

CALIFORNIA COASTAL COMMISSION

NORTH COAST DISTRICT OFFICE
710 E STREET • SUITE 200
EUREKA, CA 95501-1865
VOICE (707) 445-7833
FACSIMILE (707) 445-7877

MAILING ADDRESS:
P. O. BOX 4908
EUREKA, CA 95502-4908



F5a

Page: Page 1 of 11
Date: August 25, 2006
Permit Application: **1-06-020**

ADMINISTRATIVE PERMIT

APPLICANT(S): Gerstle Family Trust

PROJECT DESCRIPTION: Construct a 1,640-square-foot modular single-family residence and detached 780 square-foot garage, install a "Wisconsin Mound" sewage disposal system, and develop a domestic water supply system from an existing well.

PROJECT LOCATION: 151 Driftwood Lane, Trinidad (Humboldt County)
(APN 517-071-32)

EXECUTIVE DIRECTOR'S DETERMINATION: The findings for this determination, and for any special conditions, appear beginning on page 3.

NOTE: Public Resources Code Section 30624 provides that this permit shall not become effective until it is reported to the Commission at its next meeting. If one-third or more of the appointed membership of the Commission so request, the application will be removed from the administrative calendar and set for public hearing at a subsequent Commission meeting. Our office will notify you if such removal occurs.

**THIS PERMIT WILL BE REPORTED TO THE COMMISSION AT THE
FOLLOWING TIME AND PLACE:**

September 15, 2006, 10:00 a.m.
Wharfinger Building
One Marina Way, Eureka, CA 95501



IMPORTANT: Before you may proceed with development, the following must occur:

Pursuant to Title 14, California Administrative Code Sections 13150(b) and 13158, you must sign the enclosed duplicate copy acknowledging the permit's receipt and accepting its contents, including all conditions, and return it to our office. Following the Commission's meeting, and once we have received the signed acknowledgement and evidence of compliance with all special conditions, we will send you a Notice of Administrative Permit Effectiveness.

BEFORE YOU CAN OBTAIN ANY LOCAL PERMITS AND PROCEED WITH DEVELOPMENT, YOU MUST HAVE RECEIVED BOTH YOUR ADMINISTRATIVE PERMIT AND THE NOTICE OF PERMIT EFFECTIVENESS FROM THIS OFFICE.

PETER M. DOUGLAS
Executive Director

By: _____
JAMES R. BASKIN AICP
Coastal Program Analyst

I. 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. Expiration. If development is not commenced, the permit will expire two years from the date this permit is reported to the Commission. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.
3. Interpretation. Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.
4. 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.
5. 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.



II. EXECUTIVE DIRECTOR'S DETERMINATION:

The Executive Director hereby determines that the proposed development is a category of development which, pursuant to PRC Section 30624, qualifies for approval by the Executive Director through the issuance of an administrative permit.

Subject to Standard and Special Conditions as attached, said development is in conformity with the policies of Chapter 3 of the California Coastal Act, including those policies regarding public access and coastal recreation opportunities, and will not have any significant adverse impacts on the environment within the meaning of the California Environmental Quality Act.

III. FINDINGS FOR EXECUTIVE DIRECTOR'S DETERMINATION:

A. Project Location and Description.

1. Project Site

The project site is located approximately four miles north of the City of Trinidad and ¼ mile south of Patrick's Point State Park, at 151 Driftwood Lane (see Exhibit Nos. 1-3). The project setting consists of a generally flat, uplifted marine terrace lying approximately 300 feet back from the terrace's ocean blufftop margins, at an elevation of approximate 200 feet above sea level. Slopes at the site have less than a five percent gradient with a generally westerly aspect. The site and surrounding area is vegetated with a North Coast Coniferous Forest consisting primarily of a Sitka spruce (*Picea sitchensis*) / western hemlock (*Tsuga heterophylla*) complex, with an attending understory of red alder (*Alnus rubra*), California wax myrtle (*Myrica californica*), swordfern (*Polystichum munitum*), western bracken fern (*Pteridium aquilinum*), evergreen huckleberry (*Vaccinium ovatum*), salal (*Gaultheria shaloni*), and related undergrowth species. No environmentally sensitive habitat areas are located either on or within the immediate vicinity of the subject property.

The roughly ¾-acre project parcel is situated within an existing rural residential neighborhood lying between the ocean and the first public through road paralleling the sea, Patrick's Point Drive. The parcel currently has double frontage along two gravel-surfaced private roads, with the front of the lot abutting Driftwood Lane and with an unnamed road running along the rear of the lot. A third deeded access easement extending a 20-foot width onto the property along its northern side is presently unimproved. Due to its location along these private rights-of-way, the presence of intervening significant forested tree and shrub cover, and significant breaks in topography, no views across the property to and along the ocean exist from vantage points along public streets, parklands, or the open shoreline.



The project site, as with all of the area to the west of Patrick's Point Drive/Stagecoach Road between the City of Trinidad and Patrick's Point State Park, lies within an "Area of Deferred Certification" with respect to the County of Humboldt's "Trinidad Area Plan" segment to its certified Local Coastal Program. As a consequence, the Commission retains coastal development permit jurisdiction over the site, and the standard of review for issuance of a coastal development permit is whether the development would be consistent with the policies of Chapter 3 of the Coastal Act.

2. Development Proposal

The applicants propose to place a 1,640-square-foot, one-story modular residence on the vacant project parcel and construct a detached 780-square-foot garage. In addition, a "Wisconsin Mound" sewage disposal system would be installed at the site. Other site improvements entail installation of a water pump and conveyance plumbing from an existing well to the new residence, and grading and surfacing a 12-foot-wide driveway within the northerly access easement (see Exhibit No. 4). Site improvements have largely been located on the open areas of the parcel such that mature vegetation removal would be limited to pruning and limbing needed to conform with fuels modification fire safety standards for State Responsibility Areas as administered by the California Department of Forestry and Fire Protection (CDF).

B. 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 subject property is within a developed suburban residential neighborhood zoned with a Rural Residential Agriculture base zone designation with a two-acre minimum parcel size requirement, where 0-2 residential units per acre is a principally permitted use. The subject parcel is developed with an existing water well and has received design approval from the County of Humboldt Public Health Department's Division of Environmental Health for the proposed mounded onsite sewage disposal system. The subject parcel has deeded access along Driftwood Lane, a private road which connects in turn to Patrick's Point Drive, a County-maintained public street. The parcels lie within the emergency services jurisdictional boundaries of the Humboldt County Sheriff's Office and the California Department of Forestry and Fire Protection. Electrical and telephone service is provided to the site by the Pacific Gas and Electric Company and AT&T/SBC Communications, Inc., respectively.



With respect to impacts on road circulation, wastewater disposal capabilities, utilities, or other public services, the proposed development would not have significant adverse effects, either individually or cumulatively, on coastal resources. The proposed improvements to the driveway and off-street parking facilities would not result in a change in road capacity, create new vehicular entry points onto the adjoining public road, or reduce the amount of off-street and/or future on-street parking amenities to be provided at or adjacent to the project site, respectively.

Therefore, the Commission finds that as conditioned, the proposed development is consistent with Coastal Act Section 30250(a) in that it is located in a developed area, it has adequate water and sewer capability to accommodate it, and it will not cause significant adverse effects, either individually or cumulatively, to coastal resources.

C. 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 flood hazard, and does not create or contribute to erosion. Section 30253 of the Coastal Act states in applicable part:

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.*

A geological and soils analysis was performed and a report was prepared for the proposed residential development (see Exhibit No. 5). Because of the location of the project site well removed (approximately 280 feet) from the blufftop margins of the uplifted marine terrace on which the property is located and the presence of existing residential development between the property and the bluff edge, no geotechnical analysis of the property relative to coastal erosion, blufftop stability, and/or a quantified bluff retreat rate was performed. Instead, the evaluation focused on specific foundation and drainage design recommendations to ensure the structural improvements would be constructed in a manner to withstand seismic shaking and avoid damage from seasonal high groundwater exposure common to the area. These recommendations include such measures as: (identifying two building foundation options for ensuring that the residence is constructed such that the effects of the area's high groundwater would not adversely affect the structure's stability; establishing minimum compaction standards for sub-grade fill beneath footings, driveways, sidewalks, and parking areas; (3) specific live and dead load



bearing strengths for foundation footings; and (4) provisions for inspections of subgrade conditions prior to the placement of forms, reinforcement steel bars, or concrete casting.

To assure that hazards associated with geologic instability, including poorly drained soils subject to periodic high groundwater conditions are avoided, the Commission attaches Special Condition No. 2. Special Condition No. 2 requires the applicant to construct the proposed residential improvements consistent with the recommendations set forth in the geologic-soils investigation prepared for the project. Therefore, the Commission finds that, as conditioned, the project is consistent with the geologic stability provisions of Section 30253 of the Coastal Act.

D. Protection of Coastal Water Quality.

Section 30230 of the Coastal Act states, in applicable part:

Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Section 30231 of the Coastal Act addresses the protection of coastal water quality in conjunction with development and other land use activities. Section 30231 reads:

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

Storm water runoff from new residential development can adversely affect the biological productivity of coastal waters by degrading water quality. Coastal Act Section 30230 requires the protection of the biological productivity of marine and terrestrial coastal waters. Section 30231 enumerates several methods for minimize impacts to coastal water quality, including management of wastewater discharges, controlling the entrainment of sediment in stormwater runoff, avoiding depletion of groundwater, and minimizing landform alteration or interference with surface water flow, and encouraging wastewater reclamation.



As discussed above, the subject parcel is located on an uplifted coastal terrace with a generally westerly drainage pattern. Unless intercepted, runoff originating from ground-disturbed areas on the development site could entrain sediment and other pollutants that if allowed to drain uncontrolled off of the site could contribute to degradation of the quality of marine waters. Fortunately, drainage from the parcel is currently and, following completion of the residential site improvements would be conveyed through a low-gradient vegetated swale wherein decantation and bio-filtration of sediments would occur. Nonetheless, a risk of sedimentation impacts from runoff would be a concern during and immediately after construction. Consistent with Coastal Act Section 30230 and 30231, the Commission attaches Special Condition No. 3 to minimize erosion and sedimentation impacts from the proposed construction of the residence and site improvements. Special Condition No. 3 requires that the applicants: (1) install straw bales to contain runoff from construction areas; (2) maintain on-site vegetation to the maximum extent possible during construction; and (3) replant or reseed any disturbed areas with native vegetation obtained from local genetic stocks following project completion. In addition, Special Condition No. 3 requires that all on-site stockpiles of construction debris or excavated earthen materials be covered and contained to prevent polluted water runoff. To ensure that runoff from the completed house additions is controlled, Special Condition No. 3 requires that runoff from the roof and other impervious surfaces of the subject development be collected and directed into pervious areas on the site for infiltration and that velocity reducers be used on roof downspouts.

The Executive Director finds that as conditioned, the proposed development is consistent with the requirements of Coastal Act Sections 30230 and 30231 that biological productivity of coastal waters be sustained and protected because erosion and sedimentation will be controlled and minimized by: (1) maintaining on-site vegetation to the maximum extent possible; (2) replanting or seeding any disturbed areas with native vegetation following project completion; (3) covering and containing debris stockpiles at all times; (4) using straw bales to control runoff during construction; and (5) directing runoff from the completed house additions in a manner that would provide for infiltration into the ground.

E. Public Access.

Section 30210 of the Coastal Act requires that maximum public access shall be provided consistent with public safety needs and the need to protect natural resource areas from overuse. Section 30212 of the Coastal Act requires that access from the nearest public roadway to the shoreline be provided in new development projects except where it is inconsistent with public safety, military security, or protection of fragile coastal resources, or adequate access exists nearby. Section 30211 requires that development not interfere with the public's right to access gained by use or legislative authorization. Section 30214 of the Coastal Act provides that the public access policies of the Coastal Act shall be implemented in a manner that takes into account the capacity of the site and



the fragility of natural resources in the area. In applying Sections 30210, 30211, 30212, and 30214, the Commission is also limited by the need to show that any denial of a permit application based on these sections, or any decision to grant a permit subject to special conditions requiring public access, is necessary to avoid or offset a project's adverse impact on existing or potential access.

The proposed project would not adversely affect public access. The project site does not front directly on the ocean, as it is separated from the rocky, steep shoreline by a row of parcels to the west of Driftwood Lane. As noted previously, the project site is located ¼ mile south of Patrick's Point State Park where public access via a series of developed trail facilities to the coastline is open and available for use. Moreover, no evidence has been presented to suggest that an implied dedication of a public access easement through or along the access roads alongside the property has occurred. Therefore, the proposed project would not adversely affect any existing rights of access that may have been acquired through use, as no existing public access would be blocked by the proposed development.

Therefore, the Commission finds that the proposed project does not have any significant adverse effect on public access, and that the project as proposed without new public access is consistent with the requirements of Coastal Act Sections 30210, 30211, 30212, and 30214.

F. California Environmental Quality Act (CEQA).

Section 13096 of the Commission's administrative regulations requires Commission approval of Coastal Development Permit applications to be supported by a finding showing the application, as modified by any conditions of approval, to be 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 feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect which the activity may have on the environment.

The Commission incorporates its findings on conformity with LCP policies at this point as if set forth in full. These 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 development has been conditioned to be found consistent with the policies of the Coastal Act. Mitigation measures which will minimize all adverse environmental impacts have been required as permit special conditions. As conditioned, there are no feasible alternatives or feasible mitigation measures available, beyond those required, which would substantially lessen any significant adverse impact that the activity may have on the environment. Therefore, the Commission finds that the development as conditioned to mitigate the identified



impacts, can be found to be consistent with the requirements of the Coastal Act to conform to CEQA.

IV. SPECIAL CONDITIONS

1. Performance in Accordance with Approved Plans

The permittee shall conduct the project in accordance with the proposal as set forth in the application for permit. No changes to the approved project shall occur without an amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

2. Conformance of Design and Construction Plans to Geologic-Soils Report Recommendations

All final design and construction plans, including foundations, grading and drainage plans, shall be consistent with all recommendations contained in the Geologic-Soils Investigation prepared by LACO Associates and dated March 15, 2006. The permittee shall undertake development in accordance with the final plans and the recommendations contained in the Geologic-Soils Investigation. Any proposed changes to the final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without an amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

3. Erosion Control and Protection of Water Quality

The applicant shall implement the following erosion and runoff control measures which will serve to minimize the volume and velocity of stormwater runoff leaving the subject development, and to capture sediment and other pollutants contained in stormwater runoff from the subject development, by facilitating on-site infiltration and trapping of sediment generated from construction:

- a. A physical barrier consisting of bales of straw placed end to end shall be installed between any construction and bluff edges that are downslope of the approved construction. The bales shall be composed of weed-free rice straw, and shall be maintained in place throughout the construction period.
- b. Vegetation at the site shall be maintained to the maximum extent possible and any disturbed areas shall be replanted or seeded with native vegetation obtained from local genetic stocks immediately following project completion. No non-native or invasive plants shall be used. No plant species listed as problematic and/or invasive by the California Native Plant Society, the California Invasive Plant



Council, or as may be identified from time to time by the State of California, shall be employed or allowed to naturalize or persist on the site. No plant species listed as a “noxious weed” by the governments of the State of California or the United States shall be utilized within the property.

- c. All on-site debris stockpiles shall be covered and contained at all times.
- d. Runoff from the roofs of the house additions authorized herein shall be collected and directed into pervious areas on the site (lawn or other landscaped areas) for infiltration to the maximum extent practicable in a non-erosive manner, prior to being conveyed off-site. Where gutters and downspouts are used, velocity reducers shall be incorporated, to prevent scour and erosion at the outlet.

V. EXHIBITS

- 1. Regional Location
- 2. Vicinity Map
- 3. Oblique Aerial Photograph of Project Area
- 4. Site and Floor Plans
- 5. Excerpts, Geologic-Soils Report



ACKNOWLEDGEMENT OF PERMIT RECEIPT/ACCEPTANCE OF CONTENTS:

I/We acknowledge that I/we have received a copy of this permit and have accepted its contents including all conditions.

Applicant's Signature

Date of Signing



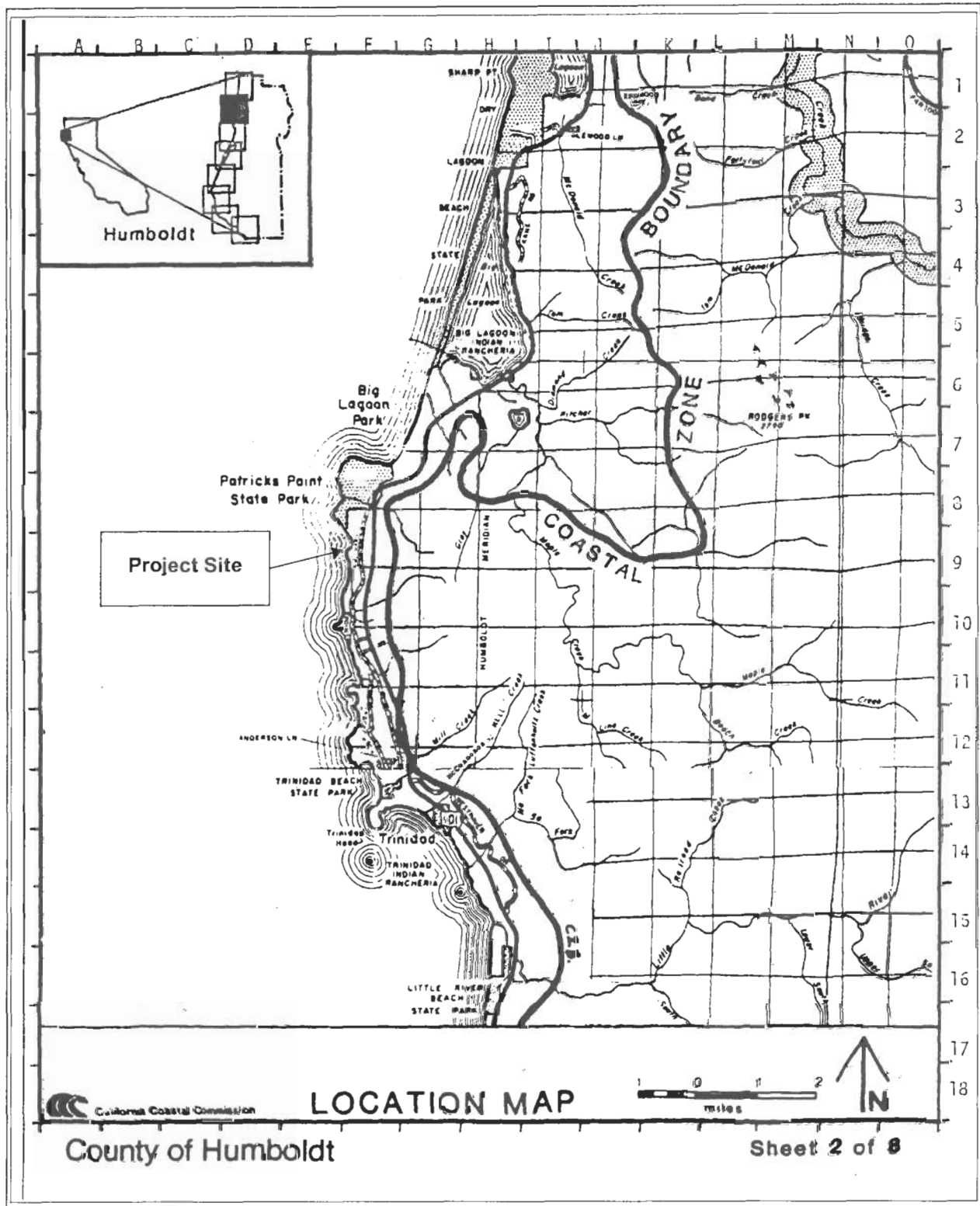


EXHIBIT NO. 1

APPLICATION NO.

1-06-020

GERSTLE FAMILY TRUST

REGIONAL LOCATION

P A C I F I C O C E A N

EXHIBIT NO. 2
APPLICATION NO.

1-06-020

GERSTLE FAMILY TRUST
VICINITY MAP

Project Site

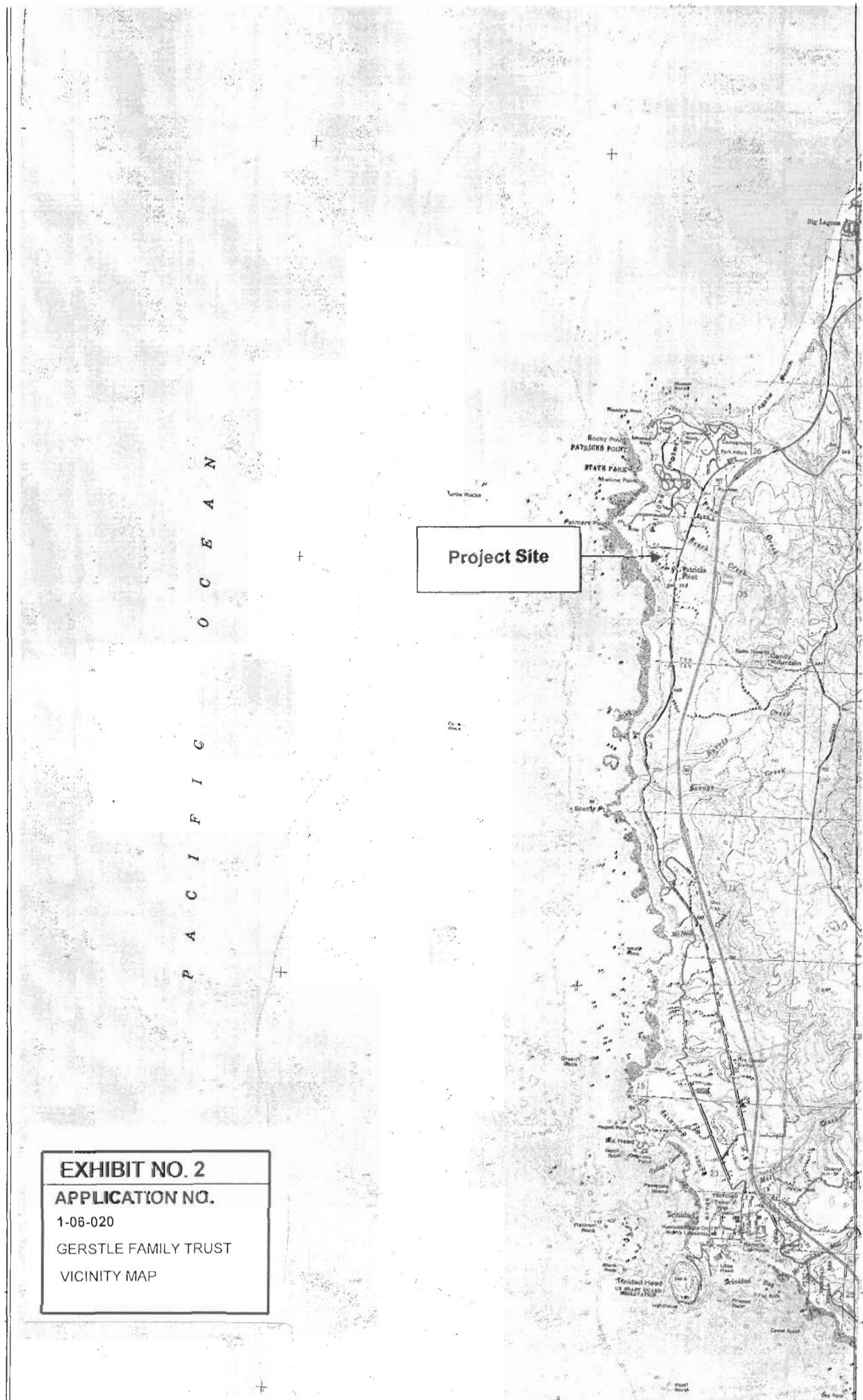


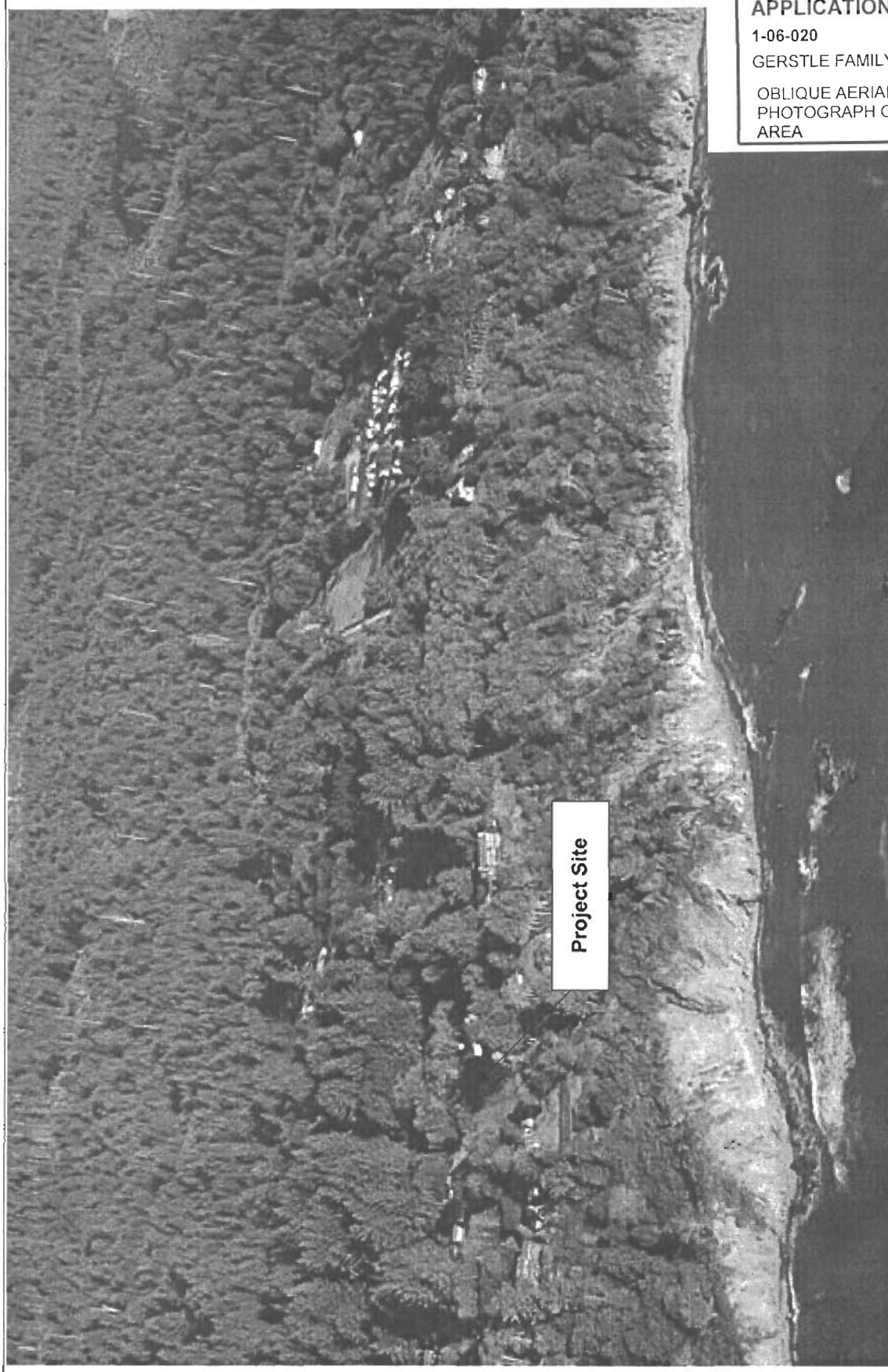
EXHIBIT NO. 3

APPLICATION NO.

1-06-020

GERSTLE FAMILY TRUST

OBLIQUE AERIAL
PHOTOGRAPH OF PROJECT
AREA



Project Site

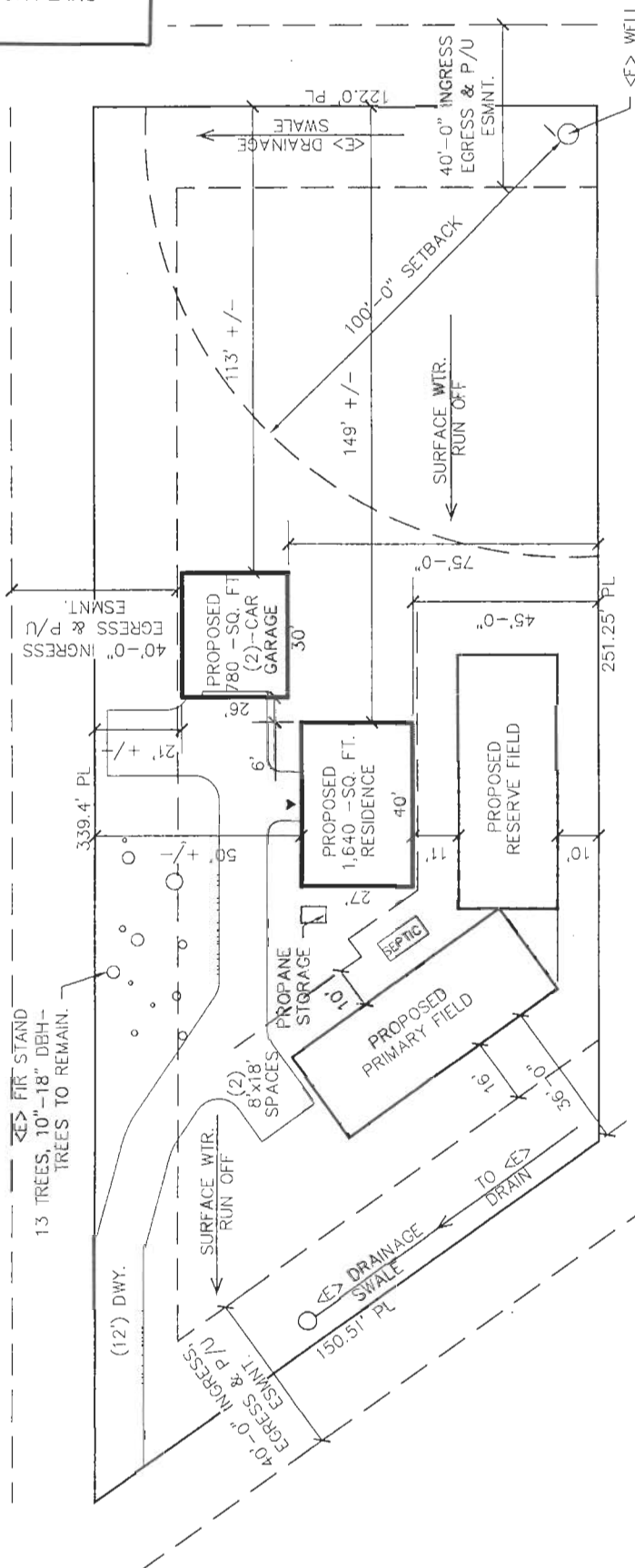
EXHIBIT NO. 4

APPLICATION NO.

1-06-020

GERSTLE FAMILY TRUST

SITE AND FLOOR PLANS
(1 of 2)



SITE PLAN

NOTES

- (3) BDRM. (3) BATH RESIDENCE; 25' +/- HT. DETACHED (2)-CAR GARAGE; 25' +/- HT.
- NO KNOWN SURVEY MONUMENTS
- BUILDING SITE IS RELATIVELY FLAT (LESS THAN 10% SLOPE)
- NO TREES TO BE REMOVED.

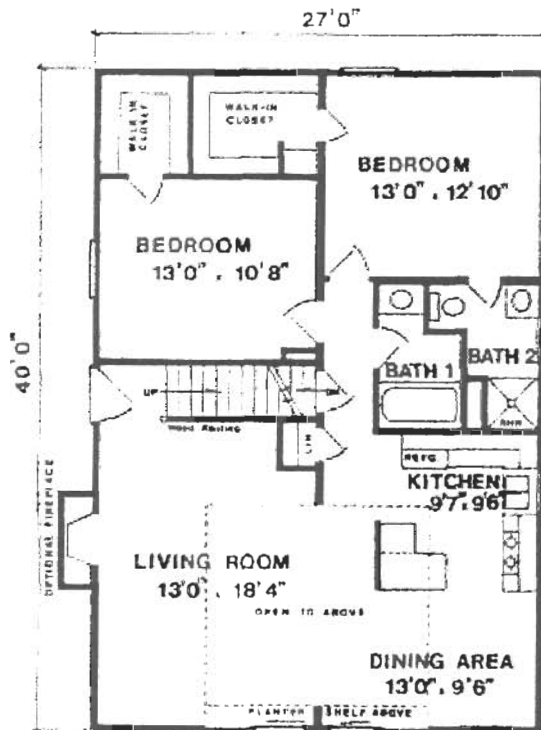
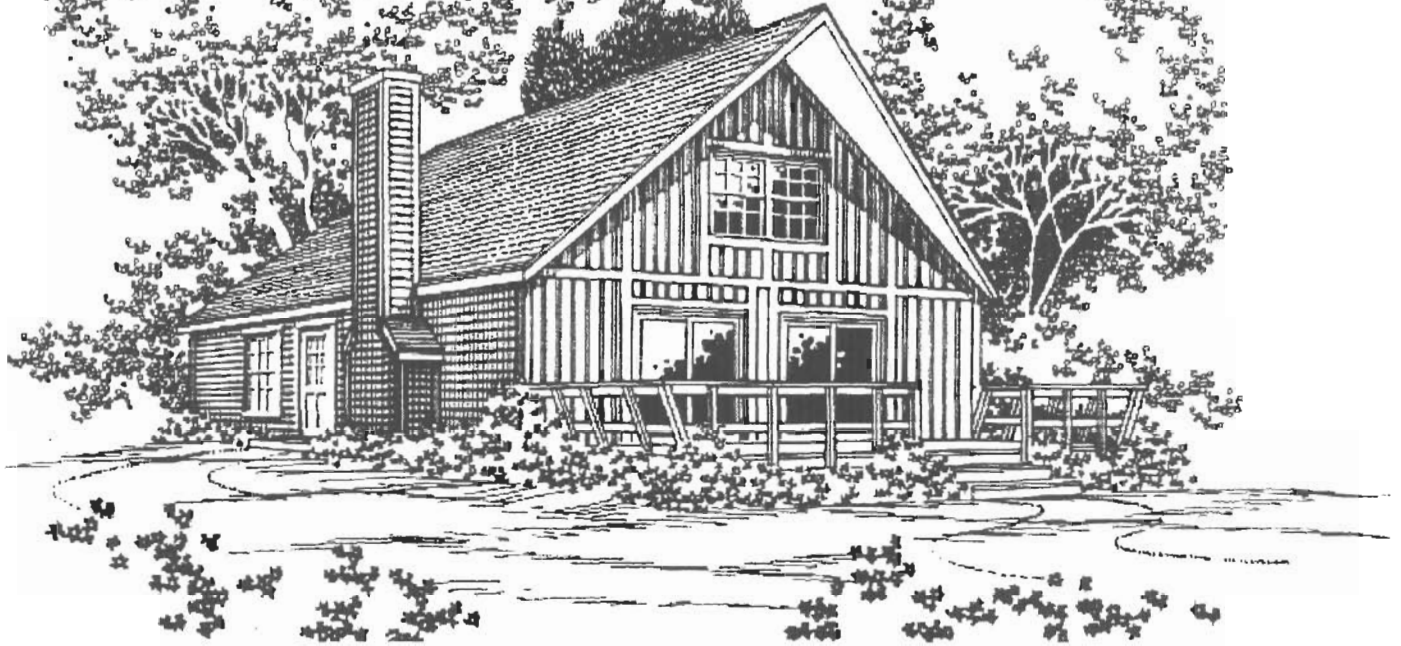
GERSTLE RESIDENCE

PRELIMINARY SITE PLAN

Sarah J. Atkins
835 THIRD STREET EUREKA, CA 95501 (707) 476-0963

Date	AS NOTED	APN 517-071-032
Scale	Design	Drawn
1:51 DRIETWOOD LANE TRINIDAD, CA	1:51 DRIETWOOD LANE TRINIDAD, CA	1:51 DRIETWOOD LANE TRINIDAD, CA
FOR: PHILIP AND MANETTE GERSTLE	908 VISTA HEIGHTS RD	FI CERRITO, CA 94530-6513

The Fir



LOWER FLOOR PLAN



FIELD CONSTRUCTION-
SUGGESTED UPPER FLOOR PLAN

1,040 Square feet
3 Bedrooms
2 Baths

Square footage does not
include upstairs bonus area.

2 of 2

The elevation shown is for illustration purposes only. The actual elevation may change due to availability of products.



LACO ASSOCIATES

ENGINEERS • GEOLOGISTS • ENVIRONMENTAL CONSULTANTS

LEONARD M. OSBORNE • CE 38573
DAVID R. GERMAN • CE 57282
DAVID N. LINDBERG • PG 5581/CEG 1895
FRANK R. BICKNER • PG 7428
RONALD C. CHANEY, Ph.D. • CE 29027/GE 00934

March 15, 2006

EXHIBIT NO. 5

APPLICATION NO.

1-06-020

GERSTLE FAMILY TRUST

EXCERPTS, GEOLOGIC-
SOILS REPORT (1 of 4)

6334.00

County of Humboldt
Department of Building
3015 H Street
Eureka, California 95501

Subject: Limited-Scope Geologic/Soils Investigation
Proposed Residential Development; 151 Driftwood Lane, Trinidad, California
Assessor's Parcel Number (APN) 517-071-032

Dear Building Official:

Presented in this report are the results of our limited-scope geologic and soils characterization conducted at the above-referenced site. The project consists of the construction of a single-family residence and a detached garage on an undeveloped parcel. The residence will be served by an existing well and a new onsite septic system. This letter report addresses the suitability of the property for the proposed construction, with specific emphasis on groundwater conditions and depth to load-bearing soils. Our scope of work did not include an investigation of the suitability and/or design of the proposed septic system.

On March 1, 2006, a geologist from LACO ASSOCIATES (LACO) performed a site reconnaissance of the proposed building site and adjacent areas to evaluate the potential for geologic hazards to adversely affect the structure. Hand auger borings were installed on the subject property to characterize subgrade conditions.

SITE CONDITIONS

The project site is located on the east side of Driftwood Lane in Trinidad, California approximately 1,000 feet east of the coastline (Figure 1). The proposed structure is a single-family residence to be constructed on APN 517-071-032 (Figure 2). The proposed building area is located on generally flat ground with slope gradients on the site typically less than 5 percent. Topography is irregular with several topographic lows. A minor channel along the northern property boundary conveys surface runoff from slopes to the east (Figure 3).

Because the structure is to be built on a flat lot, the primary concerns were the thicknesses of soft compressible soils and/or fill materials, surface drainage, and groundwater conditions.

Soil Profile and Characteristics

To assess the native soils and/or historic fill materials underlying the proposed building footprint and to assess groundwater conditions, we installed three shallow hand auger borings (HB-1, HB-2, and HB-3). Locations of our borings are indicated on Figure 3. The undisturbed native soils underlying the building site consist of approximately 1.5 feet of silty, organic-rich topsoil (ML) underlain by medium dense, dark yellowish brown silty sands (SM) and poorly-graded sands (SP) to the total depth of our borings, approximately 5 feet below ground surface (bgs). Native undisturbed soils encountered below the native topsoil appear suitably dense to bear the anticipated loads of the proposed structures. We have attached boring logs for HB-1 and HB-2 (Figure 4 and 5). Hand boring HB-3 revealed a soil profile and groundwater depth identical to HB-2; therefore, we have not included a log for HB-3.

Surface and Groundwater Conditions

Trinidad, and much of Northern California, received heavy precipitation for 3 to 4 days prior to our field investigation. Groundwater levels at the site were likely at, or near, their peak heights. Surface water was observed flowing within the minor channel and some of the topographic lows contained ponded water. Areas vegetated with hydrophilic plants and grasses suggest that soils in these areas remain saturated by perched water during parts of the wet season. The approximate location of these wet areas as well as general locations of standing water is indicated on Figure 3.

Groundwater within the central portions of the property was observed to be at or near the surface during our field investigation (HB-2 and HB-3). Groundwater within HB-1, however, was observed at 4 feet bgs. Native soils underlying the property appear to be poorly-drained. Water observed at or near the surface appears to be perched on the native undisturbed sediments, saturating the upper 1 to 1.5 feet of topsoil. Any developments on the subject property, including structures, driveways, sidewalks, and patios should factor the poor drainage characteristics of the native soils and periodic high groundwater into their design.

DISCUSSIONS AND CONCLUSIONS

Based upon our review of the building site, surrounding terrain, and soil profile, we feel that no further soil mechanics analyses are required; therefore, no geotechnical engineer consultation is warranted. Native, mineralized soils present beginning at 1.5 to 2 feet bgs appear suitably dense to bear the anticipated structural loads that will be imposed by the single-family residence and the detached garage.

Groundwater at/or near the surface can effect a residential structure by lowering the ultimate bearing capacity of the soils and introducing excessive moisture within the crawl space below the floor. We anticipate that a concrete perimeter foundation with isolated spread footings is to

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be utilized for the residence. This type of foundation is suitable for the existing site conditions provided that it is designed to mitigate the above-mentioned problems associated with shallow groundwater.

RECOMMENDATIONS

We recommend two alternatives: (1) raise the building pad using imported engineered fill materials to a sufficient height that the base of the foundation for the residence will be above the maximum groundwater height; or (2) design and construct the foundation to bear directly on the yellowish brown silt and silty sand at 1.5 to 2 feet bgs utilizing a reduced bearing capacity (see recommendations below). Whichever method is chosen, the finished grade surrounding the residence should be graded such that surface runoff is directed away from the foundation elements and the finished grade within the building footprint (beneath the residence) should be at least 6 inches above the maximum height of the water table so that water does not pond. Any measures taken to positively drain the surface water will improve the longevity of any future developments.

If alternative 1 is chosen, a code foundation can be used. For foundation elements embedded completely within engineered fill, compacted to 90 percent relative compaction (RC), we assign a bearing capacity of 2,000 pounds per square foot (psf) for dead load plus long-term live load. For short-term live loads (wind and seismic) the bearing capacity may be increased to 2,500 psf. The base of the fill materials should be founded on the yellowish brown silt/silty sand beginning at 1.5 to 2 feet bgs. The surface to receive the fill should be cut into flat benches, and should be scarified, moisture-conditioned to near-optimum, and compacted mechanically to no less than 90 percent RC so that no settlement will occur. All fill materials should be well-graded, imported granular material, such as crushed quarry rock or river-run gravels (100 percent passing 3-inch sieve). Native soils on the site may be usable for this fill if analyzed in the LACO materials testing laboratory prior to use. Structural fills for this project should be compacted, as specified in "Compaction Standard" below, to at least 90 percent RC throughout the majority of the pad and below foundation elements.

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 (whichever is soonest). Approved fill material should be placed in loose lifts no more than 8 inches thick, at uniform moisture content (at or near optimum), and compacted mechanically. Sufficient testing and inspection (as determined by the authors of this report) should be performed to assure compliance with the recommended compaction standards.

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-

324


2922 *in-situ* measurement of dry unit weight. Maximum dry unit weight should be determined using ASTM Laboratory Test Method D-1557.

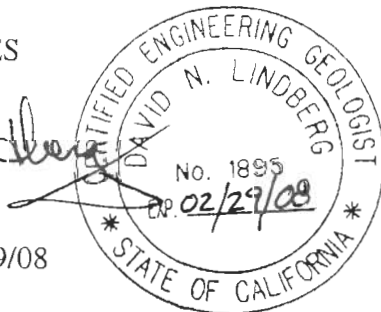
If alternative 2 is chosen, foundation spread footings (perimeter and interior) should be embedded at least 6 inches into the native undisturbed mineralized soils, in which case we assign a bearing capacity of 1,000 pounds psf for dead load plus long-term live load. If site topography permits, perimeter drains that surround the footings and drain shallow groundwater toward the drainage ditch on the northern property boundary should be considered. For short-term live loads (wind and seismic), the bearing capacity may be increased to 1,300 psf. Provided our recommendations are adhered to, total and differential settlement is expected to be minimal and is not anticipated to negatively affect the proposed structure.

The prepared subgrade surface to receive fill materials (alternative 1) and/or the footing and foundation excavations (alternatives 1 and 2) should be inspected by the project geologist (or his designated representative) prior to the placement of any fills, forms, reinforcing steel, or concrete.

Please feel free to contact Jason Buck if you have any questions or need additional information.

Sincerely,
LACO ASSOCIATES


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



JPB:cs

Enclosures

cc: Jesse Buffington, Omsberg and Preston

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