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Subject: Air Quality Analysis for the El Dorado Hills Memory Care Project, El Dorado County, CA.

Dear Mr. Glover:

Sycamore Environmental evaluated potential air quality impacts resulting from the proposed commercial-residential development on APN 124-140-33 in El Dorado County, CA. The air quality evaluation documented in this letter will provide the County with the information needed to process your application pursuant to the California Environmental Quality Act (CEQA). A summary of the evaluation is provided below.

Attachment A includes a Greenhouse Gas Emissions Evaluation.

Summary

The quantitative analysis included an evaluation of reactive organic gases (ROG), nitrogen oxides (NO_x), carbon monoxide (CO), particulate matter 10 microns and smaller (PM10), and other pollutants including toxic air contaminants (TAC) such as naturally occurring asbestos (NOA) for the construction and operation of a commercial-residential development. Air quality impacts resulting from the project independently and cumulatively were evaluated as less than significant.

The Project is required to implement and comply with the following:

- The Contractor will adhere to all applicable El Dorado County AQMD rules, including but not necessarily limited to Rules 205, 207, 215, 223, 223-1, 224, and 233. Copies of these rules are available from the El Dorado County AQMD website (http://www.edcgov.us/Government/AirQualityManagement/District_Rules.aspx). The Contractor shall prepare a Fugitive Dust Control Plan for review and approval by the El Dorado County Air Pollution Control Officer pursuant to Rule 223-1 Fugitive Dust – Construction.
- Architectural paint and coatings will comply with the VOC limits per 2013 California Green Building Standards Code (CalGreen) requirements and California ARB Suggested Control Measure for Architectural Coatings.

- During construction, all self-propelled diesel-fueled engines greater than 25 horsepower will be in compliance with the California Air Resources Board (ARB) Regulation for In-Use Off-Road Diesel Fueled Fleets (§ 2449 et al, title 13, article 4.8, chapter 9,California Code of Regulations (CCR)). The full text of the regulation can be found at ARB's website here: http://www.arb.ca.gov/msprog/ordiesel/ordiesel.htm. An applicability flow chart can be found here: http://www.arb.ca.gov/msprog/ordiesel/faq/applicability_flow_chart.pdf. Questions on applicability should be directed to ARB at 1-866-634-3735. ARB is responsible for enforcement of this regulation.
- All portable combustion engine equipment with a rating of 50 horsepower or greater will be under permit from the California Air Resources Board (CARB). A copy of the current portable equipment permit will be with said equipment. Prior to initiation of construction activities the applicant will provide a complete list of heavy-duty diesel-fueled equipment to be used on this project, which includes the make, model, year of equipment, daily hours of operations of each piece of equipment.

Introduction

The Project is located immediately southwest of the intersection of Francisco Drive and Green Valley Road in the El Dorado Hills Community Region. The El Dorado Hills Memory Care Project, Proposed Site Plan, dated 17 November 2014 (Attachment B) shows the general project layout. The proposed Project does not include any land use or zoning designation changes. APN 124-140-33 has a zoning designation of Commercial-Planned Developmentand High Density Residential (HDR) land use designation. Primary project components include:

- **Resident Memory Care:** The proposed Project includes a single story structure with 64 private and semi-private residential units, dining and cooking areas, activity areas, covered patios, and courtyards. Total building space of approximately 40,000 square feet. No wood or burning fireplaces will be installed. One natural gas fireplace will be installed.
- **Parking:** The proposed Project includes the installation of 30 paved parking spaces.

Regulatory Setting: California Environmental Quality Act (CEQA)

CEQA requires that all state and local government agencies consider the environmental consequences of projects over which they have discretionary authority before acting on those projects. If the lead agency finds substantial evidence that any aspect of the project, either individually or cumulatively, may have a significant effect on the environment, CEQA mandates that the project implement feasible mitigation measures or alternatives to avoid or reduce significant adverse effects on the environment.

Significance Criteria

The El Dorado County Air Quality Management District (AQMD) has established significance criteria for projects in El Dorado County that are subject to CEQA. These significance criteria are presented in the AQMD's Guide to Air Quality Assessment (CEQA Guide, First Edition, February 2002). The AQMD has established two general categories of significance criteria: qualitative and quantitative. The AQMD recommends supporting air quality impact conclusions with substantial evidence, preferably with explicit, quantitative analyses wherever possible.

Qualitative Significance Criteria

1. CEQA Guidelines Appendix G environmental checklist criteria;
2. Land use conflicts and exposure of sensitive receptors;
3. Compliance with AQMD rules and regulations;
4. Compliance with U.S. EPA conformity regulations; and
5. Odors

Quantitative Significance Criteria

1. Reactive organic gases (ROG) and nitrogen oxides (NO_x), ozone precursors;
2. Other state and national criteria pollutants, including CO, PM10, SO_2, NO_2, sulfates, lead, and hydrogen sulfide;
3. Visibility;
4. Toxic Air Contaminants; and
5. Cumulative impacts, including impacts resulting from emissions of greenhouse gases.

This report addresses each of the above qualitative and quantitative significance criteria for the construction and operational phases of the project, in accordance with the procedures described in the AQMD's CEQA Guide. Greenhouse Gases (GHGs) are addressed in Attachment A.

Environmental Setting

The Project is in the western foothills of the Sierra Nevada. Topography in the Project area consists of gentle slopes of varying aspect with elevation ranging from approximately 585 to 650 ft above sea level. The Project area is bordered on the north by the Green Valley Road, Francisco Drive on the east, Cambria Drive to the south, and by commercial and residential developed to the west. The Project is located on the Clarksville USGS topographic quad (T10N, R8E, Section 22) in the South Fork American River hydrologic unit (hydrologic unit code 18020129). The project occurs within the Mountain Counties Air Basin, which covers an area of roughly 11,000 square miles along the Sierra Nevada mountain range.

The Project is located in the El Dorado Hills Community Region. Community Regions "define those areas which are appropriate for the highest intensity of self-sustaining compact urban-type development or suburban-type development within the County" (El Dorado County General Plan, 2004). The existing and proposed El Dorado General Plan land use designations and zoning of the parcel is shown in Table 1.

Table 1. General Plan land use designations and zoning of the project parcel.

APN	GP Land Use Designations	Zoning
124-140-33	HDR	C-PD

[1] HDR = High Density Residential
[2] C-PD = Commercial-Planned Development

Methods

The El Dorado County AQMD's CEQA Guide was used to evaluate the proposed project. Other resources used in the analysis include the AQMD's rules for fugitive dust (Rules 223, 223-1); El Dorado County ordinances for projects in areas that may have naturally occurring asbestos (NOA); California Department of Mines and Geology NOA data; and U.S. Environmental Protection Agency (EPA) and California Air Resources Board (CARB) toxic air contaminants data. California Emissions Estimator Model CalEEMod (Version 2013.2.2) was used to model air pollution emissions resulting from the project.

The various construction and operational emissions default values provided by CalEEMod were used unless stated otherwise. Construction emissions were computed for an approximate 279 work day model derived construction period occurring in 2016-2017. Construction phases in CalEEMod include demolition, site preparation, grading, building construction, paving, and architectural coating. Construction of the proposed Project will not require import or export of fill material. Operational emissions were assumed to start in 2018.

Qualitative Analysis

The AQMD's CEQA Guide identifies that the CEQA Guidelines Appendix G environmental checklist items, land use conflicts and exposure of sensitive receptors; compliance with AQMD rules and regulations; compliance with U.S. EPA conformity regulations; and odors as topics to be addressed qualitatively. For some of these categories, additional quantitative analyses refine the significance conclusions.

Land Use Conflicts and Exposure of Sensitive Receptors

Locating a project with air pollutant emissions near existing sensitive receptors or locating a new sensitive receptor near an existing source of air pollutants could result in adverse air quality impacts to sensitive receptors. The AQMD's CEQA Guide lists the following land use conflicts that should be avoided (p. 3-2):

- A sensitive receptor in close proximity to a congested intersection or roadway with high levels of emissions from motor vehicles. High concentrations of carbon monoxide or toxic air contaminants are the most common concerns.
- A sensitive receptor close to a source of toxic air contaminants or to a potential source of accidental releases of hazardous materials.
- A sensitive receptor close to a source of odorous emissions. Although odors generally do not pose a health risk, they can be quite unpleasant and often lead to citizen complaints to the District and to local governments.
- A sensitive receptor close to a source of high levels of nuisance dust emissions.

The CEQA Guide defines sensitive receptors as facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Hospitals, schools, and convalescent facilities are examples of sensitive receptors (CEQA Guide page 3-2). The following schools, preschools, and health facilities are located within 2 mi of the project site:

Health Facilities

El Dorado Hills Optometric Center (1.57 mi south)

Green Valley Dental Group and Orthodontics immediately east of project APN, on east side of Francisco Drive.)

Douglas J. Hollabaugh, OD (immediately east of project APN, on east side of Francisco Drive.)

Green Valley Animal Hospital (1.11 mi southwest)

Schools (including preschools and daycares)

Marina Middle School (0.88 mi north)

Lake Forest Elementary (0.76 mi northeast)

Rolling Hills Middle School (2.0 mi south)

Oak Ridge High School (2.0 mi south)

Montessori Manor, Inc. (0.09 mi north)

Jackson Elementary School (0.46 mi southeast)

Lakeview Elementary School (0.85 mi southwest)

Preschool El Dorado Hill Lil Scholars University (0.58 mi southwest)

Francisco Drive KinderCare (0.16 mi north)

Care Facilities

El Dorado Hill Senior Care Center (1.6 mi south)

The Project is not located in close proximity to a congested intersection or roadway with high levels of emissions from motor vehicles. Diesel PM emissions from vehicle traffic on U.S. Highway 50 south of the project site are discussed in more detail below in the Toxic Air Contaminants section.

The Project would not generate appreciable amounts of toxic air contaminants or appreciable hazardous materials.

The Project would not result in odorous emissions.

The Project could result in dust emissions during construction. The El Dorado AQMD rules and regulations do not allow dust to leave the project site during construction. AQMD Rule 223-1 requires the applicant to complete a Fugitive Dust Control Plan and submit the plan for approval prior to any ground-disturbing activities. Implementation of AQMD rules and regulations will protect sensitive receptors from construction-related dust emissions.

The property is located in the El Dorado Hills General Plan Community Region, which is designated for high-density urban and suburban build-out. Project compliance to the El Dorado County AQMD rules and regulations and implementation of the recommendations in this report, will ensure the project does not have a significant impact on any sensitive receptors.

Compliance with El Dorado County AQMD Rules and Regulations

The CEQA Guide states that "the District considers any proposed project that does not demonstrate compliance with all applicable District rules and regulations, and its permitting requirements in particular, as one that has a significant impact on air quality" (p. 3-3).

Figure 1.1 of the CEQA Guide identifies types of facilities that require permits from the El Dorado County AQMD. Residential and commercial development does not require an Authority to Construct permit or a Permit to Operate.

The following El Dorado County AQMD rules apply during the construction of the project:

- **Rule 205 (Nuisance):** Prohibits the discharge of air containments which cause injury, detriment, nuisance, or annoyance.
- **Rule 207 (Particulate Matter):** Limits the quantity of PM through concentration limits.
- **Rule 215 (Architectural Coatings):** Defines the quantities of reactive organic compounds permitted for use in new construction.
- **Rule 223 (Fugitive Dust):** The purpose of this rule is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions.
- **Rule 223-1 (Fugitive Dust – Construction):** Requires a Fugitive Dust Control Plan be prepared and submitted to the El Dorado County AQMD prior to ground disturbing activities. Pursuant to Rule 610, the El Dorado County AQMD charges a fee to review the Fugitive Dust Control Plan required by Rule 223-1.
- **Rule 223-2 (Fugitive Dust – Asbestos Hazard Mitigation):** The purpose of this Rule is to reduce the amount of asbestos particulate matter entrained in the ambient air as a result of any construction or construction related activities, that disturbs or potentially disturbs naturally occurring asbestos by requiring actions to prevent, reduce or mitigate asbestos emissions.
- **Rule 224 (Cutback and Emulsified Asphalt Paving Materials):** Limits emissions of ROGs from the use of cutback and emulsified asphalt paving materials, paving, and maintenance operations.
- **Rule 233 (Stationary Internal Combustion Engines):** Limits emissions of NOx and CO from stationary internal combustion engines. (This rule applies to any stationary internal combustion engine rated at more than 50 brake horsepower, operated on any gaseous fuel or liquid fuel, including liquid petroleum gas (LPG), gasoline, or diesel fuel.)

Compliance with U.S. EPA Conformity Regulations

Federally funded projects or projects with federal discretionary permits must demonstrate conformity with the State Implementation Plan for achieving and maintaining the federal ambient air quality standards. The Corps has already evaluated the Nationwide program for conformity pursuant to regulations implementing Section 176(c) of the Clean Air Act and determined that the activities authorized by Nationwide permits will not exceed *de minimis* levels of direct emissions of a criteria pollutant or its precursors and are exempted by 40 CFR 93.153. Any later indirect emissions resulting from Corps-permitted actions are generally not within the Corps' continuing program responsibility and generally cannot be practicably controlled by the Corps. For these reasons, a conformity determination for future indirect emissions is not required for the Nationwide permit program.

Odors

The CEQA Guide describes the standard for determining whether a project would have potentially significant impacts resulting from odors that

> *cause detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which may endanger the comfort, repose, health, or safety of any such person or the public, or which may cause, or have a natural tendency to cause, injury or damage to business or property* (page 3-3).

Table 3.1 of the CEQA Guide lists common types of facilities that are known to produce odors that potentially cause detriment, nuisance, or annoyance to the public. Residential uses are not listed as odor generating facilities. The proposed development would not result in significant impacts resulting from odors.

Project Construction

Common construction activities include site preparation, earthmoving and general construction. Site preparation includes activities such as general land clearing and grubbing. Earthmoving activities include cut and fill operations, trenching, soil compaction, and grading. General construction includes adding improvements such as roadway surfaces, utilities, structures, and facilities.

Emissions generated from these common construction activities include

- combustion emissions (ROG, NO_x, CO, SO_x, PM10) from mobile heavy-duty diesel- and gasoline-powered equipment, portable auxiliary equipment, and worker commute trips;
- combustion emissions from heavy-duty diesel-fueled equipment containing diesel particulate matter (Diesel PM), which has been identified as a potential health risk;
- fugitive dust (PM10) from soil disturbance or demolition; and
- evaporative emissions (ROG) from asphalt paving and architectural coating applications.

Demolition and earth disturbance may also result in airborne entrainment of asbestos, a toxic air contaminant, in areas where there are naturally occurring surface deposits of ultramafic rock. Potential impacts resulting from soil disturbance of NOA are discussed under the Evaluation of Toxic Air Contaminants section below. The pollutants CO, PM10, SO_2, and NO_2 are evaluated under the project operations section below.

El Dorado County AQMD evaluates the significance of ROG and NOx emissions during construction based on conservative assumptions regarding emission and fuel use rates for diesel-powered construction equipment. Table 4.1 in the CEQA Guide lists the range of maximum daily fuel usage for the sum of all equipment at a single site that would ensure that emissions remain below the combined 82 lbs/day significance thresholds for ROG and NOx (i.e., total ROG plus NOx emissions remain below 164 lbs/day). As per the CEQA Guide if fuel use is kept below the levels shown in Table 4.1 on the peak equipment use day, ROG and NOx emissions from construction equipment may be deemed not significant.

CalEEMod v2013.2.2 was used to model ROG and NO_x emissions for the construction phase of the project (Table 2). Projects that have individual ROG and NO_x construction emissions of 82 lbs per day or a combined ROG and NO_x emissions below 164 lbs/ day are considered not significant. The modeled daily construction

emissions of ROG and NOx during the winter and summer of both construction years are below the individual 82 lbs/day significance threshold. The combined daily construction emissions of ROG and NO_x are less than the combined 164 lbs/day threshold. Impacts from ROG and NO_x emissions for the construction of the proposed Project are less than significant.

Table 2. Daily ROG and NO_x emissions during project construction.

Source	Winter[1]			Summer[1]		
	ROG	NO_x	ROG + NO_x	ROG	NO_x	ROG + NO_x
2016	5.15	54.72	**59.87**	5.16	54.71	**59.87**
2017	70.36	27.45	**97.81**	70.36	27.34	**97.70**

[1]Units for all values are pounds per day.

The El Dorado County AQMD determined that if ROG and NOx emissions are less than significant then exhaust emissions of CO and PM10 from construction equipment, and exhaust emissions of all constituents from worker commute vehicles, is also less than significant. With adherence to Rule 223, implementation of the Fugitive Dust Control Plan required by Rule 223-1, and Rule 223.2 PM10 emissions would have a less than significant impact on air quality during construction.

Project Operation

State and National Criteria Pollutant Emissions

Under the mandate of the Clean Air Act, the federal EPA establishes National Ambient Air Quality Standards (NAAQS) for air pollutants considered harmful to public health and the environment. Currently, the EPA has set standards for seven air pollutants. These "criteria" pollutants and their associated NAAQS are listed in Table 3 below. Areas exceeding an individual NAAQS are labeled by EPA as nonattainment for that pollutant. The Mountain Counties Air Basin portion of El Dorado County is currently nonattainment for the national 8-hour ozone and PM 2.5 standards.

The California Air Resources Board (CARB), under the mandate of the California Clean Air Act, has adopted California Ambient Air Quality Standards (CAAQS), which address the national criteria pollutants discussed above as well as other pollutants not covered by the federal standards. The CAAQS are generally more stringent than the corresponding NAAQS. The CAAQS are listed alongside the NAAQS in Table 3 below. As with the NAAQS, areas exceeding an individual CAAQS are labeled by CARB as nonattainment for that pollutant. The Mountain Counties Air Basin portion of El Dorado County is nonattainment for the following CAAQS: 8-Hour Ozone, 1-Hour Ozone, and 24-Hour PM10.

Because ozone is not usually emitted directly, but rather through ozone precursors such as ROG and NO_x, compliance with the AAQS for ozone is completed indirectly through a mass emissions analysis of ROG and NO_x. For all other criteria pollutants, project emission concentrations are evaluated by comparison against the applicable national and state ambient air quality standards (AAQS, Table 3).

Table 3. California and National Ambient Air Quality Standards (AAQS)

Pollutant	Averaging Time	California AAQS	National AAQS (Primary)	National AAQS (Secondary)
Ozone	1 Hour	0.09 ppm (180 µg/m^3)	--	--
	8 Hour	0.07 ppm (137 µg/ m^3)	0.075 ppm (147 µg/ m^3)	Same as Primary
Respirable Particulate Matter (PM10)	24 Hour	50 µg/ m^3	150 µg/ m^3	Same as Primary
	Ann. Arith. Mean	20 µg/ m^3	--	--
Fine Particulate Matter (PM2.5)	24 Hour	--	35 µg/ m^3	Same as Primary
	Ann. Arith. Mean	12 µg/ m^3	12.0 µg/ m^3	15.0 µg/ m^3
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/ m^3)	35 ppm (40 mg/ m^3)	--
	8 Hour	9 ppm (10 mg/ m^3)	9 ppm (10 mg/ m^3)	--
	8 Hour (Lake Tahoe)	6 ppm (7 mg/ m^3)	--	--
Nitrogen Dioxide (NO_2)	1 Hour	0.18 ppm (339 µg/ m^3)	100 ppb (188 µg/m^3)	--
	Ann. Arith. Mean	0.03 ppm (57 µg/ m^3)	53 ppb (100 µg/ m^3)	Same as Primary
Sulfur Dioxide (SO_2)	1 Hour	0.25 ppm (655 µg/ m^3)	75 ppb (196 µg/m^3)	--
	3 Hour	--	--	0.5 ppm (1300 µg/m^3)
	24 Hour	0.04 ppm (105 µg/ m^3)	0.14 ppm for (certain areas)	--
	Ann. Arith. Mean	--	0.030 ppm (certain areas)	--
Lead	30-Day Avg.	1.5 µg/ m^3	--	
	Calendar Quarter	--	1.5 µg/ m^3 (certain areas)	Same as Primary
	Rolling 3-Month Avg.	--	0.15 µg/ m^3	Same as Primary
Visibility Reducing Particles	8 Hour	Ten miles visibility	No National Standards	
Sulfates	24 Hour	25 µg/ m^3		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/ m^3)		
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/ m^3)		

ROG and NO_x Emissions

The AQMD's significance threshold for ROG and NOx is 82 pounds per day for each ROG and NOx. Table 5.2 (CEQA Guide, page 5-3) lists the type and size of projects that are likely to result in significant ROG and NOx emissions. As per Table 5.2 single family residential projects of less than 230 dwelling units (without fireplaces/wood stoves) and low-rise apartment projects of less than 350 than dwelling units (without fireplaces/wood stoves) are not likely to exceed the AQMD's significance threshold for ROG and NOx of 82 pounds per day. No wood or burning fireplaces will be installed. One natural gas fireplace will be installed.

The Mountain Counties Air Basin was selected as the default CalEEMod file to be used as the base for the project. CEQA requires analysis of impacts from all reasonably foreseeable elements of a proposed project. The air pollutant emissions model must include a hypothetical build-out scenario on these parcels. Generally, a maximum build-out scenario is used so as not to underestimate the total potential emissions resulting from the project. Data assumptions used to model potential air quality impacts were based on the following:

- El Dorado Hills Memory Care, Site Plan, Dated: February 2015
- El Dorado Hills Memory Care, Preliminary Grading & Drainage Plan, Dated: February 2015
- El Dorado Hills Memory Care, Building Floor Plan sheets 1-4, Dated: 2 February 2015.
- Various email with Jeffrey DeMure + Associates Architects Planners, Inc. staff.
- Email with El Dorado AQMD staff.

The results of the air quality modeling with a comparison with the AQMD's thresholds of significance are in Table 4. Based on the CalEEMod modeling, operation of the proposed development would not have significant impacts resulting from ROG and NO_x emissions. The CalEEMod reports (abbreviated to include only relevant report pages) for this model are included in Attachment C.

Table 4. Daily ROG and NO_x emissions during project operation, including emissions from future build-out.

	Winter[1]		Summer[1]	
Source	**ROG**	**NO_x**	**ROG**	**NO_x**
Operational emissions	2.56	2.12	2.60	1.87
Significance threshold	82	82	82	82
Significant emissions	**NA**	**NA**	**NA**	**NA**

[1]Units for all values are pounds per day.

Other Criteria Pollutant Emissions

The significance of CO, NO_2, PM 2.5, PM10, and SO_2 concentrations are evaluated by comparison against the applicable national and state ambient air quality standards (AAQS). The El Dorado County AQMD considers emissions of CO, PM10, and other criteria pollutants from project operation, which are subject to the AAQS significance criteria, significant if:

1. the project's contribution by itself would cause a violation of the AAQS; or

2. the project's contribution plus the background level would result in a violation of the AAQS, and either
    a. a sensitive receptor is located within a quarter-mile of the project, or
    b. the project's contribution exceeds five percent of the AAQS.

In accordance with Section 6.3.1 (Project Screening) of the AQMD's CEQA Guide, Development projects of the type and size that fall below the significance thresholds in Table 5.2 in Chapter 5 for ROG and NOx are also considered to be insignificant for CO, NO2, PM10, and SO2. The Project (operational) is below the threshold values for ROG and NOx (Table 4). Therefore, operational emissions of CO, NO, SO2, and PM10 are not considered significant. The proposed development does not result in any significant emissions concentrations and no mitigation is required.

The PM2.5 AAQS were not in effect when the AQMD's CEQA Guide was published. Therefore, the CEQA Guide gives no guidance on analysis of PM2.5. PM2.5 is primarily generated by vehicle trips on unpaved roads. Thus, emissions of PM2.5 are likely to be associated with the construction-phase of a project. The proposed Project includes paving all roads constructed. Emissions of PM2.5 during the operational phase will be less than significant.

The El Dorado County AQMD considers lead, sulfates, and H_2S less than significant except for industrial sources such as foundries, acid plants, and paper mills (CEQA Guide, page 6-2). The proposed project is a residential/commercial development. Therefore, no impact will occur from lead, sulfates, and H_2S.

The El Dorado County AQMD assumes that visibility impacts from development projects in the Mountain Counties Air Basin portion of the county are not significant (CEQA Guide, page 6-3). Visibility impacts are controlled through state and national regulatory programs governing vehicle emissions, and through mitigation required for ozone precursors and particulate matter for other development projects throughout the County. Therefore, the development will not result in any significant visibility impacts.

Toxic Air Contaminants

Toxic air contaminants (TAC) are pollutants that pose a present or potential hazard to human health. TACs are classified as either carcinogenic or noncarcinogenic. The state and federal governments regulate TACs through statutes and regulations that require maximum or best available technologies be incorporated in the source of the pollutants in order to limit emissions. For example, dry cleaning businesses are regulated in their handling and use of perchloroethylene. The California Air Resources Board (CARB) identified asbestos, including naturally occurring asbestiforms, as a carcinogenic TAC in 1986.

The property is not located in an area known to have naturally occurring asbestos (NOA), within a quarter mile of a known location of NOA, in an area more likely to contain NOA, or within a quarter mile of an area more likely to contain NOA (El Dorado County Asbestos Review Areas, Western Slope, County of El Dorado, State of California, July 2005). Therefore, an Asbestos Hazard Dust Mitigation Plan is not required. *Note: If NOA is discovered on-site during the course of construction, the El Dorado County AQMD must be notified and an Asbestos Hazard Dust Mitigation Plan must be prepared and implemented. The Plan would include Best Management Practices identified in El Dorado County AQMD District Rule 223-2.* Construction of the project will have no air quality impacts resulting from NOA.

In 1998, the CARB identified Diesel PM as a TAC. In the Air Quality and Land Use Handbook: A Community Health Perspective (CARB April 2005), CARB identified land uses that have the potential to generate significant amounts of Diesel PM. These land uses include freeways, urban roads with 100,000 vehicles/day, rural roads with 50,000 vehicles/day, and distribution centers. CARB recommends avoiding siting new sensitive land uses within 500 feet of these transportation corridors or within 1,000 ft of distribution centers. No distribution centers occur within 1,000 ft of the Project site. Green Valley Road, located immediately north of and adjacent to the Project site, is a classified as a minor arterial road and in 2013 had an ADT of 25,611, well under the 100,000 and 50,000 vehicles/day cutoff identified by CARB. The project will not result in the exposure of residents to significant health hazards from Diesel PM.

Cumulative Impacts Analysis

El Dorado County AQMD's primary criterion for determining whether a project has significant cumulative impacts is based on the project's consistency with an approved plan or mitigation program of District-wide or regional application for pollutants emitted by the project (CEQA Guide, page 8-1).

ROG and NO_x

The Project's ROG and NOx emission estimates are below the quantitative significance thresholds and are therefore project impacts from ROG and NOx emission are considered less than significant. The El Dorado County AQMD considers projects to be consistent with the adopted Air Quality Attainment Plan (AQAPs) if the following conditions are met (CEQA Guide page 8-2):

1. The project does not require a change in the existing land use designation (e.g., a general plan amendment or rezone) and projected emissions of ROG and NO_x from the proposed project are equal to or less than the emissions anticipated for the site if developed under the existing land use designation;
2. The project does not exceed the "project alone" significance criteria;
3. The Applicant agrees to include applicable emission reduction measures; and
4. The bid specifications and contract will stipulate that the contractor shall comply with all applicable district rules and regulations during construction of the project.

The proposed Project will not change the existing land use designation of APN 124-140-33. The Project's operational ROG and NOx emission estimates are well below the quantitative significance threshold of 82 lbs per day.

The bid specifications and construction contract will stipulate compliance with applicable El Dorado County AQMD Rules, including the preparation and implementation of a Fugitive Dust Control Plan. The proposed project is consistent with the adopted AQAP and therefore potential air quality impacts from ROG and NOx emission are less than cumulatively considerable.

Other Pollutants

No applicable air quality plan exists in El Dorado County for pollutants other than ROG and NO_x. Therefore, the AQMD applies pollutant-specific criteria for determining whether a project has cumulatively considerable emissions of these pollutants.

CO is an attainment pollutant in El Dorado County, and local CO concentrations are expected to decline even further in the future as more stringent CO standards for motor vehicles take effect (CEQA Guide, page 8-2). The El Dorado County AQMD does not consider CO to be an area-wide or regional pollutant that is likely to have cumulative effects (*ibid*). Emissions from the proposed project are less than significant. The El Dorado County AQMD considers cumulative contributions of CO from projects with less than significant operational emissions of CO to be less than considerable.

The Mountain Counties Air Basin portion of El Dorado County is nonattainment for the state 24-hour PM10 standard, which dictates the use of a relatively sensitive criterion for identifying cumulative effects on PM10 ambient concentrations. PM10 directly emitted from a project can have area-wide impacts and can be cumulatively significant even if not significant on a project-alone basis (CEQA Guide, page 8-3). The County is in attainment for the SO_2 and NO_2 ambient air quality standards, but SO_2 and NO_2 can also contribute to area-wide PM10 impacts through their transformation into sulfate and nitrate particulate aerosols (CEQA Guide, page 8-3). Project contribution of PM10, SO_2, and NO_2 are not evaluated as considerable for the following reasons (CEQA Guide, page 8-3):

1. the proposed development would not exceed the "project alone" significance criteria for these pollutants;
2. the bid specifications and contract will stipulate that the contractor shall comply with all applicable district rules and regulations during construction of the project; and
3. the Project ROG and NOx emission are less than cumulatively considerable.

TACs are typically localized and do not occur region-wide. Therefore, the El Dorado County AQMD considers project contribution of TAC emissions cumulatively significant if a large development project occurs on contiguous parcels and each one is emitting TAC (CEQA Guide, 8-4) concurrently. The proposed project is not contiguous with another large, concurrent development project and TAC emissions would be negligible. Therefore, the project would not have a cumulatively significant impact resulting from emissions of TACs.

Conclusions

The quantitative analysis included an evaluation of ROG, NO_x, CO, PM10, and other pollutants including TACs. The emissions were evaluated for the construction and operation of a commercial-residential development on approximately APN 124-140-33. Air quality impacts resulting from the Project independently and cumulatively were evaluated as less than significant.

The Project is required to implement and comply with the following:

- The Contractor will adhere to all applicable El Dorado County AQMD rules, including but not necessarily limited to Rules 205, 207, 215, 223, 223-1, 224, and 233. Copies of these rules are available from the El Dorado County AQMD website (http://www.edcgov.us/Government/AirQualityManagement/District_Rules.aspx). The Contractor shall prepare a Fugitive Dust Control Plan for review and approval by the El Dorado County Air Pollution Control Officer pursuant to Rule 223-1 Fugitive Dust – Construction.

- Architectural paint and coatings will comply with the VOC limits per 2013 California Green Building Standards Code (CalGreen) requirements and California ARB Suggested Control Measure for Architectural Coatings.
- During construction, all self-propelled diesel-fueled engines greater than 25 horsepower will be in compliance with the California Air Resources Board (ARB) Regulation for In-Use Off-Road Diesel Fueled Fleets (§ 2449 et al, title 13, article 4.8, chapter 9,California Code of Regulations (CCR)). The full text of the regulation can be found at ARB's website here: http://www.arb.ca.gov/msprog/ordiesel/ordiesel.htm. An applicability flow chart can be found here: http://www.arb.ca.gov/msprog/ordiesel/faq/applicability_flow_chart.pdf. Questions on applicability should be directed to ARB at 1-866-634-3735. ARB is responsible for enforcement of this regulation.
- All portable combustion engine equipment with a rating of 50 horsepower or greater will be under permit from the California Air Resources Board (CARB). A copy of the current portable equipment permit will be with said equipment. Prior to initiation of construction activities the applicant will provide a complete list of heavy-duty diesel-fueled equipment to be used on this project, which includes the make, model, year of equipment, daily hours of operations of each piece of equipment.

If you have any questions, please call me.

Cordially,

Adam Forbes
Planner

c: Mr. Justin Arnest, Project Engineer, Jeffrey DeMure + Associates Architects Planners, Inc.

Enclosures: Attachment A, Greenhouse Gas Emissions Evaluation
Attachment B, Site Plan, Dated: February 2015
Attachment C, CalEEMod Version 2013.2.2 Results (AQ)

ATTACHMENT A

Greenhouse Gas Emissions Evaluation

El Dorado Hills Memory Care Project

Introduction

Sycamore Environmental has evaluated potential greenhouse gas (GHG) emissions and potential impacts resulting from the proposed commercial-residential development on APN 083-350-55 in El Dorado County, CA. The GHG evaluation documented in this letter will provide the County with the information needed to prepare the Air Quality section of a California Environmental Quality Act (CEQA) Initial Study for the proposed Project.

The Project is located immediately southwest of the intersection of Francisco Drive and Green Valley Road in the El Dorado Hills Community Region. The proposed Project does not require any land use or zoning designation changes. APN 124-140-33 has a zoning designation of Commercial-Planned Development (C-PD) and High Density Residential (HDR) Land use designation. Primary project components include:

- **Residential Memory Care:** The proposed Project includes a single story structure with 64 private and semi-private residential units, dining and cooking areas, activity areas, covered patios, and courtyards. Total building space of approximately 40,000 square feet. No wood or burning fireplaces will be installed. One natural gas fireplace will be installed.
- **Parking:** The proposed Project includes the installation of 30 paved parking spaces.

CEQA Significance Thresholds

CEQA does not provide explicit directions on addressing climate change. It requires lead agencies identify project GHG emissions impacts and their "significance," but does not define what constitutes a "significant" impact. Not all projects emitting GHG contribute significantly to climate change. CEQA authorizes reliance on previously approved plans (i.e., a Climate Action Plan (CAP), etc.) and mitigation programs adequately analyzing and mitigating GHG emissions to a less than significant level. El Dorado County does not have an adopted CAP or similar program-level document; therefore, the project's GHG emissions must be addressed at the project-level.

The El Dorado County Air Quality Management District's (EDCAQMD) has not adopted GHG emissions significance thresholds for land use development projects. On October 23, 2014, the Sacramento Metropolitan Air Quality Management District (SMAQMD) Board of Directors adopted recommended GHG thresholds of significance for CEQA. The SMAQMD utilized guidance published by the California Air Pollution Control Officers Association, *CEQA & Climate Change, Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*, and a review of local projects in developing recommended greenhouse gas emissions thresholds of significance.

The SMAQMD Thresholds Committee undertook a process to apply the Bay Area AQMD's methodology regarding a Service Population (or Per Capita) Threshold to local projects to the Sacramento region. The SMAQMD Thresholds Committee determined that a per capita threshold would hold all projects, regardless of size, to the same GHG emissions analysis and mitigation standards. This approach is not cost-effective for small projects and could impede their development. The SMAQMD Thresholds Committee sought to develop a threshold that would ensure that at least 90 percent of emissions from projects in the region would be reviewed and analyzed to determine if additional mitigation should be required, while exempting small projects from the requirement to analyze GHG emissions and mitigate.

Given the lack of locally adopted GHG emissions significance thresholds the EDCAQMD is recommending use of the SMAQMD thresholds (pers. comm. A. Baughman). SMAQMD GHG Emissions Significance Thresholds are listed in Table 6.

Table 5. SMAQMD 2014 Approved GHG Emissions Significance Thresholds.

Significance Determination Thresholds	
GHG Emission Source Category	**Threshold**
Stationary Sources	10,000 direct metric tons of C02e per year (Operational impacts)
Land Development Projects	1,100 metric tons of C02e per year [1] (Operational impacts)
All Construction Activities	1,100 metric tons of C02e per year

[1] The 1,100 metric tons of C02e per year threshold is roughly equivalent to 54 residential dwelling units, 63,000 square feet of office space, 29,000 square feet of general retail space, or 12,500 square feet of supermarket space.

Methods

As requested by the EDCAQMD the California Emissions Estimator Model (CalEEMod Version 2013.2.2) was used for the estimation and quantification of project-related GHG emissions. The CalEEMod report (abbreviated to include only relevant report pages) is included in Appendix A.

CalEEMod is a statewide land use emissions model designed to provide a uniform platform to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations from a variety of land use projects. CalEEMod quantifies direct emissions from construction and operations (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. The mobile source emission factors used in the model (EMFAC2011) includes the Pavley standards and Low Carbon Fuel standards into the mobile source emission factors. The model identifies mitigation measures as applicable to reduce criteria pollutant and GHG emissions along with calculating the benefits achieved from measures chosen by the user. The GHG mitigation measures incorporated into CalEEMod Version 2013.2.2 were developed and adopted by the California Air Pollution Control Officers Association.

The various construction and operational emissions default values provided by CalEEMod were used unless stated otherwise. Construction emissions were computed for an approximate 279 work day model derived construction period occurring in 2016-2017. Construction phases in CalEEMod

include demolition, site preparation, grading, building construction, paving, and architectural coating. Construction of the proposed Project will not require import or export of fill material. Operational emissions were assumed to start in 2018.

Results

Construction Emissions

The construction phase is estimated to emit approximately 381.56 $MTCO_2e/yr$ (Appendix 1). CO2e emissions associated with construction are a one-time emission event only during the construction phase.

Operational Emissions

Operational emissions of the proposed project are estimated to be approximately 331.97 $MTCO_2e/yr$ (Attachment B).

Project Emissions Analysis

The SMAQMD 2014 Approved GHG Emissions Significance Thresholds are 1, 100 metric tons of C02e per year for operational impacts and 1,100 metric tons of C02e per year for construction activities. The proposed Projects construction and operational GHG emissions are well below the SMAQMD adopted thresholds for both project construction and operations.

Summary

CalEEMod Version 2013.2.2 was used to estimate the construction and operational GHG emissions resulting for the proposed commercial/ residential Project (Appendix 1). Modeled GHG emissions for the proposed Project are below the SMAQMD significant thresholds. No further GHG analysis is needed.

Personal Communications

Mr. Adam Baughman, Air Quality Engineer, El Dorado County Air Quality Management District. 5 May 2015 2012. Emails regarding GHG significance thresholds.

Appendix 1

CalEEMod Version 2013.2.2 Results (GHG Emissions)

El Dorado Hills Memory Care

Included is the abbreviated annual CalEEMod Version 2013.2.2 Report (only the relevant result sheets are included):

1. Annual

El Dorado Hills Memory Care Project,

El Dorado-Mountain County County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Congregate Care (Assisted Living)	64.00	Dwelling Unit	4.00	40,000.00	183
Parking Lot	30.00	Space	0.27	12,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	70
Climate Zone	1			**Operational Year**	2014
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Structure 40,000 square ft per Site Plan

Construction Phase - No demolition phase is needed, site is vacant.

Off-road Equipment - No Demo Phase included

Demolition - No Demo Phase included.

Woodstoves - Only one gas fireplace will be installed. No wood buring stoves or fireplaces.

Land Use Change -

Sequestration -

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	PhaseEndDate	1/7/2016	2/4/2016
tblConstructionPhase	PhaseStartDate	1/1/2016	1/29/2016
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	35.20	1.00
tblFireplaces	NumberNoFireplace	6.40	1.00
tblFireplaces	NumberWood	22.40	0.00
tblLandUse	LandUseSquareFeet	64,000.00	40,000.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblSequestration	NumberOfNewTrees	0.00	45.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.4543	3.6665	2.8583	4.0500e-003	0.1244	0.2422	0.3666	0.0525	0.2272	0.2798	0.0000	357.4692	357.4692	0.0771	0.0000	359.0883
2017	0.6525	0.1994	0.1631	2.5000e-004	2.5800e-003	0.0124	0.0150	6.9000e-004	0.0116	0.0123	0.0000	22.3580	22.3580	5.5100e-003	0.0000	22.4737
Total	**1.1067**	**3.8660**	**3.0214**	**4.3000e-003**	**0.1270**	**0.2547**	**0.3816**	**0.0532**	**0.2388**	**0.2921**	**0.0000**	**379.8272**	**379.8272**	**0.0826**	**0.0000**	**381.5620**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.4543	3.6665	2.8583	4.0500e-003	0.1244	0.2422	0.3666	0.0525	0.2272	0.2798	0.0000	357.4688	357.4688	0.0771	0.0000	359.0879
2017	0.6525	0.1994	0.1631	2.5000e-004	2.5800e-003	0.0124	0.0150	6.9000e-004	0.0116	0.0123	0.0000	22.3580	22.3580	5.5100e-003	0.0000	22.4737
Total	**1.1067**	**3.8660**	**3.0214**	**4.3000e-003**	**0.1270**	**0.2547**	**0.3816**	**0.0532**	**0.2388**	**0.2921**	**0.0000**	**379.8268**	**379.8268**	**0.0826**	**0.0000**	**381.5616**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2821	5.7700e-003	0.4871	3.0000e-005		2.6400e-003	2.6400e-003		2.6400e-003	2.6400e-003	0.0000	1.5644	1.5644	8.4000e-004	1.0000e-005	1.5866
Energy	1.5000e-003	0.0128	5.4700e-003	8.0000e-005		1.0400e-003	1.0400e-003		1.0400e-003	1.0400e-003	0.0000	83.5102	83.5102	3.3900e-003	9.1000e-004	83.8649
Mobile	0.1510	0.3311	1.5661	2.4800e-003	0.1770	4.2700e-003	0.1812	0.0474	3.9100e-003	0.0513	0.0000	205.2705	205.2705	0.0109	0.0000	205.4999
Waste						0.0000	0.0000		0.0000	0.0000	11.8547	0.0000	11.8547	0.7006	0.0000	26.5671
Water						0.0000	0.0000		0.0000	0.0000	1.3229	9.2405	10.5634	0.1363	3.2900e-003	14.4469
Total	0.4346	0.3497	2.0607	2.5800e-003	0.1770	7.9500e-003	0.1849	0.0474	7.6900e-003	0.0550	13.1776	299.5858	312.7632	0.8520	4.2100e-003	331.9654

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2821	5.7700e-003	0.4871	3.0000e-005		2.6400e-003	2.6400e-003		2.6400e-003	2.6400e-003	0.0000	1.5644	1.5644	9.4000e-004	1.0000e-005	1.5866
Energy	1.5000e-003	0.0128	5.4700e-003	8.0000e-005		1.0400e-003	1.0400e-003		1.0400e-003	1.0400e-003	0.0000	83.5102	83.5102	3.3900e-003	9.1000e-004	83.8649
Mobile	0.1510	0.3311	1.5661	2.4800e-003	0.1770	4.2700e-003	0.1812	0.0474	3.9100e-003	0.0513	0.0000	205.2705	205.2705	0.0109	0.0000	205.4999
Waste						0.0000	0.0000		0.0000	0.0000	11.8547	0.0000	11.8547	0.7006	0.0000	26.5671
Water						0.0000	0.0000		0.0000	0.0000	1.3229	9.2405	10.5634	0.1363	3.2900e-003	14.4448
Total	0.4346	0.3497	2.0607	2.5900e-003	0.1770	7.9500e-003	0.1849	0.0474	7.5900e-003	0.0560	13.1776	299.5856	312.7632	0.8520	4.2100e-003	331.9633

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

ATTACHMENT B

Site Plan, Dated: February 2015

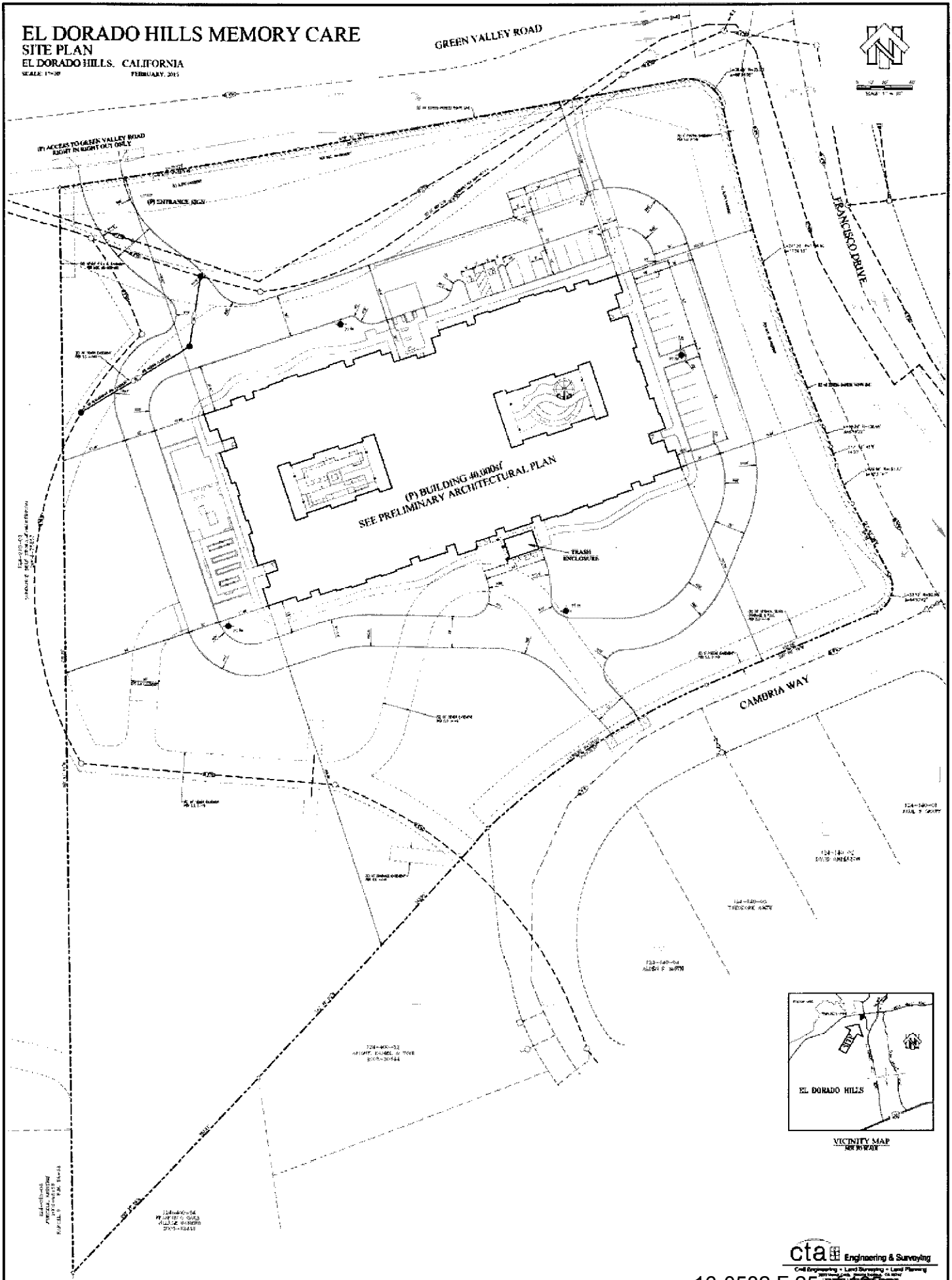
El Dorado Hills Memory Care

EL DORADO HILLS MEMORY CARE

SITE PLAN

EL DORADO HILLS, CALIFORNIA

SCALE: 1"=30' FEBRUARY, 2015



cta Engineering & Surveying

Civil Engineering • Land Surveying • Land Planning

ATTACHMENT C

CalEEMod Version 2013.2.2 Results (AQ)

El Dorado Hills Memory Care

Included are the following two abbreviated CalEEMod Version 2013.2.2 Reports (only the relevant result sheets are included):

1. Summer
2. Winter

El Dorado Hills Memory Care Project,

El Dorado-Mountain County County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Congregate Care (Assisted Living)	64.00	Dwelling Unit	4.00	40,000.00	183
Parking Lot	30.00	Space	0.27	12,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	70
Climate Zone	1			**Operational Year**	2014
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Structure 40,000 square ft per Site Plan

Construction Phase - No demolition phase is needed, site is vacant.

Off-road Equipment - No Demo Phase included

Demolition - No Demo Phase included.

Woodstoves - Only one gas fireplace will be installed. No wood buring stoves or fireplaces.

Land Use Change -

Sequestration -

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	PhaseEndDate	1/7/2016	2/4/2016
tblConstructionPhase	PhaseStartDate	1/1/2016	1/29/2016
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	35.20	1.00
tblFireplaces	NumberNoFireplace	6.40	1.00
tblFireplaces	NumberWood	22.40	0.00
tblLandUse	LandUseSquareFeet	64,000.00	40,000.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblSequestration	NumberOfNewTrees	0.00	45.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	5.1576	54.7061	42.0615	0.0410	18.2141	2.9399	21.1540	9.9699	2.7047	12.6746	0.0000	4,220.2897	4,220.2897	1.2339	0.0000	4,246.2016
2017	70.3601	27.3422	22.2281	0.0340	0.4773	1.7952	2.2725	0.1277	1.6858	1.8135	0.0000	3,243.1346	3,243.1346	0.6710	0.0000	3,257.2255
Total	75.5178	82.0483	64.2896	0.0750	18.6914	4.7350	23.4264	10.0976	4.3905	14.4881	0.0000	7,463.4243	7,463.4243	1.9049	0.0000	7,503.4271

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	5.1576	54.7061	42.0615	0.0410	18.2141	2.9399	21.1540	9.9699	2.7047	12.6746	0.0000	4,220.2897	4,220.2897	1.2339	0.0000	4,246.2016
2017	70.3601	27.3422	22.2281	0.0340	0.4773	1.7952	2.2725	0.1277	1.6858	1.8135	0.0000	3,243.1346	3,243.1346	0.6710	0.0000	3,257.2255
Total	75.5178	82.0483	64.2896	0.0750	18.6914	4.7350	23.4264	10.0976	4.3905	14.4881	0.0000	7,463.4243	7,463.4243	1.9049	0.0000	7,503.4271

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.6366	0.0642	5.4124	2.8000e-004		0.0301	0.0301		0.0301	0.0301	0.0000	30.6904	30.6904	0.0106	3.9000e-004	31.0326
Energy	8.2400e-003	0.0704	0.0300	4.5000e-004		5.6900e-003	5.6900e-003		5.6900e-003	5.6900e-003		89.8381	89.8381	1.7200e-003	1.6500e-003	90.3848
Mobile	0.9573	1.7377	9.3185	0.0154	1.0606	0.0245	1.0851	0.2830	0.0225	0.3055		1,401.3933	1,401.3933	0.0693		1,402.8477
Total	2.6022	1.8722	14.7608	0.0161	1.0606	0.0603	1.1209	0.2830	0.0582	0.3412	0.0000	1,521.9217	1,521.9217	0.0815	2.0400e-003	1,524.2650

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.6366	0.0642	5.4124	2.8000e-004		0.0301	0.0301		0.0301	0.0301	0.0000	30.6904	30.6904	0.0106	3.9000e-004	31.0326
Energy	8.2400e-003	0.0704	0.0300	4.5000e-004		5.6900e-003	5.6900e-003		5.6900e-003	5.6900e-003		89.8381	89.8381	1.7200e-003	1.6500e-003	90.3848
Mobile	0.9573	1.7377	9.3185	0.0154	1.0606	0.0245	1.0851	0.2830	0.0225	0.3055		1,401.3933	1,401.3933	0.0693		1,402.8477
Total	2.6022	1.8722	14.7608	0.0161	1.0606	0.0603	1.1209	0.2830	0.0582	0.3412	0.0000	1,521.9217	1,521.9217	0.0815	2.0400e-003	1,524.2650

El Dorado Hills Memory Care Project,

El Dorado-Mountain County County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Congregate Care (Assisted Living)	64.00	Dwelling Unit	4.00	40,000.00	183
Parking Lot	30.00	Space	0.27	12,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	70
Climate Zone	1			**Operational Year**	2014
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Structure 40,000 square ft per Site Plan

Construction Phase - No demolition phase is needed, site is vacant.

Off-road Equipment - No Demo Phase included

Demolition - No Demo Phase included.

Woodstoves - Only one gas fireplace will be installed. No wood buring stoves or fireplaces.

Land Use Change -

Sequestration -

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	PhaseEndDate	1/7/2016	2/4/2016
tblConstructionPhase	PhaseStartDate	1/1/2016	1/29/2016
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	35.20	1.00
tblFireplaces	NumberNoFireplace	6.40	1.00
tblFireplaces	NumberWood	22.40	0.00
tblLandUse	LandUseSquareFeet	64,000.00	40,000.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblSequestration	NumberOfNewTrees	0.00	45.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	5.1508	54.7239	42.0050	0.0408	18.2141	2.9399	21.1540	9.9699	2.7047	12.6746	0.0000	4,203.4592	4,203.4592	1.2339	0.0000	4,229.3711
2017	70.3563	27.4486	22.8136	0.0334	0.4773	1.7954	2.2727	0.1277	1.6860	1.8137	0.0000	3,195.6300	3,195.6300	0.6711	0.0000	3,209.7220
Total	**75.5071**	**82.1725**	**64.8186**	**0.0742**	**18.6914**	**4.7352**	**23.4266**	**10.0976**	**4.3907**	**14.4883**	**0.0000**	**7,399.0892**	**7,399.0892**	**1.9050**	**0.0000**	**7,439.0931**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	5.1508	54.7239	42.0050	0.0408	18.2141	2.9399	21.1540	9.9699	2.7047	12.6746	0.0000	4,203.4592	4,203.4592	1.2339	0.0000	4,229.3711
2017	70.3563	27.4486	22.8136	0.0334	0.4773	1.7954	2.2727	0.1277	1.6860	1.8137	0.0000	3,195.6300	3,195.6300	0.6711	0.0000	3,209.7220
Total	**75.5071**	**82.1725**	**64.8186**	**0.0742**	**18.6914**	**4.7352**	**23.4266**	**10.0976**	**4.3907**	**14.4883**	**0.0000**	**7,399.0892**	**7,399.0892**	**1.9050**	**0.0000**	**7,439.0931**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.6366	0.0642	5.4124	2.8000e-004		0.0301	0.0301		0.0301	0.0301	0.0000	30.6904	30.6904	0.0106	3.9000e-004	31.0326
Energy	8.2400e-003	0.0704	0.0300	4.5000e-004		5.6900e-003	5.6900e-003		5.6900e-003	5.6900e-003		89.8381	89.8381	1.7200e-003	1.6500e-003	90.3848
Mobile	0.9158	1.9801	9.4924	0.0140	1.0606	0.0247	1.0853	0.2830	0.0226	0.3056		1,277.0389	1,277.0389	0.0693		1,278.4936
Total	2.5606	2.1146	14.9347	0.0147	1.0606	0.0804	1.1210	0.2830	0.0584	0.3414	0.0000	1,397.5673	1,397.5673	0.0816	2.0400e-003	1,399.9109

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.6366	0.0642	5.4124	2.8000e-004		0.0301	0.0301		0.0301	0.0301	0.0000	30.6904	30.6904	0.0106	3.9000e-004	31.0326
Energy	8.2400e-003	0.0704	0.0300	4.5000e-004		5.6900e-003	5.6900e-003		5.6900e-003	5.6900e-003		89.8381	89.8381	1.7200e-003	1.6500e-003	90.3848
Mobile	0.9158	1.9801	9.4924	0.0140	1.0606	0.0247	1.0853	0.2830	0.0226	0.3056		1,277.0389	1,277.0389	0.0693		1,278.4936
Total	2.5606	2.1146	14.9347	0.0147	1.0606	0.0804	1.1210	0.2830	0.0584	0.3414	0.0000	1,397.5673	1,397.5673	0.0816	2.0400e-003	1,399.9109

Biological Resources Assessment for the

El Dorado Hills Memory Care Project

El Dorado County, California

May 2015

Prepared For:

Winn Communities

Prepared By:

Gibson & Skordal, LLC
WETLAND CONSULTANTS
2617 K Street, Suite 175
Sacramento, California 95816

ATTACHMENT 2

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including wetlands. The U. S. Army Corps of Engineers (Corps) implements this program, with oversight from the U. S. Environmental Protection Agency. Waters of the United States include all navigable waters; interstate waters and wetlands; all intrastate waters and wetlands that could affect interstate or foreign commerce; impoundments of the above; tributaries of the above; territorial seas; and wetlands adjacent to the above.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits the take, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase or barter, any native migratory bird, their eggs, parts, and nests, except as authorized under a valid permit (50 CFR 21.11.). Likewise, Section 3513 of the California Fish & Game Code prohibits the "take or possession" of any migratory non-game bird identified under the MBTA. Therefore, activities that may result in the injury or mortality of native migratory birds, including eggs and nestlings, would be prohibited under the MBTA.

State Regulations

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires evaluations of project effects on biological resources. Determining the significance of those effects is guided by Appendix G of the CEQA guidelines. These evaluations must consider direct effects on a biological resource within the project site itself, indirect effects on adjacent resources, and cumulative effects within a larger area or region. Effects can be locally important but not significant according to CEQA if they would not substantially affect the regional population of the biological resource. Significant adverse impacts on biological resources would include the following:

- Substantial adverse effects on any species identified as candidate, sensitive, or special-status in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife (CDFW) or the U.S. Fish and Wildlife Service (USFWS) (these effects could be either direct or via habitat modification);
- Substantial adverse impacts to species designated by the California Department of Fish and Game (2009) as Species of Special Concern;
- Substantial adverse effects on riparian habitat or other sensitive habitat identified in local or regional plans, policies, or regulations or by CDFW and USFWS;
- Substantial adverse effects on federally protected wetlands defined under Section 404 of the Clean Water Act (these effects include direct removal, filling, or hydrologic interruption of marshes, vernal pools, coastal wetlands, or other wetland types);
- Substantial interference with movements of native resident or migratory fish or wildlife species population, or with use of native wildlife nursery sites;
- Conflicts with local policies or ordinances protecting biological resources (e.g. tree preservation policies); and
- Conflict with provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan.

State Endangered Species Act

With limited exceptions, the California Endangered Species Act (CESA) of 1984 protects state-designated endangered and threatened species in a way similar to FESA. For projects on private property (i.e. that for which a state agency is not a lead agency), CESA enables CDFW to authorize take of a listed species that is incidental to carrying out an otherwise lawful project that has been approved under CEQA (Fish & Game Code Section 2081).

Clean Water Act, Section 401

Section 401 of the Clean Water Act requires any applicant for a 404 permit in support of activities that may result in any discharge into waters of the United States to obtain a water quality certification with the Regional Water Quality Control Board (RWQCB). This program is meant to protect these waters and wetlands by ensuring that waste discharged into them meets state water quality standards. Because the water quality certification program is triggered by the need for a Section 404 permit (and both programs are a part of the Clean Water Act), the definition of waters of the United States under Section 401 is the same as that used by the Corps under Section 404.

California Water Code, Parter-Cologne Act

The Porter Cologne Act, from Division 7 of the California Water Code, requires any person discharging waste or proposing to discharge waste that could affect the quality of waters of the state to file a report of waste discharge (RWD) with the RWQCB. The RWQCB can waive the filing of a report, but once a report is filed, the RWQCB must either waive or adopt water discharge requirements (WDRs). "Waters of the state" are defined as any surface water or groundwater, including saline waters, within the boundaries of the state.

California Fish and Game Code, Sectian 1600 – Streambed and Lake Alteratian

The CDFW is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources. To meet this responsibility, the Fish and Game Code, Section 1602, requires notification to CDFW of any proposed activity that may substantially modify a river, stream, or lake. Notification is required by any person, business, state or local government agency, or public utility that proposes an activity that will:

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

For the purposes of Section 1602, rivers, streams and lakes must flow at least intermittently through a bed or channel. If notification is required and CDFW believes the proposed activity is likely to result in adverse harm to the natural environment, it will require that the parties enter into a Lake or Streambed Alteration Agreement (LSAA).

California Fish and Game Code, Section 3503.5 - Raptor Nests

Section 3503.5 of the Fish and Game Code makes it unlawful to take, possess, or destroy hawks or owls, unless permitted to do so, or to destroy the nest or eggs of any hawk or owl.

Local Regulations

El Dorado County General Plan

The project is also subject to all applicable regulations within the El Dorado County General Plan. Specifically, the project must comply with policy 7.3.3.4 regarding setbacks from streams and wetland features, and policy 7.4.4.4 regarding oak canopy retention. Policy 7.3.3.4 requires a 100-foot setback from all perennial streams, rivers, and lakes and a 50-foot setback from intermittent streams and seasonal wetland habitats unless a justification can be made for a reduction in this setback. The Interim Guidelines for policy 7.4.4.4 stipulate specific oak canopy retention requirements. If oak impacts will exceed these retention requirements, a Biological Resources Study and Important Habitat Mitigation Program must be prepared for the project and submitted to the County for review and approval.

METHODOLOGY

Literature Review

A list of special-status species with potential to occur within the project site was developed by conducting a query of the following databases:

- California Natural Diversity Database (CNDDB) (CNDDB 2015) query of the "Clarksville, CA" USGS topo quadrangle, and the eight surrounding quadrangles (Attachment B);
- USFWS Information for Planning and Conservation (IPaC) (USFWS 2015) query for the project site (Attachment C);
- California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (CNPS 2015) query of the "Clarksville, CA" USGS topo quadrangle, and the eight surrounding quadrangles (Attachment D); and
- Western Bat Working Group (WBWG) Species Matrix (WBWG 2015).

For the purposes of this Biological Resources Assessment, special-status species is defined as those species that are:

- listed as threatened or endangered, or proposed or candidates for listing by the USFWS;
- listed as threatened or endangered and candidates for listing by CDFW;
- identified as Fully Protected species or species of special concern by CDFW;
- identified as Medium or High priority species by the WBWG; and
- plant species considered to be rare, threatened, or endangered in California by the CNPS and CDFW [California Rare Plant Rank (CRPR) 1, 2, and 3]:
  - CRPR 1A: Plants presumed extinct.
  - CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere.
  - CRPR 2A: Plants extirpated in California, but common elsewhere.
  - CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere.
  - CRPR 3: Plants about which the CNPS needs more information – a review list.

Field Surveys

Reconnaissance-Level Survey

G&S biologist Daria Snider conducted a reconnaissance level field survey of the site on April 8, 2015 to assess the presence of habitats within the study area necessary to support special-status species. Meandering transects were performed on foot throughout the study area, and the entire site was visually observed.

Special-Status Plant Survey

In addition, G&S biologist Daria Snider conducted a rare plant survey of the site on May 5, 2015 in accordance with the U.S. Fish and Wildlife Service's *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (USFWS 1996) and California Department of Fish and Wildlife's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFG 2009). The survey targeted CRPR 1, 2, and 3 species; however, if CRPR 4 species were observed during the survey, they were documented. The survey was floristic in nature, which means that all plant species observed on-site were identified to the taxonomic level necessary to determine rarity. The *Jepson Manual, Second Edition* (Baldwin, et al 2012) was used for taxonomic nomenclature. A list of reference populations of target plants visited is included in Attachment E, and a comprehensive list of all plant species observed on the site is included in Attachment F.

RESULTS

Table 1 provides a list of special-status species that were evaluated including their listing status, habitat associations, and their potential to occur in the study area. The following set of criteria has been used to determine each species' potential for occurrence on the site.

- Present: Species occurs on the site based on CNDDB records, and/or was observed on the site during field surveys.
- High: The site is within the known range of the species and suitable habitat exists.
- Low: The site is within the known range of the species and there is marginal suitable habitat or the species was not observed during protocol-level surveys conducted on-site.
- No Habitat Present: The site does not contain suitable habitat for the species, or the site is outside the known range of the species.

Figure 4 is an exhibit displaying CNDDB occurrences within ten miles of the study area. Below is a discussion for all special-status plant and animal species with potential to occur on the site.

Table 1. Special-Status Species with Potential to Occur on the El Dorado Hills Memory Care Site

Scientific Name (Common Name)	Federal Status	State Status	Habitat Requirements	Potential for Occurrence
Plants				
Allium jepsonii (Jepson's onion)	--	CRPR 1B.2	Prefers cismontane woodland or lower montane coniferous forests associated with serpentine soils or volcanic slopes.	**Low.** Suitable habitat is present, but this plant was not found during protocol surveys.
Balsamorhiza macrolepis (big-scale balsamroot)	--	CRPR 1B.2	Prefers chaparral, cismontane woodland, and valley and foothill grasslands often associated with serpentine soils.	**Low.** Suitable habitat is present, but this plant was not found during protocol surveys.
Calystegia stebbinsii (Stebbin's morning glory)	FE	CE, CRPR 1B.1	Openings in foothill chaparral associated with Gabbro soils of the Pine Hill formation.	**No Habitat Present.** Chaparral and Gabbro soils are not present on-site.
Ceanothus roderickii (Pine Hill ceanothus)	FE	CR, CRPR 1B.1	Foothill chaparral and cismontane woodland associated with Gabbro soils of the Pine Hill formation.	**No Habitat Present.** Gabbro soils are not present on-site.
Chlorogalum grandiflorum (Red Hills soaproot)	--	CRPR 1B.2	Foothill chaparral, cismontane woodland, and lower montane coniferous forest. Sometimes found in serpentine and Gabbro soils.	**Low.** Suitable habitat is present, but this plant was not found during protocol surveys.
Crocanthemum suffrutescens (Bisbee Peak rush rose)	--	CRPR 3.2	Burned or disturbed areas in chaparral, often on Gabbro or Ione soils.	**No Habitat Present.** Chaparral is not present on-site.
Downingia pusilla (dwarf downingia)	--	CRPR 2B.2	Vernal pools and other depressional wetlands	**No Habitat Present.** No vernal pools or other depressional wetlands are present on-site.
Erigeron miser (Starved daisy)	--	CRPR 1B.3	Rocky areas in upper montane coniferous forest.	**No Habitat Present.** Outside of the geographic range of the species.
Eryngium pinnatisectum (Tuolumne button-celery)	--	CRPR 1B.2	Mesic areas in cismontane woodlands and lower montane coniferous forests, and vernal pools.	**Low.** Suitable habitat is present, but this plant was not found during protocol surveys.
Fremontodendron decumbens (Pine Hill flannelbush)	FE	CR, CRPR 1B.2	Foothill chaparral and cismontane woodland associated with rocky serpentine and Gabbro soils.	**Low.** Suitable habitat is present, but this plant was not found during protocol surveys.
Galium californicum ssp. *sierrae* (El Dorado bedstraw)	FE	CR, CRPR 1B.2	Foothill chaparral, cismontane woodland, and lower montane coniferous forest. Found on Gabbro soils.	**No Habitat Present.** Gabbro soils are not present on-site.

Scientific Name (Common Name)	Federal Status	State Status	Habitat Requirements	Potential for Occurrence
Gratiola heterosepala (Bogg's Lake hedge-hyssop)	--	CE, CRPR 1B.2	Vernal pools and margins of lakes/ponds	**No Habitat Present.** No vernal pools or other depressional wetlands are present on-site.
Harkelia parryi (Parry's horkelia)	--	CRPR 1B.2	Chapparal and cismontane woodland on Ione Formation and limestone soils.	**No Habitat Present.** Ione Formation and limestone soils are absent.
Juncus leiospermus var. *ahartii* (Ahart's dwarf rush)	--	CRPR 1B.2	Edges of vernal pool and other seasonally ponded feature	**No Habitat Present.** No vernal pools or other depressional wetlands are present on-site.
Legenere limosa (legenere)	--	CRPR 1B.1	Vernal pools	**No Habitat Present.** No vernal pools or other depressional wetlands are present on-site.
Navarretia myersii ssp. *myersii* (Pincushion navarretia)	--	CRPR 1B.1	Vernal pools	**No Habitat Present.** No vernal pools or other depressional wetlands are present on-site.
Orcuttia tenuis (slender Orcutt grass)	FT	CE, CRPR 1B.1	Vernal pools and other seasonally ponded features.	**No Habitat Present.** No vernal pools or other depressional wetlands are present on-site.
Orcuttia viscida (Sacramento Orcutt grass)	FE	CE, CRPR 1B.1	Vernal pools	**No Habitat Present.** No vernal pools or other depressional wetlands are present on-site.
Packera layneae (Layne's ragwort)	FT	CR, CRPR 1B.2	Foothill chaparral and cismontane woodland associated with rocky serpentine and Gabbro soils.	**Low.** Suitable habitat is present, but this plant was not found during protocol surveys.
Sagittaria sanfordii (Sanford's arrowhead)	--	CRPR 1B.2	Emergent marsh habitat, typically associated with drainages, canals, or irrigation ditches.	**Low.** Suitable habitat is present, but this plant was not found during protocol surveys.
Wyethia reticulata (El Dorado County mule ears)	--	CRPR 1B.2	Foothill chaparral, cismontane woodland, and lower montane coniferous forest. Found on Gabbro soils of the Pine Hill Formation.	**No Habitat Present.** Gabbro soils are not present on-site.
Invertebrates				
Branchinecta lynchi (vernal pool fairy shrimp)	FT	--	Vernal pools.	**No Habitat Present.** No vernal pools or other depressional wetlands are present on-site.

Scientific Name (Common Name)	Federal Status	State Status	Habitat Requirements	Potential for Occurrence
Desmocerus californicus dimorphus (Valley elderberry longhorn beetle)	FT	--	Dependent upon elderberry plant as primary host species.	**No Habitat Present.** No elderberry shrubs are present on-site.
Lepidurus packardi (vernal pool tadpole shrimp)	FE	--	Vernal pools.	**No Habitat Present.** No vernal pools or other depressional wetlands are present on-site.
Fish				
Hypomesus transpacificus (Delta smelt)	FT	CE	Adults are found in the brackish open surface waters of the Delta and Suisun Bay. Though spawning has never been observed, it is believed to occur in tidally influenced sloughs and drainages on the freshwater side of the mixing zone.	**No Habitat Present.** Outside of the geographic range of the species.
Oncorhynchus mykiss irideus (Central Valley steelhead)	FE	--	Anadromous species requiring freshwater water courses with gravelly substrates for breeding. The young remain in freshwater areas before migrating to estuarine and marine environments.	**No Habitat Present.** Upstream of Folsom Dam (migration barrier).
Amphibians & Reptiles				
Ambystoma californiense (California tiger salamander)	FT	CSC	Breeds in ponds or other deeply ponded wetlands, and uses gopher holes and ground squirrel burrows in adjacent grasslands for upland refugia/foraging.	**No Habitat Present.** No ponds are present, and outside of the geographic range of the species.
Actinemys marmorata (western pond turtle)	--	CSC	Ponds, rivers, streams, wetlands, and irrigation ditches with associated marsh habitat.	**High.** Suitable habitat for this species is present in the creek.
Phrynosoma blainvillii (coast horned lizard)	--	CSC	Diverse habitat associations, but normally a low land species associated with sandy scrub habitat.	**No Habitat Present.** Sandy soils are not present on-site.
Rana boylii (foothill yellow-legged frog)	--	CSC	Prefers gravelly or sandy streams with open banks near woodlands.	**No Habitat Present.** No open banks are present adjacent to the creek.
Rana draytonii (California red-legged frog)	FT	CSC	Breeds in permanent to semi-permanent aquatic habitats including lakes, ponds, marshes, creeks, and other drainages.	**No Habitat Present.** Outside of the geographic range of the species.
Spea hammandii (western spadefoot toad)	--	CSC	Breeds in vernal pools, seasonal wetlands and associated swales. Forages and hibernates in adjacent grasslands.	**No Habitat Present.** No vernal pools or other depressional wetlands are present on-site.

Scientific Name (Common Name)	Federal Status	State Status	Habitat Requirements	Potential for Occurrence
Thamnophis gigas (giant garter snake)	FT	CT	Rivers, canals, irrigation ditches, rice fields, and other aquatic habitats with slow moving water and heavy emergent vegetation.	**No Habitat Present.** Outside of the geographic range of the species.
Birds				
Accipiter striatus (sharp-shinned hawk)	--	CSC	Inhabits dense forest with a closed canopy; may forage in adjacent grassland and fields.	**No Habitat Present.** The canopy of the oak woodland is not sufficiently dense.
Aquila chrysaetas (golden eagle)	--	CFP	Forages in open areas including grasslands, savannahs, deserts, and early successional stages of shrub and forest communities. Nests in large trees and cliffs.	**Low.** The foothill pine trees on-site are marginally suitable for golden eagle nesting. Site is not open enough for foraging.
Buteo swainsoni (Swainson's hawk)	--	CT	Nests in large trees, preferably in riparian areas. Forages in fields, cropland, irrigated pasture, and grassland near large riparian corridors.	**Low.** Trees on-site are marginally suitable for nesting, and no suitable open areas for foraging are nearby.
Elanus leucurus (white-tailed kite)	--	CFP	Open grasslands, fields, and meadows are used for foraging. Isolated trees in close proximity to foraging habitat are used for perching and nesting.	**No Habitat Present.** Site is an oak woodland with no expansive open areas.
Haliaeetus leucocephalus (bald eagle)	FD	CE	Nest in large trees within 1 mile of lakes, rivers, or larger streams.	**Low.** The foothill pine trees on-site are marginally suitable for nesting.
Falco peregrinus anatum (American peregrine falcon)	FD	CFP	Nests on cliff ledges, tall buildings, or other tall man-made structures near open areas for foraging.	**No Habitat Present.** Suitable breeding habitat and foraging habitat are absent.
Laterallus jamaicensis coturniculus (California black rail)	--	CT	Nests and forages in salt, brackish, and fresh marshes with abundant vegetative cover.	**No Habitat Present.** Densely vegetated marshes are not present on-site.
Charadrius alexandrinus (snowy plover)	--	CSC	Barren to sparsely vegetated open areas near water.	**No Habitat Present.** Site is an oak woodland with no expansive open areas.
Asia flammeus (short-eared owl)	--	CSC	Typically found in open areas with few trees such as grasslands, prairies, dunes, meadows, and croplands.	**No Habitat Present.** Site is an oak woodland with no expansive open areas.

Scientific Name (Common Name)	Federal Status	State Status	Habitat Requirements	Potential for Occurrence
Athene cunicularia (burrowing owl)	--	CSC	Nests in abandoned ground squirrel burrows associated with open grassland habitats.	**No Habitat Present.** No ground squirrel burrows or open grassland habitats are present on-site.
Lanius ludovicianus (loggerhead shrike)	--	CSC	Occurs in open areas with sparse trees, shrubs, and other perches.	**No Habitat Present.** Site is an oak woodland with no expansive open areas.
Eremophila alpestris actia (California horned lark)	--	CSC	Forages and breeds in open grasslands and fields.	**No Habitat Present.** No open areas for foraging are present on-site.
Progne subis (purple martin)	--	CSC	Nest in tree cavities, bridges, utility poles, lava tubes, and buildings near open areas. Prefers conifer snags or other trees with minimal canopy.	**No Habitat Present.** Site is an oak woodland with no expansive open areas.
Riparia riparia (bank swallow)	--	CT	Colonial nester preferring vertical cliffs and banks associated with riparian zones along streams, rivers, and lakes.	**No Habitat Present.** Vertical cliffs and banks are not present on-site.
Agelaius tricolor (tricolored blackbird)	--	CSC	Colonial nester in cattails, bulrush, or blackberries associated with marsh habitats.	**Low.** Marginal nesting habitat is present in a large blackberry thicket on-site.
Mammals				
Antrozous pallidus (pallid bat)	--	CSC, WBWG H	Day and night roosts include crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., basal hollows of coast redwoods and giant sequoias, bole cavities of oaks, exfoliating Ponderosa pine and valley oak bark, deciduous trees in riparian areas, and fruit trees in orchards), and various human structures such as bridges (especially wooden and concrete girder designs), barns, porches, bat boxes, and human-occupied as well as vacant buildings (WBWG 2015).	**High.** Suitable roosting habitat for this species is present in tree hollows and under exfoliating bark on trees throughout the site.
Lasionycteris noctivagans (silver-haired bat)	--	WBWG M	Roosts in abandoned woodpecker holes, under bark, and occasionally in rock crevices. It forages in open wooded areas near water features.	**High.** Suitable roosting habitat for this species is present in tree hollows and under exfoliating bark on trees throughout the site.

Scientific Name (Common Name)	Federal Status	State Status	Habitat Requirements	Potential for Occurrence
Lasiurus blossevillii (western red bat)	--	CSC, WBWG H	Require large leaf trees such as cottonwoods, willows, and fruit/nut trees for daytime roosts. Often associated with wooded habitats that are protected from above and open below. Often found in association with riparian corridors. Require open space for foraging.	**High.** Trees throughout the site represent suitable roosting habitat for this species.
Lasiurus cinereus (hoary bat)	--	WBWG M	Roosts primarily in foliage of both coniferous and deciduous trees at the edges of clearings (WBWG 2015).	**High.** Trees throughout the site represent suitable roosting habitat for this species.
Pekania pennanti (fisher - West Coast DPS)	FP	CC, CSC	Intermediate to large-tree stages of coniferous forest and deciduous-riparian areas with thicker canopies.	**No Habitat Present.** The oak woodland is too open and this site is too urban in nature for this elusive species.
Taxidea taxus (American badger)	--	CSC	This species prefers dry open fields, grasslands, and pastures.	**No Habitat Present.** No expansive open areas are present on-site.

Status Codes:

CC - CDFW Candidate for Listing
CE - CDFW Endangered
CFP - CDFW Fully Protected
CR - CDFW Rare
CRPR - California Rare Plant Rank
CSC - CDFW Species of Concern
CT - CDFW Threatened
FD - Federally Delisted
FE - Federally Endangered
FP - Proposed for Federal Listing
FT - Federally Threatened
WBWG M - Western Bat Working Group Medium Threat Rank
WBWG H - Western Bat Working Group High Threat Rank

Plants

Jepson's Onion

Jepson's onion (*Allium jepsonii*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. It is a bulbiferous perennial herb that is usually associated with open areas within cismontane woodland or lower montane coniferous forest between 985 and 3,800 feet (CNPS 2015). Jepson's onion is typically found on serpentine soils of the Sierra Nevada, but it has been documented growing on volcanic soils (at Table Mountain) as well. It blooms between May and August.

Metamorphic soils within the oak woodlands throughout the site provide marginally suitable habitat for this species, but this species was not observed during the 2015 protocol-level special status plant survey of the site. Therefore, this species is presumed to be absent from the site.

Big-Scale Balsamroot

Big-scale balsamroot (*Balsamorhiza macrolepis var. macrolepis*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. It is a perennial herbaceous species that favors chaparral, cismontane woodland and valley and foothill grasslands between 295 and 4,600 feet. Big-scale balsamroot blooms from March through June and may be found on serpentine soils, though it is known to grow on other soil types as well.

Metamorphic soils within the oak woodlands throughout the site provide marginally suitable habitat for this species, but this species was not observed during the 2015 protocol-level special status plant survey of the site. Therefore, this species is presumed to be absent from the site.

Red Hills Soaproot

Red Hills soaproot (*Chlorogalum grandiflorum*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. Red Hills soaproot occurs in foothill chaparral, cismontane woodland, and lower montane coniferous forest with Gabbro, serpentine, and other soils. This perennial blooms from May to June and is found from approximately 800 to 3,300 feet.

Metamorphic soils within the oak woodlands throughout the site provide marginally suitable habitat for this species, but this species was not observed during the 2015 protocol-level special status plant survey of the site. Therefore, this species is presumed to be absent from the site.

Tuolumne Button-Celery

Tuolumne button-celery (*Eryngium pinnatisectum*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. This species occurs in mesic areas in cismontane woodlands and coniferous forests, as well as vernal pools (CNPS 2015). Tuolumne button-celery blooms from May-August, and is found from approximately 300 feet to 3,000 feet above Mean Sea Level (CNPS 2015).

The seasonal wetland swales and areas adjacent to the creeks on-site provide suitable habitat for this species, but this species was not observed during 2015 protocol-level special status plant surveys of the site. Therefore, this species is presumed to be absent from the site.

Pine Hill Flannelbush

Pine Hill flannelbush (*Fremontodendron decumbens*) is listed as endangered under the federal Endangered Species Act, as a California rare species, and is classified as a CRPR List 1B.2 plant. Pine Hill flannelbush is a sprawling, low-growing shrub that is known from Pine Hill in El Dorado County and potentially from an isolated population in Nevada County. The species favors foothill chaparral and cismontane woodland with rocky Gabbro or serpentine soils. It blooms from April to June.

Metamorphic soils within the oak woodlands throughout the site provide marginally suitable habitat for this species, but this species was not observed during the 2015 protocol-level special status plant survey of the site. Therefore, this species is presumed to be absent from the site.

Layne's Ragwort

Layne's ragwort (*Packera layneae*) is listed as endangered under the federal Endangered Species Act, as a California rare species, and is classified as a CRPR List 1B.2 plant. Layne's ragwort is a non-woody perennial associated with open areas in chaparral and cismontane woodland. This member of the sunflower family blooms from April to June and grows on rocky Gabbro or serpentine soils. It is known from Pine Hill in El Dorado County, the Red Hills in Tuolumne County, and near Brownsville in Yuba County.

Metamorphic soils within the oak woodlands throughout the site provide marginally suitable habitat for this species, but this species was not observed during the 2015 protocol-level special status plant survey of the site. Therefore, this species is presumed to be absent from the site.

Sanford's Arrowhead

Sanford's arrowhead (*Sagittaria sanfordii*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. It generally occurs in shallow freshwater habitats associated with drainages, canals, and larger ditches that sustain inundation and/or slow moving water into early summer. It is a perennial rhizomatous emergent species, and it blooms from May to October.

The creek in the northern portion of the site provides suitable habitat for this species, but this species was not observed during 2015 protocol-level special status plant surveys of the site. Therefore, this species is presumed to be absent from the site.

Reptiles

Western Pond Turtle

The western pond turtle (*Emys marmorata*) is not federally or state listed, but is a CDFW species of special concern. Its favored habitats include streams, large rivers and canals with slow-moving water, aquatic vegetation, and open basking sites. Although the turtles must live near water,

they can tolerate drought by burrowing into the muddy beds of dried drainages. This species feeds mainly on invertebrates such as insects and worms, but will also consume small fish, frogs, mammals and some plants. Western pond turtle predators include raccoons, coyotes, raptors, weasels, large fish, and bullfrogs. This species breeds from mid to late spring in adjacent open grasslands or sandy banks.

The creek in the northern portion of the site appears to provide perennial aquatic habitat. However, the small size and fast-moving nature of this drainage makes this habitat marginal. No turtles were observed during the field survey.

Birds

Golden Eagle

The golden eagle (*Aquila chrysaetos*) is not federally listed, but is a CDFW species of special concern and a fully protected species. It is a very large solitary tree nesting raptor which forages in large, expansive open areas. Though its natural densities are generally believed to be low, it once was relatively common to the open areas of California.

Several large grey pine trees on-site provide suitable nesting habitat for golden eagle; however, the lack of suitable foraging habitat on or near the site make it unlikely that golden eagle would utilize the site. No golden eagles or their nests were observed during the field survey.

Swainson's Hawk

Swainson's hawk (*Buteo swainsoni*) is a raptor species that is not federally listed, but is listed as threatened by the CDFW. Breeding pairs typically nest in tall trees associated with riparian corridors, and forage in grassland, irrigated pasture, and cropland with a high density of rodents. The Central Valley populations breed and nest in the late spring through early summer before migrating to Central and South America for the winter.

Several cottonwood trees along the creek in the northern portion of the site represent marginal nesting habitat for Swainson's hawk, but the lack of suitable foraging habitat on or near the site make it unlikely that Swainson's hawk would utilize the site. No Swainson's hawks or their nests were observed during the field survey.

Bald Eagle

The bald eagle (*Haliaeetus leucocephalus*) is no longer federally listed, but is still listed as endangered by the CDFW. Bald eagles typically nest in large trees within one mile of large bodies of water including lakes, streams, or rivers. They prey on fish, waterfowl, squirrels, rabbits, and muskrats, though bald eagles have been observed feeding on carrion. They are solitary nesters and may be monogamous.

Several large grey pine trees on-site provide suitable nesting habitat for bald eagle, and Folsom Lake is less than one mile north of the site. A bald eagle nest has been documented in the CNDDB

approximately one mile west of the site. No bald eagles or their nests were observed during the field survey.

Tricolored Blackbird

Tricolored blackbirds (*Agelaius tricolor*) are not federally listed, but received emergency listing as endangered under the California endangered species act in December 2014. This emergency listing will expire in June 2015, unless it is renewed. In addition, tricolored blackbird is listed by CDFW as a species of special concern. They are colonial nesters preferring to nest in dense stands of cattails, bulrush, or blackberry thickets associated with perennial water.

A large blackberry thicket along the creek in the northern portion of the site represents marginal breeding habitat for this species. No tricolored blackbirds were observed during the field survey.

Mammals

Pallid Bat

Pallid bat (*Antrozous pallidus*) is not federally or state listed, but is considered a CDFW species of special concern, and is classified by the WBWG as a High priority species. It favors roosting sites in crevices in rock outcrops, caves, abandoned mines, and human-made structures such as barns, attics, hollow trees, and sheds. Though pallid bats are gregarious, they tend to group in smaller colonies of 10 to 100 individuals. It is a nocturnal hunter and captures prey in flight, but unlike most American bats, the species has been observed foraging for flightless insects, which it seizes after landing.

Suitable roosting habitat for this species is present in tree hollows and under exfoliating bark on trees throughout the site.

Silver-Haired Bat

Silver-haired bat (*Lasionycteris noctivagans*) is not federally or state listed, but is classified by the WBWG as a Medium priority species. Primarily considered a coastal and montane forest species, the silver-haired bat occurs in more xeric environments during winter and seasonal migrations. It roosts in abandoned woodpecker holes, under bark, and occasionally in rock crevices. This insectivore's favored foraging sites include open wooded areas near water features.

Suitable roosting habitat for this species is present in tree hollows and under exfoliating bark on trees throughout the site.

Western Red Bat

Western red bat (*Lasiurus blossevillii*) is not federally or state listed, but is considered a CDFW species of special concern, and is classified by the WBWG as a High priority species. Western red bat is typically solitary, roosting primarily in the foliage of trees or shrubs. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores).

Trees within the oak woodland and the riparian corridor represent suitable roosting habitat for this species.

Hoary Bat

The hoary bat (*Lasiurus cinereus*) is not federally or state listed, but is classified by the WBWG as a Medium priority species. It is considered to be one of the most widespread of all American bats with a range extending from Canada to central Chile and Argentina as well as Hawaii. Hoary bats prefer older large leaf species such as cottonwoods, willows, and fruit or nut trees for daytime roosts. This species is primarily crepuscular or nocturnal and requires open areas to hunt its main prey item, moths. The hoary bat is considered a forest/woodland species, and in California they are often associated with undisturbed riparian or stream corridors.

Trees within the oak woodland and the riparian corridor represent suitable roosting habitat for this species.

CONCLUSIONS / RECOMMENDATIONS

Special-Status Species

There is a low potential for the following plant species to occur on the site:

- Jepson's onion,
- Big-scale balsamroot,
- Red Hills soaproot,
- Pine Hill flannelbush,
- Layne's ragwort, and
- Sanford's arrowhead.

However, protocol-level plant surveys were conducted in 2015, and none of these species or any other rare plant were detected. Therefore, it is not anticipated that rare plants occur on the Project site.

There is a high potential for western pond turtle to occur in the creek along the northern edge of the site. It is recommended that pre-construction western pond turtle surveys be conducted prior to any work within or adjacent to the creek.

There is a low potential for the following special-status birds to occur on the site:

- Golden eagle,
- Swainson's hawk,
- Bald eagle, and
- Tricolored blackbird.

In addition, all migratory birds are protected by the MBTA, as discussed above. Therefore, it is recommended that pre-construction nesting bird surveys be conducted on-site prior to any construction during the nesting season (end of February through end of August). In addition, we recommend that any tree removal necessary on the site be conducted outside of the breeding season.

There is a high potential for the following bat species to roost in the trees on-site:

- Pallid bat,
- Silver-haired bat,
- Western red bat, and
- Hoary Bat

It is recommended that pre-construction bat surveys be conducted on-site prior to tree removal.

Waters of the U.S.

A total of 0.125 acre of creek/channel and 0.056 acre of seasonal wetland swale occur within the Project site. If any impacts to any of these features are proposed, regulatory permits may be necessary as follows. For direct fill the following would be necessary:

- CWA Section 404 Permit from the U.S. Army Corps of Engineers
- CWA Section 401 Water Quality Certification from the Regional Water Quality Control Board
- Section 1600 Lake and Streambed Alteration Agreement (LSAA) from CDFW

If activities are proposed that would not result in fill being placed in any of these features, but would involve work that could affect the bed, bank, or adjacent riparian zone of any of the channels, a LSAA from CDFW would still be necessary.

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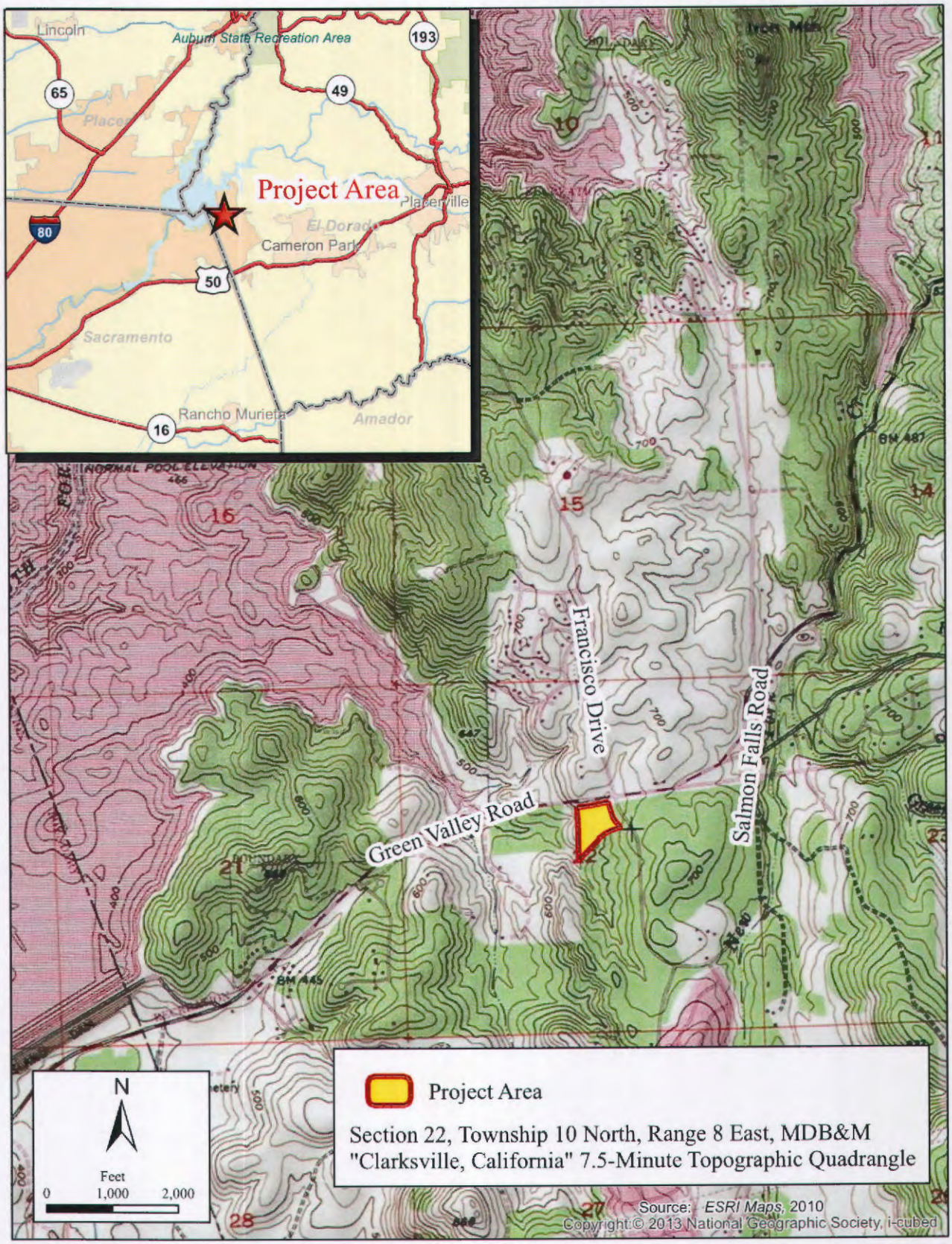
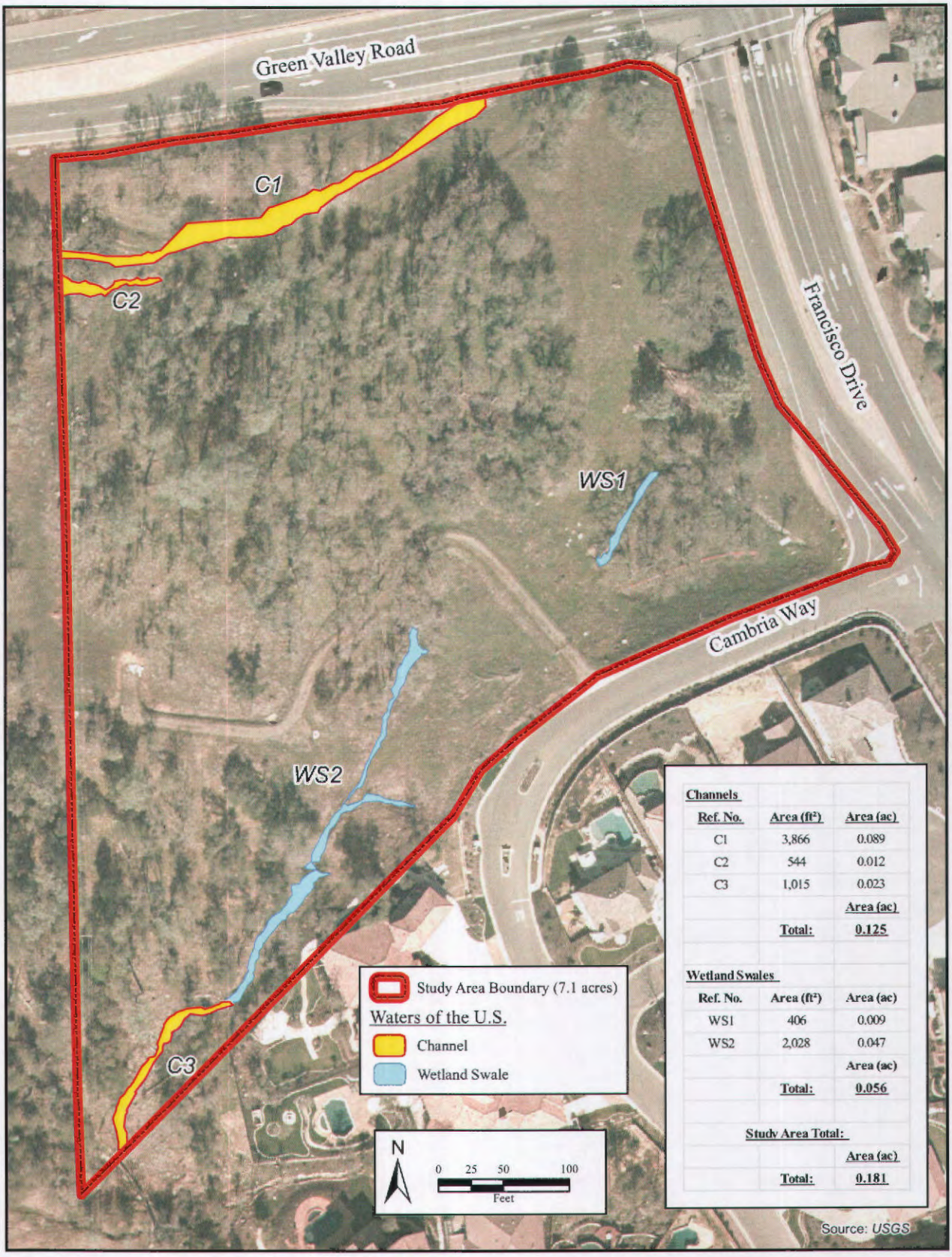


El Dorado Hills Memory Care

Figure 1
Vicinity Map

El Dorado Hills Memory Care

Figure 2
Soils Map



Channels		
Ref. No.	Area (ft²)	Area (ac)
C1	3,866	0.089
C2	544	0.012
C3	1,015	0.023
		Area (ac)
	Total:	0.125

Wetland Swales		
Ref. No.	Area (ft²)	Area (ac)
WS1	406	0.009
WS2	2,028	0.047
		Area (ac)
	Total:	0.056

Study Area Total:		
		Area (ac)
	Total:	0.181

El Dorado Hills Memory Care

Figure 3
Wetland Delineation Map

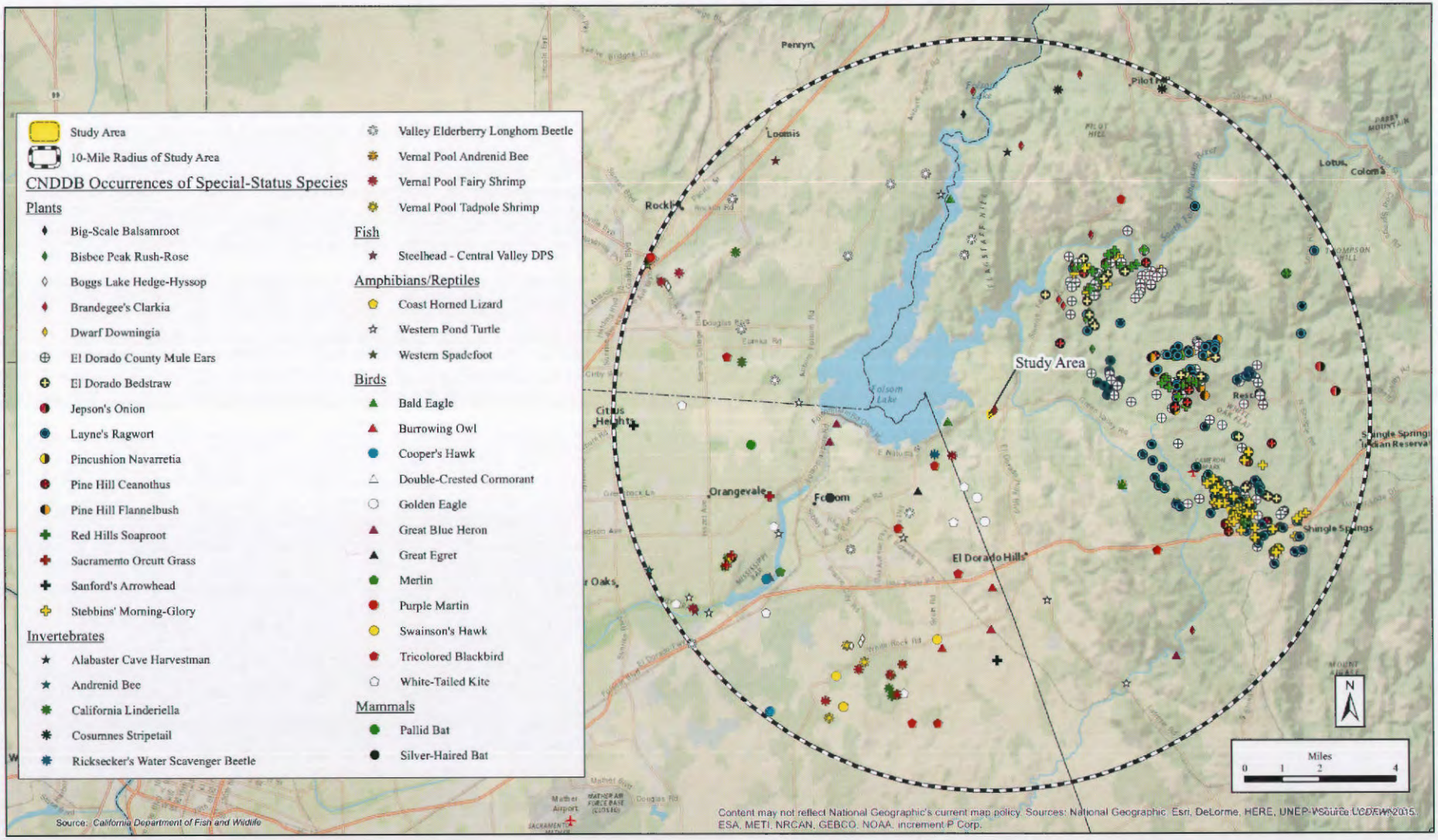


Figure 4
California Natural Diversity Database Exhibit

Attachments

Attachment A: Preliminary Jurisdictional Determination

Attachment B: List of Plant and Animal Species Documented in the CNDDB within the "Clarksville, California" Quadrangle and 8 Surrounding Quadrangles

Attachment C: IPaC Trust Resource Report for the El Dorado Hills Memory Care Site

Attachment D: CNPS Inventory of Rare and Endangered Plants Query for the "Clarksville, California" Quadrangle and 8 Surrounding Quadrangles

Attachment E: Target Plant Species Reference Population Information

Attachment F: Plant Species Observed on the El Dorado Hills Memory Care Property

Attachment A

Preliminary Jurisdictional Determination

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

REPLY TO
ATTENTION OF

August 16, 2012

Regulatory Division SPK-2007-00027

Mr. George Carpenter, Jr
Winn Communities
1130 Iron Point Road, Suite 150
Folsom, California 95630

Dear Mr. Carpenter, Jr:

We are responding to your August 8, 2012, request for a preliminary jurisdictional determination (JD), in accordance with our Regulatory Guidance Letter (RGL) 08-02, for the Green Valley Center (Winn Property) site. The approximately 6.8-acre site is located in Section 22, Township 10 North, Range 8 East, Mount Diablo Meridian, Latitude 38.7084401041089°, Longitude -121.086295751017°, Town of El Dorado Hills, El Dorado County, California.

Based on available information, **we concur with the amount and location of wetlands and/or other water bodies on the site as depicted on the enclosed August 2012, Jurisdictional Delineation Green Valley Center (Winn Parcel), El Dorado County, California, drawing prepared by Gibson and Skordal, LLC** (enclosure 1). The approximately 0.146 acre of wetlands and other water bodies present within the survey area are potential waters of the United States regulated under Section 404 of the Clean Water Act.

A copy of our RGL 08-02 Preliminary Jurisdictional Determination Form for this site is enclosed (enclosure 2). Please sign and return a copy of the completed form to this office. Once we receive a copy of the form with your signature we can accept and process a Pre-Construction Notification or permit application for your proposed project.

You should not start any work in potentially jurisdictional waters of the United States unless you have Department of the Army permit authorization for the activity. You may request an approved JD for this site at any time prior to starting work within waters. In certain circumstances, as described in RGL 08-02, an approved JD may later be necessary.

You should provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

This preliminary determination has been conducted to identify the potential limits of wetlands and other water bodies which may be subject to Corps of Engineers' jurisdiction for the particular site identified in this request. A Notification of Appeal Process and Request for Appeal form is enclosed to notify you of your options with this determination (enclosure 3).

This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are U.S. Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

We appreciate your feedback. At your earliest convenience, please tell us how we are doing by completing the customer survey on our website under *Customer Service Survey*.

Please refer to identification number SPK-2007-00027 in any correspondence concerning this project. If you have any questions, please contact Mr. Peck Ha at our California North Branch Office, Regulatory Division, Sacramento District, U.S. Army Corps of Engineers, 1325 J Street, Room 1350, Sacramento, California 95814-2922, email *Peck.Ha@usace.army.mil*, or telephone 916-557-6617. For more information regarding our program, please visit our website at *www.spk.usace.army.mil/Missions/Regulatory.aspx*.

Sincerely,

James Robb
Senior Project Manager,
California North Branch

Enclosures

Copy Furnished with enclosure 1:
Ms. Gina Paolini, El Dorado County Planning Department, 2850 Fairlane Court, Placerville, California 95667-4103

Copy Furnished without enclosure:
Mr. James Gibson, Gibson and Skordal, LLC, 2617 K Street, Suite 175, Sacramento, California 95814

Attachment B

List of Plant and Animal Species Documented in the CNDDB within the "Clarksville, California" Quadrangle and 8 Surrounding Quadrangles

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad is (Clarksville (3812161) or Shingle Springs (3812068) or Rocklin (3812172) or Pilot Hill (3812171) or Coloma (3812078) or Folsom (3812162) or Folsom SE (3812151) or Buffalo Creek (3812152) or Latrobe (3812058))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Endangered	G2G3	S1S2	SSC
Allium jepsonii Jepson's onion	PMLIL022V0	None	None	G1	S1	1B.2
Ammodramus savannarum grasshopper sparrow	ABPBXA0020	None	None	G5	S3	SSC
Andrena blennospermatis Blennosperma vernal pool andrenid bee	IIHYM35030	None	None	G2	S2	
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Aquila chrysaetos golden eagle	ABNKC22010	None	None	G5	S3	FP
Ardea alba great egret	ABNGA04040	None	None	G5	S4	
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Balsamorhiza macrolepis big-scale balsamroot	PDAST11061	None	None	G2	S2	1B.2
Banksula californica Alabaster Cave harvestman	ILARA14020	None	None	GH	SH	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S2S3	
Branchinecta mesovallensis midvalley fairy shrimp	ICBRA03150	None	None	G2	S2	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Calystegia stebbinsii Stebbins' morning-glory	PDCON040H0	Endangered	Endangered	G1	S1	1B.1
Ceanothus roderickii Pine Hill ceanothus	PDRHA04190	Endangered	Rare	G1	S1	1B.2
Central Valley Drainage Hardhead/Squawfish Stream Central Valley Drainage Hardhead/Squawfish Stream	CARA2443CA	None	None	GNR	SNR	
Chlorogalum grandiflorum Red Hills soaproot	PMLIL0G020	None	None	G3	S3	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Clarkia biloba ssp. brandegeeae Brandegee's clarkia	PDONA05053	None	None	G4G5T4	S4	4.2
Cosumnoperla hypocrena Cosumnes stripetail	IIPLE23020	None	None	G2	S2	
Crocanthemum suffrutescens Bisbee Peak rush-rose	PDCIS020F0	None	None	G2Q	S2	3.2
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
Downingia pusilla dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
Dumontia oregonensis hairy water flea	ICBRA23010	None	None	G1G3	S1	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eryngium pinnatisectum Tuolumne button-celery	PDAPI0Z0P0	None	None	G2	S2	1B.2
Falco columbarius merlin	ABNKD06030	None	None	G5	S3S4	WL
Fremontodendron decumbens Pine Hill flannelbush	PDSTE03030	Endangered	Rare	G1	S1	1B.2
Galium californicum ssp. sierrae El Dorado bedstraw	PDRUB0N0E7	Endangered	Rare	G5T1	S1	1B.2
Gratiola heterosepala Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	G2	S2	1B.2
Haliaeetus leucocephalus bald eagle	ABNKC10010	Delisted	Endangered	G5	S2	FP
Hydrochara rickseckeri Ricksecker's water scavenger beetle	IICOL5V010	None	None	G2?	S2?	
Juncus leiospermus var. ahartii Ahart's dwarf rush	PMJUN011L1	None	None	G2T1	S1	1B.2
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G5	S3S4	
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G3	S2S3	
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Navarretia myersii ssp. myersii pincushion navarretia	PDPLM0C0X1	None	None	G1T1	S1	1B.1
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	
Northern Volcanic Mud Flow Vernal Pool Northern Volcanic Mud Flow Vernal Pool	CTT44132CA	None	None	G1	S1.1	
Oncorhynchus mykiss irideus steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Orcuttia tenuis slender Orcutt grass	PMPOA4G050	Threatened	Endangered	G2	S2	1B.1
Orcuttia viscida Sacramento Orcutt grass	PMPOA4G070	Endangered	Endangered	G1	S1	1B.1
Packera layneae Layne's ragwort	PDAST8H1V0	Threatened	Rare	G2	S2	1B.2
Pandion haliaetus osprey	ABNKC01010	None	None	G5	S4	WL
Pekania pennanti fisher - West Coast DPS	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SSC
Phalacrocorax auritus double-crested cormorant	ABNFD01020	None	None	G5	S4	WL
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC
Progne subis purple martin	ABPAU01010	None	None	G5	S3	SSC
Rana boylii foothill yellow-legged frog	AAABH01050	None	None	G3	S2S3	SSC
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2
Spea hammondii western spadefoot	AAABF02020	None	None	G3	S3	SSC
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thamnophis gigas giant garter snake	ARADB36150	Threatened	Threatened	G2	S2	
Valley Needlegrass Grassland Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	
Wyethia reticulata El Dorado County mule ears	PDAST9X0D0	None	None	G2	S2	1B.2

Record Count: 61

U.S. Fish & Wildlife Service

My project

IPaC Trust Resource Report

Generated May 06, 2015 12:10 PM MDT

US Fish & Wildlife Service

IPaC Trust Resource Report

Project Description

NAME

My project

PROJECT CODE

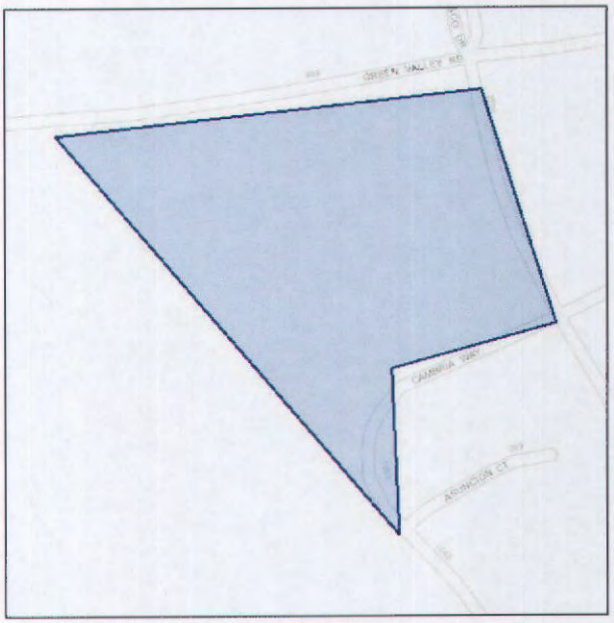
APBOQ-QQ4TZ-AGDL6-YPRPC-27ZOPQ

LOCATION

El Dorado County, California

DESCRIPTION

No description provided



U.S. Fish & Wildlife Contact Information

Species in this report are managed by:

Sacramento Fish And Wildlife Office
Federal Building
2800 COTTAGE WAY, ROOM W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Endangered Species

Proposed, candidate, threatened, and endangered species that are managed by the Endangered Species Program and should be considered as part of an effect analysis for this project.

Amphibians

California Red-legged Frog

Threatened

DESCRIPTION

This subspecies of red-legged frog occurs from sea level to elevations of about 1,500 meters (5,200 feet). It has been extirpated from 70 percent of its former range and now is found primarily in coastal drainages of central California, from Marin County,California, south to northern Baja California, Mexico. Potential threats to the species include elimination or degradation of habitat from land development and land use activities and habitat invasion by non-native aquatic species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=D02D

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

California Tiger Salamander (sonoma) U.S.A. (CA - Sonoma County)

Endangered

DESCRIPTION

It is a large, stocky, terrestrial salamander with a broad, rounded snout. Adults males are about 8 inches long, females a little less than 7. Coloration consists of white or pale yellow spots or bars on a black background on the back and sides. The belly varies from almost uniform white or pale yellow to a variegated pattern of white or pale yellow and black. The salamander's small eyes protrude from their heads. They have black irises.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=D01T

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

Crustaceans

Vernal Pool Fairy Shrimp

Threatened

DESCRIPTION

No description available

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=K03G

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

Vernal Pool Tadpole Shrimp

Endangered

DESCRIPTION

No description available

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=K048

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

Fishes

Delta Smelt

Threatened

DESCRIPTION
No description available

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=E070

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

Steelhead Northern California DPS - See 50 CFR 223.102

Threatened

DESCRIPTION
Steelhead trout (Oncorhynchus mykiss) belong to the family Salmonidae which includes all salmon, trout, and chars. Steelhead are similar to some Pacific salmon in their life cycle and ecological requirements. They are born in fresh water streams, where they spend their first 1-3 years of life. They then emigrate to the ocean where most of their growth occurs. After spending between one to four growing seasons in the ocean, steelhead return to their native fresh water stream to spawn. Unlike Pac...

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=E08D

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

Flowering Plants

El Dorado Bedstraw

Endangered

DESCRIPTION
No description available

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=Q0VG

CRITICAL HABITAT
No critical habitat has been designated for this species.

Layne's Butterweed

Threatened

DESCRIPTION
No description available

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=Q1O2

CRITICAL HABITAT
No critical habitat has been designated for this species.

Pine Hill Ceanothus

Endangered

DESCRIPTION
No description available

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=Q0DK

CRITICAL HABITAT
No critical habitat has been designated for this species.

Pine Hill Flannelbush

Endangered

DESCRIPTION
No description available

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=Q0V1

CRITICAL HABITAT
No critical habitat has been designated for this species.

Stebbins' Morning-glory

Endangered

DESCRIPTION
No description available

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=Q0AU

CRITICAL HABITAT
No critical habitat has been designated for this species.

Insects

Valley Elderberry Longhorn Beetle

Threatened

DESCRIPTION

No description available

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=I01L

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

Reptiles

Giant Garter Snake

Threatened

DESCRIPTION

Dorsal background coloration (the basic color on the snake's back) varies from brownish to olive with a checkered pattern of black spots, separated by a yellow dorsal stripe and two light colored lateral stripes. Background coloration and prominence of a black checkered pattern and the three light stripes are geographically and individually variable. The ventral surface (the snake's underside) is cream to olive or brown and sometimes infused with orange, especially in northern populations.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=C057

CRITICAL HABITAT

No critical habitat has been designated for this species.

Critical Habitats

Potential effects to critical habitat(s) within the project area must be analyzed along with the endangered species themselves.

There is no critical habitat within this project area

Migratory Birds

Birds are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Any activity which results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service (1). There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

You are responsible for complying with the appropriate regulations for the protection of birds as part of this project. This involves analyzing potential impacts and implementing appropriate conservation measures for all project activities.

Bald Eagle

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Year-round

DESCRIPTION
A large raptor, the bald eagle has a wingspread of about 7 feet. Adults have a dark brown body and wings, white head and tail, and a yellow beak. Juveniles are mostly brown with white mottling on the body, tail, and undersides of wings. Adult plumage usually is obtained by the 6th year. In flight, the bald eagle often soars or glides with the wings held at a right angle to the body.

Black Rail

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Breeding

DESCRIPTION
No description available

Burrowing Owl

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Year-round

DESCRIPTION
No description available

Calliope Hummingbird

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Breeding

DESCRIPTION
No description available

Costa's Hummingbird

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Breeding

DESCRIPTION
No description available

Flammulated Owl

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Breeding

DESCRIPTION
No description available

Fox Sparrow

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Year-round

DESCRIPTION
No description available

Green-tailed Towhee

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Breeding

DESCRIPTION
No description available

Lewis's Woodpecker

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Wintering

DESCRIPTION
No description available

Loggerhead Shrike

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Year-round

DESCRIPTION
No description available

Nuttall's Woodpecker

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Year-round

DESCRIPTION
No description available

Oak Titmouse

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Year-round

DESCRIPTION
No description available

Peregrine Falcon

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Wintering

DESCRIPTION
No description available

Short-eared Owl

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Wintering

DESCRIPTION
The short-eared owl is an owl of about 0.7 to 0.8 lbs with females slightly larger in size than males. Plumage is brown, buff, white and rust colors. Patches of brown and buff occur mostly on the back side, while the underside is colored more lightly, being mostly white. Females and males have similar plumage. Some distinguishing characteristics of this owl are its gray white fascial disk, and black coloring around yellow eyes. Juveniles have similar plumage to adults, but upper parts and head a...

Snowy Plover

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Breeding

DESCRIPTION
No description available

Tricolored Blackbird

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Year-round

DESCRIPTION
The Tricolored Blackbird is a medium-sized (18-24cm total length), sexually dimorphic North American passerine (Beedy, Edward, and Hamilton III 1999). Adult males are typically larger than females, and are black with bright red and white plumage on the wing shoulder. Adult females have sooty brown-black plumage with distinct grayish streaks, a relatively white chin and throat, and a smaller reddish shoulder-patch. Banding studies indicate a lifespan of 12-13 years (DeHaven and Neff 1973, Kenn...

White Headed Woodpecker

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Year-round

DESCRIPTION
No description available

Williamson's Sapsucker

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Year-round

DESCRIPTION
No description available

Yellow-billed Magpie

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Year-round

DESCRIPTION
No description available

Refuges

Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. If your project overlaps or otherwise impacts a Refuge, please contact that Refuge to discuss the authorization process.

There are no refuges within this project area

Wetlands

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

Project proponents should discuss the relationship of these requirements to their project with the Regulatory Program of the appropriate U.S. Army Corps of Engineers District.

DATA LIMITATIONS

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

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

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

DATA EXCLUSIONS

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

DATA PRECAUTIONS

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

There are no wetlands identified in this project area

Attachment D

CNPS Inventory of Rare and Endangered Plants Query for the "Clarksville, California" Quadrangle and 8 Surrounding Quadrangles

CNPS California Native Plant Rare and Endangered Plant Inventory

Plant List

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

Search Criteria

Found in 9 Quads around 38121F1

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Allium jepsonii	Jepson's onion	Alliaceae	perennial bulbiferous herb	1B.2	S1	G1
Allium sanbornii var. sanbornii	Sanborn's onion	Alliaceae	perennial bulbiferous herb	4.2	S4?	G3T4?
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	1B.2	S2	G2
Calandrinia breweri	Brewer's calandrinia	Montiaceae	annual herb	4.2	S34	G4
Calystegia stebbinsii	Stebbins' morning-glory	Convolvulaceae	perennial rhizomatous herb	1B.1	S1	G1
Ceanothus fresnensis	Fresno ceanothus	Rhamnaceae	perennial evergreen shrub	4.3	S4	G4
Ceanothus roderickii	Pine Hill ceanothus	Rhamnaceae	perennial evergreen shrub	1B.1	S1	G1
Chlorogalum grandiflorum	Red Hills soaproot	Agavaceae	perennial bulbiferous herb	1B.2	S3	G3
Clarkia biloba ssp. brandegeeae	Brandegee's clarkia	Onagraceae	annual herb	4.2	S4	G4G5T4
Claytonia parviflora ssp. grandiflora	streambank spring beauty	Montiaceae	annual herb	4.2	S3	G5T3
Crocanthemum suffrutescens	Bisbee Peak rush-rose	Cistaceae	perennial evergreen shrub	3.2	S2	G2Q
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	2B.2	S2	GU
Erigeron miser	starved daisy	Asteraceae	perennial herb	1B.3	S2	G2
Eriophyllum jepsonii	Jepson's woolly sunflower	Asteraceae	perennial herb	4.3	S3	G3
Eryngium pinnatisectum	Tuolumne button-celery	Apiaceae	annual / perennial herb	1B.2	S2	G2
Fremontodendron decumbens	Pine Hill flannelbush	Malvaceae	perennial evergreen shrub	1B.2	S1	G1
Galium californicum ssp. sierrae	El Dorado bedstraw	Rubiaceae	perennial herb	1B.2	S1	G5T1
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	1B.2	S2	G2
Horkelia parryi	Parry's horkelia	Rosaceae	perennial herb	1B.2	S2	G2
Juncus leiospermus var. ahartii	Ahart's dwarf rush	Juncaceae	annual herb	1B.2	S1	G2T1

Legenere limosa	legenere	Campanulaceae	annual herb	1B.1	S2	G2
Lilium humboldtii ssp. humboldtii	Humboldt lily	Liliaceae	perennial bulbiferous herb	4.2	S3	G4T3
Navarretia myersii ssp. myersii	pincushion navarretia	Polemoniaceae	annual herb	1B.1	S1	G1T1
Orcuttia tenuis	slender Orcutt grass	Poaceae	annual herb	1B.1	S2	G2
Orcuttia viscida	Sacramento Orcutt grass	Poaceae	annual herb	1B.1	S1	G1
Packera layneae	Layne's ragwort	Asteraceae	perennial herb	1B.2	S2	G2
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb	1B.2	S3	G3
Trichostema rubisepalum	Hernandez bluecurls	Lamiaceae	annual herb	4.3	S4	G4
Wyethia reticulata	El Dorado County mule ears	Asteraceae	perennial herb	1B.2	S2	G2

Suggested Citation

CNPS, Rare Plant Program. 2015. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org [accessed 13 May 2015].

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The Calflora Database
The California Lichen Society

Attachment E

Target Plant Species Reference Population Information

Target Plant Species Reference Population Information for the El Dorado Hills Memory Care Site

Plant Species	Location of Reference Population	Date of Visit	Phenology of Reference Population/ Distinctive Characteristics
Allium jepsonii (Jepson's onion)	Herbarium specimen at UC Davis Center for Plant Diversity	March 30, 2015	Pressed specimen. Plant is very tall, one leaf per plant, deep pink midveins on petals, jagged inner perianth parts.
Balsamorhiza macrolepis (big-scale balsamroot)	Herbarium specimen at UC Davis Center for Plant Diversity	March 30, 2015	Pressed specimen. Similar to Wyethia, but with grey, dissected leaves. Leaves are mostly basal (as opposed to Wyethia, which has basal and cauline leaves).
Chlorogalum grandiflorum (Red Hills soaproot)	Pine Hill Unit of the Pine Hill Preserve, El Dorado County	May 5, 2015	Population entirely vegetative. Plants are small (approximately 8" -16" diameter), with wavy-edged leaves. Inflorescence would be necessary for definitive key if small, wavy-leaf *Chlorogalum* rosettes are found on a site.
Fremontodendron decumbens (Pine Hill flannelbush)	Pine Hill Unit of the Pine Hill Preserve, El Dorado County	May 5, 2015	Several large shrubs were observed in full bloom. Distinctive orange-red blossoms and felty palmate leaves. All aspects of the plant are smaller than *F. californicum*, the only species with which it could be confused.
Packera layneae (Layne's ragwort)	Pine Hill Unit of the Pine Hill Preserve, El Dorado County	May 5, 2015	Many plants observed, all in full bloom. Plants are tall, with numerous basal leaves, plus cauline leaves. Flower heads are relatively large, and each have a few (3-8) ligules.
Sagittaria sanfordii (Sanford's arrowhead)	Antelope Station Park, Roseville	May 12, 2015	Population was recently mowed, but plants are healthy and resprouting. Some leaves have resprouted and were exhibiting the characteristic triangular pedicel of this species.

Attachment F

Plant Species Observed on the El Dorado Hills Memory Care Property

Plant Species Observed on the El Dorado Hills Memory Care Property
May 5, 2015

Family/Species Name	Common Name	Native/Non-Native
AGAVACEAE		
Chlorogalum angustifolium	Narrow-leaf soapplant	Native
Chlorogalum pomeridianum	Soapplant	Native
ANACARDIACEAE		
Toxicodendron diversilobum	Western Poison Oak	Native
APIACEAE		
Anthriscus caucalis	Bur-Chervil	Non-Native
Daucus pusillus	Carrot	Native
Sanicula bipinnatifida	Purple Sanicle	Native
Torilis arvensis	Tall Sock-Destroyer	Non-Native
Torilis nodosa	Short Sock-Destroyer	Non-Native
ARECACEAE		
Washingtonia robusta	Mexican Fan Palm	Non-Native
ASTERACEAE		
Baccharis pilularis	Coyote Brush	Native
Carduus pycnocephalus subsp. *pycnocephalus*	Italian Thistle	Non-Native
Centaurea solstitialis	Yellow Star-Thistle	Non-Native
Chondrilla juncea	Skeleton Weed	Non-Native
Hypochaeris glabra	Smooth Cat's-Ear	Non-Native
Lactuca serriola	Prickly Lettuce	Non-Native
Leontodon saxatilis	Hairy Hawkbit	Non-Native
Logfia gallica	Daggerleaf Cottonrose	Non-Native
Micropus californicus	Q-Tips	Native
Pseudognaphalium luteoalbum	Marsh Cudweed	Non-Native
Senecio vulgaris	Common Groundsel	Non-Native
Sonchus oleraceus	Common Sow Thistle	Non-Native
BETULACEAE		
Alnus rhombifolia	White Alder	Native
BIGNONIACEAE		
Catalpa bignonioides	Cigar Tree	Non-Native

Plant Species Observed on the El Dorado Hills Memory Care Property
May 5, 2015

Family/Species Name	Common Name	Native/Non-Native
BORAGINACEAE		
Amsinckia menziesii	Small-Flowered Fiddleneck	Native
BRASSICACEAE		
Hirschfeldia incana	Short-pod Mustard	Non-Native
Nasturtium officinale	Water Cress	Native
Raphanus sativus	Radish	Non-Native
CAPRIFOLIACEAE		
Lonicera interrupta	Honeysuckle	Native
CYPERACEAE		
Cyperus eragrostis	Tall Nutsedge	Native
EUPHORBIACEAE		
Croton setiger	Turkey Mullein	Native
Triadica sebifera	Chinese Tallowtree	Non-Native
FABACEAE		
Acmispon americanus var. *americanus*	Spanish Lotus	Native
Lupinus bicolor	Miniature Lupine	Native
Medicago polymorpha	California Burclover	Non-Native
Trifolium hirtum	Rose Clover	Non-Native
Vicia sativa	Spring Vetch	Non-Native
Vicia villosa	Winter Vetch	Non-Native
FAGACEAE		
Quercus douglasii	Blue Oak	Native
Quercus lobata	Valley Oak	Native
Quercus wislizeni var. *wislizeni*	Interior Live Oak	Native
GERANIACEAE		
Erodium botrys	Redstem Filaree	Non-Native
Erodium cicutarium	Cut-leaf Filaree	Non-Native
Geranium dissectum	Cut-leaf Geranium	Non-Native
Geranium molle	Soft Geranium	Non-Native

Plant Species Observed on the El Dorado Hills Memory Care Property
May 5, 2015

Family/Species Name	Common Name	Native/Non-Native
HYPERICACEAE		
Hypericum perforatum subsp. *perforatum*	Klamathweed	Non-Native
JUGLANDACEAE		
Juglans hindsii	Northern California Black Walnut	Native
JUNCACEAE		
Juncus balticus subsp. ater	Baltic Rush	Native
Juncus xiphioides	Iris-Leaved Rush	Native
Luzula comosa var. comosa	Wood-rush	Native
LILIACEAE		
Calochortus albus	White Globe Lily, Fairy-Lantern	Native
MORACEAE		
Ficus carica	Edible Fig	Non-Native
ONAGRACEAE		
Clarkia purpurea subsp. *quadrivulnera*	Wine Cup Clarkia	Native
Epilobium ciliatum subsp. *ciliatum*	Willowherb	Native
PAPAVERACEAE		
Eschschalzia colifornica	California Poppy	Native
PINACEAE		
Pinus sabiniana	Foothill Pine	Native
PLANTAGINACEAE		
Plantago lanceolata	English Plantain	Non-Native
POACEAE		
Aegilops triuncialis	Barbed Goat Grass	Non-Native
Aira caryophyllea	Silver Hair Grass	Non-Native
Avena barbata	Slender Wild Oat	Non-Native
Avena fatua	Wild Oat	Non-Native
Brachypodium distachyon	False Brome	Non-Native
Bromus diandrus	Ripgut Grass	Non-Native

Plant Species Observed on the El Dorado Hills Memory Care Property
May 5, 2015

Family/Species Name	Common Name	Native/Non-Native
Bromus hordeaceus	Soft Chess	Non-Native
Bromus madritensis subsp. rubens	Red Brome	Non-Native
Cynodon dactylon	Bermuda Grass	Non-Native
Cynosurus echinatus	Bristly Dogtail Grass	Non-Native
Elymus caput-medusae	Medusa Head	Non-Native
Festuca myuros	Rattail Sixweeks Grass	Non-Native
Festuca perennis	Rye Grass	Non-Native
Melica californica	California Melic	Native
Muhlenbergia rigens	Deer Grass	Native
Paspalum dilatatum	Dallis Grass	Non-Native
Phalaris aquatica	Harding Grass	Non-Native
Polypogon australis	Chilean Beard Grass	Non-Native
Stipa pulchra	Purple Needle Grass	Native
POLYGONACEAE		
Persicaria maculosa	Spotted Lady's Thumb	Non-Native
Rumex californicus	California Dock	Native
Rumex crispus	Curly Dock	Non-Native
PTERIDACEAE		
Pentagramma triangularis	Goldback Fern	Native
ROSACEAE		
Heteromeles arbutifolia	Toyon	Native
Pyracantha angustifolia	Slender Firethorn	Non-Native
Rubus armeniacus	Himalayan Blackberry	Non-Native
RUBIACEAE		
Galium parisiense	Wall Bedstraw	Non-Native
Galium porrigens	Climbing Bedstraw	Native
SALICACEAE		
Populus fremontii subsp. *fremontii*	Fremont Cottonwood	Native
Salix gooddingii	Goodding's Black Willow	Native
Salix laevigata	Red Willow	Native
Salix lasiolepis	Arroyo Willow	Native

Plant Species Observed on the El Dorado Hills Memory Care Property
May 5, 2015

Family/Species Name	Common Name	Native/Non-Native
SAPINDACEAE		
Aesculus californica	California Buckeye	Native
THEMIDACEAE		
Brodiaea elegans subsp. elegans	Harvest Brodiaea	Native
TYPHACEAE		
Typha angustifolia	Narrow-Leaved Cattail	Native Or Non-Native
VISCACEAE		
Phoradendron leucarpum	American Mistletoe	Native
VITACEAE		
Vitis vinifera	Cultivated Grape	Non-Native

MADRONE ECOLOGICAL CONSULTING

Memo

To: Rommel Pabalinas, El Dorado County

From: Ginger Fodge, Principal

Date: April 8, 2016

Subject: Addendum to the Biological Resources Assessment for the El Dorado Hills Memory Care Project

Per your request, I have revised the "conclusions" section of the Biological Resources Assessment for the El Dorado Hills Memory Care Project to provide additional detail in the recommended mitigation measures for potential impacts to western pond turtle, nesting raptors, and roosting bats. The addendum is attached. Please contact me with any questions.

Addendum to the Biological Resources Assessment
For the El Dorado Hills Memory Care Project
El Dorado County, California
April 2016

CONCLUSIONS / RECOMMENDATIONS

Special-Status Species

There is a low potential for the following plant species to occur on the site:

- Jepson's onion,
- Big-scale balsamroot,
- Red Hills soaproot,
- Pine Hill flannelbush,
- Layne's ragwort, and
- Sanford's arrowhead.

However, protocol-level plant surveys were conducted in 2015, and none of these species or any other rare plants were detected. Therefore, it is not anticipated that rare plants occur on the Project site.

There is a high potential for western pond turtle to occur in the creek along the northern edge of the site. It is recommended that pre-construction western pond turtle surveys be conducted by a qualified biologist prior to any work within or adjacent to the creek. Any turtles found within the immediate work area shall be relocated within the same stream channel by a qualified biologist holding all required permits.

There is a low potential for the following special-status birds to occur on the site:

- Golden eagle,
- Swainson's hawk,
- Bald eagle, and
- Tricolored blackbird.

In addition, all migratory birds are protected by the MBTA, as discussed above. Therefore, the following mitigation measures are recommended: Pre-construction nesting bird surveys shall be conducted by a qualified biologist within 14 days of initiation of any construction during the nesting season (end of February through end of August). During the survey, the qualified wildlife biologist shall inspect all trees in and immediately adjacent to the impact area for raptor and migratory bird nests. If the survey does not identify any nesting raptor species on or near the construction site, further mitigation is not required. However, should any raptor species be found nesting on or near the construction site (within 500 feet of construction activities), the following mitigation measures shall be implemented:

a. Prior to the issuance of Improvement Plans, the project applicant, in consultation with El Dorado County and CDFW, shall avoid all birds of prey or migratory bird nest sites located in the construction area during breeding season while the nest is occupied with adults and/or eggs or young. The occupied nest shall be monitored by a qualified wildlife biologist to determine

when the nest is no longer used. Avoidance shall include the establishment of a no disturbance buffer zone around the nest site. The size of the buffer zone shall be determined in consultation with El Dorado County and CDFW. Highly visible temporary construction fencing shall delineate the buffer zone.

b. If a legally-protected species nest is located in a tree designated for removal, the removal shall be deferred until after August 31, or until the adults and young are no longer dependent on the nest site, as determined by a qualified biologist.

There is a high potential for the following bat species to roost in the trees on-site:

- Pallid bat,
- Silver-haired bat,
- Western red bat, and
- Hoary Bat

The following mitigation measures are recommended: Pre-construction bat surveys shall be conducted on-site by a qualified bat biologist within 14 days of any tree removal that will occur during the breeding season (April through August). Pre-construction surveys are not required for tree removal activities scheduled to occur during the non-breeding season, as determined by a qualified bat biologist. If pre-construction surveys indicate that no roosts of special-status bats are present, or that roosts are inactive or potential habitat is unoccupied, no further mitigation is required. If roosting bats are found, exclusionary measures approved by CDFW and USFWS shall be installed by a qualified bat biologist. Once the bats have been excluded, tree removal may occur. If these actions do not result in exclusion, a qualified biologist in possession of an applicable Department of Fish and Wildlife Memorandum of Understanding should consult with CDFW to determine appropriate relocation methods.

Waters of the U.S.

A total of 0.125 acre of creek/channel and 0.056 acre of seasonal wetland swale occur within the Project site. If any impacts to any of these features are proposed, regulatory permits may be necessary as follows. For direct fill the following would be necessary:

- CWA Section 404 Permit from the U.S. Army Corps of Engineers
- CWA Section 401 Water Quality Certification from the Regional Water Quality Control Board
- Section 1600 Lake and Streambed Alteration Agreement (LSAA) from CDFW

If activities are proposed that would not result in fill being placed in any of these features, but would involve work that could affect the bed, bank, or adjacent riparian zone of any of the channels, a LSAA from CDFW would still be necessary.

SYCAMORE ENVIRONMENTAL CONSULTANTS, INC.
6355 Riverside Blvd., Suite C, Sacramento, CA 95831
916/ 427-0703 www.sycamoreenv.com

4 May 2016

Mr. Brian Glover
Sierra Capital & Investments
7225 North First Street, Suite 101
Fresno, CA 93720

Phone: (971) 777-5497
Email: brian@sierracapitalinvestments.com

Subject: ***Oak Canopy Analysis, Preservation, and Replacement Plan for El Dorado Hills Memory Care Revised Phase I (Pavilions), El Dorado County, CA.***

Dear Mr. Glover:

This letter provides an oak canopy retention analysis, preservation, and replacement plan for El Dorado Hills Memory Care Revised Phase I (Pavilions) in El Dorado County, CA. El Dorado County General Plan Policy 7.4.4.4 and the associated Interim Interpretive Guidelines (amended 12 October 2007) regulate native oak canopy. The purpose of the analysis is to determine if the project design complies with the oak canopy retention requirements of Option A of Policy 7.4.4.4. Option A requires replacement of removed oak canopy, even if the minimum oak canopy retention is met. The County does not have a currently adopted fee program for Option B of General Plan Policy 7.4.4.4.

Oak Canopy Analysis:

- The project site is approximately 6.85 ac. Sierra Nevada Arborists (2006) previously prepared a tree inventory for the site. CTA Engineering & Surveying prepared an estimate of existing oak canopy on the site in April 2016. Existing oak canopy comprises approximately 3.14 ac, or 45.8% of the project site (Attachment A). Option A of Policy 7.4.4.4 requires 80% retention of existing oak canopy on sites with 40 to 59% existing oak canopy cover.
- Phase 1, as designed, would remove an estimated 0.58 acre of oak canopy (Attachment A). The Phase 1 oak canopy retention rate is 81.5% ([3.14 – 0.58]/ 3.14). Phase 1 meets the oak canopy retention standard in option A of policy 7.4.4.4.
- Policy 7.4.4.4 requires one of two mitigation options (Option A or Option B if available) for projects that result in soil disturbance.

ATTACHMENT 3

Recommended Oak Tree Preservation Measures

Oak preservation measures were developed for the project based on El Dorado County Interim Interpretive Guidelines (2007) and Matheny and Clark (1998). Retained trees may be affected by project activities such as clearing, grading, and pruning for clearance requirements. The tree preservation measures below are recommended for preservation of retained trees during the construction process. Most of the retained oaks are not in the immediate vicinity of proposed construction. These tree preservation recommendations focus on trees that are near the limits of grading.

Pre-construction

- A tree protection zone (TPZ) shall be established around retained trees. The TPZ shall extend 20 feet beyond the dripline where possible given grading limits. The TPZ around retained trees near the limit of grading will be much smaller. If a smaller TPZ is required in ungraded areas, six inches of mulch or wood/bark chips will be placed over areas of vehicle traffic to minimize soil compaction.
- The TPZ shall be marked with minimum 4 ft high orange construction fence hung on posts (such as T-posts) before clearing occurs. The fence shall not be supported by trees or other vegetation. The fence shall remain in place until construction is complete. The fence may be removed to plant replacement oak trees.
- There shall be no driving, parking, or storage of supplies or equipment within the TPZ. Entry of construction personnel into the TPZ is not allowed except for maintenance of the fence or other activities undertaken for the protection of trees.
- The tree canopy along the TPZ boundary shall be inspected prior to vegetation clearing in the area of grading. The canopy of trees to be removed shall be pruned where it is intertwined with the canopy of retained trees, or wherever felling of trees to be removed may damage the canopy of retained trees. The canopy of retained trees that overhangs the area to be graded shall be pruned to the minimum height required for construction.
- Pruning of retained trees shall be conducted in accordance with American National Standard Institute (ANSI) A300 Pruning Standard and adhere to the most recent edition of ANSI Z133.1.

During Vegetation Clearing

- Brush clearing along the TPZ boundary may be necessary in some areas for installation of a fence. Brush along the TPZ boundary, outside areas to be graded, shall be cut near ground level, not removed by the roots. Brush shall be cut and removed so that trees in the TPZ are not harmed. Unprocessed brush shall not be disposed of in the TPZ. Chipped brush may be stored for use as mulch for oak tree replacement plantings.
- Trees in the area of grading shall be felled in a direction away from the TPZ.

Option A Oak Canopy Mitigation:

Approach:

The Tree Preservation Plan (Attachment A) proposes 18 replacement native oaks comprising 0.58 acre of canopy at maturity. The proposed replacement oaks are interior live oaks (*Quercus wislizeni*), blue oaks (*Q. douglasii*), and valley oaks (*Q. lobata*), the same native oak species that currently occur at the site (Sierra Nevada Arborists 2006). The replacement oaks are also included in the Project landscaping plan.

The project proposes planting replacement trees in fewer number, but of much larger initial size, than proposed by the Guidelines. This approach is proposed since many of the trees will be near and in view of the proposed development as well as some other developed areas nearby and public roads. The goal is to have fewer oak trees reach a large size faster than the standard specifications of the Guidelines. The Guidelines recommend planting 200 one-gallon trees or 600 acorns per acre. The existing tree density at the site is about 61 trees per acre, for all trees over 5 inches diameter at breast height. The project proposes 18 24-inch box trees planted for 0.58 acre of replacement canopy, or about 31 trees per acre. 24-inch box plantings are much larger than one-gallons. A one-gallon sapling is typically no more than a two-foot tall sapling with a small stem. A 24-inch box planting typically already has a 1.6 inch diameter trunk six inches from the ground (ISA 2004). The proposed replacement plantings are well-spaced and will be irrigated on a schedule suitable for native oaks, to promote faster growth.

Section 7(a) On-site Replacement Tree Planting:

The following items are necessary to comply with Section 7(a) of the County Guidelines:

- An oak canopy replacement area of at least 0.58 acre. The map in Attachment A demonstrates a sufficient oak canopy replacement area. The final location of the oak canopy replacement area may be revised based on County review and conditions.
- A total of 18 24-inch box plantings of native oaks. Any oaks that die during the monitoring period will be replaced with a 24-inch box or larger tree.
- An agreement to the satisfaction of County Counsel and the Development Services Director shall be required to ensure the long term maintenance and preservation of replacement trees.
- Maintenance and monitoring shall be required for a minimum of 10 years after planting. If the number of living replacement oaks falls below 18, additional replacement oaks will be planted.

Tree Planting Recommendations:

The following items are recommended methods for successful compliance with the requirements of Section 7(a):

- The contractor should be qualified and experienced with planting and maintenance of native oaks.
- Summer irrigation of oak seedlings can substantially increase survival and growth rates of young oaks (Costello et al. 1996). Young oaks should be irrigated deeply and relatively infrequently, such as every two or more weeks, during the summer and autumn only. The soil should be allowed to dry between irrigation events. Water should not be applied against the trunk. Two years of irrigation may be sufficient for establishment, and can be assessed during the monitoring.
- Plantings should be monitored in early autumn the first two years after planting. After the first two years less frequent monitoring may be sufficient based on the results and recommendations. Each monitoring event should collect data on survival, height, dbh, and condition. Recommendations may be made to increase the chances of meeting the success criteria (see below). The site should be monitored in the tenth year after planting.
- Monitoring reports should determine whether any invasive weeds are threatening the eventual achievement of the success criteria. Some fast-growing invasive weeds may outcompete young oaks, and many invasive shrubs also increase fire danger. Cal-IPC (2006) maintains a list of invasive wildland weeds, including notes on ecology and control measures.
- As the trees mature and grow tall, they should be maintained consistent with State and local fire safety rules and recommendations. Defensible space extends out 100 feet from structures pursuant to CA Public Resources Code §4291.
- If understory vegetation is planted near the oaks, plants that are compatible with oaks should be used. Hagen *et al.* (1991) could be consulted for a list of oak compatible plants. The El Dorado Fire Safe Council notes the relative fire resistance of many native trees, shrubs, and herbs on their website (http://www.edcfiresafe.org).
- The results of monitoring events should be reported to the County. If the success criteria are met in the tenth year no further documentation will be provided to the County. If the success criteria are not met in the tenth year annual monitoring reports will be provided to the County until the success criteria are met.

Success Criteria

The oak canopy replacement will be considered successful if after a minimum of ten years:

- There are at least 18 surviving native oaks, and
- The canopy replacement area occupies at least 0.58 acre.

Option B Oak Canopy Mitigation:

The County does not have a currently adopted fee program for Option B of General Plan Policy 7.4.4.4. We recommend that you evaluate Option B should it become available prior to County approval of your project. We recommend that the County develop a mitigation measure that allows the flexibility to mitigate under Option A as discussed above or under Option B at a future time. The County is currently in the process of updating the General Plan policies that pertain to oak trees and woodlands.

We appreciate the opportunity of assisting you with this project. If you have any questions please contact me.

Cordially,

Chuck Hughes, M.S.
Botanist/Biologist
(ISA Certified Arborist WE-6885A)

Attachment A. Tree Preservation Plan (CTA Engineering & Surveying, April 2016)
Attachment B. Site Assessment Form

Literature Cited

California Invasive Plant Council (Cal-IPC). 2006. Invasive plant inventory. California Invasive Plant Council, Berkeley, CA. <www.cal-ipc.org>

Costello, L. R., R. H. Schmidt, and G. A. Giusti. 1991. Evaluating tree protection devices: Effects on growth and survival-first-year results. Presented at the Symposium on oak woodlands and hardwood rangeland management; 31 October-2 November 1990; Davis, CA. Gen. Tech. Rep. PSW-126:31-35, U.S. Department of Forest Service.

El Dorado County. Amended 10 May 2007. Interim interpretive guidelines for El Dorado County general plan policy 7.4.4.4 (option A). El Dorado County, CA.

Hagen, B. W., B. D. Coate, and K. Oldham. 1991. Compatible plants under and around oaks. California Oak Foundation, Sacramento, CA.

International Society of Arboriculture (ISA), Western Chapter. 2004. Species classification and group assignment: A region supplement to the CTLA Guide for Plant Appraisal, 9th Ed.

Matheny, N. and J. R. Clark. 1998. Trees and development: A technical guide to preservation of trees during land development. International Society of Arboriculture, Champaign, IL.

Sierra Nevada Arborists. 1 May 2006. Initial arborist report and inventory summary: southwest corner of Green Valley/Francisco Roads – County of El Dorado. Prepared for Winn Communities.

Attachment A.

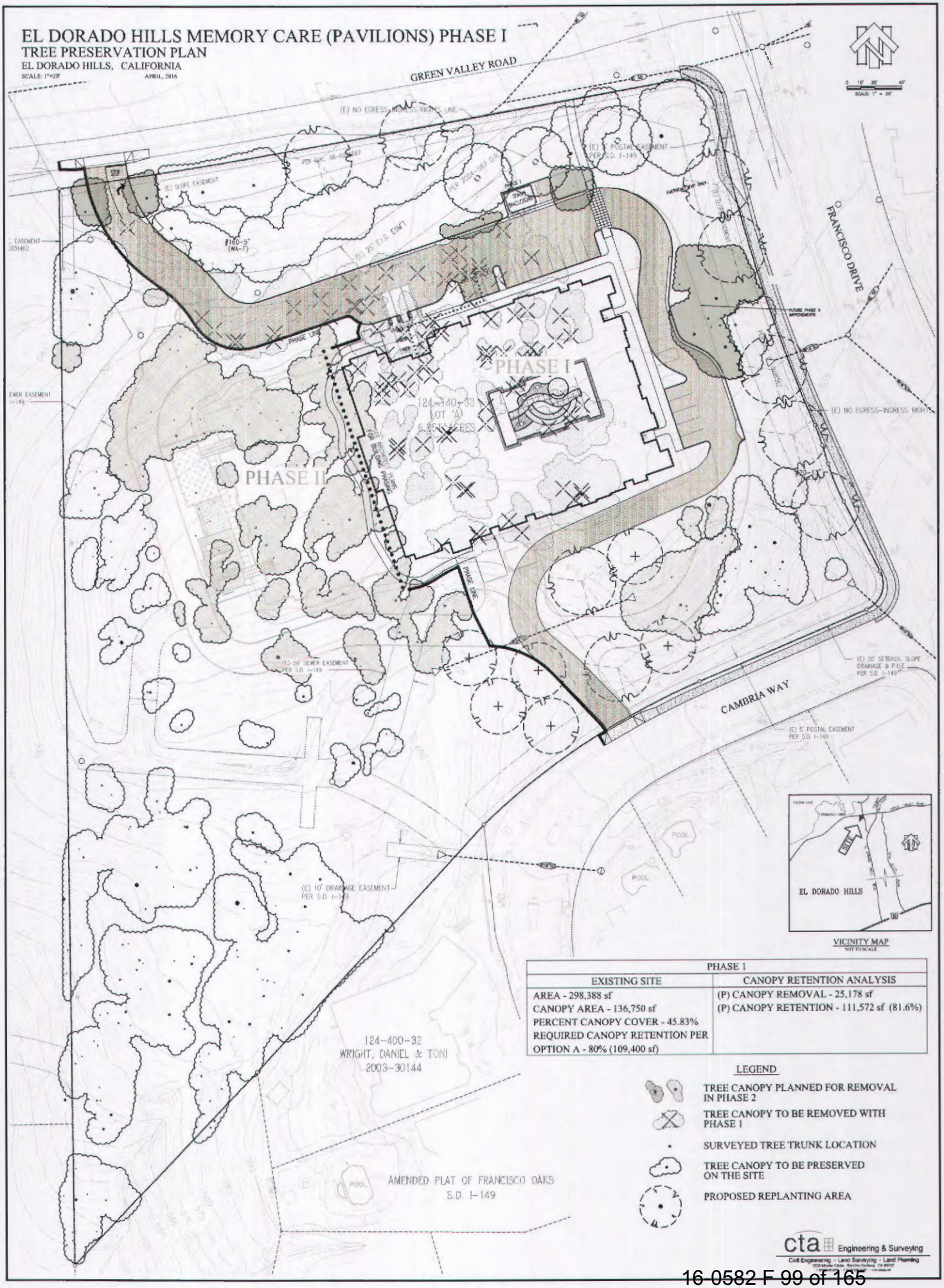
Tree Preservation Plan

EL DORADO HILLS MEMORY CARE (PAVILIONS) PHASE I

TREE PRESERVATION PLAN

EL DORADO HILLS, CALIFORNIA

SCALE: 1"=20' APRIL, 2016



VICINITY MAP
NOT TO SCALE

PHASE 1	
EXISTING SITE	CANOPY RETENTION ANALYSIS
AREA - 298,388 sf CANOPY AREA - 136,750 sf PERCENT CANOPY COVER - 45.83% REQUIRED CANOPY RETENTION PER OPTION A - 80% (109,400 sf)	(P) CANOPY REMOVAL - 25,178 sf (P) CANOPY RETENTION - 111,572 sf (81.6%)

LEGEND

- TREE CANOPY PLANNED FOR REMOVAL IN PHASE 2
- TREE CANOPY TO BE REMOVED WITH PHASE 1
- SURVEYED TREE TRUNK LOCATION
- TREE CANOPY TO BE PRESERVED ON THE SITE
- PROPOSED REPLANTING AREA

cta Engineering & Surveying
Civil Engineering · Land Surveying · Land Planning

Attachment B.

Site Assessment Form

El Dorado County

OAK/CANOPY SITE ASSESSMENT FORM

Qualified Professional & Contact Information: *(attach qualifications)*	Chuck Hughes. Office: 916-427-0703
Property Owner's Name/APN(s):	Sierra Capital & Investments. APN 124-140-33
Address:	NA
General Plan Designation:	C
Zoning:	C
Project Description: *(attach site photos)*	See attached letter.

Would the project, directly or indirectly, have the potential to cause any impact, conflict with, or disturbance to:	**YES**	**NO**
a) Individual landmark or heritage trees (of any species) subject to review under General Plan Policy 7.4.5.2?		X
c) Oak woodland corridor continuity (General Plan Policy 7.4.4.5)?		X
d) Sensitive or important oak woodland habitat as defined in the Guidelines?		X
e) Movement of Wildlife and/or Any Wildlife Migration Corridor?		X
f) Any Candidate, Listed or Special Status Plant or Animal Species observed or expected to occur on or adjacent to the project site?		X
g) Is the affected area of oak canopy within or directly adjacent to an Important Biological Corridor or Ecological Preserve overlay?		X
h) Does the removal of oak canopy comply with the retention requirements of Policy 7.4.4.4?	X	
i) Was project subject to prior County approval? (If yes, provide Tentative Map # and environmental documents if available)		X
j) For Discretionary Projects, would the project have the potential to cause a significant environmental impact on biological resources?		X

I affirm that all of the information contained in this document is true and correct to the best of my knowledge and I acknowledge and agree that any material misinformation in this document can result in the denial or revocation of any permits or County approvals for this project.

Qualified Professional: _____ **Date:** 19-Apr-16

Applicant/Owner: _____ **Date:** _____

Required Attachments: 1) Qualified Professional Qualifications; 2) Site Photos; 3) Required Tree Survey, Preservation, and Replacement Plan *or* Biological Resources Study and Important Habitat Mitigation Program (see Interim Interpretive Guidelines for El Dorado County Policy 7.4.4.4 Option A)

EL DORADO HILLS MEMORY CARE
(THE PAVILIONS)

DRAINAGE REPORT

Prepared: April 2016

cta Engineering & Surveying

Civil Engineering ▪ Land Surveying ▪ Land Planning

ATTACHMENT 4

The following Drainage Report was prepared in support of Improvement Plans for the overall El Dorado Hills Memory Care project, which preceded planning approval. Portions of this Drainage Report are applicable to the Preliminary Grading and Drainage Plan for El Dorado Hills Memory Care Phase I.

PREAMBLE

This report was prepared by CTA Engineering & Surveying for the El Dorado Hills Memory Care site, located in El Dorado County, California. The information presented in this report is intended to support on-site infrastructure improvements for El Dorado Hills Memory Care and to comply with the 2004 Storm Water Management Plan to the maximum extent practical; any other use of this report and its associated technical analyses and models, is at the user's sole risk.

TABLE OF CONTENTS

SUMMARY

The drainage report accompanies improvement plans for El Dorado Hills Memory Care. This document provides hydrologic and hydraulic computations, in adherence with guidelines and procedures of the *County of El Dorado Drainage Manual,* adopted March 14, 1995, that validate storm drainage design shown on the plans.

1.0 - INTRODUCTION

El Dorado Hills Memory Care is located on approximately 6.9 acres, on the southwest corner of the intersection of Green Valley Road with Francisco Drive, in the community of El Dorado Hills. It is bounded on the south by the Francisco Oaks residential subdivision and on the west by undeveloped land. Project access will be from Cambria Way on the south and Green Valley Road on the north.

2.0 - EXISTING CONDITIONS

The project site currently consists of oak woodland interspersed with grassy areas. The site slopes generally from east to west and is crossed by a natural drainage channel that flows roughly parallel to Green Valley Road. Runoff from developed areas to the north and east flow onsite via existing storm drain pipes that cross Green Valley Road and Francisco Drive.

3.0 - PROPOSED CONDITIONS

Proposed site grading maintains natural drainage patterns. In-tract improvements are sized to intercept local runoff and convey it across the project to existing discharge points along the western property line, intercepting flows generated offsite as necessary. Proposed drainage facilities are shown on the accompanying Shed Map.

4.0 - RUNOFF COMPUTATIONS

Runoff computations utilize the rational formula, Q=CiA, for computing runoff associated with 10- and 100-year rainfall events. In the equation, Q is flow in cfs, C is a non-dimensional runoff coefficient ≤ one; i is rainfall intensity in inches per hour associated with the design storm under consideration and the time of runoff concentration of the watershed, and; A is the catchment area, in acres. Precipitation data used for the study are based on a mean annual precipitation of 25 inches. See Appendix A.

4.1 - PROCEDURES

4.1.1 - SHED AREAS – Shed areas shown on the enclosed Shed Map were measured using AutoCAD. The boundaries of offsite shed areas were estimated from USGS topography and Google Earth aerial imagery.

4.1.2 - PRECIPITATION – See Appendix A for precipitation data used in this drainage report. Rainfall intensities for durations of 5 through 30 minutes and a mean annual precipitation of 25 inches are as follows:

DESIGN RAINFALL INTENSITIES

DURATION (MIN)	10 YEAR STORM INTENSITY (IN/HR)	100 YEAR STORM INTENSITY (IN/HR
5	2.33	3.29
10	1.66	2.35
15	1.36	1.94
30	0.98	1.38

4.1.3 - TIME OF CONCENTRATION – A 5-minute minimum time of concentration was used for on-site catchment areas. Flow time for offsite runoff to reach the site was estimated to be 10 minutes, based on common storm drainage design practice.

4.1.4 - RUNOFF COEFFICIENTS – A runoff coefficient, C, of one was used in peak flow computations. This is a conservative assumption with respect to drainage design, representing a condition in which all rainfall runoff enters the storm drain system, i.e. there are no losses due to interception, evaporation, transpiration, etc.

4.1.5 - PEAK RUNOFF – 10- and 100-year peak runoff was computed using the rational formula Q=CiA, utilizing the StormCAD computer program.

4.1.6 - PIPE FLOWS – Version 8i of the StormCAD program was used to evaluate flow in proposed storm drain pipes. Results are summarized in Appendix B.

4.1.7 - DITCH FLOWS – Flow at normal depth in proposed rock-lined ditch sections was evaluated by means of the Flowmaster computer program. Results are summarized in Appendix C.

4.1.8 - CULVERT FLOWS – Adequacy of the existing on-site culvert to pass anticipated 100-year design flow was evaluated by means of a standard culvert design chart. The proposed inverted box culvert was sized to span designated wetland area. Culvert capacity was evaluated using Flowmaster, based on uniform flow in the approach channel resulting from a 100-year event. Channel flow was estimated using the HEC-HMS hydrograph computation method. Results are summarized in Appendix D.

5.0 - RESULTS AND CONCLUSIONS

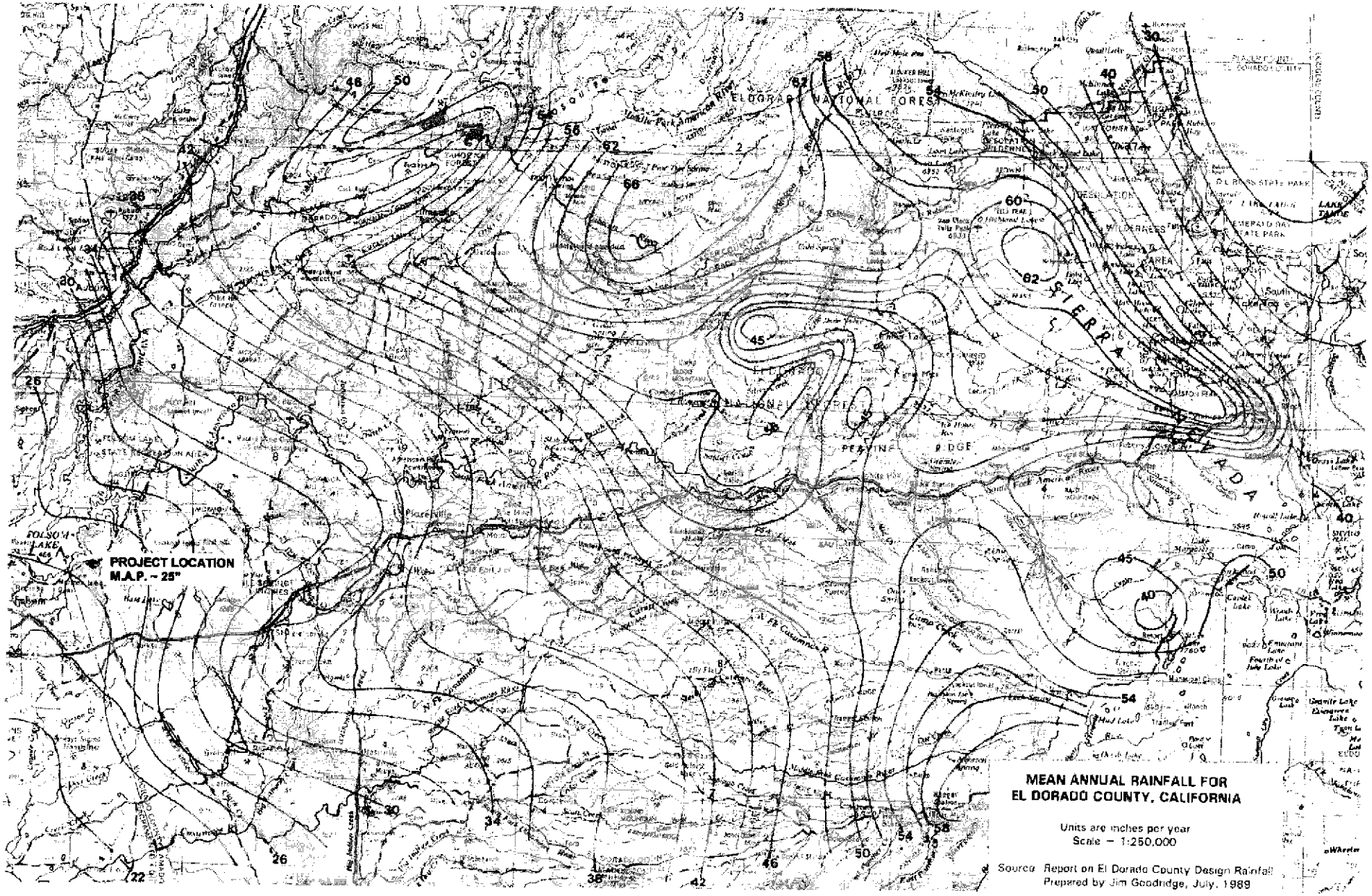
- StormCAD summary data, including flow profiles of proposed piping, are included in Appendix B. The analyses verify that storm drain improvements as shown are adequately sized to convey computed runoff and meet County design standards. The drain pipes are designed to keep the HGL_{10} below the ceiling of the pipes and the EGL_{10} at least 0.5 feet below all manhole lids and grate inlets.

- Computations summarized in Appendix C verify that the proposed rock-lined triangular ditch section is capable of conveying anticipated 100-year runoff at non-erosive velocities. Depths of flow in the one-foot deep section range from 0.35' – 0.68'. Since there are no structures below the ditch sections, additional freeboard is not warranted.

- Culvert data are summarized in Appendix D. The existing culvert has been shown to have adequate capacity to pass Q100, based on a standard culvert design nomograph. Uniform flow computations verify that the proposed inverted box culvert can safely pass estimated Q100.

APPENDIX A

Precipitation Data



El Dorado Design Rainfall

Rainfall Depth in Inches for Return Period = 10 years

Mean Annual Precipitation	5 Min	10 Min	15 Min	30 Min	1 Hr	2 Hrs	3 Hrs	6 Hrs	12 Hrs	24 Hrs
20	0.167	0.239	0.295	0.422	0.603	0.863	1.065	1.524	2.180	3.120
22	0.177	0.254	0.313	0.448	0.640	0.916	1.130	1.617	2.314	3.311
24	0.188	0.269	0.332	0.475	0.679	0.972	1.198	1.715	2.454	3.511
26	0.199	0.284	0.350	0.502	0.718	1.027	1.267	1.812	2.594	3.711
28	0.209	0.300	0.369	0.529	0.756	1.082	1.335	1.910	2.733	3.911
30	0.220	0.315	0.388	0.556	0.795	1.138	1.403	2.008	2.873	4.111
32	0.231	0.330	0.407	0.583	0.834	1.193	1.471	2.105	3.013	4.311
34	0.241	0.345	0.426	0.610	0.872	1.248	1.540	2.203	3.153	4.511
36	0.252	0.361	0.445	0.637	0.911	1.304	1.608	2.301	3.292	4.711
38	0.263	0.376	0.464	0.664	0.950	1.359	1.676	2.398	3.432	4.911
40	0.274	0.391	0.483	0.691	0.988	1.414	1.744	2.496	3.572	5.111
42	0.284	0.407	0.502	0.718	1.027	1.470	1.813	2.594	3.712	5.311
44	0.295	0.422	0.520	0.745	1.066	1.525	1.881	2.691	3.851	5.511
46	0.306	0.437	0.539	0.772	1.104	1.580	1.949	2.789	3.991	5.711
48	0.316	0.453	0.558	0.799	1.143	1.636	2.017	2.887	4.131	5.911
50	0.327	0.468	0.577	0.826	1.182	1.691	2.086	2.984	4.271	6.111
52	0.338	0.483	0.596	0.853	1.221	1.747	2.154	3.082	4.410	6.311
54	0.348	0.499	0.615	0.880	1.259	1.802	2.222	3.180	4.550	6.511
56	0.359	0.514	0.634	0.907	1.298	1.857	2.290	3.277	4.690	6.711
58	0.370	0.529	0.653	0.934	1.337	1.913	2.359	3.375	4.830	6.911
60	0.381	0.545	0.672	0.961	1.375	1.968	2.427	3.473	4.969	7.111
62	0.391	0.560	0.690	0.988	1.414	2.023	2.495	3.570	5.109	7.311
64	0.402	0.575	0.709	1.015	1.453	2.079	2.563	3.668	5.249	7.511
66	0.413	0.591	0.728	1.042	1.491	2.134	2.632	3.766	5.389	7.711
68	0.423	0.606	0.747	1.069	1.530	2.189	2.700	3.863	5.528	7.911
70	0.434	0.621	0.766	1.096	1.569	2.245	2.768	3.961	5.668	8.111
72	0.445	0.636	0.785	1.123	1.607	2.300	2.836	4.059	5.808	8.311
74	0.455	0.652	0.804	1.150	1.646	2.355	2.905	4.156	5.948	8.511
76	0.466	0.667	0.823	1.177	1.685	2.411	2.973	4.254	6.087	8.711
78	0.477	0.682	0.842	1.204	1.723	2.466	3.041	4.352	6.227	8.911
80	0.488	0.698	0.860	1.231	1.762	2.521	3.109	4.449	6.367	9.111
82	0.498	0.713	0.879	1.258	1.801	2.577	3.178	4.547	6.507	9.311
84	0.509	0.728	0.898	1.285	1.839	2.632	3.246	4.645	6.646	9.511
86	0.520	0.744	0.917	1.312	1.878	2.687	3.314	4.742	6.786	9.711
88	0.530	0.759	0.936	1.339	1.917	2.743	3.382	4.840	6.926	9.911
90	0.541	0.774	0.955	1.366	1.955	2.798	3.451	4.938	7.066	10.111

Source: Design Rainfall Tables for El Dorado County, prepared by Jim Goodridge, July 29, 1989

El Dorado Design Rainfall

Rainfall Depth in Inches for Return Period = 100 years

Mean Annual Precipitation	5 Min	10 Min	15 Min	30 Min	1 Hr	2 Hrs	3 Hrs	6 Hrs	12 Hrs	24 Hrs
20	0.237	0.339	0.418	0.598	0.855	1.224	1.509	2.160	3.091	4.423
22	0.251	0.359	0.443	0.634	0.908	1.299	1.602	2.292	3.280	4.694
24	0.266	0.381	0.470	0.673	0.963	1.377	1.699	2.431	3.478	4.977
26	0.282	0.403	0.497	0.711	1.017	1.456	1.795	2.569	3.676	5.261
28	0.297	0.425	0.524	0.749	1.072	1.534	1.892	2.708	3.874	5.544
30	0.312	0.446	0.550	0.788	1.127	1.613	1.989	2.846	4.073	5.828
32	0.327	0.468	0.577	0.826	1.182	1.691	2.086	2.984	4.271	6.111
34	0.342	0.490	0.604	0.864	1.237	1.770	2.182	3.123	4.469	6.395
36	0.357	0.511	0.631	0.903	1.291	1.848	2.279	3.261	4.667	6.678
38	0.373	0.533	0.657	0.941	1.346	1.927	2.376	3.400	4.865	6.962
40	0.388	0.555	0.684	0.979	1.401	2.005	2.473	3.538	5.063	7.245
42	0.403	0.577	0.711	1.017	1.456	2.083	2.569	3.677	5.261	7.529
44	0.418	0.598	0.738	1.056	1.511	2.162	2.666	3.815	5.459	7.812
46	0.433	0.620	0.765	1.094	1.566	2.240	2.763	3.954	5.657	8.096
48	0.448	0.642	0.791	1.132	1.620	2.319	2.860	4.092	5.856	8.379
50	0.464	0.663	0.818	1.171	1.675	2.397	2.956	4.230	6.054	8.663
52	0.479	0.685	0.845	1.209	1.730	2.476	3.053	4.369	6.252	8.946
54	0.494	0.707	0.872	1.247	1.785	2.554	3.150	4.507	6.450	9.230
56	0.509	0.729	0.898	1.286	1.840	2.633	3.247	4.646	6.648	9.513
58	0.524	0.750	0.925	1.324	1.895	2.711	3.343	4.784	6.846	9.797
60	0.539	0.772	0.952	1.362	1.949	2.790	3.440	4.923	7.044	10.080
62	0.555	0.794	0.979	1.401	2.004	2.868	3.537	5.061	7.242	10.364
64	0.570	0.815	1.006	1.439	2.059	2.946	3.634	5.200	7.440	10.647
66	0.585	0.837	1.032	1.477	2.114	3.025	3.730	5.338	7.639	10.931
68	0.600	0.859	1.059	1.516	2.169	3.103	3.827	5.476	7.837	11.214
70	0.615	0.881	1.086	1.544	2.223	3.182	3.924	5.615	8.035	11.498
72	0.630	0.902	1.113	1.592	2.278	3.260	4.021	5.753	8.233	11.781
74	0.646	0.924	1.139	1.630	2.333	3.339	4.117	5.892	8.431	12.064
76	0.661	0.946	1.166	1.669	2.388	3.417	4.214	6.030	8.629	12.348
78	0.676	0.967	1.193	1.707	2.443	3.496	4.311	6.169	8.827	12.631
80	0.691	0.989	1.220	1.745	2.498	3.574	4.408	6.307	9.025	12.915
82	0.706	1.011	1.246	1.784	2.552	3.652	4.504	6.446	9.223	13.198
84	0.722	1.032	1.273	1.822	2.607	3.731	4.601	6.584	9.421	13.482
86	0.737	1.054	1.300	1.860	2.662	3.809	4.698	6.722	9.620	13.765
88	0.752	1.076	1.327	1.899	2.717	3.888	4.795	6.861	9.818	14.049
90	0.767	1.098	1.354	1.937	2.772	3.966	4.891	6.999	10.016	14.332

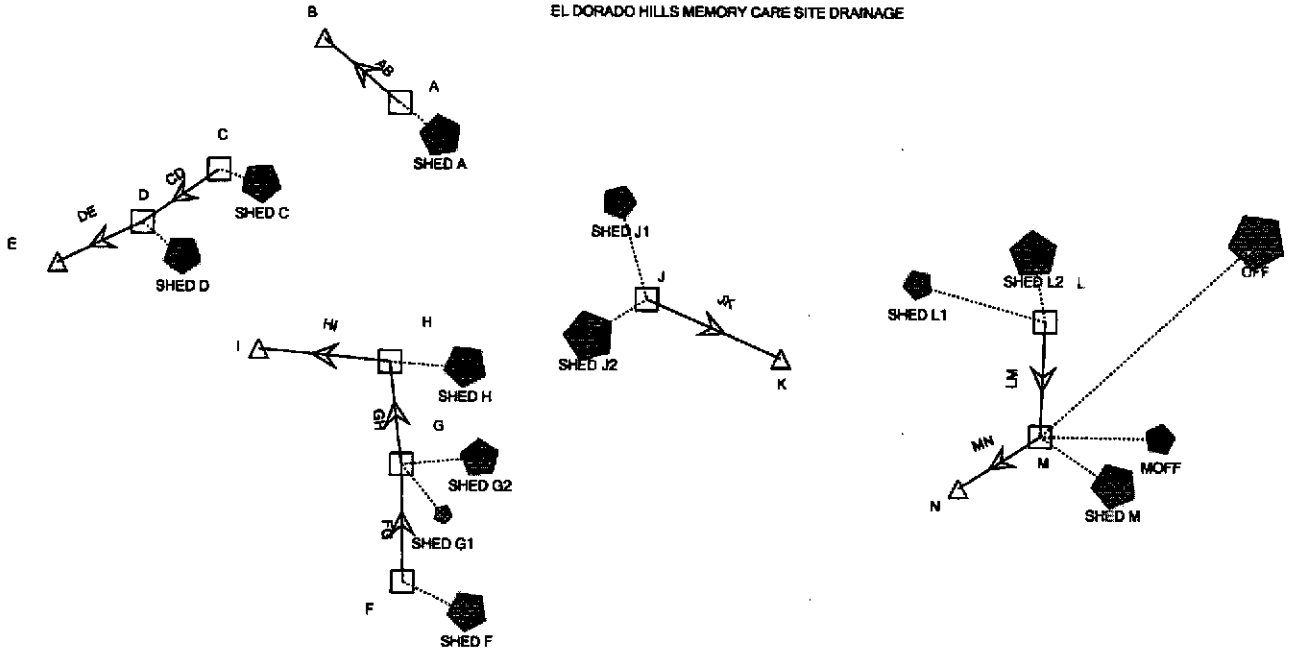
Source: Design Rainfall Tables for El Dorado County, prepared by Jim Goodridge, July 29, 1989

EL DORADO DESIGN RAINFALL			
(Source: Design Rainfall Tables for El Dorado County, prepared by Jim Goodridge, July 29, 1989)			
MAP (IN)	***DURATION (MIN)***	***DEPTH (IN)***	***INTENSITY [1/] (IN/HR)***
10-YEAR RETURN PERIOD			
25	5	0.194	2.33
"	10	0.276	1.66
"	15	0.341	1.36
"	30	0.488	0.98
100-YEAR RETURN PERIOD			
25	5	0.274	3.29
"	10	0.392	2.35
"	15	0.484	1.94
"	30	0.692	1.38
[1/] Intensity = 60 x Depth/Duration			

APPENDIX B

StormCAD Computations

Scenario: 10 YR
Active Scenario: 10 YR



FlexTable: Catchment Table

Active Scenario: 10 YR

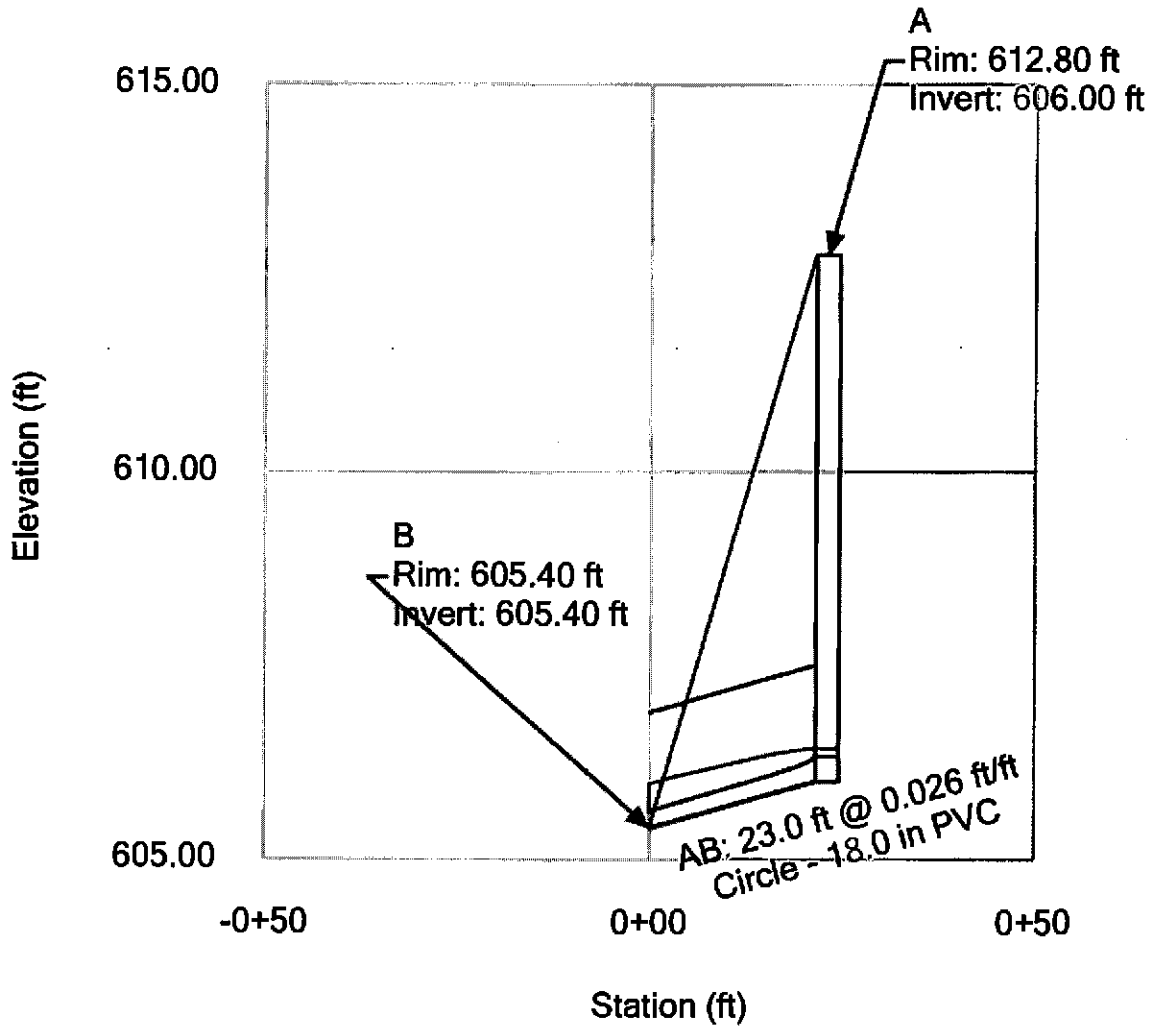
ID	Label	Outflow Element	Area (User Defined) (acres)	Rational C	Time of Concentration (min)	Flow (Total Out) (ft^3/s)	Notes	Catchment Intensity (in/h)
54	SHED A	A	0.310	1.000	5.000	0.73	Q=CIA (TYP)	2.330
112	SHED F	F	0.270	1.000	5.000	0.63		2.330
113	SHED G2	G	0.160	1.000	5.000	0.38		2.330
114	SHED H	H	0.260	1.000	5.000	0.61		2.330
115	SHED J1	J	0.200	1.000	5.000	0.47		2.330
116	OFF	L	5.800	1.000	10.000	9.71	EST OFFSITE AREA	1.660
117	SHED L1	L	0.160	1.000	5.000	0.27		1.660
118	SHED M	M	0.860	1.000	5.000	2.02		2.330
119	SHED C	C	0.180	1.000	5.000	0.42		2.330
120	SHED D	D	0.160	1.000	5.000	0.38		2.330
121	SHED L2	L	0.670	1.000	5.000	1.12		1.660
122	SHED J2	J	0.190	1.000	5.000	0.45		2.330
123	SHED G1	G	0.030	1.000	5.000	0.07		2.330
130	MOFF	M	0.600	1.000	5.000	1.41	FRANCISCO DR	2.330

FlexTable: Conduit Table

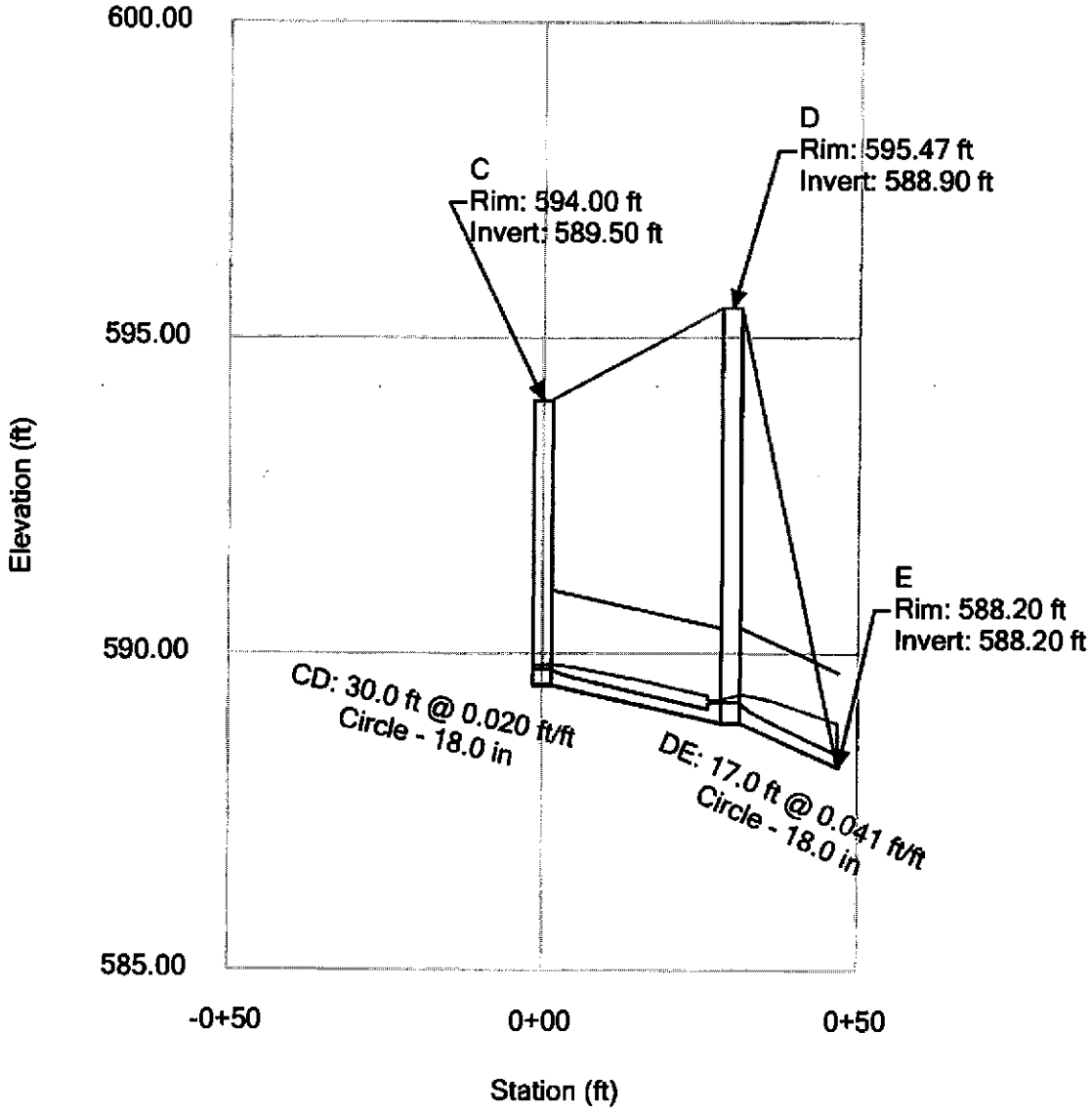
Active Scenario: 10 YR

ID	Label	Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Length (User Defined) (ft)	Slope (Calculated) (ft/ft)	Diameter (in)	Manning's n	Flow (ft^3/s)	Velocity (ft/s)	Capacity (Full Flow) (ft^3/s)	Upstream Structure Energy Grade Line (In) (ft)	Upstream Structure Hydraulic Grade Line (In) (ft)	System Flow Time (min)	System Drainage Area (acres)	System Intensity (in/h)	Notes
38	AB	A	606.00	B	605.40	23.0	0.026	18.0	0.013	0.73	4.78	16.97	606.43	606.32	5.000	0.3	2.330	Q=CIA (TYP)
94	LM	L	609.10	M	608.78	65.0	0.005	24.0	0.013	11.09	5.46	15.87	610.80	610.34	10.000	6.6	1.660	
96	MN	M	608.78	N	608.50	54.0	0.005	24.0	0.013	13.44	5.79	16.29	610.52	610.16	10.198	8.1	1.648	
99	JK	J	610.10	K	609.62	9.0	0.053	18.0	0.013	0.92	6.58	24.26	610.58	610.46	5.000	0.4	2.330	
102	CD	C	589.50	D	588.90	30.0	0.020	18.0	0.013	0.42	3.70	14.85	589.82	589.74	5.000	0.2	2.330	
104	DE	D	588.90	E	588.20	17.0	0.041	18.0	0.013	0.79	5.76	21.31	589.26	589.23	5.135	0.3	2.312	
107	FG	F	603.65	G	603.18	23.0	0.020	18.0	0.013	0.63	4.22	15.02	604.05	603.95	5.000	0.3	2.330	
109	GH	G	602.70	H	601.25	27.0	0.054	18.0	0.013	1.07	6.92	24.34	603.36	603.09	5.091	0.5	2.318	
111	HI	H	601.25	I	600.00	23.0	0.054	18.0	0.013	1.68	7.93	24.49	601.81	601.74	5.156	0.7	2.309	

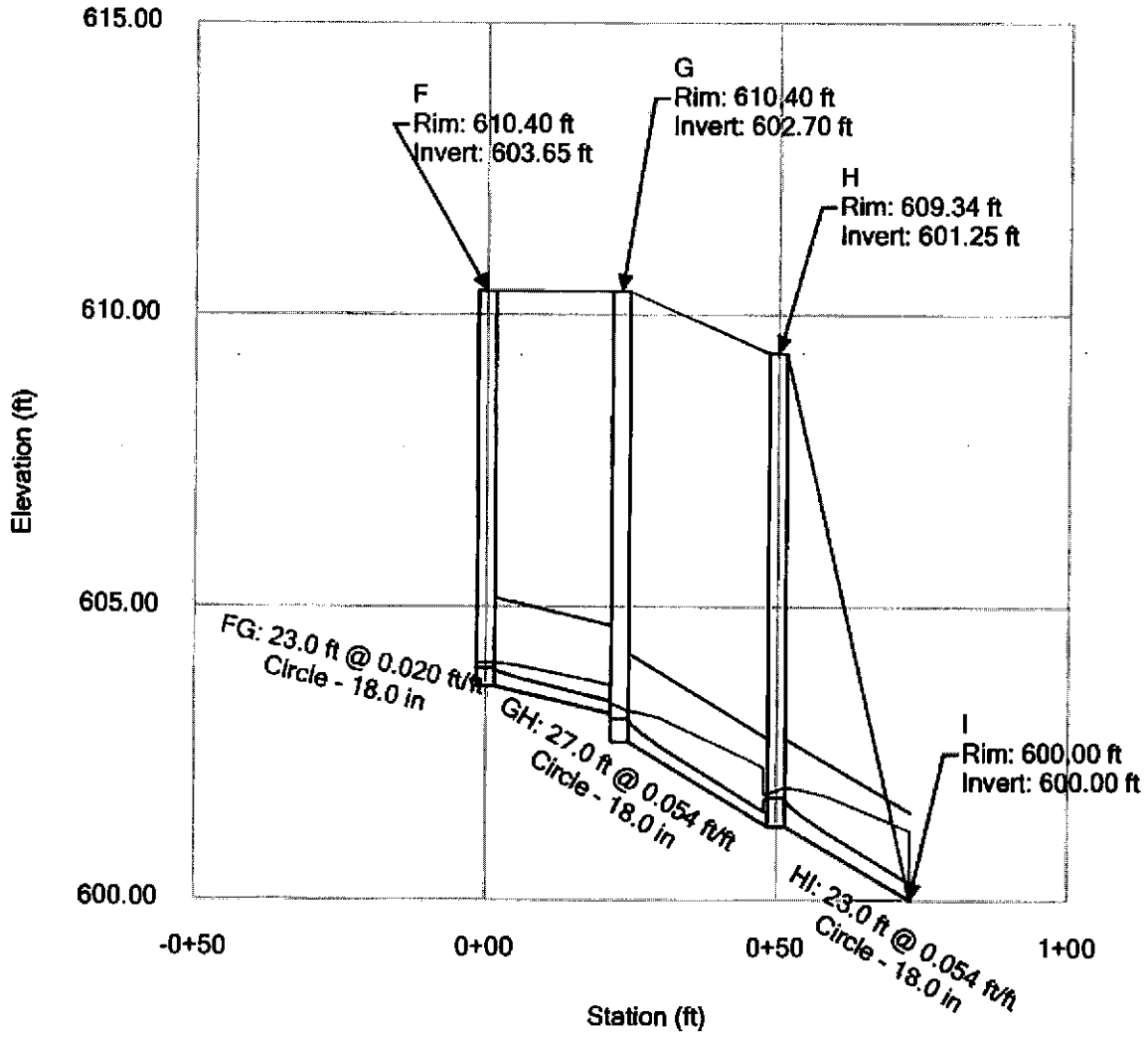
Profile Report
Engineering Profile - A-B (052015 STORM DRAINS.stsw)
Active Scenario: 10 YR



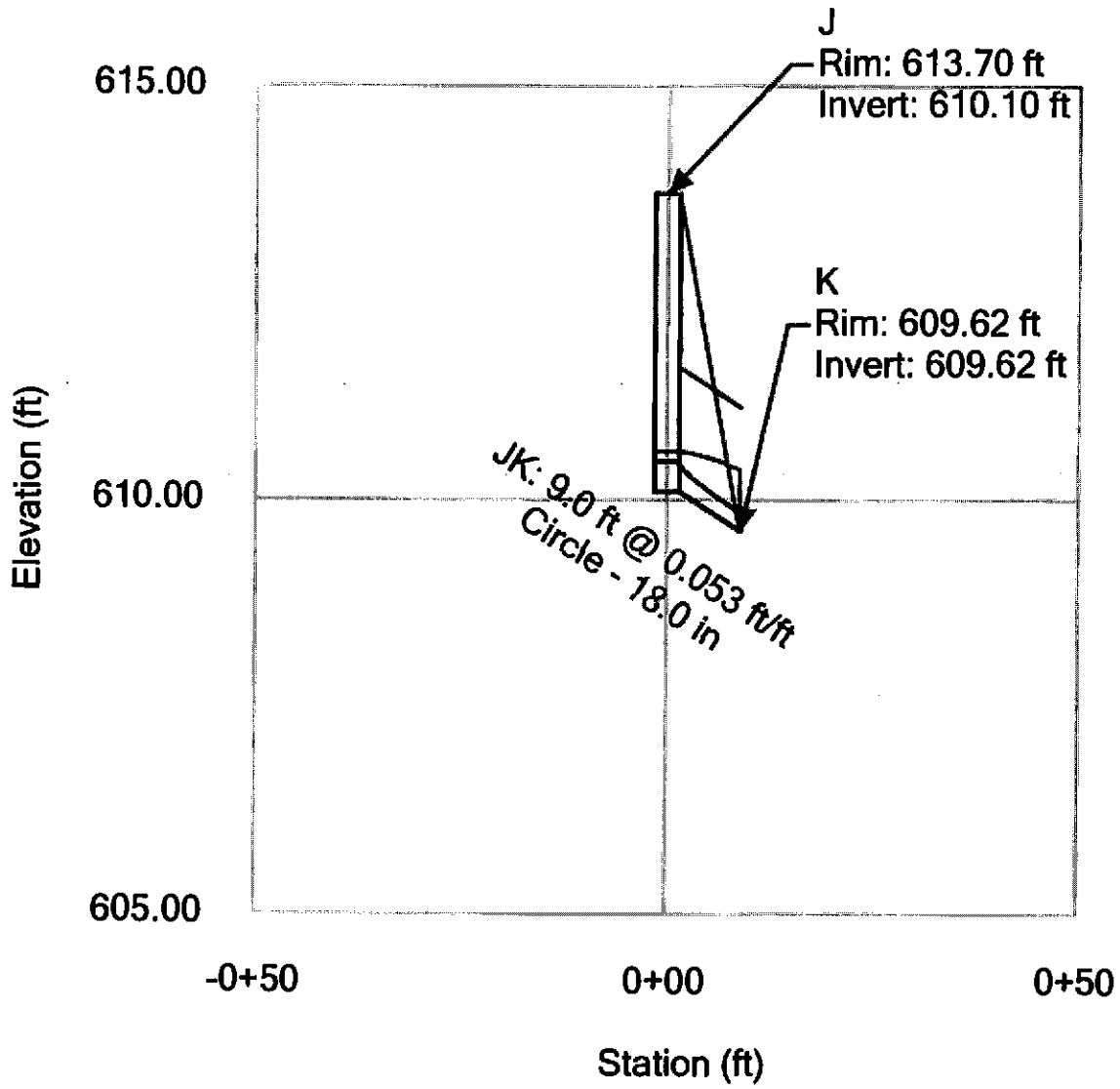
Profile Report
Engineering Profile - C-D-E (052015 STORM DRAINS.stsw)
Active Scenario: 10 YR



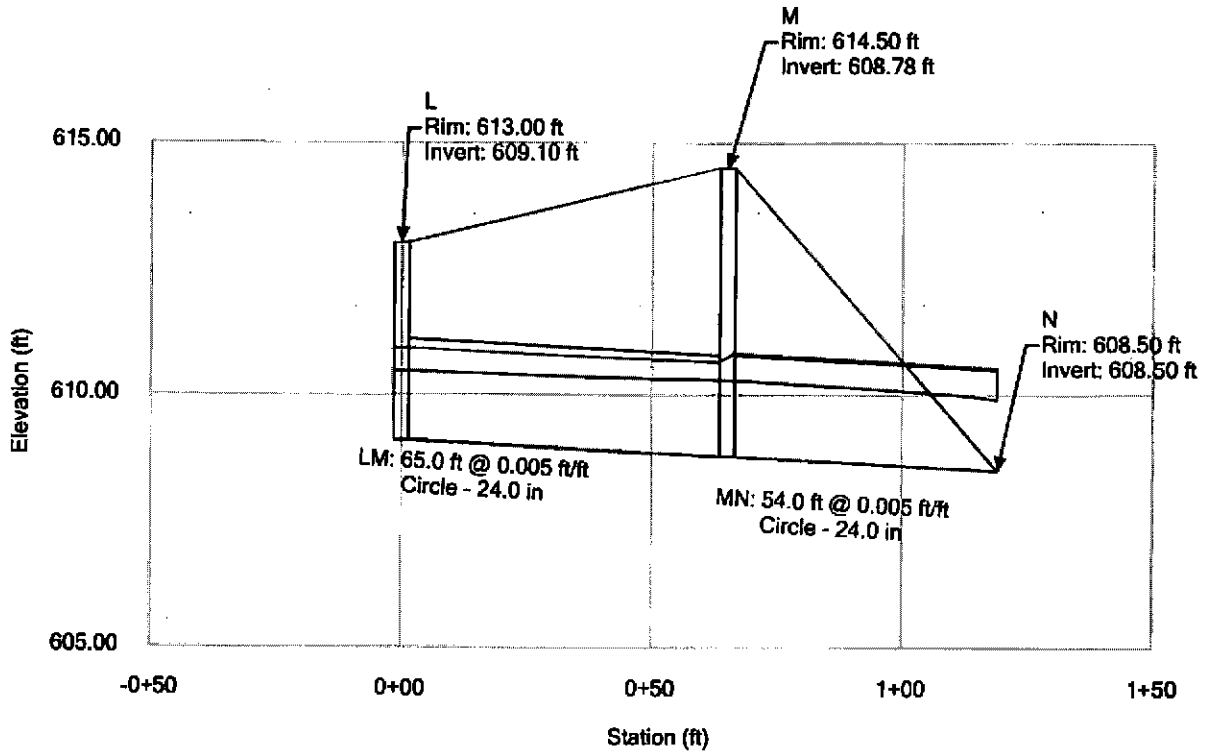
Profile Report
Engineering Profile - F-G-H-I (052015 STORM DRAINS.stsw)
Active Scenario: 10 YR



Profile Report
Engineering Profile - J-K (052015 STORM DRAINS.stsw)
Active Scenario: 10 YR



Profile Report
Engineering Profile - L-M-N (052015 STORM DRAINS.stsw)
Active Scenario: 10 YR



FlexTable: Catchment Table

Active Scenario: 100 YEAR

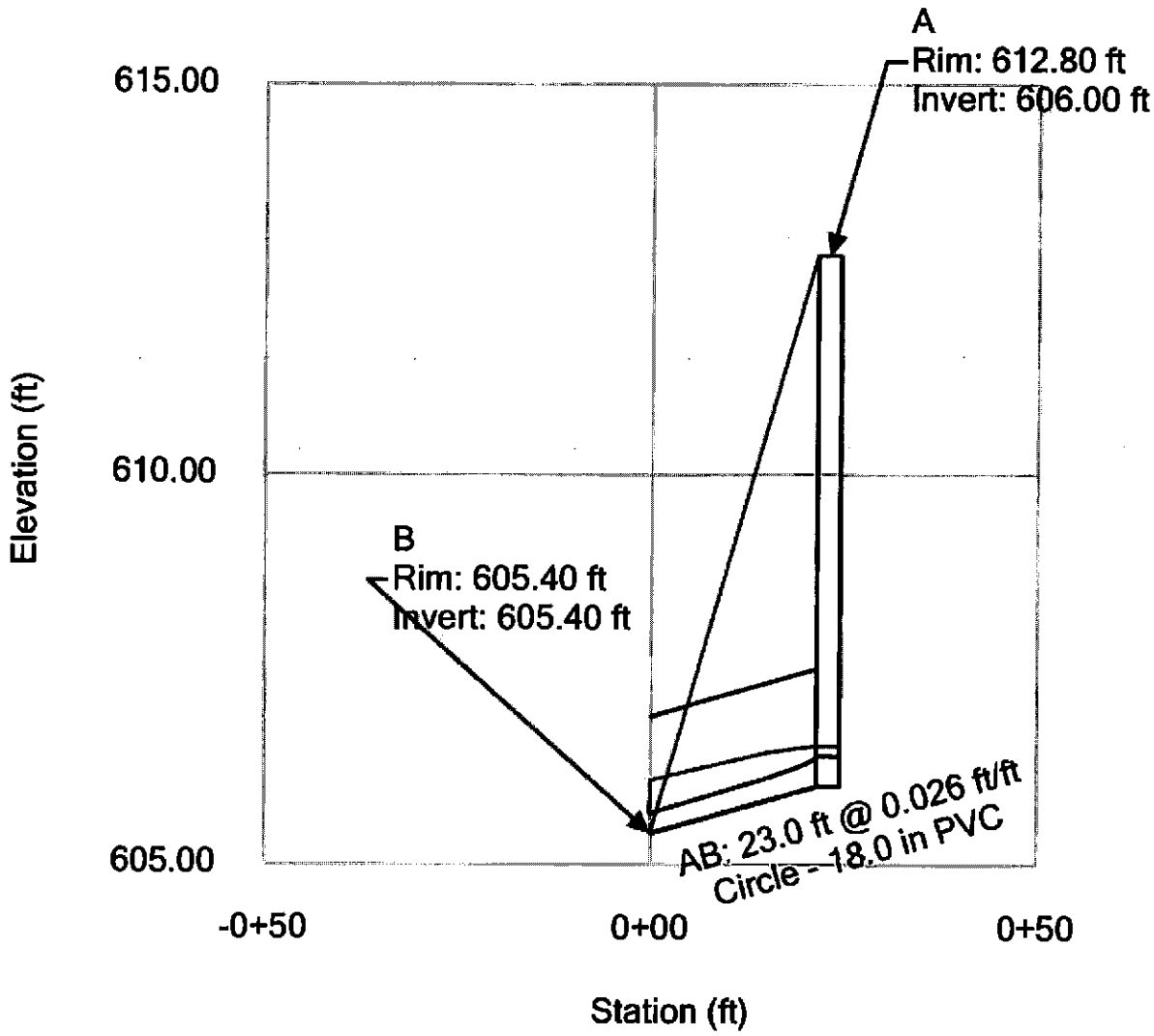
ID	Label	Outflow Element	Area (User Defined) (acres)	Rational C	Time of Concentration (min)	Flow (Total Out) (ft³/s)	Notes	Catchment Intensity (in/h)
54	SHED A	A	0.310	1.000	5.000	1.03	Q=CIA (TYP)	3.290
112	SHED F	F	0.270	1.000	5.000	0.90		3.290
113	SHED G2	G	0.160	1.000	5.000	0.53		3.290
114	SHED H	H	0.260	1.000	5.000	0.86		3.290
115	SHED J1	J	0.200	1.000	5.000	0.66		3.290
116	OFF	L	5.800	1.000	10.000	13.74	EST OFFSITE AREA	2.350
117	SHED L1	L	0.160	1.000	5.000	0.38		2.350
118	SHED M	M	0.860	1.000	5.000	2.85		3.290
119	SHED C	C	0.180	1.000	5.000	0.60		3.290
120	SHED D	D	0.160	1.000	5.000	0.53		3.290
121	SHED L2	L	0.670	1.000	5.000	1.59		2.350
122	SHED J2	J	0.190	1.000	5.000	0.63		3.290
123	SHED G1	G	0.030	1.000	5.000	0.10		3.290
130	MOFF	M	0.600	1.000	5.000	1.99	FRANCISCO DR	3.290

FlexTable: Conduit Table

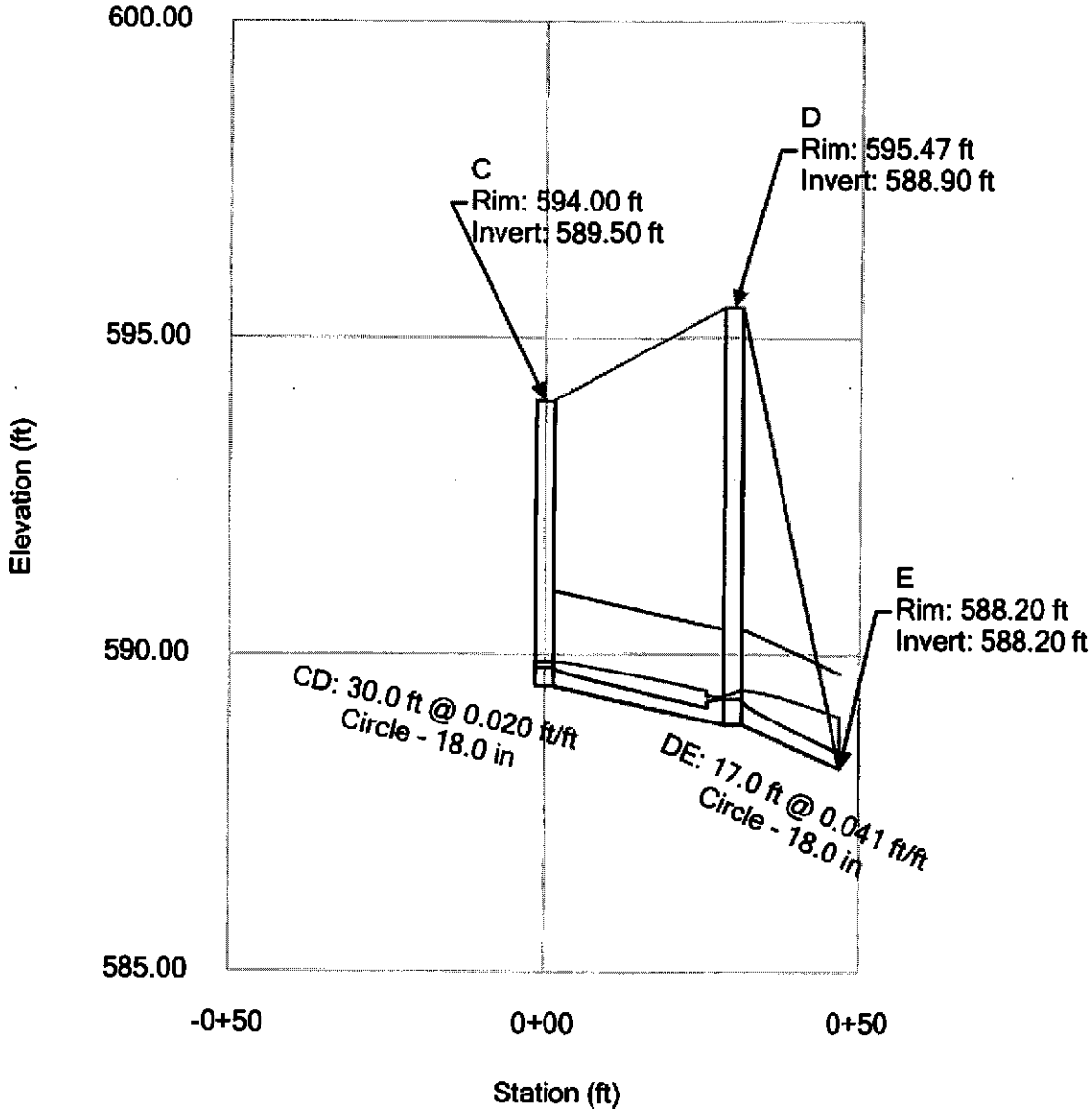
Active Scenario: 100 YEAR

ID	Label	Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Length (User Defined) (ft)	Slope (Calculated) (ft/ft)	Diameter (in)	Manning's n	Flow (ft³/s)	Velocity (ft/s)	Capacity (Full Flow) (ft³/s)	Upstream Structure Energy Grade Line (In) (ft)	Upstream Structure Hydraulic Grade Line (In) (ft)	System Flow Time (min)	System Drainage Area (acres)	System Intensity (in/h)	Notes
38	AB	A	606.00	B	605.40	23.0	0.026	18.0	0.013	1.03	5.30	16.97	606.51	606.38	5.000	0.3	3.290	Q=CIA (TYP)
94	LM	L	609.10	M	608.78	65.0	0.005	24.0	0.013	15.71	5.76	15.87	611.31	610.86	10.000	6.6	2.350	
96	MN	M	608.78	N	608.50	54.0	0.005	24.0	0.013	19.04	6.06	16.29	611.03	610.60	10.188	8.1	2.335	
99	JK	J	610.10	K	609.62	9.0	0.053	18.0	0.013	1.29	7.29	24.26	610.68	610.53	5.000	0.4	3.290	
102	CD	C	589.50	D	588.90	30.0	0.020	18.0	0.013	0.60	4.10	14.85	589.89	589.79	5.000	0.2	3.290	
104	DE	D	588.90	E	588.20	17.0	0.041	18.0	0.013	1.12	6.38	21.31	589.34	589.30	5.122	0.3	3.267	
107	FG	F	603.65	G	603.18	23.0	0.020	18.0	0.013	0.90	4.67	15.02	604.13	604.00	5.000	0.3	3.290	
109	GH	G	602.70	H	601.25	27.0	0.054	18.0	0.013	1.52	7.67	24.34	603.50	603.16	5.082	0.5	3.275	
111	HI	H	601.25	I	600.00	23.0	0.054	18.0	0.013	2.37	8.77	24.49	601.92	601.83	5.141	0.7	3.264	

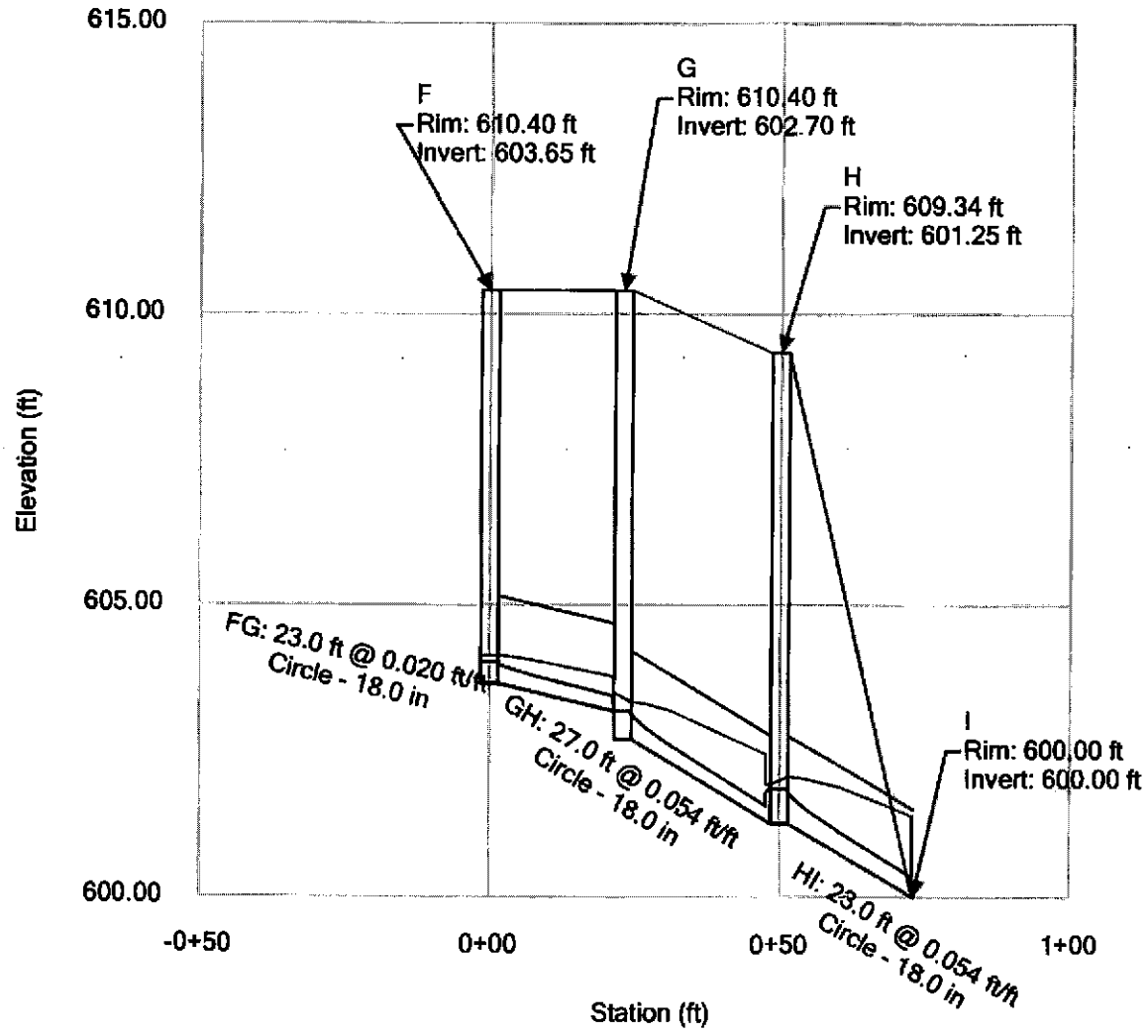
Profile Report
Engineering Profile - A-B (052015 STORM DRAINS.stsw)
Active Scenario: 100 YEAR



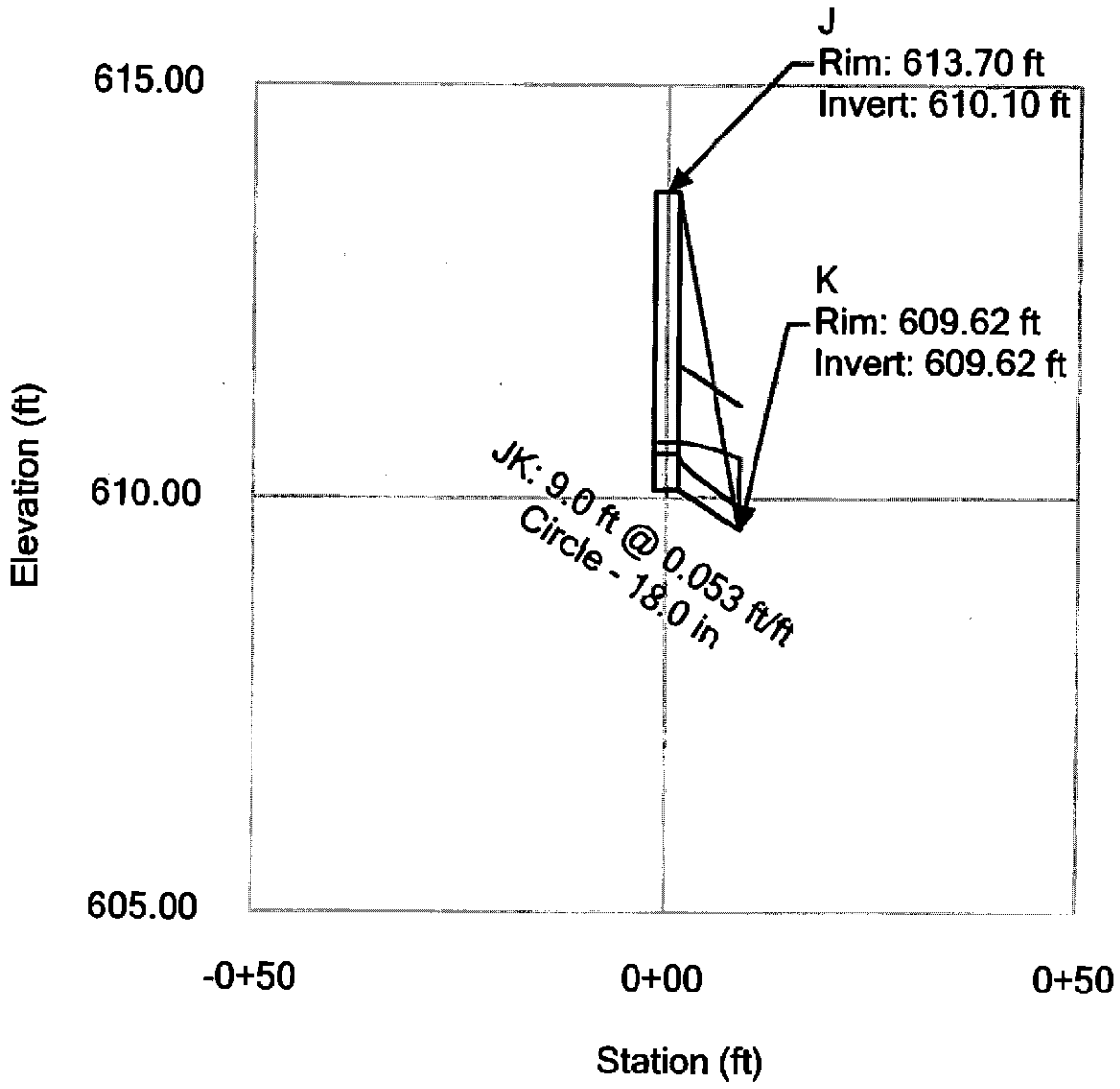
Profile Report
Engineering Profile - C-D-E (052015 STORM DRAINS.stsw)
Active Scenario: 100 YEAR



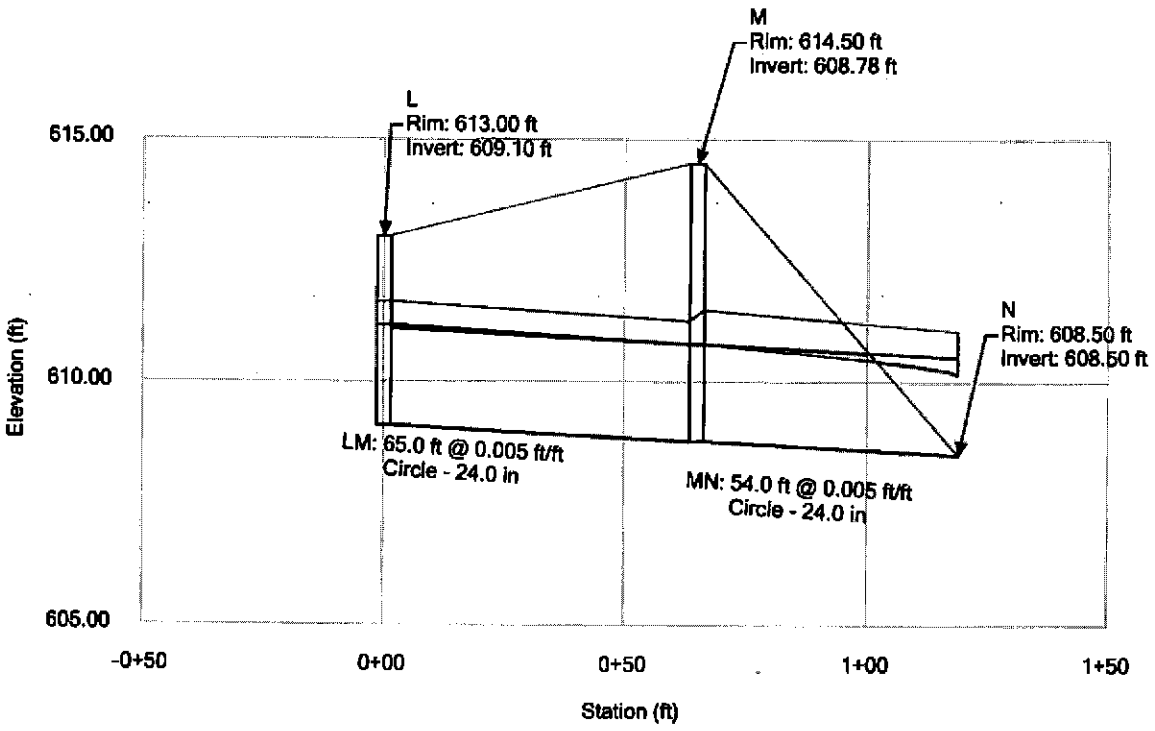
Profile Report
Engineering Profile - F-G-H-I (052015 STORM DRAINS.stsw)
Active Scenario: 100 YEAR



Profile Report
Engineering Profile - J-K (052015 STORM DRAINS.stsw)
Active Scenario: 100 YEAR



Profile Report
Engineering Profile - L-M-N (052015 STORM DRAINS.stsw)
Active Scenario: 100 YEAR



APPENDIX C

Ditch Flow Computations

TABLE C-1

EL DORADO HILLS MEMORY CARE
DITCH FLOWS

	SECTION	SLOPE (FT/FT)	A (AC)	C	TC (MIN)	I (IN/HR)	Q 100 (CFS)	FLOW DEPTH (FT)	FLOW VELOCITY (FT/SEC)
DITCH #1; UP	rock-lined V-ditch; 2:1 sides	0.01	0.55	1	5	3.34	1.8	0.68	1.9
DITCH# 1; MID	"	0.05					"	0.51	3.5
DITCH #1; DWN	"	0.37					"	0.35	4.4
DITCH 2	rock-lined V-ditch; 2:1 sides	0.017	0.31	1	5	3.34	1.0	0.5	2

Worksheet for ROCK-LINED DITCH #1-UP

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.01000	ft/ft
Left Side Slope	2.00	ft/ft (H:V)
Right Side Slope	2.00	ft/ft (H:V)
Bottom Width	0.00	ft
Discharge	1.80	ft^3/s

Results

Normal Depth	0.68	ft
Flow Area	0.93	ft^2
Wetted Perimeter	3.06	ft
Hydraulic Radius	0.31	ft
Top Width	2.73	ft
Critical Depth	0.55	ft
Critical Slope	0.03186	ft/ft
Velocity	1.93	ft/s
Velocity Head	0.06	ft
Specific Energy	0.74	ft
Froude Number	0.58	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.68	ft
Critical Depth	0.55	ft
Channel Slope	0.01000	ft/ft

Worksheet for ROCK-LINED DITCH #1-MID

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.05000	ft/ft
Left Side Slope	2.00	ft/ft (H:V)
Right Side Slope	2.00	ft/ft (H:V)
Bottom Width	0.00	ft
Discharge	1.80	ft^3/s

Results

Normal Depth	0.51	ft
Flow Area	0.51	ft^2
Wetted Perimeter	2.26	ft
Hydraulic Radius	0.23	ft
Top Width	2.02	ft
Critical Depth	0.55	ft
Critical Slope	0.03185	ft/ft
Velocity	3.52	ft/s
Velocity Head	0.19	ft
Specific Energy	0.70	ft
Froude Number	1.23	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.51	ft
Critical Depth	0.55	ft
Channel Slope	0.05000	ft/ft

Worksheet for ROCK-LINED DITCH #1-DWN

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.37000	ft/ft
Left Side Slope	2.00	ft/ft (H:V)
Right Side Slope	2.00	ft/ft (H:V)
Bottom Width	0.00	ft
Discharge	1.80	ft³/s

Results

Normal Depth	0.35	ft
Flow Area	0.24	ft²
Wetted Perimeter	1.55	ft
Hydraulic Radius	0.16	ft
Top Width	1.39	ft
Critical Depth	0.55	ft
Critical Slope	0.03185	ft/ft
Velocity	7.45	ft/s
Velocity Head	0.86	ft
Specific Energy	1.21	ft
Froude Number	3.15	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.35	ft
Critical Depth	0.55	ft
Channel Slope	0.37000	ft/ft

Worksheet for ROCK LINED DITCH #2

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.01700	ft/ft
Left Side Slope	2.00	ft/ft (H:V)
Right Side Slope	2.00	ft/ft (H:V)
Discharge	1.00	ft^3/s

Results

Normal Depth	0.50	ft
Flow Area	0.49	ft^2
Wetted Perimeter	2.22	ft
Hydraulic Radius	0.22	ft
Top Width	1.99	ft
Critical Depth	0.43	ft
Critical Slope	0.03445	ft/ft
Velocity	2.03	ft/s
Velocity Head	0.06	ft
Specific Energy	0.56	ft
Froude Number	0.72	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.50	ft
Critical Depth	0.43	ft
Channel Slope	0.01700	ft/ft
Critical Slope	0.03445	ft/ft

Table 6.3.1 Permissible Velocity Guidelines

Material	Permissible Velocity (ft/sec)
1. Fine sand, colloidal	2.5
2. Ordinary firm loam	3.5
3. Stiff clay, very colloidal	5.0
4. Fine gravel	5.0
5. Graded loam to cobbles	5.0
6. Coarse gravel, noncolloidal / RIP RAP	6.0 ← V IN ALL SECTIONS ≤ 4.5 FPS
7. Shales and hardpans	6.0
8. Tall Fescue or similar light grasses on easily erodible soil	3.0
9. Same as above on erosion-resistant soils	5.0
10. Ordinary grass mixtures on easily erodible soils	4.0
11. Same as above on erosion-resistant soils	5.0
12. Heavy grass such as Bermuda on easily erodible soils	6.0
13. Same as above on erosion-resistant soils	8.0
14. Unreinforced concrete	10
15. Reinforced concrete	25
16. Grouted riprap	10
17. Ungrouted riprap	See Sec. 6.3.11
18. Gabions	Manufacturer's guidelines

APPENDIX D

Culvert Flows

(EX) CULVERT Q_{100}

FlexTable: Catchment Table
Active Scenario: 100 YEAR

ID	Label	Outflow Element	Area (User Defined) (acres)	Rational C	Time of Concentration (min)	Flow (Total Out) (ft^3/s)	Notes
54	SHED A	A	0.310	1.000	5.000	1.04	
112	SHED F	F	0.270	1.000	5.000	0.91	
113	SHED G2	G	0.160	1.000	5.000	0.54	
114	SHED H	H	0.260	1.000	5.000	0.88	
115	SHED J1	J	0.200	1.000	5.000	0.67	
116	OFF	M	5.800	1.000	10.000	15.38	EST OFFSITE AREA
117	SHED L1	L	0.160	1.000	5.000	0.54	
118	SHED M	M	0.860	1.000	5.000	2.28	
119	SHED C	C	0.180	1.000	5.000	0.61	
120	SHED D	D	0.160	1.000	5.000	0.54	
121	SHED L2	L	0.670	1.000	5.000	2.26	
122	SHED J2	J	0.190	1.000	5.000	0.64	
123	SHED G1	G	0.030	1.000	5.000	0.10	
130	MOFF	M	0.600	1.000	5.000	1.59	FRANCISCO DR

CULVERT AREA

$\Sigma = 8.48$ AC

$T_C = 10$ MIN ; $i_{100} = 2.4$ "/HR

$\Rightarrow Q_{100} \sim 20$ CFS

SEE CULVERT CHART THAT FOLLOWS

CAPACITY ~ 45 CFS $\Rightarrow$ OK

04/22/15 SB

150021

EDH MEMORY CARE

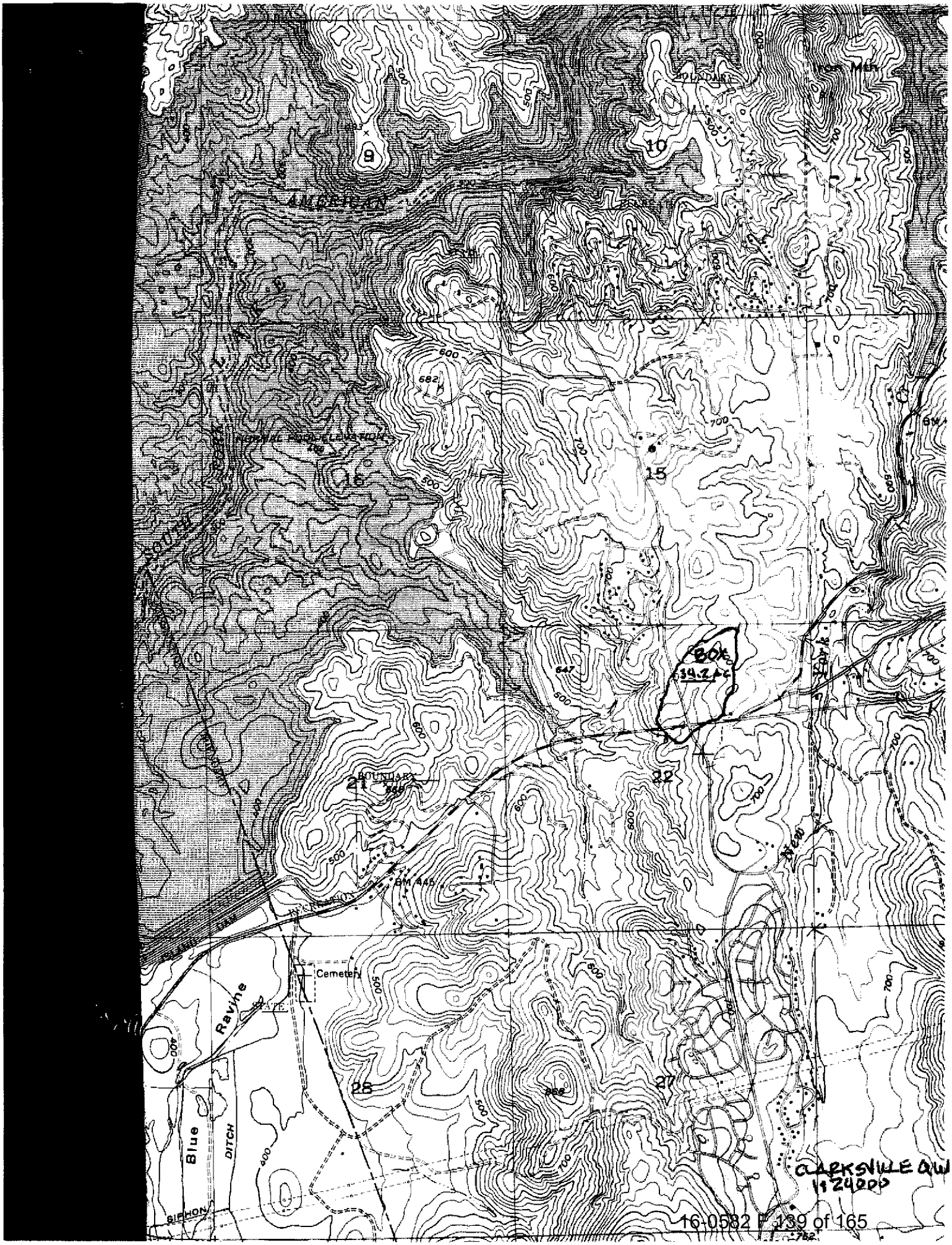
ESTIMATED Q100 ONTO SITE @ PROPOSED BOX CULVERT

A~ 34.2 AC (FROM USGS TOPO)
UNDERLYING SOILS: AUBURN
HYDROLOGIC SOIL GROUP D
LAND USE (BY INSPECTION - GOOGLE EARTH) =
COMMERCIAL / RESIDENTIAL => USE CN = 94
MINIMAL OVERLAND RUNOFF => USE T_+ = 20 MIN., LAG = 12 MIN.
MAP ~ 25" => 24 HR, 100YR DEPTH ~ 4.56"

=> $\underline{Q_{100} \sim 76 \text{ CFS}}$ (SEE HEC-HMS ATTACHMENT)

OK // FLOW @ INVERTED BOX CULVERT → SEE FLOWMASTER CALCS (ATTACHED)

24x4 JJ BOX


AMBERSON
Iron Mtn
Cemetery
Blue Ravine
BLUE RAVINE DITCH
SIPHON
BOUNDARY
BM 445
80 ac
34.2 Ac
CLARKSVILLE QW
1:24000

Google earth

feet 1000
meters 400

Project: EDH MEMORY CARE Simulation Run: Q100

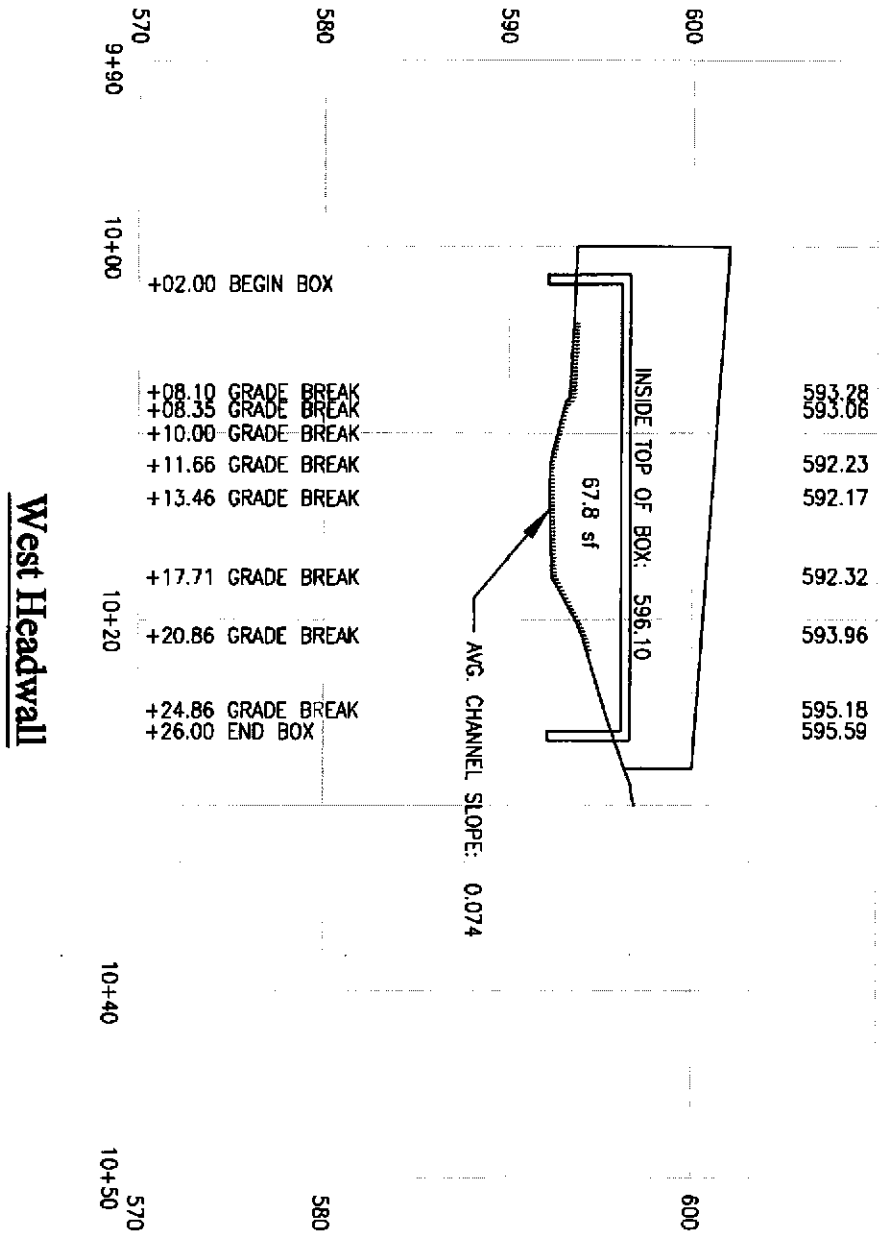
Subbasin: OFF

Start of Run:	31Dec2015, 00:00	Basin Model:	OFFSITE
End of Run:	01Jan2016, 00:10	Meteorologic Model:	100 YR
Compute Time:	22Apr2015, 15:00:01	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Discharge:	76.0 (CFS)	Date/Time of Peak Discharge:	31Dec2015, 10:04
Precipitation Volume:	4.50 (IN)	Direct Runoff Volume:	3.87 (IN)
Loss Volume:	0.63 (IN)	Baseflow Volume:	0.00 (IN)
Excess Volume:	3.87 (IN)	Discharge Volume:	3.87 (IN)


West Headwall
570
580
590
600
9+90
10+00
10+20
10+40
10+50
+02.00 BEGIN BOX
+08.10 GRADE BREAK
+08.35 GRADE BREAK
+10.00 GRADE BREAK
+11.66 GRADE BREAK
+13.46 GRADE BREAK
+17.71 GRADE BREAK
+20.86 GRADE BREAK
+24.86 GRADE BREAK
+26.00 END BOX
593.28
593.06
592.23
592.17
592.32
593.96
595.18
595.59
INSIDE TOP OF BOX: 596.10
67.8 sf
AVG. CHANNEL SLOPE: 0.074

Q100 @ INVERTED BOX CULVERT

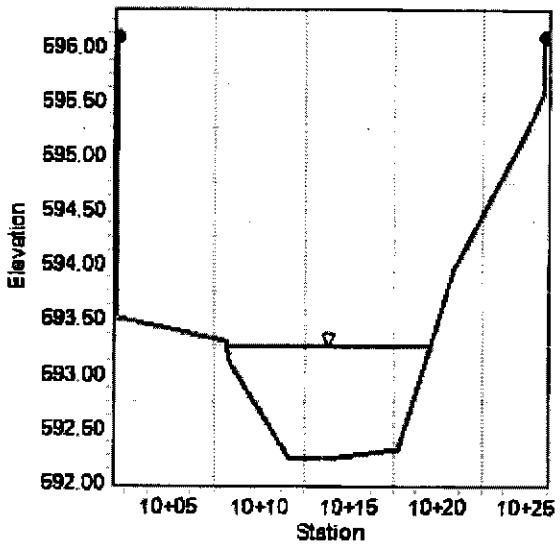
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.07400	ft/ft
Normal Depth	1.05	ft
Discharge	76.00	ft³/s

Cross Section Image



Q100 @ INVERTED BOX

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.07400	ft/ft
Discharge	76.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
10+02	596.10
10+02	593.50
10+08	593.30
10+08	593.10
10+12	592.20
10+13	592.20
10+18	592.30
10+21	593.96
10+25	595.20
10+26	595.60
10+26	596.10

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(10+02, 596.10)	(10+26, 596.10)	0.040

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	1.05	ft
Elevation Range	592.20 to 596.10 ft	

Q100 @ INVERTED BOX

Results

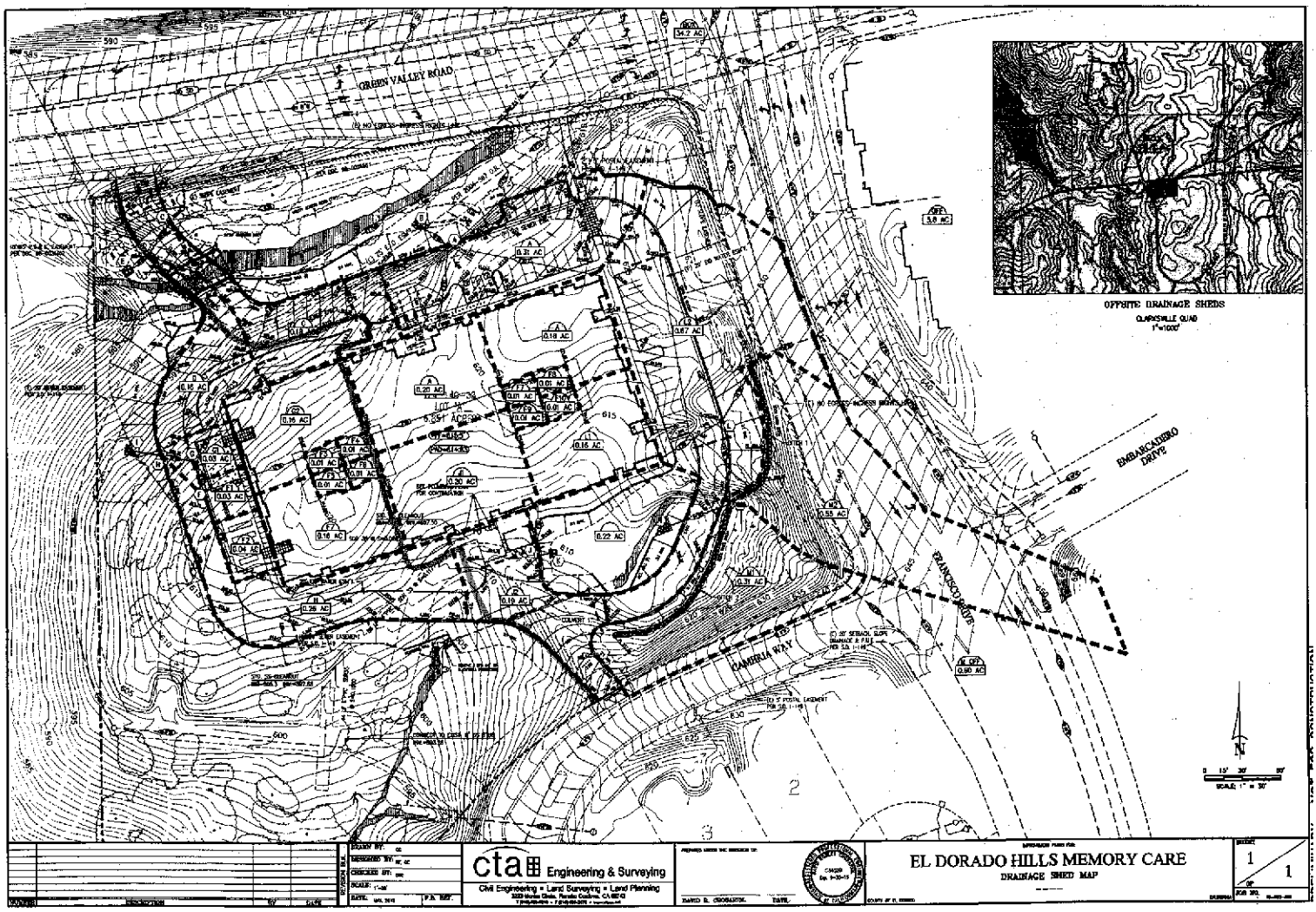
Flow Area		8.99	ft²
Wetted Perimeter		11.76	ft
Hydraulic Radius		0.76	ft
Top Width		11.35	ft
Normal Depth		1.05	ft
Critical Depth		1.43	ft
Critical Slope		0.02616	ft/ft
Velocity		8.45	ft/s
Velocity Head		1.11	ft
Specific Energy		2.16	ft
Froude Number		1.67	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.05	ft
Critical Depth	1.43	ft
Channel Slope	0.07400	ft/ft
Critical Slope	0.02616	ft/ft


GREEN VALLEY ROAD
EMBARCADERO DRIVE
FRANCISCO DRIVE
PANERA WAY
OFFSITE DRAINAGE SHEDS
CLARKSVILLE QUAD
1"=1000'
N
SCALE: 1" = 30'
cta Engineering & Surveying
Civil Engineering • Land Surveying • Land Planning
EL DORADO HILLS MEMORY CARE
DRAINAGE SHED MAP
1
1

Environmental Noise Assessment

El Dorado Hills Memory Care

El Dorado County, California

Job # 2015-142

Prepared For:

Sierra Capital Investments

7225 North First Street, Suite 101
Fresno, CA 93720

Attn: Mr. Brian Glover

Prepared By:

j.c. brennan & associates, Inc.

Jim Brennan
President
Member, Institute of Noise Control Engineering

May 7, 2015

j.c. brennan & associates
consultants in acoustics

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ATTACHMENT 5

INTRODUCTION

The proposed Memory Health Care Project is located at the southwest corner of Green Valley Road and Francisco Drive, within the El Dorado Hills area of El Dorado County, California. The project is just under 5 acres in size, and includes a 64 bed healthcare facility with 30 parking spaces. Figure 1, shows the project site plan.

This report will address the potential of the proposed project to be exposed to noise levels exceeding the applicable El Dorado County exterior and interior noise level standards.

Traffic on Green Valley Road and Francisco Drive has been identified as a potentially significant noise source which may affect the project design. In addition, this report will address potential noise levels associated with trash pick-up and deliveries at the project site.

This noise study is being conducted to determine compliance with the applicable noise level standards.

ENVIRONMENTAL SETTING

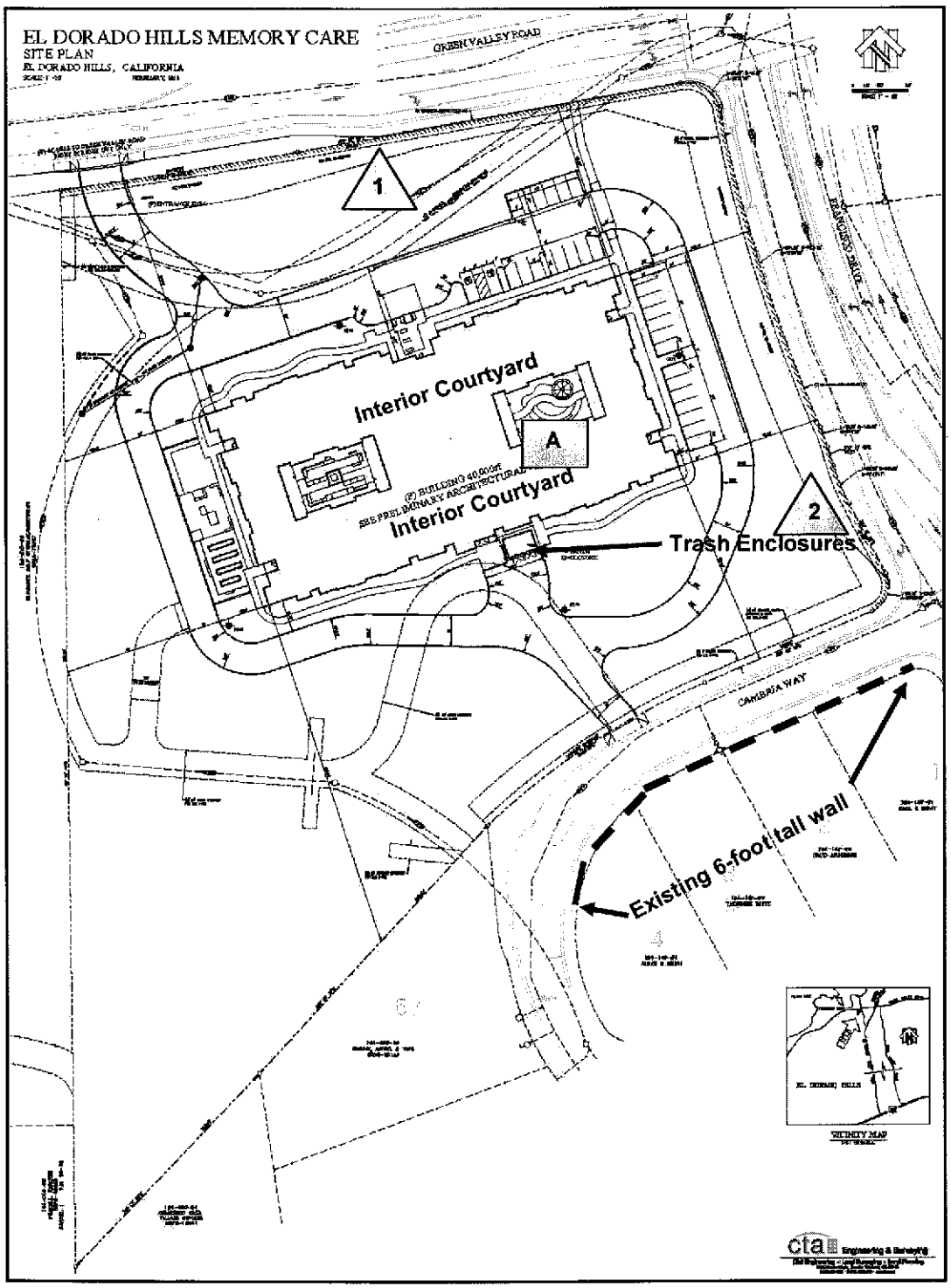
Fundamentals of Acoustics

Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), then they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second or Hertz (Hz).

Noise is a subjective reaction to different types of sounds. Noise is typically defined as (airborne) sound that is loud, unpleasant, unexpected or undesired, and may therefore be classified as a more specific group of sounds. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dBA. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dBA, and changes in levels (dBA) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels, unless otherwise noted.



Ambient Noise Measurement Site

Traffic Noise Measurement Sites

j.c. brennan & associates
consultants in acoustics

The decibel scale is logarithmic, not linear. In other words, two sound levels 10 dBA apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70 dBA sound is half as loud as an 80 dBA sound, and twice as loud as a 60 dBA sound.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given environment. A common statistical tool is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state A weighted sound level containing the same total energy as a time varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptor, L_{dn}, and shows very good correlation with community response to noise.

The day/night average level (L_{dn}) is based upon the average noise level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

Table 1 lists several examples of the noise levels associated with common situations. Appendix A provides a summary of acoustical terms used in this report.

TABLE 1
TYPICAL NOISE LEVELS

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	--110--	Rock Band
Jet Fly-over at 300 m (1,000 ft)	--100--	
Gas Lawn Mower at 1 m (3 ft)	--90--	
Diesel Truck at 15 m (50 ft), at 80 km/hr (50 mph)	--80--	Food Blender at 1 m (3 ft) Garbage Disposal at 1 m (3 ft)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft)	--70--	Vacuum Cleaner at 3 m (10 ft)
Commercial Area Heavy Traffic at 90 m (300 ft)	--60--	Normal Speech at 1 m (3 ft)
Quiet Urban Daytime	--50--	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	--40--	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing

Source: Caltrans, Technical Noise Supplement, Traffic Noise Analysis Protocol. November, 2009.

Effects of Noise on People

The effects of noise on people can be placed in three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and

dissatisfaction. A wide variation in individual thresholds of annoyance exists and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called ambient noise level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it.

With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived;
- Outside of the laboratory, a 3 dBA change is considered a just-perceivable difference;
- A change in level of at least 5 dBA is required before any noticeable change in human response would be expected; and
- A 10 dBA change is subjectively heard as approximately a doubling in loudness, and can cause an adverse response.

Stationary point sources of noise – including stationary mobile sources such as idling vehicles – attenuate (lessen) at a rate of approximately 6 dBA per doubling of distance from the source, depending on environmental conditions (i.e. atmospheric conditions and either vegetative or manufactured noise barriers, etc.). Widely distributed noises, such as a large industrial facility spread over many acres, or a street with moving vehicles, would typically attenuate at a lower rate.

REGULATORY CONTEXT

Transportation Noise

The El Dorado County General Plan Noise Element establishes exterior and interior noise level standards for a variety of land uses affected by transportation noise sources. The El Dorado County Noise Element noise standards which would be applicable to this project are provided in Table 2. The criteria in Table 2 are applied at the outdoor activity area and interior spaces of residential, hospital and nursing homes land uses.

Table 2
El Dorado County General Plan Noise Element Standards Applicable at Residential, Hospital and Nursing Homes Land Uses for Transportation Noise Sources

Land Use	Outdoor Activity Areas	Interior Spaces
Residential	60 dB Ldn[1]	45 dB Ldn

Source: Table 6-1 of the El Dorado County General Plan.

Table 6-1 of the El Dorado County Noise Element establishes an exterior noise level criterion of 60 dB Ldn at the outdoor activity area of residential land uses impacted by transportation noise sources. Where it is not possible to reduce noise in outdoor activity areas to 60 dB Ldn or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB Ldn may be allowed provided that available exterior noise level reduction measures have been implemented. In addition, an interior noise level criterion of 45 dB Ldn is applied to all residential land uses.

Non-Transportation Noise

The El Dorado County General Plan Noise Element also contains goals and standards for non-transportation noise affecting noise-sensitive receptors.

Goal 6.5: ACCEPTABLE NOISE LEVELS

Ensure that County residents are not subjected to noise beyond acceptable levels.

Objective 6.5.1 PROTECTION OF NOISE-SENSITIVE DEVELOPMENT

Protect existing noise-sensitive developments (e.g. hospitals, schools, churches and residential) from new uses that would generate noise levels incompatible with those uses and, conversely, discourage noise-sensitive uses from locating near sources of high noise levels.

Policy 6.5.1.2

Noise created by new proposed non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of Table 6-2 for noise-sensitive uses.

Policy 6.5.1.12 When determining the significance of impacts and appropriate mitigation for new development projects, the following criteria shall be taken into consideration.

A. Where existing or projected future traffic noise levels are less than 60 dBA Ldn at the outdoor activity areas of residential uses, an increase of more than 5 dBA Ldn caused by a new transportation noise source will be considered significant;

B. Where existing or projected future traffic noise levels range between 60 and 65 dBA Ldn at the outdoor activity areas of residential uses, an increase of more than 3 dBA Ldn caused by a new transportation noise source will be considered significant; and

C. Where existing or projected future traffic noise levels are greater than 65 dBA Ldn at the outdoor activity areas of residential uses, an increase of more than 1.5 dBA Ldn caused by a new transportation noise will be considered significant.

Policy 6.5.1.13

When determining the significance of impacts and appropriate mitigation to reduce those impacts for new development projects, including ministerial development, the following criteria shall be taken into consideration:

A. In areas in which ambient noise levels are in accordance with the standards in Table 6-2, increases in ambient noise levels caused by new non-transportation noise sources that exceed 5 dBA shall be considered significant; and

B. In areas in which ambient noise levels are not in accordance with the standards in Table 6-2, increases in ambient noise levels caused by new non-transportation noise sources that exceed 3 dBA shall be considered significant.

Table 3
Noise Level Performance Protection Standards For Noise Sensitive Land Uses Affected by Non-Transportation Noise Sources

Noise Level Descriptor	Daytime 7 a.m. - 7 p.m.		Evening 7 p.m. - 10 p.m.		Night 10 p.m. - 7 a.m.	
	Community	Rural	Community	Rural	Community	Rural
Hourly L_{eq}, dB	55	50	50	45	45	40
Lmax, dB	70	60	60	55	55	50

Each of the noise levels specified above shall be lowered by five dB for simple noises, noises consisting primarily of speech or music, or for recurring impulsive noises.

County can impose noise level standards which are up to 5 dB less than those specified above based upon determination of existing low ambient noise levels in the vicinity of the project site.

In Community areas the exterior noise level standard shall be applied to the property line of the receiving property. In Rural areas the exterior noise level shall be applied at a point 100 feet away from the residence.

Source: Table 6-2 of the El Dorado County General Plan.

The noise standards in Table 3 are divided into daytime hours (7 am to 7 pm), evening hours (7 pm to 10 pm), and nighttime hours (10 pm to 7 am).

EXISTING CONDITIONS

The existing noise environment in the proposed project area is defined primarily by traffic on Francisco Drive and Green Valley Road. Francisco Drive is located adjacent to the east side of the project site, and Green Valley Road is located adjacent to the north side of the project site.

EXISTING AMBIENT NOISE LEVELS

To quantify the existing ambient noise environment in the project vicinity, j.c. brennan & associates Inc. conducted two sets of short-term hourly noise level measurements on the project site, on May 2$_{nd}$, 2015.

The noise measurement location is shown on Figure 1. A summary of the noise level measurement survey results is provided in Table 4.

Equipment used for the noise measurement survey included a Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meter. The meter was calibrated before and after use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the

measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

TABLE 4
SUMMARY OF EXISTING BACKGROUND NOISE MEASUREMENT DATA

Site	Date	Average[1] Measured Hourly Noise Levels, dBA			
		L_{eq}	L_{50}	L_{max}	Time
Short-term Noise Level Measurements					
A	May 2, 2015	56.0	54	68.5	9:50 a.m.
	May 2, 2015	57.4	55	70.1	12:05 p.m.

Source: j.c. brennan & associates, Inc., 2015

EVALUATION OF EXISTING AND FUTURE TRAFFIC NOISE LEVELS AT THE PROJECT

Traffic Noise Prediction Methodology

j.c. brennan & associates, Inc., utilizes the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA RD-77-108) for the prediction of traffic noise levels. The model is based upon the CALVENO noise emission factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site.

On May 5_{th}, 2015 j.c. brennan & associates, Inc. conducted short-term noise level measurements and concurrent counts of traffic for Green Valley Road and Francisco Drive on the project site. The purpose of the short-term traffic noise level measurement is to determine the accuracy of the FHWA model in describing the existing noise environment on the project site, while accounting for existing site conditions such as intervening structures, actual travel speeds, and roadway grade. Noise measurement results were compared to the FHWA model results by entering the observed traffic volume, speed, and distance as inputs to the FHWA model. The traffic noise calibration site is shown on Figure 1.

Instrumentation used for the measurement was a Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meter which was calibrated in the field before use with an LDL CAL200 acoustical calibrator. A complete listing of FHWA Model inputs and results are shown in Appendix B. Table 5 shows the results of the traffic noise calibration.

TABLE 5
COMPARISON OF FHWA MODEL TO MEASURED TRAFFIC

Site	Vehicles: Autos	Vehicles: Med. Trk.	Vehicles: Hvy. Trk.	Speed (mph)	Dist. (Feet)*	Measured Leq, dBA	Modeled Leq, dBA**	Difference
Green Valley Road								
1	425	5	0	50	90	68.1	66.3	-1.8
Francisco Drive								
2	175	2	0	40	65	65.1	61.9	-3.2

*The noise measurement location is from the roadway centerline.
**Acoustically "soft" site assumed

Based upon the calibration results, the FHWA Model was found to under-predict Green Valley Road traffic by 1.8 dBA, and Francisco Drive traffic by 3.2 dBA. Therefore, +2 dBA and +3 dBA offsets will be added to the FHWA model for predicted future traffic noise levels for Green Valley Road and Francisco Drive, respectively.

Existing and Future Exterior Traffic Noise Levels

To determine the existing future traffic noise levels adjacent to the project site, j.c. brennan & associates, Inc., utilized 2015 and 2025 traffic predictions, both with and without the project. The traffic volumes were provided in traffic impact analysis conducted for the project site by Kimley Horn Associates. Table 6 provides the predicted traffic noise levels.

A complete listing of the FHWA Traffic Noise Prediction Model inputs is provided in Appendix C.

TABLE 6
PREDICTED EXISTING AND FUTURE TRAFFIC NOISE LEVELS

Scenario	Distance	Predicted Traffic Noise Levels , L_{dn}	Distance to Noise Contours (feet)	
			65 dB Ldn	60 dB Ldn
Green Valley Road (In front of the Project Site)				
Existing (2015)	100 feet	70 dBA	213	459
Existing + Project (2015)	100 feet	70 dBA	213	460
Future (2025)	100 feet	70 dBA	230	495
Future + Project (2025)	100 feet	70 dBA	230	195
Francisco Drive (In front of the Project Site)				
Existing (2015)	100 feet	64 dBA	90	194
Existing + Project (2015)	100 feet	64 dBA	90	195
Future (2025)	100 feet	64 dBA	84	182
Future + Project (2025)	100 feet	64 dBA	85	183
Cambria Way (From Francisco to the Entrance of the Project Site				
Existing (2015)	50 feet	46 dBA	3	6
Existing + Project (2015)	50 feet	47 dBA	3	7
Future (2025)	50 feet	47 dBA	3	7
Future + Project (2025)	50 feet	48 dBA	4	8

Sources: j.c. brennan & associates, Inc., 2015

Based upon the predicted future traffic noise levels shown in Table 6, a portion of the project site will exceed the El Dorado County exterior noise level criterion of 60 dB Ldn at a distance of 100 feet from both Green Valley Road and Francisco Drive. However, the nearest building facades are located at a distance of 200 feet from Green Valley Road and 150 feet from Francisco Drive. Therefore, the predicted traffic noise levels from Green Valley Road and Francisco Drive, at the nearest building facades are 65.4 dBA and 61.5 dBA Ldn, respectively. In addition, it is noted that the primary outdoor activity areas are located in the courtyard, which is located in the center of the building and is shielded from both Green Valley Road and Francisco Drive. by the building facades.

The primary outdoor activity areas are located within the interior courtyard of the project. The predicted 2025 + Project traffic noise levels at the primary outdoor activity areas, while accounting for a -10 dBA of shielding from the building facades are 55.5 dBA Ldn, and 51.5 dBA Ldn, associated with Green Valley Road and Francisco Drive, respectively. The cumulative noise level from both roadways would be 57 dBA Ldn. Therefore, the project would comply with the exterior noise level standard of 60 dBA Ldn.

It should also be noted that the project will not result in an exceedance of the 60 dBA Ldn standard at residences adjacent to Cambria Way. The project will also not result in a significant increase in traffic noise levels.

Interior Traffic Noise Levels:

Standard construction practices, consistent with the uniform building code typically provides an exterior-to-interior noise level reduction of approximately 25 dBA, assuming that air conditioning is included for each unit, which allows residents to close windows for the required acoustical isolation. Therefore, the exterior noise levels at the building facades do not exceed 70 dBA Ldn, the interior noise levels will comply with the interior noise level standard of 45 dBA Ldn.

Trash Pick-Up Noise Generation:

As a means of determining the noise levels due to trash pick-up, j.c. brennan & associates, Inc. utilized noise level data collected at a dumpster pick-up at a Safeway Store near the corner of Madison Avenue and Hazel Avenue. Noise measurements were conducted at a distance of approximately 50 feet from the trash enclosure. The normal operations for trash pickup occurs within approximately 1 minute. The normal emptying cycle includes the truck arrival and departure, impacts from the forks on the bin and some shaking of the bin. The noise from the truck idling is approximately 65 dBA. The hydraulic arms were approximately 70 dBA, and the raising of the bin and emptying of the bin were approximately 85 dBA.

Trash pick-up is recognized as a part of upkeep of property and is associated with all development, including the residential development which surrounds the project site.

Based upon the noise level data collected for trash pickup, it appears that a 15 dBA reduction would be required to comply with the noise standards shown in Table 3. The distance from the trash enclosures to the nearest residential property line is 175 feet. Based upon a 20 log attenuation rate, the predicted maximum noise levels would be 75 dBA, and would exceed the noise level standard by 5 dBA.

j.c. brennan & associates, Inc. conducted a barrier analysis to determine the appropriate barrier height to reduce the trash pickup noise levels by 5 dB. The results of the barrier analysis indicated that a 6-foot tall barrier located adjacent to Cambria Way would provide a -5 dBA shielding of the trash pickup noise levels. Based upon field observations, there is currently a 6-foot wall, relative to the back yards currently constructed for the residences adjacent to Cambria Way. The existing walls are shown on Figure 1.

Truck Delivery Noise Generation:

As a means if determining truck delivery noise levels, j.c. brennan & associates, Inc. utilized file data for typical step-side van delivery trucks. It is not anticipated that typical deliveries will occur with tractor trailer trucks. Typical deliveries are not expected to occur during the nighttime hours, and no more than one to two deliveries in an hour during the daytime periods. Based on file data typical medium truck arrivals and departures and unloading are approximately 82 dBA SEL and 75 dBA Lmax at 50 feet. Based upon the data described above, the following formula can be utilized to determine the hourly noise level due to the truck traffic passbys

$$Leq = 82 + 10 * (\log 2) - 35.6, \text{ dBA where:}$$

82 is the mean sound exposure level (SEL) for a medium trucks, and 10 * (log 2) is 10 times the logarithm of the number of truck arrivals and departures during an hour, and 35.6 is 10 times the logarithm of the number seconds in an hour.

Based upon the above formula, the hourly Leq (average) generated during the daytime hour would be 50 dBA Leq and 75 dBA Lmax at 50 feet. The predicted noise levels at the nearest residence across Cambria Way would be 38 dBA Leq and 63 dBA Lmax. Therefore, the truck deliveries are expected to comply with the El Dorado County exterior noise level standards for stationary noise sources.

CONCLUSIONS

The proposed project is expected to comply with the El Dorado County exterior noise level criteria, provided that the following noise control measures are implemented:

- Air conditioning should be included in all residences to allow occupants to close doors and windows as desired for acoustical isolation;

Appendix A

Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.
Ldn	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
Lmax	The highest root-mean-square (RMS) sound level measured over a given period of time.
L(n)	The sound level exceeded a described percentile over a measurement period. For instance, an hourly L50 is the sound level exceeded 50% of the time during the one hour period.
Loudness	A subjective term for the sensation of the magnitude of sound.
Noise	Unwanted sound.
Peak Noise	The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the "Maximum" level, which is the highest RMS level.
RT_{60}	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 sabin.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.
Impulsive	Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.
Simple Tone	Any sound which can be judged as audible as a single pitch or set of single pitches.

Appendix B

FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)
Calibration Worksheet

Project Information:

Job Number:	2015-142
Project Name:	FHWA Model
Roadway Tested:	Green Valley
Test Location:	_____
Test Date:	May 2, 2015

Weather Conditions:

Temperature (Fahrenheit):	65
Relative Humidity:	Dry
Wind Speed and Direction:	10-May
Cloud Cover:	Ptly Cloudy

Sound Level Meter:

Sound Level Meter:	LDL Model 820
Calibrator:	LDL Model CA200
Meter Calibrated:	Immediately before and after test
Meter Settings:	A-weighted, slow response

Microphone:

Microphone Location:	On Project Site
Distance to Centerline (feet):	90
Microphone Height:	5 feet above ground
Intervening Ground (Hard or Soft):	**Soft**
Elevation Relative to Road (feet):	12

Roadway Condition:

Pavement Type	Asphalt
Pavement Condition:	Good
Number of Lanes:	5
Posted Maximum Speed (mph):	50

Test Parameters:

Test Time:	11:05 a.m.
Test Duration (minutes):	15
Observed Number Automobiles:	425
Observed Number Medium Trucks:	5
Observed Number Heavy Trucks:	0
Observed Average Speed (mph):	50

Model Calibration:

Measured Average Level (L_{eq}):	68.1
Level Predicted by FHWA Model:	66.3
Difference:	***-1.8 dB***

Conclusions:

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Appendix B

FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)
Calibration Worksheet

Project Information:	Job Number:	2015-142
	Project Name:	2015-142
	Roadway Tested:	Francisco Drive
	Test Location:	_____
	Test Date:	May 2, 2015
Weather Conditions:	Temperature (Fahrenheit):	65
	Relative Humidity:	Dry
	Wind Speed and Direction:	10-May
	Cloud Cover:	Ptly Cloudy
Sound Level Meter:	Sound Level Meter:	LDL Model 820
	Calibrator:	LDL Model CA200
	Meter Calibrated:	Immediately before and after test
	Meter Settings:	A-weighted, slow response
Microphone:	Microphone Location:	On Project Site
	Distance to Centerline (feet):	65
	Microphone Height:	5 feet above ground
	Intervening Ground (Hard or Soft):	**Soft**
	Elevation Relative to Road (feet):	5
Roadway Condition:	Pavement Type	Asphalt
	Pavement Condition:	Good
	Number of Lanes:	3
	Posted Maximum Speed (mph):	40
Test Parameters:	Test Time:	10:30 AM
	Test Duration (minutes):	15
	Observed Number Automobiles:	175
	Observed Number Medium Trucks:	2
	Observed Number Heavy Trucks:	0
	Observed Average Speed (mph):	40
Model Calibration:	Measured Average Level (L_{eq}):	65.1
	Level Predicted by FHWA Model:	61.9
	Difference:	***-3.2 dB***

Conclusions:

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Appendix C

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2015-142
Description: El Dorado Hills Memory Care
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Scenario	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Green Valley Road	2015	25,490	85		15	2	1	50	100	2
2	Green Valley Road	2015 + Project	25,540	85		15	2	1	50	100	2
3	Green Valley Road	2025	28,530	85		15	2	1	50	100	2
4	Green Valley Road	2025 + Project	28,580	85		15	2	1	50	100	2
5	Francisco Drive	2015	11,130	85		15	1	0.5	40	100	3
6	Francisco Drive	2015 + Project	11,180	85		15	1	0.5	40	100	3
7	Francisco Drive	2025	10,080	85		15	1	0.5	40	100	3
8	Francisco Drive	2025 + Project	10,130	85		15	1	0.5	40	100	3
9	Cambria Way	2015	380	85		15	0.5	0.5	25	50	
10	Cambria Way	2015 + Project	490	85		15	0.5	0.5	25	50	
11	Cambria Way	2025	450	85		15	0.5	0.5	25	50	
12	Cambria Way	2025 + Project	550	85		15	0.5	0.5	25	50	
13											
14											
15											
16											
17											
18											
19											
20											
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Appendix C

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Predicted Levels

Project #: 2015-142
Description: El Dorado Hills Memory Care
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Scenario	Autos	Medium Trucks	Heavy Trucks	Total
1	Green Valley Road	2015	68.9	59.7	60.8	70
2	Green Valley Road	2015 + Project	68.9	59.7	60.9	70
3	Green Valley Road	2025	69.4	60.1	61.3	70
4	Green Valley Road	2025 + Project	69.4	60.1	61.3	70
5	Francisco Drive	2015	63.5	52.5	54.3	64
6	Francisco Drive	2015 + Project	63.6	52.5	54.4	64
7	Francisco Drive	2025	63.1	52.1	53.9	64
8	Francisco Drive	2025 + Project	63.1	52.1	53.9	64
9	Cambria Way	2015	44.5	33.2	40.8	46
10	Cambria Way	2015 + Project	45.6	34.3	41.9	47
11	Cambria Way	2025	45.3	33.9	41.5	47
12	Cambria Way	2025 + Project	46.1	34.8	42.4	48

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Appendix C

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Noise Contour Output

Project #: 2015-142
Description: El Dorado Hills Memory Care
Ldn/CNEL: Ldn
Hard/Soft: Soft

			------- Distances to Traffic Noise Contours ------				
Segment	Roadway Name	Scenario	75	70	65	60	55
1	Green Valley Road	2015	46	99	213	459	989
2	Green Valley Road	2015 + Project	46	99	213	460	990
3	Green Valley Road	2025	49	107	230	495	1066
4	Green Valley Road	2025 + Project	50	107	230	495	1067
5	Francisco Drive	2015	19	42	90	194	419
6	Francisco Drive	2015 + Project	19	42	90	195	420
7	Francisco Drive	2025	18	39	84	182	392
8	Francisco Drive	2025 + Project	18	39	85	183	393
9	Cambria Way	2015	1	1	3	6	13
10	Cambria Way	2015 + Project	1	2	3	7	16
11	Cambria Way	2025	1	1	3	7	15
12	Cambria Way	2025 + Project	1	2	4	8	17

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Appendix D

Barrier Insertion Loss Calculation

Project Information:

Job Number: 2015-142
Project Name: El Dorado Hills Memory Care
Location(s): 1

Noise Level Data:

Source Description: Trash Pickup
Source Noise Level, dBA: 75
Source Frequency (Hz): 1000
Source Height (ft): 8

Site Geometry:

Receiver Description: Nearest Backyard
Source to Barrier Distance (C_1): 175
Barrier to Receiver Distance (C_2): 20

Pad/Ground Elevation at Receiver: 0
Receiver Elevation[1]: 5
Base of Barrier Elevation: 0
Starting Barrier Height 6

Barrier Effectiveness:

Top of Barrier Elevation (ft)	Barrier Height (ft)	Insertion Loss, dB	Noise Level, dB	Barrier Breaks Line of Site to Source?
6	6	-5	70	Yes
7	7	-6	69	Yes
8	8	-8	67	Yes
9	9	-9	66	Yes
10	10	-10	65	Yes
11	11	-11	64	Yes
12	12	-13	63	Yes
13	13	-13	62	Yes
14	14	-14	61	Yes
15	15	-15	60	Yes
16	16	-15	60	Yes

Notes: 1.Standard receiver elevation is five feet above grade/pad elevations at the receiver location(s)

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