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MEMORANDUM

Date: September 6, 2007

To: Commissioners and Interested Parties

From: Peter Douglas, Executive Director
Robert S. Merrill, District Manager – North Coast District
Melissa B. Kraemer, Coastal Program Analyst – North Coast District

Subject: **Addendum to Commission Meeting for Friday, September 7, 2007**
North Coast District Item F 9a, Application CDP No. 1-07-008 (Douglas Kent)

STAFF NOTE

Staff is proposing to make certain changes to the staff report for Coastal Development Permit Application No. 1-07-008. The proposed development is in the Stagecoach Hill area east of Big Lagoon and involves construction of a single-family-residence and a detached garage, grading of a concrete asphalt access road/driveway, development of on-site septic and water systems, and removal of approximately eight conifer trees in the home-site area. The staff recommendation of August 17, 2007 recommends eight special conditions to protect coastal resources and minimize geologic hazards. The applicant, after reviewing the staff recommendation, requested minor changes to two of the special conditions: Special Condition Nos. 3 and 4. Staff believes the conditions, as modified, would continue to protect coastal resources from the impacts of the development, and the project, as conditioned, would be consistent with the Coastal Act. Therefore, staff is modifying the staff recommendation to include the changes described below.

Special Condition No. 3-A limits the colors of the proposed structures and roofs to dark browns, dark greens, and dark grays to protect visual resources, as the development, which would be set within a mostly undeveloped, partially forested hillside, would be visible from a public vantage point on Big Lagoon Spit, and a conspicuous house in this undeveloped setting would be out of character with the surrounding area. The applicant requests, for aesthetic purposes, that lighter shades of browns and greens also be permitted for the trim, shutters, and balcony railings of the structures to allow for contrast in the color scheme of the structures.

The purpose of the change is to accommodate the applicant's preference for contrast in the color scheme of the structures for aesthetic purposes (as viewed from the property) while still ensuring visual compatibility with the character of the undeveloped forested hillside setting (as viewed from the public vantage point on Big Lagoon Spit). Modifying Special Condition No. 3-A to allow for lighter shades of brown or green to be used for trim, shutters, and balcony railings would not adversely affect visual resources since these colors, like the darker shades specified, also would blend naturally with the surrounding hillside, which is characterized by a primarily undeveloped landscape of mostly Sitka spruce and red alder trees (representing both darker and lighter shades of mostly greens, yellows, and browns). Therefore, staff is revising Special Condition No. 3-A and related findings as written in the staff report to allow for the requested modification.

Special Condition No. 4-A requires the applicant to submit to the Executive Director all final design and construction plans, including foundations, grading, and drainage plans, prior to commencement of site grading for both the driveway and house or by April 1, 2008, whichever is earlier. The applicant requests that, upon submittal of final grading and drainage plans for the driveway, grading of the driveway be permitted this fall (prior to October 15, per Special Condition No. 1), with the remainder of final plans (for the house site grading, foundations, and drainage) to be submitted no later than April 1, 2008.

The purpose of the change to Special Condition No. 4 is to allow the applicant to, if possible, complete the driveway installation (per the approved plans) this year prior to the onset of the rainy season (construction period is limited to April 15-October 15 per Special Condition No. 1) without having to wait for completion of all design and construction plans for the house, which are not yet complete but are projected to be submitted by April 1, 2008. Modifying Special Condition No. 4-A to allow the applicant to commence grading of the driveway before submittal of final design and construction plans for the home site, would not adversely affect water quality or geologic hazards since (1) the applicant still would be required to submit final grading and erosion control plans for the Executive Director's review prior to commencement of driveway grading, thereby ensuring that grading and erosion control is conducted according to the approved specifications; and (2) the applicant still would be required, per Special Condition No. 7, to execute and record a deed restriction imposing the Special Conditions of this permit as covenants, conditions and restrictions on the use and enjoyment of the property prior to commencement of driveway grading. Therefore, staff is revising Special Condition No. 4-A and related findings as written in the staff report to allow for the requested modification.

Staff continues to recommend that the Commission approve the amended project with the special conditions included in the staff recommendation of August 17, 2007, as modified by the revisions described below.

I. REVISIONS TO THE STAFF REPORT

The revisions to the staff report dated August 17, 2007, including the modification of special condition language and related findings, are discussed below. Text is shown in ~~strikethrough~~ for deleted language and **bold double-underlined** for new text.

- *Add the following text to Special Condition No. 3-A on page 6:*

3. Structural Appearance & Lighting Restrictions

A. The color of the structures and roofs permitted hereby shall be restricted to dark browns, dark greens, and dark grey colors**, except for window and door trims, shutters, and balcony railings, which may also be lighter shades of brown or green or darker shades of brown, green, or grey**. The current owner or any future owners shall not repaint or stain the structures and roofs with lighter colors without an amendment to this coastal development permit. In addition, to minimize glare, no reflective glass exterior finishes, roofing, or roof-mounted structures are authorized in this permit.

- *Add the following text to Special Condition No. 4-A on pages 6-7:*

4. Conformance of Design and Construction Plans to the Engineering Geologic Report

A. All final design and construction plans, including foundations, grading, and drainage plans, shall be consistent with all recommendations listed in the R-2 Engineering Geologic Report prepared by LACO Associates and dated April 18, 2007 (Exhibit No. 7) **and the grading and erosion control plan prepared by LACO Associates and dated June 12, 2007 (Exhibit No. 8). PRIOR TO COMMENCEMENT OF SITE GRADING FOR THE DRIVEWAY OR BY APRIL 1, 2008, WHICHEVER IS EARLIER, the applicant shall submit, for the Executive Director's review and approval, evidence that an appropriate licensed professional has reviewed and approved all final grading and drainage plans for the driveway and certified that each of those final plans is consistent with all of the recommendations specified in the above-referenced grading and erosion control plan (Exhibit No. 8) approved by the California Coastal Commission for the project site. PRIOR TO THE COMMENCEMENT OF SITE GRADING FOR THE ~~DRIVEWAY OR~~ HOUSE OR BY APRIL 1, 2008, WHICHEVER IS EARLIER,** the applicant shall submit, for the Executive Director's review and approval, evidence that an appropriate licensed professional has reviewed and approved all final design and

construction plans and certified that each of those final plans is consistent with all of the recommendations specified in the above-referenced geologic evaluation approved by the California Coastal Commission for the project site, including, but not limited to, the recommendations regarding site preparation, cut and fill slopes, structural fills, structural fill emplacement, compaction standards, utility trench backfill, grading, revegetation, foundation design, and drainage.

- *Revise Section IV-F "Visual Resources" on pages 26-27 as follows:*

Because the proposed development would be directly visible from a public vantage point along Big Lagoon Spit, depending on what building colors and materials are proposed for use, the development potentially may not blend in with its mostly forested surroundings and could create an adverse visual impact as viewed from the beach. Such a result would not be consistent with the requirements of Section 30251 of the Coastal Act that development be compatible with the character of its surroundings. The applicant has submitted architectural sketches and floor plans for the proposed house and garage (Exhibit No. 5), but no information was submitted on proposed materials or color scheme for the structures. Exterior lighting associated with the proposed development also could adversely affect visual resources in the area if the lighting were allowed to shine skyward and beyond the boundaries of the parcel. The glow of lighting emanating above the subject property would be visible from distant public vantage points. Such lighting would not be compatible with the character of the area, as the Stagecoach Hill area is very sparsely developed with relatively minimal lighting. Therefore, the Commission attaches Special Condition No. 3, which requires that the colors of the structures and roofs permitted be dark browns, dark greens, and dark grays that all exterior materials, including roofs and windows, not be reflective to minimize glare, and that all exterior light be the minimum necessary for the safe ingress, egress, and use of the structures and be low-wattage, non-reflective, shielded, and have a directional cast downward. **If desired for aesthetic purposes, either lighter browns and lighter greens or darker shades of the browns, greens, or grays may be used on trims, shutters, and balcony railings to allow for contrast while still ensuring visual compatibility with the character of the undeveloped forested hillside setting.** These limitations on the structural appearance and lighting will ensure that the project, as conditioned, will blend with the surrounding environment, will minimize glare, and will not cast a skyward glow that would be incompatible with the rural character of the area. In addition, Special Condition No. 7 requires the applicant to record a deed restriction detailing the specific development authorized under the permit, identifying all applicable special conditions attached to the permit, and providing notice to future owners of the terms and limitations placed on the use of the property, including these lighting restrictions to protect visual resources.

- *Revise Section IV-H "Geologic Hazards," in the first full paragraph of page 30 as follows:*

To ensure that the development conforms to the recommendations listed in the engineering geologic report, the Commission attaches Special Condition No. 4, which would require the

applicant, ~~prior to the issuance of the coastal development permit,~~ **prior to commencement of construction of either the driveway or the house,** to submit, for the review and approval of the Executive Director, evidence that an appropriate licensed professional has reviewed and approved all final design and construction plans **for that project element** and certified that each of those final plans is consistent with all of the recommendations specified in the above-referenced geologic evaluation.

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Filed: August 9, 2007
49th Day: September 27, 2007
180th Day: February 5, 2008
Staff: Melissa B. Kraemer
Staff Report: August 17, 2007
Hearing Date: September 7, 2007
Commission Action:

STAFF REPORT: REGULAR CALENDAR

APPLICATION NO.: **1-07-008**

APPLICANTS: **Douglas Kent**

AGENTS: Moonstone Construction (Attn: Paul Hasselquist)
LACO Associates (Attn: Giovanni Vadurro)

PROJECT LOCATION: Kane Road, Big Lagoon area, Humboldt County (APN 518-012-018)

PROJECT DESCRIPTION: (1) Construction of a 1,886-square-foot, three-story single-family-residence (at a maximum height of 32 feet) with approximately 1,515-square-foot of first and second story attached decking/patio; (2) construction of a detached 526-square-foot two-car garage (at a maximum height of 16 feet); (3) grading of an approximately 15,000-square-foot area for a 12-foot-wide concrete asphalt access road/driveway connecting Kane Road to the new residence; (4) development of an on-site septic system with a 1,200-gallon septic tank and 3,200 square feet of primary and reserve leachfields; (5) development of a water system including a 35-ft deep water well, a 120-square-foot well pump house, a fire hydrant, two 3,000-gallon water storage tanks, one 2,500-gallon water tank, and a buried water line from the pump house to the proposed development; and (6) removal of

	approximately eight conifer trees in the home-site area.
GENERAL PLAN DESIGNATION:	Area of Deferred Certification. Humboldt County North Coast Area Plan - Agricultural General, 20-acre density (AG-20)
ZONING DESIGNATION:	Area of Deferred Certification Rural Agricultural, minimum 20-acre lot size, Special Designation for Manufactured Home Building Type Modification and Coastal Elk Habitat combining zones (RA-20-M/E)
OTHER APPROVALS:	None
SUBSTANTIVE FILE DOCUMENTS:	Humboldt County Local Coastal Program Commission File No. CP-3-85 (Coastal Conservancy) Commission CDP No. 1-86-113 (State Parks Found) Commission CDP No. 1-86-204 (Croft) Commission CDP No. 1-88-73 Bumblebee/Hennings) Commission CDP No. 1-88-255 (Beaupré) Commission CDP No. 1-92-80 (Allen) Commission CDP No. 1-92-81 (Pehrson) Commission CDP No. 1-93-69 (McKeegan & Olsgard) Commission CDP No. 1-97-031 (Harmon) Commission CDP No. 1-99-065 (Shuttleworth) Commission CDP No. 1-00-042 (Bost/Roden) Commission CDP No. 1-01-004 (Harmon) Commission CDP No. 1-01-064 (Fox) Commission CDP No. 1-02-007-W (Leach) Commission CDP No. 1-06-032 (Shuttleworth)

SUMMARY OF STAFF RECOMMENDATION

Staff recommends that the Commission approve this application with special conditions.

The applicant is seeking authorization for the following developments: (1) Construction of a 1,886 square-foot, three-story single-family-residence (at a maximum height of 32 feet) with approximately 1,515 square-feet of first and second story attached decking/patio; (2) construction of a detached 526-square-foot two-car garage (at a maximum height of 16 feet); (3) grading of an approximately 15,000-square-foot area for a 12-foot-wide concrete asphalt access road/driveway connecting Kane Road to the new residence; (4) development of an on-site septic system with a 1,200-gallon septic tank

and 3,200 square feet of primary and reserve leachfields; (5) development of a water system including a 35-foot deep water well, a 120-square-foot well pump house, a fire hydrant, two 3,000-gallon water storage tanks, one 2,500-gallon water tank, and a buried water line from the pump house to the proposed development; and (6) removal of approximately eight conifer trees in the home-site area.

The proposed project is located in the Big Lagoon area of Humboldt County. Humboldt County has a certified LCP, but the subject property is located within an area of deferred certification. The ADC, which is locally known as the "Stagecoach Hill" region, consists of approximately 600 acres of rural, mostly undeveloped, mostly forested land divided into minimum 20-acre parcels. The Stagecoach Hill area has not been identified as a highly scenic area. The project site is not visible from the highway due to the intervening topography and vegetation, and the site is not visible from most public vantage points, as the road serving the development, Kane Road, is a private road. However, there is a limited view of the site from the Big Lagoon spit. The subject site is within the habitat range of the Western Azalea (*Rhododendron occidentale),* which the Commission has, in many particular instances in the past, considered environmentally sensitive. The project site is also within an area designated under the Humboldt County LCP as Elk Range Habitat.

Because of its relative abundance and distribution across a relatively wide geographic range, staff finds that neither Western Azalea as a species nor the particular variety of Western Azalea that occurs in the Stagecoach Hill area meet the rarity test for designation as ESHA under Coastal Act Section 30107.5. However, staff believes, and the Commission found in its approval of CDP No. 1-06-032 (Shuttleworth) in July of 2007, that Western Azalea on Stagecoach Hill is, in some circumstances (such as at the Stagecoach Hill Azalea Preserve), especially valuable because of its special nature and because it is easily disturbed or degraded by human activities. In this sense, Western Azalea does qualify as ESHA under Section 30107.5 of the Coastal Act. On the subject site, however, staff believes that the Western Azalea habitat does not meet the definition of ESHA under Section 30107.5 because the Western Azalea on site is neither rare nor especially valuable because of its special nature or role in an ecosystem. The Western Azalea on the property is not contained within an assemblage of vegetation where the plant is dominant or present in impressive numbers such as at the Stagecoach Hill Azalea Preserve. Instead, the azalea is only a minor component of the vegetation assemblage on the site.

Although staff concludes that Western Azalea on the subject site is not itself ESHA, under certain circumstances, the proposed project could potentially result in adverse impacts to Western Azalea habitat areas in the vicinity of the subject property that do meet the definition of ESHA per Coastal Act Section 30107.5. Therefore, the project is conditioned to ensure that future landscaping that the applicants may choose to install on the property does not adversely impact the long-term genetic integrity of any azalea ESHAs in the project vicinity. Staff notes that such a condition has been included as a

condition of approval for at least seven other permits that the Commission has issued in the ADC region. The project is also conditioned to preclude the use of invasive plant species as landscaping on the site and certain rodenticides that could cause significant adverse cumulative impact to environmentally sensitive wildlife species. As conditioned, staff believes that the project will be sited and designed to prevent impacts which would significantly degrade adjacent environmentally sensitive habitat areas and will be compatible with the continuance of those areas. Furthermore, the project is conditioned to restrict the exterior lighting of the residence to minimize disturbance to migrating elk that may be passing through the property.

Staff also believes that the project, as conditioned, is consistent with Coastal Act Section 30251, as the project would not adversely affect views to or along the coast, result in major landform alteration, or be incompatible with the character of the surrounding area. Furthermore, the proposed development is consistent with Section 30231 of the Coastal Act because existing water quality and biological productivity will be protected and maintained from impairing waste discharges. Finally, the proposed project, as conditioned, is consistent with Coastal Act Section 30253, as the project is designed to minimize geologic hazard and assure structural integrity and stability for the economic life of the development.

The Motion to adopt the Staff Recommendation of Approval with Conditions is on Page 5.

STAFF NOTES

I. Jurisdiction and Standard of Review

The proposed project is located in the Big Lagoon area of Humboldt County. Humboldt County has a certified LCP, but the subject property is located within an area of deferred certification. Therefore, the standard of review that the Commission must apply to the project is the Coastal Act.

STAFF RECOMMENDATION

The staff recommends that the Commission adopt the following resolution:

I. MOTION, STAFF RECOMMENDATION, AND RESOLUTION

Motion:

I move that the Commission **Approve** Coastal Development Permit No. 1-07-008 pursuant to the staff recommendation.

Staff Recommendation of Approval:

Staff recommends a **YES** vote. Passage of this motion will result in approval of the permit as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

Resolution to Approve Permit:

The Commission hereby approves a coastal development permit for the proposed development and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment.

II. STANDARD CONDITIONS: See Attachment A.

III. SPECIAL CONDITIONS:

1. Timing of Construction & Construction Best Management Practices (BMPs)

The permittee shall undertake development in accordance with the approved grading, erosion control, and preliminary landscaping plan prepared by LACO Associates and dated June 12, 2007 (Exhibit No. 8). As specified in the plan, to avoid adverse impacts on water quality, construction shall be limited to the period between April 15 and October 15. All other BMPs, as specified in the approved plan, shall also be adhered to, including those listed under "grading notes", "erosion control notes", and "general description of proposed landscaping" (see Figures 4 through 8 of Exhibit No. 8). No changes to the plan shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

2. Landscaping Restrictions

A. No other species of the genus *Rhododendron* shall be planted on the parcel, except for the existing native Western Azalea, *Rhododendron occidentale*. If plantings of the native Western Azalea are installed on the

property at any time, plantings shall only be of local genetic stock from the Stagecoach Hill area.

B. No plant species listed as problematic and/or invasive by the California Native Plant Society, the California Invasive Plant Council, or by the State of California shall be employed or allowed to naturalize or persist at the site of the proposed development. No plant species listed as a "noxious weed" by the State of California or the U.S. Federal Government shall be utilized within the property.

C. Rodenticides containing any anticoagulant compounds, including but not limited to, Bromadiolone, Brodifacoum, or Diphacinone, shall not be used.

3. <u>Structural Appearance & Lighting Restrictions</u>

A. The color of the structures and roofs permitted hereby shall be restricted to dark browns, dark greens, and dark grey colors. The current owner or any future owners shall not repaint or stain the structures and roofs with lighter colors without an amendment to this coastal development permit. In addition, to minimize glare, no reflective glass exterior finishes, roofing, or roof-mounted structures are authorized in this permit.

B. All exterior lights, including any lights attached to the outside of the buildings, shall be the minimum necessary for the safe ingress, egress, and use of the structures, and shall be low-wattage, non-reflective, shielded, and have a directional cast downward such that no light will be directed to shine more than 50 feet from the perimeter of the approved developments.

4. <u>Conformance of Design and Construction Plans to the Engineering Geologic Report</u>

A. All final design and construction plans, including foundations, grading, and drainage plans, shall be consistent with all recommendations listed in the R-2 Engineering Geologic Report prepared by LACO Associates and dated April 18, 2007 (Exhibit No. 7). **PRIOR TO THE COMMENCEMENT OF SITE GRADING FOR THE DRIVEWAY OR HOUSE OR BY APRIL 1, 2008, WHICHEVER IS EARLIER,** the applicant shall submit, for the Executive Director's review and approval, evidence that an appropriate licensed professional has reviewed and approved all final design and construction plans and certified that each of those final plans is consistent with all of the recommendations specified in the above-referenced geologic evaluation approved by the California Coastal Commission for the project site, including, but not limited to, the recommendations regarding site preparation, cut and fill slopes, structural

fills, structural fill emplacement, compaction standards, utility trench backfill, grading, revegetation, foundation design, and drainage.

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B. The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

5. Assumption of Risk, Waiver of Liability & Indemnity

By acceptance of this permit, the applicant acknowledges and agrees (i) that the site may be subject to hazards from landslide, erosion, and earth movement; (ii) to assume the risks to the applicant and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (iv) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.

6. Future Development Restriction

This permit is only for the development described in Coastal Development Permit No. 1-07-008. Pursuant to Title 14 California Code of Regulations section 13250(b)(6), the exemptions otherwise provided in Public Resources Code Section 30610(a) shall not apply to the development governed by Coastal Development Permit No. 1-07-008. Accordingly, any future improvements to the single family house authorized by this permit, including but not limited to repair and maintenance identified as requiring a permit in Public Resources section 30610(d) and Title 14 California Code of Regulations sections 13252(a)-(b), shall require an amendment to CDP Permit No. 1-07-008 from the Commission or shall require an additional coastal development permit from the Commission or from the applicable certified local government

7. Deed Restriction

PRIOR TO THE COMMENCEMENT OF SITE GRADING FOR THE DRIVEWAY OR HOUSE OR BY APRIL 1, 2008, WHICHEVER IS EARLIER, the landowner shall submit to the Executive Director, for review and approval, documentation demonstrating that the applicant has executed and

recorded against the parcel(s) governed by this permit a deed restriction, in a form and content acceptable to the Executive Director: (1) indicating that, pursuant to this permit, the California Coastal Commission has authorized development on the subject property, subject to terms and conditions that restrict the use and enjoyment of that property; and (2) imposing the Special Conditions of this permit as covenants, conditions and restrictions on the use and enjoyment of the Property. The deed restriction shall include a legal description of the entire parcel or parcels governed by this permit. The deed restriction shall also indicate that, in the event of an extinguishment or termination of the deed restriction for any reason, the terms and conditions of this permit shall continue to restrict the use and enjoyment of the subject property so long as either this permit or the development it authorizes, or any part, modification, or amendment thereof, remains in existence on or with respect to the subject property.

8. Permit Expiration and Condition Compliance

Because some of the proposed development has already commenced, this coastal development permit shall be deemed issued upon the Commission's approval and will not expire. Failure to comply with the special conditions of this permit may result in the institution of an action to enforce those conditions under the provisions of Chapter 9 of the Coastal Act.

IV. FINDINGS AND DECLARATIONS

The Commission hereby finds and declares the following:

A. Site Location & Description

The subject parcel (APN 518-012-018) is located in the Big Lagoon area of Humboldt County off of Kane Road (see Exhibit Nos. 1, 2, and 3). Humboldt County has a certified LCP, but the subject property is located within an area of deferred certification (ADC). The ADC, which is locally known as the "Stagecoach Hill" region, consists of approximately 600 acres of rural, mostly undeveloped, mostly forested land divided into minimum 20-acre parcels zoned locally as Rural Agricultural (RA-20) with Manufactured Home (M) and Coastal Elk Habitat (E) combining zones. The Stagecoach Hill area encompasses portions of the coastal hills east of Big Lagoon and State Highway 101. The subject property is approximately 0.2-miles east of State Highway 101.

The subject site is within the habitat range of the Western Azalea (*Rhododendron occidentale)*, which the Commission has, in particular instances, considered environmentally sensitive. The project site is also within an area designated under the Humboldt County LCP as Elk Range Habitat.

The subject property is situated between approximately 450 to 700 feet above mean sea level, with mostly gently- to moderately-sloped terrain (westward). The site consists of previously-logged forest stands with scattered forest openings. According to the botanical survey conducted for the project (Exhibit No. 6), dominant vegetation on the project site consists of Sitka spruce (*Picea sitchensis*) and scattered Douglas-fir (*Pseudotsuga menziesii* var. *menziesii*) averaging approximately 30 to 90 percent cover. Understory vegetation varies from shrubby to grassy, with black huckleberry (*Vaccinium ovatum*), salal (*Gaultheria shallon*), sword fern (*Polystichum munitum*), and coyote brush (*Baccharis pilularais*) averaging approximately 50 to 100 percent cover. Western Azalea (*Rhododendron occidentale*) is present at approximately 15 percent cover surrounding the proposed home and leach field locations. During a site visit, Commission staff noted that one or more azalea plants may be located within the footprint of any proposed development. In total, the botanical survey identified 21 azalea plants in the project area. No prairies, meadows, drainages, wetlands, rock outcrops, or ultramafic-derived soils occur within the proposed project area, according to the botanical report.

According to the R-2 Engineering Geologic Report for the project (Exhibit No. 7), the project site is near the seismically active Trinidad fault and Quaternary-aged Big Lagoon fault, and any development on the property will likely be subject to strong earthquake ground shaking during the anticipated economic life span of the proposed structures. The report also notes that there are potentially unstable slopes bordering a natural drainage course near the south edge of the project area. Furthermore, the report describes the soils at the proposed building site as soft and compressible in the upper 2 to 3 feet of the soil profile. The report includes numerous recommendations to reduce the potential hazards associated with site conditions (see Section IV-G below).

The Stagecoach Hill area has not been identified as a highly scenic area. The project site is not visible from the highway due to the intervening topography and vegetation. The site is not visible from most public vantage points, as the road serving the development, Kane Road, is a private road. However, there is a limited view of the site from the Big Lagoon sand spit (see Exhibit No. 9). The Big Lagoon spit is open to the public for day use and is accessed through Big Lagoon County Park at the southwest end of the lagoon.

The approximately 600-acre Stagecoach Hill area surrounding the project site is rural, mostly undeveloped, mostly forested, with minimum parcel sizes of 20-acres. There are approximately ten total residences that have been permitted in the Stagecoach Hill area over the past few decades, including the Shuttleworth project approved by the Commission in July 2007 (see substantive file documents, page 2, and Section IV-E-1-a-i below).

B. Proposed Project

The proposed project area covers approximately one to two acres of the approximately 20.2-acre parcel. All proposed developments are confined to the western side of the

parcel (see Exhibit No. 4). The proposed project involves the following components: (1) Construction of a 1,886-square-foot, three-story single-family-residence (at a maximum height of 32 feet) with approximately 1,515-sq-ft of first and second story attached decking/patio; (2) construction of a detached 526-sq-ft two-car garage (at a maximum height of 16 feet); (3) grading of an approximately 15,000-square-foot area for a 12-foot-wide concrete asphalt access road/driveway connecting Kane Road to the new residence; (4) development of an on-site septic system with a 1,200-gallon septic tank and 3,200 square feet of primary and reserve leachfields; (5) development of a water system including a 35-foot-deep water well at a location approximately 800 feet east and up the hill from the proposed house site, a 120-square-foot well pump house, a fire hydrant, two 3,000-gallon water storage tanks, one 2,500-gallon water tank, and a buried water line from the pump house to the proposed development; and (6) removal of approximately eight conifer trees in the home-site area.

The applicants submitted a grading plan and proposed erosion control measures for the construction and post-construction phases of the project (Exhibit No. 8). The following "best management practices" (BMPs) are proposed: (1) all grading work shall be conducted between April 15 and October 15 and shall be in accordance with Humboldt County Grading Ordinance; (2) during construction, silt fencing shall be installed along the toe of cut and fill slopes; (3) during construction, straw cover shall be placed on all bare soil areas; (4) following construction, gravel and paved driveway surfaces shall be installed as shown on the plans; (5) following construction, all bare soil areas shall be strawed and seeded with native grass seed prior to the onset of the wet season; and (6) following construction, rock check-dams shall be installed in driveway ditches.

Additionally, the botanical report (Exhibit No. 6) proposes various measures to protect the Western Azalea in the area, including (1) clearly marking with blue flagging all azaleas to ensure their visibility during grading and construction; (2) avoiding impacts to azalea plants; (3) alerting equipment operators to the sensitivity and locations of the flagged azaleas to ensure that a minimum 15-foot radius buffer around all plants is maintained for avoidance; (4) protecting azaleas with sediment fencing if necessary in areas where avoidance of the 15-foot radius buffer is not possible and where other vegetation in the buffer area must be carefully removed; and (5) transporting excess soil material offsite to be properly disposed of at a suitable location, and not dozing excess soil or vegetation spoils to the edges of the wooded area or anywhere within 20 feet of flagged azaleas.

Furthermore, the applicants submitted an R-2 Engineering Geologic Report for the project (Exhibit No. 7), which lists several recommendations to ensure that the design and construction of the proposed development is such that it will not be subject to nor contribute to geologic hazards. These include general recommendations on site preparation, cut and fill slopes, structural fills, structural fill emplacement, compaction standards, and utility trench backfill. There are also several site-specific recommendations, including foundation design and drainage recommendations.

C. Local Coastal Program History

The subject property is located within an uncertified area of Humboldt County's Local Coastal Program. In 1982, the Kane Road (or Stagecoach Hill) area was not certified by the Coastal Commission as part of the North Coast Area Land Use Plan because of substantial issues relating to the following: (a) litigation over alleged illegal subdivisions in the area; (b) the presence of the native western azalea and the absence of any protection or management plans for this species; (c) the minimum parcel size necessary to ensure agricultural productivity and to avoid adverse impacts to potential timber production on surrounding lands; and (d) general water quality and scenic view concerns, including the protection of Roosevelt Elk habitat areas.

D. Locating and Planning New Development

Section 30250(a) of the Coastal Act states that new development shall be located within or near existing developed areas able to accommodate it or in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. The intent of this policy is to channel development toward more urbanized areas where services are provided and potential impacts to resources are minimized.

The proposed development is located in a rural area where one single-family home per parcel is a principally permitted use. The applicants propose to install a new septic system and to develop an on-site water well and associated facilities. The Humboldt County Division of Environmental Health has determined that the sewage disposal system proposed is in conformance with applicable state and local requirements, and the water supply testing completed by the applicant's consultant demonstrated that water production requirements set forth in current Humboldt County policy have been met for the proposed development (see Exhibit No. 11). Furthermore, existing electric lines currently bisect the property to which the applicant proposes to connect.

As described in the Findings below, the project, as conditioned, will not have significant adverse impacts on coastal resources including ESHA, visual resources, water quality, or geologic hazards. Therefore, the Commission finds that the proposed development is consistent with Coastal Act Section 30250(a) to the extent that it has adequate water and septic capability to accommodate it and it will not cause significant adverse effects, either individually or cumulatively, to coastal resources.

E. Protection of Environmentally Sensitive Habitat Areas (ESHA)

Coastal Act Section 30240 states the following:

> *(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*
>
> *(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

Coastal Act Section 30107.5 states the following:

> *"Environmentally sensitive area" means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.*

The Coastal Act thus establishes a high standard for protection of areas that are identified as environmentally sensitive. Only resource-dependent uses, such as habitat restoration, are allowed within an ESHA, and all development within or adjacent to an ESHA must be sited and designed to prevent significant disruption of ESHA.

The Coastal Act protections for ESHA are different in approach than certain other environmental laws. For example, the California Endangered Species Act, administered by the Department of Fish and Game, allows the "incidental take" of a state-listed species if the impacts of the take are minimized, fully mitigated, and would not result in jeopardy to the species.[1] Similarly, the U.S. Fish and Wildlife Service may issue incidental take permits under the federal Endangered Species Act for a sensitive species if the impacts are offset through a Habitat Conservation Plan.[2] The Coastal Act, though, does not allow avoidable impacts to ESHAs, even with mitigation. If an ESHA is identified, it must be avoided unless the proposed development is dependent on the resource. This fundamental requirement of the Act was confirmed in the *Bolsa Chica* case, wherein the Court found the following:

> *"Importantly, while the obvious goal of section 30240 is to protect habitat values, the express terms of the statute do not provide that protection by treating those values as intangibles which can be moved from place to place to suit the needs of development. Rather, the terms of the state protect habitat values by placing strict limits on the uses which may occur in an ESHA…"* [3]

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[1] California Fish and Game Code 2081.
[2] Federal Endangered Species Act, Section 10.
[3] *Bolsa Chica Land Trust v. Superior Court* 71 Cal.App.4th 493, 507. A limited exception to this rule potentially lies in Coastal Act Sections 30200(b) and 30007.5, which allow the resolution of conflicts between Coastal Act Chapter 3 policies in a manner which on balance is most protective of significant coastal resources.

The subject site provides Western Azalea habitat and Roosevelt Elk habitat. As noted previously, the site is within the habitat range of the Western Azalea (*Rhododendron occidentale*), which the Commission has, in many particular instances in the past, considered environmentally sensitive. The project site is also within an area designated under the Humboldt County LCP as Elk Range Habitat. Potential impacts to each of these habitats and their mitigation are discussed in the following two sections.

1) Western Azalea

a. Background

i. History of protection

Western Azalea is not protected under state or federal endangered species laws as a rare, threatened, or endangered species, but it is a favorite species among horticulturalists and azalea enthusiasts. Because Western Azalea is the only polyploid species of azalea [*i.e.*, its DNA has 78 chromosomes versus 26 (diploid) in most other azalea species], the species is capable of hybridization with other *Rhododendron* species (and production of fertile offspring) and therefore has been popular in the horticultural industry for decades. Horticulturalists also favor the Stagecoach Hill azaleas in particular for their striking beauty and variety of flower colors and shapes, and the strain has received international recognition. The Spring 1977 edition of the magazine *Pacific Horticulture* documents the uniqueness of the Western Azalea in the Stagecoach Hill area (Mossman 1977). In particular, the author describes the extraordinary variability in a suite of plant features in the population (*e.g.*, flower color, shape, and size; petal number and texture; leaf size, shape, and edges; plant habitat; *etc.*) not documented for the species in other locales.

In the Stagecoach Hill region, Western Azalea forms an unusually expansive (nearly 600 acres) and flourishing stand, which most likely resulted from past land history and management regimes that have promoted the species, including several intense fires, clearing, agriculture, and timber harvesting over the past several decades. Active management is needed to maintain abundant, flourishing azalea stands, and both the Stagecoach Hill Azalea Preserve (a 42-acre public park within the ADC managed by the California State Parks Foundation) and the Azalea State Reserve in McKinleyville (a 30-acre public park managed by the Department of Parks and Recreation) actively manage the reserve areas to maximize the growth and flowering of the Western Azalea. Management techniques include hand clearing competing vegetation (*e.g.*, various shrub species), cutting down small trees (to maintain an open canopy), and either broadcast burning or lopping and scattering the vegetative spoils (to promote azalea regeneration). In the absence of vegetation management, azaleas tend to be shaded out by encroaching conifers and other competing vegetation. Additionally, Western Azalea has a very shallow root system and is susceptible to disturbance or degradation from soil-compacting human activities and developments.

Efforts that have been made by various agencies and organizations over the decades to protect and manage the Stagecoach Hill Western Azalea and its habitat area:

- In 1977, the magazine *Pacific Horticulture* documented the uniqueness of the Western Azalea on Stagecoach Hill and reported that the California State Parks Foundation and the American Rhododendron Society were working to raise funds ($60,000 needed) "to purchase Stagecoach Hill…[and]…to protect forever this extraordinary land of *Rhododendron occidentale*" (Mossman 1977).
- In 1981, the Humboldt County Board of Supervisors adopted the North Coast Area Plan (NCAP) segment of the Humboldt County Local Coastal Program. The NCAP (Section 3.41.A.1.f) identifies "*Azalea habitats at Kane Road*" (*i.e.*, the Stagecoach Hill area) as a type of ESHA, and states that "*The boundaries of this area and its management needs should be identified in a special study.*"
- In 1981, the Humboldt County Board of Supervisors requested the Coastal Conservancy's assistance to protect this special native azalea habitat area so that its long term viability would be ensured.
- In 1982, the Coastal Commission denied certification to a portion of the NCAP (including the Kane Road area of Stagecoach Hill). The denial was based, in part, on the unresolved issues regarding the protection of the azalea and its habitat area.
- In 1984, the Coastal Conservancy authorized funds to the California State Parks Foundation to prepare a management plan (a 40-acre model enhancement plan) and an acquisition strategy for all of the prime azalea habitat in the Stagecoach Hill area.
- In 1985, the Coastal Commission granted conceptual approval (Commission File No. CP-3-85) to the California State Parks Foundation for the following: (1) a 40-acre model enhancement plan (in the area now known as the Stagecoach Hill Azalea Preserve); and (2) an acquisition strategy and priority system to purchase 570 acres on Stagecoach Hill containing most of the azalea habitat area. The prime areas of azalea habitat on Stagecoach Hill were mapped and identified (see Exhibit No. 10), and 14 parcels of land were tentatively earmarked for public acquisition by the State of California. According to staff's recent communication with the Coastal Conservancy, Phase 2 (the acquisition strategy) "never materialized" due to lack of funding (M. Spellman, pers. comm., April 9, 2007).
- In 1986, the Commission granted a coastal development permit (CDP No. 1-86-113) to the California State Parks Foundation to proceed with the model management enhancement plan. (This 42-acre parcel has been the only

property acquisition in the area to date because of limited State funding; see above.)

- From 1987 through 2002, the Commission granted permit approval for the construction of eight homes, lot improvements to support a future home (*i.e.*, after-the-fact permit for grading, clearing vegetation, installing a well, and road improvements), construction of a detached art studio adjacent to an existing home, a land division/lot line adjustment in the area, and drilling of test wells (including on the Shuttleworth subject property). These permits include the following: 1-86-204 (Croft); 1-88-73 (Bumblebee/Hennings); 1-88-255 (Beaupré); 1-92-80 (Allen); 1-92-81 (Pehrson); 1-93-69 (McKeegan & Olsgard); 1-97-031 (Harmon); 1-99-065 (Shuttleworth); 1-00-042 & -042-A-1 (Bost/Roden); 1-01-004 (Harmon); 1-01-064 (Fox); and 1-02-007-W (Leach). Although the Commission did not deny any of the proposed projects on these parcels, the Commission has imposed special conditions to protect and minimize harm to the Western Azalea. These conditions have included such requirements as the following:

  i. a botanical survey of the property to map azalea plants in relation to proposed developments;

  ii. recordation of a deed restriction showing the location of the azaleas and agreement not to "disrupt or harm any of the azalea plants";

  iii. resiting certain parts of a project to minimize disruption to azaleas;

  iv. marking of azalea plants potentially subject to disruption during construction;

  v. relocating azalea plants which would be unavoidably impacted by the project (for parcels where no other less environmentally damaging feasible development exists);

  vi. recordation of a deed restriction stating the applicants and future owners of the property agree to the following: (a) not to disturb any azalea plants on the property; (b) not to plant any other *Rhododendron* species on the property (to prevent hybridization and dilution the gene pool of the native species); (c) to allow relocation of a traveled way to avoid azalea plants; and (d) to allow Commission review of all future development on the property to ensure no significant disruption to the azaleas or their habitat area; and

  vii. preparation of a landscaping plan to plant 20 Western Azaleas (grown from local stock) to mitigate for unpermitted vegetation clearing (permitted in an after-the-fact permit issued by the Commission) that impacted an indeterminable number of azalea plants.

- In July of 2007, the Commission granted permit approval to Stanley and Laurel Shuttleworth for the development of a single-family residence, septic

and water system, and major vegetation removal within Western Azalea habitat. The Commission did not consider the habitat on site to be environmentally sensitive because it was determined to neither be rare or especially valuable because of its special nature or role in an ecosystem. The Western Azalea on the property is not contained within an assemblage of vegetation where the plant is dominant or present in impressive numbers such as at the Stagecoach Hill Azalea Preserve. Instead, the azalea is only a minor component of the vegetation assemblage on the site. Therefore, the Commission found that the Western Azalea habitat on the subject property did not meet the ESHA definition per Coastal Act Section 30107.5 (see below discussion).

ii. Concerns regarding treatment of all Western Azalea habitat as ESHA

Questions have been raised questions as to whether all Western Azalea habitats in the Stagecoach Hill area should be considered ESHA. In many instances when the Commission designates ESHA on the basis of a particular plant species, the Commission is guided in large part on whether the species is ranked as a List 1 or List 2 species by the California Native Plant Society (CNPS) *Inventory of Rare and Endangered Plants of California*. The CNPS ranking system (CNPS 2007) defines List 1B plants as "rare, threatened, or endangered in California, and elsewhere" (List 1A plants are those presumed extinct in California). CNPS List 2 plants are those that are "rare, threatened, or endangered in California, but more common elsewhere." A threat code extension following the list ranking (*e.g*., List 1B.1, 1B.2, or 1B.3) further ranks the species' in terms of its percentage of occurrences that are "threatened" in California (the higher the number, the higher the threat). All plants appearing on CNPS Lists 1 and 2 meet the definitions within the Native Plant Protection Act and the California Endangered Species Act as species eligible for state listing as a rare, threatened, or endangered plant. In addition, pursuant to the California Environmental Quality Act (CEQA) guidelines (Section 15380), the effects of a development project on species which meet the criteria for listing, even if not currently included on any list, must be fully considered during project environmental review. Given the significance of the CNPS listing as a threshold for determining the relative significance of potentially adverse impacts on biological resources and for setting requirements for formulating related mitigation and monitoring programs, plant species that are listed as CNPS List 1B or 2 and the area in which these species grow meet the Coastal Act definition of an ESHA as they are both: (1) "*an area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem;*" and (2) "*which could easily be disturbed or degraded by human activities or developments*." Species on the CNPS List 3 are those for which more information is needed before an appropriate list ranking can be assigned (*e.g*., List 3 species may, after further review, be moved to List 1B or List 4). CNPS List 4 species are effectively on a "watch list," comprising those plants which are of limited distribution or infrequent throughout a broader area in California. Plants on

List 3 or on List 4 may, in some instances, meet the criteria for listing and may, in some instances, meet the Coastal Act definition of ESHA.

Western Azalea has not been assigned a listing status by the CNPS Rare Plant Program. In addition, in many locations on Stagecoach Hill, Western Azalea plants appear in small isolated patches within heavily forested areas. In such locations, the plants often do not blossom with the same magnificence and variety of color as they do in more exposed locations where the azaleas are particularly abundant. Therefore, questions have been raised as to whether Western Azalea habitats on Stagecoach Hill should be considered to be ESHA.

b. <u>Applying ESHA Definition: What Constitutes ESHA?</u>

ESHA, as defined in Section 30107.5 of the Coastal Act, is *"…any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities."* Thus, Section 30107.5 sets up a two part test for determining an ESHA. The first part is determining whether an area includes plants or animals or their habitats that are either: (a) rare; or (b) especially valuable because of their special nature or role in an ecosystem. If so, then the second part asks whether such plants, animals, or habitats could be easily disturbed or degraded by human activities. If so, then the area where such plants, animals, or habitats are located is deemed ESHA by Section 30107.5.

i. What constitutes "rare?"

There are several types of rarity, but each of them are fundamentally related to threats to the continued existence of species that naturally occur in larger or more widespread populations. Increasing numbers of species have become absolutely rare, having been reduced to a few hundreds or thousands of individuals. The prognosis for these species is very poor. Another common pattern is for species to be globally rare but locally abundant. Such species only occur at a few places either as a result of natural processes or human perturbations. Some species are characterized as "narrow endemics" because they have evolved adaptations to a very limited range of environmental variables (*e.g.*, soil type, temperature, presence of fog, *etc.*), which restrict their spatial distribution. Many other species have restricted distributions as a result of human activities, especially agricultural and urban development that results in habitat loss. Many natural endemics have also suffered such habitat loss – compounding the risk to them. All these species may be abundant in the few areas where they still occur. However, regardless of the cause of their restricted distribution, the survival of these species is at elevated risk because localized impacts may affect a large proportion of the population with devastating effects. At the other end of the spectrum of rarity are species that are geographically widespread, but are everywhere in low abundance. Some species naturally occur in this pattern and have life-history characteristics that enable them to persist. However, naturally abundant species that have been reduced to low density

throughout their range are at heightened risk of extinction, although their wide distribution may increase their opportunities for survival.

ii. What constitutes "especially valuable?"

All native plants and animals and their habitats have significant intrinsic value. However, the "especially valuable" language in the Coastal Act definition of ESHA makes clear that the intent is to protect those species and habitats that are out-of-the-ordinary and special, even though they may not necessarily be rare. As in all ESHA determinations, this requires a case-by-case analysis. Common examples of habitats that are especially valuable due to their role in the ecosystem are those that support rare, threatened, or endangered species, and those that provide important breeding, feeding, resting or migrating grounds for some stage in the life cycle of animal species and that are in short supply (*e.g.*, estuaries provide nursery habitat for many marine fishes such as the California halibut). Habitats may also be especially valuable because of their special nature. Examples include those rare instances of communities that have remained relatively pristine, areas with an unusual mix of species, and areas with particularly high biological diversity.

iii. Are all examples of rare habitats or all areas supporting individuals of rare species ESHA?

The reason ESHA analyses are all site-specific is that there is no simple rule that is universally applicable. For example, a plot of a rare habitat type that is small, isolated, fragmented, and highly degraded by human activities would generally not meet the definition of ESHA because such highly impacted environments are so altered that they no longer fit the definition of their historical habitat type. Larger, less isolated, more intact areas that are close to or contiguous with other large expanses of natural habitat are more likely to have a special nature or role in an ecosystem and hence meet the ESHA definition, but "large," "isolated," "intact," and "close to" are all terms that are relative to the particular species or habitat under consideration. What is spatially large to a Pacific pocket mouse is small to a mountain lion or bald eagle. What is isolated for a dusky footed wood rat may not be for a California gnatcatcher. Similarly, an area supporting one or a few individuals of a rare species might not meet the definition of ESHA because scattered individuals might be common and not significant to the species. However, this is relative to the actual distribution and abundance of the species in question. If a few individuals of a species previously thought to be extinct were found, the area would clearly meet the definition. Whereas, if the same number of individuals of a species with a population of 25,000 were found in an isolated, degraded location, the area may not meet the definition. A conclusion of whether an area meets the definition of ESHA is thus based on a site- and species-specific analysis that generally includes a consideration of community role, life-history, dispersal ability, distribution, abundance, population dynamics, and the nature of natural and human-induced impacts. The results of such

analysis can be expected to vary for different species; for example, it may be different for pine trees than for understory orchids.

iv. Identifying ESHA over time

Case-by-case analysis of ESHA necessarily occurs at discrete moments in time. However, ecological systems and the environment are inherently dynamic. One might expect, therefore, that the rarity or sensitivity of species and their habitats will change over time. For example, as species or habitats become more or less abundant due to changing environmental conditions, they may become more or less vulnerable to extinction. In addition, our scientific knowledge and understanding of ecosystems, specific species, habitat characteristics, and so forth is always growing. We discover large numbers of new species every year.[4] The CNPS *Inventory of Rare and Endangered Plants of California* grew from approximately 1,400 listings in 1974 to over 2,100 listings in 2001.[5] New legal requirements, such as the numerous environmental laws adopted in the 1970s, may be adopted that reflect changes in our values concerning the current conditions of natural resources. Consequently, ESHA evaluations may change over time. Areas that were once not considered ESHA may become ESHA.[6] It is also possible that rare species might become less so, and their habitats may no longer be considered ESHA. Because of this inherent dynamism, the Commission must evaluate resource conditions as they exist at the time of the review, based on the best scientific information available.

c. Portion of Western Azalea Habitat That May Be Considered ESHA

i. Rarity

The first test for determining ESHA under Section 30107.5 is whether an area includes plants or animals or their habitats that are either (a) rare, or (b) especially valuable because of their special nature or role in an ecosystem. The Commission first considers whether the Western Azalea habitat on Stagecoach Hill can be considered "rare."

Western Azalea is a deciduous shrub in the Heath Family (Ericaceae), generally 1 to 3 meters tall, with relatively large (~3.5 to 5 cm long), showy, funnel-shaped flowers clustered at the ends of leafy branches (Munz & Keck 1959). According to the most recent flora of California, *The Jepson Manual* (Hickman 1993), there are approximately 1,000 species in the genus *Rhododendron* distributed across the temperate Northern Hemisphere and Australia, but only one species of azalea (*i.e.*, mostly deciduous species of the genus *Rhododendron*, subgenus *Pentanthera*) occurs in California (the 15 other azalea species native to North America all occur in the eastern part of the continent).

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[4] See, generally, E.O. Wilson, *The Diversity of Life* (W.W. Norton, New York, 1992).
[5] CNPS (http://www.cnps.org/programs/Rare_Plant/inventory/analyses.htm).
[6] See, for example, California Coastal Commission, Staff Report Changed Circumstances and Project Amendments, A-4-STB-93-154-CC and A-2 (Arco Dos Pueblos Golf Links).

Western Azalea has been documented along stream banks, seeps, and in coniferous forests below 2,200 meters in elevation across California's northern and central coasts, in various mountain ranges across the state, and in southwestern Oregon (Hickman 1993).

There is considerable diversity in the form and appearance of this species, and at least three native varieties of the species are recognized in California [Kartesz 1998; R. Bencie pers. comm. (email), May 1, 2007]. The variety that occurs along the North Coast (including in the Stagecoach Hill area) is *R. occidentale* var. *paludosum*. The geographic distribution of this variety includes the North Coast, the Klamath Ranges, and southwestern Oregon (R. Bencie pers. comm. (email), May 1, 2007).

In addition to the CNPS *Inventory* (discussed in Section IV-E-1-a-ii above), the California Department of Fish and Game (CDFG) maintains the California Natural Diversity Database (CNDDB) *Rarefind 3*, which includes all rare, threatened, and endangered species in the state (including all CNPS List 1 and List 2 species). The CDFG also maintains a separate list of over 1,000 California terrestrial natural communities that are recognized by the CNDDB, many of which are considered rare or potentially rare (http://www.dfg.ca.gov/bdb/html/natural_ communities. html). The natural communities on the list are based on the classification put forth in *A Manual of California Vegetation* (MCV) (Sawyer & Keeler-Wolf 1995, and the upcoming new edition expected to be published in 2008), which has been adopted as the standard vegetation classification by state and federal agencies and as the standard reference for vegetation used by consultants and planners. Western Azalea stands are not a distinct natural community type recognized by the CNDDB or the MCV. According to Dr. John Sawyer, the primary author of the MCV and the updated MCV (in progress), the Western Azalea stands on Stagecoach Hill may indeed qualify as a distinct vegetation type (a new alliance, an association of another alliance, or a unique stand), but no plot data currently exist to substantiate the type. (The major floristic groups, called alliances and associations, are defined by quantifiable and scientifically defensible classification rules.)

Therefore, because of its relative abundance and distribution across a relatively wide geographic range, neither Western Azalea as a species nor the particular variety of Western Azalea that occurs in the Stagecoach Hill area meet the rarity test for designation as ESHA under Coastal Act Section 30107.5. Furthermore, because at the present time there is no Western Azalea natural community type that is listed on the CDFG special communities list as rare or potentially rare, the Western Azalea again does not meet the rarity test for designation as ESHA under Coastal Act Section 30107.5.

ii. "Special nature"

The Commission next considers whether the Western Azalea habitat on Stagecoach Hill can be considered to be especially valuable because of its special nature or role in an ecosystem. Although not currently listed as a rare vegetation type, Dr. Sawyer (the first author of *A Manual of California Vegetation*) believes that although Western Azalea as a

species is not rare, the Stagecoach Hill and other regional stands of the azalea may be a rare and unique vegetation type, and they "merit preservation whether…placed in an alliance, called a habitat, or given another designation" [J. Sawyer, pers. comm. (email), March 23, 2007].

Staff visited the Stagecoach Hill Azalea Preserve (also located in the ADC, a few miles north of the subject site) to observe azalea habitat that would meet the definition of ESHA per Coastal Act Section 30107.5. As described above, the Stagecoach Hill Azalea Preserve is a 42-acre park owned by the California State Parks Foundation that is managed specifically to promote and enhance Western Azalea habitat. According to the Commission's ecologist Dr. John Dixon, the Western Azalea habitat at the Stagecoach Hill Azalea Preserve is unique and "special" for several reasons. First, the sheer expanse of azaleas in the area is unique and impressive (azaleas span the majority of the 42-acre site). Second, the dominance of Western Azalea in the vegetation structure of the habitat area is unique and potentially rare (see Dr. Sawyer's comment above). As discussed above, park management actively removes competing trees and shrubs, which are absent or minimal in the area. Therefore, the dominant vegetation of the area, which includes Western Azalea and the native Pacific Reed Grass (and potentially other species), is a type not documented elsewhere in the range of the species. Western Azalea has been documented as a major component of four different vegetation types in California and Oregon including (1) Port Orford-cedar/Western Azalea Forest; (2) Port Orford-cedar/Western Azalea/ Sedge species Temporarily Flooded Forest; (3) Douglas-fir/Tanoak/Western Azalea Forest; and (4) Black Cottonwood/Western Azalea Forest (NatureServe 2006).

In conclusion, the vegetation assemblage at the Stagecoach Hill Azalea Preserve, of which Western Azalea is a dominant species, appears to be unique and "special." Because of this, the Western Azalea stands in the region, including the Stagecoach Hill Azalea Preserve, are being analyzed for vegetation classification purposes (J. Sawyer, pers. comm. [email], June 25, 2007). Depending on the results of the analysis, the Western Azalea at the Stagecoach Hill Azalea Preserve (and potentially elsewhere in the region) may be considered a unique vegetation type in the updated *Manual of California Vegetation*. If so, the Western Azalea vegetation type also would be placed on the CDFG special communities list as rare or potentially rare.

Therefore, for all of the reasons discussed above, the Commission finds that Western Azaleas on Stagecoach Hill are, in some circumstances (such as at the Stagecoach Hill Azalea Preserve), "*especially valuable because of their special nature or role in an ecosystem…*"

iii. "Easily disturbed"

The second test for determining ESHA under Coastal Act Section 30107.5 is whether the habitat could be easily disturbed or degraded by human activities and developments.

Western Azalea has a relatively shallow root system that could be adversely impacted by soil compaction activities. Furthermore, as mentioned in above and discussed in more detail below, Western Azalea has a tendency to hybridize with other planted *Rhododendron* species, which could lead to impacts to the long-term genetic integrity of the species in the event that horticultural rhododendrons installed in a residential landscape setting cross-pollinate with the native species. Therefore, for all of the reasons discussed above, the Commission finds that native Western Azalea *"…could be easily disturbed or degraded by human activities and developments.*"

d. <u>Western Azalea Habitat on Project Site Not ESHA</u>

The above analysis shows that conditions may be present for the native Western Azalea habitat at the Stagecoach Hill Azalea Preserve, and perhaps other areas of Stagecoach Hill, to qualify as ESHA under Section 30107.5 of the Coastal Act because it is especially valuable because of its special nature and because it easily disturbed or degraded by human activities. The Commission now considers whether the Western Azalea habitat at the project site qualifies as ESHA in the manner that the Western Azalea habitat at the preserve may.

As discussed above, in some circumstances (such as at the Stagecoach Hill Azalea Preserve), Western Azalea habitat is unique first, because of the sheer expanse of azaleas in an area, and second, because of the dominance of Western Azalea in the vegetation structure of the area. [Furthermore, azaleas in the area have been documented as having exceptional variability in flower color and shape (Mossman 1977).] Typically along the North Coast, Western Azalea comprises a lesser component of the vegetation assemblage of Sitka spruce forests. In a typical Sitka spruce forest setting, Western Azalea may or may not be present, and where it is present, it is usually just one minor component of an understory vegetation assemblage that includes various other smaller trees, shrubs, herbs, and ferns such as cascara (*Rhamnus purshiana*), huckleberry (*Vaccinium* spp.), various *Rubus* species, sword fern (*Polystichum munitum*), and various others. This assemblage is the case on the subject property. Although the applicant's botanist indicates 21 Western Azalea plants occur across the project site, the species on the site is neither a dominant vegetation component nor present in impressive numbers as it is at the Stagecoach Hill Azalea Preserve. Instead, the project site is mostly forested with Sitka spruce, and the understory is composed of a variety of native and nonnative species. The azaleas on the subject site are mostly isolated and intermixed with competing shrubs and trees (see Exhibit No. 9). Furthermore, the proposed project area is not within the prime azalea habitat mapped by the State Coastal Conservancy in the 1980s as part of their acquisition program efforts (Commission File No. CP-3-85), and the subject property was never designated as a target acquisition area (see Exhibit No. 10). The Commission's ecologist, Dr. Dixon, concludes that there is no apparent basis for saying that the habitat on the project site under these conditions is especially valuable. As discussed previously, nor can Western Azalea in the area be considered "rare."

Nevertheless, the botanical report (Exhibit No. 6) recommends various mitigation measures to minimize impacts to Western Azalea habitat on the property. These include the following:

- Clearly marking with blue flagging all azaleas to ensure their visibility during grading and construction;
- Avoiding impacts to azalea plants;
- Alerting equipment operators to the sensitivity and locations of the flagged azaleas to ensure that a minimum 15-foot radius buffer around the plants is maintained for avoidance;
- Protecting azaleas with sediment fencing if necessary in areas where avoidance of the 15-foot radius buffer is not possible and where other vegetation in the buffer area must be carefully removed; and
- Transporting excess soil material offsite to be properly disposed of at a suitable location, and not dozing excess soil or vegetation spoils to the edges of the wooded area or anywhere within 20 feet of flagged azaleas.

These mitigation measures, in combination with the opening up the site through tree removal activities, are expected to increase the amount of and enhance the habitat available for azaleas (which prefer sunny and moist open areas).

In conclusion, the Commission finds that the Western Azalea habitat on the subject site does not meet the first of the two part test under Section 30107.5 for determining ESHA because it is neither rare nor especially valuable because of its special nature or role in an ecosystem. In conclusion, the Commission finds that the Western Azalea habitat at the subject site is not ESHA.

e. Protection of Adjacent Western Azalea Habitat ESHA

Although the Commission concludes that Western Azalea on the subject site is not itself ESHA, under certain circumstances, the proposed project could potentially result in adverse impacts to Western Azalea habitat areas in the vicinity of the subject property that do meet the definition of ESHA per Coastal Act Section 30107.5.

Since rhododendrons will readily cross-pollinate with one another (a well-documented tendency), and since Western Azalea in particular is a species prized by the horticultural industry for its ability to cross-pollinate with different azalea varieties and hybrids (and produce fertile offspring), it is feasible that native Western Azaleas, including those within an ESHA in the vicinity of the subject parcel (see Exhibit No. 10), could cross-pollinate with horticultural azaleas installed in a residential landscape setting (rhododendrons in general are typically pollinated by bumblebees). If cross-pollination were to occur, successive generations of progeny would likely result in a mixture or

hybrid variety of the two parent plants, and subsequent backcrossing could affect the long-term genetic integrity of the Western Azalea in the Stagecoach Hill region. Therefore, in order to ensure that future landscaping that the applicant may choose to install on the property does not adversely impact the long-term genetic integrity of any azalea ESHAs in the project vicinity, the Commission attaches Special Condition Nos. 2 and 6. Special Condition No. 2-A imposes a restriction stating that no other rhododendron species may be planted on the property except for the existing native Western Azalea. Staff notes that such a condition has been included as a condition of approval for at least seven other permits that the Commission has issued in the ADC region (including Commission CDP Nos. 1-88-73, 1-88-255, 1-92-80, 1-92-81, 1-93-69, 1-97-031, and 1-06-032). In addition, Special Condition No. 7 requires the applicant to record a deed restriction detailing the specific development authorized under the permit, identifying all applicable special conditions attached to the permit, and providing notice to future owners of the terms and limitations placed on the use of the property, including this restriction against planting rhododendron species except for the existing native Western Azalea.

In addition to the risk of hybridization with horticultural varieties, Western Azalea ESHA in the vicinity of the subject property could be adversely affected by the proposed development if non-native, invasive plant species were introduced from landscaping at the site. Introduced invasive exotic plant species could spread into the ESHA and displace native vegetation, thereby disrupting the value and function of the adjacent ESHA. The applicant has not proposed a specific landscaping plan as part of the proposed project. However, to ensure that the ESHA is not adversely impacted by any future landscaping of the site, the Commission attaches Special Condition No. 2-B, which precludes the use of invasive or otherwise problematic species.

To help in the establishment of vegetation, rodenticides are sometimes used to prevent rats, moles, voles, gophers, and other similar small animals from eating the newly planted saplings. Certain rodenticides, particularly those utilizing blood anticoagulant compounds such as brodifacoum, bromadiolone and diphacinone, have been found to poses significant primary and secondary risks to non-target wildlife present in urban and urban/ wildland areas. As the target species are preyed upon by raptors or other environmentally sensitive predators and scavengers, these compounds can bio-accumulate in the animals that have consumed the rodents to concentrations toxic to the ingesting non-target species. Therefore, to minimize this potential significant adverse cumulative impact to environmentally sensitive wildlife species, the Commission attaches Special Condition No. 2-C prohibiting the use of specified rodenticides on the property governed by CDP No. 1-07-008.

As conditioned, the Commission finds that the project will be sited and designed to prevent impacts which would significantly degrade adjacent environmentally sensitive habitat areas and will be compatible with the continuance of those areas, and is therefore consistent with Coastal Act Section 30240.

2) Roosevelt Elk Habitat

The project site is within an area designated on the Humboldt County Zoning Maps as "coastal elk habitat." This designation is intended to ensure that development within the range of the Roosevelt Elk is sited and designed to prevent impacts that would significantly disrupt elk use. Although the range of the species is limited, the Roosevelt Elk is not protected under state or federal endangered species laws as a rare, threatened, or endangered species. The Roosevelt Elk is a harvested animal and, according the staff of the Department of Fish and Game, the Roosevelt Elk population in the area is expanding and doing well. Therefore, the Commission finds that the use of the subject property by elk does not make the subject property an environmentally sensitive habitat area for Roosevelt Elk, as no evidence has been presented that the Roosevelt Elk or its potential habitat on the site is either rare or especially valuable because of its special nature or role in the ecosystem, as is necessary for an area to be considered environmentally sensitive under Section 30107.5 of the Coastal Act. Nonetheless, the proposed development will not adversely affect the elk habitat. The applicant is not proposing any fencing that could impede elk migration, and no significant habitat displacement would occur, as the proposed residence would not result in a significant increase in development density.

Furthermore, as discussed in the finding on Visual Resources below, the project will be conditioned to restrict the exterior lighting of the residence (Special Condition No. 3-B). The special condition requires that exterior lighting be minimized, directed downward, and not extend more than 50 feet from the perimeter of the approved developments. These lighting restrictions will minimize disturbance to migrating elk that may be passing through the property. Therefore, as conditioned, the project would not adversely impact or displace elk habitat.

3) Conclusion

For all of the reasons discussed above, the Commission finds that the project, as conditioned, is consistent with Section 30240 of the Coastal Act as the project (a) will not encroach into any environmentally sensitive habitat area or needed buffer, and (b) has been sited and designed to prevent impacts which would significantly degrade adjacent environmentally sensitive habitat areas and will be compatible with the continuance of those areas.

F. Visual Resources

Section 30251 of the Coastal Act states that the scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance and requires, in applicable part, that permitted development be sited and designed to protect views to

and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, and to be visually compatible with the character of surrounding areas.

The subject property is not within a highly scenic area. In addition, the proposed development would not block views to the ocean, as the property is served by private roadways and there are no public views through the site to the ocean or coast. Furthermore, the development would not be visible from State Highway 101, because the surrounding forests and natural landforms screen the house site from view. The development would, however, be visible, in part, from a limited stretch of the Big Lagoon Spit, whereby persons on the beach looking east at the forested hillside potentially could glimpse a portion of the development (see Exhibit No. 9). As discussed previously, the Big Lagoon Spit is open to the public for day use and is accessed through Big Lagoon County Park at the southwest end of the lagoon. The proposed cutting of eight conifers would not create a significant visual impact, as the trees selected for cutting are scattered amongst a forested backdrop that will remain primarily forested. The project would not result in the significant alteration of natural landforms. The project, as conditioned, is also generally visually compatible with the large-lot, rural residential character of the surrounding area.

Because the proposed development would be directly visible from a public vantage point along Big Lagoon Spit, depending on what building colors and materials are proposed for use, the development potentially may not blend in with its mostly forested surroundings and could create an adverse visual impact as viewed from the beach. Such a result would not be consistent with the requirements of Section 30251 of the Coastal Act that development be compatible with the character of its surroundings. The applicant has submitted architectural sketches and floor plans for the proposed house and garage (Exhibit No. 5), but no information was submitted on proposed materials or color scheme for the structures. Exterior lighting associated with the proposed development also could adversely affect visual resources in the area if the lighting were allowed to shine skyward and beyond the boundaries of the parcel. The glow of lighting emanating above the subject property would be visible from distant public vantage points. Such lighting would not be compatible with the character of the area, as the Stagecoach Hill area is very sparsely developed with relatively minimal lighting. Therefore, the Commission attaches Special Condition No. 3, which requires that the colors of the structures and roofs permitted be dark browns, dark greens, and dark grays, that all exterior materials, including roofs and windows, not be reflective to minimize glare, and that all exterior light be the minimum necessary for the safe ingress, egress, and use of the structures and be low-wattage, non-reflective, shielded, and have a directional cast downward. These limitations on the structural appearance and lighting will ensure that the project, as conditioned, will blend with the surrounding environment, will minimize glare, and will not cast a skyward glow that would be incompatible with the rural character of the area. In addition, Special Condition No. 7 requires the applicant to record a deed restriction detailing the specific development authorized under the permit, identifying all applicable special conditions attached to the permit, and providing notice to future owners of the

terms and limitations placed on the use of the property, including these lighting restrictions to protect visual resources.

Therefore, the project, as conditioned, is consistent with Section 30251, as the project will not adversely affect views to or along the coast, result in major landform alteration, or be incompatible with the character of the surrounding area.

G. Protection of Water Quality

Coastal Act Policy:

Section 30231of the Coastal Act states the following:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

Consistency Analysis

Storm water runoff from new residential development can adversely affect the biological productivity of coastal waters by degrading water quality. Recognizing this potential impact, Section 30231 requires the protection of coastal waters to ensure that biological productivity is maintained and to protect public health and water quality. New development must not adversely affect these values and should help to restore them when possible.

The subject parcel includes gently- to moderately-sloping portions of a 20-acre parcel that is currently largely forested. As the parcel proposed for residential development does not currently contain any developed impervious surfaces, the majority of stormwater at the site infiltrates prior to leaving the site as surface runoff. However, the increase in impervious surface area from the proposed development would decrease the infiltrative function and capacity of the existing permeable land on site. The reduction of permeable surface area would lead to an increase in the volume and velocity of stormwater runoff that can be expected to leave the site.

Runoff originating from the development site generally drains westward. Sediment and other pollutants entrained in runoff from the development that reaches streams would contribute to degradation of the quality of coastal waters and any intervening sensitive habitat. Other than removing approximately eight trees from areas around the building

site, the applicant proposes to leave the majority of the parcel in its natural, vegetated condition which would continue to allow for infiltration of site runoff, thereby greatly reducing the potential that runoff from the completed development would affect coastal waters. Most of the development site is located on a gently sloped area that is distant from the nearest stream course. The ground under the forested area around the development site is thick with leaf litter and forest-debris mulch. This thick layer of forest duff and the understory and ground cover vegetation would act as an infiltration system, trapping water that runs off from impervious surfaces of the completed development before it leaves the property. However, along the driveway, the slope is relatively steep, and the driveway will be compacted and either covered with gravel or paved, thereby increasing the amount of impervious surfaces in the area and stormwater runoff.

Therefore, sedimentation impacts from runoff would be of concern both during construction and following construction, for the life of the development. The applicants have submitted a grading, erosion control, and preliminary landscaping plan (Exhibit No. 8), which includes various recommendations and best management practices (BMPs) to be implemented both during construction and following construction. These include (during construction) limiting the construction period to the dry season, between April 15 and October 15 when little runoff is expected, installation of fiber rolls along cut slopes and silt fencing along the toe of cut and fill slopes, placement of straw cover on all bare soil areas (following construction), installation of rock check dams in driveway ditches, straw mulching and reseeding with native grass seed all bare soil areas prior to the onset of the rainy season, and installing gravel and paved driveway surfaces as shown on the plans. The grading, erosion control, and preliminary landscaping plan also proposes to plant native shrubs on site, including black huckleberry and salal.

The BMPs proposed by the applicant would reduce sedimentation impacts to a level that is less than significant. To ensure that BMPs proposed by the applicant are implemented to control the erosion of exposed soils and minimize sedimentation of coastal waters during and following construction, the Commission attaches Special Condition No. 1. This condition requires the permittees to implement the plan and its proposed BMPs to control erosion and sedimentation during and following construction.

The Commission thus finds that as conditioned, the proposed development is consistent with Section 30231 of the Coastal Act because existing water quality and biological productivity will be protected and maintained from impairing waste discharges.

H. Geologic Hazards

The Coastal Act contains policies to assure that new development provides structural integrity, minimizes risks to life and property in areas of high geologic hazards, and does not create or contribute to erosion.

Coastal Act Policy:

Section 30253 of the Coastal Act states the following (emphasis added):

> *New development shall:*
>
> *(1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*
>
> *(2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.*
>
> *(3) Be consistent with requirements imposed by an air pollution control district or the State Air Resources Control Board as to each particular development.*
>
> *(4) Minimize energy consumption and vehicle miles traveled.*
>
> *(5) Where appropriate, protect special communities and neighborhoods which, because of their unique characteristics, are popular visitor destination points for recreational uses.*

Consistency Analysis

The applicant submitted an engineering geologic report for the proposed development (Exhibit No. 7). The report describes the geologic setting of the property as being subject to hazards from strong earthquake ground shaking (the site is in proximity to the seismically active Trinidad fault and Quaternary-aged Big Lagoon fault), slope instability (there are moderately steep slopes within the drainage course to the south of the building site), and soft compressible soils within the upper 2 to 3 feet of the subsurface underlying the building footprint. The report contains numerous recommendations intended to reduce the potential impacts of these conditions. These include general recommendations for site preparation, cut and fill slopes, structural fills, structural fill emplacement, compaction standard, and utility trench backfill. Several other site-specific recommendations are given for soils, fill, grading, revegetation, foundation design, and drainage. The report concludes that, "It is our opinion that the proposed residential development can be designed and constructed such that it will not be subject to nor contribute to geologic hazards provided our recommendations [are] implemented."

The Commission's geologist, Dr. Mark Johnsson, reviewed the engineering geologic report and believes that the specified recommendations would sufficiently minimize the potential significant adverse impacts of the site's geologic hazard conditions.

Dr. Johnsson concurs with the report's conclusion that the proposed residential development will not be subject to nor contribute to geologic hazards if the recommended geologic hazard mitigation measures are implemented.

To ensure that the development conforms to the recommendations listed in the engineering geologic report, the Commission attaches Special Condition No. 4, which would require the applicant, prior to the issuance of the coastal development permit, to submit, for the review and approval of the Executive Director, evidence that an appropriate licensed professional has reviewed and approved all final design and construction plans and certified that each of those final plans is consistent with all of the recommendations specified in the above-referenced geologic evaluation.

Although the project has been evaluated and designed in a manner to minimize the risk of geologic hazards, and although the Commission is requiring with Special Condition No. 4 that the applicant adhere to all recommended specifications to minimize potential geologic hazards, some risk of geologic hazard still remains. This risk is reflected in the engineering geologic report, which references various "limitations" of the geotechnical analysis, such as:

> "…The methods used indicate subsurface conditions only at specific locations where samples were obtained, only at the time they were obtained, and only to the depths penetrated. Samples cannot always be relied on to accurately reflect stratigraphic variations that commonly exist between sampling locations, nor do they necessarily represent conditions at any other time…" [pp. 13-14]

Therefore, the Commission attaches Special Condition No. 5, which requires the applicant to assume the risks of geologic hazards to the property and waive any claim of liability on the part of the Commission. Given that the applicant has chosen to implement the project despite the geologic risks, the applicant must assume the risks. In this way, the applicant is notified that the Commission is not liable for damage as a result of approving the permit for development. The condition also requires the applicant to indemnify the Commission in the event that third parties bring an action against the Commission as a result of the failure of the development to withstand hazards. In addition, as discussed above, Special Condition No. 7 requires that a deed restriction be recorded to ensure that future owners of the property will be informed of the risks, the Commission's immunity from liability, and the indemnity afforded the Commission.

As conditioned, the proposed development will not contribute significantly to the creation of any geologic hazards and will not have adverse impacts on slope stability or cause erosion. However, the Commission notes that future minor incidental development normally associated with single family residences such as additions to the residence, construction of outbuildings, decks and patios, or installation of additional landscaped areas could be sited and designed in a manner that could compromise geologic stability leading to significant adverse impacts to the site and surrounding area. Many of these

kinds of development are normally exempt from the need to obtain a coastal development permit under Section 30610(a) of the Coastal Act. Thus, unless the Commission specifies in advance, the Commission would not normally be able to review such development to ensure that geologic hazards are avoided.

The Commission further notes that Section 30610(a) of the Coastal Act and Chapter 20.532 of the County's Coastal Zoning Code specifically exempt certain additions to existing single family residential structures from coastal development permit requirements. Pursuant to this exemption, once a house has been constructed, certain additions and accessory buildings that the applicant might propose in the future are normally exempt from the need for a permit or permit amendment.

To avoid such impacts to coastal resources from the development of otherwise exempt additions to existing homes, Section 30610(a) requires the Commission to specify by regulation those classes of development that involve a risk of adverse environmental effects and require that a permit be obtained for such improvements. Pursuant to Section 30610(a) of the Coastal Act, the Commission adopted Section 13250 of Title 14 of the California Code of regulations. Section 13250(b)(6) specifically authorizes the Commission to require a permit for additions to existing single-family residences that could involve a risk of adverse environmental effect by indicating in the development permit issued for the original structure that any future improvements would require a development permit. As noted above, siting and development of certain additions or improvements to the approved residence could involve a risk of initiating significant adverse geologic hazards. Therefore, in accordance with provisions of Section 13250(b)(6) of Title 14 of the California Code of Regulations, the Commission attaches Special Condition No. 6, which requires a coastal development permit or a permit amendment for all additions and improvements to the residence on the subject parcel that might otherwise be exempt from coastal permit requirements. This condition will allow future development to be reviewed by the Commission to ensure that future improvements will not be sited or designed in a manner that would result in significant adverse geologic consequences. As discussed above, Special Condition No. 7 also requires that the applicant record and execute a deed restriction approved by the Executive Director against the property that imposes the special conditions of this permit as covenants, conditions and restrictions on the use and enjoyment of the property. Special Condition No. 7 will also help assure that future owners are aware of these CDP requirements applicable to all future development.

As conditioned, the Commission finds that risks to life and property from geologic hazards have been minimized, that the stability and structural integrity of the site or surrounding area have been assured, and the development will neither create nor contribute significantly to erosion, geologic instability, or destruction or in any way require the construction of protective devices that would substantially alter natural landforms.

I. Violation

Although certain development has taken place at the project site without the benefit of a coastal development permit (including installation of a water well, well pump house, two fiberglass water storage tanks, fire hydrant, buried water line, and buried electrical conduit), consideration of the application by the Commission has been based solely upon the Chapter 3 policies of the Coastal Act. Approval of this permit does not constitute a waiver of any legal action with regard to the alleged violations nor does it constitute an admission as to the legality of any development undertaken on the subject site without a coastal development permit.

J. California Environmental Quality Act (CEQA)

Section 13906 of the Commission's administrative regulation requires Coastal Commission approval of Coastal Development Permit applications to be supported by a finding showing the application, as modified by any conditions of approval, is consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are any feasible alternatives or feasible mitigation measures available, which would substantially lessen any significant adverse effect the proposed development may have on the environment.

The Commission incorporates its findings on Coastal Act consistency at this point as if set forth in full, including all associated environmental review documentation and related technical evaluations incorporated-by-reference into this staff report. Those findings address and respond to all public comments regarding potential significant adverse environmental effects of the project that were received prior to preparation of the staff report. As discussed above, the proposed project has been conditioned to be consistent with the policies of the Coastal Act. As specifically discussed in these above findings, which are hereby incorporated by reference, mitigation measures that will minimize or avoid all significant adverse environmental impacts have been required. As conditioned, there are no other feasible alternatives or feasible mitigation measures available that would substantially lessen any significant adverse impacts that the activity may have on the environment. Therefore, the Commission finds that the proposed project, as conditioned to mitigate the identified impacts, can be found consistent with the requirements of the Coastal Act and to conform to CEQA.

V. REFERENCES

Bencie, R. Personal communication (email, May 1, 2007) regarding the Western Azalea variety in the Stagecoach Hill area. Ms. Bencie is Collections Manager at the Humboldt State University Vascular Plant Herbarium.

CNDDB (California Natural Diversity Data Base). 2007. *Rarefind 3*. Biogeographic Data Branch, California Department of Fish and Game. Sacramento, CA.

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Hickman, J.C. (ed.). 1993. *The Jepson Manual: Higher Plants of California*. University of California Press. Berkeley, CA. 1400 pp.

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Kartesz, J.T. 1998. A *Synonymized Checklist of the Vascular Flora of the United States, Puerto Rico, and the Virgin Islands*. Biota of North America Program (BONAP) of the North Carolina Botanical Garden at the University of North Carolina, Chapel Hill, NC. Available at http://www.csdl.tamu.edu/FLORA/b98/check98.htm.

Mossman, F.D. 1977. *The Western Azalea on Stagecoach Hill*. Pp. 28-33 in Pacific Horticulture magazine, Spring edition.

Munz, P.A. & D.D. Keck. 1959. *A California Flora and Supplement*. University of California Press. Berkeley, CA. 1681 pp.

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Sawyer, J.O. Personal communication (email, March 23 and June 25, 2007) regarding Western Azalea vegetation in the Stagecoach Hill area. Dr. Sawyer is professor emeritus of vegetation ecology at Humboldt State University.

Sawyer, J.O. & T. Keeler-Wolf. 1995. *A Manual of California Vegetation*. California Native Plant Society. Sacramento, CA. 471 pp.

Spellman, M. Personal communication (email, April 9, 2007) regarding the State Coastal Conservancy's acquisition strategy for Western Azalea habitat in the Stagecoach Hill area. Ms. Spellman worked on the project authorized under Commission File No. CP-3-85 in 1985.

VI. EXHIBITS

1. Regional Location Map
2. Vicinity Map
3. Assessor's Parcel Map
4. Site Plans
5. Floor Plans & Elevations
6. Botanical Survey Report
7. R-2 Engineering Geologic Report
8. Grading, Erosion Control, and Preliminary Landscaping Plan
9. Site photos
10. State Coastal Conservancy map of "best" Western Azalea habitat areas on Stagecoach Hill (produced in the 1980s and included in Commission File No. CP-3-85)
11. Approval of Septic and Water Systems

ATTACHMENT A

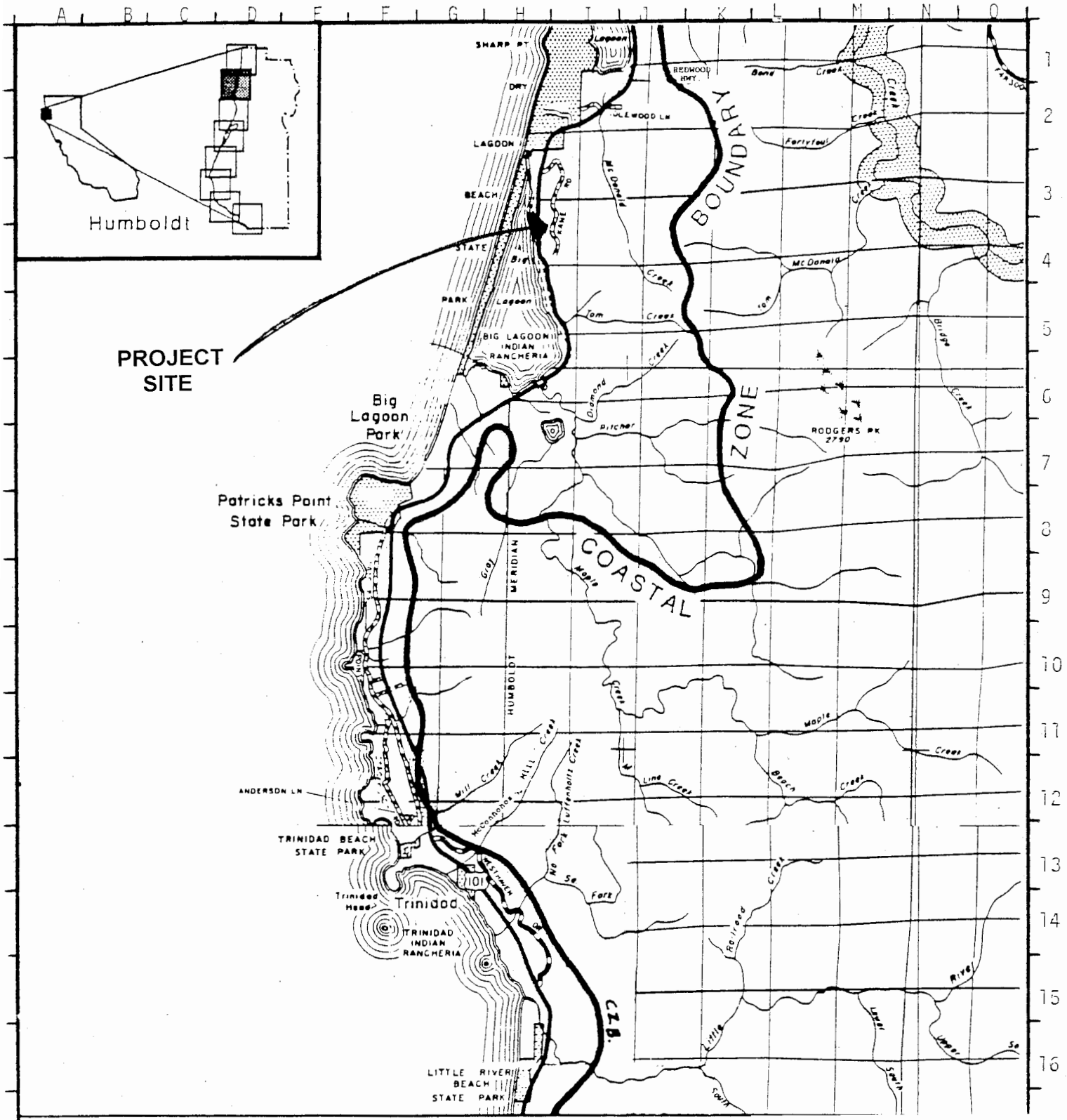
STANDARD CONDITIONS

1. Notice of Receipt and Acknowledgement. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. Interpretation. Any questions of intent of interpretation of any condition will be resolved by the Executive Director of the Commission.

3. Assignment. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

4. Terms and Conditions Run with the Land. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.



California Coastal Commission

LOCATION MAP

County of Humboldt

EXHIBIT NO. 1
APPLICATION NO.
1-07-008
KENT
REGIONAL LOCATION

LACO ASSOCIATES
CONSULTING ENGINEERS
21 W 4TH ST. EUREKA, CA 95501 (707)443-5054

PROJECT	CDP APPLICATION No. 1-07-008	BY BAB	FIGURE 1
CLIENT	DOUG KENT	DATE 6/12/07	
LOCATION	APN 518-012-018, KANE RD. BIG LAGOON	CHECK	JOB NO. 6597.00
	LOCATION MAP	SCALE 1"=1000'	

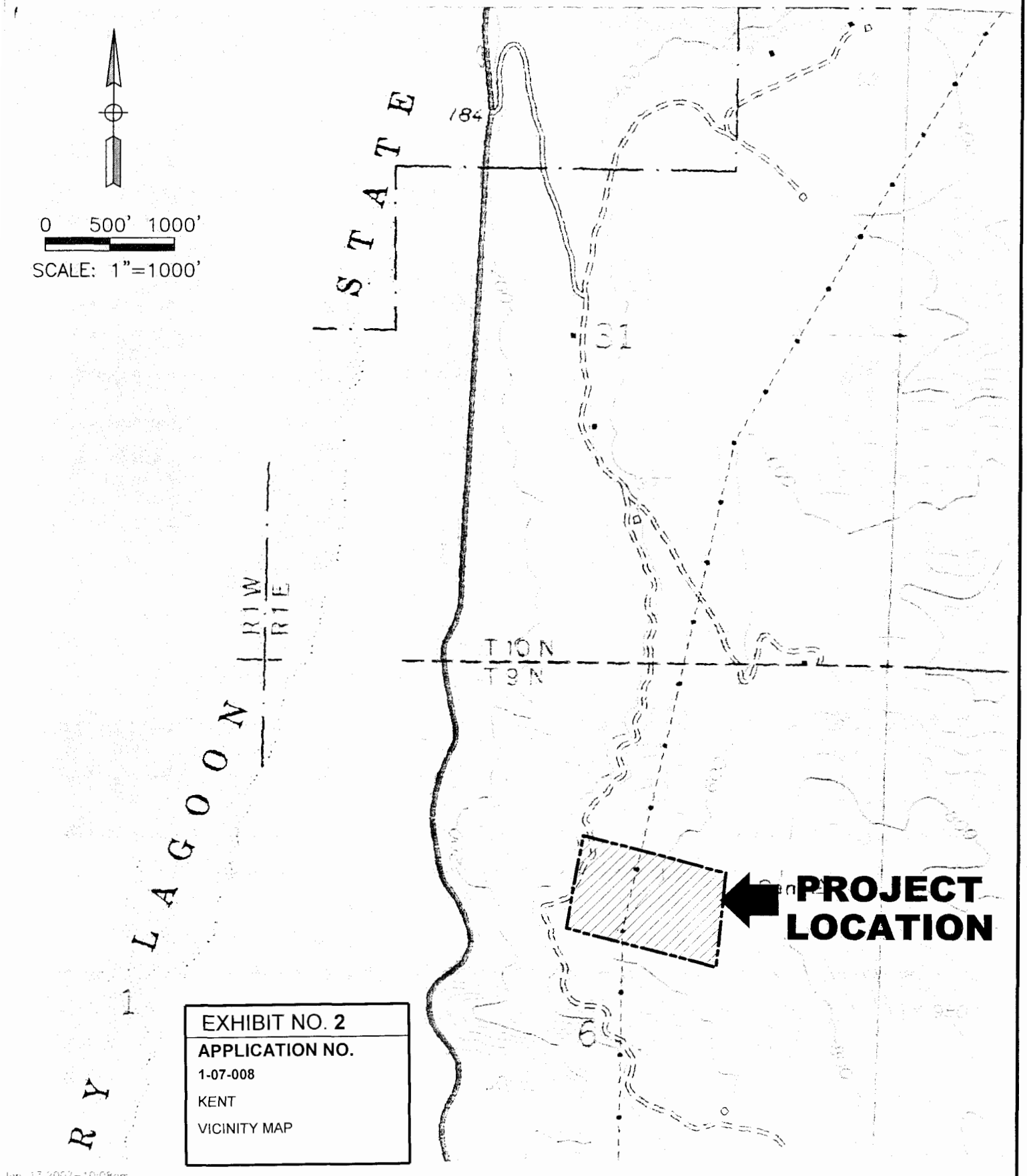


EXHIBIT NO. 2
APPLICATION NO.
1-07-008
KENT
VICINITY MAP

Jun 13,2007-10:08am
T:\CADFiles\6500\6597 KENT\dwg\6597-CoastalCommSubmittal_6597_BASE-CIVIL.dwg

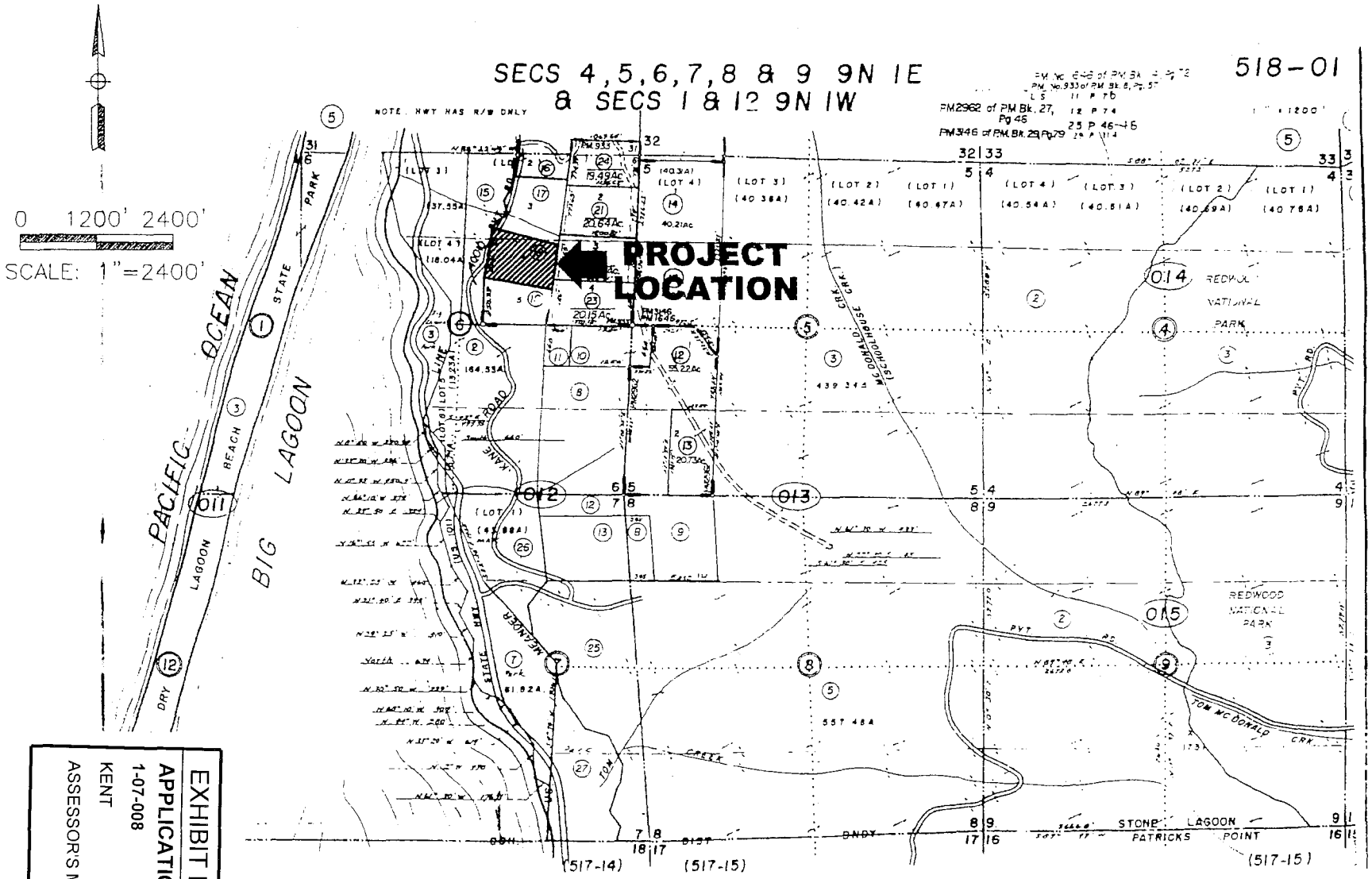


EXHIBIT NO. 3
APPLICATION NO.
1-07-008
KENT
ASSESSOR'S MAP

LACO ASSOCIATES
CONSULTING ENGINEERS
21 W 4TH ST. EUREKA, CA 95501 (707)443-5054

PROJECT	[redacted]	BY RJM	FIGURE 2
CLIENT	DOUG KENT	DATE 4/10/07	
LOCATION	KANE ROAD, BIG LAGOON, CALIFORNIA	CHECK GAV	JOB NO. 6597.00
ASSESSOR'S PARCEL MAP 518-012-018		SCALE 1"=2400'	

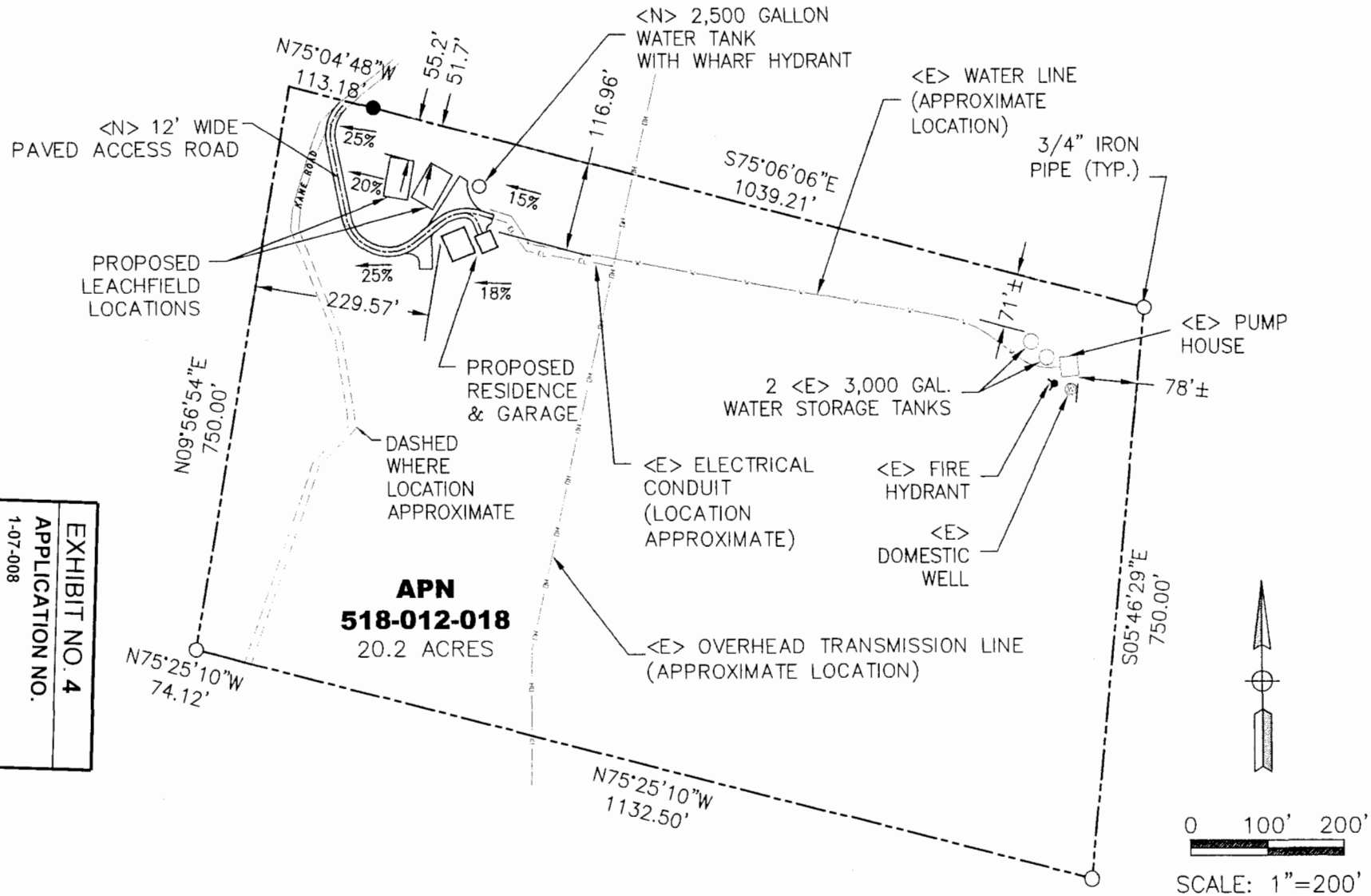


EXHIBIT NO. 4
APPLICATION NO.
1-07-008
KENT
SITE PLAN

SURVEY NOTES

1. THIS MAP IS BASED ON A FIELD SURVEY PERFORMED JANUARY 30, 2007 BY LACO ASSOCIATES.
2. BEARINGS SHOWN HEREON ARE RECORD BEARINGS BASED ON TIES TO RECORD MONUMENTS SHOWN ON BOOK 4 OF PARCEL MAPS, PAGE 149. BOUNDARY LOCATIONS ARE APPROXIMATE.
3. ELEVATIONS SHOWN HEREON ARE ASSUMED.
4. NO BOUNDARY RESEARCH WAS PERFORMED AS PART OF THIS SURVEY. EASEMENTS MAY EXIT THAT ARE NOT SHOWN.
5. TREE DIAMETERS SHOWN HEREON ARE APPROXIMATE DIAMETER AT BREAST HEIGHT.

LACO ASSOCIATES
CONSULTING ENGINEERS
21 W 4TH ST. EUREKA, CA 95501 (707)443-5054

PROJECT: CDP APPLICATION No. 1-07-008
CLIENT: DOUG KENT
LOCATION: APN 518-012-018, KANE RD. BIG LAGOON
SITE MAP
DATE: 6/12/07
BY: BAB
SCALE: 1"=200'
CHECK:
JOB NO: 6597.00
SHEET: 2

Jan 14,2007 - 10:12am
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NORTH ELEVATION

EXHIBIT NO. **5**

APPLICATION NO.

1-07-008

KENT

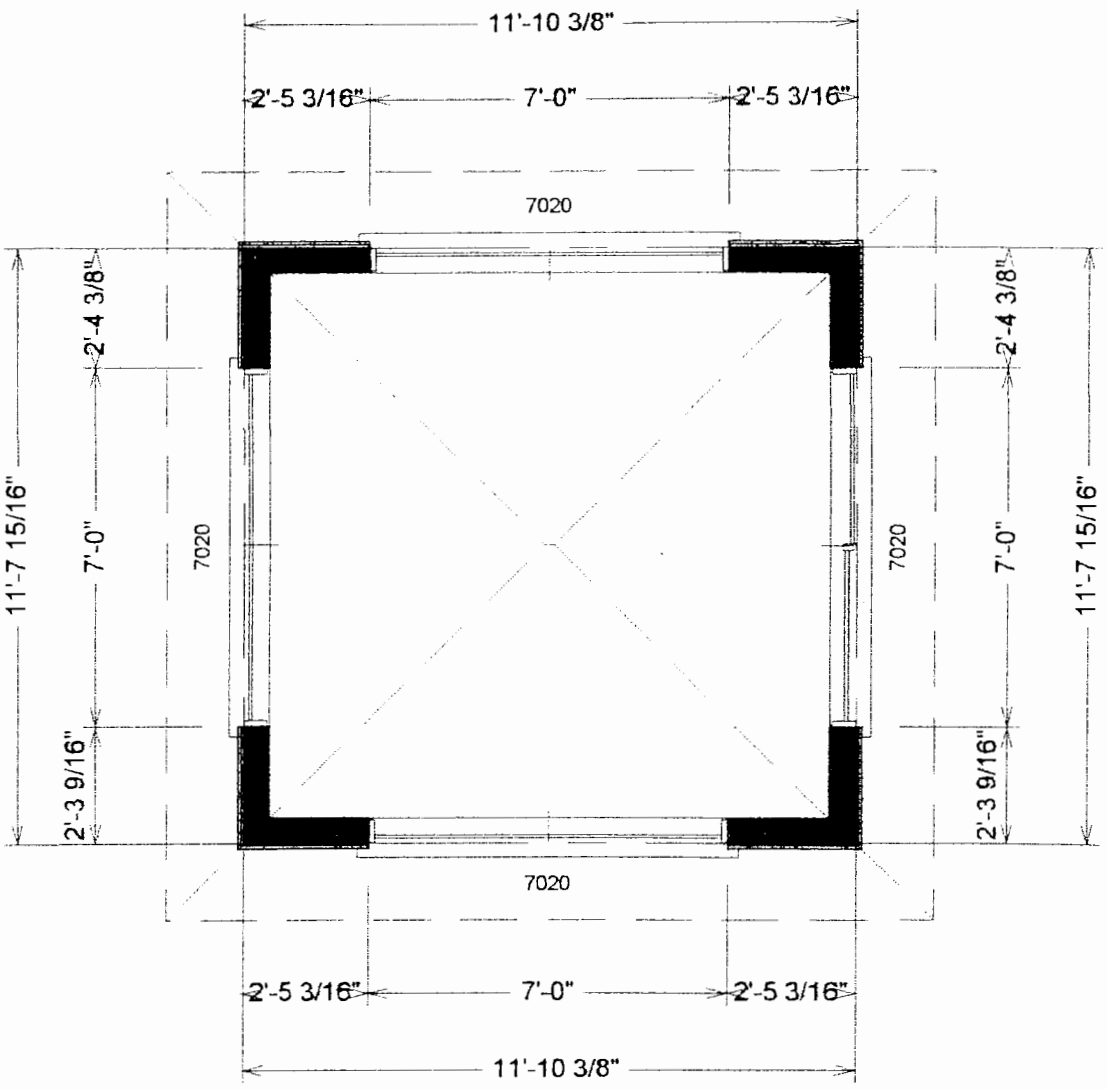
ELEVATIONS & FLOOR PLANS
(1 of 8)

RECEIVED

JUN 19 2007

CALIFORNIA
COASTAL COMMISSION

SOUTH ELEVATION



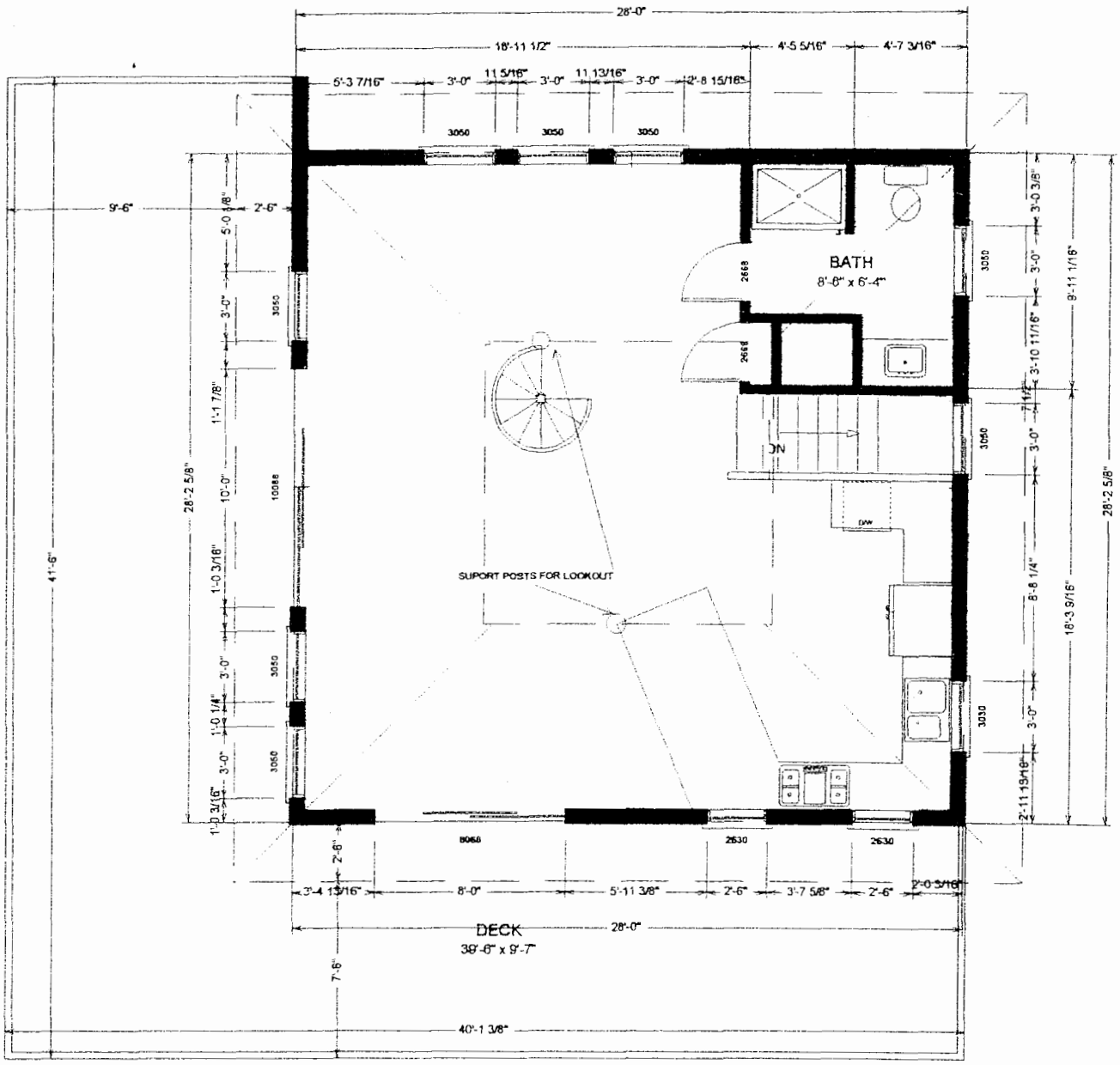
ATTIC LOOKOUT

1/4" = 1'(±)

LIVING AREA

138 sq ft

N

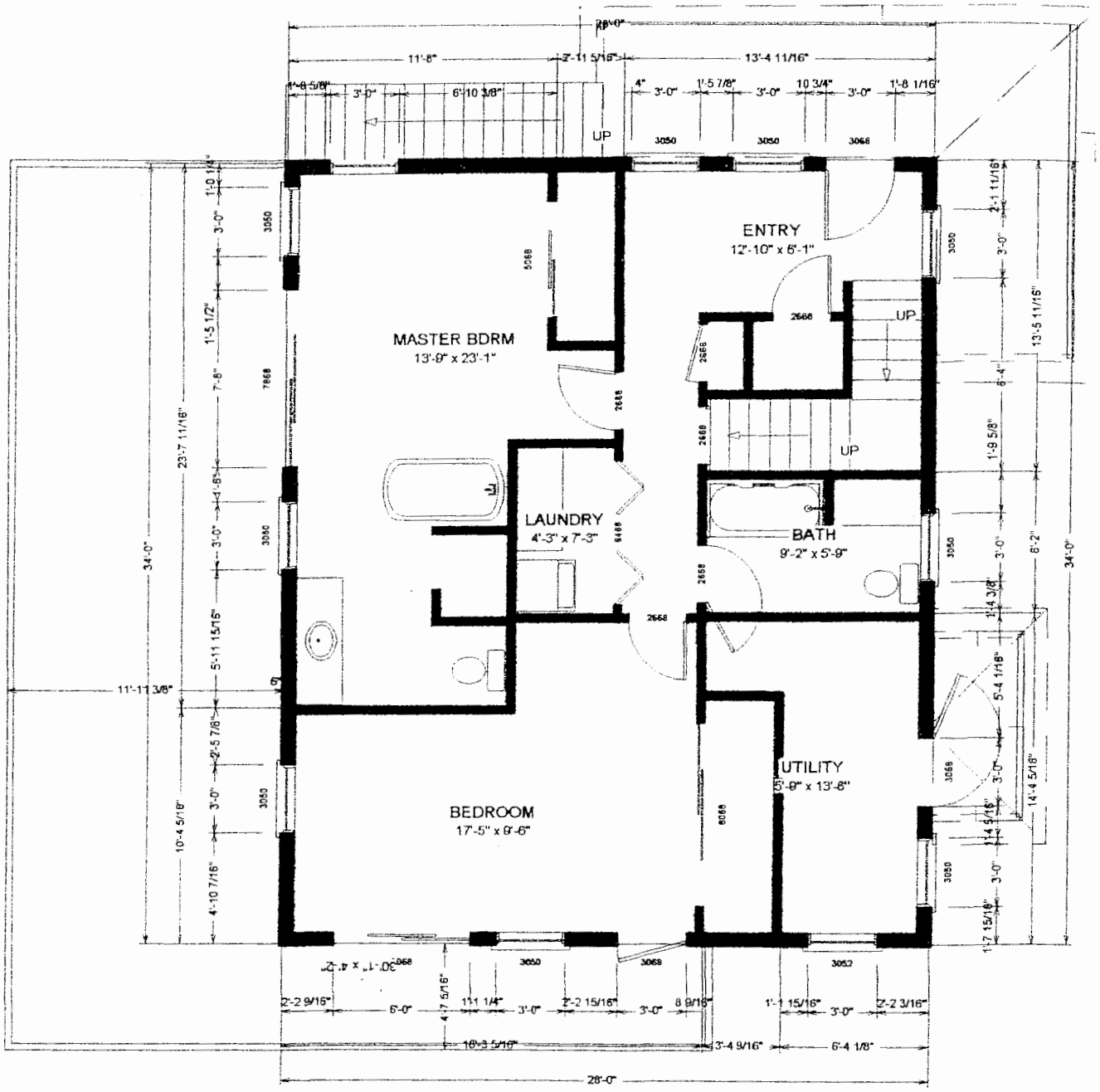


SECOND FLOOR PLAN

1/8" = 1' (±)

LIVING AREA
760 sq ft

N

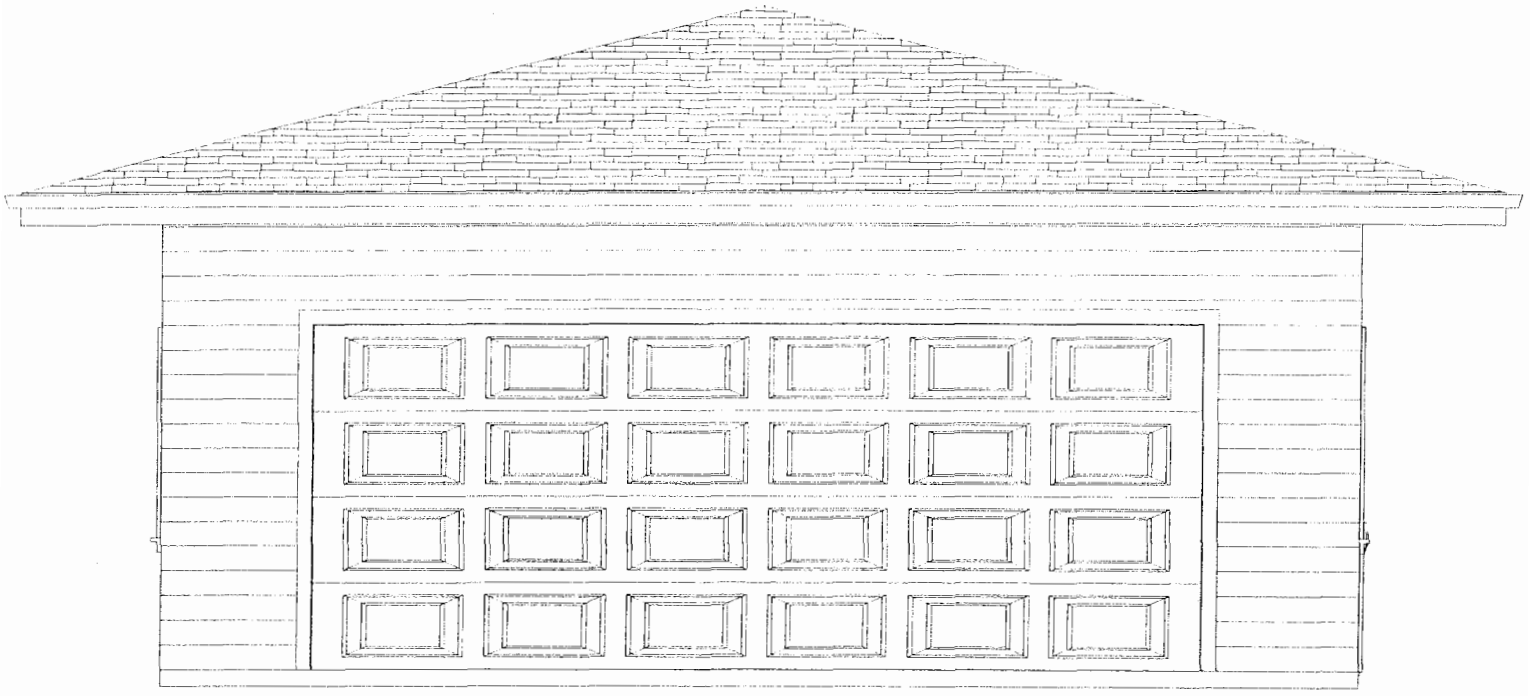


LIVING AREA
988 sq ft

N

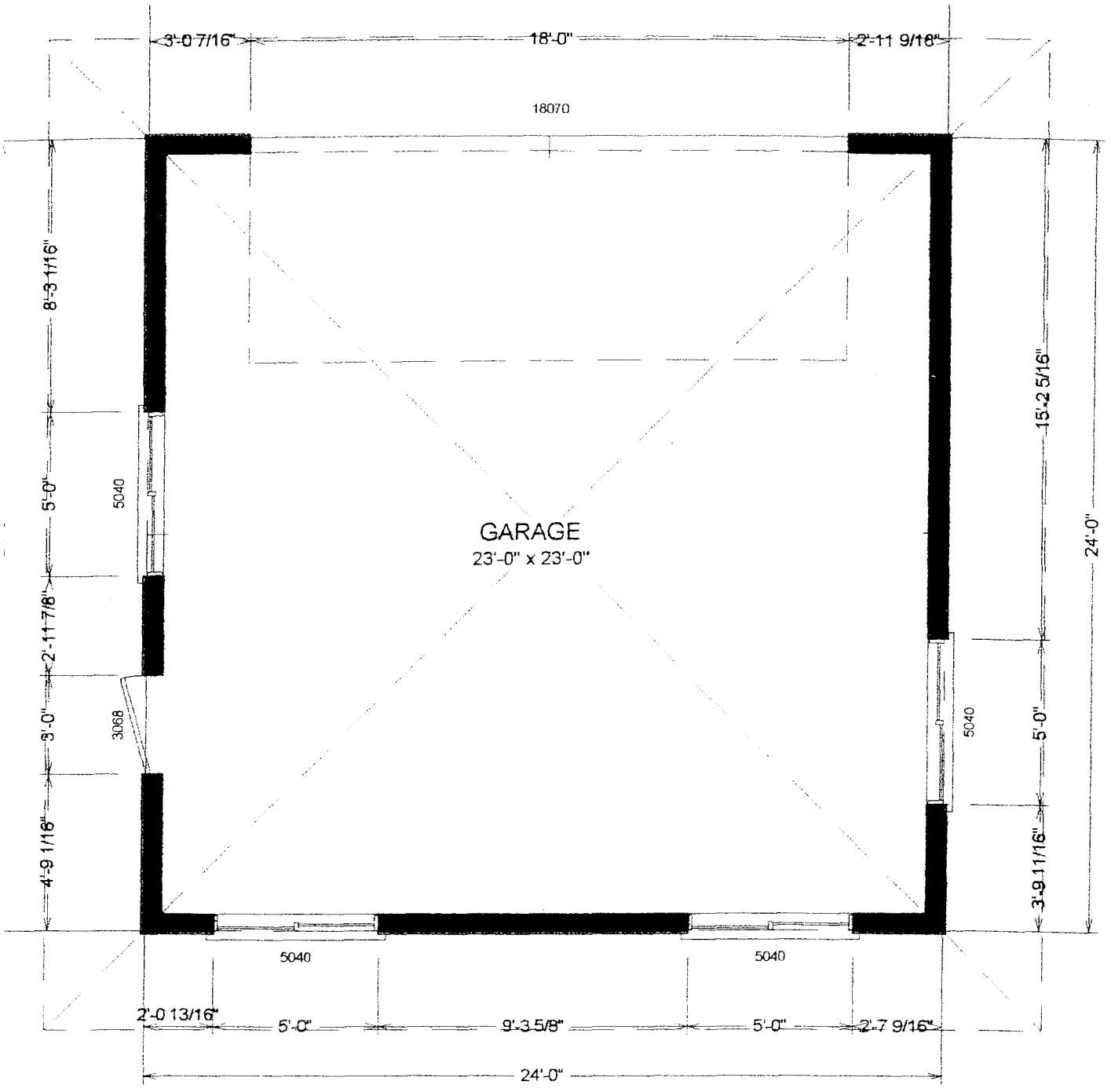
FIRST FLOOR PLAN

1/8" = 1' (±)



GARAGE NORTH
ELEVATION

GARAGE WEST ELEVATION



GARAGE FLOOR PLAN

N

526 SQ/FT

1/4" = 1' (±)

Holly Vadurro, Biologist, P.O. Box 667, Trinidad, Ca 95570, (707) 677-9358

June 8, 2007

Doug Kent
1194 Chance Lane
McKinleyville, California 95519

Subject: **Biological Assessment and Botanical Survey Results for the proposed development of the Kent property with a new single-family residence; Kane Road, Big Lagoon, California; Assessor's Parcel Number 518-012-018**

1.0 PROJECT DESCRIPTION

Botanical surveys were conducted on November 18, 2006 and March 14, April 19, and May 28, 2007 at the Kent property in order to determine the biological impacts of the home construction project to potential rare plants and the western azalea (*Rhododendron occidentale*) population. The project is located on the south side of Kane Ridge in an area referred to as the Stagecoach Hill area, which lies between Stone Lagoon and Big Lagoon in Humboldt County, California, in the NE ¼ of Section 6, T. 9 N. and R. 1 E., Humboldt Baseline and Meridian, of the Rodgers Peak 7.5-Minute Topographic Quadrangle (Figure 1). A total of 21 species were determined to be present within 100 feet of the proposed residence and leach field areas.

2.0 BIOLOGICAL SETTING

The Kent property consists of 20.2 acres of sloping forest ranging in elevation form 440 feet to 720 feet above mean sea level. The site is designated as Assessor's Parcel Number 518-012-018 (Figure 2). The survey area includes the portion of the property west of the Pacific Gas and Electric right of way as shown on the Figure 1 location map and Figure 3 site plan map. Slope gradients in and around the building site and survey area typically range from 15 percent to less than 20 percent with a west slope aspect.

The site is mapped as being underlain by Jurassic- to Cretaceous-aged Franciscan Complex Central Belt consisting chiefly of graywacke sandstone and localized zones of mélange (Jennings, 1977). Overlying the bedrock is an intact soil profile consisting of a thick, well developed A-horizon and underlying B-horizon. As observed in backhoe test pits (LACO, 2007), the A-horizon is comprised of silt loam overlying a well developed B_t horizon comprised of silty clay loam grading into loam and sandy clay loam. Soils generally appear well drained as the ground surface lacks evidence of concentrated overland flow.

The canopy surrounding the proposed building site consists primarily of second growth Sitka spruce (*Picea sitchensis)* with occasional Douglas-fir (*Pseudotsuga mensiesii)* averaging approximately 30% to 90% cover. The shrub layer consists mainly of black huckleberry (*Vaccinium ovatum)* and salal (*Gualtheria shalon)* with occasional sword fern (*Polysticum minutum)* and coyote brush (*Baccharis pilularis).* The shrub layer averages approximately 50% to 100% cover. The western azalea (*Rhododendron occidentale*) is present at approximately 15% cover surrounding the proposed home and leach field locations. No western azalea is located within the immediate footprint of the proposed home or garage locations, or within the proposed driveway alignment. Locations of the western azalea observed during the November 2006 and March 2007 botanical surveys are displayed in Figure 3. Herb cover is very limited due to the dense shrub layer; scattered redwood violets (*Viola sempervirens)* are present. A list of species found in the project area is provided in Appendix A. The majority of the species on this list were observed along the access road to the proposed driveway for the project.

No prairies or meadows were identified on the property. No wet areas or bowl-shaped (concave) drainage areas occur on the property and therefore no potential wetlands were identified on the property. Rock outcrops and/or ultramafic-derived soils are also absent.

3.0 POTENTIAL SENSITIVE SPECIES PRESENT

A database search conducted through the California Natural Diversity Database (CNDDB) revealed the occurrence of Running pine (*Lycopodium clavatum)* within the Rogers Peak 7.5 minute USGS topographic quadrangle in similar habitat to that identified on the Kent property. Other species identified by the CNDDB in proximity

to the project area occurred in freshwater or saltwater habitats. Running pine was included in the botanical survey.

In addition to the CNDDB search, the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants of California (Tibor, 2001) were reviewed. All species included on List 1 and 2 of the CNPS inventory were reviewed and, according to the habitat present on the Kent property, a survey list of potential sensitive species was comprised. This list includes the following species as summarized below.

The western lily (*Lilium occidentale)* occurs in bogs and fens, coastal bluff scrub, coastal prairie, freshwater marshes and swamps, and north coast coniferous forest openings and flowers in June - July. No vegetation resembling *Lilium sp.* was observed during the May 28, 2007 survey.

The flaccid sedge (*Carex leptalea)* occurs in bogs and fens, marshes and swamps, and meadows and seeps and the meadow sedge (*Carex praticola)* occurs in meadows and seeps; both flower in May - July. Only one carex specimen was observed throughout the survey; identification was not possible due to the absence of floral material. The carex was observed along the edge of an opening of a forested slope not considered to be mesic. The habitat in which the sedge was located is not consistent with habitat characteristic of the flaccid sedge or the meadow sedge and is most likely *Carex obnupta* from the appearance of the leaf blades. According to the Jepson Manual (Hickman 1993), the leaf blade of *C. leptalea* measures between 0.5 – 1 mm wide, the leaf blade o *C. praticola* measures 1 – 4 mm wide and the leaf blade of *C. obnupta* measures 3 – 7 mm wide. The measured leaf blades of the one Carex specimen observed on the property are consistent with *Carex obnupta*.

Running pine occurs in marshes and swamps and in moist openings in north coast coniferous forests and is identifiable throughout the year by its usually dense vegetative state. No running pine was observed during the surveys.

Indian pipe (*Monotropa uniflora)* occurs in broadleaved upland forests and north coast coniferous forests that usually are relatively undisturbed shady old-growth forests. Indian pipe blooms in June – July. Though potential habitat for Indian pipe was identified in the project area, an intense search for the previous years stalks, observed as brown stalks with the remnant nodding bell-shaped flower was

conducted during both the November and March surveys. Tony LaBanca of the California Department of Fish and Game was consulted regarding this protocol and agreed it would be sufficient to determine the presence of Indian pipe (Tony La Banca, California Department of Fish and Game, pers. Comm. May 2, 2007).

Howell's montia (*Montia howellii)* occurs in north coast forests or along roadsides in open areas with poor drainage or compacted soils and flowers in April – May. Howell's montia was not observed during the surveys.

Siskiyou checkerbloom (*Sidalcea malvaeflora* ssp. *patula* and Coast checkerbloom (*Sidalcea oregana* ssp. *exima)* occur in coastal prairies and north coast coniferous forests, often in disturbed areas and all flower in late May- June. No vegetation resembling checkerbloom was encountered during the botanical surveys.

In addition the vascular plants listed above, *Usnea longissima*, a sensitive lichen species was also included in the survey search. *Usnea longissima* was not encountered during the search.

4.0 SURVEY METHODOLOGY

A transverse of the project area shown in Figure 3 was conducted for a total of approximately 8 hours during four surveys at the Kent property. Qualifications of the surveyor include a Bachelors degree in Biology, approximately 6 years of conducting floristic surveys in the Humboldt County area, and a working knowledge of botanical survey protocol.

5.0 RESULTS

No sensitive species as listed in Section 3 of this report were encountered in the botanical survey.

The project location is habitat to the western azalea and is considered an environmentally sensitive habitat area (ESHA) in Section 3.41 of the Humboldt County North Coast Area Plan. The western azaleas within the project area were flagged on April 19, 2007. Figure 3 displays the locations of the flagged azaleas as well as the proposed home, garage, leach field and driveway locations. A total of 21 survey points marking individual western azaleas were observed in the project area.

6.0 REFERENCES

Hickman, J. C. 1993. *The Jepson Manual: Higher Plants of California.* University of California Press. Berkley, CA.

Jennings, C. W., 1977. Geologic Map of California. Department of Conservation, Division of Mines and Geology.

La Banca, Tony. 2007. Botanist, California Department of Fish and Game. Personal Communication.

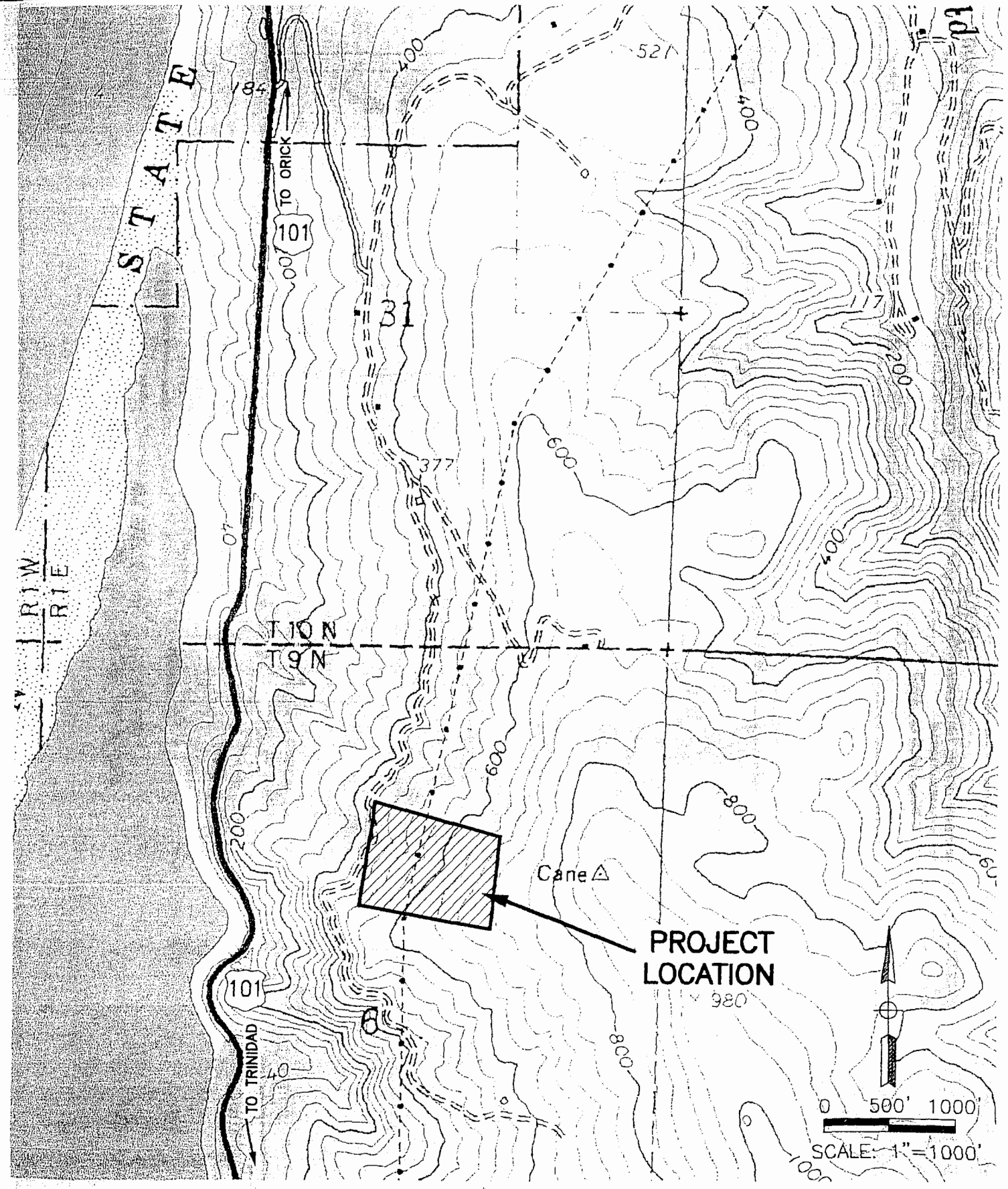
Laco Associates, 2007. Primary Subsurface Disposal System Design and 100 Percent Reserve Area Siting for a New Two-bedroom Residence; Kane Road, Big Lagoon, California, Assessors Parcel Number 518-012-018. Unpublished client report.

Tibor, David, P, Editor. 2001. *California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California*, Sacramento, CA.

7.0 LIST OF ATTACHMENTS

Figure 1: Location Map
Figure 2: Assessor's Parcel Map
Figure 3: Site Map
Appendix A: List of Identified Species

LACO ASSOCIATES CONSULTING ENGINEERS 21 W 4TH ST. EUREKA, CA 95501 (707)443-8054	PROJECT: BOTANICAL SURVEY	BY: RJM	FIGURE: 1
	CLIENT: DOUG KENT	DATE: 4/11/07	
	LOCATION: KANE ROAD, BIG LAGOON. CALIFORNIA	CHECK: GAV	JOB NO.: 6597.00
	LOCATION MAP	SCALE: 1"=1000'	



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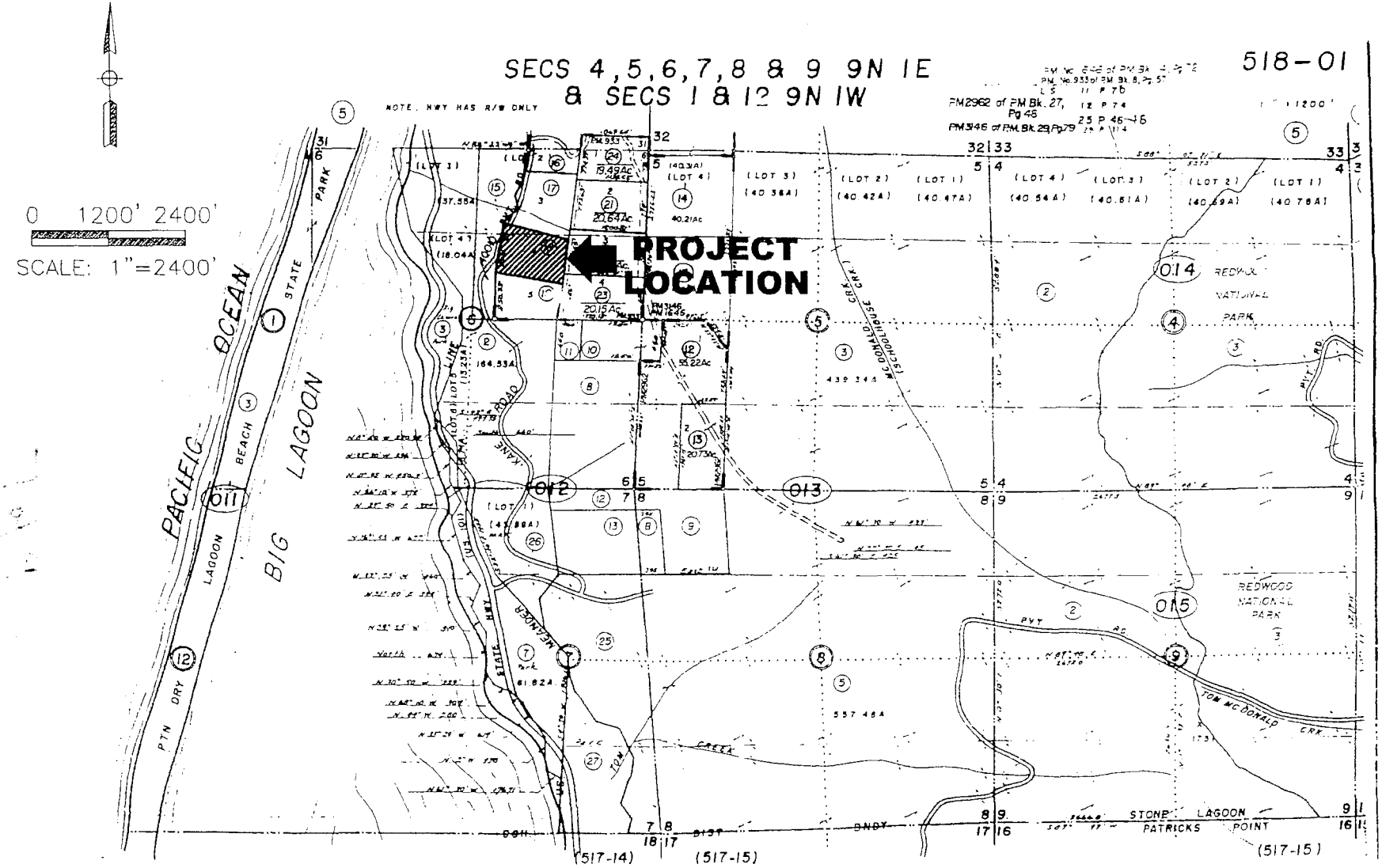

LACO ASSOCIATES CONSULTING ENGINEERS 21 W 4TH ST. EUREKA, CA 95501 (707)443-5054	PROJECT: BOTANICAL SURVEY	BY: RJM	FIGURE: 2
	CLIENT: DOUG KENT	DATE: 4/10/07	
	LOCATION: KANE ROAD, BIG LAGOON, CALIFORNIA	CHECK: GAV	JOB NO.: 6597.00
	ASSESSOR'S PARCEL MAP 518-012-018	SCALE: 1"=2400'	

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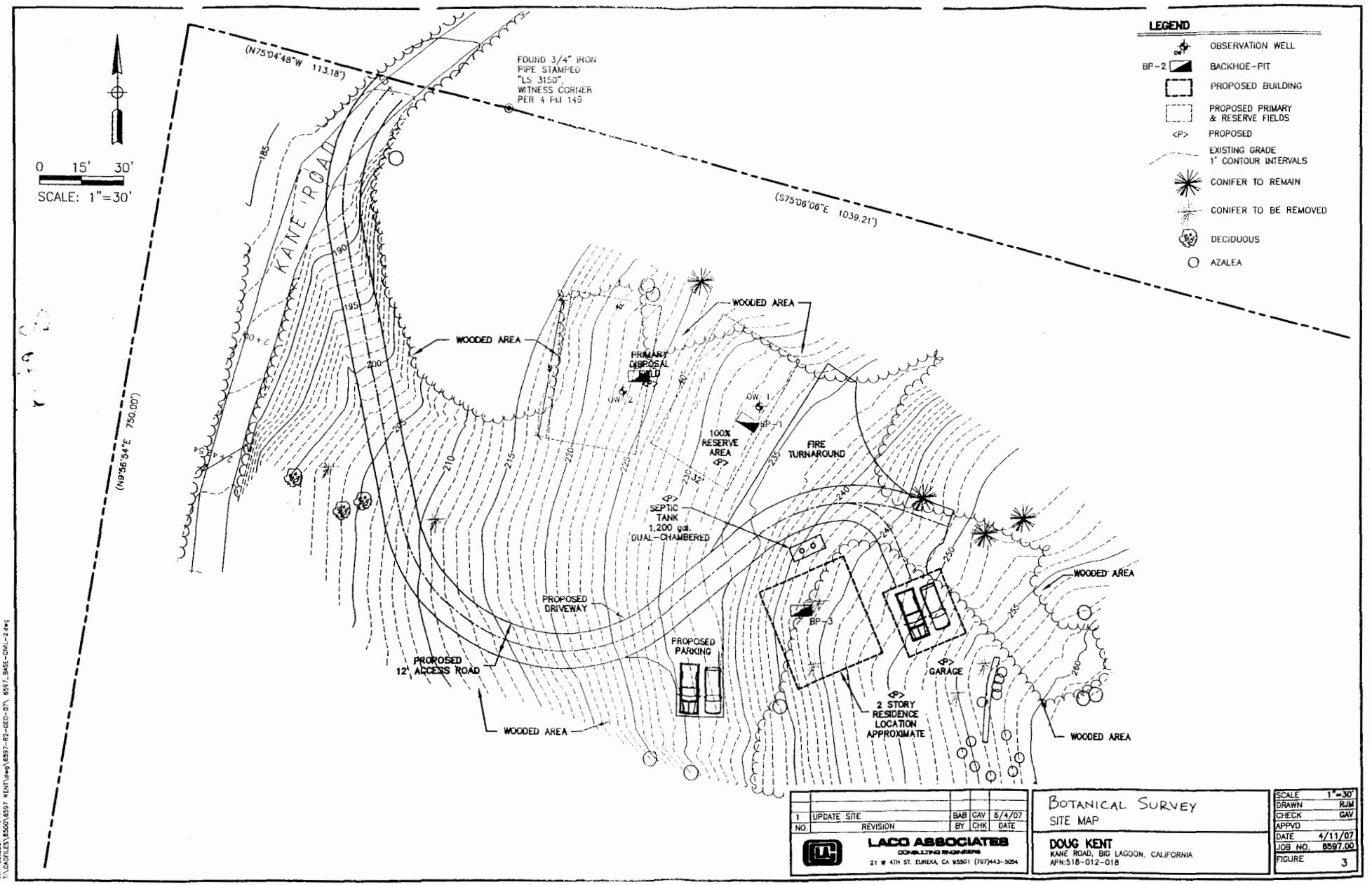

NO.	REVISION	BY	CHK	DATE
1	UPDATE SITE	BAB	GAV	5/4/07

LACO ASSOCIATES
CONSULTING ENGINEERS
21 W 4TH ST. EUREKA, CA 95501 (707)443-5054

BOTANICAL SURVEY
SITE MAP

DOUG KENT
KANE ROAD, BIG LAGOON, CALIFORNIA
APN:518-012-018

SCALE	1"=30'
DRAWN	RJM
CHECK	GAV
APPVD	
DATE	4/11/07
JOB NO.	6597.00
FIGURE	3

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APPENDIX A
SPECIES ENCOUNTERED DURING NOVEMBER 18 and MARCH 14, 2006 FIELD SURVEYS

Achillea millefolium
Alnus rubra
Anagallis arvensis
Anthoxanthum odoratum
Athyrium filix-femina
Baccharis pilularis
Bellis perennis
Blechnum spicant
Cardamine oligosperma
Carex sp.
Chamomilla suavoelens
Ciesium vulgare
Conyza canadensis
Cortaderia jubata
Ceanothus thrysiflorus
Fragaria vesca
Galium sp.
Gaultheria shallon
Heracleum lanatum
Hypochaeris radicata
Iris douglasiana
Leucanthemum vulgare
Lolium perenne
Lonicera hispidula
Marah oreganus
Myrica californica
Navarretia squarrosa
Petasites frigidus
Picea sitchensis
Pseudotsuga menziesii
Ranunculus repens
Rhaphanus sp.
Ribes sanguineum
Rhododendron occidentale
Rosa sp.
Rubus discolor
Rubus leucodermis
Rubus parviflorus
Sanicula crassicaulis
Taraxicum officinale
Trifolium repens
Triphysaria pusilla
Vaccinium ovatum
Viola sempervirens

R-2 ENGINEERING GEOLOGIC REPORT

RECEIVED
JUN 08 2007
CALIFORNIA
COASTAL COMMISSION

Kane Road
Big Lagoon area, California
Assessor's Parcel Number 518-012-018

Prepared for:
Douglas Kent
1194 Chance Lane
McKinleyville, California 95519

REGISTERED GEOLOGIST
GIOVANNI ANTHONY VADURRO
No. 7437
Exp. 05/31/07
STATE OF CALIFORNIA

Signature on File

Giovanni A. Vadurro, PG 7437, Exp. 5/31/07

CERTIFIED ENGINEERING GEOLOGIST
DAVID N. LINDBERG
No. 1895
EXP. 02/29/08
STATE OF CALIFORNIA

Signature on File

David N. Lindberg, CEG 1895, Exp. 2/29/08

EXHIBIT NO. 7
APPLICATION NO.
1-07-008
KENT
R-2 ENGINEERING GEOLOGIC REPORT (1 of 25)

LACO ASSOCIATES
CONSULTING ENGINEERS
21 W. 4th St. · PO 1023 · Eureka, CA 95502 · 707.443.5054

April 18, 2007
LACO Project No. 6597.00

TABLE OF CONTENTS

R-2 ENGINEERING GEOLOGIC REPORT

Kane Road, Big Lagoon area, California
Assessor's Parcel Number 518-012-018
LACO Project No. 6597.00

EXECUTIVE SUMMARY

The following R-2 Engineering Geologic Report was prepared for the exclusive use of Doug Kent, his consultants and contractors, and appropriate public authorities for specific application to the proposed development. This site is proposed for development with a two-bedroom, two-story, single-family residence and detached garage. Our report addresses geologic and site soil conditions as they relate to the proposed development of the subject property. On February 1, 2007, LACO ASSOCIATES (LACO) observed the excavation of two deep (10 feet) test pits and one shallow (5 feet) test pit to characterize the soil profile in the general location of the anticipated building footprint. A site reconnaissance of the immediate area was conducted to ascertain potential geologic hazards with a potential to adversely affect the proposed development.

Our findings indicate that any development on the subject property will likely be subject to strong earthquake ground shaking during the anticipated economic life span (50 years) of the proposed structure. During our assessment of this site and adjacent areas, we observed potentially unstable slopes bordering a natural drainage course near the south edge of the building site, and soft compressible soils in the upper 2 to 3 feet of the soil profile. Included in this report are recommendations intended to reduce the potential impacts of these conditions. Our recommendations may not completely eliminate the potential negative impacts of all of these potentially detrimental conditions; however, we have exercised a degree of care equal to that exercised by other professionals working on similar sites at the present time in the area.

We recommend that the project site and our report be reviewed and reevaluated by the authors if the project changes or if the project is not begun within two years of the date of this report. We cannot assume responsibility or liability for the adequacy of the recommendations when they are applied in the field unless LACO is retained for structural design, observation of foundation excavations, and observation of placement and testing of engineered fill. To assure compliance with the recommendations in this report, the foundation plans should be reviewed by the authors prior to permit issuance. Plan review by the authors will be included if the foundation is designed

by LACO. Footing and foundation excavations should be inspected by the project geologist or the design engineer prior to the placement of any forms, reinforcing steel, or concrete.

Of primary concern for the proposed developments on this site are the moderately steep slopes within the drainage course to the south of the building site, the soft compressible soils within the upper 2 to 3 feet of the subsurface underlying the building footprint, and the site's proximity to the seismically active Trinidad fault and Quaternary-aged Big Lagoon fault. LACO recommends that the owner and his contractor review this report carefully, and promptly discuss any questions or concerns with us. The owner should exercise caution to ensure that other design professionals retained for this project, and the contractors and subcontractors subsequently retained for construction, are made fully aware of the concerns addressed in this document. We at LACO are ready and willing to assist the client to be certain that the concerns discussed here and elsewhere in this report have been adequately addressed.

INTRODUCTION

This report presents the results of our engineering geologic investigation conducted at the site of a proposed single-family residential development in the Big Lagoon area of Orick, California. The project site is located in the NE ¼ of Section 6, T. 9 N. and R. 1 E., Humboldt Baseline and Meridian, of the Rodgers Peak 7.5-Minute Topographic Quadrangle (Figure 1) on Assessor's Parcel Number (APN) 518-012-018 (Figure 2). The parcel is situated along the southwest flank of "Kane" ridge at an elevation ranging from approximately 400 to 700 feet above mean sea level.

Included in this report are our assessments of the potential geologic hazards associated with the proposed development and recommendations to mitigate potential effects of such hazards. Our recommendations should reduce, but may not always eliminate completely, the risks to life and property associated with the proposed developments. Also provided in this report are recommendations for design professionals (architects and engineers) to utilize for planning and design of the proposed site development. Please review this report carefully. Some of the recommendations included are for additional work, such as review of foundation plans and inspection of foundation excavations, which are not included in the scope of work for the current investigation and report.

PROPOSED PROJECT

According to the owner, the proposed project consists of the construction of a new three-bedroom, two-story residence with attached garage on existing APN 518-012-018. Due to site topography, the foundation system will likely be stepped, incorporating a continuous perimeter spread footing with isolated interior spread footings in combination with a detached garage concrete slab-on-grade. The parcel is currently vacant and densely wooded with spruce and fir. The project site is bordered to the north, west, and south by similarly vacant parcels and to the east by Alder Lane. The parcel is accessed from Alder Lane at its upper elevations and Kane Road at its lower elevations. Access to the new residence will be from a proposed driveway off of privately-maintained Kane Road, located along the westerly property boundary. The new home will be served by a private well, on-site sewer, and local utilities.

SCOPE OF WORK

LACO was retained to characterize existing geologic conditions, provide foundation design criteria to be utilized for design and construction of the new residence, and preparation of this report. Specifically, the scope of this investigation is limited to the following:

1) Assess potential geologic hazards associated with the site and provide recommendations to mitigate any such hazards
2) Recommend adequate and economical foundation types and determine the allowable bearing pressure of the soil with minimum depth for embedment of spread footings
3) Assess the potential for foundation settlement
4) Determine the presence or absence of rock, old excavation, or fill material in the subsurface under the anticipated building footprints
5) Determine the depth to the seasonally high static groundwater surface

GEOLOGIC SETTING

The site is mapped as being underlain by Jurassic- to Cretaceous-aged Franciscan Complex Central Belt consisting chiefly of graywacke sandstone and localized zones of mélange (Jennings, 1977). Immediately underlying the site at load-bearing depths is hillslope colluvium consisting of angular gravels supported by a matrix of sandy lean clay derived primarily from weathering of the underlying bedrock. Deeply weathered bedrock was observed in the test pits beginning at a depth of approximately 9 feet.

The property is located within the northern Coast Ranges Geomorphic Province. The northern Coast Ranges in northwestern California is a seismically active region in which large

earthquakes may be expected to occur during the economic life span of any developments on the subject property (50 years). The Big Lagoon area, in particular, is in close proximity to several active seismic source areas including the Trinidad fault and the Cascadia subduction zone. The site is also situated in close proximity to the Big Lagoon-Bald Mountain fault, and occupies the southwest-dipping forelimb of the upthrusted hanging wall block associated with this reverse fault. Currently this fault is not zoned by the State of California as being active during Holocene time, but is considered "potentially active" due to evidence of Quaternary displacement.

The closest on-land active fault to the project site consists of the Trinidad fault, located less than nine miles south-southwest of the project area (CDMG, 1983; CDMG, 2000). The upper bound earthquake considered likely to occur on the Trinidad fault has an estimated maximum moment magnitude (M_o) of 7.3 with a reported slip rate of 2.5 millimeters per year (CDMG-ICBO, 1998). Peak ground accelerations of up to 0.6 g (60 percent of the force of gravity), or more, may be expected to occur on this site as a result of the regional design basis earthquake (CGS, 2007).

Recent and ongoing research into the seismicity of the Pacific Northwest has shown that the Cascadia subduction zone is capable of generating great earthquakes that would affect this site. The Cascadia subduction zone marks the boundary between the North American plate and the subducting Gorda and Juan De Fuca plates. The Cascadia subduction zone, which extends from offshore of Cape Mendocino in Humboldt County, California, to Victoria Island in British Columbia, is considered capable of generating an upper-bound earthquake with a M_o of 8.3 on its southern Gorda segment. Based on Japanese tsunami records, the Cascadia subduction zone has recently been interpreted to have ruptured over its entire length in the year 1700 A.D. in a 9.0 M_o earthquake event (Satake, *et. al.,* 2003).

FIELD INVESTIGATION

To assess the *in-situ* soil conditions in and around the anticipated building footprint (Figure 3) and the suitability of the site for the proposed development, a registered Professional Geologist from LACO visited the site on February 1, 2007. Three backhoe test pits were installed to a maximum depth of 10 feet below grade, and natural and man-made exposures in the immediate vicinity were observed to verify the continuity of the soil profile. Soil profiles were logged in the field in general accordance with ASTM standards (Figures 4 through 6). A site reconnaissance was performed to assess the general stability of the slopes bordering the proposed development.

IN-SITU SOIL CONDITIONS

As observed in our backhoe test pits, the project site is directly underlain by soft, dark brown silt-rich native topsoil (ML) in the upper 2 feet of the subsurface. Below the native topsoil is medium stiff clayey silt (CL-ML) that grades downward into medium dense silty sand (SM) to clayey sand (SC). Beginning at approximately 6 to 7 feet below grade, soils grade into very stiff lean clay with gravel. The gravel fraction was observed to be fine and angular, and matrix-supported. Dense, deeply weathered Franciscan Formation bedrock was observed beginning at approximately 9 feet below grade. Based on the backhoe test pit exposures, this soil material is present to a depth of at least 10.5 feet below grade.

In summary, the native topsoil present to a depth of 2 feet below grade, and transitional soils consisting of clayey silt present to a depth of about 3 feet below grade, are considered unsuitable to bear the anticipated structural loads of the proposed residence due to its low density and high organic content. Undisturbed native soils considered suitable structural load-bearing material are present beginning at no less than 2.5 feet below existing grade. Soils below 3 feet can be classified as a stiff soil profile (S_D). For design purposes and for foundation elements embedded into firm native soil as recommended below, a bearing value of 1,500 pounds per square foot (psf) for dead load plus long-term live load should be used. For short-term live loads (wind and seismic), the bearing capacity may be increased to 2,000 psf.

SLOPE STABILITY FEATURES AND CONDITIONS

The proposed building site is situated along a broad, gently sloping interfluvial ridge. Slopes directly underlying the building site and in the immediate vicinity appear relatively stable due to their moderate slopes and location well away from any active stream channels. The parcel is densely vegetated with straight-standing mature conifers. Highly resistant and in-place Franciscan Formation bedrock underlies the site at shallow depths (less than 10 feet).

In general, slopes on the subject property and the immediate surrounding area appear stable in their present configuration. Slopes below the building site are planar to broadly convex in plan view and appear to lack signs of active slope instability. At present, no ground cracks, differential settlement, head scarps or slumps (indicative of active or dormant slope failures) were observable at or near the proposed building footprint.

As used in this report, the terms "active" and "dormant" landslides have specific meanings. An active landslide means a landslide that is presently moving or has recently moved. Distinct

topographic slide features are present (i.e. sharp barren scarps, cracks, jackstrawed trees) and major revegetation has not occurred. A dormant landslide shows little evidence of recent movement with features modified by weathering and erosion, and vegetation well established. Some mass movements may have developed under climatic conditions different from today. The causes of, and the potential for, slope failures may remain and movement could be renewed.

Given the level of potential ground shaking associated with the local and regional seismic sources, it is possible that earthquake-induced slope failures may occur on the slopes bordering the proposed building site to the southwest (upslope) of Kane Road. The actual level of risk of earthquake-induced slope failure is dependent on a number of variables including the proximity of the epicenter, the depth of the hypocenter, the duration of the shaking, and especially the soil moisture conditions at the time of the event. It is beyond the scope of this report to speculate on the potential for slope movement to develop as a result of a local or regional earthquake.

EXISTING FILLS

No fill soils were observed in the locations of our test pits, and are not anticipated to be encountered during grading and excavation of the foundation elements. In general, ground surfaces in and around the immediate vicinity of the building site are undisturbed by grading.

GROUNDWATER CONDITIONS

On the day of our initial field investigation, no groundwater was observed within our test pits located along the southwesterly (downslope) edge of the proposed building footprint. Subsequent visits to the site to measure the depth to groundwater in observation wells indicated the static groundwater surface to have risen to within 4 feet of the ground surface. Seeps emanating from the Kane Road cut bank were also commonly observed. In general, saturated soil conditions during the winter wet season should be anticipated if cuts into the hillslope greater than 4 feet high are planned at the location of the residence and garage building footprints.

SURFACE DRAINAGE HAZARDS

Surface drainage does not appear to be a hazard on the proposed building site due to the well drained nature of the native soils present and the heavy foliage that covers the majority of the parcel. No evidence of erosion by overland flow (i.e. rilling and gullying) was observable during our site investigation within the footprint of the proposed building site, or in the areas immediately surrounding the site. Provided the driveway is graded and constructed to the specifications of our grading plan, and our drainage recommendations outlined below are

adhered to, the potential for surface erosion posed by surface drainage can be minimized.

FLOODING

The building site is located along a gently sloping interfluvial ridge well above the axis of the adjacent drainage swales and is therefore not within a flood prone area. The hazard of flooding is considered negligible.

SEISMIC HAZARDS

The (online) Seismic Shaking Hazard Map of California (CGS, 2007) shows the subject parcel to have a ten percent probability of exceeding approximately 0.6 g peak ground acceleration within 50 years. The 2001 edition of the California Building Code (CBC) shows the subject property to be located within Seismic Zone 4; therefore, the seismic zone factor (Z) is 0.40 (Table 16-I). A probabilistic seismic hazards mapping page is included as Attachment 1.

Based on our investigations of the subsurface on this site, we characterize the soil profile as S_D (Table 16-J). The seismic coefficient for acceleration (C_a), for an S_D soil profile, is 0.44 N_a (Table 16-Q). The seismic coefficient for velocity (C_v) is 0.64 N_v (Table 16-R), again based on the S_D soil profile.

This site is located within 2 kilometers (1.2 miles) of the near-source area of a Type B fault as presented in Map A-4 in the *Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada* (ICBO-CDMG, 1998). The near-source factor N_a (Table 16-S) is therefore 1.3. Near-source factor N_v (Table 16-T) is 1.6, again because the site is within 2 kilometers of the near-source area of a Type B Seismic Source (fault).

Both the Big Lagoon-Bald Mountain fault and Trinidad fault are Type B faults and are located within close proximity of the subject property. The upper bound earthquake considered likely to occur on each fault has an estimated M_o of 7.3.

Design and construction in accordance with these data and Chapter 16 of the 2001 edition of the CBC should help to reduce, but may not eliminate completely, the seismic hazards (risks to human life and property) at this site.

LIQUEFACTION HAZARD

Liquefaction is the loss of soil strength resulting in fluid mobility through the soil. Liquefaction typically occurs when uniformly-sized, loose, saturated sands or silts are subjected to repeated shaking in areas where the groundwater is less than 30 feet below the ground surface. In addition to the necessary soil and groundwater conditions, the ground acceleration must be high enough and the duration of the shaking must be sufficient for liquefaction to occur. Due to the presence of stiff clay-rich soils with gravel overlying bedrock beginning at 9 feet below grade, we estimate a low probability of liquefaction at this site.

CONCLUSIONS AND RECOMMENDATIONS

- It is our opinion that the proposed residential development can be designed and constructed such that it will not be subject to nor contribute to geologic hazards provided our recommendations implemented. Our field evaluation indicates that the gentle slopes underlying the building footprint and the moderately steep slopes bordering the site to the southwest appear stable in their present configuration. Areas of active slope instability, comprised of large earthflows, are located approximately one mile north of the site. Based on our field inspection, the project site and surrounding areas are underlain by competent Franciscan Formation bedrock composed primarily of graywacke sandstone.
- Soil erosion hazards are presently low but have the potential to increase during and following development should drainage concerns not be addressed. Any increases in surface runoff from the construction of impervious surfaces could result in accelerated erosion along the slopes below the building footprint. Areas disturbed during construction and site grading should be revegetated prior to the onset of the ensuing wet season.
- Relatively shallow groundwater conditions persist during the wet season. The groundwater surface should be anticipated to rise to within 4 feet of the existing grade in and around the building site.
- Strong ground motion produced by an earthquake on the active Trinidad fault and Quaternary-aged Big Lagoon-Bald Mountain fault poses a significant geologic hazard to the proposed development. Seismic shaking produced by large earthquakes originating from other regional seismic sources is likely to be less consequential, with the exception of an earthquake originating from the Cascadia subduction zone. Strong seismic shaking should be anticipated during the 50-year economic lifespan of the structure. Design and construction of the residence should be in accordance with the minimum standards of the most recent edition of the CBC for residential structures located within Seismic Zone 4.

- The building footprint is underlain by up as much as 2 to 3 feet of unsuitable load-bearing material consisting of soft, compressible, low-density native topsoil and transitional clay-rich soil. Suitable load-bearing material consisting of competent medium dense clayey sand to silty sand are present beginning at approximately 3 feet below existing grade. All foundation elements should be embedded in these competent native soils. For design purposes, a soil bearing capacity of 1,500 psf for dead load plus long-term live load may be used. For short-term live loads (wind and seismic) the bearing capacity may be increased to 2,000 psf.
- The settlement which may occur on this proposed building site is a function of the foundation loading and the bearing soils. Settlement is expected to be minimal for a residential structure founded on undisturbed competent native soils as recommended. Settlement should occur closely with the application of structural loads and is not anticipated to have detrimental effects on the structure.

General Recommendations

Site Preparation

Earthwork (grading and excavations) should proceed during the dry season, generally between April 15 and October 15. All debris and vegetation should be removed from within the building footprint and 5 feet beyond, and disposed of appropriately. Any bare soil areas created as part of this development should be replaced with topsoil and seeded as soon as possible following construction so that grass (or other erosion-controlling vegetation) may be established prior to the winter-wet season.

Cut and Fill Slopes

Cut and fill slopes up to 4 feet in height should have a maximum slope gradient of 1.5:1 and 2:1 (horizontal to vertical), respectively. Higher or steeper cuts may be feasible with a site-specific review by this office.

Structural Fills

All structural fill should be suitable, granular native material or well graded imported granular material such as crushed quarry rock or river-run gravels (100 percent passing 3-inch sieve), and should be approved for use by a qualified professional engineer prior to importing it to the site. Fill should be placed in loose lifts not exceeding 8 inches, on a suitably-prepared surface, and should be compacted mechanically to a minimum of 90 percent relative compaction (RC) under driveways, sidewalks, landscaped areas, footings, foundations, decks, and porches at uniform

moisture content at or near optimum. Samples of proposed native or imported fill should be submitted to the LACO materials testing laboratory for assessment at least 48 hours prior to placement or importing to the site.

Structural Fill Emplacement

The ground surface should be prepared to receive the structural fill by removing vegetation, non-engineered fill, topsoil and soft compressible transitional soils, and any other unsuitable materials that may be encountered. The surface to receive the structural fill should be further prepared by benching and scarifying to provide a stable base and good bond with the new fill. Organic materials should not be permitted in any fills. Rocks with a dimension greater than 3 inches should not be placed in any fills. All bare ground surfaces generated as a result of cutting and filling should be promptly revegetated to limit surface erosion. Subdrains should be installed in low areas, or where there exists the potential to intercept the groundwater table, prior to emplacement of fill.

Compaction Standard

Materials processed in-place and utilized as compacted fill under footings, foundations, driveways, sidewalks, and parking areas should be based on ASTM D-2922 *in-situ* measurement of dry unit weight. Maximum dry unit weight should be determined using ASTM Laboratory Test Method D-1557.

Utility Trench Backfill

Backfill and compaction of utility trenches in and immediately adjacent to building pads, driveways, parking, and other flatwork areas should be such that no significant settlement will occur. Backfill materials for all trenches should be placed in loose lifts not exceeding 8 inches and should be compacted to at least 90 percent RC with sufficient testing for confirmation. Sand or other approved granular material used for backfill should be placed at near optimum moisture content and compacted mechanically. Flooding of granular material should never be employed to consolidate backfill in trenches. Where (or if) trenches closely parallel a footing, and the trench bottom is within a 2:1 (horizontal to vertical) plane, projected outward and downward from any structural element, concrete slurry should be utilized to backfill that portion of the trench below this plane. The use of slurry backfill is not required where a narrow trench crosses a footing at or near a right angle.

Site-specific Recommendations

1) At the location of the residence building site, the native topsoil and transitional soils present in the upper 2 to 3 feet of the subsurface are unsuitable as load-bearing material and should therefore be excavated in the locations of the foundation elements. These materials may be stockpiled on the site for later use as landscaping material or non-structural fill.
2) Any non-engineered fill material or debris, including organics, which may be encountered within the foundation excavations should be excavated and replaced with engineered fill suitably compacted and tested as described below.
3) Areas surrounding any new construction should be graded to drain by sheet flow away from the building foundations with a uniform slope of at least one to two percent.
4) Revegetation of cut or fill slopes created as part of this development should be undertaken promptly to control erosion. Immediate attention should also be given to revegetation of all other bare soil areas, which might be created, surrounding the building site.

Foundation Design Recommendations

No specific design plans for residential construction on the proposed building site addressed in this report have been provided to us. It is our understanding that a two-story, single-family residence and a detached garage are expected to be built on this site and will most likely be constructed utilizing standard wood framing. Following preparation of the site as recommended, including excavation of the upper 2 to 3 feet of unsuitable load-bearing material, foundations may be constructed in the following manner:

1) Foundations should be sized and embedded in accordance with the minimum standards of the 2001 CBC. Foundations should be reinforced and designed such that they do not exceed an allowable bearing capacity of 1,500 psf for dead loads plus long-term live loads. For short-term live loads (wind and seismic) the allowable bearing capacity may be increased to 2,000 psf. The recommended bearing values are applicable to competent in-place native soils, structural fill emplaced as recommended, or grout slurry-filled trenches.
2) Embedment depth of all concrete footings should be measured down beginning at the surface of competent undisturbed native soils and along the downslope edge of the foundation excavation. If grout slurry is to be utilized, it is recommended that reinforcing steel be "stubbed out" of the slurry such that it becomes incorporated into the concrete footing.

3) If a depressed crawl space is used, and where the crawl space floor is below the finished exterior grade, or if a concrete slab-on-grade is constructed, where the finished slab elevation is 1 foot or less above the finished exterior grade, it is recommended that a perimeter subdrain be installed. A perimeter subdrain is not required for a detached garage slab-on-grade.
4) Any concrete floor slab-on-grade should have a minimum thickness of 3.5 inches and should be reinforced and underlain by at least 10 inches of compacted select fill consisting of 8 inches of Class 2 permeable material (per Caltrans) to act as a capillary moisture break. The gravel should be overlain by a 2-inch sand blanket and a vapor retarder as described below. To reduce the possibility of moisture migration through any floor slab-on-grade, a polyethylene membrane (vapor reducer) with a minimum thickness of 6 mils should be placed on the prepared subgrade. To protect the membrane during steel and concrete placement, and to provide for a better concrete finish, sandwich the membrane within at least 2 inches of clean sand. Joints between the sheets and utility piping openings should be lapped and taped. Care should be taken during construction to protect the plastic membrane against punctures. The 10 inches of sand and gravel may be considered part of the recommended thickness of compacted select fill under the floor slab.
5) Where below-grade floor slabs are bordered by a retaining wall that forms the wall of habitable or dry storage areas, the exterior portion of the retaining wall should be positively sealed by coating with water-proofing material and back-drained. The back-drain should be constructed using clean drain rock and perforated pipe at its base that drains to an outlet via gravity flow. The entire back-drain system should be encased in filter fabric to prevent fine-grained soil from entering the drain rock. Beyond the building footprint, non-perforated drainpipe should be used to convey water collected within the back-drain to a suitable outlet point.

Drainage

1) The grading or landscaping design and construction should be such that no water is allowed to pond anywhere on the site, migrate toward or beneath the structure, or flow over the slope break marking the top of the road cut located downslope and to the southwest of the residence. All roof storm drainage should be controlled with the installation of gutters and downspouts. Downspouts should be connected to tightlines to convey roof storm runoff away from the structure. Ground surfaces near any proposed future buildings should be graded such that rain, irrigation, and roof runoff water is

directed away from structure foundations as recommended above.

2) Drainage of runoff should be further controlled to prevent any concentrated runoff from flowing over the ground surface immediately downslope of the building footprint. To the extent possible, runoff from the driveway should be collected and drained into the existing drainage network along Kane Road. Under no circumstances should discharge points be allowed to drain on bare soil areas.

ADDITIONAL SERVICES

Review of Grading, Foundation, and Drainage Plans

The conclusions and recommendations provided in this report are based on the assumption that soil conditions encountered during grading and/or foundation construction will be essentially as exposed during our evaluation, and that the general nature of the grading and use of the property will be as described above. We recommend that final drafts of any grading and landscape plans, and the preliminary foundation drawings, be reviewed by the authors of this report prior to their completion. Plan review by the authors is included when they are prepared by our office.

Observation and Testing

In order to assure conformance with the specifications contained within this report, it is recommended that LACO be retained for the following:

1) Inspect foundation excavations prior to the emplacement of any forms or reinforcing steel
2) Monitor subgrade preparation and the emplacement of any structural fill with testing to verify the required relative compaction

LIMITATIONS

This report has been prepared for the exclusive use of Douglas Kent, his contractors, and appropriate public authorities for specific application to the project site. LACO has endeavored to comply with generally accepted geotechnical engineering practice common to the local area. LACO makes no other warranty, express or implied.

The analysis and recommendations contained in this report are based on data obtained from subsurface exploration. The methods used indicate subsurface conditions only at specific locations where samples were obtained, only at the time they were obtained, and only to the depths penetrated. Samples can not always be relied on to accurately reflect stratigraphic variations that commonly exist between sampling locations, nor do they necessarily represent

conditions at any other time. Results of any analysis of samples obtained during this project will be retained on file in our office.

The recommendations included in this report are based in part on assumptions about subsurface conditions that may only be tested during earthwork. Accordingly, the validity of these recommendations is contingent upon LACO being retained to provide a complete professional service. LACO can not assume responsibility or liability for the adequacy of the recommendations when they are applied in the field unless LACO is retained for foundation and structural design, and to observe construction. We will be glad to discuss the extent of such observations required to provide assurance of the validity of our recommendations.

Do not apply any of this report's conclusions or recommendations if the nature, design, or location of any of the facilities is changed in any way. If changes are contemplated, LACO should be consulted to review their impact on the applicability of the recommendations in this report. Also note that LACO is not responsible for any claims, damages, or liability associated with any other party's interpretation of the subsurface data or reuse of this report for other projects or at other locations without our express written authorization. If the project is not started within two years of the date of this report, LACO should be retained to review the site and our recommendations to assure their validity and relevance.

The scope of our services did not include environmental assessment or an investigation for the presence or absence of hazardous, toxic, or corrosive materials. Although we have explored subsurface conditions as part of this investigation, we have not conducted any analytical laboratory testing of samples obtained for the presence of hazardous material.

REFERENCES

California Building Code (CBC), 2001, California Code of Regulations, Title 24, Part 2, Vol. 2. California Building Standards Commission.

California Division of Mines and Geology, 1983, State of California, Special Studies Zones, Trinidad 7.5-Minute Quadrangle.

California Division of Mines and Geology, 2000, Digital Images of Official Maps of Alquist-Priolo Earthquake Fault Zones of California, Northern and Eastern Region.

California Geological Survey, 2007, Probabilistic Seismic Hazards Mapping Ground Motion Page (http://www.conservation.ca.gov/cgs/rghm/pshamap/pshamain.html).

International Conference of Building Officials-California Division of Mines and Geology, 1998, Maps of Known Active Fault Near Source Zones in California and Adjacent Portions of Nevada.

Jennings, C. W., 1977, Geologic Map of California. Department of Conservation, Division of Mines and Geology.

Satake, K., K. Wang, and B. F. Atwater, 2003, Fault slip and seismic moment of the 1700 Cascadia earthquake inferred from Japanese tsunami descriptions.

LIST OF FIGURES AND ATTACHMENTS

Figure 1: Location Map

Figure 2: Assessor's Parcel Map

Figure 3: Site Map

Figure 4: Soil Profile Log BP-1

Figure 5: Soil Profile Log BP-2

Figure 6: Soil Profile Log BP-3

Attachment 1: Probabilistic Seismic Hazards Mapping Ground Motion Page

GAV:jg

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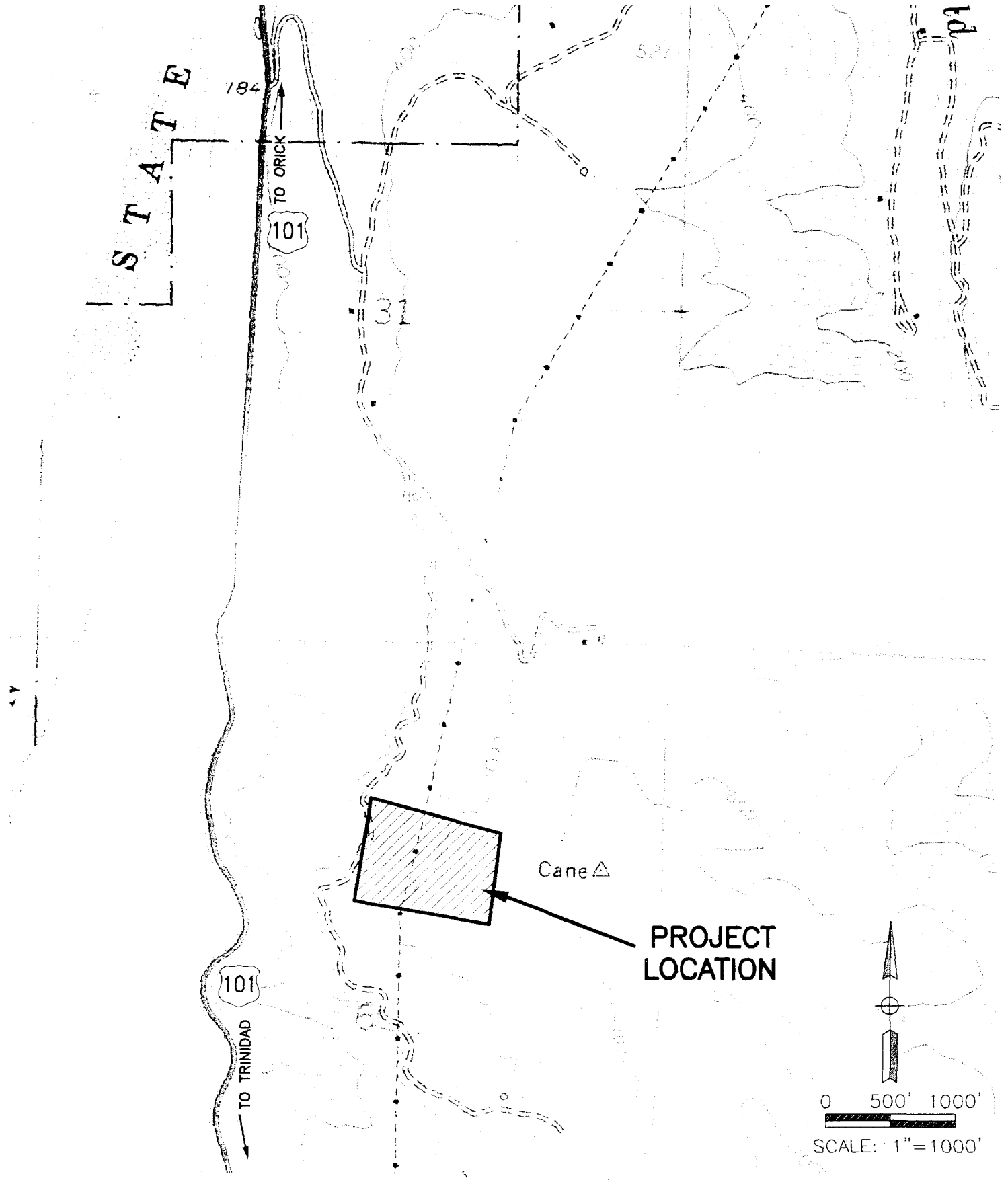
LACO ASSOCIATES CONSULTING ENGINEERS 21 W 4TH ST. EUREKA, CA 95501 (707)443-5054	PROJECT	R-2 ENGINEERING GEOLOGIC REPORT	BY RJM	FIGURE 1
	CLIENT	DOUG KENT	DATE 4/11/07	
	LOCATION	KANE ROAD, BIG LAGOON. CALIFORNIA	CHECK GAV	JOB NO. 6597.00
		LOCATION MAP	SCALE 1"=1000'	



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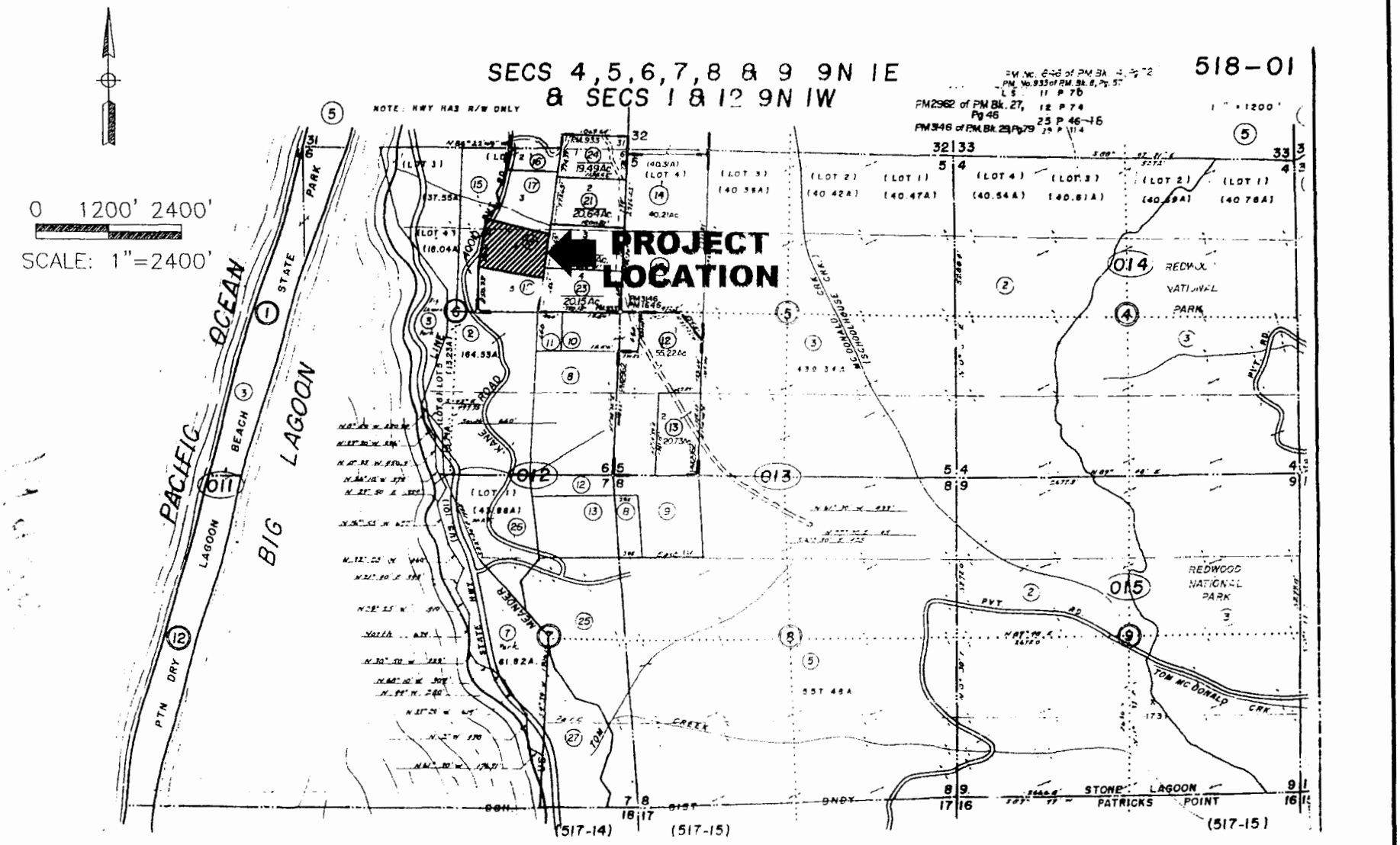

LACO ASSOCIATES CONSULTING ENGINEERS 21 W 4TH ST. EUREKA, CA 95501 (707)443-5054	PROJECT R-2 ENGINEERING GEOLOGIC REPORT	BY RJM	FIGURE 2
	CLIENT DOUG KENT	DATE 4/10/07	
	LOCATION KANE ROAD, BIG LAGOON, CALIFORNIA	CHECK GAV	JOB NO. 6597.00
	ASSESSOR'S PARCEL MAP 518-012-018	SCALE 1"=2400'	

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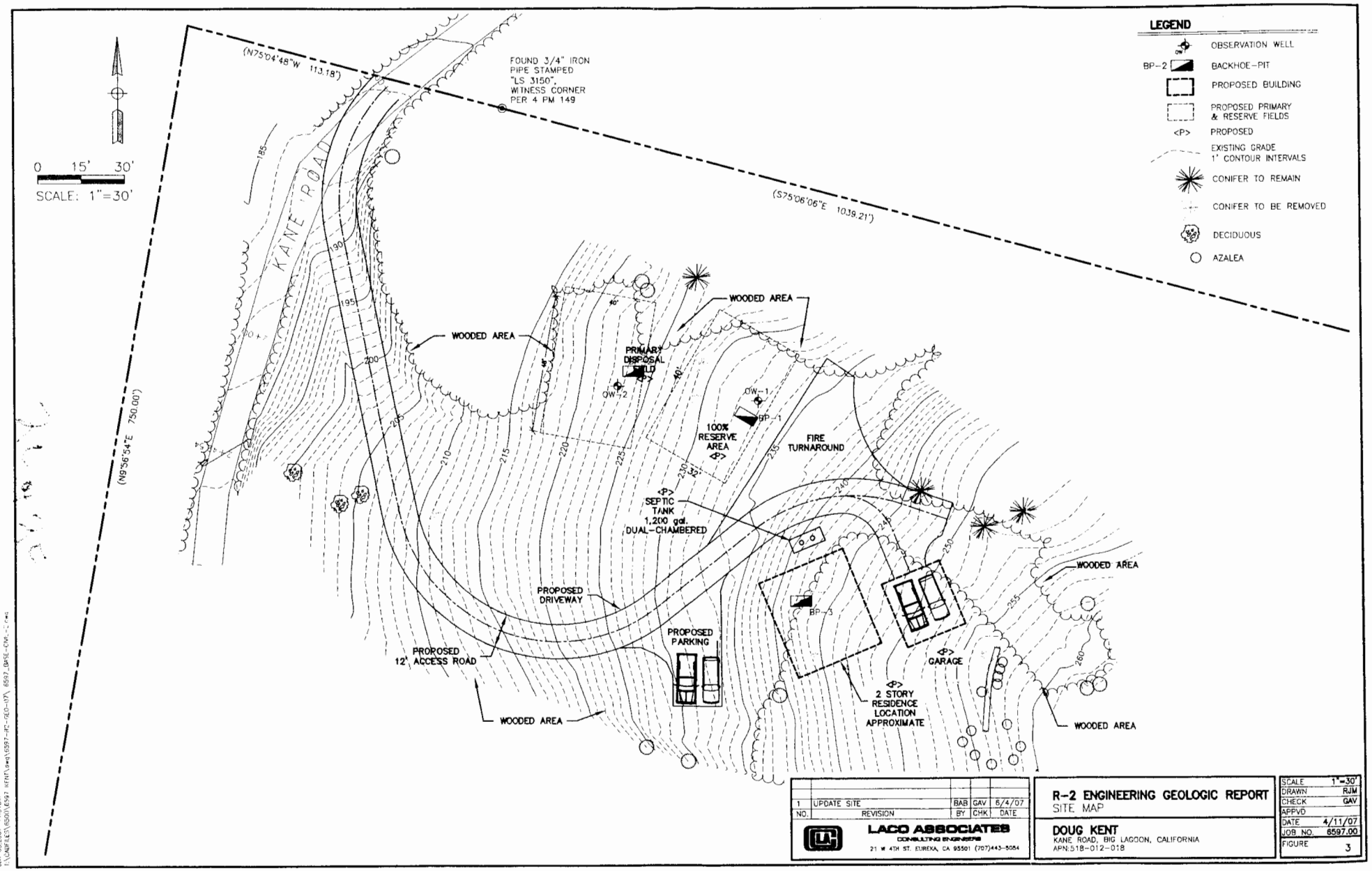

NO.	REVISION	BY	CHK	DATE
1	UPDATE SITE	BAB	GAV	6/4/07

LACO ASSOCIATES
CONSULTING ENGINEERS
21 W 4TH ST. EUREKA, CA 95501 (707)443-5054

R-2 ENGINEERING GEOLOGIC REPORT
SITE MAP

DOUG KENT
KANE ROAD, BIG LAGOON, CALIFORNIA
APN:518-012-018

SCALE	1"=30'
DRAWN	RJM
CHECK	GAV
APPVD	
DATE	4/11/07
JOB NO.	8597.00
FIGURE	3

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GEOTECHNICAL EXCAVATION LOG

Pit No. BP-1

PROJECT: KENT RESIDENTIAL DEVELOPMENT
PROJECT NO.: 6597.00
EXCAVATION LOCATION: DISPOSAL FIELD AREA #1
DATE: 2-1-07
EXCAVATION METHOD: BACKHOE
ELEVATION: 480 FT MSL (APPROX)
EXCAVATOR: MOONSTONE CONSTRUCTION
LOGGED BY: GAV
DEPTH TO WATER: **INITIAL** ▽ : NONE **COMPLETION** ▼ : NONE
SITE GEOLOGY: HILLSLOPE COLLUVIUM MANTLING FRANCISCAN BEDROCK

ELEVATION/ DEPTH	SOIL AND SAMPLER SYMBOLS	USCS	Description	Water Content %	Dry Density pcf	Pocket Pen. tsf	Torvane tsf	% Pass # 200
480 — 0		ML	SANDY SILT, 10YR 2/2 Very Dark Brown, moist, soft, slightly sticky and non-plastic, crumb to weak fine subangular blocky, few coarse pores, abrupt and smooth lower boundary.					
478 — 2		CL-ML	CLAYEY SILT, 7.5YR 4/4 Brown, moist, medium stiff, slightly sticky and plastic, strong medium subangular blocky, common medium pores, weak clay films on pore faces, few fine roots, minor amounts of detrital charcoal, clear and wavy lower boundary.					84.6
476 — 4		SM	SILTY SAND, 10YR 4/6 Dark Yellowish Brown, moist, medium dense, slightly sticky and slightly plastic, granular, common distinct mottles beginning at 4.5 feet below grade, abrupt and smooth lower boundary.					58.6
474 — 6		CL	LEAN CLAY w/GRAVEL, 2.5Y 4/4 Olive Brown, dry to moist, very stiff, sticky and plastic, about 20% fine angular gravel.					
472 — 8								
470 — 10		ROCK	Deeply weathered and fractured Franciscan Formation bedrock, dense. Halt test pit excavation at 10 feet below grade. No groundwater encountered.					
468 — 12								
466 — 14								

INSTALLED 10.6 FEET OF 1-1/4" PVC TO 8 FEET BELOW GRADE, SCREENED 2-8 FEET BELOW GRADE.

Figure 4

GEOTECHNICAL EXCAVATION LOG

Pit No. BP-2

PROJECT: KENT RESIDENTIAL DEVELOPMENT
PROJECT NO.: 6597.00
EXCAVATION LOCATION: DISPOSAL FIELD AREA #2
DATE: 2-1-07
EXCAVATION METHOD: BACKHOE
ELEVATION: 480 FT MSL (APPROX)
EXCAVATOR: MOONSTONE CONSTRUCTION
LOGGED BY: GAV
DEPTH TO WATER: INITIAL ▽ : NONE COMPLETION ▼ : NONE
SITE GEOLOGY: HILLSLOPE COLLUVIUM MANTLING FRANCISCAN BEDROCK

ELEVATION/ DEPTH	SOIL AND SAMPLER SYMBOLS	USCS	Description	Water Content %	Dry Density pcf	Pocket Pen. tsf	Torvane tsf	% Pass # 200
480 — 0		ML	SANDY SILT, 10YR 2/2 Very Dark Brown, moist, very soft, slightly sticky and non-plastic, crumb to weak fine subangular blocky, few coarse pores, abrupt and smooth lower boundary.					72.6
478 — 2		CL-ML	CLAYEY SILT, 10YR 4/4 Dark Yellowish Brown, moist, stiff, slightly sticky and slightly plastic, moderate medium subangular blocky, few fine to common medium pores, few fine roots, gradual and smooth lower boundary.					74.6
476 — 4		SC-SM	CLAYEY SILTY SAND w/GRAVEL, 10YR 5/8 Yellowish Brown, moist, medium dense, slightly sticky and slightly plastic, granular, few fine pores, faint mottles beginning at 5 feet below grade, about 30% fine angular gravel.					48.6
474 — 6								
		CL	LEAN CLAY w/GRAVEL, 2.5Y 4/4 Olive Brown, dry to moist, very stiff, sticky and plastic, about 20% fine angular gravel.					
472 — 8								
		ROCK	Deeply weathered and fractured Franciscan Formation bedrock, dense.					
470 — 10			Halt test pit excavation at 10 feet below grade. No groundwater encountered.					
468 — 12								
466 — 14								

INSTALLED 11.7 FEET OF 1-1/4" PVC TO 10 FEET BELOW GRADE, SCREENED 2-10 FEET BELOW GRADE.

Figure 5

GEOTECHNICAL EXCAVATION LOG

Pit No. BP-3

PROJECT: KENT RESIDENTIAL DEVELOPMENT **PROJECT NO.:** 6597.00
EXCAVATION LOCATION: WEST EDGE OF BLDG FOOTPRINT **DATE:** 2-1-07
EXCAVATION METHOD: BACKHOE **ELEVATION:** 480 FT MSL (APPROX)
EXCAVATOR: MOONSTONE CONSTRUCTION **LOGGED BY:** GAV
DEPTH TO WATER: **INITIAL** ▽ : NONE **COMPLETION** ▼ : NONE
SITE GEOLOGY: HILLSLOPE COLLUVIUM MANTLING FRANCISCAN BEDROCK

ELEVATION/ DEPTH	SOIL AND SAMPLER SYMBOLS	USCS	Description	Water Content %	Dry Density pcf	Pocket Pen. tsf	Torvane tsf	% Pass # 200
480 — 0		ML	SILT, 10YR 2/2 Very Dark Brown, moist, very friable, slightly sticky and non-plastic, crumb to weak fine subangular blocky, few coarse pores, abrupt and smooth lower boundary.			1.0		
478 — 2		CL-ML	CLAYEY SILT, 10YR 4/6 Dark Yellowish Brown, moist, soft to firm, slightly sticky and slightly plastic, angular blocky structure, few fine pores.			2.0		
476 — 4		SC	CLAYEY SAND, 7.5YR 5/8 Strong Brown, moist, medium dense, slightly sticky and slightly plastic, granular structure.			3.5		
474 — 6			Halt test pit excavation at 5 feet below grade. No groundwater encountered.					
472 — 8								
470 — 10								
468 — 12								
466 — 14								

Figure 6

Attachment 1

Probabilistic Seismic Hazards Mapping
Ground Motion Page

User Selected Site

Longitude	-124.1056
Latitude	41.1973

APN 518-012-018; Kane Road, Big Lagoon, CA

LACO Associates Project No. 6597.00

Ground Motions for User Selected Site

Ground motions (10% probability of being exceeded in 50 years) are expressed as a fraction of the acceleration due to gravity (g). Three values of ground motion are shown, peak ground acceleration (Pga), spectral acceleration (Sa) at short (0.2 second) and moderately long (1.0 second) periods. Ground motion values are also modified by the local site soil conditions. Each ground motion value is shown for 3 different site conditions: firm rock (conditions on the boundary between site categories B and C as defined by the building code), soft rock (site category C) and alluvium (site category D).

Ground Motion	Firm Rock	Soft Rock	Alluvium
Pga	0.561	0.561	0.561
Sa 0.2 sec	1.275	1.275	1.275
Sa 1.0 sec	0.507	0.6	0.689

NEHRP Soil Corrections were used to calculate Soft Rock and Alluvium.
Ground Motion values were interpolated from a grid (0.05 degree spacing) of calculated values. Interpolated ground motion may not equal values calculated for a specific site, therefore these values are not intended for design or analysis.

LACO ASSOCIATES CONSULTING ENGINEERS 21 W 4TH ST. EUREKA, CA 95501 (707)443-5054			
PROJECT	CDP APPLICATION No. 1-07-008	BY BAB	FIGURE 1
CLIENT	DOUG KENT	DATE 6/12/07	
LOCATION	APN 518-012-018, KANE RD. BIG LAGOON	CHECK	JOB NO. 6597.00
	LOCATION MAP	SCALE 1"=1000'	

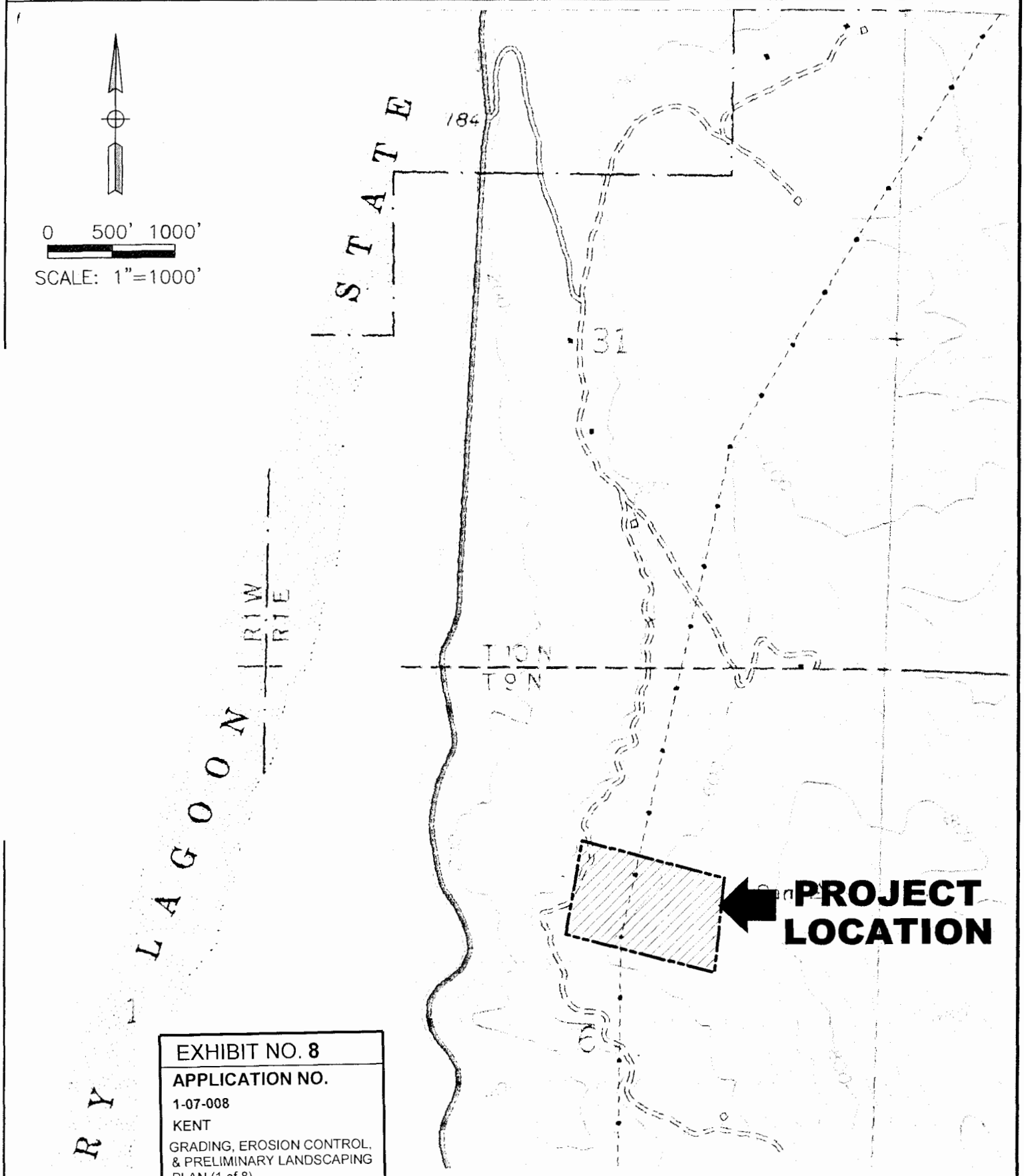

EXHIBIT NO. 8

APPLICATION NO.

1-07-008

KENT

GRADING, EROSION CONTROL, & PRELIMINARY LANDSCAPING PLAN (1 of 8)

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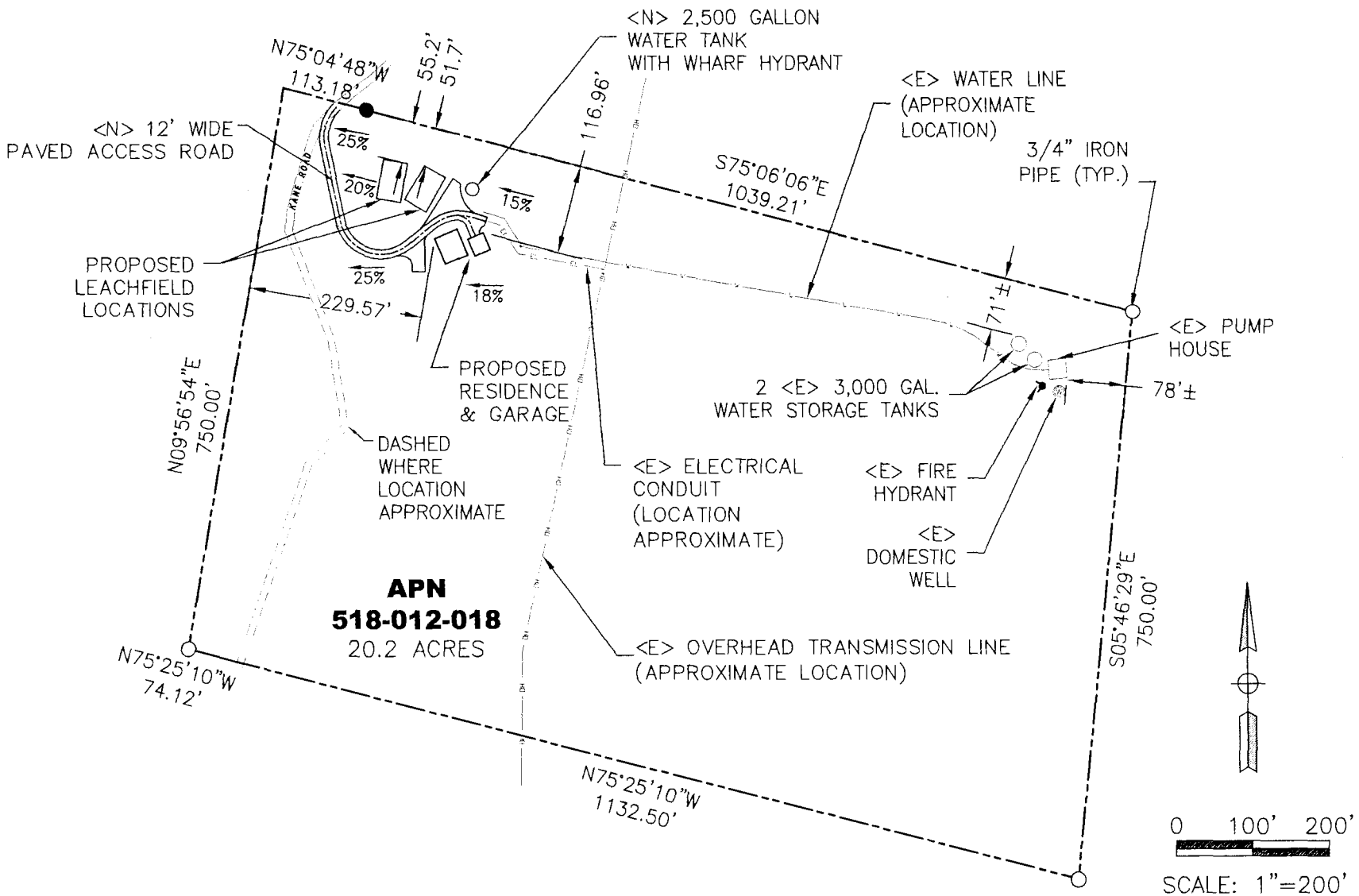
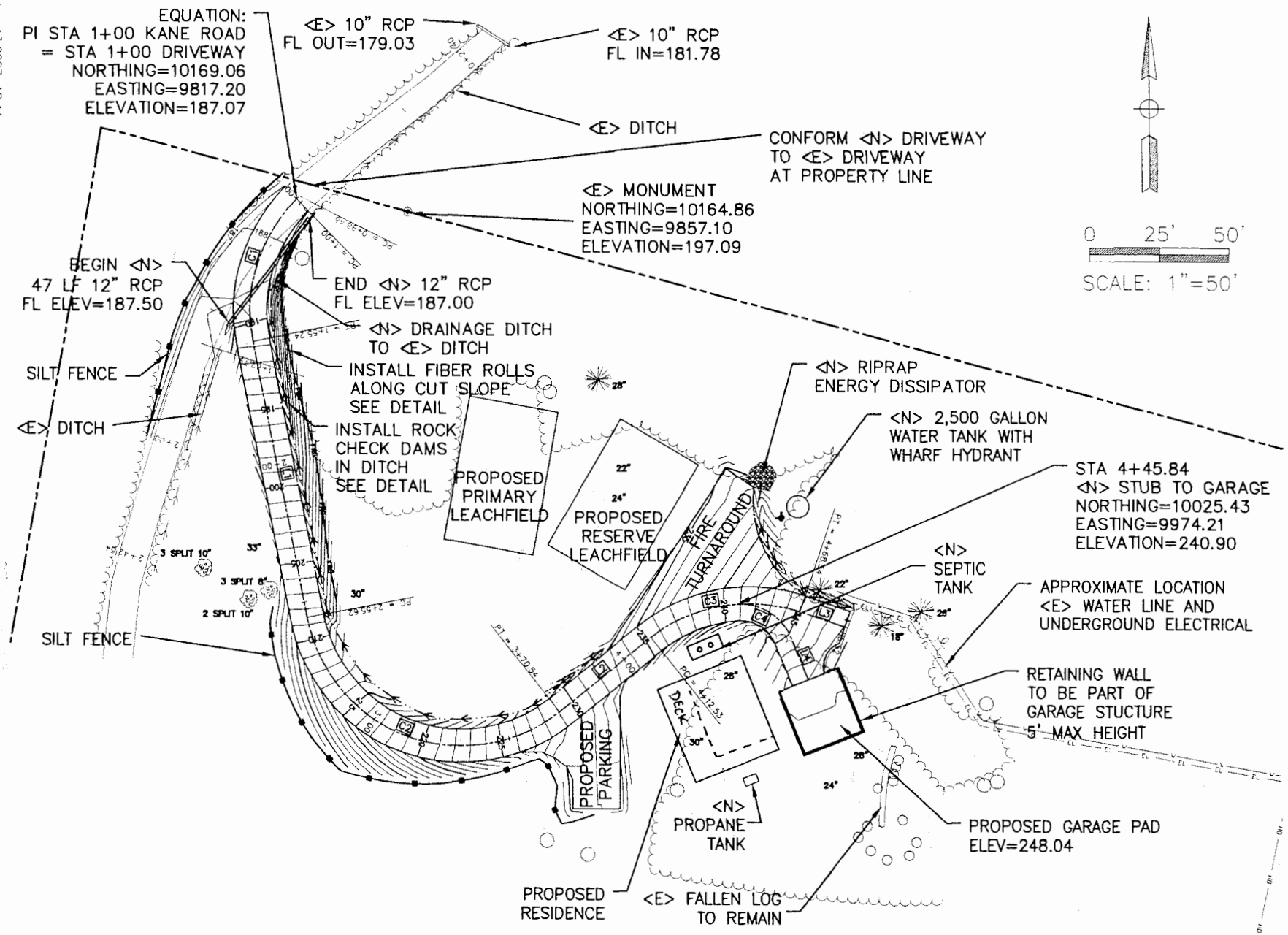


SURVEY NOTES

1. THIS MAP IS BASED ON A FIELD SURVEY PERFORMED JANUARY 30, 2007 BY LACO ASSOCIATES.
2. BEARINGS SHOWN HEREON ARE RECORD BEARINGS BASED ON TIES TO RECORD MONUMENTS SHOWN ON BOOK 4 OF PARCEL MAPS, PAGE 149. BOUNDARY LOCATIONS ARE APPROXIMATE.
3. ELEVATIONS SHOWN HEREON ARE ASSUMED.
4. NO BOUNDARY RESEARCH WAS PERFORMED AS PART OF THIS SURVEY. EASEMENTS MAY EXIST THAT ARE NOT SHOWN.
5. TREE DIAMETERS SHOWN HEREON ARE APPROXIMATE DIAMETER AT BREAST HEIGHT.

LACO ASSOCIATES
CONSULTING ENGINEERS
21 W 4TH ST. EUREKA, CA 95501 (707)443-5054

PROJECT: CDP APPLICATION No. 1-07-008
CLIENT: DOUG KENT
LOCATION: APN 518-012-018, KANE RD. BIG LAGOON
SITE MAP
BY: BAB
DATE: 6/12/07
CHECK:
SCALE: 1"=200'
JOB NO: 6597.00
SHEET: 2



NOTE:

SEE FIGURE 4 FOR EXPLANATION
OF MAP SYMBOLS.

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LACO ASSOCIATE
CONSULTING ENGINEERS
21 W 4TH ST. EUREKA, CA 95501 (707)443-5054

PROJECT	CDP APPLICATION No. 1-07-008
CLIENT	DOUG KENT
LOCATION	APN 518-012-018, KANE RD. BIG LAGOON
	SITE PLAN
BY	BAB
DATE	6/12/07
CHECK	
SCALE	1"=50'
JOB NO.	6597.00
FIGURE	3

GRADING NOTES

1. ALL PROPOSED DRIVEWAY GRADING TO BE CONSTRUCTED IN EXISTING OPEN AREAS.
   AMOUNT OF AREA TO BE GRADED=15,000 Sq. Ft./0.34 Acres
   GRADING VOLUME: CUT = 227 CY
   FILL = 385 CY
   NET = 158 CY OF FILL
   MATERIALS NEEDED:
   AGGREGATE BASE = 248 CY (INCLUDES KANE ROAD)
   ASPHALT CONCRETE = 43 CY

2. CUT SLOPES SHALL NOT EXCEED 1V:1H UNLESS OTHERWISE NOTED ON PLANS.

3. THE GROUND SURFACE IN AREAS TO RECEIVE FILL SHALL BE PREPARED AS FOLLOWS:
   A. ALL ORGANIC MATERIAL AND TOPSOIL SHALL BE REMOVED.
   B. ON SLOPES GREATER THAN 1V:4H, HORIZONTAL BENCHES SHALL BE CUT INTO THE SOIL TO PROVIDE A LEVEL BEARING SURFACE FOR THE FILL MATERIAL. THE MINIMUM WIDTH OF THE BENCHES SHALL BE FOUR FEET.

4. NATIVE FILL MATERIAL SHALL BE PLACED IN LOOSE LIFTS NO GREATER THAN 8 INCHES THICK, AND SHALL BE COMPACTED TO 90% OF MAXIMUM DRY DENSITY.

5. COMPACTION SHALL BE MEASURED PER ASTM D1557 AND ASTM D2922.

6. ALL GRADING WORK SHALL BE CONDUCTED BETWEEN APRIL 15 AND OCTOBER 15, AND BE IN ACCORDANCE WITH HUMBOLDT COUNTY GRADING ORDINANCE.

EROSION CONTROL NOTES

BEST MANAGEMENT PRACTICES (BMP'S) TO BE IMPLEMENTED DURING CONSTRUCTION:
1. SILT FENCING ALONG THE TOE OF CUT AND FILL SLOPES
2. STRAW COVER ON ALL BARE SOIL AREAS

BMP'S TO BE IMPLEMENTED FOLLOWING CONSTRUCTION:
1. GRAVEL AND PAVED DRIVEWAY SURFACES TO BE INSTALLED AS SHOWN ON THE PLANS
2. ALL BARE SOIL AREAS TO BE STRAWED AND SEEDED PRIOR TO ONSET OF WET SEASON
3. ROCK CHECK-DAMS TO BE INSTALLED IN DRIVEWAY DITCHES.

GENERAL DESCRIPTION OF PROPOSED LANDSCAPING

1. NO AZALEAS ARE TO BE REMOVED AS PART OF THIS PROJECT.
2. ALL BARE SOIL AREAS TO BE STRAWED AND SEEDED WITH NATIVE GRASS.
3. NATIVE SHRUBS TO BE PLANTED INCLUDE BLACK HUCKLEBERRY & SALAL.

LEGEND

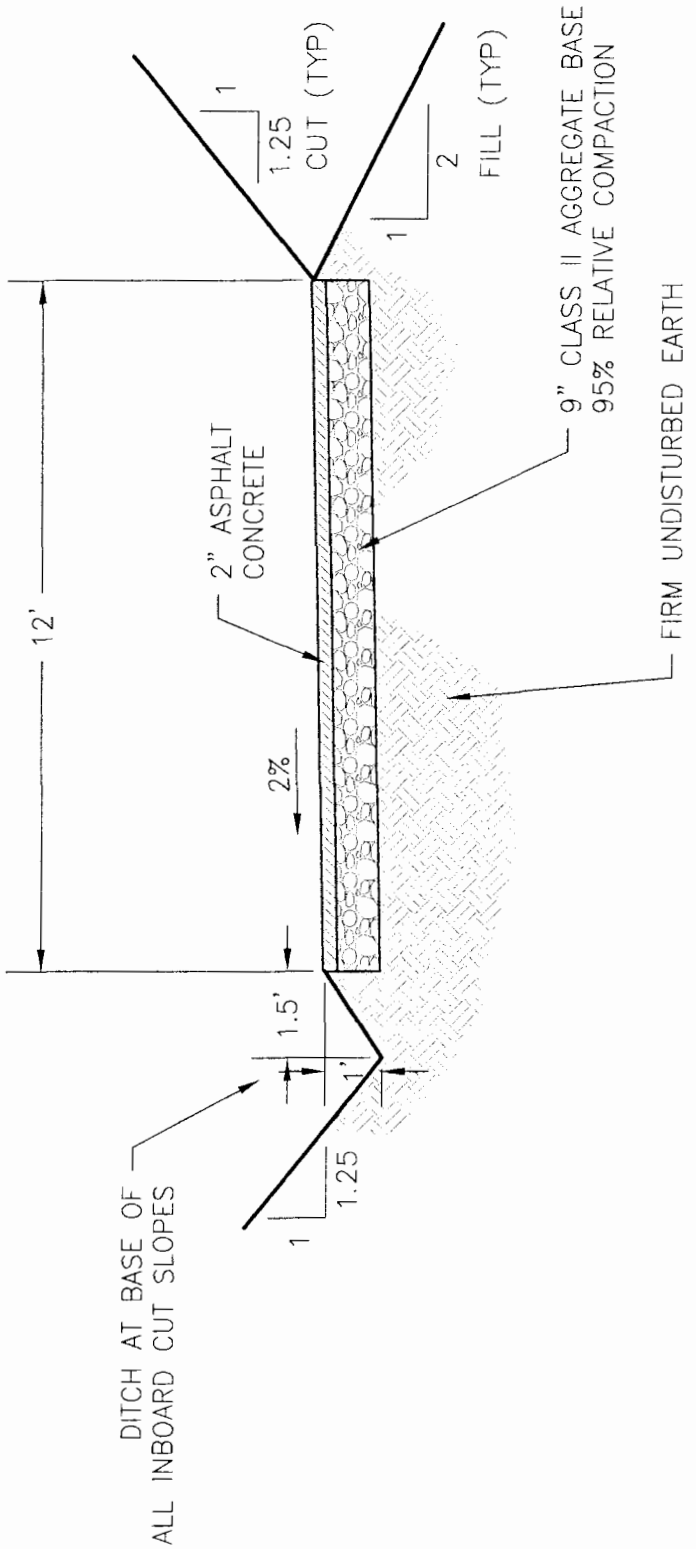
- PROPERTY LINE
- EXISTING GRADE CONTOUR
- 260 FINISH GRADE CONTOUR
- <E> WATER LINE & UNDERGROUND ELECTRIC
- <E> OVERHEAD TRANSMISSION LINE
- <E> ELECTRICAL CONDUIT
- <E> VEGETATION LINE
- <N> FLOWLINE DITCH
- <E> CONIFER TO REMAIN (WITH DIAMETER AT BREAST HEIGHT)
- <E> CONIFER TO BE REMOVED (WITH DIAMETER AT BREAST HEIGHT)
- <E> DECIDUOUS TREE (WITH DIAMETER AT BREAST HEIGHT)
- <E> AZALEA
- <N> SILT FENCE
- FRC <N> FIBER ROLLS
- <N> CHECK DAM

<E> EXISTING
<N> PROPOSED

LACO ASSOCIATES
CONSULTING ENGINEERS
21 W 4TH ST. EUREKA, CA 95501 (707)443-5054

PROJECT: CDP APPLICATION No. 1-07-008
CLIENT: DOUG KENT
LOCATION: APN 518-012-018, KANE RD. BIG LAGOON
NOTES & LEGEND
BY: BAB
DATE: 6/12/07
CHECK:
SCALE: NTS
JOB NO: 6597.00
SHEET NO: 4

LACO ASSOCIATES CONSULTING ENGINEERS 21 W 4TH ST. EUREKA, CA 95501 (707)443-5054	PROJECT	CDP APPLICATION No. 1-07-008	BY	BAB	FIGURE
	CLIENT	DOUG KENT	DATE	6/12/07	5
	LOCATION	APN 518-012-018, KANE RD. BIG LAGOON	CHECK		JOB NO.
		TYPICAL DRIVEWAY SECTION	SCALE	NTS	6597.00



TYPICAL SECTION VIEW

SCALE: NTS

Jun 13,2007- 10:14am
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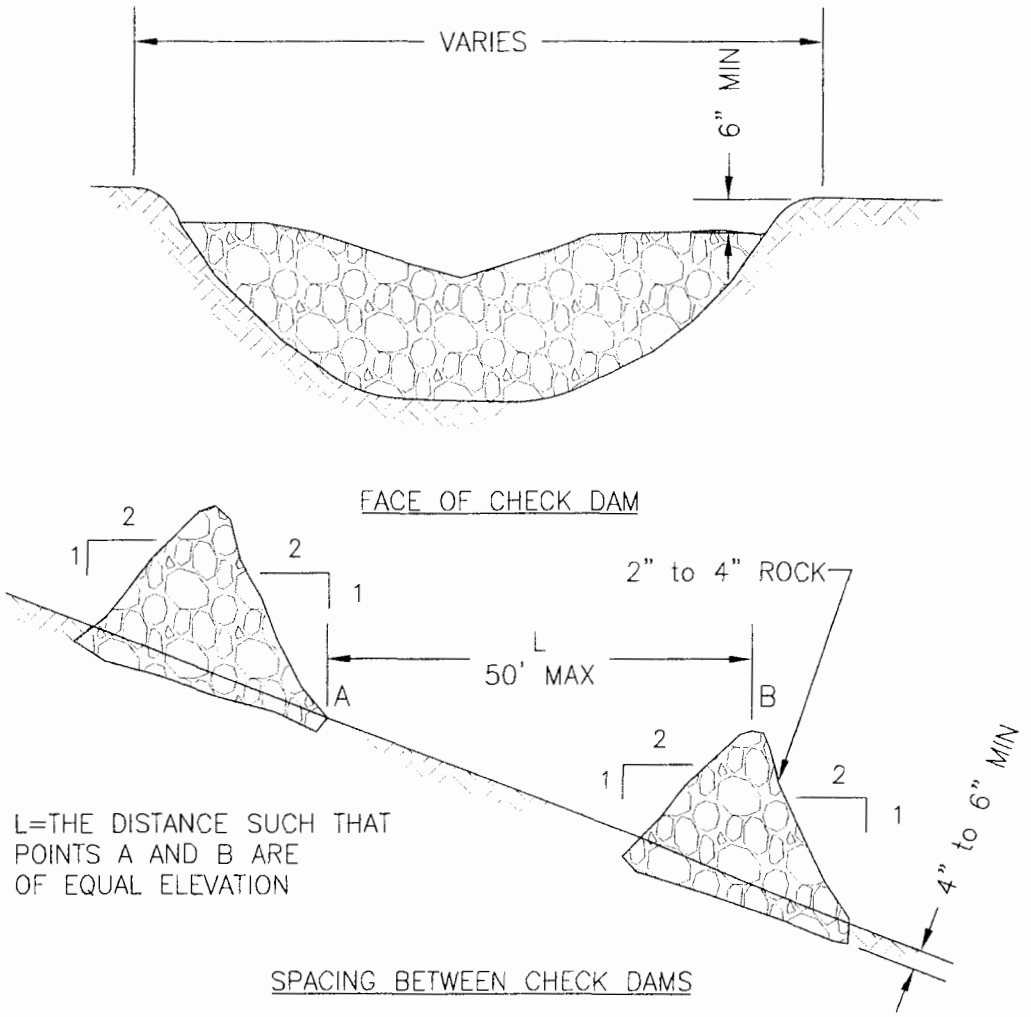
LACO ASSOCIATES CONSULTING ENGINEERS 21 W 4TH ST. EUREKA, CA 95501 (707)443-5054				
	PROJECT	CDP APPLICATION No. 1-[illegible]-008	BY BAB	FIGURE 6
	CLIENT	DOUG KENT	DATE 6/12/07	
	LOCATION	APN 518-012-018, KANE RD. BIG LAGOON	CHECK	JOB NO. 6597.00
		ROCK CHECK DAM DETAIL	SCALE NTS	



DETAIL - ROCK CHECK-DAM

NO SCALE

Jan 13,2007- 10:14am
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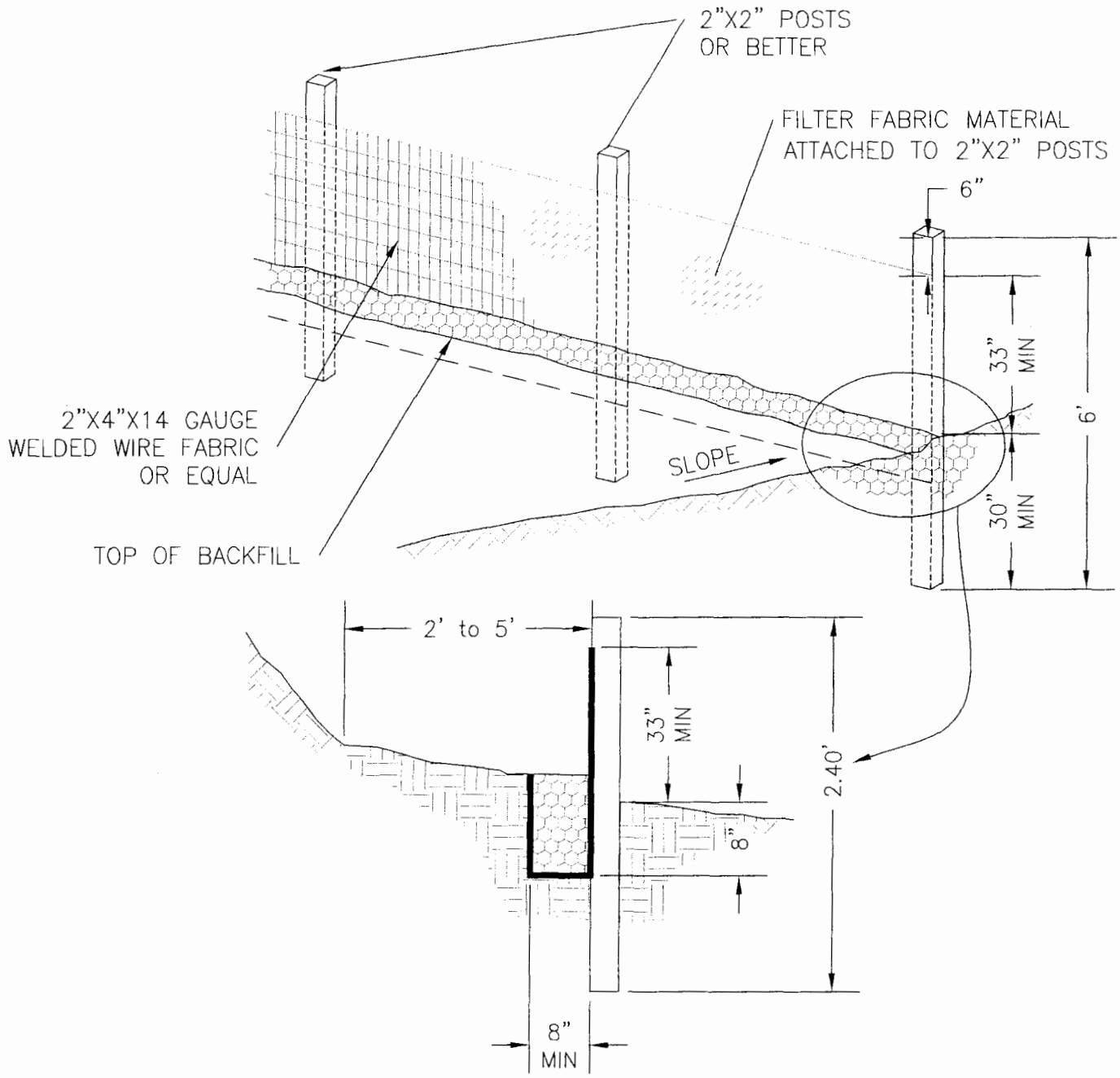
LACO ASSOCIATES CONSULTING ENGINEERS 21 W 4TH ST. EUREKA, CA 95501 (707)443-5054				
	PROJECT	CDP APPLICATION No. 1-07-008	BY BAB	FIGURE 7
	CLIENT	DOUG KENT	DATE 6/12/07	
	LOCATION	APN 518-012-018, KANE RD. BIG LAGOON	CHECK	JOB NO. 6597.00
		TEMPORARY SILT FENCE DETAIL	SCALE NTS	



TEMPORARY SILT FENCE

NO SCALE

Jun 13,2007- 10:15am
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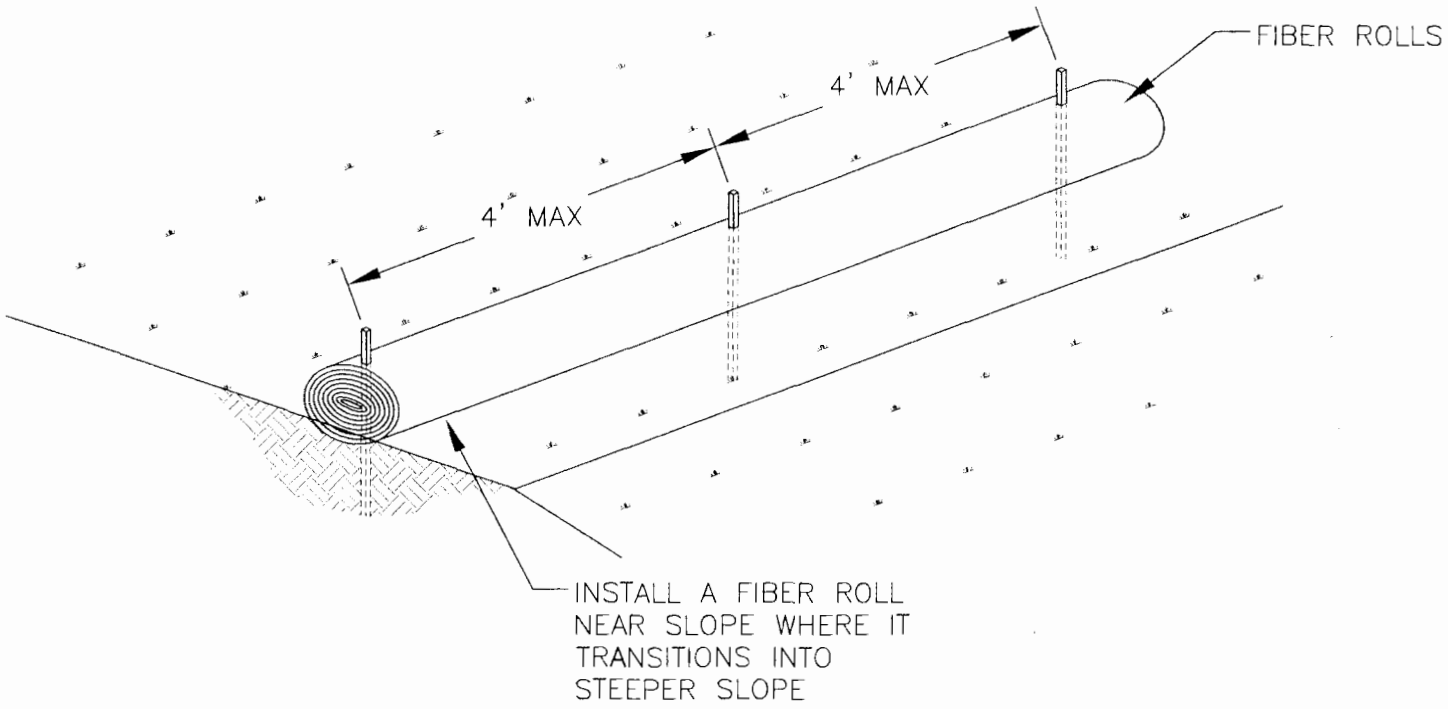
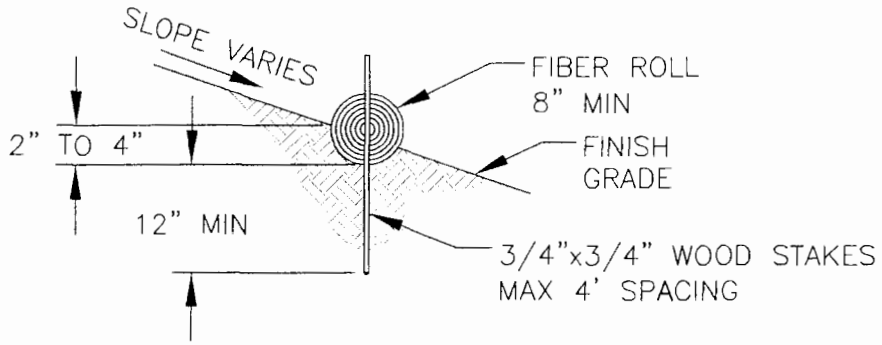
LACO ASSOCIATES CONSULTING ENGINEERS 21 W 4TH ST. EUREKA, CA 95501 (707)443-5054	PROJECT: CDP APPLICATION No. 1-07-008	BY: BAB	FIGURE: 8
	CLIENT: DOUG KENT	DATE: 6/12/07	
	LOCATION: APN 518-012-018, KANE RD. BIG LAGOON	CHECK:	JOB NO.: 6597.00
	FIBER ROLL INSTALLATION DETAIL	SCALE: NTS	



TYPICAL FIBER ROLL INSTALLATION



ENTRENCHMENT DETAIL

FIBER ROLL INSTALLATION DETAIL

NO SCALE

Jun 13,2007-10:15am
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Photo 1. Western Azalea habitat at the Stagecoach Hill Azalea Preserve. Photo taken in May 2007 while azaleas were in full bloom in this area. Note that the azaleas on the site are both high in number and a dominant component of the vegetation assemblage as a whole. Pacific Reed Grass (*Calamagrostis nutkaensis*, seen in foreground and intermixed with azaleas across the Preserve) also dominates the vegetation of the area.

EXHIBIT NO. 9
APPLICATION NO.
1-07-008
KENT
SITE PHOTOS (1 of 9)

Photo 2. Western Azalea habitat at the Stagecoach Hill Azalea Preserve.

Photo 3. Western Azalea habitat at the Stagecoach Hill Azalea Preserve. The plants of the area have been documented as highly variable in flower color and form (Mossman 1977).

Photo 4. Western Azalea habitat on the subject property (Kent). Unlike at the Stagecoach Hill Azalea Preserve, azaleas are not especially high in number in the area and do not comprise a major component of the vegetation at the site. This photo is looking (eastward) towards the proposed building site for the single family residence.

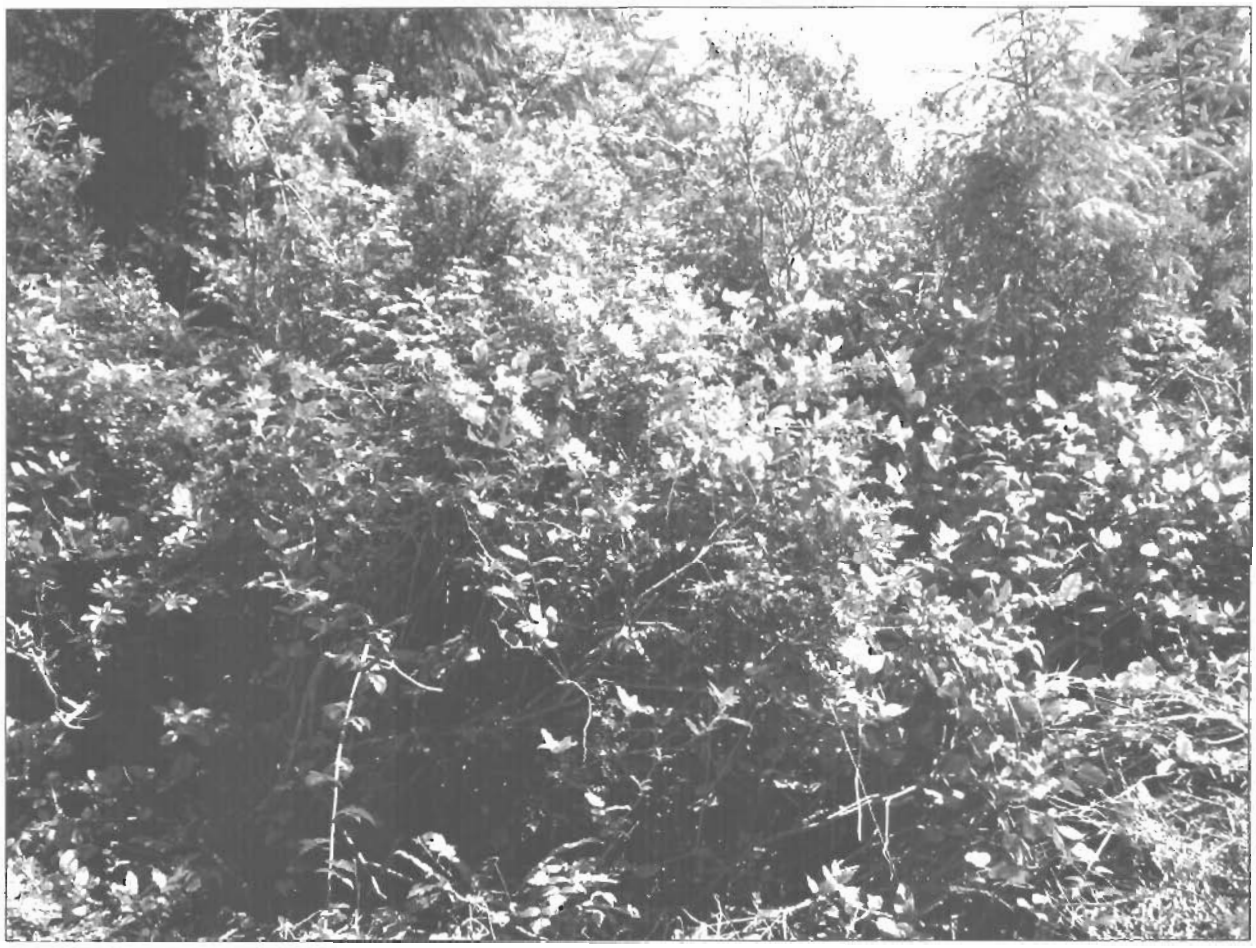

Photo 5. Western Azalea habitat on the subject property. Note that azaleas in the area are crowded with a variety of competing trees, shrubs, ferns, and other plants (both native and nonnative).

Photo 6. Western Azalea habitat on the subject property. This is the proposed building site for the single family residence (looking westward).

Photo 7. Western Azalea habitat on the subject property. Note that azaleas in the area are crowded with a variety of competing trees, shrubs, ferns, and other plants (both native and nonnative).

Photo 8. Looking westward from the project site. The development may be visible to the public from a portion of Big Lagoon spit – the beach seen in the photo. The development will not be visible from State Highway 101 or any other roads.

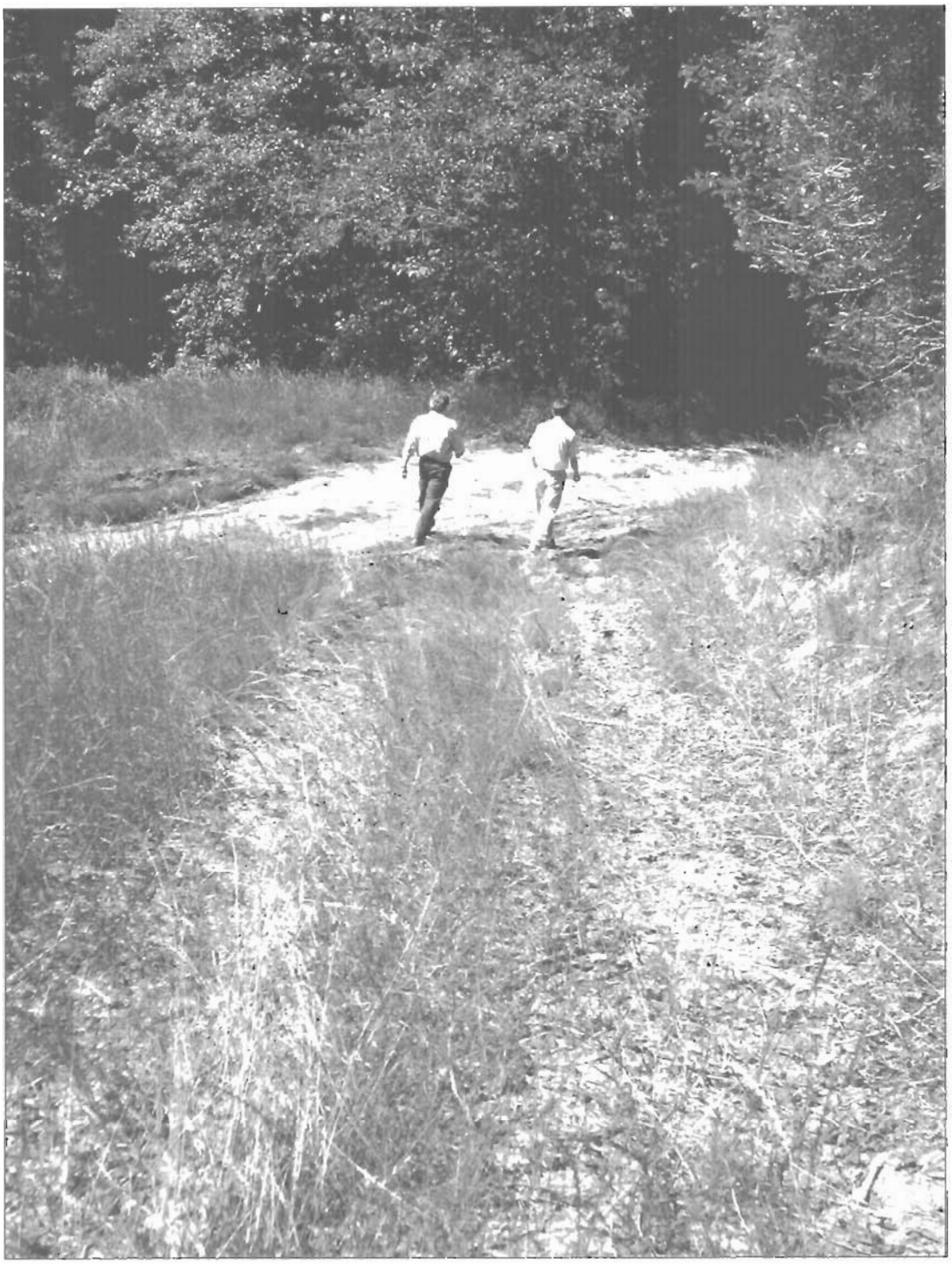

Photo 9. Looking down the end of the proposed driveway, which is moderately sloped.

MAP NO. 3

LEGEND

- Areas Now Having Best Azalea Growth
- California State Parks Foundation Parcel
- Areas of Dense Tree Growth
- Boundary State Parks System Lands
- Proposed Easements

CATEGORY 1 - First Priority Lettered Subgroups A-E and

CATEGORY 2 - Second Priority Lettered Subgroup A-B

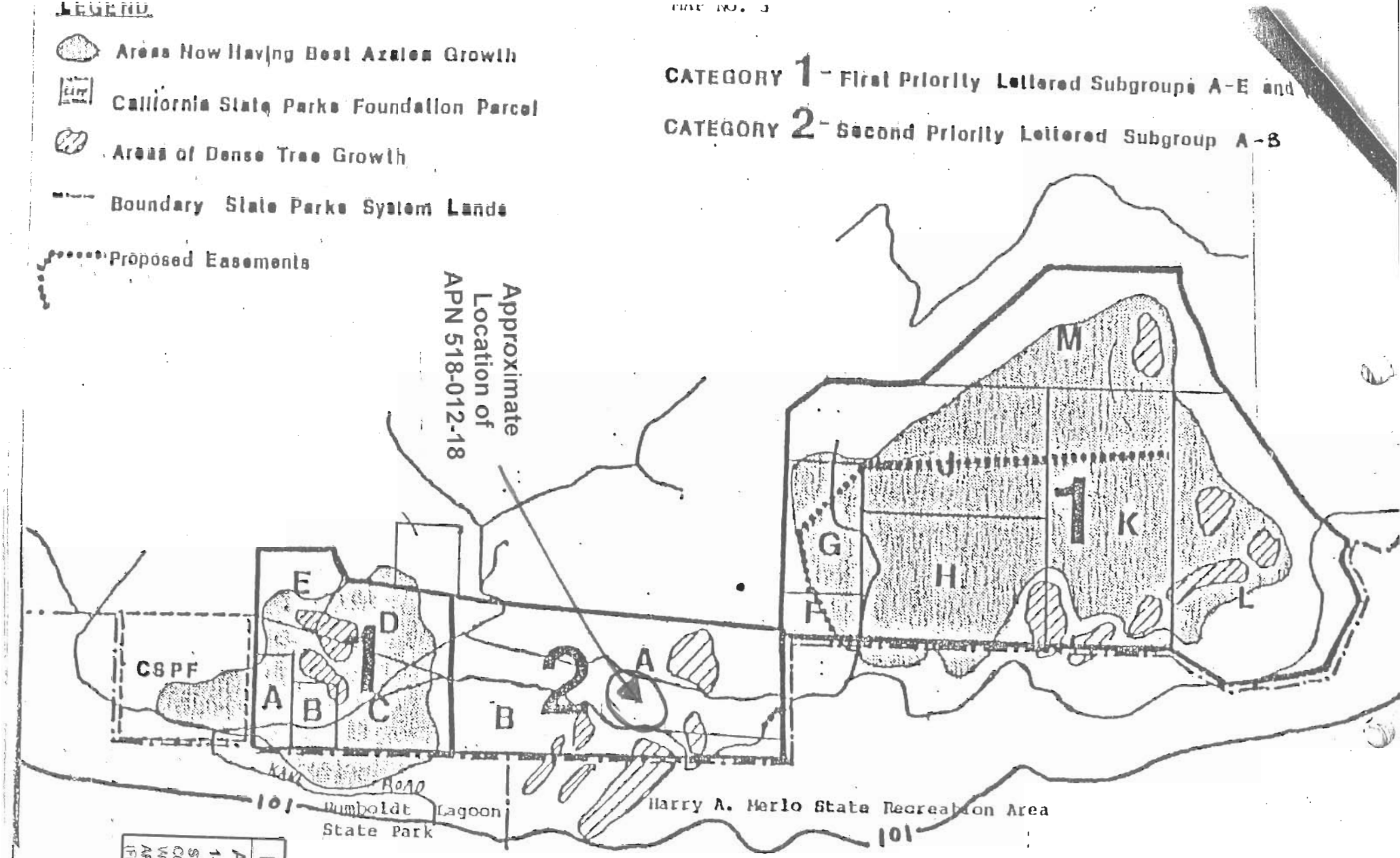

EXHIBIT NO. 10

APPLICATION NO. 1-07-008 - KENT

STATE COASTAL CONSERVANCY MAP OF "BEST" WESTERN AZELEA HABITAT AREAS ON STAGECOACH HILL (FROM 1980's)

(Coastal Conservancy Acquistion Program)

STAGECOACH HILL

N

0 500 1000 2

FEET

Humboldt County Department of Health and Human Services
DIVISION OF ENVIRONMENTAL HEALTH
100 H Street - Suite 100 - Eureka, CA 95501
Voice: 707-445-6215 - Fax: 707-441-5699 - Toll Free: 800-963-9241
envhealth@co.humboldt.ca.us

August 8, 2007

RECEIVED
AUG 09 2007
CALIFORNIA
COASTAL COMMISSION

Melissa B. Kraemer
California Coastal Commission
P. O. Box 4908
Eureka, CA 95502-4908

RE: Coastal Development Permit Application No.1-07-008 Sewage Disposal/Water Supply Suitability AP #518-012-018

To Whom It May Concern:

The Humboldt County Department of Health and Human Services, Division of Environmental Health (DEH) has completed a review of the soils testing and onsite sewage disposal system design (prepared by LACO Associates April 26, 2007) intended to serve a two (2) bedroom residence on the aforementioned parcel. The sewage disposal system proposal was found to be in conformance with applicable state and local requirements. Water supply testing completed by Giovanni A. Vadurro July 28, 2007, demonstrated that water production requirements set forth in current Humboldt County policy have been met for the residential development proposed.

If you have any further questions regarding this matter please contact me at (707) 268-2209.

Sincerely,

David Spinosa, R.E.H.S.
Senior Environmental Health Specialist

DS/se

EXHIBIT NO. 11
APPLICATION NO.
1-07-008
KENT
APPROVED SEPTIC & WATER SYSTEMS