

3343 Alpine Road Unincorporated Santa Clara County Environmental Information Form



Prepared for: Toni Cupal 2 Cedar Iane Woodside, CA 94062

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PLANNING | DESIGN | COMMUNICATIONS | MANAGEMENT | SCIENCE | TECHNOLOGY

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Introduction

The Environmental Information Form describes work and environmental analyses required for the construction of a new single-family residence, parking area/fire truck hammerhead, and installation of utilities at 3343 Alpine Road in Portola Valley, Santa Clara County, California. The residence will occupy a 0.48-acre area on a 4.2-acre parcel adjacent to Los Trancos Creek; the parcel is accessed via an existing bridge that spans Los Trancos Creek and by an easement off Alpine Road in Portola Valley.

In addition to the Environmental Information Form, several appendices are attached and include a supplemental information sheet, a project site plan, photographs, and several technical reports.



Environmental Information Form

Project Applicant or Representative:

Name: Ms. Toni Cupal

Address: 2 Cedar Lane

Woodside, CA 94062

Phone:

E-mail: toni@healingcultures.com

Please answer the following questions in the spaces provided. Use additional sheets if necessary. If the question does not apply, mark "N/A."

Failure to provide complete and accurate information will result in your application being declared incomplete, which will delay application processing.

Project Description:

1. Project address (or location): <u>3343 Alpine Road</u>

Portola Valley, CA 94038

2. Describe the project (i.e., What will be constructed? Proposed use? Project objectives?):

The proposed project includes the construction of a two-story single-family residence with a three car garage on a 0.48-acre area of a 4.2-acre parcel in unincorporated Santa Clara County near the Town of Portola Valley. The project is adjacent to Los Trancos Creek and includes Avoidance and Minimization Measures recommended in a Biological Resources Evaluation, Cultural Resources Report, Arborist Report, and Soil and Geotechnical Report (See attached supplemental information sheet and reports).

3	Is the project part of a master plan or a phase of a larger project? Yes	No	X	
5.	is the project part of a master plan, of a phase of a larger project. Tes [

If yes, describe the project's situation/ role in the master plan or larger project (e.g., project is Phase 2 of 4, brief description of what each phase entails):

- 4. Where on the site will project construction and activities occur (describe and show on site plan construction footprint and staging areas)? See attached site plan (Appendix A).
- 5. Site and project area information:
 - (a) Parcel size (acres or square feet): 4.2 acres
 - (b) Describe all buildings (existing and proposed) associated with the proposed use:

BUILDING	SIZE (sq. ft)	HEIGHT
Proposed two-story single family home with garage	5,000	33' 8 1/8"

If more space is needed, please attach a supplemental sheet.

- (c) Indicate total area (sq. ft.) of parking areas: approx. 588
- (d) Number of on-site parking spaces: <u>3 car garage</u>
- (e) Indicate total area (sq. ft.) of buildings, driveways, patios, walkways and other impervious surfaces: _____20,909 square feet or 0.48-acres
- (f) Describe any other outdoor areas dedicated to activities of the proposed use (e.g. sales, storage, animal confinement, etc). Include land area (sq. feet or acres).
 Not applicable.
- (g) Indicate total area (sq. feet or acres) of vacant or undeveloped land, and land not devoted to the proposed use: _____3.72 acres
- 6. Will grading (cut and/or fill) be required as part of the project? Yes X No

If yes, a licensed civil engineer or land surveyor must complete the following information. If no, proceed to question 7.

		EARTHWORK (cubic y	QUANTITY ards)	MAXIMUN (fee	1 DEPTH et)
	IMPROVEMENT	CUT	FILL	CUT	FILL
	Driveway, Access Road	205	167	2.7	1.5
	Building Pad	170	0	3.8	0
	Landscaping	0	0	0	0
	Other Improvements	0	0	0	0
	TOTAL	375	167	3.8	1.5
	If more space is needed, please attach sup	plemental sheet.	·		
	(a) If volume of cut exceeds fill, where the second	here will exces	ss soil be dispo	sed? Offsite	
7.	If yes, what is maximum height Are any structures on the property p If yes, attach photos of each structu structures (e.g. barn), and age of the	? root to be re from at lease e structures:	demolished? t two direction	Yes No	X be the types of
	STRUCTURE			AGE	SIZE
	If more space is needed, please attach sup	pplemental sheet.			
	Applicants are required to submit a Santa (structures proposed for demolition. The pr (70 W Hedding St., 5 th Floor).	Clara County prop operty owner may	perty appraisal rec y obtain a copy fro	cord to document om the County As	t the age of the ssessor's Office
8.	If the project is institutional, comm (a) Number of daily customers, rest (b) Basis for this number (e.g., seat	ercial or indus idents or other ing, etc)?_N/A	trial, answer th users of your	ne following: project? <u>N/A</u>	

- (c). Number of employees? (i) Total: <u>N/A</u> (ii) Max. at any one time: _____
- (d) Hours of operation: N/A

- 9. Indicate the water source serving the proposed use. Include provider name if applicable. The residence will be attached to a water line serviced by California Water Service.
- 10. If there are existing wells on the property:
 - (a) How many are functioning? <u>N/A</u>
 - (b) How many are abandoned? N/A
 - (c) Are the abandoned wells sealed? N/A
- 11. What is the distance to nearest water line? 300 feet, approximately
- 12. Indicate the method of sewage disposal for the proposed use. Include sewer district name if applicable. The site does not have a private septic system, and it will connect to the local sewer, which is part of the West Bay Sanitary District. It will be annexed to the West Bay Sanitary District.
- 13. If a septic system is being proposed, have percolation tests been done? Yes $\$ No $\$ No $\$ If yes, who conducted the tests and what were the results? $\$ N/A



Form continues on next page

Environmental Setting:

- Describe the natural characteristics (e.g., topography, vegetation, drainage, soil stability, habitat, etc.) on the project site. The project site (APN 142-15-008) is located in a rural-residential area within the riparian corridor of Los Trancos Creek. A number of trees occupy the site with disturbed open space at the center, where the single family residence will be constructed. Vegetation on site is discussed in the attached biological resources report (Appendix C). Soil stability is discussed in Attachment G.
- 2. Describe the existing land uses on the project site. <u>The project site currently includes</u> vacant land, a bridge over Los Trancos Creek, and a driveway from Alpine Road to the bridge.
- 3. Describe the existing land uses adjacent to the project site (note location in relation to the project site): <u>The site is bordered by Los Trancos Creek to the west, a commercial nursery</u> to the east, and by undeveloped private property to the north and south.

application. (See attachments.)



Form continues on next page

Environmental Aspects of Project:

1. Geology:

- (a) Are there any known geologic hazards on the site or in the immediate area. (e.g., earthquake faults, landslides, subsidence, steep slopes, etc.)? Yes X No
 If yes, describe: The site is located in a Special Flood Hazard Area and a Liquefaction Zone.
- (b) Will construction occur on slopes greater than 10%? Yes \square No [X]

If yes, indicate percent of slope:	_%; and describe how erosion/siltation will be
prevented?	

2. Trees:

- (a) On the site plan, show all trees with trunk diameter of 12 inches or larger, measured at 4.5 feet above the ground (12-inch dbh), and any other protected trees (See "Protected Trees" text box). Indicate the species and size of each tree, and clearly mark each of those trees that are proposed for removal.
- (b) In the table below, indicate the species, trunk diameter and location of each tree proposed to be removed.

TREE SPECIES	TRUNK DIAMETER	LOCATION
See attached Arborist Report (Appendix E)		

If more space is needed, please attach a supplemental sheet.

PROTECTED TREES. In addition to the general requirement to show trees with trunk diameter of 12 inches or larger, measured at 4.5 feet above ground (12-inch diameter at breast height, or dbh), the following must also be reported: (a) Oak trees 5" dbh or larger, to determine whether oak woodlands are present (see *Guide to Evaluating Oak Woodland Impacts*); (b) Trees 6" dbh or larger in the "-h₁" (Historic Preservation) district; (c) Any heritage tree, as defined in Section C16-2 of the County Ordinance Code; (d) Any tree required to be planted as a replacement for an unlawfully removed tree, pursuant to Section C16-17e; and (e) Any tree that was required to be planted or retained by the conditions of any discretionary County land use permit.

3. Agriculture:

(a) Is the site currently under Williamson Act contract? Yes \square No X
If yes, contact Planning Office for more information pertaining to Williamson Act compatible use determination. The application is available at the Planning Office.
(b) Are there any agricultural uses on-site? Yes No X
If yes, describe:
(c) Are there any commercial agricultural uses on-site? Yes No X If yes, describe:
 (d) Are there any agricultural uses adjacent to the project site? Yes X No If yes, describe: A wholesale tree nursery occupies land adjacent to the east side of the parcel.
(e) Is the site currently under an open space easement contract? Yes No X
If yes, contact Planning Office for more information pertaining to Open Space Easemen compatible use determination. The application is available at the Planning Office.
(f) Would the project convert more than 1 acre of farmland to a non-agricultural use? Yes
If yes, describe:

4. Drainage/Flooding/Riparian:

Are there any watercourses and riparian habitat (e.g. drainage swale, stream course, spring, pond, lake, creek, tributary of creek, wetlands) within 150 feet of proposed construction or grading?

Yes X No

If yes, describe, and indicate its location relative to the project: Los Trancos Creek is a perennial creek that flows northerly from the northeast slope of the Santa Cruz Mountains to its confluence with San Francisquito Creek at Stanford University. Los Trancos Creek drains an area of about seven square miles and consists of about 6.6 miles of channel. Located on the western border of the project parcel, the creek is un-channelized and free-flowing. The habitat is further described in the attached Biological Resources Evaluation (Appendix C).

5. Transportation:

	(a) Name street(s) to be used to access project: Alpine Road
	(b) Approximate number of vehicle trips per day to be generated by project (Please note that each direction equals one trip)? Similar to that of a typical single-family home in Portola Vall
	(c) Indicate the days & times you expect most trips to occur: Monday-Friday between 8am-5pm
	(d) Is there traffic congestion during commute hours at any nearby street intersections providing access to the project? Yes No X
	If yes, list the intersections:
	prepared for all projects that generate 100 or more peak hour trips. Transportation impact analyses (TIAs) using the Congestion Management Agency's methodology may also be required if the project will generate substantial growth in the project area, result in an increase of traffic in relation to the existing traffic load and capacity of the street system, etc.
6.	Safety/Health:
	(a) To your knowledge, do potentially hazardous materials exist on either this site or nearby
	property? (e.g., fuels, chemicals, industrial residue, etc.) Yes \square No X
	If yes, describe:
	(b) Will the project require the use, storage or disposal of hazardous materials such as toxic
	substances, flammables, or explosives (e.g diesel generator), underground storage of chemicals)? Yes X No
	If yes, describe: The construction of the project will require the use, storage, and disposal
	of hazardous materials. A hazardous spill plan is described in the attached Biological
_	Resources Evaluation (Appendix C).
7.	Air/Noise:
	(a) Describe the types (and numbers) of construction equipment that will be used during project construction? (e.g. grader, backhoe, pile driver, jackhammer).
	2 bobcat tractors, backhoe, employee vehicles, 8cy soil delivery dump truck, drill rig, boom truck, material lift, and a generator
	(b) Will the ongoing operation of the proposed use generate dust, smoke, fumes, odors, or noise (such as outdoor amplified noise or industrial activity)? Yes X No
	If yes, describe: The project is a single-family residence and not an industrial activity.

Amplified noise is no proposed. The use will generate dust, smoke, fumes, odors, or noise commensurate with that of a typical single-family residence in Portola Valley.

8. Aesthetic:

(a) Does the property contain natural features of scenic value or rare or unique characteristics

(e.g., rock outcropping, mature trees)? Yes X No

If yes, describe: <u>The project site contains a variety of mature trees and is adjacent to a creek</u>. It is located in the Hillside District of unincorporated Santa Clara County, which defines the viewshed for the urban area of the county. The single-family residence location is hidden behind the Los Trancos Creek corridor and will not be highly visible from Alpine Road, which is a county-designated scenic corridor.

- (b) Will construction occur at or near a ridgeline or hilltop? Yes No X
- (c) Will the project include visual impact mitigation (e.g. new landscaping, light reflectivity value of exterior surfaces less than 45, etc.) ?

ICS INO T	Yes		No	Х	
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If yes, describe:

9. Historical/Archaeological:

(a) Has the property received any historic designation(s)? Yes \square No X

If yes, check the boxes that apply and attach the appropriate nomination form or documentation related to its listing.

- National Historic Register of Historic Places
- California Historical Landmark
- California Point of Historic Interest
- California Register of Historical Resources
- Santa Clara County Heritage Resource Inventory
- Santa Clara County Historical Zoning District
- (b) Are you aware of any archaeological remains on the property? Yes \square No [X]

If yes, describe: <u>See the attached Cultural Resources Report (Appendix E). Remains</u> have been recorded nearby, and cultural resources monitoring is recommended during construction.

10. Habitat for endangered, threatened, or rare wildlife or plants:

(a) Does the property contain critical habitat for special-status species	(e.g	g., California Tig	ger
Salamander, Bay Checkerspot Butterfly, Red Legged Frog)? Yes	Χ	No	

(b) Is the property in or adjacent to a mapped occurrence of a special-status species as reported in the California Natural Diversity Database (CNDDB)? Yes No X
 If yes, describe: [see Planning Office for assistance] Please see the attached Biological Resources Evaluation (Appendix C).

Reduction or Avoidance of Impacts:

Discuss possible actions that could reduce or avoid any adverse environmental affects raised in the previous section (*Environmental Aspects of Project*). Use appropriate reference numbers.

Supplemental sheet attached. (Appendix F)

If more space is needed, please attach a supplemental sheet.

Certification:

I hereby certify that the statements on this form and the attached exhibits are true and correct to the best of my knowledge. If any of the facts represented here change, it is my responsibility to inform the County of Santa Clara.

Owner/Applicant Signature:	Date:
Staff Use On	ly
FILE #:	complete?:
Signature:	Date:

Appendix A – Environmental Information Form Supplemental Sheet

Environmental Information Form Reduction or Avoidance of Impacts

To reduce environmental impacts during construction, the project includes Best Management Practices (BMPs), a hazardous spill plan, Stormwater Pollution Prevention Plan, all of which are discussed at length in the attached reports. Since construction is taking place within the Los Trancos riparian corridor, the project likely requires a Lake and Streambed Alteration Agreement (LSAA) from the CDFW with Avoidance and Minimization Measures (AMMs) incorporated into the project to meet the LSAA permit conditions. In addition, the project is located in a Wildland-Urban Interface zone; thus, the project is required to comply with building regulations to mitigate impacts from wildfires (See attached WUI Building Exterior Guidelines).

Avoidance and minimization measures for biological resources that are incorporated into the project include, but are not limited to, conducting an environmental awareness training for construction personnel, installation of a wildlife exclusion fence, and pre-construction surveys for California Red-legged Frog (CRLF) and Western pond turtle (WPT). They also include: mapping and clearly marking existing wood rat houses and establishing suitable buffers around them; a preconstruction bat and nesting bird survey and consultation with California Department of Fish and Wildlife (CDFW) if a maternity or colony roost is detected; vehicles and equipment will be limited to pavement, existing roads, and previously disturbed areas.

Impacts to cultural resources will be reduced or avoided with cultural resource monitoring and avoidance procedures should discovery occur, which are discussed in detail in the attached Cultural Resources Report and are excerpted below. The analysis indicates a high potential to discover archaeological, paleontological, and human remain resources during project construction, and AMMs incorporated into the project call for monitoring during construction and procedures to be implemented if a resource is indeed encountered during the life of the project.

To minimize injuries to trees on site, the project will incorporate the recommendations in the attached Arborist Report, including avoiding grading operations closer than six times the trunk diameter, using temporary barricades, pruning and root pruning, fertilization, mulching, and periodic inspections by the site arborist. Temporary work areas will be restored with respect to pre-existing contours and conditions upon completion of work. Restoration work including re-vegetation and soil stabilization will be evaluated upon completion of work and performed as needed.

A geotechnical engineering investigation of the project site was performed to assess potential geologic and geotechnical issues for the project. Recommendations, which can be found in the attached Geotechnical Report, address the foundation, grading, the receding creek bank, protecting the creek bank, and flood protection.

Biological Resources AMMs

This section lists needed permits and provides recommended AMMs that should be incorporated prior to, during, and after construction of the proposed project to minimize impacts to sensitive habitats (including jurisdictional waters) and special-status species. They are excerpted from the September 2018 Biological Resources Evaluation.

7.1 Permits

Since construction is taking place within the Los Trancos riparian corridor, the project likely requires an LSAA from the CDFW with AMMs incorporated into the project to meet the LSAA permit conditions. These measures will reduce potential impacts to Los Trancos Creek and associated riparian habitat to less than significant.

7.2 Sensitive Habitats and Jurisdictional Features

The proposed project includes the construction of a single-family residence, parking area, and installation of utilities. The following general AMMs are recommended as part of the proposed project and should be included on the project plans to minimize impacts to sensitive habitats and jurisdictional features:

- 1. Travel and parking of vehicles and equipment will be limited to pavement, existing roads, and previously disturbed areas. Ground disturbance and vegetation removal may not exceed the minimum amount necessary to complete work at the site.
- 2. Temporary work areas will be restored with respect to pre-existing contours and conditions upon completion of work. Restoration work including re-vegetation and soil stabilization will be evaluated upon completion of work and performed as needed.
- 3. The potential for adverse effects to water quality in aquatic habitat within the project footprint will be avoided by implementing BMPs. These BMPs will be used to minimize any erosion or other sources of water pollution. The BMPs will be established by a Stormwater Pollution Prevention Plan prepared for the site, and may include measures such as the following:
 - a. Store, handle, and dispose of construction materials and wastes properly to prevent their contact with stormwater.
 - b. Control and prevent the discharge of all potential pollutants, including solid wastes, paints, concrete, petroleum products, chemicals, wash water or sediment and non-stormwater discharges to storm drains and water courses.
 - c. Avoid cleaning, fueling, or maintaining vehicles on site, except in a designated area in which run-off is contained and treated.
 - d. Perform clearing and earth moving activities during dry weather to the maximum extent practical.
 - e. Delineate clearing limits, easements, setbacks, sensitive or critical areas, buffer zones, trees, and discharge course with field markers.
 - f. Removing spoils promptly and avoid stockpiling of fill materials when rain is forecast. If rain threatens stockpiles soils and other materials shall be covered with a tarp or other waterproof material.
 - g. Limit construction access routes and stabilize designated access points.
 - h. Trash and construction related solid wastes must be deposited into a covered receptacle to prevent contamination and dispersal by wind.

- i. Sanitary facilities will be maintained on the project site at all times.
- j. An erosion control plan shall be established during the wet season (September 15 through April 15). The following measures are included in the plan:
 - i. During the rainy season, all paved areas shall be kept clear of earth material and debris. The project site shall be maintained to minimize sediment-laden run-off to any storm drainage system, including existing drainage swales and water courses.
 - ii. Down slope drainage courses, streams, and storm drains will be protected with rock filled sand bags, temporary swales, silt fences, and earth berms in conjunction of all landscaping.
 - iii. Inlet protection shall be installed at open inlets to prevent sediment from entering the storm drain system.
 - iv. Straw rolls shall be placed at the toe of slopes and along the down slope perimeter of the project site.
 - v. No materials containing monofilament shall be used, because these materials entrap small mammals, reptiles and amphibians.
- 4. A hazardous spill plan will be developed prior to construction. The plan will describe what actions will be taken in the event of a spill. The plan will also incorporate preventative measures to be implemented, such as vehicle and equipment staging, cleaning, maintenance, and refueling; and contaminant (including fuel) management and storage. In the event of a contaminant spill, work at the site will immediately cease until the contractor has contained and mitigated the spill. The contractor will immediately prevent further contamination and notify appropriate authorities and mitigate damage as appropriate. Adequate spill containment materials, such as oil diapers and hydrocarbon cleanup kits, shall always be available on site. Containers for storage, transportation, and disposal of contaminated absorbent materials will be provided in the project footprint.

7.3 Special-Status Species

Steelhead (Central California Coast DPS) is assumed to be present in Los Trancos Creek and San Francisco dusky-footed woodrat is present in areas adjacent to the project footprint. California red-legged frog, western pond turtle, Townsend's big-eared bat, western red bat, white-tailed kite, and long-eared owl have the potential to occur within and adjacent to the project footprint. In addition, other birds protected by the MBTA and California Fish and Game Code could nest in vegetation adjacent to and within the project footprint, and other bats protected by California Fish and Game Code could roost in trees within and nearby the project footprint. Therefore, measures to protect special-status species, bats, and nesting birds during construction will be necessary. The following AMMs are recommended to avoid harming special-status species, bats, and nesting birds during construction:

1. <u>Wildlife Exclusion Fence.</u> A wildlife exclusion/environmental fence with exit funnels at ground level every 25 feet will be erected around active construction areas to prevent the movement of animals into active construction areas. The fence should be a minimum of 3 feet in height, buried in the soil at least 4 inches, and the base backfilled to form a tight seal to discourage CRLF and WPT from crawling under and entering the project site. If the fence cannot be buried, the base will be weighed down and sealed with gravel bags. During construction, the fence shall be checked every day for damage or breaks before construction activities commence. Any damage to the fence will be repaired in a timely manner.

- <u>Silt Fencing.</u> Silt fencing should be installed between the creek and the work areas to minimize sedimentation into Los Trancos Creek or a silt barrier can be added to the wildlife exclusion fence to minimize the amount of fencing installed within the project footprint. During construction, the fence shall be checked every day for damage or breaks before construction activities commence. Any damage to the fence will be repaired in a timely manner.
- 3. <u>Daily Fence Inspections.</u> A qualified biologist will inspect the area inside of the fence for CRLF and WPT every day before construction activities commence. If any special-status species are found, construction activities will not be allowed to start and the USFWS and CDFW will be consulted on an appropriate course of action. Such action could include leaving the animal alone to move away on its own or the relocation of the animal to outside of the project footprint.
- 4. <u>Designation of Work Area.</u> Prior to project activities, a qualified biologist will clearly delineate riparian vegetation, including trees to be avoided and protected from construction activities. No riparian vegetation shall be removed.
- 5. Employee Education Program. An employee education program will be conducted, consisting of a brief presentation to explain biological resources concerns to contractors, their employees, and any other personnel involved in construction of the project. The program will include the following: a description of relevant special-status species, nesting birds, and bats along with their habitat needs as they pertain to the project; a report of the occurrence of these species in the project vicinity, as applicable; an explanation of the status of these species and their protection under the federal and state regulations; a list of measures being taken to reduce potential impacts to natural resources during project construction and implementation; and instructions if a special status species is found onsite. A fact sheet conveying this information will be prepared for distribution to the abovementioned people and anyone else who may enter the project footprint. Upon completion of training, employees will sign a form stating that they attended the training and agree to all the conservation and protection measures.
- 6. <u>Pre-construction Survey for Special-Status Species.</u> A qualified biologist will conduct a preconstruction survey within the project footprint for the presence of CRLF and WPT. The survey will be conducted immediately prior to the start of project activities, including vegetation removal, grubbing, grading, installation of fencing, and construction. If any of these species are found, work will not commence until the appropriate state and/or federal resource agencies are contacted and avoidance measures are in place.
- 7. San Francisco Dusky-footed Wood Rat. Within 30 days prior to the start of construction activities, a qualified biologist will map all San Francisco dusky-footed woodrat houses within a 50-foot buffer around the project footprint. All mapped woodrat houses will be clearly marked with flagging to avoid physical disturbance of the woodrat house from construction activities. Additionally, a suitable buffer area around each woodrat house will also be clearly marked with flagging. Buffer areas are generally a 10-foot radius around each woodrat house. The buffer areas shall be left in a natural, vegetated state and no construction activities or staging of equipment shall take place within the buffer areas.
- 8. <u>Pre-construction Survey for Nesting Birds.</u> To avoid impacts to nesting birds and violation of state and federal laws pertaining to birds, all construction-related activities (including but not limited to mobilization and staging, clearing, grubbing, vegetation removal, fence installation, demolition, and grading) should occur outside the avian nesting season (that is, prior to February 1 or after September 15). If construction and construction noise occurs within the avian nesting season (from February 1 to September 15), all suitable habitats located within the project's area of disturbance

including staging and storage areas plus a 250-foot (passerines) and 1,000-foot (raptor nests) buffer around these areas shall be thoroughly surveyed, as feasible, for the presence of active nests by a qualified biologist no more than five days before commencement of any site disturbance activities and equipment mobilization. If project activities are delayed by more than five days, an additional nesting bird survey shall be performed. Active nesting is present if a bird is building a nest, sitting in a nest, a nest has eggs or chicks in it, or adults are observed carrying food to the nest. The results of the survey shall be documented.

If pre-construction nesting bird surveys result in the location of active nests, no site disturbance and mobilization of heavy equipment (including but not limited to equipment staging, fence installation, clearing, grubbing, vegetation removal, fence installation, demolition, and grading), shall take place within 250 feet of non-raptor nests and 1,000 feet of raptor nests, or as determined by a qualified biologist in consultation with the California Department of Fish and Wildlife, until the chicks have fledged. Monitoring shall be required to insure compliance with MBTA and relevant California Fish and Game Code requirements. Monitoring dates and findings shall be documented.

- 9. Preconstruction Bat Roost Surveys. At least five days before the start of construction-related activities (including but not limited to mobilization and staging, clearing, grubbing, tree removal, vegetation removal, fence installation, demolition, and grading), a survey for tree cavities suitable for roosting bats will be conducted within the project footprint, including a 50-foot buffer, as feasible. If suitable tree cavities are found, an emergence survey of the cavities will be conducted by a qualified biologist for colony bat roosts before the onset of construction-related activities. If an occupied maternity or colony roost is detected, CDFW shall be consulted to determine appropriate measures, such as bat exclusion methods, if disturbance of the roost cannot be avoided. The results of the surveys shall be documented.
- 10. <u>Construction Site Sanitation.</u> Food items may attract wildlife onto the construction site, which will expose them to construction-related hazards. The construction site shall be maintained in a clean condition. All trash (e.g., food scraps, cans, bottles, containers, wrappers, and other discarded items) will be placed in closed containers and properly disposed of.
- 11. <u>Species Discovery.</u> If an animal is found at the work site and is believed to be a protected species, work must be stopped, and the project biologist be contacted for guidance. Care must be taken not to harm or harass the species. No wildlife species will be handled and/or removed from the project footprint by anyone except a qualified biologist.
- 12. <u>Wildlife Entrapment.</u> The contractor shall avoid the use of monofilament netting, including its use in temporary and permanent erosion control materials. All holes greater than one-foot deep must be sealed overnight to prevent the entrapment of wildlife. Where holes or trenches cannot be sealed, escape ramps that are no greater than 30% slope will be positioned such that entrapped wildlife will be able to escape. The escape ramps should be at least one-foot wide and covered/fitted with a material that provides traction.
- 13. <u>Daily Species Inspections for Open Trenches or Holes.</u> Open trenches or holes for CRLF and other special-status species will be inspected every day before construction activities commence. If any special-status species are found, construction activities will not be allowed to start and the USFWS and CDFW will be consulted on an appropriate course of action.

Cultural Resources AMMs

Prior to initiating the CEQA analysis for the project, it is recommended that the Lead Agency contact Tribal Representatives, per the recommendations of the NAHC (Appendix C) to identify if there are additional Native American cultural sites in the vicinity known to individual tribes that have not been reported to the NWIC.

The following AMMs should be incorporated into the project and included as specifications in construction documents. These measures will mitigate potential project impacts to archaeological, paleontological and tribal cultural resources:

Impact CULT-1: Disturbance of unknown archaeological cultural resources, including tribal cultural resources, during project construction.

AMM CULT-1: Due to the abundance of evidence of cultural resources near the project area, there is a high potential to discover archaeological resources during ground disturbing activity. Archaeological monitoring is required for all ground disturbing activities. An archaeologist meeting the Secretary of the Interior's Standards for Archaeology will be present at the project site during any ground disturbing activities, such as machine or hand excavation, or vegetation grubbing, take place. No ground disturbing activities of any kind can take place if the archaeologist is not present.

If archaeological resources from either a historic or prehistoric period are discovered (or have been suspected to have been discovered) during project construction, all ground disturbing work within a 100' radius buffer of the discovery will cease. The archaeologist will assess the discovery before any additional ground disturbing work within the 100-foot buffer will be allowed to continue. No further ground disturbing work will be allowed to continue until the archaeologist has fully evaluated the find and permits work to continue. Dependent on the evaluation by the archaeologist, archaeological excavation and recordation may be required before construction can continue.

If the newly discovered resources are determined, or suspected to be, Native American in origin, Native American Tribes/Representatives will be contacted and consulted as directed by the NAHC and Native American construction monitoring will be initiated. All Native American artifacts and finds suspected to be Native American in nature are to be considered as significant tribal cultural resources until the County has determined otherwise with the consultation of a qualified archaeologist and local tribal representative(s) as directed by the NAHC.

Implementation of AMM CULT-1 would reduce impacts to archaeological and tribal cultural resources to Less than Significant.

Impact CULT-2: Disturbance of unrecorded paleontological resources during project construction.

AMM CULT-2: If unrecorded paleontological resources are encountered during construction, all ground disturbing activities will cease, and the developer will avoid altering the resource in any way. No work shall be

carried out within the stratigraphic context that the resource was discovered in until a qualified paleontologist has evaluated, recorded, and determined appropriate treatment of the resource consistent with protocols of the Society for Vertebrate Paleontology.

Implementation of AMM CULT-2 would reduce potential project impacts to paleontological resources to Less than Significant.

Impact CULT-3: The project could result in disturbance of unknown human remains during project construction.

AMM CULT-3: If human remains are unearthed during construction of the proposed project, the developer shall comply with State Health and Safety Code Section 7050.5 and will cease work and contact the County. The County shall immediately notify the County Coroner and no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the NAHC. The NAHC shall then identify the person(s) thought to be the Most Likely Descendent (MLD).

After the MLD has inspected the remains and the site, they have 48 hours to recommend to the landowner the treatment and/or disposal of, with appropriate dignity, the human remains and any associated funerary objects. Upon the reburial of the human remains, the MLD shall file a record of the reburial with the NAHC and the project archaeologist shall file a record of the reburial with the NAHC is unable to identify an MLD, or the MLD identified fails to make a recommendation, or the landowner rejects the recommendation of the MLD and the mediation provided for in Subdivision (k) of Section 5097.94, if invoked, fails to provide measures acceptable to the landowner, the landowner or his or her authorized representative shall inter the human remains and items associated with Native American human remains with appropriate dignity on the property in a location not subject to further and future subsurface disturbance.

Implementation of AMM CULT-3 would reduce potential project impacts to human remains to Less than Significant.

Tree Preservation Guidelines

Excerpted from September 2017 Aborist Report.

Tree Preservation and Protection Plan

In providing recommendations for tree preservation, we recognize that injury to trees as a result of construction include mechanical injuries to trunks, roots and branches, and injury as a result of changes that occur in the growing environment.

To minimize these injuries, we recommend grading operations encroach no closer than six times the trunk diameter, (i.e. 30" diameter tree x 6=180" distance). At this distance, buttress/anchoring roots would be preserved and minimal injury to the functional root area would be anticipated. Should encroachment within the area become necessary, hand digging is *mandatory*.

Barricades

Prior to initiation of construction activity, temporary barricades should be installed around all trees in the construction area. Six-foot high, chain link fences are to be mounted on steel posts, driven 2 feet into the ground, at no more than 10-foot spacing. The fences shall enclose the entire area under the drip line of the trees or as close to the drip line area as practical. These barricades will be placed around individual trees and/or groups of trees as the existing environment dictates.

The temporary barricades will serve to protect trunks, roots and branches from mechanical injuries, will inhibit stockpiling of construction materials or debris within the sensitive 'drip line' areas and will prevent soil compaction from increased vehicular/pedestrian traffic. No storage of material, topsoil, vehicles or equipment shall be permitted within the tree enclosure area. The ground around the tree canopy shall not be altered. Designated areas beyond the drip lines of any trees should be provided for construction materials and onsite parking.

Root Pruning (if necessary)

During and upon completion of any trenching/grading operation within a Tree Protection Zone, clean pruning cuts of exposed, damaged or severed roots greater than one-inch diameter should be accomplished under the supervision of a qualified Arborist to minimize root deterioration beyond the soil line *within twenty-four (24) hours.*

Pruning

Pruning of the foliar canopies to include removal of deadwood is recommended and should be initiated prior to construction operations. Such pruning will provide any necessary construction clearance, will lessen the likelihood or potential for limb breakage, reduce 'windsail' effect and provide an environment suitable for healthy and vigorous growth.

Fertilization

A program of fertilization by means of deep root soil injection is recommended with applications in spring and summer for those trees to be impacted by construction. Fertilizer should include organic

Such fertilization will serve to stimulate feeder root development, offset shock/stress as related to construction and/or environmental factors, encourage vigor, alleviate soil compaction and compensate for any encroachment of natural feeding root areas.

Inception of this fertilizing program is recommended prior to the initiation of construction activity.

Mulch

Mulching with wood chips (maximum depth 3") within tree environments (outer foliar perimeter) will lessen moisture evaporation from soil, protect and encourage adventitious roots and minimize possible soil compaction.

Inspection

Periodic inspections by the *Site Arborist* are recommended during construction activities, particularly as trees are impacted by trenching/grading operations.

Inspections at approximate four (4) week intervals would be sufficient to assess and monitor the effectiveness of the Tree Preservation Plan and to provide recommendations for any additional care or treatment.

All written material appearing herein constitutes original and unpublished work of the Arborist and may not be duplicated, used or disclosed without written consent of the Arborist.

We thank you for this opportunity to be of assistance in your tree preservation concerns.

Should you have any questions, or if we may be of further assistance in these concerns, kindly contact our office at any time.

Geotechnical and Soil Recommendations

Excerpted from September 2018 Geotechnical Report.

General

Based on our review of the published geologic and geotechnical documents, the subsurface exploration conducted at the subject site, and the results obtained from our laboratory testing program, it is our opinion that the proposed residential project is geologically and geotechnically feasible, provided the recommendations presented in this report are incorporated into the project design and construction. When the final project plans become available, they should be reviewed by this office to confirm that they have been prepared in accordance with this report, and that our recommendations properly address the proposed project in its final form.

The primary geotechnical constraint for this project is the moderately to highly expansive near surface soils which could experience large amounts of shrink and swell activity that could cause differential movement of the building foundations or floor slabs unless precautions are taken. To mitigate these issues, we recommend drilled pier foundations with an elevated floor slab and deepened grade beams for the proposed residence. Additionally, exterior flat work will need to be constructed on a layer of nonexpansive fill.

A secondary concern for the project site is the slumping, recession, and retreat of the creek bank. During the geologic reconnaissance, our CEG observed a moderate size slump of the north-facing southern creek bank immediately to the north of the planned residential structure. The slump occurred in the alluvial soils comprising the entire bank/slope bank in that area and it resulted in decreasing the bank gradient in that area. This alluvial slump was most likely caused by the erosive forces of the flowing creek along the toe of the southern creek bank. Since additional erosion and subsequent mobilization of the alluvial slump cannot be ruled out during the design life of the project, we recommend that the slope face where the slump occurred be blanketed with rip rap or a stitch pile/pier wall be installed along the top of the southern bank of the Los Trancos Creek channel and where approximately delineated on the attached Plate 2, Site Plan and Geology.

Furthermore, an additional southern creek bank section located immediately beyond the mapped alluvial slump to the north and another to the northwest across the channel appeared relatively high and steep to nearly vertical (See Plate 2). Consideration should be given to protecting these creek bank sections with rip rap to lessen the potential of erosion and subsequent failure into the channel, which could result in partially damming the channel and causing localized flooding.

According to the FEMA Flood maps, the project site is located on the border of Zone X described as "areas determined to be outside of the 0.2% annual chance floodplain," and Zone A, described as a "special flood hazard area subject to inundation by the 1% annual chance flood without base flood elevation." The project civil engineer should assess if the pad grades need to be raised based on the assigned FEMA categories noted above.

Based on the above discussion, it will be imperative for the professional staff of the project geotechnical engineers to have an active role during the site grading and foundation construction.

The site could experience very strong ground shaking from future earthquakes during the anticipated lifetime of the project. The intensity of the ground shaking will depend on the magnitude of the earthquake, distance to the epicenter, and the response characteristics of the on-site soils. While it is not possible to totally preclude damage to structures during major earthquakes, strict adherence to good engineering design and construction practices will help reduce the risk of damage. The 2016 California Building Code defines the minimum standards of good engineering practice.

Grading

The following grading procedures should be followed during construction of proposed building pads and subgrade for and the associated improvements:

- Strip and remove all bushes, vegetation, roots, and organically contaminated topsoil, tanbark, and other debris from the proposed house footprint. Remove all organically-contaminated soils from the site and do not re-use as site fill. Where trees are to be removed, the removal should include all major root systems down to 1 inch in size.
- Where necessary, place fill on any over-excavated surfaces and in holes or depressions created by grading activities in uniformly moisture conditioned and compacted lifts not exceeding 8 inches in loose thickness. Rocks or cobbles larger than 4 inches in maximum dimensions should not be allowed to remain in the areas to be compacted, unless they can be crushed in-place by the construction equipment.
- Thoroughly moisture condition each layer of fill and backfill to a moisture content that is at least 3 percent over optimum, and re-compact as specified above.
- Where slab-on-grade floor slab subgrades expose highly expansive soils, the end result of
 grading must be to achieve a minimum of 18 inches of properly compacted imported nonexpansive soils beneath the slab. The thickness of the non-expansive soils may be reduced to 12
 inches under the walkways and exterior flatwork (the recommended non-expansive thickness
 may include the gravel base).

The excavated on-site soils from the site are not suitable for use in the upper 18 inches of subgrade for floor slabs or pavements as structural fill due to its highly expansive nature. However, the on-site soils may be used elsewhere as fill. Imported fill soils if needed, should be predominantly granular in nature and should be free of organics, debris, or rocks over 4 inches in size, and should be approved by the Geotechnical Engineer before importing to the site. As a general guide to acceptance, imported soils should have a Plasticity Index less than 15, and R-value of at least 20, and fines content between 15 and 60 percent. All aspects of site grading including clearing/stripping, demolition and placement of fills or backfills should be performed under the observation of BAGG's field representatives.

It must be the Contractor's responsibility to select equipment and procedures that will accomplish the grading as described above. The Contractor must also organize his work in such a manner that one of our field representatives can observe and test the grading operations, including clearing, excavation, compaction of fill and backfill, and compaction of subgrade.

Drilled Pier Foundations

As discussed earlier, the residence should be supported on a drilled pier foundation with interconnecting grade beams and crawlspace to elevate the floor. The piers should be a minimum of 16 inches in diameter and should penetrate at least 6 feet into the bedrock formation. The piers can be designed for a skin friction support of 600 psf below 3 feet from finished grade for compressive loading

and short-term uplift. Sustained uplift should be taken at 400 psf in bedrock only, disregarding embedment in soils.

Grade beams should be designed with the assumption that they obtain no vertical support from the underlying soils. In addition, due to the highly expansive nature of the on-site surficial soils, the grade beams should be founded at least 24-inches below the adjacent grade and a 1,500 psf uplift pressure should be assumed to act on the bottom of the grade beams for design purposes. Alternatively, if minimal earthwork is desired, grade beams may be raised above the existing grade; however, if the grade beams are raised, the supporting piers must be designed to take the additional vertical and all of the lateral loads for the residence. In addition, appropriate measures to ensure surficial runoff is diverted around the foundation system and adequate drainage occurs beneath the house should be included in the design to limit the effects of ponding water against the foundation members or beneath the residence.

Actual depths and pier dimensions should be established by the design engineer. Final pier depths in the field should be approved by the geotechnical engineer during the drilling operations. Design of the beam reinforcement, depth, size, and spacing of the piers will depend upon actual building loads and should be determined by the engineer responsible for the foundation design.

It is imperative for the Geotechnical Engineer to have an active role during the foundation construction to identify the materials encountered and confirm that proper penetration into the native bedrock materials has been achieved. Therefore, full-time observation of the grading operations by the Geotechnical Engineer will be required as adjustments will need to be made during construction. The final foundation excavation depths should be determined under the geotechnical engineers' field representatives and expose the native bedrock materials.

Shallow Foundations

For ancillary structures, or if shallow foundations are preferred for the construction of the proposed residence despite expected differential movements, we recommend that the allowable bearing value should be taken as 2,000 pounds per square foot (psf) for dead loads, and 2,500 psf for total design loads. The latter value may be increased by one-third, when resisting transient and seismic loads. All footings should be properly established a minimum of 24 inches below the nearest adjacent grade and the minimum required width for the isolated and continuous shallow footings is 24 inches and 12 inches, respectively.

If a mat foundation is used, it may be designed using a modulus of subgrade reaction of 120 psi/in. Bearing value for the mat should be limited to 1,500 psf for total design loads. The entire mat should be established on a well compacted subgrade, as discussed under the Site Grading section above. Also, it is advisable for the mat to contain thickened (turned down) edges for proper support and for preventing from moisture seeping under the mat. We recommend that thickened edges extend to a depth of approximately 24 inches below the nearest adjacent edge.

The bottom of the footing and mat foundation excavations should be relatively clean, firm, and free of any loose cuttings before reinforcing steel and concrete are placed. All foundations and concrete pads must be appropriately reinforced as deemed appropriate by the project structural engineers.

Settlement of House Foundations

We have estimated that the total post construction settlements of the proposed house supported on

either shallow footings or drilled piers established in bedrock will be 1/2 inch or less; however, the estimated expansion of the near surface site materials when saturated may be 2 inches or greater, which could cause differential movements of up to 2. inches across the site for shallow foundations.

Lateral Resistance

Lateral loads may be resisted by passive soil/bedrock pressures against the sides of the spread footings, grade beams, or drilled piers. The allowable passive resistance to wind or seismic loads can be taken as an equivalent fluid pressure of 350 pounds per cubic foot (pcf) in compacted fill and undisturbed native soil materials, and as 400 pcf in the native bedrock formation. A coefficient of friction may be used in conjunction with the passive pressure. This value may be assumed to be 0.30 between undisturbed native soil or compacted fill materials and concrete. The top 12 inches of the lateral capacity should be ignored, unless the footing or mat is laterally confined by a pavement or a concrete slab.

Retaining Walls

Retaining walls, such as those for the sunken garden or for the below-grade wall for creek bank protection as detailed in the section below, should be designed to resist lateral earth pressures from the adjoining soil and bedrock materials. Walls that are restrained from movement at the top should be designed to resist an equivalent fluid pressure of 65 pcf for level backfill. For sloping backfill, the above pressures should be increased by 4 pcf for every 5 degree increase in the slope angle up to a maximum gradient of 3:1 (H to V).

Free standing walls should be designed to resist active lateral pressures taken as an equivalent fluid pressure of 45 pounds per cubic foot (pcf)for level backfill. For sloping backfill, the above pressures should be increased by 4 pcf for every 5 degree increase in the slope angle up to a maximum gradient of 3:1 (H to V). Surcharge loads should be added to the above pressures at a rate of 33% and 50% percent of the applied surcharge load for cantilever and restrained walls, respectively.

Seismic pressures on the retaining walls may be simulated by a rectangular pressure distribution against the wall equal to 10H, where H is the height of the wall.

The above lateral pressures do not include any hydrostatic pressures resulting from groundwater, seepage water, or infiltration of natural rainfall and/or irrigation water behind the walls. Therefore, all walls over 2 feet in height should be provided with a drainage blanket behind the wall. The drainage blanket should consist of a pre-manufactured drainage panel or a one-foot-thick blanket of either Caltrans Class 2 Permeable material or free-draining gravel encapsulated by a suitable filter fabric. A 12-inch cap of relatively impermeable soil should be placed at the top of the drainage blanket to minimize infiltration of surface water. The cap material should be compacted to a minimum of 90 percent relative compaction at a moisture content of at least 3 percent over optimum. A 4-inch diameter perforated PVC pipe should be installed at the base of the drainage layer to facilitate removal of water collected behind the wall.

General backfill behind the walls, excluding drainage materials, should conform to the fill requirements included under the "Site Grading" section of this report. Retaining walls should be supported as recommended under "Foundations."

Creek Bank Protections

As discussed above in Section 8.1, our CEG mapped an alluvial slump along the southern creek bank

immediately to the north of the proposed residence location during the site reconnaissance. As such, we recommend that rip rap slope protection, a stitch pile/pier wall, a sheetpile wall, or other appropriate slope protection be placed along the southern bank of Los Trancos Creek, north of the project site. The location of the wall should be setback about between 5 and 10 feet from the top of the creek bank at that location. In addition, the top of the piles/piers maybe terminated about 2 feet below the final grade so that they do not interfere with daily activities or form obstacles. See Plate 2 for a proposed location of the wall.

Stitch piers should be designed to support 10 feet of active material using pressures noted in the "Retaining Walls" section above, spaced at center to center spacing of 3 diameters, use the parameters noted under the "Drilled Pier Foundations" section, and utilize the passive soil resistance as noted the "Lateral Design" section.

Either rip rap slope protection or a pile/pier wall, designed with the pressures noted under the "Retaining Wall" section above would be appropriate for this situation.

Swimming Pool

The swimming pool walls should be designed to withstand the lateral earth pressures given above under "Retaining Walls" equal to an equivalent fluid pressure of 65 pcf plus the allowance for the sloping ground on the upslope edge, as well as the soil creep forces. The pool walls should also be designed as freestanding walls, assuming the soil has shrunk away from the pool walls when it is filled (i.e., without soil support).

We recommend that flexible waterproofing be used between the pool and surrounding decks and walkways to minimize moisture intrusion into subsurface soils and bedrock.

Depending on the planned depth of the pool, much of the excavation is expected to expose firm soils and/or bedrock without any seepage layers or groundwater. Even if absent at the time of excavation, seepage layers may develop in the future. Therefore, we recommend a drainage layer below the pool shell. If possible, this drain should be connected to the back-drain behind other the other retaining walls or subdrains and discharged to a suitable outfall. Alternatively, the pool shell should be fitted with a hydro-relief valve at the deep end as a precaution against hydrostatic uplift. An appropriate drainage layer beneath the pool will consist of at least 8 inches of 3/4-inch crushed rock.

Slab-on-Grade Floors and Exterior Flatwork

As discussed under Site Grading, the floor for the house should be elevated through the use of a crawlspace to avoid issues caused by the highly expansive near surface soils. Additionally, any slabs on grade, such as that used for the garage or pool deck, must be structurally independent of the house foundation.

Exterior slabs, walkways, and pool decks should be underlain by a minimum of 12 inches of imported nonexpansive soils as well as 4 inches of Caltrans Class 2 aggregate base. This recommendation is intended to isolate the slabs and walkways from the shrinking and swelling nature of the surficial soils covering the site.

Temporary Shoring

Vertical site excavations greater than 5 feet in depth should be properly shored as per the Cal-OSHA guidelines. Temporary shoring may consist of soldier-pile and wood lagging walls, soil-nail or tie-back

walls with shotcrete, or other approved alternative. The temporary shoring should be designed to withstand an active earth pressure of 45 pcf (triangular distribution) with a backfill slope up to a gradient of 3:1 (H to V). Construction equipment should not be allowed at the top of the excavation closer than a distance equal to the height of the excavation.

Where a *temporary* sloped excavation is desired, it may be opened at a gradient of 1:1 (horizontal to vertical) if the excavation exposes clayey soils and 1.5:1 (H to V) if the excavation contains granular materials.

Utility Trench Backfill

Vertical trenches deeper than 5 feet will require temporary shoring. Where shoring is not used, the sides should be sloped or benched, with a maximum slope of 1:1 (horizontal: vertical) if the trench exposes clayey soils, and 1.5:1 (H to V) if the material is granular and sandy in nature. The trench spoils should not be placed closer than 3 feet or one-half of the trench depth (whichever is greater) from the trench sidewalls. All work associated with trenching must conform to the State of California, Division of Industrial Safety requirements. Based on our boring and laboratory results, it is our opinion most of the fill soils at the site can be classified as a type "B" soil.

The utility trenches may be backfilled with on-site soils. Backfill soils should be free of debris, roots and other organic matter, and rocks or lumps exceeding 4 inches in greatest dimension. The fill material should be uniformly moisture conditioned to the proper moisture content and compacted as per the recommendations included in the "Site Grading" section of this report. The utility lines should be properly bedded and shaded with granular material, such as, sand or pea gravel. As a general rule, the bedding layer should be at least 4 inches thick. The bedding and shading layers should be compacted using a vibratory compactor. The contractor should use extreme caution with the vibratory compactor on the shading layer because excessive vibrations and/or imbalanced shading materials could result in dislodging the pipe and loosening of the joints.

Alternatively, the utility trenches may be backfilled with flowable fill, a cementitious slurry consisting of a mixture of fine aggregate or filler, water, and cementitious material(s) capable of filling all voids in irregular excavations and hard to reach places. The flowable fill is self-leveling material that hardens in a matter of hours without the need for compaction in layers. Flowable fill is sometimes referred to as controlled density fill (CDF), controlled low strength material (CLSM), and lean concrete slurry. A 2-sack flowable fill material is considered to be acceptable for the subject project.

Pavement Design

Flexible Pavements

A composite bulk sample of the shallow subsurface soils from approximately 1 to 4 feet was collected from Borings B-4 and B-5 and tested for its R-value. The resultant R-value was 12 at an expansion pressure of 28 psf. As the subgrade soils are expansive in nature, the pavement thickness and the strength of the cover must not only be sufficient to protect the subgrade soil from displacement due to traffic loads, but must also be of sufficient weight to prevent excessive expansion with the resulting loss of stability.

Using an R-value of 12, the calculated pavement sections for Traffic Indices of 5.0, 6.0, and 7.0 with aggregate base and subbase are tabulated below. Generally, a Traffic Index (TI) of 5.0 is appropriate for automobile parking stalls, whereas a Traffic Index of 6.0 would be appropriate for heavily-used automobile driveways with only occasional use by heavy trucks (such as once a week or so by garbage

trucks), and Traffic Indices of 7.0 or higher are used where the pavement would be subject to more frequent truck traffic such as daily use by delivery trucks. However, for this project, given the expansive nature of the subgrade soils, and the requirement to maintain the driveway as a firetruck turn around, we recommend any flexible paving should be designed using a minimum TI of 6.0.

The pavement sections presented below have been calculated using the design method described in the Caltrans Highway Design Manual (Topic 633, May 2012) with the added safety factors. The method characterizes the subgrade soil conditions with laboratory R-value tests, and characterizes the traffic loading conditions with a Traffic Index. All materials and construction procedures, including placement and compaction of pavement components, should be performed in conformance with the latest edition of the Caltrans Standard Specifications, except that compaction should be performed in accordance with ASTM Test Method D1557, and at moisture contents specified under the Site Grading section of this report. All pavement components should be compacted to at least 95 percent of maximum dry density at slightly above optimum moisture content.

Rigid Pavements

Where Portland Cement Concrete (rigid) Pavements are to be used, they should be supported on a subgrade that has been prepared as recommended under "Site Grading". Concrete pavements exposed to regular automobiles and weekly use by a garbage truck (if applicable), should consist of 4.5 inches of concrete with a minimum compressive strength of 3,700 psi (MR=550 psi) supported on at least 6 inches of Class II Aggregate Base material compacted to a minimum of 95 percent relative compaction.

As a minimum, concrete pavements should be reinforced with deformed bars in both directions to control cracking, and joints should be provided in both directions within the pavement designed to prevent formation of irregular cracks. Where traffic can drive over the edge of the concrete pavement, such as at transition to AC paving, the Portland Cement Association suggests the thickened edge should be increased by 20 percent, and tapered back to normal slab thickness over a distance of 10 times the slab thickness.

Drainage

Drainage measures to collect and control surface runoff are integral considerations for sites with expansive soils or near slopes, and it is imperative that the drainage recommendations presented below are followed. Exterior grades which direct surface water away from all sides of the house, should be provided. The house should have roof gutters and downspouts, and all water from downspouts should be drained away from the house in a manner that will not create erosion or over-saturation of the foundations soils and nearby slopes.

Surface waters should not be permitted to drain over slopes or under structures. The retaining walls should similarly contain back drainage and a lined gutter above them to the collected runoff from all swales/ditches, and subdrains should be discharged in a manner that will not cause erosion on the nearby slopes or undermine the foundations. The swales should be sized to provide adequate capacity per the local codes, and should contain appropriate erosion protection means (grass cover, concrete lining, etc.).

Roof downspouts and surface drains must be maintained entirely separate from subdrains and retaining wall back drains. The outlets should discharge into the local storm drainage system; otherwise, erosion protection should be provided at discharge points. Surface and subsurface drainage facilities and

catchment areas should be protected from damage by construction equipment, and cleaned/maintained after the construction.

Plan Review

It is recommended that the Geotechnical Engineer (BAGG Engineers) be retained to review the final grading, drainage, and foundation plans. This review is intended to assess general suitability of the earthwork, and foundation recommendations contained in this report and to verify the appropriate implementation of our recommendations into the project plans and specifications.

Observation and Testing

It is recommended that the Geotechnical Engineer (BAGG Engineers) be retained to provide observation and testing services during the grading, excavation, backfilling, and foundation construction phases of work. This is intended to verify that the work in the field is performed as recommended and in accordance with the approved plans and specifications, as well as verify that subsurface conditions encountered during construction are similar to those anticipated during the design phase. Unanticipated soil conditions may warrant revised recommendations. For this reason, we cannot accept responsibility for the performance of the project, unless we are given the opportunity to oversee the construction activities.

Defensible Space Guidelines

Fuel Treatment Guidelines:

The following fuel treatment guidelines comply with the requirements of 14 CCR 1299 and PRC 4291. All persons using these guidelines to comply with CCR 1299 and PRC 4291 shall implement General Guidelines 1., 2., 3., and either 4a or 4b., as described below.

General Guidelines:

1. Maintain a firebreak by removing and clearing away all flammable vegetation and other combustible growth within 30 feet of each building or structure, with certain exceptions pursuant to PRC §4291(a). Single specimens of trees or other vegetation may be retained provided they are well-spaced, well-pruned, and create a condition that avoids spread of fire to other vegetation or to a building or structure.

2. Dead and dying woody surface fuels and aerial fuels within the Reduced Fuel Zone shall be removed. Loose surface litter, normally consisting of fallen leaves or needles, twigs, bark, cones, and small branches, shall be permitted to a depth of 3 inches. This guideline is primarily intended to eliminate trees, bushes, shrubs and surface debris that are completely dead or with substantial amounts of dead branches or leaves/needles that would readily burn.

3. Down logs or stumps anywhere within 100 feet from the building or structure, when embedded in the soil, may be retained when isolated from other vegetation. Occasional (approximately one per acre) standing dead trees (snags) that are well-space from other vegetation and which will not fall on buildings or structures or on roadways/driveways may be retained.

4. Within the Reduced Fuel Zone, one of the following fuel treatments (4a. or 4b.) shall be implemented. Properties with greater fire hazards will require greater clearing treatments. Combinations of the methods may be acceptable under §1299(c) as long as the intent of these guidelines is met

4a. Reduced Fuel Zone: Fuel Separation

In conjunction with General Guidelines 1., 2., and 3., above, minimum clearance between fuels surrounding each building or structure will range from 4 feet to 40 feet in all directions, both horizontally and vertically.

Clearance distances between vegetation will depend on the slope, vegetation size, vegetation type (brush, grass, trees), and other fuel characteristics (fuel compaction, chemical content etc.). Properties with greater fire hazards will require greater separation between fuels. For example, properties on steep slopes having large sized vegetation will require greater spacing between individual trees and bushes (see Plant Spacing Guidelines and Case Examples below). Groups of vegetation (numerous plants growing together less than 10 feet in total foliage width) may be treated as a single plant. For example, three individual manzanita plants growing together with a total foliage width of eight feet can be "grouped" and considered as one plant and spaced according to the Plant Spacing Guidelines in this document.

Grass generally should not exceed 4 inches in height. However, homeowners may keep grass and other forbs less than 18 inches in height above the ground when these grasses are isolated from other fuels or where necessary to stabilize the soil and prevent erosion.

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2. Dead and dying woody surface fuels and aerial fuels within the Reduced Fuel Zone shall be removed. Loose surface litter, normally consisting of fallen leaves or needles, twigs, bark, cones, and small branches, shall be permitted to a depth of 3 inches. This guideline is primarily intended to eliminate trees, bushes, shrubs and surface debris that are completely dead or with substantial amounts of dead branches or leaves/needles that would readily burn.

3. Down logs or stumps anywhere within 100 feet from the building or structure, when embedded in the soil, may be retained when isolated from other vegetation. Occasional (approximately one per acre) standing dead trees (snags) that are well-space from other vegetation and which will not fall on buildings or structures or on roadways/driveways may be retained.

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4a. Reduced Fuel Zone: Fuel Separation

In conjunction with General Guidelines 1., 2., and 3., above, minimum clearance between fuels surrounding each building or structure will range from 4 feet to 40 feet in all directions, both horizontally and vertically.

Clearance distances between vegetation will depend on the slope, vegetation size, vegetation type (brush, grass, trees), and other fuel characteristics (fuel compaction, chemical content etc.). Properties with greater fire hazards will require greater separation between fuels. For example, properties on steep slopes having large sized vegetation will require greater spacing between individual trees and bushes (see Plant Spacing Guidelines and Case Examples below). Groups of vegetation (numerous plants growing together less than 10 feet in total foliage width) may be treated as a single plant. For example, three individual manzanita plants growing together with a total foliage width of eight feet can be "grouped" and considered as one plant and spaced according to the Plant Spacing Guidelines in this document.

Grass generally should not exceed 4 inches in height. However, homeowners may keep grass and other forbs less than 18 inches in height above the ground when these grasses are isolated from other fuels or where necessary to stabilize the soil and prevent erosion.

Clearance requirements include:

- Horizontal clearance between aerial fuels, such as the outside edge of the tree crowns or high brush. Horizontal clearance helps stop the spread of fire from one fuel to the next.
- Vertical clearance between lower limbs of aerial fuels and the nearest surface fuels and grass/weeds. Vertical clearance removes *ladder fuels* and helps prevent a fire from moving from the shorter fuels to the taller fuels.

Wildland-Urban Interface Fire Area Guidelines

701A.3.2 New buildings located in any fire hazard severity zone. New buildings located in any Fire Hazard Severity Zone shall comply with one of the following:

1. **State Responsibility Areas.** New building located in any Fire Hazard Severity Zone within State Responsibility Areas, for which an application for a building permit is submitted on or after January 1, 2008, shall comply with all sections of this chapter.

2. Local Agency Very-High Fire Hazard Severity Zone.

New buildings located in any Local Agency Very-High Fire Hazard Severity Zone for which an application for a building permit is submitted on or after July 1, 2008, shall comply with all sections of this chapter.

3. Wildland-Urban Interface Fire Area designated by the enforcing agency. New buildings located in any Wildlan d-Urban Interface Fire Area designated by the enforcing agency for which an application for a building permit is submitted on or after January 1, 2008, shall comply with all sections of this chapter.

701A.3.2.1 Inspection and certification. Building permit applications and final completion approvals for buildings within the scope and application of this chapter shall comply with the following:

701A.3.2.2 The local building official shall, prior to construction, provide the owner or applicant a certification that the building as proposed to be built complies with all applicable state and local building standards, including those for materials and construction methods for wildfire exposure as described in this chapter.

701A.3.2.3 The local building official shall, upon completion of construction, provide the owner or applicant with a copy of the final inspection report that demonstrates the building was constructed in compliance with all applicable state and local building standards, including those for materials and construction methods for wildlife exposure as described in this chapter.

701A.3.2.4 Prior to building permit final approval the property shall be in compliance with the vegetation clearance requirements prescribed in California Public Resources Code 4291 California Government Code Section 51182.

STANDARDS OF QUALITY

703A.1 General. Material, systems, and methods of construction used shall be in accordance with this Chapter.

703A.2 Qualification by testing. Material and material assemblies tested in accordance with the requirements of Section 703A shall be accepted for use when the results and conditions of those tests are met. Testing shall be performed by a testing agency approved by the State Fire Marshal or identified by an ICC-ES report.

703A.3 Standards of quality. The State Fire Marshal standards listed below and as referenced in this chapter are located in the California Referenced Standards Code, Part 12 and Chapter 35 of this code.

SFM 12-7A-1, Exterior Wall Siding and Sheathing.
SFM 12-7A-2, Exterior Window.
SFM 12-7A-3, Under Eave.
SFM 12-7A-4, Decking.
MATERIALS, SYSTEMS AND
METHODS OF CONSTRUCTION

704A.1 Roofing.

704A.1.1 General. Roofs shall comply with the requirements of Chapter 7A and Chapter 15. Roofs shall have a roofing assembly installed in accordance with its listing and the manufacturer's installation instructions.

704A.1.2 Roof coverings. Where the roof profile allows a space between the roof covering and roof decking, the spaces shall be constructed to prevent the intrusion of flames and embers, be firestopped with approved materials or have one layer of 72 pound (32.4 kg) mineral-surfaced nonperforated cap sheet complying with ASTM D3909 installed over the combustible decking.

704A.1.3 Roof valleys. When provided, valley flashings shall be not less than 0.019-inch (0.48 mm) (No. 26 galvanized sheet gage) corrosion-resistant metal installed over a minimum 36-inch-wide (914 mm) underlayment consisting of one layer of 72 pound (32.4 kg) mineral-surfaced nonperforated cap sheet complying with ASTM D3909 running the full length of the valley.

704A.1.4 Reserved.

704A.1.5 Roof gutters. Roof gutters shall be provided with the means to prevent the accumulation of leaves and debris in the gutter.

704A.2 Attic ventilation.

704A.2.1 General. When required by Chapter 15, roof and attic vents shall resist the intrusion of flame and embers into the attic area of the structure, or shall be protected by corrosion-resistant, noncombustible wire mesh with openings a minimum of 1/8-inch (3.2 mm) and shall not exceed 1/4-inch (6 mm) or its equivalent.

704A.2.2 Eave or cornice vents. Vents shall not be installed in eaves and cornices.

Exception: Eave and cornice vents may be used provided they resist the intrusion of flame and burning embers into the attic area of the structure.

704A.2.3 Eave protection. Eaves and soffits shall meet the requirements of SFM 12-7A-3 or shall be protected by ignition-resistant materials or noncombustible construction on the exposed underside.

704A.3 Exterior walls.

704A.3.1 General. Exterior walls shall be approved noncombustible or ignition-resistant material, heavy timber, or log wall construction or shall provide protection from the intrusion of flames and embers in accordance with standard SFM 12-7A-1.

704A.3.1.1 Exterior wall coverings. Exterior wall coverings shall extend from the top of the foundation to the roof, and terminate at 2-inch (50.8 mm) nominal solid wood blocking between rafters at all roof overhangs, or in the case of enclosed eaves, terminate at the enclosure.

704A.3.2 Exterior wall openings. Exterior wall openings shall be in accordance with this section.

704A.3.2.1 Exterior wall vents. Unless otherwise prohibited by other provisions of this code, vent openings in exterior walls shall resist the intrusion of flame and embers into the structure or vents shall be screened with a corrosion-resistant, noncombustible wire mesh with 1/4- inch (6 mm) openings or its equivalent.

704A.3.2.2 Exterior glazing and windowwalls. Exterior windows, window walls, glazed doors, and glazed openings within exterior doors shall be insulating-glass units with a minimum of one tempered pane, or glass block units, or have a fire-resistance rating of not less than 20 minutes, when tested according to NFPA 257, or in accordance with Section 715, or conform to the performance requirements of SFM 12-7A-2.

704A.3.2.3 Exterior door assemblies. Exterior door assemblies shall conform to the performance requirements of standard SFM 12-7A-1 or shall be of approved noncombustible construction, or solid core wood having stiles and rails not less than 13/8 inches thick with interior field panel thickness no less than 11/4 inches thick, or shall have a fire-resistance rating of not less than 20 minutes when tested according to NFPA 252, or in accordance with Section 715.

Exception: Noncombustible or exterior fire-retardant treated wood vehicle access doors are not required to comply with this chapter.

704A.4 Decking, floors and underfloor protection.

704A.4.1 Decking.

704A.4.1.1 Decking surfaces. Decking, surfaces, stair treads, risers, and landings of decks, porches, and balconies where any portion of such surface is within 10 feet (3048 mm) of the primary structure shall comply with one of the following methods:

1. Shall be constructed of ignition-resistant materials and pass the performance requirements of SFM 12-7A-4, Parts A and B.

2. Shall be constructed with heavy timber, exterior fire-retardant-treated wood or approved noncombustible materials.

3. Shall pass the performance requirements of SFM 12-7A-4, Part A, 12-7A-4.7.5.1 only with a net peak heat release rate of 25kW/sq-ft for a 40-minute observation period and:

a. Decking surface material shall pass the accelerated weathering test and be identified as exterior type, in accordance with ASTMD 2898 and ASTM D 3201 and;

b. The exterior wall covering to which it the deck is attached and within 10 (3048 mm) feet of the deck shall be constructed of approved noncombustible or ignition resistant material.

Exception: Walls are not required to comply with this subsection if the decking surface material conforms to ASTM E-84 Class B flame spread. The use of paints, coatings, stains, or other surface treatments are not an approved method of protection as required in this chapter.

704A.4.2 Underfloor and appendages protection.

704A.4.2.1 Underside of appendages and floor projections.

The underside of cantilevered and overhanging appendages and floor projections shall maintain the ignitionresistant integrity of exterior walls, or the projection shall be enclosed to the grade.

704A.4.2.2 Unenclosed underfloor protection. Buildings shall have all underfloor areas enclosed to the grade with exterior walls in accordance with Section 704A.3.

Exception: The complete enclosure of under floor areas may be omitted where the underside of all exposed floors, exposed structural columns, beams and supporting walls are protected as required with exterior ignition-resistant material construction or be heavy timber.

704A.5 Ancillary buildings and structures.

704A.5.1 Ancillary buildings and structures. When required by the enforcing agency, ancillary buildings and structures and detached accessory structures shall comply with the provisions of this chapter.

Appendix B – 3343 Alpine Road Site Plan



V78°52'16"E FOUND **IRON PIPE** RCE 5476

LANDS OF -LELAND STANFORD UNIVERSITY APN: 142-15-007

1" = 20'

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3343 Alpine Road Woodside , CA #Site	
Postcode	
Drawings and Specifications as instruments of service are and shall remain the property of the Architect. They are not to be used on extensions of the project, or other projects, except by agreement in writing and	of ne
appropriate compensation to the Architect. The General Contractor is responsible for confirming and correlating dimensions at the ich site. The Architect will not be responsible	
for construction means, methods, techniques sequences, or procedures, or for safety precautions and programs in connection with the project.	; ,
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STRUCTURAL ENGINEER	
MECHANICAL, ELECTRICAL, PLUMBING CONSULTANT	
CONTRACTOR	
NOT FOR REGULATORY	
APPROVAL,	
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CUPAL RESIDENCE 3343 Alpine Road Woodside , CA #Site Postcode
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Architect. They are not to be used on extensions of the project, or other projects, except by agreement in writing and appropriate compensation to the Architect. The General Contractor is responsible for confirming and correlating dimensions at the job site. The Architect will not be responsible
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MECHANICAL, ELECTRICAL, PLUMBING CONSULTANT
CONTRACTOR
CONTRACTOR
NOT FOR REGULATORY APPROVAL, PERMITTING, OR
CONSTRUCTION ISSUED: SCHEMATIC PROGRAMING: 10/27/17
PRELIMINARY SITE PLAN: 11/15/17 REVISED SITE PLAN AND FLOOR PLAN R-2: 07/26/18 REVISED SITE PLAN AND FLOOR PLAN R-3: 09/_/18
Printed: 9/14/18 PROPOSED FIRST FLOOR PLAN
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EAST ELEVATION

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SOUTH ELEVATION

1/8" = 1'-0"

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BOHLEY

CONSULTING 3150 Almaden Expressway, Suite 123 San Jose, CA 95118 (408) 265-1600 www.BohleyConsulting.com

CUPAL RESIDENCE

3343 ALPINE ROAD PORTOLA VALLEY, CA

Scale AS SHOWN

Drawing C-BASE.DWG

Job No 201718 Date Description

10/25/18 SUBMITTAL

SECTIONS

C1.2

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Appendix C – <u>Photos</u>

Photo 1. Looking northeast from the gravel lined fire apparatus turnaround area (developed habitat). The project footprint extends beyond the gravel into the surrounding open areas (disturbed habitat). No trees or the surrounding vegetation will be removed for the project.

Photo 2. Los Trancos Creek within the parcel. The dense riparian habitat surrounding the creek is clearly visible. No riparian vegetation will be removed for the project. Additionally, work will not take place within the bed or banks of the creek.

Photo 3. Looking north from a point south of the project footprint. The gravel lined fire apparatus turnaround area is visible in the background (area with the parked vehicle). The project footprint is confined to the open area. Portions of the project footprint are shaded by the tree canopy that forms the overstory of the riparian corridor around Los Trancos Creek, as seen by the coast live oaks visible in the foreground.

Photo 4. View of the entry bridge over Los Trancos creek from the Santa Clara County end looking toward the San Mateo County end.

Photo 5. House site. The house is proposed to be located in the clearing, and no trees will be removed.

Photo 6. View looking west from the house site, at the edge of the hammerhead turn around.

Photo 7. View of the parcel from Alpine Road.

Photo 8. Los Trancos Creek along the property.

Photo 9. The house site is to the left of the photo. This view shows a portion of the riparian corridor.

Photo 10. Los Trancos Creek downstream of the bridge

Appendix D – Biological Resources Report

Appendix E – Arborist Report

Appendix F – Cultural Resources Report

Appendix G – Geotechnical Report