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

IGNACIO "NASH" GONZALEZ, INTERIM DIRECTOR
JULIA ACKER KROG, ASSISTANT DIRECTOR
TELEPHONE: 707-234-6650
FAX: 707-463-5709
FB PHONE: 707-964-5379
FB FAX: 707-961-2427
pbs@mendocinocounty.org
www.mendocinocounty.org/pbs

April 27, 2021

Planning – Ukiah
Department of Transportation
Environmental Health - Fort Bragg
Building Inspection - Fort Bragg
Assessor
Forestry Advisor
Air Quality Management
Native Plant Society
Department of Forestry/ CalFire
Land Use
Resource Management
Department of Fish and Wildlife
Coastal Commission
US Fish & Wildlife Service
Gualala Municipal Advisory Council
North Gualala Water District
South Coast Fire District
Cloverdale Rancheria
Redwood Valley Rancheria
Sherwood Valley Band of Pomo Indians

CASE#: CDP_2020-0003
DATE FILED: 1/17/2020
OWNER/APPLICANT: LARS HOLBERG-OLSEN
AGENT: KELLY POOL
REQUEST: Coastal Development Permit to resolve code violations including: removing vegetation (29 Bishop Pine Trees) within a presumed Bishop Pine Tree Forest ESHA; constructing a ground-mounted solar array and other accessory structures within a presumed ESHA or its buffer; and removing a second, unpermitted kitchen and establishing that the number of bedrooms equal the permitted septic capacity.
ENVIRONMENTAL DETERMINATION: Mitigated Negative Declaration
LOCATION: In the Coastal Zone, on the west side of Iversen Drive, 0.2± mile south of its intersection with Iversen Road; located at 46801 Iversen Dr, Gualala; APN: 142-033-17-05.
SUPERVISORIAL DISTRICT: 5
STAFF PLANNER: JULIANA CHERRY
RESPONSE DUE DATE: May 11, 2021

PROJECT INFORMATION CAN BE FOUND AT:
www.mendocinocounty.org
Select "Government" from the drop-down; then locate Planning and 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 _____

CASE: CDP_2020-0003

OWNER/APPLICANT: LARS HOLBERG-OLSEN

AGENT: KELLY POOL

REQUEST: Coastal Development Permit to resolve code violations including: removing vegetation (29 Bishop Pine Trees) within a presumed Bishop Pine Tree Forest ESHA; constructing a ground-mounted solar array and other accessory structures within a presumed ESHA or its buffer; and removing a second, unpermitted kitchen and establishing that the number of bedrooms equal the permitted septic capacity.

LOCATION: In the Coastal Zone, on the west side of Iversen Drive, 0.2± mile south of its intersection with Iversen Road; located at 46801 Iversen Dr, Gualala; APN: 142-033-17-05.

APN/S: 142-033-17-05

PARCEL SIZE: 2.05± Acres

GENERAL PLAN: Coastal Element Chapter 4.12
Rural Residential (RR5(2):R)

ZONING: Mendocino Coastal Zoning Code
Rural Residential District (RR:5)

EXISTING USES: Residential

DISTRICT: 5th (Williams)

RELATED CASES:

	ADJACENT GENERAL PLAN	ADJACENT ZONING	ADJACENT LOT SIZES	ADJACENT USES
NORTH:	Rural Residential	RR5 [RR2]	2 acres	Residential
EAST:	Rural Residential	RR5 [RR2]	2 acres	Residential
SOUTH:	Rural Residential	RR5 [RR2]	2 acres	Residential
WEST:	Rural Residential	RR5 [RR2]	2 acres	Residential

REFERRAL AGENCIES

LOCAL
☒ Air Quality Management District
☒ Assessor's Office
☒ Building Division Fort Bragg
☒ Department of Transportation
☒ Environmental Health – Fort Bragg
☒ Forestry Advisor
☒ South Coast Fire District
☒ Gualala MAC
☒ North Gualala Water District
☒ Planning Division Ukiah

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

FEDERAL
☒ US Department of Fish & Wildlife

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

ADDITIONAL INFORMATION: Please submit comments to cherryj@mendocinocounty.org

The applicant has provided an arborist report listing 29 trees removed. Coastal development permits are required to remove this quantity of trees and when constructing structures within wetland or other protected habitats, see 14 CCR § 13253 (b). The site includes accessory structures – solar array, green house, and others – that may have been constructed within 100-feet of a stream or other environmentally sensitive habitat area. *Local code violations include:*
- Operating a Vacation Home Rental without a business license
- Constructing a second kitchen without a building permit, CDP, or permitted leach field expansion
- Constructing interior bedrooms without a building permit, CDP, or permitted leach field expansion
- Removing vegetation and tree canopy, without a CDP

Potential additional violations include:
- Constructing a solar array within 100-feet of a potential wetland, a presumed *Bishop Pine Forest ESHA, or* presumed *Wax Myrtle Scrub ESHA;* and not obtaining a building permit.
- Constructing a greenhouse within 100-feet of a potential wetland, a presumed *Bishop Pine Forest ESHA,* presumed *Wax Myrtle Scrub ESHA;* and not obtaining a building permit.

The site was surveyed in November 2020 and a botanical survey report was subsequently prepared. (Noting that the lot to the north, which includes the mapped Bishop Pine Forest ESHA was surveyed for CDP_2017-0043 Forsman). The site includes a presumed *Bishop Pine Forest ESHA,* a Pine grass meadow noted for its predominance of native grasses, a potential one-parameter wetland that has not been sampled, stream, and presumed *Wax Myrtle Scrub ESHA* (along the northern property adjoining CDP_2017-0043). (*Hosackia gracilis*, a common herbaceous species that is the presumed larva-food plant for the federally endangered lotus blue butterfly, was observed on the adjoining lands to the north as recently as 2019.) Surveying biologist Asa Spade recommends additional surveys during the Spring and Summer months. Additional information will be distributed as they are received.

The applicant does not propose to change the existing septic and leach field design or capacity. The applicant proposes resolving violations by removing the unpermitted kitchen, removing 3 unpermitted bedrooms, and obtaining Building Permits for all construction requiring a building inspection or other.

As the site includes a residence, the project will not be referred to CHRIS-NWIC at Sonoma State University; nor does staff anticipate scheduling the project for consideration by the Mendocino County Archaeological Commission.

STAFF PLANNER: J CHERRY **DATE:** 4/26/2021

ENVIRONMENTAL DATA

1. MAC:
GIS
Gualala Municipal Area Council

2. FIRE HAZARD SEVERITY ZONE:
CALFIRE FRAP maps/GIS
High Fire Hazard

3. FIRE RESPONSIBILITY AREA:
CALFIRE FRAP maps/GIS
South Coast Fire Protection District

4. FARMLAND CLASSIFICATION:
GIS
Urban & Built-Up Land

5. FLOOD ZONE CLASSIFICATION:
FEMA Flood Insurance Rate Maps (FIRM)
NO

6. COASTAL GROUNDWATER RESOURCE AREA:
Coastal Groundwater Study/GIS
Critical Water Areas

7. SOIL CLASSIFICATION:
Mendocino County Soils Study Eastern/Western Part
Western #117

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
Potential wetland adjacent to northerly property boundary

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
NO

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
LCP Land Use Map 28: Schooner Gulch

25. LCP LAND CAPABILITIES & NATURAL HAZARDS:
LCP Land Capabilities maps/GIS; 20.500
Marine Terrances Seismic Zone 2 Intermediate Shaking

26. LCP HABITATS & RESOURCES:
LCP Habitat maps/GIS; 20.496
Barren Land

27. COASTAL COMMISSION APPEALABLE AREA:
Post LCP Certification Permit and Appeal Jurisdiction maps/GIS; 20.544
Appeal Jurisdiction located west of property

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 botanical survey report submitted

31. BLUFFTOP GEOLOGY:
GIS; 20.500.020
NO

COUNTY OF MENDOCINO
DEPT OF PLANNING AND BUILDING SERVICES
120 WEST FIR STREET
FORT BRAGG, CA 95437
Telephone: 707-964-5379
FAX: 707-961-2427
pbs@co.mendocino.ca.us
www.co.mendocino.ca.us/planning

Case No(s)	
CDF No(s)	
Date Filed	
Fee	
Receipt No.	
Received by	

Office Use Only

COASTAL ZONE APPLICATION FORM

APPLICANT

Name: Lars Holberg-Olsen
Mailing Address: 127 44th Street
City: Newport Beach State: CA Zip Code: 92663 Phone: 808-214-0435

PROPERTY OWNER

Name: Same
Mailing Address:
City: State: Zip Code: Phone:

AGENT

Name: Kelly Poole
Mailing Address: 127 44th Street
City: Newport Beach State: CA Zip Code: 92663 Phone: 808-214-0435

PARCEL SIZE

2.05 ☐ Square feet ■ Acres

STREET ADDRESS OF PROJECT

46801 Iversen Drive, Gualala 95445

RECEIVED
JAN 19 2021
PLANNING & BUILDING SERV
FORT BRAGG, CA

ASSESSOR'S PARCEL NUMBER(S)

142-033-17-05

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

Kelly Poole — Signature of Applicant/Agent — Date 1/15/2021
Lars Holberg-Olsen — Signature of Owner — Date 1/15/2021

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 your 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.

Requesting after-the-fact major vegetation removal, installation of ground-mounted solar panels, and reconfiguration of interior to reduce bedrooms from six to three in order to conform to prescribed septic capacity. Also proposing removal of secondary kitchen.

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

TYPE OF UNIT	NUMBER OF STRUCTURES	SQUARE FEET PER DWELLING UNIT
[x] Single Family	1	4412
[ ] Mobile Home		
[ ] Duplex		
[ ] 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.

RECEIVED
JAN 19 2021
PLANNING & BUILDING SERV
FORT BRAGG CA

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.

Single-family residence, well with fence enclosure, greenhouse and septic system. Please see site plan for further details.

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 24' feet.

8. Lot area (within property lines): 89298 ■ square feet ☐ acres

9. Lot Coverage:

	EXISTING	NEW PROPOSED	TOTAL
Building coverage	3873 square feet	1000 square feet	4873 square feet
Paved area	0 square feet	0 square feet	0 square feet
Landscaped area	0 square feet	0 square feet	0 square feet
Unimproved area	85425 square feet	-1000 square feet	84425 square feet

GRAND TOTAL: 89298 square feet
(Should equal gross area of parcel)

10. Gross floor area: 4722 square feet (including covered parking and accessory buildings).

11. Parking will be provided as follows:

Number of Spaces Existing 4 – Proposed 0 Total 4

Number of covered spaces	2	Size 180sf
Number of uncovered spaces	2	Size 180sf
Number of standard spaces		Size
Number of handicapped spaces		Size

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: Propane Tank
- ☐ None

C. Telephone: ■ Yes ☐ No

13. Will there by any exterior lighting? ☐ Yes ■ No
If yes, describe below and identify the location of all exterior lighting on the plot plan and building plans.

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: _____ cubic yards
B. Amount of fill: _____ cubic yards
C. Maximum height of fill slope: _____ feet
D. Maximum height of cut slope: _____ feet
E. Amount of import or export: _____ cubic yards
F. Location of borrow or disposal site: _____
_____

17. Will vegetation be removed on areas other than the building sites and roads? ■ Yes ☐ No
If yes, explain:

Seeking after-the-fact approval for Major Vegetation Removal

18. Does the project involve sand removal, mining or gravel extraction? ☐ Yes ■ 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? ☐ Yes ■ 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? ☐ Yes ■ No
If yes, explain:

21. Is the proposed development visible from:

A. State Highway 1 or other scenic route? ■ Yes ☐ No
B. Park, beach or recreation area? ☐ Yes ■ No

22. Will the project involve the use or disposal of potentially hazardous materials such as toxic substances, flammables, or explosives? ☐ Yes ■ No
If yes, explain:

23. Does the development involve diking, filling, dredging or placing structures in open coastal waters, wetlands, estuaries or lakes?

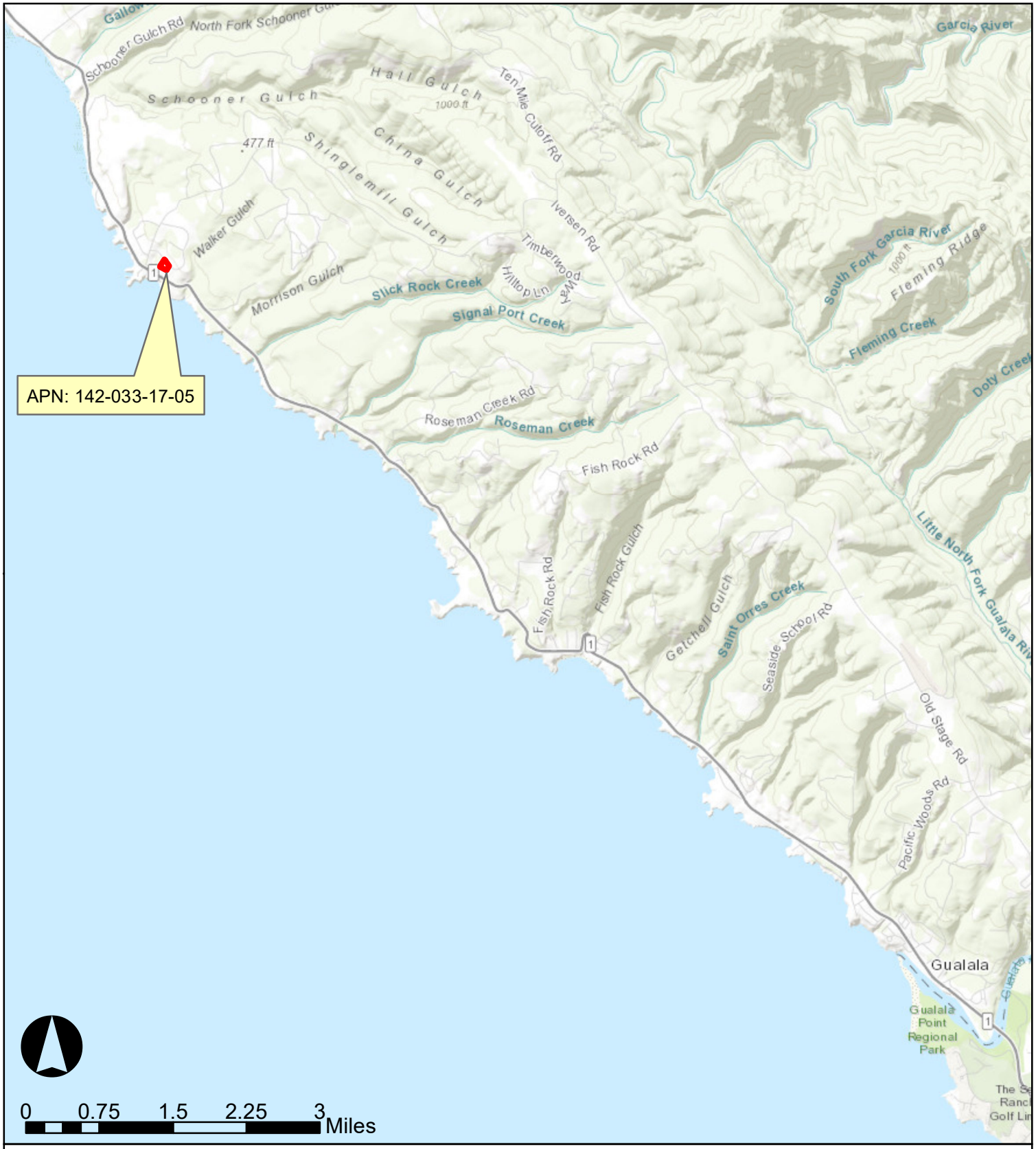
A. Diking ☐ Yes ■ No
B. Filling ☐ Yes ■ No
C. Dredging ☐ Yes ■ No
D. Placement of structures in open coastal waters, wetlands, estuaries or lakes ☐ Yes ■ No

Amount of material to be dredged or filled? _____ cubic yards.

Location of dredged material disposal site: _____
_____

Has a U.S. Army Corps of Engineers permit been applied for? ☐ Yes ■ No

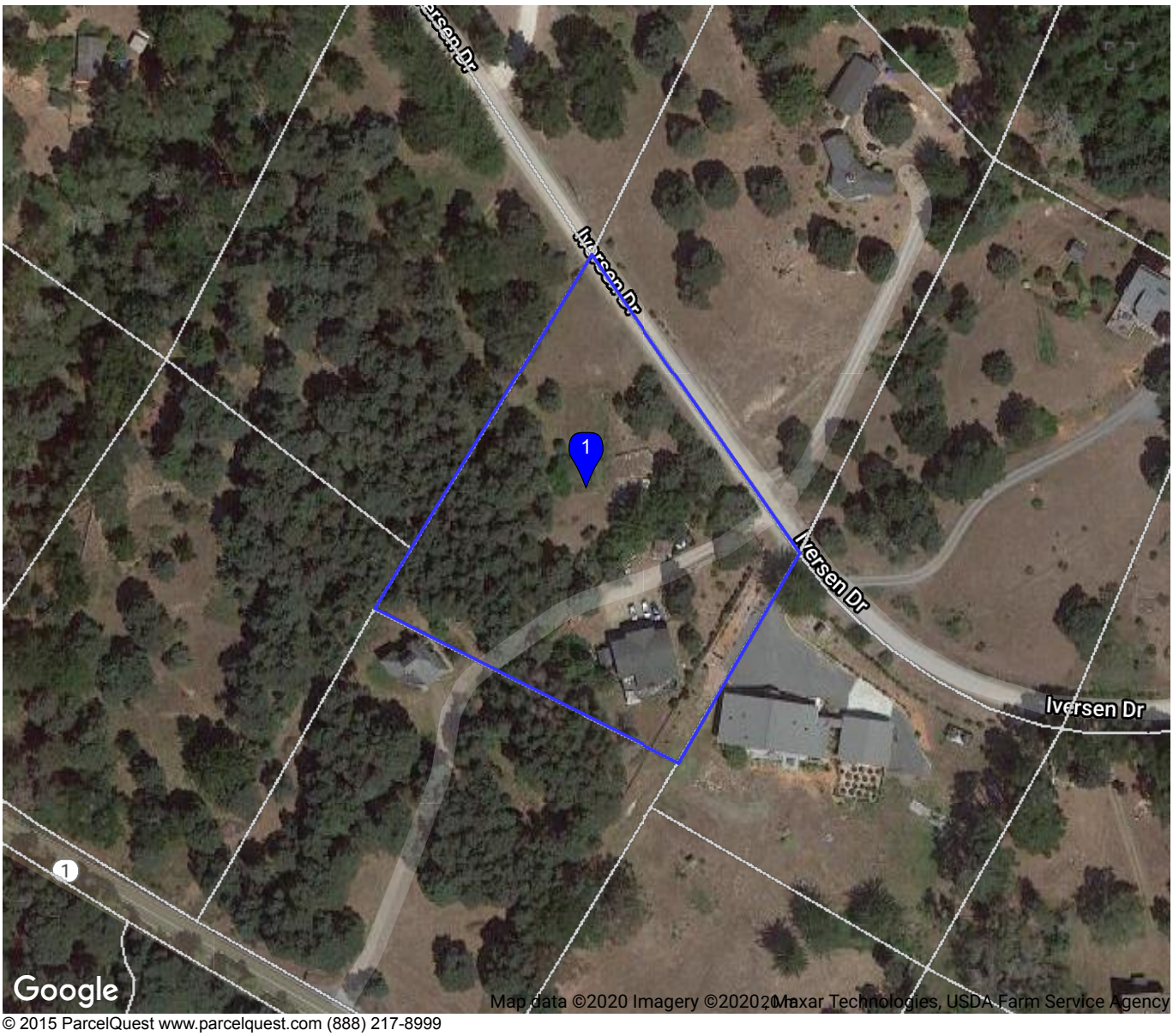
If you need additional room to answer any question, attach additional sheets.



OWNER: HOLBERG OLSEN
APN: 142-033-17-05
GP/ZONE: RR5(2)5
ADDRESS: 46801 IVERSEN DR., GUALALA, CA

Parcel Location

PARCELQUEST



PARCELQUEST
LIST 0
DETAIL

		APN	Owner	Impr. Value	Situs City	Situs State	Situs House#	Situs Street	Homeowner Exempt.	Lot Acres	Lot SqFt
☑	1	142-033-17-05	HOLBERGOLSEN LARS	$395,485	GUALALA	CA	46801	IVERSEN	N	2.050	89,298

APN 142-021-07-05
OCCUPANT
46830 Iversen Dr
Gualala, CA 95445

APN 142-021-06-05
ANNA C LEHMANN
7010 PETERSEN RD
PETALUMA CA 94952

APN 142-032-05-05
FRANCES A FORSMAN
1509 BECKE CIR
LAS VEGAS NV 89104

APN 142-032-05-05
OCCUPANT
30101 S Hwy 1
Gualala, CA 95445

APN 142-033-04-05
RUSSELL M & ANN C NYBORG
6201 OLD RIVER RD
UKIAH CA 95482

APN 142-033-07-05
MICHAEL FLYNN
46600 IVERSEN DR
POINT ARENA CA 95468

APN 142-032-06
OCCUPANT
46851 Iversen Dr
Gualala, CA 95445

APN 142-033-16-05
MICHAEL THOMAS
BUSCHBACHER
30151 S HWY 1
GUALALA CA 95445

APN 142-021-07-05
THOMAS JAY MINCH
1031 VERSAILLES AVE
ALAMEDA CA 94501

APN 142-033-01-05
OCCUPANT
46800 Iversen Drive
Gualala, CA 95445

APN 142-032-06-05
DANIEL ALAN HILL
25052 CASTLEWOOD
LAKE FOREST CA 92630

APN 142-033-05-05
RUSSELL M & ANN C NYBORG
6201 OLD RIVER RD
UKIAH CA 95482

APN 142-033-04-05
OCCUPANT
30201 S Hwy 1
Gualala, CA 95445

APN 142-033-08-05
ALLEN LEE & FAITH THOMAS
PO BOX 899
EL DORADO CA 95623

APN 142-033-17-05
LARS HOLBERGOLSEN
PO BOX 335
POINT ARENA CA 95468

APN 142-033-05-05
OCCUPANT
46701 Iversen Dr
Gualala, CA 95445

APN 142-032-04-05
DOUGLAS J FORSELL
PO BOX 224
POINT ARENA CA 95468

APN 142-033-01-05
CHARLES R DISHMAN
PO BOX 849
POINT ARENA CA 95468

APN 142-033-06-05
OCCUPANT
46700 Iversen Dr
Gualala, CA 95445

APN 142-033-06-05
ZACHARIA & MARIA PLOSCARU
3387 DEODARA ST
FREMONT CA 94538

APN 142-033-09-05
MARK S & CAROL J ESCAJEDA
859 SANTA MARIA WAY
LAFAYETTE CA 94549

703 North Main Street, Fort Bragg CA 95437
ph: 707-964-2537 fx: 707-964-2622
www.WCPlan.com

January 15, 2021

Lars Holberg-Olsen
127 Forty-Fourth Street
Newport Beach, CA 92663

RE: Holberg-Olsen – Biological Scoping Survey
46801 Iversen Drive
Gualala, CA 95445
APN: 142-033-17-05

Dear Mr. Holberg-Olsen,

Thank you for the opportunity to assist you with your natural resources needs for your property at 46801 Iversen Drive located in Gualala, California.

Wynn Coastal Planning & Biology (WCPB) has conducted a Biological Scoping Survey within 100ft of the Major Vegetation Removal (MVR) and ground mounted solar arrays. The Biological Scoping Survey addresses presumed ESHAs within 100ft of the MVR that could be identified at the time of the site visit. Three Environmentally Sensitive Habitat Areas (EHSAs) were identified on site – **Bishop pine forest (*Pinus muricata* Forest and & Woodland Alliance G3 S3), pine grass meadow (*Calamagrostis rubescens* Herbaceous Alliance, and stream ESHA**. The Bishop pine forest was impacted by MVR as the majority of the forest was cleared within the parcel boundaries. A small patch of native pinegrass was found along the southern parcel boundary in a damp area markedly different from the surround non-native grassland. Two ephemeral drainages in the northwestern and southern of the study area are potential stream ESHAs.

A Report of Compliance was conducted to address the impacts to the special status resources and is included as **Appendix C** of this report. An additional survey is recommended in the spring to address the presence of potential special status plants that were not evident or identifiable at the time of the site visit and to determine if the wet patch along the southern property edge is a Coastal Act wetland. Aerial imagery from previous years confirms that the Bishop pine stand on the property was declining prior to MVR in 2018. If the County determines that a Bishop pine restoration plan is required, a Preliminary Mitigation and Monitoring Plan Report is recommended to guide natural recruitment efforts.

Please let us know if you have any questions or comments.

Sincerely,

Nicole D. Bejar

Nicole Bejar
Biologist
Wynn Coastal Planning & Biology

Encl: Holberg-Olsen Biological Scoping Survey; Holberg-Olsen Appendix A – USDA NRCS - Custom Soil Resource Report; Holberg-Olsen Appendix B – USFWS National Wetlands Inventory Map; Holberg-Olsen Appendix C – Report of Compliance

CC: Lars Holberg-Olsen, applicant; file

Biological Scoping Survey

Investigators: Nicole Bejar (B.A. Environmental Studies, Gonzaga University) & Asa B Spade (B.S. Environmental Science: Landscape Ecosystems, Humboldt State)
Property Address: 46801 Iversen Drive, Gualala, California
APN: 142-033-17-05
Survey Date: November 25, 2020
Parcel Size: 2.05 acres
Study Area Size: ~5.6 acres

Site Description:
The subject parcel is located at 46801 Iversen Drive, Gualala, CA (**Figure 1**). The parcel is east of Highway One within the Coastal Zone and 5.5 miles south of Point Arena. The parcel can be accessed from Iversen Drive and is located within a rural residential subdivision. The study area is relatively flat with an elevation of 160 feet above sea level with a gentle, southwest facing slope of approximately 5%. The parcel is currently developed with a single-family residence, shed, driveway, and solar panels and surrounded by similar residential development.

Methodology:
Prior to visiting the site, WCPB biologists compiled a list of sensitive and natural species of plants, animals, and communities occurring within the 9 quads centered on the project site (**Table 1**). This list was used to identify species and communities with the greatest potential for occurring at the project site, but the survey was not strictly limited to this list of potential rare and sensitive species. Maps were also created using the California Natural Diversity Database (CNDDB) for records within one miles of the study area (**Figure 2 and Figure 3**). A USFWS National Wetlands Inventory (NWI) map and a U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) soil map were generated and are attached.

On November 25, 2020, WCPB Senior Biologist, Asa Spade, and Biologist, Nicole Bejar, visited the site to examine the plant communities and vegetation within 100ft of the subject parcel. The focus of the study was to determine if and to what extent, special status plant communities, plants, wetlands, and/or special status wildlife habitat that could be considered Environmentally Sensitive Habitat Areas (ESHA) were impacted by Major Vegetation Removal (MVR) and occur within 100ft of the MVR. A drone was utilized to take aerial photographs of the current conditions of parcel. The survey was limited to areas that were safely and legally accessible.

Survey Results:
One type of soil has been mapped by the Natural Resource Conservation Service in the study area: Cabrillo-Heeser complex, 0 to 5% slopes. Cabrillo-Heeser complex, 0 to 5% slopes, is a soil with slow permeability and is included on the National Hydric Soils List due to the inclusion of Tropaquepts soils which make up ~3% of the complex. (USDA Natural Resource Conservation Service, 2001; **Appendix A**). 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.

The NWI map was consulted (**Appendix B**) and showed no mapped wetlands within the study area. Two ephemeral drainages were observed – one northwest of the parcel boundary and the other one in the southern portion of the parcel just north of the driveway. Both drainages were fed by culverts through Iversen Drive, however, defined channels were not observed east of the road. The southern drainage is an incised 6ft deep by 4ft wide channel with bed and bank features. The northwestern drainage is an incised 7ft deep by 7ft wide channel with bed and bank features. A small patch with hydrophytic vegetation was observed along the southern property line in between the two drainages. More in-depth study than was conducted would be needed to determine whether or not this area is a wetland. No other indications of wetland habitat (hydrophytic vegetation, hydric soils, or hydrology) were observed at the site.

Plant communities and vegetation observed within the study area consisted of: **Bishop pine forest (*Pinus muricata* Forest & Woodland Association G3? S3?)**, common velvet grass meadow (*Holcus lanatus* Semi-Natural Alliance), **pine grass meadow (*Calamagrostis rubescens* Herbaceous Association)**, a small cluster of coast redwood trees, and lawn/landscaping (**Figure 4**).

Prior to MVR, the Bishop pine forest (***Pinus muricata* Forest and Woodland Association G3? S3?**) presumed ESHA dominated the area north of the southern drainage. In June 2018, most of the Bishop pine trees within the parcel boundary were removed without benefit of a Coastal Development Permit due to the potential hazards posed by the trees that were dying from disease and other factors (**Figure 5** & **Figure 6**). Aerial imagery comparing the bishop pine forest before and after vegetation removal illustrates that most of the forest was cleared to the property edge (**Figure 8** & **Figure 9**). Tree stumps and mounds that contained multiple tree stumps were observed throughout the property (**Figure 10**). Based on aerial imagery prior to MVR it is presumed that many of these stumps are from Bishop pine trees. A handful of trees were left standing near the southern property boundary, along the southern stream drainage, and sporadically throughout the area. It is important to note that the most recent aerial imagery taken from the drone depicts a significant increase in the amount of a dead Bishop pine trees indicating that the forest is declining most likely due to pathogens, drought, and/or other causes. Western gall rust, veiled polypore (*Cryptoporus volvatus*), and resinosis were all observed on the Bishop pine trees in the study area reinforcing that the Bishop pine trees are unhealthy and dying (**Figure 11**). Other trees present in the plant community included: Monterey pine (*Pinus radiata*), blue gum eucalyptus (*Eucalyptus globulus*), and tanoak (*Notholithocarpus densiflorus*). Tan oak sapling and Monterey pine seedlings were regenerating under the canopy layer. The understory was thick with shrubs in places and more sparse with only duff and patches of grass sticking through the ground in other places (**Figure 12**). The shrub layer was dominated by California blackberry (*Rubus ursinus*). Other species present included: Cascara buckthorn (*Frangula purshiana*), thimbleberry (*Rubus parviflorus*), California wax myrtle (*Morella californica*), coyote brush (*Baccharis pilularis*), cotoneaster (*Cotoneaster franchetii*), and pink honeysuckle (*Lonicera hispidula*). Herbaceous vegetation present included: sweet vernal grass (*Holcus lanatus*), western sword fern (*Polystichum munitum*), bracken fern (*Pteridium aquilinum*), lady fern (*Athyrium filix-femina*), blue wildrye (*Elymus glaucus*), bull thistle (*Cirsium vulgare*), and dune goldenrod (*Solidago spathulata*). The total vascular cover of the intact portions of the plant community, considering porosity, was estimated to be around 55%.

The MVR prompted the conversion of the Bishop pine forest on the subject parcel into what is now best described as a non-native common velvet grass meadow (*Holcus lanatus* Semi-Natural Association) (**Figure 13**). The common velvet grass meadow is dominated by sweet vernal grass (*Holcus lanatus*) with hairy cats ear (*Hypochaeris radicata*), and bull thistle (*Cirsium vulgare*) also conspicuous. Other species present in this plant community included: English plantain (*Plantago lanceolata*), common sheep sorrel (*Rumex acetosella*), purple awned wallaby grass meadow (*Rytidosperma penicillatum*), sweet vernal grass (*Anthoxanthum odoratum*), iceplant (*Carpobrotus edulis*), oxeye daisy (*Leucanthemum vulgare*), and poison hemlock (*Conium maculatum*). Bishop pine tree stumps and earthen mounds were spread out throughout this community.

A small patch (~1,150ft^2) of pinegrass (*Calamagrostis rubescens*) was identified on the southern property line adjacent to the neighbor's house (**Figure 14**). The species composition in this small patch differed from the surrounding non-native common velvet grass meadow. Pinegrass dominated this community, while other species observed included: soft rush (*Juncus effusus*), spreading rush (*J. patens*), Douglas iris (*Iris douglasiana*), foxglove (*Digitalis purpurea*), Pacific reedgrass (Calamagrostis nutkaensis), California blackberry, iceplant, pampas grass (*Cortaderia jubata*), and dune goldenrod. Monterey pine and tanoak seedlings were also regenerating in this area. *Calamagrostis rubescens* Herbaceous Association is not listed in the California Natural Communities List but could be used to describe this area in its current state and this name is used in this report and for the purpose of vegetation mapping. Pinegrass is likely more often present as an understory species, in which case it would probably have been part of the *Pinus muricat*a Forest Association prior to the tree removal. The area mapped is notable for its predominance of native grasses.

The southern ephemeral drainage just north of the driveway was primarily vegetated with California wax myrtle (*Morella californica)* and western sword fern (*Polystichum munitum*) (**Figure 15)**. The overstory vegetation running along the stream consisted of Douglas fir (*Pseudotsuga menziesii*) and Bishop pine trees. Other species present included: cow parsnip (*Heracleum maximum*), tall flatsedge (*Cyperus eragrostis*), California blackberry, soft rush, evergreen huckleberry (*Vaccinium ovatum*), giant chain fern (*Woodwardia fimbriata*), Sitka willow (*Salix sitchensis*), salal (*Gaultheria shallon*), pampas grass, and cascara buckthorn. The northern ephemeral drainage was vegetated similarly to the southern drainage, however, vegetation was denser with a high percentage of thimbleberry in patches (**Figure 16**).

A small cluster of coast redwood (*Sequoia sempervirens*) tree were observed just west of the house. The subject parcel south of the southern drainage was landscaped with horticultural plants. The solar arrays were installed east of the single-family residence in this landscape area. Surveyors did not have permission to survey adjacent properties so neighboring parcels were labeled as lawn/landscaping through interpretation of aerial imagery.

Recommendations:
Special status resources and their buffers were impacted by the removal of the Bishop pine forest onsite. A Report of Compliance (**Appendix C**) was conducted to address the presumed ESHAs impacted onsite and to guide proposed restoration actions.

If it is deemed that Bishop pine restoration is needed, WCPB recommends preparing a Preliminary Mitigation and Monitoring Plan for the Bishop Pine Forest to guide the natural recruitment of Bishop pine seedlings. Natural recruitment from Bishop pine seed trees should be encouraged by placing fencing around seedlings and saplings to protect them from mowing and herbivore grazing. Pine needle duff thicker than approximately 1” around adult trees in open areas should be raked to expose bare soil and encourage seeds to take root. Duff should be raked in the summer so bare ground is ready for seed dispersal in the fall. Monterey pine seedlings should be removed to discourage competition from the non-native tree species. Planting trees from seed or transplanting seedlings could expedite the recovery of the forest but plantings often fail and this may not be the most effective course of action.

WCPB recommends removing pampas grass, scotch broom, and other non-native invasive plants with a ranking of “high” from the California Invasive Plant Control Council (Cal-IPC). Removing invasive plants in the riparian area will encourage the growth and spread of the current native riparian understory by eliminating competition from aggressive invasive plants. Native plants help slow the spread of surface water and contain excess sediment. There is no record of what the pinegrass meadow looked like prior to MVR, however, the grass is most likely thriving and more productive due to the reduced canopy cover. Pinegrass is resistant to disturbance and rapidly colonizes disturbed areas with open canopies (Matthews 2000). No restoration actions are recommended for the pinegrass meadow as it will likely recover on its own.

The WCPB site work was conducted during a time of year when not all special status plants with a potential to occur in the habitat present would have been evident or identifiable. If it is important to know whether special status plants are present, then WCPB recommends additional site visits during the spring and summer blooming periods. As described within the report, several species of plants that can grow as hydrophytes occurred within a patch along the southern property edge, in roughly the area mapped as pinegrass meadow. This area may be Coastal Act wetland; if it is important to know whether this is the case then additional protocol level wetland studies may be necessary.

References

Matthews, Robin F. 2000. Calamagrostis rubescens. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: https://www.fs.fed.us /database/feis/plants/graminoid/calrub/all.html [2020, December 30].

Biologist Biographies

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.

Nicole Bejar graduated from Gonzaga University with a Bachelor's Degree in Environmental Studies and a minor in Biology. After graduating, she worked as an intern for The Nature Conservancy conducting vegetation monitoring for the endangered golden-cheeked warbler. She served as an AmeriCorps member for the Watershed Stewards Program which aims to conserve, restore, and enhance anadromous watersheds for future generations. She worked as a fisheries technician conducting salmonid monitoring and habitat restoration for various agencies, including the California Department of Fish and Wildlife, Pacific States Marine Fisheries Commission, and the Bureau of Land Management. She also has experience planning and implementing northern spotted owl and amphibian surveys.

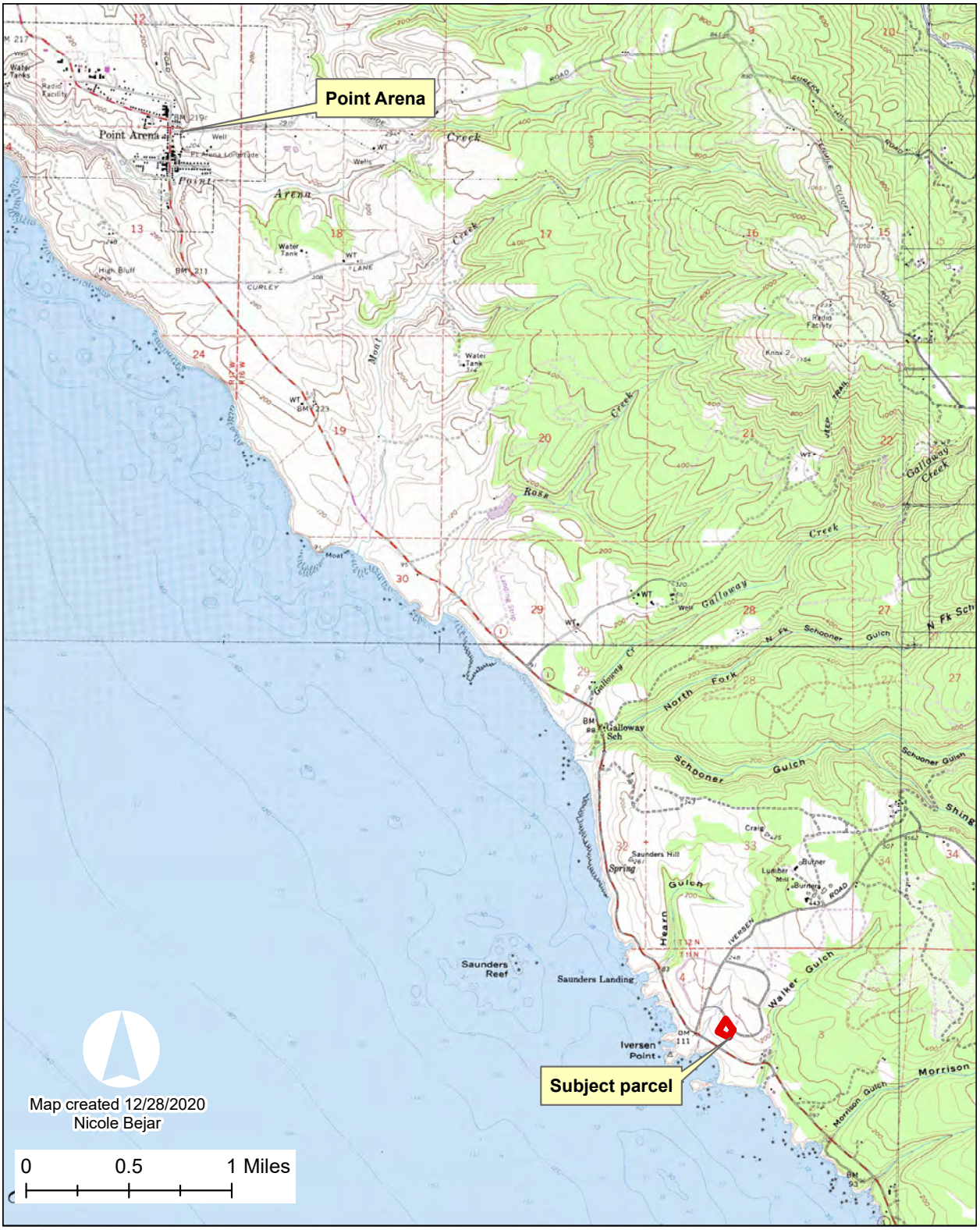


Figure 1. Location of project area in relation to Point Arena, California.

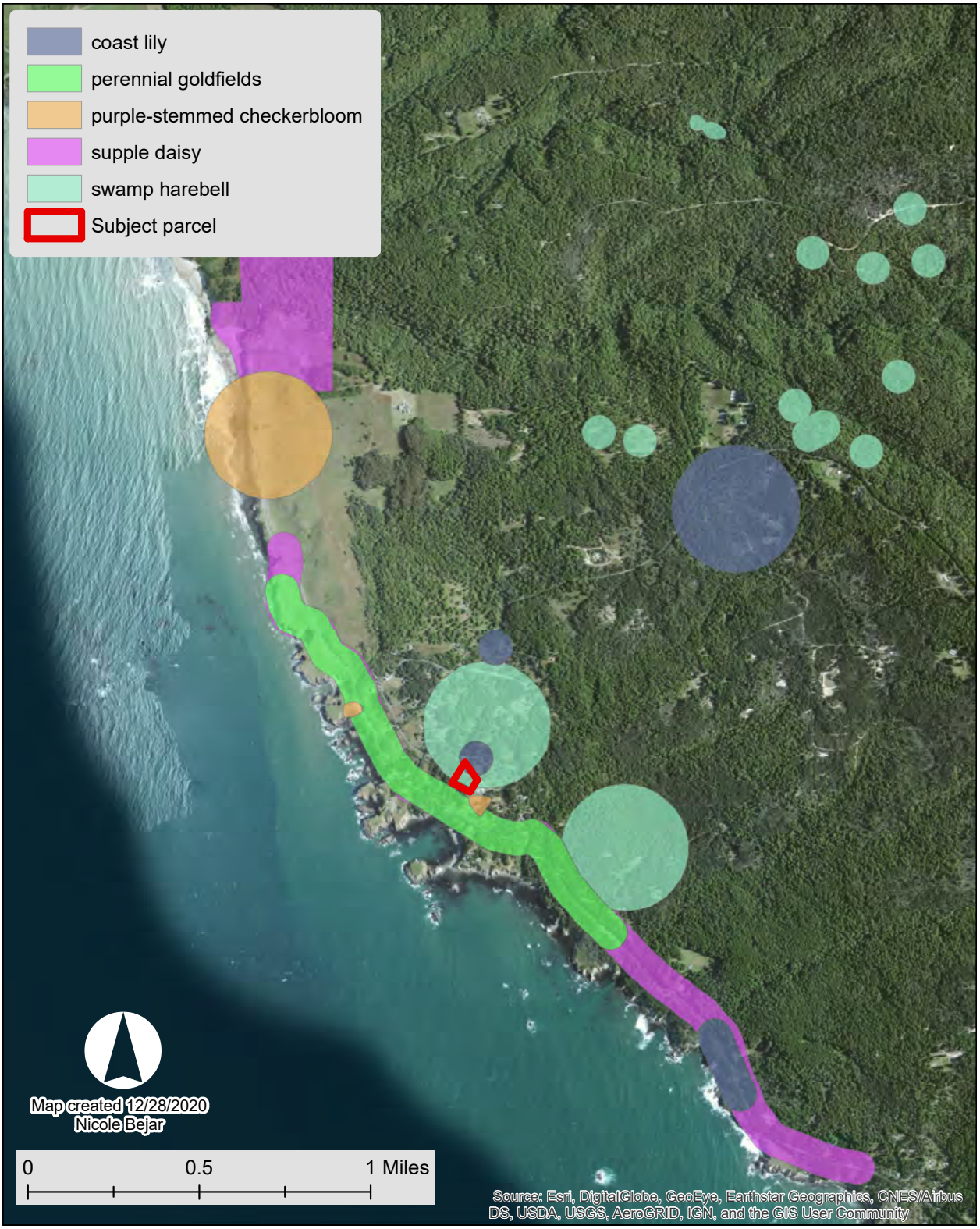


Figure 2. Special status flora reported to CDFW in the proximity of the study area and recorded in the CNDDB database.

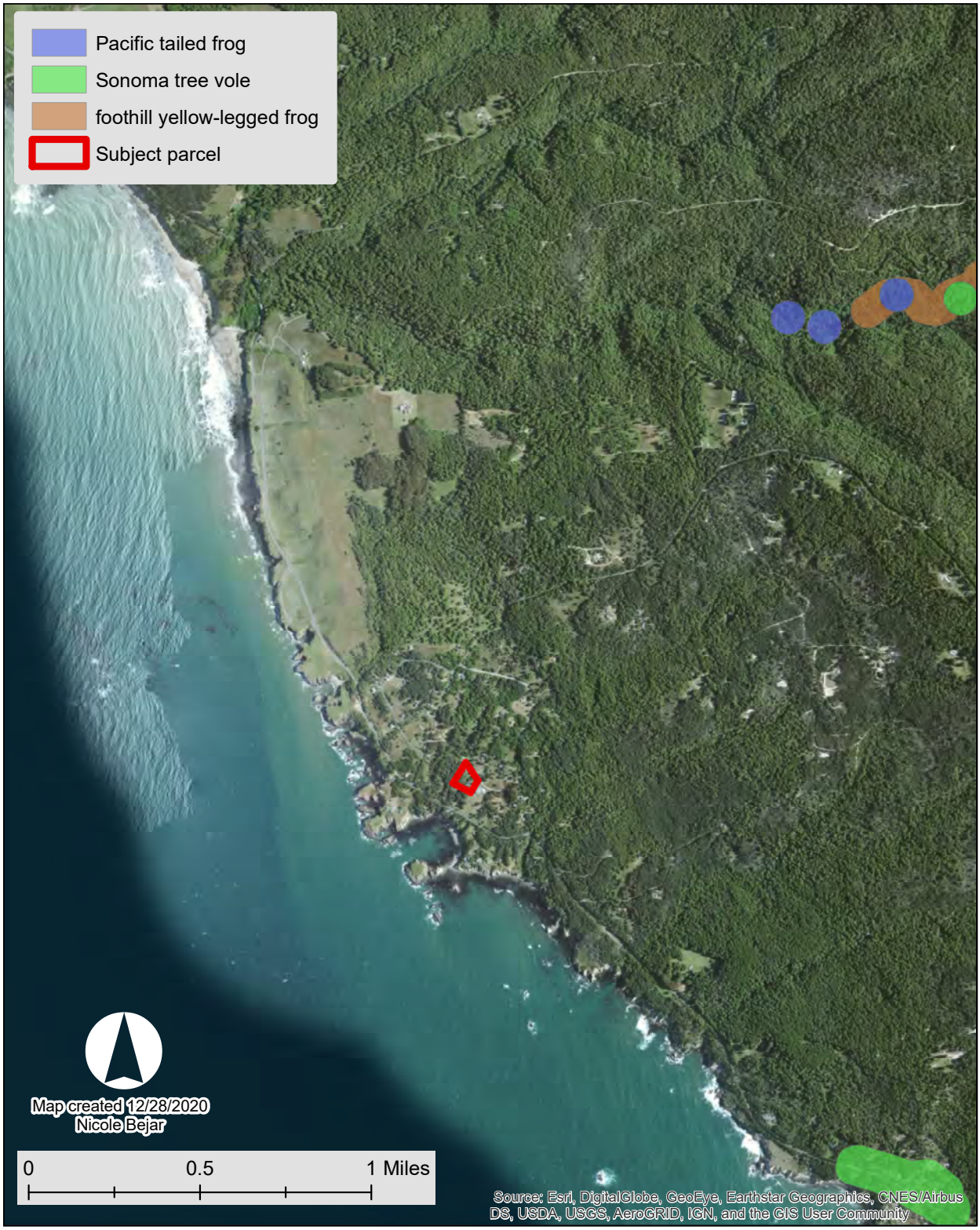
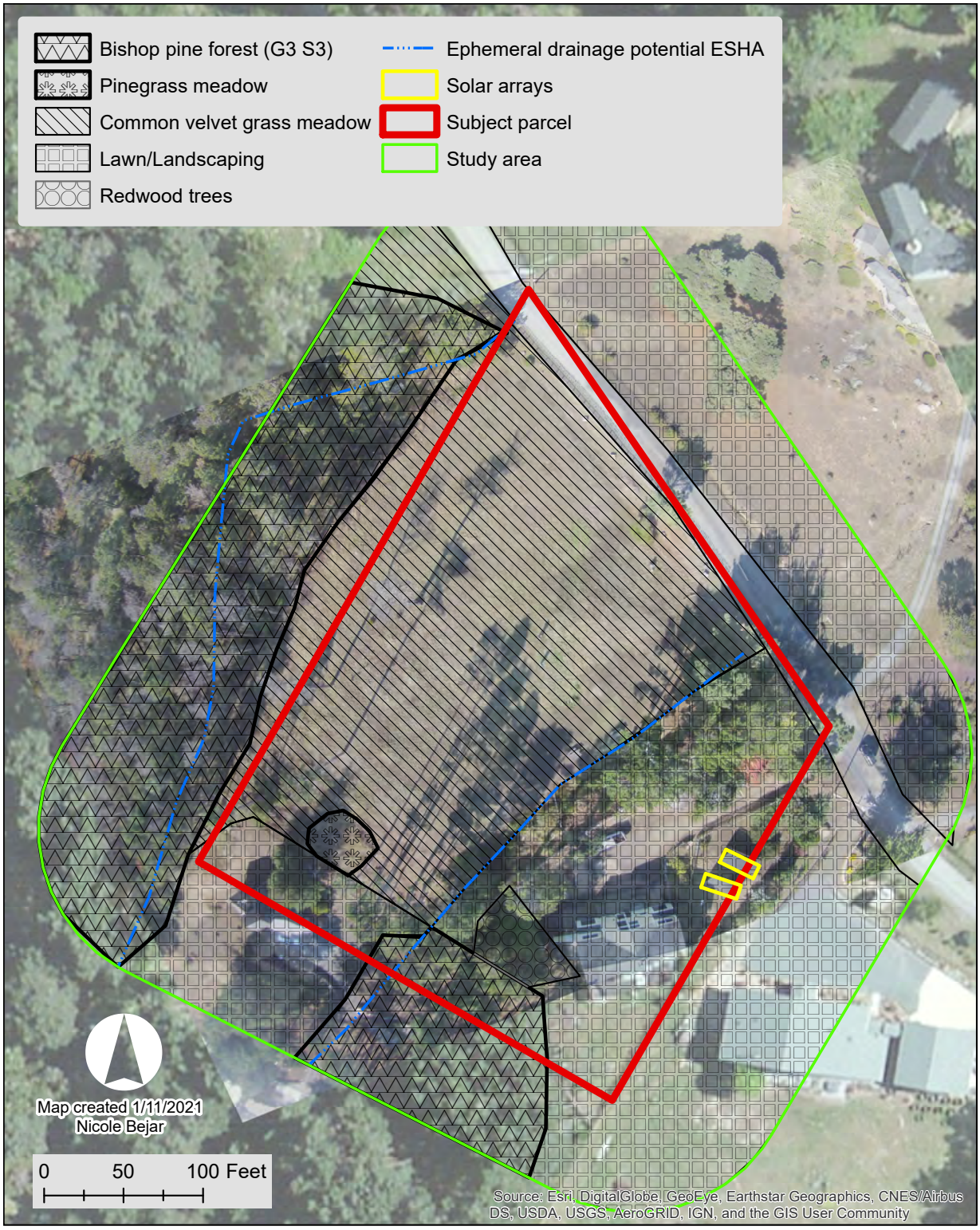


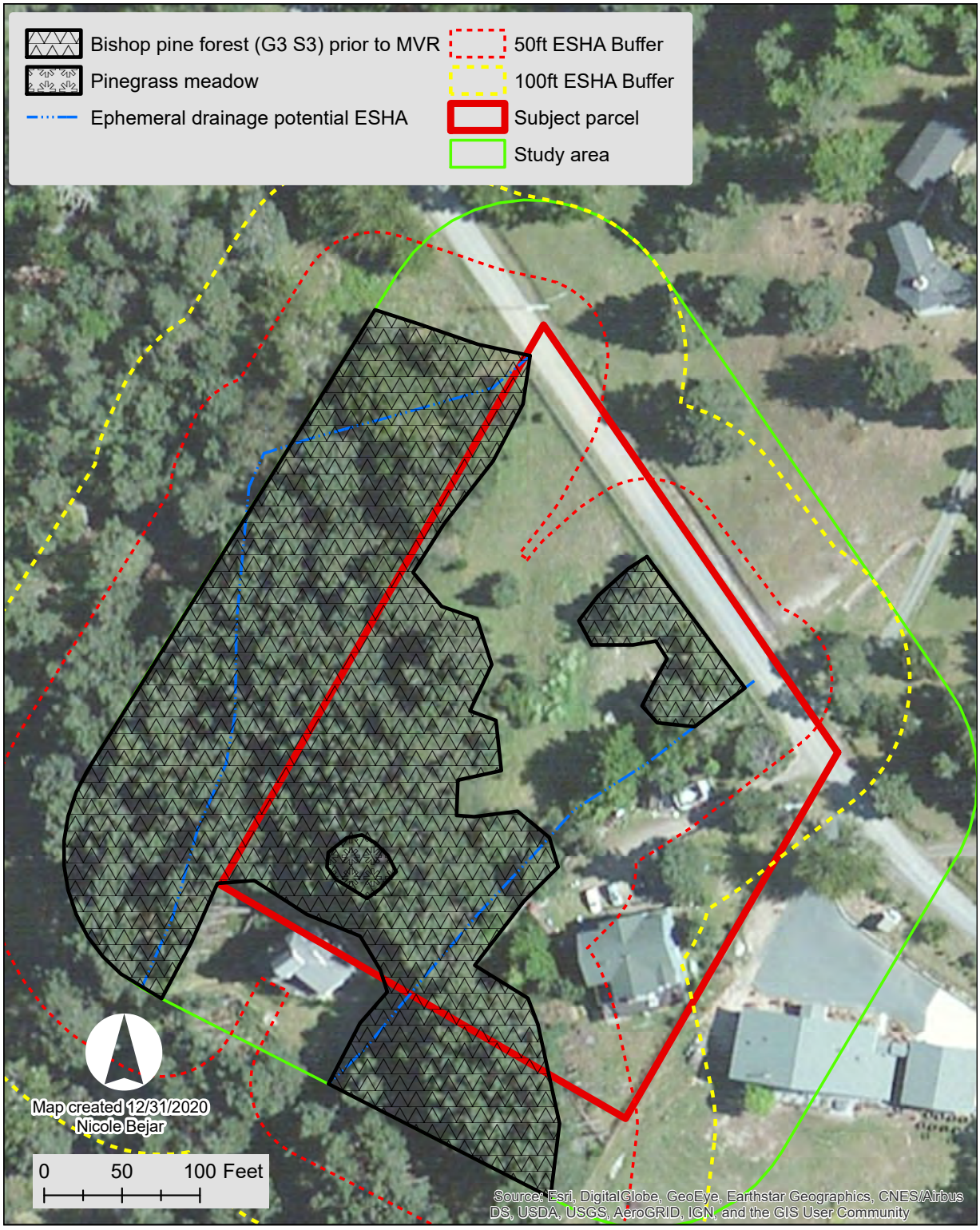
Figure 3. Special status fauna reported to CDFW in the proximity of the study area and recorded in the CNDDB database.



CLIENT: Holberg-Olsen
APN: 142-033-17-05
ADDRESS: 46801 Iversen Drive
Gualala, CA

Plant Communities & Vegetation Map
Note: Property lines are approximate.

Figure 4. Current plant communities and vegetation map. Please note that background image is slightly warped due to curvature from drone image.

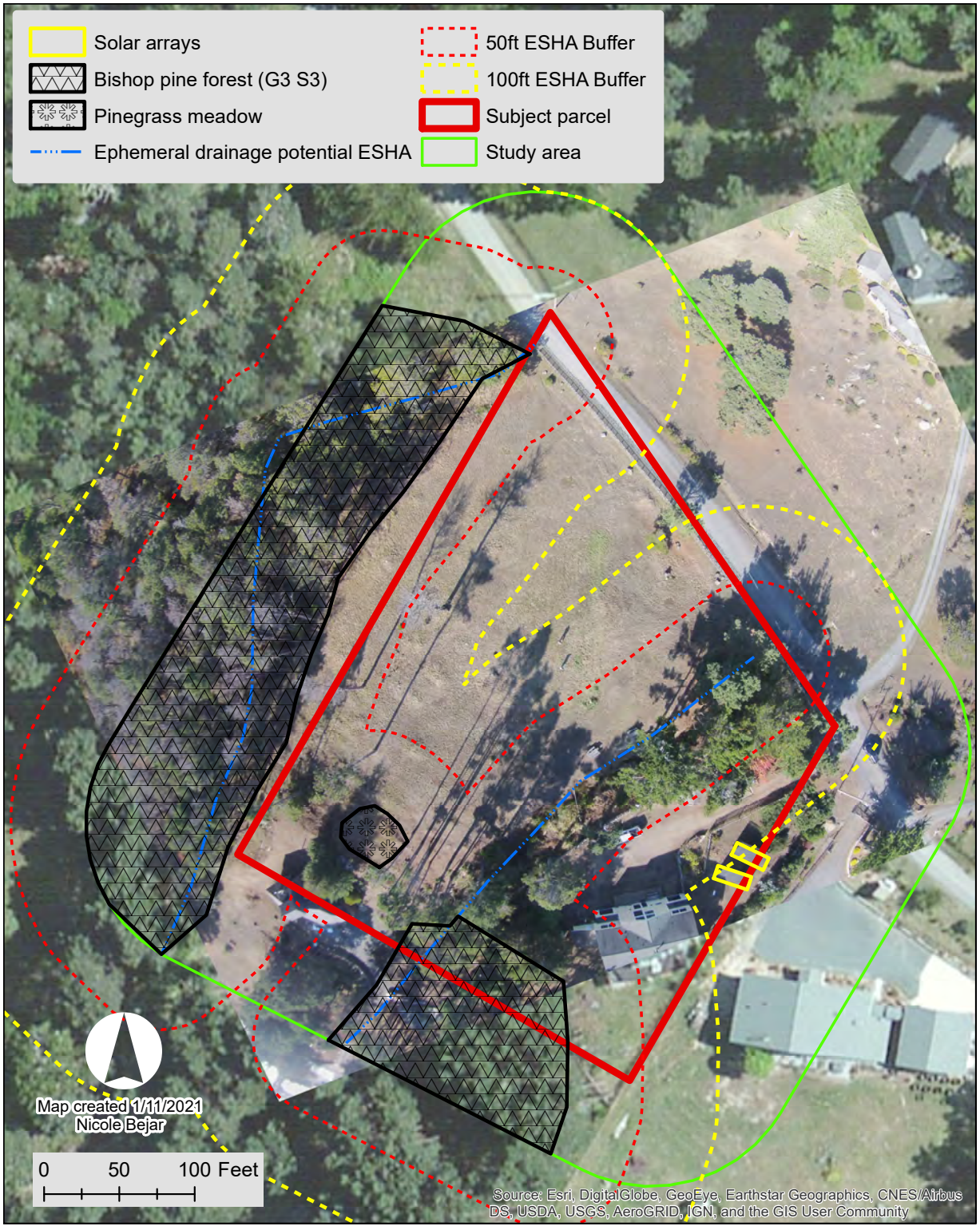


CLIENT: Holberg-Olsen
APN: 142-033-17-05
ADDRESS: 46801 Iversen Drive
Gualala, CA

Pre-Major Vegetation Removal ESHA Map

Note: Property lines are approximate.

Figure 5. Map displaying presumed ESHAs identified in the study area with 50ft and 100ft buffers prior to major vegetation removal.



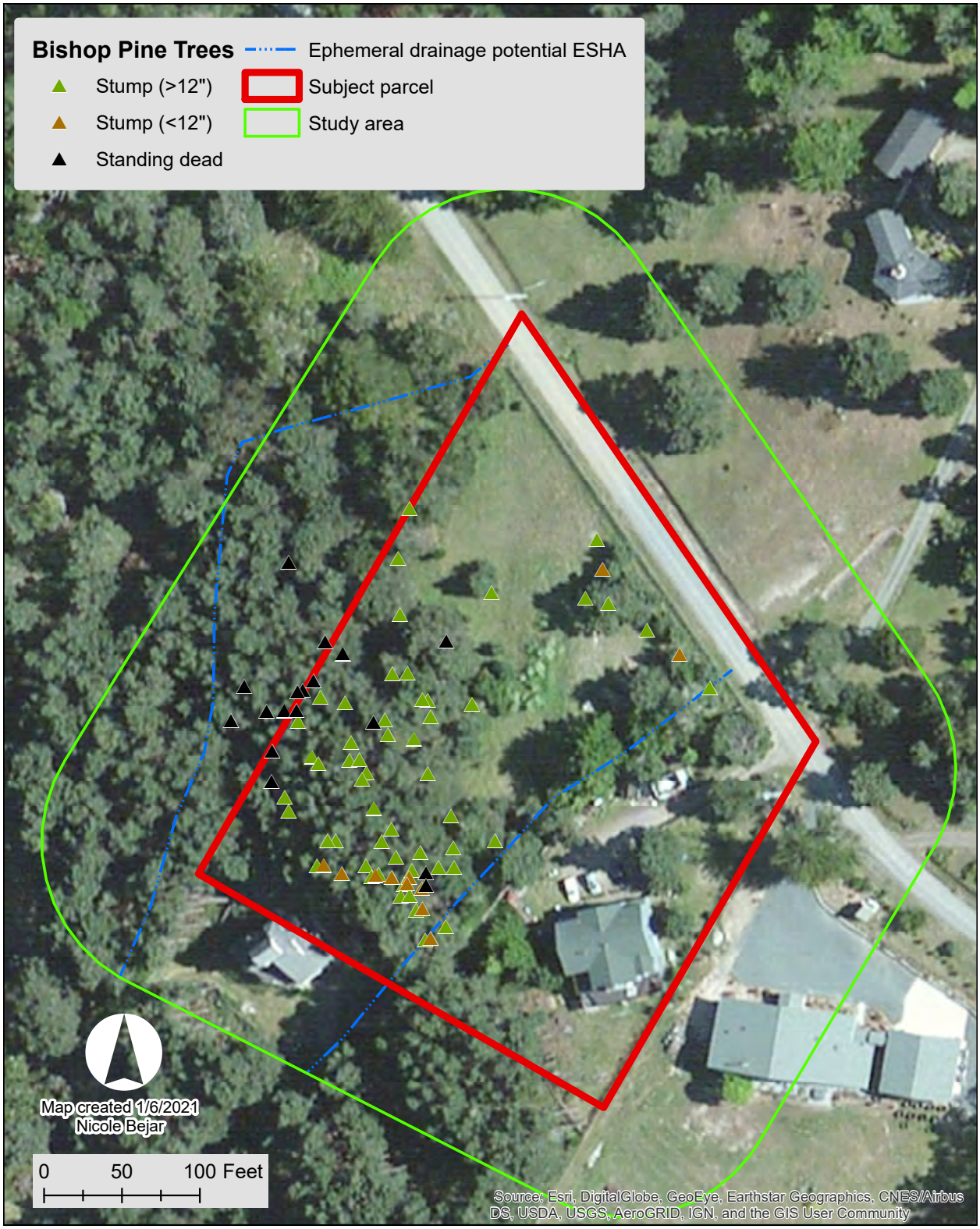
CLIENT: Holberg-Olsen
APN: 142-033-17-05
ADDRESS: 46801 Iversen Drive
Gualala, CA

Post-Major Vegetation Removal ESHA Map

Note: Property lines are approximate.

Figure 6. Map displaying presumed ESHAs identified in the study area with 50ft and 100ft buffers after major vegetation removal. Please note that background image is slightly warped due to curvature from drone image.

Figure 7. Edge of Bishop pine forest presumed ESHA.



CLIENT: Holberg-Olsen
APN: 142-033-17-05
ADDRESS: 46801 Iversen Drive
Gualala, CA

Pre-Major Vegetation Removal

Note: Property lines are approximate.

Figure 8. Aerial imagery depicting the Bishop pine forest prior to major vegetation removal.

CLIENT: Holberg-Olsen
APN: 142-033-17-05
ADDRESS: 46801 Iversen Drive
Gualala, CA

Post-Major Vegetation Removal

Note: Property lines are approximate.

Figure 9. Aerial imagery depicting the Bishop pine forest after major vegetation removal. Please note that background image is slightly warped due to curvature from drone image.

Figure 10. Earthen mound made up of several stumps within grassland.

Figure 11. *Veiled polypore fungus on Bishop pine tree.*

Figure 12. Bishop pine forest understory.

Figure 13. Non-native common velvet grass meadow.

Figure 14. Pinegrass meadow.

Figure 15. Southern drainage.

Figure 16. Northern drainage.

Table 1. Nine-quad search of special status flora, fauna, and communities centered on the Saunders Reed quad.

Element Type	Scientific Name	Common Name	Federal Status	State Status	CDFW Status	CA Rare Plant Rank
Animals - Amphibians	Ascaphus truei	Pacific tailed frog	None	None	SSC	-
Animals - Amphibians	Dicamptodon ensatus	California giant salamander	None	None	SSC	-
Animals - Amphibians	Rana boylii	foothill yellow-legged frog	None	Endangered	SSC	-
Animals - Amphibians	Rana draytonii	California red-legged frog	Threatened	None	SSC	-
Animals - Amphibians	Rhyacotriton variegatus	southern torrent salamander	None	None	SSC	-
Animals - Amphibians	Taricha rivularis	red-bellied newt	None	None	SSC	-
Animals - Birds	Aquila chrysaetos	golden eagle	None	None	FP ; WL	-
Animals - Birds	Ardea herodias	great blue heron	None	None	-	-
Animals - Birds	Athene cunicularia	burrowing owl	None	None	SSC	-
Animals - Birds	Cerorhinca monocerata	rhinoceros auklet	None	None	WL	-
Animals - Birds	Fratercula cirrhata	tufted puffin	None	None	SSC	-
Animals - Birds	Numenius americanus	long-billed curlew	None	None	WL	-
Animals - Birds	Pandion haliaetus	osprey	None	None	WL	-
Animals - Birds	Pelecanus occidentalis californicus	California brown pelican	Delisted	Delisted	FP	-
Animals - Birds	Progne subis	purple martin	None	None	SSC	-
Animals - Birds	Riparia riparia	bank swallow	None	Threatened	-	-
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	Threatened	Threatened	-	-
Animals - Fish	Entosphenus tridentatus	Pacific lamprey	None	None	SSC	-
Animals - Fish	Eucyclogobius newberryi	tidewater goby	Endangered	None	SSC	-
Animals - Fish	Lavinia symmetricus parvipinnis	Gualala roach	None	None	SSC	-
Animals - Fish	Oncorhynchus clarkii clarkii	coast cutthroat trout	None	None	SSC	-
Animals - Fish	Oncorhynchus gorbuscha	pink salmon	None	None	-	-
Animals - Fish	Oncorhynchus kisutch pop. 4	coho salmon - central California coast ESU	Endangered	Endangered	-	-
Animals - Fish	Oncorhynchus mykiss irideus pop. 16	steelhead - northern California DPS	Threatened	None	-	-
Animals - Fish	Spirinchus thaleichthys	longfin smelt	Candidate	Threatened	-	-
Animals - Insects	Bombus caliginosus	obscure bumble bee	None	None	-	-
Animals - Insects	Bombus occidentalis	western bumble bee	None	Candidate Endangered	-	-
Animals - Insects	Danaus plexippus pop. 1	monarch - California overwintering population	None	None	-	-
Animals - Insects	Speyeria zerene behrensii	Behren's silverspot butterfly	Endangered	None	-	-
Animals - Mammals	Aplodontia rufa nigra	Point Arena mountain beaver	Endangered	None	SSC	-
Animals - Mammals	Arborimus pomo	Sonoma tree vole	None	None	SSC	-

Element Type	Scientific Name	Common Name	Federal Status	State Status	CDFW Status	CA Rare Plant Rank
Animals - Mammals	Corynorhinus townsendii	Townsend's big-eared bat	None	None	SSC	-
Animals - Mammals	Erethizon dorsatum	North American porcupine	None	None	-	-
Animals - Mammals	Eumetopias jubatus	Steller (=northern) sea-lion	Delisted	None	-	-
Animals - Mollusks	Haliotis kamtschatkana	pinto abalone	None	None	-	-
Animals - Mollusks	Helminthoglypta arrosa pomoensis	Pomo bronze shoulderband	None	None	-	-
Animals - Mollusks	Juga chacei	Chace juga	None	None	-	-
Animals - Reptiles	Emys marmorata	western pond turtle	None	None	SSC	-
Community - Terrestrial	Coastal and Valley Freshwater Marsh	Coastal and Valley Freshwater Marsh	None	None	-	-
Community - Terrestrial	Coastal Brackish Marsh	Coastal Brackish Marsh	None	None	-	-
Community - Terrestrial	Coastal Terrace Prairie	Coastal Terrace Prairie	None	None	-	-
Community - Terrestrial	Northern Coastal Bluff Scrub	Northern Coastal Bluff Scrub	None	None	-	-
Community - Terrestrial	Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	None	None	-	-
Plants - Lichens	Bryoria pseudocapillaris	false gray horsehair lichen	None	None	-	3.2
Plants - Lichens	Hypogymnia schizidiata	island tube lichen	None	None	-	1B.3
Plants - Lichens	Usnea longissima	Methuselah's beard lichen	None	None	-	4.2
Plants - Vascular	Abronia umbellata var. breviflora	pink sand-verbena	None	None	-	1B.1
Plants - Vascular	Agrostis blasdalei	Blasdale's bent grass	None	None	-	1B.2
Plants - Vascular	Arctostaphylos nummularia ssp. mendocinoensis	pygmy manzanita	None	None	-	1B.2
Plants - Vascular	Astragalus agnicidus	Humboldt County milk-vetch	None	Endangered	-	1B.1
Plants - Vascular	Astragalus rattanii var. rattanii	Rattan's milk-vetch	None	None	-	4.3
Plants - Vascular	Calamagrostis bolanderi	Bolander's reed grass	None	None	-	4.2
Plants - Vascular	Calystegia purpurata ssp. saxicola	coastal bluff morning-glory	None	None	-	1B.2
Plants - Vascular	Campanula californica	swamp harebell	None	None	-	1B.2
Plants - Vascular	Carex californica	California sedge	None	None	-	2B.2
Plants - Vascular	Carex lyngbyei	Lyngbye's sedge	None	None	-	2B.2
Plants - Vascular	Carex saliniformis	deceiving sedge	None	None	-	1B.2
Plants - Vascular	Castilleja ambigua var. ambigua	johnny-nip	None	None	-	4.2
Plants - Vascular	Castilleja ambigua var. humboldtiensis	Humboldt Bay owl's-clover	None	None	-	1B.2
Plants - Vascular	Castilleja mendocinensis	Mendocino Coast paintbrush	None	None	-	1B.2
Plants - Vascular	Ceanothus gloriosus var. exaltatus	glory brush	None	None	-	4.3
Plants - Vascular	Ceanothus gloriosus var. gloriosus	Point Reyes ceanothus	None	None	-	4.3
Plants - Vascular	Coptis laciniata	Oregon goldthread	None	None	-	4.2
Plants - Vascular	Cuscuta pacifica var. papillata	Mendocino dodder	None	None	-	1B.2

Element Type	Scientific Name	Common Name	Federal Status	State Status	CDFW Status	CA Rare Plant Rank
Plants - Vascular	Erigeron biolettii	streamside daisy	None	None	-	3
Plants - Vascular	Erigeron supplex	supple daisy	None	None	-	1B.2
Plants - Vascular	Erysimum concinnum	bluff wallflower	None	None	-	1B.2
Plants - Vascular	Fritillaria roderickii	Roderick's fritillary	None	Endangered	-	1B.1
Plants - Vascular	Gilia capitata ssp. pacifica	Pacific gilia	None	None	-	1B.2
Plants - Vascular	Glehnia littoralis ssp. leiocarpa	American glehnia	None	None	-	4.2
Plants - Vascular	Glyceria grandis	American manna grass	None	None	-	2B.3
Plants - Vascular	Hesperevax sparsiflora var. brevifolia	short-leaved evax	None	None	-	1B.2
Plants - Vascular	Hesperocyparis pygmaea	pygmy cypress	None	None	-	1B.2
Plants - Vascular	Horkelia marinensis	Point Reyes horkelia	None	None	-	1B.2
Plants - Vascular	Horkelia tenuiloba	thin-lobed horkelia	None	None	-	1B.2
Plants - Vascular	Hosackia gracilis	harlequin lotus	None	None	-	4.2
Plants - Vascular	Kopsiopsis hookeri	small groundcone	None	None	-	2B.3
Plants - Vascular	Lasthenia californica ssp. bakeri	Baker's goldfields	None	None	-	1B.2
Plants - Vascular	Lasthenia californica ssp. macrantha	perennial goldfields	None	None	-	1B.2
Plants - Vascular	Lasthenia conjugens	Contra Costa goldfields	Endangered	None	-	1B.1
Plants - Vascular	Lathyrus palustris	marsh pea	None	None	-	2B.2
Plants - Vascular	Lilium maritimum	coast lily	None	None	-	1B.1
Plants - Vascular	Microseris paludosa	marsh microseris	None	None	-	1B.2
Plants - Vascular	Oenothera wolfii	Wolf's evening-primrose	None	None	-	1B.1
Plants - Vascular	Perideridia gairdneri ssp. gairdneri	California Gairdner's yampah	None	None	-	4.2
Plants - Vascular	Piperia candida	white-flowered rein orchid	None	None	-	1B.2
Plants - Vascular	Potamogeton epihydrus	Nuttall's ribbon-leaved pondweed	None	None	-	2B.2
Plants - Vascular	Sidalcea calycosa ssp. rhizomata	Point Reyes checkerbloom	None	None	-	1B.2
Plants - Vascular	Sidalcea malachroides	maple-leaved checkerbloom	None	None	-	4.2
Plants - Vascular	Sidalcea malviflora ssp. purpurea	purple-stemmed checkerbloom	None	None	-	1B.2
Plants - Vascular	Trifolium buckwestiorum	Santa Cruz clover	None	None	-	1B.1
Plants - Vascular	Trifolium trichocalyx	Monterey clover	Endangered	Endangered	-	1B.1
Plants - Vascular	Veratrum fimbriatum	fringed false-hellebore	None	None	-	4.3

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State 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.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

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

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

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.

Custom Soil Resource Report
Soil Map

Custom Soil Resource Report

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 15, Jun 1, 2020

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

Date(s) aerial images were photographed: Jul 3, 2019—Jul 5, 2019

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
117	Cabrillo-Heeser complex, 0 to 5 percent slopes	16.6	92.5%
139	Dystropepts, 30 to 75 percent slopes	0.8	4.4%
235	Yellowhound-Kibesillah complex, 50 to 75 percent slopes, MLRA 4B	0.6	3.1%
Totals for Area of Interest		**18.0**	**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 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.

Mendocino County, Western Part, California

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

Map Unit Setting

National map unit symbol: hmkm
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: Fluviomarine 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
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 capacity: Moderate (about 7.5 inches)

Interpretive groups

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

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
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 capacity: Moderate (about 6.1 inches)

Interpretive groups

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

Minor Components

Crispin

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

Biaggi

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

139—Dystropepts, 30 to 75 percent slopes

Map Unit Setting

National map unit symbol: hmlk
Elevation: 10 to 1,500 feet
Mean annual precipitation: 35 to 55 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 250 to 330 days
Farmland classification: Not prime farmland

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
Drainage class: Well drained
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Minor Components

Rock outcrop

Percent of map unit: 10 percent
Landform: Marine terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: No

Vizcaino

Percent of map unit: 8 percent
Landform: Marine terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser

Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: No

Abalobadiah

Percent of map unit: 7 percent
Landform: Marine terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: No

235—Yellowhound-Kibesillah complex, 50 to 75 percent slopes, MLRA 4B

Map Unit Setting

National map unit symbol: 2w91l
Elevation: 200 to 2,000 feet
Mean annual precipitation: 39 to 58 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 220 to 320 days
Farmland classification: Not prime farmland

Map Unit Composition

Yellowhound and similar soils: 45 percent
Kibesillah and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Yellowhound

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, side slope
Down-slope shape: Convex, concave
Across-slope shape: Convex, concave
Parent material: Colluvium derived from conglomerate and/or colluvium derived from sandstone and/or residuum weathered from sandstone and/or residuum weathered from conglomerate

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 7 inches: gravelly loam
AB - 7 to 16 inches: gravelly loam
Bt1 - 16 to 29 inches: very gravelly loam
Bt2 - 29 to 46 inches: extremely gravelly loam
BCt - 46 to 54 inches: extremely gravelly loam
R - 54 to 64 inches:

Properties and qualities

Slope: 50 to 75 percent
Depth to restrictive feature: 39 to 59 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Kibesillah

Setting

Landform: Hills, mountains
Down-slope shape: Convex, concave
Across-slope shape: Convex, concave
Parent material: Colluvium derived from sandstone and/or residuum weathered from sandstone

Typical profile

Oi - 0 to 0 inches: slightly decomposed plant material
A1 - 0 to 4 inches: very gravelly loam
A2 - 4 to 13 inches: very gravelly loam
Bt1 - 13 to 19 inches: very gravelly loam
Bt2 - 19 to 26 inches: extremely gravelly clay loam
R - 26 to 39 inches:

Properties and qualities

Slope: 50 to 75 percent
Depth to restrictive feature: 20 to 39 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very low (about 2.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Ornbaun

Percent of map unit: 7 percent
Landform: Hills, mountains
Down-slope shape: Convex, concave
Across-slope shape: Convex, concave
Hydric soil rating: No

Zeni

Percent of map unit: 7 percent
Landform: Hills, mountains
Down-slope shape: Convex, concave
Across-slope shape: Convex, concave
Hydric soil rating: No

Rock outcrop

Percent of map unit: 6 percent
Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

U.S. Fish and Wildlife Service
National Wetlands Inventory

Holberg-Olsen NWI Map

November 25, 2020

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

BIOLOGICAL REPORT OF COMPLIANCE

for

46801 Iversen Drive
Gualala, CA 95468
APN 126-010-04
Mendocino County

Property Owner:
Lars Holberg-Olsen
127 Forty-Fourth Street
Newport, CA 92663

Report Prepared By:
Nicole Bejar – Biologist
Asa Spade – Senior Biologist

January 15, 2021

Wynn Coastal Planning & Biology
703 North Main Street, Fort Bragg CA 95437
ph: 707-964-2537 fx: 707-964-2622
www.WCPlan.com

Table of Contents

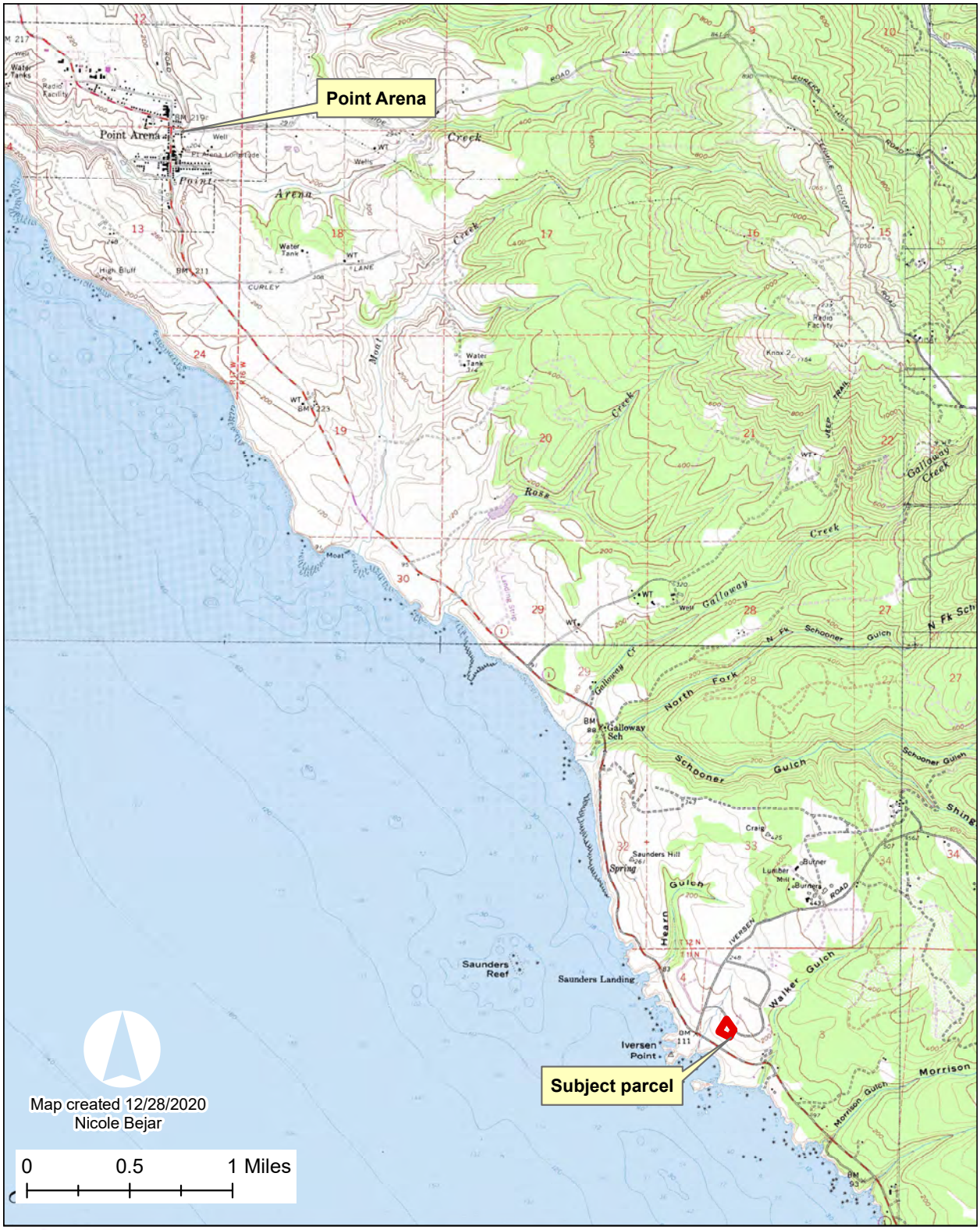
1. Background and Purpose

The Major Vegetation Removal (MVR) is located on the property at 46801 Iversen Drive in Mendocino County, California. The parcel is approximately 5.5 miles south of Point Arena (**Figure 1**). The parcel can be accessed from Iversen Drive and is located within a rural residential subdivision. The parcel is currently developed with a single-family residence, shed, driveway, and solar panels and surrounded by similar residential development. It is located within the Coastal Zone as defined in Section 30103 of the California Coastal Act.

A Biological Scoping Survey and Report was performed on the 2.05-acre parcel (APN 142-033-17-05) by Wynn Coastal Planning and Biology (WCPB) Senior Biologist Asa Spade and staff Biologist Nicole Bejar. The purpose of the biological report was to locate special status plants and communities, wetlands and riparian areas, and special status animal habitats to determine if they were directly or indirectly impacted by the MVR.

MVR occurred in the northern portion of the property, north of the southern drainage, while existing development is located south of this drainage. Special status resources observed in the study area included: **Bishop pine forest (*Pinus muricata* Forest & Woodland Association G3? S3?)**, **pine grass meadow (*Calamagrostis rubescens* Herbaceous Alliance),** and **stream ESHA.** The Bishop pine forest was impacted by MVR as the majority of the forest was cleared within the parcel boundaries. A small patch of native pinegrass was found along the southern parcel boundary in a damp area markedly different from the surround non-native grassland. Two ephemeral drainages in the northwestern and southern portion of the study area are potential stream ESHAs (). Non special status resources on the property included: common velvet grass meadow (*Holcus lanatus* Semi-Natural Alliance), a small cluster of coast redwood trees, and lawn/landscaping.

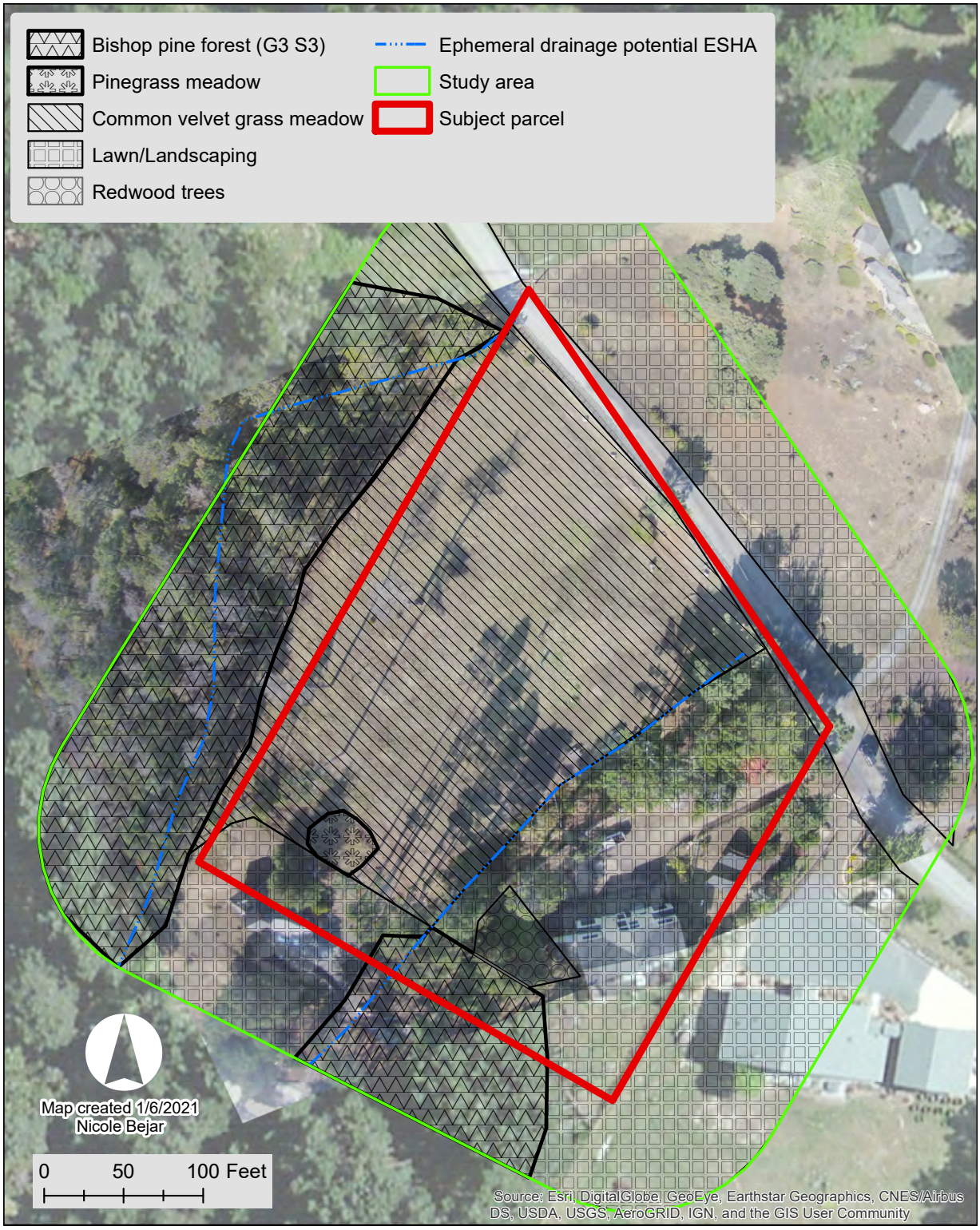
The property's rare resources may be considered Environmentally Sensitive Habitat Areas (ESHAs) according to the Mendocino County Local Coastal Program. MVR directly impacted the Bishop pine forest as a significant portion of the trees were removed on the subject parcel due to the death and decline of the forest (&). This Report of Compliance presents an analysis of the direct impacts to the Bishop pine forest and the indirect impacts to the pine grass meadow and ephemeral drainage.



CLIENT: Holberg-Olsen
APN: 142-033-17-05
ADDRESS: 46801 Iversen Drive
Gualala, CA

Location Map

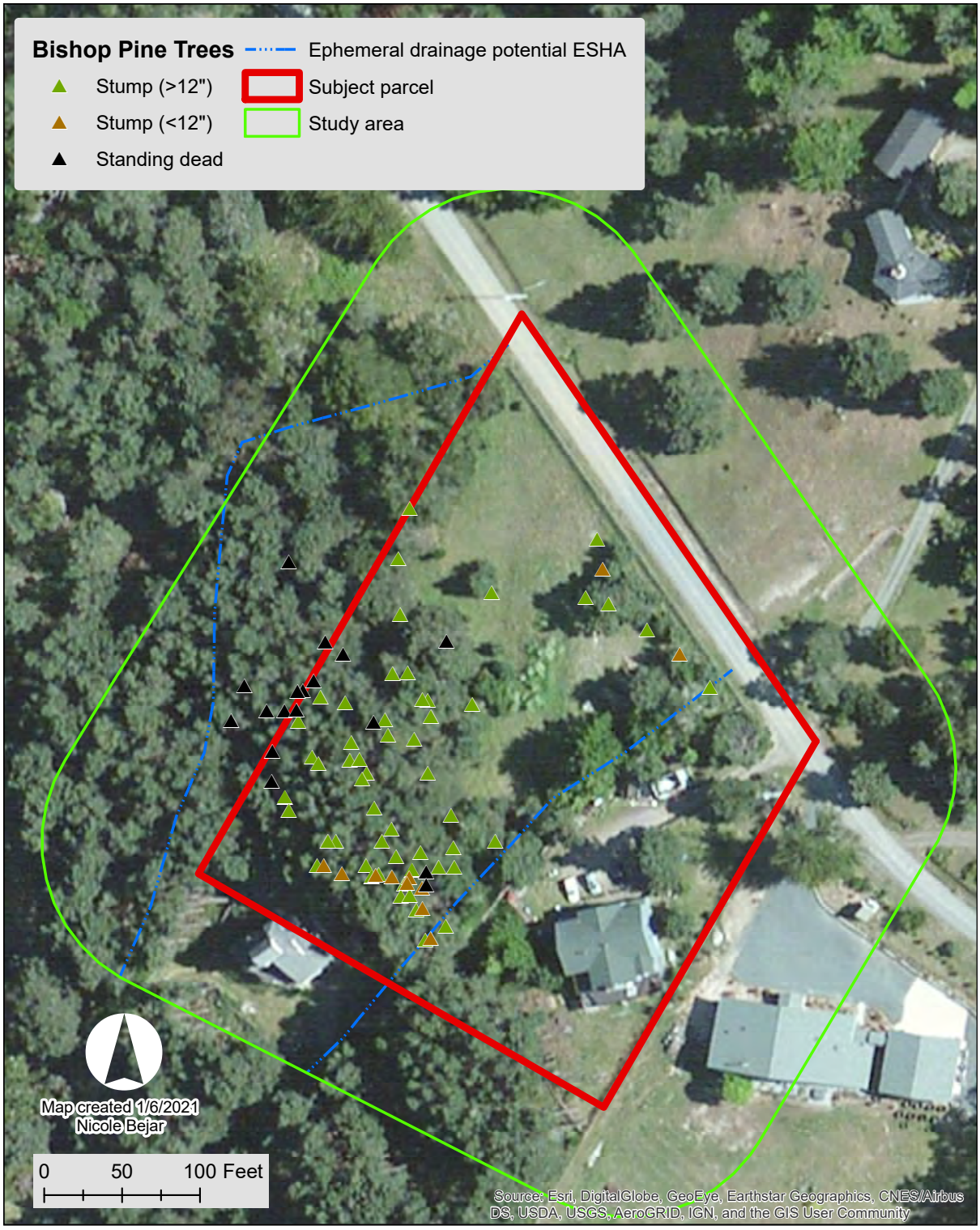
Figure 1. Location of the Holberg-Olsen parcel.



CLIENT: Holberg-Olsen
APN: 142-033-17-05
ADDRESS: 46801 Iversen Drive
Gualala, CA

Plant Communities & Vegetation Map
Note: Property lines are approximate.

Figure 2. Plant communities and vegetation documented onsite.



CLIENT: Holberg-Olsen
APN: 142-033-17-05
ADDRESS: 46801 Iversen Drive
Gualala, CA

Pre-Major Vegetation Removal

Note: Property lines are approximate.

Figure 3. Aerial imagery taken before 2017 showing the extent of the Bishop pine forest prior to Major Vegetation Removal.

Figure 4. Aerial imagery from 2020 showing the extent of Bishop pine forest after Major Vegetation Removal. Dead and dying gray Bishop pine trees can be seen along the western edge of the photo. Please note that background image is slightly warped due to curvature from drone image.

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 after-the-fact approval for Major Vegetation Removal and ground mounted solar arrays and its impacts on the Bishop pine forest, pinegrass meadow, and ephemeral streams 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.

2. Findings

2.1 Special Status Plant Communities and Streams

2.1.1 Present Extent of Habitat

Bishop pine forest
Bishop pine forest has a ranking of G3 S3, which indicates that the community is rare globally and throughout California. According to both the *Manual of California Vegetation* and USDA, Bishop pine forests typically occur in disjunct coastal populations from southern Oregon to Santa Barbara California (Sawyer 2009 & USDA 2018) (**Figure 5 & Figure 6**). Bishop pines are also located on Santa Cruz and Santa Rosa islands as well as Baja California, Mexico (Sawyer 20019 & USDA 2018). Populations of Bishop pines are typically located in Mediterranean climates between sea level and 400 meters in elevation (NPS 2015).

Within Bishop pine forests along the Mendocino coast, Bishop pines are either dominant within the forest canopy or co-dominant with: shore pine (*Pinus contorta* ssp. *contorta)*, Bolander's pine (*Pinus contorta* ssp. *bolanderi)*, Mendocino cypress (*Hesperocyparis pygmaea)*, tan oak (*Notholithocarpus densiflorus),* redwood *(Sequoia sempervirens),* bay laurel (*Umbellularia californica*), Douglas fir (*Pseudotsuga menziesii*), grand fir (*Abies grandis)*, and western hemlock (*Tsuga heterophylla*). Within Bishop pine forests, the shrub and herb stratum can be sparse due to high percentage of needle duff on the ground. In other cases, understory vegetation can be dense with plants such as, but not limited to: wax myrtle (*Morella californica*), Cascara buckthorn (*Frangula purshiana*), California coffeeberry (*Frangula californica*), sweet vernal grass (*Anthoxanthum odoratum*), common velvet grass (*Holcus lanatus*), California blackberry (*Rubus ursinus*), beach strawberry (*Fragaria chiloensis*), and Pacific reed grass (*Calamagrostis nutkaensis*) (Sawyer 2009 & USDA 2018).

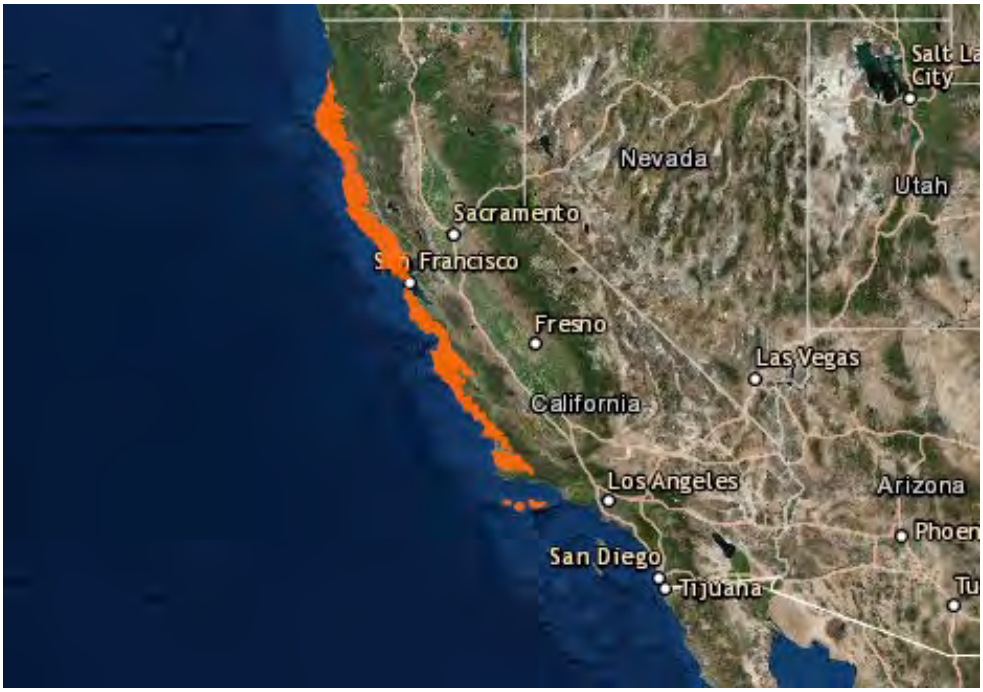


Figure 5. CNPS range of Pinus muricata & Pinus radiata alliance (CNPS 2019).

Figure 6. USDA Bishop pine range (USDA 2019).

Pinegrass meadow

Pinegrass is unranked; however, due to it being a native grassland and the unique, high quality habitat in this patch, WCPB biologists determined it to be a plant community that warrants protection. According to the California Native Plant Society, pinegrass is found in Canada and the western United States. In the United States, it ranges from California to Colorado and is usually found in forests and woodlands (CNPS 2020) (**Figure 7 & Figure 8**).

Native coastal grasslands are declining due to human disturbance, competition from non-native grasses, and encroachment from trees and shrubs. California has lost 99% of its native grasslands and pristine coastal prairie is generally regarded to only be found from Santa Cruz county northward within approximately 100 km from the coast (NPS 2007).

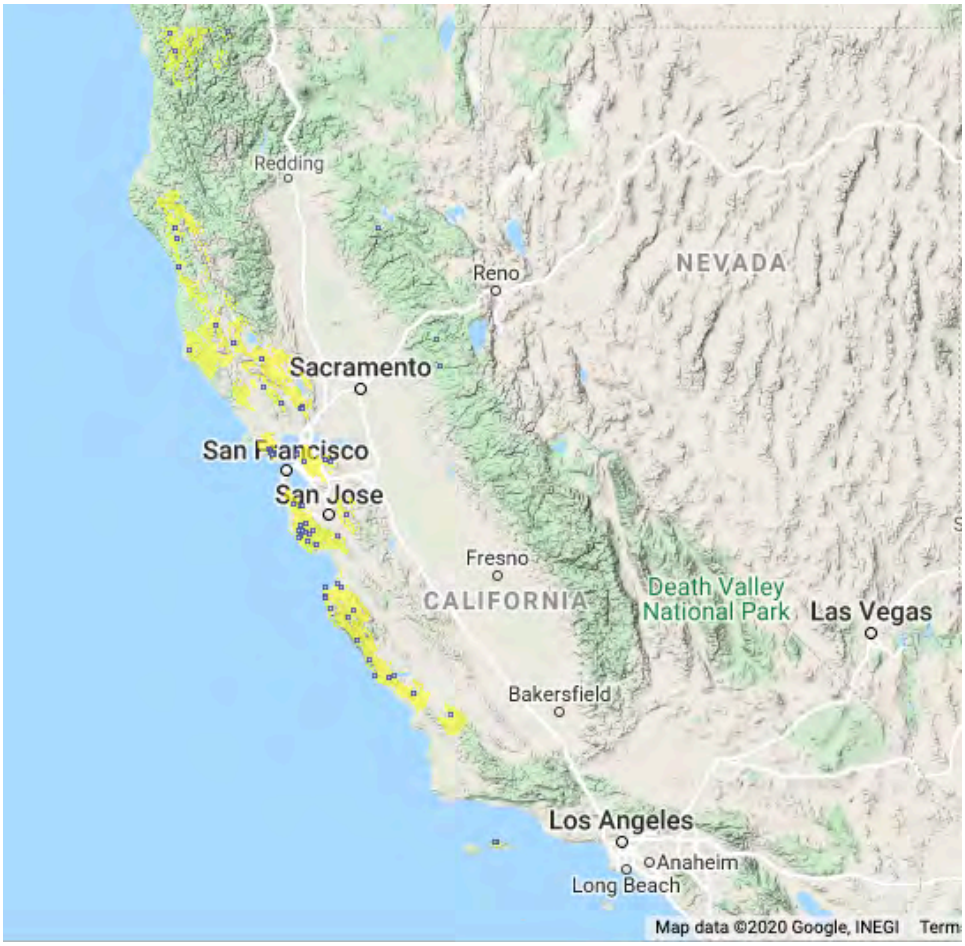


Figure 7. Calscape pinegrass estimated plant range.

Figure 8. USDA range of pinegrass.

Ephemeral drainages
Two ephemeral drainages were observed – one northwest of the parcel boundary and the other one in the southern portion of the parcel, just north of the driveway. Both drainages were fed by culverts through Iversen Drive; however, defined channels were not observed across the road east of the property. The southern drainage is an incised 6ft deep by 4ft wide channel with bed and bank features. The northwestern drainage is an incised 7ft deep by 7ft wide channel with bed and bank features. The southern ephemeral drainage just north of the driveway was primarily vegetated with California wax myrtle (*Morella californica)* and western sword fern (*Polystichum munitum*). The overstory vegetation running along the stream consisted of Douglas fir (*Pseudotsuga menziesii*) and Bishop pine trees. The northern ephemeral drainage was vegetated similarly to the southern drainage; however, vegetation was denser with a higher percentage of thimbleberry.

2.1.2 Historical Extent of Habitat

Bishop pine forest
Google Earth imagery from 1998 (**Figure 9**) depicts that the extent of the Bishop pine forest stayed relatively the same from 1998 to 2018. The canopy grew in over time and trees encroached into the adjacent grassland onsite (). In June of 2018, most of the Bishop pine trees within the subject were removed due to the death and decline of the pine trees. The property owner was concerned about the dangers posed from the declining pine trees, such as fire and limb failure. A handful of healthy trees were left at the time of the removal, however, these trees are now declining as well. Aerial imagery taken during the site visit in 2020 shows the declining Bishop pine stand west of the property line and the “healthy” trees that were left standing within the non-native grassland in 2018 that are now dying ().

Pinegrass meadow
There is no prior documentation available in regards to the historical extent of the pinegrass meadow onsite. The pinegrass meadow would have been underneath the canopy of the bishop pine forest and is therefore not visible in historical imagery. Grass is rarely identifiable from aerial imagery at current resolutions.

Ephemeral drainages
There are no known records of the previous ecological conditions of the two ephemeral drainages. A USFWS National Wetlands Inventory (NWI) map was generated for the study area and did not depict any wetlands within the area.

CLIENT: Holberg-Olsen
APN: 142-033-17-05
ADDRESS: 46801 Iversen Drive
Gualala, CA

1998 Google Earth Map

Note: Property lines are approximate.

Figure 9. Google Earth historical imagery from 1998.

2.2 Previous and Existing Ecological Conditions

2.2.1 Life History and Ecology

Bishop pine forest

Bishop pine trees typically grow to a height of 50ft and have needles approximately 3 to 6 inches long in bunches of 2 (Jepson 2019). They generally live to be 80 years old (NPS 2015). As these trees get older, they are more susceptible to disease.

Bishop pine trees tend to exhibit one of two different morphotypes that are separated geographically throughout their range. To the south of Sea Ranch trees tend to have a greener hue to their needles whereas north of Sea Ranch they have a blueish grey hue (Millar 1986). As stated in Section 2.1.1, the Bishop pine forest ranges from Santa Barbara to southern Oregon and are typically found near the coast.

Fire is important to the regeneration of Bishop pine trees as they are a serotinous species and require heat to open their cones for seed dispersal (NPS 2015). Cones will open in response to a fire or extremely high temperatures (Sawyer 2009). Seeds can handle temperatures of up to 203 degrees Fahrenheit before germination success decreases (USDA 2018). It is important to note that northern populations are less serotinous than southern populations (Cope 1993).

Fires within Bishop pine forest often cause the stand to be replaced. Mature trees are often killed by the fire but allow the seed cones to open and release seed (NPS 2015). Due to this stand replacement phenomenon, populations of this species tend to be evenly aged for the first 10-20 years after a fire occurs (NPS 2015). As humans have encroached on many Bishop pine stands throughout the State and disrupted the natural fire regime, there has been a stop to natural regeneration of Bishop pine as in many other ecosystems in the arid west.

Pinegrass meadow

Pinegrass is a perennial, rhizomatous grass that typically grows from 2 to 3.3 feet tall and forms moderately sized clumps. The inflorescence varies from either a dense bunch or an open array of spikelets and usually only flowers in open areas or where the canopy has been removed. It primarily reproduces through the lateral extension of rhizomes, but seeds are also wind dispersed.

It prefers full sun to part shade and is most productive under open canopies. Pinegrass is resistant to disturbance and light to medium mechanical soil disturbance is favorable for growth. It is a major competitor with conifer seedlings as it aggressively competes for soil moisture. The rhizomatous grass is resistant to fire and often resprouts and rapidly colonizes burned areas (Matthews 2000).

Ephemeral drainages

Water is conveyed from Iversen Lane, through the study area, and offsite to the neighboring parcels. 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 as the riparian area is relatively well defined in both drainage with an overstory of Bishop pine and Douglas fir (Pseudotsuga menziesii) and an understory dominated by sword fern (*Polystichum munitum*), wax myrtle (*Morella californica*), evergreen huckleberry (*Vaccinium ovatum*), and Sitka willows (*Salix sitchensis*).

2.2.2 Restoration Potential

Bishop pine forest

Bishop pine trees appears to have good restoration potential. Based on personal communication with WCPB biologist Wyatt Dooley and Jughandle Creek Farm Nursery, this species is relatively easy to grow from seed. Seedlings take three years to establish in pots, at which point they can be planted out onsite. However, after correspondence with the California Department of Fish and Wildlife and Mike Jones, Forestry Advisor - University of California Agriculture and Natural Resources, the prevailing restoration practice is to encourage natural recruitment of conifer seedlings through seed trees instead of transplanting seedlings to the site (Self and Wzell 2020). Bishop pine transplants often have a high mortality rate while seedlings from natural recruitment often land in the most favorable places for survivability. It is recommended that the areas around seedlings be weeded so they do not get shaded out by faster growing invasive species. Weeding should be done by hand and mowing should be avoided as it can easily harm the seedlings. Seedlings should be caged to prevent accidental mowing and herbivore grazing.

Pinegrass meadow

The pinegrass meadow can easily be restored. Pinegrass rapidly colonizes sites that have been disturbed and where the canopy has been removed. It is frequently used to rehabilitate disturbed sites in places where it is more common, such as Washington and Canada, due to its fast-growing rhizomes and dense network of fine roots (Matthews 2000). The pinegrass meadow on site is likely thriving due to the canopy being reduced from the MVR. Pinegrass meadow can be sowed by seed; however, rhizomatous growth is the most productive way for the grass to spread. Seeds will also be hard to find in local nurseries.

Ephemeral drainages

The ephemeral drainages on site appear to be manmade or have been further incised by man in the past to quickly convey water off the property. The riparian zones were relatively healthy with a nice mix of overstory (Bishop pine and Douglas fir) and understory (wax myrtle, ferns, Sitka willows) coverage. Pampas grass (*Cortaderia jubata*) was observed growing in the southern drainage in different spots. Removal of the pampas grass is recommended to prevent it from outcompeting native plants growing within and beside the channel.

2.3 Present Adverse Biological Impacts on the Ecosystem

2.3.1 Plants and Wildlife

Bishop pine forest

A majority of the bishop pine trees were removed from the subject parcel due to dying trees creating hazardous conditions. Aerial imagery from previous years and the recent site visit in November of 2020 confirms that this Bishop pine stand is unhealthy and dying. Bishop pine trees have been rapidly declining throughout the coast for the last couple of decades. Between humans extinguishing the role of fire on the natural landscape, elderly stands, disease, drought, and bark beetles, Bishop pine stands are dying at an unprecedented rate (Giusti).

Bishop pine trees provide habitat to many special status and common birds, mammals, and insects and cutting down the trees reduced the stand size and habitat area despite these trees being dead.

Pinegrass meadow

Aggressive non-native species such as common velvet grass (*Holcus lanatus*), sweet vernal grass (*Anthoxanthum odoratum*), and purple awned wallaby grass (*Rytidosperma penicillatum*) have the potential to outcompete and preclude the pinegrass meadow. Since pinegrass is resistant to disturbance and rapidly grows in places with reduced canopy cover it has a better chance competing with non-native grasses than other sensitive and/or special status plants. Non-native grasses are unlikely to be controlled with efficacy. As stated earlier, pinegrass is more abundant and productive in open sites, so the MVR has likely positively impacted this population.

Ephemeral drainages

The bishop pine canopy directly above the northern stream was retained, however, some canopy cover was removed on the southern drainage and the canopy was removed with 100ft of the ephemeral stream ESHA buffers. Canopy loss results in temperature increases in streams and destabilized banks due to loss of the tree root structures. The drainages on the subject parcel are ephemeral and only convey water during rain events. Amphibians and macroinvertabrates are only likely to use these drainages after storm events when the channel is damp with puddles as they are dry most of the year. Fish would not utilize these drainages as they are too small and do not connect to the ocean or other major drainages.

2. Analysis - Alternatives

No alternatives were explored in this report as the MVR already occurred in June of 2018.

3. Restoration

It is recommended that the natural recruitment of Bishop pine seedlings be encouraged by caging off Bishop pine and other native conifer seedlings and saplings so they are avoided during mowing and protected from herbivore grazing. Pine needle duff thicker than 1” around the Bishop pine tree canopy in open areas shall be raked to expose the bare soil. Raking shall occur in the summer so that seeds dispersed in the fall may fall on bare soil and take root. Monterey pine seedlings should be removed to reduce competition from the non-native pine. If the County decided it is necessary, a Preliminary Mitigation and Monitoring Plan for the Bishop Pine Forest will be prepared to guide the natural recruitment of Bishop pine seedlings.

It is recommended that pampas grass, scotch broom, and other non-native invasive plants with a ranking of “high” from the California Invasive Plant Control Council (Cal-IPC) be removed from the drainages and all other areas within the subject parcel.

4. Discussion

The MVR directly impacted the Bishop pine forest and may have indirectly impacted the pinegrass meadow and ephemeral streams due to the proximity of the impact. Approximately 90% of the Bishop pine trees within the parcel boundary were removed without a Coastal Development Permit due to trees dying from disease and other factors. Natural recruitment from Bishop pine seed trees should be encouraged by caging seedlings and saplings, avoiding them during mowing, and removing excess pine needle duff to expose bare soil. Monterey pine seedlings should be removed to discourage competition from the non-native tree. There is no record of what the pinegrass meadow looked like prior to MVR, however, the grass is most likely thriving and more productive due to the reduced canopy cover. Pinegrass is also resistant to disturbance so was most likely minimally impacted during MVR. The riparian canopy was left mostly intact after MVR, however, surface water potentially sheet flows off the land more quickly in the MVR area potentially resulting in increased sediment input. Removing invasive plants in the riparian area will encourage the growth and spread of the current native riparian understory. Native riparian species, once established, will help absorb the water and slow the spread of excess sediment. If all restoration actions are followed, including preparing a Preliminary Mitigation and Monitoring Plan Report for the Bishop pine forest if required, and undertaking Bishop pine forest restoration, then impacts on the special status resources caused by the MVR will be reduced and restored in a manner similar to the natural stand replacement that would occur after a wildfire.

3 References

CalFlora: Information on California plants for education, research and conservation, with data contributed by public and private institutions and individuals, including the Consortium of California Herbaria. [web application]. 2017. Berkeley, California: The CalFlora Database [a non-profit organization]. Available: http://www.calflora.org/ (Accessed: Dec 03, 2017).

California Department of Fish and Wildlife (CDFW). September 2010. List of Vegetation Alliances and Associations. Vegetation Classification and Mapping Program. Sacramento, CA

California Department of Fish and Wildlife (CDFW). September 2015. California Wildlife Habitat Relationships. Sacramento CA. http://www.dfg.ca.gov/biogeodata/cwhr/. Accessed December 2017.

California Native Plant Society (CNPS). 2013. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society. Sacramento, CA. http://www.rareplants.cnps.org.

California Native Plant Society (CNPS). 2020. Pine Grass: *Calamagrostis rubescens*. Calscape: Restoring Nature One Garden at a Time. Available: https://calscape.org/Calamagrostis-rubescens-() (Accessed Dec 30, 2020).

Cope, Amy B. 1993. Pinus muricata. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: https://www.fs.fed.us/database/feis/plants/tree/pinmur/all.html [2020, December 23].

Guusti, G. *Watching the Demise of a Coastal Forest Type - Bishop Pine.* UC Cooperative Extension Mendocion - Lake Counties. Available: http://cemendocino.ucanr.edu/files/199447.pdf (2020, December 23).

"Jepson Herbarium: Jepson Flora Project: Jepson EFlora: Calystegia Purpurata Subsp. Saxicola." *Guide Page for Fucus Gardneri Silva*, University of California Berkeley, ucjeps.berkeley.edu/eFlora/eflora_display.php?tid=49561.

Matthews, Robin F. 2000. Calamagrostis rubescens. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: https://www.fs.fed.us /database/feis/plants/graminoid/calrub/all.html [2020, December 30].

Mendocino County. 1991. Mendocino County Coastal Zoning Code. Title 20 – Division II of the Mendocino County Code.

Millar, C. I. (1986). Bishop Pine (Pinus muricata) Of Inland Marin County, California. Madroño,33(2), 123-129. Retrieved from https://www.fs.fed.us/psw/publications/millar/psw_1986_millar002.pdf.

National Park Service (NPS). 2007. *Point Reyes National Seashore Wildlife Fire Resource Advisor Guide*. U.S. Department of the Interior.

NPS. (2015, February 28). Fire Ecology - Vegetation Types: Bishop Pine Forests. Retrieved from https://www.nps.gov/pore/learn/management/firemanagement_fireecology_vegtypes_bishoppine htm

Sawyer, J. O., Keeler-Wolf, T., & Evens, J. (2009). A manual of California vegetation. Sacramento, CA: California Native Plant Society Press.

Self, A.B. and Ezell, A.W. 2020. *Natural Regeneration Using Seed Trees*. Mississippi State University Extension publication 1816. POD-05-20.

Sonoma State University, “Prairie Described Invasive Species.” *California's Coastal Prairies*, Sonoma State University, 9 May 2018, web.sonoma.edu/cei/prairie/prairie_desc/invasives.shtml#hola.

Toogood, A. (1993). *Plant propagation made easy: The complete guide to raising hardy, tender and indoor plants.* Portland, Oregon: Timber Press.

USDA. (2019, February 18). Retrieved from https://plants.sc.egov.usda.gov/core/profile?symbol=PIMU

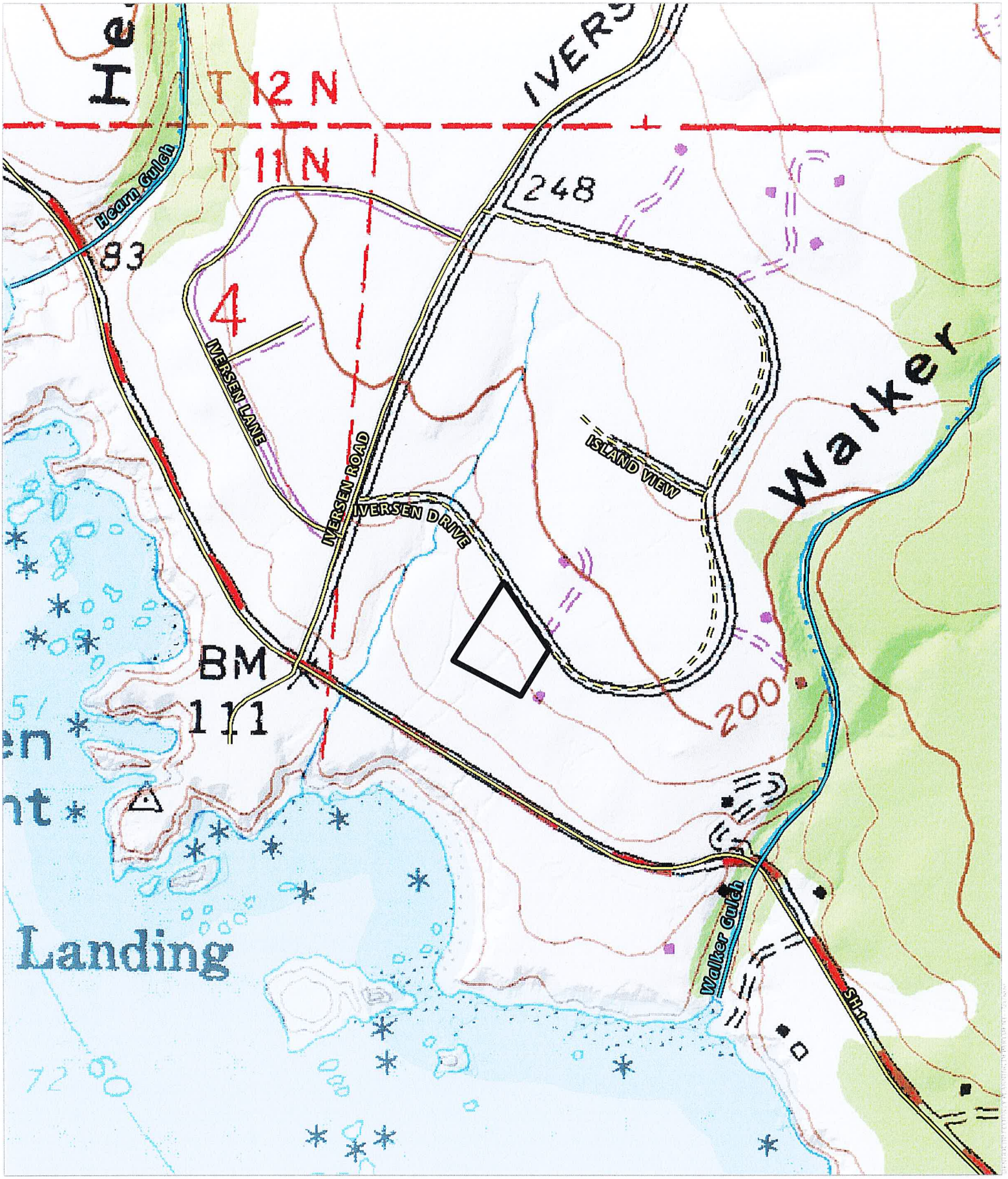
USDA, & Forest Service. (2018, June 19). Retrieved from https://www.fs.fed.us/database/feis/plants/tree/pinmur/all.html

4 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.

Nicole Bejar graduated from Gonzaga University with a Bachelor's Degree in Environmental Studies and a minor in Biology. After graduating, she worked as an intern for The Nature Conservancy conducting vegetation monitoring for the endangered golden-cheeked warbler. She served as an AmeriCorps member for the Watershed Stewards Program which aims to conserve, restore, and enhance anadromous watersheds for future generations. She worked as a fisheries technician conducting salmonid monitoring and habitat restoration for various agencies, including the California Department of Fish and Wildlife, Pacific States Marine Fisheries Commission, and the Bureau of Land Management. She also has experience planning and implementing northern spotted owl and amphibian surveys.



CASE: CDP 2020-0003
OWNER: HOLBERG-OLSEN, Lars
APN: 142-033-17-05
APLCT: Lars Holberg-Olsen
AGENT:
ADDRESS: 46801 Iversen Drive, Gualala

Named Rivers
Public Roads
Private Roads

0 250 500 Feet
0 0.0425 0.085 Miles
1:6,000

TOPOGRAPHIC MAP
CONTOUR INTERVAL IS 40 FEET

CASE: CDP 2020-0003
OWNER: HOLBERG-OLSEN, Lars
APN: 142-033-17-05
APLCT: Lars Holberg-Olsen
AGENT:
ADDRESS: 46801 Iversen Drive, Gualala

Named Rivers
Public Roads
Private Roads

0 250 500 Feet
0 0.0425 0.085 Miles
1:6,000

AERIAL IMAGERY

CASE: CDP 2020-0003
OWNER: HOLBERG-OLSEN, Lars
APN: 142-033-17-05
APLCT: Lars Holberg-Olsen
AGENT:
ADDRESS: 46801 Iversen Drive, Gualala

= = = Private Roads

0 37.5 75 Feet
0 0.005 0.01 Miles
1:900

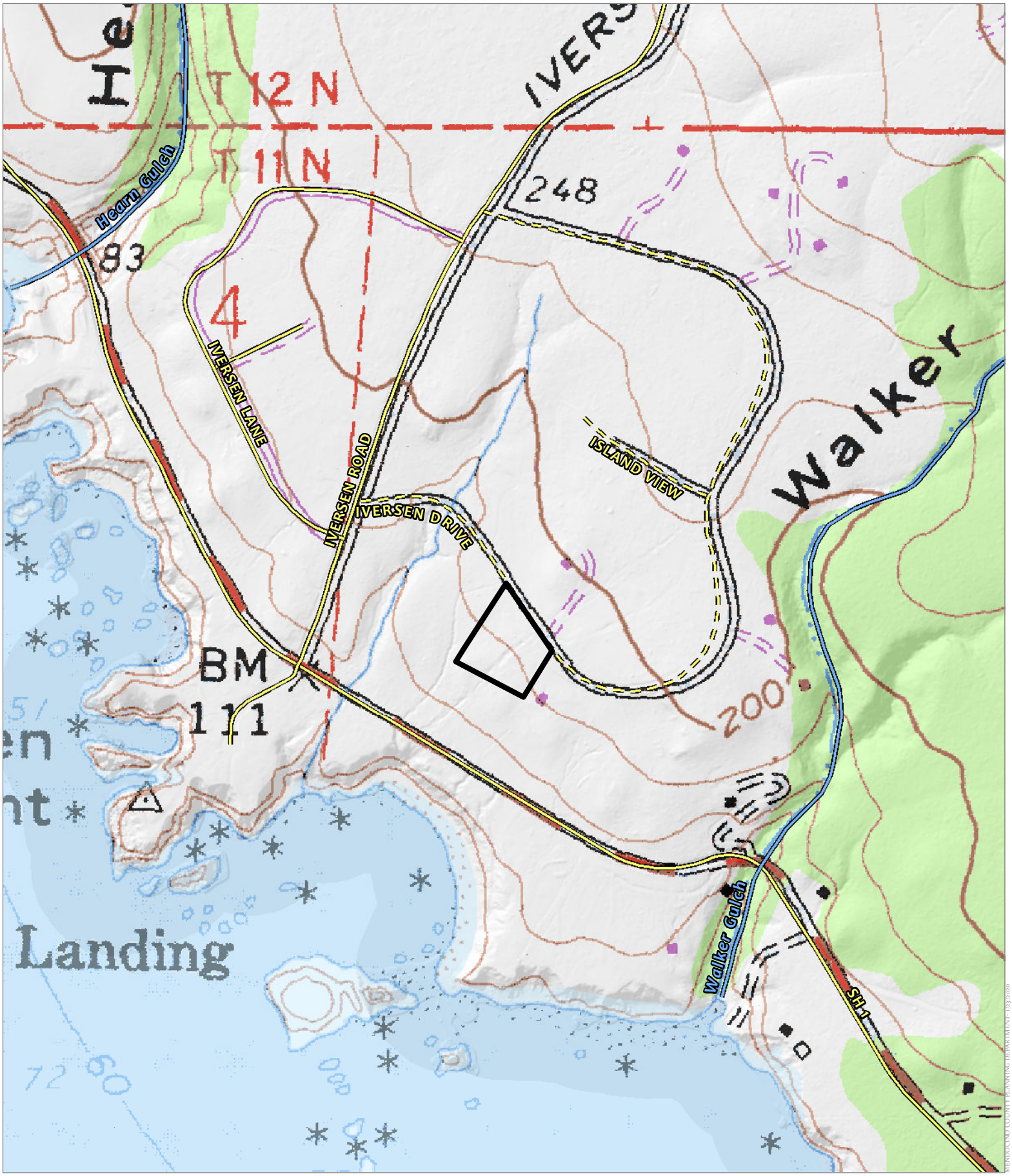
AERIAL IMAGERY

CASE: CDP 2020-0003
OWNER: HOLBERG-OLSEN, Lars
APN: 142-033-17-05
APLCT: Lars Holberg-Olsen
AGENT:
ADDRESS: 46801 Iversen Drive, Gualala

Major Towns & Places
City Limits
Major Rivers
Highways
Major Roads

0 2,550 5,100 Feet
0 0.5 1 Miles
1:63,360

LOCATION MAP



CASE: CDP 2020-0003
OWNER: HOLBERG-OLSEN, Lars
APN: 142-033-17-05
APLCT: Lars Holberg-Olsen
AGENT:
ADDRESS: 46801 Iversen Drive, Gualala

Named Rivers
Public Roads
Private Roads

0 250 500 Feet
0 0.0425 0.085 Miles
1:6,000

TOPOGRAPHIC MAP
CONTOUR INTERVAL IS 40 FEET

MENDOCINO COUNTY PLANNING DEPARTMENT - 11.23.2020

Lands of Holberg - Olsen
A portion of Section 3 & 4, Township 11 North,
Range 16 West, Mount Diablo Base & Meridian
Mendocino County, CA

General Notes

General Plan Designation:	RR5 (2)
Zoning District:	RR5
Urban/Rural:	Rural
Highly Scenic Area:	No
Proposed Land Use:	After-the-fact approval for Major Vegetation Removal & Installation of Ground Mounted Solar Array
Appealable to Coastal Commission:	Yes
Entitlement Permit Type:	CUP, Existing Conforming
Yard Setbacks:	20' Front & Rear, 6' Sides
CalFire Setbacks:	30' All sides
Corridor Preservation Setback:	25'
Height Limit:	28'
Environmental Constraints:	ESHA
Potenital Geologic Hazards:	No
Water Source:	On-site well
Wastewater Disposal:	On-site septic
Tree Removal:	None

CDP Lot Coverage Tabulation

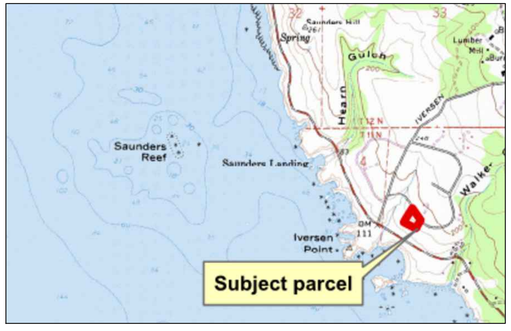
Gross Site Area:	2.05 ac (89,298 sf)
Maximum allowable lot coverage:	15% (13,394.70 sf)

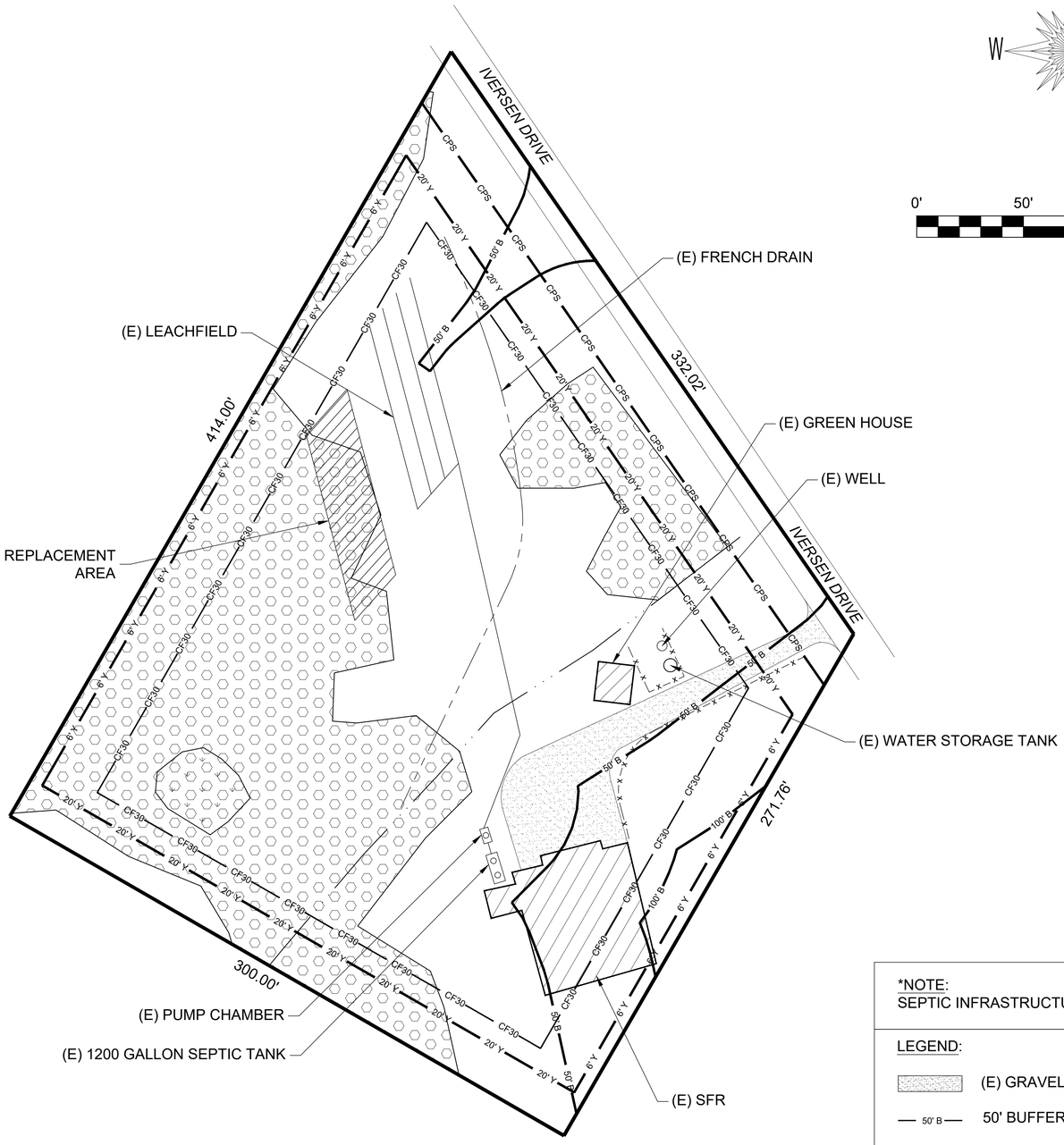
Lot Coverage:

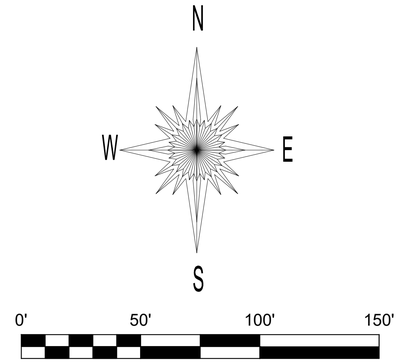
(E) SFR w/ Attached Garage:	3,563 sf
(E) Green House:	310 sf
(E) Solar Array:	480 sf
Total Building Footprint:	4,353 sf
(E) Driveway & Parking:	4,137 sf
Total Lot Coverage (Footprint):	8,490 sf (9.51%)

Sensitive Resources:

Legend	Type	Distance from Development
	BISHOP PINE FOREST	36'±
	PINEGRASS MEADOW	118' ±
	EPHEMERAL DRAINAGE	6' ±







*NOTE:
SEPTIC INFRASTRUCTURE IS APPROXIMATE

LEGEND:

- (E) GRAVEL DRIVEWAY
- 50' B — 50' BUFFER
- 100' B — 100' BUFFER
- CPS — CORRIDOR PRESERVATION SETBACK
- #' Y — YARD SETBACK
- CF30 — CAL FIRE 30' YARD SETBACK

Design review, not meant for construction.
Not results of Professional Land Surveyor data, verify data in field.

Wynn Coastal Planning & Biology
703 North Main Street, Fort Bragg CA 95437
ph: 707-964-2537 fx: 707-964-2622 www.WCPlan.com

HOLBERG - OLSEN
46801 Iversen Drive
Gualala, CA 95445

APN:	142-033-17-05
DRAWN BY	TH
DATE	1/25/2021
SCALE	AS SHOWN
APPROVED BY	TJ

BY	DATE	REVISION

SHEET 1 OF 2 SHEETS

PRE-MAJOR VEGETATION REMOVAL SITE PLAN | 1 : 30 | 1

Lands of Holberg - Olsen
A portion of Section 3 & 4, Township 11 North,
Range 16 West, Mount Diablo Base & Meridian
Mendocino County, CA

General Notes

General Plan Designation:	RR5 (2)
Zoning District:	RR5
Urban/Rural:	Rural
Highly Scenic Area:	No
Proposed Land Use:	After-the-fact approval for Major Vegetation Removal & Installation of Ground Mounted Solar Array
Appealable to Coastal Commission:	Yes
Entitlement Permit Type:	CUP, Existing Conforming
Yard Setbacks:	20' Front & Rear, 6' Sides
CalFire Setbacks:	30' All sides
Corridor Preservation Setback:	25'
Height Limit:	28'
Environmental Constraints:	ESHA
Potenital Geologic Hazards:	No
Water Source:	On-site well
Wastewater Disposal:	On-site septic
Tree Removal:	None

CDP Lot Coverage Tabulation

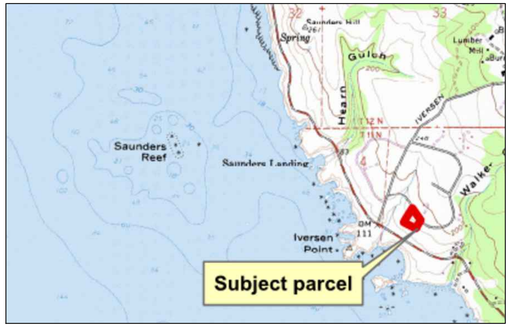
Gross Site Area:	2.05 ac (89,298 sf)
Maximum allowable lot coverage:	15% (13,394.70 sf)

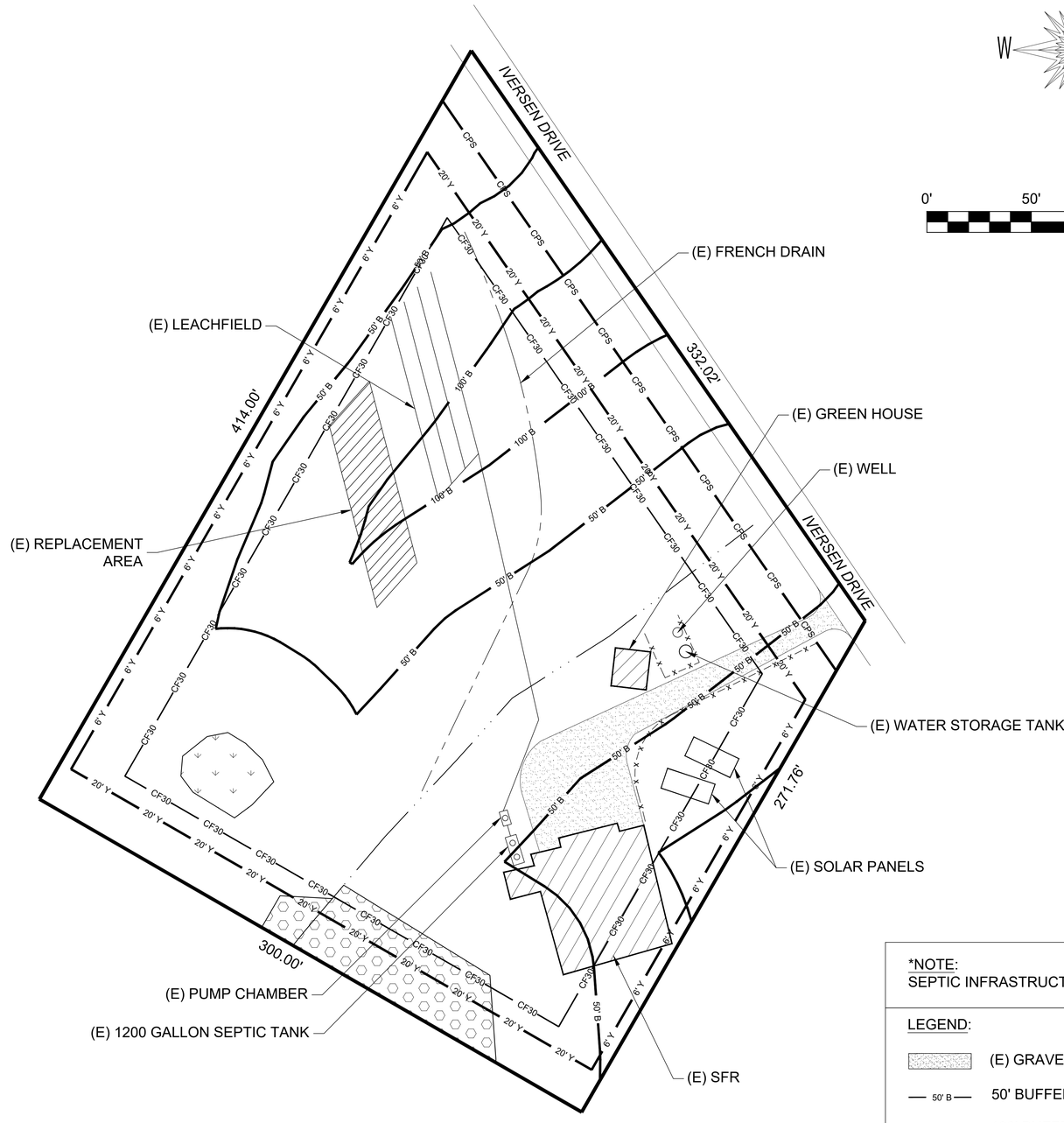
Lot Coverage:

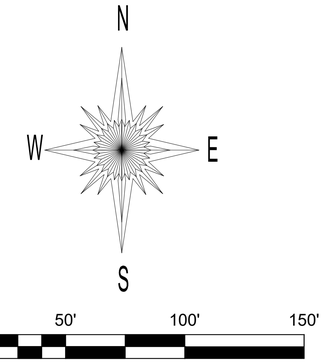
(E) SFR w/ Attached Garage:	3,563 sf
(E) Green House:	310 sf
(E) Solar Array:	480 sf
Total Building Footprint:	4,353 sf
(E) Driveway & Parking:	4,137 sf
Total Lot Coverage (Footprint):	8,490 sf (9.51%)

Sensitive Resources:

Legend	Type	Distance from Development
	BISHOP PINE FOREST	36'±
	PINEGRASS MEADOW	118' ±
	EPHEMERAL DRAINAGE	6' ±







*NOTE:
SEPTIC INFRASTRUCTURE IS APPROXIMATE

LEGEND:

- (E) GRAVEL DRIVEWAY
- 50' B — 50' BUFFER
- 100' B — 100' BUFFER
- CPS — CORRIDOR PRESERVATION SETBACK
- # Y — YARD SETBACK
- CF30 — CAL FIRE 30' YARD SETBACK

Design review, not meant for construction.
Not results of Professional Land Surveyor data, verify data in field.

Wynn Coastal Planning & Biology
703 North Main Street, Fort Bragg CA 95437
ph: 707-964-2537 fx: 707-964-2622 www.WCPlan.com

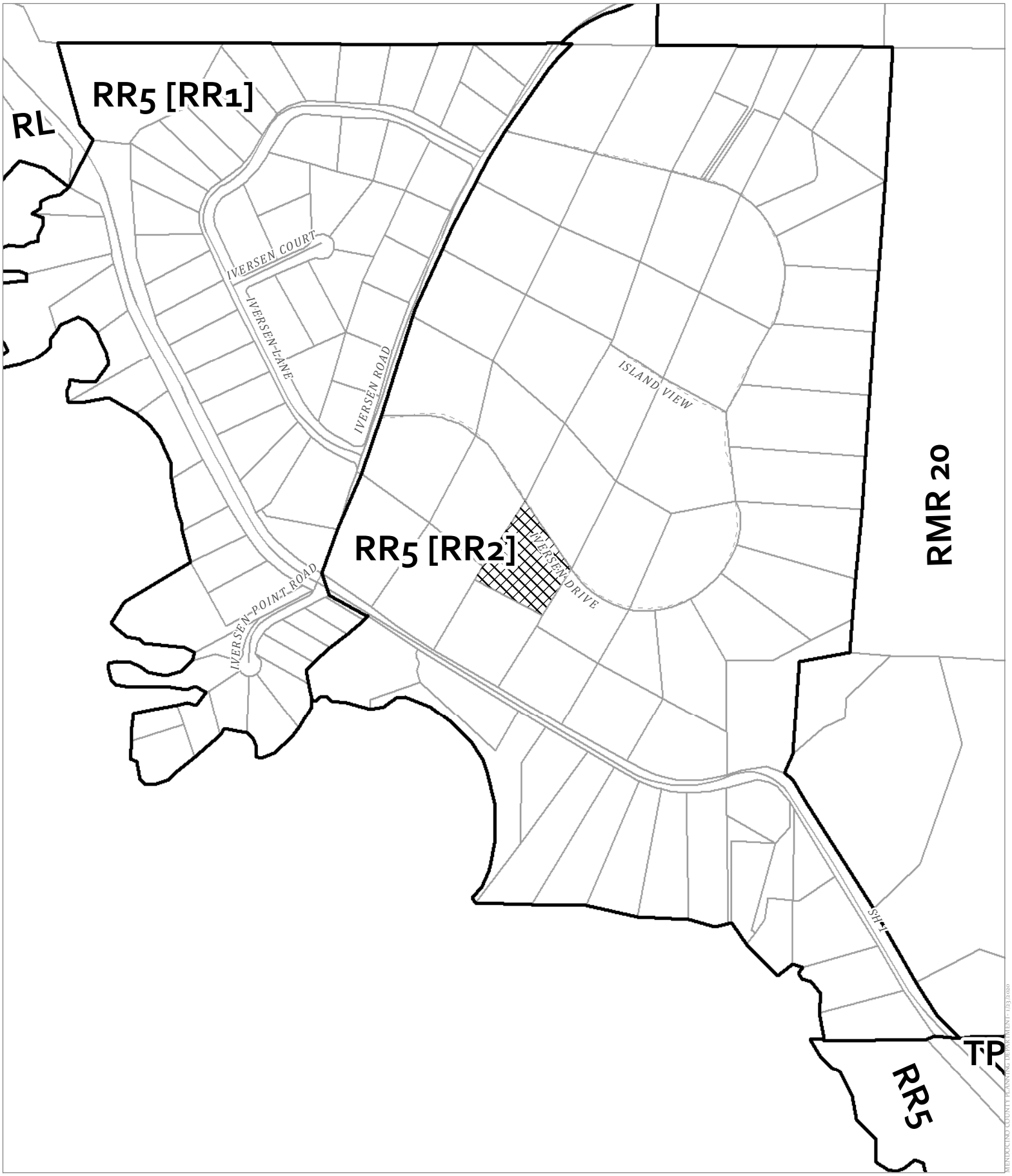
HOLBERG - OLSEN
46801 Iversen Drive
Gualala, CA 95445

APN: 142-033-17-05
DRAWN BY: TH
DATE: 1/25/2021
SCALE: AS SHOWN
APPROVED BY: TJ

REVISION	BY	DATE

SHEET
2
OF 2 SHEETS

POST-MAJOR VEGETATION REMOVAL SITE PLAN | 1:30 | 1

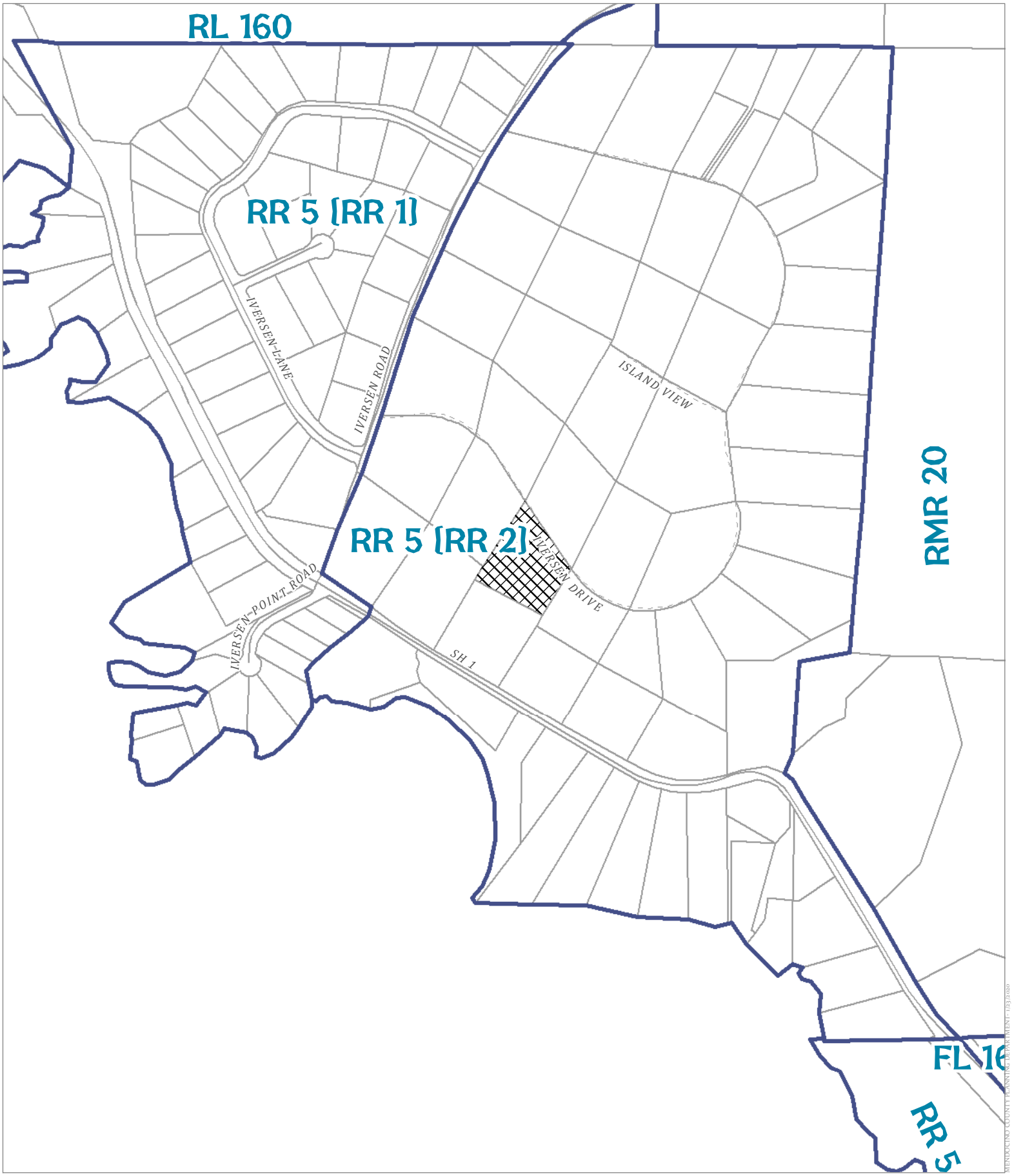


CASE: CDP 2020-0003
OWNER: HOLBERG-OLSEN, Lars
APN: 142-033-17-05
APLCT: Lars Holberg-Olsen
AGENT:
ADDRESS: 46801 Iversen Drive, Gualala

Zoning Districts
Public Roads
Assessors Parcels

0 250 500 Feet
0 0.0425 0.085 Miles
1:6,000

ZONING DISPLAY MAP



CASE: CDP 2020-0003
OWNER: HOLBERG-OLSEN, Lars
APN: 142-033-17-05
APLCT: Lars Holberg-Olsen
AGENT:
ADDRESS: 46801 Iversen Drive, Gualala

General Plan Classes
Public Roads
Assessors Parcels

0 250 500 Feet
0 0.0425 0.085 Miles
1:6,000

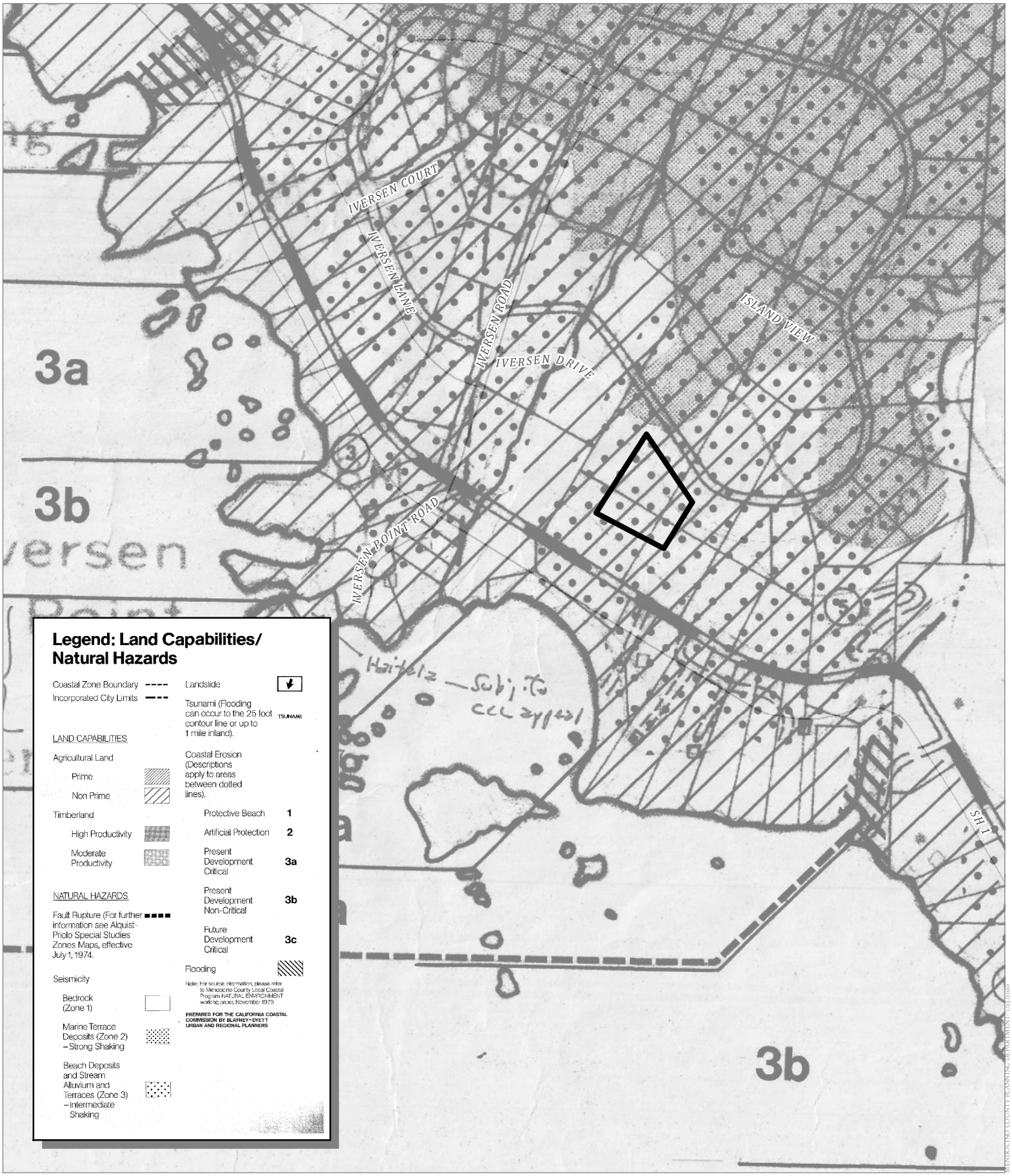
GENERAL PLAN CLASSIFICATIONS

CASE: CDP 2020-0003
OWNER: HOLBERG-OLSEN, Lars
APN: 142-033-17-05
APLCT: Lars Holberg-Olsen
AGENT:
ADDRESS: 46801 Iversen Drive, Gualala

0 250 500 Feet
0 0.0425 0.085 Miles
1:6,000

Public Roads

LCP LAND USE MAP 28: SCHOONER GULCH

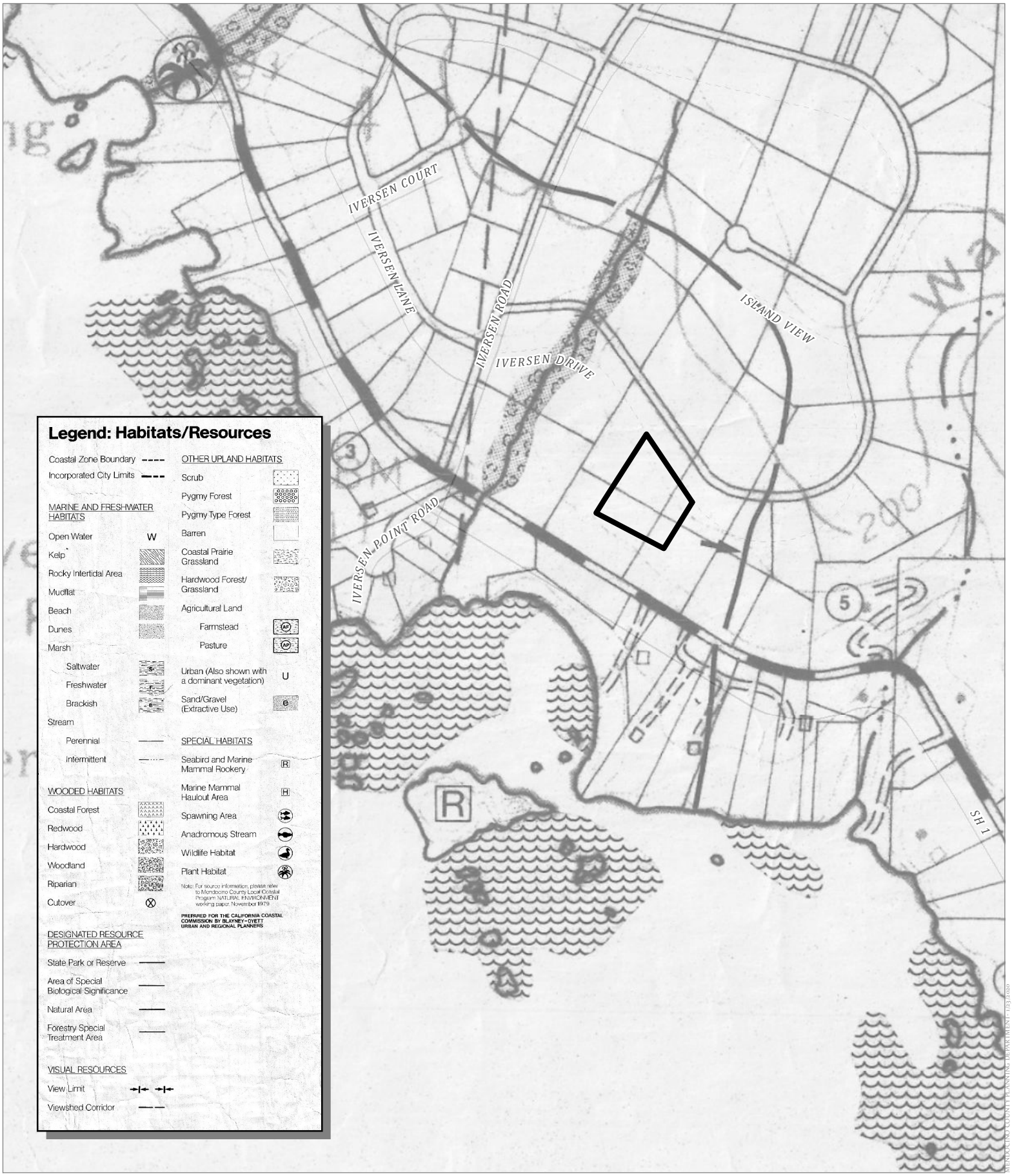


CASE: CDP 2020-0003
OWNER: HOLBERG-OLSEN, Lars
APN: 142-033-17-05
APLCT: Lars Holberg-Olsen
AGENT:
ADDRESS: 46801 Iversen Drive, Gualala

0 250 500 Feet
0 0.0425 0.085 Miles
1:6,000

Public Roads

LCP LAND CAPABILITIES & NATURAL HAZARDS

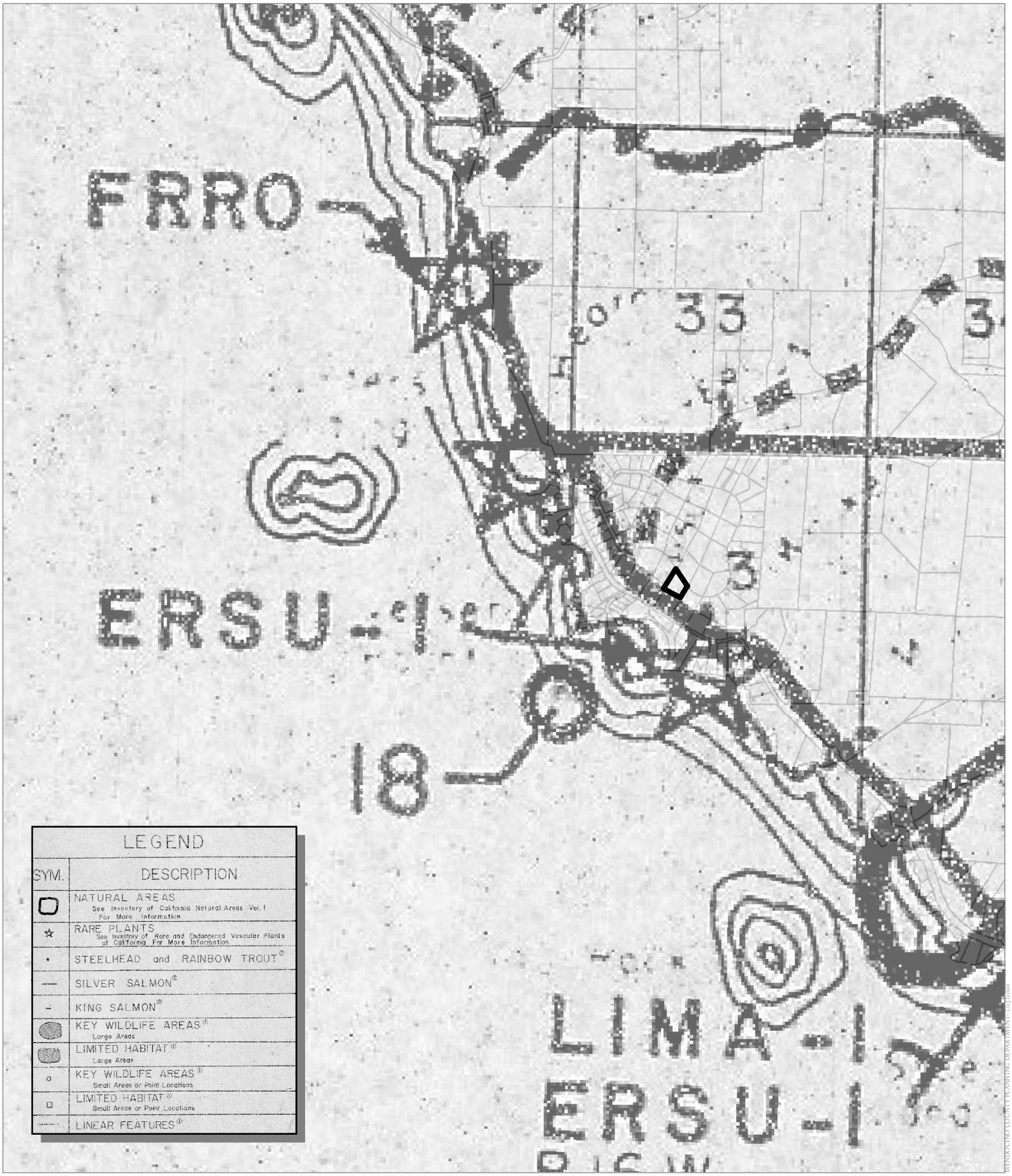


CASE: CDP 2020-0003
OWNER: HOLBERG-OLSEN, Lars
APN: 142-033-17-05
APLCT: Lars Holberg-Olsen
AGENT:
ADDRESS: 46801 Iversen Drive, Gualala

Public Roads

0 250 500 Feet
0 0.0425 0.085 Miles
N W E S
1:6,000

LCP HABITATS & RESOURCES



LEGEND	
SYM.	DESCRIPTION
	NATURAL AREAS See Inventory of California Natural Areas Vol. I For More Information
☆	RARE PLANTS See Inventory of Rare and Endangered Vascular Plants of California For More Information
•	STEELHEAD and RAINBOW TROUT©
—	SILVER SALMON©
-	KING SALMON©
	KEY WILDLIFE AREAS© Large Areas
	LIMITED HABITAT© Large Areas
o	KEY WILDLIFE AREAS© Small Areas or Point Locations
□	LIMITED HABITAT© Small Areas or Point Locations
	LINEAR FEATURES©

CASE: CDP 2020-0003
OWNER: HOLBERG-OLSEN, Lars
APN: 142-033-17-05
APLCT: Lars Holberg-Olsen
AGENT:
ADDRESS: 46801 Iversen Drive, Gualala

0 950 1,900 Feet
0 0.175 0.35 Miles
1:24,000

Assessors Parcels

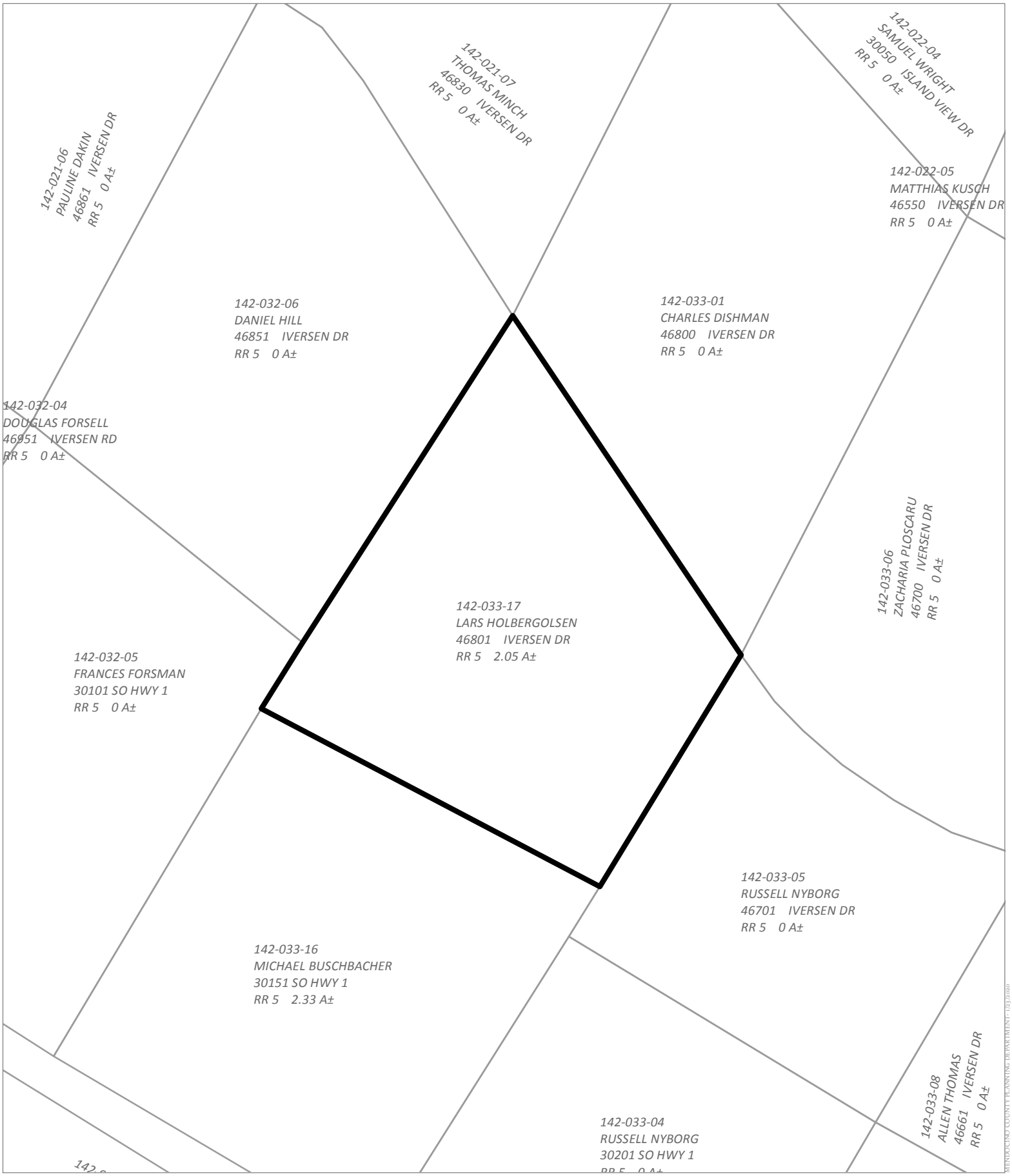
BIOLOGICAL RESOURCES

CASE: CDP 2020-0003
OWNER: HOLBERG-OLSEN, Lars
APN: 142-033-17-05
APLCT: Lars Holberg-Olsen
AGENT:
ADDRESS: 46801 Iversen Drive, Gualala

0 250 500 Feet
0 0.0425 0.085 Miles
1:6,000

Public Roads

APPEALABLE AREAS

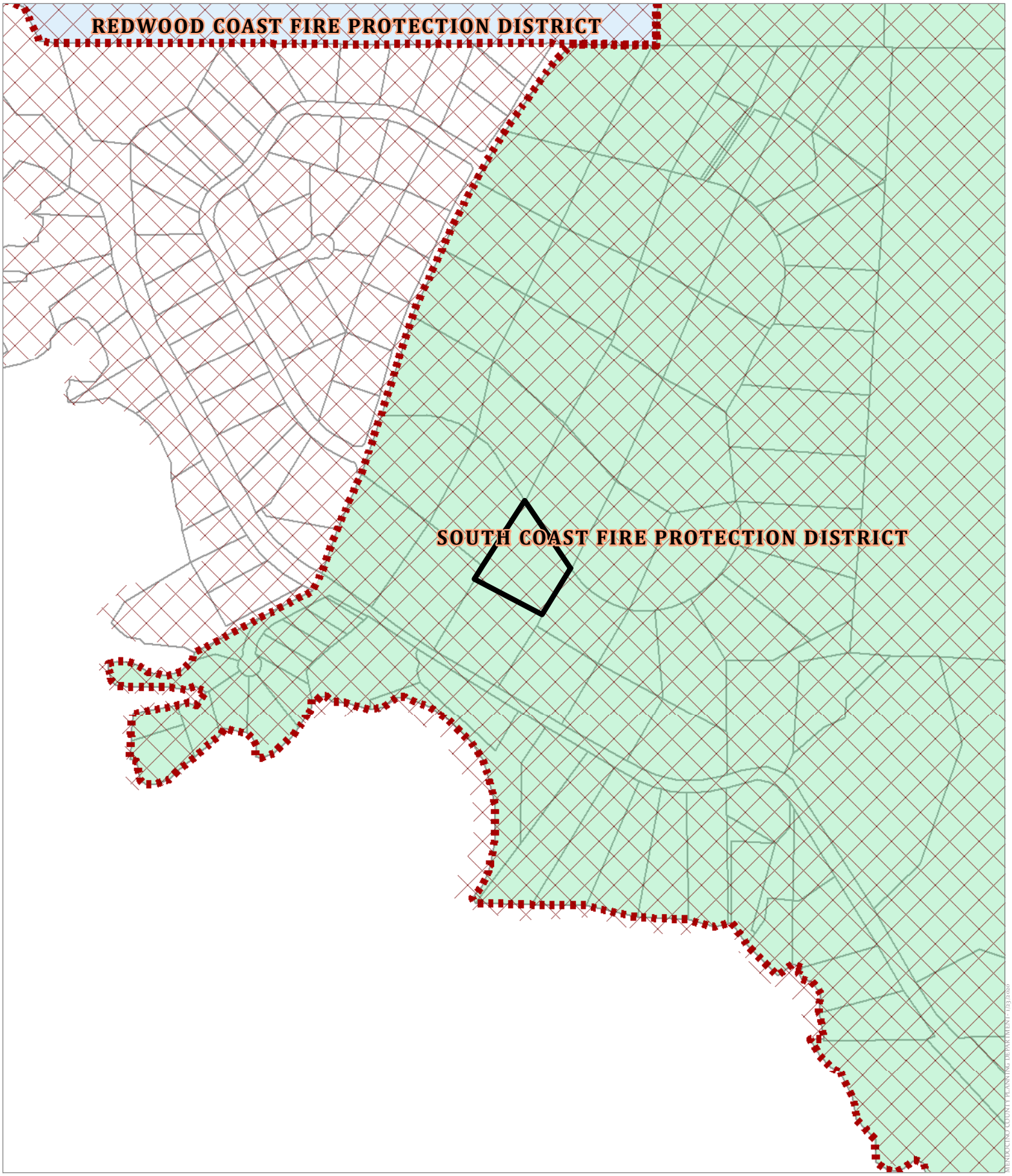


CASE: CDP 2020-0003
OWNER: HOLBERG-OLSEN, Lars
APN: 142-033-17-05
APLCT: Lars Holberg-Olsen
AGENT:
ADDRESS: 46801 Iversen Drive, Gualala

Assessors Parcels

0 50 100 Feet
0 0.0075 0.015 Miles
1:1,200

ADJACENT PARCELS

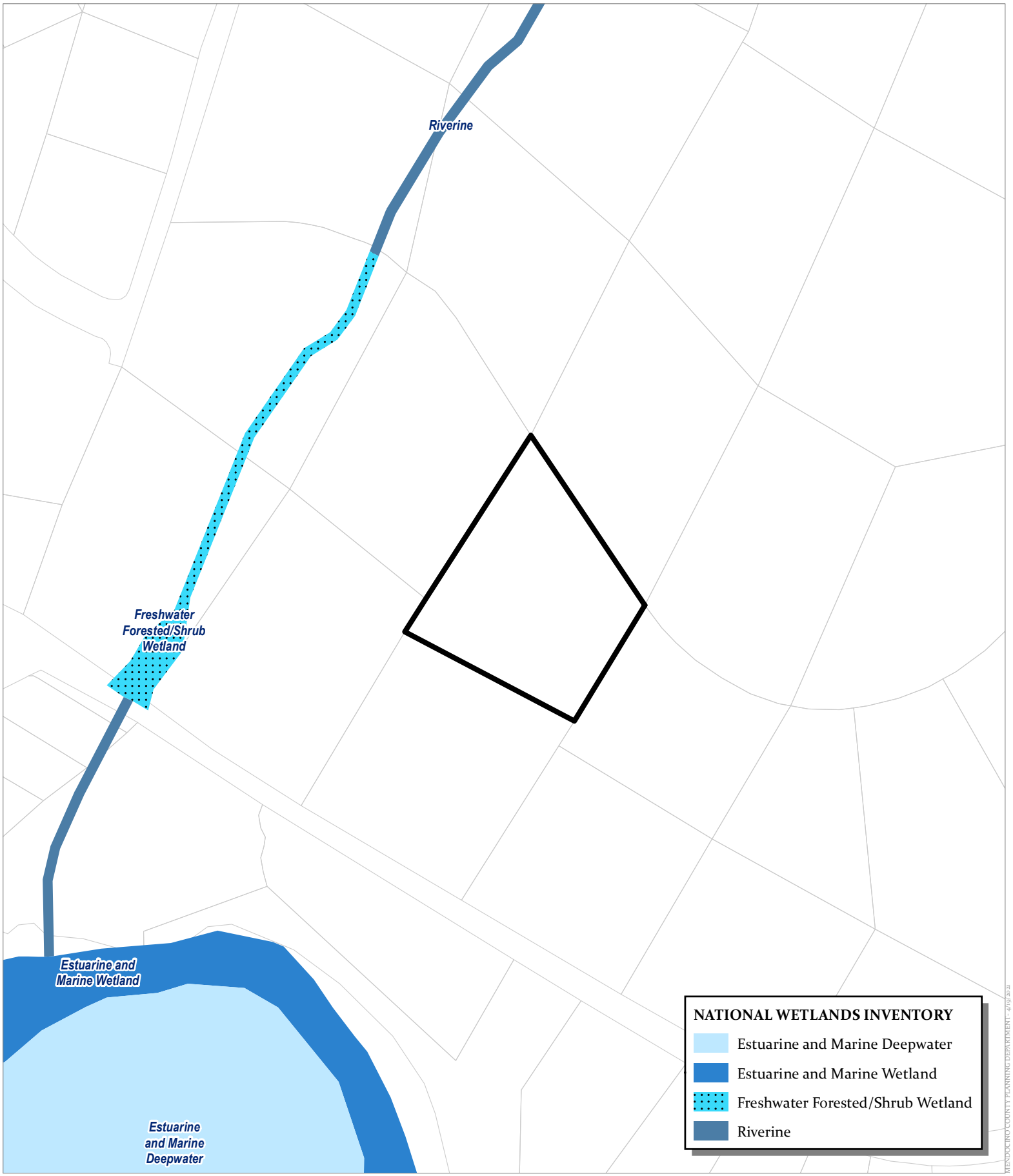


CASE: CDP 2020-0003
OWNER: HOLBERG-OLSEN, Lars
APN: 142-033-17-05
APLCT: Lars Holberg-Olsen
AGENT:
ADDRESS: 46801 Iversen Drive, Gualala

High Fire Hazard
County Fire Districts
Assessors Parcels

0 250 500 Feet
0 0.0425 0.085 Miles
1:6,000

FIRE HAZARD ZONES & RESPONSIBILITY AREAS
STATE RESPONSIBILITY AREA

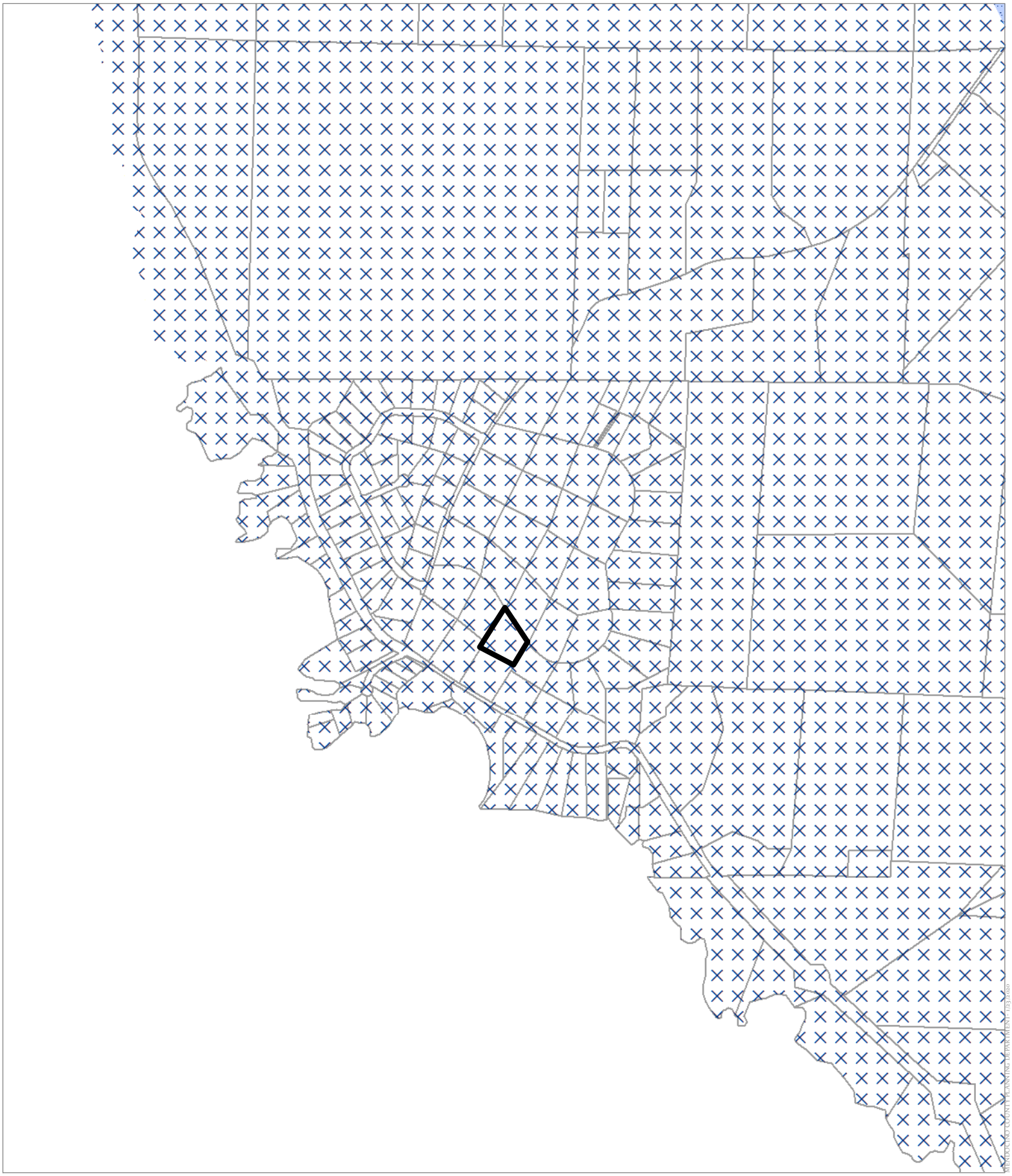


CASE: CDP 2020-0003
OWNER: HOLBERG-OLSEN, Lars
APN: 142-033-17-05
APLCT: Lars Holberg-Olsen
AGENT:
ADDRESS: 46801 Iversen Drive, Gualala

0 100 200 Feet
0 0.015 0.03 Miles
N W E S
1:2,400

WETLANDS

MENDOCINO COUNTY PLANNING DEPARTMENT - 4/09/20

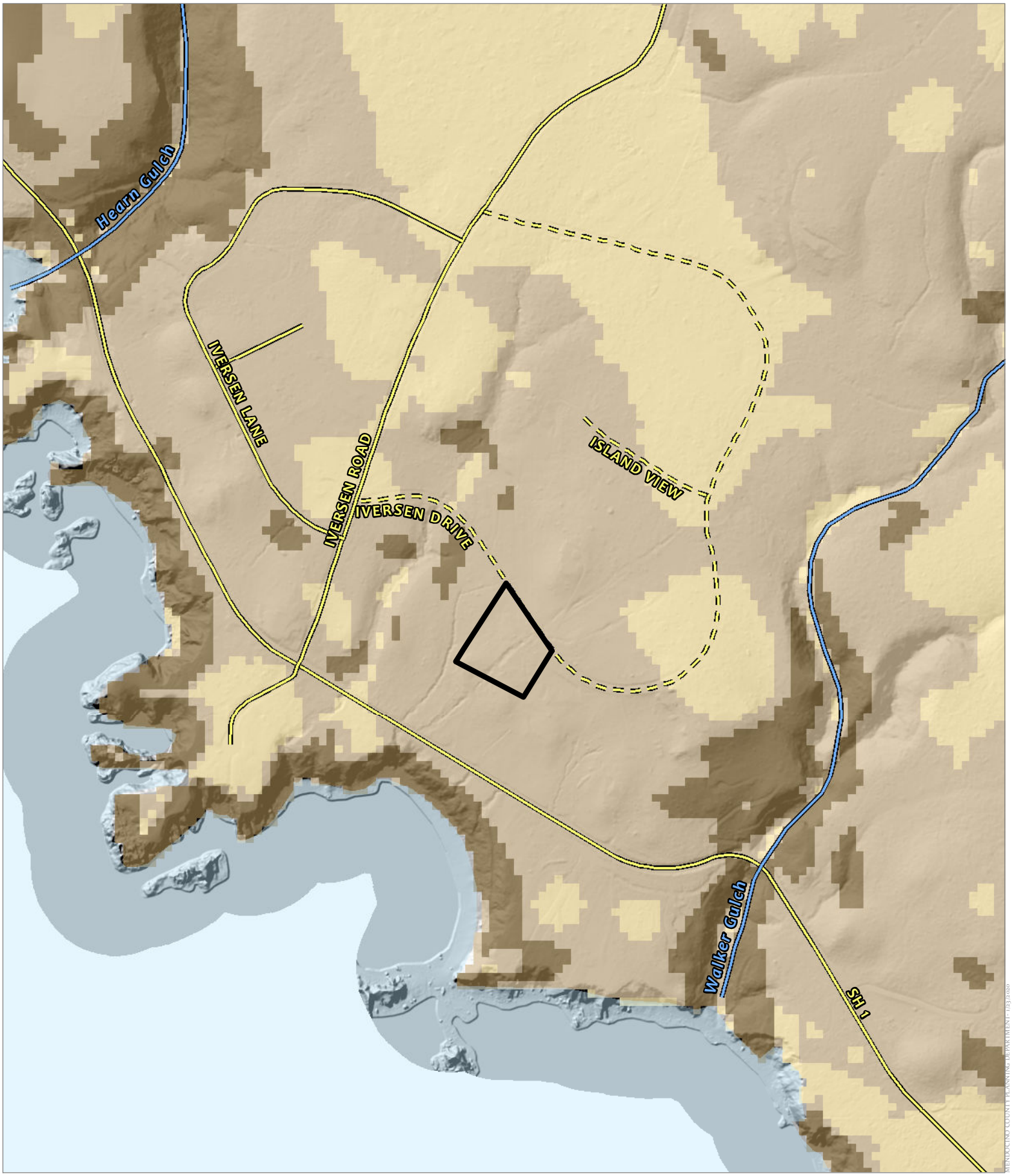


CASE: CDP 2020-0003
OWNER: HOLBERG-OLSEN, Lars
APN: 142-033-17-05
APLCT: Lars Holberg-Olsen
AGENT:
ADDRESS: 46801 Iversen Drive, Gualala

Critical Water Areas
Critical Water Resources Bedrock
Assessors Parcels

0 500 1,000 Feet
0 0.075 0.15 Miles
1:12,000

GROUND WATER RESOURCES



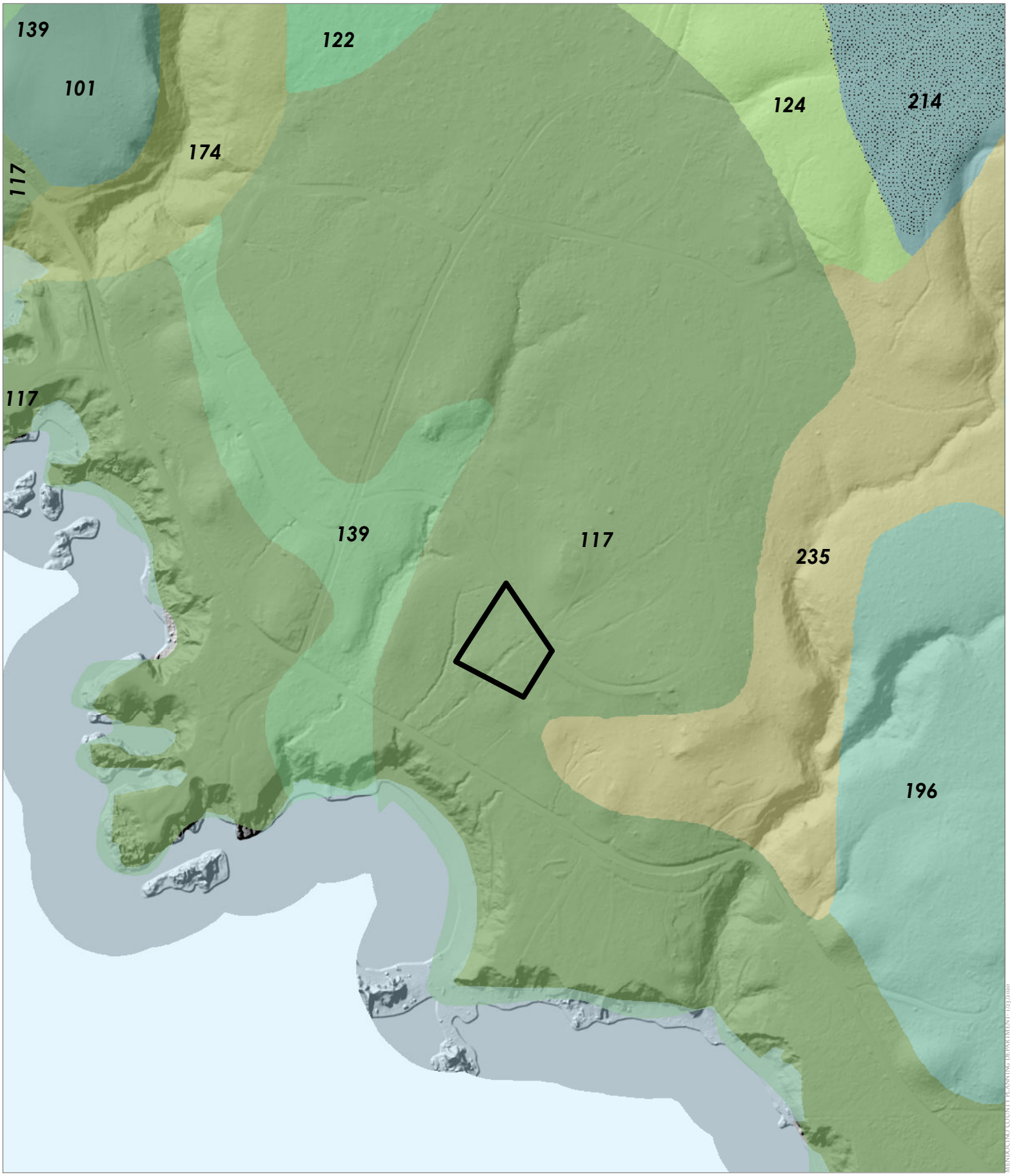
CASE: CDP 2020-0003
OWNER: HOLBERG-OLSEN, Lars
APN: 142-033-17-05
APLCT: Lars Holberg-Olsen
AGENT:
ADDRESS: 46801 Iversen Drive, Gualala

Named Rivers
Public Roads
Private Roads

0° - 14°
15° - 32°
33° - 72°

0 250 500 Feet
0 0.0425 0.085 Miles
1:6,000

ESTIMATED SLOPE



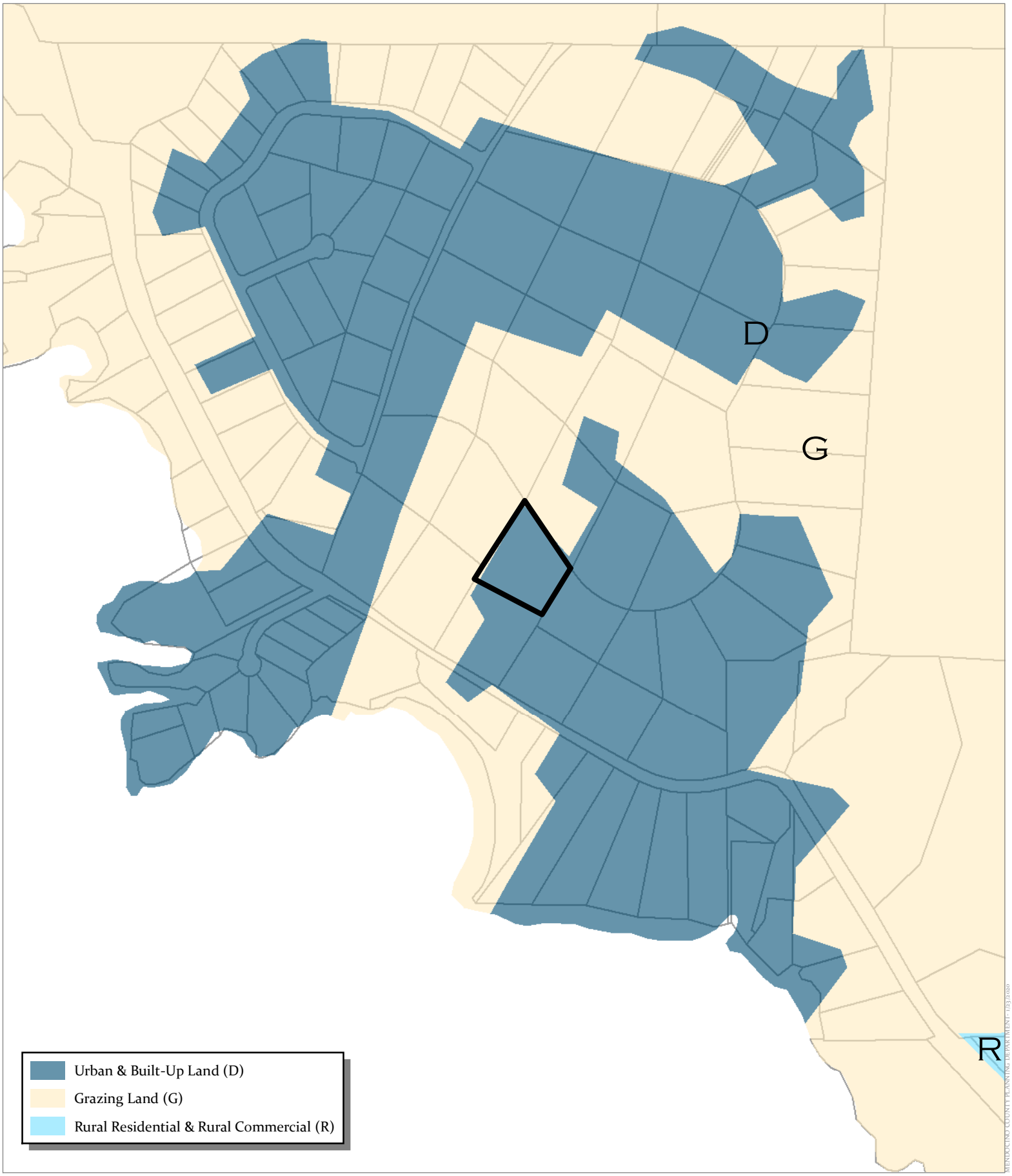
CASE: CDP 2020-0003
OWNER: HOLBERG-OLSEN, Lars
APN: 142-033-17-05
APLCT: Lars Holberg-Olsen
AGENT:
ADDRESS: 46801 Iversen Drive, Gualala

Shinglemill-Gibney Complex

0 250 500 Feet
0 0.0425 0.085 Miles
1:6,000

WESTERN SOIL CLASSIFICATIONS

MENDOCINO COUNTY PLANNING DEPARTMENT - 1823.dwg

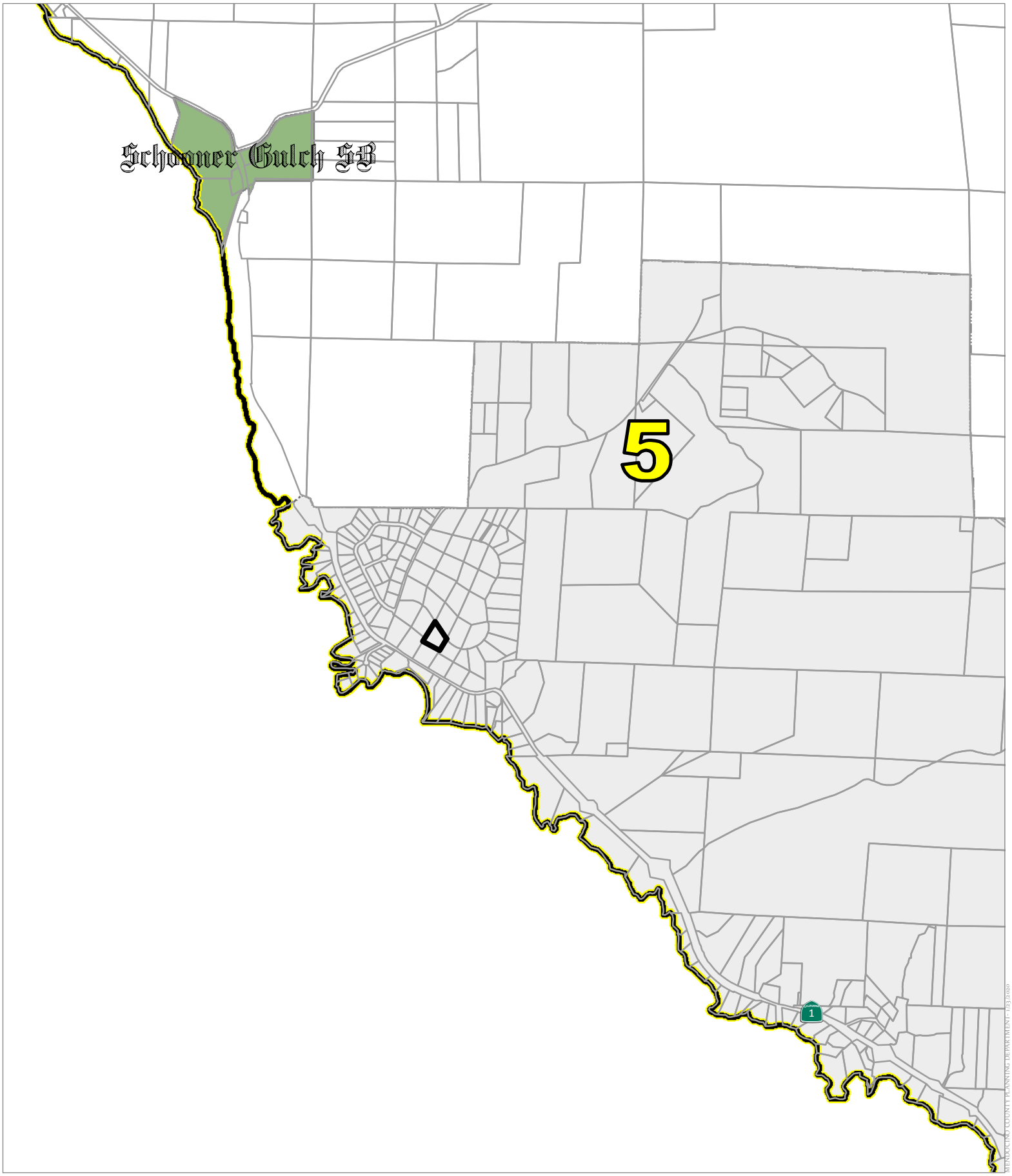


CASE: CDP 2020-0003
OWNER: HOLBERG-OLSEN, Lars
APN: 142-033-17-05
APLCT: Lars Holberg-Olsen
AGENT:
ADDRESS: 46801 Iversen Drive, Gualala

Assessors Parcels

0 250 500 Feet
0 0.0425 0.085 Miles
N W E S
1:6,000

FARMLAND CLASSIFICATIONS



CASE: CDP 2020-0003
OWNER: HOLBERG-OLSEN, Lars
APN: 142-033-17-05
APLCT: Lars Holberg-Olsen
AGENT:
ADDRESS: 46801 Iversen Drive, Gualala

Assessors Parcels
Supervisorial Districts 2010
Gualala MAC
State Parks

0 950 1,900 Feet
0 0.175 0.35 Miles
1:24,000

MISC DISTRICTS