



COUNTY OF MENDOCINO
DEPARTMENT OF PLANNING AND BUILDING SERVICES
860 NORTH BUSH STREET • UKIAH • CALIFORNIA • 95482
120 WEST FIR STREET • FT. BRAGG • CALIFORNIA • 95437

BRENT SCHULTZ, DIRECTOR
TELEPHONE: 707-234-6650
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pbs@mendocinocounty.org
www.mendocinocounty.org/pbs

January 3, 2020

Planning – Ukiah
Department of Transportation
Environmental Health - Fort Bragg
Building Inspection - Fort Bragg
Assessor
Archaeological Commission

Sonoma State University
Native Plant Society
CalFire – Prevention
Department of Fish and Wildlife
California Coastal Commission
Gualala Municipal Advisory Council

South Coast Fire District
Cloverdale Rancheria
Redwood Valley Rancheria
Sherwood Valley Band of Pomo Indians

CASE#: CDP_2019-0049

DATE FILED: 12/6/2019

OWNER/APPLICANT: NATSUKI FUKASAWA AND RICHARD CIONCO

AGENT: WYNN COASTAL PLANNING

REQUEST: Standard Coastal Development Permit request to construct a single-family residence and ancillary development.

LOCATION: In the Coastal Zone, 4.7± miles south of Point Arena town center, on the west side Iversen Lane (CR 532), 0.25± miles northeast of State Route 1 (SR 1) and Iversen Rd. (CR 503), located at 46880 Iversen Lane, Gualala, (APN: 142-010-52-05).

ENVIRONMENTAL DETERMINATION: Categorically Exempt.

SUPERVISORIAL DISTRICT: 5

STAFF PLANNER: JESSIE WALDMAN

RESPONSE DUE DATE: January 17, 2020

PROJECT INFORMATION CAN BE FOUND AT:

<https://www.mendocinocounty.org/government/planning-building-services/public-agency-referrals>

Mendocino County Planning & Building Services is soliciting your input, which will be used in staff analysis and forwarded to the appropriate public hearing. You are invited to comment on any aspect of the proposed project(s). Please convey any requirements or conditions your agency requires for project compliance to the project coordinator at the above address, or submit your comments by email to pbs@mendocinocounty.org. Please note the case number and name of the project coordinator with all correspondence to this department.

We have reviewed the above application and recommend the following (please check one):

- ☐ No comment at this time.
- ☐ Recommend conditional approval (attached).
- ☐ Applicant to submit additional information (attach items needed, or contact the applicant directly, copying Planning and Building Services in any correspondence you may have with the applicant)
- ☐ Recommend denial (Attach reasons for recommending denial).
- ☐ Recommend preparation of an Environmental Impact Report (attach reasons why an EIR should be required).
- ☐ Other comments (attach as necessary).

REVIEWED BY:

Signature _____ Department _____ Date _____

OWNER/
APPLICANT: Natsuki Fukasawa and Richard Cionco

AGENT: Wynn Coastal Planning

REQUEST: Standard Coastal Development Permit request to construct a single-family residence and ancillary development.

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APN/S: 142-010-52-05

PARCEL SIZE: 1± Acres

GENERAL PLAN: Rural Residential RR5(1):R

ZONING: Rural Residential RR5(1)

EXISTING USES: Vacant

DISTRICT: 5th Supervisorial District (Williams)

RELATED CASES:

	<u>ADJACENT GENERAL PLAN</u>	<u>ADJACENT ZONING</u>	<u>ADJACENT LOT SIZES</u>	<u>ADJACENT USES</u>
NORTH:	Rural Residential RR5(RR1)	Rural Residential RR5(RR1)	1.0± Acres	Residential
EAST:	Rural Residential RR5(RR1)	Rural Residential RR5(RR1)	1.0± Acres	Residential
SOUTH:	Rural Residential RR5(RR1)	Rural Residential RR5(RR1)	2.0± Acres	Residential
WEST:	Rural Residential RR5(RR1)	Rural Residential RR5(RR1)	1.0± Acres	Residential

LOCAL

- ☒ Archaeological Commission
- ☒ Assessor's Office
- ☒ Building Division FB
- ☒ Department of Transportation (DOT)
- ☒ Environmental Health (EH)(FB)
- ☒ SOUTH COAST Fire District
- ☒ GUALALA MAC

- ☒ Planning Division (UKIAH)
- ☒ Sonoma State University

STATE

- ☒ CALFIRE (Land Use)
- ☒ California Coastal Commission
- ☒ California Dept. of Fish & Wildlife
- ☒ California Native Plant Society

TRIBAL

- ☒ Cloverdale Rancheria
- ☒ Redwood Valley Rancheria
- ☒ Sherwood Valley Band of Pomo Indians

ADDITIONAL INFORMATION:

STAFF PLANNER: JESSIE WALDMAN

DATE: 12/24/2019

ENVIRONMENTAL DATA

1. MAC:

GIS

GUALALA

2. FIRE HAZARD SEVERITY ZONE:

CALFIRE FRAP maps/GIS

HIGH FIRE HAZARD

3. FIRE RESPONSIBILITY AREA:

CALFIRE FRAP maps/GIS

CalFire (State Responsible Agency)

South Coast Fire District (Local Responsible Agency)

4. FARMLAND CLASSIFICATION:

GIS

GRAZING (G)

5. FLOOD ZONE CLASSIFICATION:

FEMA Flood Insurance Rate Maps (FIRM)

NO

6. COASTAL GROUNDWATER RESOURCE AREA:

Coastal Groundwater Study/GIS

CRITIACAL WATER AREAS

7. SOIL CLASSIFICATION:

Mendocino County Soils Study Eastern/Western Part

117—Cabrillo-Heeser complex; 139—Dystropepts,

8. PYGMY VEGETATION OR PYGMY CAPABLE SOIL:

LCP maps, Pygmy Soils Maps; GIS

NO

9. WILLIAMSON ACT CONTRACT:

GIS/Mendocino County Assessor’s Office

NO

10. TIMBER PRODUCTION ZONE:

GIS

NO

11. WETLANDS CLASSIFICATION:

GIS

NO

12. EARTHQUAKE FAULT ZONE:

Earthquake Fault Zone Maps; GIS

NO

13. AIRPORT LAND USE PLANNING AREA:

Airport Land Use Plan; GIS

NO

14. SUPERFUND/BROWNFIELD/HAZMAT SITE:

GIS; General Plan 3-11

NO

15. NATURAL DIVERSITY DATABASE:

CA Dept. of Fish & Wildlife Rarefind Database/GIS

YES

16. STATE FOREST/PARK/RECREATION AREA ADJACENT:

GIS; General Plan 3-10

NO

17. LANDSLIDE HAZARD:

Hazards and Landslides Map; GIS; Policy RM-61; General Plan 4-44

NO

18. WATER EFFICIENT LANDSCAPE REQUIRED:

Policy RM-7; General Plan 4-34

NO

19. WILD AND SCENIC RIVER:

www.rivers.gov (Eel Only); GIS

NO

20. SPECIFIC PLAN/SPECIAL PLAN AREA:

Various Adopted Specific Plan Areas; GIS

YES - SPECIAL TREATMENT ARES

21. STATE CLEARINGHOUSE REQUIRED:

Policy

NO

22. OAK WOODLAND AREA:

USDA

NO

23. HARBOR DISTRICT:

Sec. 20.512

NO

FOR PROJECTS WITHIN THE COASTAL ZONE ONLY

24. LCP LAND USE CLASSIFICATION:

LCP Land Use maps/GIS

LAND USE MAP 28 - SCHOONER GULCH

25. LCP LAND CAPABILITIES & NATURAL HAZARDS:

LCP Land Capabilities maps/GIS; 20.500

NON-PRIME AG; BEACH DPOSITS & STREAM ALLUVIUM & TERRAE (ZONE 3);

COASTAL EROSION (3a)

26. LCP HABITATS & RESOURCES:

LCP Habitat maps/GIS; 20.496

BARREN

27. COASTAL COMMISSION APPEALABLE AREA:

Post LCP Certification Permit and Appeal Jurisdiction maps/GIS; 20.544

YES

28. CDP EXCLUSION ZONE:

CDP Exclusion Zone maps/GIS

NO

29. HIGHLY SCENIC AREA:

Highly Scenic & Tree Removal Area Maps/GIS; Secs. 20.504.015, 20.504.020

NO

30. BIOLOGICAL RESOURCES & NATURAL AREAS:

Biological Resources & Natural Area Map; GIS; General Plan 4-9

NO

31. BLUFFTOP GEOLOGY:

GIS; 20.500.020

NO

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Case No(s)	CDP-2019-0049
CDF No(s)	560-19
Date Filed	12.6.2019
Fee	6471.55
Receipt No.	FRJ-0320421
Received by	Mio Mendez
Office Use Only	

COASTAL ZONE APPLICATION FORM

APPLICANT

Name ^a Natsuki Fukasawa and Richard Cionco
Mailing Address 2724 6th Avenue
City Sacramento State CA Zip Code 95818 Phone (916) 585-1190 ~~100~~

PROPERTY OWNER

Name Same as above
Mailing Address
City State Zip Code Phone

AGENT

Name Blair Foster/ Wynn Coastal Planning
Mailing Address 703 North Main Street
City Fort Bragg State CA Zip Code 95437 Phone (707) 964-2537

PARCEL SIZE

.96 ☐ Square feet
☒ Acres

STREET ADDRESS OF PROJECT

46880 Iversen Lane, Gualala, CA 95445

ASSESSOR'S PARCEL NUMBER(S)

142-010-52-05

I certify that the information submitted with this application is true and accurate.

Blair M. Foster
Signature of Applicant/Agent

11.15.2019
Date

[Signature]
Signature of Owner

11/22/19
Date

COASTAL ZONE - SITE AND PROJECT DESCRIPTION QUESTIONNAIRE

The purpose of this questionnaire is to relate information concerning your application to the Planning and Building Services Department and other agencies who will be reviewing your project proposal. Please remember that the clearer picture that you give us of your project and the site, the easier it will be to promptly process your application. Please answer all questions. Those questions which do not pertain to your project, please indicate "Not Applicable" or "N/A".

THE PROJECT

1. Describe your project and include secondary improvements such as wells, septic systems, grading, vegetation removal, roads, etc.

Develop a 1850 square foot Single-Family Residence with attached carport, septic system, and driveway.

2. If the project is residential, please complete the following:

TYPE OF UNIT	NUMBER OF STRUCTURES	SQUARE FEET PER DWELLING UNIT
<input checked="" type="checkbox"/> Single Family	1	1850
<input type="checkbox"/> Mobile Home	_____	_____
<input type="checkbox"/> Duplex	_____	_____
<input type="checkbox"/> Multifamily	_____	_____

If Multifamily, number of dwelling units per building: _____

3. If the project is commercial, industrial, or institutional, complete the following:

Total square footage of structures: _____
 Estimated employees per shift: _____
 Estimated shifts per day: _____
 Type of loading facilities proposed: _____

4. Will the proposed project be phased? ☐ Yes ☒ No
 If Yes, explain your plans for phasing.

5. Are there existing structures on the property? ☐ Yes ☒ No
If yes, describe below and identify the use of each structure on the plot plan.

6. Will any existing structures be demolished? ☐ Yes ☒ No
Will any existing structures be removed? ☐ Yes ☒ No

If yes to either question, describe the type of development to be demolished or removed, including the relocation site, if applicable.

7. Project Height. Maximum height of structure 27.5 feet.

8. Lot area (within property lines): .92 ☐ square feet ☒ acres

9. Lot Coverage:

	EXISTING	NEW PROPOSED	TOTAL
Building coverage	<u>0</u> square feet	<u>1244</u> square feet	<u>1244</u> square feet
Paved area	<u>0</u> square feet	<u>1716</u> square feet	<u>1716</u> square feet
Landscaped area	<u> </u> square feet	<u> </u> square feet	<u> </u> square feet
Unimproved area	<u>40,071.53</u> square feet	<u>37,111.53</u> square feet	<u>37,111.53</u> square feet

GRAND TOTAL: 40,071.53 square feet
(Should equal gross area of parcel)

10. Gross floor area: 1850 square feet (including covered parking and accessory buildings).

11. Parking will be provided as follows:

Number of Spaces	Existing <u> </u>	Proposed <u>2</u>	Total <u>2</u>
Number of covered spaces	<u>1</u>		Size <u>376 square feet</u>
Number of uncovered spaces	<u>1</u>		Size <u>240 square feet</u>
Number of standard spaces	<u> </u>		Size <u> </u>
Number of handicapped spaces	<u> </u>		Size <u> </u>

12. Utilities will be supplied to the site as follows:

A. Electricity

☒ Utility Company (service exists to the parcel).

☐ Utility Company (requires extension of services to site: _____ feet _____ miles)

☐ On Site generation, Specify: _____

☐ None

B. Gas

☒ Utility Company/Tank

☐ On Site generation, Specify: _____

☐ None

C. Telephone: ☐ Yes ☐ No

13. Will there be any exterior lighting? ☒ Yes ☐ No

If yes, describe below and identify the location of all exterior lighting on the plot plan and building plans.

Shielded down-cast lighting

14. What will be the method of sewage disposal?

☐ Community sewage system, specify supplier _____

☒ Septic Tank

☐ Other, specify _____

15. What will be the domestic water source?

☐ Community water system, specify supplier _____

☒ Well

☐ Spring

☐ Other, specify _____

16. Is any grading or road construction planned? ☒ Yes ☐ No

If yes, grading and drainage plans may be required. Also, describe the terrain to be traversed (e.g., steep, moderate slope, flat, etc.).

For grading and road construction, complete the following:

A. Amount of cut: approx 142 cubic yards

B. Amount of fill: approx 165 cubic yards

C. Maximum height of fill slope: 4 feet

D. Maximum height of cut slope: 4 feet

E. Amount of import or export: 23 cubic yards

F. Location of borrow or disposal site: TBD

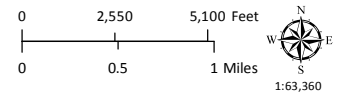
17.	Will vegetation be removed on areas other than the building sites and roads? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, explain:
18.	Does the project involve sand removal, mining or gravel extraction? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, detailed extraction, reclamation and monitoring may be required.
19.	Will the proposed development convert land currently or previously used for agriculture to another use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, how many acres will be converted? _____ acres (An agricultural economic feasibility study may be required.)
20.	Will the development provide public or private recreational opportunities? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, explain:
21.	Is the proposed development visible from: <div style="margin-left: 20px;"> A. State Highway 1 or other scenic route? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No B. Park, beach or recreation area? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No </div>
22.	Will the project involve the use or disposal of potentially hazardous materials such as toxic substances, flammables, or explosives? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, explain:
23.	Does the development involve diking, filling, dredging or placing structures in open coastal waters, wetlands, estuaries or lakes? <div style="margin-left: 20px;"> A. Diking <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No B. Filling <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No C. Dredging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No D. Placement of structures in open coastal waters, wetlands, estuaries or lakes <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No </div> <p style="margin-left: 20px;">Amount of material to be dredged or filled? <u>N/A</u> cubic yards.</p> <p style="margin-left: 20px;">Location of dredged material disposal site: <u>N/A</u></p> <p style="margin-left: 20px;">_____</p> <p style="margin-left: 20px;">Has a U.S. Army Corps of Engineers permit been applied for? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>

If you need additional room to answer any question, attach additional sheets.



CASE: CDP 2019-0049
 OWNER: CIONCO/FUKASAWA
 APN: 142-010-52-05
 APLCT: Natsuki Fukasawa & Richard Cionco
 AGENT: Blair Foster
 ADDRESS: 46880 Iversen Lane, Gualala

- Major Towns & Places
- City Limits
- Major Rivers
- Highways
- Major Roads



LOCATION MAP



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Named Rivers Driveways/Unnamed Roads

Public Roads

Private Roads

0 250 500 Feet
0 0.0425 0.085 Miles

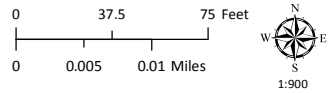
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AERIAL IMAGERY

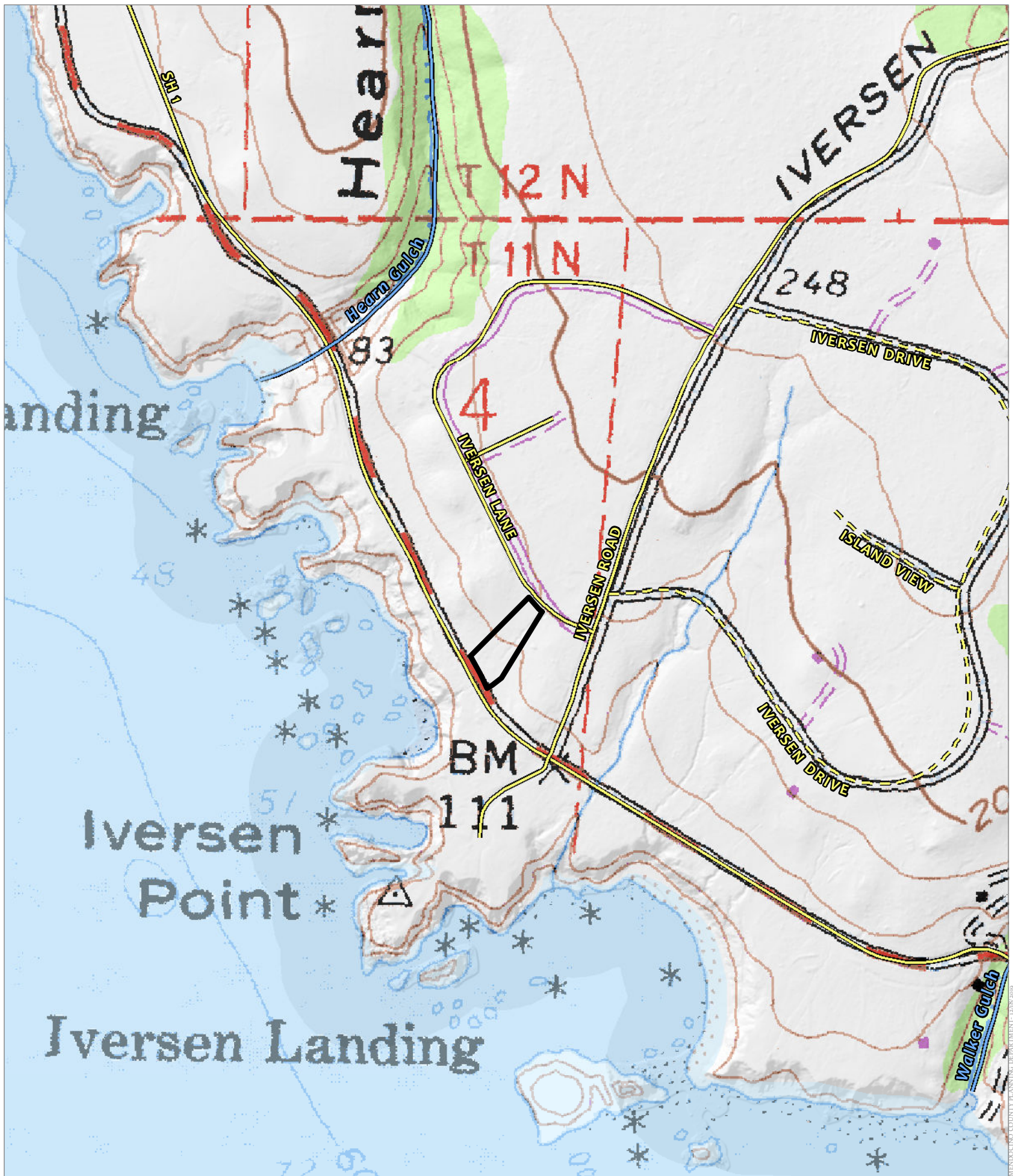


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Public Roads

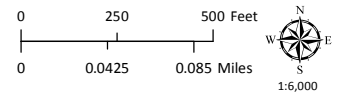


AERIAL IMAGERY



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- Named Rivers
- Public Roads
- Private Roads
- Driveways/Unnamed Roads



TOPOGRAPHIC MAP
 CONTOUR INTERVAL IS 40 FEET

Lands of Fukasawa - Cionco
Iversen Landing Unit No. 2
being a portion of fractional
Sections 3 & 4, Township 11 North,
Range 16 West, Mount Diablo Meridian
Mendocino County, CA

General Notes
General Plan Designation: RR 5 (1)
Zoning District: RR 5 (1)
Urban/Rural: Rural
Highly Scenic Area: No
Proposed Land Use: SFR
Appealable to Coastal Commission: Yes
Entitlement Permit Type: CDP
Yard Setbacks: 20' front & rear, 6' sides
CalFire Setbacks: N/A
Corridor Preservation Setback: 25' from centerline of Iversen Lane
Height Limit: 28'
Environmental Constraints: Yes, wetlands
Potential Geologic Hazards: No
Landscaping: No
Water Source: On-site well
Wastewater Disposal: On-site septic
Tree Removal: None

CDP Lot Coverage Tabulation
Gross Site Area: 0.92 ac (40,071.53 sf)
Maximum allowable lot coverage: 20% (8,014.31 sf)

Lot Coverage:
(P) Footprint Residence: 760 sf
(P) Footprint Carport: 394 sf
(P) Footprint - Covered Patios & Walks: 240 sf
Total Building Footprint: 1,384 sf

(P) Driveway & Parking: 1,476 sf
Total Driveway & Parking: 1,476 sf

Total Lot Coverage (Footprint): 2,860 sf (7.14%)

Landform Alteration:
Cut: Approx. 142 yards
Fill: Approx. 165 yards
Net Import: Approx. 23 yards

Sensitive Resources:
Legend Type Distance from Development

WETLANDS 22' ±
SLOUGH SEDGE SWARD 263' ±

(P) WHITE WATER UNIT

(P) SEPTIC TANK

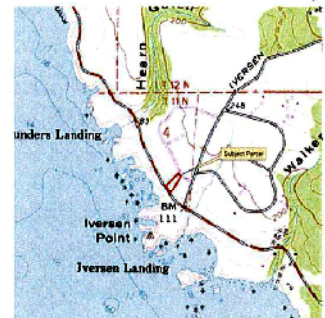
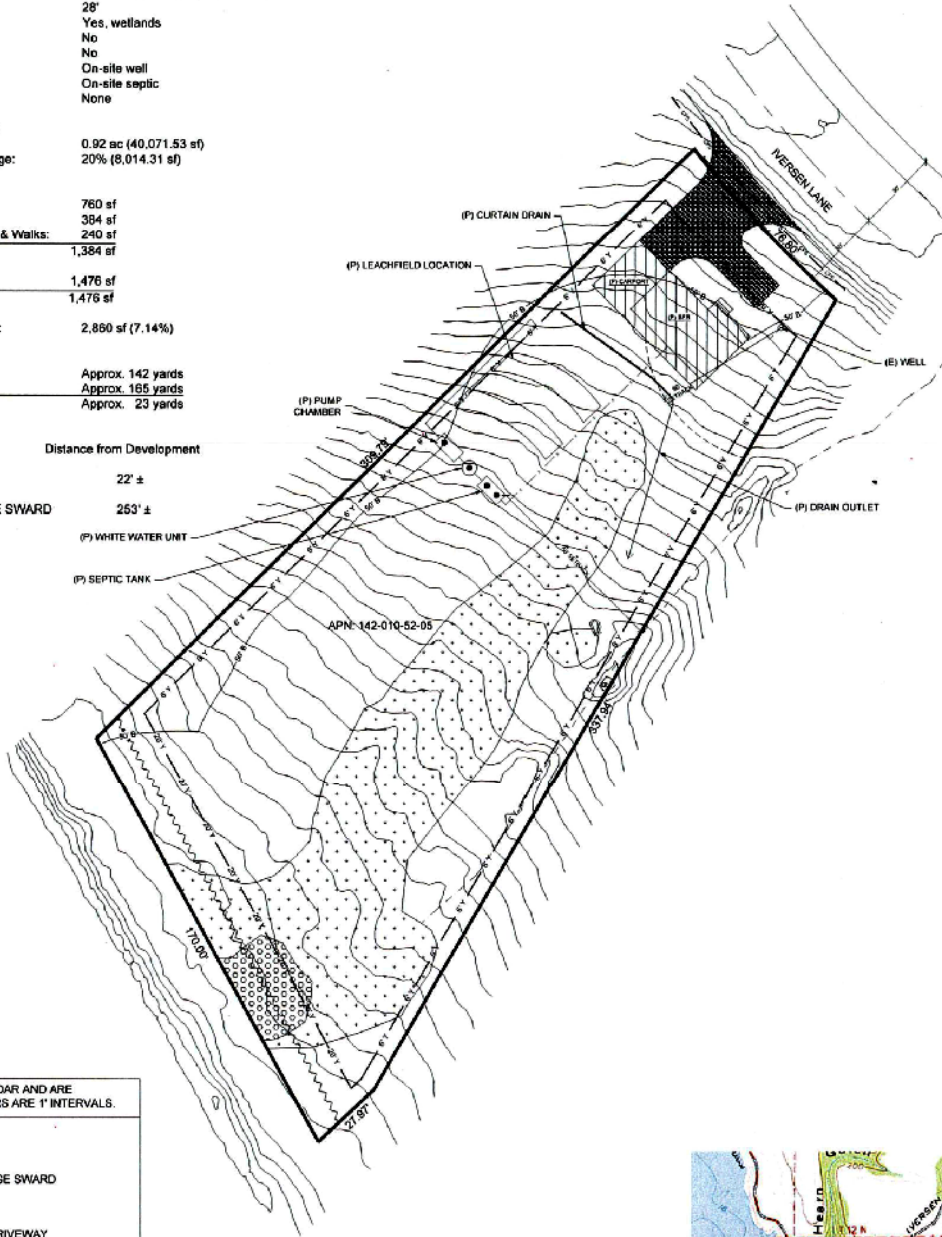
APN: 142-010-52-05

CONTOURS ARE FROM LIDAR AND ARE
APPROXIMATE. CONTOURS ARE 1' INTERVALS.

LEGEND:

WETLANDS
SLOUGH SEDGE SWARD
STREAM
(P) GRAVEL DRIVEWAY
(P) WATER LINE
(P) SEPTIC LINE
50' BUFFER
CORRIDOR PRESERVATION SETBACK
YARD SETBACK
ACCESS RIGHTS DEDICATED BY
MAP CASE 2, DRAWER 11, PAGE 82

SITE PLAN 1:20



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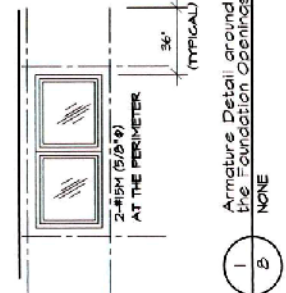
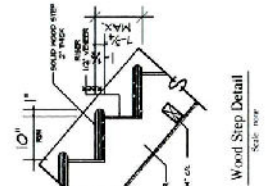
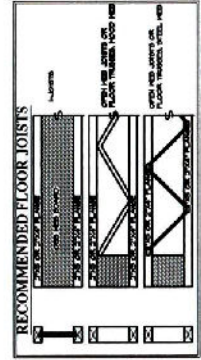
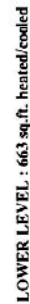
APLCT: Natsuki Fukasawa & Richard Cionco

AGENT: Blair Foster

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NO SCALE

SITE PLAN



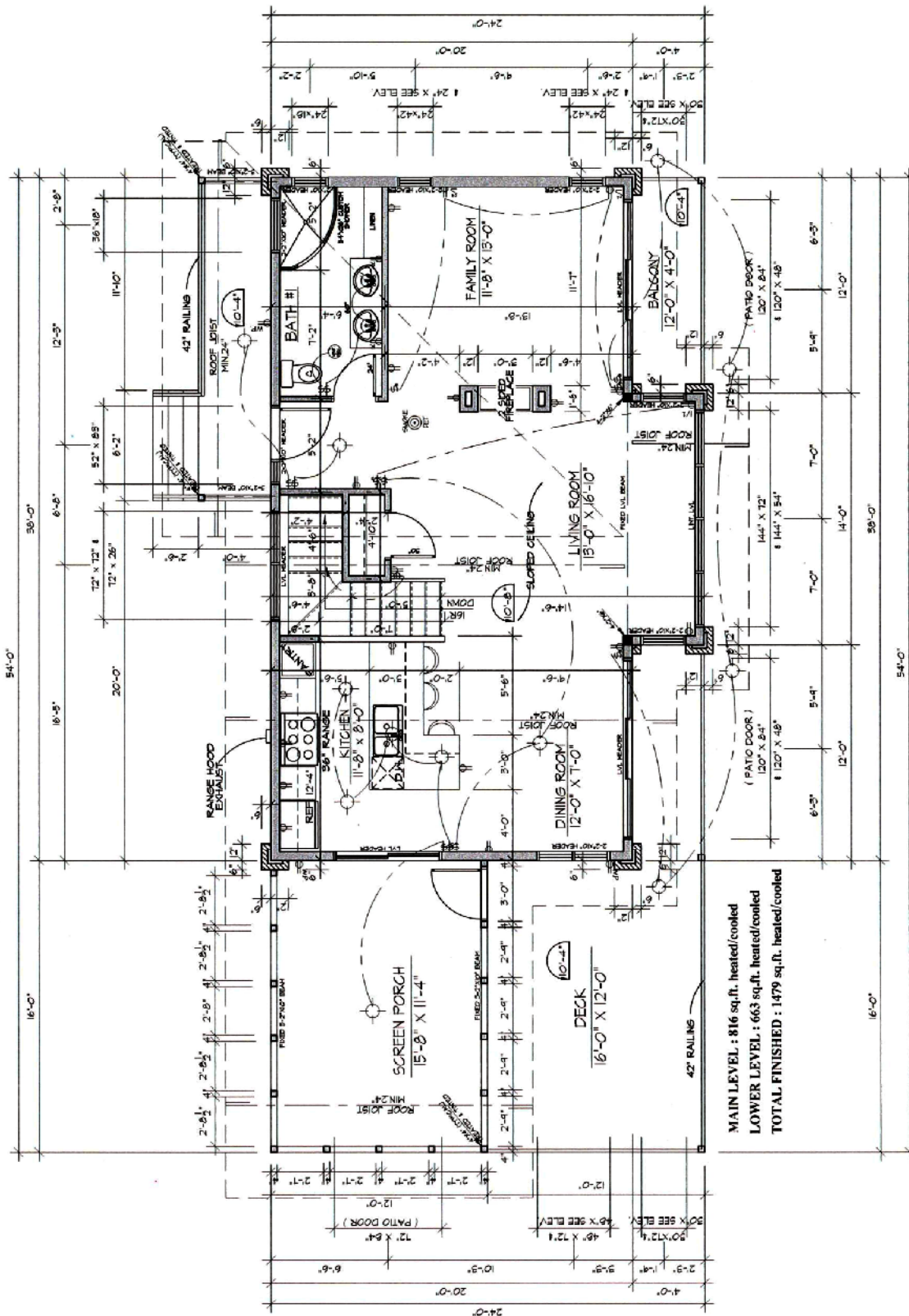
Armature Detail around the Foundation Openings

NONE

5

2

SANDRINO COUNTY PLANNING DEPARTMENT- 12/18/2019

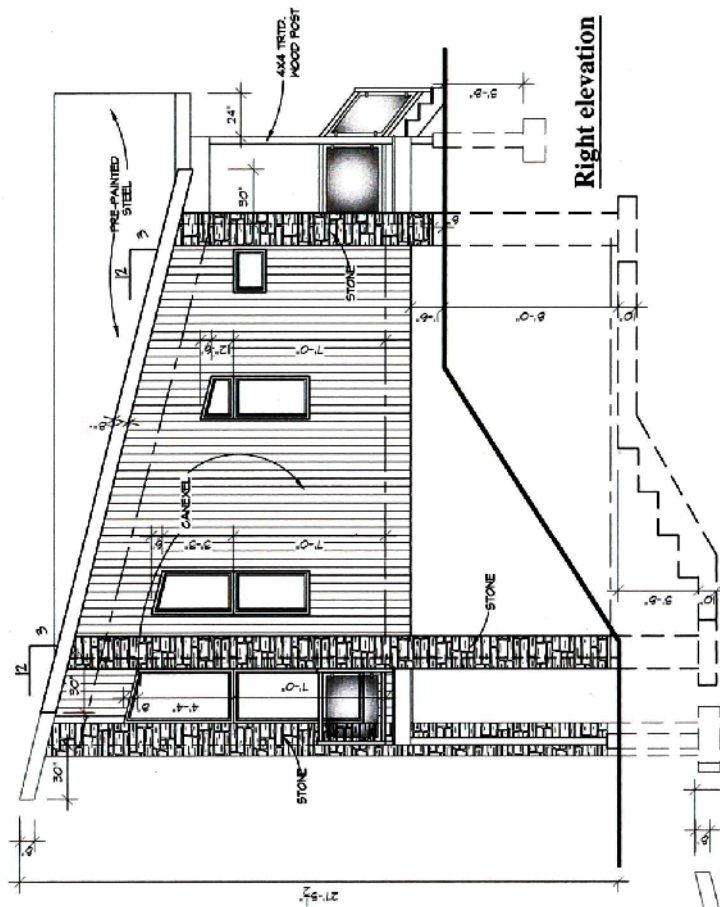


MAIN LEVEL : 816 sq.ft. heated/cooled
 LOWER LEVEL : 663 sq.ft. heated/cooled
 TOTAL FINISHED : 1479 sq.ft. heated/cooled

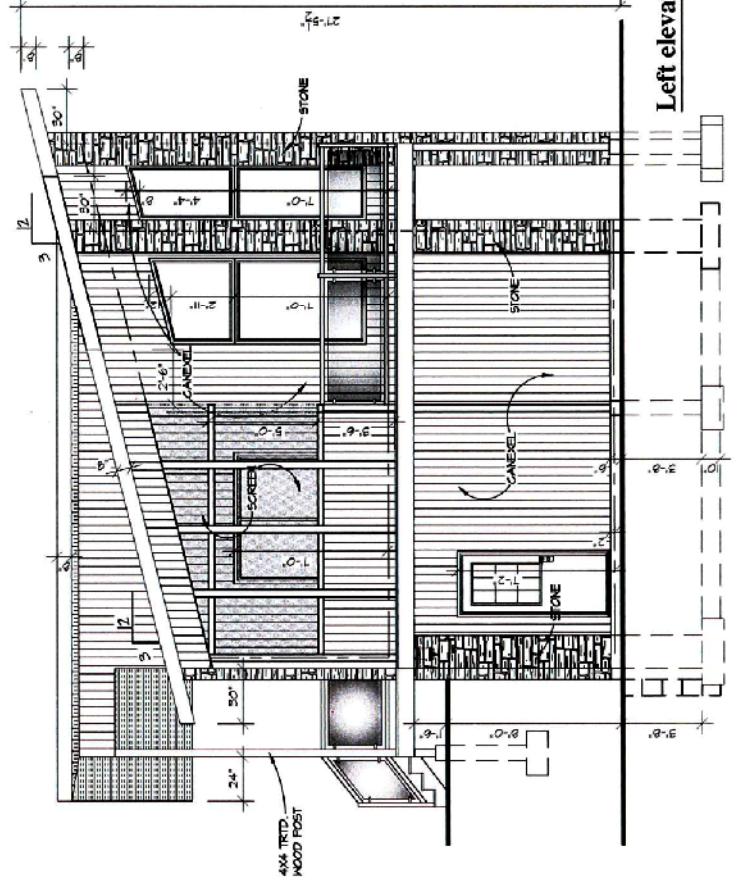
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NO SCALE

LOWER FLOOR PLAN



Right elevation

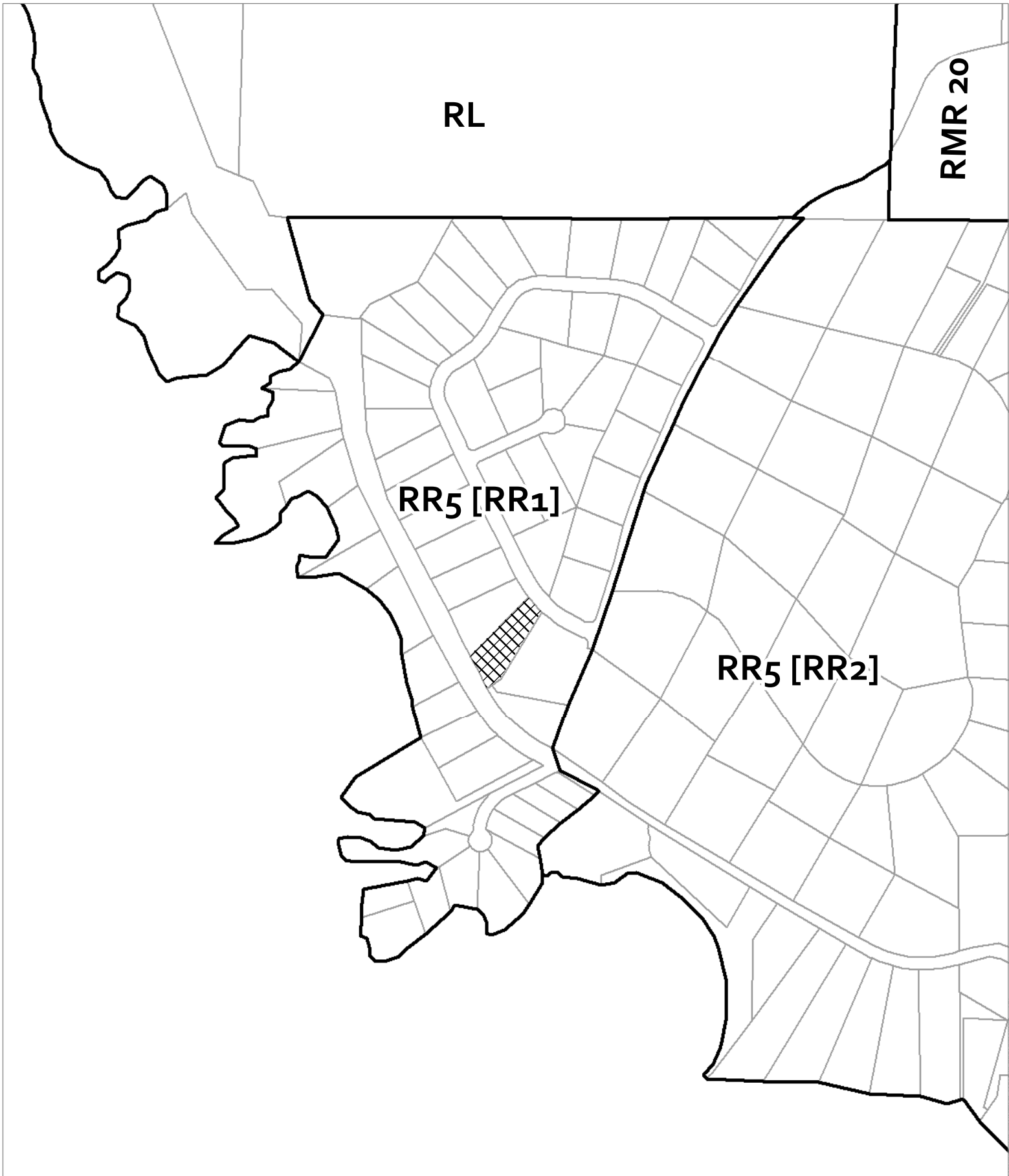


Left elevation

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NO SCALE

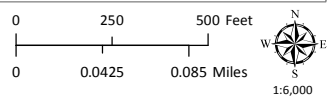
ELEVATIONS



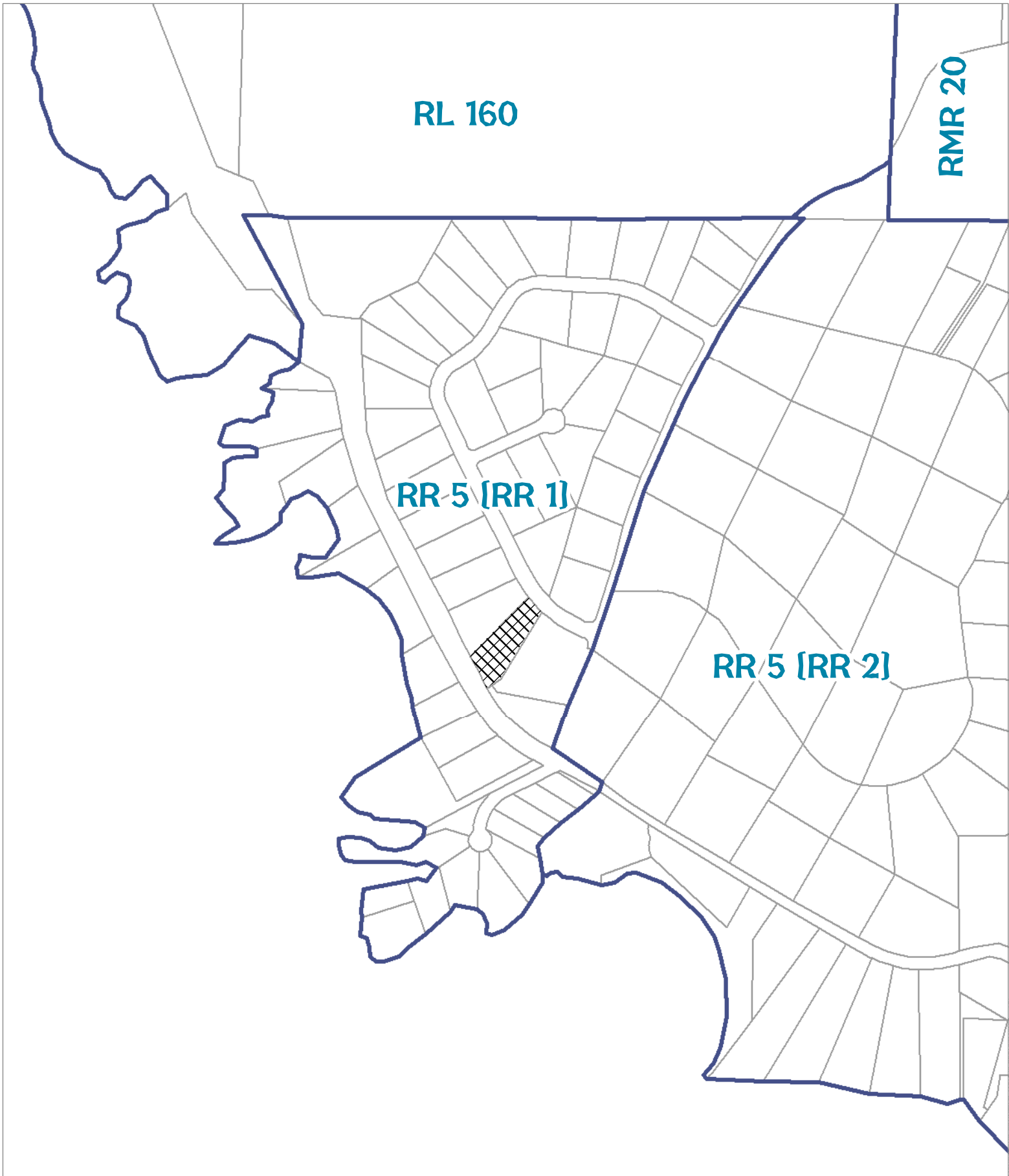
MENDOCINO COUNTY PLANNING DEPARTMENT 12/08/2019

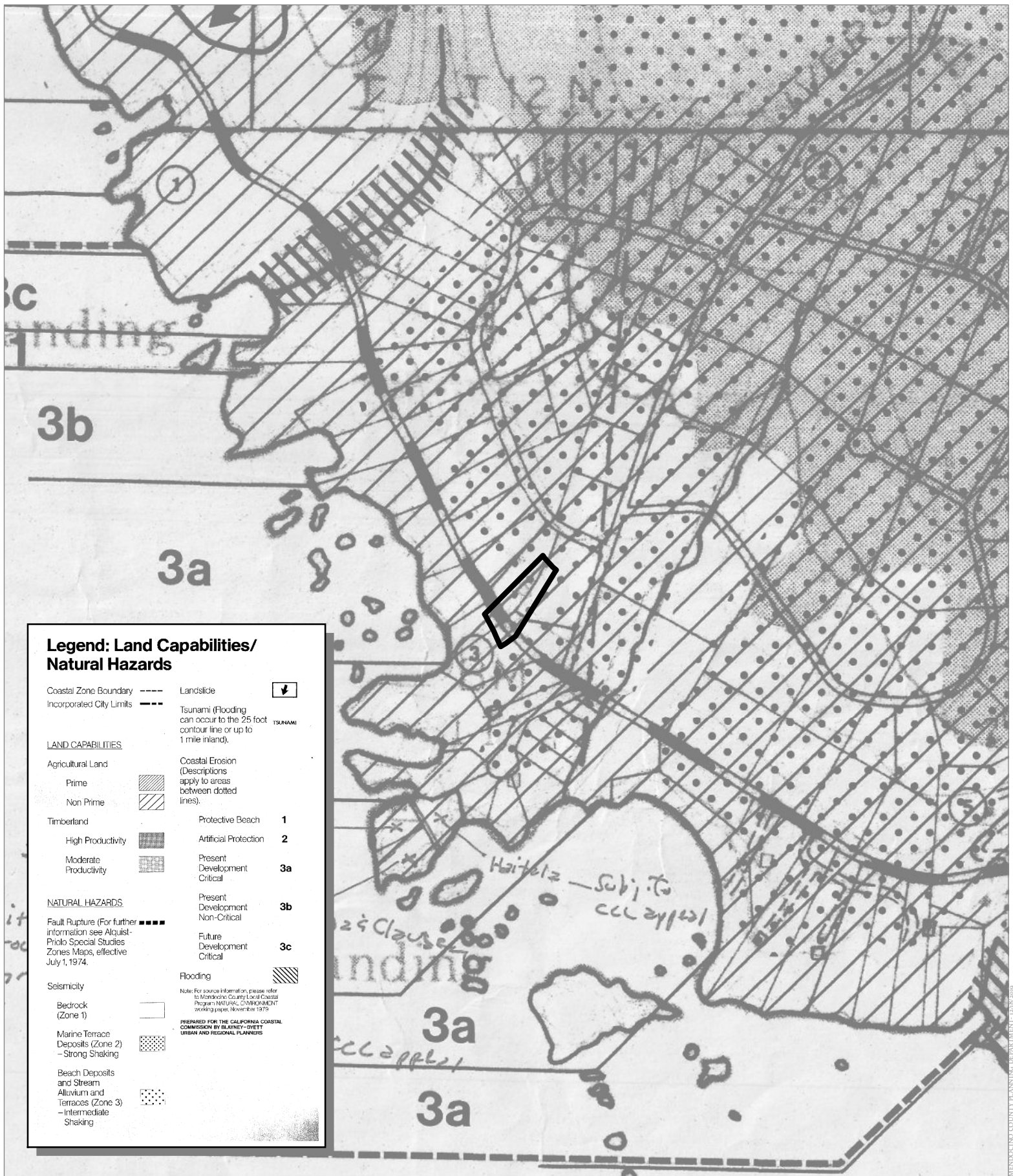
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-  Zoning Districts
-  Assessors Parcels



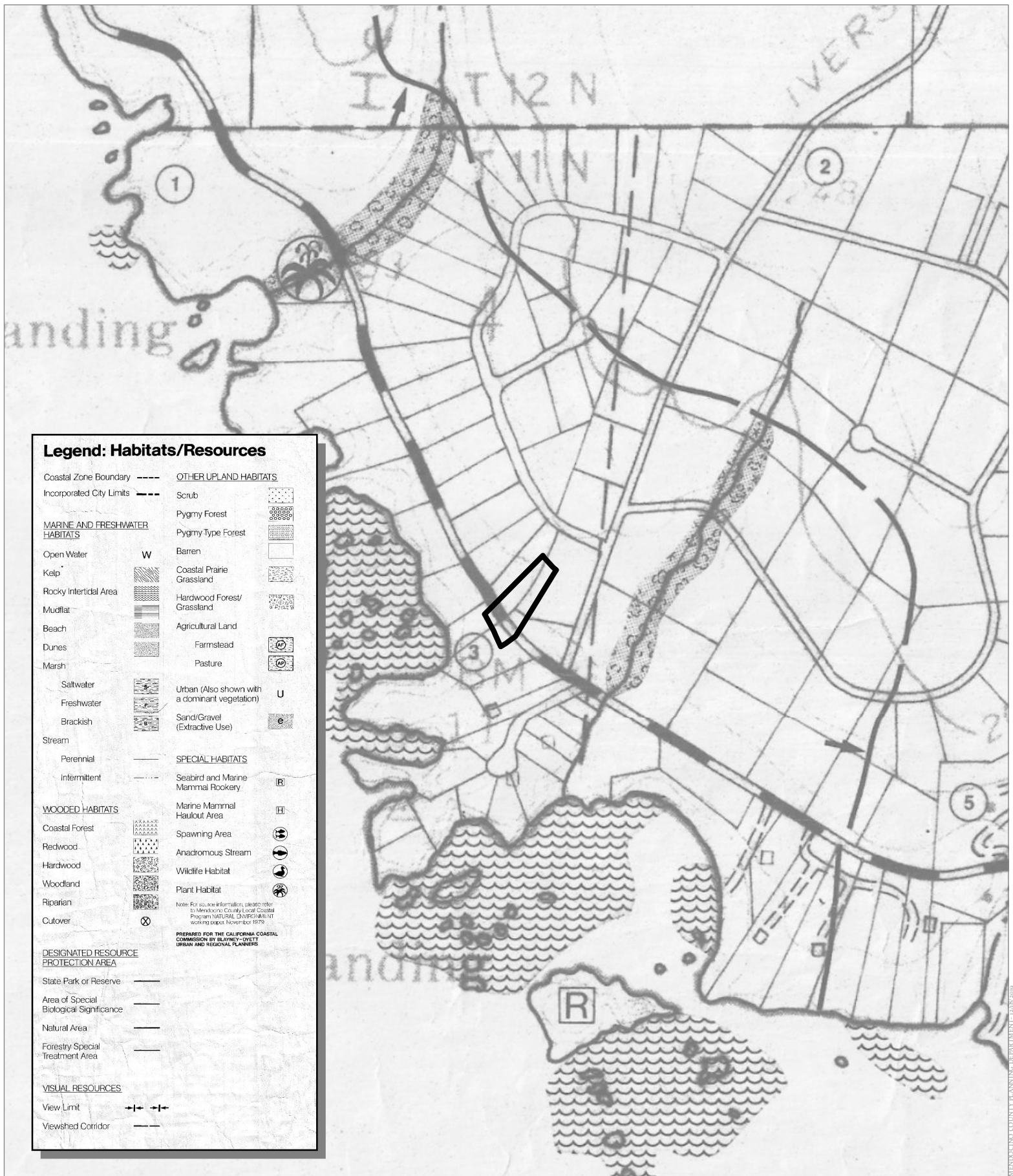
ZONING DISPLAY MAP



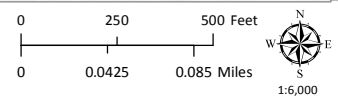


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LCP LAND CAPABILITIES & NATURAL HAZARDS



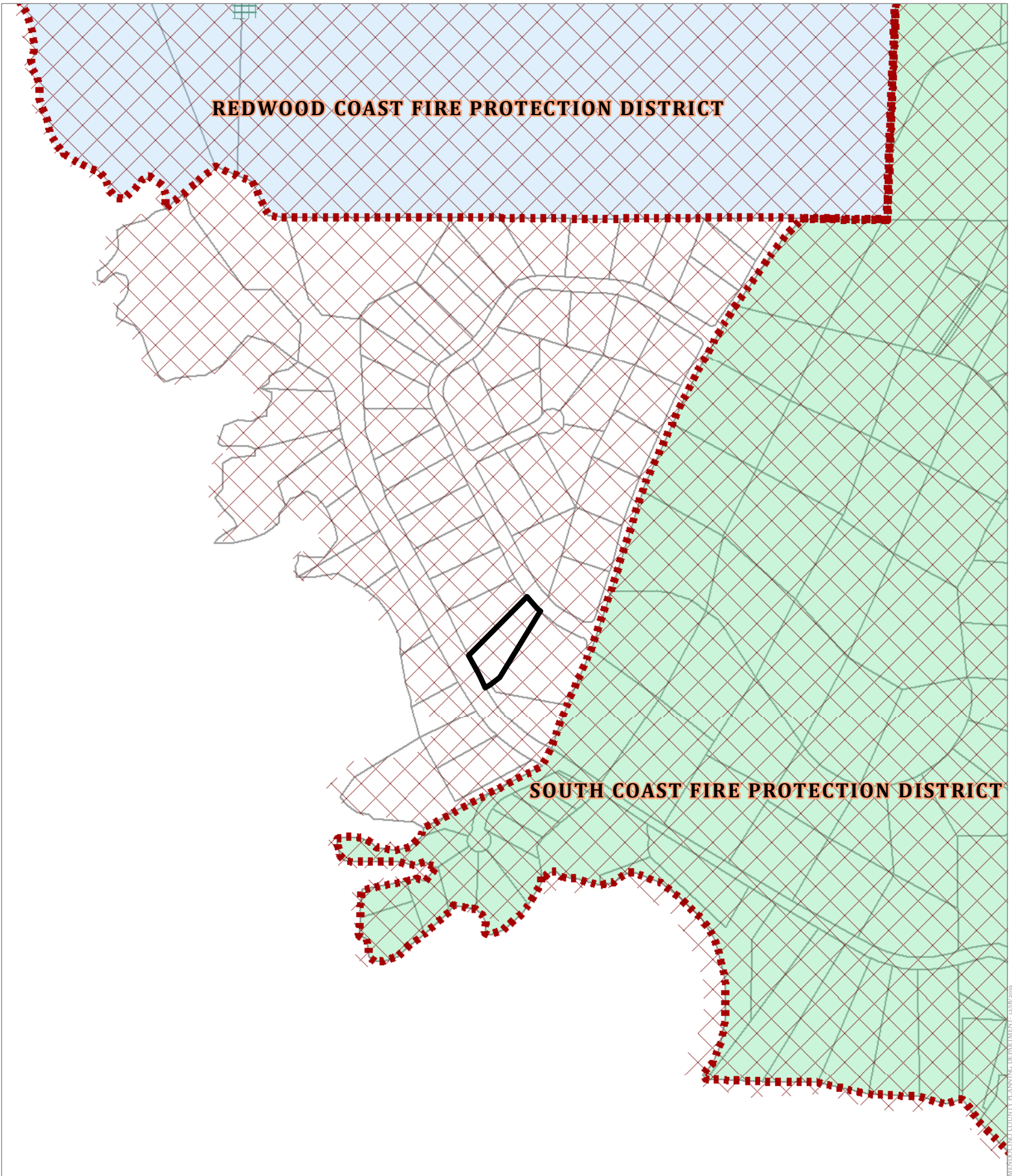
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 ADDRESS: 46880 Iversen Lane, Gualala





LCP HABITATS & RESOURCES




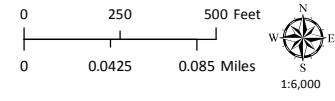
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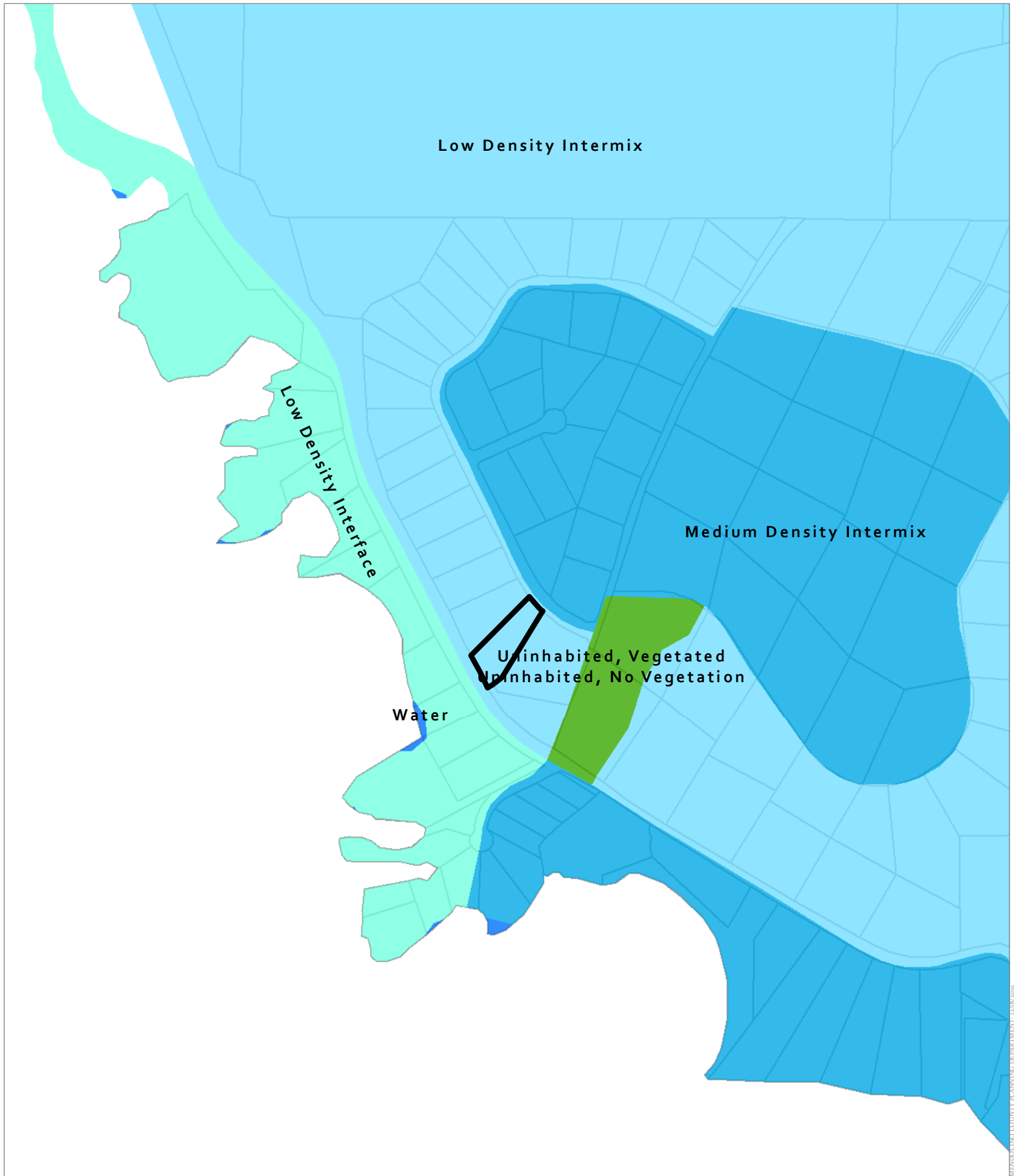
CASE: CDP 2019-0049
OWNER: CIONCO/FUKASAWA
APN: 142-010-52-05
APLCT: Natsuki Fukasawa & Richard Cionco
AGENT: Blair Foster
ADDRESS: 46880 Iversen Lane, Gualala

-  High Fire Hazard
-  Moderate Fire Hazard
-  County Fire Districts

 Assessors Parcels

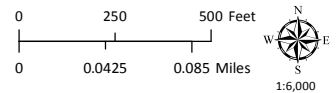


FIRE HAZARD ZONES & RESPONSIBILITY AREAS
STATE RESPONSIBILITY AREA

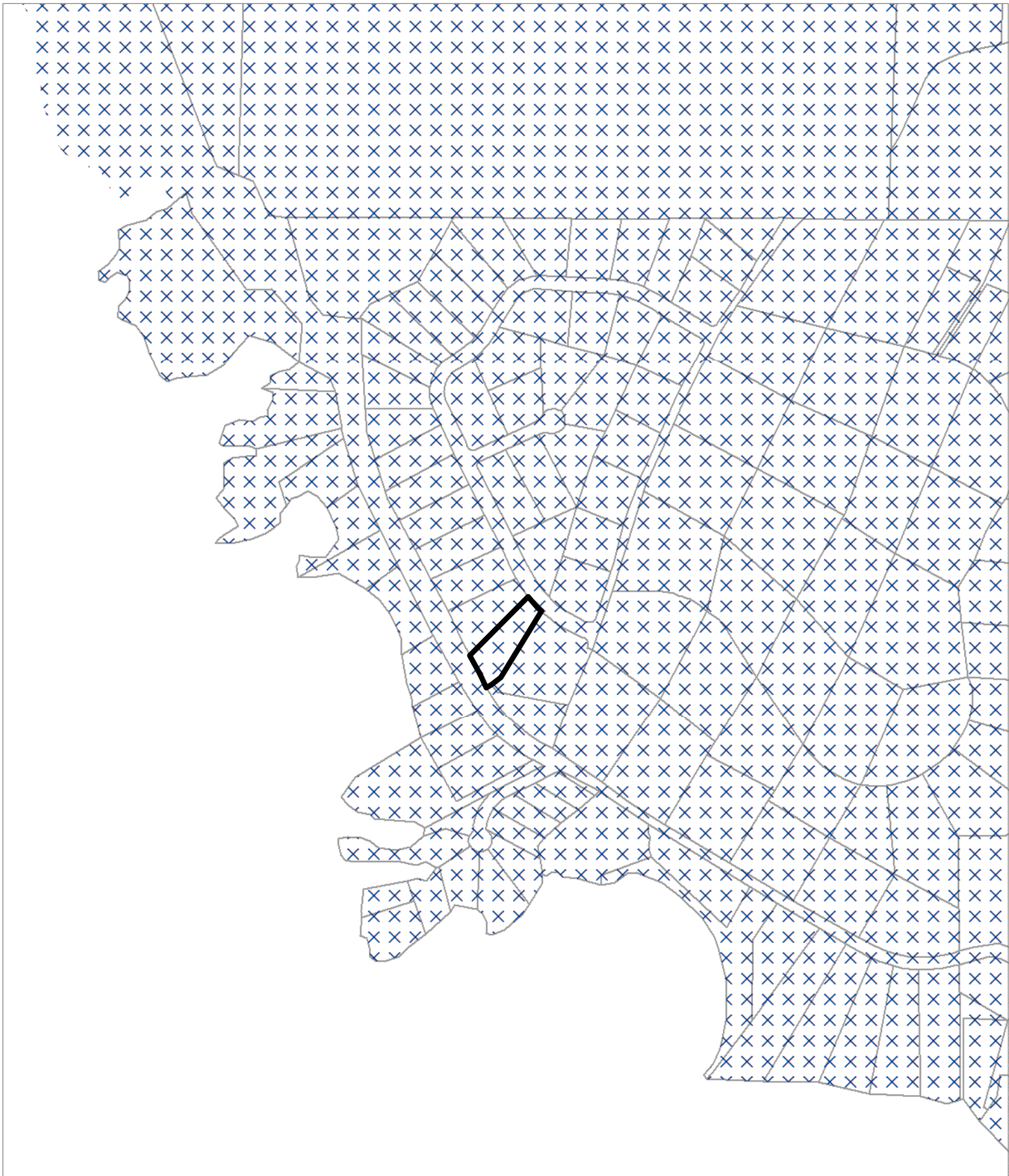


CASE: CDP 2019-0049
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ADDRESS: 46880 Iversen Lane, Gualala

Water
Assessors Parcels



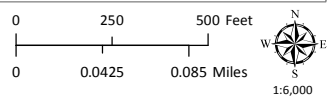
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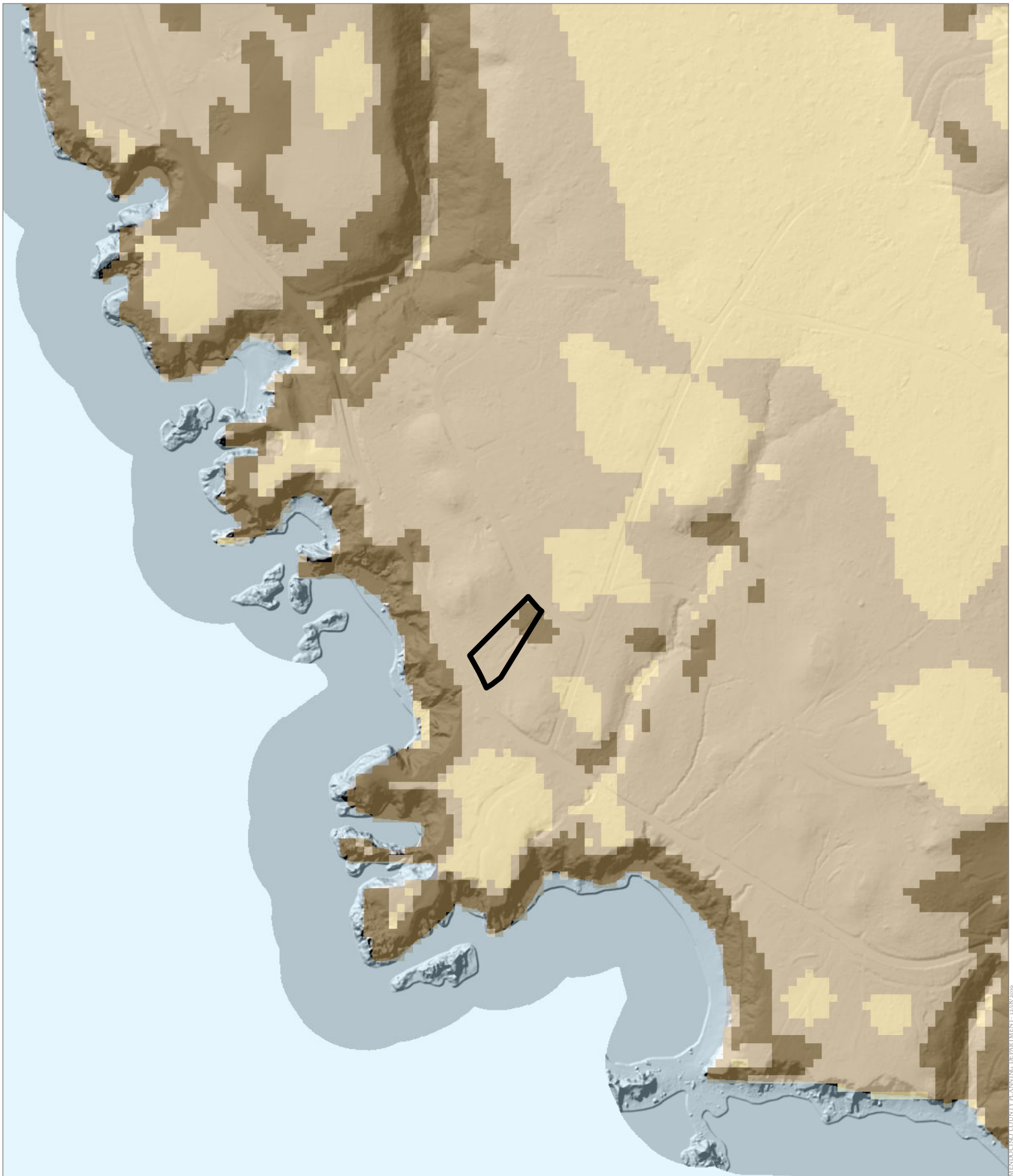
RENDERING COUNTY PLANNING DEPARTMENT 12/08/2009

CASE: CDP 2019-0049
OWNER: CIONCO/FUKASAWA
APN: 142-010-52-05
APLCT: Natsuki Fukasawa & Richard Cionco
AGENT: Blair Foster
ADDRESS: 46880 Iversen Lane, Gualala

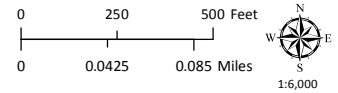
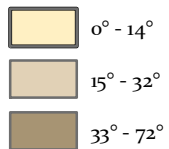
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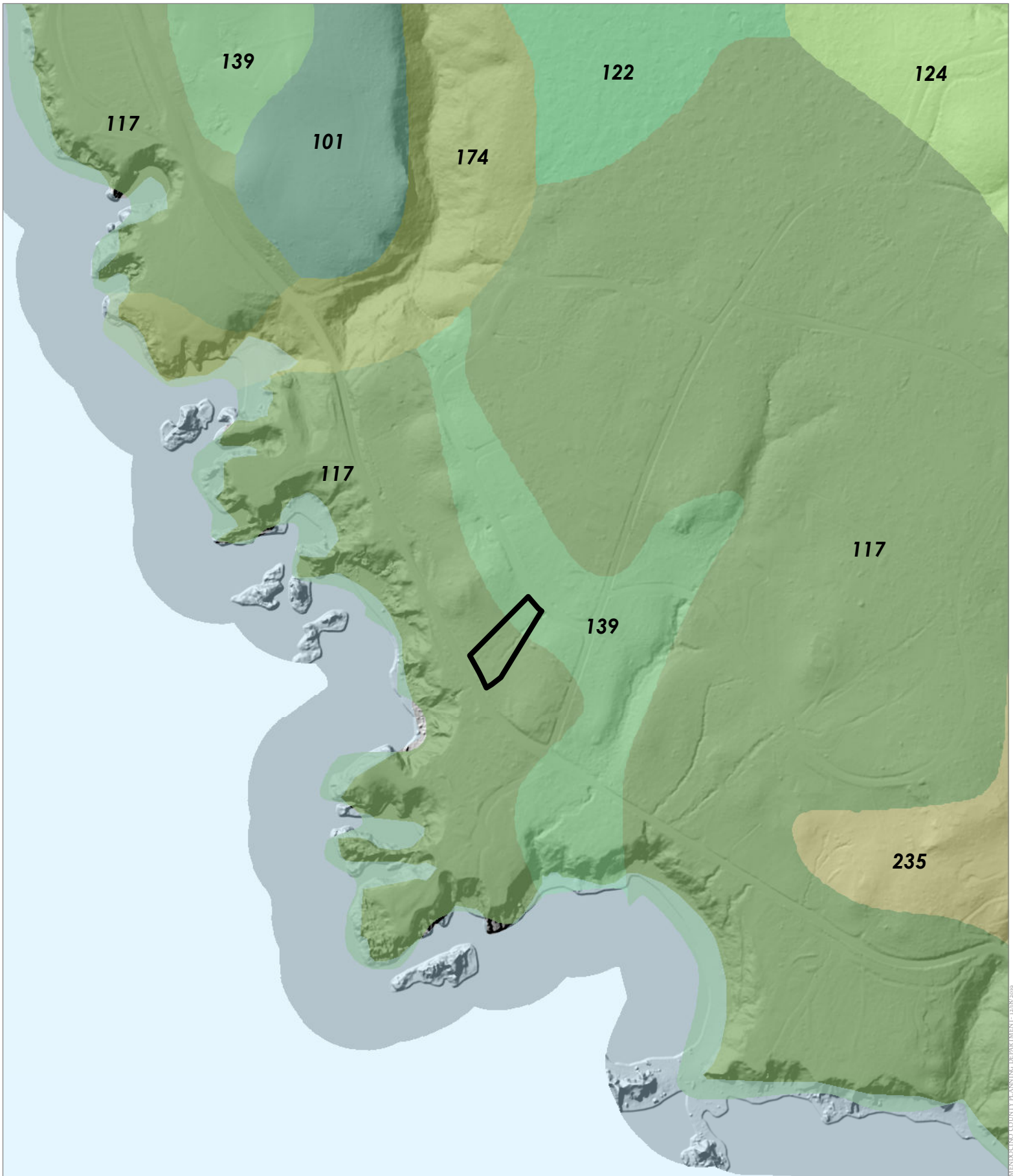
GROUND WATER RESOURCES



CASE: CDP 2019-0049
OWNER: CIONCO/FUKASAWA
APN: 142-010-52-05
APLCT: Natsuki Fukasawa & Richard Cionco
AGENT: Blair Foster
ADDRESS: 46880 Iversen Lane, Gualala

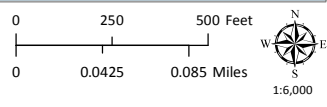


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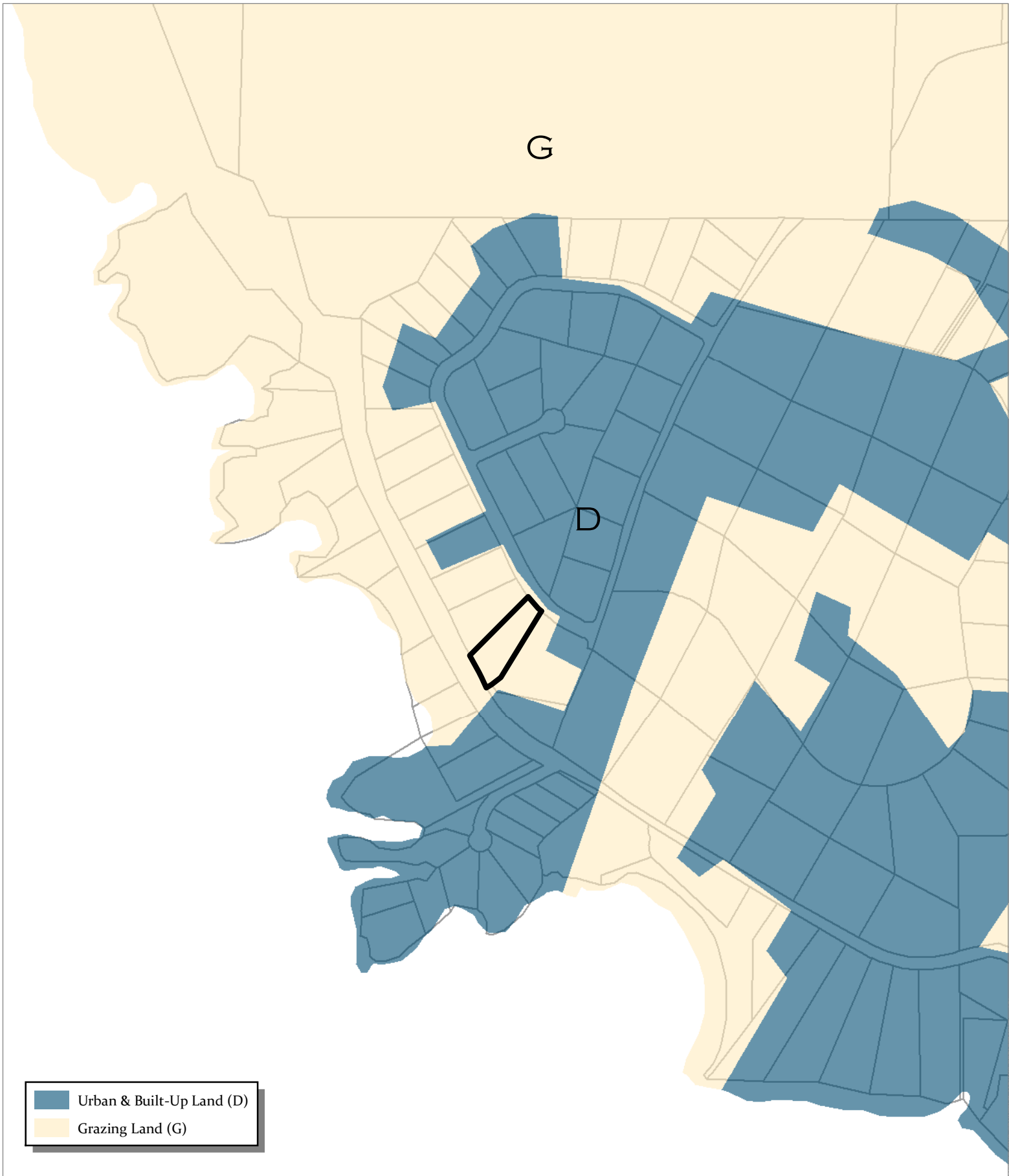


MENDOCINO COUNTY PLANNING DEPARTMENT - 12/08/2019


CASE: CDP 2019-0049
OWNER: CIONCO/FUKASAWA
APN: 142-010-52-05
APLCT: Natsuki Fukasawa & Richard Cionco
AGENT: Blair Foster
ADDRESS: 46880 Iversen Lane, Gualala

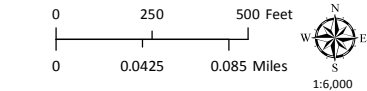


WESTERN SOIL CLASSIFICATIONS

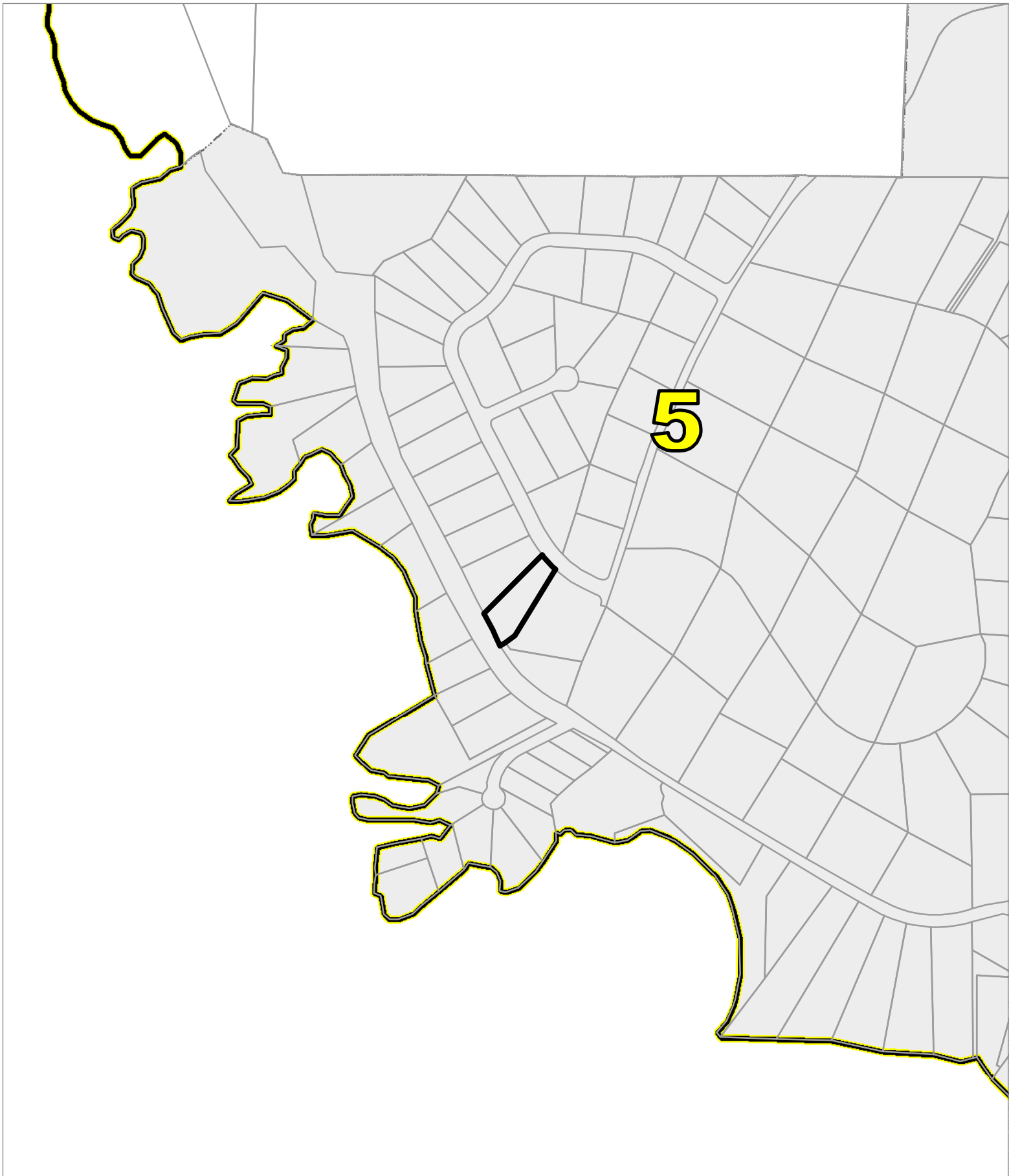


CASE: CDP 2019-0049
OWNER: CIONCO/FUKASAWA
APN: 142-010-52-05
APLCT: Natsuki Fukasawa & Richard Cionco
AGENT: Blair Foster
ADDRESS: 46880 Iversen Lane, Gualala

 Assessor's Parcels






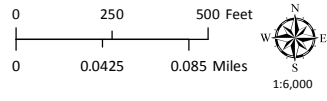
FARMLAND CLASSIFICATIONS



MENDOCINO COUNTY PLANNING DEPARTMENT - 12/08/2019

CASE: CDP 2019-0049
OWNER: CIONCO/FUKASAWA
APN: 142-010-52-05
APLCT: Natsuki Fukasawa & Richard Cionco
AGENT: Blair Foster
ADDRESS: 46880 Iversen Lane, Gualala

-  Assessors Parcels
-  Supervisorial Districts 2010
-  Gualala MAC



MISC DISTRICTS

BIOLOGICAL SCOPING , WETLAND DELINEATION, LOTIS BLUE, BEHREN'S SILVERSPOT BUTTERFLY & BOTANICAL SURVEY REPORT

for
46880 Iversen Lane
Gualala, CA 95445
APN 142-010-52-05
Mendocino County

Property Owners:
Richard Cionco & Natsuki Fukasawa
2724 6th Ave
Sacramento, CA 95818



Report Prepared By:
Asa Spade, Senior Biologist
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Karen Youngblood, Biologist

October 21, 2019

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Appendix K	ESHA Definitions

1. PROJECT SUMMARY

Biological scoping, floristic botanical, Behren's silverspot and lotis blue butterfly surveys were conducted at 46880 Iversen Lane, Gualala (APN 142-010-52) by Wynn Coastal Planning & Biology to locate potential Environmentally Sensitive Habitat Areas (ESHAs) to determine if they would be directly or indirectly impacted by proposed development. Proposed development consists of:

- 1,500 sqft house, driveway, carport, and associated infrastructure
- septic and leach field
- well and water lines

The subject parcel is approximately one acre in size and is located 9 miles north of Gualala in a residential subdivision just east of Highway One. The subject parcel is within the California Coastal Zone as defined in Section 30103 of the California Coastal Act (CCA). The general location of the subject parcel is shown in **Figure 1**.

Wynn Coastal Planning & Biology's staff biologists conducted floristic surveys on May 19, June 26, July 27, August 10, 2017 and April 24 2018 for a total of 6.3 person hours. A wetland delineation was performed on August 10, 2017 for a total of 3.15 person hours. Lotis blue butterfly surveys were performed April 24, May 8, 17, 22, and 29, June 7, 14, 21, and 28, and July 10, 2018, and Behren's Silverspot Butterfly surveys were conducted on August 17, 23, and 31, 2018. Three types of potential ESHA were identified within the study area according to the definitions by the California Coastal Act (CCA) and Mendocino County Local Coastal Plan (LCP) (**Figure 2**).

Stream ESHA – A 290 linear foot channel runs along the eastern side of the property.

Wetland ESHA - A 0.3 acre coastal act wetland occurs on the site.

Rare Plant Community ESHA – One special status plant communities was identified on the property: **Sough sedge sward (*Carex obnupta* Herbaceous Alliance G4 S3)**.

This analysis has been performed by Wynn Coastal Planning & Biology, and is the culmination of our professional opinion, research, and data collection. The County of Mendocino (County), California Department of Fish and Wildlife (CDFW), and U.S. Fish and Wildlife Service (USFWS) should also be consulted regarding this project to obtain all necessary permits and obtain their concurrence with our findings and recommendations, and to make recommendations of their own, including concurrence of the boundaries of the sensitive areas and appropriate avoidance and protective measures.

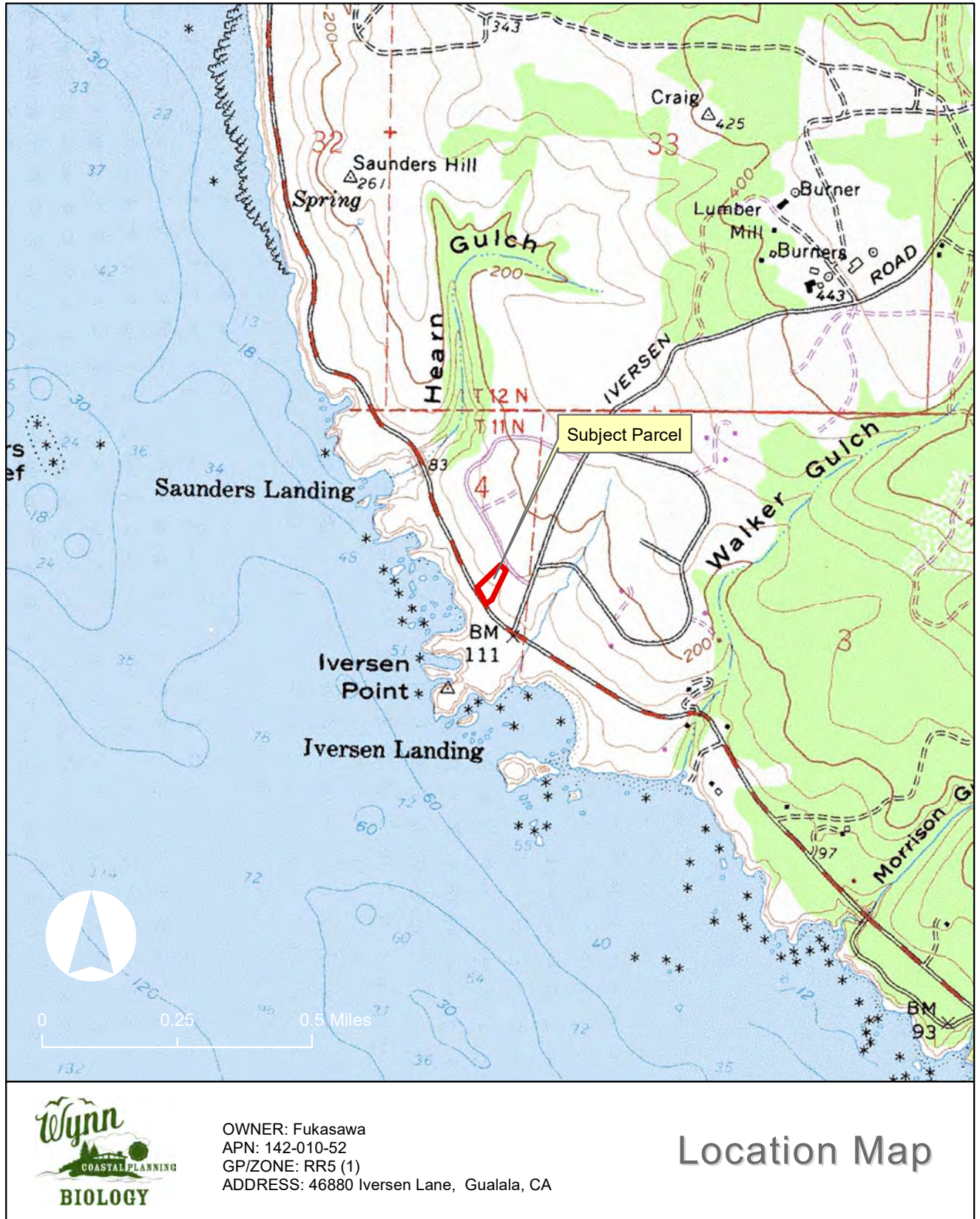
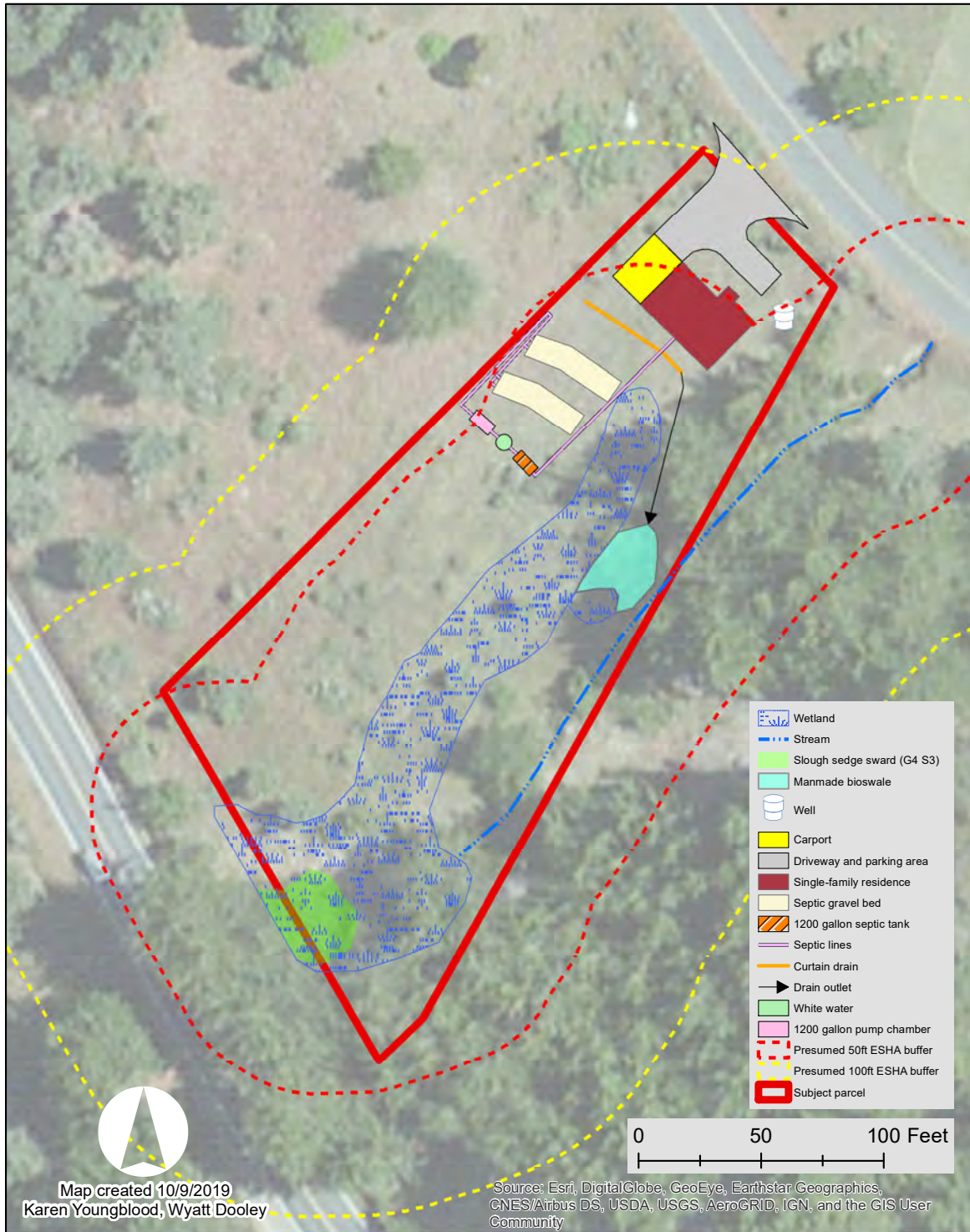


Figure 1. Location of the Subject Parcel.



OWNER: Fukasawa
APN: 142-010-52
GP/ZONE: RR5 (1)
ADDRESS: 46880 Iversen Lane
Gualala, CA

Proposed Development and ESHA Map

Figure 2. Potential Environmental Sensitive Habitat Areas (ESHAs) identified in the study area and their recommended buffers.

2. PROJECT DESCRIPTION

The proposed development consists of building a single-family residence (1,500 sqft), carport, and associated infrastructure in the least environmentally impacting area.

3. STUDY AREA DESCRIPTION

3.1. General Site Description

The entire 1-acre parcel was surveyed as part of this study and is within the California Coastal Zone. The subject parcel is located about nine miles north of Gualala, California and can be accessed by turning east off Highway 1 onto Iversen Road and immediately north onto Iversen Lane. The parcel is approximately 250 feet from the Pacific Ocean and bound by Iversen Lane to the east and Highway One to the west.

3.2. Land-Use History

The subject parcel is within a subdivision of about 128 similar one to five acre parcels. The first parcel in the Iversen subdivision was developed in 1973. Approximately 50% of the parcels are currently developed with single family residences. The adjacent parcel to the east had a CDP approved (CDP 2016-0019) for a single family residence and associated infrastructure in 2017.

3.3. Topography and Soils

The study area is a rectangular shaped parcel and slopes from an elevation of about 150 feet on the eastern edge along Iversen Lane to about 110 feet on the western edge along Highway One.

The site is mapped by Natural Resource Conservation Service (NRCS) as two soil types: Cabrillo-Heeser complex (0-5 percent slopes) and Dystropepts (30-75 percent slopes).

The Cabrillo-Heeser complex is often found on marine terraces and includes 50 percent Cabrillo and similar soils, 30 percent Heeser and similar soils, and 20 percent minor components. Both Cabrillo and Heeser have moderate water storage capabilities. Cabrillo is considered somewhat poorly drained while the Heeser is considered somewhat excessively drained. Cabrillo-Heeser complex 0-5 percent slopes often have a minor component of Tropaquepts (3%) which are listed as a hydric soil. The Cabrillo Heeser complex soils occur on the lower western portion of the property.

Dystropepts, 30-75 percent slopes are found on the slopes of marine terraces and surface runoff is rapid due to shallow bedrock (USDA NRCS, 2001; **Appendix A**). Dystropepts are found on the upper portion of the property along Iversen Lane and are not classified as hydric soils. The Cabrillo-Heeser complex 0-5 percent slopes is listed as a hydric soil due to the inclusion of Tropaquepts soils which makes up roughly 3% of the complex.

It should be noted that when a given soil is listed on the National Hydric Soils List as a hydric soil, that does not necessarily mean a wetland is present. Soil complexes are mapped at a coarse resolution and contain a number of components, any one of which may or may not be hydric, and may or may not be present in the particular mapped location. Likewise, wetlands can occur in soils units not listed in the National Hydric Soils List.

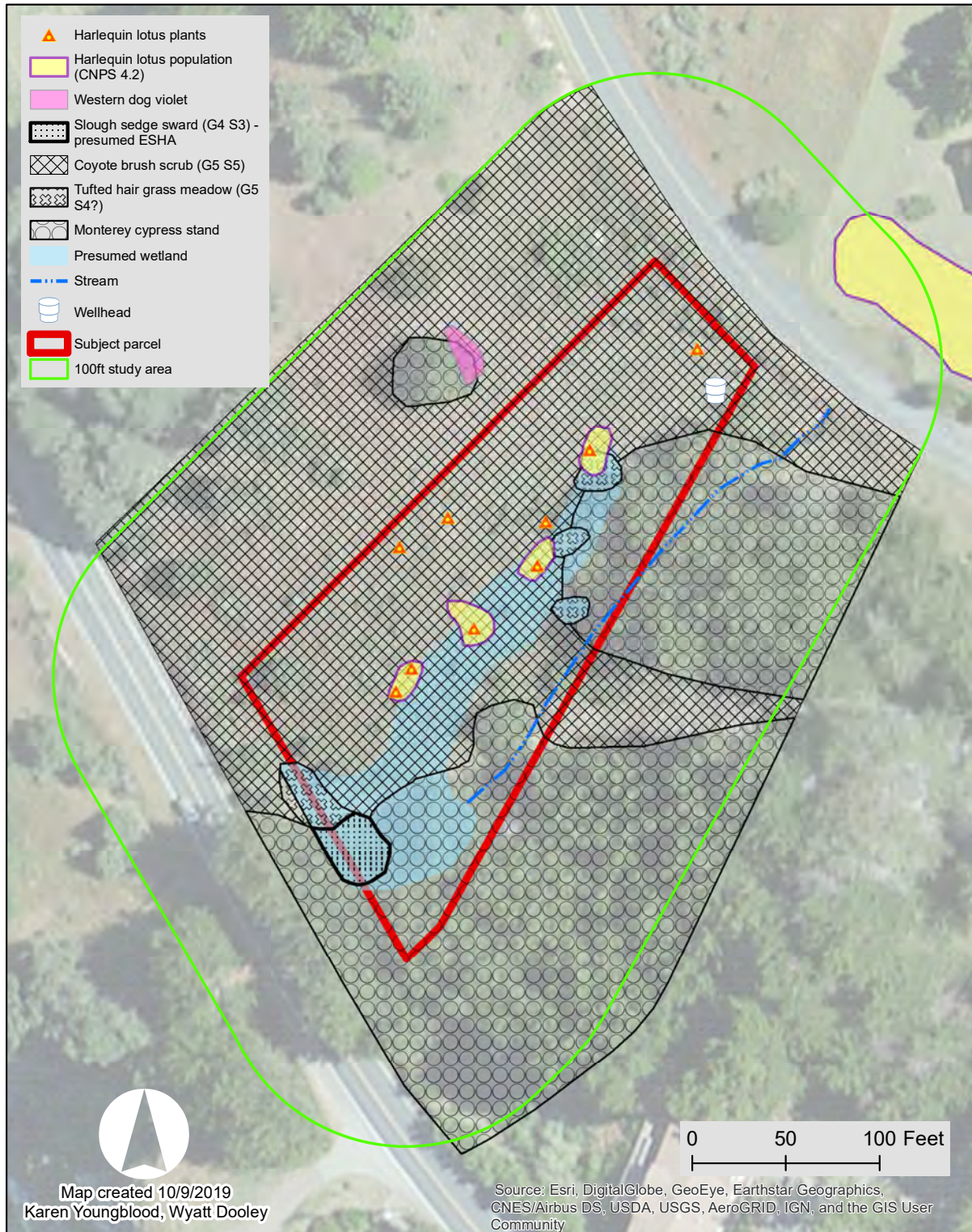
3.4. Climate and Hydrology

The Mendocino Coast has a Mediterranean climate with average annual precipitation of 40.24 inches (WRCC, Station Fort Bragg 5N, average for years 1895 -2016), with the majority of rain occurring in winter months (November through March).

The United States Fish and Wildlife Service (USFWS) National Wetlands Inventory does not show any wetlands on or adjacent to the property (**Appendix B**). However, Coastal Act wetlands were identified and delineated on the property during 2017 field surveys. A constructed channel occurs along the southern boundary of the property conveying water downslope that enters the property from a culvert under Iversen Lane.

3.5. Vegetation and Natural Communities

Within this one-acre parcel, Wynn Coastal Planning & Biology biologists identified four plant communities, one of which is special status and presumed ESHA – **Slough Sedge Swards (*Carex obnupta* Herbaceous Alliance G4 S3)**. The other plant communities identified were Monterey Cypress Stand (*Hesperocyparis macrocarpa* Semi-Natural Alliance), Coyote Brush Scrub (*Baccharis pilularis* Shrubland Alliance G5 S5), and Tufted Hairgrass Meadow (*Deschampsia cespitosa* Herbaceous Alliance G5 S4?). The plant communities are described in detail in Survey Results (**Section 5.2**) and are shown in **Figure 3**.



OWNER: Fukasawa
APN: 142-010-52
GP/ZONE: RR5 (1)
ADDRESS: 46880 Iversen Lane Gualala, CA

Plant Communities and Vegetation Map

Note: Surveys occurred where safely and legally allowed to do so.

Figure 3. Plant communities map & other vegetation.

3.6. Adjacent Lands

Lands surrounding the study area are both forested and open meadows. Many of these rural residential parcels have existing single-family residences.

3.7. Existing Development

The study area is undeveloped except for an existing well.

4. SURVEY METHODOLOGY

4.1. Scoping Tables

Scoping tables were created for the special-status plant species and wildlife with the potential to occur in the study area by reviewing the most up-to-date species lists for the California Department of Fish and Wildlife (CDFW), California Natural Diversity Database (CNDDDB) and the California Native Plant Society (CNPS).

For purposes of this evaluation, special-status plant species are vascular plants that are (1) designated as rare, threatened, or endangered by the state or federal governments; or (2) are proposed for rare, threatened, or endangered status; and/or (3) are state or federal candidate species, and/or (4) considered species of concern by the USFWS and/or (5) are included on the California Native Plant Society (CNPS) List 1A, 1B, & 2.

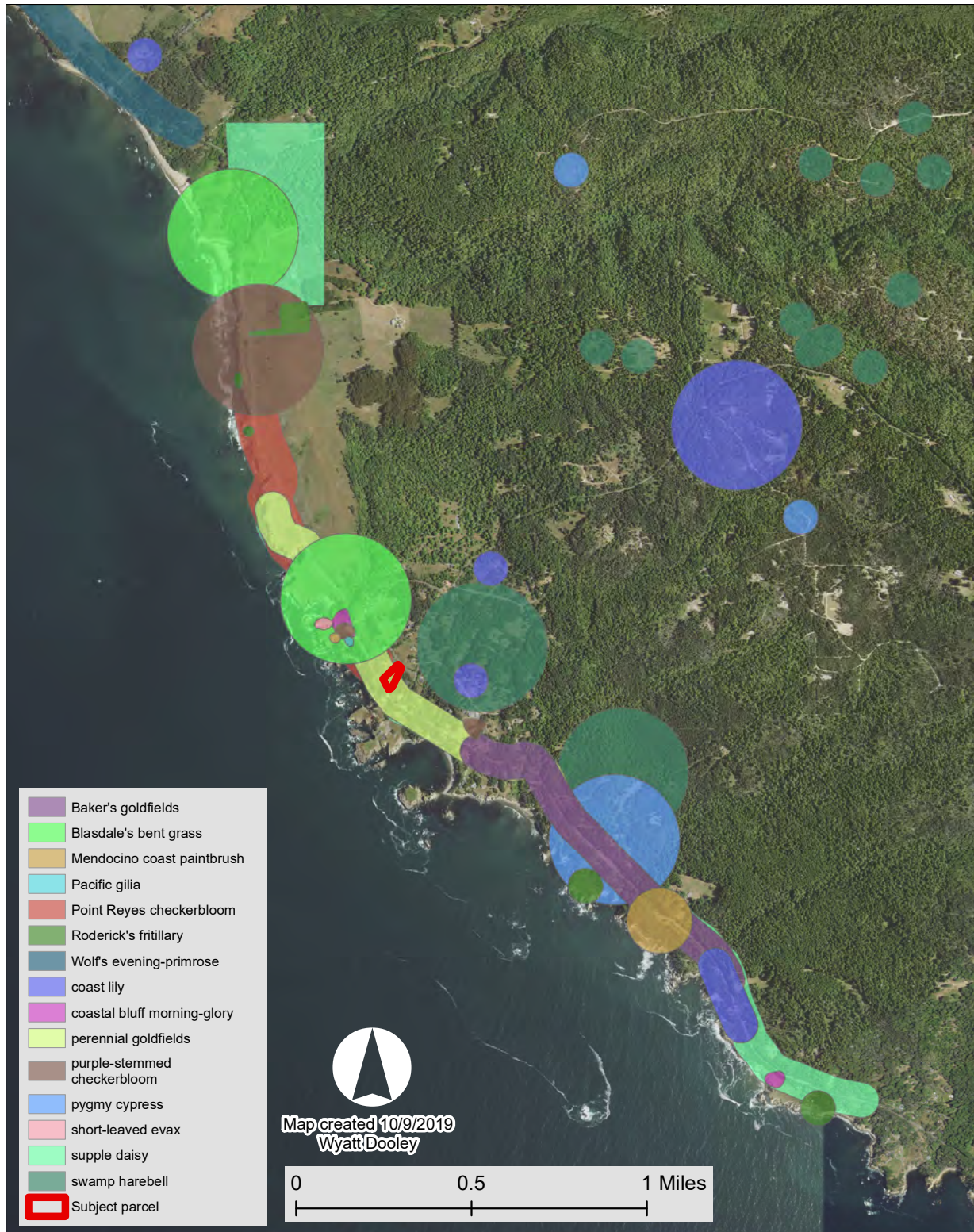
Maps were created using the California Natural Diversity Database CNDDDB for records within 1 mile of the study area (**Figure 4****Figure 5**). The CNDDDB is a database consisting of historical observations of special-status plant species, wildlife species, and natural plant communities. CNDDDB was used to help compile a list of special status plants and animals with potential to occur in the study area. This list was not limited to species presented in the maps, it includes all species indicated by a search of all quads with similar geology, habitats, and vegetation to those found in the project area. Because the CNDDDB is limited to reported sightings, it is not a comprehensive list of plant species that may occur in a particular area. However, it is useful in refining the list of special-status plant species that have the potential to occur on a particular site.

A database search was performed using the CNPS *Electronic Inventory*, which allows users to query the *Inventory of Rare and Endangered Plants of California* using a set of search criteria (e.g., quad name, habitat type). A target list of special-status plant species with the potential to occur on the site was developed through interpretation of the CNDDDB and CNPS query results. The biological scoping tables with special status resources potential occurrences in the study area are presented in **Appendix C: Tables 1, 2, and 3**. While directed by query results, surveys were not restricted only to those species indicated by this literature review. Field surveys and subsequent reporting were comprehensive and floristic in nature.

Additional information, (e.g. morphological characteristics, range, habitat and bloom period) was collected for each of the special-status plant species that had the potential to occur within the study area. Wynn Coastal Planning & Biology's staff botanist reviewed these characteristics for each of the plants on the target list prior to initiating fieldwork.

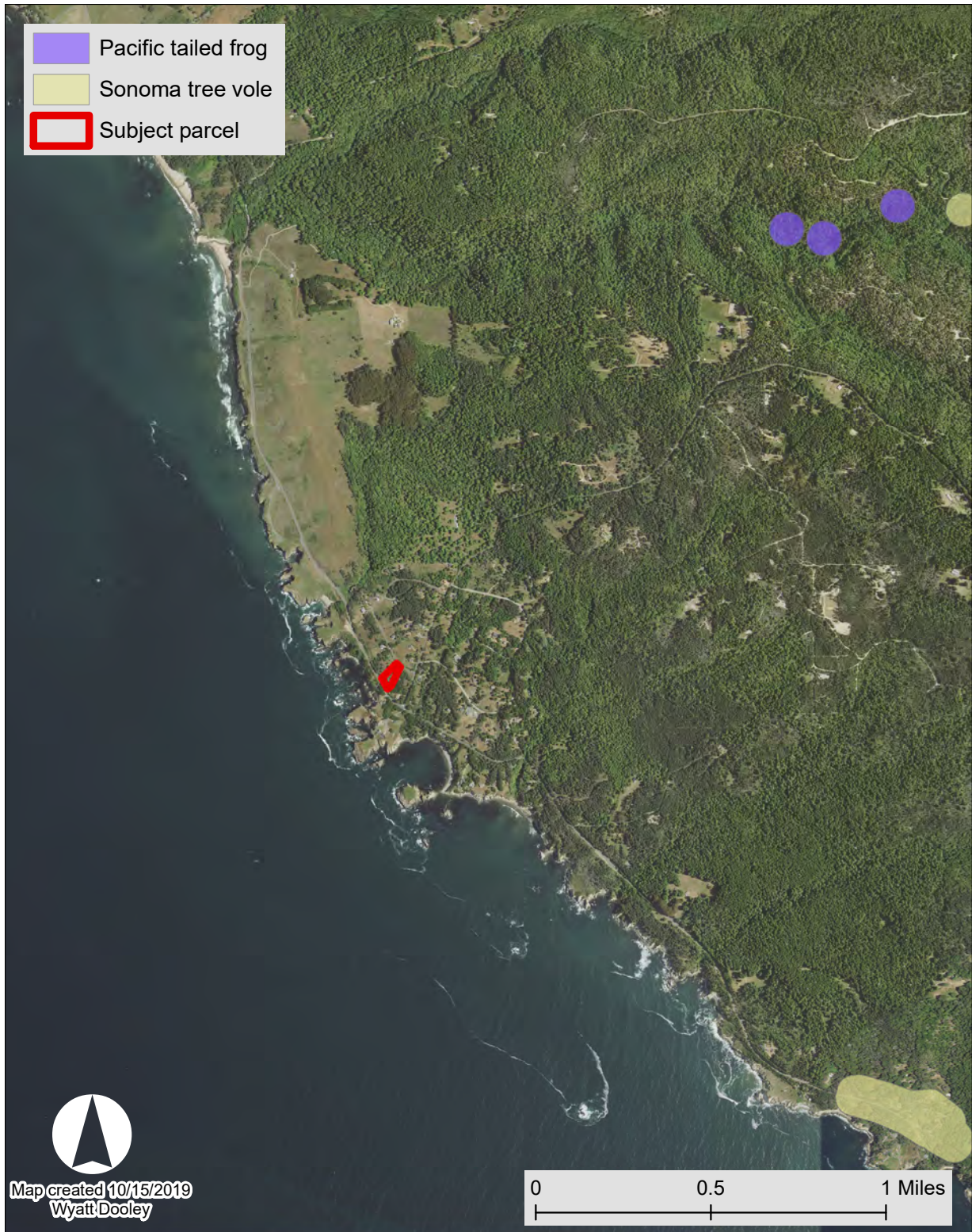
The botanical survey of the study area was conducted primarily adhering to the protocol described by the California Department of Fish and Wildlife in *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (2018).

Additional database review was conducted to assess the potential for wetlands to occur in the area prior to field work. Aerial photography was assessed for features with "wet" characteristics and the Inventory of National Wetlands database was viewed with the subject parcel boundaries to see if any predetermined wetlands occur in the study area.



OWNER: Fukasawa
APN: 142-010-52
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ADDRESS: 46880 Iversen Lane, Gualala, CA

Figure 4. Rare flora reported to CDFW in the proximity of the study area.



OWNER: Fukasawa
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ADDRESS: 46880 Iversen Lane, Gualala, CA

CNDDDB Fauna Map

Figure 5. Rare fauna reported to CDFW in the proximity of the study area and recorded in the CNDDDB database.

4.2. Field Surveys

Wynn Coastal Planning & Biology's staff biologists conducted floristic surveys on May 19, June 26, July 27, August 10, 2017 and April 24 2018 for a total of 6.3 person hours. A wetland delineation was performed on August 10, 2017 for a total of 3.15 person hours. Lotis blue butterfly surveys were performed April 24, May 8, 17, 22, and 29, June 7, 14, 21, and 28, and July 10, 2018, and Behren's Silverspot Butterfly surveys which were conducted on August 17, 23, and 31, 2018. Surveys were completed to compile a full floristic list of plants occurring in the study area and to identify any rare resources having the potential to meet the LCP ESHA definitions. To ensure potential ESHA plants were evident and identifiable, offsite **reference plant populations** were visited prior to the project field surveys. Verified offsite reference site plants observed by WCPlan staff during the 2017 & 2018 floristic seasons included: Point Reyes blennosperma (*Blennosperma nanum* var. *robustum*), Blasdale's bent grass (*Agrostis blasdalei*), seacoast angelica (*Angelica lucida*), swamp harebell (*Campanula californica*), Mendocino coast paintbrush (*Castilleja mendocinensis*), supple daisy (*Erigeron supplex*), headland wallflower (*Erysimum concinnum*), short-leaved evax (*Hesperis matronalis* var. *brevifolia*), Point Reyes horkelia (*Horkelia marinensis*), thin-lobed horkelia (*Horkelia tenuiloba*), harlequin lotus (*Hosackia gracilis*), Baker's goldfields (*Lasthenia californica* ssp. *bakeri*), perennial goldfields (*Lasthenia californica* ssp. *macrantha*), coast lily (*Lilium maritimum*), coastal bluff morning glory (*Calystegia purpurata* ssp. *saxicola*), deceiving sedge (*Carex saliniformis*), great burnet (*Sanguisorba officinalis*), early blue violet (*Viola adunca*), and corn lily (*Veratrum fimbriatum*).

All identifiable plant species located during the surveys were identified to the lowest taxonomic level necessary to determine the presence of special status plant species and are listed in **Table 1 (Appendix C)**. The *Jepson Manual: Vascular Plants of California* (Baldwin 2012) was used to determine the taxonomic nomenclature. A *Manual of California Vegetation Second Edition* (Sawyer 2009), *Classification of the Vegetation Alliances and Associations of Sonoma County, CA, V. 2* (Klein 2015) and the *List of Vegetation Alliances and Associations* (CDFW 2010) were used to classify and describe representative plant communities present. A potential for false negative survey results exists. For example, a rare plant could be eaten by deer around the time when they would have been evident and identifiable and therefore not be detected during surveys. Some plants remain dormant and do not become evident and identifiable every year. Climatic conditions are different each year and may have unpredictable effects on the bloom windows of each species. Heavy rains, for example, may cause one species to bloom early and another species to bloom later than in normal years. Well timed site visits and frequent observations at known reference sites reduce the chance of error.

4.3. Wetland and Riparian Delineation

Wetland delineation field work began with examination of the topography and searching for surface hydrology and hydrophytic plants. Further analyses were performed at five sample points where wetland soils, hydrophytic vegetation, and hydrology were inspected according to the US Army Corp of Engineers (ACOE) methodology for: Western Mountains, Valleys, and Coast Region (Version 2.0). Wetland data sheets for these sample points are presented in **Appendix D**. Sampling points are marked in the field with 24-inch wooden stakes with colored flagging and labeled in Sharpie marker. Locations of sampling points are depicted on the Wetland Delineation Map. The ACOE recognizes wetlands where hydrophytic vegetation, hydric soils, and hydrology are all present. In the California Coastal Zone, wetlands are recognized if any one of the three ACOE parameters (hydrophytic vegetation, hydric soils, or hydrology) is present. Wetlands reported and mapped in this report are Coastal Act wetlands and may or may not be Army Corps wetlands; a distinction is made where important.

4.4. Lotis Blue Butterfly Habitat Assessment and Survey

The habitat assessment and surveys were based on Dr. Dick Arnold's Draft Protocol for Presence-Absence Surveys of the Endangered Lotis Blue Butterfly dated March 2008 (**Appendix E**). The investigators, Asa Spade and Karen Youngblood have both been given approval to perform these surveys under the supervision of Dr. Dick Arnold and the USFWS recovery permit biologist Susie Tharatt.

4.5. Lotis Blue Butterfly Survey Period

Lotis Blue Butterfly's (*Lycaeides argyrognomon lotis*) (LBB) presumed host plant harlequin lotus was observed at the site (**Figure 3**). Because of the proximity of harlequin lotus to the proposed development, surveys were performed for both the host plant and butterflies.

Prior to surveys, coordination with both Susie Tharatt and Dr. Arnold took place to address the need and scope of the LBB surveys. Following the draft survey protocols, a minimum of six surveys are recommended during the butterfly's flight season which is between mid-May through mid-July spaced at 7 – 10 day intervals (Dr. Dick Arnold 2008).

Per the LBB draft survey protocol, surveyors conducted surveys between 10am and 3:30pm on days that were warm, with relatively low wind, and when other butterflies were active. Surveyors recorded temperature, wind speed, weather conditions, start and end time, vegetation that was blooming, feeding damage to harlequin lotus, estimated percentage of harlequin lotus in bloom, and if any, what butterflies were seen. Butterflies that were seen at the site were photographed with a 75 – 300mm telephoto lens. Observations were sent to both Susie Tharatt and Dr. Arnold to confirm identifications of butterflies.

Field surveys were conducted on April 24, May 8, 17, 22, and 29, June 7, 14, 21, and 28, and July 10, 2018 by Karen Youngblood. Survey dates were chosen to occur at the 7 – 10 day intervals targeting days that were 60 degrees Fahrenheit or warmer ideally with low wind speeds. During each survey, the biologist walked throughout the property searching for adult butterflies with their main focus being in areas that had the populations of harlequin lotus. Any feeding damage to harlequin lotus was also noted. Data sheets for Lotis Blue Butterfly surveys are located in **Appendix F**.

4.6. Behren's Silverspot Butterfly Habitat Assessment and Survey

The habitat assessment and survey were based on the US Fish and Wildlife Service's Draft Guidelines for Habitat Assessments and Surveys for Behren's Silverspot Butterfly (*Speyeria zerene behrensii*), dated August 8, 2006, and Survey Protocol: Behrens Silverspot Butterfly (BSB), v1, July 2006. The investigator Asa Spade attended Behren's silverspot butterfly training with John Hunter of the US Fish and Wildlife Service and has conducted transect surveys for Behren's silverspot butterflies.

4.7. Behren's Silverspot Butterfly Survey Period

Viola adunca was observed in the non-native grassland in 2018. Through onsite coordination with Susie Tharatt of US Fish and Wildlife Service on May 29, 2018, it was concluded that a BSSB survey should be conducted due to presence of *Viola adunca*.

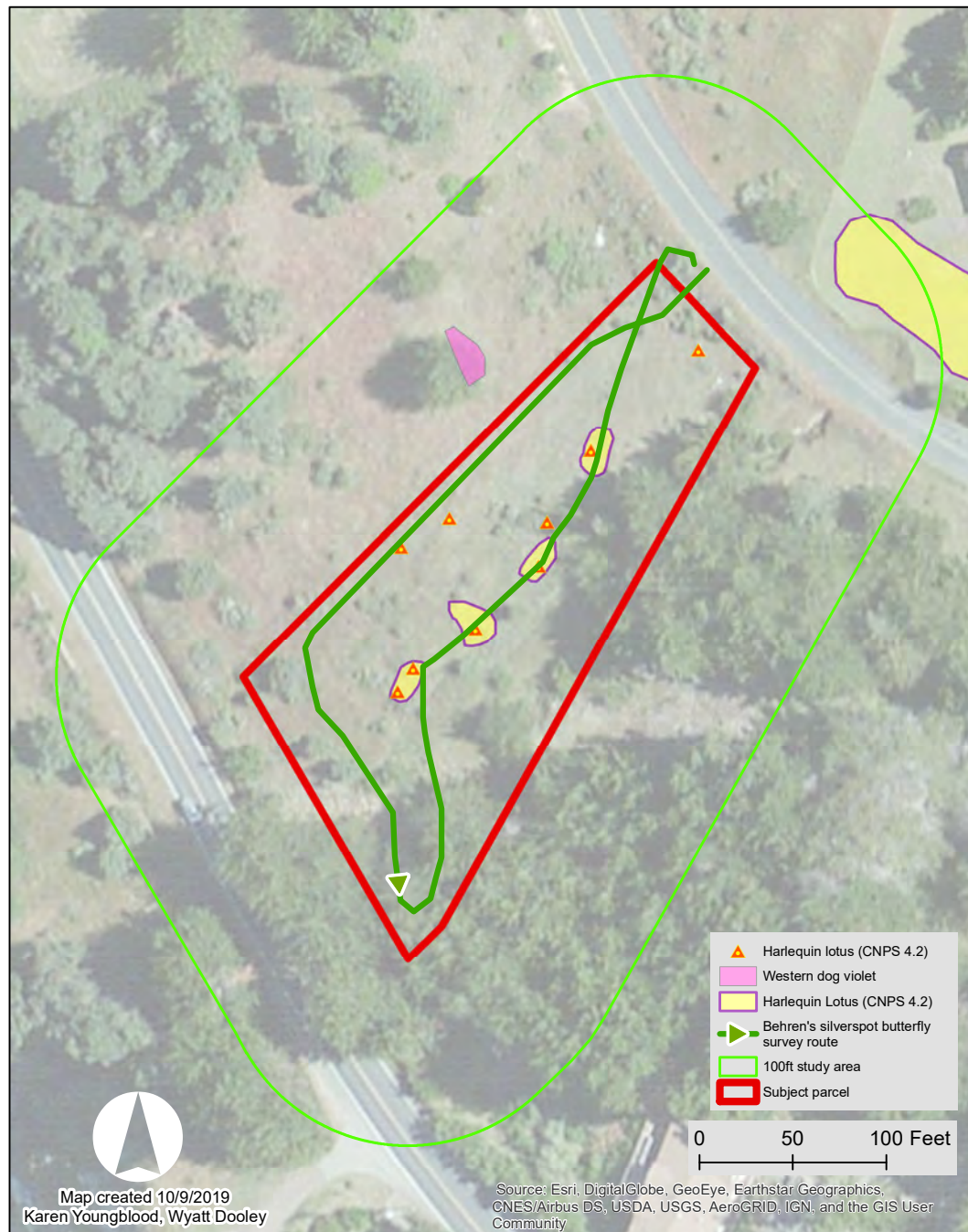
Habitat assessments are normally conducted between April 21 and June 14. Habitat assessments are subject to change depending on weather conditions for the year *Viola adunca* surveys are to be conducted. All areas within 100 meters of proposed activities, including ground or vegetation disturbance, or hydrologic disturbance, are surveyed for *Viola adunca*. All observed *Viola adunca* is counted and mapped (polygons with estimated populations for large patches), and the overall condition is noted (flowering, senescent, etc.). Any evidence of invertebrate foraging is noted.

Behren's Silverspot Butterfly surveys are conducted from July 20 to September 10. Three complete surveys must be conducted in a single season, and each survey shall be separated by at least 6 days. At least two of the surveys must occur between August 5 and August 25. Wind conditions must be <10mph. Temperature must be at least 60 degrees F. Each survey must occur between 10am and 4pm. Surveys need to be completed on days with no fog or rain. Percent cloud cover should be recorded. Time and environmental conditions at the start and end of each survey or transect are to be recorded. Name, observer, and qualifications, environmental conditions, survey method employed, and level of effort are recorded on data sheets for each survey.

Surveys need to occur in potential habitat areas within 100 meters of any proposed project. Width of areas covered on transects should relate to the vegetation height and density. The exact numbers and locations of BSSBs observed are reported. Activities and behaviors are observed, such as foraging on any specific plants, direction of any movements, interactions with other species, etc. If Behren's

Silverspot Butterfly is detected on first or second survey, remaining surveys may not be required per US Fish and Wildlife Service guidance.

A pre-determined set route was designated to cover the majority area of the parcel and to walk near host plants and potential nectar plants. The pre-determined route is shown in **(Figure 6)**. Surveys occurred in appropriate weather conditions as outlined on the data sheets in **Appendix G**. Surveys occurred on August 17, 23, and 31, 2018.



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Approximate Behren's Silverspot Butterfly Survey Route

Note: Surveys occurred where safely and legally allowed to do so.

Figure 6. The route used for the Behren's silverspot butterfly surveys.

5. SURVEY RESULTS

Biological Field Surveys were performed that identified the following: plants, plant communities, wetlands, and animal habitat in the study area.

5.1. Plants – Potential ESHA found

The CDFW's California Native Diversity Database (CNDDDB) BIOS, *Version 5* (2016), was used to inform the search on special status flora previously reported in the vicinity of the project area. Fifty species of herbs, grasses, sedges, rushes, ferns, shrubs, and trees were identified in the study area and are listed in **Appendix H**. Two watch list species were found during the floristic surveys: **Early blue violet** (*Viola adunca*), and **harlequin lotus** (*Hosackia gracilis* CNPS 4.2).

5.1.1. Harlequin lotus (*Hosackia gracilis* CNPS 4.2)

Formerly known as *Lotus formosissimus*, this plant is the presumed larval host plant of the Lotis blue butterfly. Harlequin lotus was observed in many locations in grassland habitat around the edges of the wetlands that occurred within the study area. Four larger patches of plants were observed onsite with several smaller populations (**Figure 3**). Because the proposed development will occur within 50ft of these populations, technical assistance from the USFWS was performed for the lotis blue butterfly. Results of Lotis blue butterfly surveys are presented in **Section 5.5**.



Figure 7. Harlequin lotus within the study area.

5.1.2. Early blue violet (*Viola adunca* CNPS 4.2)

A small population of western dog violet (*Viola adunca*) was observed just north of the parcel. Because the population occurs within 50ft of the proposed development, Senior Biologist Asa Spade performed protocol level Behren's silverspot butterfly surveys. Behren's silverspot butterfly surveys were conducted on the parcel and along Iversen Road. Behren's silverspot butterfly survey results are presented in **Section 5.6**.

5.2. Plant Communities Observed

Within the one-acre parcel, Wynn Coastal Planning & Biology biologists identified four plant communities, one of which is special status and presumed ESHA – **Slough Sedge Swards (*Carex obnupta* Herbaceous Alliance G4 S3)**. The other plant communities identified were a Monterey Cypress Stand (*Hesperocyparis macrocarpa* Semi-Natural Alliance), Coyote Brush Scrub (*Baccharis pilularis* Shrubland Alliance G5 S5), and Tufted Hairgrass Meadow (*Deschampsia cespitosa* Herbaceous Alliance G5 S4?).

5.2.1. Slough Sedge Swards (*Carex obnupta* Herbaceous Alliance G4 S3 - Presumed ESHA)

The subject parcel gently sloped from east to west before meeting Highway One. At the toe of slope along the western edge of the parcel is small slough sedge sward (0.02 acres). The dominant

vegetation was slough sedge with some tufted hairgrass (*Deschampsia cespitosa* ssp. *cespitosa*) present.

5.2.2. Coyote Brush Scrub (*Baccharis pilularis* Shrubland Alliance G5 S5)

The majority of the parcel and neighboring properties were vegetated by coyote brush scrub (Figure 8, Figure 9, Figure 10). Coyote brush was dense at the lower end of the parcel by the highway and patchy throughout. Associated plants within the coyote brush scrub included coffee berry (*Frangula californica*), *Cotoneaster* sp., golden aster (*Heterotheca sessiflora* ssp. *bolanderi*), seaside daisy (*Erigeron glaucus*), California blackberry (*Rubus ursinus*), sweet vernal grass (*Anthoxanthum odoratum*), greater quaking grass (*Briza maxima*), velvet grass (*Holcus lanatus*), and purple-awned wallaby grass (*Rytidosperma penicillatum*). Other plants within the community included self-heal (*Prunella vulgaris*), English plantain (*Plantago lanceolata*), Italian thistle (*Carduus pycnocephalus*), bull thistle (*Cirsium vulgare*), rough cat ears (*Hypochaeris radicata*), yarrow (*Achillea millefolium*) and California poppy (*Eschscholzia californica*).

Grasses between the coyote brush were dominated by invasive non-native species and did not have a significant (>10% combined) component.



Figure 8. Coyote brush scrub as viewed from road looking west.



Figure 9. Coyote brush scrub looking north east.



Figure 10. Coyote brush scrub as viewed from road looking south west.

5.2.3. Monterey Cypress Stand (*Hesperocyparis macrocarpa* Semi-Natural Stand)

Monterey Cypress Stands occupied the southern boundary of the property and provided shade and overstory to the channel. The cypress stand was dominated by Monterey cypress but included some young bishop pine (*Pinus muricata*) seedlings and saplings (**Figure 11**). Understory vegetation was sparse (**Figure 12**) and included: wax myrtle (*Morella californica*), pennyroyal (*Mentha pulegium*), rough cat's ear (*Hypochaeris radicata*), sweet vernal grass (*Anthoxanthum odoratum*), sword fern (*Polystichum munitum*), huckleberry (*Vaccinium ovatum*), and common bog rush (*Juncus effusus*).

It should be noted that Monterey cypress is considered rare in its natural range within the Monterey Peninsula which is located south of Mendocino and Fort Bragg California. Monterey cypress found in other regions is considered non-native as it is not naturally occurring. Monterey cypress does not warrant protection in Mendocino County.



Figure 11. Coyote brush scrub habitat (foreground) meeting Monterey cypress stand (background).



Figure 12. The sparse understory of the Monterey cypress stand with stream channel through bottom left corner.

5.2.4. Tufted Hairgrass Meadow (*Deschampsia cespitosa* Herbaceous Alliance G5 S4?)

A tufted hairgrass meadow was observed within the delineated wetland onsite. On the Mendocino coast, tufted hairgrass (*Deschampsia caespitosa* ssp. *holciformis*) communities often indicate moist soils and are correlated with wetlands. Also, often when tufted hairgrass dominates an area, other lower growing plants are able to grow between the caespitose clumps allowing for more species diversity than might be found in the taller invasive grass meadows. Other vegetation found in the area dominated by tufted hairgrass includes blue eyed grass (*Sisyrinchium bellum*), iris leaved rush (*Juncus xiphioides*), self-heal (*Prunella vulgaris*), Harlequin lotus (*Hosackia gracilis*), bird's foot trefoil (*Lotus corniculatus*), rough cat's ear, California blackberry (*Rubus ursinus*), and wonder woman sedge (*Carex gynodnema*).



Figure 13. Tufted hairgrass clumps mixed with other vegetation.

5.3. Wetland Delineation – (Coastal Act Wetland) presumed ESHA

On August 10, 2017, a routine level study of hydrology, soils, and vegetation indicators was conducted within the study area. The results were recorded from sampling points on data sheets (**Appendix D**) from the Regional Supplement to the Army Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). Locations of sampling points are depicted on the Wetland Delineation Map (**Figure 14**). The wetland hydrology, hydric soils, and hydrophytic vegetation indicators used to make wetland determinations are summarized below. Sampling points are marked in the field with 24-inch wooden stakes with colored flagging and labeled in a Sharpie marker. A 30-foot plot size was studied for trees present, a 20-foot radius for shrubs present, a 10-foot radius for herbs present, and a 10-foot radius for vines present. **Sample Point SP01, SP03, and SP04 were determined by the surveyors to be upland** as no hydric soil, hydrology, or hydrophytic vegetation was observed. **Sample Point SP02 was determined to be within a Coastal Act wetland.** None of the sample points were found to occur within an ACOE three-parameter defined wetland.

5.3.1. Sampling Point SP01 – Upland

Sample point SP01 was taken approximately in the upper northeast corner of the property approximately 50 ft from Iversen Lane. No trees occurred in a 30-foot radius around the sample point. The shrub stratum in a 20-foot radius around the sample point was dominated by coyote brush (*Baccharis pilularis* – 25%). In a 10-foot radius around the sample point, the dominant herbaceous species were sweet vernal grass (*Anthoxanthum odoratum* – 50%), greater quaking grass (*Briza maxima* – 20%) and purple awned wallaby grass (*Rytidosperma penicillatum* – 20%). The woody vine stratum in a 10-foot radius around the sample point was dominated by California blackberry (*Rubus ursinus* – 8 %). No hydrophytic vegetation indicators were observed at this sample point. A soil pit was dug to 20-inches and no hydric soil indicators were observed. No

hydrology indicators were observed. *Sample Point SP01 was determined to be upland.*

5.3.2. Sampling Point SP02 – Coastal Act Wetland

Sample point SP02 was in the center of the northern portion of the property approximately 50 ft from the northern boundary. Monterey cypress occupies 1% of the 30-foot radius tree plot. Within 20-feet of the sample point, coyote brush (*Baccharis pilularis*) occupied 1% of the shrub stratum. In a 10-foot radius around the sample point, the dominant herbaceous species were velvet grass (*Holcus lanatus* - 15%), sweet vernal grass (*Anthoxanthum odoratum* – 40%), and rough cat ears (*Hypochaeris radicata* – 15%). The vine stratum in a 10-foot radius around the sample point was dominated by California blackberry (*Rubus ursinus* – 3%). No hydrophytic vegetation indicators were observed. A soil pit was dug to 18-inches and hydric soil indicator Redox Dark Surface (F6) was observed at this sample point. The hydrology indicator oxidized rhizospheres along living roots, was observed. Both soil and hydrology indicators were observed. *Sample Point SP02 was determined by the surveyors to occur within a Coastal Act definition wetland.*

5.3.3. Sampling Point SP03 – Upland

Sample point SP03 was taken in the middle of the parcel approximately 25ft north of the constructed channel. Monterey cypress canopy covered approximately 3% of the 30-foot radius plot. Within 20-feet of the sample point, the shrub/saplings present were wax myrtle (*Morella californica* – 1%) and coyote brush with 1% cover. The 10-foot radius forb stratum plot was dominated by sweet vernal grass with 20% cover, velvet grass with 25% cover, and English plantain with 20% cover. The vine stratum was dominated by California blackberry with 20% cover. No hydrophytic vegetation indicators were observed. A soil pit was dug to 21-inches and no hydric soil indicators or hydrology indicators were observed. *Sample point 03 was determined to be upland.*

5.3.4. Sampling Point SP04 – Upland

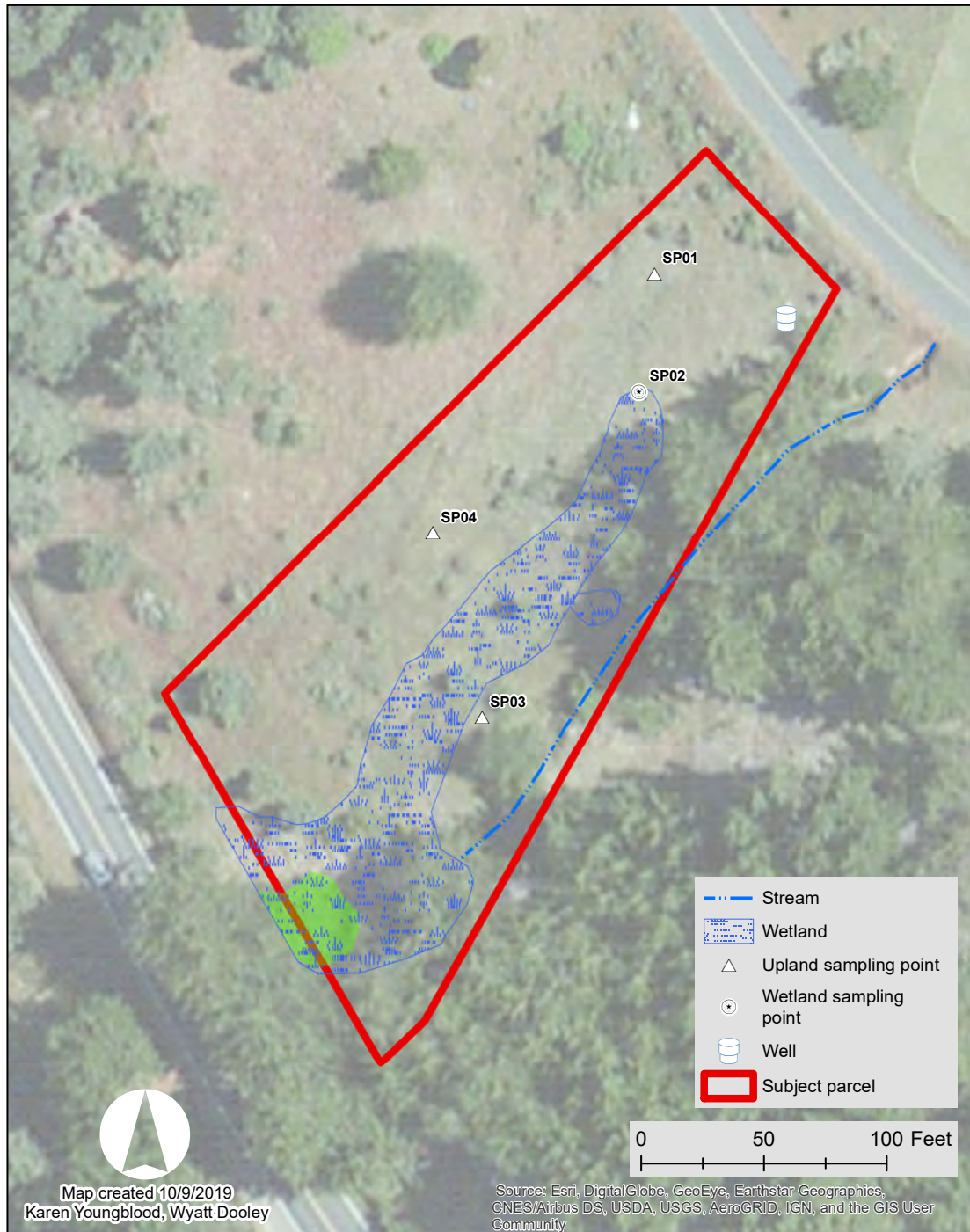
Sample point SP04 was approximately 40 feet from the northern property boundary. No trees occurred in the tree stratum of the 30-foot radius plot. The shrub stratum in a 20-foot radius around the sample point included coyote brush with 15% cover. In a 10-foot radius around the sample point, the dominant forbs were velvet grass with 45% cover and sweet vernal grass with 40% cover. Purple awned wallaby grass had approximately 20% cover. The vine stratum in a 10-foot radius around the sample point included California blackberry with 3% cover. No hydrophytic vegetation indicators were observed at this sample point. A soil pit was dug to 26-inches. No hydric soil indicators or hydrology were observed at this sample point. *Sample Point SP04 was determined to be upland.*

Based on field assessment and the sample points data described above, Wynn Coastal Planning & Biology Biologists determined one Coastal Act wetland (0.3 acres) in the study area (**Figure 2**). The topographic position (base of surrounding slopes) and underlying soil characteristics for this area has enabled water drainage to collect seasonally in small depressions and at the lowest elevations in the central portion of the property. Vegetation in the wetland area includes tufted hairgrass (*Deschampsia cespitosa* ssp. *cespitosa*), blue-eyed grass (*Sisyrinchium bellum*), Harlequin lotus (*Hosackia gracilis*), wonder woman sedge (*Carex gynodryma*), slough sedge (*Carex obnupta*), iris leaf rush (*Juncus xiphioides*), slender rush (*Juncus occidentalis*), Baltic rush (*Juncus balticus*), Pacific common rush (*Juncus effusus*), and bird's foot trefoil (*Lotus corniculatus*).

5.4. Stream

South of the Coastal Act Wetland, along the southern property boundary, is a constructed channel (**Figure 12**) that has been treated as a stream for the purpose of this report. An 18" culvert was observed extending approximately 4ft from beneath Iversen Lane into the channel. No defined stream occurs on the upslope side of the culvert east of the road, the culvert and channel appears to be primarily for the drainage of surface water runoff of the area northeast of the parcel across Iversen lane. The stream channel is cut 4 ft deep at Iversen Lane and is approximately 290 ft long. The depth of the channel becomes shallower toward the southwest until at its lower end water is conveyed into the lower end of the Coastal Act Wetland and the stream channel is no longer discernable. There are no distinct riparian zones along the stream. Overstory trees surrounding the channel are primarily Monterey

cypress (*Hesperocyparis macrocarpa*). Vegetation within the channel was sparse and consisted primarily of Pacific rush (*Juncus effusus*). Some wax myrtle shrubs (*Morella californica*) were also present in the channel.



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Wetland Delineation Map

Figure 14. Wetland delineation map depicting wetland Sample Points, presumed wetlands and stream.

5.5. Lotis Blue Butterfly Survey Results

Lotis Blue Butterfly surveys were conducted under the supervision of Dr. Arnold and Susie Tharatt. Conditions were generally favorable for butterflies with the average temperature being 61°F and average wind speed of 3.8 mph. **No life stages of the LBBs were observed** during the 2018 surveys. Butterflies observed were California ringlet (*Coenonympha tullia* ssp. *california*), unidentified skipper (family Hesperidae), Acmon blue (*Icaricia acmon*) (**Figure 15**), common buckeye (*Junonia coenia*), rural skipper (*Ochlodes agricola*), and Mylitta crescent (*Phyciodes mylitta*). Lotis blue butterfly data sheets are located in **Appendix F**.



Figure 15. Acmon blue photographed at the site.

5.6. Behren's Silverspot Butterfly Survey Results

Protocol level surveys were conducted and **no Behren's silverspot butterflies were observed**. Butterflies, moths, and insects observed during surveys included Acmon blue (*Icaricia acmon*), Mylitta Crescent (*Phyciodes mylitta*), drone flies, praying mantids, ctenuchid moths, and yellow jackets. Behren's silverspot butterfly data sheets are located in **Appendix G**.

5.7. Wildlife - Potential Occurrences

The California Department of Fish and Wildlife (CDFW) California Native Diversity Database (CNDDB) BIOS, Version 5 (2016), was used to focus the search on fauna previously reported in the vicinity of the project area (**Figure 4****Figure 5**). Descriptions below are for wildlife species with moderate to high potential to occur, and for State or Federally Endangered or Threatened Species with potential to occur. A complete list of special status wildlife with the potential to occur at the project site can be found in **Table 3 of Appendix C**.

5.7.1. Invertebrates

5.7.1.1. Western Bumblebee (*Bombus occidentalis*) (G2G3 S1)

Western bumblebee (*Bombus occidentalis*) is not a Federal or State protected species but is listed as a California Native Diversity Database S1 species, an indication that there are limited known occurrences in California. The project area is in the former historical range of this species. Bumblebees observed during botanical surveys did not demonstrate the field markings of the western bumble bee, which include a conspicuous white tip of the abdomen. No further surveys are recommended at this time.

5.7.2. Fish

5.7.2.1.

No aquatic habitat capable of supporting fish was observed within the study area.

5.7.3. Amphibians

5.7.3.1. California red-legged frog (*Rana draytonii*) (G4T2T3 S2S3)

The California red-legged frog (*Rana draytonii*) is listed as a threatened species by US Fish and Wildlife. The range extends from the Garcia River south to northern Baja California, Mexico. The California red-legged frog requires aquatic breeding areas and mix of riparian and

upland habitat. Breeding is unlikely onsite, however the frog may use the wetland and upland areas onsite as refuge.

Mitigation and Avoidance measures in **Section 8** addresses how to minimize impacts to all potentially occurring amphibians including prohibiting sediment transport into the streams to protect potential frog and salamander habitat. It is also recommended that the contractor be trained to recognize amphibians and contact a qualified biologist if any are found onsite during construction activities.

5.7.3.2. Southern Torrent Salamander (*Rhyacotriton variegatus*) (G3G4 S2S3)

This Species of Special Concern occurs primarily in cold, well-shaded permanent streams and spring seepages in redwood, Douglas fir, mixed conifer, montane riparian and montane hardwood-conifer habitats. On land, it normally occurs only within the splash zone or on moss-covered rock rubble with trickling water. The wetland areas within the study area are unlikely to be suitable habitat for this salamander.

5.7.3.3. Red-bellied newt (*Taricha rivularis*) (G4 S2)

This Species of Special Concern inhabits primarily redwood forest, but also found within mixed conifer, valley-foothill woodland, montane hardwood and hardwood-conifer habitats. Rapid-flowing, permanent streams are required for breeding and larval development. No suitable breeding habitat was present within the study area. This species may range up to a mile from streams and may therefore be found in upland habitat during some times of the year. Identification and avoidance training for construction workers should include a discussion of this species.

5.7.4. Mammals

5.7.4.1. Bats

Many species of bats roost in hollowed areas, crevices, or under bark of trees in forested areas near water. Several special status species require a nearby fresh water source for drinking because they do not have a good urine concentrating ability. In addition, they use the open space over sources of fresh water for feeding on flying insects. Habitat for special status bats may potentially be present on the property. If construction is to occur during the breeding season (November to August), a pre-construction survey is recommended to ensure that no bat roosts will be disturbed during development (**Table 1**). No nesting surveys are recommended if activity occurs in the non-breeding season.

5.7.5. Birds

5.7.5.1. Nesting birds

Resident and migratory birds that are present during the nesting season may nest in the habitat present within the study area. Nesting requirements are highly variable. Some birds nest in burrows, others on the ground, in vegetation, brush, trees, rocky outcrops, or on man-made structures. The bird nesting season typically extends from February to August. The Migratory Bird Treaty Act protects special status and common birds and their nests while they are in the process of nesting. If construction is to occur during the breeding season (February to August), a pre-construction survey is recommended to ensure that no nesting birds will be disturbed during development (**Table 1**). No nesting surveys are recommended if activity occurs in the non-breeding season.

6. PROJECT ALTERNATIVES

Due to the presumed ESHAs onsite, the proposed development location for the one-bedroom single-family residence, carport, well and septic system will partially occur within the 50ft presumed ESHA buffer. The safest access to the property is via Iversen Lane where the development will occur on the north-eastern

side of the property. The location of the residence is dictated by the need to accommodate a minimal driveway and location on site to turn a vehicle around. This is the least impacting development location as it does not occur directly within any of the onsite presumed ESHAs. If development were to occur in another location, the development would occur within or closer to presumed ESHAs than the preferred project location described above. Project alternatives are further outlined in the Report of Compliance (**Appendix J**).

7. REPORT OF COMPLIANCE AND REDUCED BUFFER ANALYSIS SUMMARY

A Reduced Buffer Analysis (**Appendix I**) and Report of compliance (**Appendix J**) were conducted to inform the proposed project and the proposed development within proximity to the study area's presumed sensitive habitat. The mitigation and avoidance measures in **Section 8** were developed to ensure all impacts from proposed development will have a less than significant effect on sensitive resources.

The results of the Report of Compliance conclude that the proposed development at the north-eastern side of the property is the least impacting development.

8. MITIGATION AND AVOIDANCE MEASURES

The proposed project has been analyzed relative to its proximity to natural resources to determine its potential disturbance to sensitive species, utilizing the methods and results gathered above, Reduced Buffer Analysis, and Report of Compliance. As a result of those analyses, WCPB finds that potential impacts to the presumed ESHA habitats (wetland, stream, and slough sedge sward) can be minimized or avoided if the project utilizes the Mitigation and Avoidance Measures recommended below.

The following mitigation measures are recommended to minimize impacts for development to Coastal Act wetlands, slough sedge sward, and stream. These measures will serve to prevent negative impacts to potential resources located within 100 feet of the proposed development.

8.1. Potential Impact 1: Potential Impact to Birds

Construction in the study area has the potential to disturb special status birds during the nesting season. Removal of vegetation and construction activity near trees and vegetated areas has the potential to disturb bird nesting.

8.1.1. Measure 1a: Seasonal Avoidance

No surveys are recommended if activity occurs in the **non-breeding season** (September to January). If development is to occur during the **breeding season** (February to August), a pre-construction survey is recommended within 14 days of the onset of construction to ensure that no nesting birds will be disturbed during development (**Table 1**).

8.1.2. Measure 1b: Nest Avoidance

If active special status bird nests are observed, no ground disturbing activities shall occur within a 100-foot exclusion zone. These exclusion zones may vary depending on species, habitat and level of disturbance. The exclusion zone shall remain in place around the active nest until all young are no longer dependent upon the nest. A biologist should monitor the nest site weekly during the breeding season to ensure the buffer is sufficient to protect the nest site from potential disturbance.

8.1.3. Measure 1c: Construction activities during daylight hours

Construction should occur during daylight hours to limit disturbing construction noise and minimize artificial lights.

8.2. Potential Impact 2: Potential Impact to Bats

Construction in the study area has the potential but is unlikely to impact special status bat species. No special features such as hollow trees, abandoned buildings or other cave analogs, which could serve as roosting or hibernation refugium, are present; therefore, the potential for negative impacts to bats is

minimal.

8.2.1. Measure 2a: Pre-construction surveys for bats

Construction will ideally occur between September 1st and October 31 after the young have matured and prior to the bat hibernation period. **If it is necessary to disturb potential bat roost sites between November 1 and August 31**, pre-construction surveys should be performed by a qualified biologist 14 days prior to the onset of development activities. If active bat roosts are observed, no ground disturbance activities shall occur within a minimum 100-foot exclusion zone. These exclusion zones may vary depending on species, habitat and level of disturbance. The exclusion zone shall remain in place around the active roost until all young are no longer dependent upon the roost.

Pre-construction bat surveys involve surveying trees, rock outcrops, and buildings subject to construction for evidence of bat use (guano accumulation, or acoustic or visual detections). If evidence of bat use is found, then biologists shall conduct acoustic surveys under appropriate conditions using an acoustic detector, to determine whether a site is occupied. If bats are found, a minimum 50ft buffer should be implemented around the roost tree.

Table 1 Months surveys are or are not needed for birds and bats.

Months During Which Pre-Construction Surveys Are Not Required For Birds & Bats												
	January	February	March	April	May	June	July	August	September	October	November	December
Birds												
Bats												
		Pre-Construction Surveys Are NOT Needed										
		Pre-Construction Surveys Are Needed										

8.2.2. Measure 2b: Construction activities during daylight hours

Construction should occur during daylight hours to limit disturbing construction noise and minimize artificial lights.

8.3. Potential Impact 3: Potential impact to amphibians in upland areas

Construction activities will involve walking across areas where amphibians may be traveling. Staging of materials and removal of construction debris could also disturb special status amphibians that may be hiding underneath these materials. To minimize impacts to amphibians, the following avoidance measures should be followed.

8.3.1. Measure 3a: Contractor education

Within two weeks prior to construction activities, project contractors will be trained by a qualified biologist in the identification of the frogs and salamanders that occur along the Mendocino County coast. Workers will be trained to differentiate between special status and common species and instructed on actions and communications required to be conducted in the event that a special status amphibians are observed during construction.

8.3.2. Measure 3b: Pre-construction search

During ground disturbing activities, construction crews will begin each day with a visual search around the staging and impact area to detect the presence of amphibians.

8.3.3. Measure 3c: Careful debris removal

During construction and debris removal, any wood stockpiles should be moved carefully by hand in order to avoid accidental crushing or other damage to amphibians.

8.3.4. Measure 3d: Reduce footprint of impact

Orange construction fencing should be used to buffer any presumed onsite ESHAs (wetland, stream, and slough sedge sward) within 100ft of development. The orange construction fencing aims to protect the presumed ESHAs that amphibians may live in. Construction fencing will serve as a visual reminder to keep materials and limit walking to within the designated boundaries. Construction fencing should be placed in a way that allows the construction crew to have sufficient space to work safely and efficiently while protecting the onsite resources.

8.3.5. Measure 3e: Construction activities during daylight hours

Some special status amphibians are more active at night. Construction should occur during daylight hours to minimize disturbing construction noise and artificial lights.

8.3.6. Measure 3f: Limit ground disturbing construction to dry season

Ground disturbing construction within 100 feet of the stream should occur during the dry season, which is generally April 1 to October 31 of any year.

8.3.7. Measure 4g: No construction during rain event

If a rain event occurs during the ground disturbance period, all ground disturbing activities will cease for a period of 48 hours, starting after the rain stops.

Prior to resuming construction activities, trained construction crew member(s) will examine the site for the presence of special status amphibians.

If no special status amphibians are found during inspections, ground-disturbing activities may resume.

If a special status amphibian is detected, construction crews will stop all ground disturbing work and will contact the California Department of Fish and Wildlife (CDFW) or a qualified biologist. Clearance from CDFW will then be needed prior to reinitiating work. CDFW will need to be consulted and will need to be in agreement with protective measures needed for any potential special status amphibians.

8.4. Potential Impact 4: Potential Impact to Soil and Vegetation - ground compaction and vegetation disturbance from materials and vehicles

8.4.1. Mitigation 4a: Limiting Erosion

The proposed project has the potential to create some erosion during ground disturbance. To limit any erosion that could enter any ESHAs downslope of the project area, straw wattles should be placed at the base of the orange construction fencing discussed in **Section 8.3.4**.

8.4.2. Mitigation 4b: Staging Area Plan

Stage all building materials and construction vehicles in upland areas as far away from presumed ESHAs as possible.

8.5. Potential Impact 5: Potential Impact to Wetland

The interceptor drain and drain outlet has the potential to divert groundwater from above the Coastal Act wetland. The drain outlet also has the potential to create erosion, which may cause sediment to enter the Coastal Act wetland and stream. To mitigate for change to groundwater and potential erosion, it is recommended that a bioswale is created at the end of the interceptor drain outlet.

8.5.1. Mitigation 5a: Bioswale Creation

To mitigate for this potential impact, a bioswale should be created at the end of the drain outlet

Figure 2). The bioswale will hold any water that is diverted from the curtain drain. This bioswale should be planted with appropriate native wetland plants. Any overflow water from the bioswale should be redistributed into the wetland downslope in a slow flow, non-erosive way.

8.6. Potential Impact 6: Invasive Plants and Landscaping

After the single-family residence is built, landscaping surrounding the residence has the potential to occur. In some cases, landscaping can become invasive and spread to surrounding areas that could out compete native flora and degrade habitat that native fauna may use.

8.6.1. Measure 6a: Mitigating for development within 50ft of presumed ESHAs

Due to development that is being proposed within 100ft of presumed ESHAs, additional planting of site-appropriate natives should occur between the development and the presumed wetland. Ideally, local genetic stock plants would be used. However, many native California cultivars with desirable traits exist and may be used.

8.6.2. Measure 6b: Plant native vegetation

While many ornamental landscapes on the California coast use non-native plants, invasive plants should not be planted. Some invasive plants commonly seen by Wynn Coastal Planning & Biology's staff biologists on the coast that should be avoided are: Iceplant (*Carpobrotus edulis*, *C. chilensis*, & *Delosperma* sp.), cotoneaster (*Cotoneaster franchetii* & *C. pannosus*), English ivy (*Hedera helix*), cape ivy (*Delairea odorata*), pampas grass (*Cortaderia jubata* & *C. selloana*), cape weed (*Arctotheca calendula* & *A. prostrata*), Monbretia (*Crocasmia xrocosmiiflora*), blue gum eucalyptus (*Eucalyptus globulus*), redhot poker (*Kniphofia uvaria*), periwinkle (*Vinca major*), bulbil bugle lily (*Watsonia meriana*), and calla lily (*Zantedeschia aethiopica*).

9. DISCUSSION

It is the professional opinion of the biologists at Wynn Coastal Planning & Biology that the project, as proposed, is the least impacting and most feasible option.

Three types of presumed ESHAs were identified within the study area:

Stream ESHA – A 290ft linear foot channel runs along the eastern side of the property.

Wetland ESHA - A 0.3 acre coastal act wetland also occurs on the site.

Rare Plant Community ESHA – One special status plant community was identified on the property: **Slough sedge sward (*Carex obnupta* Herbaceous Alliance G4 S3).**

The project as proposed is currently designed in the least impacting location and configuration. The proposed single-family residence is located to the furthest extent possible outside of ESHA buffers with consideration of other property setbacks. The septic system has been designed to adhere to all regulations and is currently proposed in the only feasible location. The only other project alternative would be accessing the property and building the single-family residence at the southwestern side of the parcel. This would result in the development footprint having more area within the buffers than the preferred alternative. Additionally, access from Highway One would require extensive ground disturbance to create a useable driveway due to the steepness of the parcel at the southwestern side. This alternative would be more impacting to the wetland and slough sedge sward than the proposed alternative. The preferred alternative minimizes the extent of the development within the presumed ESHA buffers to the maximum extent feasible.

The proposed interceptor drain has the potential to change the hydrology of areas downslope, which may in turn effect the presumed ESHAs onsite. The interceptor drain is proposed in an area that is not wetland but that has deeper groundwater that could affect the efficacy of the septic leach field. Within a wetland, the majority of plants roots are within the top 12 inches of soil and this is the zone within which wetland

hydrology is important (Environmental Laboratory, 1987). According to the septic plan for the project, within the proposed septic area "soil mottling was noted between depths of 28-32 inches" (Rittiman 2019) There is a potential that the interceptor drain could affect the hydrology of the Coastal Act wetland on site, despite the intent being to drain water deeper than the shallow groundwater that defines a wetland. This potential effect should be countered by the fact that, when in use, the septic leach field will be releasing treated effluent water into the ground in approximately the same location that might have otherwise become more dry due to the function of the interceptor drain. The Reduced Buffer Analysis (**Appendix I**) and **Mitigation Measure 8.5.1** suggests the creation of a bioswale at the outlet of the drain to mitigate for any potential impacts to the onsite presumed wetland (**Figure 2**). By placing the bioswale at the outlet, any water removed by the interceptor drain will be retained onsite. The bioswale should be planted with native plants compatible with the Coastal Act wetland habitat present. The functional capacity, and ability to be self-sustaining, and maintaining natural species diversity will be protected and the development will be compatible with the continuance of the Coastal Act wetland and stream habitat areas present.

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11. INVESTIGATOR BIOGRAPHIES

Contributing Biologists

Asa B Spade graduated from Humboldt State University with a Bachelor's Degree in Environmental Science, with a concentration in Landscape Ecosystems as well as a minor in Botany. Since that time, he has been working in the natural resources field, first with Mendocino County Environmental Health and later with California State Parks and the Department of Fish and Game. He has been trained in Army Corps wetland delineation by the Coastal Training Program at Elkhorn Slough and in Advanced Wetland Delineation by the Wetland Science and Coastal Training Program. He has been trained in the environmental compliance process for wetland projects in San Francisco bay and outer coastal areas. In 2015 he attended a Townsend's big eared bat basal hollow habitat assessment and survey methods workshop taught by Michael Baker, Leila Harris, and Adam Hutchins. Asa has trained with the Carex Working Group in identifying grasses and sedges of Northern California as well as a CNPS sedge workshop taught by CA Fish and Wildlife staff biologist Gordon Leppig. In 2019, he completed a training for burrowing owls taught by Dr. Lynne Trulio through the Elkhorn Slough Coastal Training Program as well as a foothill yellow legged frog training taught by David Cook and Jeff Alvarez. He is on the Fish and Wildlife Service approved list for Point Arena mountain beaver surveys and has done surveys for Behren's silverspot butterfly, Northern spotted owl, Sonoma tree vole, and the California red-legged frog. He has contributed to more than 150 coastal development projects in Mendocino County.

Wyatt Dooley graduated from University of California Santa Barbara with a Bachelor's of Science in Environmental Studies and a minor in Geology. After graduating, he worked for Fish and Wildlife and Pacific States Marine Fisheries as a technician researching salmon. He has also worked abroad in New Zealand as a conservation ranger helping on restoration projects and controlling invasive species. Additionally, he has received training in Army Corp wetland delineation by San Francisco State University and the Wetland Science and Coastal Training Program, training from CNPS-CDFW on vegetation rapid assessment and relevé methods, is on the US Fish and Wildlife Service's approved list for Point Arena Mountain Beaver Surveys, and received a specialization in ArcGIS through University of California Davis. He has also received training in *Carex* keying and identification through CNPS taught by CA Fish and Wildlife staff biologist Gordon Leppig (March 2018). In October of 2019, he also completed a training through Laguna de Santa Rosa Foundation for foothill yellow legged frog taught by David Cook and Jeff Alvarez.

Karen Youngblood holds a Master's of Science in Natural Resources and a GIS Certificate from Humboldt State University and a Bachelor's of Arts in Environmental Studies, with an emphasis in Policy and Planning, from the University of California in Santa Cruz. Her diverse experience includes over 20 years of botanical, wildlife, fisheries and forestry field work throughout Northern California and Southeastern Oregon, with the last 10 years being focused in Coastal Mendocino County. She has received additional training in Army Corps wetland delineation by Richard Chinn Environmental Training in Sacramento, CA, Rare Plant Species of Special Concern with Teresa Sholars at the College of the Redwoods in Fort Bragg, CA (Spring, 2009), and *Carex* keying and identification training with Gordon Leppig in Arcata, CA (March, 2017). She is also on the US Fish and Wildlife Service's approved list for Point Arena Mountain Beaver Surveys.

Bethany Baibak is a biologist for Wynn Coastal Planning & Biology. Ms. Baibak holds a Masters in Science in Biology from Humboldt State University and a Bachelors of Science in Biology from Michigan Technological University. Her diverse field experience includes botanical (NCASI - 2012; 2016-current), wildlife (Forest Service - 2010), forestry (State of Montana - 2006), wetland (Ducks Unlimited - 2005; USGS - 2004), and soil (USGS - 2004; MTU - 2003; 2016-current) surveys. She has received additional training to identify the presence of California Red-legged Frogs (Wildlife Research Associates - April 2016), Point Arena Mountain Beavers (USFWS - June 2016), and Wetland Delineation (Northwest Environmental Training Center - March 2016). In the past year, she has participated in the Redwood Sciences Symposium (September 2016), the Humboldt Bay Symposium (October 2016), and NOAA's Managing Visitor Use in Coastal and Marine Protected Areas (January 2017).



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

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agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Mendocino County, Western Part, California



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

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scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map


The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



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MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)


Soils


 Soil Map Unit Polygons


 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit


 Clay Spot


 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water


 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot


 Sinkhole


 Slide or Slip


 Sodic Spot

 Spoil Area

 Stony Spot


 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals


Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Mendocino County, Western Part, California

Survey Area Data: Version 11, Sep 22, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Jan 26, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

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Map Unit Legend

Mendocino County, Western Part, California (CA694)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
117	Cabrillo-Heeser complex, 0 to 5 percent slopes	10.4	56.1%
139	Dystropepts, 30 to 75 percent slopes	7.8	42.2%
Totals for Area of Interest		18.5	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the

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development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

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Mendocino County, Western Part, California

117—Cabrillo-Heeser complex, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: hmkkm
Elevation: 20 to 240 feet
Mean annual precipitation: 35 to 45 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 250 to 330 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Cabrillo and similar soils: 50 percent
Heeser and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cabrillo

Setting

Landform: Marine terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fluvio-marine deposits derived from sandstone

Typical profile

H1 - 0 to 26 inches: sandy loam
H2 - 26 to 35 inches: sandy clay loam
H3 - 35 to 50 inches: sandy clay loam
H4 - 50 to 60 inches: sandy loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 30 to 48 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 7.5 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B
Ecological site: Sandy Loam Terrace (Perennial Grass) (R004XB060CA)
Hydric soil rating: No

Custom Soil Resource Report

Description of Heeser

Setting

Landform: Marine terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits derived from sandstone

Typical profile

H1 - 0 to 34 inches: sandy loam
H2 - 34 to 65 inches: sandy loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: Sandy Loam Terrace (Perennial Grass) (R004XB060CA)
Hydric soil rating: No

Minor Components

Biaggi

Percent of map unit: 5 percent
Hydric soil rating: No

Crispin

Percent of map unit: 5 percent
Hydric soil rating: No

Sirdrak

Percent of map unit: 4 percent
Hydric soil rating: No

Tropaquepts

Percent of map unit: 3 percent
Landform: Marine terraces
Hydric soil rating: Yes

Unnamed, gentler or steeper slopes

Percent of map unit: 3 percent
Hydric soil rating: No

Custom Soil Resource Report

139—Dystropepts, 30 to 75 percent slopes

Map Unit Composition

Dystropepts and similar soils: 75 percent

Minor components: 25 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dystropepts

Setting

Landform: Marine terraces

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Riser

Down-slope shape: Concave

Across-slope shape: Convex

Parent material: Residuum weathered from sandstone and shale

Properties and qualities

Slope: 30 to 75 percent

Depth to restrictive feature: More than 80 inches

Runoff class: High

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Minor Components

Abalobadiah

Percent of map unit: 5 percent

Hydric soil rating: No

Unnamed, gentler or steeper slopes

Percent of map unit: 5 percent

Hydric soil rating: No

Unnamed, talus

Percent of map unit: 5 percent

Hydric soil rating: No

Vizcaino

Percent of map unit: 5 percent

Hydric soil rating: No

Rock outcrop

Percent of map unit: 5 percent

Hydric soil rating: No

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U.S. Fish and Wildlife Service

National Wetlands Inventory

g, Wetland Delineation, Lotis Blue Butterfly, Behren's Silverspot Butterfly & Botanical Survey Report

Fukasawa NWI Wetlands Map

October 21, 2019



U.S. Fish and Wildlife Service, National Standards and Support Team,
wetlands_team@fws.gov

September 22, 2017

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

WYNN COASTAL PLANNING & BIOLOGY

Appendix A. Species Rarity Ranking System and Definitions

FED: federal status includes federally rare (FR), threatened (FT), or endangered (FE)

STATE: California state status includes rare (CR), threatened (CT), or endangered (CE)

CNPS: California Native Plant Society ranked inventory of native California plants thought to be at risk

CNPS Ranking

List 1A (1A) Presumed extinct in California.

List 1B (1B) Rare, threatened, or endangered in California and elsewhere.

List 2 (2) Rare, threatened or endangered in California but more common elsewhere.

List 3 (3) More information needed, a review list.

List 4 (4) Species of limited distribution, a watch list.

Threat Code extensions and their meanings:

.1 - Seriously endangered in California

.2 – Fairly endangered in California

.3 – Not very endangered in California

G-RANK: Global Ranking - The global rank (G-rank) is a reflection of the overall condition of an element throughout its global range.

SPECIES OR NATURAL COMMUNITY LEVEL

G1 = Less than 6 viable element occurrences (Eos) OR less than 1,000 individuals OR less than 2,000 acres.

G2 = 6-20 Eos OR 1,000-3,000 individuals OR 2,000-10,000 acres.

G3 = 21-80 Eos OR 3,000-10,000 individuals OR 10,000-50,000 acres.

G4 = Apparently secure; this rank is clearly lower than G3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat.

G5 = Population or stand demonstrably secure to ineradicable due to being commonly found in the world.

GH - All sites are historical so possibly extinct; the element has not been seen for at least 20 years, but suitable habitat still exists (**SH** = All California sites are historical and possibly extinct).

GX - All sites are extirpated; this element is extinct in the wild (**SX** = All California sites are extirpated).

GXC - Extinct in the wild; exists in cultivation.

G1Q - The element is very rare, but there are taxonomic questions associated with it.

T - Rank applies to a subspecies or variety.

Appendix A. Species Rarity Ranking System and Definitions

S-RANK: STATE RANKING - The state rank (S-rank) is assigned much the same way as the global rank, except state ranks in California often also contain a threat designation attached to the S-rank.

S1 = Less than 6 viable Eos OR less than 1,000 individuals OR less than 2,000 acres

S1.1 = very threatened

S1.2 = threatened

S1.3 = not very threatened OR no current threats known

S2 = 6-20 Eos OR 1,000-3,000 individuals OR 2,000-10,000 acres

S2.1 = very threatened

S2.2 = threatened

S2.3 = not very threatened OR no current threats known

S3 = 21-80 Eos or 3,000-10,000 individuals OR 10,000-50,000 acres

S3.1 = very threatened

S3.2 = threatened

S3.3 = not very threatened OR no current threats known

S4 = Apparently secure within California; this rank is clearly lower than S3 but factors exist to cause some concern; i.e. there is some threat, or somewhat narrow habitat.

S5 = Demonstrably secure to ineradicable in California. NO THREAT RANK.

Notes:

1. Other considerations used when ranking a species or natural community include the pattern of distribution of the element on the landscape, fragmentation of the population/stands, and historical extent as compared to its modern range. It is important to take a bird's eye or aerial view when ranking sensitive elements rather than simply counting Eos.

2. Uncertainty about the rank of an element is expressed in two major ways:

By expressing the rank as a range of values: e.g., S2S3 means the rank is somewhere between S2 and S3.

By adding a ? to the rank: e.g., S2? This represents more certainty than S2S3, but less than S2.

3. Other symbols

Appendix C . Table 1. Rare plant scoping list.

Scientific Name (Synonyms) Common Name	Habitat found	Blooming Period	CRPR	Fed. Listing	State Listing	State Rank	Global Rank	Found?
<i>Abronia umbellata var. breviflora</i> Pink sand-verbena	Coastal dunes	Jun-Oct	1B.1	N	N	S1	G4G5T	No
<i>Agrostis blasdalei</i> Blasdale's bent grass	Coastal dunes, coastal bluff scrub, coastal prairie.	May- Jul	1B.2	N	N	S2	G2	Yes
<i>Arctostaphylos nummularia ssp. Mendocinoensis</i> Pygmy manzanita	Closed-cone coniferous forest. Acidic sandy-clay soils in dwarfed coniferous forest.	Jan	1B.2	N	N	SH	G3?THQ	No
<i>Astragalus agnicidus</i> Humboldt milk- vetch	Openings, disturbed areas, roadsides, broadleaved upland forest, North coast coniferous forest	Apr-Sep	1B.1	N	CE	S3	G3	No
<i>Astragalus pycnostachyus var. pycnostachyus</i> Coastal marsh milk-vetch	Coastal dunes (mesic), coastal scrub, coastal salt marshes and swamps, and streamsides	Apr-Oct	1B.2	N	N	S2	G2T2	No
<i>Blennosperma nanum var. robustum</i> Point Reyes blennosperma	Coastal prairie, coastal scrub	Feb-Apr	1B.2	N	CR	S2	G4T2	No
<i>Calamagrostis crassiglumis</i> Thurber's reed grass	Coastal scrub (mesic), freshwater marshes and swamps.	May-Aug	2B.1	N	N	S2	G3Q	No
<i>Calystegia purpurata ssp. saxicola</i> Coastal bluff morning-glory	Coastal bluff scrub, Coastal dunes, Coastal scrub, North Coast coniferous forest.	Mar-Sep	1B.2	N	N	S2S3	G4T2T3	No
<i>Campanula californica</i> Swamp harebell	Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows and seeps, freshwater marshes and swamps, and North Coast coniferous forests.	Jun-Oct	1B.2	N	N	S3	G3	No
<i>Carex californica</i> California sedge	Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows and seeps, marshes and swamps (often on margins or drier areas).	May-Aug	2B.3	N	N	S2	G5	No
<i>Carex lenticularis var. limnophila</i> Lagoon sedge	Shores, beaches, often gravelly, bogs and fens, marshes and swamps, North Coast coniferous forest.	Jun-Aug	2B.2	N	N	S1	G5T5	No
<i>Carex livida</i> Livid sedge	Bogs and Fens	Jun	2A	N	N	SH	G5	No
<i>Carex lyngbyei</i> Lyngbye's sedge	Brackish or freshwater marshes and swamps	Apr-Aug	2B.2	N	N	S3	G5	No
<i>Carex saliniformis</i> Deceiving sedge	Mesic sites of coastal prairie, coastal scrub, and meadows, seeps, marshes and swamps (coastal salt)	Jun-Jul	1B.2	N	N	S2	G2	Yes
<i>Carex viridula ssp. Viridula</i> Green yellow sedge	Bogs and fens, marshes and swamps (freshwater), north coast coniferous forest (mesic).	Jun-Nov	2B.3	N	N	S1.3	G5T5	No
<i>Castilleja affinis ssp. litoralis</i> Oregon coast paintbrush	Sandy sites in coastal bluff scrub and coastal scrub; coastal dunes.	Jun	2B.2	N	N	S3	G4G5T4	No
<i>Castilleja ambigua var. humboldtiensis</i> Humboldt Bay owl's-clover	Coastal salt marshes and swamps.	Apr-Aug	1B.2	N	N	S2	G4T2	No
<i>Castilleja mendocinensis</i> (<i>Castilleja latifolia ssp. Mendocinensis</i>) Mendocino Coast paintbrush	Coastal bluff scrub, coastal scrub, closed-cone coniferous forest, coastal dunes, coastal prairie.	Apr-Aug	1B.2	N	N	S2	G2	Yes

Scientific Name (Synonyms) Common Name	Habitat found	Blooming Period	CRPR	Fed. Listing	State Listing	State Rank	Global Rank	Found?
<i>Chorizanthe howellii</i> Howell's spineflower	Sandy, often disturbed, areas of coastal prairie and coastal scrub, and coastal dunes	May - Jul	1B.2	FE	CT	S1	G1	No
<i>Clarkia amoena ssp. whitneyi</i> Whitney's farewell-to- spring	Coastal bluff scrub, coastal scrub.	Jun-Aug	1B.1	N	N	S1	G5T1	No
<i>Collinsia corymbosa</i> Round-headed Chinese-houses	Coastal dunes, coastal prairie.	Apr-June	1B.2	N	N	S1	G1	No
<i>Cornus canadensis</i> Bunchberry	Bogs and fens, meadows and seeps, North Coast coniferous forest.	May-Jul	2B.2	N	N	S2	G5	No
<i>Cuscuta pacifica var. papillata</i> Mendocino dodder	Coastal dunes (interdune depressions).	Jul-Oct	1B.2	N	N	S1	G5T1	No
<i>Erigeron supplex</i> Supple daisy	Coastal bluff scrub, coastal prairie.	May-Jul	1B.2	N	N	S2	G2	No
<i>Erysimum concinnum</i> Headland wallflower	Coastal bluff scrub, coastal dunes, coastal prairie.	Feb-Jul	1B.2	N	N	S3	G3	No
<i>Erysimum menziesii</i> (<i>Erysimum menziesii ssp. eurekaense</i> , <i>Erysimum menziesii ssp. menziesii</i> , <i>Erysimum menziesii ssp. yadonii</i>) Menzies' wallflower	Localized on coastal dunes and coastal strand.	Mar-Sep	1B.1	FE	CE	S1	G1	No
<i>Erythronium revolutum</i> Coast\Mahogany fawn lily	Mesic, streambanks. Bogs and fens; broadleaved upland forests; North Coast coniferous forest.	Mar-Aug	2B.2	N	N	S3	G4	No
<i>Fritillaria roderickii</i> (<i>Fritillaria biflora var. biflora</i>) Roderick's fritillary	Coastal bluff scrub, coastal prairie, valley and foothill grassland.	Mar-May	1B.1	N	CE	S1.1	G1Q	No
<i>Gilia capitata ssp. chamissonis</i> Blue coast gilia	Coastal dunes, coastal scrub.	Apr-Jul	1B.1	N	N	S2	G5T2	No
<i>Gilia capitata ssp. pacifica</i> Pacific gilia	Coastal bluff scrub, openings in chaparral, coastal prairie, valley and foothill grassland.	Apr-Aug	1B.2	N	N	S2	G5T3T4	No
<i>Gilia capitata ssp. tomentosa</i> Woolly-headed gilia	Serpentine, rocky, outcrops of coastal bluff scrub and calley and foothill grassland.	May-Jul	1B.1	N	N	S2	G5T2	No
<i>Gilia millefoliata</i> Dark-eyed gilia	Coastal dunes	Apr-Jul	1B.2	N	N	S2	G2	No
<i>Glyceria grandis</i> American manna grass	Bogs and fens, wet meadows and seeps, marshes, swamps, streambanks, and lake margins	Jun-Aug	2B.3	N	N	S3	G5	No
<i>Hemizonia congesta ssp. Congesta</i> Seaside tarplant	Sometimes roadsides. Valley and foothill grassland	Apr-Nov	1B.2	N	N	S1S2	G5T1T2	No
<i>Hesperovax sparsiflora var. brevifolia</i> Short-leaved evax	Sandy coastal bluffs; coastal dunes, coastal dune mat, and sandy openings in wet dune meadows. Coastal bluff scrub. Rocky, grassy slopes. In areas of sparse vegetation cover in sandy substrate.	Mar-Jun	1B.2	N	N	S2	G4T3	Yes
<i>Hesperocyparis pygmaea</i> (<i>Cupressus pygmaea</i> , <i>Cupressus goveniana ssp. pigmaea</i> , <i>Callitropsis pygmaea</i>) Pygmy cypress	Closed-cone coniferous forests, usually podzol-like	NA	1B.2	N	N	S1	G1	Yes

Scientific Name (Synonyms) Common Name	Habitat found	Blooming Period	CRPR	Fed. Listing	State Listing	State Rank	Global Rank	Found?
<i>Horkelia marinensis</i> Point Reyes horkelia	Sandy, coastal dunes, coastal scrub, coastal prairie	May-Sep	1B.2	N	N	S2	G2	No
<i>Horkelia tenuiloba</i> Thin-lobed horkelia	Mesic openings or sandy sites in broadleaved upland forests, chaparral, and valley and foothill grassland.	May-Aug	1B.2	N	N	S2	G2	No
<i>Hosackia gracilis</i> (<i>Lotus formosissimus</i>) Harlequin lotus	Wetlands, roadsides, Broadleaved upland forest, Coastal bluff scrub, Closed-cone coniferous forest, Cismontane woodland, Coastal prairie, Coastal scrub, Meadows and seeps, Marshes and swamps, North Coast coniferous forest, Valley and foothill grassland	Mar-Jul	4.2	N	N	S3	G4	Yes
<i>Juncus supiniformis</i> Hair-leaved rush	Bogs and fens; freshwater marshes and swamps near the coast.	Apr-Jul	2B.2	N	N	S1	G5	No
<i>Kopsiopsis hookeri</i> (<i>Boschniakia hookeri</i>) Small groundcone	North Coast coniferous forest	Apr-Aug	2B.3	N	N	S1S2	G4G5	No
<i>Lasthenia californica ssp. bakeri</i> Baker's goldfields	Openings in closed-cone coniferous forest; coastal scrub; meadows and seeps; marshes and swamps.	Apr-Oct	1B.2	N	N	SH	G3TH	No
<i>Lasthenia californica ssp. macrantha</i> Perennial goldfields	Coastal bluff scrub, coastal dunes, and coastal scrub.	Jan-Nov	1B.2	N	N	S2	G3T2	No
<i>Lasthenia conjugens</i> Contra Costa goldfields	Mesic sites in cismontane woodlands, alkaline playas, valley and foothill grasslands, vernal pools	Mar-Jun	1B.1	FE	N	S1.1	G1	No
<i>Lathyrus palustris</i> Marsh Pea	Bogs and fens; mesic sites of coastal prairies, coastal scrub, lower montane coniferous forests, and North Coast coniferous forests.	Mar- Aug	2B.2	N	N	S2	G5	No
<i>Lilium maritimum</i> Coast lily	Broadleaved upland forests, closed-cone coniferous forests, coastal prairies, coastal scrub, freshwater marshes and swamps. Roadsides and roadside ditches.	May-Aug	1B.1	N	N	S2	G2	No
<i>Microseris paludosa</i> Marsh microseris/silverpuffs	Closed-cone coniferous forests, cismontane woodlands, coastal scrub, valley and foothill grasslands. (A 1968 collection from Point Arena (3.2 km to N, between Hwy. 1 and beach) is the northernmost occurrence and is disjunct from southern populations.)	Apr-Jul	1B.2	N	N	S2	G2	No
<i>Oenothera wolfii</i> Wolf's evening- primrose	Sandy, usually mesic sites in coastal bluff scrub, coastal dunes, coastal prairie, and lower montane coniferous forests. (Along roads on vertical cutbanks and in grassy median. On disturbed sterile soil; upper stabilized dunes; rocky slopes protected above strand; vertical cliffs above the ocean.)	May-Oct	1B.1	N	N	S1	G2	No
<i>Packera bolanderi var. bolanderi</i> (<i>Senecio bolanderi var. bolanderi</i>) Seacoast ragwort	Sometimes roadsides, Coastal Scrub, North coast coniferous forest	Jan-Aug	2B.2	N	N	S2S3	G4T4	No
<i>Phacelia insularis var. continentis</i> North Coast phacelia	Sandy, sometimes rocky, sites in coastal bluff scrub; coastal dunes. (Rocky, thin soil with native and non-native grasses and forbs. Sandy pastureland and grazed coastal prairie.)	Mar-May	1B.2	N	N	S2	G2T2	No
<i>Pinus contorta ssp. bolanderi</i> Bolander's beach pine	Closed-cone coniferous forests with podzol-like soils. Associated with Mendocino cypress and bishop pine, and Mendocino pygmy cypress forests.	Jul-Aug	1B.2	N	N	S2	G5T2	No
<i>Piperia candida</i> White-flowered rein orchid	Sometimes serpentine, Broadleaved upland forest, Lower montane coniferous forest, North Coast coniferous forest	Mar-Sep	1B.2	N	N	S3	G3	No

Scientific Name (Synonyms) Common Name	Habitat found	Blooming Period	CRPR	Fed. Listing	State Listing	State Rank	Global Rank	Found?
<i>Pleuropogon hooverianus</i> North Coast semaphore grass	open areas, mesic, broadleafed upland forest, meadows and seeps, North coast coniferous forest.	Apr-Jun	1B.1	N	CT	S2	G2	No
<i>Potamogeton epihydrus</i> Ribbonleaf pondweed	Marshes and swamps (assorted shallow freshwater)	Jun-Sep	2B.2	N	N	S2.2?	G5	No
<i>Puccinellia pumila</i> Dwarf alkali grass	Coastal salt marshes and swamps; meadows and seeps, mineral spring meadows.	Jul	2B.2	N	N	SH	G4?	No
<i>Rhynchospora alba</i> White beaked-rush	Bogs and fens (sometimes in Mendocino pygmy forests); meadows and seeps; marshes and swamps (freshwater).	Jul-Aug	2B.2	N	N	S2	G5	No
<i>Sanguisorba officinalis</i> Great burnet	Bogs and fens, broadleafed upland forests, meadows and seeps, marshes and swamps, North Coast coniferous forests, riparian forests, Serpentine seepage areas and along stream borders.	Jul-Oct	2B.2	N	N	S2	G5?	No
<i>Sidalcea calycosa ssp. rhizomata</i> Point Reyes checkerbloom	Freshwater marshes and swamps near the coast.	Apr-Sep	1B.2	N	N	S2	G5T2	No
<i>Sidalcea malviflora ssp. patula</i> Siskiyou checkerbloom	Often roadcuts, coastal bluff scrub; coastal prairie; North coast coniferous forest	May-Aug	1B.2	N	N	S2	G5T2	No
<i>Sidalcea malviflora ssp. purpurea</i> Purple-stemmed checkerbloom	Broadleafed upland forest, coastal prairie	May-Jun	1B.2	N	N	S1	G5T1	No
<i>Trifolium buckwestiorum</i> Santa Cruz clover	Gravelly margins of broadleafed upland forests, cismontane woodlands, coastal prairie. (Common associates include <i>Juncus bufonius</i> , <i>Soliva sessilis</i> , <i>Danthonia californica</i> , and <i>Bromus hordeaceus</i> . In Mendocino Co., most collections from ~5 miles up Garcia River.)	Apr-Oct	1B.1	N	N	S2	G2	No
<i>Trifolium trichocalyx</i> Monterey clover	Closed-cone coniferous forest (sandy, openings, burned areas).	Apr-Jun	1B.1	FE	CE	S1	G1	No
<i>Triquetrella californica</i> Coastal triquetrella	Soil of Coastal bluff scrub, coastal scrub,	NA	1B.2	N	N	S2	G2	No
<i>Viola adunca</i> Western dog violet	Yellow pine forest, red fir forest, lodgepole forest, redwood forest, mixed evergreen forest, subalpine forest, alpine fell-fields, wetland riparian. Common and widespread on open sea bluffs to red fir forest.	Apr-Aug	not ranked	N	N	?	?	No
<i>Viola palustris</i> Alpine marsh violet	Coastal Bogs and Fens; Coastal Scrub (mesic)	Mar-Aug	2B.2	N	N	S1S2	G5	No

Rare Plant Alliances Occuring in Coastal Mendocino County			
Scientific Name	Common Name	Global & State Rank	Present
Woodland and Forest Alliances and Stands			
<i>Abies grandis</i> Alliance	Grand fir forest	G4 S2	No
<i>Acer macrophyllum</i> Alliance	Bigleaf maple forest	G4 S3	No
<i>Arbutus menziesii</i> Alliance	Madrone forest	G4 S3	No
<i>Callitropsis pigmaea</i> Alliance	Mendocino pygmy cypress woodland	G2 S2	No
<i>Chrysopsis chrysophylla</i> Alliance	Golden chinquapin thickets	G2 S2	No
<i>Lithocarpus densiflorus</i> Alliance	Tanoak forest	G4 S3	No
<i>Picea sitchensis</i> Alliance	Sitka spruce forest	G5 S2	No
<i>Pinus contorta</i> ssp. <i>contorta</i> Alliance	Beach pine forest	G5 S3	No
<i>Pinus muricata</i> Alliance	Bishop pine forest	G3 S3	No
<i>Sequoia sempervirens</i> Alliance	Redwood forest	G3 S3	No
<i>Tsuga heterophylla</i> Alliance	Western hemlock forest	G5 S2	No
<i>Umbellularia californica</i> Alliance	California bay forest	G4 S3	No
Shrubland Alliances and Stands			
<i>Arctostaphylos (nummularia, sensitiva)</i>	Glossy leaf manzanita chaparral	G2 S2	No
<i>Corylus cornuta</i> var. <i>californica</i>	Hazelnut scrub	G3 S2?	No
<i>Garrya elliptica</i> Provisional Alliance	Coastal silk tassel scrub	G3? S3?	No
<i>Diplacis aurantiacus</i> Alliance	Bush monkeyflower scrub	G3 S3?	No
<i>Holodiscus discolor</i> Alliance	Ocean spray brush	G4 S3	No
<i>Morella californica</i> Alliance	Wax myrtle scrub	G3 S3	No
<i>Rhododendron neoglandulosum</i>	Western Labrador-tea thickets	G4 S2?	No
<i>Rhododendron occidentale</i> Provisional	Western azalea patches	G3 S2?	No
<i>Rosa californica</i> Alliance	California rose briar patches	G3 S3	No
<i>Rubus (parviflorus, spectabilis, ursinus)</i>	Coastal brambles	G4 S3	No
<i>Salix hookeriana</i> Alliance	Coastal dune willow thickets	G4 S3	No
<i>Sphagnum</i> Bog	Sphagnum bog	G3 S1.2	No
<i>Salix sitchensis</i> Provisional Alliance	Sitka willow thickets	G4 S3?	No
Herbaceous Alliances and Stands			
<i>Abronia latifolia</i> – <i>Ambrosia</i>	Dune mat	G3 S3	No
<i>Argentina egedii</i> Alliance	Pacific silverweed marshes	G4 S2	No
<i>Bulboschoenus maritimus</i> Alliance	Salt marsh bulrush marshes	G4 S3	No
<i>Calamagrostis nutkaensis</i> Alliance	Pacific reed grass meadows	G4 S2	No
<i>Camassia quamash</i> Alliance	Small camas meadows	G4? S3?	No
<i>Carex obnupta</i> Alliance	Slough sedge swards	G4 S3	Yes
<i>Carex pansa</i> Alliance	Sand dune sedge swaths	G4? S3?	No
<i>Danthonia californica</i> Alliance	California oat grass prairie	G4 S3	No
<i>Elymus glaucus</i> Alliance	Blue wild rye meadows	G3? S3?	No
<i>Festuca rubra</i> Alliance	Red fescue grassland	G4 S3?	No
<i>Festuca idahoensis</i> Alliance	Idaho fescue grassland	G4 S3?	No
<i>Glyceria occidentalis</i>	Northwest manna grass marshes	G3? S3?	No
<i>Grindelia (stricta)</i> Provisional Alliance	Gum plant patches	G3? S3?	No
<i>Hordeum brachyantherum</i> Alliance	Meadow barley patches	G4 S3?	No
<i>Juncus (oxymeris, xiphioides)</i>	Iris-leaf rush seeps	G2? S2?	No
<i>Juncus lescurii</i> Alliance	Salt rush swales	G3 S2?	No
<i>Leymus mollis</i> Alliance	Sea lyme grass patches	G4 S2	No
<i>Leymus triticoides</i> Alliance	Creeping rye grass turfs	G4 S3	No
<i>Mimulus (guttatus)</i> Alliance	Common monkey flower seeps	G4? S3?	No
<i>Poa secunda</i> Alliance	Curley bluegrass grassland	G4 S3?	No
<i>Scirpus microcarpus</i> Alliance	Small-fruited bulrush marsh	G4 S2	No
<i>Woodwardia fimbriata</i>	Woodwardia thicket	G3 S3.2	No
	North Coast Bluff Scrub	G2 S2.1	No
	Northern Coastal Terrace Prairie	G2 S2.1	No
Aquatic Vegetation			
<i>Hydrocotyle (ranunculoides)</i>	Mats of floating pennywort	G4 S3?	No

Rare Plant Alliances Occuring in Coastal Mendocino County			Present
Scientific Name	Common Name	Global & State Rank	
<i>Nuphar lutea</i> Provisional Alliance	Yellow pond-lily mats	G5 S3?	No
<i>Oenanthe sarmentosa</i> Alliance	Water-parsley marsh	G4 S2?	No
<i>Sarcocornia pacifica</i> (<i>Salicornia</i>	Pickleweed mats	G4 S3	No
<i>Sparganium</i> (<i>angustifolium</i>) Alliance	Mats of bur-reed leaves	G4 S3?	No
<i>Typha</i> (<i>angustifolia</i> , <i>domingensis</i> ,	Cattail marshes	G5 S5	No

Special-Status Wildlife with Potential Occurrence on the Project Site.										
Scientific name	Common Name	Federal Status	State Status	G	S	Organization: Code	Habitat	County	East or West of HWY 1	Observed
INVERTEBRATES										
<i>Helminthoglypta arrosa pomoensis</i>	Pomo bronze shoulderband snail	None	None	G2G3T1	S1	IUCN:DD	Found near the coast in heavily-forested redwood canyons of Mendocino County, from Big River and Russian Gulch watersheds. Found under redwoods. Generally, in somewhat moist duff. Found in scrub in forest opening under a power line in Russian Gulch.	MEN	W	No
<i>Bombus caliginosus</i>	Obscure Bumble bee	None	None	G4?	S1S2	IUCN_VU	Inhabits open grassy coastal prairies and Coast Range meadows. Nesting occurs underground as well as above ground in abandoned bird nests. Males patrol circuits in search of mates. Reported to DFW as within 5 miles of project sites in this species is very similar to the common yellow-faced bumblebee (<i>Bombus vosnesnikii</i>), differentiated by the structure of the male genitalia. The obscure bumblebee tends to have longer hairs, however, and yellow hairs are found on the underside of the abdomen.	MEN, SO, CL, HB, TR	EW	No
<i>Bombus occidentalis</i>	Western bumble bee	None	None	GU	S1	XERCES:IM	Populations in central California have declined since the 1990's. It visits flowers in a variety of habitats. Identified by a white patch on its abdomen hind tip. None recorded from coastal Mendocino County at http://www.xerces.org/bumblebees .	MEN, SO, CL, HB, TR	EW	No
<i>Coelus globosus</i>	Globose dune beetle	None	None	G1	S1	IUCN:VU	Subterranean beetle that tunnels through sand under dune vegetation. Since coastal dune habitat in California is diminishing, the beetle is a special-status species.	MEN, SO	W	No
<i>Lycaeides argyrognomon lotis</i>	lotis blue butterfly	Endangered	None	G5TH	SH	XERCES:CI	Not seen since 1983, it is primarily from Mendocino County but historically from northern Sonoma and possibly Marin Counties. Inhabits wet meadows, damp coastal prairie, and potentially bogs or poorly-drained sphagnum-willow bogs where soils are waterlogged and acidic. Presumed host plant is <i>Hosackia gracilis</i> .	MEN, SO	EW	No
<i>Noyo interressa</i>	Ten Mile shoulderband snail	None	None	G2	S2	None	Known from a few locations in Mendocino County with limited habitat information. Known from Ten Mile Dunes.	MEN	W	No
<i>Speyeria zerene behrensi</i>	Behren's silverspot butterfly	Endangered	None	G5T1	S1	XERCES:CI	Historically from near the City of Mendocino, Mendocino County, south to the area of Salt Point State Park, Sonoma County. Now presumed to be from Manchester south to Salt Point area. Inhabits coastal terrace prairie with caterpillar host plants: violet (<i>Viola adunca</i>) and adult nectar sources: thistles, asters, etc.	MEN, SO	EW	No
FISH										
<i>Entosphenus tridentatus</i>	Pacific lamprey	None	None	G5	S4	AFS:VU	Anadromous lamprey found in freshwater rivers around the Pacific Rim, from Japan to Baja California. Adult Pacific Lamprey spawn in habitat similar to salmon: low gradient stream reaches, in gravel, often at the tailouts of pools and riffles.	MEN, SO, HB	EW	No
<i>Lampetra ayresii</i>	River lamprey	None	None	G4	S4	AFS:VU DFG:SSC	Anadromous lamprey that uses riffle and side channel habitats for spawning and for ammocoete rearing where good water quality is essential. Adult Pacific Lamprey spawn in habitat similar to salmon: low gradient stream reaches, in gravel, often at the tailouts of pools and riffles.	MEN, SO, CL, HB, TR	EW	No
<i>Oncorhynchus kisutch</i>	Coho salmon - southern Oregon / northern California ESU	Threatened	Threatened	G4T2Q	S2?	AFS:TH DFG:SSC	Require beds of loose, silt-free, coarse gravel for spawning. Also need cover, cool water and sufficient dissolved oxygen.	MEN, SO, HB	EW	No
<i>Oncorhynchus mykiss irideus</i>	steelhead-northern California DPS	Threatened	None	G5T2Q	S2	AFS:TH DFG:SSC	Cool, swift, shallow water and clean loose gravel for spawning.	MEN, SO, HB	EW	No
<i>Oncorhynchus tshawytscha</i>	chinook salmon - California coastal ESU	Threatened	None	G5	S2	AFS:TH	Adults depend on pool depth and volume, amount of cover, and proximity to gravel. Water temps >27° C lethal to adults.	MEN, SO, HB	EW	No
<i>Lavinia symmetricus navarroensis</i>	Navarro roach	None	None	G5T1T2	S1S2	DFG:SSC	Habitat generalists. Found in warm intermittent streams as well as cold, well-aerated streams. Found in the lower, warmer reaches of streams in the Russian and Navarro River drainages.	MEN	EW	No
<i>Lavinia symmetricus parvipinnis</i>	Gualala roach	None	None	G5T1T2	S1S2	DFG:SSC	Habitat generalists. Found in warm intermittent streams as well as cold, well-aerated streams.	MEN, SO	EW	No
<i>Eucyclogobius newberry</i>	tidewater goby	Endangered	None	G3	S2S3	AFS:EN DFG:SSC IUCN:VU	Brackish water habitats along the California coast from Agua Hedionda lagoon, San Diego Co. to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches; they need fairly still but not stagnant water and high oxygen levels.	MEN, SO, HB	EW	No
AMPHIBIANS & REPTILES										
<i>Rhyacotriton variegatus</i>	southern torrent (=seep) salamander	None	None	G3G4	S2S3	DFG:SSC IUCN:LC USFS:S	Found in Coastal redwood, Douglas fir, mixed conifer, montane riparian, and montane hardwood-conifer forests from northern California south to Point Arena. Aquatic habitat includes permanent cold creeks, streams and seepages with low water flow, associated with moss-covered rocks within trickling water and the splash zone of waterfalls; old-growth coniferous forests with closed canopy, <50% cobble in creeks, remainder mixture of pebbles, gravel and sand.	MEN, HB, TR	EW	No
<i>Ascaphus truei</i>	Pacific tailed frog	None	None	G4	S2S3	DFG:SSC IUCN:LC	Occurs in montane hardwood-conifer, redwood, Douglas-fir and ponderosa pine habitats. Coastal from Anchor Bay, Mendocino Co. to Oregon border. Cold, clear, rocky streams in wet forests. They do not inhabit ponds or lakes. A rocky streambed is necessary for cover for adults, eggs, and larvae. After heavy rains, adults may be found in the woods away from the stream.	MEN, HB, TR, CL	EW	No
<i>Rana aurora aurora</i>	northern red-legged frog	None	None	G4T4	S2?	DFG:SSC USFS:S	Found in humid forests, woodlands, grasslands, and streambeds in northwestern California. Generally near permanent water, but can be found far from water, in damp woods and meadows, during non-breeding season. Integration zone between northern and California species is between Manchester and Elk.	MEN, HB	EW	No
<i>Rana aurora draytonii</i>	California red-legged frog	Threatened	None	G4T2T3	S2S3	DFG:SSC IUCN:VU	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	MEN, SO, CL	EW	No
<i>Rana boylei</i>	foothill yellow-legged frog	None	None	G3	S2S3	BLM:S DFG:SSC IUCN:NT USFS:S	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg-laying.	MEN, SO, CL, HB, TR	EW	No
<i>Emys marmorata marmorata</i>	western pond turtle	None	None	G3G4	S3	BLM:S DFG:SSC IUCN:VU USFS:S	Former scientific name: <i>Clemmys marmorata marmorata</i> . Associated with permanent or nearly permanent water in a wide variety of habitats. Requires basking sites. Nest sites may be found up to 0.5 km from water.	MEN, SO, CL, HB, TR	EW	No
BIRDS										
<i>Phalacrocorax auritus</i>	double-crested cormorant (nesting colony)	None	None	G5	S3	DFG:WL IUCN:LC	Rookery site: colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state. Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.	MEN, SO, HB	EW	No
<i>Ardea alba</i>	great egret (nesting colony)	None	None	G5	S4	CDF:S IUCN:LC	Rookery: colonial nester in large trees. Rookery sites located near marshes, tide-flats, irrigated pastures, and margins of rivers and lakes.	MEN, SO, CL, HB, TR	EW	No
<i>Ardea herodias</i>	great blue heron (nesting colony)	None	None	G5	S4	CDF:S IUCN:LC	Rookery: colonial nester in tall trees, cliffsides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	MEN, SO, CL, HB, TR	EW	No
<i>Egretta thula</i>	Snowy egret (nesting colony)	None	None	G5	S4	CDF:S IUCN:LC	Rookery: colonial nester, with nest sites situated in protected beds of dense tules. Rookery sites situated close to foraging areas: marshes, tide-flats, streams, wet meadows, and borders of lakes.	MEN, SO, CL, HB, TR	EW	No
<i>Accipiter cooperii</i>	Cooper's hawk (nesting)	None	None	G5	S3	DFG:WL IUCN:LC	Nesting: woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	MEN, SO, CL, HB, TR	EW	No
<i>Accipiter gentilis</i>	northern goshawk (nesting)	None	None	G5	S3	BLM:S CDF:S DFG:SSC IUCN:LC USFS:S	Nesting: within and in vicinity of coniferous forest. Uses old nests, and maintains alternate sites. Usually nests on north slopes, near water. Red fir, lodge pole pine, Jeffrey pine, and aspens are typical nest trees. Northern goshawks typically nest in conifer forests containing large trees and an open understory on the west slope of the Sierra. There is historic nesting in Big River and Pudding Creek. Winter migrant on the coast.	MEN, HB, TR, CL	EW	No
<i>Accipiter striatus</i>	sharp-shinned hawk (nesting)	None	None	G5	S3	DFG:WL	Nesting: ponderosa pine, black oak, riparian deciduous, mixed conifer and Jeffrey pine habitats. Prefers riparian slopes. North-facing slopes, with plucking perches are critical requirements. Nests usually within 275 ft. of water. Nests in dense, even-aged, single-layered forest canopy, usually nests in dense, pole and small-tree stands of conifers, which are cool, moist, well shaded, with little ground-cover, near water.	MEN, SO, CL, HB, TR	EW	No
<i>Aquila chrysaetos</i>	golden eagle (nesting & wintering)	None	None	G5	S3	CDF:S DFG:FP DFG:WL IUCN:LC USFWS:BCC	Nesting and wintering: rolling foothills mountain areas, sage-juniper flats, desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	MEN, SO, CL, HB, TR	EW	No
<i>Buteo regalis</i>	ferruginous hawk (wintering)	None	None	G4	S3S4	DFG:WL IUCN:LC USFWS:BCC	Usually east of the coastal belt, uncommon migrant in coastal Mendocino County seen in open areas such as Bald Hill and Manchester. Feeding habitat in open, treeless areas. Does not breed in California.	MEN, SO, CL, HB, TR	EW	No
<i>Circus cyaneus</i>	Northern harrier (nesting)	None	None	G5	S3	DFG:SSC IUCN:LC	Northern harriers prefer sloughs, wet meadows, marshlands, swamps, prairies, plains, grasslands, and shrublands and perch on structures such as fence posts. Nesting habitat: nest on the ground, usually near water, or tall grass, open fields, clearings, or on the water on a stick foundation, willow clump, or sedge tussock. Most nests built within patches of dense, often tall, vegetation (e.g., cattails) in undisturbed areas. They usually nest near hunting grounds. Foraging: They need open, low woody or herbaceous vegetation for nesting and hunting.	MEN, SO, CL, HB, TR	EW	No

Special-Status Wildlife with Potential Occurrence on the Project Site.										
<i>Elanus leucurus</i>	white-tailed kite (nesting)	None	None	G5	S3	DFG-FP IUCN-LC	Nesting: rolling foothills/valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland, open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching. Winter congregation of at least 20 birds seen at Manchester State Park in early 2000's. One nest known from a THP in Albion ~2006; nest was at the edge of conifer forest with no pasture immediately adjacent.	MEN, SO, CL, HB, TR	EW	No
<i>Haliaeetus leucocephalus</i>	bald eagle (nesting & wintering)	Delisted	Endangered	G5	S2	CDF-S DFG-FP IUCN-LC USFS-S USFWS-BCC	Nesting and wintering: ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter. Known from winter in Lake Cleone, MacKenzie State Park and Little River.	MEN, SO, CL, HB, TR	EW	No
<i>Pandion haliaetus</i>	Osprey (nesting)	None	None	G5	S3	CDF-S DFG-WL IUCN-LC	Nesting: ocean shore, bays, fresh-water lakes, and larger streams. Large nests built in tree-tops within 6-7 to 15 miles of good fish-producing body of water. Flattened portions of partially broken off snags, trees, rocks, dirt pinnacles, cacti, and numerous man-made structures such as utility poles and duck blinds are used for nests. Furthest nest inland may be McGuire's Pond.	MEN, SO, CL, HB, TR	EW	No
<i>Falco columbarius</i>	Merlin (wintering)	None	None	G5	S3	DFG-WL IUCN-LC	General wintering habitat: Uncommon winter migrants on the coast. Habitat apparently similar to breeding habitat, (open forest and grasslands). Regularly hunts prey (e.g., shorebirds) concentrated on tidal flats. Often winters in cities throughout its range, where frequently perches on buildings, power poles, and tall trees. Also winters in open woodland, grasslands, open cultivated fields, marshes, estuaries, and seacoasts. Frequents open habitats at low elevation near water and tree stands.	MEN, SO, CL, HB, TR	EW	No
<i>Falco peregrinus anatum</i>	American peregrine falcon (nesting)	Delisted	Delisted	G4T3	S2	CDF-S DFG-FP USFWS-BCC	Nesting: near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape on a depression or ledge in an open site.	MEN, SO, CL, HB, TR	EW	No
<i>Charadrius alexandrinus nivosus</i>	western snowy plover (nesting)	Threatened	None	G4T3	S2	ABC-WLBCC DFG-SSC USFWS-BCC	Nesting: federal listing applies only to the Pacific coastal population. Sandy beaches, salt pond levees and shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting. Sand spits, dune-backed beaches, unvegetated beach strands, open areas around estuaries, and beaches at river mouths are the preferred coastal habitats for nesting. Less common nesting habitat includes salt pans, coastal dredged spoil disposal sites, dry salt ponds, and salt pond levees and islands.	MEN, SO, HB	EW	No
<i>Haematopus bachmani</i>	Black oystercatcher (nesting)	None	None	G5	S2	IUCN-LC USFWS-BCC	From the Aleutian Islands to Baja California, the forage on intertidal macroinvertebrates along gravel or rocky shores and in the southern part of their range nest primarily on rocky headlands and offshore rocks.	MEN, SO, HB	EW	No
<i>Larus californicus</i>	California gull (nesting)	None	None	G5	S2	DFG-WL IUCN-LC	Colony nesters and usually occurring on an island or vegetated offshore rock.	MEN, SO, CL, HB, TR	EW	No
<i>Brachyramphus marmoratus</i>	marbled murrelet (nesting)	Threatened	Endangered	G3G4	S1	ABC-WLBCC CDF-S IUCN-EN	Nesting: feeds near-shore; nests inland along coast, from Eureka to Oregon border and from Half Moon Bay to Santa Cruz. Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas-fir. Presence of platforms (flat surface at least four inches in diameter) appears to be the most important stand characteristic for predicting murrelet presence. Stands can be: 1) mature (with or without an old-growth component); 2) old-growth; 3) young coniferous forests with platforms; and 4) include large residual trees in low densities sometimes less than one tree per acre.	MEN, SO, HB	EW	No
<i>Fratercula cirrhata</i>	tufted puffin (nesting colony)	None	None	G5	S2	DFG-SSC IUCN-LC	Nesting colony: open-ocean bird; nests along the coast on islands, islets, or (rarely) mainland cliffs free of human disturbance and mammalian predators. Nests in burrows or rock crevices when sod or earth is unavailable for burrowing. Occurs year-round offshore near breeding colonies in northern California, but more common in winter. Breeding records from Goat Rock, Mendocino Headlands State Park.	MEN, SO, HB	EW	No
<i>Athene cunicularia</i>	burrowing owl (burrow sites and some winter sites)	None	None	G4	S2	BLM-S DFG-SSC IUCN-LC USFWS-BCC	Burrow sites: open, dry annual or perennial grasslands, deserts and scrublands, and dunes characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	MEN, SO, CL, HB, TR	EW	No
<i>Strix occidentalis caurina</i>	northern spotted owl	Threatened	None	G3T3	S2S3	ABC-WLBCC CDF-S DFG-SSC IUCN-NT	Old-growth forests or mixed stands of old-growth and mature trees. Occasionally in younger forests w/patches of big trees. High, multistoried canopy dominated by big trees, many trees w/cavities or broken tops, woody debris, and space under canopy.	MEN, SO, HB	EW	No
<i>Chaetura vauxi</i>	Vaux's swift (nesting)	None	None	G5	S3	DFG-SSC IUCN-LC	Nesting: redwood, Douglas fir, and other coniferous forests. Nests in large hollow trees and snags. Often nests in flocks. Forages over most terrains and habitats but shows a preference for foraging over rivers and lakes. The most important habitat requirement appears to be an appropriate nest-site in a large, hollow tree. Forages over most terrains and habitats, often high in theater. Shows an apparent preference for foraging over rivers and lakes.	MEN, SO, CL, HB, TR	EW	No
<i>Selasphorus rufus</i>	rufous hummingbird (nesting)	None	None	G5	S1S2	IUCN-LC USFWS-BCC	Breeds in open or shrubby areas, forest openings, yards and parks, and sometimes in forests, thickets, and meadows. Late winter and spring migrant on the California coast. Breeding range from southeast Alaska and as far south as northwestern California.	MEN, SO, CL, HB, TR	EW	No
<i>Selasphorus sasin</i>	Allen's hummingbird (nesting)	None	None			ABC-WLBCC IUCN-LC USFWS-BCC	Breeds only along a narrow strip of coastal California and southern Oregon. Nests in densely vegetated areas and forests. An early migrant compared with most North American birds, arriving in summer breeding grounds as early as January. Breeds in moist coastal areas, scrub, chaparral, and forests. Winters in forest edge and scrub clearings with flowers.	MEN, SO, CL, HB, TR	EW	No
<i>Picoides nuttallii</i>	Nuttall's woodpecker (nesting)	None	None	G5	SNR	ABC-WLBCC IUCN-LC	Ranging from west of the Cascade mountains and in the Sierra Nevada from southern Oregon to Northern Baja California. Nests are excavated in dead branches or snags of various trees, usually in close association with oak woodlands and riparian zone, habitat vulnerable to development. At least one Mendocino Coast record from 2011 Audubon Christmas Bird Count.	MEN, SO, CL, HB, TR	EW	No
<i>Sphyrapicus ruber</i>	red-breasted sapsucker	None	None	G5	SNR	None	Breeds primarily in coniferous forests, but also uses deciduous and riparian habitat, as well as orchards and power line corridors. The nest is a hole usually dug in a live deciduous tree (e.g. alder, willow, madrone) with possible preference for larger trees showing decay-softened wood.	MEN, SO, CL, HB, TR	EW	No
<i>Contopus cooperi</i>	olive-sided flycatcher (nesting)	None	None	G4	S4	ABC-WLBCC DFG-SSC IUCN-NT USFWS-BCC	Breeds in montane and northern coniferous forests, at forest edges and openings, such as meadows and ponds. Tall standing dead trees are a key components of suitable habitat. Nest is an open cup of twigs, rootlets, and lichens, placed out near tip of horizontal branch of a tree.	MEN, SO, CL, HB, TR	EW	No
<i>Progne subis</i>	purple martin	None	None	G5	S3	DFG-SSC IUCN-LC	Nesting: inhabits woodlands, low elevation coniferous forest of Douglas fir, Ponderosa pine, and Monterey pine. Nests in old woodpecker cavities mostly, also in human-made structures such as weep holes in bridges. Nest often located in tall, isolated trees and snags. Nesting on the Mendocino Coast known, in part, from Juan Creek, Ten Mile, Noyo, and Big River, and snags from Ten Mile River to Pudding Creek. Need open foraging habitats.	MEN, SO, CL, HB, TR	EW	No
<i>Dendroica occidentalis</i>	hermit warbler (nesting)	None	None	G4G5	S3?	ABC-WLBCC IUCN-LC	Breeding range is relatively limited to the Pacific Coast and the Cascade and Sierra Nevada mountain ranges of Washington, Oregon, and California. Some winter along the coastal central and southern California, but most winter primarily in the mountains of western Mexico and Central America. Nesting habitats in Pacific northwest are coniferous forests with a high canopy volume, generally preferring mature stands of pine and Douglas fir. Avoids areas with a high deciduous volume; absent from riparian areas and clearcuts. Birds of coniferous forests; they prefer cool, wet forests at elevation, and moist forests of Douglas-fir, hemlock, and western red cedar closer to sea level. Major threat to this species appears to be the degradation of breeding habitat. Not known as frequently nesting on the coast, perhaps more common inland.	MEN, SO, CL, HB, TR	EW	No
<i>Ammodramus savannarum</i>	grasshopper sparrow (nesting)	None	None	G5	S2	DFG-SSC IUCN-LC	Nesting: dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favours native grasslands with a mix of grasses, forbs and scattered shrubs. Loosely colonial when nesting. Summer (breeding) resident in Mendocino County known from north of Ten Mile River.	MEN, SO, CL, TR	EW	No
<i>Agelaius tricolor</i>	tricolored blackbird (nesting colony)	None	None	G2G3	S2	ABC-WLBCC BLM-S DFG-SSC IUCN-EN USFWS-BCC	Nesting colony: highly colonial species, most numerous in central valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, such as cattails and foraging area with insect prey within a few km of the colony. Known inland from McGuire's Pond.	MEN, SO, CL, HB, TR	EW	No
Mammals										
<i>Antrozous pallidus</i>	pallid bat	None	None	G5	S3	BLM-S DFG-SSC IUCN-LC USFS-S WBWG-H	A wide variety of habitats deserts, grasslands, shrublands, woodlands and forests from sea level up through mixed conifer forests. Most common in open, dry habitats with rocky areas for roosting. A yearlong resident in most of the range. Day roosts are in caves, crevices, mines, and occasionally in hollow trees and buildings where there is protection from high temperatures.	MEN, SO, CL, HB, TR	EW	No
<i>Corynorhinus townsendi</i>	Townsend's big-eared bat	None	None	G4	S2S3	BLM-S DFG-SSC IUCN-LC USFS-S WBWG-H	Generally found in the dry uplands throughout the West, but also occur in mesic coniferous and deciduous forest habitats along the Pacific coast. Unequivocally associated with areas containing caves and cave-analogues for roosting habitat. Requires spacious cavern-like structures for roosting during all stages of its life cycle. Typically, they use caves and mines, but have been noted roosting in large hollows of redwood trees, attics and abandoned buildings, lava tubes, and under bridges. Extremely sensitive to disturbance.	MEN, SO, CL, HB, TR	EW	No

Special-Status Wildlife with Potential Occurrence on the Project Site.										
<i>Lasiurus noctivagans</i>	silver-haired bat	None	None	G5	S3S4	IUCN:LC WBWG:M	Ranges throughout California in coastal and montane forests. May be found anywhere in California during spring and fall migrations. Primarily a forest (tree-roosting) bat associated with north temperate zone conifer and mixed conifer/hardwood forests. Prefers forested (frequently coniferous) areas adjacent to lakes, ponds, and streams. During migration, sometimes occurs in xeric areas. Roosts in dead or dying trees with exfoliating bark, extensive vertical cracks, or cavities, rock crevices, and occasionally under wood piles, in leaf litter, under foundations, and in buildings, mines and caves. The primary threat is likely loss of roosting habitat due to logging practices that fail to accommodate the roosting needs of this species.	MEN, SO, CL, HB, TR	EW	No
<i>Lasiurus blossevillii</i>	western red bat	None	None	G5	S3?	DFG:SSC IUCN:LC	Locally common in some areas of California from Shasta County south to the Mexican border. California Central Valley is the species' primary breeding region. Species appears to be strongly associated with riparian habitats for roosting and foraging, particularly mature stands of large diameter of cottonwood/sycamore. Roosts in woodland borders, rivers, agricultural areas, and urban areas with mature trees in the foliage of large shrubs and trees, usually sheltering on the underside of overhanging leaves. It often hangs from one foot on the leaf petiole and may resemble a fruit or dead leaf. Rarely observed roosting in mines.	MEN, SO, CL, HB, TR	EW	No
<i>Lasiurus cinereus</i>	hoary bat	None	None	G5	S4?	IUCN:LC WBWG:M	Most widespread North American bat. Solitary species that winters along the coast and in southern California. Roosts in foliage of trees near ends of branches. Blends with the bark of trees. Highly associated with forested habitats but can be found in suburbs with old, large trees.	MEN, SO, CL, HB, TR	EW	No
<i>Myotis evotis</i>	long-eared myotis bat	None	None	G5	S4?	BLM:S IUCN:LC WBWG:M	Widespread in California, but generally is believed to be uncommon in most of its range. It avoids the arid Central Valley and hot deserts, occurring along the entire coast and interior mountains. Found in nearly all brush, woodland, and forest habitats, from sea level to at least 9,000 ft., but coniferous woodlands and forests seem to be preferred. Roosts in loose bark in tall, open-canopied snags; stumps in south-facing clear-cuts with minimal vegetation overgrowth in younger forests, and conifer snags in older forests, rocks, caves, bridges and abandoned mines.	MEN, SO, CL, HB, TR	EW	No
<i>Myotis yumanensis</i>	Yuma myotis bat	None	None	G5	S4?	BLM:S IUCN:LC WBWG:LM	Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	MEN, SO, CL, HB, TR	EW	No
<i>Aplodontia rufa nigra</i>	Point Arena mountain beaver	Endangered	None	G5T1	S1	DFG:SSC IUCN:LC	Generally known north of Eureka and Eureka Bay, extending to 3 miles south of the town of Point Arena. Coastal areas often near springs or seepages; mesic coastal scrub, northern dune scrub, edges of conifer forests, and riparian plant communities. North facing slopes of ridges and gullies with friable soils and thickets of <i>Myrica</i> .	MEN	EW	No
<i>Arborimus pomo</i>	Sonoma tree vole	None	None	G3	S3	DFG:SSC IUCN:NT	Species split into red tree vole and Sonoma tree vole; approximate boundary between two species is Klamath River. Inhabits north coast fog belt from Oregon border to Sonoma Co. in old-growth and other forests, mainly Douglas-fir, redwood, and montane hardwood-conifer habitats. Feeds almost exclusively on Douglas-fir needles. Will occasionally take needles of pine, grand fir, hemlock or spruce.	MEN, SO, HB, TR	EW	No
<i>Martes americana humboldtensis</i>	Humboldt marten	None	None	G5T2T3	S2S3	DFG:SSC USFS:S	Endemic to the coastal forests of northwestern California with a historical range described as "the narrow northwest humid coast strip, chiefly within the redwood belt" from the Oregon border to northern Sonoma county. However, the one known remnant Humboldt marten population occurs in the north-central portion of the described range in an area dominated by Douglas-fir and tanoak. Typically associated with closed-canopy, late-successional, mesic coniferous forests with complex physical structure near the ground. Very rare on the Mendocino coast.	MEN, HB	EW	No
<i>Martes pennanti (pacific) DPS</i>	Pacific fisher	Candidate	None	G5	S2S3	BLM:S DFG:SSC USFS:S	Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. Use cavities, snags, logs and rocky areas for cover and denning. Need large areas of mature, dense forest. Very rare on the Mendocino coast.	MEN, SO, CL, HB, TR	EW	No
Key for Counties: MEN: Mendocino, SO: Sonoma, CL: Clear Lake, HB: Humboldt, TR: Trinity										

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 46880 Iversen Lane City/County: Gualala / Mendocino Sampling Date: 08/10/17
Applicant/Owner: Fukasawa State: CA Sampling Point: 01
Investigator(s): Bethany Baibak Section, Township, Range: S4 T11N R16W
Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): concave Slope (%): 10%
Subregion (LRR): A Lat: 38°50'57.541"N Long: 123°38'42.247"W Datum: NAD83
Soil Map Unit Name: Dystropepts, 30-75% slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks: <u>Selected because of concave shape & proximity to proposed development</u> <u>~40 ft west of road. See gps.</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 - Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) _____ ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Sapling/Shrub Stratum (Plot size: <u>20'</u>) 1. <u>Baccharis pilularis</u> <u>25</u> <u>yes</u> <u>NI</u> 2. <u>Contactoria sp.</u> <u>1</u> <u>no</u> <u>NI</u> 3. _____ 4. _____ 5. _____ = Total Cover <u>26</u>				
Herb Stratum (Plot size: <u>10'</u>) 1. <u>Anthoxanthum odoratum</u> <u>50</u> <u>yes</u> <u>FACU</u> 2. <u>Briiza maxima</u> <u>20</u> <u>no</u> <u>NI</u> 3. <u>Holcus lanatus</u> <u>5</u> <u>yes</u> <u>FAC</u> 4. <u>Hypochaeris radicata</u> <u>5</u> <u>yes</u> <u>FACU</u> 5. <u>Plantago lanceolata</u> <u>2</u> <u>yes</u> <u>FACU</u> 6. <u>Pyridoxophora penicillatum</u> <u>20</u> <u>yes</u> <u>NI</u> 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ = Total Cover <u>102</u>				
Woody Vine Stratum (Plot size: <u>10'</u>) 1. <u>Rubus ursinus</u> <u>8</u> <u>yes</u> <u>FACU</u> 2. _____ = Total Cover <u>8</u>				
% Bare Ground in Herb Stratum _____				

Remarks:
No dominant hydrophytic vegetation observed 8/10/17

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> 2 cm Muck (A10) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) | |
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

No hydric soil indicators observed 8/10/17

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) (except |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes No ☒ Depth (inches):

Water Table Present? Yes No ☒ Depth (inches):

Saturation Present? Yes No ☒ Depth (inches):

(includes capillary fringe)

Wetland Hydrology Present? Yes No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrology observed 8/10/17

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 46880 Iversen Lane City/County: Gualala Sampling Date: 08/10/17
 Applicant/Owner: Fukasawa State: CA Sampling Point: 62
 Investigator(s): Bethany Baibak Section, Township, Range: S4 T11N R16W
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): CONCAVE Slope (%): 7°
 Subregion (LRR): A Lat: 38° 50' 50.401" N Long: 123° 38' 43.374" W Datum: NAD83
 Soil Map Unit Name: Dystropepts, 30-75% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present?	Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present?	Yes <u>X</u> No <u> </u>	
Remarks: <u>slope 25ft below small channel. "Greener" veg in August</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Pinus muricata (seedling)</u>	<u>5</u>	<u>yes</u>	<u>NI</u>	
2. <u>Apocynum androsaemifolium</u>	<u>1</u>	<u>no</u>	<u>NI</u>	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>16%</u> (A/B)
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Prevalence Index worksheet:
<u>6</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>20'</u>)				Total % Cover of:
1. <u>Baccharis pilularis</u>	<u>1</u>	<u>no</u>	<u>NI</u>	OBL species <u>2</u> x 1 = <u>2</u>
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FACW species <u>11</u> x 2 = <u>22</u>
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FAC species <u>15</u> x 3 = <u>45</u>
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FACU species <u>58</u> x 4 = <u>174</u>
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	UPL species <u>17</u> x 5 = <u>85</u>
<u>1</u> = Total Cover				Column Totals: <u>103</u> (A) <u>328</u> (B)
Herb Stratum (Plot size: <u>10'</u>)				Prevalence Index = B/A = <u>3.18</u>
1. <u>Hypochaeris radicata</u>	<u>15</u>	<u>yes</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> </u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Anthoxanthum odoratum</u>	<u>40</u>	<u>yes</u>	<u>FACU</u>	
3. <u>Holcus lanatus</u>	<u>15</u>	<u>yes</u>	<u>FAC</u>	
4. <u>Linum biemale</u>	<u>5</u>	<u>no</u>	<u>NI</u>	
5. <u>Prunella vulgaris</u>	<u>10</u>	<u> </u>	<u>FACU</u>	
6. <u>Deschampsia cespitosa</u>	<u>10</u>	<u> </u>	<u>FACW</u>	
7. <u>Gnaphalium hillebrandii</u>	<u>1</u>	<u> </u>	<u>FACW</u>	
8. <u>Elythia sp.</u>	<u>5</u>	<u>✓</u>	<u>NI</u>	
9. <u>Juncus xiphioides</u>	<u>2 (TR)</u>	<u> </u>	<u>OBL</u>	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u>103</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>10'</u>)				Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
1. <u>Rubus ursinus</u>	<u>3</u>	<u>no</u>	<u>FACU</u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u>3</u> = Total Cover				
% Bare Ground in Herb Stratum <u> </u>				

Remarks: No hydrophytic vegetation was observed at this point.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 46880 Iversen Lane City/County: Gualala / Mendocino Sampling Date: 081017
Applicant/Owner: Fukasawa State: CA Sampling Point: 03
Investigator(s): Bethany Baibak Section, Township, Range: S4 T11N R16W
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex to none Slope (%): 5%
Subregion (LRR): A Lat: 38° 50' 56.973" N Long: 123° 38' 42.322" W Datum: NAD83
Soil Map Unit Name: Cabrillo Heuser complex, 0-5% slopes NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present?	Yes <u> </u> No <u>X</u>	
Remarks: <u>selected b/c raised area outside of channels,</u> <u>~150ft East of Highway 1 (see gps)</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Hesperocyparis macrocarpa</u>	<u>2</u>	<u>No</u>	<u>NI</u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25%</u> (A/B)
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u> </u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>20'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Baccharis pilularis</u>	<u>1</u>	<u>No</u>	<u>NI</u>	
2. <u>Marella californica</u>	<u>1</u>	<u>No</u>	<u>FACW</u>	OBL species <u> </u> x 1 = <u> </u>
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FACW species <u> </u> x 2 = <u> </u>
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FAC species <u> </u> x 3 = <u> </u>
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FACU species <u> </u> x 4 = <u> </u>
<u> </u> = Total Cover				UPL species <u> </u> x 5 = <u> </u>
				Column Totals: <u> </u> (A) <u> </u> (B)
				Prevalence Index = B/A = <u> </u>
Herb Stratum (Plot size: <u>20'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Antirrhinum odoratum</u>	<u>30</u>	<u>yes</u>	<u>FACU</u>	
2. <u>Holcus lanatus</u>	<u>25</u>	<u>yes</u>	<u>FAC</u>	<u> </u> 2 - Dominance Test is >50%
3. <u>Plantago lanceolata</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	<u> </u> 3 - Prevalence Index is ≤3.0 ¹
4. <u>Hypochaeris radicata</u>	<u>15</u>	<u>no</u>	<u>FACU</u>	<u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. <u>Briza maxima</u>	<u>15</u>	<u>no</u>	<u>NI</u>	<u> </u> 5 - Wetland Non-Vascular Plants ¹
6. <u>Linum bienne</u>	<u>5</u>	<u>no</u>	<u>NI</u>	<u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)
7. <u>Rytidosperma paniculatum</u>	<u>2</u>	<u>no</u>	<u>NI</u>	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u>112</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>10'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
1. <u>Rubus ursinus</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u>20</u> = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				

Remarks: No dominant hydrophytic vegetation observed.

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-9	10YR 3/1	100					Sandy Clay Loam	- Sand grains visible
9-17	10YR 3/1	98	2.5YR 4/6	2	C	M	Sandy Clay Loam	
17-24	10YR 3/2	99	7.5YR 5/8	1	C	M	Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒

Remarks:

No hydric indicators observed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Secondary Indicators (2 or more required)

<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No ☒ Depth (inches): _____

Water Table Present? Yes _____ No ☒ Depth (inches): _____

Saturation Present? Yes _____ No ☒ Depth (inches): _____ (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrology indicators observed to 21"

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 46886 Iversen Lane City/County: Gualala Sampling Date: 08/10/17
Applicant/Owner: Fukasawa State: CA Sampling Point: 04
Investigator(s): BB, KY Section, Township, Range: S4 T11N R16W
Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): convex → none Slope (%): 5%
Subregion (LRR): A Lat: 38°50'55.659" N Long: 123°38'43.119" W Datum: NAD83
Soil Map Unit Name: Cabrillo Hecker Complex, 0-5% slopes NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks: <u>No wetland indicators present</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>20'</u>)				
1. <u>Baccharis pilularis</u>	<u>15</u>	<u>yes</u>	<u>NI</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot size: <u>10'</u>)				
1. <u>Holcus lanatus</u>	<u>45</u>	<u>yes</u>	<u>FAC</u>	
2. <u>Anthoxanthum odoratum</u>	<u>40</u>	<u>yes</u>	<u>FACU</u>	
3. <u>Plantago lanceolata</u>	<u>8</u>	<u>no</u>	<u>FACU</u>	
4. <u>Briza maxima</u>	<u>10</u>	<u>no</u>	<u>NI</u>	
5. <u>Rytidosperma pericillatum</u>	<u>20</u>	<u>no</u>	<u>NI</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
= Total Cover				
Woody Vine Stratum (Plot size: <u>10'</u>)				
1. <u>Rubus ursinus</u>	<u>3</u>	<u>no</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum _____				

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: hydrophytic vegetation not observed.

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 3/1	100					Sandy Clay Loam	Fine roots, sand grains
8-16	10YR 3/1	99	2.5YR 4/6	1	C	M	Sandy Clay Loam	
16-26+	10YR 3/2	99	10YR 3/1	1			Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒

Remarks:

No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

- Surface Water Present? Yes _____ No ☒ Depth (inches): _____
- Water Table Present? Yes _____ No ☒ Depth (inches): _____
- Saturation Present? Yes _____ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrology indicators observed to 26".

Draft Protocol for Presence-Absence Surveys of the Endangered Lotis Blue Butterfly

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INTRODUCTION

The endangered Lotis Blue butterfly (LBB), known scientifically as *Lycaeides idas lotis* (Insecta: Lepidoptera: Lycaenidae), occurs in coastal portions of Mendocino County, California. In the entomological literature this subspecies has also been treated as *L. argyrognomon lotis* and *L. anna lotis*. This document describes a survey procedure to determine the presence or absence of the endangered LBB.

PRE-SURVEY PREPARATION

Prior to conducting presence-absence surveys in the field, potential surveyors need to learn how to:

- a) identify the LBB and other small butterflies, especially other blues, that may be active and co-occur during its flight season;
- b) identify larvae of the LBB and related taxa;
- c) identify potential larval food plants of the butterfly, namely *Lotus formosissimus* and *Lathyrus vestitus*; and
- d) identify vegetation types and other habitats where these food plants grow and the butterfly may be found.

Surveyors should also review existing records for the butterfly to determine if their survey locations represent new observations. Similarly, surveyors should review existing records for the larval food plants to determine if their survey locations represent new occurrences.

Adult Identification.

Surveyors need to be able to distinguish the LBB from other small blues and similar sized lycaenid butterflies that can be active during the LBB's adult flight season, namely Silvery Blue (*Glaucopsyche lygdamus*), Acmon Blue (*Plebejus acmon*), Saepiolus Blue (*Plebejus saepiolus*), Spring Azure (*Celastrin ladon*), and Western Tailed Blue (*Everes amyntula*). Western Pine Elfin (*Incisalia eryphon*) and Purplish Copper (*Lycaena helloides*) are other lycaenids that may co-occur with the LBB. Males and females of most of the aforementioned lycaenids have sexually distinguishable color forms. Also the colors and markings of faded, worn, or tattered individuals may differ from those of fresh individuals, which can hinder the identification of such individuals, especially under field situations. Additionally, other small skippers and butterflies may be encountered in LBB habitat and observers should be familiar with how to distinguish these additional taxa from the LBB.

Books such as William Howe's, *Butterflies of North America*, and Art Shapiro's *Field Guide to Butterflies of the San Francisco Bay and Sacramento Valley Regions* provide plates that illustrate each of the aforementioned butterflies, but surveyors should also examine specimens in local museums. In the field, visual observation with the naked eye by a skilled entomologist is usually sufficient for identification to species and subspecies levels. To observe these butterflies at close range, surveyors need to move slowly and not cast shadows on specimens that they are observing to avoid startling them

before a positive identification can be made. Close-focusing binoculars may be useful to identify species and subspecies.

When feasible, surveyors should also become familiar with the various behaviors of adult LBB. Feeding (i.e., nectaring), basking, perching, oviposition, courtship, and mating are the primary behaviors that may be observed. These activities most often occur on or near potential larval food plants. Basking and perching can also be observed on bare ground or low growing vegetation near the food plants.

Larval Identification.

In contrast to the adults of LBB, which actively fly throughout their habitat, larvae are more stationary and can complete their development on a single or few food plants. At locations that are more exposed or where adults were not observed, observations of larvae or signs of larval feeding damage can provide evidence of occupation by the LBB.

However, the larvae are smaller and more cryptic than the adult life stage of the LBB. Although they have not been formally described in the entomological literature, they are presumed to be similar in size and color to larvae of other *Lycaeides* taxa that have been formally described. Full-grown larvae are slug-shaped, approximately 0.5 inch long, and are probably green with a white lateral stripe.

Larvae of additional lycaenid butterflies may feed on flowers, foliage, and stems of legumes that are the probable larval food plant for the LBB may be encountered in the same habitat. For example, the Acmon Blue and Saepiolus Blue both are known legume feeders as larvae, although the Acmon Blues also feed on non-legumes. The Saepiolus Blue is generally associated with clovers (*Trifolium*).

Food Plant Identification.

Although various entomologists have speculated about what plant species is the larval food plant for the LBB, *Lotus formosissimus* and/or *Lathyrus vestitus* are the most likely larval food plants for the Lotis Blue as both grow in locations where the butterfly was historically observed. *L. formosissimus* grows at the margins of wet mucky areas, including sphagnum bogs, and soggy ground. *L. vestitus* is a vine that grows among the branches of shrubs and other low-growing vegetation. Surveyors should consult appropriate botanical references for more information on the distinguishing characteristics and taxonomic keys for identifying these legumes.

Vegetation Types.

Prior to human settlement of the Mendocino coast, dense coniferous forests and coastal terrace prairie habitats were prevalent. Logging activities removed much of that timber and the regrowth in such areas tends to be a mixed coniferous-deciduous forest. Ephemeral and perennial drainages traverse both the forests and prairie habitats and are often characterized by riparian vegetation.

L. formosissimus grows in wet mucky areas, including sphagnum bogs, soggy ground, at the margins of riparian areas and other places where sunlight reaches ground level and the vegetation is sparse or there is barren, moist soil. *L. vestitus* tends to grow as a vine intertwining itself among the outer branches of shrubs or other low-growing vegetation. Thus the habitat types that are generally considered potential Lotis Blue habitat are Northern Bishop Pine Forest, North Coast Riparian Scrub, and Coastal Terrace Prairie. Within these plant communities, open canopy areas with mucky ground and sparse vegetative cover are most likely to be where the larval food plants grow and the LBB may occur. Surveyors should become familiar with these vegetation and habitat types.

PROCEDURE FOR PRESENCE-ABSENCE SURVEYS

Surveys to determine the presence or absence of the LBB may need to be performed at locations where the butterfly was previously known to occur to update its status there or at new locations where its status is unknown. Over time ecological succession and disturbance factors cause changes in the vegetation composition and structure at a particular location. At different points in time, these factors can affect habitat quality and butterfly occupation of a particular site. Logging, wildfire, overgrazing, and development can cause immediate changes, while slower changes in habitat characteristics may occur due to ecological succession, increased thatch, invasion of exotics, and plant senescence.

The remainder of this section describes a procedure for determining the presence or absence of the LBB. Most of this discussion focuses on surveys for adults of the LBB, but as noted earlier, surveys for larvae and signs of their feeding damage can be helpful in determining presence or absence of the LBB at a particular location.

Absence of the LBB can be more difficult to demonstrate than presence, especially when suitable habitat is present at a particular survey location. As will be explained later in this section, suitable weather conditions and the timing of survey visits in relation to the annual appearance of potential larval food plants and adult LBB activity periods are crucial for detecting the butterfly. Also, a particular patch of food plant may not be occupied at a particular point in time, but if it is situated close enough to other nearby patches of the food plant, then adults may eventually colonize that location. For this reason, the demonstration of absence of the LBB should be valid for a maximum period of only a few years due to the possibility of colonization by the next or subsequent generations of the butterfly.

Food Plant Reconnaissance Survey.

Ideally, a new location should be surveyed to identify where any stands or individuals of the potential larval food plants grow and to map their locations using a global positioning system (GPS). When using a GPS it is important to remember to use the same coordinate system and datum for any field maps that are used with the field surveys. For example, most 7.5 minute topographic maps from the U.S. Geological Survey use the NAD 1927 datum (although newer ones also include the NAD 1983

datum). Alternatively, an aerial photograph may be used for mapping. If an aerial is used, coordinates for selected reference points on the photograph should be obtained with a GPS to facilitate future georeferencing, especially if maps for reporting will be prepared in GIS.

If the stand of food plant is small in areal extent ($<100 \text{ ft.}^2$) and/or numbers of plants, a single pair of coordinates may be adequate to obtain a positional fix for that stand or patch. If the stand extends over a larger area ($\geq 100 \text{ ft.}^2$), ideally at least the corners of the stand, and preferably the entire border of the stand, should be mapped with the appropriate GPS equipment, as practical. Depending upon the precision required for the mapping effort, a hand-held GPS unit, as is commonly sold for recreational activities, may suffice. A number of the newer recreational GPS models are WAAS-enabled (Wide Area Augmentation System), and when satellites are optimally configured these units are capable of providing up to 10-foot precision for positional coordinates. If greater precision is needed or if food plant populations extend over a larger area, then a mapping-grade GPS unit should be used.

Timing of Presence-Absence Surveys.

Historical collection dates indicate that adults of the LBB are active between about mid-May through mid-July. This period also generally corresponds to the blooming period of *Lotis formosissius*. However, variation in flowering times and butterfly flight seasonality occurs from year-to-year and between locations in a particular year due to annual and seasonal weather conditions and elevation differences between locations. To insure that surveys for adults are conducted at the proper time to detect them, it may be necessary to monitor the onset of flowering at a particular location where presence-absence surveys will be performed.

In general, surveys for adult LBBs should start at the onset of flowering by *Lotis formosissimus*. Multiple site visits will be necessary to demonstrate absence of the LBB at a particular location in a given year. Because the butterfly often occurs in low numbers and individual adults may only live a few days, survey visits should ideally be conducted at weekly intervals throughout the blooming period of a given location to demonstrate absence. However, this level of survey effort may not always be possible, so in such circumstances a minimum of six visits during the *Lotis formosissimus* blooming period and LBB flight season is recommended. Normally these visits should be spaced at approximately 7-10 day intervals, so the total survey period will span 42 to 60 days of the plant's blooming period at a given location. Inclement weather (e.g., rain, extended foggy periods) should be avoided and may affect the timing of and intervals between survey visits.

Suitable Weather Conditions for Adult Surveys.

Butterflies, like all insects, are cold-blooded. They rely on the ambient air temperature and solar radiation from the sun to warm up and be active. During the spring and early summer flight season of the LBB, fog is often prevalent along the immediate coast and on some days and nights will extend considerably inland. It may persist and not burn off for a few days at a time. During the LBB's flight season daily high

temperatures along the immediate coast frequently may not exceed 70° F. Light breezes to strong, gusty winds are also prevalent during the LBB's flight season. All of these weather factors significantly influence butterfly activity and the chances of a surveyor observing the LBB at a particular location, especially when weather conditions are poor for adult butterfly activity.

LBB adults typically become active at about 60° F (ambient air temperature) when there is full sun and winds are minimal. If it is cloudy or winds are stronger, the minimum temperature for activity is about 62° F. Winds less than 6 mph generally do not adversely affect butterfly activity, which will diminish as wind speeds exceed 6 mph. Butterfly activity, and in particular LBB activity, becomes quite limited when sustained wind speed exceeds 12 mph. During strong breezes, LBB adults tend to perch on bare ground or low-growing vegetation on the leeward side of such vegetation. They may actively fly when flushed, so it is important to watch where you step under such weather conditions to avoid crushing adults that are too cold to move out of the way. At times when winds are more prevalent, active butterflies may be restricted to sheltered locations, such as on the leeward side of a hill, or behind a large boulder, brush, or trees, or in pocket meadows within the forest. Table 1 summarizes survey guidelines for various weather conditions.

Table 1. LBB Survey Guidelines for Various Weather Conditions			
Wind Speed	Temperature (° F)		
	60-63°	64-67°	≥ 68°
None (0 mph)	Poor, unless sunny	Good	Optimal
Light breeze (1-6 mph)	Poor, unless sunny and sheltered	Good	Good
Moderate breeze (7-11 mph)	Don't survey for adults unless in sheltered and sunny locations	Poor, unless sunny and sheltered	Poor, unless sunny and sheltered
Strong winds (≥ 12 mph)	Don't survey for adults; search for larvae and map food plants	Poor, unless sunny and sheltered	Poor, unless sunny and sheltered

Determining the presence of LBB at food plant stands or patches that are exposed to windy conditions may be more difficult than at stands that are sheltered from the persistent coastal breezes. In such situations, site visits should occur when there is no wind or when breezes are light. Since weather conditions along the coast can change very quickly, extra survey visits and time at exposed locations may be necessary to demonstrate presence or absence of the LBB.

Local weather conditions can be measured in the field with handheld instruments such as a thermometer and anemometer. Pocket-sized, combination weather measurement devices, such as those manufactured by Kestrel and Brunton, are very useful for field work. If handheld weather equipment is unavailable, LBB will be active when other butterflies and flying insects are active, so surveys can be conducted then.

Along the Mendocino coast, the typical summer weather pattern is that the morning fog burns off about 10:00 -11:00 am and afternoon fog rolls in about 2:30 to 3:30 pm. Thus, the peak of LBB adult activity is generally between about 10:00 am and 3:30 pm. Also, before the afternoon fog rolls onshore, the winds usually pick up and may limit butterfly activity. On some days the morning fog never burns off, while on other days, the fog is minimal. Thus, butterfly activity can be minimal on the foggiest days, but may extend beyond the usual period of activity on warm, calm, sunny days. For these reasons, presence-absence surveys for the SBB should be generally scheduled for the middle of the day at a particular location.

Equipment.

At a minimum, surveyors should carry data sheets (and/or a field notebook), a pen or pencil for recording observations, and a appropriate map (i.e., USGS topographic map or similar) for noting the locations of observations of food plants and butterflies. In addition, one or more of the following items may also be useful for conducting surveys:

- a) binoculars, especially close-focusing models for observing butterflies;
- b) hand-held weather instruments (thermometer and anemometer);
- c) a recreational GPS or a mapping GPS (set to the same datum and coordinates as available on the map);
- d) compass;
- e) altimeter;
- f) camera with a telephoto or macro lens;
- g) butterfly net (with a fine weave mesh net bag, such BioQuip's #7212AF);
- h) glassine envelopes or killing jar and a container for storing any adult voucher specimens,
- i) plastic bags or other container(s) to store any larvae that are collected; and
- j) plant press.

Surveyors need a take permit from the USFWS to capture LBB adults with a net and store vouchers in glassine envelopes, a killing jar, or other containers, and to collect larvae.

With the increased popularity of butterfly watching during the past couple of decades, most of the manufacturers of binoculars now offer close-focusing models that are intended for such use. The latest close-focusing models can focus to three feet. I use a pair that focuses to about five feet. These binoculars range in price from a few hundred to several hundred dollars, but are well-worth this cost if you routinely survey for butterflies, especially smaller ones, such as the LBB. One advantage of using binoculars is that the observer can avoid getting too close to the butterfly, which may disrupt its behavior or cause it to move if the observer casts a shadow. Brunton, Swift, and Eagle Optics are manufacturers that offer close-focusing binoculars specifically for butterfly watching, although other manufacturers probably have similar binoculars.

Adult Survey Procedure.

At the appropriate time of day and before beginning a search for LBB adults, check weather conditions with hand-held instruments to insure that they are suitable for

butterfly. If weather instruments are unavailable, note whether other butterflies and flying insects are active. Bumblebees will generally fly when ambient air temperature is 58° F, but most other insects need slightly warmer temperatures to actively fly. Begin the survey if weather conditions are suitable as determined by instrument readings or observations of other active butterflies. If weather conditions are not appropriate for adult butterfly activity, surveys for larval food plants or LBB larvae can be conducted.

Begin a survey for adult butterflies by slowly walking around the periphery of a patch of food plants looking for adults on the food plant, the ground, and adjacent vegetation. Move slowly, so as to not startle any LBB adults, and look about 3 to 10 feet ahead. Try to avoid casting a shadow on any plants or flowers that you are visually searching. When any lycaenids or other small butterflies are observed, watch the butterfly until it lands to identify it to species, subspecies, and gender, if possible. Close-focusing binoculars may aid in identifying observed butterflies to species, subspecies, and gender. Entomologists familiar with the distinctive flight pattern of the LBB and other lycaenids may be able to make a species or subspecific identification based on this trait if the butterfly does not land to allow a closer view.

The amount of time spent surveying at a particular food plant or patch will depend upon the numbers of plants and flowers in bloom, weather conditions, and butterfly activity. Unless the weather conditions are windy or temperatures are near the lower limit for butterfly activity, LBB adults should be obvious, if present. The presence of other taxa of blues, such as the Acmon Blue or Saepiolus Blue, may require extra time to distinguish these taxa. If no butterflies are observed, the surveyor should move onto the next patch of food plant. Rather than stay at the same patch of food plants for an extended period of time even though no butterflies were observed after completing a search of all plants, it is advisable to search other patches and later that same day return to the patch where no butterflies were observed to recheck it. Butterflies are mobile and every food plant patch will not necessarily be occupied at a given point in time, so the need to recheck a food plant patch to determine presence or absence of the butterfly is not unusual.

If no LBB adults are observed, document that no individuals were seen and move onto another patch or location. When working at a nearby patch or location, it may be useful to recheck any patches where LBB adults were not observed earlier that same day, if weather conditions and time permits; otherwise, plan to recheck the unoccupied location(s) in approximately 7 to 10 days. Repeated visits are necessary to demonstrate absence of the LBB at a particular location. A minimum of six visits, conducted at approximately 7-10 day intervals should be performed before proclaiming absence. If weather conditions are marginal during one or more visits when butterflies are not observed and/or surveys are being conducted at small, isolated stands of food plant, then additional visits may be necessary to demonstrate absence under better weather conditions.

Larval Survey Procedure.

Surveyors should focus their searches to detect mature larvae, which feed on the foliage and perhaps the flowers of the food plant. Since the mature larvae are larger than younger larvae, this will minimize any potential damage to food plants and flowers that might occur while searching for the younger larvae. Since adult butterflies may be easier for most surveyors to detect, larval surveys should be performed at sites where adults have not been observed. For example, sites that are exposed to persistent winds, where adults are less likely to be observed, are good candidates for larval surveys. At such locations, concurrent surveys for adults and larvae may increase the chances of finding the LBB or provide better evidence of absence. Also larval surveys can be performed at other locations at times when weather conditions are not favorable for adult butterfly activity. Similarly, signs of larval feeding damage can also be used as an indicator of LBB. Surveys for mature larvae should occur during the flowering period of the food plants.

To perform the larval survey, observers should visually systematically search the flowers and foliage of potential legume food plants at a particular location. Visually scan the plant and flower in a systematic manner to search for larvae or signs of larval feeding damage. Ants may also tend the larvae and can often be helpful in locating individual larvae. Unlike the adult surveys, you can search at closer distances to the flowers and don't need to worry about casting shadows or startling larvae. Continue this search process for remaining food plants growing in that patch. Record information about any observations on a data form or in a field notebook as described in the next section.

Data Recording.

Document any observations of LBB adults in a field notebook or on a data form. If butterflies were not observed, this information should also be recorded. In addition, voucher specimens (if the surveyor has a take permit from USFWS) or photographs are useful so others can confirm the identity of the observed butterflies or larvae.

When possible, record information about each observed butterfly's behavior, gender, wing condition (fresh, slightly worn, or very worn), plant association, time of day, weather conditions, location (including GPS coordinates and datum for the food plant patch), and numbers of individuals observed (preferably by gender). Also, note any other associated butterflies.

Site features should also be noted, such as vegetation type, current land use, slope, aspect, elevation, and any actual or perceived threats to the habitat. A map should be prepared to illustrate the primary site features (i.e., different vegetation types, locations of wetlands, etc.) and locations of potential food plants. Information about the food plant patch, such as other plant species growing there, and patch size (i.e., area), number of food plants, and number of food plants flowering, should also be recorded. When estimating or measuring food plant patch size, use a unit of measurement appropriate for the patch size, such as square feet or acres (or square meters or hectares) and indicate the unit on the data form. For sites where repeated visits may be necessary, these features can assist in relocating the patch of food plant and also be used to determine when to schedule the next butterfly survey. If a GPS is used, the coordinates for the food plant

patch can be entered as a waypoint, and the GOTO function of the GPS unit can be used to navigate back to that location on subsequent site visits.

Finally, photographs (either print or digital) are useful to document stand characteristics, as well as seasonal and year-to-year changes at a particular site. Many newer models of digital cameras have zoom lenses that can be used for macrophotography of insects as well as panoramic photography to document conditions at the food plant patches.

Reporting.

A written report of the survey results should be prepared within 45 days after the last field visit. Copies of the report should be sent to the USFWS (Arcata office), and CNDDDB (Sacramento, CA). The report should include a topographic map (1":2000' scale or similar) or aerial photograph(s) that illustrates the locations surveyed. Additional maps should be included, as necessary, to illustrate the locations of food plant patches and where any LBB life stages were observed. The report should also provide information on any voucher specimens that were collected and where they are deposited.

Wynn LBB Survey Data Sheet (2018)

Surveyor name: <i>Karen Youngblood transcribed by Wyatt Dooley</i>		Start and End Time: <i>12:50</i>
Date: <i>4/24/18</i>		Temp: <i>58°</i>
Project: <i>Fukasawa</i>		Weather Conditions: <i>Foggy</i>
Number of Sites surveyed:		Wind Speed: <i>1.6-3.5 mph</i>
Notes: <i>see backside</i>		
Site:	Time:	GPS coord:
Habitat:		
Vegetation (in bloom underlined):		
Feeding damage:		
Butterfly observations:		
Site:	Time:	GPS coord:
Habitat:		
Vegetation (in bloom underlined):		
Feeding damage:		
Butterfly observations:		
Site:	Time:	GPS coord:
Habitat:		
Vegetation (in bloom underlined):		
Feeding damage:		
Butterfly observations:		

Site:	Time:	GPS coord:
Habitat:		
Vegetation (in bloom underlined):		
Feeding damage:		
Butterfly observations:		
Site:	Time:	GPS coord:
Habitat:		
Vegetation:		
Feeding damage:		
Butterfly observations:		
<p>Summary: No butterflies were observed.</p> <p>Plants blooming: <i>Hosackia gracilis</i>, <i>Rubus ursinus</i>, <i>Carex gynochryama</i>, <i>Sisyrinchium bellum</i>, <i>Briza maxima</i>, <i>Plantago lanceolata</i>, <i>Iris douglasiana</i>, <i>Anthoxanthum odoratum</i>.</p>		

Wynn LBB Survey Data Sheet (2018)

Surveyor name: <i>Karen Youngblood transcribed by Wynn Pasley</i>		Start and End Time: <i>11:00-12:00</i>
Date: <i>5/8/18</i>		Temp: <i>64°F</i>
Project: <i>Fukasawa</i>		Weather Conditions: <i>"</i>
Number of Sites surveyed:		Wind Speed: <i>1.5-2.5 MPH</i>
Notes: <i>see backside</i>		
Site:	Time:	GPS coord:
Habitat:		
Vegetation (in bloom underlined):		
Feeding damage:		
Butterfly observations:		
Site:	Time:	GPS coord:
Habitat:		
Vegetation (in bloom underlined):		
Feeding damage:		
Butterfly observations:		
Site:	Time:	GPS coord:
Habitat:		
Vegetation (in bloom underlined):		
Feeding damage:		
Butterfly observations:		

Site:	Time:	GPS coord:
Habitat:		
Vegetation (in bloom underlined):		
Feeding damage:		
Butterfly observations:		
Site:	Time:	GPS coord:
Habitat:		
Vegetation:		
Feeding damage:		
Butterfly observations:		
<p>Summary: 100s of Hosackia plants observed. 2 tan butterflies flying low and fast. Stopped in hosackia patch twice across grassland and on coyote brush.</p> <p>- Plants in blom: Anthoxanthum odoratum, Briza maxima, Hypochaeris radicata, Sisyrinchium bellum, Lysimachia arvensis, Rubus ursinus.</p> <p>- No signs of nibbling on Hosackia flowers</p>		

Wynn LBB Survey Data Sheet (2018)

Surveyor name: K. Youngblood	Duration: 2:30 - 3:45
Date: 5/17/18	Temp: 60° Foggy/cloudy
Project and Area surveyed: Fukasawa	Weather/Wind: 0-1.5/no white caps
Notes: Foggy 100% ; slight gusts Total 3 common ringlets	
Site: Upper near septic Time: 2:40	GPS coord:
Habitat: Coyote Brush Scrub / HOSA patch ~ 20 ft x 15 ft	
Vegetation: HOSA, Anthoxanthum, Plantago, Deschampsia, blue-eyed grass, CA blackberry, Prunella vulgaris, Hypochaeris radicata, Baccharis pilularis, Briza max	
In bloom: HOSA, Sisyrinchium bellum, Anthoxanthum, Plantago lanceolata, Hypochaeris radicata, Ribes cereum, Lupinus sp., Briza max	
Butterfly/Larvae observations: Small holes in <5% flowers; No larvae <u>Feeding damage 1%</u> One common ringlet - on Briza near ground	
Site: 2	Time: 3:00
GPS coord:	
Habitat: Coyote Brush Scrub / edge of Pine/Cypress	
Vegetation: Same as 1, HOSA	
In bloom: Same as 1	
Butterfly/Larvae observations: small blue/gray beetle on HOSA flwr - <u>Feeding damage 1%</u> feeding damage both holes in petals and on edges - pink petals preferred. No butterflies. No larvae.	
Site: 3	Time: 3:15
GPS coord:	
Habitat: coyote brush scrub	
Vegetation: Deschampsia patch, HOSA, same veg as 1 and 2	
In bloom: Same as 1;	
Butterfly/Larvae observations: No butterflies, No larvae <u>Feeding damage 1%</u> same feeding damage. Holes and edges, flowers. Edges lvs. Minimal	

Site:	Time:	GPS coord:
Habitat:		
Vegetation:		
In bloom:		
Butterfly/Larvae observations:		
Site:	Time:	GPS coord:
Habitat:		
Vegetation:		
In bloom:		
Butterfly/Larvae observations:		
<p>Summary:</p> <p>Total 3 common ringlets. One low on ground not moving. 2 flying. Weather remained the same.</p> <p>Some feeding damage on all HOSA patches ① 5% holes in petals, some edge feeding. Fewer damage on leaves. No larvae.</p> <p>Transect set up starting at prop corner (NE) @ 200° towards SW prop corner passing through site 1, site 2 and site 3.</p> <p>Meander survey to check other HOSA patches after transect survey.</p>		

Wynn LBB Survey Data Sheet (2018)

Surveyor name: K. Youngblood	Start and End Time: 3:50 - 4:30	
Date: 5/22/18	Temp: 59°	
Project: Fukasawa	Weather Conditions: Foggy	
Number of Sites surveyed: 4	Wind Speed: 1.5 - 4.0	
Notes: Windy. Neighbor HOSA patch mowed		
Site: 1	Time: 3:55 - 4:05	GPS coord:
Habitat: Grass / Coyote Brush Scrub		
Vegetation (in bloom underlined): HOSA, <u>Sisy</u> , <u>Antio</u> , <u>Briza</u> , <u>Lupine</u> , <u>Rubus</u>		
Feeding damage: HOSA: minimal petals, lvs <1%		Black beetle - orange outline None on lupine.
Butterfly observations: None.		
Site: 2	Time: 4:05 - 4:10	GPS coord:
Habitat:		
Vegetation (in bloom underlined): <u>Carex</u> sp, <u>Antio</u> , <u>Pines</u> , <u>Cypress</u> , <u>HOSA</u> , <u>Hypo</u> , <u>Sisy</u>		
Feeding damage: HOSA: petals. No signs of leaf damage		
Butterfly observations: None.		
Site: 3	Time: 4:10 - 4:15	GPS coord: Gusty winds
Habitat: Coyote brush scrub / Grass		
Vegetation (in bloom underlined): <u>Deschampsia</u> , <u>pine</u> , <u>coyote brush</u> , <u>HOSA</u> , <u>Sisy</u> , <u>Hypo</u> , <u>Antio</u> <u>Briza minor</u>		
Feeding damage: Same as above		
Butterfly observations: None.		

Site: 4	Time: 4:15 - 4:25	GPS coord:
Habitat: coyote brush scrub / channel (shallow)		
Vegetation (in bloom underlined): HOSA, Sisy, Antho, Briza max, Rubus, <u>Scarlet pimpernel</u> Tuncus (sm), Tuncus xiphioides		
Feeding damage: Minimal on HOSA petals, lvs.		
Butterfly observations: None.		
Site:	Time:	GPS coord:
Habitat:		
Vegetation:		
Feeding damage:		
Butterfly observations:		
Summary: HOSA starting to develop fruit. Minimal feeding damage. Few insects observed. Big beetle w/ orange outline HOSA sparsely scattered across drier northern portion of parcel.		

Wynn LBB Survey Data Sheet (2018)

Surveyor name: <u>K. Youngblood, S. Thavatt</u>	Start and End Time: <u>4:00 - 4:40</u>
Date: <u>5/29</u>	Temp: <u>60, W</u>
Project: <u>Fukasawa</u>	Weather Conditions: <u>Windy</u>
Number of Sites surveyed:	Wind Speed: <u>7.4 avg.</u>
Notes: <u>Tends on underside of Prunella leaf</u> <u>Violet under Cypress <20 plants (~10)</u>	
Site: <u>1</u>	Time: _____ GPS coord: _____
Habitat: _____	
Vegetation (in bloom underlined): <u>Hypochaeris, panicum</u> <u>savine</u>	
Feeding damage: <u>same, holes and edges in lvs & petals. More in petals</u> <u>cucumber beetle on H83A</u>	
Butterfly observations: <u>None.</u>	
Site: _____	Time: _____ GPS coord: _____
Habitat: _____	
Vegetation (in bloom underlined): _____	
Feeding damage: _____	
Butterfly observations: _____	
Site: _____	Time: _____ GPS coord: _____
Habitat: _____	
Vegetation (in bloom underlined): _____	
Feeding damage: _____	
Butterfly observations: _____	

Site:	Time:	GPS coord:
Habitat:		
Vegetation (in bloom underlined):		
Feeding damage:		
Butterfly observations:		
Site:	Time:	GPS coord:
Habitat:		
Vegetation:		
Feeding damage:		
Butterfly observations:		
Summary:		

Wynn LBB Survey Data Sheet (2018)

Surveyor name: K. Youngblood	Start and End Time: 11:15 - 12:15
Date: 10/17	Temp: 61°
Project: Fukasawa	Weather Conditions: sunny & windy
Number of Sites surveyed: 3	Wind Speed: 5 mph avg
Notes: only 10% <u>HOSTA</u> plants in bloom; fruiting all sites have occasional <u>HOSTA</u> in between so that actually, one continuous population.	
Site: 1	Time: 11:17
GPS coord: # plants ≈ 50	
Habitat:	
Vegetation (in bloom underlined): <u>HOSTA</u> (10%), <u>Hypochaeris</u> , <u>Sisy</u> , <u>linum</u> , <u>Lupine</u> (<1.5 ft)	
Feeding damage: little feeding damage on remaining blossoms, small brown feeding spots (big)	
Butterfly observations: skipper	
Site: 2	Time: 11:35
GPS coord: # plants ≈ 100	
Habitat:	
Vegetation (in bloom underlined): same as above	
Feeding damage: small holes in leaves, very little feeding damage on remaining blossoms	
Butterfly observations: none	
Site: 3	Time: 11:45
GPS coord: # ≈ 50-100	
Habitat: wet meadow n20% in bloom	
Vegetation (in bloom underlined): <u>linum</u> , <u>blinne</u> , <u>sisy</u> , <u>hypochaeris</u> , <u>HOSTA</u> , <u>scarlet yinpernel</u>	
Feeding damage: same limited on leaves and blossoms.	
Butterfly observations: acorn blue (on <u>linum</u>) ♀ CR, buckeye, skipper	

Habitat: channel 10% in bloom

Vegetation (in bloom underlined):
 HOA, sis, hypochoeris, scarlet, Linum

Feeding damage:
 some on lvs, none on fruit;

Butterfly observations:
 none,

Site: Time: GPS coord:

Habitat:

Vegetation:

Feeding damage:

Butterfly observations:

Summary:
 No observed feeding damage on HOA fruit

Wynn LBB Survey Data Sheet (2018)

Surveyor name: K. Youngblood	Start and End Time: 10:20 - 11:20
Date: 6/14	Temp: 59°
Project: Fukasawa	Weather Conditions: clear & gusty
Number of Sites surveyed:	Wind Speed: 3.9 avg mph
Notes: Hosackia ~ 10% in bloom. Leaves and fruit hard to find, though no new types of feeding damage. Leaves observed, very little signs of feeding. Some edges.	
Site: 1	Time: 10:25
GPS coord: ~ 1% Hosa in bloom	
Habitat:	
Vegetation (in bloom underlined): Hypochaeris, Linum bienne, Prunella Lupinus variicolor	
Feeding damage: none observed	
Butterfly observations: none.	
Site: 2	Time: 10:35
GPS coord: ~ 1% HOSA in bloom	
Habitat:	
Vegetation (in bloom underlined): Hypochaeris, Linum bienne (pic), Lotus corniculatus	
Feeding damage: none observed	
Butterfly observations: none	
Site: 3	Time: 10:45
GPS coord: ~ 1% HOSA in bloom	
Habitat:	
Vegetation (in bloom underlined): Hypochaeris, Linum, Prunella	
Feeding damage: no new types of feeding damage	
Butterfly observations: Little dark brown - moth? - skipper (seen in site 4)	

Habitat: site pic (red camera) - wettest of all 4 sites

Vegetation (in bloom underlined):
 Hypochaeris, Linum, Sisyrinchium, Hosa (2%)

Feeding damage:
 no new types of feeding damage

Butterfly observations:
 larger brown, skipper

Site: Time: GPS coord:

Habitat:

Vegetation:

Feeding damage:

Butterfly observations:

Summary:
 Hblaus lanatus now in bloom
 End of survey temp. 60°; gusty wind avg 4.2 mph

Wynn LBB Survey Data Sheet (2018)

Surveyor name: <u>K. Youngblood</u>	Start and End Time: <u>12:15 - 1:00</u>
Date: <u>6/21</u>	Temp: <u>62° - 69°</u>
Project: <u>Fukasawa</u>	Weather Conditions: <u>clear & windy</u>
Number of Sites surveyed:	Wind Speed: <u>5.8 avg</u>
Notes:	
Site: <u>1</u>	Time: <u>12:20</u>
GPS coord: <u>gusty</u>	
Habitat:	
Vegetation (in bloom underlined): <u>linum</u> , <u>hypochaeris</u> , <u>Prunella</u> no HOSA blooms	
Feeding damage: <u>No feeding damage on lupinus variicolor (now fruiting)</u>	
Butterfly observations: <u>skippers (2)</u>	
Site: <u>2</u>	Time: <u>12:30</u>
GPS coord: <u>gusty</u>	
Habitat:	
Vegetation (in bloom underlined): <u>lotus</u> , <u>hypochaeris</u> , <u>linum</u> , <u>Prunella</u> , <u>Sisyrinchium</u>	
Feeding damage:	
Butterfly observations: <u>skippers (3) - same from site 1 plus 1</u>	
Site: <u>3</u>	Time: <u>12:40</u>
GPS coord: <u>gusty</u>	
Habitat:	
Vegetation (in bloom underlined): <u>lotus</u> , <u>hypochaeris</u> , <u>linum</u> , <u>Prunella</u>	
Feeding damage:	
Butterfly observations: <u>none</u>	

Habitat:

Vegetation (in bloom underlined):

Hypochaeris, Sisyrinchium, Linum, Acmispon

Feeding damage:

Butterfly observations:

orange (pics)

Site: Time: GPS coord:

Habitat:

Vegetation:

Feeding damage:

Butterfly observations:

Summary:

No HOSA blooms left.

Aster (purple - pic) by Viola. Viola no longer in bloom.

Wynn LBB Survey Data Sheet (2018)

Surveyor name: <i>L. Youngblood</i>		Start and End Time: <i>1:30 - 2:00</i>
Date: <i>6/28</i>		Temp: <i>63°</i>
Project: <i>Fukasawa</i>		Weather Conditions: <i>windy, clear</i>
Number of Sites surveyed: <i>Arg</i>		Wind Speed: <i>6.1 mph</i>
Notes: <i>Gusty, windy; overview pic at NE corner</i> <i>veg: Prunella, Hypochaeris, Sisyrinchium.</i>		
Site:	Time:	GPS coord:
Habitat:		
Vegetation (in bloom underlined): <i>Transect w/ thorough walk around</i> <i>at each site</i>		
Feeding damage:		
Butterfly observations:		
Site:	Time:	GPS coord:
Habitat:		
Vegetation (in bloom underlined):		
Feeding damage:		
Butterfly observations:		
Site:	Time:	GPS coord:
Habitat:		
Vegetation (in bloom underlined):		
Feeding damage:		
Butterfly observations:		

Site:	Time:	GPS coord:
Habitat:		
Vegetation (in bloom underlined):		
Feeding damage:		
Butterfly observations:		
Site:	Time:	GPS coord:
Habitat:		
Vegetation:		
Feeding damage:		
Butterfly observations:		
Summary:		
<p>Transect: 1 dark skipper? (large, fast)</p> <p>Site 1: orange (4 pins)</p>		

Wynn LBB Survey Data Sheet (2018)

Surveyor name: <i>K. J. J. J. J.</i>	Start and End Time: <i>1:00 - 1:30</i>
Date: <i>7/10/18</i>	Temp: <i>63°</i>
Project: <i>Fukasawa</i>	Weather Conditions: <i>clear, gusty</i>
Number of Sites surveyed:	Wind Speed: <i>9.9 mph</i>
Notes: <i>Transsect Survey</i> <i>2 Skipper, 1 Mylita crescent</i>	
Site: <i>1</i>	Time: GPS coord:
Habitat:	
Vegetation (in bloom underlined): <i>Hypochaeris, Lotus corniculatus, Aster (blue purple)</i>	
Feeding damage:	
Butterfly observations:	
Site: <i>2</i>	Time: GPS coord:
Habitat:	
Vegetation (in bloom underlined): <i>Hyp., Prunella, Sisyinchium</i>	
Feeding damage:	
Butterfly observations: <i>skipper</i>	
Site: <i>3, 4</i>	Time: GPS coord:
Habitat:	
Vegetation (in bloom underlined): <i>Hyp, Sisyinchium</i>	
Feeding damage:	
Butterfly observations:	

Parent cellia

Site:	Time:	GPS coord:
Habitat:		
Vegetation (in bloom underlined):		
Feeding damage:		
Butterfly observations:		
Site:	Time:	GPS coord:
Habitat:		
Vegetation:		
Feeding damage:		
Butterfly observations:		
Summary:		

Surveyor Name: Asa Spade								Project: Fukasawa, Behrens' Silverspot Butterfly Surveys			
Direction	Transect #	Date	Weather				Time		Butterflies Observed:	Plants in Bloom	Comments
			Temp	Wind (MPH)	Moisture	% Overcast	Start	End			
E-W	Fukasawa BSSB1	17 AUG 2018	68F	1	dry	100	1300	1320	Acmon blue, common ringlet	Bacpil Symchi Linbie Hyp rad Het ses bol sol spa	Overcast but warm, butterflies and bees active
E-W	Fukasawa BSSB1	23 AUG 2018	60F	2	dry	100	15:30	16:15	Mytila crescent, common ringlet, preying mantids, ctenuchid moths, drone flies, yellow jackets	Hyp rad Symchi Linum biene	weather measured marginally but lots of insect activity
E-W	Fukasawa BSSB1	31 AUG 2018	80F	2.3	dry	0	1240	13:20	Common ringlet mytila crescent	Hyp rad Het ses bol sol spa	Observed BSSB @ PA on same day

Group	Family	Scientific Name	Common Name
FERNS AND ALLIES			
	Dryopteridaceae		
		<i>Polystichum munitum</i>	western sword fern
GYMNOSPERMS			
	Cupressaceae		
		<i>Hesperocyparis macrocarpa</i>	Monterey cypress
	Pinaceae		
		<i>Pinus muricata</i>	Bishop pine; prickly-cone pine; bull pine
		<i>Pseudotsuga menziesii</i> var. <i>menziesii</i>	Douglas fir
DICOTS			
	Apiaceae		
		<i>Angelica hendersonii</i>	Henderson's angelica
	Asteraceae		
		<i>Achillea millefolium</i>	yarrow
		<i>Baccharis pilularis</i>	coyote brush
		<i>Carduus pycnocephalus</i>	Italian thistle
		<i>Cirsium vulgare</i>	bull thistle
		<i>Erigeron glaucus</i>	seaside daisy
		<i>Grindelia stricta</i>	coastal gumweed
		<i>Heterotheca sessiliflora</i> ssp. <i>bolanderi</i>	Bolander's goldenaster, golden aster
		<i>Hieracium albiflorum</i>	white-flowered hawkweed
		<i>Hypochaeris radicata</i>	rough cat's ear, hairy cat's ear
		<i>Solidago elongata</i>	Canada goldenrod, meadow goldenrod
		<i>Sonchus asper</i> ssp. <i>asper</i>	prickly sow thistle
	Caprifoliaceae		
		<i>Lonicera involucrata</i> var. <i>ledebourii</i>	coast twinberry, Twinberry honeysuckle
	Ericaceae		
		<i>Vaccinium ovatum</i>	California huckleberry
	Fabaceae		
		<i>Hosackia gracilis</i>	coastal lotus
		<i>Lotus corniculatus</i>	bird's-foot trefoil, Birdfoot deervetch
		<i>Lupinus albus</i> var. <i>albus</i>	
	Hypericaceae		
	Lamiaceae		
		<i>Mentha pulegium</i>	pennyroyal
		<i>Prunella vulgaris</i> var. <i>vulgaris</i>	self-heal
	Linaceae		
		<i>Linum bienne</i>	pale flax, narrow leaved flax
	Myricaceae		
		<i>Morella californica</i>	wax-myrtle
	Orobanchaceae		
		<i>Castilleja wightii</i>	
	Papaveraceae		
		<i>Eschscholzia californica</i>	California poppy
	Plantaginaceae		
		<i>Plantago lanceolata</i>	English plantain, ribwort, narrow leaved plantain, ribgrass
	Polygalaceae		
		<i>Polygala californica</i>	California milkwort
	Polygonaceae		
		<i>Rumex acetosella</i>	common sheep sorrel
	Primulaceae		
		<i>Lysimachia arvensis</i>	scarlet pimpernel, poor man's weathervane
	Rosaceae		

Group	Family	Scientific Name	Common Name
		<i>Cotoneaster franchetii</i>	Francheti cotoneaster
		<i>Rubus ursinus</i>	California blackberry
	Violaceae		
		<i>Viola adunca</i>	western dog violet
MONOCOTS			
	Cyperaceae		
		<i>Carex echinata ssp. phyllomanica</i>	star sedge
		<i>Carex gynodynema</i>	Olney's hairy sedge
	Iridaceae		
		<i>Iris douglasiana</i>	Douglas' iris
		<i>Sisyrinchium bellum</i>	blue-eyed grass
	Juncaceae		
		<i>Juncus balticus</i>	Baltic rush, wire rush
		<i>Juncus effusus var. pacificus</i>	Pacific common rush
		<i>Juncus occidentalis</i>	slender juncus, Western rush
		<i>Juncus xiphioides</i>	irisleaf rush, iris leaved rush
	Poaceae		
		<i>Anthoxanthum odoratum</i>	sweet vernal grass
		<i>Avena barbata</i>	slender wild oat
		<i>Briza maxima</i>	big quaking grass; rattlesnake grass
		<i>Danthonia californica</i>	California oatgrass, wild oatgrass
		<i>Deschampsia cespitosa ssp. holciformis</i>	tufted hairgrass
		<i>Holcus lanatus</i>	velvet grass
		<i>Panicum acuminatum var. acuminatum</i>	western panicum
	Proteacea		
		<i>Grevillea spp.</i>	

Mendocino County Coastal Zoning Code, Table 4. Section 20.496.020 ESHA – Development Criteria	
(A)	<p>Buffer Areas. <i>A buffer area shall be established adjacent to all environmentally sensitive habitat areas. The purpose of this buffer area shall be to provide for a sufficient area to protect the environmentally sensitive habitat from degradation resulting from future developments and shall be compatible with the continuance of such habitat areas.</i></p>
	<p>Special status plant communities and other areas observed on or near the property that are presumed Environmentally Sensitive Habitat Areas include a Coastal Act Wetland in the central portion of the property, a stream along the southern property line and the patch of Slough Sedge Swards (G4 S3) at the western edge of the property. Portions of the proposed projects are within 100ft of the stream and Coastal Act Wetland. No development is proposed within 100ft of the Slough Sedge Swards.</p>
(1)	<p>Width. <i>The width of the buffer area shall be a minimum of one hundred (100) feet, unless an applicant can demonstrate, after consultation and agreement with the California Department of Fish and Game, and County Planning staff, that one hundred (100) feet is not necessary to protect the resources of that particular habitat area from possible significant disruption caused by the proposed development. The buffer area shall be measured from the outside edge of the Environmentally Sensitive Habitat Areas and shall not be less than fifty (50) feet in width. New land division shall not be allowed which will create new parcels entirely within a buffer area. Developments permitted within a buffer area shall generally be the same as those uses permitted in the adjacent Environmentally Sensitive Habitat Area.</i></p>
	<p>It is the professional opinion of Wynn Coastal Planning & Biology that a buffer width of 100ft is not necessary to protect the resources present. A buffer width of 50ft from the stream and Coastal Act Wetland are recommended. Due to the extent and location of special status natural resources on the parcel, and despite minimizing the development to the extent possible, portions of the proposed development are within 50ft of Coastal Act wetland and stream ESHA. A Takings Analysis will be necessary to demonstrate that development on this parcel is permissible. Buffer areas were measured from the outside edge (dripline of trees and other vegetation) of the presumed ESHAs based on-site surveys and aerial photo interpretation. Consultation with California Department of Fish and Wildlife should occur to obtain their opinion on the buffers recommended by Wynn Coastal Planning & Biology. The Department of Fish and Wildlife and County Planning Staff opinions will be needed to determine the final appropriate buffer widths between ESHA and proposed development.</p>
1(a)	<p>Biological Significance of Adjacent Lands. <i>Lands adjacent to a wetland, stream, or riparian habitat area vary in the degree to which they are functionally related to these habitat areas. Functional relationships may exist if species associated with such areas spend a significant portion of their life cycle on adjacent lands. The degree of significance depends upon the habitat requirements of the species in the habitat area (e.g., nesting, feeding, breeding, or resting).</i></p> <p><i>Where a significant functional relationship exists, the land supporting this relationship shall also be considered to be part of the ESHA, and the buffer zone shall be measured from the edge of these lands and be sufficiently wide to protect these functional relationships. Where no significant functional relationships exist, the buffer shall be measured from the edge of the wetland, stream, or riparian habitat that is adjacent to the proposed development.</i></p>

Mendocino County Coastal Zoning Code, Table 4. Section 20.496.020 ESHA – Development Criteria	
	<p>Coastal Act Wetland and Slough sedge swards: Special Status Species that may be present in and proximal to the Coastal Act Wetland and slough sedge swards in the central portion of the property include California red-legged frog. Special status birds and bats may be present. Special status and nesting birds may use upland areas within and around the wetland for feeding, however the adjacent upland areas do not provide any known specific significant habitat value for any potentially present protected bird species. California red-legged frogs may be found in upland areas during migration, however the adjacent upland areas do not provide any known specific habitat value for CA red-legged frogs. The buffer area is therefore measured from the edge of hydrophytic vegetation and hydric soils identified during the wetland delineation.</p> <p>Stream: Special Status Species that may be present in and proximal to the southern stream include California red-legged frog. Special status birds and bats may be present in the Juncus patches or wax myrtles within and along the channel. Special status and nesting birds may use upland areas within and around the property for feeding, however the adjacent upland areas do not provide any known specific significant habitat value for any potentially present protected bird species. California red-legged frogs may be found in upland areas during migration, however the adjacent upland areas do not provide any known specific habitat value for California red-legged frog. The buffer area to the channel is measured from the bank edge.</p>
1(b)	<p>Sensitivity of Species to Disturbance. <i>The width of the buffer zone shall be based, in part, on the distance necessary to ensure that the most sensitive species of plants and animals will not be disturbed significantly by the permitted development. Such a determination shall be based on the following after consultation with the Department of Fish and Game or others with similar expertise:</i></p> <p>(1b-i) <i>Nesting, feeding, breeding, resting, or other habitat requirements of both resident and migratory fish and wildlife species;</i> (1b-ii) <i>An assessment of the short-term and long-term adaptability of various species to human disturbance;</i> (1b-iii) <i>An assessment of the impact and activity levels of the proposed development on the resource.</i></p>
	<p>No special status plant or animal species were observed in the project area during any of the field surveys. However, there is potential for presence of special status birds, bats, and amphibians in the project area.</p> <p>1b-i: Habitat requirements of resident and migratory fish and wildlife species: The stream is shorter than the length of the property, with intermittent surface water. This stream does not support fish or fish habitat. Any potentially present special status amphibians may use the stream for resting though it is unlikely to be suitable for breeding. Potentially present special status birds may utilize grassland areas of the property for some feeding requirements, however the limited grassland area on the property is not likely to support the feeding requirements of grassland feeding birds.</p> <p>1b-ii: Adaptability to human disturbance: The project area is located in a rural residential subdivision where the parcels are approximately 1-3 acres in size. The subdivision is approximately 30% built out. Properties adjacent to the south, east, and north are developed with residences. Wildlife found in this area should be reasonably adapted to human disturbance.</p> <p>1b-iii: Impacts of proposed activity on the project area: The proposed development consists of a single-family residence, and associated development. The development is expected to result in minimal removal of vegetation, and the use of the property is expected to be similar to existing neighboring uses.</p>

Mendocino County Coastal Zoning Code, Table 4. Section 20.496.020 ESHA – Development Criteria	
1(c)	<p>Susceptibility of Parcel to Erosion. <i>The width of the buffer zone shall be based, in part, on an assessment of the slope, soils, impervious surface coverage, runoff characteristics, and vegetative cover of the parcel and to what degree the development will change the potential for erosion. A sufficient buffer to allow for the interception of any additional material eroded as a result of the proposed development should be provided.</i></p>
	<p>The property slopes moderately in a southwesterly direction, towards the ocean, and also slopes gently towards the neighboring parcel to the south. Proposed impervious surface coverage is expected to be minimal. Erosion has the potential to occur when building the proposed development. Any erosion that does occur would move towards the Coastal Act wetland, stream, and slough sedge sward. Section 8 in the biological report discusses erosion and potential mitigation measures in further detail.</p>
1(d)	<p>Use of Natural Topographic Features to Locate Development. <i>Hills and bluffs adjacent to ESHA's shall be used, where feasible, to buffer habitat areas. Where otherwise permitted, development should be located on the sides of hills away from ESHA's. Similarly, bluff faces should not be developed, but shall be included in the buffer zone.</i></p>
	<p>There are no natural topographic features present to use for buffering purposes. Slopes are consistently gentle to moderate.</p>
1(e)	<p>Use of Existing Cultural Features to Locate Buffer Zones. <i>Cultural features (e.g., roads and dikes) shall be used, where feasible, to buffer habitat areas. Where feasible, development shall be located on the side of roads, dikes, irrigation canals, flood control channels, etc., away from the ESHA.</i></p>
	<p>There are no cultural features on the property to use as a buffer.</p>
1(f)	<p>Lot Configuration and Location of Existing Development. <i>Where an existing subdivision or other development is largely built-out and the buildings are a uniform distance from a habitat area, at least that same distance shall be required as a buffer zone for any new development permitted. However, if that distance is less than one hundred (100) feet, additional mitigation measures (e.g., planting of native vegetation) shall be provided to ensure additional protection. Where development is proposed in an area that is largely undeveloped, the widest and most protective buffer zone feasible shall be required.</i></p>
	<p>Presumed sensitive habitat areas are limited in extent to the subject parcel. The stream was likely man made and is used to convey stormwater from upslope areas north of the road. Additionally, according to the topographic position of the parcel, base of slopes and adjacency to the highway, water has concentrated on the subject parcel resulting in a Coastal Act wetland. Neighboring development is greater than 100 feet from these features. Proposed development is feasible on the subject parcel with minimal impacts to sensitive habitat areas. Mitigation measures in Section 8 of the biological report addresses how to minimize impacts to the greatest extent.</p>

Mendocino County Coastal Zoning Code, Table 4. Section 20.496.020 ESHA – Development Criteria	
1(g)	<p>Type and Scale of Development Proposed. <i>The type and scale of the proposed development will, to a large degree, determine the size of the buffer zone necessary to protect the ESHA. Such evaluations shall be made on a case-by-case basis depending upon the resources involved, the degree to which adjacent lands are already developed, and the type of development already existing in the area.</i></p>
	<p>The proposed development is residential in nature, consistent with existing development in the area. The proposed residence is smaller than existing development in the area. Based on the size and type of development proposed, a reduced buffer of 50ft is recommended but it is not feasible due to the limited area available. Due to the size of the parcel and ESHAs onsite, some of the development will occur within 50ft of an ESHA (stream and wetland ESHA); the slough sedge ESHA is more than 100' from the proposed development.</p>
(2)	<p>Configuration. <i>The buffer area shall be measured from the nearest outside edge of the ESHA (e.g., for a wetland from the landward edge of the wetland; for a stream from the landward edge of riparian vegetation or the top of the bluff).</i></p>
	<p>The buffer area is measured from the stream bank edge. The stream does not have a vegetated riparian zone outside the stream edge. The wetland edge was determined by surveying soils, hydrology, and vegetation in several locations on the property. Presence of soil, vegetation, and hydrology indicators were used to delineated the wetland edge from which the buffer was measured.</p>
(3)	<p>Land Division. <i>New subdivisions or boundary line adjustments shall not be allowed which will create or provide for new parcels entirely within a buffer area.</i></p>
	<p>No new subdivisions or boundary line adjustments are proposed.</p>
(4)	<p>Permitted Development. <i>Development permitted within the buffer area shall comply at a minimum with the following standards:</i></p>
4(a)	<p><i>Development shall be compatible with the continuance of the adjacent habitat area by maintaining the functional capacity, their ability to be self-sustaining and maintain natural species diversity.</i></p>
	<p>Development within the recommended 50-ft buffer area consists of the SFR, septic tank, lines, and septic leach fields. No trees are proposed for removal. The proposed development has the potential to impact the Coastal Act wetland and slough sedge sward onsite. Avoidance and minimization measures have been conducted in the design of the project and are included in the report as recommendations.</p>
4(b)	<p><i>Structures will be allowed within the buffer area only if there is no other feasible site available on the parcel.</i></p>

Mendocino County Coastal Zoning Code, Table 4. Section 20.496.020 ESHA – Development Criteria	
	<p>There are no other feasible alternatives for the proposed development that are less impacting. Accessing the site from Highway One would impact more ESHAs than the proposed project; in addition, access from Highway One would require extensive ground disturbance to create a feasible driveway due to the steepness of the property at Highway One. The narrow parcel captures uphill stormwater runoff both resulting in a stream and a one-parameter wetland in the central portion of the property. Proposed development is planned to be located primarily within upland areas outside of the minimum 50ft buffer. Despite the minimized footprint of the proposed development the buildable area outside the buffer is too small to accommodate all the development proposed. Additionally, the leach fields must be placed in soil that is adequate to leach the materials into the ground in a legal and functional manner. The septic designers thoroughly investigated areas of the property outside of required setback distances and found the only location that met the necessary criteria was within the coastal act wetland buffer at the location proposed.</p>
4(c)	<p><i>Development shall be sited and designed to prevent impacts, which would degrade adjacent habitat areas. The determination of the best site shall include consideration of stream, access, soil type, vegetation, hydrological characteristics, elevation, topography, and distance from natural stream channels. The term "best site" shall be defined as the site having the least impact on the maintenance of the biological and physical integrity of the buffer strip or critical habitat protection area and on the maintenance of the hydrologic capacity of these areas to pass a one hundred (100) year flood without increased damage to the coastal zone natural environment or human systems.</i></p>
	<p>The "best site" is as proposed. This is the only location that will minimize use of land within buffer areas; any other location on the property will result in increased development within buffers. Because access is only possible from the north from Iversen Drive, locating the development as close as possible to Iversen Drive will minimize driveway length. Only one location was determined to be suitable for the septic leach field.</p>
4(d)	<p><i>Development shall be compatible with the continuance of such habitat areas by maintaining their functional capacity and their ability to be self-sustaining and to maintain natural species diversity.</i></p>
	<p>Development within the recommended 50ft buffer area consists of portions of the SFR, septic tank, lines, and septic leach fields. Proposed development is concentrated near Iverson Lane so as not to increase habitat fragmentation. The interceptor drain is proposed in an area that is not wetland but that has deeper groundwater that could affect the efficacy of the septic leach field. The majority of plant roots are within the top 12 inches of soil and this is the zone within which wetland hydrology is important. According to the septic plan for the project, within the proposed septic area "soil mottling was noted between depths of 28-32 inches." There is a potential that the interceptor drain could affect the hydrology of the Coastal Act wetland on site, despite the intent being to drain water deeper than the shallow groundwater that defines a wetland. This potential effect should be countered by the fact that when in use the septic leach field will be releasing treated effluent water into the ground in approximately the same location that might have otherwise become more dry due to the function of the interceptor drain. In addition, water removed by the interceptor drain should be kept on site by creating a bioswale at its outlet. The bioswale should be planted with native plants compatible with the Coastal Act wetland habitat present. The functional capacity, the ability to be self-sustaining, and maintaining natural species diversity will be protected and the development will be compatible with the continuance of the Coastal Act wetland and stream habitat areas present.</p>

Mendocino County Coastal Zoning Code, Table 4. Section 20.496.020 ESHA – Development Criteria																																																																																										
4(e)	Structures will be allowed within the buffer area only if there is no other feasible site available on the parcel. Mitigation measures, such as planting riparian vegetation, shall be required to replace the protective values of the buffer area on the parcel, at a minimum ratio of 1:1, which are lost as a result of development under this solution.																																																																																									
	<p>There is no location that is less impacting for the proposed development. To mitigate for any potential impacts, a bioswale should be created at the end of the proposed interceptor drain outlet. The bioswale should be planted with native plants appropriate for the site. These natives would ideally be native wetland species. The bioswale should be created in a way that allows any overflow water to be incorporated back into the wetland downslope. Species within the bioswale, and its design should enhance and improve habitat and natural species diversity. A table has been created below showing the approximate square footage of development within the 100ft and 50ft buffers.</p> <table><tr><th colspan="7">Approximate Square Footage of Proposed Development Within Buffers</th></tr><tr><th></th><th colspan="3">Wetland</th><th colspan="3">Stream</th></tr><tr><th></th><th>Sqft in 100ft buffer</th><th>Sqft in 50ft buffer</th><th>Within Wetland</th><th>Sqft in 100ft buffer</th><th>Sqft in 50ft buffer</th><th>Within Stream</th></tr><tr><td>Single-family residence</td><td>20</td><td>962</td><td>0</td><td>982</td><td>77</td><td>0</td></tr><tr><td>Driveway & parking</td><td>1,546</td><td>0</td><td>0</td><td>1,075</td><td>0</td><td>0</td></tr><tr><td>Carport</td><td>384</td><td>220</td><td>0</td><td>384</td><td>0</td><td>0</td></tr><tr><td>Septic lines (under assumption trenching is 1ft wide)</td><td>200</td><td>170</td><td>0</td><td>91</td><td>0</td><td>0</td></tr><tr><td>Septic tank</td><td>50</td><td>50</td><td>0</td><td>50</td><td>0</td><td>0</td></tr><tr><td>Pump chamber</td><td>51</td><td>41</td><td>0</td><td>28</td><td>0</td><td>0</td></tr><tr><td>Leach field</td><td>762</td><td>762</td><td>0</td><td>716</td><td>0</td><td>0</td></tr><tr><td>White water</td><td>34</td><td>34</td><td>0</td><td>34</td><td>0</td><td>0</td></tr><tr><td>Curtain drain (under assumption trenching is 1ft wide)</td><td>49</td><td>49</td><td>0</td><td>49</td><td>0</td><td>0</td></tr></table>						Approximate Square Footage of Proposed Development Within Buffers								Wetland			Stream				Sqft in 100ft buffer	Sqft in 50ft buffer	Within Wetland	Sqft in 100ft buffer	Sqft in 50ft buffer	Within Stream	Single-family residence	20	962	0	982	77	0	Driveway & parking	1,546	0	0	1,075	0	0	Carport	384	220	0	384	0	0	Septic lines (under assumption trenching is 1ft wide)	200	170	0	91	0	0	Septic tank	50	50	0	50	0	0	Pump chamber	51	41	0	28	0	0	Leach field	762	762	0	716	0	0	White water	34	34	0	34	0	0	Curtain drain (under assumption trenching is 1ft wide)	49	49	0	49	0	0
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4(f)	Development shall minimize the following: impervious surfaces, removal of vegetation, amount of bare soil, noise, dust, artificial light, nutrient runoff, air pollution, and human intrusion into the wetland and minimize alteration of natural landforms.																																																																																									
	<p>Proposed impervious surfaces are minimal, as is vegetation removal. The project is not expected to result in significant areas of bare soil, noise, dust, artificial light, nutrient runoff, air pollution or human intrusion into sensitive areas. The Coastal Zoning Code requires exterior lights to be downcast and shielded, and building and air quality requirements are expected to address dust, air pollution and nutrient runoff issues.</p>																																																																																									
4(g)	Where riparian vegetation is lost due to development, such vegetation shall be replaced at a minimum ratio of one to one (1:1) to restore the protective values of the buffer area.																																																																																									
	No riparian vegetation will be removed as part of the project.																																																																																									
4(h)	Above ground structures shall allow peak surface water flows from a one hundred (100) year flood to pass with no significant impediment.																																																																																									

Mendocino County Coastal Zoning Code, Table 4. Section 20.496.020 ESHA – Development Criteria	
	The development is not proposed in a 100-year flood zone.
4(i)	<i>Hydraulic capacity, subsurface flow patterns, biological diversity, and/or biological or hydrological processes, either terrestrial or aquatic, shall be protected.</i>
	The interceptor drain is proposed in an area that is not wetland but that has deeper groundwater that could affect the efficacy of the septic leach field. The majority of plants roots are within the top 12 inches of soil and this is the zone within which wetland hydrology is important. According to the septic plan for the project, within the proposed septic area “soil mottling was noted between depths of 28-32 inches.” There is a potential that the interceptor drain could affect the hydrology of the Coastal Act wetland on site, despite the intent being to drain water deeper than the shallow groundwater that defines a wetland. This potential effect should be countered by the fact that when in use the septic leach field will be releasing treated effluent water into the ground in approximately the same location that might have otherwise become more dry due to the function of the interceptor drain. In addition, water removed by the interceptor drain should be kept on site by creating a bioswale at its outlet. The bioswales should be planted with native plants compatible with the Coastal Act wetland habitat present..
4(j)	<i>Priority for stream conveyance from a development site shall be through the natural stream environment zones, if any exist, in the development area. In the stream system design report or development plan, the capacity of natural stream environment zones to convey runoff from the completed development shall be evaluated and integrated with the stream system wherever possible. No structure shall interrupt the flow of groundwater within a buffer strip. Foundations shall be situated with the long axis of interrupted impermeable vertical surfaces oriented parallel to the groundwater flow direction. Piers may be allowed on a case-by-case basis.</i>
	The project will not change topography or stream patterns. The project will respect and avoid the stream.
4(k)	<i>If findings are made that the effects of developing an ESHA buffer area may result in significant adverse impacts to the ESHA, mitigation measures will be required as a condition of project approval. Noise barriers, buffer areas in permanent open space, land dedication for erosion control, and wetland restoration, including off-site stream improvements, may be required as mitigation measures for developments adjacent to environmentally sensitive habitats. (Ord. No. 3785 (part), adopted 1991)</i>
	No compensatory mitigation is recommended because impacts occur only within buffer areas and not within ESHAs themselves. Avoidance and minimization measures have been provided that should allow the project to avoid causing significant adverse impacts to the ESHAs present.

BIOLOGICAL REPORT OF COMPLIANCE for

46880 Iversen Lane
Gualala, CA 95445
APN 142-010-52-05
Mendocino County

Property Owners:
Richard Cionco & Natsuki Fukasawa
2724 6th Ave
Sacramento, CA 95818



Report Prepared By:
Wyatt Dooley – Biologist
Asa Spade – Senior Biologist

October 15, 2019

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1. Background and Purpose

A biological scoping, floristic, wetland delineation, Behren's silverspot and lotis blue butterfly survey was conducted at 46880 Iversen Lane, Gualala (APN 142-010-52) by Wynn Coastal Planning & Biology to locate Environmentally Sensitive Habitat Areas (ESHAs) to determine if they would be directly or indirectly impacted by proposed development. Proposed development consists of:

- 1,479 sqft house, driveway, carport, and associated infrastructure
- septic and leach field
- well and water lines

The subject parcel is approximately one acre and located 9 miles north of Gualala in a residential subdivision just east of Highway One. The subject parcel is within the California Coastal Zone as defined in Section 30103 of the California Coastal Act (CCA). The general location of the subject parcel is shown in **Figure 1**.

Wynn Coastal Planning & Biology's staff biologists conducted floristic surveys on May 19, June 26, July 27, August 10, 2017 and April 24 2018 for a total of 6.3 person hours. A wetland delineation was performed on August 10, 2017 for a total of 3.15 person hours. Lotis blue butterfly surveys were performed April 24, May 8, 17, 22, and 29, June 7, 14, 21, and 28, and July 10, 2018, and Behren's Silverspot Butterfly surveys were conducted on August 17, 23, and 31, 2018. Three types of potential ESHA were identified within the study area according to the definitions by the California Coastal Act (CCA) and Mendocino County Local Coastal Plan (LCP) **Figure 2**.

- **Presumed Stream ESHA** – A 290 linear foot manmade channel ran along the eastern side of the property.
- **Delineated Wetland ESHA** - A 0.3 acre Coastal Act wetland occurred on the site.
- **Presumed Special Status Plant Community ESHA** – One special status plant community was identified on the property: **Sough sedge sward (*Carex obnupta* Herbaceous Alliance G4 S3)**.

Two special status resources are within 100ft of proposed development. The table below shows square footage of proposed development within 100ft and within 50ft of the **Coastal Act wetland** and **constructed stream channel** respectively. No development is proposed within the resources themselves.

Table 1. Square footage of proposed development within respective buffers.

Approximate Square Footage of Proposed Development Within Buffers						
	Wetland			Stream		
	Sqft in 100ft buffer	Sqft in 50ft buffer	Within Wetland	Sqft in 100ft buffer	Sqft in 50ft buffer	Within Stream
Single-family residence	20	962	0	982	77	0
Driveway & parking	1,546	0	0	1,075	0	0
Carport	384	220	0	384	0	0
Septic lines (under assumption trenching is 1ft wide)	200	170	0	91	0	0
Septic tank	50	50	0	50	0	0
Pump chamber	51	41	0	28	0	0
Leach field	762	762	0	716	0	0
White water	34	34	0	34	0	0
Curtain drain (under assumption trenching is 1ft wide)	49	49	0	49	0	0

No development is proposed within ESHAs themselves and avoidance and minimization measures have been described to reduce potential impacts to less than significant levels (**Figure 3**). The stream is unlikely to be impacted due to topographic position and vegetation that occurs between the stream and proposed development. The resulting Report of Compliance was created to better understand these onsite potential resources.



Figure 1. Location of the subject parcel.

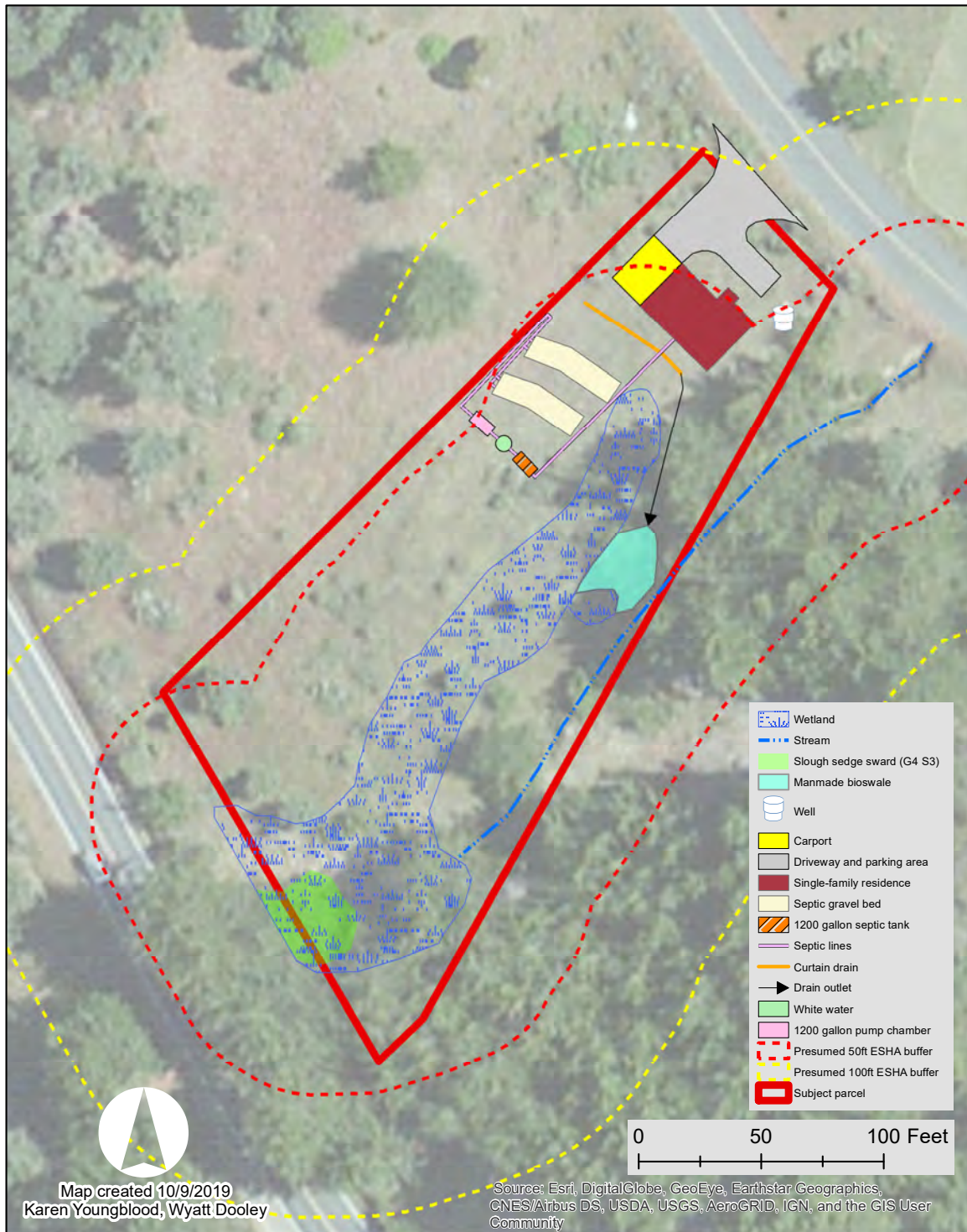
The Report of Compliance is required by Section 20.532.060(E) Mendocino County Coastal Zoning Code, which requires supplemental application procedures for development within Environmentally Sensitive Habitat Areas. The purpose of this report is to provide an in-depth analysis of the proposed development and its potential impacts on the Bishop pine forest by addressing the following items:

Report of Compliance. A report based upon an on-site investigation which demonstrates that the development meets all of the criteria specified for development in, and proximate to, an environmentally sensitive habitat area including a description and analysis of the following performed by a qualified professional:

- (1) Present extent of the habitat, and if available, maps, photographs or drawings showing historical extent of the habitat area.**
- (2) Previous and existing ecological conditions.**
 - (a) The life history, ecology and habitat requirements of the relevant resources, such as plants, fish and wildlife, in sufficient detail to permit a biologist familiar with similar systems to infer functional relationships (the maps described in above may supply part of this information).**
 - (b) Restoration potentials.**
- (3) Present and potential adverse physical and biological impacts on the ecosystem.**
- (4) Alternatives to the proposed development, including different projects and alternative locations.**
- (5) Mitigation measures, including restoration measures and proposed buffer areas.**

Items below (6 – 11) are not applicable to this project

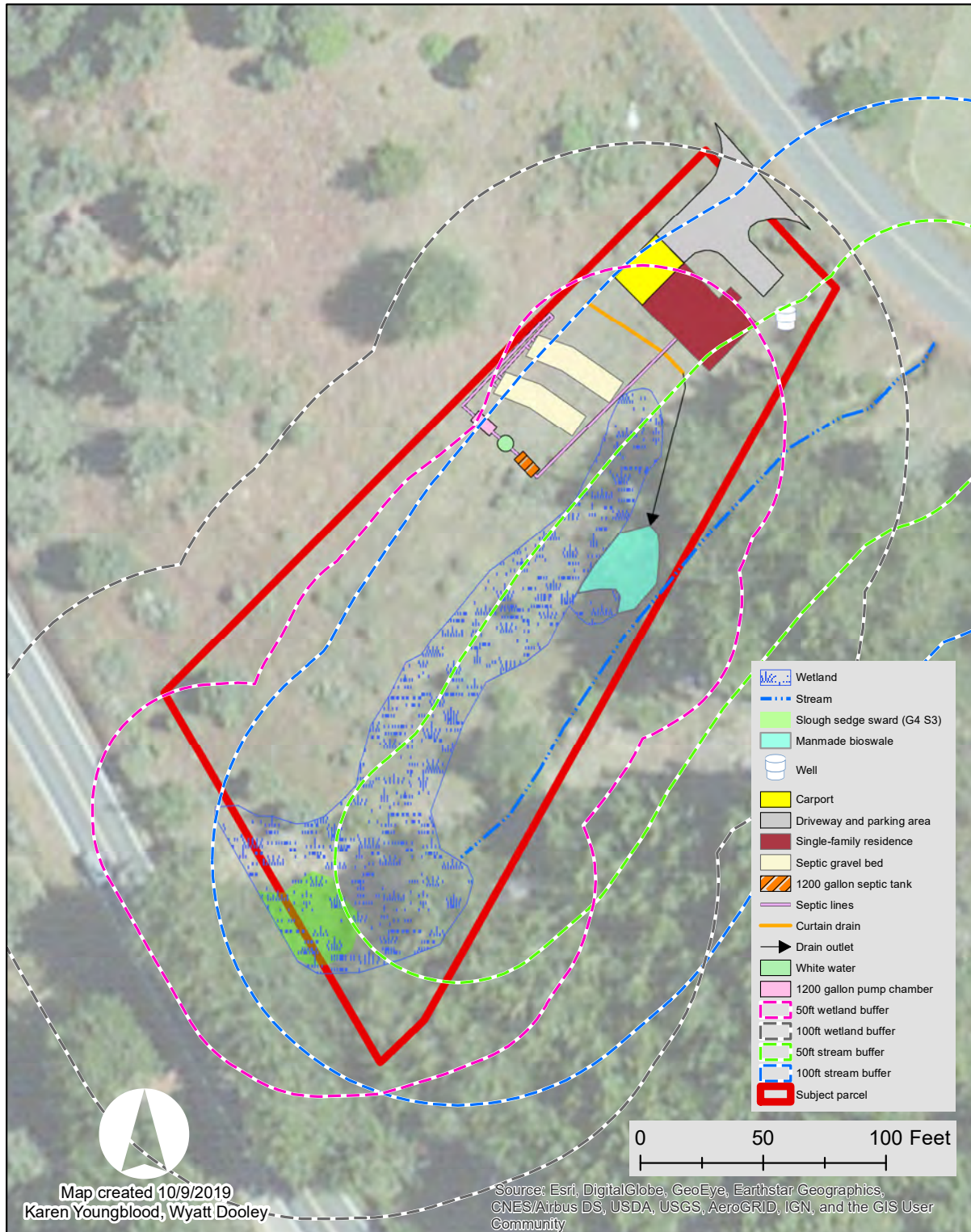
- (6) If the project includes dredging, explain the following:*
 - (a) The purpose of the dredging.*
 - (b) The existing and proposed depths.*
 - (c) The volume (cubic yards) and area (acres or square feet) to be dredged.*
 - (d) Location of dredging (e.g., estuaries, open coastal waters or streams).*
 - (e) The location of proposed spoil disposal.*
 - (f) The grain size distribution of spoils.*
 - (g) The occurrence of any pollutants in the dredge spoils.*
- (7) If the project includes filling, identify the type of fill material to be used, including pilings or other structures, and specify the proposed location for the placement of the fill, the quantity to be used and the surface area to be covered.*
- (8) If the project includes diking, identify on a map the location, size, length, top and base width, depth and elevation of the proposed dike(s) as well as the location, size and invert elevation of any existing or proposed culverts or tide gates.*
- (9) If the project is adjacent to a wetland and may cause mud waves, a report shall be prepared by a qualified geotechnical engineer which explains ways to prevent or mitigate the problem.*
- (10) Benchmark and survey data used to locate the project, the lines of highest tidal action, mean high tide, or other reference points applicable to the particular project.*
- (11) Other governmental approvals as required and obtained. Indicate the public notice number of Army Corps of Engineers permit if applicable.*



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Proposed Development and ESHA Map

Figure 2. Presumed ESHAs documented onsite and the proposed development location.



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Stream & Coastal Act Wetland Buffer Map

Figure 3. Proposed development and presumed buffers from each resource.

2. Findings

The proposed development is located within 50ft of an ESHA. An interceptor drain is also proposed upslope and southeast of the proposed septic field. The proposed interceptor drain has some potential to adversely impact the presumed Coastal Act wetland because it may change site hydrology. However, the area where the interceptor drain has been approved as part of the septic leach field does not have wetland hydrology. According to the septic plan the septic designer observed mottling within the soil between depths of 28-32 inches. The majority of plant roots are within the top 12-inches of soil, which is the depth wetland hydrology must be present for an area to be considered a wetland. As a mitigation measure, WCPB has recommended that a bioswale be constructed at the outlet of the interceptor drain. This bioswale slow and retain water and will be planted with native wetland plants. The bioswale will enhance the wetland and increase the buffering capacity of the buffer area. Two resources were identified onsite and have the potential to be impacted: **Coastal Act wetland** and a manmade channel that has been treated as a **stream** for the purpose of the biological report and this Report of Compliance.

2.1. Stream Findings

Along the southeastern property boundary is a constructed channel that is approximately 290 feet long running from Iversen Lane and becoming shallower and finally indistinct from the surrounding wetland approximately 100ft short of reaching the southwestern parcel boundary.

2.1.1. Present Extent of Habitat

An 18" culvert was observed extending approximately 4ft from beneath Iversen Lane into the channel. No defined stream occurs on the upslope side of the culvert east of the road, the culvert and channel appears to be primarily for the drainage of surface water runoff of the area northeast of the parcel across Iversen lane. The stream channel is cut 4 ft deep at Iversen Lane and is approximately 290 ft long. The depth of the channel becomes shallower toward the southwest until at its lower end water is conveyed into the lower end of the Coastal Act Wetland and the stream channel is no longer discernable. There are no distinct riparian zones along the stream. Overstory trees surrounding the channel are primarily Monterey cypress (*Hesperocyparis macrocarpa*). Hydrophytic vegetation within the channel is primarily Pacific rush (*Juncus effusus*).

2.1.2. Historical Extent

There are no known records of the previous ecological condition of the observed wetland or stream. The US Fish and Wildlife Service (USFWS) National Wetlands Inventory Map (NWI) depicts a freshwater forested/shrub wetland approximately half a mile south (**Figure 4**) but there is no record of a stream in this location.

2.1.3. Stream Previous and Existing Ecological Conditions

2.1.3.1. Life History and Ecology

Water is conveyed from the stream to the Coastal Act wetland onsite. However, the stream does not provide habitat value for fish as it does not connect to the ocean or other bodies of water. It could provide refuge for migratory amphibians. The Monterey cypress overstory shades out many species that could provide habitat for other native plant species.

2.1.3.2. Restoration Potential

The stream appears manmade and the likelihood of direct disturbance is minimal with the incorporation of the recommended avoidance and minimization measures; therefore, restoration is not warranted. The Monterey cypress trees are non-native to the Mendocino coast, so could be removed and replaced with other more site appropriate native plants if desired. However, some of the Monterey cypress trees occur on the neighboring parcel to the south. Planting of riparian trees such as wax myrtle (*Morella californica*), and cascara buckthorn (*Frangula purshiana*) along the channel would enhance the stream by providing riparian functions.

2.2. Wetland Findings

A wetland was observed on the parcel that is approximately 0.3 acres in size. The Coastal Act wetland contained tufted hairgrass (*Deschampsia cespitosa* ssp. *cespitosa*) which the Army Corp of Engineers (ACOE) gives an indicator status of FACW (**Figure 2**). Further downslope the tufted hairgrass transitioned into a slough sedge sward (*Carex obnupta*) which has an indicator status of obligate (OBL).

2.2.1. Present Extent of Habitat

The delineated wetland is a linear feature that flows downslope from northeast to southwest. The wetland is likely fed from groundwater, as areas upslope and across Iversen Lane do not have any wetland indicators. The presumed wetlands likely continue offsite beyond the property boundaries to the west and south. Some areas of wetland were dominated by non-native grasses, whereas other areas of wetland were characterized by native slough sedge swards and tufted hairgrass meadow. The onsite wetland not only provides habitat for native plants but also has the potential to act as refuge for wildlife such as amphibians.

2.2.2. Historical Extent

At the time of European settlement, the United States was estimated to have over 221 million acres of wetlands. About 103 million acres remained as of the mid-1980s. California was one of six states to lose over 85% of its wetlands – this occurred between the 1780s and the mid-1980s (Fretwell, 1996).

There are no known records of the previous ecological condition of the observed wetland. The US Fish and Wildlife Service (USFWS) National Wetlands Inventory Map (NWI) depicts a freshwater forested/shrub wetland approximately half a mile south (**Figure 4**) but does not include a record of wetland habitat in this location.

2.2.3. Wetland Previous and Existing Ecological Conditions

2.2.3.1. Life History and Ecology

One special status plant community was observed within the wetland area onsite – **slough sedge sward (*Carex obnupta* G4 S3)**. Throughout parts of the wetland and across the site **Harlequin lotus (*Hosackia gracilis* CNPS 4.2)** was observed, which is the presumed host plant for the federally endangered lotis blue butterfly. Lotis blue surveys were conducted and had negative results. No other special status plants or plant communities were observed in the wetlands onsite. The wetlands have the potential to provide habitat for both special and non-special status wildlife species. Wildlife species that are the most likely to use the wetlands are birds and amphibians. Mammals may also seek water, a cooler microclimate, and more succulent plants or more abundant insects for food within the wetland habitat. The wetlands do not hold enough water to support fish and do not hold water long enough to support amphibian breeding in most years. Some breeding by common species such as Sierran treefrog (*Pseudacris sierra*) may be possible in wetter years.

2.2.3.2. Restoration Potential

The wetland areas onsite have limited restoration opportunities, as many of the wetland areas are already dominated by native plant communities. Non-native grasses are present within some areas of the wetland. Elimination of non-native grasses is unlikely to be successful because of the dominance of these invasive species in adjacent areas that would act as sources of new introduction. Some success could be accomplished by removing non-native grasses and seeding or planting the areas disturbed by the removal with native species. The wetland habitat could be enhanced through the planting of additional native species, increasing site diversity. The recommended bioswale at the end of the interceptor drain will enhance the wetland by increasing total wetland area and the bioswale can be planted with species native to the area but that are not yet on site. The bioswale can also be designed to retain water longer in order to provide enhanced wetland values to animals on the site.



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NWI Map

Figure 4. NWI map of the Fukasawa parcel. Coastal Act wetlands onsite are more extensive than wetlands mapped by US Fish and Wildlife.

3. Present and Potential Adverse Biological Impacts on the Ecosystem

3.1. Plants and Wildlife

To install the septic system, an interceptor drain is proposed upslope of the presumed Coastal Act wetland. No direct impact will occur to the delineated wetland; however, it is not known to what extent the interceptor drain may change the hydrology contributing to wetland. This is because the interceptor drain will divert deeper groundwater that may become shallower and contribute to the wetland downslope. When the septic leach field is in operation it will be contributing treated effluent water to the same area that the interceptor drain dries out, and this may counterbalance the soil moisture to similar levels as currently exist before the installation.

Other adverse impacts on the ecosystem could occur when building the single-family residence. Construction personnel and equipment have the potential to spread invasive species to the site. While the project is being constructed, initial ground disturbance for foundation work has the potential to cause erosion. Unabated erosion has the potential to enter the Coastal Act wetland and stream channel. Section 8 of the Biological Report addresses these potential adverse impacts in greater detail and provides avoidance and minimization measures to reduce potential impacts to a less than significant level.

4. Analysis

4.1. Alternatives to the Proposed Development

Due to the presumed ESHAs onsite, the proposed development location for the single-family residence, carport, well and septic system will partially occur within the 50ft presumed wetland and stream ESHA buffers. The only access to the property is via Iversen Lane where the development will occur on the north-eastern side of the property. This is the least impacting development location, as it does not occur directly within any of the onsite presumed ESHAs. If development were to occur in another location, the development would occur within or closer to presumed ESHAs in comparison to the preferred project location described above. The size of the single family residence has been reduced from the original proposal to reduce the potential for impact.

5. Mitigation Measures and Restoration

Mitigation and Avoidance Measures in Section 8 of the biological report discusses potential impacts to the Coastal Act **wetland** and **Stream**. It is recommended that a bioswale is created at the interceptor drain outlet (**Figure 2**). The bioswale will catch and retain water allowing it to enhance the adjacent wetland and create new wetland habitat. The bioswale should be planted with native wetland plants appropriate for the site. Any outflow water should be redistributed back into the presumed wetland in a non-erosive way. The bioswale mitigation measure aims to prevent any potential impacts to the Coastal Act wetland and stream.

As discussed in **Section 8** of the Biological report, native plants appropriate for the site should be planted between the proposed single-family residence and the delineated wetland to act as an additional visual and physical buffer, which will help to discourage people from disturbing the presumed ESHA in the future. The addition of native shrubs such as wax myrtle and cascara buckthorn along the channel will create riparian habitat and functions that will enhance the stream.

6. Discussion

The proposed development has the potential to directly impact two potential ESHAs onsite. Groundwater diverted from the area proposed as the septic leach field by way of the interceptor drain is deeper than the shallow groundwater that creates wetland conditions. In addition, when in function, the septic leach field will add treated effluent water to the same area. The bioswale recommended at the end of the interceptor drain outlet will enhance and add to the wetland habitat on site. Avoidance and minimization measures have been recommended to prevent any adverse effects that may occur to the presumed resources onsite.

The project as proposed is in the least impacting location. The proposed single-family residence is located to the furthest extent possible outside of ESHA buffers with consideration of other property setbacks. The proposed size of the single-family residence has been reduced from the property owners' original expectations and desires. The septic system has been designed to adhere to all regulations and is currently proposed in the only feasible location according to the septic designers. The only other project alternative would be accessing the property and building the single-family residence at the western side of the parcel. This alternative would be more impacting to the wetland and slough sedge sward than the proposed alternative.

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8. Investigator Biographies

Wyatt Dooley graduated from University of California Santa Barbara with a Bachelor's of Science in Environmental Studies and a minor in Geology. After graduating, he worked for Fish and Wildlife and Pacific States Marine Fisheries as a technician researching salmon. He has also worked abroad in New Zealand as a conservation ranger helping on restoration projects and controlling invasive species. Additionally, he has received training in Army Corp wetland delineation by San Francisco State University and the Wetland Science and Coastal Training Program, training from CNPS-CDFW on vegetation rapid assessment and relevé methods, is on the US Fish and Wildlife Service's approved list for Point Arena Mountain Beaver Surveys, and received a specialization in ArcGIS through University of California Davis. He has also received training in *Carex* keying and identification through CNPS taught by CA Fish and Wildlife staff biologist Gordon Leppig (March 2018).

Asa B Spade graduated from Humboldt State University with a Bachelor's Degree in Environmental Science, with a concentration in Landscape Ecosystems as well as a minor in Botany. Since that time, he has been working in the natural resources field, first with Mendocino County Environmental Health and later with California State Parks and the Department of Fish and Game. He has been trained in Army Corps wetland delineation by the Coastal Training Program at Elkhorn Slough and in Advanced Wetland Delineation by the Wetland Science and Coastal Training Program. He has been trained in the environmental compliance process for wetland projects in San Francisco bay and outer coastal areas. Asa has trained with the *Carex* Working Group in identifying grasses and sedges of Northern California as well as a CNPS sedge workshop taught by CA Fish and Wildlife staff biologist Gordon Leppig. He is on the Fish and Wildlife Service approved list for Point Arena mountain beaver surveys and has done surveys for Behren's silverspot butterfly, Northern spotted owl, Sonoma tree vole, and the California red-legged frog. He has contributed to more than 150 coastal development projects in Mendocino County.

ENVIRONMENTALLY SENSITIVE HABITAT AREAS DEFINED

Definition of Environmentally Sensitive Habitat Area

The Mendocino County Local Coastal Plan (LCP) and the California Coastal Act (CCA) define an Environmentally Sensitive Habitat Area (ESHA) as:

“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”.

[emphasis given]

The Mendocino County LCP and California Coastal Commission (CCC) have identified specific types of ESHAs including: wetlands, sand dunes, estuaries, streams, rivers, lakes, open coastal waters, coastal waters, riparian habitats, other resource areas, special status species, and the habitat of special status species. For the purpose of this report, the following definitions were used to assess potential ESHAs present in the study area.

Wetland ESHAs

The Mendocino County Local Coastal Plan (LCP) and the California Coastal Act (CCA) define wetlands as:

“Lands within the Coastal Zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens.”

California Coastal Commission Administrative Regulations (Section 13577 (b)) provide the following detailed definition:

“Wetlands are lands where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent or drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salt or other substance in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-water habitats.” In summary, a wetland in the coastal zone falls under CCA jurisdiction if any of the following conditions are present: wetland hydrology, dominance of wetland vegetation (hydrophytes), and/or presence of hydric soils.”

The Statewide Interpretive Guidelines for Identifying and Mapping Wetlands and Other Wet Environmentally Sensitive Habitat Areas (CCC 1981) use the CCA definition to establish technical criteria to delineate wetlands. These guidelines consider wetland hydrology as the most important parameter to identify a wetland within the coastal zone: “the single feature that most wetlands share is soil or substrate that is at least periodically saturated with or covered by water, and this is the feature used to describe wetlands in the Coastal Act. The water creates severe physiological problems for all plants and animals except those that are adapted for life in water or in saturated soil, and therefore only plants adapted to these wet conditions (hydrophytes) could thrive in these wet (hydric) soils. Thus, the presence or absence of hydrophytes and hydric soils make excellent physical parameters upon which to judge the existence of wetland habitat areas for the purposes of the Coastal Act, but they are not the sole criteria.” The saturation of soil in a wetland must be at or near the surface (approximately one foot or less) for a period of time (usually more than two weeks) in order to facilitate anaerobic

soil reduction processes that produce wetland conditions.

Identifying the presence of either wetland classified plants or hydric soils is referred to as the "one parameter approach." This approach can be useful because wetland plants, wetland hydrology, and/or hydric soils often co-occur, especially in natural undisturbed areas. However, situations do exist where wetland classified plants are found in the absence of other wetland conditions. These areas are not wetlands and a delineation study must carefully scrutinize whether the wetland classified plants that are growing as hydrophytes in anaerobic soil conditions caused by wetland hydrology or not.

Examples of hydrophytic plants growing in non-wetland conditions include:

- 1) Deep-rooted trees (e.g., willows), capable of persisting in the presence of surface water or in dry conditions by tapping into deep groundwater sources; and,
- 2) Wetland-classified plants that are also salt-tolerant (e.g., alkali heath) can grow in the presence of either wetland conditions or saline soil conditions, but not necessarily both.

Similarly, hydric soils can be found in the absence of wetland hydrology or wetland classified plants. For example, hydric soils have been observed in upland areas where historic disturbances exposed substratum and in densely vegetated grasslands (Mollisols). A wetland delineation must determine if the hydric soil indicators are a result of frequent anaerobic conditions in the presence of hydrology or due to another cause.

In the Coastal Zone, the California Coastal Commission presumes an area is a wetland if any one of the following three-wetland indicators is present: wetland hydrology, wetland plants, or hydric soils. Exceptions to this exist if there is strong positive evidence of upland conditions, which should be obtained during the wet season. Evidence of upland conditions could include the following observations: a given area saturates only ephemerally following a substantial rainfall, soil is very permeable with no confining layer, or the land is steep and drains rapidly.

Hydrology: Depressions, seeps, and topographic low areas in the Study Area are surveyed for primary and secondary hydrological indicators. Primary indicators of wetland hydrology that offer direct evidence include: visible inundation or saturation, surface sediment deposits, oxidized root channels, and drift lines. Secondary indicators that offer indirect evidence include algal mats, shallow restrictive layers in the soil, or vegetation meeting the FAC-neutral test.

Soils: The Study Area is examined for hydric soil indicators according to Natural Resources Conservation Service guidelines (USDA 2006) where horizon depths, color, redoximorphic features, and texture characterize soil profiles. Soils formed under anaerobic wetland conditions generally have a low chroma matrix color, designated 0, 1, or 2, and contain mottles or other redoximorphic features. Soil color and chroma was determined using a Munsell soil color chart (Gretag Macbeth 2000) to identify soils as hydric.

Plants: The US Army Corps of Engineers developed a classification system for plant species known to occur in wetlands. The plant species are categorized based on the frequency that they have been observed in wetlands. Species classified as obligate (OBL), Facultative Wetland (FACW), and Facultative (FAC) are considered hydrophytic. If more than 50 percent of the plant species in a given area are hydrophytic, the area meets the wetland vegetation criterion and is presumed to be a jurisdictional wetland under the CCA.

Areas identified as potential wetlands by the presence of wetland plants are also examined for indicators of wetland hydrology. Positive indicators of wetland hydrology can include direct evidence (primary indicators) such as surface water, saturation, sediment deposits, and surface soil cracks, or indirect evidence (secondary indicators) such as drainage patterns and water-stained leaves.

Riparian ESHAs

The Mendocino County LCP recognizes drainages with associated riparian vegetation to be ESHAs. The Technical Criteria (CCC 1981) defines riparian vegetation as:

“that association of plant species which grows adjacent to freshwater watercourses, including perennial and intermittent streams, lakes, and other freshwater bodies. Riparian plant species and wetland plant species either require or tolerate a higher level of soil moisture than dryer upland vegetation, and are therefore generally considered hydrophytic.”

Special Status Species ESHAs

Special status species and their habitats are defined as ESHAs by the CCA and Mendocino County LCP. Special-status species include those species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing by the USFWS or CDFW. In addition, CDFW Species of Special Concern are given special consideration under the California Environmental Quality Act (CEQA). Species of Concern may only be protected as ESHAs if they are ranked by CDFW as imperiled in California (S3 or less). Plant species on California Native Plant Society (CNPS) Lists 1 or 2 are also considered special status species and are protected as ESHAs.