS
- ○ SHARP BRANCH ANGLE
- ○ LOW BRANCHING
- ○ WATER TRAP
- ○ CAVITY-TRUNK
- ○ HOLLOW BRANCH(S)
- ● LOPSIDED CANOPY
- ○ EXCESS HORIZ. GROWTH
- ○ DECAY / ROT SUSPECTED
- ○ FIRE DAMAGE
- ○ ROOTS EXPOSED
- ○ HARZARDOUS CONDITION
- ○ STRUCTURE CONFLICT
- ○ STRESS CRACKS NOTED
- ○ CROSSING BRANCHES
- ● RECENT STUB-CUT SCAFFOLD PRUNING

PESTS:

- ○ BORERS
- ○ GIRDLERS
- ○ ANTS
- ○ WOODPECKERS
- ○ GALLS
- ○ WITCHES BROOM
- ● PIT-SCALE
- ○ OAK MOTH
- ○ BEES
- ○ PLANT PARASITES

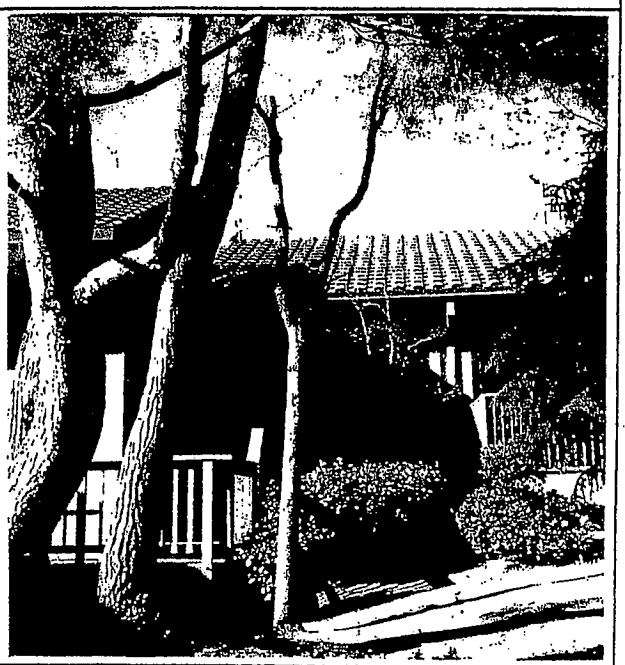
DISEASE:

- ○ MARGINAL LEAF SCORCH
- ○ EXFOLIATION
- ○ LESIONS
- ○ EXUDATIONS
- ○ EHRHORN'S SCALE

ENVIRONMENT:

- ● NEAR BOUNDARY
- ○ POOR DRAINAGE
- ○ SEEDLINGS IN "DUFF"
- ● IN IRRIGATED PLANTER

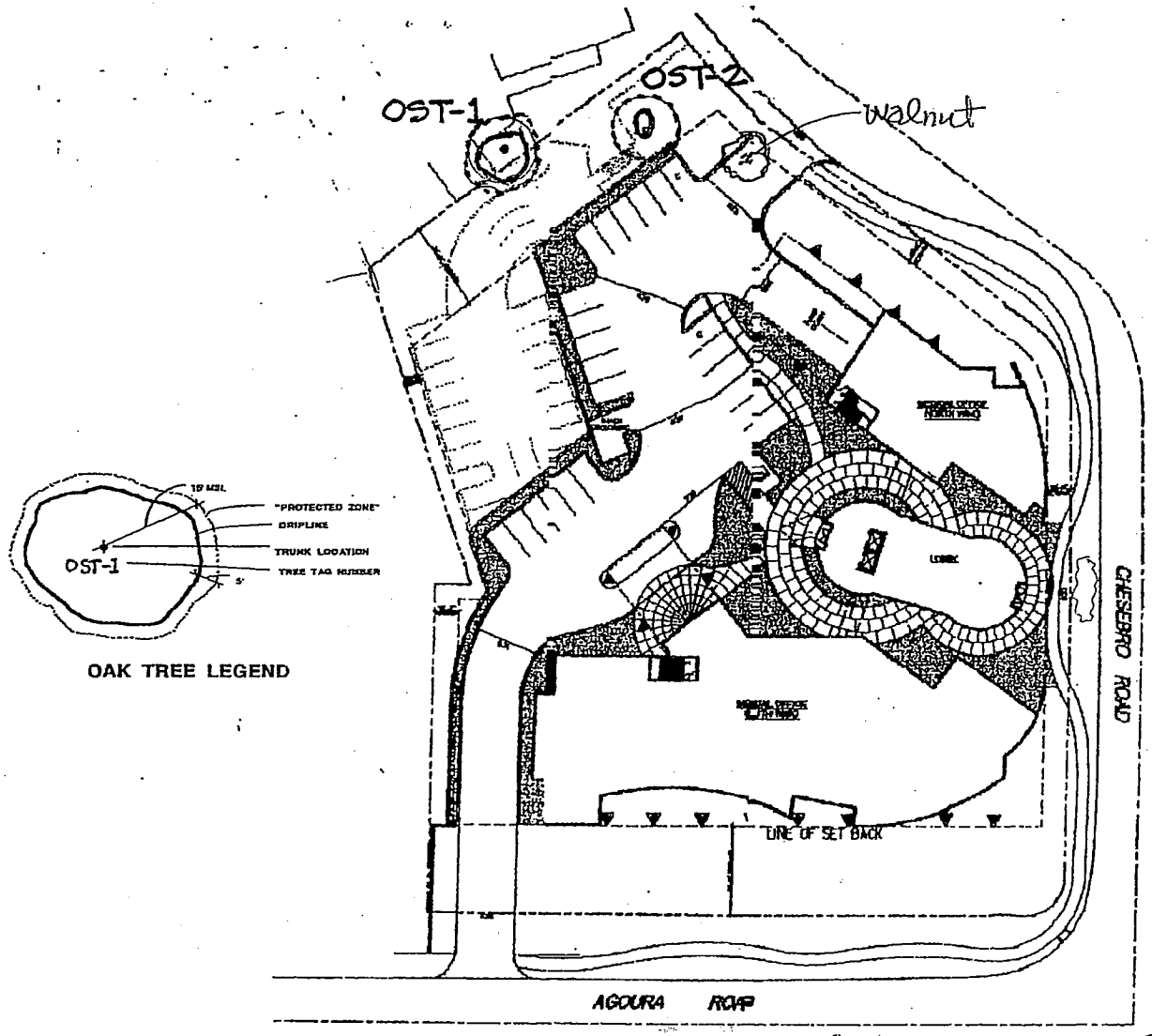
GRAPHIC:



REMARKS / RECOMMENDATIONS:

PROTECT TREE IN PLACE.

RICHARD W. CAMPBELL, ASLA, BSLA
P. O. BOX 6192
THOUSAND OAKS, CALIFORNIA 91359



OAK TREE LEGEND

SITE PLAN 1" = 80'

OAK TREE MAP

SITE COVERAGE JUSTIFICATION

	AREA (SQ. FT.)	% OF COVERAGE
BUILDING (3 STORY STRUCTURE) & (1 STORY BUILDING)		
LANDSCAPE		
HARDSCAPE		
TOTAL SITE		
BUILDING AREA		

PARKING REQUIRED:

PARKING PROVIDED:

AL DICKENS

DOD DARSMITH

APPROVAL OF DESIGN AUTHORIZATION TO PROCEED FOR ENTITLEMENT. SIGNIFICANT DESIGN CHANGE FROM THIS DESIGN WILL CONSTITUTE CHANGE OF SCOPE.

SMITH MEDICAL OFFICE BUILDING

Heathcote Architecture

A1.0

PRELIMINARY NOT FOR CONSTRUCTION

SITE PLAN

1

Richard W. Campbell
ASLA BSLA
Landscape Architect
Calif. #1099 - Nev. #14
(805) 375-1010
P. O. Box 6192
Thousand Oaks, Calif. 91359

OAK TREE REPORT
ADDENDUM #1
June 26, 2009

I Construction Co.
23945 Calabasas Road, Suite 111
Calabasas, California 91302

SEP 2 5 2009

Attn.: Al Dickens

SUBJECT SITE:

AGOURA MEDICAL PARTNERS, LLC
AGOURA HILLS, CALIFORNIA

ADDENDUM NOTES

On June 25, 2009, we coordinated with Cory Anttila of Heathcote & Assoc. for review of City comments of March 17, 2009. The issue centered around the possible impacts from grading encroachment(s) into the "Protected Zone" of Oak Tree OST-2, was discussed. The grading impact(s) into the root zones and possibly canopies of the two off-site landscape trees, closest to the easterly half of the northerly boundary, was also discussed. Cory instructed us to coordinate with the Civil Engineer for those possible grading impacts to the existing trees along the northerly boundary.

Because of field work out of our office, we did not call for the Civil Engineer until Friday afternoon. Since we were not able to make contact with the Civil Engineer prior to the weekend, we proceeded with our analysis and evaluation of the grading impacts, along the northerly boundary.

Based upon the 02-03-09 Hall & Foreman, Inc. Civil Plan received 06-24-09, we have evaluated the grading impacts to the one Oak Tree and the two Landscape Trees closest to the northerly boundary. The summary of our evaluation of potential impacts to the Trees is as follows:

Oak Tree OST-2

Although the southerly fifth (20%) of the "Protected Zone" (minimum 15' radius) of this off-site Oak Tree overhangs the northerly boundary line, the minimal on-site grading (0"- 12" of fill) is not expected to create any long term negative effects to the root zone of the Tree.

The American Society of Landscape Architects founded 1899

Westerly Landscape Tree (along the easterly half of the northerly boundary)

Although a portion of the southerly canopy (± 40%) of the this off-site Landscape Tree overhangs the northerly boundary line, the minimal on-site grading (0"- 12" of fill) is not expected to create any long term negative effects to the root zone of the Tree. No retaining wall "back-cuts" , from the adjacent driveway ramp, are proposed and No root or canopy cuts are expected.

Easterly Landscape Tree (along the easterly half of the northerly boundary)

Although a portion of the southerly canopy (± 45%) of the this off-site Landscape Tree overhangs the northerly boundary line, the minimal on-site grading (0"- 18" of fill) is not expected to create any long term negative effects to the root zone of the Tree. No retaining wall "back-cuts" , from the adjacent ADA access ramp, are proposed and No root or canopy cuts are expected.

The other Landscape Trees (along the easterly half of the northerly boundary) are out of harms way, as they are adequately separated from the northerly boundary where the minimal grading fill is proposed to occur. It should be noted here, that no construction access or storage of equipment or materials will be allowed along the northerly boundary, adjacent to the off-site Oak or Landscape Trees.

Please let me know your comments and/or questions.

Cordially,

Richard W. Campbell, A.S.L.A., B.S.L.A.

APPENDIX D

Geology and Soils

- Preliminary Geologic and Geotechnical Study

PRELIMINARY GEOLOGIC AND GEOTECHNICAL STUDY,
1.7± Acre Parcel, Chesebro and Agoura Roads,
Agoura Hills, California

for

Mr. Dan Smith

December 16, 2005 W.O. 5840

GeoSoils Consultants Inc.
GEOTECHNICAL · GEOLOGIC · ENVIRONMENTAL

December 16, 2005
W.O. 5840

MR. DAN SMITH
5931 Kanan Dume Road
Malibu, California 90265

Subject: **Preliminary Geologic and Geotechnical Study, 1.7± Acre Parcel, Chesebro and Agoura Roads, Agoura Hills, California**

Dear Mr. Smith:

Per your authorization, GeoSoils Consultants, Inc. (GSC) has conducted a preliminary geologic and geotechnical investigation of the 1.7± acre parcel of vacant land at the northwest corner of Agoura and Chesebro Roads, Agoura Hills. Our study was performed to evaluate geologic and soil conditions that may affect safe and economic development of the parcel.

SCOPE OF SERVICES

This geologic and geotechnical engineering study included:

a. Site observation and review of pertinent geotechnical data of the general study area.

b. Excavation, sampling, and logging of 10 backhoe test pits for soil sampling and geologic identification (see Plate 1 for test pit locations). The test pit logs are included in Appendix A.

c. Laboratory testing of selected samples to determine the engineering properties of the on-site soils. The results of laboratory testing are presented in Appendix B and on the test pit logs.

6634 Valjean Avenue Van Nuys, California 91406 Phone: (818) 785-2158 Fax: (818) 785-1548

d. Research of historical earthquake events and determination of seismic parameters for potential on-site ground motion. Seismic analysis is included in Appendix C.

e. Engineering and geologic analyses of the data and information obtained from our field study, laboratory testing, and literature review.

f. Development of preliminary geotechnical recommendations for site preparation and grading, and geotechnical design criteria for building foundations.

g. Preparation of this report summarizing our findings, conclusions, and recommendations regarding the geologic and geotechnical aspects of the project site.

SITE DESCRIPTION

The 1.7± acre parcel consists of Parcels A through D and one (1) through four (4) of Block 1, Tract 8451. It is undeveloped with gentle gradient natural slopes that descend form both Agoura Road on the south and Chesebro Road on the east. A natural drainage swale bisects the parcel and flows to the northwest and to off-site developed property.

Though there was no plan of site development at the time of report preparation, it is our understanding that a two to three-story commercial structure with parking area is planned. Such development will include grading to create building pads and parking lots. This grading might be performed solely with on-site soils or may involve import of fill materials to achieve final desired grade.

GEOLOGIC ENVIRONMENT

Bedrock underlying the parcel consists of firm, dense sandstones, siltstone, and shale of the Topanga Formation. These marine sediments are well stratified with bedding planes striking northwest and having a northerly dip of 28 to 65± degrees. Dip angles are slightly flatter in the southern half of the parcel than in the northern half. This is favorable to the gradient and orientation of natural slopes on the parcel.

Overlying the bedrock is two to four feet of topsoil in the northerly portion of the parcel, and 6 to 12 feet of topsoil and old alluvium in the southern half of the parcel. The old alluvium is a portion of an ancient, non-marine alluvial surface that is found in many areas of Agoura Hills. These sediments consist of dark brown to slightly reddish-brown clay, sand to sandy clay with pebble to cobble-sized fragments of volcanic rock. The upper portions of the old alluvial sediments are porous. All of the material is massive.

There is no evidence of landslide or mudflow on-site or in significant proximity to the parcel to impact intended land use. On-site soils have a moderate to very high expansive index. Foundation design will be influenced by the expansion index of earth materials that ultimately underlie the planned structures.

WATER

Groundwater

No springs or seeps were noted on the property. Soils exposed in our test pits were moist to damp. This is apparently from natural rainfall.

Surface Water

Surface water consists of that falling as precipitation directly on the parcel, plus minor off-site road runoff. Surface water collects in the low swale that crosses the parcel and flow northwest and onto off-site developed parcels.

FAULTING AND SEISMICITY

The project site is not within an Alquist-Priolo Earthquake Fault Zone, and there are no active faults on or adjacent to the property. However, this site has experienced earthquake-induced ground shaking in the past and can be expected to experience further shaking in the future. Although there are no faults on or adjacent to the property, there are faults in close proximity to the site that can cause moderate to intense ground shaking during the lifetime of the proposed development.

Earthquake Characterization: Earthquakes are characterized by magnitude, which is a quantitative measure of the earthquake strength, based on strain energy released during a seismic event. The magnitude of an earthquake is constant for any given site and is independent of the site in question.

Earthquake Intensity: The intensity of an earthquake at a random site is not constant and is subject to variations. The intensity is an indirect measurement of ground motion at a particular site and is affected by the earthquake magnitude, the distance between the site and the hypocenter (the location on the fault at depth where the energy is released), and the geologic conditions between the site and the hypocenter. Intensity, which is often measured by the Mercalli scale, generally increases with increasing magnitude and decreases with increasing distance from the hypocenter. Topography may also affect the intensity of an earthquake from one site to another. Topographic effects such as steep sided ridges or slopes may result in a higher intensity than sites located in relatively flat-lying areas.

Computer Analyses: Research of historical earthquake events that have occurred in the general study area can be analyzed to determine potential on-site ground motions using a historical analysis and deterministic evaluation of seismic parameters. These analyses were evaluated using the following computer programs:

- EQSEARCH: Historical analysis program that estimates repeated high ground accelerations from historic earthquakes;

- EQFAULT: Deterministic analysis program that estimates repeated high ground accelerations from the maximum credible and maximum probable events.

Based on the results of EQSEARCH, the significant earthquakes that have affected the site during the time period from 1850 to 2005 are shown in Table 1. The results from the EQSEARCH program for all earthquakes within a 100-mile radius are presented in Appendix C.

TABLE 1
EARTHQUAKES THAT HAVE AFFECTED THE SITE
1800 TO 2002

Date of Earthquake	Approximate Site/Earthquake Distance (miles)	Richter Magnitude (M)	Maximum Site Acceleration (g)	Site Intensity
January 17, 1994	12.5	6.70	0.308	IX
April 14, 1893	13.5	6.00	0.187	VIII

Although this historical analysis gives earthquake information from past seismic activity, it should be noted that earthquakes of larger magnitudes, acceleration, and intensity may affect the site and, according to the current standard of practice, should be estimated by performing deterministic and probabilistic seismic analyses.

Deterministic Seismic Analysis

The deterministic seismic analysis was generated using the computer program EQFAULT, which utilizes the most recent fault geometry, location, estimated slip rates, magnitudes, and other fault-related measurements that have been provided by the California Division of Mines and Geology (CDMG). EQFAULT is considered a "standard of practice" method for performing a seismic analysis in Southern California.

Analysis Procedure: The deterministic seismic analysis program first locates all known active and potentially active faults within a 100-mile radius from the subject site and calculates the shortest distances to each fault. The maximum magnitudes, as well as probable magnitudes of each fault, are determined based upon numerous published studies for each fault. In addition, anticipated accelerations expected from these maximum and probable magnitude earthquakes are estimated using Campbell and Bozorgnia's (1997 rev.) distance versus acceleration attenuation curves.

Results: Based on the results of our deterministic analysis, the maximum potential site acceleration, which is also referred as the maximum credible acceleration, is 0.666g. This acceleration represents peak horizontal ground acceleration and could occur from a magnitude 7.3 earthquake on the Anacapa-Dume Fault. A summary of other significant faults that may affect the site during a seismic event are presented in Table 2, below.

The results from the EQFAULT program for all faults within a 100-mile radius are presented in Appendix C.

TABLE 2
PROXIMITY OF ACTIVE AND/OR POTENTIALLY ACTIVE FAULTS TO THE PROJECT SITE

Fault Name	Approximate Distance from Site to Fault (miles)	1997 UBC Source Type	1997 UBC Slip Rate (mm/yr.)	1997 UBC Maximum Magnitude (Mw)	Maximum Credible Site Acceleration (g)
Malibu Coast	6.4	B	0.30	6.7	0.652
Anacapa-Dume	7.8	B	3.00	7.3	0.666
San Andreas	40.8	A	34.00	7.8	0.155

Limitations: The deterministic analysis estimates the maximum potential ground acceleration expected at the site and is not typically used for design purposes. A probabilistic seismic hazard analysis, which is discussed in the following section, should be used to evaluate design accelerations for the site.

Probabilistic Seismic Hazard Evaluation

Several excerpts from the 1997 UBC and the CDMG are presented below concerning a seismic hazard evaluation.

- 1997 UBC, Section 1626: "*...structures shall be designed with adequate strength to withstand the lateral displacements induced by the Design Basis Ground Motion*".

- 1997 UBC, Section 1626: Design Basis Ground Motion is defined as "*...that ground motion that has a 10 percent chance of being exceeded in 50 years as determined by a site-specific hazard analysis or may be determined from a hazard map*".

- 1997 UBC, Section 1626.1: "*The purpose of the earthquake provisions herein is primarily to safeguard against major structural failures and loss of life, not to limit damage or maintain function*".

- CDMG SP 117: "*The task of the developer's consulting engineering geologist and/or civil engineer is to demonstrate, to the satisfaction of the lead agency's technical reviewer, that ... the proposed mitigation measures achieve an acceptable level of risk as defined by the lead agency and CCR Title 14, Section 3721(a)*".

- CCR Title 14, Section 3721(a): "*Acceptable level means a level that provides reasonable protection of the public safety, though it does not necessarily ensure continued structural integrity and functionality of the project*".

The probabilistic seismic hazard evaluation considers all magnitudes and potential earthquake locations believed to be applicable to the site. Unlike the deterministic approach, which considers only one seismic scenario, the probabilistic method considers all possible scenarios, which includes the rate of occurrence and the probabilities of earthquake magnitudes, locations, and rupture dimensions. In addition, the possible ground motions for each earthquake and their corresponding probabilities of occurring are considered in the analysis based on the variability of the ground motion attenuation relation.

GSC evaluated the prescribed design basis ground motion using the CDMG *Probabilistic Seismic Hazard Map for the State of California*. As a minimum, GSC recommends that design acceleration be based upon probabilistic seismic hazard analysis using the 1997 UBC prescribed design basis ground motion that has a 10 percent chance of being exceeded in 50 years.

Design Acceleration: As a minimum, GSC recommends that design acceleration be based upon probabilistic seismic hazard analysis using the 1997 UBC prescribed design basis ground motion that has a 10 percent chance of being exceeded in 50 years.

Design Basis Ground Motion: GSC evaluated the prescribed design basis ground motion using the CDMG *Probabilistic Seismic Hazard Map for the State of California*, which is contained in the CDMG Open File Report 96-08.

Results: The *Probabilistic Seismic Hazard Map* indicates that the site falls within the 40 to 50 percent gravity range for peak horizontal ground acceleration (10 percent probability in 50 years), resulting from an earthquake moment magnitude (M_w) 6.0 to 7.3. The results are summarized in Table 3. We recommend that an average value of peak horizontal ground acceleration and earthquake magnitude be used, corresponding to 0.41 g and 6.70 M_w, respectively.

TABLE 3
RECOMMENDED DESIGN BASED GROUND MOTION

Peak Horizontal Ground Acceleration (10% Probability in 50 years)	Earthquake Magnitude (M_w)
0.41 g	6.70

Limitations: The minimum UBC design earthquake ground motion values are not intended to prevent damage to a structure during an earthquake. Cracking of walls or other structural damage may occur during strong ground shaking. Therefore, we recommend that the Design Civil or Structural Engineer in conjunction with the building owner or developer determine what level of "Acceptable Risk" is acceptable for the project.

Seismic Design Criteria

The 1997 Uniform Building Code seismic design criteria for the site was determined using the UBCSEIS program. A summary of the seismic coefficients is presented in Table 4. A description of the UBCSEIS program and the output file from the analysis is presented in Appendix D.

TABLE 4
1997 UBC SEISMIC DESIGN PARAMETERS

UBC - Chap. 16 Table No.	Seismic Parameter	Recommended Value
16 - I	Seismic Zone Factor, Z	0.4
16 - J	Seismic Profile Type	S_C
16 - Q	Seismic Coefficient, C_a	0.40
16 - R	Seismic Coefficient, C_v	0.60
16 - S	Near Source Factor, N_a	1.0
16 - T	Near Source Factor, N_v	1.10
16 - U	Seismic Source Type	B

If the structural design is based on UBC dynamic lateral-force procedures, we recommend that a horizontal ground acceleration of 0.41 g (10 percent probability in 50 years) be used with the normalized response spectrum for a soil profile type, S_C.

Conformance to the above criteria for seismic excitation does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a maximum level earthquake occurs. The primary goal of seismic design is to protect life and not to avoid all damage, since such design may be economically prohibitive. Following a major earthquake, a building may be damaged beyond repair, yet not collapse.

Secondary Earthquake Effects

Ground shaking produced during an earthquake can result in a number of potentially damaging phenomena classified as secondary earthquake effects. These secondary effects include ground rupture, landslides, lurching, seiches and tsunamis, and liquefaction. Descriptions of each of these phenomenons, and how it could potentially affect the proposed site, are described below:

Ground Rupture

Ground surface rupture results when the movement along a fault is sufficient to cause a surface gap or rupture along the upper edge of the fault zone. Since there are no known active faults on the site, the potential for ground rupture is considered remote.

Landsliding

Landslides are slope failures that occur where the horizontal seismic forces act to induce soil and/or bedrock failures. The most common failure occurs by the reactivation or movement of pre-existing landslides. Typically, existing slides that are stable under static conditions (i.e., factor-of-safety at or greater than one) become unstable and move during strong ground shaking. There is no evidence of landslide or mudflow on-site or in significant proximity to the parcel to impact intended land use. Provided the proposed slopes are graded in accordance with our grading recommendations, it is our opinion earthquake-induced landslides are not considered to be a hazard to the proposed development.

Ground Lurching

Ground lurching is defined as earthquake motion at right angles to a cliff, stream bank, or embankment that results in yielding of material in the direction in which it is unsupported. The initial effect is to produce a series of parallel cracks with the top of the slope or embankment that separating the ground into rough blocks. Lurching is also used to describe undulating surface waves in the soil that have some similarities to the seismic oscillation. This phenomenon generally occurs in soft, saturated, fine-grained soils. Due to the absence of embankments or cliffs, lurching does not represent a hazard to the site.

Seiches and Tsunamis

Seiches are generally caused by seismic excitation of a body of water, which causes surface oscillations that varies in period from a few minutes to several hours. Tsunamis are large sea waves produced by submarine earthquakes or volcanic eruptions. Due to the proximity of the site relative to the ocean, seiches and tsunamis are not considered a hazard to the site.

Liquefaction - General

Liquefaction describes a phenomenon where cyclic stresses, which are produced by earthquake-induced ground motion creates excess pore pressures in cohesionless soils. These soils may thereby acquire a high degree of mobility, which can lead to lateral sliding, consolidation and settlement of loose sediments, sand boils, and other damaging deformation. This phenomenon occurs only below the water table, but after liquefaction has developed, it can propagate upward into overlying, non-saturated soils as excess pore water escapes.

Liquefaction susceptibility is related to numerous factors and the following conditions must exist for liquefaction to occur: 1) sediments must be relatively young in age and must not have developed large amounts of cementation, 2) sediments must consist

mainly of cohesionless sands and silts, 3) the sediments must not have a high relative density, 4) free groundwater must exist in the sediment, and 5) the site must be exposed to seismic events of a magnitude large enough to induce straining of soil particles.

Our exploratory test pits encountered bedrock from 2 and 12 feet. This site has shallow bedrock condition and it is our opinion that liquefaction will not be a problem on the site.

CONCLUSIONS AND RECOMMENDATIONS

Development of this parcel as a commercial site is feasible from a geologic and geotechnical engineering perspective, provided the recommendations contained herein are incorporated into the final design and construction phase of the proposed development.

As in most of Southern California, the site lies within a seismically active area, therefore earthquake resistant structural design is recommended. There are no active faults on or in close proximity to this parcel. No landslides were noted and geologic structure is favorable to site topography.

The following geotechnical recommendations for site preparation, foundation design, and drainage should be incorporated into final design and construction. All such work and design shall be in conformance with local governmental regulations or the recommendations contained herein, whichever is more restrictive. Once site development plans are available, they should be reviewed by this office and this report updated to address the design.

Removals

Based on the results of our subsurface exploration, laboratory testing, and engineering analyses, the near-surface soils are not suitable for structural support. Therefore, we recommend that the upper five feet of old alluvium and all topsoil be removed within the area of grading and/or development. We also recommend removal and recompaction of as much of the Chesebro Road fill as possible without affecting use of the road. A subdrain should be installed in the canyon once the compressible soils are removed for recompaction. Removal and recompaction of these soils will result in a net volume shrinkage of 10 to 15 percent.

Specific recommendations for reprocessing, subgrade preparation, fill placement, and grading are presented in the *Grading* section of this report.

Grading

No grading or site development plan is available at this time. However, it is anticipated that a pad will be created by on-site cut and fill and/or by import of fill material. The following recommendations are applicable to that grading.

General

Monitoring

We recommend that all earthwork (i.e., clearing, site preparation, fill placement, etc.) should be conducted with engineering control under observation and testing by the Geotechnical Engineer and in accordance with the requirements within the *Grading* section of this report.

Job Site Safety

At all times, safety should have precedence over production work. If an unsafe job condition is observed, it should be brought to the attention of the grading contractor or the developer's representative. Once this condition is noted, it should be corrected as soon as possible, or work related to the unsafe condition should be terminated.

The contractor for the project should realize that services provided by GSC do not include supervision or direction of the actual work performed by the contractor, his employees, or agents. GSC will use accepted geotechnical engineering and testing procedures; however, our testing and observations will not relieve the contractor of his primary responsibility to produce a completed project conforming to the project plans.

Grading Control

Grading Inspection

Earthwork monitoring and field density testing shall be performed by the Geotechnical Engineer during grading to provide a basis for opinions concerning the degree of soil compaction attained. The Contractor should receive a copy of the Geotechnical Engineer's *Daily Field Engineering Report*, which will indicate the results of field density tests for that day. Where failing tests occur or other field problems arise, the Contractor shall be notified of such conditions by written communication from the Geotechnical Engineer in the form of a conference memorandum, to avoid any misunderstanding arising from oral communication.

Subgrade Inspection

All processed ground to receive fill and overexcavations should be inspected by the Geotechnical Engineer prior to placing any fill. The Contractor should be responsible for notifying the Geotechnical Engineer when such areas are ready for inspection. Inspection of the subgrade may also be required by the controlling governmental agency within the respective jurisdictions.

Subgrade Testing

Density tests should also be made on the prepared subgrade to receive fill, as required by the Geotechnical Engineer.

Density Testing Intervals

In general, density tests should be conducted at minimum intervals of 2 feet of fill height or every 500 cubic yards. Due to the variability that can occur in fill placement and different fill material characteristics, a higher number of density tests may be warranted to verify that the required compaction is being achieved.

Utility Trenching and Backfill

Utility Trenching

Open excavations and excavations that are shored shall conform to all applicable Federal, State and local regulations.

Backfill Placement

Approved on-site or imported fill material shall be evenly placed, watered, processed, and compacted in controlled horizontal layers not exceeding eight inches in loose thickness, and each layer should be thoroughly compacted with approved equipment. All fill material should be moisture conditioned, as required to obtain at least optimum moisture, but not greater than 120 percent of optimum moisture content. The fill should be placed and compacted on a horizontal plane, unless otherwise recommended by the Geotechnical Engineer.

Backfill Compaction Criteria

Each layer of utility trench backfill shall be compacted to at least 90 percent of the maximum laboratory density determined by ASTM D-1557-00. The field density shall be determined by the ASTM D-1556-00 method or equivalent. Where moisture content of the fill or density testing yields compaction results less than 90 percent, additional compaction effort and/or moisture conditioning, as necessary, shall be performed, until the compaction criteria is reached.

Exterior Trenches Adjacent to Footings

Exterior trenches, paralleling a footing and extending below a 1H:1V plane projected from the outside bottom edge of the footing, should be compacted to 90 percent of the laboratory standard. Sand backfill, unless it is similar to the in-place fill, should not be allowed in these trench backfill areas. Density testing, along with probing, should be accomplished to verify the desired results.

Pipe Bedding

We recommend that a minimum of six inches of bedding material should be placed in the bottom of the utility trench. All bedding materials shall extend at least four inches above the top of utilities that require protection during subsequent trench backfilling. All trenches shall be wide enough to allow for compaction around the haunches of the pipe or materials, such as pea gravel, or controlled density fill (CDF) shall be used below the spring line of the pipes to eliminate the need for mechanical compaction in this portion of the trenches.

Construction Considerations

Erosion Control

Erosion control measures, when necessary, should be provided by the Contractor during grading and prior to the completion and construction of permanent drainage controls.

Compaction Equipment

It is also the Contractor's responsibility to have suitable and sufficient compaction equipment on the project site to handle the amount of fill being placed and the type of fill material to be compacted. If necessary, excavation equipment should be shut down to permit completion of compaction in accordance with the recommendations contained herein. Sufficient watering devices/equipment should also be provided by the Contractor to achieve optimum moisture content in the fill material.

Final Grading Considerations

Care should be taken by the Contractor during final grading to preserve any berms, drainage terraces, interceptor swales, or other devices of a permanent nature on or adjacent to the property.

FOUNDATION DESIGN RECOMMENDATIONS

In order to minimize the potential effects of seismic activity, and/or hydroconsolidation, either a post-tensioned slab foundation and/or mat foundation system can be considered for the proposed structures. Conventional foundation system consisting of spread footings and slab-on-grade floors are also provided herein. We offer the following recommendations and comments for post-tension slab foundation, mat foundation, conventional spread footings, and conventional slab-on-grade floors.

Post-Tension Slab Foundation

Post-tensioned slabs should be designed in accordance with the recommendations of either the *California Foundation Slab Method* or *Post-Tensioning Institute*. The slabs should be designed for at least one inch of surficial differential movement (i.e., at least one inch in a 30-foot span) for low expansion index soil. Based on review of laboratory data for the on-site materials, the average soil modulus of subgrade reaction K, to be used for design is 100 pounds per cubic inch. This is equivalent to a surface bearing value of 1,000 pounds per square foot. Specific recommendations for the design of *California Foundation Slab* and *Post-Tension Institute* methods are presented below.

a. **California Foundation Slab Method**

Post-tension slabs designed according to the *California Foundation Slab* method should incorporate the following recommendations.

Slab Sectioning

This method reduces the potential for the soil to exert expansion induced stresses by impeding the lateral migration of near surface moisture. This method has proven successful. When utilizing deepened footings and pre-saturation techniques, the structural design need not employ the methodology from UBC Standard 18-III.

Geotechnical based input parameters for design of this foundation system are based, in part, upon the expansive properties of the soils near pad grade. Samples judged representative of these soils were determined to have an expansion index in the range of 55 to 151. "K" values, span criteria, recommended minimum perimeter footing embedment and pre-saturation guidelines that are commensurate with each range of soil expansiveness are provided in the accompanying table.

Expansion Index	Typical "K" Values	Span Criteria	Cut Off Exterior Footing Depth	Pre-Saturation Depth
0-20	900-200	4-6'	12"	18"
21-50	200-100	6-7'	15"	21"
51-90	100-40	7-9'	21"	27"
41-130	40-4	9-16'	27"	33"
>130	Remove and replace with low expansion soil.			

Subgrade Preparation

Post-tension slabs often develop"dishing" or "arching" characteristics due to the fluctuation of soil moisture content underlying the perimeter and center of the slab. All areas to receive concrete should be presaturated below the cut off wall depth, such that the soil within this zone is approximately at optimum moisture to not more than 6 percent above optimum moisture content. The Geotechnical Engineer should verify all subgrades that are pre-soaked within 24 hours of concrete placement.

Cut-Off Wall

A continuous perimeter curtain wall should extend to a depth of at least 12 inches below exterior grade for very low EI soil to preserve existing moisture conditions below the slab. The cut-off walls may be integrated into the slab design or independent of the slab and should be a minimum of six inches wide.

Moisture Barrier

Concrete slabs should be underlain with a minimum 6-mil polyvinyl chloride membrane vapor barrier with a minimum overlap of 12 inches in all directions. This membrane should be sandwiched between two, two-inch layers of sand.

b. **Post-Tensioning Institute Method**

Post-tension slabs designed according to the *Post-Tensioning Institute* method should incorporate the following recommendations.

Slab Stiffness

Post-tensioned slabs should have sufficient stiffness to resist differential movement of the corner, edge, or center of slab due to non-uniform swell and shrinkage of subgrade soils and fluctuation of subgrade soil moisture content. Based on the specifications of the *Post-Tensioning Institute*, which are included in the 1997 Uniform Building Code Section 1816, the potential for differential movement can be evaluated. Table 5 presents suggested minimum coefficients to be used in the Post-Tensioning Institute design method.

TABLE 5
POST-TENSIONING INSTITUTE METHOD
SUGGESTED COEFFICIENTS

Thornthwaite Moisture Index	-20 in/yr
Correction Factor for Irrigation	20 in/yr
Depth to Constant Soil Suction	5 (feet)
Constant Soil Suction	3.6 (pf)

Coefficient Applicability

The coefficients are considered minimums and may not be adequate to represent worst-case conditions such as adverse drainage and/or improper landscaping and maintenance. The above parameters are applicable provided structures have gutters and downspouts and positive drainage is maintained away from structures.

Design Parameters

Based on the above parameters, the values presented in Table 6 were obtained from 1997 Uniform Building Code Section 1816, Division III. The values may not account for possible differential settlement of the slab due to other factors. If a stiffer slab is desired, higher values of Y_m may be warranted.

TABLE 6
POST-TENSIONING INSTITUTE
DESIGN PARAMETERS

Expansion Index of Soil Subgrade	Low Expansion Index (≤50)	Medium Expansion Index (51-90)	High Expansion Index (91-130)	Critically Expansive (>130)
e_m center lift	5.0 feet	5.5 feet	5.5 feet	----
e_m edge lift	2.5 feet	2.7 feet	3.0 feet	----
Y_m center lift	1.1 inch	2.0 inches	2.5 inches	----
Y_m edge lift	0.35 inch	0.50-inch	0.75-inch	----
Differential Settlement, (inch)	1.0 inch	2.0 inches	2.5 inches	----
Soil Material	-----	Kaolinite	Illite and Montmorillonite	
Remove and replace with non-expansive soil				

Deepened Footings/Edges

Deepened footings/edges around the slab perimeter must be used to minimize non-uniform surface moisture migration (from an outside source) beneath the slab. An edge depth of at least 12 inches should be considered for low expansion index soil. The bottom of the deepened footing/edge should be designed to resist tension, using cable or reinforcement per the Structural Engineer.

Design and Construction

Other applicable recommendations presented in the *Conventional Slab-on-Grade* and the *California Foundation Slab Method* sections of this report should be incorporated into the design and construction.

c. **Mat Foundation**

Mat foundation could either be designed as a beam on an elastic foundation or using the method of static equilibrium. The static equilibrium method assumes the mat moves as a rigid body when the loads are applied and that the reaction pressures are distributed linearly across the bottom of the mat. For mat foundation, the criteria under post-tensioned slab may be used for design.

The aforementioned parameters are applicable provided that the recommendations in the *Drainage* section of this report are followed.

d. **Conventional Spread Footings**

We offer the following alternate foundation recommendations and comments for purposes of footing design and construction.

Bearing Subgrades

All footings should be constructed on firm, unyielding certified compacted fill. All compacted fill should be compacted to at least 90 percent of the Modified Proctor maximum laboratory density, as determined by ASTM D-1557-00 compaction method.

Subgrade Preparation

Pre-moistening of all areas to receive concrete is recommended. The moisture content of the subgrade soils should be equal to or greater than optimum moisture, and verified by the Geotechnical Engineer to a depth of 12 inches below adjacent grade within 48 hours of concrete placement. Footings subgrades shall be prepared in accordance with the *Grading* section of this report.

Subgrade Verification

All footing subgrades should consist of firm, unyielding certified compacted fill. Under no circumstances should footings be cast atop loose/soft soil, slough, debris, undocumented artificial fill, unprocessed alluvium, or surfaces covered by standing water. We recommend that the condition of all subgrades be verified by the Geotechnical Engineer before any concrete is placed.

Footing Depth and Width

Footings should be continuous and be founded at a minimum depth of 18 inches below the lowest adjacent ground surface for one-story structures and should have a minimum width of 18 inches. Footings should be reinforced with four, No. 4 bars, two top and two bottom. In areas where removals can not extend beyond the building pad the recommended distance, the footing depth should be increased to 24 inches.

For areas with expansion index greater than 130, the soil should be removed and replaced with low expansive compacted fill.

Bearing Pressures

The allowable bearing capacity values shown in Table 7, include dead and live loads, and may be used for design of footings and foundations. All foundations should be founded in firm, unyielding compacted fill and should be reinforced according to structural design. The bearing values may be increased by one-third when considering short duration loading conditions, such as seismic or wind loads.

TABLE 7
BEARING CAPACITY VALUES

Bearing Subgrade	Minimum Embedment Depth (inches)	Allowable Bearing Capacity (psf)	Bearing Capacity Increase per Foot Deeper (%)	Bearing Capacity Increase per Foot Wider (%)	Maximum Allowable Bearing Capacity (psf)
Compacted Fill	18	1,500	10	10	3,000

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Lateral Capacity

To resist lateral loads, the allowable passive earth pressures shown in Table 8, expressed as an equivalent fluid pressure, may be used on that portion of shallow foundations, which have a minimum embedment as previously recommended. When combining passive pressure and frictional resistance, the passive pressure component should be reduced by one-third.

TABLE 8
LATERAL BEARING PRESSURE VALUES

Soil Type	Allowable Passive Pressure (pcf)	Maximum Allowable Passive Pressure (psf)	Coefficient of Friction (Concrete/Soil)
Compacted Fill	250	2,500	0.4

Conventional Slab-On-Grade Floor

We offer the following alternate floor slab recommendations and comments for purposes of slab-on-grade floor design and construction:

Reinforcement

Concrete slabs should be reinforced with at least No. 4 rebar at 16 inches on-center in both directions. All slab reinforcement should be properly positioned at mid-height in the slab during placement of concrete.

Thickness

The design engineer should determine the actual thickness of the slabs based on proposed loadings and use. However, minimum slab thickness of four inches is recommended.

Moisture Barrier

Concrete slabs should be underlain with a minimum 6-mil polyvinyl chloride membrane vapor barrier with a minimum overlap of 12 inches in all directions. This membrane should be sandwiched between two, two-inch layers of sand.

Slab Sectioning

To minimize transgression of shrinkage cracks, slabs must not exceed 20-foot sections. Sectioning can be performed by expansion joints, plastic joints, saw cutting, or proper tooling during concrete placement. It is suggested that slabs not be tied structurally to heavily loaded walls or columns, until most of the dead loads are in place to permit minor differential settlement.

Subgrade Preparation

All areas to receive concrete should be presaturated to a depth of 12 inches, such that the soil within this zone is approximately at optimum moisture to not more than 6 percent above optimum moisture content. The Geotechnical Engineer should verify all subgrades that are pre-soaked within 24 hours of concrete placement.

Shrinkage

Earthwork factors (shrinkage) for the site have been estimated based upon our field and laboratory testing. A shrinkage factor of 10 to 13 percent, resulting from recompaction of the upper on-site soils, can be used in engineering design estimate of the proposed grading. This factor is based upon an average of 92 percent recompaction and average densities of near-surface materials.

Settlement

Assuming the foundation elements are founded in the recommended bearing soils, we estimate that total static settlement will not exceed ¾-inch, with differential settlements on the order of

one-half the total settlement. The majority of the settlement will most likely occur during the initial loading of the foundation; however, if any disturbed, loose, yielding, or soft soils are left within the footing area prior to concrete placement, settlements greater than predicted herein may be realized.

Additional foundation settlement can also occur due to leakage from any appurtenant plumbing; therefore, it is imperative that all underground plumbing fixtures be *absolutely* leak-free.

Once foundation plans are available which include loading details of total dead and real live loads, they should be reviewed by the Geotechnical Engineer to ensure that total and/or differential settlements are within tolerable limits.

Temporary and Permanent Slopes and Excavations

We offer the following recommendations and construction considerations for temporary and permanent slopes and excavations.

Safety: Temporary excavation slope stability is a function of many factors including soil type, density, cut inclination, depth, the presence of groundwater, and the length of time that the cut is to remain open. As the cut is deepened, or as the length of time an excavation is open, the likelihood of bank failure increases. For this reason, maintenance of safe slopes and worker safety should remain the responsibility of the contractor, who is present at the site, able to observe changes in the soil conditions, and monitor the performance of the excavation.

Maintenance: If seepage or surface runoff is not controlled, flatter temporary slopes would be necessary. Larger cobbles and boulders should be scaled from the excavation sidewalls prior to worker entry to prevent injury to workmen from falling rocks. In all cases, cut slopes and any excavation shoring should conform to applicable Federal, State and/or local safety guidelines.

Cut/Fill Slopes: We tentatively recommend that temporary and permanent cut and fill slopes in natural soil and compacted fill soils not exceed the inclinations shown in Table 9.

TABLE 9
MAXIMUM SLOPE INCLINATIONS

Soil Type	Maximum Inclination (Horizontal/Vertical)	
	Temporary	Permanent
Compacted Fill/Natural Soil	1H:1V	2H:1V

Excavations: Shallow excavations used for construction that are less than four feet in depth and are made in properly engineered fill or firm native soils should stand with vertical sides. Excavations deeper than four feet should be sloped at angles provided in Table 11 or shored. All open excavations and excavations that are shored shall conform to all applicable Federal, State and Local regulations.

Surcharge: Surcharge loads should be setback from the top of temporary excavations a minimum horizontal distance of ten feet.

Excavation Inspection: The soils exposed in temporary excavation slopes should be observed by the Geotechnical Engineer so that modifications of the slopes can be made if variations in soil conditions occur.

On-Site Drainage

Seasonal precipitation and/or landscape water should not be allowed to pond within the site, especially next to foundations of any structures. Surface runoff should be collected and disposed of in such a manner as to prevent concentrated erosion. Roof gutters, downspouts, and yard drains should be provided in accordance with the City of Los Angeles requirements. All pad drainage should be directed toward the street or an approved watercourse area swale via non-erosive channel, pipe and/or dispersions devices. We recommend that all planters proposed adjacent to structures be self-contained, provided with a subdrain system, and/or allowed to have positive drainage away from structure to drain excess landscape water.

We recommend that lot drainage be verified after house construction and that notices be posted cautioning homeowners not to modify drainage in any way without approval by the City of Los Angeles. At no time should drainage be directed toward any descending slope or allowed to pond. All slope or fill backdrains should continue to remain unobstructed and be allowed to drain freely.

Leakage from any of the appurtenant plumbing will create an artificial groundwater condition, which could likely render settlement problems; therefore, it is imperative that all underground plumbing fixtures be *absolutely* leak-free.

LIMITATIONS

The findings and recommendations of this report were prepared in accordance with generally accepted professional geotechnical engineering principles and practice for the City of Los Angeles at this time. We make no other warranty, either express or implied. The conclusions and recommendations contained in this report are based on site conditions disclosed in our subsurface investigation and the referenced reports. However, soil conditions can vary significantly between probings and borings; therefore, further refinements of our recommendations contained herein may be necessary due to changes in the building plans or what is encountered during site grading.

The recommendations provided in this report are applicable for preliminary development planning for the referenced lots provided that surface water will be kept from infiltrating into the subgrade adjacent to the house foundation system. This may include, but not be limited to rain water, roof water, landscape water and/or leaky plumbing. The lots are to be fine graded at the completion of construction to include positive drainage away from the structure and roof water will be collected via gutters, downspouts, and transported to the street in buried drainpipes. Homebuyers should be cautioned against constructing open draining planters adjacent to the houses, or obstructing the yard drainage in any way.

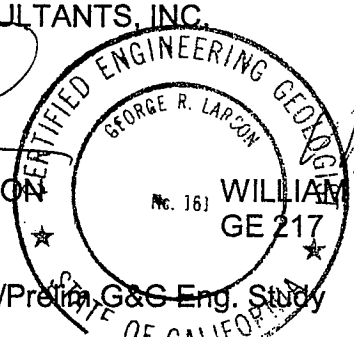
Since our investigation was based on the site conditions observed, selective laboratory testing, and engineering analysis, the conclusions and recommendations contained herein are professional opinions. Further, these opinions have been derived in accordance with standard engineering practices, and no warranty is expressed or implied.

If the conditions encountered during grading are not consistent with the findings presented in this report, or if proposed construction is moved from the location investigated, this office shall be notified immediately so that the condition or change can be evaluated and appropriate action taken.

We appreciate this opportunity to be of continued service to you. If you have any questions regarding the content of this report or any other aspects of the project, please do not hesitate to contact us.

Very truly yours,

GEOSOILS CONSULTANTS, INC.



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Encl: Plate 1, Test Pit Location Map
Plate 2, Cross-Section
Appendix A, Field Exploration Procedures
Plates TP-1 through TP-10, Test Pit Logs
Appendix B, Laboratory Testing Procedures and Results
Plates C-1 through C-6, Consolidation Curves
Plate SH-1 through SH-4, Shear Test Diagrams
Appendix C, Seismic Analysis
Appendix D, 1997 Uniform Building Code Seismic Design Parameters

cc: (3) Addressee

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